WE CREATE YOUR TOMORROW!

2011
CA-IT-01

# UTENSILI DA TAGLIO

# KORLOY

2011









KORLOY




# Il XXI secolo rappresenta per KORLOY la spinta verso un futuro migliore.

KORLOY Inc. è specializzata nella produzione di inserti non rivestiti, rivestiti (CVD, PVD) e Cermet.
KORLOY Inc. è stata fondata nel 1966.
Oggi è una delle case produttrici leader nel mondo costantemente impegnata a investire e sviluppare il suo centro di Ricerca e Sviluppo in Corea.
Il suo obiettivo è diventare leader indiscusso a livello mondiale, in grado di cogliere sfide e ideare innovazioni.
I prodotti di KORLOY Inc. sono sviluppati dal centro Ricerca e Sviluppo in costante crescita e, grazie all'innovativa tecnologia di produzione, sono venduti ed esportati in oltre
80 paesi, facendo di Korloy la società a maggior sviluppo tecnologico di tutto il mondo.
KORLOY Inc. intende continuare la sua crescita al fine di rappresentare la Corea nel panorama mondiale.
certa dell'interesse che può suscitare.

KORLOY Inc.

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# INFORMAZIONI DI SICUREZZA SUI CARBURI

**KORLOY Inc. è costantemente impegnata nello sviluppo di prodotti sicuri e di qualità.**
**Prima di utilizzare i prodotti KORLOY Inc., si prega di leggere attentamente le informazioni di sicurezza riportate di seguito.**

* Guida generale per l'uso di utensili in carburo sinterizzato.
* Per maggiori informazioni, contattateci.
* KORLOY non si assume alcuna responsabilità per eventuali incidenti provocati da inadeguate modifiche apportate ai prodotti o da uso errato degli utensili.

## 1. RP (Responsabilità di prodotto)

Conformemente alla normativa RP (Responsabilità di prodotto), è stata applicata l'etichetta con la dicitura WARNING (AVVERTENZA) sulle confezioni dei prodotti KORLOY.
Tuttavia non è riportata alcuna avvertenza sulla superficie degli utensili. Leggere queste informazioni di sicurezza prima di utilizzare gli utensili in metallo duro e provvedere all'adeguata formazione dei tecnici addetti al loro utilizzo.

## 2. Principali caratteristiche degli utensili in CARBURO SINTERIZZATO

Gli utensili in carburo sinterizzato sono composti da carburi, nitruri, carbonitruri, ossidi di W, Ti, Al, Si, Ta, B ecc. e componenti metallici quali Co, Ni, Cr, Mo come leganti. Gli utensili in carburo sinterizzato sono caratterizzati da elevata durezza e gravità specifica. Generalmente sono inodori ma, in funzione di uso e trattamento, il loro aspetto e colore può variare.

## 3. Precauzioni per l'uso di utensili in CARBURO SINTERIZZATO

1) I carburi sinterizzati sono estremamente duri ma fragili allo stesso tempo.
   Urti ed eccessivo sforzo nel serraggio possono provocare fratture e la rottura dell'utensile.
2) I carburi sinterizzati hanno un'elevata gravità specifica pertanto richiedono particolare attenzione in quanto materiali pesanti, specialmente quando si maneggiano utensili di grandi dimensioni o in grandi quantità.
3) I carburi sinterizzati hanno diversi coefficienti di dilatazione termica con acciaio e materiali non ferrosi.
   I prodotti che subiscono dilatazioni possono provocare problemi se utilizzati in condizioni inadeguate come, ad esempio, a temperature troppo alte o troppo basse.
4) Numerosi prodotti in carburo sinterizzato hanno taglienti affilati.
   Fare attenzione a non tagliarsi o ferirsi quando si maneggiano gli utensili a mani nude.
   In particolare, prestare attenzione quando si estraggono gli utensili dalle confezioni a non toccare i taglienti e a non farli cadere.
5) Se si conservano gli utensili in metallo duro in condizioni di atmosfera corrosiva, si possono verificare episodi di corrosione che inficia la robustezza dell'utensile.
6) Prima di utilizzare gli utensili, leggere attentamente il catalogo e le informazioni di sicurezza.
7) Non utilizzare gli utensili in modo improprio.

## 4. Precauzioni per la lavorazione (affilatura, saldatura, EDM) degli utensili in CARBURO SINTERIZZATO

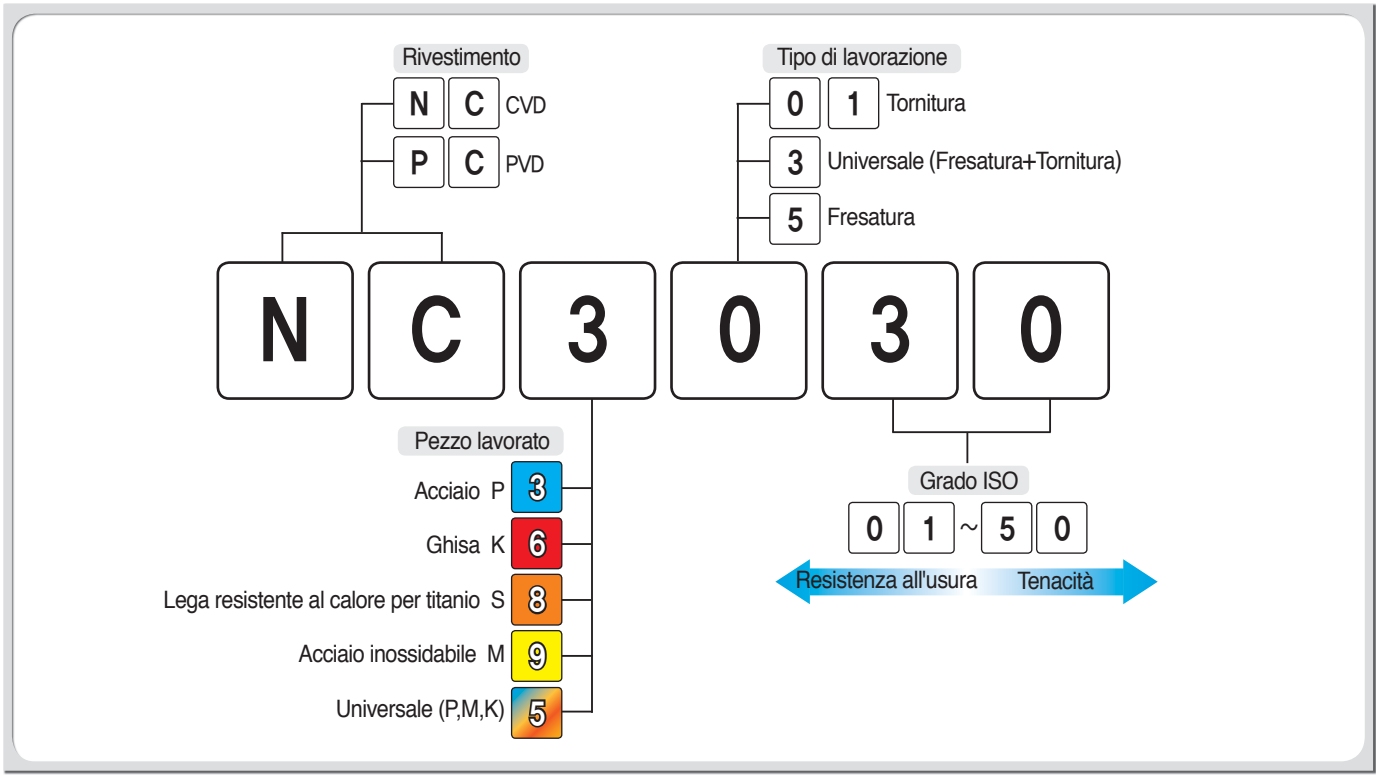
1) Le condizioni della superficie influenzano la robustezza dell'utensile, pertanto si raccomanda l'uso di una mola diamantata.
2) L'affilatura del carburo sinterizzato provoca pulviscolo e polvere. Contiene composti dannosi come il Co, pertanto si raccomanda l'uso di maschere protettive, di raccoglitori di scarti e altri dispositivi di protezione. Se la polvere entra a contatto con la pelle o con gli occhi, lavare immediatamente sotto l'acqua corrente.
3) In caso di affilatura con lubrificante, il lubrificante contiene componenti metallici dannosi per l'ambiente.
   Trattare il lubrificante adeguatamente per evitare l'insorgere di problemi.
4) Dopo aver affilato l'utensile in carburo sinterizzato, controllare la presenza di fratture.
5) La marchiatura laser o elettrica può provocare fratture sull'utensile. Le fratture riducono la durata dell'utensile.
6) L'elettroerosione del carburo può provocare fratture sull'utensile pertanto, se necessario, rimuovere le fratture durante il processo di affilatura.
7) La brasatura degli utensili in metallo duro a temperature troppo alte o troppo basse rispetto al punto di fusione dei materiali brasanti può provocare allentamenti o rotture.
8) L'uso di lubrificante a base d'olio può provocare incendi in caso di surriscaldamento; applicare le adeguate misure preventive.

## 5. SICUREZZA NELLA LAVORAZIONE DEI METALLI

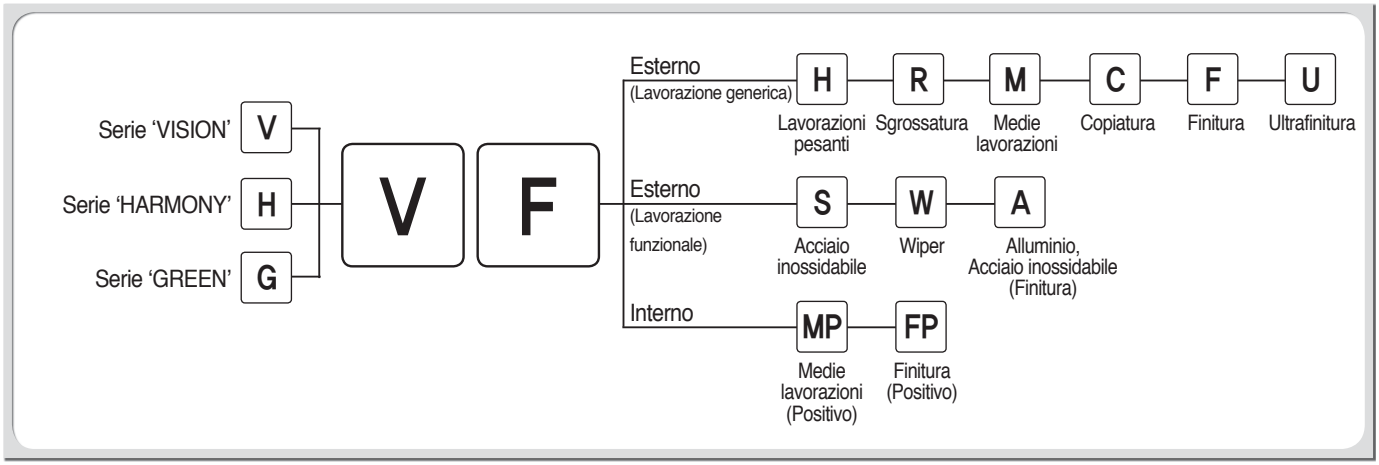
| | FATTORI DI PERICOLO | CONTROMISURA DI SICUREZZA |
|---|---|---|
| Utensili da taglio | · I taglienti affilati degli utensili possono provocare tagli alle mani | · Indossare i guanti quando si estrae l'inserto dalla confezioni o lo si monta sull'utensile |
| | · Condizioni di taglio o uso inappropriati possono indurre la frammentazione e l'espulsione di parte degli utensili e provocare ferite | · Utilizzare occhiali o maschere protettive per la vostra sicurezza<br>· Utilizzare gli utensili in funzione delle condizioni raccomandate<br>· Fare riferimento al catalogo e alle informazioni di sicurezza |
| | · Un carico eccessivo applicato all'utensile e l'usura prematura del tagliente possono generare un eccessivo sforzo di taglio, provocando la rottura dell'utensile e la possibilità di ferirsi | · Utilizzare occhiali o maschere protettive per la vostra sicurezza<br>· Sostituire l'utensile all'occorrenza |
| | · I trucioli evacuati durante la lavorazione sono caldi e taglienti, pertanto possono provocare scottature e tagli | · Utilizzare occhiali o maschere protettive per la vostra sicurezza<br>· Arrestare la macchina, indossare i guanti protettivi e utilizzare un gancio per rimuovere i trucioli |
| | · Non toccare la superficie del pezzo lavorato al termine della lavorazione, ci si può scottare | · Utilizzare guanti o protezioni per la vostra sicurezza |
| | · I trucioli e le scintille incandescenti generati durante la lavorazione possono provocare incendi | · Non utilizzare in presenza di materiale esplosivo<br>· Predisporre gli estintori |
| | · In caso di lavorazioni ad elevate velocità (RPM), si possono verificare delle vibrazioni a causa dei problemi di bilanciamento della macchina | · Utilizzare occhiali o maschere protettive per la vostra sicurezza<br>· Verificare la presenza di vibrazioni o rumori anomali prima di iniziare la lavorazione |
| | · Se si tocca a mani nude la bava residua sul pezzo lavorato è possibile tagliarsi | · Non toccare la bava a mani nude<br>· Utilizzare guanti o protezioni per la vostra sicurezza |
| | · Un serraggio troppo lento del pezzo lavorato può provocare la frattura dell'utensile e ferite al corpo | · Serrare adeguatamente il pezzo lavorato |
| | · Di norma gli utensili vengono manovrati verso destra. Se manovrati verso sinistra possono provocare la rottura dell'utensile e ferite al corpo | · Non manovrare verso sinistra senza preavviso<br>· Controllare l'imballo del prodotto per verificare la possibilità di manovrare verso sinistra |
| Utensili a inserti | · Un serraggio troppo lento degli inserti e delle parti di ricambio può provocarne la fuoriuscita dall'utensile durante la lavorazione; ci si può ferire | · Verificare il serraggio di inserti e parti di ricambio prima di iniziare la lavorazione, si raccomanda l'uso esclusivo di parti originali |
| | · Un eccessivo serraggio degli inserti mediante chiavi prolungate (es. un tubo) può provocare la pericolosa fuoriuscita di parti e inserti per rottura | · Non utilizzare chiavi prolungate in modo improprio |
| | · In caso di lavorazioni ad elevate velocità, le parti e gli inserti possono essere espulsi dalla forza centrifuga | · Attenersi alle condizioni di taglio raccomandate<br>· Utilizzare occhiali o maschere protettive per la vostra sicurezza |
| Utensili rotanti | · Non toccare i taglienti affilati delle frese, possono provocare tagli alle mani | · Utilizzare guanti o protezioni per la vostra sicurezza |
| | · È pericoloso indossare i guanti con macchinari in movimento<br>· È altrettanto pericoloso il contatto del corpo o di indumenti con le parti rotanti | · Non indossare guanti quando si lavora con macchinari rotanti<br>· Tenere corpo e indumenti lontani dai macchinari rotanti |
| | · Le vibrazioni generate da problemi di bilanciatura possono provocare rotture e perdita dell'utensile; ci si può ferire | · Impostare i giri al minuto conformemente alle condizioni raccomandate<br>· Controllare periodicamente la bilanciatura delle parti rotanti |
| | · Durante la foratura, i trucioli generati nell'area di foratura possono fuoriuscire in caso di elevate velocità | · Utilizzare guanti o protezioni per la vostra sicurezza |
| | · I taglienti delle punte di piccolo diametro sono affilati e si rompono facilmente | · Utilizzare guanti o protezioni per la vostra sicurezza |
| Utensili brasati | · La frammentazione e il distacco della punta in metallo duro brasato possono provocare ferite | · Controllare la punta brasata prima dell'uso.<br>· Non applicare condizioni di taglio ad alte temperature |
| ECC | · È possibile che dopo varie brasature la punta in metallo duro si rompa | · Non utilizzare punte in metallo duro brasate più volte |
| | · L'uso improprio di macchinari e utensili può provocarne la pericolosa rottura | · Attenersi alla normativa di sicurezza |

# Sistema di codifica KORLOY Inc.

## Qualità per metallo duro rivestito




## Rompitruciolo




## Terminologia degli utensili

| TERMINE | CODICE | UNITÀ |
|---|---|---|
| Diametro utensile | D | mm |
| Velocità di taglio | vc | m/min |
| Giri al minuto | n | $min^{-1}$ |
| Avanzamento al minuto | vf | mm/min |
| Avanzamento a giro | fn | mm/giro |
| Avanzamento per tagliente | fz | mm/t |
| Tagliente | z | |
| Profondità assiale di passata | ap | mm |
| Profondità radiale di passata | ae | mm |
| Avanzamento picco | pf | mm |

| TERMINE | CODICE | UNITÀ |
|---|---|---|
| Potenza | Pc | kW |
| Resistenza al taglio | kc | MPa |
| Coppia | Mc | N.m |
| Spinta | Tc | N |
| Durata ciclo | tc | min |
| Durata utensile | T | min |
| Usura del fianco | $V_B$ | mm |
| Usura per craterizzazione | Kt | mm |
| Raggio R | r | mm |
| | | |

# Come utilizzare E-catalogue

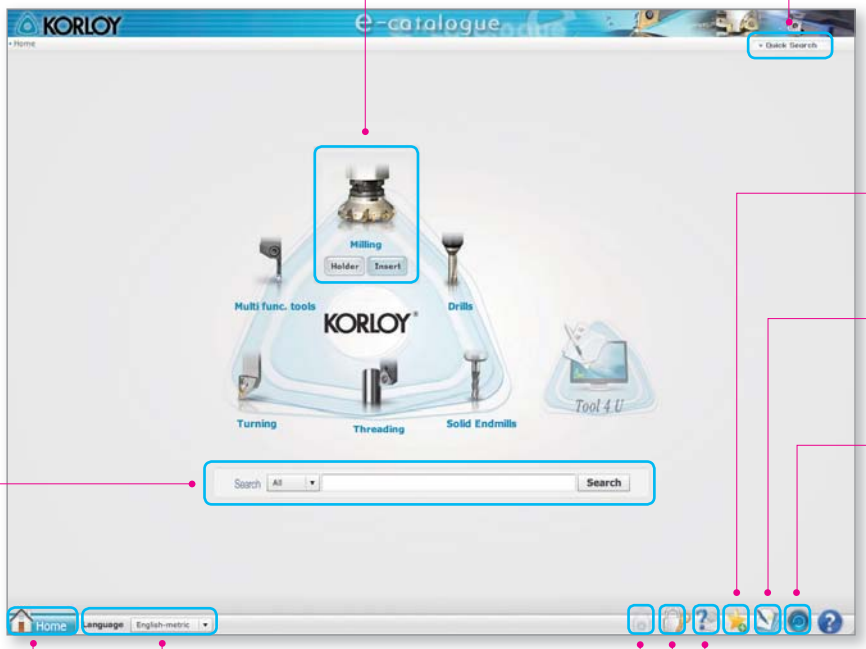
## 1 Accedere alla homepage di Korloy

**http://www.korloy.com** (homepage Korloy)
**http://ecatalogue.korloy.com** (E-catalogue)

## 2 Fare clic sull'icona banner sulla homepage




## 3 Finestra principale




**2 Selezionare la categoria desiderata**
Fare clic sull'immagine e cercare le voci desiderate

**1 Ricerca rapida**
Eseguire la ricerca senza immagini

**9 Preferiti**
Consente di organizzare i collegamenti alle voci preferite (solo per utenti registrati)

**10 Memo**
Consente di salvare brevi appunti

**11 Cronologia**
Consente di controllare la cronologia

**3 Cerca per tipologia**
Scegliere tra Frese, Inserti, Parti di ricambio, Qualità

**4 Home**
Consente di tornare alla pagina iniziale

**5 Seleziona lingua**
Coreano-Metrico, Inglese-Metrico, Inglese-pollici

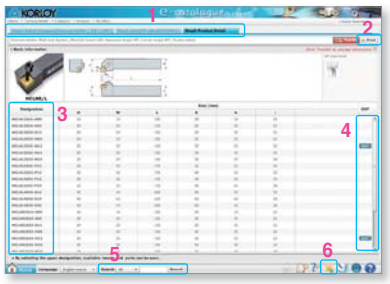
**6 Amministratore**
Menu accessibile solo agli amministratori

**7 Login/Logout**
Consente di eseguire il login, il logout e di registrarsi come utente

**8 Richiesta e-mail**
Consente di contattare un addetto Korloy per ottenere maggiori informazioni via e-mail

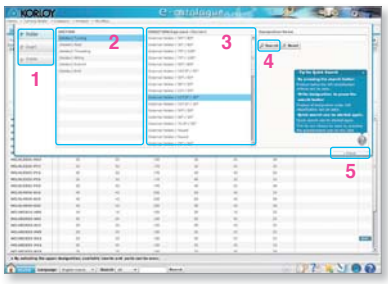
## 4 Schermate

### ● Schermata 1




1. Selezionare la categoria del prodotto e verificare i dettagli
2. **Stampa** : Stampare i dettagli
3. **Tipologia** : Selezionare la tipologia per verificare l'inserto disponibile
4. **DXF** : Aprire o salvare il file DXF
5. **Cerca** : Cercare il prodotto per tipologia
6. **Preferiti** : Selezionare il prodotto e fare clic su questa icona per aggiungerlo ai preferiti

### ● Schermata 2




1. **Categoria** : Selezionare frese, inserti o qualità
2. **Sezione** : Selezione una voce dall'elenco
3. **Condizione** : Selezione una voce dall'elenco
4. **Cerca** : Cercare all'interno della categoria selezionata
5. **Chiudi** : Chiudere il menu di ricerca rapida

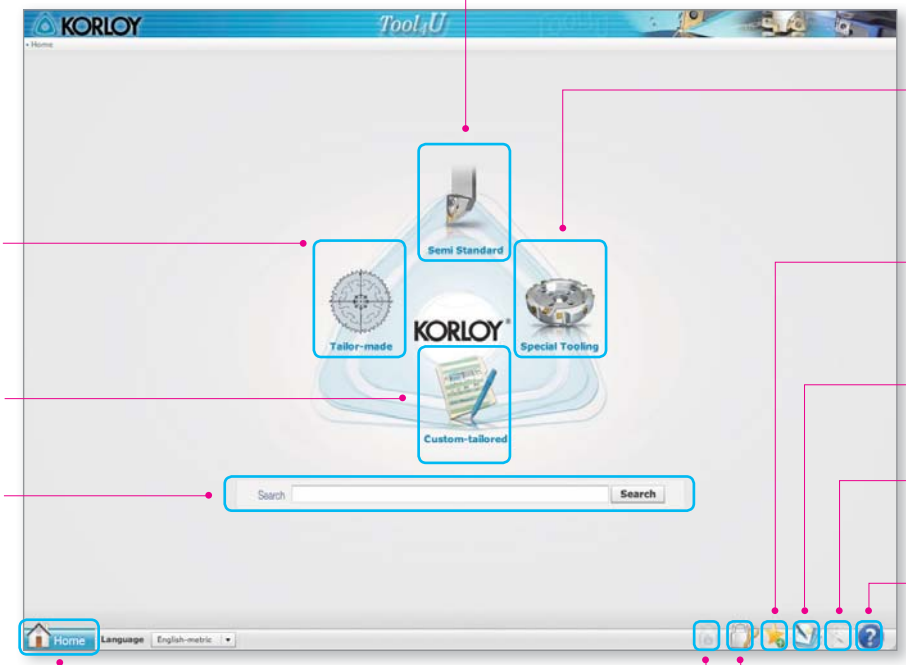
# Come utilizzare Tool4U (richiesta preventivo da Web)

## 1 Accedere alla homepage di Korloy

**http://www.korloy.com** (homepage Korloy)
**http://tool4u.korloy.com** (sito Web Tool4U)

## 2 Fare clic sull'icona banner Tool4U del sito Web

## 3 Pagina principale




**1 Semi standard**
Standard ma con dimensioni diverse

**2 Su misura**
Articoli standard non Korloy

**3 Utensili speciali**
Per lavorazioni speciali come ingranaggi, frese smussatrici, binari, frese a inserti e per spianare, non standard

**4 Personalizzati**
Articoli personalizzati su richiesta

**5 Cerca**
Consente di eseguire la ricerca per tipologia

**6 Home**
Consente di tornare alla pagina principale

**7 Amministratore**
Menu accessibile solo agli amministratori

**8 Login/Logout**
Consente di eseguire il login, il logout e di registrarsi come utente

**9 Preferiti**
Consente di organizzare i collegamenti alle voci preferite (solo per utenti registrati)

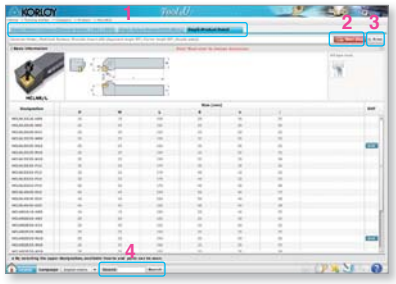
**10 Memo**
Consente di salvare brevi appunti

**11 Preventivo**
Consente di controllare l'elenco dei preventivi

**12 Guida**
Offre una descrizione funzionale di ogni menu

## 4 Schermate

### ● Schermata 1 : passo 3. Dettagli prodotto




1. Per selezionare la categoria del prodotto e verificare i dettagli
2. Per aprire una nuova finestra per l'inserimento delle misure
3. **Stampa** : Per stampare la pagina corrente
4. **Cerca**: Per cercare il prodotto per tipologia

### ● Schermata 2 : Pagina per l'inserimento delle misure




Inserire le informazioni essenziali per ottenere il preventivo e fare clic sul pulsante "Preventivo" per inviare un'e-mail

# INDICE

## Qualità/Rompitrucioli

A




### Qualità

Qualità Korloy A02

**Tornitura**

Gradi di tornitura A03
Gradi rivestiti CVD A04
Gradi rivestiti PVD A06
Gradi non rivestiti A08
Gradi cermet A09

**Fresatura**

Gradi di fresatura A11
Gradi rivestiti CVD A12
Gradi rivestiti PVD A14
Gradi non rivestiti/Gradi cermet A18

**Gradi per frese integrali in metallo duro**

Gradi per frese integrali in metallo duro A17
Metallo duro ultra fine A18

**Gradi per punte in metallo duro**

Gradi per punte in metallo duro A19

**Altro (tornitura/fresatura/frese integrali in metallo duro)**

Gradi rivestiti diamante/DLC A20
Gradi CBN A21
Gradi PCD A23

### Rompitrucioli

Rompitrucioli KORLOY per tornitura A24
Rompitrucioli KORLOY per fresatura A26
Rompitrucioli KORLOY per foratura A27

## Qualità Korloy

### Utensili da taglio

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Metallo duro non rivestito | P | Acciaio | ST10 | ST15 | ST20 | ST30A | ST30N | ST30 | ST40 | ST45 | ST46 |
| | M | Acciaio inossidabile | U10 | U20 | ST30A | U40 | | | | | |
| | K | Ghisa | H02 | H01 | H05 | H10 | G10 | | | | |
| | N | Materiali non ferrosi | H01 | | | | | | | | |
| Metallo duro rivestito per tornitura | P | Acciaio | NC3010 | NC3020 | NC3120 | NC3030 | NC5330 | NC500H | | | |
| | M | Acciaio inossidabile | PC8110 | NC9025 | PC5300 | PC9030 | | | | | |
| | K | Ghisa | NC6105 | NC6110 | NC315K | NC5330 | PC5300 | | | | |
| | S | HRSA | PC8110 | NC5330 | PC5300 | | | | | | |
| Metallo duro rivestito per tornitura | P | Per acciaio | NC5330 | NCM325 | PC3500 | PC5300 | NCM335 | PC3545 | | | |
| | M | Acciaio inossidabile | NC5330 | PC5300 | PC9530 | PC3545 | | | | | |
| | K | Ghisa | PC8110 | PC6510 | PC5300 | NC5330 | | | | | |
| | S | HRSA | PC5300 | PC3545 | | | | | | | |
| Metallo duro rivestito per punte, frese integrali in metallo duro | Rivestito | Generale | PC203F | PC205F | PC210F | PC215F | PC220F | PC220 | PC225F | | |
| | Non rivestito | Generale | H01 | FS1 | FA1 | FA2 | FG2 | FCC | | | |
| Cermet | P | Acciaio | CN1000 | CN2000 | CN20 | CN30 | | | | | |
| | K | Ghisa | CN1000 | | | | | | | | |
| Cermet rivestito | P | Acciaio | CC105 | CC115 | CC125 | | | | | | |
| cBN | P | Acciaio | KB320 | KB330 | KB350 | KB360 | | | | | |
| | K | Ghisa | KB410 | KB350 | KB370 | | | | | | |
| | S | HRSA | KB370 | | | | | | | | |
| | H | Materiali temprati | KB410 | KB420 | KB425 | DNC300 | DNC200 | KB320 | KB330 | KB370 | |
| PCD | N | Materiali non ferrosi | DP90 | DP150 | DP200 | | | | | | |
| Rivestimento diamante | N | Tornitura | ND1000 | | | | | | | | |
| | | Fresatura | ND2000 | | | | | | | | |
| | | Frese integrali in metallo duro | ND3000 | | | | | | | | |
| Rivestimento DLC | N | Tornitura | PD1000 | | | | | | | | |
| | | Fresatura | PD2000 | | | | | | | | |
| | | Frese integrali in metallo duro | PD3000 | | | | | | | | |

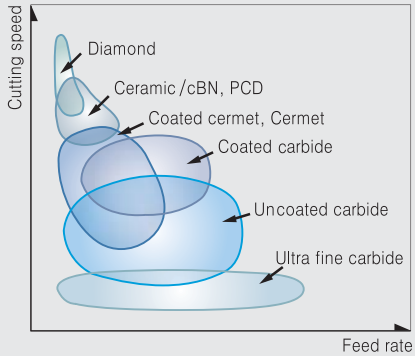
### Utensili resistenti all'usura

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Metallo duro sinterizzato a grana ultrafine | z | Metallo duro sinterizzato a grana ultrafine | FS1 | FA1 | FCC | | | |
| Metallo duro non rivestito | V | Parti usurate | D1 | D2 | D3 | G5 | G6 | K20G |
| | I | Resistenza alla corrosione | IN10 | IN20 | IN40 | | | |

### Utensili per miniere

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Metallo duro non rivestito | E | Generale | GR10 | GR20 | GR30 | GR35 | GR40 | GR50 |

### Applicazione

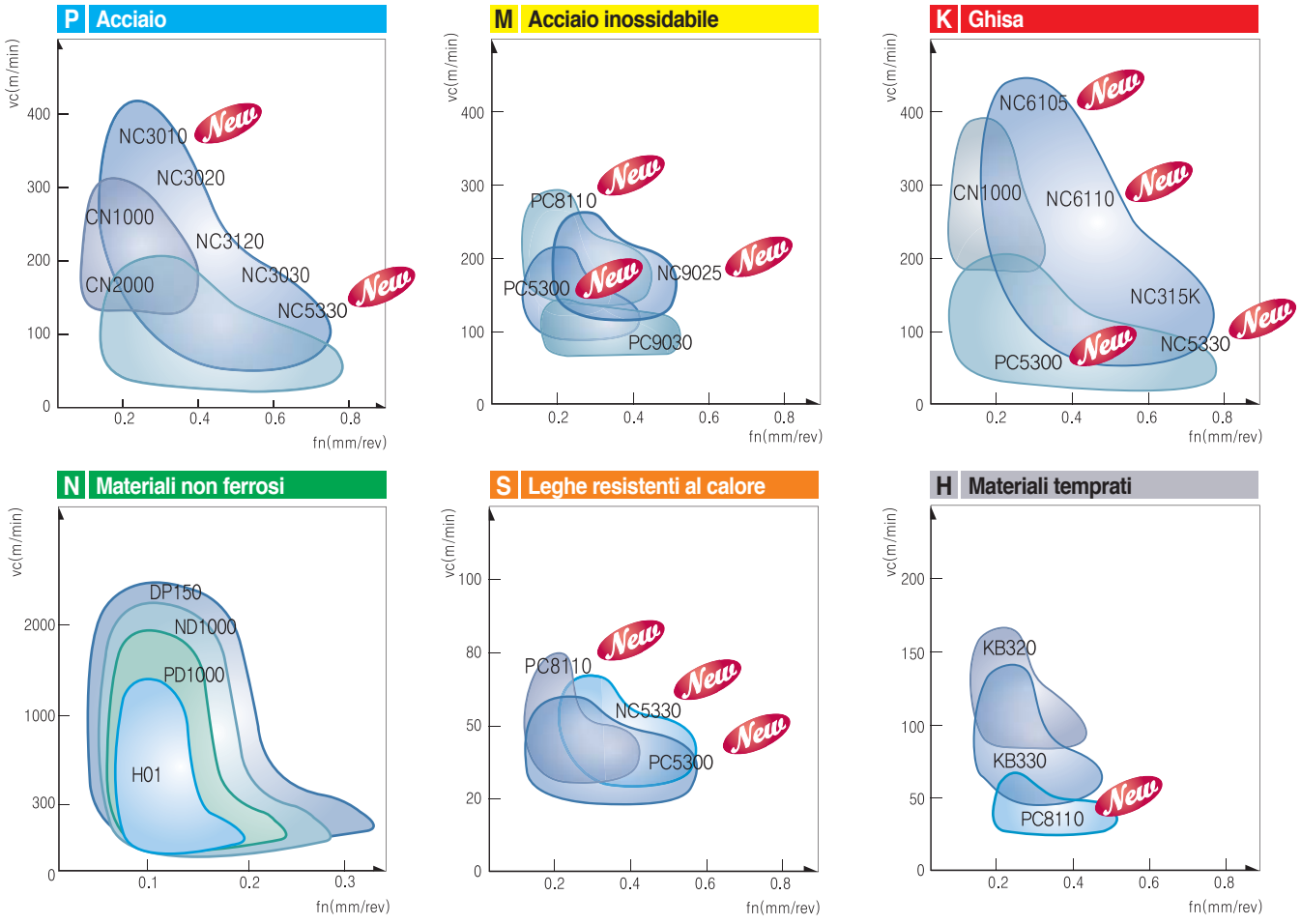


# Il metodo migliore per scegliere gli inserti di tornitura KORLOY

## Tabella qualità

| Pezzo lavorato | P Acciaio | | | | | | M Acciaio inossidabile | | | | K Ghisa | | | | N Materiali non ferrosi | | | S HRSA | | | | H Temprato | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ISO | P01 | P10 | P20 | P30 | P40 | P50 | M10 | M20 | M30 | M40 | K01 | K10 | K20 | K30 | N10 | N20 | N30 | S01 | S10 | S20 | S30 | H01 | H10 | H20 |
| Metallo duro rivestito | NC3010 New | NC3020 | NC3120 | NC3030 | NC5330 New | NC500H | PC8110 New | NC9025 New | PC5300 New | PC9030 | NC6105 New | NC6110 New | NC315K | NC5330 New | ND1000 | PD1000 | | PC8110 New | NC5330 New | PC5300 New | | PC8110 New | | |
| Cermet | CN1000 New | CN2000 New | CN20 | | | | | | | | CN1000 New | | | | | | | | | | | | | |
| cBN / PCD | | | | | | | | | | | KB350 | KB360 | | | DP150 | | | | | | | KB320 | KB330 | |
| Metallo duro non rivestito | ST05 | ST10 | ST15 | ST20 | ST30N | ST40 | U10 | U20 | U40 | | H02 | H01 | H05 | H10 | G10 | | H01 | | | | | H01 | | |
| | | | | | ST30 | ST46 | | | | | | | | | | | | | | | | | | |
| | | | | | | ST45 | | | | | | | | | | | | | | | | | | |

## Applicazioni dei gradi di tornitura



# A Gradi di tornitura

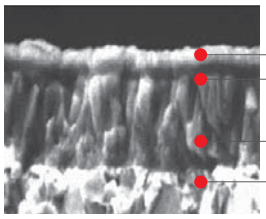
## Grado rivestito CVD

Grado rivestito CVD per acciaio inossidabile e acciaio morbido

# NC9025, NC5330

- Rivestimento liscio in metallo duro tenace
- Evita la formazione di riporto sul tagliente e l'usura per scheggiatura; migliore tenacità
- Prestazioni eccezionali nella lavorazione dell'acciaio inossidabile
- Eccellente per la lavorazione di acciai pastosi, morbidi e forgiati
- Maggiore durata dell'utensile nella lavorazione di materiali duri come inconel e stellite

## Struttura del rivestimento



- Rivestimento TiN: Superficie di sgrossatura regolare e minore formazione di riporto sul tagliente
- Rivestimento multistrato TiCN: Ottima tenacità e durezza
- Speciale substrato di carburo particolarmente tenace
- Rivestimento $Al_2O_3$: Eccellente resistenza all'ossidazione

## Tabella qualità

| Pezzo lavorato | | Lavorazione | Grado raccomandato | Velocità di taglio raccomandata (m/min) | ISO | Applicazione |
|---|---|---|---|---|---|---|
| P | Acciaio | Taglio continuo | NC3010 | 300 (200~400) | P01 | NC3010 |
| | | | | | P10 | |
| | | | | | P15 | NC3020 |
| | | | NC3020 | 270 (170~370) | P20 | |
| | | Taglio interrotto | NC3120 | 250 (150~350) | | NC3120 |
| | | | NC3030 | 200 (150~250) | P30 | NC3030 |
| | | | NC5330 | 190 (100~230) | P35 | NC5330 |
| | | | NC500H | 100 (50~150) | P40 | NC500H |
| M | Acciaio inossidabile | Taglio continuo | NC9025 | 140 (80~220) | M30 | NC9025 |
| | | Taglio interrotto | | | M40 | |
| K | Ghisa | Taglio continuo | NC6105 | 270 (150~300) | K05 | NC6105 |
| | | | NC6110 | 350 (250~450) | K10 | NC6110 |
| | | Taglio interrotto | NC315K | 200 (150~250) | K20 | NC315K |
| | | | NC5330 | 180 (130~230) | K30 | NC5330 |
| S | HRSA | Taglio continuo | NC5330 | 40 (20~60) | S20 | NC5330 |
| | | Taglio continuo | | | S30 | |

## Caratteristiche dei gradi di tornitura CVD

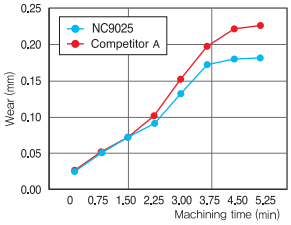
| Gradi rivestiti CVD | ISO | Caratteristiche |
|---|---|---|
| NC3010 | P05 ~ P15 | • Per lavorazione di acciai ad alte velocità<br>• Combinazione di un substrato di elavata durezza con un rivestimento $Al_2O_3$ di ultima generazione con resistenza all'usura, alla scheggiatura e al calore • MT-TiCN + $Al_2O_3$ + TiN |
| NC3020 | P15 ~ P25 | • Per lavorazione di acciai ad alte velocità<br>• Combinazione di un substrato di elavata durezza con un rivestimento $Al_2O_3$ di ultima generazione con resistenza all'usura, alla scheggiatura e al calore • MT-TiCN + $Al_2O_3$ + TiN |
| NC3120 | P15 ~ P30 | • Per medie lavorazioni e sgrossature di acciai<br>• Combinazione di un substrato di elavata durezza con un rivestimento $Al_2O_3$ di ultima generazione con resistenza alla rottura, alla scheggiatura e al calore • MT-TiCN + TiC + $Al_2O_3$ |
| NC3030 | P25 ~ P35 | • Per lavorazioni generiche, sgrossatura e taglio interrotto di acciai e acciai inossidabili<br>• Combinazione di un substrato di elavata durezza con un rivestimento $Al_2O_3$ di ultima generazione con resistenza alla rottura, alla scheggiatura e al calore in un'ampia varietà di condizioni di taglio<br>• MT-TiCN + TiC + $Al_2O_3$ + TiN |
| NC5330 | P30~P40<br>M25~M35<br>K15~K25<br>S15~S25 | • Per acciaio inossidabile/Uso generico con leghe leggere e acciai forgiati<br>• MT-TiCN + $Al_2O_3$ + TiN |
| NC9025 | M25~M35 | • Per uso generico con acciai inossidabili<br>• MT-TiCN + $Al_2O_3$ + TiN |
| NC500H | P25 ~ P35 | • Per lavorazioni pesanti a taglio interrotto di acciai<br>• Combinazione di un substrato di elavata durezza con un rivestimento $Al_2O_3$ di ultima generazione con resistenza alla deformazione, alla rottura, alla scheggiatura e al calore in un'ampia varietà di condizioni di taglio<br>• MT-TiCN + TiC + $Al_2O_3$ + TiN |
| NC6105 | K01 ~ K10 | • Per lavorazione di ghisa ad alte velocità<br>• MT-TiCN + $Al_2O_3$ |
| NC6110 | K05 ~ K15 | • Per uso generico con ghisa grigia e ghisa duttile<br>• Substrato di elevata durezza con migliore aderenza del rivestimento $Al_2O_3$ per una migliore resistenza all'usura<br>• MT-TiCN + $Al_2O_3$ |
| NC315K | K10 ~ K20 | • Per lavorazioni ad alto rendimento e taglio interrotto di ghisa<br>• Substrato di elevata durezza con migliore aderenza del rivestimento $Al_2O_3$ per una migliore resistenza all'usura<br>• MT-TiCN + $Al_2O_3$ + TiN |

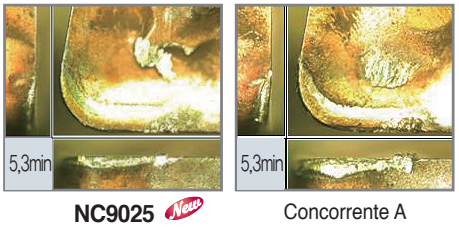
## Prestazioni di taglio (NC9025 / NC5330)

### M Acciaio inossidabile (STS316)

- Condizioni di taglio : vc(m/min)=200
  fn(mm/giro)=0,25
  ap(mm)=1,5
  con refrigerante
  Test di resistenza all'usura
- Descrizione : **INSERTO** CNMG120408-HS
  **UTENSILE** PCLNR2525-M12

■ Risultato test



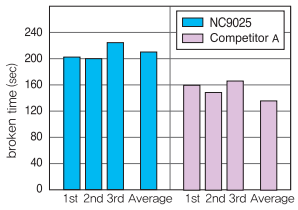



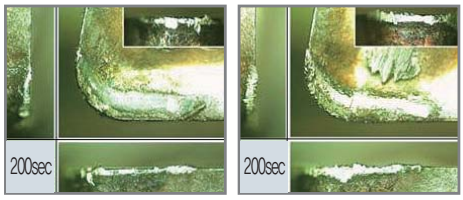

NC9025 New　　Concorrente A

### M Acciaio inossidabile (STS316 con 2 fori)

- Condizioni di taglio : vc(m/min)=200
  fn(mm/giro)=0,25
  ap(mm)=1,5
  con refrigerante
  Test di tenacità
- Descrizione : **INSERTO** CNMG120408-HS
  **UTENSILE** PCLNR2525-M12

■ Risultato test



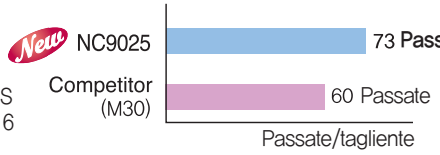



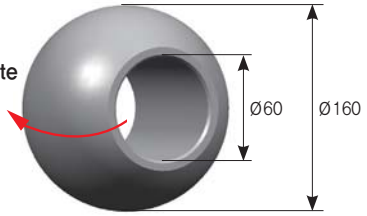

NC9025 New　　Concorrente A

### M Acciaio inossidabile (STS304)

- Condizioni di taglio : vc(m/min)=197
  fn(mm/giro)=0.30
  ap(mm)=0,5
  a secco
- Descrizione : **INSERTO** TNMG160408-HS
  **UTENSILE** PTGNR2525-M16

■ Risultato test

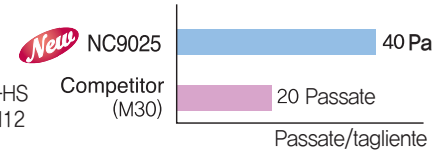


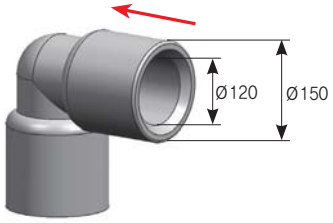




### M Acciaio inossidabile (STS304)

- Condizioni di taglio : vc(m/min)=115
  fn(mm/giro)=0,20
  ap(mm)=2,0
  con refrigerante
- Descrizione : **INSERTO** CNMG120408-HS
  **UTENSILE** DCLNR2525-M12

■ Risultato test

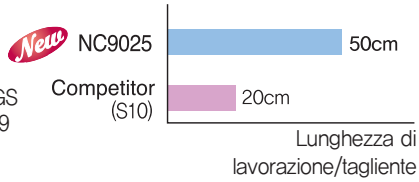


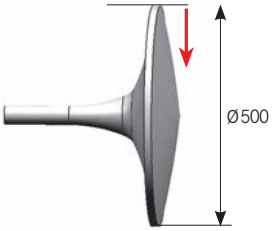




### M Acciaio inossidabile (STS304)

- Condizioni di taglio : vc(m/min)=32
  fn(mm/giro)=0,14
  ap(mm)=5,0
  con refrigerante
- Descrizione : **INSERTO** CNMG190612-GS
  **UTENSILE** PCLNR4040-P19

■ Risultato test

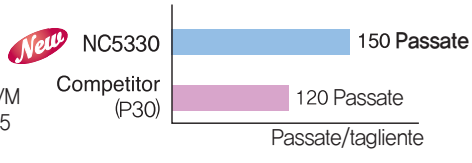


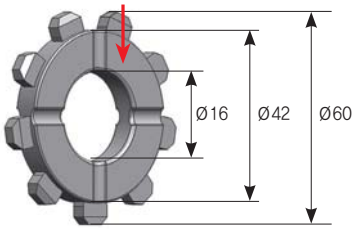




### P Acciaio forgiato (SCM420HV)

- Condizioni di taglio : vc(m/min)=286
  fn(mm/giro)=0,15
  ap(mm)=2,0
  con refrigerante
- Descrizione : **INSERTO** DNMG150608-VM
  **UTENSILE** PDJNR2525-M15

■ Risultato test



# A Gradi di tornitura

## Gradi rivestiti PVD

### Gradi rivestiti PVD per acciaio inossidabile e HRSA.

# PC8110 Neu

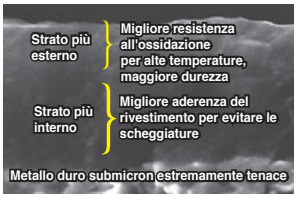
- Il carburo in micro grana consente di ridurre al minimo il rischio di scheggiature del tagliente conferendogli una maggiore robustezza
- Ultima tecnologia del rivestimento PVD dotato di maggiore durezza e resistenza all'ossidazione per alte temperature
- PC8110 offre ottime prestazioni nella lavorazione di materiale HRSA a elevate velocità e ad alto avanzamento

### Gradi di tornitura PVD per acciaio inossidabile e HRSA.

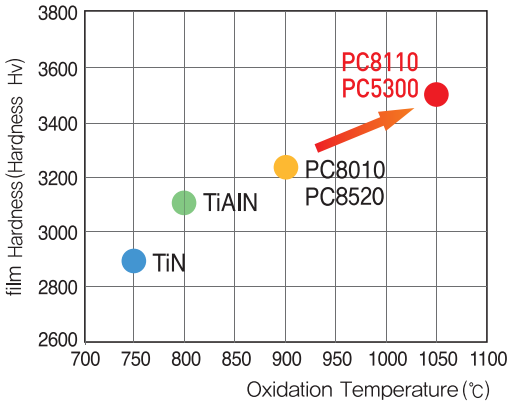
# PC5300 Neu

- Elevata efficienza nella lavorazione di acciaio in lega di carbonio / ghisa / acciaio inossidabile / HRSA
- Lavorazione stabile grazie allo speciale substrato di metallo duro caratterizzato da elevate tenacità e durezza che limitano il rischio di scheggiature
- Eccellente resistenza all'usura grazie allo speciale rivestimento PVD resistente all'ossidazione, termicamente stabile e dalla superficie liscia

### Struttura del rivestimento




Ultima tecnologia di rivestimento sviluppata da KORLOY
Nuova tecnologia di rivestimento resistente all'ossidazione per alte temperature e dotato di maggiore durezza




## Tabella qualità

| Pezzo lavorato | | Lavorazione | Grado raccomandato | Velocità di taglio raccomandata (m/min) | ISO | Applicazione |
|---|---|---|---|---|---|---|
| P | Acciaio | Taglio continuo | PC5300 Neu | 120~220(150) | P30 | PC5300 Neu |
| | | Taglio interrotto | | | P40 | |
| M | Acciaio inossidabile | Taglio continuo | PC8110 Neu | 150~250(200) | M10 | PC8110 Neu |
| | | | PC5300 Neu | 120~220(170) | M20 | PC5300 Neu |
| | | Taglio interrotto | | | M30 | PC9030 |
| | | | PC9030 | 50~180(120) | M40 | |
| S | HRSA | Taglio continuo | PC8110 Neu | 40~90(60) | S10 | PC8110 Neu |
| | | Taglio interrotto | PC5300 Neu | 30~70(50) | S20 | PC5300 Neu |
| | | | | | S30 | |

## Caratteristiche dei gradi rivestiti PVD

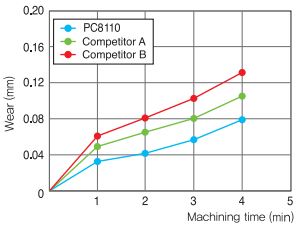
| Gradi rivestiti PVD | ISO | Caratteristiche |
|---|---|---|
| PC9030 | M30~M40 | • Per medie lavorazioni, sgrossatura e lavorazioni pesanti a taglio interrotto di acciai inossidabili<br>• Rivestimento TiAlN e substrato in grana ultrafine<br>• Ottima resistenza ai tagli interrotti |
| PC8110 Neu | M10~M20<br>S10~S20 | • Lavorazioni ad alte velocità e taglio continuo di acciai inossidabili e HRSA<br>• Buona resistenza agli urti, maggiore durata dell'utensile<br>• Nuovo rivestimento TiAlN e substrato in grana ultrafine |
| PC5300 Neu | P30~P40<br>M20~M30<br>K20~K25<br>S20~S30 | • Grado universale per acciaio inossidabile, HRSA, acciaio e lavorazioni a tagli interrotto della ghisa<br>• Buona resistenza agli urti, maggiore durata dell'utensile<br>• Nuovo rivestimento TiAlN e substrato in grana ultrafine |

## Prestazioni di taglio (PC8110 / PC5300)

### S Inconel 718

- Condizioni di taglio : vc(m/min)=60, fn(mm/giro)=0,2, ap(mm)=2, con refrigerante (lavorazione 4min)
- Descrizione : **INSERTO** CNMG120408-HS **UTENSILE** DCLNL2525-M12

■ Risultato test



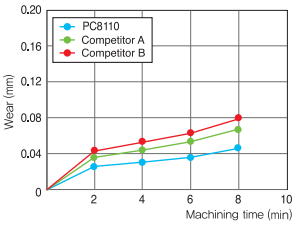



PC8110 New　Concorrente A　Concorrente B

### S Titanio

- Condizioni di taglio : vc(m/min)=70, fn(mm/giro)=0,2, ap(mm)=1, con refrigerante (lavorazione 8min)
- Descrizione : **INSERTO** CNMG120408-HA **UTENSILE** PCLNR2525-M12

■ Risultato test



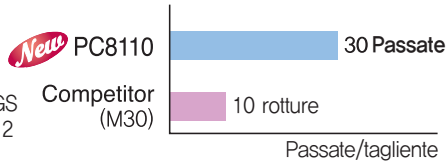


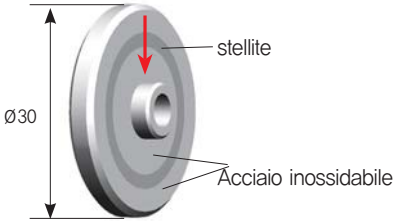

PC8110 New　Concorrente A　Concorrente B

### M S Acciaio inossidabile (stellite saldato)

- Condizioni di taglio : vc(m/min)=60, fn(mm/giro)=0,2, ap(mm)=2, con refrigerante
- Descrizione : **INSERTO** CNMG120408-GS **UTENSILE** DCLNL2525-M12

■ Risultato test

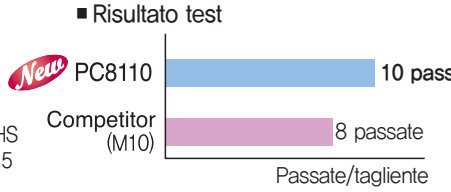


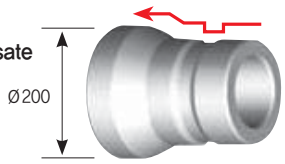




### M Inconel 625

- Condizioni di taglio : vc(m/min)=60, fn(mm/giro)=0,2, ap(mm)=2, con refrigerante
- Descrizione : **INSERTO** DNMG150608-HS **UTENSILE** DDLNL2525-M15

■ Risultato test

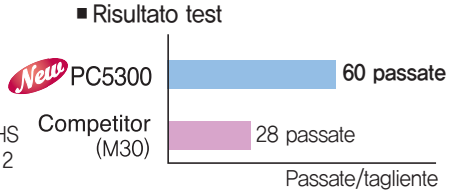


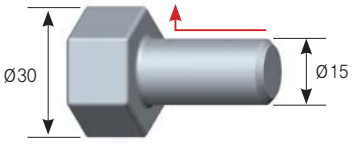




### M Acciaio inossidabile (STS304)

- Condizioni di taglio : vc(m/min)=282, fn(mm/giro)=0,2, ap(mm)=3, con refrigerante
- Descrizione : **INSERTO** CNMG120408-HS **UTENSILE** DCLNL2525-M12

■ Risultato test

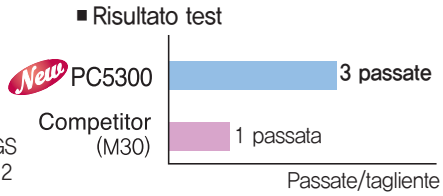


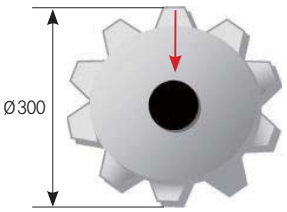




### M Acciaio inossidabile (STS316)

- Condizioni di taglio : vc(m/min)=120, fn(mm/giro)=0,2, ap(mm)=0,5~1,5, con refrigerante
- Descrizione : **INSERTO** SNMG120408-GS **UTENSILE** DSBNL2525-M12

■ Risultato test



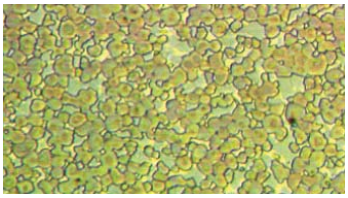
# A Gradi di tornitura

## Gradi KORLOY in metallo duro non rivestito

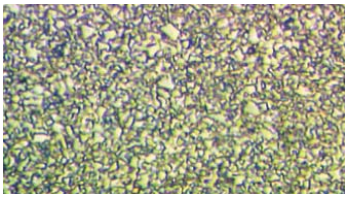
### Caratteristiche

- I metalli duri sinterizzati di Korloy sono studiati per ottimizzare la lavorazione offrendo risultati dalla qualità uniforme. Inoltre, il metallo duro sinterizzato Korloy viene prodotto utilizzando materiali di eccellente qualità: carburo di tungsteno, cobalto e carburi refrattari (TiC,TaC) che offrono ottime tenacità e resistenza all'usura.

[Microstruttura]



P



K

### Vantaggi

- Il metallo duro sinterizzato P.M.K può essere usato per lavorare vari materiali.
- L'eccellente resistenza alla rottura termica consente condizioni di taglio con refrigerante.
- Grana ultrafine che garantisce una buona superficie di contatto con il pezzo lavorato.
- Elevata tenacità e ridotto sforzo di taglio.

### Tabella qualità

| Pezzo lavorato | | Grado raccomandato | Velocità di taglio raccomandata (m/min) | ISO | Applicazione |
|---|---|---|---|---|---|
| P | Acciaio | ST10 | 150 (100 ~ 200) | P10 | ST10 |
| | | ST15 | 140 (90 ~ 190) | P20 | ST15 |
| | | ST20 | 130 (70 ~ 180) | P30 | ST20 |
| | | ST30A | 130 (70 ~ 180) | | ST30A |
| K | Ghisa | H02 | 150 (100 ~ 200) | K01 | H02 |
| | | H01, H05 | 140 (100 ~ 200) | K10 | H01 |
| | | H10, G10 | 130 (90 ~ 190) | K20 | H05 |
| | Lega di alluminio | H01 | 500 (300 ~ 800) | | H10 |
| | Lega di rame | H01 | 200 (150 ~ 300) | K30 | G10 |

### Applicazione principale

| ISO | Composizione | Caratteristiche | Pezzo lavorato |
|---|---|---|---|
| P | WC–TiC–TaC–Co | Resistenza al calore, eccellente resistenza alla deformazione plastica | Acciaio al carbonio, acciaio legato, acciaio inossidabile |
| M | WC–TiC–TaC–Co | Uso generico con combinazione di resistenza al calore e robustezza | Acciaio al carbonio, acciaio legato, acciaio inossidabile, ghisa acciaiosa |
| K | WC–Co | Elevata robustezza e resistenza all'usura superiore | Ghisa, metallo non ferroso, plastica ecc. |

### Proprietà del metallo duro non rivestito

| ISO | Grado | Durezza ($H_RA$) | TRS (kgf/mm²) | Modulo di elasticità ($10^3$kgf/mm²) | Coefficiente di dilatazione termica($10^{-6}$/℃) | Conduttività termica (cal/cm·sec·℃) |
|---|---|---|---|---|---|---|
| P | ST05 | 92.7 | 140 | - | - | - |
| | ST10 | 92.1 | 175 | 48 | 6.2 | 25 |
| | ST20 | 91.9 | 200 | 56 | 5.2 | 45 |
| | ST30A | 91.3 | 230 | 53 | 5.2 | - |
| M | U10 | 92.4 | 170 | 47 | - | - |
| | U20 | 91.1 | 210 | - | - | 88 |
| | ST30A | 91.3 | 230 | 53 | 5.2 | - |
| | U40 | 89.2 | 270 | - | - | - |
| K | H02 | 93.2 | 185 | 61 | 4.4 | 105 |
| | H01 | 92.9 | 210 | 66 | 4.7 | 109 |
| | G10 | 90.9 | 250 | 63 | - | 105 |

GPa = 102kg/mm², 1W/mk = 2.39×$10^{-3}$cal/cm · sec · ℃

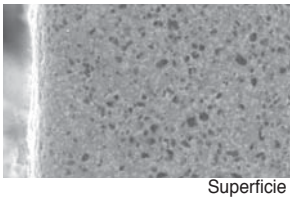
## Gradi cermet

**Per acciaio, ghisa, altri acciai legati sinterizzati (P10, K10). Esclusivo rivestimento cermet per taglio continuo**

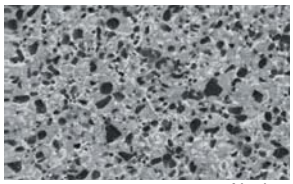
# CN1000 New

- Il rivestimento cermet conferisce un'eccellente durata agli inserti affilati e non affilati.
- Grazie alla maggiore resistenza alla deformazione plastica, aumenta anche la resistenza all'usura e la precisione di lavorazione per lungo tempo in condizioni di taglio con e senza refrigerante.
- La migliore resistenza all'usura sulla parte superiore e sul tagliente riduce lo sforzo di taglio dell'utensile e rende la superficie di finitura liscia al termine della lavorazione.
- Nuovo grado cermet per finitura di ghisa, acciaio al carbonio, acciaio legato e altri acciai sinterizzati.

[Microstruttura di cermet a base Ticn]



Superficie



Nucleo

### Tabella qualità

| Pezzo lavorato | | Lavorazione | Grado raccomandato | Velocità di taglio raccomandata (m/min) | ISO | Applicazione |
|---|---|---|---|---|---|---|
| P | Acciaio | Taglio continuo | CN1000 New | 280 (150 ~ 400) | P10 | CN1000 New |
| | | Taglio interrotto | CN20 | 210 (120 ~ 300) | P20 | CN20, CN2000 New |
| | | | CN2000 New | | | |
| K | Ghisa | Finitura | CN1000 New | 280 (150 ~ 400) | K01 | CN1000 New |
| | | | | | K10 | |

### Caratteristiche del principale grado cermet di KORLOY

| Cermet | ISO | Caratteristiche |
|---|---|---|
| CN1000 | P05 ~ P15 / K05 ~ K10 | • Cermet di elevata durezza per acciaio, ghisa, metalli sinterizzati • Rivestimento cermet di ultima generazione |
| CN2000 | P10 ~ P20 | • Ampia gamma disponibile nella lavorazione dell'acciaio, dalla finitura alla sgrossatura • Rivestimento cermet di ultima generazione |
| CN20 | P10 ~ P20 | • Per tornitura e fresatura generica di acciai • Grado generico resistente all'usura e tenace |

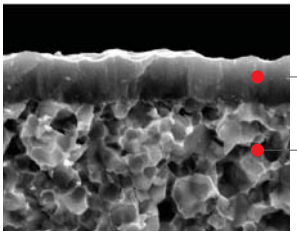
### Proprietà del cermet

| ISO | Grado | Durezza | TRS | Gravità specifica |
|---|---|---|---|---|
| P | CN1000 New | <1900 | 180< | 6.5~7.5 |
| | CN2000 New | <1800 | 210< | 6.8~7.0 |
| | CN20 | <1600 | 220< | 6.7~7.0 |
| K | CN1000 New | <1900 | 180< | 6.5~7.5 |

## Gradi KORLOY in cermet rivestito

### Caratteristiche

- La resistenza agli urti e il substrato tenace superiore prevengono le scheggiature nella fase iniziale della lavorazione e le rotture, garantendo una maggiore durata dell'utensile
- Lo strato lubrificante agevola l'evacuazione del truciolo e riduce i carichi sull'inserto




### Tabella qualità

| Pezzo lavorato | | Lavorazione | Grado raccomandato | Velocità di taglio raccomandata (m/min) | ISO | Applicazione |
|---|---|---|---|---|---|---|
| P | Acciaio | Taglio continuo | CC105 | 350 (250 ~ 450) | P05 | CC105 |
| | | Taglio interrotto | CC115 | 280 (230 ~ 400) | P10 | CC115 |
| | | | CC125 | 230 (150 ~ 300) | P20 | CC125 |

### Caratteristiche del grado cermet rivestito di KORLOY

| Cermet rivestito | ISO | Caratteristiche |
|---|---|---|
| CC105 | P01 ~ P10 | • Cermet rivestito PVD • Taglio leggero per acciaio e ghisa nelle lavorazioni ad alte velocità • Ottimale per alesature di precisione |
| CC115 | P10 ~ P20 | • Cermet rivestito PVD • Taglio leggero per acciaio e ghisa nelle medie lavorazioni o ad alte velocità<br>• Disponibile per taglio con e senza refrigerante |
| CC125 | P15 ~ P25 | • Cermet rivestito PVD • Cermet molto tenace per fresatura |

# A Gradi di tornitura

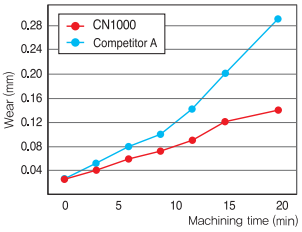
## Prestazioni di taglio (CN1000)

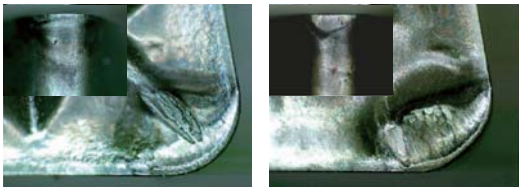
### P Acciaio al carbonio (SM45C)

■ Condizioni di taglio : vc(m/min)=400
fn(mm/giro)=0,2
ap(mm)=1,0
con refrigerante
lavorazione 20min

■ Descrizione : **INSERTO** CNMG120408–VG
**UTENSILE** PCLNL2525–M12

■ Risultato test



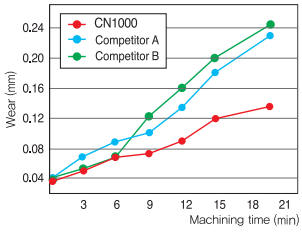
CN1000 Concorrente

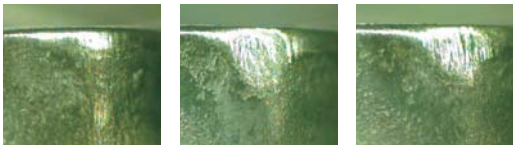
### K Ghisa (GC250)

■ Condizioni di taglio : vc(m/min)=300
fn(mm/giro)=0,2
ap(mm)=1,0
con refrigerante
lavorazione 21min

■ Descrizione : **INSERTO** CNMG120408–B25
**UTENSILE** PCLNR3232–P12

■ Risultato test



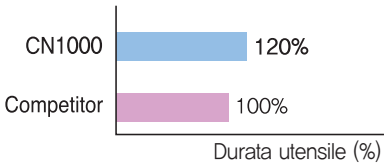
CN1000 Concorrente A Concorrente B

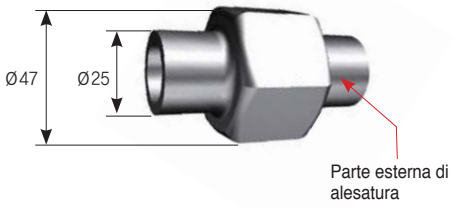
### P Acciaio al carbonio (SM45C)

■ Condizioni di taglio : vc(m/min)=250
fn(mm/giro)=0,1
ap(mm)=0.2
con refrigerante

■ Descrizione : **INSERTO** VNMG160404–VG
**UTENSILE** MVQNR2525–M16

■ Risultato test



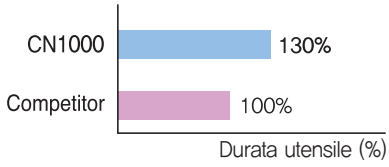



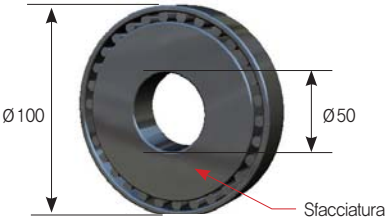

### P Acciaio legato (SCM420H)

■ Condizioni di taglio : vc(m/min)=250
fn(mm/giro)=0,18
ap(mm)=0,5
con refrigerante

■ Descrizione : **INSERTO** DCMT11T304–C25
**UTENSILE** SDJCR2020–K11

■ Risultato test



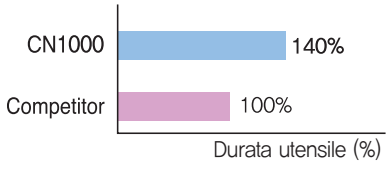



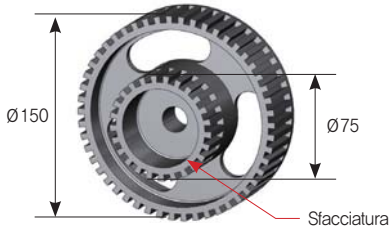

### P Metalli ferrosi sinterizzati

■ Condizioni di taglio : vc(m/min)=338
fn(mm/giro)=0,2
ap(mm)=0,5
con refrigerante

■ Descrizione : **INSERTO** CNMG120408–B25
**UTENSILE** PCLNR3232–P12

■ Risultato test



# Il metodo migliore per scegliere gli inserti di fresatura KORLOY

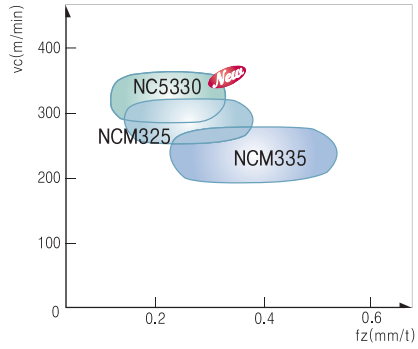
## Tabella qualità

| Pezzo lavorato | P Acciaio | | | | | | M Acciaio inossidabile | | | | K Ghisa | | | | N Materiali non ferrosi | | | S HRSA | | | | H Temprato | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ISO | P01 | P10 | P20 | P30 | P40 | P50 | M10 | M20 | M30 | M40 | K01 | K10 | K20 | K30 | N10 | N20 | N30 | S01 | S10 | S20 | S30 | H01 | H10 | H20 |
| Metallo duro rivestito | | NC5330 New | NCM325 | PC3500 New | PC5300 New | NCM335 | | NC5330 New | NCM325 | PC5300 New | | PC8110 New | PC6510 | PC5300 New | ND2000 | PD2000 | | | PC5300 New | PC3545 | | PC210F | | |
| | | | | | PC3545 | | | | PC9530 | NCM335 | | | PC3545 | NC5330 New | | | | | | | | | | |
| Cermet | | CN2000 New | CN20 | CN30 | | | | | | | | | | | | | | | | | | | | |
| cBN / PCD | | | | | | | | | | | | | | | DP150 | | | KB360 | | | | KB350 | | |
| Metallo duro non rivestito | | ST20 | ST30A | ST30N | ST40 | | | U10 | U20 | U40 | | H01 | H05 | H10 | | H01 | | | | | | | | |
| | | | | | | | | | | | | | | G10 | | | | | | | | | | |

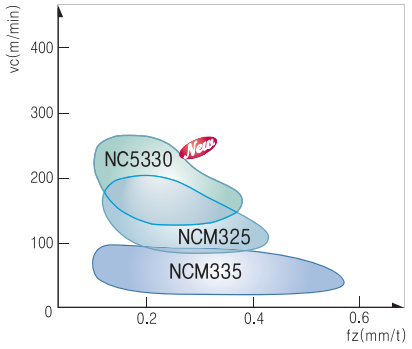
## Applicazioni dei gradi di fresatura

- CVD

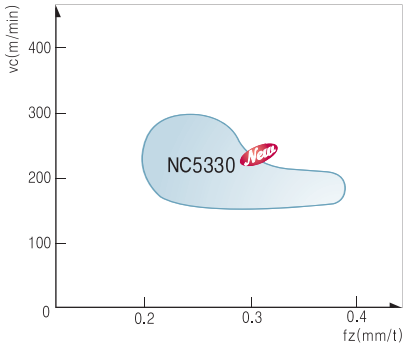
**P Acciaio**




**M Acciaio inossidabile**

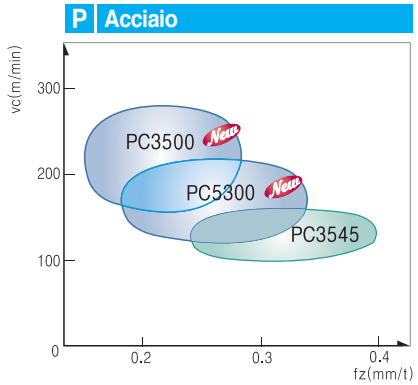



**K Ghisa**

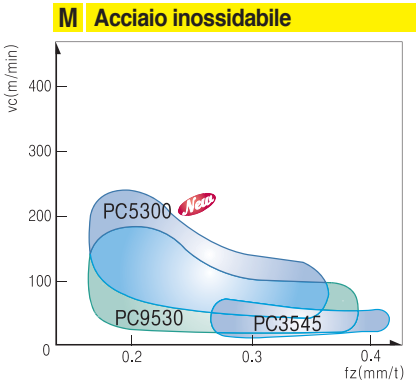



- PVD

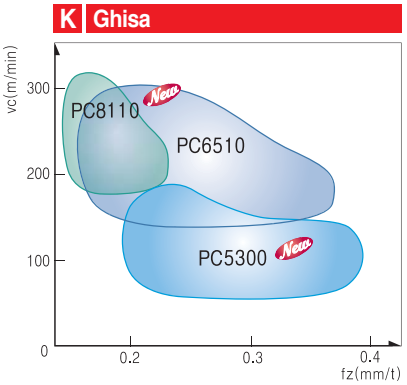
**P Acciaio**



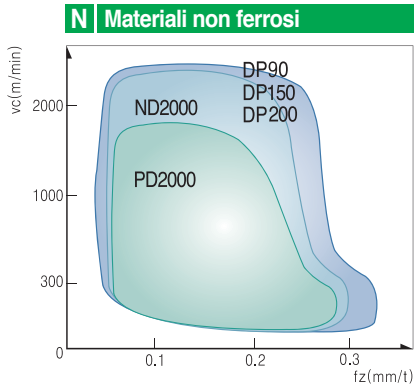

**M Acciaio inossidabile**



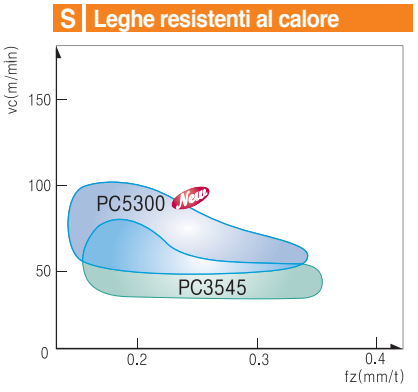

**K Ghisa**



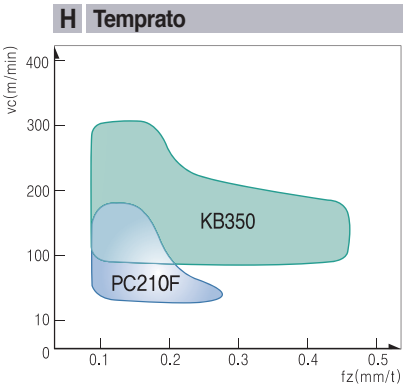

**N Materiali non ferrosi**




**S Leghe resistenti al calore**




**H Temprato**



# A Fresatura

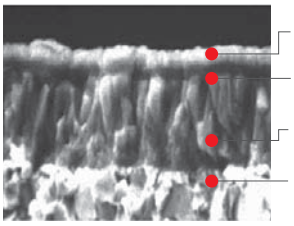
## Grado rivestito CVD

### Grado rivestito CVD per acciaio inossidabile e acciaio morbido

# NC5330 Neu

- Rivestimento liscio in metallo duro tenace
- Evita la formazione di riporto sul tagliente e l'usura per scheggiatura; migliore tenacità
- Prestazioni eccezionali nella lavorazione dell'acciaio inossidabile
- Eccellente per la lavorazione di acciai pastosi, morbidi e forgiati
- Maggiore durata dell'utensile nella lavorazione di materiali duri come inconel e stellite

### Struttura del rivestimento



- Rivestimento TiN: Superficie di sgrossatura regolare e minore formazione di riporto sul tagliente
- Rivestimento multistrato TiCN: Ottima tenacità e durezza
- Speciale substrato di carburo particolarmente tenace
- Rivestimento $Al_2O_3$: Eccellente resistenza all'ossidazione

## Tabella qualità

| Pezzo lavorato | | Lavorazione | Grado raccomandato | Velocità di taglio raccomandata (m/min) | ISO | Applicazione |
|---|---|---|---|---|---|---|
| P | Acciaio | Taglio continuo | NC5330 Neu | 270(220~320) | P15 | NC5330 Neu |
| | | | | | P20 | |
| | | Taglio continuo | NCM325 | 250(150~300) | P25 | NCM325 |
| | | | | | P30 | |
| | | Taglio interrotto | NCM335 | 230(120~280) | P35 | NCM335 |
| | | | | | P40 | |
| M | Acciaio inossidabile | Taglio continuo | NC5330 Neu | 200(150~250) | M10 | NC5330 Neu |
| | | | | | M20 | |
| | | Taglio continuo | NCM325 | 180(140~230) | M30 | NCM325 |
| | | Taglio interrotto | NCM335 | 170(120~210) | M40 | NCM335 |
| K | Ghisa | Taglio continuo | NC5330 Neu | 170(130~220) | K20 | NC5330 Neu |
| | | | | | K30 | |

## Caratteristiche dei gradi di fresatura CVD

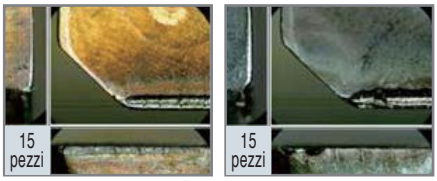
| Gradi rivestiti CVD | ISO | Caratteristiche |
|---|---|---|
| NC5330 Neu | P15 ~ P25<br>M10~M20<br>K10 ~ K20 | • Per fresatura ad alte velocità di acciaio e acciaio inossidabile<br>• Resistenza all'usura e alle scheggiature superiori per acciaio e acciaio inossidabile<br>• MT-TiCN + $Al_2O_3$ + TiN |
| NCM325 | P20 ~ P30<br>M20~M30 | • Per fresatura ad alte velocità di acciaio e acciaio inossidabile<br>• Grado ottimale per acciaio e acciaio inossidabile; ottimo per uso generico<br>• MT-TiCN + $Al_2O_3$ + TiN |
| NCM335 | P30~P40<br>M30~M40 | • Per taglio interrotto e sgrossatura di acciaio e acciaio inossidabile<br>• Substrato tenace con rivestimento robusto che conferiscono stabilità alla lavorazione e maggiore durata all'utensile in condizioni di pesante taglio interrotto<br>• MT-TiCN + $Al_2O_3$ + TiN |

## Prestazioni di taglio (NC5330)

### P Acciaio legato (SCM440)

- Condizioni di taglio : vc(m/min)=250
  fz(mm/t)=0,30
  ap(mm)=2,0
  a secco
- Descrizione : **INSERTO** SDKN1504AESN-SU
  **UTENSILE** ADNM5125R

■ Risultato test

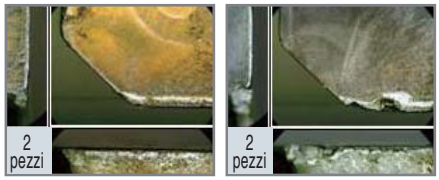



NC5330 New　　Concorrente A

### M Acciaio inossidabile (STS304)

- Condizioni di taglio : vc(m/min)=150
  fz(mm/t)=0,25
  ap(mm)=2,0
  a secco
- Descrizione : **INSERTO** SDKN1504AESN-SU
  **UTENSILE** ADNM5125R

■ Risultato test

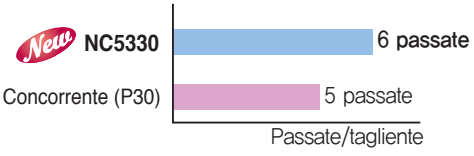


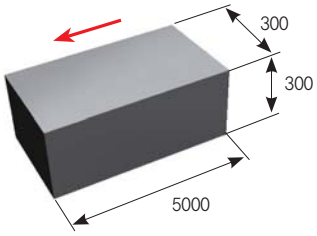

NC5330 New　　Concorrente A

### P Acciaio al carbonio (SM45C)

- Condizioni di taglio : vc(m/min)=275
  fz(mm/t)=0,13
  ap(mm)=7,0
  con refrigerante
- Descrizione : **INSERTO** TNMX2710AZNR-NM
  **UTENSILE** PBAM5125R-M

■ Risultato test

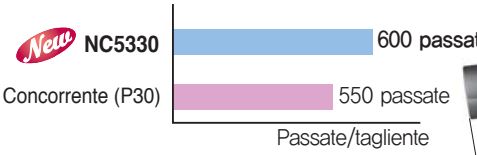


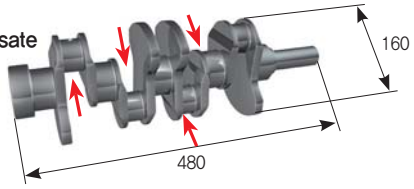




### P Acciaio legato (SCM440H)

- Condizioni di taglio : vc(m/min)=130
  fz(mm/dente)=0,30
  ap(mm)=3,5
  a secco
- Descrizione : **INSERTO** HS004072

■ Risultato test

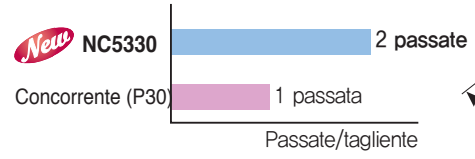


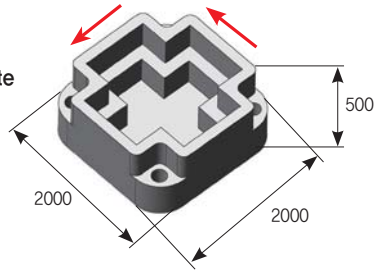




### K Ghisa duttile (GCD500)

- Condizioni di taglio : vc(m/min)=200
  fz(mm/t)=0,20
  ap(mm)=5,0
  a secco
- Descrizione : **INSERTO** SDKN1504AESN-SU
  **UTENSILE** ADNM5100R

■ Risultato test

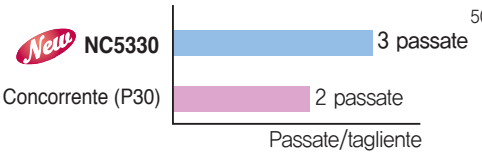


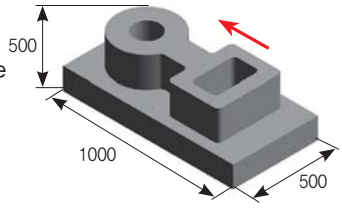




### K Ghisa grigia (GC400)

- Condizioni di taglio : vc(m/min)=355
  fz(mm/t)=0,16
  ap(mm)=5,0
  a secco
- Descrizione : **INSERTO** SPKN1504EDSR-SU
  **UTENSILE** ADNM5100R

■ Risultato test



# A Fresatura

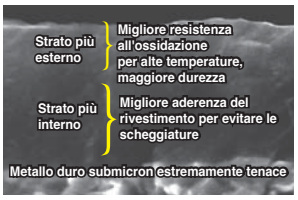
## Gradi rivestiti PVD

### Grado PVD universale

# PC5300 Neu

- Elevata efficienza nella lavorazione di acciaio in lega di carbonio / ghisa / acciaio inossidabile / HRSA.
- Lavorazione stabile grazie allo speciale substrato di metallo duro caratterizzato da elevate tenacità e durezza che limitano il rischio di scheggiature.
- Eccellente resistenza all'usura grazie allo speciale rivestimento resistente all'ossidazione, termicamente stabile e dalla superficie liscia.

### Struttura del rivestimento




Ultima tecnologia di rivestimento sviluppata da KORLOY.
Nuova tecnologia di rivestimento resistente all'ossidazione per alte temperature e dotato di maggiore durezza.

## Tabella qualità

| Pezzo lavorato | | Lavorazione | Grado raccomandato | Velocità di taglio raccomandata (m/min) | ISO | Applicazione |
|---|---|---|---|---|---|---|
| P | Acciaio | Taglio continuo | PC3500 | 200 (150~250) | P20 | PC3500 |
| | | | | | P30 | PC5300 Neu |
| | | Taglio interrotto | PC5300 Neu | 120 (100~150) | P40 | PC3545 |
| | | | PC3545 | | P50 | |
| M | Acciaio inossidabile | Taglio continuo | PC5300 Neu | 120 (100~150) | M20 | PC5300 Neu |
| | | Taglio interrotto | PC9530 | 130 (50~200) | M30 | PC9530 |
| | | | PC3545 | 120 (100~150) | M40 | |
| K | Ghisa | Taglio continuo | PC8110 Neu | 250 (200~400) | K01 | PC8110 Neu |
| | | | PC6510 | 200 (150~250) | K05 | PC6510 |
| | | Taglio interrotto | PC5300 Neu | 165 (120~210) | K10 | PC5300 Neu |
| | | | | | K20 | |
| S | HSRA | Taglio continuo | PC5300 Neu | 70(40~100) | S20 | PC5300 Neu |
| | | Taglio interrotto | PC3545 | 50(30~70) | S30 | PC3545 |
| H | Acciaio ad elevata durezza | Taglio continuo | PC210F | 250(150~300) | H01 | PC210F |
| | | | | | H10 | |

## Caratteristiche dei gradi rivestiti PVD

| Gradi rivestiti PVD | ISO | Caratteristiche |
|---|---|---|
| PC3500 | P20 ~ P30 | • Per medie lavorazioni e sgrossatura di acciai<br>• Speciale rivestimento resistente all'ossidazione, termicamente stabile e<br>• dotato del nuovo rivestimento TiAℓN/ TiN di ultima generazione<br>• Inserti disponibili per scanalatura, troncatura e fresatura |
| PC8110 Neu | K01 ~ K10 | • Per medie lavorazioni e sgrossatura di materiali duri e acciaio inossidabile<br>• Superiore resistenza all'usura nella finitura della ghisa<br>• Il nuovo rivestimento e la grana ultrafine conferiscono resistenza all'usura e all'ossidazione<br>• Per tornitura, fresatura, scanalatura, troncatura |
| PC3545 | P30 ~ P50 | • Per medie lavorazioni e sgrossatura di acciai<br>• Substrato migliore resistente alle scheggiature<br>• Rivestimento K-Gold |
| PC5300 Neu | P30~P40<br>M20~M30<br>K10 ~ K20<br>S20~S25 | • Grado superiore universale per acciaio, ghisa, materiali duri, acciaio inossidabile<br>• Il nuovo rivestimento e la grana ultrafine conferiscono resistenza all'usura e all'ossidazione<br>• Per tornitura, fresatura, scanalatura, troncatura, foratura e filettatura |
| PC6510 | K05 ~ K15 | • Grado di fresatura ad alte velocità per ghisa e alluminio<br>• Rivestimento K-Gold |
| PC9530 | M20 ~ M35 | • Grado di fresatura per ghisa e alluminio nelle medie lavorazioni a basse velocità<br>• Il substrato sub-micron estremamente tenace consente di ottenere eccellenti prestazioni di taglio ad alte velocità<br>• Rivestimento TiAℓN<br>• Per fresatura, foratura |
| PC210F | H01~H10 | • Grado di fresatura ad alte velocità per acciaio temprato, ghisa, acciaio inossidabile (ILaser Mill)<br>• Il nuovo rivestimento e la grana ultrafine conferiscono resistenza all'usura e all'ossidazione<br>• Frese integrali in metallo duro |

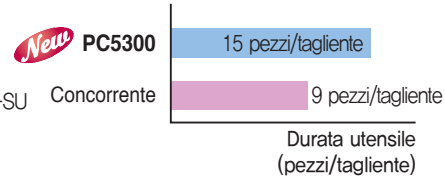
## Prestazioni di taglio (PC5300)

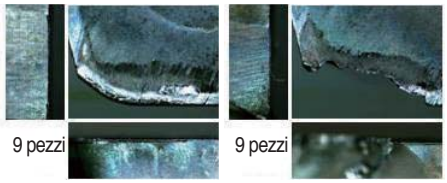
### P Acciaio al carbonio (SM45C)

■ Condizioni di taglio : vc(m/min)=250
fz(mm/t)=0,3
ap(mm)=2,0
a secco

■ Descrizione : **INSERTO** SPKN1504EDSR-SU
**UTENSILE** EPN5160R

■ Risultato test



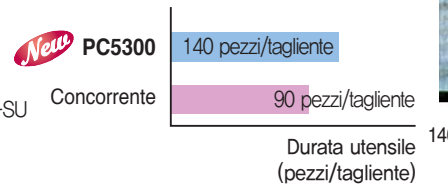

PC5300 Neu　　Concorrente

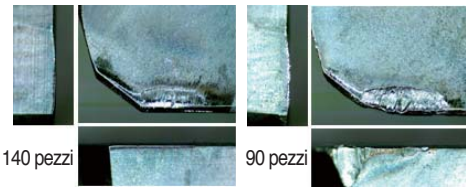
### P Acciaio legato (SCM440)

■ Condizioni di taglio : vc(m/min)=200
fz(mm/t)=0,3
ap(mm)=2
a secco

■ Descrizione : **INSERTO** SPKN1504EDSR-SU
**UTENSILE** EPN5160R

■ Risultato test



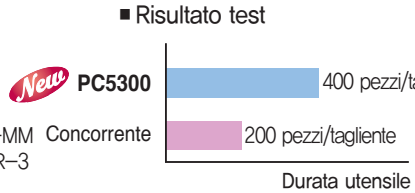

PC5300 Neu　　Concorrente

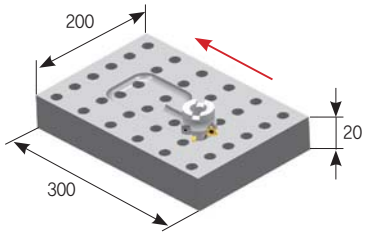
### P Acciaio temprato (KP4M)

■ Condizioni di taglio : vc(m/min)=250
fz(mm/t)=1
ap(mm)=1
a secco

■ Descrizione : **INSERTO** WNMX130520ZNN-MM
**UTENSILE** HRMDCM13050HR-3

■ Risultato test



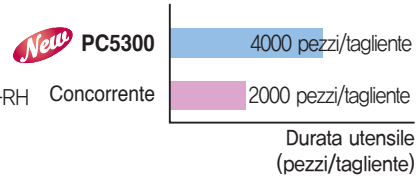



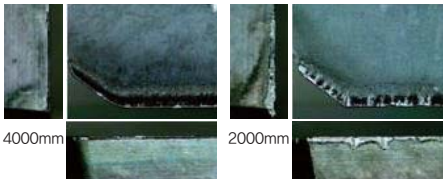

### K Ghisa (GC250)

■ Condizioni di taglio : vc(m/min)=400
fz(mm/t)=0,2
ap(mm)=3,0
con refrigerante

■ Descrizione : **INSERTO** SPCN1203EDER-RH
**UTENSILE** EPN4160R

■ Risultato test



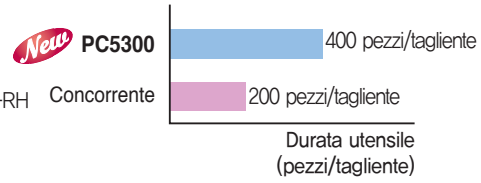

PC5300 Neu　　Concorrente

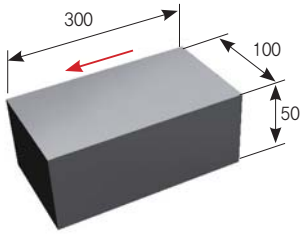
### M Acciaio inossidabile (STS304)

■ Condizioni di taglio : vc(m/min)=175
fz(mm/t)=0,18
ap(mm)=4
a secco

■ Descrizione : **INSERTO** SPCN1203EDER-RH
**UTENSILE** EPN4160R

■ Risultato test



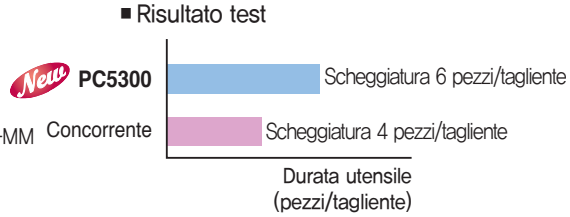



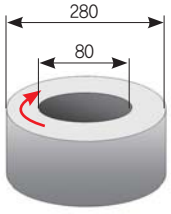

### M Acciaio inossidabile (STS316)

■ Condizioni di taglio : vc(m/min)=65
fz(mm/t)=0,14
ap(mm)=3,0
con refrigerante

■ Descrizione : **INSERTO** SEET14M4AGSN-MM
**UTENSILE** FMACM4100HR

■ Risultato test



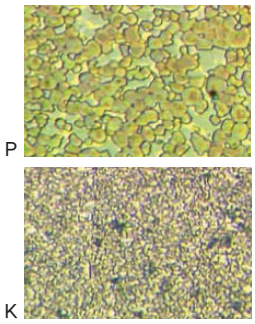
# A Fresatura

## Gradi in metallo duro sinterizzato

### Caratteristiche

- Grazie alla sua avanzata tecnologia di sinterizzazione, i gradi in metallo duro non rivestiti di Korloy hanno una microstruttura di leghe che conferisce una qualità superiore agli utensili

[Microstruttura]




### Vantaggi

- I gradi in metallo duro P, M, K sono indicati per tutti i tipi di pezzi lavorati
- Prestazioni eccellenti nelle lavorazioni con refrigerante, grazie all'eccezionale resistenza agli shock termici del metallo duro
- Grazie alla struttura in micrograna ultrafine, i gradi ottengono un basso attrito col pezzo lavorato
- Ottima tenacità e basso sforzo di taglio

### Tabella qualità

| Pezzo lavorato | | Grado | Velocità di taglio raccomandata (m/min) | ISO | Applicazione |
|---|---|---|---|---|---|
| P | Acciaio | ST30A | 130 (70 ~ 180) | P30 | ST30A |
| K | Ghisa | H01, H05 | 150 (100 ~ 200) | K01 | |
| | | H10, G10 | 140 (90 ~ 190) | K10 | H01 |
| | Lega di alluminio | H01 | 500 (300 ~ 800) | K20 | H05 |
| | Leghe di rame | H01 | 200 (150 ~ 300) | K30 | G10 |

### Composizione e applicazioni

| ISO | Composizione | Caratteristiche | Pezzo lavorato |
|---|---|---|---|
| P | WC–TiC–TaC–Co | Eccellente resistenza agli shock termici e alla deformazione plastica | Acciaio al carbonio, acciaio legato, acciaio inossidabile |
| M | WC–TiC–TaC–Co | Gradi generici resistenti agli shock termici e tenaci | Acciaio al carbonio, acciaio legato, acciaio inossidabile, ghisa |
| K | WC–Co | Elevata durezza e resistenza all'usura superiore | Ghisa, metallo non ferroso, leghe di alluminio |

### Proprietà fisiche dei gradi

| ISO | Grado | Durezza ($H_RA$) | TRS ($kgf/mm^2$) | Modulo di elasticità ($10^3 kgf/mm^2$) | Coefficiente di dilatazione termica(10-6/°C) | Conduttività termica (cal/cm · sec · ℃) |
|---|---|---|---|---|---|---|
| P | ST05 | 92.7 | 140 | - | - | - |
| | ST10 | 92.1 | 175 | 48 | 6.2 | 25 |
| | ST20 | 91.9 | 200 | 56 | 5.2 | 45 |
| | ST30A | 91.3 | 230 | 53 | 5.2 | - |
| M | U10 | 92.4 | 170 | 47 | - | - |
| | U20 | 91.1 | 210 | - | - | 88 |
| | ST30A | 91.3 | 230 | 53 | 5.2 | - |
| | U40 | 89.2 | 270 | - | - | - |
| K | H02 | 93.2 | 185 | 61 | 4.4 | 105 |
| | H01 | 92.9 | 210 | 66 | 4.7 | 109 |
| | G10 | 90.9 | 250 | 63 | - | 105 |

1Gpa = 102kg/m², 1w/m · k = 2.59×10⁻³cal/cm · sec · ℃

## Gradi cermet

### Tabella qualità

| Pezzo lavorato | | Lavorazione | Grado | Velocità di taglio raccomandata (m/min) | ISO | Applicazione |
|---|---|---|---|---|---|---|
| P | Acciaio | Taglio continuo | CN2000 New | 250 (200 ~ 300) | P10 ~ P20 | CN2000 New |
| | | Taglio continuo | CN20 | 180 (130 ~ 230) | P15 ~ P25 | CN20 |
| | | Taglio interrotto | CN30 | 150 (100 ~ 200) | P20 ~ P30 | CN30 |

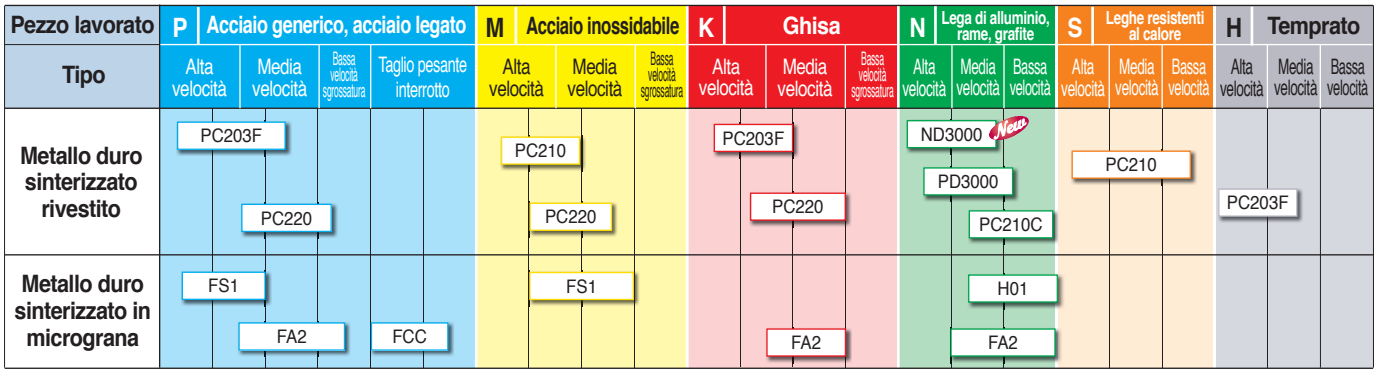
### Caratteristiche dei principali gradi cermet

| Gradi cermet | ISO | Caratteristiche | |
|---|---|---|---|
| CN2000 | P10 ~ P20 | • Grado generico per sgrossatura e finitura | • Cermet con tecnologia FGM |
| CN20 | P15 ~ P25 | • Per tornitura e fresatura di acciai | • Cermet per usi generici resistente all'usura e tenace |
| CN30 | P20 ~ P30 | • Per fresatura di acciai | • Cermet estremamente tenace resistente alle scheggiature |

### Proprietà fisiche dei gradi

| ISO | Grado | Durezza (Hv) | TRS ($kgf/mm^2$) | SG ($g \cdot cm^{-3}$) |
|---|---|---|---|---|
| P | CN20 | < 1600 | 220 < | 6.7~7.0 |
| | CN30 | < 1500 | 240 < | 7.0~7.3 |
| | CN2000 New | < 1800 | 210 < | 6.8~7.0 |

## Tabella qualità




## Tabella qualità

| Pezzo lavorato | | Grado raccomandato | Velocità di taglio raccomandata (m/min) | ISO | Applicazione |
|---|---|---|---|---|---|
| P | Acciaio | PC203F (H-Max) | 130~260 | P01 | PC203F (H-Max) |
| | | | | P10 | |
| | | PC220 (I-Max) | 80~150 | P20 | PC220 (I-Max) |
| | | | | P30 | |
| M | Acciaio inossidabile | PC210 | 80~150 | M10 | PC210 |
| | | | | M20 | |
| K | Ghisa | PC203F (H-Max) | 130~260 | K01 | PC203F (H-Max) |
| | | | | K10 | |
| | | PC220 (I-Max) | 80~150 | K20 | PC220 (I-Max) |
| | | | | K30 | |
| S | HRSA | PC210 | 50~100 | S15 | PC210 |
| | | | | S25 | |
| N | Materiali non ferrosi | ND3000(D-Max) Neu | 150~250 | N01 | ND3000(D-Max) Neu |
| | | PD3000 | 150~250 | N10 | PD3000 |
| | | PC210C(C-Max) Neu | 150~250 | N20 | PC210C(C-Max) Neu |

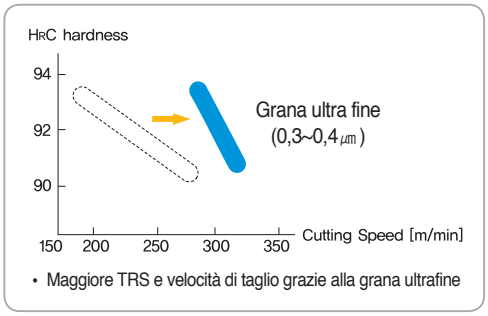
## Caratteristiche dei gradi rivestiti PVD

| Gradi rivestiti PVD | ISO | Caratteristiche |
|---|---|---|
| PC203F (H-Max) | P01 ~ P10<br>K01 ~ K10 | • Indicati per le lavorazioni ad alte velocità dell'acciaio<br>• La combinazione data dal substrato in micrograna ultra fine e dal rivestimento rivestimento in PVD offre una superiore resistenza all'usura e alle scheggiature<br>• Nuova tecnologia di rivestimento resistente all'ossidazione per alte temperature e dotato di maggiore durezza |
| PC210 | M10~S20<br>S15~S25 | • Indicati per lavorazioni a medie/basse velocità di acciaio, acciaio inossidabile e super leghe<br>• Grana ultrafine con rivestimento per una maggior durata dell'utensile nelle lavorazioni ad alte velocità |
| PC210C (C-Max) Neu | N10~N20 | • Per lavorazioni a medie e alte velocità del rame<br>• Eccellente combinazione di substrato resistente alle scheggiature e rivestimento K-Silver resistente all'usura con ottima lubrificazione |
| PC220 (I-Max) | P15~P35<br>K15~K35 | • Per lavorazioni generiche dell'acciaio<br>• La combinazione di grana ultra fine e rivestimento tenace offrono una maggiore resistenza all'usura e alla scheggiatura.<br>• Nuovo rivestimento superiore per una migliore resistenza alla scheggiatura e all'usura |

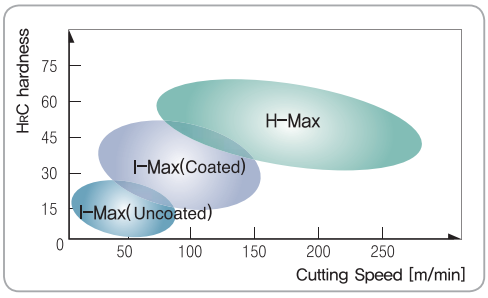
# A Frese integrali in metallo duro

## Metallo duro sinterizzato a grana ultrafine

- Grado ultrafine più tenace rispetto al metallo duro sinterizzato generico ma di uguale durezza.
- Ottenuto con ossidazione ad alte temperature (1200°C) ed elevata durezza; consente di ottenere ottimi risultati nelle lavorazioni ad alte velocità e a secco.




• Maggiore TRS e velocità di taglio grazie alla grana ultrafine

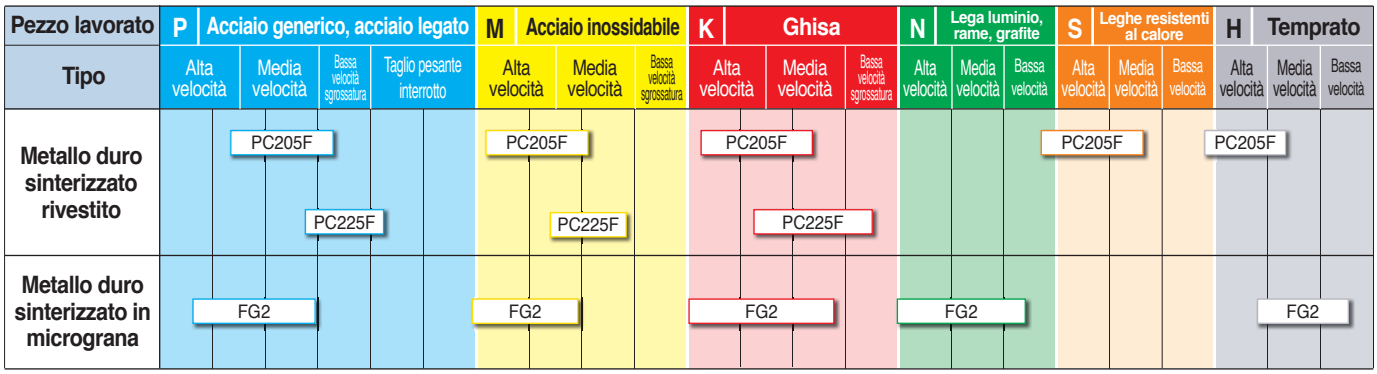



## Caratteristiche delle frese integrali in metallo duro Korloy

| Indice analitico | Grado | Rivestimento | Caratteristiche |
|---|---|---|---|
| **H-MAX** | **PC203F** | TiAlN | Indicate per lavorazioni ad alte velocità di acciaio temprato con HRC65 |
| **I-Max** (con rivestimento) | **PC220** | TiAlN | Per lavorazioni generiche (inferiore a HRC45) |
| **I-Max** (senza rivestimento) | **FA2** | Senza rivestimento | Eccellente resistenza all'usura e tenacità grazie al substrato in grana ultrafine |
| **I-Max (STS)** | **PC210** | TiAlN | Per materiale duro, acciaio inossidabile, metalli non ferrosi |
| **SSEA** | **H01**<br>**PD3000** | Senza rivestimento<br>DLC | Per alluminio, lega di alluminio, metalli non ferrosi. |
| **MSE/MSBE** | **PC215F** | TiAlN | Per lavorazioni di pezzi piccoli (gamma di lavorazione Φ0,4~Φ1,0) |
| **Frese integrali Rib** | **PC220G**<br>**PC203G** | TiAlN | Per rame |
| **C-Max** | **PC210C** New | CrN | Per rame, lega di rame |
| **D-Max** | **ND3000** New | Dia | Per grafite, metallo non ferroso |

| Indice analitico | Caratteristiche |
|---|---|
| **H-MAX**<br>(per alte velocità, acciaio temprato) | • Nuovo design per lavorazioni di acciaio temprato (superiore a HRc53). Speciale geometria a sfera dell'utensile che conferisce maggiore durata e consente velocità e avanzamenti più elevati<br>• La combinazione di rivestimento TiaIN e adeguato substrato aumenta la durata dell'utensile |
| **I-Max**<br>(Con rivestimento, lavorazioni generiche) | • Resistenza all'usura e alle scheggiature superiore grazie alla grana ultrafine e all'esclusivo rivestimento PVD di Korloy<br>• Per svariate lavorazioni, dalla sgrossatura alla finitura |
| **I-Max**<br>(Frese integrali in metallo duro) | • Indicato per tutti i tipi di fresatura come stampi e lavorazioni generiche<br>• è possibile realizzare lavorazioni multifunzione (spallamento, svuotamento tasche) |
| **Lavorazione di metalli duri, acciaio inossidabile** | • Il tagliente affilato e l'elevato angolo di spoglia con tasca per scarico trucioli offrono ottime prestazioni di taglio nelle lavorazioni dell'acciaio inossidabile dove l'indurimento durante la lavorazione rappresenta un problema per l'utensile |
| **Frese integrali in metallo duro per lega di alluminio**<br>(SSEA, SSBEA) | • Indicate per lavorazioni ad alte velocità di alluminio e di altri materiali non ferrosi<br>• È possibile ottenere un'ottima superficie di finitura e una maggiore asportazione del truciolo con elevati avanzamenti |
| **Micro endmills**<br>(MSE/MSBE) | • Frese integrali in metallo duro di piccole dimensioni per micro lavorazioni; la parte del collo è stata rinforzata per ottenere una maggiore resistenza alla rottura nelle lavorazioni ad alte velocità |
| **Frese integrali Rib in metallo duro** | • Indicate per lavorazioni ad alte velocità di acciai temprati ( HRC65)<br>• Per varie lavorazioni, come ad esempio motori automobilistici, telefoni cellulari, dispositivi semi-conduttori e stampi, in cui è possibile ottenere un'alta produttività, un'elevata efficienza e maggiori velocità |
| **C-Max** New | • Ottima combinazione di substrato resistente alla scheggiatura e rivestimento CrN resistente all'usura e alle scheggiature |
| **D-Max** New | • Ottimo rivestimento con micro particelle di diamante per le lavorazioni di materiale non ferroso come la grafite che consente una maggiore durata dell'utensile e un'ottima superficie di sgrossatura grazie alla geometria migliore del tagliente<br>• Indicate per condizioni di taglio interrotto e lavorazioni di elevata precisione |

## Tabella qualità




## Tabella qualità

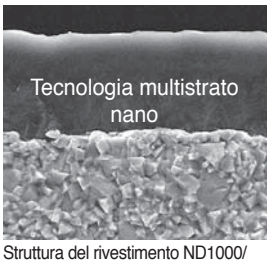
| Pezzo lavorato | | Grado raccomandato | Velocità di taglio raccomandata (m/min) | ISO | Applicazione |
|---|---|---|---|---|---|
| P | Acciaio | PC205F | 130~250 | P01 | |
| | | | | P10 | PC205F |
| | | PC225F | 120~220 | P20 | |
| | | | | P30 | PC225F |
| M | Acciaio inossidabile | PC205F | 80~180 | M01 | |
| | | | | M10 | PC205F |
| | | PC225F | 50~150 | M20 | PC225F |
| | | | | M30 | |
| K | Ghisa | PC205F | 130~250 | K01 | |
| | | | | K10 | PC205F |
| | | PC225F | 120~220 | K20 | PC225F |
| | | | | K30 | |
| S | HRSA | PC205F | 80~130 | S01 | |
| | | | | S10 | PC205F |
| | | PC225F | 50~100 | S20 | PC225F |
| | | | | S30 | |

## Caratteristiche dei gradi rivestiti PVD

| Gradi rivestiti PVD | ISO | Caratteristiche |
|---|---|---|
| PC205F | P15 ~ P30<br>M15~M30<br>K15~K30<br>S15~S25 | • Punta in metallo duro (inferiore a Ø20) per acciaio, acciaio inossidabile e super leghe<br>• Resistenza all'usura e alla scheggiatura superiori grazie alla grana ultrafine |
| PC225F | P20~P35<br>M20 ~ M35<br>K20~K35<br>S20~S35 | • Punta in metallo duro (superiore a Ø16) per acciaio, acciaio inossidabile, ghisa e super leghe<br>• La combinazione di elevata resistenza all'usura e substrato tenace conferiscono maggiore stabilità |

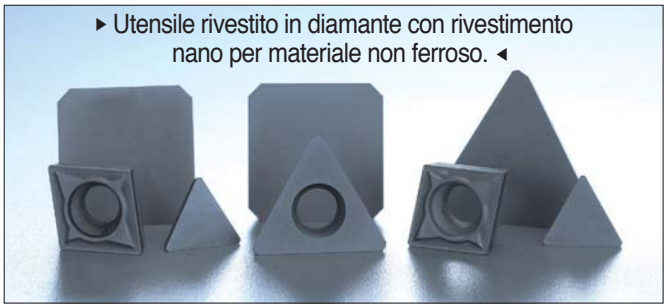
# Gradi KORLOY rivestiti in diamante

## Caratteristiche speciali



Struttura del rivestimento ND1000/ ND2000

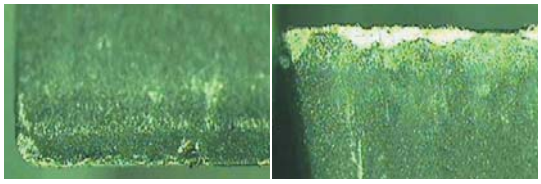
- Fino al 150% di maggiore durata grazie alla tecnologia Nano
- Grazie alle nano particelle di diamante (~100nm), diminuisce il coefficiente di frizione generando quindi una migliore evacuazione del truciolo
- Grazie al minimo riporto sul tagliente, si ottiene una migliore superficie di finitura



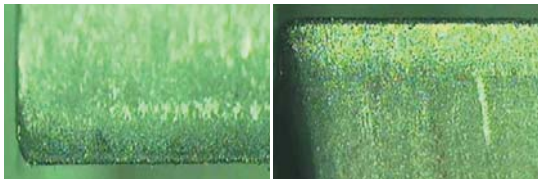
Serie ND

## Prestazioni di taglio di ND2000

● ND200



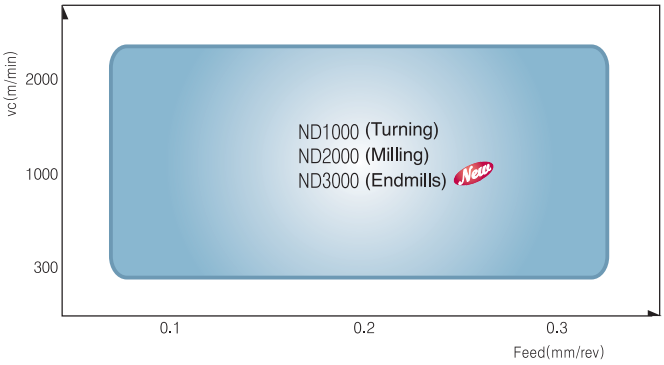
● ND2000



(APKT1604PDFR-MA, AMS3063S)

- Lunghezza: 10m
- Pezzo lavorato: AC8A
- Velocità (vc) : 950m/min
- Profondità di passata (ap) : 5mm
- Avanzamento (fz) : 0,15mm/dente
- Refrigerante: a secco

## Applicazione




## Prodotti disponibili

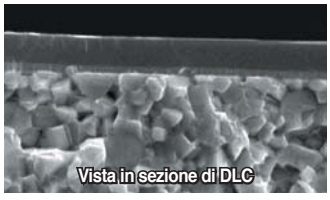
- Rompitruciolo AR • Rompitruciolo AK
- Inserto per lavorazione dell'alluminio

# Gradi KORLOY rivestiti DLC

## Caratteristiche speciali

- Durezza del rivestimento fino a Hv 7000, durata dell'utensile da 3 a 6 volte superiore rispetto agli utensili in metallo duro sinterizzato
- Ottima superficie di finitura grazie all'effetto lubrificante conseguito dal basso coefficiente di frizione (<0,1)
- Per la lavorazione di materiale non ferroso
- Applicazione - Per alluminio, carbonio, plastica, legno
  - Inserti, punte, frese integrali in metallo duro

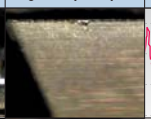




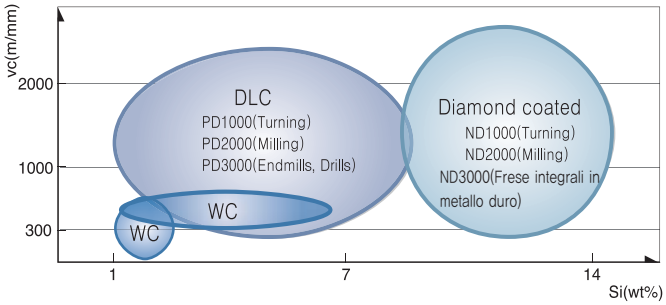

Serie PD

## Prestazioni di taglio (riporto sul tagliente / superficie di finitura, FMACM3100R)

| Vista / Grado | Lato superiore | Tagliente principale | Superficie di finitura del pezzo lavorato |
|---|---|---|---|
| Senza rivestimento |  |  |   |
| DLC |  |  |  |

- Pezzo lavorato: AC2B • Lunghezza: 12m
- Condizioni di taglio: vc=1500m/min, fz=0,15mm/dente, ap=2mm, a secco

## Applicazione



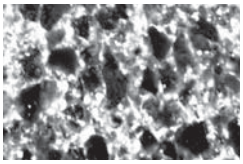
## Nuovissimo inserto cBN

### cBN multitagliente rivestito

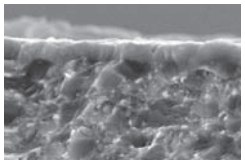
# DNC250

Neu

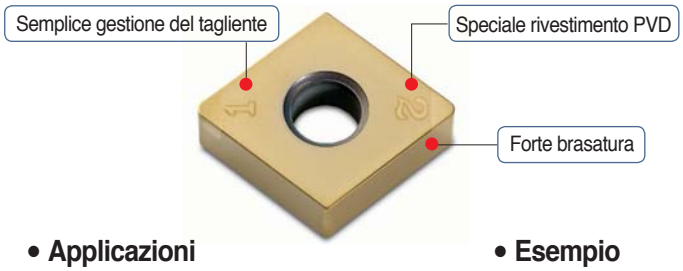
- Utensile stabile e duraturo
- Economico inserto multitagliente monouso



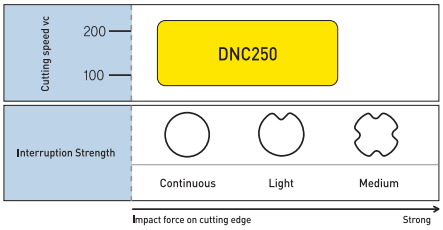
- Parti nere: cBN
- Parti bianche: legante



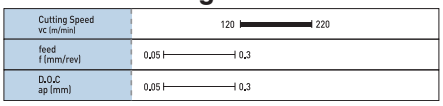
- Nuova tecnologia rivestimento PVD K-Gold
- Strato lubrificante
- Maggiore resistenza all'usura



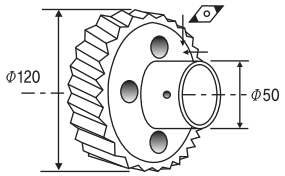

### • Applicazioni




### • Condizioni di taglio raccomandate

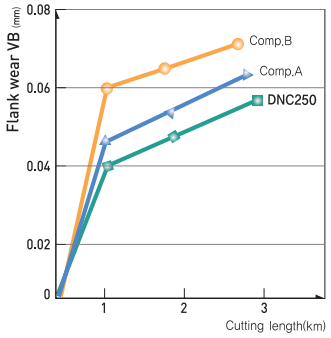



### • Esempio




- Condizioni di taglio : vc(m/min)=90 fn(mm/giro)=0,15 ap(mm)=0,15 con refrigerante Taglio interrotto leggero
- Pezzo lavorato : Ingranaggio, SCM415(HRC58~60)
- INSERTO : 2NU-CNGA120408

### • Prestazioni di taglio continuo

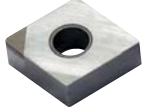
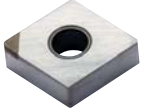
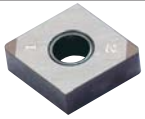
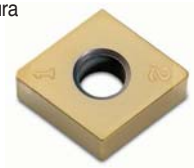



- Condizioni di taglio : vc(m/min)=200 fn(mm/giro)=0,1 ap(mm)=0,1 a secco
- Pezzo lavorato : SCM415(HRC58~60)
- INSERTO : 2NU-CNGA120408

## Caratteristiche del grado cBN

| Tipo | Grado | Applicazioni | Caratteristiche |
|---|---|---|---|
| Non rivestito | KB410 | Taglio continuo ad alte velocità di acciaio temprato | Grado migliore resistente all'usura e indicato per taglio continuo ad alte velocità |
| | KB420 | Elevata efficienza nella lavorazione di acciaio temprato | Legante con ottima resistenza all'usura per una migliore durata dell'utensile nelle lavorazione ad alte velocità |
| | KB425 | Taglio interrotto ad alte velocità di acciaio temprato | Superiore resistenza all'usura, indicato per pesanti lavorazioni di tornitura con taglio interrotto ad alte velocità |
| | KB320 | Taglio continuo e interrotto di acciaio temprato | cBN in micrograna con legante ceramico per una migliore resistenza alla rottura e all'usura |
| | KB330 | Pesanti condizioni di taglio interrotto di acciaio temprato | cBN in micrograna per una migliore resistenza alla rottura e all'usura |
| | KB350 | Lavorazioni ad alte velocità di ghisa (GC/GCD) | Elevata resistenza alla rottura e all'usura |
| | KB370 | Lavorazione ad alte velocità di ghisa e materiali difficili da tagliare | L'elevata durezza e tenacità consentono ottime prestazioni nelle lavorazioni di materiali difficili da tagliare e della ghisa |

## Tipo di rivestimento cBN

| Riaffilabile | Monouso | Multitagliente | cBN multitagliente rivestito |
|---|---|---|---|
|  |  |  |  |
| • Lunga durata dell'utensile<br>• Ottima resistenza all'usura, elevata durezza<br>• Costi ridotti grazie alla possibilità di riaffilare l'inserto 3~4 volte<br>  <br>CNMA120408 | • Prezzo contenuto<br>• Costi ridotti<br>• Semplice gestione dell'utensile<br>• Lavorazione stabile e lunga durata dell'utensile grazie alla tecnologia di brasatura resistente<br>  <br>NU CNMA120408 | • Inserto con vari cBN brasati<br>• Prezzo per tagliente inferiore rispetto agli inserti normali, monotagliente e monouso<br>• Ampia gamma di applicazioni, dal taglio continuo al taglio interrotto<br>  <br>2NU-CNGA120408 | • Semplice gestione del tagliente<br>• Speciale rivestimento PVD<br>• Forte brasatura<br>  |

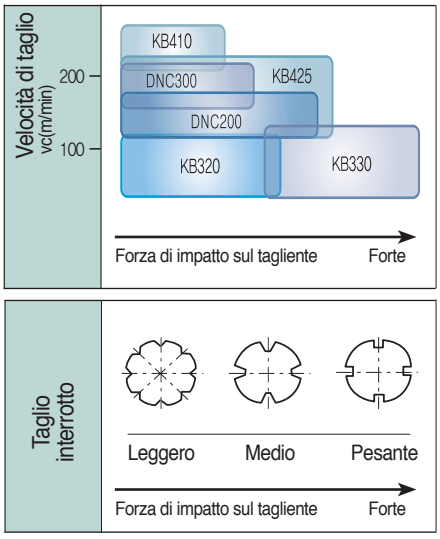
# A Altro

## Per lavorazioni generiche di acciaio temprato

### • Condizioni di taglio raccomandate

| Grado | Velocità di taglio, vc(m/min) (50 – 100 (120) – 150 – 200 – 250) | avanzamento fn(m/rev) (0 – 0,1 – 0,2 – 0,3) / Profondità di passata ap(mm) (0 – 0,1 – 0,2 – 0,3 – 0,4 – 0,5) |
|---|---|---|
| KB410 | 150 – 200 | fn 0,03 – 0,13<br>ap 0,03 – 0,2 |
| KB420 | 120 – 150 | fn 0,03 – 0,3<br>ap 0,03 – 0,5 |
| KB425 | 150 – 200 | fn 0,03 – 0,3<br>ap 0,03 – 0,5 |
| KB320 | 80 – 120 | fn 0,03 – 0,2<br>ap 0,03 – 0,3 |
| KB330 | 80 – 110 | fn 0,03 – 0,2<br>ap 0,03 – 0,3 |
| DNC200 | 130 – 170 | fn 0,05 – 0,3<br>ap 0,05 – 0,3 |
| DNC300 | 140 – 200 | fn 0,05 – 0,5<br>ap 0,05 – 0,3 |

### • Applicazioni

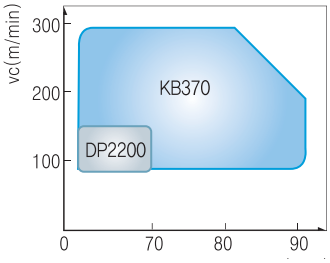



## Per anello sede delle valvole (VSR)

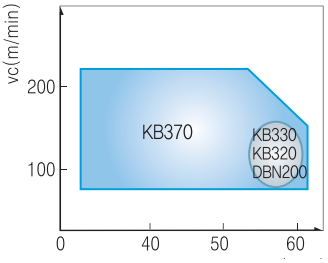
| Applicazione | VSR benzina | VSR diesel |
|---|---|---|
| Lavorazione a tuffo | KB370 KB330 | KB370 KB330 |
| Lavorazione trasversale | KB370 KB350 | KB370 KB350 |
| Durezza (Hv) | Basso ← HV300 → Alto | Basso ← HV300 → Alto |

## Per lavorazioni di materiale sinterizzato

### • Lega sinterizzata generica




### • Lega sinterizzata ad alta densità/temprata

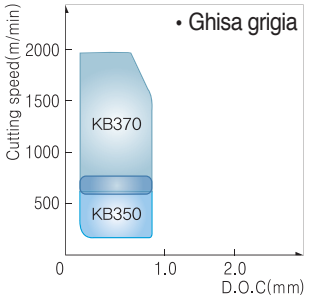


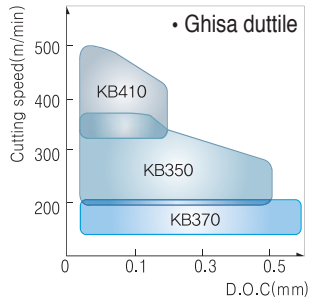

## cBN per ghisa

### • Condizioni di taglio raccomandate

| Applicazione | Pezzo lavorato: Materiale | Pezzo lavorato: Grado | Velocità di taglio, vc(m/min) (100 – 1000 – 2000) | fn (mm/giro) | ap (mm) |
|---|---|---|---|---|---|
| Tornitura | Ghisa grigia | KB370 | 500 – 2000 | 0,1~0,5 | ≦1,0 |
| | | KB350 | 200 – 700 | 0,1~0,5 | ≦1,0 |
| | Ghisa legata | KB370 | 200 – 800 | 0,1~0,4 | ≦0,5 |
| | Ghisa duttile | KB370 | 80 – 200 | 0,1~0,4 | ≦0,6 |
| | | KB350 | 100 – 350 | 0,1~0,4 | ≦0,5 |
| | | KB410 | 250 – 500 | 0,1~0,4 | ≦0,5 |
| Fresatura | Ghisa grigia | KB370 | 800 – 2000 | 0,1~0,5 | ≦0,5 |

### • Applicazioni



# Informazioni tecniche per inserto PCD

## Caratteristiche

I prodotti PCD di KORLOY impiegano punte PCD di alta qualità prodotte a temperature e pressione elevatissime. Punta PCD saldata sull'inserto in metallo duro KORLOY.
KORLOY offre prodotti di tornitura, fresatura e frese integrali in metallo duro di elevata qualità, in grado di soddisfare le esigenze di svariate applicazioni.

- Utensili di lunga durata per lega di alluminio e lega di rame
- Utensili di lunga durata per ceramico, alluminio ad alto tenore di silicio, roccia o pietra
- Utensili di lunga durata per plastica, carbonio, grafite e legno



## Grado PCD

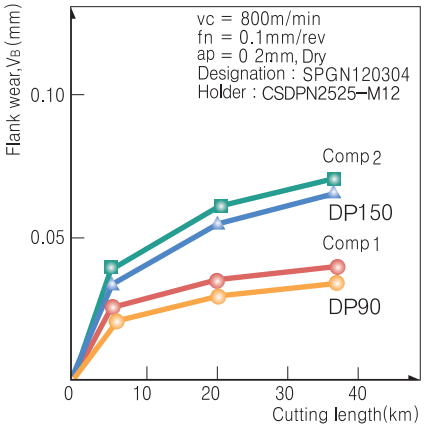
| Grado | Caratteristiche | Applicazione | Grana (μm) | Durezza (Hv) | TRS (kgf/㎟) |
|---|---|---|---|---|---|
| **DP90** | Il nucleo in grana di diamante consente un'eccellente resistenza all'usura per la lavorazione di metallo duro sinterizzato, e di leghe di alluminio ad alto tenore di silicio | Metallo duro sinterizzato<br>Sgrossatura di ceramico<br>Leghe di alluminio ad alto tenore di silicio<br>Roccia, pietra | 50 | 10.000~<br>12.000 | 110 |
| **DP150** | Grazie alla grana fine di diamante dalle ottime proprietà leganti è possibile lavorare materiale non ferroso e grafite | Leghe di alluminio ad alto tenore di silicio<br>Rame, lega di bronzo<br>Gomma, legno, carbonio | 5 | 10.000~<br>12.000 | 200 |
| **DP200** | Grazie alla grana ultrafine di diamante, il tagliente risulta essere molto affilato. È pertanto indicato per la lavorazione di materiale non ferroso | Plastica<br>Legno<br>Ultrafinitura di alluminio | 0.5 | 8.000~<br>10.000 | 220 |

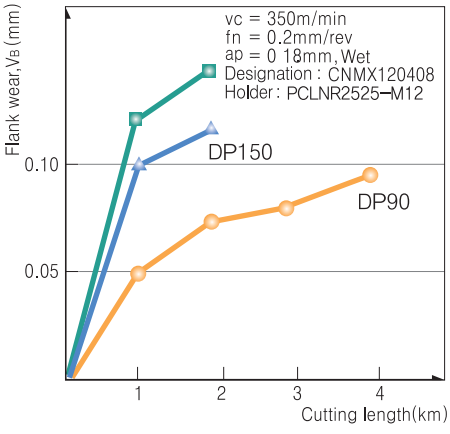
## Condizioni di taglio raccomandate

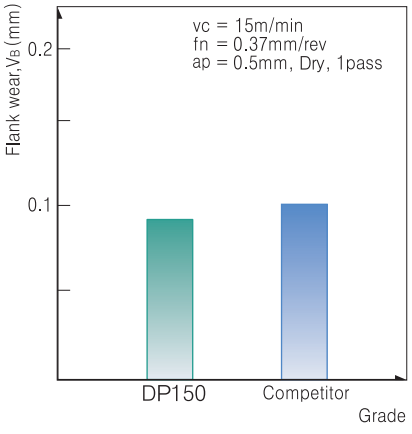
| Pezzo lavorato | Velocità di taglio (m/min) | Avanzamento (mm/giro) | Profondità di passata (mm) | Grado raccomandato | |
|---|---|---|---|---|---|
| | | | | 1° | 2° |
| **Lega di alluminio** (4%~8% Si) | 1000 ~ 3000 | 0.1 ~ 0.6 | ~ 3 | DP150 | DP200 |
| **Lega di alluminio** (9%~14% Si) | 600 ~ 2500 | 0.1 ~ 0.5 | ~ 3 | DP150 | DP200 |
| **Lega di alluminio** (15%~18% Si) | 300 ~ 700 | 0.1 ~ 0.4 | ~ 3 | DP150 | DP200 |
| **Lega di rame, bronzo** | ~ 1000 | 0.05 ~ 0.2 | ~ 3 | DP150 | DP200 |
| **Plastica rinforzata** | ~ 1000 | 0.1 ~ 0.3 | ~ 2 | DP150 | DP200 |
| **Legno** | ~ 4000 | 0.1 ~ 0.4 | – | DP150 | DP200 |
| **Metallo duro sinterizzato** | 10 ~ 30 | ~ 0.2 | ~ 0.5 | DP90 | DP150 |

## Prestazioni di taglio

- **Test taglio continuo (pezzo lavorato: Al-25%Si)**
- **Test taglio interrotto (pezzo lavorato: Al-20%Si)**
- **Test metallo duro sinterizzato**

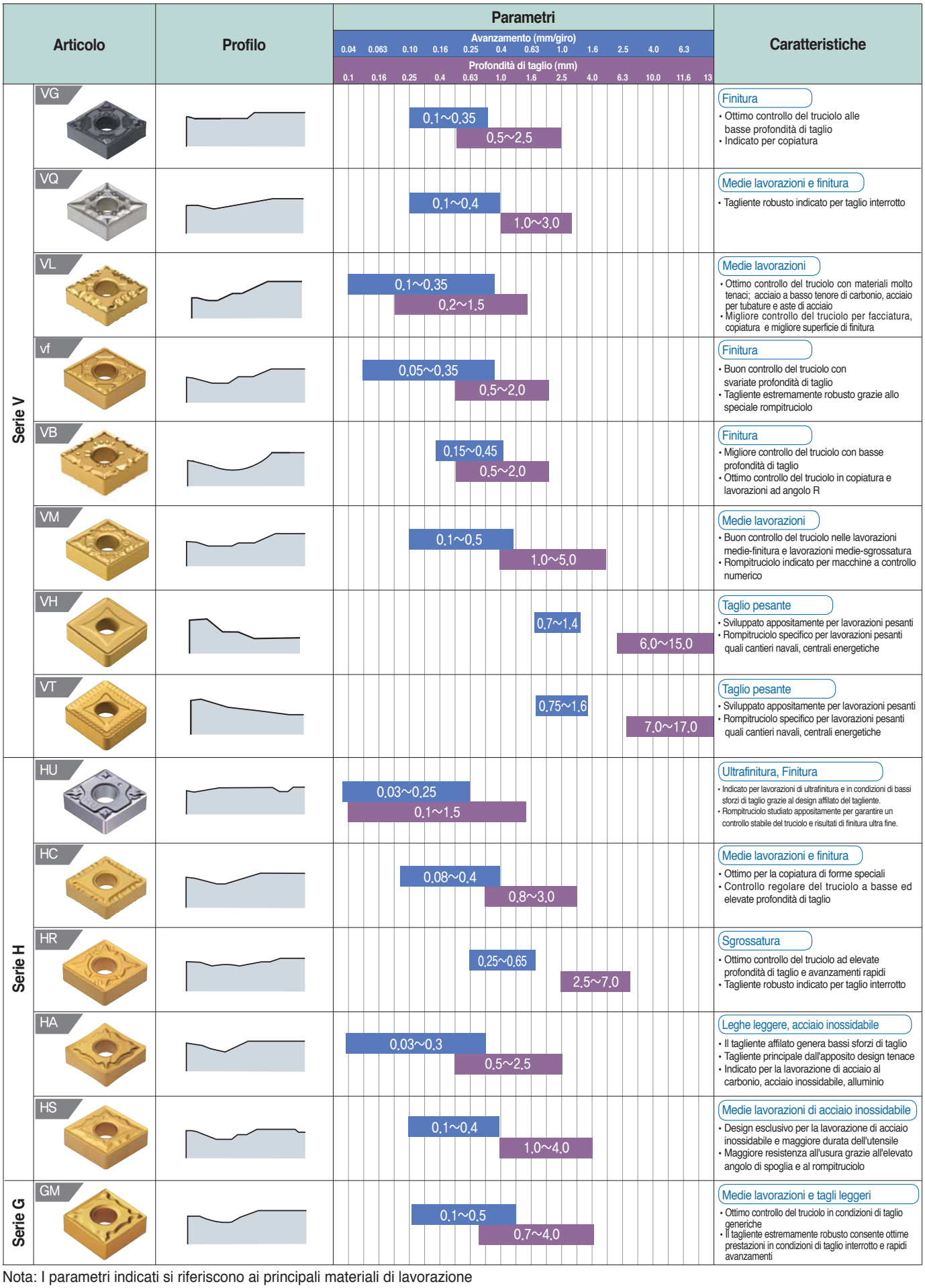


# A Rompitrucioli (tornitura)

## Rompitrucioli KORLOY per tornitura




Nota: I parametri indicati si riferiscono ai principali materiali di lavorazione

## Rompitrucioli KORLOY per tornitura

| Articolo | | Profilo | Parametri | Caratteristiche |
|---|---|---|---|---|
| Serie G | GR | | Avanzamento (mm/giro): 0.3~0.8; 3.0~8.0 | Medie lavorazioni e sgrossatura<br>• Indicato per elevate profondità di taglio e rapidi avanzamenti nelle lavorazioni di acciaio e ghisa<br>• Indicato per taglio interrotto |
| | GH | | Avanzamento (mm/giro): 0.3~1.3; 3.0~11.0 | Taglio pesante<br>• Indicato per tagli pesanti grazie al tagliente estremamente robusto<br>• Buon controllo del truciolo e bassi sforzi di taglio |
| | GS | | Avanzamento (mm/giro): 0.15~0.5; 1.5~5.5 | Medie lavorazioni e sgrossatura di acciaio inossidabile<br>• Rompitruciolo esclusivo per acciaio inossidabile |
| Serie B | B25 | | Avanzamento (mm/giro): 0.5~1.0; 4.0~10.0 | Uso generico<br>• Indicato per condizioni di taglio generiche |
| Serie V-posi | vf | | Avanzamento (mm/giro): 0.05~0.25; 0.1~1.5 | Finitura<br>• Migliore superficie di finitura applicabile in alesatura |
| Serie H-posi | HFP | | Avanzamento (mm/giro): 0.05~0.25; 0.1~1.5 | Finitura<br>• Ottimo controllo del truciolo a basse profondità di taglio e bassi avanzamenti<br>• Ottima superficie di finitura del pezzo lavorato grazie al minore sforzo di taglio<br>• Indicato per alesatura fine |
| | HMP | | Avanzamento (mm/giro): 0.02~0.4; 0.5~3.5 | Medie lavorazioni<br>• Ottimo controllo del truciolo in un'ampia gamma di condizioni di taglio<br>• Indicato per la lavorazione dell'acciaio inossidabile |
| Serie C | C25 | | Avanzamento (mm/giro): 0.1~0.35; 1.0~3.0 | Medie lavorazioni<br>• Indicato per taglio interrotto di ghisa<br>• Buona superficie di finitura grazie ai minori sforzi di taglio<br>• Indicato per alesatura e tornitura esterne |
| Serie AL | AK | | Avanzamento (mm/giro): 0.03~0.4; 0.1~4.0 | Lavorazione dell'alluminio<br>• L'elevato angolo di spoglia e la dolcezza del tagliente consentono una lunga durata dell'utensile in condizioni di taglio continuo per la tornitura dell'alluminio<br>• Lavorazioni di finitura ad alte velocità |
| | AR | | Avanzamento (mm/giro): 0.05~0.5; 0.5~4.0 | Lavorazione dell'alluminio<br>• L'elevata stabilità del tagliente consente ottime prestazioni in condizioni di taglio interrotto ad alte velocità<br>• Medie lavorazioni di taglio interrotto ad alte velocità |
| Serie Auto tool | KF | | Avanzamento (mm/giro): 0.01~0.12; 0.01~1.0 | Finitura<br>• Basse profondità di taglio e tagliente affilato<br>• Maggiore durata dell'utensile nelle lavorazioni ad alte velocità grazie al ridotto sforzo di taglio<br>• Buona superficie di finitura |
| | KM | | Avanzamento (mm/giro): 0.04~0.15; 0.05~1.5 | Medie lavorazioni e finitura<br>• Migliore controllo del truciolo per una durata maggiore dell'utensile e migliori risultati di lavorazione |
| Serie utensili Wiper | LW | | Avanzamento (mm/giro): 0.15~0.6; 1.0~5.0 | Medie lavorazioni (Wiper)<br>• Garantisce un'eccellente superficie di sgrossatura e un buon controllo del truciolo con avanzamenti rapidi |
| | VW | | Avanzamento (mm/giro): 0.15~0.5; 0.5~3.5 | Finitura (Wiper)<br>• Migliore superficie di sgrossatura a basse profondità di taglio e rapidi avanzamenti grazie al tagliente robusto |

Avanzamento (mm/giro): 0.04 0.063 0.10 0.16 0.25 0.4 0.63 1.0 1.6 2.5 4.0 6.3

Profondità di taglio (mm): 0.1 0.16 0.25 0.4 0.63 1.0 1.6 2.5 4.0 6.3 10.0 11.6 13

Nota: I parametri indicati si riferiscono ai principali materiali di lavorazione

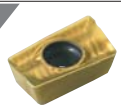
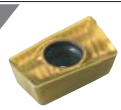
# A Rompitrucioli (fresatura)

## Rompitrucioli KORLOY per fresatura

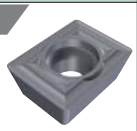
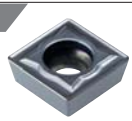
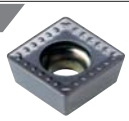
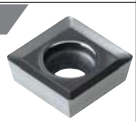
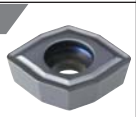
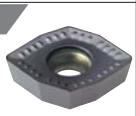
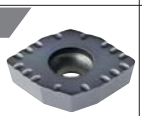
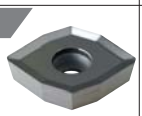
| Articolo | | Profilo | Parametri: Avanzamento (mm/dente) 0.04 0.063 0.10 0.16 0.25 0.4 0.63 1.0 1.6 2.5 4.0 6.3 — Profondità di taglio (mm) 0.1 0.16 0.25 0.4 0.63 1.0 1.6 2.5 4.0 6.3 10.0 11.6 13 | Caratteristiche |
|---|---|---|---|---|
| Serie MX | MX | | 0.1~0.3 / 1.0~5.0 | **Fresatura generica**<br>• Permette di aumentare la produttività con avanzamenti e profondità maggiori<br>• Ottima resistenza al calore grazie allo speciale design del rompitruciolo sul lato superiore dell'inserto |
| Serie Futur Mill | MF | | 0.05~0.2 / 0.5~'5.0 | **Finitura per fresatura**<br>• Design speciale per materiali facili da tagliare o pastosi come l'acciaio inossidabile nonché per materiale duro da tagliare; consente di realizzare ottime superfici di finitura e garantisce una maggiore durata dell'utensile |
| | MM | | 0.05~0.3 / 1.0~5.0 | **Medie lavorazioni per fresatura**<br>• Rompitruciolo indicato per condizioni di taglio generiche in grado di soddisfare un'ampia gamma di applicazioni<br>• Disponibile rettificato e sinterizzato |
| | MR | | 0.05~0.35 / 1.5~5.0 | **Sgrossatura per fresatura**<br>• Il tagliente estremamente robusto consente una maggiore durata dell'utensile anche in caso di pesanti condizioni di taglio interrotto e di sgrossatura |
| | MA | | 0.1~0.35 / 0.5~5.0 | **Fresatura per alluminio**<br>• Design studiato per la lavorazione dell'alluminio con tagliente affilato e lato superiore dell'inserto lappato per evitare riporto sul tagliente e ottenere eccellenti prestazioni di taglio |
| Serie RM8 RichMill | MA | | 0.05~0.35 / 0.3~6.0 | **Alluminio**<br>• Tagliente affilato e lato superiore lucido dell'inserto per ottenere un'ottima evacuazione del truciolo e resistenza alla saldatura nella lavorazione dell'alluminio |
| | MF | | 0.05~0.35 / 0.3~6.0 | **Finitura per fresatura**<br>• Il design del rompitruciolo consente bassi sforzi di taglio garantendo una maggiore durata dell'utensile e prestazioni eccellenti nella lavorazione di materiale difficile da tagliare e nelle lavorazioni leggere |
| | MM | | 0.1~0.4 / 0.5~6.0 | **Medie lavorazioni e sgrossatura per fresatura**<br>• Design indicato per fresatura generica e un'ampia gamma di applicazioni |
| Serie RM4 RichMill | MA | | 0.05~0.25 / 0.3~14.0 | **Lavorazione dell'alluminio**<br>• Il tagliente affilato genera bassi sforzi di taglio e prestazioni eccellenti nella lavorazione di materiale difficile da tagliare, di alluminio e nelle lavorazioni leggere |
| | MF | | 0.05~0.3 / 0.5~14.0 | **Finitura per fresatura**<br>• Il design del rompitruciolo consente bassi sforzi di taglio garantendo una maggiore durata dell'utensile e prestazioni eccellenti nella lavorazione di materiale difficile da tagliare e nelle lavorazioni leggere |
| | MM | | 0.05~0.3 / 1.0~14.0 | **Medie lavorazioni e sgrossatura per fresatura**<br>• Design indicato per fresatura generica e un'ampia gamma di applicazioni |
| Serie RMT RichMill | MF | | 0.05~0.2 / 0.5~5.0 | **Finitura per fresatura**<br>• Il design del rompitruciolo consente bassi sforzi di taglio garantendo una maggiore durata dell'utensile e prestazioni eccellenti nella lavorazione di materiale difficile da tagliare e nelle lavorazioni leggere |
| | MM | | 0.05~0.3 / 0.5~8.0 | **Medie lavorazioni e sgrossatura per fresatura**<br>• Design indicato per fresatura generica e un'ampia gamma di applicazioni |
| Serie RM16 RichMill | MA | | 0.05~0.3 / 0.3~5.5 | **Lavorazione dell'alluminio**<br>• Il tagliente affilato genera bassi sforzi di taglio e prestazioni eccellenti nella lavorazione di materiale difficile da tagliare, di alluminio e nelle lavorazioni leggere |
| | MF | | 0.05~0.4 / 0.3~5.5 | **Finitura per fresatura**<br>• Il design del rompitruciolo consente bassi sforzi di taglio garantendo una maggiore durata dell'utensile e prestazioni eccellenti nella lavorazione di materiale difficile da tagliare e nelle lavorazioni leggere |
| | MM | | 0.1~0.45 / 0.5~5.5 | **Medie lavorazioni e sgrossatura per fresatura**<br>• Design indicato per fresatura generica e un'ampia gamma di applicazioni |
| | W | | 0.05~0.3 / 0.3~2.0 | **Finitura per fresatura (Wiper)**<br>• Grazie al tagliente speciale, l'inserto Wiper consente una migliore superficie di sgrossatura |

Nota: I parametri indicati si riferiscono ai principali materiali di lavorazione

## Rompitrucioli KORLOY per fresatura

| Articolo | | Profilo | Parametri<br>Avanzamento (mm/dente): 0.04 0.063 0.10 0.16 0.25 0.4 0.63 1.0 1.6 2.5 4.0 6.3<br>Profondità di taglio (mm): 0.1 0.16 0.25 0.4 0.63 1.0 1.6 2.5 4.0 6.3 10.0 11.6 13 | Caratteristiche |
|---|---|---|---|---|
| Serie Alpha Mill | MA  |  | 0,1~0,4<br>0,5~16 | Alluminio<br>• Tagliente affilato e lato superiore lucido dell'inserto per ottenere un'ottima evacuazione del truciolo e resistenza alla saldatura nella lavorazione dell'alluminio |
| | MF  |  | 0,05~0,15<br>0,5~16 | Finitura per fresatura<br>• Il design del rompitruciolo consente bassi sforzi di taglio garantendo una maggiore durata dell'utensile e prestazioni eccellenti nella lavorazione di materiale difficile da tagliare e nelle lavorazioni leggere |
| | MM  |  | 0,1~0,25<br>0,5~16 | Medie lavorazioni e sgrossatura per fresatura<br>• Design indicato per fresatura generica e un'ampia gamma di applicazioni |

## Rompitrucioli KORLOY per foratura

| Articolo | | Profilo | Parametri<br>Avanzamento (mm/giro): 0.04 0.063 0.10 0.16 0.25 0.4 0.63 1.0 1.6 2.5 4.0 6.3<br>Profondità di taglio (mm): 30 60 90 120 150 180 210 240 270 300 330 900 | Caratteristiche |
|---|---|---|---|---|
| Serie LPDrill | DF  |  | 0,02~0,10<br>70~150 | Finitura per foratura<br>• Design indicato per forature di piccoli diametri<br>• Consente di ottenere ottime prestazioni di taglio ad alte velocità e rapidi avanzamenti |
| Serie SPDrill | DF  |  | 0,02~0,12<br>70~170 | Finitura per foratura<br>• Rompitruciolo per forature generiche, garantisce lunga durata all'utensile e buone prestazioni di taglio a basse velocità e avanzamenti ridotti specialmente nella lavorazione di materiali difficili da tagliare |
| | DM  |  | 0,04~0,15<br>70~170 | Acciaio generico, ghisa<br>• Rompitruciolo per forature generiche, riduce gli sforzi di taglio e consente un ottimo controllo del truciolo specialmente nelle forature di piccoli diametri garantendo maggiore durata dell'utensile ed eccellenti prestazioni di taglio |
| | DS  |  | 0,04~0,15<br>50~120 | Foratura di acciaio inossidabile<br>• Inserto per foratura di acciaio inossidabile, con elevato angolo di spoglia e geometria convessa sul lato superiore che consentono un buon controllo del truciolo e maggiore durata dell'utensile |
| | DA  |  | 0,04~0,16<br>150~300 | Foratura di alluminio<br>• Inserto per foratura di alluminio, con tagliente affilato e lato superiore dell'inserto lappato. Previene il riporto sul tagliente e consente un'ottima evacuazione del truciolo |
| Serie NPDrill | DM  |  | 0,06~0,25<br>70~170 | Medie lavorazioni per foratura<br>• Applicazione principale per acciaio e ghisa<br>• Tagliente molto robusto indicato per forature a taglio interrotto |
| | DS  |  | 0,06~0,18<br>50~120 | Foratura di acciaio inossidabile<br>• Design studiato per foratura di acciaio inossidabile con tagliente e rompitruciolo affilati |
| | DR  |  | 0,04~0,18<br>30~90 | Sgrossatura di acciaio morbido<br>• Sgrossatura di acciaio morbido<br>• Tagliente robusto indicato per forature con taglio interrotto ed eccellenti prestazioni |
| | DA  |  | 0,06~0,25<br>50~300 | Foratura di alluminio<br>• Design indicato per la lavorazione dell'alluminio<br>• Tagliente affilato e superficie lucida per evitare il riporto sul tagliente<br>• Consente di ottenere ottime prestazioni di foratura dell'alluminio ad alte velocità |

Nota: I parametri indicati si riferiscono ai principali materiali di lavorazione



# INDICE

# Tornitura

B


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Sistema di lavorazione KM B129

## Cartucce

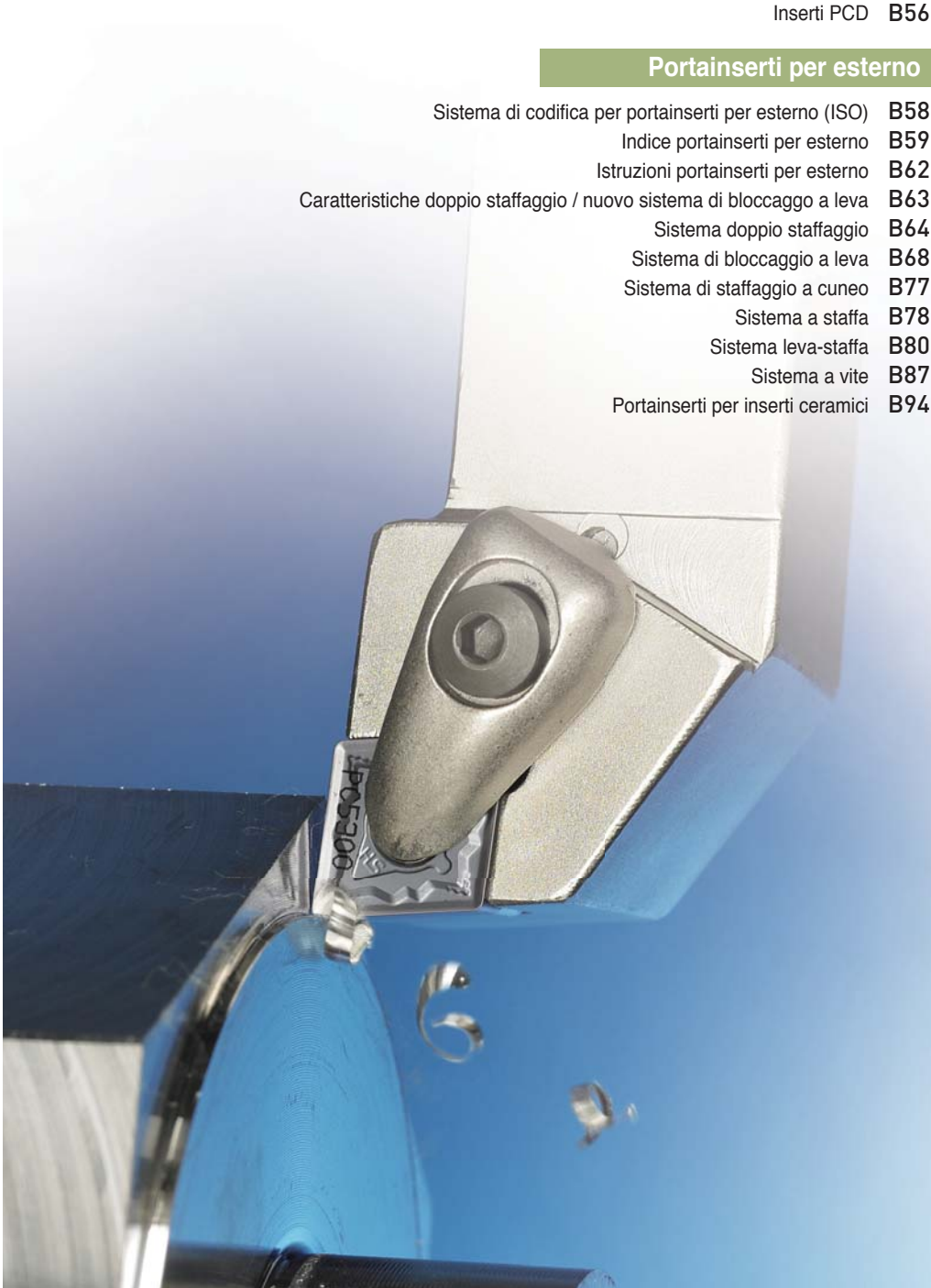
Sistema di codifica per cartucce (ISO) B133
Indice cartucce B134
Sistema a staffa B135
Sistema a vite B137

## Auto Tools

Informazioni tecniche B139
Esempi di applicazione / Indice B140
Tipo ISO B141
Tipo multifunzione B143
Tipo MGT B145

## Utensili MSB

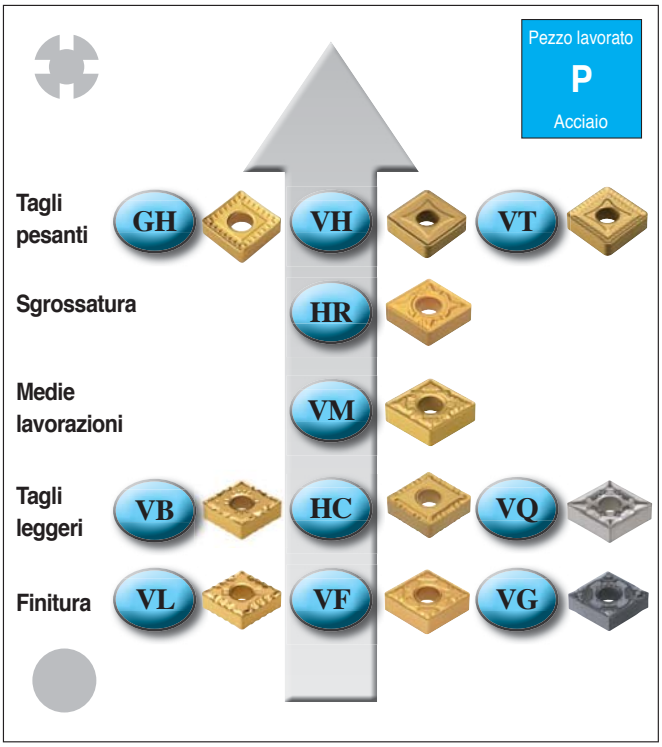
Sistema di codifica per utensili MSB (ISO) B146
Utensili MSB B148
Manicotti B152

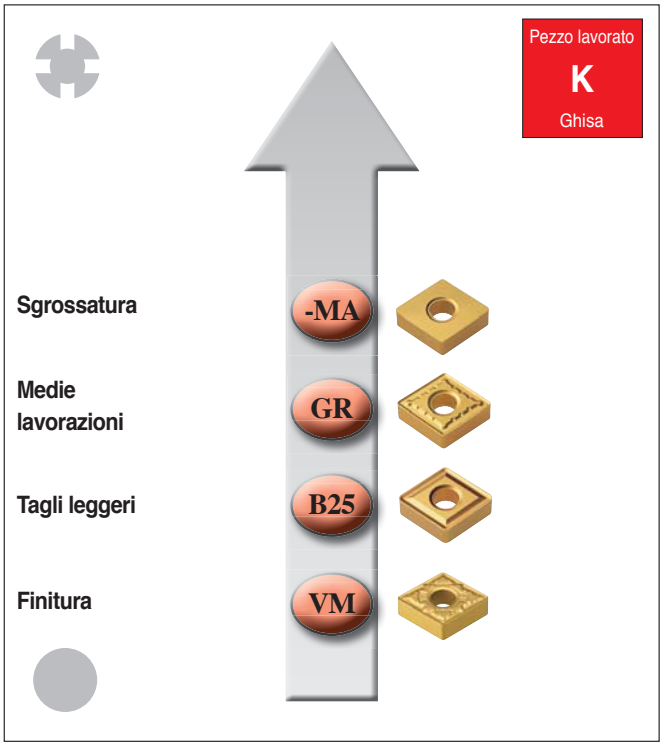



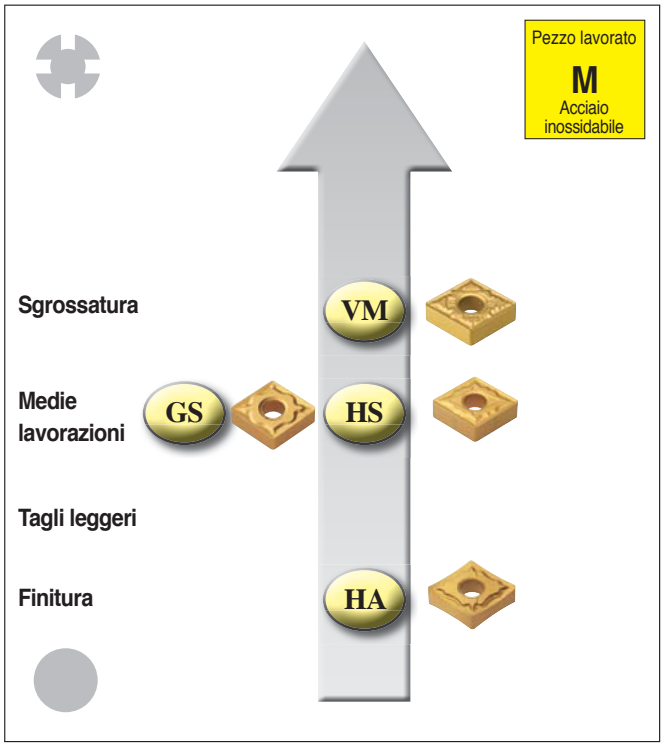
# B Rompitrucioli per tornitura

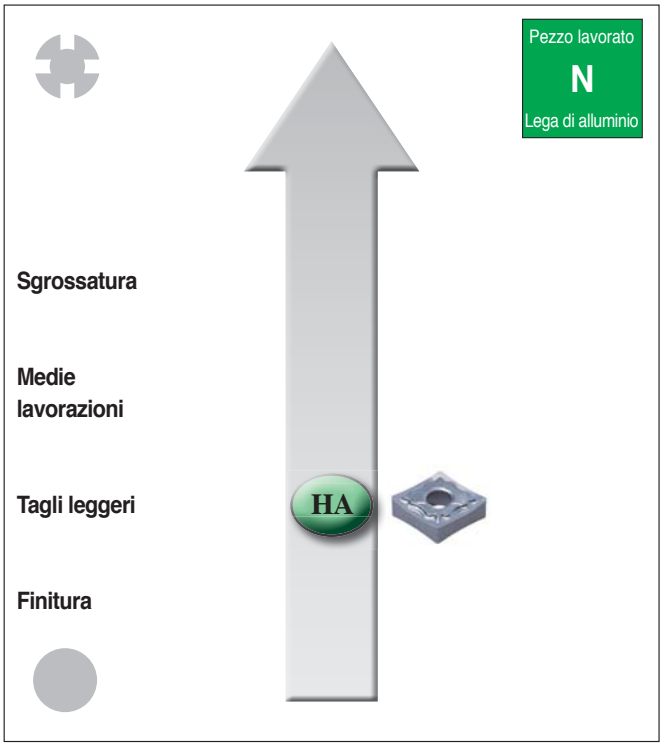
## Applicazioni dei rompitrucioli

### Inserti negativi

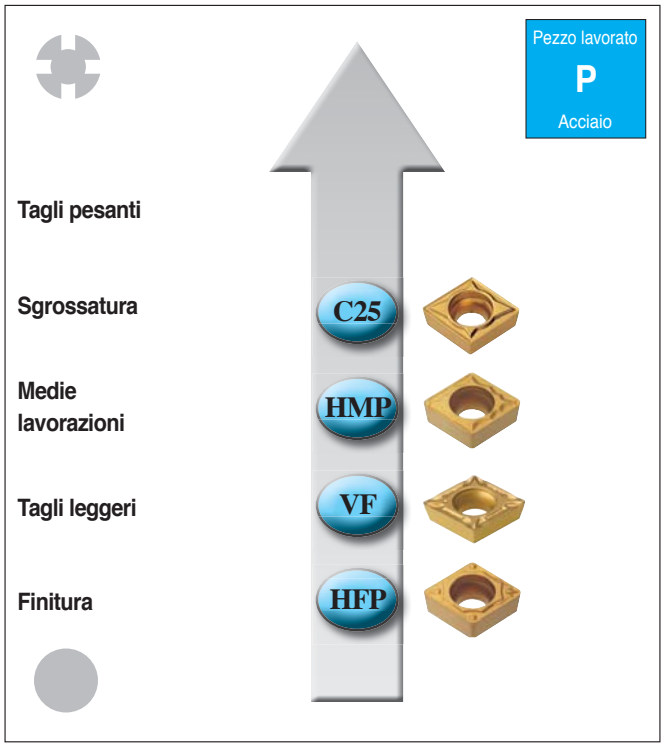


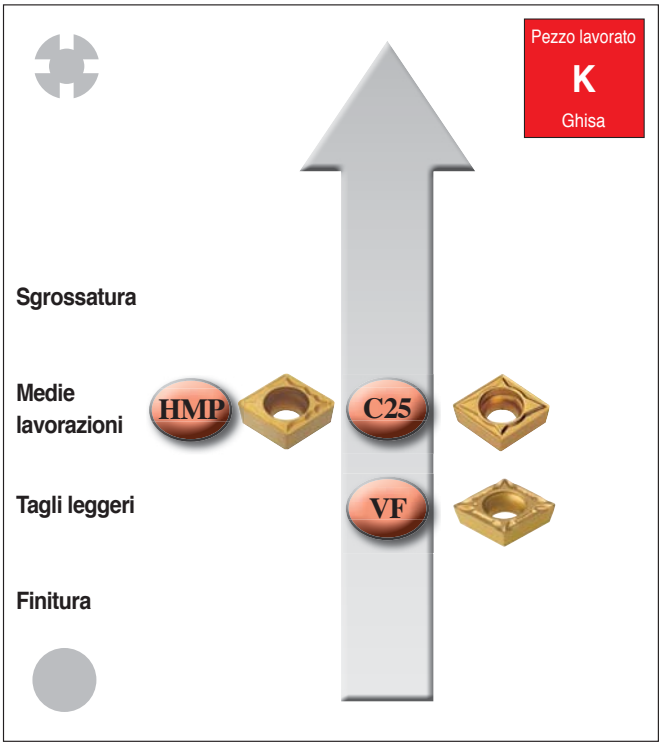



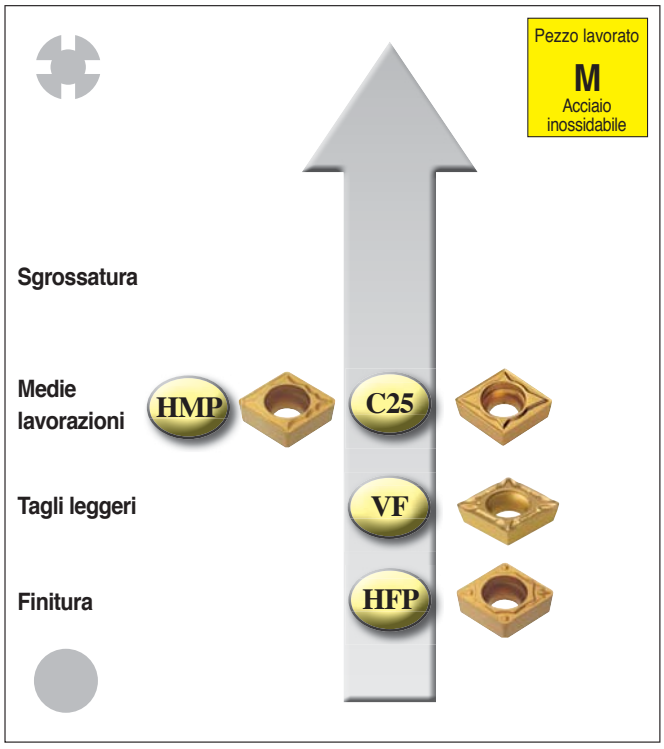



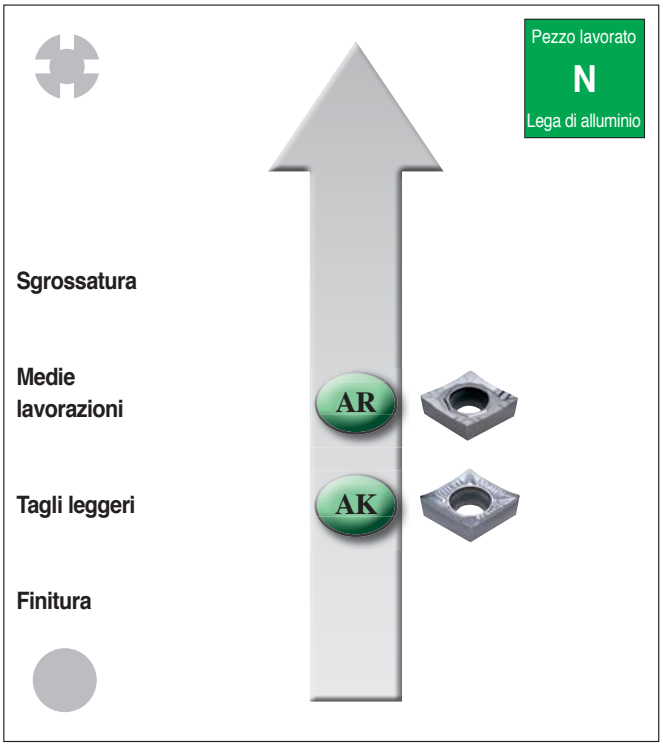



## Inserti positivi



# B Rompitrucioli per tornitura

## Rompitrucioli raccomandati per pezzo lavorato

**Materiale : SM10C, SM15C, SM25C, SS400, SCr415, SCM415 ecc. Acciaio morbido**
**Durezza : inferiore a 180HB**

Pezzo lavorato
**P**
Acciaio

| | Profondità di taglio (mm) | Rompitruciolo | Profilo | Avanzamento (mm/giro) | Gradi | Velocità di taglio (m/min) | Forma dell'inserto 80° | 55° | 90° | 60° | 35° | 80° |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Negativo | 0.1 ~ **0.5** ~ 1.5 Finitura | HU | | 0.03 ~ **0.10** ~ 0.25 | CT10 | 280 | CNG(M)G p.B17 | DNG(M)G p.B19, B20 | SNG(M)G p.B22, B24 | TNG(M)G p.B26, B28 | | |
| | 0.2 ~ **0.8** ~ 1.5 Finitura | VL | | 0.1 ~ **0.2** ~ 0.35 | NC3010<br>NC3020 | 300<br>250 | CNMG p.B17 | DNMG p.B20 | SNMG p.B24 | TNMG p.B28 | VNMG p.B30 | WNMG p.B32 |
| | 0.5 ~ **1.0** ~ 1.5 Finitura | vf | | 0.05 ~ **0.15** ~ 0.35 | NC3010<br>NC3120<br>NC5330 | 310<br>270<br>230 | CNMG p.B17 | DNMG p.B20 | SNMG p.B24 | TNMG p.B28 | VNMG p.B30 | WNMG p.B32 |
| | 0.5 ~ **1.0** ~ 2.0 Finitura | VB | | 0.15 ~ **0.2** ~ 0.4 | NC3010<br>NC3020 | 300<br>250 | CNMG p.B17 | DNMG p.B20 | | | | |
| | 0.8 ~ **1.5** ~ 3.5 Medie lavorazioni - finitura | HA | | 0.10 ~ **0.20** ~ 0.40 | NC3010<br>NC3120<br>NC9025 | 300<br>230<br>180 | CNMG p.B16 | DNMG p.B19 | SNMG p.B23 | TNMG p.B27 | VNMG p.B30 | WNMG p.B31 |
| | 0.8 ~ **1.5** ~ 3.0 Medie lavorazioni - finitura | HC | | 0.08 ~ **0.20** ~ 0.40 | NC3010<br>NC3120<br>NC5330 | 290<br>250<br>210 | CNMG p.B16 | DNMG p.B19 | SNMG p.B24 | TNMG p.B27 | | WNMG p.B31 |
| | 1.0 ~ **2.5** ~ 5.0 Medie lavorazioni | VM | | 0.10 ~ **0.25** ~ 0.50 | NC3010<br>NC3120<br>NC3030<br>NC5330<br>CN2000 | 270<br>230<br>210<br>200<br>220 | CNMG p.B18 | DNMG p.B20 | SNMG p.B24 | TNMG p.B28 | VNMG p.B30 | WNMG p.B32 |
| | 2.5 ~ **4.0** ~ 7.0 Sgrossatura | HR | | 0.25 ~ **0.45** ~ 0.65 | NC3010<br>NC3120<br>NC3030 | 150<br>130<br>100 | CNMG p.B17 | DNMG p.B19 | SNMG p.B24 | TNMG p.B28 | | WNMG p.B31 |
| | 6.0 ~ **10.0** ~ 15.0 Tagli pesanti | VH | | 0.7 ~ **1.0** ~ 1.4 | NC3010<br>NC3030<br>NC500H<br>NC5330 | 50~250<br>50~150<br>50~150<br>50~150 | CNMM p.B18 | | SNMM p.B25 | | | |
| | 7.0 ~ **12.0** ~ 17.0 Tagli pesanti (sgrossatura pesante) | VT | | 0.75 ~ **1.2** ~ 1.6 | NC3010<br>NC3030<br>NC500H<br>NC5330 | 50~250<br>50~150<br>50~150<br>50~150 | CNMM p.B18 | | SNMM p.B25 | | | |
| Positivo | 0.1 ~ **0.5** ~ 1.5 Finitura | vf | | 0.5 ~ **0.15** ~ 0.25 | NC3010<br>NC3120<br>NC5330<br>CC105 | 280<br>250<br>250<br>260 | CCMT p.B34 | DCMT p.B35 | SCMT p.B36 | TCMT p.B39 | VCMT p.B43 | |
| | 0.1 ~ **0.5** ~ 1.5 Finitura | HFP | | 0.05 ~ **0.15** ~ 0.25 | NC3010<br>NC3120<br>NC5330<br>CC105 | 280<br>250<br>220<br>250 | CCG(M)T p.B33, B34 | DCG(M)T p.B35 | SCG(M)T p.B36 | TCG(M)T p.B39 | VCG(M)T p.B43 | |
| | 0.5 ~ **1.5** ~ 3.5 Medie lavorazioni - finitura Medie lavorazioni | HMP | | 0.08 ~ **0.20** ~ 0.40 | NC3010<br>NC3120<br>NC5330<br>CN2000 | 260<br>230<br>200<br>230 | CCMT p.B34 | DCMT p.B35 | SCMT p.B36 | TCMT p.B39 | VCMT p.B43 | |
| | 1.0 ~ **2.0** ~ 3.0 Medie lavorazioni | C25 | | 0.10 ~ **0.25** ~ 0.35 | NC3010<br>NC3120<br>NC5330 | 250<br>220<br>200 | CCMT p.B33 | DCMT p.B35 | SCMT p.B36 | TCMT p.B39 | | |

● : Condizioni di taglio raccomandate

## Rompitrucioli raccomandati per pezzo lavorato

Pezzo lavorato
**P**
Acciaio

### Materiale : S45C, S55C, SCM430, SCM440 ecc. Acciaio generico
### Durezza: inferiore a 180~260HB

| Profondità di taglio (mm) | | Rompitruciolo | Profilo | Avanzamento (mm/giro) | Gradi | Velocità di taglio (m/min) | Forma dell'inserto 80° | 55° | 90° | 60° | 35° | 80° |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Negativo | 0.5 ~ 1.0 ~ 1.5 Finitura | vf | | 0.05 ~ 0.15 ~ 0.35 | NC3010<br>NC3020<br>NC3120 | 220<br>200<br>190 | CNMG p.B17 | DNMG p.B20 | SNMG p.B24 | TNMG p.B28 | VNMG p.B30 | WNMG p.B32 |
| | 0.5 ~ 1.0 ~ 2.0 Finitura | VB | | 0.15 ~ 0.2 ~ 0.4 | NC3010<br>NC3020 | 300<br>250 | CNMG p.B17 | DNMG p.B20 | | | | |
| | 0.8 ~ 1.5 ~ 3.0 Medie lavorazioni - finitura | HC | | 0.08 ~ 0.20 ~ 0.40 | NC3010<br>NC3020<br>NC3120<br>NC3030 | 210<br>190<br>180<br>160 | CNMG p.B16 | DNMG p.B19 | SNMG p.B24 | TNMG p.B27 | | WNMG p.B31 |
| | 1.0 ~ 2.5 ~ 5.0 Medie lavorazioni | VM | | 0.10 ~ 0.25 ~ 0.50 | NC3010<br>NC3020<br>NC3120<br>NC3030 | 200<br>180<br>170<br>150 | CNMG p.B18 | DNMG p.B20 | SNMG p.B24 | TNMG p.B28 | VNMG p.B30 | WNMG p.B32 |
| | 2.5 ~ 4.0 ~ 7.0 Sgrossatura | HR | | 0.25 ~ 0.45 ~ 0.65 | NC3010<br>NC3020<br>NC3120<br>NC3030 | 170<br>150<br>150<br>130 | CNMG p.B17 | DNMG p.B19 | SNMG p.B24 | TNMG p.B28 | | WNMG p.B31 |
| | 6.0 ~ 10.0 ~ 15.0 Tagli pesanti | VH | | 0.7 ~ 1.0 ~ 1.4 | NC3010<br>NC3030<br>NC500H<br>NC5330 | 50~250<br>50~150<br>50~150<br>50~150 | CNMM p.B18 | | SNMM p.B25 | | | |
| | 7.0 ~ 12.0 ~ 17.0 Tagli pesanti (sgrossatura pesante) | VT | | 0.75 ~ 1.2 ~ 1.6 | NC3010<br>NC3030<br>NC500H<br>NC5330 | 50~250<br>50~150<br>50~150<br>50~150 | CNMM p.B18 | | SNMM p.B25 | | | |
| Positivo | 0.1 ~ 0.5 ~ 1.5 Finitura | vf | | 0.05 ~ 0.15 ~ 0.25 | NC3010<br>NC3120<br>NC5330<br>CC105 | 280<br>250<br>250<br>260 | CCMT p.B34 | DCMT p.B35 | SCMT p.B36 | TCMT p.B39 | VCMT p.B43 | |
| | 0.1 ~ 0.5 ~ 1.5 Finitura | HFP | | 0.05 ~ 0.15 ~ 0.25 | NC3010<br>NC3120<br>NC5330<br>CC105 | 220<br>190<br>180<br>200 | CCG(M)T p.B33, B34 | DCG(M)T p.B35 | SCG(M)T p.B36 | TCG(M)T p.B39 | VCG(M)T p.B43 | |
| | 0.5 ~ 1.5 ~ 3.5 Medie lavorazioni - finitura Medie lavorazioni | HMP | | 0.08 ~ 0.20 ~ 0.40 | NC3010<br>NC3020<br>NC3120<br>NC3030<br>CN2000 | 210<br>190<br>180<br>150<br>170 | CCMT p.B34 | DCMT p.B35 | SCMT p.B36 | TCMT p.B39 | VCMT p.B43 | |
| | 1.0 ~ 2.0 ~ 3.0 Medie lavorazioni | C25 | | 0.1 ~ 0.25 ~ 0.35 | NC3010<br>NC3020<br>NC3120<br>NC3030 | 200<br>180<br>170<br>150 | CCMT p.B33 | DCMT p.B35 | SCMT p.B36 | TCMT p.B39 | | |

● : Condizioni di taglio raccomandate

# B Rompitrucioli per tornitura

## Rompitrucioli raccomandati per pezzo lavorato

**Materiale : SNC415, SNC815, SNCM240, SNCM439, STS12, STS61, etc**
**SCM440, Acciaio temprato**
**Durezza : 260~350HB**

Pezzo lavorato
**P**
Acciaio

| | Profondità di taglio (mm) | Rompitruciolo | Profilo | Avanzamento (mm/giro) | Gradi | Velocità di taglio (m/min) | Forma dell'inserto 80° | 55° | 90° | 60° | 35° | 80° |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Negativo | 0.5 ~ **1.0** ~ 1.5 Finitura | vf | | 0.08 ~ **0.15** ~ 0.30 | NC3010 **NC3020** NC3120 | 130 **110** 110 | CNMG p.B17 | DNMG p.B20 | SNMG p.B24 | TNMG p.B28 | VNMG p.B30 | WNMG p.B32 |
| | 0.5 ~ **1.0** ~ 2.0 Finitura | VB | | 0.15 ~ **0.2** ~ 0.4 | NC3010 **NC3020** | 300 **250** | CNMG p.B17 | DNMG p.B20 | | | | |
| | 0.8 ~ **1.5** ~ 3.0 Medie lavorazioni - finitura | HC | | 0.10 ~ **0.20** ~ 0.35 | NC3010 NC3020 **NC3120** NC3030 | 150 130 **130** 110 | CNMG p.B16 | DNMG p.B19 | SNMG p.B24 | TNMG p.B27 | | WNMG p.B31 |
| | 1.0 ~ **2.5** ~ 5.0 Medie lavorazioni sgrossatura pesante | VM | | 0.15 ~ **0.25** ~ 0.50 | NC3010 NC3020 **NC3120** CN2000 | 130 110 **100** 90 | CNMG p.B18 | DNMG p.B20 | SNMG p.B24 | TNMG p.B28 | VNMG p.B30 | WNMG p.B32 |
| | 2.5 ~ **4.0** ~ 7.0 Sgrossatura | HR | | 0.25 ~ **0.35** ~ 0.60 | NC3010 NC3020 **NC3120** NC3030 | 100 90 **90** 80 | CNMG p.B17 | DNMG p.B19 | SNMG p.B24 | TNMG p.B28 | | WNMG p.B31 |
| | 6.0 ~ **10.0** ~ 15.0 Tagli pesanti | VH | | 0.7 ~ **1.0** ~ 1.4 | **NC3010** NC3030 NC500H NC5330 | **50~250** 50~150 50~150 50~150 | CNMM p.B18 | | SNMM p.B25 | | | |
| | 7.0 ~ **12.0** ~ 17.0 Tagli pesanti (sgrossatura pesante) | VT | | 0.75 ~ **1.2** ~ 1.6 | **NC3010** NC3030 NC500H NC5330 | **50~250** 50~150 50~150 50~150 | CNMM p.B18 | | SNMM p.B25 | | | |
| Positivo | 0.1 ~ **0.5** ~ 1.5 Finitura | vf | | 0.05 ~ **0.15** ~ 0.25 | **NC3010** NC3120 NC5330 CC105 | **280** 250 250 260 | CCMT p.B34 | DCMT p.B35 | SCMT p.B36 | TCMT p.B39 | VCMT p.B43 | |
| | 0.1 ~ **0.5** ~ 1.5 Finitura | HFP | | 0.05 ~ **0.15** ~ 0.25 | **NC3010** NC3020 NC3120 CC105 | **130** 120 110 120 | CCG(M)T p.B33, B34 | DCG(M)T p.B35 | SCG(M)T p.B36 | TCG(M)T p.B39 | VCG(M)T p.B43 | |
| | 0.5 ~ **1.5** ~ 3.5 Medie lavorazioni - finitura Medie lavorazioni | HMP | | 0.08 ~ **0.20** ~ 0.40 | NC3010 NC3020 **NC3120** CN2000 | 120 110 **110** 100 | CCMT p.B34 | DCMT p.B35 | SCMT p.B36 | TCMT p.B39 | VCMT p.B43 | |
| | 1.0 ~ **2.0** ~ 3.0 Medie lavorazioni | C25 | | 0.1 ~ **0.25** ~ 0.35 | NC3010 NC3020 **NC3120** NC3030 | 110 100 **100** 90 | CCMT p.B33 | DCMT p.B35 | SCMT p.B36 | TCMT p.B39 | | |

● : Condizioni di taglio raccomandate

## Rompitrucioli raccomandati per pezzo lavorato

- **Materiale : STS304, STS316, STS430, STS630, Ferrite, austenite, martensite acciai inossidabili a indurimento per precipitazione**

  **Durezza : 135~300HB**

Pezzo lavorato **M** Acciaio inossidabile

| | Profondità di taglio (mm) | Rompitruciolo | Profilo | Avanzamento (mm/giro) | Gradi | Velocità di taglio (m/min) | Forma dell'inserto 80° | 55° | 90° | 60° | 35° | 80° |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Negativo | 0.5 ~ 1.5 ~ 2.5 Medie lavorazioni - finitura | HA | | 0.03 ~ 0.15 ~ 0.30 | PC8110<br>NC9025<br>PC5300<br>PC9030 | 250<br>180<br>150<br>120 | CNMG p.B16 | DNMG p.B19 | SNMG p.B23 | TNMG p.B27 | VNMG p.B30 | WNMG p.B31 |
| | 1.0 ~ 2.5 ~ 4.0 Medie lavorazioni | HS | | 0.1 ~ 0.25 ~ 0.40 | PC8110<br>NC9025<br>PC5300<br>PC9030 | 280<br>200<br>160<br>120 | CNMG p.B17 | DNMG p.B20 | SNMG p.B24 | TNMG p.B28 | VNMG p.B30 | WNMG p.B31 |
| | 1.5 ~ 3.0 ~ 5.5 Taglio interrotto sgrossatura pesante | GS | | 0.15 ~ 0.3 ~ 0.50 | PC8110<br>NC9025<br>PC5300<br>PC9030 | 250<br>180<br>150<br>120 | CNMG p.B16 | DNMG p.B19 | SNMG p.B23 | TNMG p.B27 | | WNMG p.B31 |
| | 2.0 ~ 4.5 ~ 6.5 Taglio continuo sgrossatura pesante | VM | | 0.20 ~ 0.40 ~ 0.60 | PC8110<br>NC5330<br>PC5300<br>PC9030 | 250<br>180<br>150<br>120 | CNMG p.B18 | DNMG p.B20 | SNMG p.B24 | TNMG p.B28 | VNMG p.B30 | WNMG p.B32 |
| Positivo | 0.1 ~ 0.5 ~ 1.5 Finitura | HFP | | 0.05 ~ 0.15 ~ 0.25 | PC8110<br>NC5330<br>PC5300<br>PC9030 | 250<br>200<br>180<br>160 | CCG(M)T p.B33, B34 | DCG(M)T p.B35 | SCG(M)T p.B36 | TCG(M)T p.B39 | VCG(M)T p.B43 | |
| | 0.5 ~ 1.5 ~ 3.0 Medie lavorazioni - finitura | HMP | | 0.10 ~ 0.20 ~ 0.30 | PC8110<br>NC5330<br>PC5300<br>PC9030 | 250<br>200<br>180<br>150 | CCMT p.B34 | DCMT p.B35 | SCMT p.B36 | TCMT p.B39 | VCMT p.B43 | |
| | 1.0 ~ 1.5 ~ 3.0 Medie lavorazioni | C25 | | 0.15 ~ 0.25 ~ 0.35 | PC8110<br>NC5330<br>PC5300<br>PC9030 | 250<br>200<br>170<br>140 | CCMT p.B33 | DCMT p.B35 | SCMT p.B36 | TCMT p.B39 | | |

● : Condizioni di taglio raccomandate

# B Rompitrucioli per tornitura

## Rompitrucioli raccomandati per pezzo lavorato

**Materiale : GC250, GC300, GCD400, GCD700, ecc. : Ghisa grigia, ghisa duttile**
**Durezza : 135 ~185HB**
**Carico di rottura : 450N/mm²**

Pezzo lavorato **K** Ghisa

| | Profondità di taglio (mm) | Rompitruciolo | Profilo | Avanzamento (mm/giro) | Gradi | Velocità di taglio (m/min) | Forma dell'inserto 80° | 55° | 90° | 60° | 35° | 80° |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Negativo | 1.0 ~ 2.5 ~ 6.0 Sgrossatura | Rompitruciolo No | | 0.05 ~ 0.10 ~ 0.50 | KB410 KB350 KB370 NC6105 NC6110 NC315K | 150~200 200~500 500~2000 300~500 250~450 150~300 | CNMA p.B16 | DNMA p.B19 | SNGMA p.B22, B23 | TNGMA p.B26 | | |
| | 0.5 ~ 2.0 ~ 3.5 Medie lavorazioni - finitura | B25 | | 0.2 ~ 0.35 ~ 0.6 | NC6105 NC6110 NC315K | 400~450 300~400 150~250 | CNMG p.B16 | DNMG p.B19 | SNMG p.B23 | TNMG p.B27 | VNMG p.B31 | |
| | 1.0 ~ 2.5 ~ 4.0 Medie lavorazioni | VM | | 0.15 ~ 0.30 ~ 0.50 | NC6105 NC6110 NC315K | 450~550 350~450 200~250 | CNMG p.B18 | DNMG p.B20 | SNMG p.B24 | TNMG p.B28 | VNMG p.B30 | WNMG p.B32 |
| | 1.0 ~ 3.0 ~ 4.5 Sgrossatura pesante | GR | | 0.20 ~ 0.35 ~ 0.50 | NC6105 NC6110 NC315K | 450~550 350~450 200~250 | CNMG p.B16 | DNMG p.B19 | SNMG p.B23 | TNMG p.B27 | | WNMG p.B31 |
| | 2.5 ~ 3.5 ~ 6.0 Sgrossatura | HR | | 0.25 ~ 0.35 ~ 0.60 | NC6105 NC6110 NC315K | 400~450 300~400 150~250 | CNMG p.B17 | DNMG p.B19 | SNMG p.B24 | TNMG p.B28 | | WNMG p.B31 |
| | 4.3 ~ 6.5 ~ 10.0 Sgrossatura pesante | GH | | 0.30 ~ 0.70 ~ 1.10 | NC315K NC6110 | 180 150 | CNMM p.B18 | | SNMM p.B25 | | | |
| Positivo | 0.5 ~ 1.5 ~ 3.0 Medie lavorazioni - finitura | HMP | | 0.08 ~ 0.20 ~ 0.40 | NC6105 NC6110 NC315K | 250 230 200 | CCMT p.B34 | DCMT p.B35 | SCMT p.B36 | TCMT p.B39 | VCMT p.B43 | |
| | 1.0 ~ 2.0 ~ 3.5 Medie lavorazioni | C25 | | 0.10 ~ 0.25 ~ 0.40 | NC6105 NC6110 NC315K | 250 230 200 | CCMT p.B33 | DCMT p.B35 | SCMT p.B36 | TCMT p.B39 | | |

● : Condizioni di taglio raccomandate

## Rompitrucioli raccomandati per pezzo lavorato

### Materiale : Lega di alluminio
### Durezza : 20~110HB

Pezzo lavorato
**N**
Lega di alluminio

| | Profondità di taglio (mm) | Rompitruciolo | Profilo | Avanzamento (mm/giro) | Gradi | Velocità di taglio (m/min) | Forma dell'inserto 80° | 55° | 90° | 60° | 35° | 80° |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Negativo | 0.5 ~ 2.0 ~ 6.0 Sgrossatura | HA | | 0.1 ~ 0.2 ~ 0.5 | H01 | 500 | CNMG p.B16 | DNMG p.B19 | SNMG p.B23 | TNMG p.B27 | VNMG p.B30 | WNMG p.B31 |
| Positivo | 0.1 ~ 1.0 ~ 4.0 Medie lavorazioni - finitura | AK | | 0.03 ~ 0.2 ~ 0.4 | H01<br>ND1000<br>PD1000 | 1000<br>1000<br>1000 | CCGT p.B46 | DCGT p.B46 | SCGT p.B47 | TCGT p.B48 | VCGT p.B48 | VCGT p.B47 |
| | 0.5 ~ 1.5 ~ 4.0 Sgrossatura | AR | | 0.05 ~ 0.3 ~ 0.5 | H01<br>ND1000<br>PD1000 | 1000<br>1000<br>1000 | CCGT p.B46 | DCGT p.B46 | SCGT p.B47 | TCGT p.B48 | VBGT p.B48 | RCGT p.B47 |

● : Condizioni di taglio raccomandate

### Materiale : Bronzo, lega di rame
### Durezza: 20~110HB

Pezzo lavorato
**N**
Bronzo, lega di rame

| | Profondità di taglio (mm) | Rompitruciolo | Profilo | Avanzamento (mm/giro) | Gradi | Velocità di taglio (m/min) | Forma dell'inserto 80° | 55° | 90° | 60° | 35° | 80° |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Negativo | 0.5 ~ 2.0 ~ 4.0 Sgrossatura | HA | | 0.1 ~ 0.2 ~ 0.5 | PC130<br>PC230<br>H01 | 500<br>500<br>1000 | CNMG p.B16 | DNMG p.B19 | SNMG p.B23 | TNMG p.B27 | VNMG p.B30 | WNMG p.B31 |
| Positivo | 0.1 ~ 1.0 ~ 3.0 Medie lavorazioni - finitura | AK | | 0.03 ~ 0.2 ~ 0.3 | PC130<br>PC230<br>H01 | 500<br>500<br>1000 | CCGT p.B46 | DCGT p.B46 | SCGT p.B47 | TCGT p.B48 | VCGT p.B48 | VCGT p.B47 |
| | 0.5 ~ 1.5 ~ 3.0 Sgrossatura | AR | | 0.05 ~ 0.25 ~ 0.4 | PC130<br>PC230<br>H01 | 500<br>500<br>1000 | CCGT p.B46 | DCGT p.B46 | SCGT p.B47 | TCGT p.B48 | VBGT p.B48 | RCGT p.B47 |

● : Condizioni di taglio raccomandate

# B Rompitrucioli per tornitura

## Rompitrucioli raccomandati per pezzo lavorato

**Materiale : Inconel, nimonic, stellite, lega di titanio**
**Durezza : 160~350HB**

Pezzo lavorato
**S**
Lega resistente al calore

| Profondità di taglio (mm) | Rompitruciolo | Profilo | Avanzamento (mm/giro) | Gradi | Velocità di taglio (m/min) | Forma dell'inserto: 80° | 55° | 90° | 60° | 35° | 80° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Negativo** 0.5 ~ 1.5 ~ 2.5 Medie lavorazioni - finitura | HA | | 0.03 ~ 0.15 ~ 0.30 | PC8110<br>NC9025<br>PC5300 | 70<br>60<br>50 | CNMG p.B16 | DNMG p.B19 | SNMG p.B23 | TNMG p.B27 | VNMG p.B30 | WNMG p.B31 |
| **Negativo** 1.0 ~ 2.5 ~ 4.0 Medie lavorazioni | HS | | 0.1 ~ 0.25 ~ 0.40 | PC8110<br>NC9025<br>PC5300 | 80<br>50<br>30 | CNMG p.B17 | DNMG p.B20 | SNMG p.B24 | TNMG p.B28 | VNMG p.B30 | WNMG p.B31 |
| **Negativo** 1.5 ~ 3.0 ~ 5.5 Taglio interrotto sgrossatura pesante | GS | | 0.15 ~ 0.3 ~ 0.50 | PC8110<br>NC9025<br>PC5300 | 80<br>50<br>30 | CNMG p.B16 | DNMG p.B19 | SNMG p.B23 | TNMG p.B27 | | WNMG p.B31 |
| **Negativo** 2.0 ~ 4.5 ~ 6.5 Taglio continuo sgrossatura pesante | VM | | 0.20 ~ 0.40 ~ 0.60 | PC8110<br>NC5330<br>PC5300 | 80<br>50<br>30 | CNMG p.B18 | DNMG p.B20 | SNMG p.B24 | TNMG p.B28 | VNMG p.B30 | WNMG p.B32 |
| **Positivo** 0.1 ~ 0.5 ~ 1.5 Finitura | HFP | | 0.05 ~ 0.15 ~ 0.25 | PC8110<br>NC9025<br>PC5300 | 80<br>50<br>30 | CCG(M)T p.B33, B34 | DCG(M)T p.B35 | SCG(M)T p.B36 | TCG(M)T p.B39 | VCG(M)T p.B43 | |
| **Positivo** 0.5 ~ 1.5 ~ 3.0 Medie lavorazioni - finitura | HMP | | 0.10 ~ 0.20 ~ 0.30 | PC8110<br>NC9025<br>PC5300<br>PC9030 | 80<br>50<br>60<br>30 | CCMT p.B34 | DCMT p.B35 | SCMT p.B36 | TCMT p.B39 | VCMT p.B43 | |
| **Positivo** 1.0 ~ 1.5 ~ 3.0 Medie lavorazioni | C25 | | 0.15 ~ 0.25 ~ 0.35 | PC8110<br>NC9025<br>PC5300 | 80<br>50<br>30 | CCMT p.B33 | DCMT p.B35 | SCMT p.B36 | TCMT p.B39 | | |

● : Condizioni di taglio raccomandate

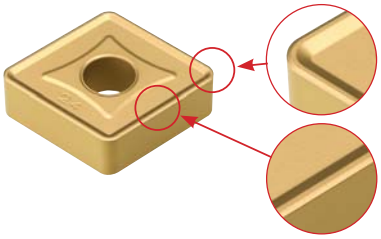
Rompitrucioli

# Rompitrucioli VH / VT (Lavorazioni pesanti) New

- Rompitruciolo adatto per le lavorazioni pesanti tipiche dei cantieri navali e delle centrali energetiche.
- Indicato per grandi macchinari orizzontali per la lavorazione di alberi, rulli, rotori; ottimo per la lavorazione di grandi flange.

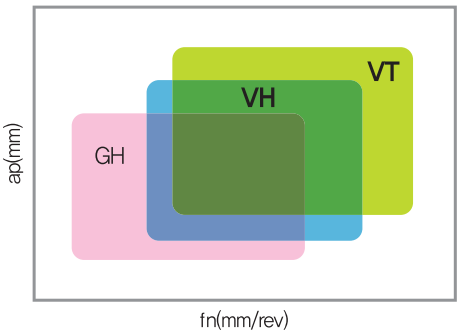
## Caratteristiche speciali di VH

**• Buon controllo del truciolo nelle lavorazioni pesanti (tipo universale)**



- Design studiato per le lavorazioni pesanti
- Buon controllo del truciolo grazie all'elevato angolo di spoglia
- Tagliente più ampio e robusto
- Trattamento speciale sul tagliente per risultato di taglio regolari
- Design speciale dello scarico per un migliore controllo del truciolo

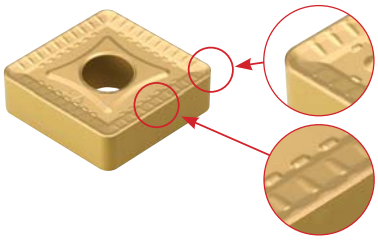
## Applicazioni dei rompitrucioli




**GH** : ap=5.0~12.0mm fn=0.55~1.20mm/giro
**VH** : ap=6.0~15.0mm fn=0.70~1.40mm/giro
**VT** : ap=7.0~17.0mm fn=0.75~1.60mm/giro

## Caratteristiche speciali di VT

**• Lunga durata dell'utensile e taglio regolare (rapidi avanzamenti e alte profondità di taglio) nelle lavorazioni pesanti**



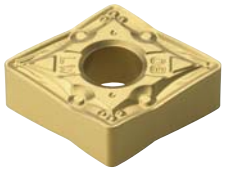
- Design studiato per le lavorazioni pesanti
- Tagliente dal design robusto per tagli lunghi e regolari (angolo di spoglia a 2 step)
- L'ampiezza del tagliente varia in funzione dell'impiego (per una maggiore robustezza)
- La posizione della parte convessa del rompitruciolo riduce il riscaldamento durante la lavorazione, limita l'usura dell'inserto e assorbe gli urti)



# Rompitrucioli LW / VW (Wiper) New

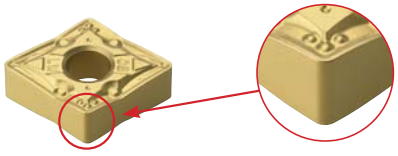
- Migliore produttività grazie ai rapidi avanzamenti e alla superficie di finitura.
- Migliore resistenza all'usura e tenacità.

## Caratteristiche speciali di LW



- **Tagliente curvilineo**
  - Riduce lo sforzo di taglio
- **Design del tagliente in grado di gestire maggiori profondità di taglio**
  - Riduce gli sforzi di taglio e il riscaldamento
- **Design del rompitruciolo in grado di gestire profondità di taglio ridotte**
  - Design speciale dello scarico per un buon controllo del truciolo
- **Profondità di taglio ridotte e basse velocità**
  - Design 3D del tagliente

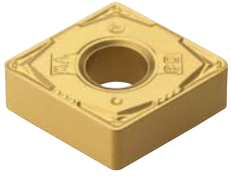
## Vantaggi



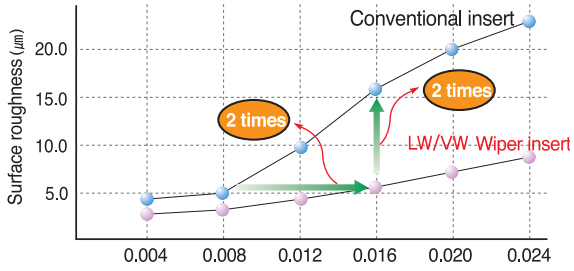

**Inserto Wiper**

- Elevata produttività
- Migliore superficie di sgrossatura
- Rapidi avanzamenti e ridotti tempi di lavorazione
- Maggiore durata dell'utensile grazie allo sforzo di taglio inferiore

## Caratteristiche speciali di VW



- **Eccellenti applicazioni in finitura**
  - Ottimo controllo del truciolo
- **Design dell'inserto indicato per uno staffaggio robusto**
  - Rompitruciolo sviluppato vicino al tagliente
- **Tagliente simile al rompitruciolo per le medie lavorazioni**
  - Tagliente robusto
- **Design 3D sull'angolo del tagliente**
  - Riduce lo sforzo di taglio e consente un buon controllo del truciolo nelle basse profondità di taglio



## Rompitrucioli

# Rompitrucioli VL (Acciaio leggero) New

- Migliore controllo del truciolo nella lavorazione di materiali molto tenaci come l'acciaio a basso tenore di carbonio, tubi, aste in acciaio ecc.
- Migliore controllo del truciolo e sforzo di taglio inferiore su applicazioni esterne, sfacciatura, copiatura.
- Maggiore robustezza del tagliente per per la lavorazione su macchine automatiche.

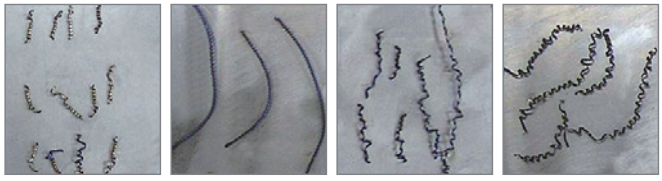
## Caratteristiche speciali di VL



- **Rompitruciolo a 2 step**
  - Indicato per acciai leggeri
  - Buon controllo del truciolo con avanzamenti e profondità di taglio ridotti
- **Design speciale**
  - Buon controllo del truciolo con profondità di taglio ridotte
- **Angolo di spoglia laterale**
  - Migliore controllo del truciolo in sfacciatura e copiatura
  - Sforzi di taglio ridotti e migliore superficie di finitura

## Test controllo del truciolo

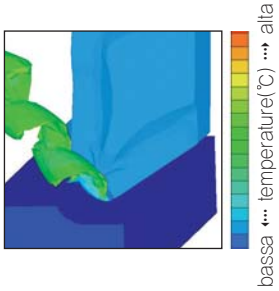
- **Pezzo lavorato** : SM20C
- **Condizioni di taglio** : vc=250m/min fn=0.2mm/giro(lato) ap=0.5mm con refrigerante
- **Descrizione** : DNMG150408-VL

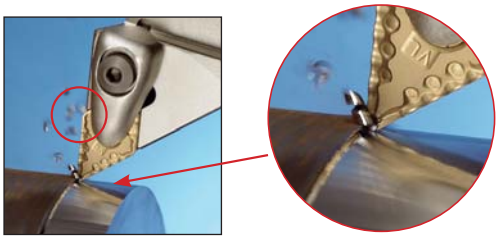


**Rompitrucioli VL** Concorrente A Concorrente B Concorrente C

## Analisi di simulazione taglio FEM

- Il design prevede lo studio della forma del truciolo e della sua evacuazione
- L'ottimo design del rompitruciolo consente una varietà di condizioni di taglio e di pezzi lavorati



# Rompitrucioli VB (Copiatura) New

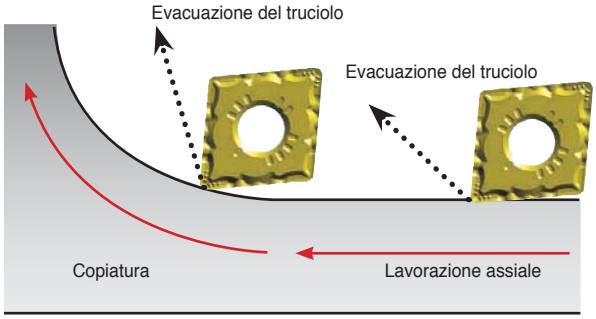
- Rompitruciolo generico indicato per lavorazioni con avanzamenti ridotti e buon controllo del truciolo
- Ottimo controllo del truciolo in copiatura e lavorazioni generiche

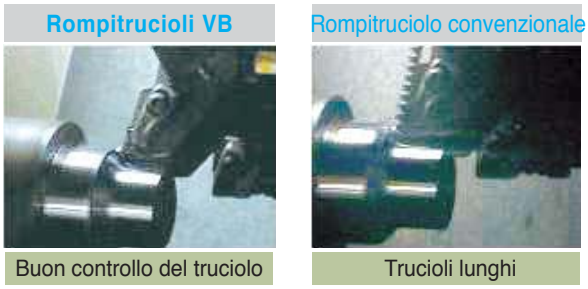
## Caratteristiche speciali di VB



- **Design speciale**
  - Ottimo controllo del truciolo con profondità di taglio ridotte o elevate; migliore controllo del trucciolo in copiatura
- **Angolo di spoglia sulla parte laterale dell'inserto.**
  - Ottimo controllo del truciolo in sfacciatura, copiatura e finitura
- **Tagliente robusto**
  - Indicato per le medie lavorazioni

## Caratteristiche




- **Condizioni di taglio**

WP=SCM420 vc=250m/min fn=0.35mm/giro ap=1.0mm

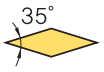


# B Sistema di codifica per inserti di tornitura (ISO)

| C | N | M | G | 12 |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| Forma dell'inserto | Angolo di spoglia | Tolleranza | Caratteristiche costruttive | Lunghezza del tagliente, diametro del cerchio inscritto |

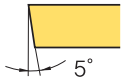
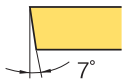
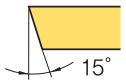
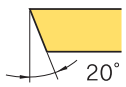
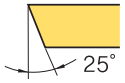
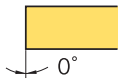
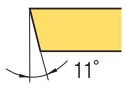
## 1 C N M G 12 04 08 - VM

### Forma dell'inserto

| | | | | |
|---|---|---|---|---|
|  |  |  |  |  |
| C | D | E | K | L |
|  |  |  |  |  |
| R | S | T | V | W |

## 2 C N M G 12 04 08 - VM

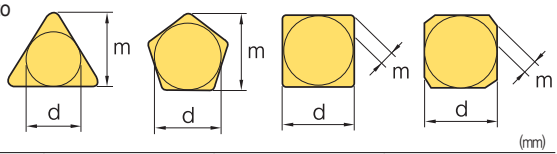
### Angolo di spoglia

| | | | |
|---|---|---|---|
|  |  |  |  |
| B | C | D | E |
|  |  |  | Speciale |
| F | N | P | O |

## 3 C N M G 12 04 08 - VM

### Tolleranza

d : Cerchio inscritto
t : Spessore
m : Vedi disegno



(mm)

| Classe | d | m | t |
|---|---|---|---|
| A | ±0.025 | ±0.005 | ±0.025 |
| C | ±0.025 | ±0.013 | ±0.025 |
| H | ±0.013 | ±0.013 | ±0.025 |
| E | ±0.025 | ±0.025 | ±0.025 |
| G | ±0.025 | ±0.025 | ±0.13 |
| J* | ±0.05 ~ ±0.15 | ±0.005 | ±0.025 |
| K* | ±0.05 ~ ±0.15 | ±0.013 | ±0.025 |
| L* | ±0.05 ~ ±0.15 | ±0.025 | ±0.025 |
| M* | ±0.05 ~ ±0.15 | ±0.08 ~ ±0.20 | ±0.13 |
| N* | ±0.05 ~ ±0.15 | ±0.08 ~ ±0.18 | ±0.025 |
| U* | ±0.08 ~ ±0.25 | ±0.13 ~ ±0.38 | ±0.13 |

* I lati si riferiscono a inserto non raggiato

Tolleranza forma dell'inserto C,E,H,M,O,P,R,S,T,W (caso eccezionale)

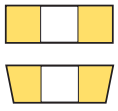
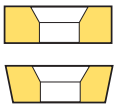
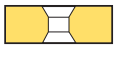
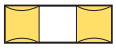
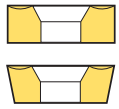
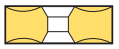
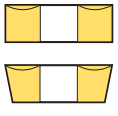
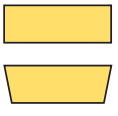
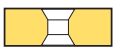
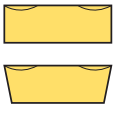
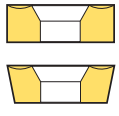
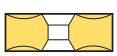
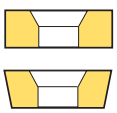
| d | Tolleranza d | | Tolleranza m | |
|---|---|---|---|---|
| | J, K, L, M, N | U | M, N | U |
| 6.35 | ±0.05 | ±0.08 | ±0.08 | ±0.13 |
| 9.525 | ±0.05 | ±0.08 | ±0.08 | ±0.13 |
| 12.7 | ±0.08 | ±0.13 | ±0.13 | ±0.20 |
| 15.875 | ±0.10 | ±0.18 | ±0.15 | ±0.27 |
| 19.05 | ±0.10 | ±0.18 | ±0.15 | ±0.27 |
| 25.4 | ±0.13 | ±0.25 | ±0.18 | ±0.38 |

Tolleranza forma dell'inserto D (caso eccezionale)

| d | Tolleranza d | Tolleranza m |
|---|---|---|
| 6.35 | ±0.05 | ±0.11 |
| 9.525 | ±0.05 | ±0.11 |
| 12.7 | ±0.08 | ±0.15 |
| 15.875 | ±0.10 | ±0.18 |
| 19.05 | ±0.10 | ±0.18 |

## 4 C N M G 12 04 08 - VM

### Caratteristiche costruttive

| | | |
|---|---|---|
|  |  Angolo svasatura 70° ~ 90° |  Angolo svasatura 70° ~ 90° |
| A | B | C |
|  |  |  Angolo svasatura 70° ~ 90° |
| F | G | H |
|  Angolo svasatura 70° ~ 90° |  |  |
| J | M | N |
|  Angolo svasatura 40° ~ 60° |  |  Angolo svasatura 40° ~ 60° |
| Q | R | T |
|  Angolo svasatura 40° ~ 60° |  Angolo svasatura 40° ~ 60° | Speciale |
| U | W | X |

# 04 08 – VM

| 6 | 7 | 8 |
|---|---|---|
| Spessore | Raggio di punta (Nose R) | Rompitruciolo di tornitura |

## 5 C N M G 12 04 08 - VM

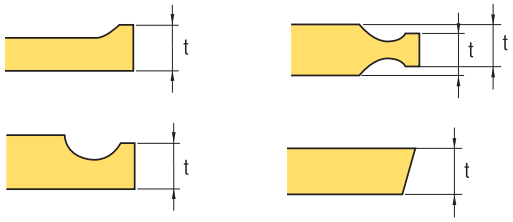
### Lunghezza del tagliente, diametro del cerchio inscritto

| Simbolo | | | | | | | IC |
|---|---|---|---|---|---|---|---|
| C | d | S | T | R | V | W | |
| Metrico | | | | | | | Pollici | d(mm) |
| 03 | 04 | 03 | 06 | 03 | - | 02 | 1.2(5) | 3.97 |
| 04 | 05 | 04 | 08 | 04 | 08 | S3 | 1.5(6) | 4.76 |
| 05 | 06 | 05 | 09 | 05 | 09 | 03 | 1.8(7) | 5.56 |
| - | - | - | - | 06 | - | - | - | 6.00 |
| 06 | 07 | 06 | 11 | 06 | 11 | 04 | 2 | 6.35 |
| 08 | 09 | 07 | 13 | 07 | 13 | 05 | 2.5 | 7.94 |
| - | - | - | - | 08 | - | - | - | 8.00 |
| 09 | 11 | 09 | 16 | 09 | 16 | 06 | 3 | 9.525 |
| - | - | - | - | 10 | - | - | - | 10.00 |
| 11 | 13 | 11 | 19 | 11 | 19 | 07 | 3.5 | 11.11 |
| - | - | - | - | 12 | - | - | - | 12.00 |
| 12 | 15 | 12 | 22 | 12 | 22 | 08 | 4 | 12.70 |
| 14 | 17 | 14 | 24 | 14 | 24 | 09 | 4.5 | 14.29 |
| 16 | 19 | 15 | 27 | 15 | 27 | 10 | 5 | 15.875 |
| - | - | - | - | 16 | - | - | - | 16.00 |
| 17 | 21 | 17 | 30 | 17 | 30 | 11 | 5.5 | 17.46 |
| 19 | 23 | 19 | 33 | 19 | 33 | 13 | 6 | 19.05 |
| - | - | - | - | 20 | - | - | - | 20.00 |
| 22 | 27 | 22 | 38 | 22 | 38 | 15 | 7 | 22.225 |
| - | - | - | - | 25 | - | - | - | 25.00 |
| 25 | 31 | 25 | 44 | 25 | 44 | 17 | 8 | 25.40 |
| 32 | 38 | 31 | 54 | 31 | 54 | 21 | 10 | 31.75 |
| - | - | - | - | 32 | - | - | - | 32.00 |

( ) Simbolo per inserti di piccolo diametro

## 6 C N M G 12 04 08 - VM

### Spessore

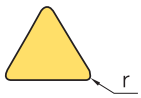



| Simbolo | | Spessore (t) | |
|---|---|---|---|
| Metrico | Pollici | mm | Pollici |
| 01 | 1(2) | 1.59 | 1/16 |
| T0 | 1.125 | 1.79 | 9/128 |
| T1 | 1.2 | 1.98 | 5/64 |
| 02 | 1.5(3) | 2.38 | 3/32 |
| T2 | 1.75 | 2.78 | 7/64 |
| 03 | 2 | 3.18 | 1/8 |
| T3 | 2.5 | 3.97 | 5/32 |
| 04 | 3 | 4.76 | 3/16 |
| 05 | 3.5 | 5.56 | 7/32 |
| 06 | 4 | 6.35 | 1/4 |
| 07 | 5 | 7.94 | 5/16 |
| 09 | 6 | 9.52 | 3/8 |
| 11 | 7 | 11.11 | 7/16 |
| 12 | 8 | 12.70 | 1/2 |

( ) Simbolo per inserti di piccolo diametro

## 7 C N M G 12 04 08 - VM

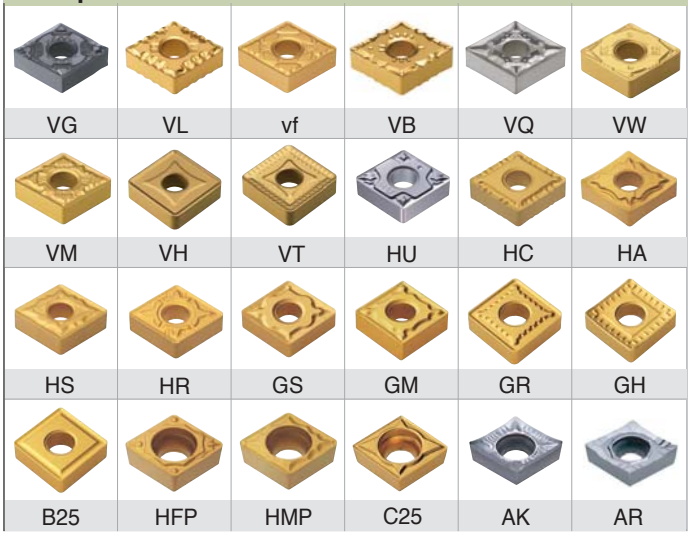
### Raggio di punta




| Simbolo | | Raggio di punta | |
|---|---|---|---|
| Metrico | Pollici | Metrico | Pollici |
| 01 | 0 | 0.1 | 0.004 |
| 02 | 0.5 | 0.2 | 0.008 |
| 04 | 1 | 0.4 | 1/64 |
| 08 | 2 | 0.8 | 1/32 |
| 12 | 3 | 1.2 | 3/64 |
| 16 | 4 | 1.6 | 1/16 |
| 20 | 5 | 2.0 | 5/64 |
| 24 | 6 | 2.4 | 3/32 |
| 28 | 7 | 2.8 | 7/64 |
| 32 | 8 | 3.2 | 1/8 |
| 00 | - | Inserto rotondo (pollici) | |
| M0 | - | Inserto rotondo (metrico) | |

## 8 C N M G 12 04 08 - VM

### Rompitruciolo di tornitura



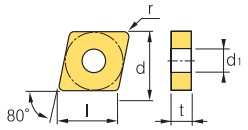
# B Inserti di tornitura (Negativo)

## CN○○ 80° Negativo

Pezzo lavorato

| | |
|---|---|
| Acciaio | P |
| Acciaio inossidabile | M |
| Ghisa | K |
| Materiali non ferrosi | N |
| Leghe resistenti al calore, lega di titanio | S |
| Materiali temprati | H |

Applicazioni
● Taglio continuo
Uso generico
Taglio interrotto




| Inserti | Articolo | | Rivestito | | | | | | | | | | | | | Cermet | | | Rivestito | | Non rivestito | | | Dimensioni (mm) | | | | | Condizioni di taglio | | Utensili applicabili | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NC3010 | NC3020 | NC3120 | NC3030 | NC500H | PC8110 | NC9020 | NC9025 | NC5330 | PC5300 | PC9030 | NC6105 | NC6110 | NC315K | CN1000 | CN2000 | CN20 | CC105 | CC115 | U20 | H01 | G10 | l | d | t | r | d1 | fn | ap | Articolo | Pag. |
| **CNGG-HU** | CNGG | 120404-HU | | | | | | | | | | | | | | | | | | | | | | | 12.4 | 12.7 | 4.76 | 0.4 | 5.16 | 0.03~0.25 | 0.10~1.50 | MCKNR/L<br>MCLNR/L<br>MCMNN<br>MCRNR/L<br>PCBNR/L<br>PCLNR/L | B80<br>B80<br>B80<br>B81<br>B68<br>B69 |
| | | 120408-HU | | | | | | | | | | | | | | | | | | | | | | | 12.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.03~0.25 | 0.10~1.50 | | |
| Ultrafinitura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **CNMA** | CNMA | 090308 | | | | | | | | | | | | | | | | | | | | | | | 8.8 | 9.525 | 3.18 | 0.8 | 3.18 | 0.10~0.30 | 0.50~3.00 | MCKNR/L<br>MCLNR/L<br>MCMNN<br>MCRNR/L<br>PCBNR/L<br>PCLNR/L | B80<br>B80<br>B80<br>B81<br>B68<br>B69 |
| | | 120404 | | | | | | | | | | | | ● | ● | ● | | | | | | ● | ● | | 12.4 | 12.7 | 4.76 | 0.4 | 5.16 | 0.15~0.60 | 1.00~5.00 | | |
| | | 120408 | ● | | | | | | | | | | | ● | ● | ● | | | | | | ● | ● | | 12.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.15~0.60 | 1.00~6.00 | | |
| | | 120412 | ● | | | | | | | | | | | ● | ● | ● | | | | | | | | ○ | 11.6 | 12.7 | 4.76 | 1.2 | 5.16 | 0.15~0.70 | 1.50~6.00 | | |
| | | 120416 | | | | | | | | | | | | ● | ● | | | | | | | | | | 11.2 | 12.7 | 4.76 | 1.6 | 5.16 | 0.20~0.80 | 2.00~6.00 | | |
| | New | 160608 | | | | | | | | | | | | | | | | | | | | | | | 15.3 | 15.875 | 6.35 | 0.8 | 6.35 | 0.15~0.70 | 2.00~6.00 | | |
| | | 160612 | | | | | | | | | | | | ● | ● | | | | | | | | | | 14.8 | 15.875 | 6.35 | 1.2 | 6.35 | 0.15~0.70 | 2.00~6.00 | | |
| | | 160616 | | | | | | | | | | | | ● | | | | | | | | | | | 14.4 | 15.875 | 6.35 | 1.6 | 6.35 | 0.15~0.50 | 2.00~10.00 | | |
| | | 190608 | | | | | | | | | | | | ● | ● | | | | | | | | | | 18.5 | 19.05 | 6.35 | 0.8 | 7.93 | 0.15~0.70 | 2.00~10.00 | | |
| | | 190612 | | | | | | | | | | | | ● | ● | ● | | | | | | | | | 18.1 | 19.05 | 6.35 | 1.2 | 7.93 | 0.15~0.70 | 2.00~10.00 | | |
| Sgrossatura | | 190616 | | | | | | | | | | | | ● | ● | | | | | | | | | ○ | 17.7 | 19.05 | 6.35 | 1.6 | 7.93 | 0.20~1.00 | 3.00~10.00 | | |
| **CNMG-B25** | CNMG | 120404-B25 | ● | | ● | ● | | | | | ● | ● | | | ● | | ● | ● | ● | | | | | | 12.4 | 12.7 | 4.76 | 0.4 | 5.16 | 0.17~0.45 | 1.00~5.00 | MCKNR/L<br>MCLNR/L<br>MCMNN<br>MCRNR/L<br>PCBNR/L<br>PCLNR/L | B80<br>B80<br>B80<br>B81<br>B68<br>B69 |
| | | 120408-B25 | ● | | ● | ● | ● | ○ | ● | | ● | ● | ● | ● | ● | | ● | ● | | | | | | | 12.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.23~0.60 | 1.50~5.00 | | |
| | | 120412-B25 | ● | | ● | ● | | | | | ● | | | ● | ● | | | | | | | | | | 11.6 | 12.7 | 4.76 | 1.2 | 5.16 | 0.25~0.60 | 2.00~5.00 | | |
| | | 160608-B25 | ● | | ● | ● | | | | | ● | | | ● | | | | | | | | | | | 15.3 | 15.875 | 6.35 | 0.8 | 6.35 | 0.25~0.60 | 2.00~6.50 | | |
| | | 160612-B25 | | | ● | | | | | | | | | ● | | | | | | | | | | | 14.8 | 15.875 | 6.35 | 1.2 | 6.35 | 0.27~0.60 | 2.00~6.50 | | |
| | New | 160616-B25 | | | | | | | | | | | | ● | | | | | | | | | | | 14.4 | 15.875 | 6.35 | 1.6 | 6.35 | 0.27~0.60 | 2.00~6.50 | | |
| | | 190604-B25 | ● | | ● | ● | | | | | ● | | | | | | | | | | | | | | 18.9 | 19.05 | 6.35 | 0.4 | 7.93 | 0.20~0.45 | 3.00~8.00 | | |
| | | 190608-B25 | ● | | ● | ● | | | | | ● | | | | ● | | | | | | | | | | 18.5 | 19.05 | 6.35 | 0.8 | 7.93 | 0.25~0.60 | 3.00~8.00 | | |
| | | 190612-B25 | ● | | ● | ● | ● | ○ | | | ● | | | ● | ● | | | | | | | | | | 18.1 | 19.05 | 6.35 | 1.2 | 7.93 | 0.30~0.60 | 3.00~8.00 | | |
| Media sgrossatura | | 190616-B25 | ● | | ● | ● | | | | | ● | | | ● | | | | | | | | | | | 17.7 | 19.05 | 6.35 | 1.6 | 7.93 | 0.23~0.70 | 3.00~8.00 | | |
| **CNMG-GM** | CNMG | 090304-GM | | | | | | | | | | | | | | | | | | | | | | | 9.2 | 9.525 | 3.18 | 0.4 | 3.81 | 0.05~0.30 | 0.90~3.50 | MCKNR/L<br>MCLNR/L<br>MCMNN<br>MCRNR/L<br>PCBNR/L<br>PCLNR/L | B80<br>B80<br>B80<br>B81<br>B68<br>B69 |
| | | 090308-GM | | | | | | | | | | | | | | | | | | | | | | | 8.8 | 9.525 | 3.18 | 0.8 | 3.81 | 0.10~0.45 | 1.00~3.50 | | |
| | | 120404-GM | ● | | ● | ● | | | | | | | | | | | ● | ● | ● | | | | | | 12.4 | 12.7 | 4.76 | 0.4 | 5.16 | 0.05~0.30 | 0.90~5.00 | | |
| | | 120408-GM | ● | | ● | ● | | | | | ● | | | | | | ● | ● | ● | | | | | | 12.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.50 | 1.00~5.00 | | |
| | | 120412-GM | ● | | ● | | | | | | | | | | | | | | | | | | | | 11.6 | 12.7 | 4.76 | 1.2 | 5.16 | 0.18~0.60 | 0.30~5.00 | | |
| Medie lavorazioni | | 190608-GM | | | ● | | | | | | | | | | | | | | | | | | | | 18.5 | 19.05 | 6.35 | 0.8 | 7.93 | 0.10~0.50 | 1.00~8.00 | | |
| **CNMG-GR** | CNMG | 120408-GR | ● | | ● | ● | | | | | ● | | | ● | ● | ● | | | | | | | | | 12.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.20~0.50 | 1.00~7.00 | MCKNR/L<br>MCLNR/L<br>MCMNN<br>MCRNR/L<br>PCBNR/L<br>PCLNR/L | B80<br>B80<br>B80<br>B81<br>B68<br>B69 |
| | | 120412-GR | ● | | ● | ● | ● | | | | ● | | | ● | ● | ● | | | | | | | | | 11.6 | 12.7 | 4.76 | 1.2 | 5.16 | 0.25~0.50 | 1.30~7.00 | | |
| | | 120416-GR | | | | | | | | | | | | ● | ○ | | | | | | | | | | 11.2 | 12.7 | 4.76 | 1.6 | 5.16 | 0.25~0.60 | 1.80~6.00 | | |
| | | 160608-GR | ● | | ● | ● | | | | | | | | | ● | | | | | | | | | | 15.3 | 15.875 | 6.35 | 0.8 | 6.35 | 0.20~0.70 | 1.00~8.00 | | |
| | | 160612-GR | ● | | ● | ● | ● | | | | ● | | | ● | ● | | | | | | | | | | 14.8 | 15.875 | 6.35 | 1.2 | 6.35 | 0.25~0.70 | 1.30~8.00 | | |
| | | 160616-GR | | | ● | ● | | | | | | | | ● | ● | | | | | | | | | | 14.4 | 15.875 | 6.35 | 1.6 | 6.35 | 0.25~0.75 | 1.80~8.00 | | |
| | | 190608-GR | | | ● | ● | | | | | ● | | | | ● | | | | | | | | | | 18.5 | 19.05 | 6.35 | 0.8 | 7.93 | 0.20~0.70 | 1.70~10.00 | | |
| | | 190612-GR | ● | | ● | ● | ● | | | | ● | | | | ● | | | | | | | | | | 18.1 | 19.05 | 6.35 | 1.2 | 7.93 | 0.30~0.75 | 1.70~10.00 | | |
| Sgrossatura | | 190616-GR | | | ● | ● | ● | | | | ● | | | | | | | | | | | | | | 17.7 | 19.05 | 6.35 | 1.6 | 7.93 | 0.30~0.80 | 1.80~10.00 | | |
| | | 190624-GR | | | | | | | | | | | | | | | | | | | | | | | 16.8 | 19.05 | 6.35 | 2.4 | 7.93 | 0.35~0.85 | 2.00~12.00 | | |
| | | 250724-GR | | | | | | | | | | | | | | | | | | | | | | | 23.3 | 25.4 | 7.94 | 2.4 | 9.12 | 0.40~1.00 | 2.30~15.00 | | |
| | | 250924-GR | | | | ● | | | | | ● | | | | | | | | | | | | | | 23.3 | 25.4 | 9.52 | 2.4 | 9.12 | 0.40~1.00 | 2.30~15.00 | | |
| **CNMG-GS** | CNMG | 120404-GS | New | | | | | ● | ● | ● | | ● | ● | | | | | | | | | | | | 12.4 | 12.7 | 4.76 | 0.4 | 5.16 | 0.05~0.25 | 0.10~3.00 | MCKNR/L<br>MCLNR/L<br>MCMNN<br>MCRNR/L<br>PCBNR/L<br>PCLNR/L | B80<br>B80<br>B80<br>B81<br>B68<br>B69 |
| | | 120408-GS | | | | ● | | ● | ● | ● | | ● | ● | | | | | | | | | | | | 12.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.50 | 1.00~5.00 | | |
| | | 120412-GS | | | | | | ● | ● | ● | | ● | ● | | | | | | | | | | | | 11.6 | 12.7 | 4.76 | 1.2 | 5.16 | 0.13~0.65 | 1.00~5.00 | | |
| | New | 160608-GS | | | | | | | | | | | | | | | | | | | | | | | 15.3 | 15.875 | 6.35 | 0.8 | 6.35 | 0.10~0.50 | 1.00~6.50 | | |
| | New | 160612-GS | | | | | | | | | | | | | | | | | | | | | | | 14.8 | 15.875 | 6.35 | 1.2 | 6.35 | 0.13~0.65 | 1.00~6.50 | | |
| | | 190612-GS | | | | | | ● | | ● | | ○ | | | | | | | | | | | | | 18.1 | 19.05 | 6.35 | 1.2 | 7.93 | 0.13~0.65 | 1.00~7.80 | | |
| Medie lavorazioni – finitura | | 190616-GS | | | | | | ● | | | | | | | | | | | | | | | | | | | | | | | | |
| **CNMG-HA** | CNMG | 120404-HA | | | ● | | | ● | ● | ● | | ● | ● | | | | | | | | | | ● | | 12.4 | 12.7 | 4.76 | 0.4 | 5.16 | 0.05~0.20 | 0.80~3.50 | MCKNR/L<br>MCLNR/L<br>MCMNN<br>MCRNR/L<br>PCBNR/L<br>PCLNR/L | B80<br>B80<br>B80<br>B81<br>B68<br>B69 |
| | | 120408-HA | | | ● | | | ● | ● | ● | | ● | ● | | | | | | | | | | ● | | 12.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.40 | 0.80~3.50 | | |
| | | 120412-HA | | | | | | | | ● | | | ● | | | | | | | | | | | | 11.6 | 12.7 | 4.76 | 1.2 | 5.16 | 0.13~0.55 | 0.80~3.50 | | |
| Medie lavorazioni – finitura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **CNMG-HC** | CNMG | 120404-HC | ● | | ● | ● | | | | | ● | | | | | | | | | | | | | | 12.4 | 12.7 | 4.76 | 0.4 | 5.16 | 0.05~0.30 | 0.80~3.50 | MCKNR/L<br>MCLNR/L<br>MCMNN<br>MCRNR/L<br>PCBNR/L<br>PCLNR/L | B80<br>B80<br>B80<br>B81<br>B68<br>B69 |
| | | 120408-HC | ● | | ● | ● | | | ● | | ● | | | | | | | | | | | | | | 12.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.08~0.40 | 0.80~4.00 | | |
| | | 120412-HC | | | | | | | | | ● | | | | | | | | | | | | | | 11.6 | 12.7 | 4.76 | 1.2 | 5.16 | 0.17~0.50 | 1.00~4.00 | | |
| Medie lavorazioni – finitura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15

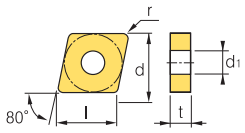
● : Disponibile ○ : A richiesta

Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

# CN○○ 80° Negativo

| Pezzo lavorato | | | NC3010 | NC3020 | NC3120 | NC3030 | NC500H | PC8110 | NC9020 | NC9025 | NC5330 | PC5300 | PC9030 | NC6105 | NC6110 | NC315K | CN1000 | CN2000 | CN20 | CC105 | CC115 | H01 | G10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Acciaio | P | ● | ● | ● | ● | ● | | ● | ● | ● | | | | | | ● | ● | | ● | ● | | |
| | Acciaio inossidabile | M | | | | ● | | ● | ● | ● | | ● | ● | | | | | | | | | | |
| | Ghisa | K | | | | | | | | | ● | | | | ● | ● | ● | | | | | | |
| | Materiali non ferrosi | N | | | | | | | | | | | | | | | | | | | | | |
| | Leghe resistenti al calore, lega di titanio | S | | | | | | ● | | | ● | ● | ● | | | | | | | | | | |
| | Materiali temprati | H | | | | | | | | | | | | | | | | | | | | | |

Applicazioni
● Taglio continuo
● Uso generico
✱ Taglio interrotto




| Inserti | Articolo | | Rivestito | | | | | | | | | | | | | | Cermet | | | Rivestito | | Non rivestito | | Dimensioni (mm) | | | | | Condizioni di taglio | | Utensili applicabili | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NC3010 | NC3020 | NC3120 | NC3030 | NC500H | PC8110 | NC9020 | NC9025 | NC5330 | PC5300 | PC9030 | NC6105 | NC6110 | NC315K | CN1000 | CN2000 | CN20 | CC105 | CC115 | H01 | G10 | l | d | t | r | d1 | fn | ap | Articolo | Pag. |
| CNMG-HR<br>Sgrossatura | CNMG | 120404-HR New | | | | | | | | | | | | | | | | | | | | | | 12.4 | 12.7 | 4.76 | 0.4 | 5.16 | 0.15~0.30 | 0.80~6.00 | MCKNR/L<br>MCLNR/L<br>MCMNN<br>MCRNR/L<br>PCBNR/L<br>PCLNR/L | B80<br>B80<br>B80<br>B81<br>B68<br>B69 |
| | | 120408-HR | ● | ● | ● | ● | | | | | ● | | | | | | | | | | | | | 12.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.20~0.50 | 1.00~7.00 | | |
| | | 120412-HR | ● | ● | ● | ● | ● | | | | ● | | | | | | | | | | | | | 11.6 | 12.7 | 4.76 | 1.2 | 5.16 | 0.25~0.70 | 1.30~7.00 | | |
| | | 120416-HR | | | | | | | | | | | | | | | | | | | | | | 11.2 | 12.7 | 4.76 | 1.6 | 5.16 | 0.32~0.75 | 1.80~7.00 | | |
| | | 160608-HR | | ● | ● | | | | | | | | | | | | | | | | | | | 15.3 | 15.875 | 6.35 | 0.8 | 6.35 | 0.20~0.50 | 1.00~8.00 | | |
| | | 160612-HR | ● | ● | ● | ● | | | | | | | | | | | | | | | | | | 14.8 | 15.875 | 6.35 | 1.2 | 6.35 | 0.25~0.70 | 1.30~8.00 | | |
| | | 160616-HR | ● | | | | | | | | | | | | | | | | | | | | | 14.4 | 15.875 | 6.35 | 1.6 | 6.35 | 0.30~0.80 | 1.80~8.00 | | |
| | | 160624-HR | | | | | | | | | | | | | | | | | | | | | | 13.6 | 15.875 | 6.35 | 2.4 | 6.35 | 0.32~0.90 | 2.30~10.00 | | |
| | | 190608-HR | | ● | ● | | | | | | | | | | | | | | | | | | | 18.5 | 19.05 | 6.35 | 0.8 | 7.93 | 0.20~0.50 | 1.70~10.00 | | |
| | | 190612-HR | | ● | ● | | ● | | | | | | | | ○ | | | | | | | | | 18.1 | 19.05 | 6.35 | 1.2 | 7.93 | 0.25~0.70 | 1.30~10.00 | | |
| | | 190616-HR | ● | ● | ● | ● | | | | | | | | | | | | | | | | | | 17.7 | 19.05 | 6.35 | 1.6 | 7.93 | 0.30~0.80 | 1.80~10.00 | | |
| | | 190624-HR | | | | | | | | | | | | | | | | | | | | | | 16.8 | 19.05 | 6.35 | 2.4 | 7.93 | 0.32~0.90 | 2.30~10.00 | | |
| | | 250924-HR | | | | | | | | | | | | | | | | | | | | | | 23.3 | 25.4 | 9.52 | 2.4 | 9.12 | 0.40~1.00 | 2.30~10.00 | | |
| CNMG-HS<br>Medie lavorazioni – finitura | CNMG | 090304-HS | | | | | | | ● | ● | | | ● | | | | | | | | | | | 9.2 | 9.525 | 3.18 | 0.4 | 3.81 | 0.05~0.20 | 1.00~2.50 | MCKNR/L<br>MCLNR/L<br>MCMNN<br>MCRNR/L<br>PCBNR/L<br>PCLNR/L | B80<br>B80<br>B80<br>B81<br>B68<br>B69 |
| | | 090308-HS | | | | | | | ● | ● | | | ● | | | | | | | | | | | 8.8 | 9.525 | 3.18 | 0.8 | 3.81 | 0.10~0.20 | 1.00~2.50 | | |
| | | 120404-HS | | | | | | ● | ● | ● | | ● | ● | | | | | | | | | | | 12.4 | 12.7 | 4.76 | 0.4 | 5.16 | 0.05~0.20 | 1.00~4.50 | | |
| | | 120408-HS | | | | | | ● | ● | ● | | ● | ● | | | | | | | | | | | 12 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.40 | 1.00~4.50 | | |
| | | 120412-HS | | | | | | ● | ● | ● | | ● | ● | | | | | | | | | | | 11.6 | 12.7 | 4.76 | 1.2 | 5.16 | 0.13~0.55 | 1.00~4.50 | | |
| | | 160612-HS | | | | | | | ● | ● | | | ● | | | | | | | | | | | 14.8 | 15.875 | 6.35 | 1.2 | 6.35 | 0.13~0.55 | 2.00~6.00 | | |
| | | 160616-HS | | | | | | | ● | | | | ● | | | | | | | | | | | 14.4 | 15.875 | 6.35 | 1.6 | 6.35 | 0.15~0.60 | 2.00~6.00 | | |
| | | 190612-HS | | | | | | ● | ● | ● | | ○ | ● | | | | | | | | | | | 18.1 | 19.05 | 6.35 | 1.2 | 7.93 | 0.13~0.55 | 2.00~7.30 | | |
| | | 190616-HS | | | | | | ● | ● | ● | | ○ | ● | | | | | | | | | | | 17.7 | 19.05 | 6.35 | 1.6 | 7.93 | 0.15~0.60 | 2.00~7.30 | | |
| CNMG-HU<br>Finitura | CNMG | 120404-HU | | | | | | | | | | | | | | | | | | | | | | 12.4 | 12.7 | 4.76 | 0.4 | 5.16 | 0.05~0.25 | 0.10~1.00 | MCKNR/L<br>MCLNR/L<br>MCMNN<br>MCRNR/L<br>PCBNR/L<br>PCLNR/L | B80<br>B80<br>B80<br>B81<br>B68<br>B69 |
| | | 120408-HU | | | | | | | | | | | | | | | | | | | | | | 12.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.35 | 0.20~1.50 | | |
| | | 120412-HU | | | | | | | | | | | | | | | | | | | | | | 11.6 | 12.7 | 4.76 | 1.2 | 5.16 | 0.12~0.40 | 0.30~1.50 | | |
| CNMG-LW<br>Medie lavorazioni (wiper) | CNMG | 120408-LW | | | | ● | | | | | ● | | | | | | | | | | | | | 12.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.15~0.60 | 1.00~5.00 | MCKNR/L<br>MCLNR/L<br>MCMNN<br>MCRNR/L<br>PCBNR/L<br>PCLNR/L | B80<br>B80<br>B80<br>B81<br>B68<br>B69 |
| | | 120412-LW | | | ● | | | | | | | | | | | | | | | | | | | 11.6 | 12.7 | 4.76 | 1.2 | 5.16 | 0.20~0.70 | 1.00~6.00 | | |
| CNMG-VB<br>Finitura | CNMG | 120404-VB | | | | | | | | | | | | | | | | | | | | | | 12.4 | 12.7 | 4.76 | 0.4 | 5.16 | 0.15~0.35 | 0.3~2.0 | MCKNR/L<br>MCLNR/L<br>MCMNN<br>MCRNR/L<br>PCBNR/L<br>PCLNR/L | B80<br>B80<br>B80<br>B81<br>B68<br>B69 |
| | | 120408-VB | ○ | ○ | | | | | | | ● | | | | | | | | | | | | | 12.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.15~0.45 | 0.5~2.0 | | |
| CNMG-VL<br>Acciaio leggero | CNMG | 120404-VL | ● | ● | | | | | | | ● | | | | | | ○ | ○ | | | | | | 12.4 | 12.7 | 4.76 | 0.4 | 5.16 | 0.05~0.25 | 0.1~1.0 | MCKNR/L<br>MCLNR/L<br>MCMNN<br>MCRNR/L<br>PCBNR/L<br>PCLNR/L | B80<br>B80<br>B80<br>B81<br>B68<br>B69 |
| | | 120408-VL | ● | ● | | | | | | | ● | | | | | | ○ | ○ | | | | | | 12.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.35 | 0.2~1.5 | | |
| CNMG-VF<br>Finitura | CNMG | 090304-VF | ● | | ● | | | | | | ● | | | | | | ● | | | | | | | 9.2 | 9.525 | 3.18 | 0.4 | 3.81 | 0.07~0.30 | 0.50~1.50 | MCKNR/L<br>MCLNR/L<br>MCMNN<br>MCRNR/L<br>PCBNR/L<br>PCLNR/L | B80<br>B80<br>B80<br>B81<br>B68<br>B69 |
| | | 090308-VF | ● | | ● | | | | | | ● | | | | | | | | | | | | | 8.8 | 9.525 | 3.18 | 0.8 | 3.81 | 0.10~0.30 | 0.50~1.50 | | |
| | | 120404-VF | ● | | ● | | | | | | ● | | | | | | | | | | | | | 12.4 | 12.7 | 4.76 | 0.4 | 5.16 | 0.07~0.30 | 0.50~1.50 | | |
| | | 120408-VF | ● | | ● | | | | | | ● | | | | | | | | | | | | | 12.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.40 | 0.50~1.50 | | |
| | | 120412-VF | | | ● | | | | | | | | | | | | | | | | | | | 11.6 | 12.7 | 4.76 | 1.2 | 5.16 | 0.10~0.50 | 0.60~1.50 | | |
| CNMG-VG<br>Finitura | CNMG | 090304-VG | | | | | | | | | | | | | | | | | ● | ● | ● | | | 9.2 | 9.525 | 3.18 | 0.4 | 3.81 | 0.07~0.30 | 0.50~1.50 | MCKNR/L<br>MCLNR/L<br>MCMNN<br>MCRNR/L<br>PCBNR/L<br>PCLNR/L | B80<br>B80<br>B80<br>B81<br>B68<br>B69 |
| | | 090308-VG | | | | | | | | | | | | | | | | | ● | | ● | | | 8.8 | 9.525 | 3.18 | 0.8 | 3.81 | 0.10~0.30 | 0.50~1.50 | | |
| | | 120404-VG | | | | | | | | | | | | | | | | ● | ● | | ● | | | 12.4 | 12.7 | 4.76 | 0.4 | 5.16 | 0.07~0.30 | 0.50~1.50 | | |
| | | 120408-VG | | | | | | | | | | | | | | | | ● | ● | | ● | | | 12.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.40 | 0.50~1.50 | | |

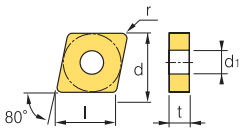
• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15
Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

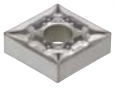
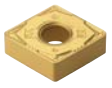
● : Disponibile ○ : A richiesta

# CN○○ 80° Negativo

| Pezzo lavorato | | |
|---|---|---|
| Acciaio | P | ●●●✱✱ ●●● ●●● ●● ●●● ● |
| Acciaio inossidabile | M | ●✱✱ ●●● ●●● ✱✱ ●● ● |
| Ghisa | K | ●●● ●●● ●●● ●●● ●●● ● |
| Materiali non ferrosi | N | |
| Leghe resistenti al calore, lega di titanio | S | ●●● ●✱✱ ●●● ✱✱ ●● ● |
| Materiali temprati | H | |

Applicazioni
● Taglio continuo
●● Uso generico
✱✱ Taglio interrotto




| Inserti | Articolo | | Rivestito | | | | | | | | | | | Cermet | | | Rivestito | | Non rivestito | | | Dimensioni (mm) | | | | | Condizioni di taglio | | Utensili applicabili | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NC3010 | NC3020 | NC3120 | NC3030 | NC500H | PC8110 | NC9020 | NC9025 | NC5330 | PC5300 | PC9030 | NC6110 | NC315K | CN1000 | CN2000 | CN20 | CC105 | CC115 | U20 | H01 | G10 | l | d | t | r | d1 | fn | ap | Articolo | Pag. |
| **CNMG-VM**  Medie lavorazioni | CNMG | 090304-VM | | | ● | ● | | | | | ● | | | | | | ● | | | | | | | 9.2 | 9.525 | 3.18 | 0.4 | 3.81 | 0.05~0.30 | 0.90~3.50 | MCKNR/L<br>MCLNR/L<br>MCMNN<br>MCRNR/L<br>PCBNR/L<br>PCLNR/L | B80<br>B80<br>B80<br>B81<br>B68<br>B69 |
| | | 090308-VM | | | ● | ● | | | | | ● | | | | | | ● | | | | | | | 8.8 | 9.525 | 3.18 | 0.8 | 3.81 | 0.10~0.45 | 1.00~3.50 | | |
| | | 120404-VM | ● | | ● | ● | | | | | ● | | ● | ● | | ○ | ● | | | | | | | 12.4 | 12.7 | 4.76 | 0.4 | 5.16 | 0.05~0.30 | 0.90~5.00 | | |
| | | 120408-VM | ● | ○ | ● | ● | | ● | ● | | ● | ○ | ● | ● | | ○ | ● | | | | | | | 12.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.50 | 1.00~5.00 | | |
| | | 120412-VM | ● | | ● | ● | | ● | | | ● | | | ● | | | | | | | | | | 11.6 | 12.7 | 4.76 | 1.2 | 5.16 | 0.13~0.60 | 1.30~5.00 | | |
| | | 120416-VM | | | | | | | | | ● | | | | | | | | | | | | | 11.2 | 12.7 | 4.76 | 1.6 | 5.16 | 0.20~0.60 | 1.50~5.50 | | |
| | | 160608-VM | | | ● | ● | | | | | | | | | | | | | | | | | | 15.3 | 15.875 | 6.35 | 0.8 | 6.35 | 0.10~0.50 | 1.00~6.70 | | |
| | | 160612-VM | | | ● | ● | | ● | | | | | | | | | | | | | | | | 14.8 | 15.875 | 6.35 | 1.2 | 6.35 | 0.13~0.60 | 1.30~6.70 | | |
| **CNMG-VQ**  Medie lavorazioni – finitura | CNMG | 090304-VQ | | | | | | | | | | | | | | | ● | | | | | | | 9.2 | 9.525 | 3.18 | 0.4 | 3.81 | 0.05~0.30 | 0.05~3.50 | MCKNR/L<br>MCLNR/L<br>MCMNN<br>MCRNR/L<br>PCBNR/L<br>PCLNR/L | B80<br>B80<br>B80<br>B81<br>B68<br>B69 |
| | | 090308-VQ | | | | | | | | | | | | | | | ● | | | | | | | 8.8 | 9.525 | 3.18 | 0.8 | 3.81 | 0.08~0.30 | 0.08~4.00 | | |
| | | 120404-VQ | | | | | | | | | | | | | | ● | ● | | | ● | | | | 12.4 | 12.7 | 4.76 | 0.4 | 5.16 | 0.05~0.30 | 0.80~4.00 | | |
| | | 120408-VQ | | | | | | | | | | | | | | ● | ● | | | ● | | | | 12.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.08~0.40 | 0.80~4.00 | | |
| **CNMG-VW**  Finitura (wiper) | CNMG | 120404-VW | ● | | | | | | | | ● | | | | | | | | | | | | | 12.4 | 12.7 | 4.76 | 0.4 | 5.16 | 0.10~0.30 | 0.50~3.00 | MCKNR/L<br>MCLNR/L<br>MCMNN<br>MCRNR/L<br>PCBNR/L<br>PCLNR/L | B80<br>B80<br>B80<br>B81<br>B68<br>B69 |
| | | 120408-VW | ● | | | | | | | | | | | | | | | | | | | | | 12.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.15~0.50 | 0.50~4.00 | | |
| **CNMM-GH**  Tagli pesanti | CNMM | 120408-GH | | ● | ● | ● | | | | | ● | | | | | | | | | | | | | 12.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.30~0.60 | 2.50~8.00 | MCKNR/L<br>MCLNR/L<br>MCMNN<br>MCRNR/L<br>PCBNR/L<br>PCLNR/L | B80<br>B80<br>B80<br>B81<br>B68<br>B69 |
| | | 120412-GH | | ● | ● | ● | | | | | ● | | | | | | | | | | | | | 11.6 | 12.7 | 4.76 | 1.2 | 5.16 | 0.30~0.70 | 2.50~8.00 | | |
| | | 160412-GH | | | | | | | | | | | | | | | | | | | | | | 14.8 | 15.875 | 4.76 | 1.2 | 6.35 | 0.30~0.70 | 2.50~8.00 | | |
| | | 160424-GH | | | | | | | | | | | | | | | | | | | | | | 13.6 | 15.875 | 4.76 | 2.4 | 6.35 | 0.30~1.20 | 2.50~8.00 | | |
| | | 160612-GH | | | | ● | | | | | | | | | | | | | | | | | | 14.8 | 15.875 | 6.35 | 1.2 | 6.35 | 0.30~0.90 | 2.50~8.00 | | |
| | | 160616-GH | | | | | | | | | | | | | | | | | | | | | | 14.4 | 15.875 | 6.35 | 1.6 | 6.35 | 0.30~1.20 | 2.50~8.00 | | |
| | | 160624-GH | | | | | | | | | | | | | | | | | | | | | | 13.6 | 15.875 | 6.35 | 2.4 | 6.35 | 0.30~1.50 | 2.50~8.00 | | |
| | | 190608-GH | | | | | | | | | ● | | | | | | | | | | | | | 18.5 | 19.05 | 6.35 | 0.8 | 7.93 | 0.30~0.60 | 2.50~8.00 | | |
| | | 190612-GH | ● | ● | ● | ● | ● | | | | ● | | | | | | | | | | | | | 18.1 | 19.05 | 6.35 | 1.2 | 7.93 | 0.30~0.70 | 3.00~8.00 | | |
| | | 190616-GH | ● | ● | ● | ● | ● | | | | ● | | | | | | | | | | | | | 17.7 | 19.05 | 6.35 | 1.6 | 7.93 | 0.45~0.90 | 3.00~8.00 | | |
| | | 190624-GH | ● | ● | ● | | | | | | ● | | | | | | | | | | | | | 16.8 | 19.05 | 6.35 | 2.4 | 7.93 | 0.55~1.20 | 4.00~9.00 | | |
| | Neu | 250716-GH | | | | | | | | | | | | | | | | | | | | | | 24.1 | 25.4 | 7.94 | 1.6 | 9.12 | 0.50~1.00 | 4.50~10.00 | | |
| | | 250724-GH | | ● | ● | ● | | | | | | | | | | | | | | | | | | 23.3 | 25.4 | 7.94 | 2.4 | 9.12 | 0.55~1.20 | 5.00~12.00 | | |
| | | 250924-GH | ● | ● | ● | ● | ● | | | | ● | | | | | | | | | | | | | 23.3 | 25.4 | 9.52 | 2.4 | 9.12 | 0.55~1.20 | 5.00~12.00 | | |
| | Neu | 250950-GH | | | | | | | | | | | | | | | | | | | | | | 20.6 | 25.4 | 9.52 | 5.0 | 9.12 | 0.65~1.30 | 6.00~12.00 | | |
| **CNMM-VH**  Tagli pesanti | CNMM | 190612-VH | | | | ● | ● | | | | | | | | | | | | | | | | | 18.1 | 19.05 | 6.35 | 1.2 | 7.93 | 0.50~0.90 | 5.0~10.0 | PCBNR/L<br>PCLNR/L | B68<br>B69 |
| | | 190616-VH | | | | ● | ● | | | | | | | | | | | | | | | | | 17.7 | 19.05 | 6.35 | 1.6 | 7.93 | 0.50~1.10 | 5.0~10.0 | | |
| | | 190624-VH | | | | ● | ● | | | | | | | | | | | | | | | | | 16.8 | 19.05 | 6.35 | 2.4 | 7.93 | 0.60~1.20 | 6.0~12.0 | | |
| | | 250724-VH | | | | ● | ● | | | | | | | | | | | | | | | | | 23.3 | 25.4 | 7.94 | 2.4 | 9.12 | 0.70~1.40 | 6.0~15.0 | | |
| | | 250924-VH | ● | | | ● | ● | | | | | | | | | | | | | | | | | 23.3 | 25.4 | 9.52 | 2.4 | 9.12 | 0.70~1.40 | 6.0~15.0 | | |
| **CNMM-VT**  Tagli pesanti | CNMM | 190612-VT | | | | ● | ● | | | | | | | | | | | | | | | | | 18.1 | 19.05 | 6.35 | 1.2 | 7.93 | 0.60~1.00 | 6.0~13.0 | PCBNR/L<br>PCLNR/L | B68<br>B69 |
| | | 190616-VT | | | | ● | ● | | | | | | | | | | | | | | | | | 17.7 | 19.05 | 6.35 | 1.6 | 7.93 | 0.60~1.10 | 5.0~10.0 | | |
| | | 190624-VT | | | | ● | ● | | | | | | | | | | | | | | | | | 16.8 | 19.05 | 6.35 | 2.4 | 7.93 | 0.60~1.60 | 7.0~13.0 | | |
| | | 250724-VT | | | | ● | ● | | | | | | | | | | | | | | | | | 23.3 | 25.4 | 7.94 | 2.4 | 9.12 | 0.75~16.0 | 7.0~17.0 | | |
| | | 250924-VT | ● | | | ● | ● | | | | | | | | | | | | | | | | | 23.3 | 25.4 | 9.52 | 2.4 | 9.12 | 0.75~16.0 | 7.0~17.0 | | |
| **CNMM-GM**  Medie lavorazioni | CNMM | 120408-GM | | | | | | | | | | | | | | | | | | | | | | 12.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.50 | 1.00~5.00 | PCBNR/L<br>PCLNR/L | B68<br>B69 |
| **CNMM-GR**  Sgrossatura | CNMM | 120408-GR | | | | | | | | | | | | | | | | | | | | | | 12.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.20~0.50 | 1.00~7.00 | PCBNR/L<br>PCLNR/L | B68<br>B69 |
| | | 120412-GR | | | | | | | | | | | | | | | | | | | | | | 11.6 | 12.7 | 4.76 | 1.2 | 5.16 | 0.25~0.50 | 1.30~7.00 | | |
| | | 190612-GR | | | | | | | | | | | | | | | | | | | | | | 18.1 | 19.05 | 6.35 | 1.2 | 7.93 | 0.30~0.75 | 1.70~10.00 | | |
| | | 190616-GR | | | | | | | | | | | | | | | | | | | | | | 17.7 | 19.05 | 6.35 | 1.6 | 7.93 | 0.30~0.80 | 1.80~10.00 | | |
| **CNMM-HA**  Medie lavorazioni – finitura | CNMM | 120408-HA | | | | | | | | | | | | | | | | | | | | | | 12.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.40 | 0.80~3.50 | PCBNR/L<br>PCLNR/L | B68<br>B69 |

• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15

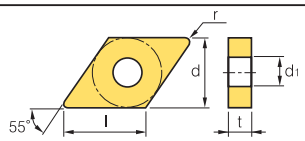
● : Disponibile ○ : A richiesta

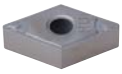
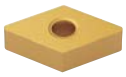
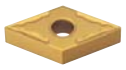
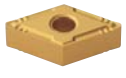
Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

# DN○○ 55° Negativo

| Pezzo lavorato | | |
|---|---|---|
| Acciaio | P | |
| Acciaio inossidabile | M | |
| Ghisa | K | |
| Materiali non ferrosi | N | |
| Leghe resistenti al calore, lega di titanio | S | |
| Materiali temprati | H | |

Applicazioni
● Taglio continuo
Uso generico
Taglio interrotto




| Inserti | Articolo | | Rivestito | | | | | | | | | | | | Cermet | | | Rivestito | | Non rivestito | | Dimensioni (mm) | | | | | Condizioni di taglio | | Utensili applicabili | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NC3010 | NC3020 | NC3120 | NC3030 | PC8110 | NC9020 | NC9025 | NC5330 | PC5300 | PC9030 | NC6105 | NC6110 | MC315K | CN1000 | CN2000 | CN20 | CC105 | CC115 | H01 | G10 | l | d | t | r | $d_1$ | fn | ap | Articolo | Pag. |
| **DNGG-HU**  Finitura | DNGG | 150604-HU | | | | | | | | | | | | | | | | | | | | | 15.0 | 12.7 | 6.35 | 0.4 | 5.16 | 0.05~0.25 | 0.10~1.50 | MDJNR/L<br>MDNNN<br>MDQNR/L<br>MDUNR/L<br>PDJNR/L<br>PDNNR/L<br>PDSNR/L<br>PDUNR/L | B81<br>B81<br>B82<br>B106<br>B70,124<br>B70<br>B102<br>B103 |
| | | 150608-HU | | | | | | | | | | | | | | | | | | | | | 14.7 | 12.7 | 6.35 | 0.8 | 5.16 | 0.10~0.30 | 0.20~1.50 | | |
| **DNMA**  Sgrossatura | DNMA | 110408 | | | | | | | | | | | | | | | | | | | | | 10.8 | 9.525 | 4.76 | 0.8 | 3.81 | 0.17~0.45 | 0.80~3.00 | MDJNR/L<br>MDNNN<br>MDQNR/L<br>MDUNR/L<br>PDJNR/L<br>PDNNR/L<br>PDSNR/L<br>PDUNR/L | B81<br>B81<br>B82<br>B106<br>B70,124<br>B70<br>B102<br>B103 |
| | | 150404 | | | | | | | | ○ | | | | | | | | | | | | | 15.1 | 12.7 | 4.76 | 0.4 | 5.16 | 0.17~0.55 | 0.40~4.00 | | |
| | | 150408 | | | | | | | | ● | | | ● | ● | | | | | | | | | 14.7 | 12.7 | 4.76 | 0.8 | 5.16 | 0.25~0.55 | 0.80~4.00 | | |
| | | 150412 | | | | | | | | ● | | | ● | ● | | | | | | | | | 14.4 | 12.7 | 4.76 | 1.2 | 5.16 | 0.25~0.65 | 1.50~4.00 | | |
| | | 150604 | | | | | | | | | | | | | | | | | | | | | 15.1 | 12.7 | 6.35 | 0.4 | 5.16 | 0.17~0.55 | 0.40~4.00 | | |
| | | 150608 | ● | | | | | | | ● | | | ● | ● | ● | | | | | | | | 14.7 | 12.7 | 6.35 | 0.8 | 5.16 | 0.25~0.55 | 0.80~4.00 | | |
| | | 150612 | | | | | | | | ● | | | ● | ○ | | | | | | | | | 14.4 | 12.7 | 6.35 | 1.2 | 5.16 | 0.25~0.65 | 1.20~4.00 | | |
| | | 190608 | | | | | | | | | | | | | | | | | | | | | 18.5 | 15.875 | 6.35 | 0.8 | 7.93 | 0.30~0.80 | 2.50~13.00 | | |
| **DNMG -B25**  Media sgrossatura | DNMG | 150402-B25 | | | | | | | | | | | | | | | | | | | | | 15.3 | 12.7 | 4.76 | 0.2 | 5.16 | 0.15~0.40 | 0.50~3.50 | MDJNR/L<br>MDNNN<br>MDQNR/L<br>MDUNR/L<br>PDJNR/L<br>PDNNR/L<br>PDSNR/L<br>PDUNR/L | B81<br>B81<br>B82<br>B106<br>B70,124<br>B70<br>B102<br>B103 |
| | | 150404-B25 | | | | ● | | | | | ● | | | | | | | | | | | | 15.1 | 12.7 | 4.76 | 0.4 | 5.16 | 0.17~0.45 | 1.00~4.00 | | |
| | | 150408-B25 | | ● | ● | ● | ○ | | | | | | ● | ● | | | | | | | | | 14.7 | 12.7 | 4.76 | 0.8 | 5.16 | 0.17~0.55 | 1.50~4.00 | | |
| | | 150412-B25 | | | | | | | | | ● | | ● | | | | | | | | | | 14.4 | 12.7 | 4.76 | 1.2 | 5.16 | 0.25~0.55 | 1.50~4.00 | | |
| | New | 150425-B25 | | | | | | | | | | | | | | | | | | | | | 13.2 | 12.7 | 4.76 | 2.5 | 5.16 | 0.35~0.65 | 2.50~5.50 | | |
| | | 150602-B25 | | | | | | | | | | | | | | | | | | | | | 15.2 | 12.7 | 6.35 | 0.2 | 5.16 | 0.15~0.40 | 0.50~3.50 | | |
| | | 150604-B25 | ● | ● | ● | ● | ○ | | | | ● | | | ● | | ● | ● | ● | | | | | 15.1 | 12.7 | 6.35 | 0.4 | 5.16 | 0.17~0.55 | 1.50~4.00 | | |
| | | 150608-B25 | ● | ● | ● | ● | ○ | | | | ● | ● | ● | ● | | ● | ● | ● | | | | | 14.7 | 12.7 | 6.35 | 0.8 | 5.16 | 0.17~0.55 | 1.50~4.00 | | |
| | | 150612-B25 | | | | | | | | | ● | | ● | ● | | | | | | | | | 14.4 | 12.7 | 6.35 | 1.2 | 5.16 | 0.25~0.55 | 1.50~4.00 | | |
| | New | 150625-B25 | | | | | | | | | | | | | | | | | | | | | 13.2 | 12.7 | 6.35 | 2.5 | 5.16 | 0.35~0.65 | 2.50~5.50 | | |
| **DNMG-GM**  Medie lavorazioni | DNMG | 110308-GM | | | | | | | | | | | | | | | | | | | | | 10.8 | 9.525 | 3.18 | 0.8 | 3.81 | 0.10~0.50 | 1.00~4.00 | MDJNR/L<br>MDNNN<br>MDQNR/L<br>MDUNR/L<br>PDJNR/L<br>PDNNR/L<br>PDSNR/L<br>PDUNR/L | B81<br>B81<br>B82<br>B106<br>B70,124<br>B70<br>B102<br>B103 |
| | | 110404-GM | | ● | ● | | | | | | | | | | | | | | | | | | 11.2 | 9.525 | 4.76 | 0.4 | 3.81 | 0.05~0.30 | 0.90~4.00 | | |
| | | 110408-GM | | ● | ● | | | | | | | | | | | | | | | | | | 10.8 | 9.525 | 4.76 | 0.8 | 3.81 | 0.10~0.50 | 1.00~4.00 | | |
| | | 150404-GM | | ● | ● | ● | | | | | | | | | | ● | ● | | | | | | 15.1 | 12.7 | 4.76 | 0.4 | 5.16 | 0.05~0.30 | 0.90~5.00 | | |
| | | 150408-GM | | ● | ● | ● | | | | | | | | | | ● | ● | | | | | | 14.7 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.50 | 1.00~5.00 | | |
| | | 150412-GM | | | | | | | | | | | | | | | | | | | | | 14.4 | 12.7 | 4.76 | 1.2 | 5.16 | 0.13~0.60 | 1.30~5.00 | | |
| | | 150604-GM | | ● | ● | ● | | | | | | | | | | ● | ● | ● | | | | | 15.1 | 12.7 | 6.35 | 0.4 | 5.16 | 0.05~0.30 | 0.90~5.00 | | |
| | | 150608-GM | ● | ● | ● | ● | | | | | | | | | | ● | ● | ● | | | | | 14.7 | 12.7 | 6.35 | 0.8 | 5.16 | 0.10~0.50 | 1.00~5.00 | | |
| | | 150612-GM | ● | ● | ● | ● | | | | | | | | | | | | | | | | | 14.4 | 12.7 | 6.35 | 1.2 | 5.16 | 0.13~0.60 | 1.30~5.00 | | |
| **DNMG-GR**  Sgrossatura | DNMG | 150408-GR | | ● | ● | ● | | | | | | | ● | ● | | | | | | | | | 14.7 | 12.7 | 4.76 | 0.8 | 5.16 | 0.20~0.50 | 1.00~7.00 | MDJNR/L<br>MDNNN<br>MDQNR/L<br>MDUNR/L<br>PDJNR/L<br>PDNNR/L<br>PDSNR/L<br>PDUNR/L | B81<br>B81<br>B82<br>B106<br>B70,124<br>B70<br>B102<br>B103 |
| | | 150412-GR | | | | | | | | | | | ● | ○ | | | | | | | | | 14.4 | 12.7 | 4.76 | 1.2 | 5.16 | 0.25~0.90 | 1.30~7.00 | | |
| | | 150416-GR | | | | | | | | | | | | | | | | | | | | | 14.0 | 12.7 | 4.76 | 1.6 | 5.16 | 0.30~0.75 | 1.80~7.00 | | |
| | | 150608-GR | ● | ● | ● | ● | | | | ● | ● | | | ● | ● | | | | | | | | 14.7 | 12.7 | 6.35 | 0.8 | 5.16 | 0.20~0.50 | 1.00~7.00 | | |
| | | 150612-GR | | ● | ● | ● | | | | ● | | | ● | ● | | | | | | | | | 14.4 | 12.7 | 6.35 | 1.2 | 5.16 | 0.25~0.70 | 1.30~7.00 | | |
| | | 150616-GR | | ● | ● | | | | | | ● | | ● | | | | | | | | | | 14.0 | 12.7 | 6.35 | 1.6 | 5.16 | 0.20~0.75 | 1.80~7.00 | | |
| **DNMG-GS**  Medie lavorazioni – finitura | DNMG | 150404-GS | | | | | ● | | | | | | | | | | | | | | | | 15.1 | 12.7 | 4.76 | 0.4 | 5.16 | 0.07~0.40 | 1.00~5.00 | MDJNR/L<br>MDNNN<br>MDQNR/L<br>MDUNR/L<br>PDJNR/L<br>PDNNR/L<br>PDSNR/L<br>PDUNR/L | B81<br>B81<br>B82<br>B106<br>B70,124<br>B70<br>B102<br>B103 |
| | | 150408-GS | | | | | ● | ● | | | | | | | | | | | | | | | 14.7 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.50 | 1.00~5.00 | | |
| | | 150412-GS | | | | | | | | | | | | | | | | | | | | | 14.4 | 12.7 | 4.76 | 1.2 | 5.16 | 0.13~0.65 | 1.00~5.00 | | |
| | | 150604-GS | | | | | ● | ● | ● | | ● | | | | | | | | | | | | 15.1 | 12.7 | 6.35 | 0.4 | 5.16 | 0.07~0.40 | 1.00~5.00 | | |
| | | 150608-GS | | | | | ● | ● | | | ● | | | | | | | | | | | | 14.7 | 12.7 | 6.35 | 0.8 | 5.16 | 0.10~0.50 | 1.00~5.00 | | |
| | | 150612-GS | | | | | | | ● | | | | | | | | | | | | | | 14.4 | 12.7 | 6.35 | 1.2 | 5.16 | 0.10~0.65 | 1.00~5.00 | | |
| **DNMG-HA**  Medie lavorazioni – finitura | DNMG | 150404-HA | | | | | ● | | ● | | ● | | | | | | | | | | ● | | 15.1 | 12.7 | 4.76 | 0.4 | 5.16 | 0.05~0.30 | 0.80~3.50 | MDNNN<br>MDQNR/L<br>MDUNR/L<br>PDJNR/L<br>PDNNR/L<br>PDSNR/L<br>PDUNR/L | B81<br>B82<br>B106<br>B70,124<br>B70<br>B102<br>B103 |
| | | 150408-HA | | | | | ● | | ● | | ● | | | | | | | | | | ● | | 14.7 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.40 | 0.80~3.50 | | |
| | | 150604-HA | | ● | ● | | ● | ● | ● | | ● | | | | | | | | | | ● | | 15.1 | 12.7 | 6.35 | 0.4 | 5.16 | 0.05~0.30 | 0.80~3.50 | | |
| | | 150608-HA | | ● | ● | | ● | ● | ● | | ● | | | | | | | | | | ● | | 14.7 | 12.7 | 6.35 | 0.8 | 5.16 | 0.10~0.40 | 0.80~3.50 | | |
| **DNMG-HC**  Medie lavorazioni – finitura | DNMG | 150404-HC | ● | | | | | | | ● | | | | | | | | | | | | | 15.1 | 12.7 | 4.76 | 0.4 | 5.16 | 0.05~0.30 | 0.05~3.50 | MDNNN<br>MDQNR/L<br>MDUNR/L<br>PDJNR/L<br>PDNNR/L<br>PDSNR/L<br>PDUNR/L | B81<br>B82<br>B106<br>B70,124<br>B70<br>B102<br>B103 |
| | | 150408-HC | ● | ● | | | | | | ● | | | | | | | | | | | | | 14.7 | 12.7 | 4.76 | 0.8 | 5.16 | 0.08~0.40 | 0.80~4.00 | | |
| | | 150412-HC | | | | | | | | | | | | | | | | | | | | | 14.4 | 12.7 | 4.76 | 1.2 | 5.16 | 0.13~0.50 | 0.90~4.00 | | |
| | | 150604-HC | ● | ● | ● | | | | | ● | | | | | | | | | | | | | 15.1 | 12.7 | 6.35 | 0.4 | 5.16 | 0.05~0.30 | 0.80~4.00 | | |
| | | 150608-HC | ● | ● | ● | ● | | | | | | | | | | | | | | | | | 14.7 | 12.7 | 6.35 | 0.8 | 5.16 | 0.08~0.40 | 0.80~4.00 | | |
| | | 150612-HC | | ● | ● | | | | | | | | | | | | | | | | | | 14.4 | 12.7 | 6.35 | 1.2 | 5.16 | 0.13~0.50 | 0.90~4.00 | | |
| **DNMG-HR**  Sgrossatura | DNMG | 150408-HR | | ● | | ● | | | | | | | | | | | | | | | | | 14.7 | 12.7 | 4.76 | 0.8 | 5.16 | 0.20~0.50 | 1.00~7.00 | MDNNN<br>MDQNR/L<br>MDUNR/L<br>PDJNR/L<br>PDNNR/L<br>PDSNR/L<br>PDUNR/L | B81<br>B82<br>B106<br>B70,124<br>B70<br>B102<br>B103 |
| | | 150412-HR | | | | | | | | | | | | | | | | | | | | | 14.4 | 12.7 | 4.76 | 1.2 | 5.16 | 0.25~0.70 | 1.30~7.00 | | |
| | | 150416-HR | | | | | | | | | | | | | | | | | | | | | 14.0 | 12.7 | 4.76 | 1.6 | 5.16 | 0.30~0.75 | 1.80~7.00 | | |
| | | 150608-HR | ● | ● | ● | ● | | | | | | | | | | | | | | | | | 14.7 | 12.7 | 6.35 | 0.8 | 5.16 | 0.20~0.50 | 1.00~7.00 | | |
| | | 150612-HR | ● | ● | ● | | | | | | | | | | | | | | | | | | 14.4 | 12.7 | 6.35 | 1.2 | 5.16 | 0.25~0.70 | 1.30~7.00 | | |
| | New | 150616-HR | | ● | ● | | | | | | | | | | | | | | | | | | 14.0 | 12.7 | 6.35 | 1.6 | 5.16 | 0.20~0.75 | 1.80~7.00 | | |
| | | 190612-HR | | | | | | | | | | | | | | | | | | | | | 18.1 | 15.875 | 6.35 | 1.2 | 7.93 | 0.20~0.75 | 1.80~8.00 | | |

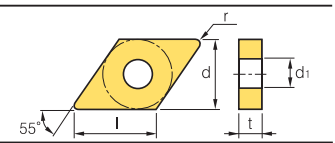
• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15
Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

● : Disponibile ○ : A richiesta

# DN○○ 55° Negativo

| Pezzo lavorato | | | NC3010 | NC3020 | NC3120 | NC3030 | NC500H | PC8110 | NC9020 | NC9025 | NC5330 | PC5300 | PC9030 | NC6105 | NC6110 | NC315K | CN1000 | CN2000 | CN20 | CC105 | CC115 | U20 | H01 | G10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Acciaio | P | ● | ● | ● | ✱ | | | ● | | ● | | | | | | ● | ● | | | ● | | | |
| | Acciaio inossidabile | M | | | | ● | | ● | ● | ● | | ✱ | ✱ | | | | | | | | | | | |
| | Ghisa | K | | | | | | | | | ● | | | | ● | | ● | | | | | | | |
| | Materiali non ferrosi | N | | | | | | | | | | | | | | | | | | | | | | |
| | Leghe resistenti al calore, lega di titanio | S | | | | | | ● | | | ● | ✱ | ✱ | | | | | | | | | | | |
| | Materiali temprati | H | | | | | | | | | | | | | | | | | | | | | | |

Applicazioni
● Taglio continuo
● Uso generico
✱ Taglio interrotto




| Inserti | Articolo | | Rivestito | | | | | | | | | | | | | | Cermet | | | Rivestito | | Non rivestito | | | Dimensioni (mm) | | | | | Condizioni di taglio | | Utensili applicabili | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NC3010 | NC3020 | NC3120 | NC3030 | NC500H | PC8110 | NC9020 | NC9025 | NC5330 | PC5300 | PC9030 | NC6105 | NC6110 | NC315K | CN1000 | CN2000 | CN20 | CC105 | CC115 | U20 | H01 | G10 | l | d | t | r | d1 | fn | ap | Articolo | Pag. |
| **DNMG-HS** | DNMG | 110404-HS | | | | | | | ● | ● | | | ● | | | | | | | | | | | | 11.2 | 9.525 | 4.76 | 0.4 | 3.81 | 0.05~0.35 | 0.80~2.50 | MDJNR/L | B81 |
| | | 110408-HS | | | | | | | ● | ● | | | ● | | | | | | | | | | | | 10.8 | 9.525 | 4.76 | 0.8 | 3.81 | 0.10~0.40 | 1.00~2.50 | MDNNN | B81 |
| | | 150404-HS | | | | | | ● | ● | ● | | ● | ● | | | | | | | | | | | | 15.1 | 12.7 | 4.76 | 0.4 | 5.16 | 0.05~0.35 | 0.80~4.00 | MDQNR/L | B82 |
| | | 150408-HS | | | | | | ● | ● | ● | | ● | ● | | | | | | | | | | | | 14.7 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.40 | 1.00~4.00 | MDUNR/L | B106 |
| | | 150412-HS | | | | | | | | | | ● | ● | | | | | | | | | | | | 14.4 | 12.7 | 4.76 | 1.2 | 5.16 | 0.13~0.55 | 1.00~4.50 | PDJNR/L | B70,124 |
| | | 150604-HS | | | | | | ● | ● | ● | | ● | ● | | | | | | | | | | | | 15.1 | 12.7 | 6.35 | 0.4 | 5.16 | 0.05~0.35 | 0.80~4.00 | PDNNR/L | B70 |
| | | 150608-HS | | | | | | ● | ● | ● | | ● | ● | | | | | | | | | | | | 14.7 | 12.7 | 6.35 | 0.8 | 5.16 | 0.10~0.40 | 1.00~4.50 | PDSNR/L | B102 |
| | | 150612-HS | | | | | | | | ● | | | ● | | | | | | | | | | | | 14.4 | 12.7 | 6.35 | 1.2 | 5.16 | 0.10~0.55 | 1.00~4.50 | PDUNR/L | B103 |
| Medie lavorazioni – finitura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **DNMG-HU** | DNMG | 150404-HU | | | | | | | | | | | | | | | | | | | | | | | 15.1 | 12.7 | 4.76 | 1.2 | 5.16 | 0.05~0.25 | 0.10~1.50 | MDJNR/L | B81 |
| | | 150408-HU | | | | | | | | | | | | | | | | | | | | | | | 14.7 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.30 | 0.20~1.50 | MDNNN | B81 |
| | | 150412-HU | | | | | | | | | | | | | | | | | | | | | | | 14.4 | 12.7 | 4.76 | 1.2 | 5.16 | 0.15~0.35 | 0.30~1.50 | MDQNR/L | B82 |
| | | 150604-HU | | | | | | | | | | | | | | | | | | | | | | | 15.1 | 12.7 | 6.35 | 0.4 | 5.16 | 0.05~0.25 | 0.10~1.50 | MDUNR/L | B106 |
| | | 150608-HU | | | | | | | | | | | | | | | | | | | | | | | 14.7 | 12.7 | 6.35 | 0.8 | 5.16 | 0.10~0.30 | 0.20~1.50 | PDJNR/L | B70,124 |
| | | 150612-HU | | | | | | | | | | | | | | | | | | | | | | | 14.4 | 12.7 | 6.35 | 1.2 | 5.16 | 0.15~0.35 | 0.30~1.50 | PDNNR/L | B70 |
| Finitura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PDSNR/L | B102 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PDUNR/L | B103 |
| **DNMG-LW** | DNMG | 150408-LW | ● | | | | | | | | | | | | ● | | | | | | | | | | 14.7 | 12.7 | 4.76 | 0.8 | 5.16 | 0.15~0.50 | 0.70~4.50 | MDJNR/L | B81 |
| | | 150412-LW | ● | | | | | | | | | | | | ● | | | | | | | | | | 14.4 | 12.7 | 4.76 | 1.2 | 5.16 | 0.20~0.60 | 1.00~5.00 | MDNNN | B81 |
| | | 150608-LW | ● | | | | | | | | | | | | ● | | | | | | | | | | 14.7 | 12.7 | 6.35 | 0.8 | 5.16 | 0.15~0.50 | 0.70~4.50 | MDQNR/L | B82 |
| | | 150612-LW | ● | | | | | | | | | | | | ● | | | | | | | | | | 14.4 | 12.7 | 6.35 | 1.2 | 5.16 | 0.20~0.60 | 1.00~5.00 | MDUNR/L | B106 |
| Medie lavorazioni (wiper) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PDJNR/L | B70,124 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PDNNR/L | B70 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PDSNR/L | B102 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PDUNR/L | B103 |
| **DNMG-VB** | DNMG | 150404-VB | | | | | | | | | | | | | | | | | | | | | | | 15.1 | 12.7 | 4.76 | 0.4 | 5.16 | 0.10~0.35 | 0.3~2.0 | MDJNR/L | B81 |
| | | 150408-VB | ○ | ○ | | | | | | | ● | | | | | | | | | | | | | | 14.7 | 12.7 | 4.76 | 0.8 | 5.16 | 0.15~0.45 | 0.5~2.0 | MDNNN | B81 |
| | | 150604-VB | | | | | | | | | | | | | | | | | | | | | | | 15.1 | 12.7 | 6.35 | 0.4 | 5.16 | 0.10~0.35 | 0.3~2.0 | MDQNR/L | B82 |
| | | 150608-VB | ○ | ○ | | | | | | | ● | | | | | | | | | | | | | | 14.7 | 12.7 | 6.35 | 0.8 | 5.16 | 0.15~0.45 | 0.5~2.0 | MDUNR/L | B106 |
| Finitura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PDJNR/L | B70,124 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PDNNR/L | B70 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PDSNR/L | B102 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PDUNR/L | B103 |
| **DNMG-VL** | DNMG | 110408-VL | | | | | | | | | | | | | | | | | | | | | | | 10.8 | 9.52 | 4.76 | 0.8 | 3.81 | 0.05~0.20 | 0.1~1.0 | MDJNR/L | B81 |
| | | 150404-VL | ● | ● | | | | | | | ● | | | | | | ○ | ○ | | | | | | | 15.1 | 12.7 | 4.75 | 0.4 | 5.16 | 0.05~0.25 | 0.1~1.5 | MDNNN | B81 |
| | | 150408-VL | ● | ● | | | | | | | ● | | | | | | ○ | ○ | | | | | | | 14.7 | 12.7 | 4.76 | 0.8 | 5.16 | 0.05~0.30 | 0.2~1.5 | MDQNR/L | B82 |
| | | 150412-VL | | | | | | | | | | | | | | | | | | | | | | | 14.4 | 12.7 | 4.76 | 1.2 | 5.16 | 0.10~0.30 | 0.25~1.5 | MDUNR/L | B106 |
| | | 150604-VL | ● | ● | | | | | | | ● | | | | | | ○ | ○ | | | | | | | 15.1 | 12.7 | 6.35 | 0.4 | 5.16 | 0.05~0.25 | 0.1~1.5 | PDJNR/L | B70,124 |
| | | 150608-VL | ● | ● | | | | | | | ● | | | | | | ○ | ○ | | | | | | | 14.7 | 12.7 | 6.35 | 0.8 | 5.16 | 0.05~0.30 | 0.2~1.5 | PDNNR/L | B70 |
| Acciaio leggero | | 150612-VL | | | | | | | | | | | | | | | | | | | | | | | 14.4 | 12.7 | 6.35 | 1.2 | 5.16 | 0.10~0.30 | 0.25~1.5 | PDSNR/L | B102 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PDUNR/L | B103 |
| **DNMG-VF** | DNMG | 110402-VF | | | ● | | | | | | | | | | | | | | | | | | | | 11.4 | 9.525 | 4.76 | 0.2 | 3.81 | 0.05~0.20 | 0.20~1.00 | MDJNR/L | B81 |
| | | 110404-VF | | | ● | | | | | | ● | | | | | | | | | | | | | | 11.2 | 9.525 | 4.76 | 0.4 | 3.81 | 0.07~0.30 | 0.50~1.50 | MDNNN | B81 |
| | | 110408-VF | | | ● | | | | | | ● | | | | | | | ● | | | | | | | 10.8 | 9.525 | 4.76 | 0.8 | 3.81 | 0.10~0.40 | 0.50~1.50 | MDQNR/L | B82 |
| | | 150404-VF | | | ● | | | | | | | | | | | | | | | | | | | | 15.1 | 12.7 | 4.76 | 0.4 | 5.16 | 0.07~0.30 | 0.50~1.50 | MDUNR/L | B106 |
| | | 150408-VF | | | ● | | | | | | | | | | | | | | | | | | | | 14.7 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.40 | 0.50~1.50 | PDJNR/L | B70,124 |
| | | 150412-VF | | | | | | | | | | | | | | | | | | | | | | | 14.4 | 12.7 | 4.76 | 1.2 | 5.16 | 0.15~0.50 | 0.60~1.50 | PDNNR/L | B70 |
| Finitura | | 150604-VF | ● | | ● | | | | | | ● | | | | | | | | | | | | | | 15.1 | 12.7 | 6.35 | 0.4 | 5.16 | 0.13~0.30 | 0.50~1.50 | PDSNR/L | B102 |
| | | 150608-VF | ● | | ● | | | | | | ● | | | | | | | | | | | | | | 14.7 | 12.7 | 6.35 | 0.8 | 5.16 | 0.10~0.40 | 0.50~1.50 | PDUNR/L | B103 |
| | | 150612-VF | | | ● | | | | | | | | | | | | | | | | | | | | 14.4 | 12.7 | 6.35 | 1.2 | 5.16 | 0.15~0.50 | 0.60~1.50 | | |
| **DNMG-VG** | DNMG | 110404-VG | | | | | | | | | | | | | | | | | | | ● | | | | 11.2 | 9.525 | 4.76 | 0.4 | 3.81 | 0.07~0.30 | 0.50~1.50 | MDJNR/L | B81 |
| | | 110408-VG | | | | | | | | | | | | | | | | ● | | | ● | | | | 10.8 | 9.525 | 4.76 | 0.8 | 3.81 | 0.10~0.40 | 0.50~1.50 | MDNNN | B81 |
| | | 150404-VG | | | | | | | | | | | | | | | ● | ● | | | ● | | | | 15.1 | 12.7 | 4.76 | 0.4 | 5.16 | 0.07~0.30 | 0.50~1.50 | MDQNR/L | B82 |
| | | 150408-VG | | | | | | | | | | | | | | | ● | ● | | | ● | | | | 14.7 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.40 | 0.50~1.50 | MDUNR/L | B106 |
| | | 150604-VG | | | | | | | | | | | | | | | ● | ● | | | ● | | | | 15.1 | 12.7 | 6.35 | 0.4 | 5.16 | 0.13~0.30 | 0.50~1.50 | PDJNR/L | B70,124 |
| Finitura | | 150608-VG | | | | | | | | | | | | | | | ● | ● | | | ● | | | | 14.7 | 12.7 | 6.35 | 0.8 | 5.16 | 0.10~0.40 | 0.50~1.50 | PDNNR/L | B70 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PDSNR/L | B102 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PDUNR/L | B103 |
| **DNMG-VM** | DNMG | 110404-VM | | | | | | | | | | | | | | | | ● | | | | | | | 11.2 | 9.525 | 4.76 | 0.4 | 3.81 | 0.05~0.30 | 0.90~4.00 | MDJNR/L | B81 |
| | | 110408-VM | ● | | ● | | | | | | ● | | | | | | | ● | | | | | | | 10.8 | 9.525 | 4.76 | 0.8 | 3.81 | 0.10~0.50 | 1.00~4.00 | MDNNN | B81 |
| | | 110412-VM | ● | | ● | | | | | | | | | | | | | | | | | | | | 10.3 | 9.525 | 4.76 | 1.2 | 3.81 | 0.13~0.50 | 1.30~4.00 | MDQNR/L | B82 |
| | | 150404-VM | ● | | ● | ● | | | ● | | ● | | | | ● | | | ● | | | | | | | 15.1 | 12.7 | 4.76 | 0.4 | 5.16 | 0.05~0.30 | 0.90~5.00 | MDUNR/L | B106 |
| | | 150408-VM | ● | | ● | ● | | | ● | | ● | | | | ● | | | ● | | | | | | | 14.7 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.50 | 1.00~5.00 | PDJNR/L | B70,124 |
| | | 150412-VM | | | | | | | | | ● | | | | | | | ● | | | | | | | 14.4 | 12.7 | 4.76 | 1.2 | 5.16 | 0.13~0.60 | 1.30~5.00 | PDNNR/L | B70 |
| Medie lavorazioni | | 150604-VM | ● | ○ | ● | ● | | | ● | | ● | | ● | | ○ | | | ● | | | | | | | 15.1 | 12.7 | 6.35 | 0.4 | 5.16 | 0.05~0.30 | 0.90~5.00 | PDSNR/L | B102 |
| | | 150608-VM | ● | ○ | ● | ● | | | ● | | ● | ● | ● | | | | | ● | | | | | | | 14.7 | 12.7 | 6.35 | 0.8 | 5.16 | 0.10~0.50 | 1.00~5.00 | PDUNR/L | B103 |
| | | 150612-VM | | | | | | | ● | | ● | | | | | | | ● | | | | | | | 14.4 | 12.7 | 6.35 | 1.2 | 5.16 | 0.13~0.60 | 1.30~5.00 | | |
| **DNMG-VQ** | DNMG | 110404-VQ | | | | | | | | | | | | | | | | ● | | | ● | | | | 11.2 | 9.525 | 4.76 | 0.4 | 3.81 | 0.05~0.30 | 0.50~3.50 | MDJNR/L | B81 |
| | | 110408-VQ | | | | | | | | | | | | | | | | | | | ● | | | | 10.8 | 9.525 | 4.76 | 0.8 | 3.81 | 0.08~0.40 | 0.80~4.00 | MDNNN | B81 |
| | | 150404-VQ | | | | | | | | | | | | | | | ● | ● | | | ● | | | | 15.1 | 12.7 | 4.76 | 0.4 | 5.16 | 0.05~0.30 | 0.80~3.50 | MDQNR/L | B82 |
| | | 150408-VQ | | | | | | | | | | | | | | | ● | ● | | | ● | | | | 14.7 | 12.7 | 4.76 | 0.8 | 5.16 | 0.08~0.40 | 0.80~4.00 | MDUNR/L | B106 |
| | | 150604-VQ | | | | | | | | | | | | | | | ● | ● | | | ● | | | | 15.1 | 12.7 | 6.35 | 0.4 | 5.16 | 0.05~0.30 | 0.80~4.00 | PDJNR/L | B70,124 |
| Medie lavorazioni – finitura | | 150608-VQ | | | | | | | | | | | | | | | ● | ● | | | ● | | | | 14.7 | 12.7 | 6.35 | 0.8 | 5.16 | 0.08~0.40 | 0.80~4.00 | PDNNR/L | B70 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PDSNR/L | B102 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PDUNR/L | B103 |

• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15

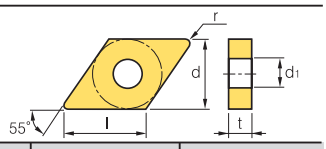
● : Disponibile ○ : A richiesta

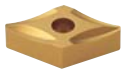
Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

## DN○○ 55° Negativo

| Pezzo lavorato | | |
|---|---|---|
| Acciaio | P | ● ⬌ ✱ |
| Acciaio inossidabile | M | ⬌ |
| Ghisa | K | ⬌ |
| Materiali non ferrosi | N | |
| Leghe resistenti al calore, lega di titanio | S | |
| Materiali temprati | H | |

Applicazioni
● Taglio continuo
⬌ Uso generico
✱ Taglio interrotto




| Inserti | Articolo | Rivestito NC3010 | NC3020 | NC3120 | NC3030 | NC500H | PC8110 | NC9020 | NC9025 | NC5330 | PC5300 | PC9030 | NC6105 | NC6110 | NC315K | Cermet CN1000 | CN2000 | CN20 | Rivestito CC105 | CC115 | Non rivestito U20 | H01 | G10 | Dimensioni (mm) l | d | t | r | d1 | Condizioni di taglio fn | ap | Utensili applicabili Articolo | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **DNMG-VW**  Finitura (wiper) | **DNMG 150404-VW** | | | | | | | | | | | | | | | | | | | | | | | 15.1 | 12.7 | 4.76 | 0.4 | 5.16 | 0.10~0.35 | 0.30~3.00 | MDJNR/L | B81 |
| | **150408-VW** | ● | | | ● | | | | | | | | | ● | | | | | | | | | | 14.7 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.40 | 0.30~3.00 | MDNNN | B81 |
| | **150604-VW** | | | | | | | | | | | | | | | | | | | | | | | 15.1 | 12.7 | 6.35 | 0.4 | 5.16 | 0.10~0.35 | 0.30~3.00 | MDQNR/L | B82 |
| | **150608-VW** | ● | | | ● | | | | | | | | | ● | | | | | | | | | | 14.7 | 12.7 | 6.35 | 0.8 | 5.16 | 0.10~0.40 | 0.30~3.00 | MDUNR/L | B106 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PDJNR/L | B70,124 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PDNNR/L | B70 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PDSNR/L | B102 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PDUNR/L | B103 |
| **DNMP**  Medie lavorazioni – finitura | **DNMP 150408** | | | | | | | | | | | | | | | | | | | | | | | 14.7 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.40 | 0.30~3.00 | MDJNR/L | B81 |
| | **150608** | | | | | | | | | | | | | | | | | | | | | | | 14.7 | 12.7 | 6.35 | 0.8 | 5.16 | 0.10~0.40 | 0.30~3.00 | MDNNN | B81 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MDQNR/L | B82 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MDUNR/L | B106 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PDJNR/L | B70,124 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PDNNR/L | B70 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PDSNR/L | B102 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PDUNR/L | B103 |

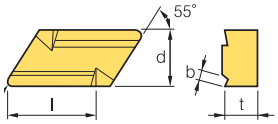
• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15
Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

● : Disponibile ○ : A richiesta

## KN○○ 55° Negativo

| Pezzo lavorato | | |
|---|---|---|
| Acciaio | P | ● ⬌ ⬌ ✱ ✱ ⬌ ⬌ ● |
| Acciaio inossidabile | M | ⬌ ⬌ ✱ |
| Ghisa | K | ⬌ ⬌ ⬌ |
| Materiali non ferrosi | N | |
| Leghe resistenti al calore, lega di titanio | S | ⬌ ✱ |
| Materiali temprati | H | |

Applicazioni
● Taglio continuo
⬌ Uso generico
✱ Taglio interrotto




| Inserti | Articolo | Rivestito NC3010 | NC3020 | NC3120 | NC3030 | NC500H | PC8110 | NC9020 | NC9025 | NC5330 | PC5300 | PC9030 | NC6105 | NC6110 | NC315K | Cermet CN1000 | CN2000 | CN20 | Rivestito CC105 | CC115 | Non rivestito ST10 | H01 | G10 | Dimensioni (mm) l | d | t | r | B | Condizioni di taglio fn | ap | Utensili applicabili Articolo | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **KNUX-11**  Medie lavorazioni | **KNUX 160405R-11** | ● | ● | ● | ● | ● | | ● | | ● | | ● | | ● | | | | | | | ● | | | 19.2 | 9.525 | 4.76 | 0.5 | 2.2 | 0.20~0.35 | 1.00~6.00 | CKJNR/L | B78 |
| | **160410R-11** | ● | ● | ● | ● | | | | | ● | | | | ● | | | | | | | | | | 18.8 | 9.525 | 4.76 | 1.0 | 2.2 | 0.30~0.60 | 1.50~6.00 | CKNNR/L | B78 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CKUNR/L | B105 |
| | **160405L-11** | ● | ● | ● | ● | | | ● | | ● | | | | | | | | | | | | | | 19.2 | 9.525 | 4.76 | 0.5 | 3.2 | 0.20~0.35 | 1.00~6.00 | | |
| | **160410L-11** | ● | ● | ● | ● | | | | | ● | | | | | | | | | | | | | | 18.8 | 9.525 | 4.76 | 1.0 | 3.2 | 0.30~0.60 | 1.50~6.00 | | |
| **KNUX-12**  Sgrossatura | **KNUX 160405R-12** | ● | ● | ● | ● | | | | | ● | | | | | | | | | | | | | | 19.2 | 9.525 | 4.76 | 0.5 | 2.2 | 0.25~0.35 | 1.50~6.00 | CKJNR/L | B78 |
| | **160410R-12** | | ● | ● | ● | | | | | ● | | | | | | | | | | | | | | 18.8 | 9.525 | 4.76 | 1.0 | 2.2 | 0.40~0.70 | 1.50~6.00 | CKNNR/L | B78 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | CKUNR/L | B105 |
| | **160405L-12** | | ● | ● | ● | | | | | | | | | | | | | | | | | | | 19.2 | 9.525 | 4.76 | 0.5 | 3.2 | 0.25~0.35 | 1.50~6.00 | | |
| | **160410L-12** | | | ● | ● | | | | | ● | | | | | | | | | | | | | | 18.8 | 9.525 | 4.76 | 1.0 | 3.2 | 0.40~0.70 | 1.50~6.00 | | |

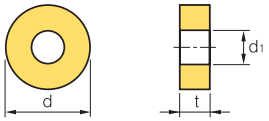
• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15
Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

● : Disponibile ○ : A richiesta

## RN○○ Negativo

| Pezzo lavorato | | |
|---|---|---|
| Acciaio | P | ✱ ⬌ |
| Acciaio inossidabile | M | ⬌ |
| Ghisa | K | ⬌ |
| Materiali non ferrosi | N | |
| Leghe resistenti al calore, lega di titanio | S | ⬌ |
| Materiali temprati | H | |

Applicazioni
● Taglio continuo
⬌ Uso generico
✱ Taglio interrotto




| Inserti | Articolo | Rivestito NC3010 | NC3020 | NC3120 | NC3030 | NC500H | PC8110 | NC9020 | NC9025 | NC5330 | PC5300 | PC9030 | NC6105 | NC6110 | NC315K | Cermet CN1000 | CN2000 | CN20 | Rivestito CC105 | CC115 | Non rivestito ST10 | H01 | G10 | Dimensioni (mm) d | t | d1 | Condizioni di taglio fn | ap | Utensili applicabili Articolo | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **RNMG-B25**  Media sgrossatura | **RNMG 090300-B25** | | | | ● | | | | | | | | | | | | | | | | | | | 9.525 | 3.18 | 3.81 | 0.90~4.50 | 0.09~0.90 | | |
| | **120400-B25** | | | | ● | | | | | ● | | | | | | | | | | | | | | 12.7 | 4.76 | 5.16 | 1.20~4.80 | 0.12~1.20 | | |
| | **150600-B25** | | | | ● | | | | | | | | | | | | | | | | | | | 15.875 | 6.35 | 6.35 | 1.15~1.50 | 1.50~7.50 | | |
| | **190600-B25** | | | | ● | | | | | | | | | | | | | | | | | | | 19.05 | 6.35 | 7.93 | 1.90~7.60 | 0.19~1.90 | - | - |
| | **250600-B25** | | | | | | | | | | | | | | | | | | | | | | | 25.4 | 6.35 | 9.12 | 2.50~10.00 | 0.25~2.50 | | |
| | **250900-B25** | | | | ● | | | | | | | | | | | | | | | | | | | 25.4 | 9.52 | 9.12 | 2.50~10.00 | 0.25~2.50 | | |
| | **310900-B25** | | | | | | | | | | | | | | | | | | | | | | | 31.75 | 9.52 | 12.7 | 3.50~13.00 | 0.30~2.50 | | |

• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15
Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

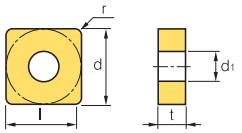
● : Disponibile ○ : A richiesta

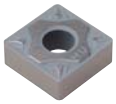
# B Inserti di tornitura (Negativo)

## SN○○ ○ 90° Negativo

| Pezzo lavorato | | |
|---|---|---|
| | Acciaio | P |
| | Acciaio inossidabile | M |
| | Ghisa | K |
| | Materiali non ferrosi | N |
| | Leghe resistenti al calore, lega di titanio | S |
| | Materiali temprati | H |

Applicazioni
● Taglio continuo
Uso generico
Taglio interrotto




| Inserti | Articolo | Rivestito | | | | | | | | | | | | Cermet | | Rivestito | | Non rivestito | | | Dimensioni (mm) | | | | | Condizioni di taglio | | Utensili applicabili | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NC3010 | NC3020 | NC3120 | NC3030 | NC500H | PC8110 | NC9020 | NC9025 | NC5330 | PC5300 | PC9030 | NC6105 | NC6110 | NC315K | CN1000 | CN2000 | CN20 | CC105 | CC115 | ST30A | H01 | G10 | l | d | t | r | d1 | fn | ap | Articolo | Pag. |
| **SNGA**  Sgrossatura | **SNGA** 090304 | | | | | | | | | | | | | | | | | | | | | | | 9.1 | 9.525 | 3.18 | 0.4 | 3.81 | 0.17~0.50 | 0.50~4.50 | MSBNR/L | B82 |
| | 090308 | | | | | | | | | | | | | | | | | | | | | | | 8.7 | 9.525 | 3.18 | 0.8 | 3.81 | 0.17~0.50 | 0.50~4.50 | MSDNN | B82 |
| | 120404 | | | | | | | | | | | | | | | | | | | | | | | 12.3 | 12.7 | 4.76 | 0.4 | 5.16 | 0.15~0.60 | 1.50~8.00 | MSKNR/L | B83 |
| | 120408 | | | | | | | | | | | | | | | | | | | | | | | 11.9 | 12.7 | 4.76 | 0.8 | 5.16 | 0.15~0.60 | 1.50~8.00 | MSRNR/L | B83 |
| | 120412 | | | | | | | | | | | | | | | | | | | | | | | 11.5 | 12.7 | 4.76 | 1.2 | 5.16 | 0.20~0.80 | 1.50~8.00 | MSSNR/L | B84 |
| | 150608 | | | | | | | | | | | | | | | | | | | | | | | 15.0 | 15.875 | 6.35 | 0.8 | 6.35 | 0.20~0.80 | 2.00~10.00 | PSBNR/L | B72 |
| | 150616 | | | | | | | | | | | | | | | | | | | | | | | 14.2 | 15.875 | 6.35 | 1.6 | 6.35 | 0.20~0.90 | 2.00~10.00 | PSDNN | B72 |
| | 190608 | | | | | | | | | | | | | | | | | | | | | | | 18.2 | 19.05 | 6.35 | 0.8 | 7.93 | 0.15~0.60 | 3.00~12.00 | PSKNR/L | B103 |
| | 190612 | | | | | | | | | | | | | | | | | | | | | | | 17.8 | 19.05 | 6.35 | 1.2 | 7.93 | 0.20~0.80 | 3.00~12.00 | PSSNR/L | B74 |
| **SNGG**  Medie lavorazioni | **SNGG** 090304R | | | | | | | | | | | | | | | | | | | | | | | 9.1 | 9.525 | 3.18 | 0.4 | 3.81 | 0.12~0.35 | 1.00~3.00 | MSBNR/L | B82 |
| | 090308R | | | | | | | | | | | | | | | | | | | | | | | 8.7 | 9.525 | 3.18 | 0.8 | 3.81 | 0.15~0.35 | 1.00~3.00 | MSDNN | B82 |
| | 120404R | | | | | | | | | | | | | | | ● | ● | | | | | | | 12.3 | 12.7 | 4.76 | 0.4 | 5.16 | 0.15~0.35 | 1.00~4.00 | MSKNR/L | B83 |
| | 120408R | | | | | | | | | | | | | | | ● | ● | | | | | | | 11.9 | 12.7 | 4.76 | 0.8 | 5.16 | 0.15~0.35 | 1.00~4.00 | MSRNR/L | B83 |
| | 120412R | | | | | | | | | | | | | | | | | | | | | | | 11.5 | 12.7 | 4.76 | 1.2 | 5.16 | 0.15~0.35 | 1.00~4.00 | MSSNR/L | B84 |
| | 090304L | | | | | | | | | | | | | | | | | | | | | | | 9.1 | 9.525 | 3.18 | 0.4 | 3.81 | 0.12~0.35 | 1.00~3.00 | PSBNR/L | B72 |
| | 090308L | | | | | | | | | | | | | | | | | | | | | | | 8.7 | 9.525 | 3.18 | 0.8 | 3.81 | 0.15~0.35 | 1.00~3.00 | PSDNN | B72 |
| | 120404L | | | | | | | | | | | | | | | | | | | | | | | 12.3 | 12.7 | 4.76 | 0.4 | 5.16 | 0.15~0.35 | 1.00~4.00 | PSKNR/L | B103 |
| | 120408L | | | | | | | | | | | | | | | | | | | | | | | 11.9 | 12.7 | 4.76 | 0.8 | 5.16 | 0.15~0.35 | 1.00~4.00 | PSSNR/L | B74 |
| | 120412L | | | | | | | | | | | | | | | | | | | | | | | 11.5 | 12.7 | 4.76 | 1.2 | 5.16 | 0.15~0.35 | 1.00~4.00 | | |
| **SNGG-HU**  Finitura | **SNGG** 120408-HU | | | | | | | | | | | | | | | | | | | | | | | 11.9 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.30 | 0.20~1.50 | MSBNR/L | B82 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MSDNN | B82 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MSKNR/L | B83 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MSRNR/L | B83 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MSSNR/L | B84 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSBNR/L | B72 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSDNN | B72 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSKNR/L | B103 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSSNR/L | B74 |
| **SNGN**  Sgrossatura | **SNGN** 090302 | | | | | | | | | | | | | | | | | | | | | | | 9.3 | 9.525 | 3.18 | 0.2 | | 0.05~0.30 | 0.50~4.00 | CSDNN | B94 |
| | 090304 | | | | | | | | | | | | | | | | | | | | | | | 9.1 | 9.525 | 3.18 | 0.4 | | 0.10~0.35 | 0.50~4.00 | CSKNR/L | B95 |
| | 090308 | | | | | | | | | | | | | | | | | | | | | | ● | 8.7 | 9.525 | 3.18 | 0.8 | | 0.10~0.40 | 1.00~4.00 | | |
| | 120304 | | | | | | | | | | | | | | | | | | | | | | | 12.3 | 12.7 | 3.18 | 0.4 | | 0.13~0.50 | 1.30~5.00 | | |
| | 120308 | | | | | | | | | | | | | | | | | | | | | | | 11.9 | 12.7 | 3.18 | 0.8 | | 0.15~0.60 | 1.50~6.00 | | |
| | 120312 | | | | | | | | | | | | | | | | | | | | | | | 11.5 | 12.7 | 3.18 | 1.2 | | 0.17~0.60 | 1.70~6.00 | | |
| | 120402 | | | | | | | | | | | | | | | | | | | | | | | 12.5 | 12.7 | 4.76 | 0.2 | | 0.10~0.45 | 1.00~5.00 | | |
| | 120404 | | | | | | | | | | | | | | | | | ○ | | | | | | 12.3 | 12.7 | 4.76 | 0.4 | | 0.13~0.50 | 1.30~5.00 | | |
| | 120408 | | | | | | | | | | | | | | | | | | | | | | | 11.9 | 12.7 | 4.76 | 0.8 | | 0.15~0.60 | 1.50~6.00 | | |
| | 120412 | | | | | | | | | | | | | | | | | | | | | | | 11.5 | 12.7 | 4.76 | 1.2 | | 0.17~0.60 | 1.70~6.00 | | |
| | 120424 | | | | | | | | | | | | | | | | | | | | | | | 10.3 | 12.7 | 4.76 | 2.4 | | 0.20~0.65 | 2.00~6.00 | | |
| | 150402 | | | | | | | | | | | | | | | | | | | | | | | 15.7 | 15.875 | 4.76 | 0.2 | | 0.10~0.50 | 0.50~6.00 | | |
| | 150408 | | | | | | | | | | | | | | | | | | | | | | | 15.0 | 15.875 | 4.76 | 0.8 | | 0.15~0.60 | 1.50~8.00 | | |
| | 150412 | | | | | | | | | | | | | | | | | | | | | | | 14.6 | 15.875 | 4.76 | 1.2 | | 0.17~0.60 | 2.00~8.00 | | |
| | 150416 | | | | | | | | | | | | | | | | | | | | | | | 14.2 | 15.875 | 4.76 | 1.6 | | 0.20~0.65 | 2.50~8.50 | | |
| | 190402 | | | | | | | | | | | | | | | | | | | | | | | 18.9 | 19.05 | 4.76 | 0.2 | | 0.10~0.60 | 2.00~8.50 | | |
| | 190412 | | | | | | | | | | | | | | | | | | | | ● | | | 17.4 | 19.05 | 4.76 | 1.2 | | 0.17~0.70 | 2.50~10.00 | | |
| | 190416 | | | | | | | | | | | | | | | | | | | | | | | 17.5 | 19.05 | 4.76 | 1.6 | | 0.20~0.75 | 2.50~10.00 | | |
| | 250604 | | | | | | | | | | | | | | | | | | | | | | | 25.0 | 25.4 | 6.35 | 0.4 | | 0.30~0.80 | 3.00~12.00 | | |
| | 250616 | | | | | | | | | | | | | | | | | | | | | | | 23.8 | 25.4 | 6.35 | 1.6 | | 0.35~1.00 | 4.00~12.00 | | |
| **SNGX**  Sgrossatura | **SNGX** 120408R | | | | | | | | | | | | | | | | | | | | | | | 11.9 | 12.7 | 4.76 | 0.8 | | 1.00~4.00 | 0.15~0.35 | MSBNR/L | B82 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MSDNN | B82 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MSKNR/L | B83 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MSRNR/L | B83 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MSSNR/L | B84 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSBNR/L | B72 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSDNN | B72 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSKNR/L | B103 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSSNR/L | B74 |

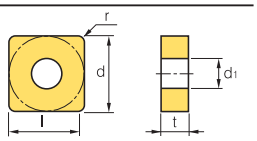
• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15
Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

● : Disponibile ○ : A richiesta

# SN○○ ○ 90° Negativo

| Pezzo lavorato | | |
|---|---|---|
| | Acciaio | P |
| | Acciaio inossidabile | M |
| | Ghisa | K |
| | Materiali non ferrosi | N |
| | Leghe resistenti al calore, lega di titanio | S |
| | Materiali temprati | H |

Applicazioni
● Taglio continuo
Uso generico
Taglio interrotto




| Inserti | Articolo | | Rivestito | | | | | | | | | | | | Cermet | | | Rivestito | | Non rivestito | | | Dimensioni (mm) | | | | | Condizioni di taglio | | Utensili applicabili | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NC3010 | NC3020 | NC3120 | NC3030 | NC500H | PC8110 | NC9020 | NC9025 | NC5330 | PC5300 | PC9030 | NC6105 | NC6110 | NC315K | CN1000 | CN2000 | CN20 | CC105 | CC115 | U20 | H01 | G10 | l | d | t | r | d1 | fn | ap | Articolo | Pag. |
| SNMA | SNMA | 090304 New | | | | | | | | | | | | | | | | | | | | | | | 9.1 | 9.525 | 3.18 | 0.4 | 3.81 | 0.10~0.45 | 0.50~4.50 | MSBNR/L | B82 |
| | | 090308 | | | | | | | | | | | | ● | | | | | | | | | | 8.7 | 9.525 | 3.18 | 0.8 | 3.81 | 0.15~0.50 | 0.50~4.50 | MSDNN | B82 |
| | | 090312 | | | | | | | | | | | | | | | | | | | | | | 8.3 | 9.525 | 3.18 | 1.2 | 3.81 | 0.20~0.50 | 0.50~4.50 | MSKNR/L | B83 |
| | | 120402 | | | | | | | | | | | | | | | | | | | | | | 12.5 | 12.7 | 4.76 | 0.2 | 5.16 | 0.10~0.50 | 1.00~4.50 | MSRNR/L | B83 |
| | | 120404 | | | | | | | | | | | | | | | | | | | | | | 12.3 | 12.7 | 4.76 | 0.4 | 5.16 | 0.15~0.60 | 1.00~5.00 | MSSNR/L | B84 |
| | | 120408 | ● | | | | | | | | | | | ● | ● | ● | | | | | | ● | | 11.9 | 12.7 | 4.76 | 0.8 | 5.16 | 0.15~0.70 | 1.00~6.00 | PSBNR/L | B72 |
| | | 120412 | ● | | | | | | | | | ● | | ● | ● | | | | | | | | | 11.5 | 12.7 | 4.76 | 1.2 | 5.16 | 0.20~0.80 | 1.50~6.00 | PSDNN | B72 |
| | | 120416 | | | | | | | | | | | | ● | ● | | | | | | | | | 11.1 | 12.7 | 4.76 | 1.6 | 5.16 | 0.30~1.00 | 2.00~6.00 | PSKNR/L | B103 |
| | | 120430 New | | | | | | | | | | | | | | | | | | | | | | 9.7 | 12.7 | 4.76 | 3.0 | 5.16 | 0.30~0.70 | 2.50~5.00 | PSSNR/L | B74 |
| | | 150612 | | | | | | | | | | | | ● | ● | | | | | | | | | 14.6 | 15.875 | 6.35 | 1.2 | 6.35 | 0.20~0.80 | 2.00~8.00 | | |
| | | 150616 | | | | | | | | | | | | ● | | | | | | | | | | 14.2 | 15.875 | 6.35 | 1.6 | 6.35 | 0.25~0.85 | 2.50~10.00 | | |
| | | 190608 | | | | | | | | | | | | ● | | | | | | | | | | 18.2 | 19.05 | 6.35 | 0.8 | 7.93 | 0.20~0.80 | 2.00~10.00 | | |
| | | 190612 | | | | | | | | | | | | ● | ● | ● | | | | | | | | 17.8 | 19.05 | 6.35 | 1.2 | 7.93 | 0.20~0.80 | 2.00~10.00 | | |
| | | 190616 | | | | | | | | | | | | ● | ● | ● | | | | | | | | 17.4 | 19.05 | 6.35 | 1.6 | 7.93 | 0.25~0.85 | 2.50~10.00 | | |
| | | 190624 | | | | | | | | | | | | | | | | | | | | | | 16.6 | 19.05 | 6.35 | 2.4 | 7.93 | 0.35~0.90 | 3.00~10.00 | | |
| | | 250724 | | | | | | | | | | | | ● | | | | | | | | | | 23.0 | 25.4 | 7.94 | 2.4 | 9.12 | 0.40~1.00 | 3.00~13.00 | | |
| | | 250924 | | | | | | | | | | | | | | | | | | | | | | 23.0 | 25.4 | 9.52 | 2.4 | 9.12 | 0.40~1.00 | 3.00~13.00 | | |
| SNMG-B25 | SNMG | 090308-B25 | | ● | ● | ● | | | | | ● | | | | | | | | | | | | | 8.7 | 9.525 | 3.18 | 0.8 | 3.81 | 0.17~0.45 | 0.80~3.50 | MSBNR/L | B82 |
| | | 120404-B25 | ● | ● | ● | ● | | | | | ● | | | | ● | | ● | | | | | | | 12.3 | 12.7 | 4.76 | 0.4 | 5.16 | 0.17~0.45 | 1.00~3.50 | MSDNN | B82 |
| | | 120408-B25 | ● | ● | ● | ● | | ○ | ● | | ● | ● | ● | | ● | | ● | | | | | | | 11.9 | 12.7 | 4.76 | 0.8 | 5.16 | 0.23~0.60 | 1.50~5.00 | MSKNR/L | B83 |
| | | 120412-B25 | | ● | ● | ● | | | | | ● | | | ● | ● | | | | | | | | | 11.5 | 12.7 | 4.76 | 1.2 | 5.16 | 0.25~0.60 | 2.00~5.00 | MSRNR/L | B83 |
| | | 120416-B25 | | | | ● | | | | | ● | | | ● | | | | | | | | | | 11.1 | 12.7 | 4.76 | 1.6 | 5.16 | 0.35~0.70 | 2.50~5.00 | MSSNR/L | B84 |
| | | 120420-B25 New | | | | | | | | | | | | | | | | | | | | | | 10.7 | 12.7 | 4.76 | 2.0 | 5.16 | 0.40~0.70 | 3.00~5.00 | PSBNR/L | B72 |
| | | 150608-B25 | | | | ● | | | | | ● | | | | | | | | | | | | | 15.0 | 15.875 | 6.35 | 0.8 | 6.35 | 0.25~0.60 | 1.50~6.00 | PSDNN | B72 |
| | | 150612-B25 | | ● | ● | | | | | | | | | ● | | | | | | | | | | 14.6 | 15.875 | 6.35 | 1.2 | 6.35 | 0.25~0.60 | 2.00~6.00 | PSKNR/L | B103 |
| | | 150616-B25 | | ● | ● | | | | | | | | | ● | | | | | | | | | | 14.2 | 15.875 | 6.35 | 1.6 | 6.35 | 0.35~0.70 | 2.00~6.00 | PSSNR/L | B74 |
| | | 190608-B25 | ● | ● | ● | ● | | | | | ● | | | | ● | | | | | | | | | 18.2 | 19.05 | 6.35 | 0.8 | 7.93 | 0.25~0.60 | 3.00~8.00 | | |
| | | 190612-B25 | ● | ● | ● | ● | ● | ○ | | | ● | | | | ● | | | | | | | | | 17.8 | 19.05 | 6.35 | 1.2 | 7.93 | 0.30~0.60 | 3.00~8.00 | | |
| | | 190616-B25 | ● | ● | ● | ● | | ○ | | | ● | | | | | | | | | | | | | 17.4 | 19.05 | 6.35 | 1.6 | 7.93 | 0.35~0.70 | 3.00~8.00 | | |
| | | 250716-B25 | ● | | | | | | | | ● | | | | | | | | | | | | | 23.8 | 25.4 | 7.94 | 1.6 | 9.12 | 0.35~0.70 | 4.00~12.00 | | |
| | | 250724-B25 | | | | | | | | | ● | | | | | | | | | | | | | 23.0 | 25.4 | 7.94 | 2.4 | 9.12 | 0.50 ~1.00 | 5.00~12.00 | | |
| SNMG-GM | SNMG | 120404-GM | | ● | ● | | | | | | | | | | | | ● | | | | | | | 12.3 | 12.7 | 4.76 | 0.4 | 5.16 | 0.05~0.30 | 0.90~5.00 | MSBNR/L | B82 |
| | | 120408-GM | ● | ● | ● | ● | | | | | | ● | | | | | ● | ● | ● | | | | | 11.9 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.50 | 1.00~5.00 | MSDNN | B82 |
| | | 120412-GM | | | | ● | | | | | | | | | | | | | | | | | | 11.5 | 12.7 | 4.76 | 1.2 | 5.16 | 0.13~0.60 | 1.30~5.00 | MSKNR/L | B83 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MSRNR/L | B83 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MSSNR/L | B84 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSBNR/L | B72 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSDNN | B72 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSKNR/L | B103 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSSNR/L | B74 |
| SNMG-GR | SNMG | 120404-GR | | | | | | | | | | | | | | | | | | | | | | 12.3 | 12.7 | 4.76 | 0.4 | 5.16 | 0.15~0.45 | 0.08~6.00 | MSBNR/L | B82 |
| | | 120408-GR | ● | ● | ● | ● | | | | | ● | | | ● | ● | ● | | | | | | | | 11.9 | 12.7 | 4.76 | 0.8 | 5.16 | 0.20~0.50 | 1.00~7.00 | MSDNN | B82 |
| | | 120412-GR | | ● | ● | ● | ● | | | | | | | ● | ● | ● | | | | | | | | 11.5 | 12.7 | 4.76 | 1.2 | 5.16 | 0.20~0.50 | 1.00~7.00 | MSKNR/L | B83 |
| | | 150608-GR | | | | ● | | | | | | | | | | | | | | | | | | 15.0 | 15.875 | 6.35 | 0.8 | 6.35 | 0.25~0.60 | 1.00~7.00 | MSRNR/L | B83 |
| | | 150612-GR | ● | ● | ● | ● | ● | | | | | | | ● | | | | | | | | | | 14.6 | 15.875 | 6.35 | 1.2 | 6.35 | 0.29~0.75 | 1.40~7.00 | MSSNR/L | B84 |
| | | 190608-GR | | ● | ● | ● | | | | | | | | | | | | | | | | | | 18.2 | 19.05 | 6.35 | 0.8 | 7.93 | 0.30~0.80 | 1.70~9.00 | PSBNR/L | B72 |
| | | 190612-GR | | ● | ● | ● | ● | | | | ● | | | | | | | | | | | | | 17.8 | 19.05 | 6.35 | 1.2 | 7.93 | 0.30~0.80 | 1.70~9.00 | PSDNN | B72 |
| | | 190616-GR | | ● | ● | ● | ● | | | | ● | | | ● | | | | | | | | | | 17.4 | 19.05 | 6.35 | 1.6 | 7.93 | 0.31~0.82 | 1.90~12.30 | PSKNR/L | B103 |
| | | 250724-GR | | | | ● | | | | | | | | ● | | | | | | | | | | 23.0 | 25.4 | 7.94 | 2.4 | 9.12 | 0.45~1.20 | 2.60~14.00 | PSSNR/L | B74 |
| | | 250924-GR | | ● | ● | ● | | | | | | | | | | | | | | | | | | 23.0 | 25.4 | 9.52 | 2.4 | 9.12 | 0.50~1.20 | 2.60~14.00 | | |
| SNMG-GS | SNMG | 120404-GS | | | | | | | ● | ● | | | | | | | | | | | | | | 12.3 | 12.7 | 4.76 | 0.4 | 5.16 | 0.10~0.45 | 0.80~4.50 | MSBNR/L | B82 |
| | | 120408-GS | | ● | | ● | | ● | ● | ● | | ● | ● | | | | | | | | | | | 11.9 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.50 | 1.00~5.00 | MSDNN | B82 |
| | | 120412-GS | | | | | | ● | ● | ● | | ○ | | | | | | | | | | | | 11.5 | 12.7 | 4.76 | 1.2 | 5.16 | 0.13~0.65 | 1.00~5.00 | MSKNR/L | B83 |
| | | 120416-GS | | | | | | | | | | | | | | | | | | | | | | 11.1 | 12.7 | 4.76 | 1.6 | 5.16 | 0.15~0.70 | 1.00~5.00 | MSRNR/L | B83 |
| | | 190612-GS | | | | | | ● | | ● | | ○ | | | | | | | | | | | | 17.8 | 19.05 | 6.35 | 1.2 | 7.93 | 0.30~0.80 | 1.70~9.00 | MSSNR/L | B84 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSBNR/L | B72 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSDNN | B72 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSKNR/L | B103 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSSNR/L | B74 |
| SNMG-HA | SNMG | 120404-HA | | ● | ● | | | | ● | ● | | | ● | | | | | | | | | | ● | 12.3 | 12.7 | 4.76 | 0.4 | 5.16 | 0.10~0.35 | 0.80~3.50 | MSBNR/L | B82 |
| | | 120408-HA | | ● | ● | | | ● | ● | ● | | | ● | | | | | | | | | | ● | 11.9 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.40 | 0.80~3.50 | MSDNN | B82 |
| | | 120412-HA | | | | | | | | | | | | | | | | | | | | | | 11.5 | 12.7 | 4.76 | 1.2 | 5.16 | 0.13~0.55 | 0.80~3.50 | MSKNR/L | B83 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MSRNR/L | B83 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MSSNR/L | B84 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSBNR/L | B72 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSDNN | B72 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSKNR/L | B103 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSSNR/L | B74 |

• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15

● : Disponibile ○ : A richiesta

Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

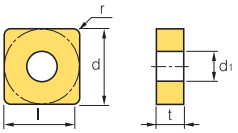
# B Inserti di tornitura (Negativo)

## SN○○ 90° Negativo

Pezzo lavorato

| | |
|---|---|
| Acciaio | P |
| Acciaio inossidabile | M |
| Ghisa | K |
| Materiali non ferrosi | N |
| Leghe resistenti al calore, lega di titanio | S |
| Materiali temprati | H |

Applicazioni
● Taglio continuo
Uso generico
Taglio interrotto




| Inserti | Articolo | Rivestito | | | | | | | | | | | | | Cermet | | Rivestito | | Non rivestito | | | Dimensioni (mm) | | | | | Condizioni di taglio | | Utensili applicabili | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NC3010 | NC3020 | NC3120 | NC3030 | NC500H | PC8110 | NC9020 | NC9025 | NC5330 | PC5300 | PC9030 | NC6105 | NC6110 | NC315K | CN1000 | CN2000 | CN20 | CC105 | CC115 | U20 | H01 | G10 | l | d | t | r | $d_1$ | fn | ap | Articolo | Pag. |
| **SNMG-HC** | SNMG 120404-HC | ● | ● | ● | | | | | | | | | | | | | | | | | | | | 12.3 | 12.7 | 4.76 | 0.4 | 5.16 | 0.05~0.35 | 0.80~4.00 | MSBNR/L | B82 |
| | 120408-HC | ● | ● | ● | | | | | | | | | | | | | | | | | | | | 11.9 | 12.7 | 4.76 | 0.8 | 5.16 | 0.08~0.40 | 0.80~4.00 | MSDNN | B82 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MSKNR/L | B83 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MSRNR/L | B83 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MSSNR/L | B84 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSBNR/L | B72 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSDNN | B72 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSKNR/L | B103 |
| Medie lavorazioni – finitura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSSNR/L | B74 |
| **SNMG-HR** | SNMG 120408-HR | | | | | | | | | | | | | | | | | | | | | | | 11.9 | 12.7 | 4.76 | 0.8 | 5.16 | 0.20~0.50 | 1.00~7.00 | MSBNR/L | B82 |
| | 120412-HR | ● | | ● | | | | | | | | | | | | | | | | | | | | 11.5 | 12.7 | 4.76 | 1.2 | 5.16 | 0.25~0.70 | 1.30~7.00 | MSDNN | B82 |
| | 120416-HR | | | | | | | | | | | | | | | | | | | | | | | 11.1 | 12.7 | 4.76 | 1.6 | 5.16 | 0.32~0.75 | 1.80~7.00 | MSKNR/L | B83 |
| | 150608-HR | ● | ● | ● | ● | | | | | | | | | | | | | | | | | | | 15 | 15.875 | 6.35 | 0.8 | 6.35 | 0.20~0.50 | 1.80~8.00 | MSRNR/L | B83 |
| | 150612-HR | | ● | ● | ● | | | | | | | | | | | | | | | | | | | 14.6 | 15.875 | 6.35 | 1.2 | 6.35 | 0.20~0.70 | 1.30~8.00 | MSSNR/L | B84 |
| | 150616-HR | | | | | | | | | | | | | | | | | | | | | | | 14.2 | 15.875 | 6.35 | 1.6 | 6.35 | 0.30~0.80 | 1.80~8.00 | PSBNR/L | B72 |
| | 150624-HR | | | | | | | | | | | | | | | | | | | | | | | 13.4 | 15.875 | 6.35 | 2.4 | 6.35 | 0.32~0.90 | 2.20~8.00 | PSDNN | B72 |
| | 190608-HR | ● | ● | | | | | | | | | | | | | | | | | | | | | 18.2 | 19.05 | 6.35 | 0.8 | 7.93 | 0.20~0.50 | 1.00~10.00 | PSKNR/L | B103 |
| | 190612-HR | ● | ● | ● | | ● | | | | | | | | | | | | | | | | | | 17.8 | 19.05 | 6.35 | 1.2 | 7.93 | 0.25~0.70 | 1.30~10.00 | PSSNR/L | B74 |
| | 190616-HR | ● | ● | ● | ● | | | | | | | | | | | | | | | | | | | 17.4 | 19.05 | 6.35 | 1.6 | 7.93 | 0.30~0.80 | 1.80~10.00 | | |
| | 190624-HR | | | | | | | | | | | | | | | | | | | | | | | 16.6 | 19.05 | 6.35 | 2.4 | 7.93 | 0.32~0.90 | 2.30~10.00 | | |
| | 250724-HR | | | | | | | | | | | | | | | | | | | | | | | 23 | 25.4 | 7.94 | 2.4 | 9.12 | 0.40~1.20 | 2.30~15.00 | | |
| Sgrossatura | 250924-HR | | ● | ● | ● | | | | | | | | | | | | | | | | | | | 23 | 25.4 | 9.52 | 2.4 | 9.12 | 0.40~1.20 | 2.30~15.00 | | |
| **SNMG-HS** | SNMG 090304-HS | | | | | | | | ● | | | | | | | | | | | | | | | 9.1 | 9.525 | 3.18 | 0.4 | 3.81 | 0.05~0.25 | 1.00~2.50 | MSBNR/L | B82 |
| | 090308-HS | | | | | | ○ | | | | | | | | | | | | | | | | | 8.7 | 9.525 | 3.18 | 0.8 | 3.81 | 0.10~0.30 | 1.00~2.50 | MSDNN | B82 |
| | 120404-HS | | | | | | | ● | ● | ● | | | | | | | | | | | | | | 12.3 | 12.7 | 4.76 | 0.4 | 5.16 | 0.05~0.30 | 1.00~4.50 | MSKNR/L | B83 |
| | 120408-HS | | | | | | ● | ● | ● | ● | | | | | | | | | | | | | | 11.9 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.40 | 1.00~4.50 | MSRNR/L | B83 |
| | 120412-HS | | | | | | ● | ● | | ● | | | | | | | | | | | | | | 11.5 | 12.7 | 4.76 | 1.2 | 5.16 | 0.13~0.55 | 1.00~4.50 | MSSNR/L | B84 |
| | 150612-HS | | | | | | ● | ● | ● | | | | | | | | | | | | | | | 14.6 | 15.875 | 6.35 | 1.2 | 6.35 | 0.13~0.55 | 1.00~6.10 | PSBNR/L | B72 |
| | 150616-HS | | | | | | | | | | | | | | | | | | | | | | | 14.2 | 15.875 | 6.35 | 1.6 | 6.35 | 0.15~0.60 | 1.00~4.50 | PSDNN | B72 |
| | 190612-HS | | | | | | ● | ● | ● | ● | | | | | | | | | | | | | | 17.8 | 19.05 | 6.35 | 1.2 | 7.93 | 0.13~0.55 | 1.00~7.60 | PSKNR/L | B103 |
| Medie lavorazioni – finitura | 190616-HS | | | | | | ● | | ● | ● | | | | | | | | | | | | | | 17.4 | 19.05 | 6.35 | 1.6 | 7.93 | 0.15~0.60 | 1.00~7.60 | PSSNR/L | B74 |
| **SNMG-HU** | SNMG 120404-HU | | | | | | | | | | | | | | | | | | | | | | | 12.3 | 12.7 | 4.76 | 0.4 | 5.16 | 0.05~0.25 | 0.10~1.00 | MSBNR/L | B82 |
| | 120408-HU | | | | | | | | | | | | | | | | | | | | | | | 11.9 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.35 | 0.20~1.50 | MSDNN | B82 |
| | 120412-HU | | | | | | | | | | | | | | | | | | | | | | | 11.5 | 12.7 | 4.76 | 1.2 | 5.16 | 0.12~0.35 | 0.30~1.50 | MSKNR/L | B83 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MSRNR/L | B83 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MSSNR/L | B84 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSBNR/L | B72 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSDNN | B72 |
| Finitura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSKNR/L | B103 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSSNR/L | B74 |
| **SNMG-VL** | SNMG 120408-VL | ● | ● | | | | | | | | | | | | | | | | | | | | | 11.9 | 12.7 | 4.76 | 0.6 | 5.16 | 0.10~0.35 | 0.2~1.5 | MSBNR/L | B82 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MSDNN | B82 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MSKNR/L | B83 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MSRNR/L | B83 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MSSNR/L | B84 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSBNR/L | B72 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSDNN | B72 |
| Acciaio leggero | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSKNR/L | B103 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSSNR/L | B74 |
| **SNMG-VF** | SNMG 090304-VF | | | ● | | | | | | | ● | | | | | | | | | | | | | 9.1 | 9.525 | 3.18 | 0.4 | 3.81 | 0.07~0.30 | 0.50~1.50 | MSBNR/L | B82 |
| | 090308-VF | | | | | | | | | | ● | | | | | | | | | | | | | | | | | | | | MSDNN | B82 |
| | 120404-VF | | | ● | | | | | | | ● | | | | | | | | | | | | | 12.3 | 12.7 | 4.76 | 0.4 | 5.16 | 0.07~0.30 | 0.50~1.50 | MSKNR/L | B83 |
| | 120408-VF | ● | | ● | | | | | | | ● | | | | | | | | | | | | | 11.9 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.40 | 0.50~1.50 | MSRNR/L | B83 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MSSNR/L | B84 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSBNR/L | B72 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSDNN | B72 |
| Finitura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSKNR/L | B103 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSSNR/L | B74 |
| **SNMG-VG** | SNMG 090304-VG | | | | | | | | | | | | | | | | ● | | | | | | | 9.1 | 9.525 | 3.18 | 0.4 | 3.81 | 0.07~0.30 | 0.50~1.50 | MSBNR/L | B82 |
| | 090308-VG | | | | | | | | | | | | | | | | ● | | | | | | | 8.7 | 9.525 | 3.18 | 0.8 | 3.81 | 0.10~0.30 | 0.50~1.50 | MSDNN | B82 |
| | 120404-VG | | | | | | | | | | | | | | | ● | ● | | | | | | | 12.3 | 12.7 | 4.76 | 0.4 | 5.16 | 0.07~0.30 | 0.50~1.50 | MSKNR/L | B83 |
| | 120408-VG | | | | | | | | | | | | | | | ● | ● | | | | | | | 11.9 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.40 | 0.50~1.50 | MSRNR/L | B83 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MSSNR/L | B84 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSBNR/L | B72 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSDNN | B72 |
| Finitura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSKNR/L | B103 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSSNR/L | B74 |
| **SNMG-VM** | SNMG 090304-VM | ● | | ● | | | | | | | | | | | | | ● | | | | | | | 9.1 | 9.525 | 3.18 | 0.4 | 3.81 | 0.05~0.30 | 0.90~3.50 | MSBNR/L | B82 |
| | 090308-VM | ● | | ● | | | | | | | ● | | | | | | ● | | | | | | | 8.7 | 9.525 | 3.18 | 0.8 | 3.81 | 0.10~5.00 | 1.00~3.50 | MSDNN | B82 |
| | 120404-VM | ● | | ● | | | | | | | ● | | ● | | | | ● | | | | | | | 12.3 | 12.7 | 4.76 | 0.4 | 5.16 | 0.05~0.30 | 0.90~5.00 | MSKNR/L | B83 |
| | 120408-VM | ● | ○ | ● | ● | | ● | ● | | | ● | | ● | | | | ● | | | | | | | 11.9 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.50 | 1.00~5.00 | MSRNR/L | B83 |
| | 120412-VM | ● | | ● | ● | | | | | | ● | | ● | | | | ● | | | | | | | 11.5 | 12.7 | 4.76 | 1.2 | 5.16 | 0.13~0.60 | 1.30~5.00 | MSSNR/L | B84 |
| | 190612-VM | | | | | | | | | | | | | | | | | | | | | | | 17.8 | 19.05 | 6.35 | 1.2 | 7.93 | 0.25~0.60 | 2.50~7.50 | PSBNR/L | B72 |
| Medie lavorazioni | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSDNN | B72 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSKNR/L | B103 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSSNR/L | B74 |
| **SNMG-VQ** | SNMG 090304-VQ | | | | | | | | | | | | | | | | | | | | | | | 9.1 | 9.525 | 3.18 | 0.4 | 3.81 | 0.05~0.30 | 0.05~3.50 | MSBNR/L | B82 |
| | 090308-VQ | | | | | | | | | | | | | | | | | | | | | | | 8.7 | 9.525 | 3.18 | 0.8 | 3.81 | 0.08~0.30 | 0.08~4.00 | MSDNN | B82 |
| | 120404-VQ | | | | | | | | | | | | | | | ● | ● | | | | | | | 12.3 | 12.7 | 4.76 | 0.4 | 5.16 | 0.05~0.30 | 0.80~4.00 | MSKNR/L | B83 |
| | 120408-VQ | | | | | | | | | | | | | | | ● | ● | | | | | | | 11.9 | 12.7 | 4.76 | 0.8 | 5.16 | 0.08~0.40 | 0.80~4.00 | MSRNR/L | B83 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MSSNR/L | B84 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSBNR/L | B72 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSDNN | B72 |
| Medie lavorazioni – finitura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSKNR/L | B103 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSSNR/L | B74 |

• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15

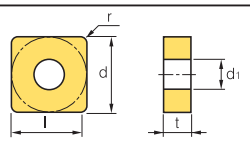
Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

● : Disponibile ○ : A richiesta

# SN○○ ○ 90° Negativo

| Pezzo lavorato | | |
|---|---|---|
| Acciaio | P | ● ✱ ✱ ✱ ✱ ✱ ✱ |
| Acciaio inossidabile | M | ✱ ✱ |
| Ghisa | K | ✱ ✱ |
| Materiali non ferrosi | N | |
| Leghe resistenti al calore, lega di titanio | S | ✱ ✱ |
| Materiali temprati | H | |

Applicazioni
● Taglio continuo
✱ Uso generico
✱ Taglio interrotto




| Inserti | Articolo | | Rivestito | | | | | | | | | | | | | | Cermet | | | Rivestito | | Non rivestito | | | Dimensioni (mm) | | | | | Condizioni di taglio | | Utensili applicabili | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NC3010 | NC3020 | NC3120 | NC3030 | NC500H | CX269 | NC9020 | NC9025 | NC5330 | PC5300 | PC9030 | NC6105 | NC6110 | NC315K | CN1000 | CN2000 | CN20 | CC105 | CC115 | ST30A | H01 | G10 | l | d | t | r | d1 | fn | ap | Articolo | Pag. |
| SNMM-GH | SNMM | 120408-GH | | ● | ● | ● | | | | | ● | | | | | | | | | | | | | | 11.9 | 12.7 | 4.76 | 0.8 | 5.16 | 0.30~0.60 | 2.50~8.00 | MSBNR/L | B82 |
| | | 120412-GH | | ● | ● | ● | | | | | ● | | | | | | | | | | | | | | 11.5 | 12.7 | 4.76 | 1.2 | 5.16 | 0.30~0.70 | 2.50~8.00 | MSDNN | B82 |
| | | 150612-GH | | ● | ● | ● | | | | | ● | | | | | | | | | | | | | | 14.6 | 15.875 | 6.35 | 1.2 | 6.35 | 0.30~0.70 | 2.50~8.00 | MSKNR/L | B83 |
| | | 190612-GH | | ● | ● | ● | | ● | | | ● | | | | | | | | | | | | | | 17.8 | 19.05 | 6.35 | 1.2 | 7.93 | 0.30~0.70 | 3.00~8.00 | MSRNR/L | B83 |
| | | 190616-GH | ● | ● | ● | ● | ● | ● | | | ● | | | | | | | | | | | | | | 17.4 | 19.05 | 6.35 | 1.6 | 7.93 | 0.45~1.00 | 4.00~9.00 | MSSNR/L | B84 |
| | | 190624-GH | ● | ● | ● | ● | | ● | | | ● | | | | | | | | | | | | | | 16.6 | 19.05 | 6.35 | 2.4 | 7.93 | 0.55~1.20 | 4.00~9.00 | PSBNR/L | B72 |
| | | 250724-GH | | ● | ● | ● | ● | ● | | | ● | | | | | | | | | | | | | | 23 | 25.4 | 7.94 | 2.4 | 9.12 | 0.55~1.20 | 5.00~12.00 | PSDNN | B72 |
| | | 250924-GH | ● | ● | ● | ● | ● | ● | | | ● | | | | | | | | | | | | | | 23 | 25.4 | 9.52 | 2.4 | 9.12 | 0.55~1.20 | 5.00~12.00 | PSKNR/L | B103 |
| | | 250932-GH | | | | | | | | | | | | | | | | | | | | | | | 22.2 | 25.4 | 9.52 | 3.2 | 9.12 | 0.55~1.20 | 5.00~12.00 | PSSNR/L | B74 |
| Tagli pesanti | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SNMM-VH | SNMM | 190612-VH | | | | ● | ● | ● | | | | | | | | | | | | | | | | | 17.8 | 19.05 | 6.35 | 1.2 | 7.93 | 0.50~0.90 | 5.0~10.0 | PSBNR/L | B72 |
| | | 190616-VH | | | | ● | ● | ● | | | | | | | | | | | | | | | | | 17.4 | 19.05 | 6.35 | 1.6 | 7.93 | 0.50~1.10 | 5.0~10.0 | PSDNN | B72 |
| | | 190624-VH | | | | ● | ● | ● | | | | | | | | | | | | | | | | | 16.6 | 19.05 | 6.35 | 2.4 | 7.93 | 0.60~1.20 | 6.0~12.0 | PSKNR/L | B103 |
| | | 250724-VH | | | | ● | ● | ● | | | | | | | | | | | | | | | | | 23.0 | 25.4 | 7.94 | 2.4 | 9.12 | 0.70~1.40 | 6.0~15.0 | PSSNR/L | B74 |
| | | 250920-VH | | | | | | | | | | | | | | | | | | | | | | | 23.4 | 25.4 | 9.52 | 2.0 | 9.12 | 0.70~1.40 | 6.0~15.0 | | |
| | | 250924-VH | ● | | | ● | ● | ● | | | | | | | | | | | | | | | | | 23.0 | 25.4 | 9.52 | 2.4 | 9.12 | 0.70~1.40 | 6.0~15.0 | | |
| Tagli pesanti | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SNMM-VT | SNMM | 190612-VT | | | | ● | ● | ● | | | ● | | | | | | | | | | | | | | 17.8 | 19.05 | 6.35 | 1.2 | 7.93 | 0.60~1.00 | 6.0~13.0 | PSBNR/L | B72 |
| | | 190616-VT | ● | | | ● | ● | ● | | | | | | | | | | | | | | | | | 17.4 | 19.05 | 6.35 | 1.6 | 7.93 | 0.60~1.10 | 6.0~13.0 | PSDNN | B72 |
| | | 190624-VT | ● | | | ● | ● | ● | | | | | | | | | | | | | | | | | 16.6 | 19.05 | 6.35 | 2.4 | 7.93 | 0.60~1.60 | 7.0~13. | PSKNR/L | B103 |
| | | 250724-VT | | | | ● | ● | ● | | | ● | | | | | | | | | | | | | | 23.0 | 25.4 | 7.94 | 2.4 | 9.12 | 0.75~16.0 | 7.0~15.0 | PSSNR/L | B74 |
| | | 250920-VT | | | | | | | | | | | | | | | | | | | | | | | 23.4 | 25.4 | 9.52 | 2.0 | 8.12 | 0.75~16.0 | 7.0~15.0 | | |
| | | 250924-VT | ● | | | ● | ● | ● | | | | | | | | | | | | | | | | | 23.0 | 25.4 | 9.52 | 2.4 | 9.12 | 0.75~16.0 | 7.0~17.0 | | |
| Tagli pesanti | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SNMM-GM | SNMM | 120408-GM | | | | | | | | | | | | | | | | | | | | | | | 11.9 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.50 | 1.00~5.00 | MSBNR/L | B82 |
| | | 120412-GM | | | | | | | | | | | | | | | | | | | | | | | 11.5 | 12.7 | 4.76 | 1.2 | 5.16 | 0.13~0.60 | 1.30~5.00 | MSDNN | B82 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MSKNR/L | B83 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MSRNR/L | B83 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MSSNR/L | B84 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSBNR/L | B72 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSDNN | B72 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSKNR/L | B103 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSSNR/L | B74 |
| Medie lavorazioni | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SNMM-GR | SNMM | 120408-GR | | | | | | | | | | | | | | | | | | | | | | | 11.9 | 12.7 | 4.76 | 0.8 | 5.16 | 0.20~0.50 | 1.00~7.00 | MSBNR/L | B82 |
| | | 120412-GR | | | | | | | | | | | | | | | | | | | | | | | 11.5 | 12.7 | 4.76 | 1.2 | 5.16 | 0.25~0.65 | 1.30~7.00 | MSDNN | B82 |
| | | 190612-GR | | | | | | | | | | | | | | | | | | | | | | | 17.8 | 19.05 | 6.35 | 1.2 | 7.93 | 0.25~0.65 | 1.30~11.50 | MSKNR/L | B83 |
| | | 190616-GR | | | | | | | | | | | | | | | | | | | | | | | 17.4 | 19.05 | 6.35 | 1.6 | 7.93 | 0.32~0.85 | 1.80~11.50 | MSRNR/L | B83 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MSSNR/L | B84 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSBNR/L | B72 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSDNN | B72 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSKNR/L | B103 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSSNR/L | B74 |
| Sgrossatura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SNMN | SNMN | 120304 | | | | | | | | | | | | | | | | | | | | | | | 12.3 | 12.7 | 3.18 | 0.4 | | 0.17~0.45 | 1.00~3.50 | CSDNN | B94 |
| | | 120308 | | | | | | | | | | | | | | | | | | | | | | | 11.9 | 12.7 | 3.18 | 0.8 | | 0.23~0.60 | 1.50~6.00 | CSKNR/L | B95 |
| | | 120312 | | | | | | | | | | | | | | | | | | | | | | | 11.5 | 12.7 | 3.18 | 1.2 | | 0.25~0.60 | 2.00~5.00 | | |
| | | 120404 | | | | | | | | | | | | | | | | | | | | | | | 12.3 | 12.7 | 4.76 | 0.4 | | 0.17~0.45 | 1.00~3.50 | | |
| | | 120408 | | | | | | | | | | | | | | | | | | | | | | | 11.9 | 12.7 | 4.76 | 0.8 | | 0.23~0.60 | 1.50~5.00 | | |
| | | 120412 | | | ○ | | | | | | | | | | | | | | | | | | | | 11.5 | 12.7 | 4.76 | 1.2 | | 0.25~0.60 | 2.00~5.00 | | |
| | | 150404 | | | | | | | | | | | | | | | | | | | | | | | 15.5 | 15.875 | 4.76 | 0.4 | | 0.20~0.50 | 1.50~6.00 | | |
| | | 150408 | | | | | | | | | | | | | | | | | | | | | | | 15.0 | 15.875 | 4.76 | 0.8 | | 0.25~0.60 | 1.50~6.00 | | |
| | | 150412 | | | | | | | | | | | | | | | | | | | | | | | 11.5 | 12.7 | 4.76 | 1.2 | | 0.25~0.60 | 2.00~6.00 | | |
| | | 190416 | | | | | | | | | | | | | | | | | | | | | | | 17.4 | 19.05 | 4.76 | 1.6 | | 0.35~0.70 | 2.00~6.00 | | |
| Media sgrossatura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SNMX | SNMX | 120408R | | | | | | | | | | | | | | | | | | | | | | | 11.9 | 12.7 | 4.76 | 0.8 | 5.16 | 0.15~0.35 | 1.00~4.00 | MSBNR/L | B82 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MSDNN | B82 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MSKNR/L | B83 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MSRNR/L | B83 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MSSNR/L | B84 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSBNR/L | B72 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSDNN | B72 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSKNR/L | B103 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PSSNR/L | B74 |
| Sgrossatura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SNUN | SNUN | 120408 | | | | | | | | | | | | | | | | | | | | | ● | | 11.9 | 12.7 | 4.76 | 0.8 | | 0.23~0.60 | 1.50~5.00 | CSDNN | B94 |
| | | 120412 | | | | | | | | | | | | | | | | | | | | | ● | | 11.5 | 12.7 | 4.76 | 1.2 | | 0.25~0.60 | 2.00~5.00 | CSKNR/L | B95 |
| | | 190412 | | | | | | | | | | | | | | | | | | | | | | | 17.4 | 19.05 | 4.76 | 1.2 | | 0.30~1.00 | 3.00~10.00 | | |
| | | 120412TN | | | | | | | | | | | | | | | | | | | | | | | 11.5 | 12.7 | 4.76 | 1.2 | | 0.25~0.60 | 2.00~5.00 | | |
| | | 250724TN | | | | | | | | | | | | | | | | | | | | | | | 23 | 25.4 | 7.94 | 2.4 | | 0.30~1.20 | 3.00~12.00 | | |
| Media sgrossatura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15
Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

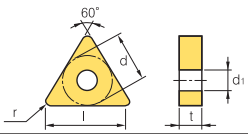
● : Disponibile ○ : A richiesta

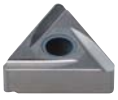
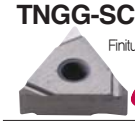
# B Inserti di tornitura (Negativo)

## TN○○ 60° Negativo

Pezzo lavorato: Acciaio P; Acciaio inossidabile M; Ghisa K; Materiali non ferrosi N; Leghe resistenti al calore, lega di titanio S; Materiali temprati H

Applicazioni
● Taglio continuo
Uso generico
Taglio interrotto




| Inserti | Articolo | | Rivestito NC3010 | NC3020 | NC3120 | NC3030 | NC500H | PC8110 | NC9020 | NC9025 | NC5330 | PC5300 | PC9030 | NC6105 | NC6110 | NC315K | Cermet CN1000 | CN2000 | Rivestito CN20 | CN30 | CC105 | Non rivestito U20 | H01 | G10 | Dimensioni (mm) l | d | t | r | d1 | Condizioni di taglio fn | ap | Utensili applicabili Articolo | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **TNGA**  Sgrossatura | **TNGA** | 110302 | | | | | | | | | | | | | | | | | | | | | | | 10.5 | 6.35 | 3.18 | 0.2 | 2.4 | 0.05~0.30 | 0.20~3.00 | MTENN<br>MTFNR/L<br>MTGNR/L<br>MTJNR/L<br>PTFNR/L<br>PTGNR/L<br>PTTNR/L<br>WTENN<br>WTJNR/L<br>WTXNR/L | B84<br>B84<br>B85<br>B85<br>B74,104<br>B75<br>B75<br>B77<br>B77<br>B77 |
| | | 110304 | | | | | | | | | | | | | | | | | | | | | | | 10.0 | 6.35 | 3.18 | 0.4 | 2.4 | 0.05~0.30 | 0.40~3.00 | | |
| | | 160304 | | | | | | | | | | | | | | | | | | | | | | | 15.5 | 9.525 | 3.18 | 0.4 | 3.81 | 0.10~0.35 | 0.40~4.00 | | |
| | | 160402 | | | | | | | | | | | | | | | | | | | | | | | 16.0 | 9.525 | 4.76 | 0.2 | 3.81 | 0.10~0.30 | 0.20~4.00 | | |
| | | 160404 | | | | | | | | | | | | | | | ○ | ● | | | | | | ○ | 15.5 | 9.525 | 4.76 | 0.4 | 3.81 | 0.10~0.35 | 0.40~5.00 | | |
| | | 160408 | | | | | | | | | | | | | | | ● | | | | | | | | 14.5 | 9.525 | 4.76 | 0.8 | 3.81 | 0.12~0.40 | 0.50~5.00 | | |
| | | 220304 | | | | | | | | | | | | | | | | | | | | | | | 21.0 | 12.7 | 3.18 | 0.4 | 5.16 | 0.10~0.35 | 0.50~5.00 | | |
| | | 220402 | | | | | | | | | | | | | | | | | | | | | | | 21.7 | 12.7 | 4.76 | 0.2 | 5.16 | 0.05~0.30 | 0.20~3.00 | | |
| | | 220404 | | | | | | | | | | | | | | | | | | | | | | ○ | 21.0 | 12.7 | 4.76 | 0.4 | 5.16 | 0.10~0.35 | 0.40~5.00 | | |
| | | 220408 | | | | | | | | | | | | | | | | | | | | | | | 20.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.40 | 0.50~5.00 | | |
| | | 220412 | | | | | | | | | | | | | | | | | | | | | | | 19.0 | 12.7 | 4.76 | 1.2 | 5.16 | 0.12~0.45 | 1.00~5.50 | | |
| | | 270612 | | | | | | | | | | | | | | | | | | | | | | | 24.5 | 15.875 | 6.35 | 1.2 | 6.35 | 0.12~0.45 | 1.00~7.00 | | |
| | | 270624 | | | | | | | | | | | | | | | | | | | | | | | 21.3 | 15.875 | 6.35 | 2.4 | 6.35 | 0.20~0.55 | 2.00~7.00 | | |
| **TNGG**  Medie lavorazioni | **TNGG** | 110304R | | | | | | | | | | | | | | | | | | | | | | | 10.0 | 6.35 | 3.18 | 0.4 | 2.4 | 0.05~0.30 | 0.05~0.25 | MTENN<br>MTFNR/L<br>MTGNR/L<br>MTJNR/L<br>PTFNR/L<br>PTGNR/L<br>PTTNR/L<br>WTENN<br>WTJNR/L<br>WTXNR/L | B84<br>B84<br>B85<br>B85<br>B74,104<br>B75<br>B75<br>B77<br>B77<br>B77 |
| | | 160402R | | | | | | | | | | | | | | | ● | ● | | | | | | | 16.0 | 9.525 | 4.76 | 0.2 | 3.81 | 0.08~0.30 | 0.50~3.50 | | |
| | | 160404R | | | | | | | | | | | | | | | ● | ● | ● | | | | | | 15.5 | 9.525 | 4.76 | 0.4 | 3.81 | 0.12~0.30 | 1.00~3.50 | | |
| | | 160408R | | | | | | | | | | | | | | | ● | ● | | | | | | | 14.5 | 9.525 | 4.76 | 0.8 | 3.81 | 0.15~0.35 | 1.30~3.50 | | |
| | | 220404R | | | | | | | | | | | | | | | ● | ● | | | | | | | 21.0 | 12.7 | 4.76 | 0.4 | 5.16 | 0.12~0.30 | 1.00~5.00 | | |
| | | 220408R | | | | | | | | | | | | | | | ● | ● | | | | | | | 20.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.15~0.35 | 1.30~5.00 | | |
| | | 220412R | | | | | | | | | | | | | | | | | | | | | | | 19.0 | 12.7 | 4.76 | 1.2 | 5.16 | 0.17~0.40 | 1.50~5.00 | | |
| | | 110304L | | | | | | | | | | | | | | | | | | | | | | | 10.0 | 6.35 | 4.76 | 0.4 | 2.4 | 0.05~0.30 | 0.05~0.25 | | |
| | | 160402L | | | | | | | | | | | | | | | | | | | | | | | 16.0 | 9.525 | 4.76 | 0.2 | 3.81 | 0.08~0.30 | 0.50~3.50 | | |
| | | 160404L | | | | | | | | | | | | | | | ● | ● | ● | | | | | | 15.5 | 9.525 | 3.18 | 0.4 | 3.81 | 0.12~0.30 | 1.00~3.50 | | |
| | | 160408L | | | | | | | | | | | | | | | | ● | | | | | | | 14.5 | 9.525 | 4.76 | 0.8 | 3.81 | 0.15~0.35 | 1.30~3.50 | | |
| | | 220404L | | | | | | | | | | | | | | | | | | | | | | | 21.0 | 12.7 | 4.76 | 0.4 | 5.16 | 0.12~0.30 | 1.00~5.00 | | |
| | | 220408L | | | | | | | | | | | | | | | | | | | | | | | 20.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.15~0.35 | 1.30~5.00 | | |
| | | 220412L | | | | | | | | | | | | | | | | | | | | | | | 19.0 | 12.7 | 4.76 | 1.2 | 5.16 | 0.17~0.40 | 1.50~5.00 | | |
| **TNGG-HU** Finitura  | **TNGG** | 160404-HU | | | | | | | | | | | | | | | | | | | | | | | 15.5 | 9.525 | 4.76 | 0.4 | 3.81 | 0.05~0.25 | 0.10~1.50 | MTENN<br>MTFNR/L<br>MTGNR/L<br>MTJNR/L<br>PTFNR/L<br>PTGNR/L<br>PTTNR/L<br>WTENN<br>WTJNR/L<br>WTXNR/L | B84<br>B84<br>B85<br>B85<br>B74,104<br>B75<br>B75<br>B77<br>B77<br>B77 |
| | | 160408-HU | | | | | | | | | | | | | | | | | | | | | | | 14.5 | 9.525 | 4.76 | 0.8 | 3.81 | 0.10~0.30 | 0.20~1.50 | | |
| **TNGG-SC** Finitura  Neuu | **TNGG** | 160402R-SC | | | | | | | | | | | | | | | | | | | | | | | 16.0 | 9.525 | 4.76 | 0.2 | 3.81 | 0.03~0.20 | 0.10~1.50 | MTENN<br>MTFNR/L<br>MTGNR/L<br>MTJNR/L<br>PTFNR/L<br>PTGNR/L<br>PTTNR/L<br>WTENN<br>WTJNR/L<br>WTXNR/L | B84<br>B84<br>B85<br>B85<br>B74,104<br>B75<br>B75<br>B77<br>B77<br>B77 |
| | | 160404R-SC | | | | | | | | | | | | | | | | | | | | | | | 15.5 | 9.525 | 4.76 | 0.4 | 3.81 | 0.05~0.25 | 0.30~2.00 | | |
| | | 160402L-SC | | | | | | | | | | | | | | | | | | | | | | | 16.0 | 9.525 | 4.76 | 0.2 | 3.81 | 0.03~0.20 | 0.10~1.50 | | |
| | | 160404L-SC | | | | | | | | | | | | | | | | | | | | | | | 15.5 | 9.525 | 4.76 | 0.4 | 3.81 | 0.05~0.25 | 0.30~2.00 | | |
| **TNGN**  Medie lavorazioni | **TNGN** | 110302 | | | | | | | | | | | | | | | | | | | | | | | 10.5 | 6.35 | 3.18 | 0.2 | | 0.05~0.25 | 0.20~2.50 | CTFNR/L<br>CTGNR/L | B95<br>B95 |
| | | 110304 | | | | | | | | | | | | | | | | | | | | | | | 10.0 | 6.35 | 3.18 | 0.4 | | 0.10~0.30 | 0.50~2.50 | | |
| | | 110308 | | | | | | | | | | | | | | | | | | | | | | | 9.0 | 6.35 | 3.18 | 0.8 | | 0.10~0.30 | 0.80~2.50 | | |
| | | 160302 | | | | | | | | | | | | | | | | | | | | | | | 16.0 | 9.525 | 3.18 | 0.2 | | 0.05~0.30 | 0.20~3.00 | | |
| | | 160304 | | | | | | | | | | | | | | | | | | | | | | | 15.5 | 9.525 | 3.18 | 0.4 | | 0.10~0.30 | 0.50~4.00 | | |
| | | 160308 | | | | | | | | | | | | | | | | | | | | | | | 14.5 | 9.525 | 3.18 | 0.8 | | 0.10~0.40 | 0.80~4.00 | | |
| | | 160404 | | | | | | | | | | | | | | | | | | | | | | | 15.5 | 9.525 | 4.76 | 0.4 | | 0.10~0.40 | 0.50~4.00 | | |
| | | 160408 | | | | | | | | | | | | | | | | | | | | | | | 14.5 | 9.525 | 4.76 | 0.8 | | 0.10~0.40 | 1.00~4.00 | | |
| | | 160412 | | | | | | | | | | | | | | | | | | | | | | | 13.5 | 9.525 | 4.76 | 1.2 | | 0.10~0.50 | 1.50~4.50 | | |
| | | 220404 | | | | | | | | | | | | | | | | | | | | | | | 21.0 | 12.7 | 4.76 | 0.4 | | 0.10~0.35 | 1.00~4.00 | | |
| | | 220408 | | | | | | | | | | | | | | | | | ○ | | | | | | 20.0 | 12.7 | 4.76 | 0.8 | | 0.15~0.40 | 1.50~5.00 | | |
| | | 220412 | | | | | | | | | | | | | | | | | | | | | | | 19.0 | 12.7 | 4.76 | 1.2 | | 0.20~0.50 | 1.50~5.00 | | |
| | | 220416 | | | | | | | | | | | | | | | | | | | | | | | 18.2 | 12.7 | 4.76 | 1.6 | | 0.25~0.55 | 1.50~5.00 | | |
| | | 220424 | | | | | | | | | | | | | | | | | | | | | | | 17.4 | 12.7 | 4.76 | 2.4 | | 0.30~0.65 | 2.00~5.00 | | |
| | | 270630 | | | | | | | | | | | | | | | | | | | | | | | 19.7 | 15.875 | 6.35 | 3.0 | | 0.35~0.70 | 2.00~5.00 | | |
| **TNMA**  Sgrossatura | **TNMA** | 110308 | | | | | | | | | | | | | | | | | | | | | | | 9.0 | 6.35 | 3.18 | 0.8 | 2.4 | 0.05~0.30 | 0.50~3.00 | MTENN<br>MTFNR/L<br>MTGNR/L<br>MTJNR/L<br>PTFNR/L<br>PTGNR/L<br>PTTNR/L<br>WTENN<br>WTJNR/L<br>WTXNR/L | B84<br>B84<br>B85<br>B85<br>B74,104<br>B75<br>B75<br>B77<br>B77<br>B77 |
| | | 160404 | | | | | | | | | ● | | | ● | ● | | | | | | | | | | 15.5 | 9.525 | 4.76 | 0.4 | 3.81 | 0.10~0.30 | 1.00~4.00 | | |
| | | 160408 | ● | | | | | | | | ● | | | ● | ● | ● | | | | | | ● | | | 14.5 | 9.525 | 4.76 | 0.8 | 3.81 | 0.10~0.40 | 1.00~4.00 | | |
| | | 160412 | | | | | | | | | | | | ● | ● | | | | | | | | | | 13.5 | 9.525 | 4.76 | 1.2 | 3.81 | 0.10~0.50 | 1.50~4.50 | | |
| | Neuu | 160416 | | | | | | | | | | | | ● | | | | | | | | | | | 12.5 | 9.525 | 4.76 | 1.6 | 3.81 | 0.15~0.55 | 1.50~4.50 | | |
| | | 220404 | | | | | | | | | | | | ● | | | | | | | | | | | 21.0 | 12.7 | 4.76 | 0.4 | 5.16 | 0.10~0.35 | 1.00~4.00 | | |
| | | 220408 | ● | | | | | | | | ● | | | ● | ● | | | | | | | | | | 20.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.15~0.40 | 1.50~5.00 | | |
| | | 220412 | ● | | | | | | | | ● | | | ● | ● | | | | | | | | | | 19.0 | 12.7 | 4.76 | 1.2 | 5.16 | 0.20~0.50 | 1.50~5.00 | | |
| | | 220416 | | | | | | | | | | | | ● | | | | | | | | | | | 18.2 | 12.7 | 4.76 | 1.6 | 5.16 | 0.25~0.55 | 1.50~5.00 | | |
| | | 220420 | | | | | | | | | | | | | | | | | | | | | | | 16.8 | 12.7 | 4.76 | 2.0 | 5.16 | 0.30~0.65 | 2.00~5.00 | | |
| | | 220432 | | | | | | | | | | | | | | | | | | | | | | | 16.5 | 12.7 | 4.76 | 3.2 | 5.16 | 0.35~0.70 | 2.00~5.00 | | |
| | Neuu | 270608 | | | | | | | | | | | | | | | | | | | | | | | 25.4 | 15.875 | 6.35 | 0.8 | 6.35 | 0.20~0.45 | 2.00~7.00 | | |
| | Neuu | 270612 | | | | | | | | | | | | | | | | | | | | | | | 24.4 | 15.875 | 6.35 | 1.2 | 6.35 | 0.25~0.55 | 3.00~7.00 | | |
| | Neuu | 270616 | | | | | | | | | | | | ● | | | | | | | | | | | 23.3 | 15.875 | 6.35 | 1.6 | 6.35 | 0.30~0.65 | 3.00~7.00 | | |
| | Neuu | 330924 | | | | | | | | | | | | | | | | | | | | | | | 27.1 | 15.875 | 9.52 | 2.4 | 7.93 | 0.35~0.75 | 3.00~9.00 | | |

• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15

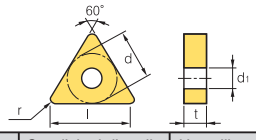
● : Disponibile ○ : A richiesta

Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

# TN○○ 60° Negativo

| Pezzo lavorato | | |
|---|---|---|
| Acciaio | P | ● ➋ ➋ ✱ ✱ ➋ ➋ ➋ |
| Acciaio inossidabile | M | ➋ ● ➋ ➋ ✱ ✱ |
| Ghisa | K | ➋ ➋ ➋ ➋ ● |
| Materiali non ferrosi | N | |
| Leghe resistenti al calore, lega di titanio | S | ● ➋ ✱ ✱ |
| Materiali temprati | H | ● ➋ |

Applicazioni
● Taglio continuo
➋ Uso generico
✱ Taglio interrotto




| Inserti | Articolo | | Rivestito | | | | | | | | | | | | | Cermet | | | Rivestito | | Non rivestito | | | Dimensioni (mm) | | | | | Condizioni di taglio | | Utensili applicabili | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NC3010 | NC3020 | NC3120 | NC3030 | NC500H | PC8110 | NC9020 | NC9025 | NC5330 | PC5300 | PC9030 | NC6105 | NC6110 | NC315K | CN1000 | CN2000 | CN20 | CC105 | CC115 | ST30A | H01 | G10 | l | d | t | r | d1 | fn | ap | Articolo | Pag. |
| TNMG-B25 | TNMG | 110308-B25 | | | | | | | | | | | | | | | | | | | | | | 9.0 | 6.35 | 3.18 | 0.8 | 2.4 | 0.17~0.40 | 1.50~3.00 | MTENN | B84 |
| | | 160304-B25 | | | | | | | | | | | | | | | | | | | | | | 15.5 | 9.525 | 3.18 | 0.4 | 3.81 | 0.17~0.45 | 2.00~3.50 | MTFNR/L | B84 |
| | | 160308-B25 | | | ● | | | | | | | | | | | | | | | | | | ● | 14.5 | 9.525 | 3.18 | 0.8 | 3.81 | 0.17~0.55 | 2.00~3.50 | MTGNR/L | B85 |
| | | 160312-B25 | | | | | | | | | | | | | | | | | | | | | | 13.5 | 9.525 | 3.18 | 1.2 | 3.81 | 0.25~0.55 | 2.00~3.50 | MTJNR/L | B85 |
| | | 160316-B25 | | | | | | | | | | | | | | | | | | | | | | 12.5 | 9.525 | 3.18 | 1.6 | 3.81 | 0.30~0.60 | 2.50~3.00 | PTFNR/L | B74,104 |
| | | 160404-B25 | ● | ● | ● | ● | | | | | ● | | | | ● | | ● | | | | | | | 15.5 | 9.525 | 4.76 | 0.4 | 3.81 | 0.17~0.45 | 2.00~3.50 | PTGNR/L | B75 |
| | | 160408-B25 | ● | ● | ● | ● | | | | | ● | | ● | | ● | | ● | | | | | | | 14.5 | 9.525 | 4.76 | 0.8 | 3.81 | 0.17~0.55 | 2.00~3.50 | PTTNR/L | B75 |
| | | 160412-B25 | | | | ● | | | | | | ● | | ● | | | | | | | | | | 13.5 | 9.525 | 4.76 | 1.2 | 3.81 | 0.25~0.55 | 2.00~3.50 | WTENN | B77 |
| | | 160416-B25 | | | | | | | | | | | | ○ | | | | | | | | | | 12.5 | 9.525 | 4.76 | 1.6 | 3.81 | 0.30~0.60 | 2.50~3.00 | WTJNR/L | B77 |
| | | 220404-B25 | ● | ● | ● | ● | | | | | ● | ○ | | | | | | | | | | | | 21.0 | 12.7 | 4.76 | 0.4 | 5.16 | 0.17~0.45 | 1.50~5.00 | WTXNR/L | B77 |
| | | 220408-B25 | ● | ● | ● | ● | ● | | | | ● | | | ● | ● | | | | | | | | | 20.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.17~0.55 | 2.00~5.00 | | |
| | | 220412-B25 | | | | ● | | | | | | | | ● | | | | | | | | | | 19.0 | 12.7 | 4.76 | 1.2 | 5.16 | 0.25~0.55 | 2.00~5.00 | | |
| | | 220416-B25 | | ● | ● | ● | | | | | | | | ● | | | | | | | | | | 18.2 | 12.7 | 4.76 | 1.6 | 5.16 | 0.30~0.60 | 2.00~5.00 | | |
| | | 220424-B25 | | | | | | | | | | | | | | | | | | | | | | 17.2 | 12.7 | 4.76 | 2.4 | 5.16 | 0.35~0.70 | 3.00~7.00 | | |
| | New | 220432-B25 | | | | | | | | | | | | | | | | | | | | | | 16.5 | 12.7 | 4.76 | 3.2 | 5.16 | 0.40~0.75 | 3.50~7.00 | | |
| | | 270608-B25 | | ● | ● | ● | | | | | | | | | | | | | | | | | | 25.5 | 15.875 | 6.35 | 0.8 | 6.35 | 0.17~0.55 | 2.00~5.00 | | |
| | | 270612-B25 | ● | ● | ● | ● | | | | | | | | | | | | | | | | | | 24.5 | 15.875 | 6.35 | 1.2 | 6.35 | 0.25~0.55 | 3.00~7.00 | | |
| | | 270616-B25 | ● | | | | | | | | | | | | | | | | | | | | | 23.5 | 15.875 | 6.35 | 1.6 | 6.35 | 0.30~0.60 | 3.00~7.00 | | |
| | | 330716-B25 | ● | ● | ● | | | | | | | | | | | | | | | | | | | 29.0 | 19.05 | 7.94 | 1.6 | 7.93 | 0.35~0.70 | 3.00~9.00 | | |
| | | 330924-B25 | | | | | | | | | | | | | | | | | | | | | | 27.1 | 19.05 | 9.52 | 2.4 | 7.93 | 0.40~0.80 | 3.00~9.00 | | |
| TNMG-GM | TNMG | 160304-GM | | | | | | | | | | | | | | | | | | | | | | 15.5 | 9.525 | 3.18 | 0.4 | 3.81 | 0.05~0.30 | 0.80~5.00 | MTENN | B84 |
| | | 160404-GM | ● | ● | ● | ● | | | | | | | | | | | ● | ● | ● | | | | | 15.5 | 9.525 | 4.76 | 0.4 | 3.81 | 0.05~0.30 | 0.80~5.00 | MTFNR/L | B84 |
| | | 160408-GM | ● | ● | ● | ● | | | | | | | | | | | ● | ● | ● | | | | | 14.5 | 9.525 | 4.76 | 0.8 | 3.81 | 0.10~0.50 | 1.00~5.00 | MTGNR/L | B85 |
| | | 160412-GM | | | | | | | | | | | | | | | | | | | | | | 13.5 | 9.525 | 4.76 | 1.2 | 3.81 | 0.13~0.60 | 1.30~5.00 | MTJNR/L | B85 |
| | | 220404-GM | | ● | ● | ● | | | | | | | | | | | | | | | | | | 21.0 | 12.7 | 4.76 | 0.4 | 5.16 | 0.05~0.30 | 0.90~6.30 | PTFNR/L | B74,104 |
| | | 220408-GM | ● | ● | ● | ● | | | | | | | | | | | | | | | | | | 20.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.50 | 1.00~6.60 | PTGNR/L | B75 |
| | | 220412-GM | | ● | ● | ● | | | | | | | | | | | | | | | | | | 19.0 | 12.7 | 4.76 | 1.2 | 5.16 | 0.13~0.60 | 1.30~6.60 | PTTNR/L | B75 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WTENN | B77 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WTJNR/L | B77 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WTXNR/L | B77 |
| TNMG-GR | TNMG | 160408-GR | ● | ● | ● | ● | | | | | | | | ● | ● | ● | | | | | | | | 14.5 | 9.525 | 4.76 | 0.8 | 3.81 | 0.20~0.50 | 1.00~7.00 | MTENN | B84 |
| | | 160412-GR | | ● | ● | | | | | | | | | ● | ● | | | | | | | | | 13.5 | 9.525 | 4.76 | 1.2 | 3.81 | 0.23~0.54 | 1.20~8.00 | MTFNR/L | B84 |
| | | 220408-GR | | ● | ● | ● | | | | | ● | | | ● | ● | | | | | | | | | 20.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.22~0.61 | 1.10~7.80 | MTGNR/L | B85 |
| | | 220412-GR | | ● | ● | ● | ● | | | | | | | ● | ○ | | | | | | | | | 19.0 | 12.7 | 4.76 | 1.2 | 5.16 | 0.28~0.78 | 1.20~7.80 | MTJNR/L | B85 |
| | | 220416-GR | | | | ● | | | | | | | | ● | | | | | | | | | | 18.2 | 12.7 | 4.76 | 1.6 | 5.16 | 0.31~0.75 | 1.50~7.80 | PTFNR/L | B74,104 |
| | | 270608-GR | | | | ● | | | | | | | | | | | | | | | | | | 25.5 | 15.875 | 6.35 | 0.8 | 6.35 | 0.31~0.75 | 1.50~7.80 | PTGNR/L | B75 |
| | | 270612-GR | | ● | ● | ● | | | | | | | | | | | | | | | | | | 24.5 | 15.875 | 6.35 | 1.2 | 6.35 | 0.31~0.75 | 1.50~7.80 | PTTNR/L | B75 |
| | | 270616-GR | | | | ● | | | | | | | | ● | | | | | | | | | | 23.5 | 15.875 | 6.35 | 1.6 | 6.35 | 0.36~1.00 | 1.60~7.80 | WTENN | B77 |
| | | 330924-GR | | | | ● | | | | | | | | | | | | | | | | | | 27.1 | 19.05 | 9.52 | 2.4 | 7.93 | 0.40~1.00 | 2.00~9.00 | WTJNR/L | B77 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WTXNR/L | B77 |
| TNMG-GS | TNMG | 160404-GS | | | | | | ● | ● | ● | | | ● | | | | | | | | | | | 15.5 | 9.525 | 4.76 | 0.4 | 3.81 | 0.05~0.35 | 1.00~4.50 | MTENN | B84 |
| | | 160408-GS | | | | | | ● | ● | ● | | ● | ● | | | | | | | | | | | 14.5 | 9.525 | 4.76 | 0.8 | 3.81 | 0.10~0.50 | 1.00~5.00 | MTFNR/L | B84 |
| | New | 160412-GS | | | | | | | | ● | | | | | | | | | | | | | | 13.5 | 9.525 | 4.76 | 1.2 | 3.81 | 0.13~0.65 | 1.00~5.00 | MTGNR/L | B85 |
| | | 220408-GS | | | | | | ● | | ● | | | | | | | | | | | | | | 20.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.50 | 1.00~6.80 | MTJNR/L | B85 |
| | | 220412-GS | | | | | | | | | | | | | | | | | | | | | | 19..0 | 12.7 | 4.76 | 1.2 | 5.16 | 0.15~0.40 | 1.20~6.80 | PTFNR/L | B74,104 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PTGNR/L | B75 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PTTNR/L | B75 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WTENN | B77 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WTJNR/L | B77 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WTXNR/L | B77 |
| TNMG-HA | TNMG | 160404-HA | | ● | ● | | | ● | ● | | | | ● | | | | | | | | | | ● | 15.5 | 9.525 | 4.76 | 0.4 | 3.81 | 0.05~0.30 | 0.80~3.50 | MTENN | B84 |
| | | 160408-HA | | ● | ● | | | ● | ● | ● | | | ● | | | | | | | | | | ● | 14.5 | 9.525 | 4.76 | 0.8 | 3.81 | 0.10~0.40 | 0.80~3.50 | MTFNR/L | B84 |
| | | 160412-HA | | | | | | | | | | | | | | | | | | | | | | 13.5 | 9.525 | 4.76 | 1.2 | 3.81 | 0.13~0.55 | 0.80~3.50 | MTGNR/L | B85 |
| | | 220408-HA | | | | | | | | ● | | | ● | | | | | | | | | | | 20.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.40 | 0.80~5.30 | MTJNR/L | B85 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PTFNR/L | B74,104 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PTGNR/L | B75 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PTTNR/L | B75 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WTENN | B77 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WTJNR/L | B77 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WTXNR/L | B77 |
| TNMG-HC | TNMG | 160404-HC | ● | ● | ● | | | | | | ● | | | | | | | | | | | | | 15.5 | 9.525 | 4.76 | 0.4 | 3.81 | 0.05~0.35 | 0.50~3.50 | MTENN | B84 |
| | | 160408-HC | ● | ● | ● | ● | | | | | ● | | | | | | | | | | | | | 14.5 | 9.525 | 4.76 | 0.8 | 3.81 | 0.08~0.40 | 0.80~4.00 | MTFNR/L | B84 |
| | | 160412-HC | | | | | | | | | ● | | | | | | | | | | | | | 13.5 | 9.525 | 4.76 | 1.2 | 3.81 | 0.13~0.50 | 0.90~4.00 | MTGNR/L | B85 |
| | | 220408-HC | ● | ● | ● | | | | | | | | | | | | | | | | | | | 20.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.08~0.40 | 0.80~4.00 | MTJNR/L | B85 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PTFNR/L | B74,104 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PTGNR/L | B75 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PTTNR/L | B75 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WTENN | B77 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WTJNR/L | B77 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WTXNR/L | B77 |

Medie lavorazioni – finitura

Medie lavorazioni – finitura

Medie lavorazioni – finitura

Sgrossatura

Medie lavorazioni

Media sgrossatura

• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15

Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

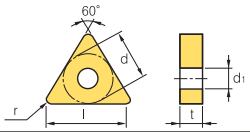
● : Disponibile ○ : A richiesta

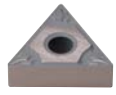
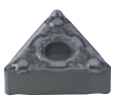
# B Inserti di tornitura (Negativo)

## TN○○ 60° Negativo

| Pezzo lavorato | | |
|---|---|---|
| Acciaio | P | ● ● ● ● ● ● ● ● |
| Acciaio inossidabile | M | ● ● ● ● ● ● ● |
| Ghisa | K | ● ● ● ● ● |
| Materiali non ferrosi | N | |
| Leghe resistenti al calore, lega di titanio | S | ● ● ● ● |
| Materiali temprati | H | |

Applicazioni
● Taglio continuo
● Uso generico
✱ Taglio interrotto




| Inserti | Articolo | | Rivestito | | | | | | | | | | | | Cermet | | | Rivestito | | Non rivestito | | | Dimensioni (mm) | | | | | Condizioni di taglio | | Utensili applicabili | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NC3010 | NC3020 | NC3120 | NC3030 | NC500H | PC8110 | NC9020 | NC9025 | NC5330 | PC5300 | PC9030 | NC6105 | NC6110 | NC315K | CN1000 | CN2000 | CN20 | CC105 | CC115 | U20 | H01 | G10 | l | d | t | r | d1 | fn | ap | Articolo | Pag. |
| **TNMG-HR**  Sgrossatura | TNMG | 160408-HR | ● | | ● | | | | | | | | | | | | | | | | | | | | 14.5 | 9.525 | 4.76 | 0.8 | 3.81 | 0.20~0.50 | 1.00~7.00 | MTENN<br>MTFNR/L<br>MTGNR/L<br>MTJNR/L<br>PTFNR/L<br>PTGNR/L<br>PTTNR/L<br>WTENN<br>WTJNR/L<br>WTXNR/L | B84<br>B84<br>B85<br>B85<br>B74,104<br>B75<br>B75<br>B77<br>B77<br>B77 |
| | | 160412-HR | | ● | ● | | | | | | | | | | | | | | | | | | | | 13.5 | 9.525 | 4.76 | 1.2 | 3.81 | 0.25~0.60 | 1.30~7.00 | | |
| | | 220404-HR | | | | | | | | | | | | | | | | | | | | | | | 21.0 | 12.7 | 4.76 | 0.4 | 5.16 | 0.20~0.45 | 1.00~7.50 | | |
| | | 220408-HR | ● | ● | ● | | | | | | | | | | | | | | | | | | | | 20.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.20~0.50 | 1.00~8.00 | | |
| | | 220412-HR | ● | | | | ● | | | | | | | | | | | | | | | | | | 19.0 | 12.7 | 4.76 | 1.2 | 5.16 | 0.25~0.60 | 1.30~8.00 | | |
| | | 220416-HR | | ● | ● | | | | | | | | | | | | | | | | | | | | 18.2 | 12.7 | 4.76 | 1.6 | 5.16 | 0.32~0.70 | 1.80~8.00 | | |
| | | 270608-HR | | | | | | | | | | | | | | | | | | | | | | | 25.5 | 15.875 | 6.35 | 0.8 | 6.35 | 0.35~0.50 | 1.80~13.00 | | |
| | | 270612-HR | | ● | | | | | | | | | | | | | | | | | | | | | 24.5 | 15.875 | 6.35 | 1.2 | 6.35 | 0.35~0.70 | 2.30~13.00 | | |
| | | 270632-HR | | | | | | | | | | | | | | | | | | | | | | | 19.2 | 15.875 | 6.35 | 3.2 | 6.35 | 0.40~0.90 | 3.00~13.00 | | |
| | | 330716-HR | | | | | | | | | | | | | | | | | | | | | | | 29.0 | 19.05 | 7.94 | 1.6 | 7.93 | 0.40~0.70 | 1.80~9.00 | | |
| | | 330924-HR | | | | | | | | | | | | | | | | | | | | | | | 27.1 | 19.05 | 9.52 | 2.4 | 7.93 | 0.45~0.90 | 3.30~16.00 | | |
| **TNMG-HS**  Medie lavorazioni – finitura | TNMG | 160404-HS | | | | | | ● | ● | ● | | ● | ● | | | | | | | | | | | | 15.5 | 9.525 | 4.76 | 0.4 | 3.81 | 0.08~0.35 | 0.50~4.00 | MTENN<br>MTFNR/L<br>MTGNR/L<br>MTJNR/L<br>PTFNR/L<br>PTGNR/L<br>PTTNR/L<br>WTENN<br>WTJNR/L<br>WTXNR/L | B84<br>B84<br>B85<br>B85<br>B74,104<br>B75<br>B75<br>B77<br>B77<br>B77 |
| | | 160408-HS | | | | | | ● | ● | ● | | ● | ● | | | | | | | | | | | | 14.5 | 9.525 | 4.76 | 0.8 | 3.81 | 0.10~0.40 | 1.00~4.50 | | |
| | | 160412-HS | | | | | | | | ● | | ● | ● | | | | | | | | | | | | 13.5 | 9.525 | 4.76 | 1.2 | 3.81 | 0.13~0.55 | 1.00~4.50 | | |
| | | 220408-HS | | | | | | ● | ● | ● | | ● | ● | | | | | | | | | | | | 20.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.40 | 1.00~6.30 | | |
| | | 220412-HS | | | | | | | | ● | | | ● | | | | | | | | | | | | 19.0 | 12.7 | 4.76 | 1.2 | 5.16 | 0.13~0.55 | 1.00~6.30 | | |
| **TNMG-HU**  Finitura | TNMG | 160404-HU | | | | | | | | | | | | | | | | | | | | | | | 15.5 | 9.525 | 4.76 | 0.4 | 3.81 | 0.05~0.25 | 0.10~1.50 | MTENN<br>MTFNR/L<br>MTGNR/L<br>MTJNR/L<br>PTFNR/L<br>PTGNR/L<br>PTTNR/L<br>WTENN<br>WTJNR/L<br>WTXNR/L | B84<br>B84<br>B85<br>B85<br>B74,104<br>B75<br>B75<br>B77<br>B77<br>B77 |
| | | 160408-HU | | | | | | | | | | | | | | | | | | | | | | | 14.5 | 9.525 | 4.76 | 0.8 | 3.81 | 0.10~0.30 | 0.20~1.50 | | |
| **TNMG-LW**  Medie lavorazioni (wiper) | TNMG | 160408-LW | ● | | | | | | | | | | | | | | | | | | | | | | 14.5 | 9.525 | 4.76 | 0.8 | 3.81 | 0.15~0.50 | 0.70~4.50 | MTENN<br>MTFNR/L<br>MTGNR/L<br>MTJNR/L<br>PTFNR/L<br>PTGNR/L<br>PTTNR/L<br>WTENN<br>WTJNR/L<br>WTXNR/L | B84<br>B84<br>B85<br>B85<br>B74,104<br>B75<br>B75<br>B77<br>B77<br>B77 |
| | | 160412-LW | ● | | | | | | | | | | | | | | | | | | | | | | 13.5 | 9.525 | 4.76 | 1.2 | 3.81 | 0.20~0.60 | 1.00~5.00 | | |
| **TNMG-VL**  Acciaio leggero | TNMG | 160404-VL | ● | ● | | | | | | | | | | | | | | | | | | | | | 15.4 | 9.525 | 4.76 | 0.4 | 3.81 | 0.05~0.25 | 0.1~1.0 | MTENN<br>MTFNR/L<br>MTGNR/L<br>MTJNR/L<br>PTFNR/L<br>PTGNR/L<br>PTTNR/L<br>WTENN<br>WTJNR/L<br>WTXNR/L | B84<br>B84<br>B85<br>B85<br>B74,104<br>B75<br>B75<br>B77<br>B77<br>B77 |
| | | 160408-VL | ● | ● | | | | | | | | | | | | | | | | | | | | | 14.5 | 9.525 | 4.76 | 0.8 | 3.81 | 0.10~0.35 | 0.2~1.5 | | |
| | | 220408-VL | | | | | | | | | | | | | | | | | | | | | | | 20.0 | 9.525 | 4.76 | 0.8 | 5.16 | 0.10~0.35 | 0.2~1.5 | | |
| **TNMG-VF**  Finitura | TNMG | 110304-VF | | | ● | | | | | | ● | | | | | | | ● | | | | | | | 10.0 | 6.35 | 3.18 | 0.4 | 2.4 | 0.05~0.20 | 0.20~1.00 | MTENN<br>MTFNR/L<br>MTGNR/L<br>MTJNR/L<br>PTFNR/L<br>PTGNR/L<br>PTTNR/L<br>WTENN<br>WTJNR/L<br>WTXNR/L | B84<br>B84<br>B85<br>B85<br>B74,104<br>B75<br>B75<br>B77<br>B77<br>B77 |
| | | 160404-VF | | | ● | | | | | | ● | | | | | | | ○ | | | | | | | 15.5 | 9.525 | 4.76 | 0.4 | 3.81 | 0.07~0.30 | 0.50~1.50 | | |
| | | 160408-VF | ● | | ● | | | | | | ● | | | | | | | | | | | | | | 14.5 | 9.525 | 4.76 | 0.8 | 3.81 | 0.10~0.40 | 0.50~1.50 | | |
| | | 160412-VF | | | ● | | | | | | | | ○ | | | | | | | | | | | | 13.5 | 9.525 | 4.76 | 1.2 | 3.81 | 0.15~0.50 | 0.50~1.50 | | |
| | | 220404-VF | | | ● | | | | | | ● | | | | | | | | | | | | | | 21.0 | 12.7 | 4.76 | 0.4 | 5.16 | 0.10~0.40 | 0.50~1.50 | | |
| | | 220408-VF | | | ● | | | | | | | | | | | | | | | | | | | | 20.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.40 | 0.50~1.50 | | |
| **TNMG-VG**  Finitura | TNMG | 110304-VG | | | | | | | | | | | | | | | | ● | | | | | | | 10.0 | 6.35 | 3.18 | 0.4 | 2.4 | 0.05~0.20 | 0.20~1.00 | MTENN<br>MTFNR/L<br>MTGNR/L<br>MTJNR/L<br>PTFNR/L<br>PTGNR/L<br>PTTNR/L<br>WTENN<br>WTJNR/L<br>WTXNR/L | B84<br>B84<br>B85<br>B85<br>B74,104<br>B75<br>B75<br>B77<br>B77<br>B77 |
| | | 160404-VG | | | | | | | | | | | | | | | ● | ● | | | | | | | 15.5 | 9.525 | 4.76 | 0.4 | 3.81 | 0.07~0.30 | 0.50~1.50 | | |
| | | 160408-VG | | | | | | | | | | | | | | | ● | ● | | | | | | | 14.5 | 9.525 | 4.76 | 0.8 | 3.81 | 0.10~0.40 | 0.50~1.50 | | |
| | | 220404-VG | | | | | | | | | | | | | | | | ● | | | | | | | 21.0 | 12.7 | 4.76 | 0.4 | 5.16 | 0.10~0.40 | 0.50~1.50 | | |
| **TNMG-VM**  Medie lavorazioni | TNMG | 110308-VM | | | | | | | ● | | | | | | ● | | | | | | | | | | 9.0 | 6.35 | 3.18 | 0.8 | 2.4 | 0.05~0.30 | 0.80~4.00 | MTENN<br>MTFNR/L<br>MTGNR/L<br>MTJNR/L<br>PTFNR/L<br>PTGNR/L<br>PTTNR/L<br>WTENN<br>WTJNR/L<br>WTXNR/L | B84<br>B84<br>B85<br>B85<br>B74,104<br>B75<br>B75<br>B77<br>B77<br>B77 |
| | | 160404-VM | ● | | ● | ● | | | ● | | ● | | | | ● | | | ● | | | | | | | 15.5 | 9.525 | 4.76 | 0.4 | 3.81 | 0.05~0.30 | 0.90~5.00 | | |
| | | 160408-VM | ● | ○ | ● | | | | | | ● | ● | ● | | ● | | | ● | | | | | | | 14.5 | 9.525 | 4.76 | 0.8 | 3.81 | 0.10~0.50 | 1.00~5.00 | | |
| | | 160412-VM | | | ● | ● | | | ● | | ● | | | | | | | ● | | | | | | | 13.5 | 9.525 | 4.76 | 1.2 | 3.81 | 0.13~0.60 | 1.30~5.00 | | |
| | | 220404-VM | | | ● | | | | ● | | | | | | | | | | | | | | | | 21.0 | 12.7 | 4.76 | 0.4 | 5.16 | 0.05~0.30 | 0.90~6.60 | | |
| | | 220408-VM | | | ● | | | ● | | | ● | | | | | | | | | | | | | | 20.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.50 | 1.00~6.60 | | |
| | | 220412-VM | | | ● | | | | | | ● | | | | | | | | | | | | | | 19.0 | 12.7 | 4.76 | 1.2 | 5.16 | 0.13~0.60 | 1.30~6.60 | | |

• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15

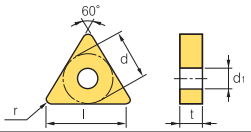
Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

● : Disponibile ○ : A richiesta

# TN○○ 60° Negativo

| Pezzo lavorato | | |
|---|---|---|
| Acciaio | P | |
| Acciaio inossidabile | M | |
| Ghisa | K | |
| Materiali non ferrosi | N | |
| Leghe resistenti al calore, lega di titanio | S | |
| Materiali temprati | H | |

Applicazioni
● Taglio continuo
Uso generico
Taglio interrotto




| Inserti | Articolo | Rivestito | | | | | | | | | | | | Cermet | | | Rivestito | | Non rivestito | | | Dimensioni (mm) | | | | | Condizioni di taglio | | Utensili applicabili | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NC3010 | NC3020 | NC3120 | NC3030 | NC500H | PC8110 | NC9020 | NC9025 | NC5330 | PC5300 | PC9030 | NC6105 | NC6110 | NC315K | CN1000 | CN2000 | CN20 | CC105 | CC115 | U20 | H01 | G10 | l | d | t | r | d1 | fn | ap | Articolo | Pag. |
| **TNMG-VQ**  Medie lavorazioni – finitura | **TNMG** 110304-VQ | | | | | | | | | | | | | | | | | | | | | | | 10.0 | 6.35 | 3.18 | 0.4 | 2.4 | 0.05~0.30 | 0.50~3.50 | MTENN | B84 |
| | 160404-VQ | | | | | | | | | | | | | | | ● | ● | | | ● | | | | 15.5 | 9.525 | 4.76 | 0.4 | 3.81 | 0.05~0.35 | 0.50~3.50 | MTFNR/L | B84 |
| | 160408-VQ | | | | | | | | | | | | | | | ● | ● | | | ● | | | | 14.5 | 9.525 | 4.76 | 0.8 | 3.81 | 0.08~0.40 | 0.80~4.00 | MTGNR/L | B85 |
| | 220404-VQ | | | | | | | | | | | | | | | | | | | | | | | 21.0 | 12.7 | 4.76 | 0.4 | 5.16 | 0.05~0.35 | 0.50~4.00 | MTJNR/L | B85 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PTFNR/L | B74,104 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PTGNR/L | B75 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PTTNR/L | B75 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WTENN | B77 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WTJNR/L | B77 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WTXNR/L | B77 |
| **TNMG-VW**  Finitura (wiper) | **TNMG** 160404-VW | | | | | | | | | | | | | ● | | | | | | | | | | 15.5 | 9.525 | 4.76 | 0.4 | 3.81 | 0.10~0.35 | 0.30~3.00 | MTENN | B84 |
| | 160408-VW | | | | | | | | | | | | | ● | | | | | | | | | | 14.5 | 9.525 | 4.76 | 0.8 | 3.81 | 0.10~0.40 | 0.30~3.00 | MTFNR/L | B84 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MTGNR/L | B85 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MTJNR/L | B85 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PTFNR/L | B74,104 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PTGNR/L | B75 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PTTNR/L | B75 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WTENN | B77 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WTJNR/L | B77 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WTXNR/L | B77 |
| **TNMM-GH**  Tagli pesanti | **TNMM** 160408-GH | | | | ● | | | | | | | | | | | | | | | | | | | 14.5 | 9.525 | 4.76 | 0.8 | 3.81 | 0.20~0.50 | 1.00~7.00 | MTENN | B84 |
| | 220408-GH | | | | | | | | | | | | | | | | | | | | | | | 20.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.25~0.60 | 1.30~7.00 | MTFNR/L | B84 |
| | 220412-GH | | ● | ● | ● | | | | | | | | | | | | | | | | | | | 19.0 | 12.7 | 4.76 | 1.2 | 5.16 | 0.20~0.50 | 1.00~8.00 | MTGNR/L | B85 |
| | 220416-GH | | | ● | ● | | | | | | | | | | | | | | | | | | | 18.2 | 12.7 | 4.76 | 1.6 | 5.16 | 0.25~0.60 | 1.30~8.00 | MTJNR/L | B85 |
| | 270616-GH | | | | | | | | | | | | | | | | | | | | | | | 23.4 | 15.875 | 6.35 | 1.6 | 6.35 | 0.32~0.70 | 1.80~8.00 | PTFNR/L | B74,104 |
| | 270624-GH | | | | | | | | | | | | | | | | | | | | | | | 21.3 | 15.875 | 6.35 | 2.4 | 6.35 | 0.35~0.50 | 1.80~13.00 | PTGNR/L | B75 |
| | 330924-GH | | | | | | | | | | | | | | | | | | | | | | | 27.1 | 19.05 | 9.52 | 2.4 | 7.93 | 0.35~0.70 | 2.30~13.00 | PTTNR/L | B75 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WTENN | B77 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WTJNR/L | B77 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WTXNR/L | B77 |
| **TNMM-GM**  Medie lavorazioni | **TNMM** 160412-GM | | | | | | | | | | | | | | | | | | | | | | | 13.5 | 9.525 | 4.76 | 1.2 | 3.81 | 0.13~0.60 | 1.30~5.00 | MTENN | B84 |
| | 220408-GM | | | | | | | | | | | | | | | | | | | | | | | 20.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.50 | 1.00~6.60 | MTFNR/L | B84 |
| | 220412-GM | | | | | | | | | | | | | | | | | | | | | | | 19.0 | 12.7 | 4.76 | 1.2 | 5.16 | 0.13~0.60 | 1.30~6.60 | MTGNR/L | B85 |
| | 220416-GM | | | | | | | | | | | | | | | | | | | | | | | 18.2 | 12.7 | 4.76 | 1.6 | 5.16 | 0.15~0.65 | 1.50~7.00 | MTJNR/L | B85 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PTFNR/L | B74,104 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PTGNR/L | B75 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PTTNR/L | B75 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WTENN | B77 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WTJNR/L | B77 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WTXNR/L | B77 |
| **TNMM-GR**  Sgrossatura | **TNMM** 220408-GR | | | | | | | | | | | | | | | | | | | | | | | 20.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.22~0.61 | 1.10~7.80 | MTENN | B84 |
| | 220412-GR | | | | | | | | | | | | | | | | | | | | | | | 19.0 | 12.7 | 4.76 | 1.2 | 5.16 | 0.28~0.78 | 1.20~7.80 | MTFNR/L | B84 |
| | 220416-GR | | | | | | | | | | | | | | | | | | | | | | | 18.2 | 12.7 | 4.76 | 1.6 | 5.16 | 0.31~0.75 | 1.50~7.80 | MTGNR/L | B85 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MTJNR/L | B85 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PTFNR/L | B74,104 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PTGNR/L | B75 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | PTTNR/L | B75 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WTENN | B77 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WTJNR/L | B77 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WTXNR/L | B77 |
| **TNMN**  Media sgrossatura | **TNMN** 160408 | | | | | | | | | | | | | | | | | ○ | ○ | | | | | 14.5 | 9.525 | 4.76 | 0.8 | | 0.10~0.30 | 1.00~4.00 | CTFNR/L | B95 |
| | 220408 | | | | | | | | | | | | | | | | | ○ | ○ | | | | | 20.0 | 12.7 | 4.76 | 0.8 | | 0.15~0.40 | 1.50~5.00 | CTGNR/L | B95 |
| | 220412 | | | | | | | | | | | | | | | | | | | | | | | 19.0 | 12.7 | 4.76 | 1.2 | | 0.20~0.50 | 1.50~5.00 | | |
| **TNMX**  Media sgrossatura | **TNMX** 160402R | | | | | | | | | | | | | | | | | ● | | | | | | 16.5 | 9.525 | 4.76 | 0.2 | 3.81 | 0.10~0.30 | 0.50~3.00 | MTENN | B84 |
| | 160404R | | ● | ● | ● | | | | | ● | | | | | | ● | ● | ● | | | | | | 15.5 | 9.525 | 4.76 | 0.4 | 3.81 | 0.12~0.30 | 1.00~3.50 | MTFNR/L | B84 |
| | 160408R | | ● | ● | ● | | | | | | | | | | | ● | ● | ● | | | | | | 14.5 | 9.525 | 4.76 | 0.8 | 3.81 | 0.15~0.35 | 1.30~3.40 | MTGNR/L | B85 |
| | 220404R | | ● | ● | | | | | | ● | | | | | | | | ● | | | | | | 21.0 | 12.7 | 4.76 | 0.4 | 5.16 | 0.12~0.30 | 1.00~5.00 | MTJNR/L | B85 |
| | 220408R | | | | | | | | | | | | | | | | | | | | | | | 20.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.15~0.35 | 1.30~5.00 | PTFNR/L | B74,104 |
| | 160404L | | ● | ● | | | | | | | | | | | | | ● | | | | | | | 15.5 | 9.525 | 4.76 | 0.4 | 3.81 | 0.12~0.30 | 1.00~3.50 | PTGNR/L | B75 |
| | 160408L | | ● | ● | ● | | | | | | | | | | | | | | | | | | | 14.5 | 9.525 | 4.76 | 0.8 | 3.81 | 0.15~0.35 | 1.30~3.40 | PTTNR/L | B75 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WTENN | B77 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WTJNR/L | B77 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WTXNR/L | B77 |

• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15

Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

● : Disponibile ○ : A richiesta

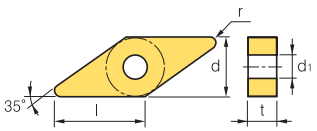
# B Inserti di tornitura (Negativo)

## VN○○ 35° Negativo

Pezzo lavorato

| | |
|---|---|
| Acciaio | P |
| Acciaio inossidabile | M |
| Ghisa | K |
| Materiali non ferrosi | N |
| Leghe resistenti al calore, lega di titanio | S |
| Materiali temprati | H |

Applicazioni
● Taglio continuo
Uso generico
Taglio interrotto




| Inserti | Articolo | | Rivestito | | | | | | | | | | | | | Cermet | | | Rivestito | | Non rivestito | | | Dimensioni (mm) | | | | | Condizioni di taglio | | Utensili applicabili | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NC3010 | NC3120 | NC3020 | NC3030 | NC500H | PC8110 | NC3020 | NC9025 | NC5330 | PC5300 | PC9030 | NC6105 | NC6110 | NC315K | CN1000 | CN2000 | CN20 | CC105 | CC115 | ST30A | H01 | G10 | l | d | t | r | $d_1$ | fn | ap | Articolo | Pag. |
| **VNGG-HA** | **VNGG** | **160408-HA** | | | | | | ● | | | | | | | | | ● | | | | | | | | 14.6 | 9.525 | 4.76 | 0.8 | 3.81 | 0.10~0.40 | 0.80~3.50 | MVJNR/L | B85 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MVQNR/L | B86 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MVVNN | B86 |
| Medie lavorazioni – finitura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MVUNR/L | B107 |
| **VNMG-GM** | **VNMG** | **160404-GM** | | ● | ● | ● | | | | | | | | | | | ● | ● | | | | | | | 15.6 | 9.525 | 4.76 | 0.4 | 3.81 | 0.08~0.45 | 0.50~3.50 | MVJNR/L | B85 |
| | | **160408-GM** | | ● | ● | ● | | | | | | | | | | | ● | ● | | | | | | | 14.6 | 9.525 | 4.76 | 0.8 | 3.81 | 0.10~0.50 | 1.00~4.00 | MVQNR/L | B86 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MVVNN | B86 |
| Medie lavorazioni | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MVUNR/L | B107 |
| **VNMG-HA** | **VNMG** | **160404-HA** | | | | | | ● | | | | | | | | | | | | | | | ● | | 15.6 | 9.525 | 4.76 | 0.4 | 3.81 | 0.08~0.35 | 0.50~3.00 | MVJNR/L | B85 |
| | | **160408-HA** | | | | | | ● | | | | | | | | | | | | | | | | | 14.6 | 9.525 | 4.76 | 0.8 | 3.81 | 0.10~0.40 | 0.80~3.50 | MVQNR/L | B86 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MVVNN | B86 |
| Medie lavorazioni – finitura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MVUNR/L | B107 |
| **VNMG-HR** | **VNMG** | **160408-HR** | | | | ● | | | | | | | | | | | | | | | | | | | 14.6 | 9.525 | 4.76 | 0.8 | 3.81 | 0.10~0.50 | 1.00~4.00 | MVJNR/L | B85 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MVQNR/L | B86 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MVVNN | B86 |
| Sgrossatura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MVUNR/L | B107 |
| **VNMG-HS** | **VNMG** | **160404-HS** | | | | | | ● | ● | ● | | | ● | | | | | | | | | | | | 15.6 | 9.525 | 4.76 | 0.4 | 3.81 | 0.08~0.35 | 0.50~4.00 | MVJNR/L | B85 |
| | | **160408-HS** | | | | | | ● | ● | ● | | ● | ● | | | | | | | | | | | | 14.6 | 9.525 | 4.76 | 0.8 | 3.81 | 0.10~0.40 | 1.00~4.50 | MVQNR/L | B86 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MVVNN | B86 |
| Medie lavorazioni – finitura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MVUNR/L | B107 |
| **VNMG-VL** | **VNMG** | **160404-VL** | ● | | ● | | | | | | ● | | | | | | ○ | ○ | | | | | | | 15.6 | 9.525 | 4.76 | 0.4 | 3.81 | 0.05~0.20 | 0.1~1.0 | MVJNR/L | B85 |
| | | **160408-VL** | ● | | ● | | | | | | ● | | | | | | ○ | ○ | | | | | | | 14.6 | 9.525 | 4.76 | 0.8 | 3.81 | 0.10~0.25 | 0.2~1.5 | MVQNR/L | B86 |
| Neu | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MVVNN | B86 |
| Acciaio leggero | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MVUNR/L | B107 |
| **VNMG-VF** | **VNMG** | **160402-VF** | | | | | | ● | | | | | | | | | | ● | | | | | | | 16.1 | 9.525 | 4.76 | 0.2 | 3.81 | 0.06~0.20 | 0.30~1.00 | MVJNR/L | B85 |
| | | **160404-VF** | ● | ● | | | | | | | ● | | | | | | | ○ | | | | | | | 15.6 | 9.525 | 4.76 | 0.4 | 3.81 | 0.08~0.30 | 0.50~1.50 | MVQNR/L | B86 |
| | | **160408-VF** | | ● | | | | | | | ● | | | | | | | | | | | | | | 14.6 | 9.525 | 4.76 | 0.8 | 3.81 | 0.10~0.40 | 0.50~1.50 | MVVNN | B86 |
| Finitura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MVUNR/L | B107 |
| **VNMG-VG** | **VNMG** | **160404-VG** | | | | | | | | | | | | | | | ● | ● | | | | | | | 15.6 | 9.525 | 4.76 | 0.4 | 3.81 | 0.08~0.30 | 0.50~1.50 | MVJNR/L | B85 |
| | | **160408-VG** | | | | | | | | | | | | | | | ● | ● | | | | | | | 14.6 | 9.525 | 4.76 | 0.8 | 3.81 | 0.10~0.40 | 0.50~1.50 | MVQNR/L | B86 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MVVNN | B86 |
| Finitura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MVUNR/L | B107 |
| **VNMG-VM** | **VNMG** | **160404-VM** | ● | ● | | | | | | | ● | ● | | | | | | ● | | | | | | | 15.6 | 9.525 | 4.76 | 0.4 | 3.81 | 0.08~0.45 | 0.50~3.50 | MVJNR/L | B85 |
| | | **160408-VM** | ● | ● | | ● | | ○ | | | ● | ○ | ● | | ● | | | ● | | | | | | | 14.6 | 9.525 | 4.76 | 0.8 | 3.81 | 0.10~0.50 | 1.00~4.00 | MVQNR/L | B86 |
| | | **160412-VM** | | | | | | | | | | | | | ○ | | | | | | | | | | 13.6 | 9.525 | 4.76 | 1.2 | 3.81 | 0.20~0.50 | 1.50~4.00 | MVVNN | B86 |
| | | **220404-VM** | | | | | | | | | | | | | | | | | | | | | | | 21.1 | 12.7 | 4.76 | 0.4 | 5.16 | 0.08~0.45 | 1.00~5.00 | MVUNR/L | B107 |
| Medie lavorazioni | | **220408-VM** | | | | | | | | | | | | | | | | | | | | | | | 20.0 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.50 | 1.50~5.00 | | |
| **VNMG-VQ** | **VNMG** | **160404-VQ** | | | | | | | | | | | | | | | ● | ● | | | ● | | | | 15.6 | 9.525 | 4.76 | 0.4 | 3.81 | 0.10~0.40 | 0.50~3.50 | MVJNR/L | B85 |
| | | **160408-VQ** | | | | | | | | | | | | | | | ● | ● | | | ● | | | | 14.6 | 9.525 | 4.76 | 0.8 | 3.81 | 0.12~0.45 | 0.50~3.50 | MVQNR/L | B86 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MVVNN | B86 |
| Medie lavorazioni – finitura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MVUNR/L | B107 |
| **VNMP** | **VNMP** | **160404** | | | | | | | | | | | | | | | | | | | | | | | 15.6 | 9.525 | 4.76 | 0.4 | 3.81 | 0.08~0.30 | 0.50~1.50 | MVJNR/L | B85 |
| | | **160408** | | | | | | | | | | | | | | | | | | | | | | | 14.6 | 9.525 | 4.76 | 0.8 | 3.81 | 0.10~0.40 | 0.50~1.50 | MVQNR/L | B86 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MVVNN | B86 |
| Sgrossatura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MVUNR/L | B107 |

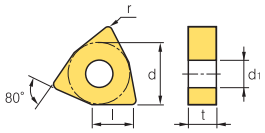
• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15
Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

● : Disponibile ○ : A richiesta

# WN○○ 80° Negativo

| Pezzo lavorato | | |
|---|---|---|
| Acciaio | P | ● ● ● ✱ ● ● ● ● |
| Acciaio inossidabile | M | ● ● ● ● ● ✱ ✱ |
| Ghisa | K | ● ● ● ● ● |
| Materiali non ferrosi | N | ● |
| Leghe resistenti al calore, lega di titanio | S | ● ● ✱ ✱ ✱ |
| Materiali temprati | H | |

Applicazioni
● Taglio continuo
● Uso generico
✱ Taglio interrotto




| Inserti | Articolo | Rivestito | | | | | | | | | | | | | Cermet | | | | Rivestito | | Non rivestito | | | Dimensioni (mm) | | | | | Condizioni di taglio | | Utensili applicabili | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NC3010 | NC3020 | NC3120 | NC3030 | NC500H | PC8110 | NC9020 | NC9025 | NC5330 | PC5300 | PC9030 | NC6105 | NC6110 | NC315K | CN1000 | CN2000 | CN20 | CC105 | CC115 | ST30A | H01 | G10 | l | d | t | r | $d_1$ | fn | ap | Articolo | Pag. |
| **WNMA** | WNMA 060404 | | | | | | | | | | | | ● | ● | | | | | | | | | | 6.2 | 9.525 | 4.76 | 0.4 | 3.81 | 0.10~0.30 | 0.50~3.00 | MWLNR/L | B86 |
| | 060408 | | | | | | | | | | | | ● | ● | | | | | | | | | | 6.1 | 9.525 | 4.76 | 0.8 | 3.81 | 0.10~0.30 | 0.50~3.00 | PWLNR/L | B104 |
| | New 060412 | | | | | | | | | | | | ● | | | | | | | | | | | 6.0 | 9.525 | 4.76 | 1.2 | 3.81 | 0.10~0.40 | 1.00~3.00 | WWLNR/L | B77 |
| | New 080404 | | | | | | | | | | | | | | | | | | | | | | | 8.4 | 12.7 | 4.76 | 0.4 | 5.16 | 0.15~0.60 | 1.00~5.00 | | |
| | 080408 | ● | | | | | | | | | | | ● | ● | ● | | | | | | | | | 8.3 | 12.7 | 4.76 | 0.8 | 5.16 | 0.15~0.60 | 1.00~6.00 | | |
| Sgrossatura | 080412 | | | | | | | | | | | | ● | ● | | | | | | | | | | 8.2 | 12.7 | 4.76 | 1.2 | 5.16 | 0.15~0.70 | 1.50~6.00 | | |
| **WNMG-B25** | WNMG 080404-B25 | | | | | | | | | | | | | | | | | | | | | | | 8.4 | 12.7 | 4.76 | 0.4 | 5.16 | 0.17~0.45 | 1.00~5.00 | MWLNR/L | B86 |
| | 080408-B25 | ● | ● | ● | ● | | | | | | | | | ● | | | | | | | | | | 8.3 | 12.7 | 4.76 | 0.8 | 5.16 | 0.23~0.60 | 1.50~5.00 | PWLNR/L | B104 |
| | 080412-B25 | | | | | | | | | | | | ● | ● | | | | | | | | | | 8.2 | 12.7 | 4.76 | 1.2 | 5.16 | 0.25~0.60 | 2.00~5.00 | WWLNR/L | B77 |
| Media sgrossatura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **WNMG-GM** | WNMG 060404-GM | ● | ● | ● | ● | | | | | | | | | | | | | | | | | | | 6.2 | 9.525 | 4.76 | 0.4 | 3.81 | 0.05~0.30 | 0.90~3.50 | MWLNR/L | B86 |
| | 060408-GM | ● | ● | ● | ● | | | | | | | | | | | | | | | | | | | 6.1 | 9.525 | 4.76 | 0.8 | 3.81 | 0.10~0.45 | 1.00~3.50 | PWLNR/L | B104 |
| | 080404-GM | | ● | ● | ● | | | | | | | | | | | | | | | | | | | 8.4 | 12.7 | 4.76 | 0.4 | 5.16 | 0.05~0.30 | 0.90~5.00 | WWLNR/L | B77 |
| | 080408-GM | ● | ● | ● | ● | | | | | | | | | | | | | | | | | | | 8.3 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.50 | 1.00~5.00 | | |
| Medie lavorazioni | 080412-GM | ● | ● | ● | | | | | | | | | | ○ | | | | | | | | | | 8.2 | 12.7 | 4.76 | 1.2 | 5.16 | 0.18~0.60 | 0.30~5.00 | | |
| **WNMG-GR** | WNMG 080404-GR New | | | | | | | | | | | | | | | | | | | | | | | 8.4 | 12.7 | 4.76 | 0.4 | 5.16 | 0.15~0.50 | 0.08~6.00 | MWLNR/L | B86 |
| | 080408-GR | ● | ● | ● | ● | | | | | ● | | | ● | ● | ● | | | | | | | | | 8.3 | 12.7 | 4.76 | 0.8 | 5.16 | 0.20~0.50 | 1.00~7.00 | PWLNR/L | B104 |
| | 080412-GR | ● | ● | ● | ● | | | | | ● | | | ● | ● | ● | | | | | | | | | 8.2 | 12.7 | 4.76 | 1.2 | 5.16 | 0.25~0.50 | 1.30~7.00 | WWLNR/L | B77 |
| Sgrossatura | 080416-GR | ● | | | | | | | | | | | ● | | | | | | | | | | | 8.1 | 12.7 | 4.76 | 1.6 | 5.16 | 0.25~0.60 | 1.80~6.00 | | |
| **WNMG-GS** | WNMG 060404-GS | | | | | | ● | ● | ● | | | | | | | | | | | | | | | 6.2 | 9.525 | 4.76 | 0.4 | 3.81 | 0.05~0.25 | 0.10~3.00 | MWLNR/L | B86 |
| | 060408-GS | | | | | | ● | ● | ● | | ● | | | | | | | | | | | | | 6.1 | 9.525 | 4.76 | 0.8 | 3.81 | 0.10~0.50 | 1.00~4.00 | PWLNR/L | B104 |
| | 080404-GS | | ● | ● | | | ● | ● | ● | | ● | ● | | | | | | | | | | | | 8.4 | 12.7 | 4.76 | 0.4 | 5.16 | 0.05~0.25 | 0.10~3.00 | WWLNR/L | B77 |
| | 080408-GS | | ● | ● | | | ● | ● | ● | | ● | ● | | | | | | | | | | | | 8.3 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.50 | 1.00~5.00 | | |
| | 080412-GS | | | | | | | ● | ● | | ○ | | | | | | | | | | | | | 8.2 | 12.7 | 4.76 | 1.2 | 5.16 | 0.13~0.65 | 1.00~5.00 | | |
| Medie lavorazioni – finitura | 060413-GS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **WNMG-HA** | WNMG 060404-HA | | | | | | ● | | ● | | | ● | | | | | | | | | | ● | | 6.2 | 9.525 | 4.76 | 0.4 | 3.81 | 0.05~0.30 | 0.10~3.00 | MWLNR/L | B86 |
| | 060408-HA | | | | | | ● | | ● | | | ● | | | | | | | | | | ● | | 6.1 | 9.525 | 4.76 | 0.8 | 3.81 | 0.10~0.40 | 0.80~3.50 | PWLNR/L | B104 |
| | 080404-HA | | ● | ● | | | ● | ● | ● | | | ● | | | | | | | | | | ● | | 8.4 | 12.7 | 4.76 | 0.4 | 5.16 | 0.05~0.30 | 0.80~3.50 | WWLNR/L | B77 |
| | 080408-HA | | ● | ● | | | ● | ● | ● | | | ● | | | | | | | | | | ● | | 8.3 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.40 | 0.80~3.50 | | |
| Medie lavorazioni – finitura | 080412-HA | | | | | | | | | | | | | | | | | | | | | | | 8.2 | 12.7 | 4.76 | 1.2 | 5.16 | 0.13~0.55 | 0.80~3.50 | | |
| **WNMG-HC** | WNMG 060404-HC | ● | | | | | | | | | | | | | | | | | | | | | | 6.2 | 9.525 | 4.76 | 0.4 | 3.81 | 0.05~0.30 | 0.80~4.00 | MWLNR/L | B86 |
| | 080404-HC | | | | | | | | | | | | | | | | | | | | | | | 8.4 | 12.7 | 4.76 | 0.4 | 5.16 | 0.05~0.30 | 0.80~4.00 | PWLNR/L | B104 |
| | 080408-HC | ● | ● | ● | ● | | | | | ● | | | | | | | | | | | | | | 8.3 | 12.7 | 4.76 | 0.8 | 5.16 | 0.08~0.40 | 0.80~4.00 | WWLNR/L | B77 |
| Medie lavorazioni – finitura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **WNMG-HR** | WNMG 060408-HR | | | | | | | | | | | | | | | | | | | | | | | 6.1 | 9.525 | 4.76 | 0.8 | 3.81 | 0.20~0.40 | 1.00~5.50 | MWLNR/L | B86 |
| | 060412-HR | | | | | | | | | | | | | | | | | | | | | | | 6.0 | 9.525 | 4.76 | 1.2 | 3.81 | 0.25~0.50 | 1.10~5.50 | PWLNR/L | B104 |
| | 080408-HR | ● | ● | ● | ● | | | | | ● | | | | | | | | | | | | | | 8.3 | 12.7 | 4.76 | 0.8 | 5.16 | 0.20~0.50 | 1.00~7.00 | WWLNR/L | B77 |
| | 080412-HR | ● | ● | ● | ● | | | | | | | | | | | | | | | | | | | 8.2 | 12.7 | 4.76 | 1.2 | 5.16 | 0.25~0.65 | 1.30~7.00 | | |
| Sgrossatura | 080416-HR | | | | | | | | | | | | | | | | | | | | | | | 8.1 | 12.7 | 4.76 | 1.6 | 5.16 | 0.32~0.70 | 1.80~7.00 | | |
| **WNMG-HS** | WNMG 060404-HS | | | | | | ● | ● | ● | | ● | ● | | | | | | | | | | | | 6.2 | 9.525 | 4.76 | 0.4 | 3.81 | 0.05~0.20 | 1.00~2.50 | MWLNR/L | B86 |
| | 060408-HS | | | | | | ● | ● | ● | | ● | ● | | | | | | | | | | | | 6.1 | 9.525 | 4.76 | 0.8 | 3.81 | 0.10~0.20 | 1.00~2.50 | PWLNR/L | B104 |
| | 060412-HS | | | | | | | ● | ● | | ● | ● | | | | | | | | | | | | 6.0 | 9.525 | 4.76 | 1.2 | 3.81 | 0.10~0.30 | 1.00~3.50 | WWLNR/L | B77 |
| | 080404-HS | | | | | | ● | ● | ● | | | ● | | | | | | | | | | | | 8.4 | 12.7 | 4.76 | 0.4 | 5.16 | 0.05~0.30 | 1.00~4.50 | | |
| | 080408-HS | | | | | | ● | ● | ● | | ● | ● | | | | | | | | | | | | 8.3 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.40 | 1.00~4.50 | | |
| Medie lavorazioni – finitura | 080412-HS | | | | | | | | ● | | | ● | | | | | | | | | | | | 8.2 | 12.7 | 4.76 | 1.2 | 5.16 | 0.13~0.55 | 1.00~4.50 | | |

• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15

Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

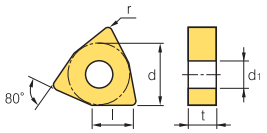
● : Disponibile ○ : A richiesta

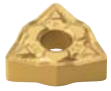
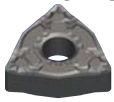
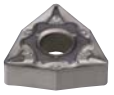
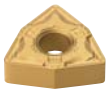
# B Inserti di tornitura (Negativo)

## WN○○ 80° Negativo

| Pezzo lavorato | | |
|---|---|---|
| Acciaio | P | ● ⬌ ⬌ ✱ ⬌ ⬌ ⬌ ● ⬌ |
| Acciaio inossidabile | M | ⬌ ● ⬌ ✱ |
| Ghisa | K | ⬌ ⬌ ● |
| Materiali non ferrosi | N | |
| Leghe resistenti al calore, lega di titanio | S | ● ⬌ ⬌ ✱ |
| Materiali temprati | H | |

Applicazioni
● Taglio continuo
⬌ Uso generico
✱ Taglio interrotto




| Inserti | Articolo | Rivestito | | | | | | | | | | | | | Cermet | | Rivestito | | Non rivestito | | | Dimensioni (mm) | | | | | Condizioni di taglio | | Utensili applicabili | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NC3010 | NC3020 | NC3120 | NC3030 | NC500H | PC8110 | NC9020 | NC9025 | NC5330 | PC5300 | PC9030 | NC6105 | NC6110 | NC315K | CN1000 | CN2000 | CN20 | CC105 | CC115 | ST30A | H01 | G10 | l | d | t | r | $d_1$ | fn | ap | Articolo | Pag. |
| **WNMG-HU**  Finitura | WNMG 080404-HU | | | | | | | | | | | | | | | | | | | | | | | 8.4 | 12.7 | 4.76 | 0.4 | 5.16 | 0.10~0.30 | 0.20~1.50 | MWLNR/L | B86 |
| | 080408-HU | | | | | | | | | | | | | | | | | | | | | | | 8.3 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.30 | 0.50~1.50 | PWLNR/L | B104 |
| | 080412-HU | | | | | | | | | | | | | | | | | | | | | | | 8.2 | 12.7 | 4.76 | 1.2 | 5.16 | 0.10~0.35 | 0.80~1.50 | WWLNR/L | B77 |
| **WNMG-LW**  Neu Medie lavorazioni (wiper) | WNMG 060408-LW | ● | | | | | | | | | | | | ● | | | | | | | | | | 6.1 | 9.525 | 4.76 | 0.8 | 3.81 | 0.15~0.60 | 0.50~3.50 | MWLNR/L | B86 |
| | 060412-LW | | | | | | | | | ● | | | | | | | | | | | | | | 6.0 | 9.525 | 4.76 | 1.2 | 3.81 | 0.20~0.70 | 0.80~3.50 | PWLNR/L | B104 |
| | 080408-LW | ● | | | | | | | | ● | | | | ● | | | | | | | | | | 8.3 | 12.7 | 4.76 | 0.8 | 5.16 | 0.15~0.60 | 1.00~5.00 | WWLNR/L | B77 |
| | 080412-LW | ● | | | ● | | | | | ● | | | | ● | | | | | | | | | | 8.2 | 12.7 | 4.76 | 1.2 | 5.16 | 0.20~0.70 | 1.00~6.00 | | |
| **WNMG-VL**  Neu Acciaio leggero | WNMG 080404-VL | ○ | ○ | | | | | | | | | | | | | | | | | | | | | 8.4 | 12.7 | 4.76 | 0.4 | 5.16 | 0.05~0.25 | 0.1~1.0 | MWLNR/L | B86 |
| | 080408-VL | ● | ● | | | | | | | | | | | | | | | | | | | | | 8.3 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.35 | 0.2~1.5 | PWLNR/L | B104 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WWLNR/L | B77 |
| **WNMG-VF**  Finitura | WNMG 060404-VF | ● | | ● | | | | | | ● | | | | | | | ● | | | | | | | 6.1 | 9.525 | 4.76 | 0.4 | 3.81 | 0.07~0.30 | 0.50~1.50 | MWLNR/L | B86 |
| | 060408-VF | ● | | ● | | | | | | ● | | | | | | | ● | | | | | | | 6.1 | 9.525 | 4.76 | 0.8 | 3.81 | 0.10~0.40 | 0.50~1.50 | PWLNR/L | B104 |
| | 080404-VF | ● | | ● | | | | | | ● | | | | | | | | | | | | | | 8.4 | 12.7 | 4.76 | 0.4 | 5.16 | 0.07~0.30 | 0.50~1.50 | WWLNR/L | B77 |
| | 080408-VF | | | ● | | | | | | ● | | | | | | | | | | | | | | 8.3 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.40 | 0.50~1.50 | | |
| **WNMG-VG**  Finitura | WNMG 060404-VG | | | | | | | | | | | | | | | | ● | | | | | | | 6.2 | 9.525 | 4.76 | 0.4 | 3.81 | 0.07~0.30 | 0.50~1.50 | MWLNR/L | B86 |
| | 060408-VG | | | | | | | | | | | | | | | | ● | | | | | | | 6.1 | 9.525 | 4.76 | 0.8 | 3.81 | 0.10~0.40 | 0.50~1.50 | PWLNR/L | B104 |
| | 080404-VG | | | | | | | | | | | | | | | ● | ● | | | | | | | 8.4 | 12.7 | 4.76 | 0.4 | 5.16 | 0.07~0.30 | 0.50~1.50 | WWLNR/L | B77 |
| | 080408-VG | | | | | | | | | | | | | | | ● | ● | | | | | | | 8.3 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.40 | 0.50~1.50 | | |
| **WNMG-VM**  Medie lavorazioni | WNMG 060402-VM | | | | | | | | | | | | | | | | | | | | | | | 6.5 | 9.525 | 4.76 | 0.2 | 3.81 | 0.05~0.30 | 0.90~3.50 | MWLNR/L | B86 |
| | 060404-VM | | | ● | | | | | | ● | | | | | | | ● | | | | | | | 6.2 | 9.525 | 4.76 | 0.4 | 3.81 | 0.10~0.45 | 1.00~3.50 | PWLNR/L | B104 |
| | 060408-VM | ● | | ● | | | | | | ● | | | | | | | ● | | | | | | | 6.1 | 9.525 | 4.76 | 0.8 | 3.81 | 0.10~0.50 | 1.00~4.00 | WWLNR/L | B77 |
| | 060412-VM | | | ● | | | | | | | | | | ● | | | | | | | | | | 6.0 | 9.525 | 4.76 | 1.2 | 3.81 | 0.13~0.60 | 1.30~4.00 | | |
| | 080404-VM | ● | | ● | | | | | | ● | | | | | | | ● | | | | | | | 8.4 | 12.7 | 4.76 | 0.4 | 5.16 | 0.05~0.30 | 0.90~5.00 | | |
| | 080408-VM | ● | ○ | ● | ● | | ● | ● | | ● | | ● | | ● | | | ● | | | | | | | 8.3 | 12.7 | 4.76 | 0.8 | 5.16 | 0.10~0.50 | 1.00~5.00 | | |
| | 080412-VM | | | ● | ● | | | | | ● | | | | ● | | | ● | | | | | | | 8.2 | 12.7 | 4.76 | 1.2 | 5.16 | 0.10~0.50 | 1.00~5.00 | | |
| **WNMG-VQ**  Finitura, Medie lavorazioni | WNMG 060404-VQ | | | | | | | | | | | | | | | ● | ● | | | | | | | 6.2 | 9.525 | 4.76 | 0.4 | 3.81 | 0.05~0.30 | 0.50~4.00 | MWLNR/L | B86 |
| | 060408-VQ | | | | | | | | | | | | | | | | ● | | | | | | | 6.1 | 9.525 | 4.76 | 0.8 | 3.81 | 0.08~0.30 | 0.80~4.00 | PWLNR/L | B104 |
| | 080404-VQ | | | | | | | | | | | | | | | ● | ● | | | | | | | 8.4 | 12.7 | 4.76 | 0.4 | 5.16 | 0.05~0.30 | 0.50~4.00 | WWLNR/L | B77 |
| | 080408-VQ | | | | | | | | | | | | | | | ● | ● | | | | | | | 8.3 | 12.7 | 4.76 | 0.8 | 5.16 | 0.08~0.40 | 0.80~4.00 | | |
| **WNMG-VW**  Neu Finitura | WNMG 080404-VW | ● | | | | | | | | | | | | ● | | | | | | | | | | 8.4 | 12.7 | 4.76 | 0.4 | 5.16 | 0.10~0.30 | 0.50~3.00 | MWLNR/L | B86 |
| | 080408-VW | | | | | | | | | | | | | ● | | | | | | | | | | 8.3 | 12.7 | 4.76 | 0.8 | 5.16 | 0.15~0.50 | 0.50~4.00 | PWLNR/L | B104 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WWLNR/L | B77 |
| **WNMM-B25**  Media sgrossatura | WNMM 100608-B25 | | | | ● | | | | | | | | | | | | | | | | | | | 10.0 | 15.875 | 6.35 | 0.8 | 6.35 | 0.30~0.80 | 3.00~8.00 | MWLNR/L | B86 |
| | 130612-B25 | | | | | | | | | | | | | | | | | | | | | | | 12.0 | 19.05 | 6.35 | 1.2 | 7.93 | 0.40~0.90 | 4.00~10.00 | PWLNR/L | B104 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WWLNR/L | B77 |

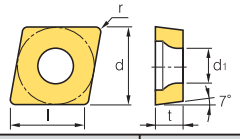
• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15
Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

● : Disponibile ○ : A richiesta

# CC○○ 80° Positivo Angolo di spoglia : 7°

| Pezzo lavorato | | |
|---|---|---|
| Acciaio | P | ● ⬢ ⬢ ✱ ⬢ ⬢ |
| Acciaio inossidabile | M | ⬢ ● ⬢ ✱ ✱ |
| Ghisa | K | ⬢ ⬢ ● |
| Materiali non ferrosi | N | ⬢ ● |
| Leghe resistenti al calore, lega di titanio | S | ● ⬢ ✱ ✱ |
| Materiali temprati | H | |

Applicazioni
● Taglio continuo
⬢ Uso generico
✱ Taglio interrotto




| Inserti | Articolo | | Rivestito | | | | | | | | | | | | | Cermet | | | Rivestito | | Non rivestito | | | Dimensioni (mm) | | | | | Condizioni di taglio | | Utensili applicabili | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NC3010 | NC3020 | NC3120 | NC3030 | NC500H | PC8110 | NC9020 | NC9025 | NC5330 | PC5300 | PC9030 | NC6105 | NC6110 | NC315K | CN1000 | CN2000 | CN20 | CC105 | CC115 | U20 | H01 | G10 | l | d | t | r | $d_1$ | fn | ap | Articolo | Pag. |
| CCET | CCET | 0301005R | | | | | | | | | | | | | | | | | | | | | | | 3.6 | 3.5 | 1.39 | 0.05 | 1.9 | 0.01~0.05 | 0.10~0.30 | SCLCR/L | B107 |
| | | 030101R | | | | | | | | | | | | | | | | | | | | | | | 3.5 | 3.5 | 1.39 | 0.1 | 1.9 | 0.01~0.05 | 0.10~0.30 | (Bareno) | |
| | | 030102R | | | | | | | | | | | | | | | | | | | | | | | 3.3 | 3.5 | 1.39 | 0.2 | 1.9 | 0.01~0.05 | 0.10~0.30 | | |
| | | 030104R | | | | | | | | | | | | | | | | | | | | | | | 3.1 | 3.5 | 1.39 | 0.4 | 1.9 | 0.01~0.05 | 0.10~0.30 | | |
| | | 0401005R | | | | | | | | | | | | | | | | | | | | | | | 4.3 | 4.3 | 1.79 | 0.05 | 2.3 | 0.01~0.10 | 0.10~0.50 | | |
| | | 040101R | | | | | | | | | | | | | | | | | | | | | | | 4.2 | 4.3 | 1.79 | 0.1 | 2.3 | 0.01~0.10 | 0.10~0.50 | | |
| | | 040102R | | | | | | | | | | | | | | | | | | | | | | | 4.1 | 4.3 | 1.79 | 0.2 | 2.3 | 0.01~0.10 | 0.10~0.50 | | |
| | | 040104R | | | | | | | | | | | | | | | | | | | | | | | 3.9 | 4.3 | 1.79 | 0.4 | 2.3 | 0.01~0.10 | 0.10~0.50 | | |
| | | 0301005L | | | | | | | | | | | | | | | | | | | | | | | 3.6 | 3.5 | 1.39 | 0.05 | 1.9 | 0.01~0.05 | 0.10~0.30 | SCLCR/L | B107 |
| | | 030101L | | | | | | | | | | | | | | | | | | | | | | | 3.5 | 3.5 | 1.39 | 0.1 | 1.9 | 0.01~0.05 | 0.10~0.30 | (Bareno) | |
| | | 030102L | | | | | | | | | | | ● | | | | ○ | ● | | | | | ● | | 3.3 | 3.5 | 1.39 | 0.2 | 1.9 | 0.01~0.05 | 0.10~0.30 | | |
| | | 030104L | | | | | | | | | | | | | | | | | | | | | | | 3.1 | 3.5 | 1.39 | 0.4 | 1.9 | 0.01~0.05 | 0.10~0.30 | | |
| | | 0401005L | | | | | | | | | | | | | | | | | | | | | | | 4.3 | 4.3 | 1.79 | 0.05 | 2.3 | 0.01~0.10 | 0.10~0.50 | | |
| | | 040101L | | | | | | | | | | | | | | | | | | | | | | | 4.2 | 4.3 | 1.79 | 0.1 | 2.3 | 0.01~0.10 | 0.10~0.50 | | |
| | | 040102L | | | | | | | | | | | ● | | | | ○ | ● | | | | | ● | | 4.1 | 4.3 | 1.79 | 0.2 | 2.3 | 0.01~0.10 | 0.10~0.50 | | |
| | | 040104L | | | | | | | | | | | | | | | | | | | | | | | 3.9 | 4.3 | 1.79 | 0.4 | 2.3 | 0.01~0.10 | 0.10~0.50 | | |
| CCGT-C05 | CCGT | 060202-C05 | | | | | | | | | | | | | | | | | | | | | | | 6.2 | 6.35 | 2.38 | 0.2 | 2.8 | 0.06~0.11 | 0.06~1.70 | SCACR/L | B87 |
| | | 060204-C05 | | | | | | | | | | | | | | | | | | | | | | | 6.0 | 6.35 | 2.38 | 0.4 | 2.8 | 0.08~0.17 | 0.10~1.70 | SCLCR/L | B87 |
| | | 09T304-C05 | | | | | | | | | | | | | | | | | ● | | | | | | 9.2 | 9.525 | 3.97 | 0.4 | 4.4 | 0.11~0.23 | 0.10~2.00 | | |
| | | 09T308-C05 | | | | | | | | | | | | | | | | | | | | | | | 8.8 | 9.525 | 3.97 | 0.8 | 4.4 | 0.08~0.30 | 0.20~2.00 | | |
| | | 120404-C05 | | | | | | | | | | | | | | | | | | | | | | | 12.4 | 12.7 | 4.76 | 0.4 | 5.5 | 0.07~0.27 | 0.10~2.70 | | |
| | | 120408-C05 | | | | | | | | | | | | | | | | | | | | | | | 12.0 | 12.7 | 4.76 | 0.8 | 5.5 | 0.08~0.30 | 0.20~2.70 | | |
| CCGT-HFP | CCGT | 060202-HFP | | ● | ● | | | ○ | | | | | | | | | | | | | | | | | 6.2 | 6.35 | 2.38 | 0.2 | 2.8 | 0.03~0.06 | 0.06~1.20 | SCACR/L | B87 |
| | | 060204-HFP | | ● | ● | | | ○ | | | | ● | | | | | | | | | | | | | 6.0 | 6.35 | 2.38 | 0.4 | 2.8 | 0.05~0.12 | 0.10~1.20 | SCLCR/L | B87 |
| | | 060208-HFP | | | | | | | | | | | | | | | | | | | | | | | 5.6 | 6.35 | 2.38 | 0.8 | 2.8 | 0.05~0.12 | 0.12~1.40 | | |
| | | 09T302-HFP | | ● | ● | | | ○ | | | | | | | | | | | | | | | | | 9.4 | 9.525 | 3.97 | 0.2 | 4.4 | 0.04~0.16 | 0.08~1.50 | | |
| | | 09T304-HFP | | ● | ● | ● | | ○ | | | ● | ● | ● | | | | | | | | | | | | 9.2 | 9.525 | 3.97 | 0.4 | 4.4 | 0.06~0.18 | 0.10~1.50 | | |
| | | 09T308-HFP | | ● | ● | | | | | | ● | ● | | | | | | | | | | | | | 8.8 | 9.525 | 3.97 | 0.8 | 4.4 | 0.08~0.25 | 0.20~1.50 | | |
| | | 120404-HFP | | | | | | | | | | | | | | | | | | | | | | | 12.4 | 12.7 | 4.76 | 0.4 | 5.5 | 0.06~0.20 | 0.10~2.00 | | |
| | | 120408-HFP | | | | | | | | | | | | | | | | | | | | | | | 12.0 | 12.7 | 4.76 | 0.8 | 5.5 | 0.10~0.25 | 0.20~2.00 | | |
| CCGT-KF | CCGT | 0602003R-KF | | | | | | | | | | | | | | | | | | | | | | | 6.5 | 6.35 | 2.38 | 0.03 | 2.8 | 0.01~0.06 | 0.04~1.30 | SCACR/L | B87 |
| | | 060201R-KF | | | | | | | | | | | ● | | | | | | | | | | | | 6.5 | 6.35 | 2.38 | 0.1 | 2.8 | 0.02~0.08 | 0.05~1.50 | SCLCR/L | B87 |
| | | 060202R-KF | | | | | | | | | | | ● | | | | | | | | | | | | 6.5 | 6.35 | 2.38 | 0.2 | 2.8 | 0.03~0.11 | 0.06~1.70 | | |
| | | 09T3003R-KF | | | | | | | | | | | | | | | | | | | | | | | 9.7 | 9.525 | 3.97 | 0.03 | 4.4 | 0.02~0.08 | 0.05~1.50 | | |
| | | 09T301R-KF | | | | | | | | | | | ● | | | | | | | | | | | | 9.7 | 9.525 | 3.97 | 0.1 | 4.4 | 0.03~0.11 | 0.06~1.70 | | |
| | | 09T302R-KF | | | | | | | | | | | ● | | | | | | | | | | | | 9.7 | 9.525 | 3.97 | 0.2 | 4.4 | 0.04~0.15 | 0.08~2.00 | | |
| | | 0602003L-KF | | | | | | | | | | | | | | | | | | | | | | | 6.5 | 6.35 | 2.38 | 0.03 | 2.8 | 0.01~0.06 | 0.04~1.30 | | |
| | | 060201L-KF | | | | | | | | | | | | | | | | | | | | | | | 6.5 | 6.35 | 2.38 | 0.1 | 2.8 | 0.02~0.08 | 0.05~1.50 | | |
| | | 060202L-KF | | | | | | | | | | | | | | | | | | | | | | | 6.5 | 6.35 | 2.38 | 0.2 | 2.8 | 0.03~0.11 | 0.06~1.70 | | |
| | | 09T3003L-KF | | | | | | | | | | | | | | | | | | | | | | | 9.7 | 9.525 | 3.97 | 0.03 | 4.4 | 0.02~0.08 | 0.05~1.50 | | |
| | | 09T301L-KF | | | | | | | | | | | | | | | | | | | | | | | 9.7 | 9.525 | 3.97 | 0.1 | 4.4 | 0.03~0.11 | 0.06~1.70 | | |
| | | 09T302L-KF | | | | | | | | | | | | | | | | | | | | | | | 9.7 | 9.525 | 3.97 | 0.2 | 4.4 | 0.04~0.15 | 0.08~2.00 | | |
| CCGT-KM | CCGT | 0602003R-KM | | | | | | | | | | | | | | | | | | | | | | | 6.5 | 6.35 | 2.38 | 0.03 | 2.8 | 0.01~0.06 | 0.04~1.30 | SCACR/L | B87 |
| | | 060201R-KM | | | | | | | | | | | ● | | | | | | | | | | | | 6.5 | 6.35 | 2.38 | 0.1 | 2.8 | 0.02~0.08 | 0.05~1.50 | SCLCR/L | B87 |
| | | 060202R-KM | | | | | | | | | | | ● | | | | | | | | | | | | 6.5 | 6.35 | 2.38 | 0.2 | 2.8 | 0.03~0.11 | 0.06~1.70 | | |
| | | 09T3003R-KM | | | | | | | | | | | | | | | | | | | | | | | 9.7 | 9.525 | 3.97 | 0.03 | 4.4 | 0.02~0.08 | 0.06~1.50 | | |
| | | 09T301R-KM | | | | | | | | | | | ● | | | | | | | | | | | | 9.7 | 9.525 | 3.97 | 0.1 | 4.4 | 0.03~0.11 | 0.06~1.70 | | |
| | | 09T302R-KM | | | | | | | | | | | ● | | | | | | | | | | | | 9.7 | 9.525 | 3.97 | 0.2 | 4.4 | 0.04~0.15 | 0.08~2.00 | | |
| | | 0602003L-KM | | | | | | | | | | | | | | | | | | | | | | | 6.5 | 6.35 | 2.38 | 0.03 | 2.8 | 0.01~0.06 | 0.04~1.30 | SCACR/L | B87 |
| | | 060201L-KM | | | | | | | | | | | | | | | | | | | | | | | 6.5 | 6.35 | 2.38 | 0.1 | 2.8 | 0.02~0.08 | 0.05~1.50 | SCLCR/L | B87 |
| | | 060202L-KM | | | | | | | | | | | | | | | | | | | | | | | 6.5 | 6.35 | 2.38 | 0.2 | 2.8 | 0.03~0.11 | 0.06~1.70 | | |
| | | 09T3003L-KM | | | | | | | | | | | | | | | | | | | | | | | 9.7 | 9.525 | 3.97 | 0.03 | 4.4 | 0.02~0.08 | 0.06~1.50 | | |
| | | 09T301L-KM | | | | | | | | | | | | | | | | | | | | | | | 9.7 | 9.525 | 3.97 | 0.1 | 4.4 | 0.03~0.11 | 0.06~1.70 | | |
| | | 09T302L-KM | | | | | | | | | | | | | | | | | | | | | | | 9.7 | 9.525 | 3.97 | 0.2 | 4.4 | 0.04~0.15 | 0.08~2.00 | | |
| CCMT-C25 | CCMT | 060202-C25 | | | ● | ● | ● | | | | | | | | | | ● | ● | ● | | | | | | 6.2 | 6.35 | 2.38 | 0.2 | 2.8 | 0.03~0.12 | 0.40~2.00 | SCACR/L | B87 |
| | | 060204-C25 | ● | | ● | ● | ● | | | | ● | | ● | | ● | | ● | | ● | | | | | | 6.0 | 6.35 | 2.38 | 0.4 | 2.8 | 0.05~0.15 | 0.60~2.30 | SCLCR/L | B87 |
| | | 060208-C25 | | | ● | ● | ● | | | | ● | | | | ● | | | | | | | | | | 5.6 | 6.35 | 2.38 | 0.8 | 2.8 | 0.07~0.20 | 0.80~2.30 | | |
| | | 080308-C25 | | | ● | ● | | | | | | | | | | | | | | | | | | | 7.2 | 7.94 | 3.18 | 0.8 | 3.4 | 0.08~0.25 | 0.80~2.30 | | |
| | | 09T304-C25 | ● | | ● | ● | ● | ○ | ● | | ● | ○ | ● | | ● | | ● | ● | ● | | | | | | 9.2 | 9.525 | 3.97 | 0.4 | 4.4 | 0.08~0.25 | 0.80~3.00 | | |
| | | 09T308-C25 | ● | | ● | ● | ● | ○ | ● | | ● | ○ | ● | | ● | | ● | ● | ● | | | | | | 8.8 | 9.525 | 3.97 | 0.8 | 4.4 | 0.10~0.30 | 1.00~3.00 | | |
| | | 120404-C25 | ● | | ● | ● | ● | | | | ● | | | | ● | | ● | ● | | | | | | | 12.4 | 12.7 | 4.76 | 0.4 | 5.5 | 0.10~0.32 | 0.80~3.00 | | |
| | | 120408-C25 | ● | | ● | ● | ● | | | | ● | | | | ● | | | | | | | | | | 12.0 | 12.7 | 4.76 | 0.8 | 5.5 | 0.12~0.36 | 1.20~3.50 | | |
| | | 120412-C25 | | | ● | ● | | | | | | | | | ● | | | | | | | | | | 11.6 | 12.7 | 4.76 | 1.2 | 5.5 | 0.15~0.40 | 1.40~3.50 | | |

• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15

Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

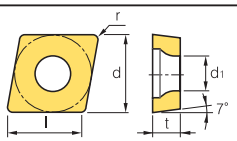
● : Disponibile ○ : A richiesta

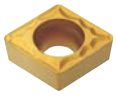
# B Inserti di tornitura (Positivo)

## CC○○ 80° Positivo Angolo di spoglia : 7°

Pezzo lavorato: Acciaio P; Acciaio inossidabile M; Ghisa K; Materiali non ferrosi N; Leghe resistenti al calore, lega di titanio S; Materiali temprati H

Applicazioni
● Taglio continuo
⬣ Uso generico
✱ Taglio interrotto




| Inserti | Articolo | Rivestito NC3010 | NC3020 | NC3120 | NC3030 | NC500H | PC8110 | NC9020 | NC9025 | NC5330 | PC9030 | PC5300 | NC6105 | NC6110 | NC315K | Cermet CN1000 | CN2000 | CN20 | Rivestito CC105 | CC115 | Non rivestito H01 | G10 | l | d | t | r | d1 | fn | ap | Utensili applicabili Articolo | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CCMT-HFP**  Finitura | CCMT 060202-HFP | | | ● | | | | | | | | | | | | | | | | | | | 6.2 | 6.35 | 2.38 | 0.2 | 2.8 | 0.03~0.06 | 0.08~1.20 | SCACR/L | B87 |
| | 060204-HFP | | | ● | | | | | | | | | | | | | | | | | | | 6.0 | 6.35 | 2.38 | 0.4 | 2.8 | 0.05~0.12 | 0.10~1.20 | SCLCR/L | B87 |
| | 060208-HFP | | | | | | | | | | | | | | | | | | | | | | 5.6 | 6.35 | 2.38 | 0.8 | 2.8 | 0.05~0.12 | 0.10~1.40 | | |
| | 09T302-HFP | | | ● | | | | | | ● | | | | | | | | | | | | | 9.4 | 9.525 | 3.97 | 0.2 | 4.4 | 0.04~0.16 | 0.08~1.50 | | |
| | 09T304-HFP | | | ● | ● | | ○ | | | ● | | | | | | | | | | | | | 9.2 | 9.525 | 3.97 | 0.4 | 4.4 | 0.06~0.18 | 0.10~1.50 | | |
| | 09T308-HFP | | | | | | ○ | | | | | | | | | | | | | | | | 0.8 | 9.525 | 3.97 | 0.8 | 4.4 | 0.08~0.25 | 0.20~1.50 | | |
| | 120404-HFP | | | ● | | | | | | | | | | | | | | | | | | | 2.4 | 12.7 | 4.76 | 0.4 | 5.5 | 0.07~0.22 | 0.10~2.00 | | |
| | 120408-HFP | | | | | | | | | | | | | | | | | | | | | | 12.0 | 12.7 | 4.76 | 0.8 | 5.5 | 0.08~0.30 | 0.12~2.20 | | |
| **CCMT-HMP**  Medie lavorazioni | CCMT 060202-HMP | ● | ● | ● | | | ● | ● | | | ● | | | | | ● | ● | | | | | | 6.2 | 6.35 | 2.38 | 0.2 | 2.8 | 0.03~0.12 | 0.10~1.50 | SCACR/L | B87 |
| | 060204-HMP | ● | ● | ● | ● | | ● | ● | | ● | ● | ● | | ● | ● | ● | ● | | | | | | 6.0 | 6.35 | 2.38 | 0.4 | 2.8 | 0.06~0.17 | 0.20~2.40 | SCLCR/L | B87 |
| | 060208-HMP | ● | ● | ● | ● | | ● | ● | | ● | ● | | | | | | | | | | | | 5.6 | 6.35 | 2.38 | 0.8 | 2.8 | 0.08~0.23 | 0.40~2.40 | | |
| | 09T302-HMP | ● | ● | ● | | | ● | ● | | ● | ● | | | | | ● | ● | | | | | | 9.4 | 9.525 | 3.97 | 0.2 | 4.4 | 0.07~0.22 | 0.10~2.00 | | |
| | 09T304-HMP | ● | ● | ● | ● | | ● | ● | | ● | ● | ● | | ● | ● | ● | ● | | | ● | | | 9.2 | 9.525 | 3.97 | 0.4 | 4.4 | 0.08~0.23 | 0.30~3.00 | | |
| | 09T308-HMP | ● | ● | ● | ● | | ● | ● | | ● | ● | ● | | ● | ● | ● | ● | | | | | | 8.8 | 9.525 | 3.97 | 0.4 | 4.4 | 0.10~0.30 | 0.50~3.00 | | |
| | 120404-HMP | ● | ● | ● | ● | | | ● | | ● | ● | ● | | ● | ● | ● | ● | | | | | | 12.4 | 12.7 | 4.76 | 0.4 | 5.5 | 0.09~0.27 | 0.30~3.60 | | |
| | 120408-HMP | ● | ● | ● | ● | | | ● | | ● | ● | ● | | ● | ● | | | | | | | | 12.0 | 12.7 | 4.76 | 0.8 | 5.5 | 0.24~0.36 | 1.00~3.60 | | |
| | 120412-HMP | | | | | | | | | | | | | | | | | | | | | | 11.6 | 12.7 | 4.76 | 1.2 | 5.5 | 0.14~0.43 | 0.70~3.60 | | |
| **CCMT-VF** Neu  Finitura | CCMT 060202-VF | | | | | | | | | | ● | | | | | ● | ● | | | | | | 6.2 | 6.35 | 2.38 | 0.2 | 2.8 | 0.05~0.20 | 0.03~1.0 | SCACR/L | B87 |
| | 060204-VF | | ○ | | | | | | | ● | | ● | | | | | | | | | | | 6.0 | 6.35 | 2.38 | 0.4 | 2.8 | 0.10~0.25 | 0.03~1.0 | SCLCR/L | B87 |
| | 09T302-VF | | | | | | | | | ● | | | | | | | | | | | | | 9.4 | 9.525 | 3.97 | 0.2 | 4.4 | 0.04~0.16 | 0.08~1.5 | | |
| | 09T304-VF | | ○ | | ○ | | | | | ● | | ● | | | | ● | ● | | | | | | 9.2 | 9.525 | 3.18 | 0.4 | 4.4 | 0.05~0.20 | 0.3~1.5 | | |
| | 09T308-VF | | | | | | | | | ● | | ● | | | | | | | | | | | 8.8 | 9.525 | 3.18 | 0.8 | 4.4 | 0.10~0.25 | 0.3~1.5 | | |
| | 120404-VF | | | | | | | | | ● | | | | | | | | | | | | | 12.4 | 12.70 | 4.76 | 0.4 | 5.5 | 0.07~0.22 | 0.1~2.0 | | |

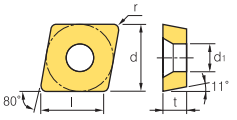
• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15
Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

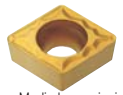
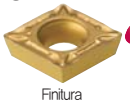
● : Disponibile ○ : A richiesta

## CP○○ 80° Positivo Angolo di spoglia : 11°

Pezzo lavorato: Acciaio P; Acciaio inossidabile M; Ghisa K; Materiali non ferrosi N; Leghe resistenti al calore, lega di titanio S; Materiali temprati H

Applicazioni
● Taglio continuo
⬣ Uso generico
✱ Taglio interrotto




| Inserti | Articolo | Rivestito NC3010 | NC3020 | NC3120 | NC3030 | NC500H | PC8110 | NC9020 | NC9025 | NC5330 | PC5300 | PC9030 | NC6105 | NC6110 | NC315K | Cermet CN1000 | CN2000 | CN20 | Rivestito CC105 | CC115 | Non rivestito ST30A | H01 | G10 | l | d | t | r | d1 | fn | ap | Utensili applicabili Articolo | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CPGT**  Finitura | CPGT 080202 | | | | | | | | | | | | | | | ○ | ● | | | | | | | 7.8 | 7.94 | 2.38 | 0.2 | 3.4 | 0.06~0.20 | 0.10~2.00 | SCLPR/L (Bareno) | B108 |
| | 080204 | | | | | | | | | | | | | | | ● | ● | | | | | | | 7.6 | 7.94 | 2.38 | 0.4 | 3.4 | 0.08~0.20 | 0.30~2.00 | | |
| | 080208 | | | | | | | | | | | | | | | | | | | | | | | 7.2 | 7.94 | 2.38 | 0.8 | 3.4 | 0.10~0.25 | 0.50~2.00 | | |
| | 090302 | | | | | | | | | | | | | | | | | | | | | | | 9.4 | 9.525 | 3.18 | 0.2 | 4.4 | 0.04~0.20 | 0.30~1.50 | | |
| | 090304 | | | | | | | | | | | | | | | ● | ● | | | | | | | 9.2 | 9.525 | 3.18 | 0.4 | 4.4 | 0.06~0.25 | 0.50~2.00 | | |
| | 090308 | | | | | | | | | | | | | | | | | | | | | | | 8.8 | 9.525 | 3.18 | 0.8 | 4.4 | 0.08~0.30 | 0.70~2.50 | | |
| **CPGT-C05**  Finitura | CPGT 080204-C05 | | ● | ● | | | | | | | | | | | | | | | | | | | | 7.6 | 7.94 | 2.38 | 0.4 | 3.4 | 0.02~0.15 | 0.50~1.70 | SCLPR/L (Bareno) | B108 |
| | 080208-C05 | | ● | ● | | | | | | | | | | | | | | | | | | | | 7.2 | 7.94 | 2.38 | 0.8 | 3.4 | 0.04~0.18 | 0.50~1.70 | | |
| | 090304-C05 | | ● | ● | | | | | | | | | | | | | | | | | | | | 9.2 | 9.525 | 3.18 | 0.4 | 4.4 | 0.03~0.20 | 0.70~2.00 | | |
| | 090308-C05 | | ● | ● | | | | | | | | | | | | | | | | | | | | 8.8 | 9.525 | 3.18 | 0.8 | 4.4 | 0.05~0.20 | 0.70~2.00 | | |
| **CPGT-HMP**  Medie lavorazioni | CPGT 090308-HMP | | | | | | | | | | | | | | | | | | | | | | | 8.8 | 9.525 | 3.18 | 0.8 | 4.4 | 0.05~0.20 | 0.70~2.00 | SCLPR/L (Bareno) | B108 |
| **CPMT-VF** Neu  Finitura | CPMT 080204-VF | | | | | | | | | | | | | | | | | | | | | | | 7.6 | 7.94 | 2.38 | 0.4 | 3.4 | 0.05~0.20 | 0.3~1.2 | SCLPR/L | B108 |
| | 080208-VF | | | | | | | | | | | | | | | | | | | | | | | 7.6 | 7.94 | 2.38 | 0.8 | 3.4 | 0.10~0.25 | 0.3~1.2 | | |
| | 090304-VF | ● | ● | | | | | | | ● | | | | | | ○ | ○ | | | | | | | 9.2 | 9.525 | 3.18 | 0.4 | 4.4 | 0.05~0.20 | 0.3~1.5 | | |
| | 090308-VF | ● | ● | | | | | | | ● | | | | | | | | | | | | | | 8.8 | 9.525 | 3.18 | 0.8 | 4.4 | 0.10~0.25 | 0.3~1.5 | | |

• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15
Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

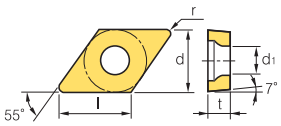
● : Disponibile ○ : A richiesta

# DC○○ 55° Positivo Angolo di spoglia : 7°

Pezzo lavorato

| | |
|---|---|
| Acciaio | P |
| Acciaio inossidabile | M |
| Ghisa | K |
| Materiali non ferrosi | N |
| Leghe resistenti al calore, lega di titanio | S |
| Materiali temprati | H |

Applicazioni
- ● Taglio continuo
- ⬢ Uso generico
- ✱ Taglio interrotto




| Inserti | Articolo | | Rivestito | | | | | | | | | | | | | Cermet | | Rivestito | | Non rivestito | | Dimensioni (mm) | | | | | Condizioni di taglio | | Utensili applicabili | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NC3010 | NC3020 | NC3120 | NC3030 | NC500H | PC8110 | NC9020 | NC9025 | NC5330 | PC5300 | PC9030 | NC6105 | NC6110 | NC315K | CN1000 | CN2000 | CN20 | CC105 | CC115 | H01 | G10 | l | d | t | r | $d_1$ | fn | ap | Articolo | Pag. |
| DCGT-C05 | DCGT | 070202-C05 | | | | | | | | | | | | | | | ● | ● | | | | | | 7.5 | 6.35 | 2.38 | 0.2 | 2.8 | 0.06~0.11 | 0.06~1.50 | SDACR/L | B87 |
| | | 070204-C05 | | | | | | | | | | | | | | | ● | ● | | | | | | 7.3 | 6.35 | 2.38 | 0.4 | 2.8 | 0.05~0.17 | 0.08~1.50 | SDJCR/L | B88 |
| | | 11T302-C05 | | | | | | | | | | | | | | | ● | ● | | | | | | 11.4 | 9.525 | 3.97 | 0.2 | 4.4 | 0.04~0.15 | 0.08~2.00 | SDNCN | B88 |
| | | 11T304-C05 | | | | | | | | | | | | | | | ● | ● | ● | | | | | 11.2 | 9.525 | 3.97 | 0.4 | 4.4 | 0.06~0.23 | 0.10~2.00 | SDQCR/L | B109 |
| Finitura | | 11T308-C05 | | | | | | | | | | | | | | | ● | ● | | | | | | 10.8 | 9.525 | 3.97 | 0.8 | 4.4 | 0.08~0.30 | 0.20~2.00 | SDUCR/L | B109 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SDZCR/L | B109 |
| DCGT-HFP | DCGT | 070202-HFP | | | | | | | | | | | | | | | | | | | | | | 7.5 | 6.35 | 2.38 | 0.2 | 2.8 | 0.03~0.10 | 0.06~1.00 | SDACR/L | B87 |
| | | 070204-HFP | | ● | ● | | | | | | | | | | | | | | | | | | | 7.3 | 6.35 | 2.38 | 0.4 | 2.8 | 0.05~0.12 | 0.08~1.00 | SDJCR/L | B88 |
| | | 070208-HFP | | | | | | | | | | | | | | | | | | | | | | 6.8 | 6.35 | 2.38 | 0.8 | 2.8 | 0.06~0.12 | 0.10~1.00 | SDNCN | B88 |
| | | 11T301-HFP | | | | | | | | | | | | | | | | | | | | | | 11.5 | 9.525 | 3.97 | 0.1 | 4.4 | 0.03~0.13 | 0.06~1.00 | SDQCR/L | B109 |
| | | 11T302-HFP | | | | | | | | | | | | | | | | | ● | | | | | 11.4 | 9.525 | 3.97 | 0.2 | 4.4 | 0.04~0.15 | 0.08~1.50 | SDUCR/L | B109 |
| Finitura | New | 11T304-HFP | | ● | ● | | | ○ | | | ● | ● | | | | | | | | ● | | | | 11.2 | 9.525 | 3.97 | 0.4 | 4.4 | 0.06~0.20 | 0.10~1.50 | SDZCR/L | B109 |
| | | 11T308-HFP | ● | | | | | ○ | | | ● | ● | | | | | | | | | | | | 10.8 | 9.525 | 3.97 | 0.8 | 4.4 | 0.08~0.25 | 0.20~1.50 | | |
| DCGT-KF | DCGT | 0702003R-KF | | | | | | | | | | | | | | | | | | | | | | 7.8 | 6.35 | 2.38 | 0.03 | 2.8 | 0.01~0.06 | 0.04~1.30 | SDJCR/L | B88 |
| | | 070201R-KF | | | | | | | | | | | ● | | | | | | | | | | | 7.8 | 6.35 | 2.38 | 0.1 | 2.8 | 0.02~0.08 | 0.05~1.50 | SDNCN | B88 |
| | | 070202R-KF | | | | | | | | | | | ● | | | | | | | | | | | 7.8 | 6.35 | 2.38 | 0.2 | 2.8 | 0.03~0.11 | 0.06~1.50 | | |
| | | 11T3003R-KF | | | | | | | | | | | | | | | | | | | | | | 11.6 | 9.525 | 3.97 | 0.03 | 4.4 | 0.02~0.08 | 0.05~1.50 | | |
| | | 11T301R-KF | | | | | | | | | | | ● | | | | | | | | | | | 11.6 | 9.525 | 3.97 | 0.1 | 4.4 | 0.03~0.11 | 0.06~1.70 | | |
| | | 11T302R-KF | | | | | | | | | | | ● | | | | | | | | | | | 11.6 | 9.525 | 3.97 | 0.2 | 4.4 | 0.04~0.15 | 0.08~2.00 | | |
| | | 0702003L-KF | | | | | | | | | | | | | | | | | | | | | | 7.8 | 6.35 | 2.38 | 0.03 | 2.8 | 0.01~0.06 | 0.04~1.30 | | |
| | | 070201L-KF | | | | | | | | | | | | | | | | | | | | | | 7.8 | 6.35 | 2.38 | 0.1 | 2.8 | 0.02~0.08 | 0.05~1.50 | | |
| | | 070202L-KF | | | | | | | | | | | | | | | | | | | | | | 7.8 | 6.35 | 2.38 | 0.2 | 2.8 | 0.03~0.11 | 0.06~1.50 | | |
| | | 11T3003L-KF | | | | | | | | | | | | | | | | | | | | | | 11.6 | 9.525 | 3.97 | 0.03 | 4.4 | 0.02~0.08 | 0.05~1.50 | | |
| | | 11T301L-KF | | | | | | | | | | | | | | | | | | | | | | 11.6 | 9.525 | 3.97 | 0.1 | 4.4 | 0.03~0.11 | 0.06~1.70 | | |
| Finitura (Auto Tool) | | 11T302L-KF | | | | | | | | | | | | | | | | | | | | | | 11.6 | 9.525 | 3.97 | 0.2 | 4.4 | 0.04~0.15 | 0.08~2.00 | | |
| DCGT-KM | DCGT | 0702003R-KM | | | | | | | | | | | | | | | | | | | | | | 7.8 | 6.35 | 2.38 | 0.03 | 2.8 | 0.01~0.06 | 0.04~1.30 | SDJCR/L | B88 |
| | | 070201R-KM | | | | | | | | | | | ● | | | | | | | | | | | 7.8 | 6.35 | 2.38 | 0.1 | 2.8 | 0.02~0.08 | 0.05~1.50 | SDNCN | B88 |
| | | 070202R-KM | | | | | | | | | | | ● | | | | | | | | | | | 7.8 | 6.35 | 2.38 | 0.2 | 2.8 | 0.03~0.11 | 0.06~1.50 | | |
| | | 11T3003R-KM | | | | | | | | | | | | | | | | | | | | | | 11.6 | 9.525 | 3.97 | 0.03 | 4.4 | 0.02~0.08 | 0.05~1.50 | | |
| | | 11T301R-KM | | | | | | | | | | | ● | | | | | | | | | | | 11.6 | 9.525 | 3.97 | 0.1 | 4.4 | 0.03~0.11 | 0.06~1.70 | | |
| | | 11T302R-KM | | | | | | | | | | | ● | | | | | | | | | | | 11.6 | 9.525 | 3.97 | 0.2 | 4.4 | 0.04~0.15 | 0.08~2.00 | | |
| | | 0702003L-KM | | | | | | | | | | | | | | | | | | | | | | 7.8 | 6.35 | 2.38 | 0.03 | 2.8 | 0.01~0.06 | 0.04~1.30 | | |
| | | 070201L-KM | | | | | | | | | | | | | | | | | | | | | | 7.8 | 6.35 | 2.38 | 0.1 | 2.8 | 0.02~0.08 | 0.05~1.50 | | |
| | | 070202L-KM | | | | | | | | | | | | | | | | | | | | | | 7.8 | 6.35 | 2.38 | 0.2 | 2.8 | 0.03~0.11 | 0.06~1.50 | | |
| | | 11T3003L-KM | | | | | | | | | | | | | | | | | | | | | | 11.6 | 9.525 | 3.97 | 0.03 | 4.4 | 0.02~0.08 | 0.05~1.50 | | |
| | | 11T301L-KM | | | | | | | | | | | | | | | | | | | | | | 11.6 | 9.525 | 3.97 | 0.1 | 4.4 | 0.03~0.11 | 0.06~1.70 | | |
| Medie lavorazioni – finitura (Auto Tool) | | 11T302L-KM | | | | | | | | | | | | | | | | | | | | | | 11.6 | 9.525 | 3.97 | 0.2 | 4.4 | 0.04~0.15 | 0.08~2.00 | | |
| DCMT-C25 | DCMT | 070202-C25 | | | | | | | | | | | | | | | ● | ● | | | | | | 7.5 | 6.35 | 2.38 | 0.2 | 2.8 | 0.03~0.15 | 0.30~2.00 | SDACR/L | B87 |
| | | 070204-C25 | | ● | ● | ● | | | | | ● | | ● | | | | ● | ● | | | | | | 7.3 | 6.35 | 2.38 | 0.4 | 2.8 | 0.05~0.20 | 0.50~2.50 | SDJCR/L | B88 |
| | | 070208-C25 | | ● | ● | ● | | | | | | | | | | | | | | | | | | 6.8 | 6.35 | 2.38 | 0.8 | 2.8 | 0.06~0.25 | 0.80~2.50 | SDNCN | B88 |
| | | 11T302-C25 | | | | | | | | | | | | | | | ● | ● | | | | | | 11.3 | 9.525 | 3.97 | 0.2 | 4.4 | 0.04~0.25 | 0.50~2.50 | SDQCR/L | B109 |
| | | 11T304-C25 | ● | ● | ● | ● | | | ● | | ● | | ● | | ● | | ● | ● | ● | | | | | 11.2 | 9.525 | 3.97 | 0.4 | 4.4 | 0.08~0.30 | 0.80~3.00 | SDUCR | B109 |
| Medie lavorazioni | | 11T308-C25 | ● | ● | ● | ● | | | ● | | ● | | ● | | ● | ● | ● | ● | ● | | | | | 10.8 | 9.525 | 3.97 | 0.8 | 4.4 | 0.10~0.30 | 1.00~3.00 | SDZCR/L | B109 |
| DCMT-HFP | DCMT | 070202-HFP | | | ● | | | | | | ● | | | | | | | | | | | | | 7.5 | 6.35 | 2.38 | 0.2 | 2.8 | 0.03~0.10 | 0.06~1.00 | SDACR/L | B87 |
| | | 070204-HFP | | | ● | | | | | | | | | | | | | | | | | | | 7.3 | 6.35 | 2.38 | 0.4 | 2.8 | 0.05~0.12 | 0.08~1.00 | SDJCR/L | B88 |
| | | 070208-HFP | | | | | | | | | | | | | | | | | | | | | | 6.8 | 6.35 | 2.38 | 0.8 | 2.8 | 0.06~0.12 | 0.10~1.00 | SDNCN | B88 |
| | New | 11T301-HFP | | | | | | | | | | | | | | | | | | | | | | 11.5 | 9.525 | 3.97 | 0.1 | 4.4 | 0.03~0.13 | 0.06~1.00 | SDQCR/L | B109 |
| | | 11T302-HFP | | | ● | | | | | | ● | | | | | | | | | | | | | 11.4 | 9.525 | 3.97 | 0.2 | 4.4 | 0.04~0.15 | 0.08~1.50 | SDUCR | B109 |
| Finitura | | 11T304-HFP | | | ● | | | ○ | | | | ○ | | | | | | | | | | | | 11.2 | 9.525 | 3.97 | 0.4 | 4.4 | 0.06~0.20 | 0.10~1.50 | SDZCR/L | B109 |
| | | 11T308-HFP | | | | | | ○ | | | | ○ | | | | | | | | | | | | 10.8 | 9.525 | 3.97 | 0.8 | 4.4 | 0.08~0.25 | 0.20~1.50 | | |
| DCMT-HMP | DCMT | 070202-HMP | ● | ● | ● | ● | | | | | | | | | | | | | | | | | | 7.5 | 6.35 | 2.38 | 0.2 | 2.8 | 0.03~0.12 | 0.10~1.50 | SDACR/L | B87 |
| | | 070204-HMP | ● | ● | ● | ● | | ● | ● | | ● | | ● | | ● | | ● | ● | | | | | | 7.3 | 6.35 | 2.38 | 0.4 | 2.8 | 0.06~0.17 | 0.20~2.30 | SDJCR/L | B88 |
| | | 070208-HMP | ● | ● | ● | ● | | | | | ● | | | | | | | | | | | | | 6.8 | 6.35 | 2.38 | 0.8 | 2.8 | 0.08~0.23 | 0.40~2.30 | SDNCN | B88 |
| | | 11T302-HMP | ● | ● | ● | ● | | ● | ● | | ● | | ● | | | | | | | | | | | 11.4 | 9.525 | 3.97 | 0.2 | 4.4 | 0.04~0.22 | 0.10~2.00 | SDQCR/L | B109 |
| | | 11T304-HMP | ● | ● | ● | ● | | ● | ● | | ● | ● | ● | ● | ● | ● | ● | ● | | | ● | | | 11.2 | 9.525 | 3.97 | 0.4 | 4.4 | 0.08~0.23 | 0.30~3.00 | SDUCR/L | B109 |
| Medie lavorazioni | | 11T308-HMP | ● | ● | ● | ● | | ● | ● | | ● | ● | ● | | ● | ● | ● | ● | | | | | | 10.8 | 9.525 | 3.97 | 0.8 | 4.4 | 0.10~0.30 | 0.50~3.00 | SDZCR/L | B109 |
| DCMT-VF | DCMT | 070202-VF | | | | | | | | | ● | | | | | | | | | | | | | 7.5 | 6.35 | 2.38 | 0.2 | 2.8 | 0.03~0.10 | 0.06~1.0 | SDACR/L | B87 |
| | New | 070204-VF | | | | | | | | | ● | | | | | | ● | ● | | | | | | 7.3 | 6.35 | 2.38 | 0.4 | 2.8 | 0.05~0.20 | 0.3~1.2 | SDJCR/L | B88 |
| | | 11T302-VF | ○ | ○ | | | | | | | ● | | | | | | | | | | | | | 11.4 | 9.525 | 3.97 | 0.2 | 4.4 | 0.04~0.15 | 0.08~1.5 | SDNCN | B88 |
| | | 11T304-VF | ○ | ○ | | | | | | | ● | ● | | | | | ● | ● | | | | | | 11.2 | 9.525 | 3.97 | 0.4 | 4.4 | 0.05~0.20 | 0.3~1.5 | SDQCR/L | B109 |
| Finitura | | 11T308-VF | | | | | | | | | ● | ● | | | | | | | | | | | | 10.8 | 9.525 | 3.18 | 0.8 | 4.4 | 0.10~0.25 | 0.3~1.5 | SDUCR/L | B109 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SDZCR/L | B109 |

• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15

● : Disponibile ○ : A richiesta

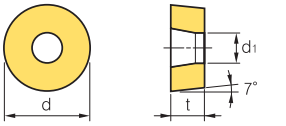
Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

# B Inserti di tornitura (Positivo)

## RC○○ R° Positivo Angolo di spoglia : 7°

Pezzo lavorato: Acciaio P, Acciaio inossidabile M, Ghisa K, Materiali non ferrosi N, Leghe resistenti al calore, lega di titanio S, Materiali temprati H

Applicazioni
● Taglio continuo
Uso generico
Taglio interrotto




| Inserti | Articolo | Rivestito NC3010 | NC3020 | NC3120 | NC3030 | NC500H | PC8110 | NC9020 | NC9025 | NC5330 | PC5300 | PC9030 | NC6105 | NC6110 | NC315K | Cermet CN1000 | CN2000 | CN20 | Rivestito CC105 | CC115 | Non rivestito ST30A | H01 | G10 | d | t | d1 | fn | ap | Utensili applicabili Articolo | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **RCMX**  Media sgrossatura | **RCMX 1003M0** | | ● | ● | ● | | | ● | | ● | | | | ● | ● | | | | | | | | | 10.0 | 3.18 | 3.6 | 0.25~0.50 | 1.50~4.00 | PRDCN PRGCR/L | **B71** **B71** |
| | **1204M0** | | ● | ● | ● | | | | | ● | | | | ● | ● | | | | | | | | | 12.0 | 4.76 | 4.2 | 0.30~0.60 | 2.50~5.00 | | |
| | **1606M0** | | ● | ● | ● | | | | | ● | | | | ● | | | | | | | | | | 16.0 | 6.35 | 5.2 | 0.40~0.70 | 3.00~7.00 | | |
| | **2006M0** | ● | ● | ● | ● | ● | | | | | | | | ● | | | | | | | | | | 20.0 | 6.35 | 6.5 | 0.48~0.90 | 3.50~9.00 | | |
| | **2507M0** | | ● | ● | ● | ● | | | | | | | | ● | | | | | | | | | | 25.0 | 7.94 | 7.25 | 0.55~1.20 | 4.00~12.00 | | |
| | **3209M0** | | | | ● | | | | | | | | | ● | | | | | | | | | | 32.0 | 9.52 | 9.55 | 0.65~1.50 | 5.00~15.00 | | |

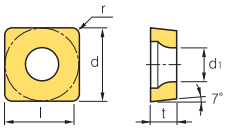
• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15
Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

● : Disponibile ○ : A richiesta

## SC○○ 90° Positivo Angolo di spoglia : 7°

Pezzo lavorato: Acciaio P, Acciaio inossidabile M, Ghisa K, Materiali non ferrosi N, Leghe resistenti al calore, lega di titanio S, Materiali temprati H

Applicazioni
● Taglio continuo
Uso generico
Taglio interrotto




| Inserti | Articolo | Rivestito NC3010 | NC3020 | NC3120 | NC3030 | NC500H | PC8110 | NC9020 | NC9025 | NC5330 | PC9030 | PC5300 | NC6105 | NC6110 | NC315K | Cermet CN1000 | CN2000 | CN20 | Rivestito CC105 | CC115 | Non rivestito ST30A | H01 | G10 | l | d | t | r | d1 | fn | ap | Utensili applicabili Articolo | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SCGT-C05**  Finitura | **SCGT 09T304-C05** | | | | | | | | | | | | | | | | | | | | | | | 9.1 | 9.525 | 3.97 | 0.4 | 4.4 | 0.11~0.23 | 0.10~2.00 | SSBCR/L | **B89** |
| | **09T308-C05** | | | | | | | | | | | | | | | | | | | | | | | 8.7 | 9.525 | 3.97 | 0.8 | 4.4 | 0.08~0.30 | 0.20~2.00 | SSDCN | **B89** |
| | **120408-C05** | | | | | | | | | | | | | | | | | | | | | | | 11.9 | 12.7 | 4.76 | 0.8 | 5.5 | 0.08~0.33 | 0.20~2.00 | SSKCR/L | **B90** |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SSSCR/L | **B90** |
| **SCGT-HFP**  Finitura | **SCGT 09T304-HFP** | ● | | | | | | | | | | | | | | | | | | | | | | 9.1 | 9.525 | 3.97 | 0.4 | 4.4 | 0.05~0.25 | 0.10~1.50 | SSBCR/L | **B89** |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SSDCN | **B89** |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SSKCR/L | **B90** |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SSSCR/L | **B90** |
| **SCMT-C25**  Medie lavorazioni | **SCMT 060204-C25** | | | | ● | | | | | | | | | | | | | | | | | | | 5.9 | 6.35 | 2.38 | 0.4 | 2.8 | 0.08~0.25 | 0.40~2.50 | SSBCR/L | **B89** |
| | **09T304-C25** | | ● | ● | ● | | | | | ● | | | | ● | | ● | ● | ● | | | | | | 9.1 | 9.525 | 3.97 | 0.4 | 4.4 | 0.08~0.25 | 0.60~3.00 | SSDCN | **B89** |
| | **09T308-C25** | ● | ● | ● | ● | | | | | ● | | | | ● | | ● | ● | ● | | | | | | 8.7 | 9.525 | 3.97 | 0.8 | 4.4 | 0.10~0.30 | 1.00~3.00 | SSKCR/L | **B90** |
| | **120404-C25** | | ● | ● | | | | | | ● | ● | | | | | ● | ● | | | | | | | 12.3 | 12.7 | 4.76 | 0.4 | 5.5 | 0.10~0.30 | 0.80~3.80 | SSSCR/L | **B90** |
| | **120408-C25** | ● | ● | ● | ● | | | | | | ● | | | ● | | ● | ● | | | | | | | 11.9 | 12.7 | 4.76 | 0.8 | 5.5 | 0.12~0.38 | 1.20~3.80 | | |
| **SCMT-HFP**  Finitura | **SCMT 09T304-HFP** | ● | | | | | | | | | | | | | | | | | | | | | | 9.1 | 9.525 | 3.97 | 0.4 | 4.4 | 0.05~0.25 | 0.10~1.50 | SSBCR/L | **B89** |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SSDCN | **B89** |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SSKCR/L | **B90** |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SSSCR/L | **B90** |
| **SCMT-HMP**  Medie lavorazioni | **SCMT 09T304-HMP** | ● | ● | ● | ● | | | | | | | ● | | ● | ● | ● | ● | | | | | | | 9.1 | 9.525 | 3.97 | 0.4 | 4.4 | 0.08~0.23 | 0.30~3.00 | SSBCR/L | **B89** |
| | **09T308-HMP** | ● | ● | ● | ● | | | | | ● | | ● | | ● | | | | | | | | | | 8.7 | 9.525 | 3.97 | 0.8 | 4.4 | 0.10~0.30 | 0.50~3.00 | SSDCN | **B89** |
| | **120404-HMP** | ● | | | | | | | | | | | | | | | | | | | | | | 12.3 | 12.7 | 4.76 | 0.4 | 5.5 | 0.09~0.27 | 0.30~3.60 | SSKCR/L | **B90** |
| | **120408-HMP** | ● | ● | ● | ● | | | | | | | ● | | ● | ● | | | | | | | | | 11.9 | 12.7 | 4.76 | 0.8 | 5.5 | 0.12~0.36 | 0.60~3.60 | SSSCR/L | **B90** |
| **SCMT-VF**  Finitura | **SCMT 09T304-VF** | | | | | | | | | | | ● | | | | ○ | ○ | | | | | | | 9.1 | 9.525 | 3.97 | 0.4 | 4.4 | 0.05~0.20 | 0.3~1.5 | SSBCR/L | **B89** |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SSDCN | **B89** |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SSKCR/L | **B90** |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SSSCR/L | **B90** |

New

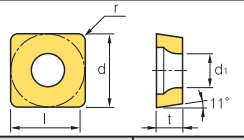
• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15
Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

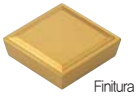
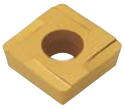
● : Disponibile ○ : A richiesta

# SP○○ 90° Positivo Angolo di spoglia : 11°

| Pezzo lavorato | | |
|---|---|---|
| | Acciaio | P |
| | Acciaio inossidabile | M |
| | Ghisa | K |
| | Materiali non ferrosi | N |
| | Leghe resistenti al calore, lega di titanio | S |
| | Materiali temprati | H |

Applicazioni
● Taglio continuo
Uso generico
Taglio interrotto




| Inserti | Articolo | | Rivestito | | | | | | | | | | | | Cermet | | | Rivestito | | Non rivestito | | | | Dimensioni (mm) | | | | | Condizioni di taglio | | Utensili applicabili | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NC3010 | NC3020 | NC3120 | NC3030 | PC6510 | PC8110 | NC9020 | NC9025 | NC5330 | PC5300 | PC9030 | NC6110 | NC315K | CN1000 | CN2000 | CN20 | CC105 | CC115 | ST30A | ST30N | ST20 | G10 | l | d | t | r | $d_1$ | fn | ap | Articolo | Pag. |
| **SPGA** | **SPGA** | **060204** | | | | | | | | | | | | | | | | | | | | | | | 5.9 | 6.35 | 2.38 | 0.4 | 2.8 | 0.50~0.25 | 0.50~2.00 | | |
|  | | **090308T** | | | | | | | | | | | | | | ● | ● | | | | | | | | 8.7 | 9.525 | 3.18 | C0.8 | 4.5 | 0.10~0.25 | 0.70~3.00 | | |
| | | **090308T-Z** | | | | | | | | | | | | | | ● | ● | | | | | | | | 8.7 | 9.525 | 3.18 | 0.8 | 3.4 | 0.10~0.25 | 0.70~3.00 | - | |
| Medie lavorazioni – finitura | (Z=negativo speciale) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | - |
| **SPGN** | **SPGN** | **070202** | | | | | | | | | | | | | | | | | | | | | | | 7.7 | 7.94 | 2.38 | 0.2 | - | 0.03~0.10 | 0.50~2.00 | | |
| | | **070208** | | | | | | | | | | | | | | | | | | | | | | | 7.8 | 7.94 | 2.38 | 0.8 | - | 0.10~0.25 | 0.70~3.00 | | |
| | | **090302** | | | | | | | | | | | | | | | | | | | | | | | 9.3 | 9.525 | 3.18 | 0.2 | | 0.03~0.10 | 0.50~3.00 | | |
| | | **090304** | | | | | | | | | | | | | | | | | | | | | | | 9.1 | 9.525 | 3.18 | 0.4 | - | 0.08~0.20 | 0.70~3.50 | | |
| | | **090308** | | | | | ● | | | | | | | | | | | | | | | | ● | | 8.7 | 9.525 | 3.18 | 0.8 | - | 0.10~0.25 | 0.70~3.50 | | |
| | | **120302** | | | | | | | | | | | | | | | | | | | | | | | 12.5 | 12.7 | 3.18 | 0.2 | - | 0.03~0.20 | 0.50~3.00 | | |
| | | **120304** | | | | | | | | | | | | | | | | | | | | | | | 12.3 | 12.7 | 3.18 | 0.4 | - | 0.08~0.20 | 1.00~5.00 | | |
| | | **120308** | ● | | ● | | | | | | | | | | | | | | | | ● | | ● | | 11.9 | 12.7 | 3.18 | 0.8 | - | 0.10~0.25 | 1.00~5.00 | | |
| | | **120312** | | | | | | | | | | | | | ● | | | | | | | | ● | | 11.5 | 12.7 | 3.18 | 1.2 | - | 0.15~0.30 | 1.00~5.00 | | |
| | | **120316** | | | | | | | | | | | | | | | | | | | | | | | 11.1 | 12.7 | 3.18 | 1.6 | - | 0.18~0.33 | 1.00~5.00 | | |
| | | **120402** | | | | | | | | | | | | | | | | | | | | | | | 12.5 | 12.7 | 4.76 | 0.2 | - | 0.03~0.20 | 0.50~3.00 | | |
| | | **120404** | | | | | | | | | | | | | | | | | | | | | | | 12.3 | 12.7 | 4.76 | 0.4 | - | 0.08~0.20 | 1.00~5.00 | | |
| | | **120408** | | | | | | | | | | | | | | | | | | | | | ○ | | 11.9 | 12.7 | 4.76 | 0.8 | - | 0.10~0.25 | 1.00~5.00 | | |
| | | **120412** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | - | |
| | | **120416** | | | | | | | | | | | | | | | | | | | | | | | 11.1 | 12.7 | 4.76 | 1.6 | - | 0.18~0.33 | 1.00~5.00 | | |
| | | **120430** | | | | | | | | | | | | | | | | | | | | | | | 9.7 | 12.7 | 4.76 | 3.0 | - | 0.20~0.60 | 2.00~5.00 | | |
| | | **120440** | | | | | | | | | | | | | | | | | | | | | | | 8.7 | 12.7 | 4.76 | 4.0 | - | 0.25~0.70 | 3.00~5.00 | | |
| | | **150404** | | | | | | | | | | | | | | | | | | | | | | | 15.5 | 15.875 | 4.76 | 0.4 | - | 0.08~0.20 | 1.50~7.00 | | |
| | | **150408** | | | | | | | | | | | | | | | | | | | | | | | 15.0 | 15.875 | 4.76 | 0.8 | - | 0.10~0.25 | 1.50~7.00 | | |
| | | **150412** | | | | | | | | | | | | | | | | | | | | | | | 14.8 | 15.875 | 4.76 | 1.2 | - | 0.15~0.30 | 1.50~7.00 | | |
| | | **150416** | | | | | | | | | | | | | | | | | | | | | | | 14.2 | 15.875 | 4.76 | 1.6 | - | 0.18~0.33 | 1.50~7.00 | | |
| | | **150420** | | | | | | | | | | | | | | | | | | | | | | | 13.9 | 15.875 | 4.76 | 2.0 | - | 0.20~0.45 | 1.50~7.00 | | |
| | | **190404** | | | | | | | | | | | | | | | | | | | | | | | 18.7 | 19.05 | 4.76 | 0.4 | - | 0.08~0.20 | 1.50~9.00 | | |
| | | **190408** | | | | | | | | | | | | | | | | | | | | | ● | | 18.3 | 19.05 | 4.76 | 0.8 | - | 0.10~0.25 | 1.50~9.00 | | |
| | | **190412** | | | | | | | | | | | | | | | | | | | | ● | | | 17.8 | 19.05 | 4.76 | 1.2 | - | 0.15~0.45 | 1.50~9.00 | | |
| | | **190416** | | | | | | | | | | | | | | | | | | | | | ● | | 17.4 | 19.05 | 4.76 | 1.6 | - | 0.18~0.60 | 1.50~9.00 | | |
| | | **190424** | | | | | | | | | | | | | | | | | | | | | | | 16.7 | 19.05 | 4.76 | 2.4 | | 0.25~0.70 | 2.50~9.00 | | |
| Medie lavorazioni – finitura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **SPGR-F** | **SPGR** | **090304-F** | | | | | | | | | | | | | | | | | | | | | | | 9.1 | 9.525 | 3.18 | 0.4 | - | 0.05~0.20 | 0.30~2.00 | CSDPN | B78 |
|  | | **120304-F** | | | | | | | | | | | | | | | | | | | | | | | 12.3 | 12.7 | 3.18 | 0.4 | - | 0.10~0.25 | 0.50~2.00 | CSKPR/L | B79 |
| Finitura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **SPGR-M** | **SPGR** | **090308-M** | | | | | | | | | | | | | | | | | | | | | | | 8.7 | 9.525 | 3.18 | 0.8 | - | 0.10~0.40 | 1.00~3.50 | CSDPN | B78 |
|  | | **120308-M** | | | | | | | | | | | | | | | | | | | | | | | 11.9 | 12.7 | 3.18 | 0.8 | - | 0.20~0.40 | 1.50~4.00 | CSKPR/L | B79 |
| Medie lavorazioni | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **SPGT** | **SPGT** | **090304R** | | | | | | | | | | | | | | | | | | | | | | | 9.1 | 9.525 | 3.18 | 0.4 | 3.4 | 0.08~0.23 | 0.30~3.00 | SSKPR/L | B110 |
|  | | **090308R** | | | | | | | | | | | | | | | | | | | | | | | 8.7 | 9.525 | 3.18 | 0.8 | 3.4 | 0.10~0.30 | 0.50~3.00 | (Bareno) | |
| | | **090304L** | | | | | | | | | | | | | | | | | | | | | | | 9.1 | 9.525 | 3.18 | 0.4 | 3.4 | 0.08~0.23 | 0.30~3.00 | | |
| | | **090308L** | | | | | | | | | | | | | | | | | | | | | | | 8.7 | 9.525 | 3.18 | 0.8 | 3.4 | 0.10~0.30 | 0.50~3.00 | | |
| Medie lavorazioni – finitura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **SPGT-C05** | **SPGT** | **090304-C05** | | | | | | | | | | | | | | | | | | | | | | | 9.1 | 9.525 | 3.18 | 0.4 | 4.4 | 0.11~0.23 | 0.10~2.00 | SSKPR/L | B110 |
|  | | **090308-C05** | | | | | | | | | | | | | | | | | | | | | | | 8.7 | 9.525 | 3.18 | 0.8 | 4.4 | 0.08~0.30 | 0.20~2.00 | (Bareno) | |
| Finitura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **SPMT-VF** | **SPMT** | **090304-VF** | | | | | | | | | | | | | | | | | | | | | | | 9.1 | 9.525 | 3.18 | 0.4 | 3.4 | 0.05~0.20 | 0.3~1.5 | SSKPR/L | B110 |
|  | | **090308-VF** | | | | | | | | | | | | | | | | | | | | | | | 8.7 | 9.525 | 3.18 | 0.8 | 3.4 | 0.10~0.25 | 0.3~1.5 | (Bareno) | |
| Finitura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

New

• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15

Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

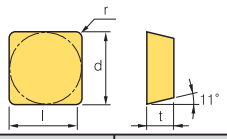
● : Disponibile ○ : A richiesta

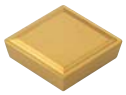
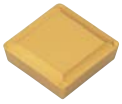
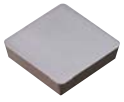
# B Inserti di tornitura (Positivo)

## SP○○ 90° Positivo Angolo di spoglia : 11°

Pezzo lavorato: Acciaio P; Acciaio inossidabile M; Ghisa K; Materiali non ferrosi N; Leghe resistenti al calore, lega di titanio S; Materiali temprati H

Applicazioni
● Taglio continuo
Uso generico
Taglio interrotto




| Inserti | Articolo | Rivestito NC3010 | NC3020 | NC3120 | NC3030 | NC500H | PC8110 | NC9020 | NC9025 | NC5330 | PC5300 | PC9030 | NC6105 | NC6110 | NC315K | Cermet CN1000 | CN2000 | Rivestito CN20 | CC105 | CC115 | Non rivestito ST30A | H01 | G10 | Dimensioni (mm) l | d | t | r | Condizioni di taglio fn | ap | Utensili applicabili Articolo | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SPMR-F**  Finitura | **SPMR 090304-F** | ● | ● | ● | | | | | | | | | | | | | | | | | | | | 9.1 | 9.525 | 3.18 | 0.4 | 0.05~0.20 | 0.30~2.00 | CSDPN | **B**78 |
| | **120304-F** | ● | ● | ● | ● | | | | | | | | | | | | | | | | | | | 12.3 | 12.7 | 3.18 | 0.4 | 0.10~0.25 | 0.50~2.00 | CSKPR/L (Bareno) | **B**105 |
| **SPMR-M**  Medie lavorazioni | **SPMR 090308-M** | ● | ● | ● | ● | | | | | | | | | | | | | | | | | | | 8.7 | 9.525 | 3.18 | 0.8 | 0.10~0.40 | 1.00~3.50 | CSDPN | **B**78 |
| | **120308-M** | ● | ● | ● | ● | | | | | | | | | | | | | | | | | | | 11.9 | 12.7 | 3.18 | 0.8 | 0.10~0.40 | 1.50~4.00 | CSKPR/L | **B**105 |
| | **120312-M** | | ● | | ● | | | | | | | | | | | | | | | | | | | 11.5 | 12.7 | 3.18 | 1.2 | 0.20~0.40 | 1.50~4.00 | (Bareno) | |
| **SPUN**  Medie lavorazioni – finitura | **SPUN 120304** | | | | | | | | | | | | | | | | ○ | | | | | | | 12.3 | 12.7 | 3.18 | 0.4 | 0.10~0.30 | 1.00~5.00 | | |
| | **120308** | | ● | ● | | | | | | | | | | | | | | | | | ● | | ● | 11.9 | 12.7 | 3.18 | 0.8 | 0.15~0.40 | 1.00~5.00 | | |
| | **150412** | | | | | | | | | | | | | | | | | | | | ● | | | 14.6 | 15.875 | 4.76 | 1.2 | 0.20~0.50 | 1.00~5.00 | | |
| | **190412** | | ● | ● | | | | | | | | | | | | | | | | | ● | | | 17.8 | 19.05 | 4.76 | 1.2 | 0.20~0.50 | 1.50~7.00 | - | - |
| | **190416** | | | | | | | | | | | | | | | | | | | | | | | 17.5 | 19.05 | 4.76 | 1.6 | 0.25~0.60 | 2.00~7.00 | | |
| | **250620** | | | | | | | | | | | | | | | | | | | | | | | 23.4 | 25.4 | 6.35 | 2.0 | 0.30~0.80 | 3.00~10.00 | | |
| | **120308SN** | | | | | | | | | | | | | | ● | | | | | | | | | 11.9 | 12.7 | 3.18 | 0.8 | 0.15~0.40 | 1.00~5.00 | | |

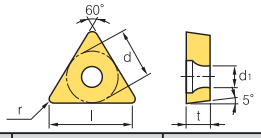
• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15
Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

● : Disponibile ○ : A richiesta

## TB○○ 60° Positivo Angolo di spoglia : 5°

Pezzo lavorato: Acciaio P; Acciaio inossidabile M; Ghisa K; Materiali non ferrosi N; Leghe resistenti al calore, lega di titanio S; Materiali temprati H

Applicazioni
● Taglio continuo
Uso generico
Taglio interrotto




| Inserti | Articolo | Rivestito NC3010 | NC3020 | NC3120 | NC3030 | NC500H | PC8110 | NC9020 | NC9025 | NC5330 | PC5300 | PC9030 | NC6105 | NC6110 | NC315K | Cermet CN1000 | CN2000 | Rivestito CN20 | CC105 | CC115 | Non rivestito U20 | H01 | G10 | Dimensioni (mm) l | d | t | r | $d_1$ | Condizioni di taglio fn | ap | Utensili applicabili Articolo | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **TBGT**  Finitura | **TBGT 060102L** | | | | | | | | | | | ● | | | | ● | ● | | | | | ● | | 6.4 | 3.97 | 1.59 | 0.2 | 2.16 | 0.05~0.20 | 0.10~1.30 | STUBR (Compact mini) | **B**118 |
| | **060104L** | | | | | | | | | | | | | | | | | | | | | | | 5.8 | 3.97 | 1.59 | 0.4 | 2.16 | 0.08~0.20 | 0.10~1.30 | | |

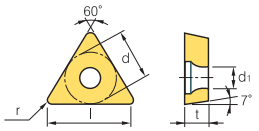
• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15
Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

● : Disponibile ○ : A richiesta

## TC○○ 60° Positivo Angolo di spoglia : 7°

| Pezzo lavorato | | |
|---|---|---|
| Acciaio | P | ● ⇕ ⇕ ✱ ⇕ ⇕ ⇕ |
| Acciaio inossidabile | M | ⇕ ● ⇕ ✱ ✱ |
| Ghisa | K | ⇕ ⇕ ⇕ ● |
| Materiali non ferrosi | N | |
| Leghe resistenti al calore, lega di titanio | S | ● ⇕ ✱ ✱ |
| Materiali temprati | H | |

Applicazioni
● Taglio continuo
⇕ Uso generico
✱ Taglio interrotto




| Inserti | Articolo | | Rivestito | | | | | | | | | | | | | | Cermet | | | Rivestito | | Non rivestito | | | Dimensioni (mm) | | | | | Condizioni di taglio | | Utensili applicabili | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NC3010 | NC3020 | NC3120 | NC3030 | NC500H | PC8110 | NC9020 | NC9025 | NC5330 | PC5300 | PC9030 | NC6105 | NC6110 | NC315K | CN1000 | CN2000 | CN20 | CC105 | CC115 | ST30A | H01 | G10 | l | d | t | r | d1 | fn | ap | Articolo | Pag. |
| **TCGT-C05** | TCGT | 090204-C05 | | | | | | | | | | | | | | | | | | | | | | | 8.6 | 5.56 | 2.38 | 0.4 | 2.5 | 0.05~0.19 | 0.10~1.70 | STACR/L | B90 |
| | | 110204-C05 | | | | | | | | | | | | | | | | | | | | | | | 9.0 | 6.35 | 2.38 | 0.8 | 2.8 | 0.08~0.22 | 0.10~1.70 | STFCR/L | B90 |
| | | 110208-C05 | | | | | | | | | | | | | | | | | | | | | | | 9.0 | 6.25 | 2.38 | 0.4 | 2.8 | 0.08~0.23 | 0.10~1.70 | STGCR/L | B91 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | STTCR/L | B91 |
| Finitura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **TCGT-HFP** | TCGT | 090204-HFP | | | | | | | | | | | | | | | | | | | | | | | 8.6 | 5.56 | 2.38 | 0.4 | 2.5 | 0.05~0.19 | 0.10~1.70 | STACR/L | B90 |
| | | 110202-HFP | | | | | | | | | | | | | | | | | | | | | | | 10.5 | 6.35 | 2.38 | 0.2 | 2.8 | 0.03~0.13 | 0.06~1.70 | STFCR/L | B90 |
| | | 110204-HFP | | | | | | | | | | | | | | | | | | | | | | | 10.0 | 6.35 | 2.38 | 0.4 | 2.8 | 0.05~0.19 | 0.10~1.70 | STGCR/L | B91 |
| | | 16T304-HFP | | ● | ● | | | | | | ● | | | | | | | | | | | | | | 15.5 | 9.525 | 3.97 | 0.4 | 4.4 | 0.07~0.26 | 0.10~1.70 | STTCR/L | B91 |
| Finitura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **TCGT-KF** | TCGT | 0802003R-KF | | | | | | | | | | | | | | | | | | | | | | | 8.2 | 4.76 | 2.38 | 0.03 | 2.3 | 0.01~0.06 | 0.04~1.30 | STACR/L | B90 |
| | | 080201R-KF | | | | | | | | | | | | | | | | | | | | | | | 8.0 | 4.76 | 2.38 | 0.1 | 2.3 | 0.02~0.08 | 0.05~1.50 | | |
| | | 080202R-KF | | | | | | | | | | | | | | | | | | | | | | | 7.7 | 4.76 | 2.38 | 0.2 | 2.3 | 0.03~0.11 | 0.06~1.70 | | |
| | | 0802003L-KF | | | | | | | | | | | | | | | | | | | | | | | 8.2 | 4.76 | 2.38 | 0.03 | 2.3 | 0.01~0.06 | 0.04~1.30 | STACR/L | B90 |
| | | 080201L-KF | | | | | | | | | | | | | | | | | | | | | | | 8.0 | 4.76 | 2.38 | 0.1 | 2.3 | 0.02~0.08 | 0.05~1.50 | | |
| Finitura (Auto tool) | | 080202L-KF | | | | | | | | | | | | | | | | | | | | | | | 7.7 | 4.76 | 2.38 | 0.2 | 2.3 | 0.03~0.11 | 0.06~1.70 | | |
| **TCMT-C25** | TCMT | 090204-C25 | ● | ● | ● | ● | | | | | ● | | | | ● | | | | | | | | | | 8.6 | 5.56 | 2.38 | 0.4 | 2.5 | 0.06~0.18 | 0.40~2.50 | STACR/L | B90 |
| | | 090208-C25 | ● | ● | ● | | | | | | ● | | | | ● | | | | | | | | | | 7.6 | 5.56 | 2.38 | 0.8 | 2.5 | 0.08~0.25 | 0.80~2.50 | STFCR/L | B90 |
| | | 110202-C25 | | ● | ● | | | | | | | | | | | | | | | | | | | | 10.5 | 6.35 | 2.38 | 0.2 | 2.8 | 0.04~0.12 | 0.40~2.00 | STGCR/L | B91 |
| | | 110204-C25 | ● | ● | ● | ● | | | | | ● | | | | ● | | ● | ● | ● | | | | | | 10.0 | 6.35 | 2.38 | 0.4 | 2.8 | 0.06~0.20 | 0.60~2.50 | STTCR/L | B91 |
| | | 110208-C25 | ● | ● | ● | ● | | ● | | | ● | | ● | | ● | | ● | ● | | | | | | | 9.0 | 6.35 | 2.38 | 0.8 | 2.8 | 0.08~0.25 | 0.80~2.50 | | |
| Sgrossatura | | 16T304-C25 | ● | ● | ● | ● | | ● | | | ● | | ● | | ● | | ● | ● | ● | | | | | | 15.5 | 9.525 | 3.97 | 0.4 | 4.4 | 0.08~0.28 | 0.80~3.00 | | |
| | | 16T308-C25 | ● | ● | ● | ● | | ● | | | ● | | ● | | ● | | ● | ● | ● | | | | | | 14.5 | 9.525 | 3.97 | 0.8 | 4.4 | 0.10~0.30 | 1.00~3.00 | | |
| **TCMT-HFP** | TCMT | 090204-HFP | | | | | | | | | | | | | | | | | | | | | | | 8.6 | 5.56 | 2.38 | 0.4 | 2.5 | 0.05~0.19 | 0.10~1.70 | STACR/L | B90 |
| | | 110202-HFP | | | | | | | | | | | | | | | | | | | | | | | 7.6 | 6.35 | 2.38 | 0.2 | 2.8 | 0.03~0.13 | 0.06~1.70 | STFCR/L | B90 |
| | | 110204-HFP | | | | | | | | | ● | | | | | | | | | | | | | | 10.0 | 6.35 | 2.38 | 0.4 | 2.8 | 0.05~0.19 | 0.10~1.70 | STGCR/L | B91 |
| | Neu | 16T302-HFP | | | | | | | | | | | | | | | | | | | | | | | 15.5 | 9.525 | 3.97 | 0.2 | 4.4 | 0.03~0.13 | 0.06~1.70 | STTCR/L | B91 |
| Finitura | | 16T304-HFP | | | ● | | | | | | | | | | | | | | | | | | | | 15.5 | 9.525 | 3.97 | 0.4 | 4.4 | 0.07~0.26 | 0.10~1.70 | | |
| **TCMT-HMP** | TCMT | 090204-HMP | | | ● | | | | | | | | | | | | | | | | | | | | 8.6 | 5.56 | 2.38 | 0.4 | 2.5 | 0.06~0.17 | 0.20~2.30 | STACR/L | B90 |
| | | 090208-HMP | | | | | | | | | ● | | | | | | | | | | | | | | 7.6 | 5.56 | 2.38 | 0.8 | 2.5 | 0.08~0.23 | 0.40~2.30 | STFCR/L | B90 |
| | | 110202-HMP | | | | | | | | | | | | | | | | | | | | | | | 10.5 | 6.35 | 2.38 | 0.2 | 2.8 | 0.03~0.15 | 0.10~1.50 | STGCR/L | B91 |
| | | 110204-HMP | ● | ● | ● | ● | | ● | | | ● | ● | ● | | | | ● | ● | | | | | | | 10.0 | 6.35 | 2.38 | 0.4 | 2.8 | 0.06~0.19 | 0.20~2.50 | STTCR/L | B91 |
| | | 110208-HMP | ● | ● | ● | ● | | | | | ● | ● | | | | | | | | | | | | | 9.0 | 6.35 | 2.38 | 0.8 | 2.8 | 0.09~0.26 | 0.40~2.50 | | |
| Medie lavorazioni | | 16T304-HMP | ● | ● | ● | ● | | ● | ● | | ● | ● | ● | | ● | | ● | ● | | | | | | | 15.5 | 9.525 | 3.97 | 0.4 | 4.4 | 0.08~0.23 | 0.30~3.00 | | |
| | | 16T308-HMP | ● | ● | ● | ● | | | ● | | ● | ● | ● | | ● | | ● | ● | | | | | | | 14.5 | 9.525 | 3.97 | 0.8 | 4.4 | 0.10~0.30 | 0.50~3.00 | | |
| **TCMT-VF** | TCMT | 110202-VF | | | | | | | | | | | | | | | | | | | | | | | 7.6 | 5.56 | 2.38 | 0.2 | 2.5 | 0.03~0.13 | 0.06~1.7 | STACR/L | B90 |
| | Neu | 110204-VF | | ○ | | | | | | | ● | ● | | | | | ● | ● | | | | | | | 10.0 | 6.35 | 2.38 | 0.4 | 2.8 | 0.05~0.20 | 0.3~1.2 | STFCR/L | B90 |
| | | 110208-VF | | | | | | | | | ● | ● | | | | | ● | ● | | | | | | | 9.0 | 6.35 | 2.38 | 0.8 | 2.8 | 0.10~0.25 | 0.3~1.2 | STGCR/L | B91 |
| | | 16T304-VF | | | | | | | | | ● | | | | | | ● | ● | | | | | | | 15.5 | 9.525 | 3.97 | 0.4 | 4.4 | 0.05~0.20 | 0.3~1.5 | STTCR/L | B91 |
| Finitura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

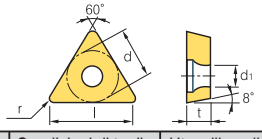
• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15
Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

● : Disponibile ○ : A richiesta

## TO○○ 60° Positivo Angolo di spoglia : 8°

| Pezzo lavorato | | |
|---|---|---|
| Acciaio | P | ● |
| Acciaio inossidabile | M | |
| Ghisa | K | ⇕ |
| Materiali non ferrosi | N | |
| Leghe resistenti al calore, lega di titanio | S | |
| Materiali temprati | H | |

Applicazioni
● Taglio continuo
⇕ Uso generico
✱ Taglio interrotto




| Inserti | Articolo | | Rivestito | | | | | | | | | | | | | | Cermet | | | Rivestito | | Non rivestito | | | Dimensioni (mm) | | | | | Condizioni di taglio | | Utensili applicabili | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NC3010 | NC3020 | NC3120 | NC3030 | NC500H | PC8110 | NC9020 | NC9025 | NC5330 | PC5300 | PC9030 | NC6105 | NC6110 | NC315K | CN1000 | CN2000 | CN20 | CC105 | CC115 | ST10 | H01 | G10 | l | d | t | r | d1 | fn | ap | Articolo | Pag. |
| **TOEH** | TOEH | 060102L | | | | | | | | | | | | | | | | | | | | ● | | ● | 6.4 | 3.97 | 1.59 | 0.2 | 2.15 | 0.05~0.17 | 0.10~1.50 | Per unità | |
| | | 090204L | | | | | | | | | | | | | | | | | | | | ● | | ● | 8.6 | 5.56 | 2.38 | 0.4 | 2.8 | 0.05~0.20 | 0.30~2.50 | FZ | |
| | | 140304L | | | | | | | | | | | | | | | | | | | | | | ● | 13.1 | 8.2 | 3.0 | 0.4 | 3.8 | 0.05~0.25 | 0.30~2.50 | | - |
| Medie lavorazioni – finitura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15
Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

● : Disponibile ○ : A richiesta

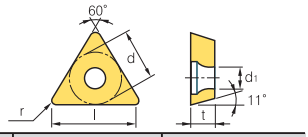
# B Inserti di tornitura (Positivo)

## TP ○○ 60° Positivo Angolo di spoglia : 11°

Pezzo lavorato

| | |
|---|---|
| Acciaio | P |
| Acciaio inossidabile | M |
| Ghisa | K |
| Materiali non ferrosi | N |
| Leghe resistenti al calore, lega di titanio | S |
| Materiali temprati | H |

Applicazioni
● Taglio continuo
Uso generico
Taglio interrotto




| Inserti | Articolo | Rivestito | | | | | | | | | | | | Cermet | | | Rivestito | Non rivestito | | | | Dimensioni (mm) | | | | | Condizioni di taglio | | Utensili applicabili | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NC3010 | NC3020 | NC3120 | NC3030 | NC500H | PC8110 | NC9020 | NC9025 | NC5330 | PC5300 | PC9030 | NC6105 | NC6110 | NC315K | CN1000 | CN2000 | CN20 | CC105 | CC115 | ST20 | ST30A | H01 | G10 | l | d | t | r | $d_1$ | fn | ap | Articolo | Pag. |
| **TPGH** | TPGH 080202L | | | | | | | | | | | | | | | ● | | | | | | | | | 7.7 | 4.76 | 2.38 | 0.2 | 2.3 | 0.01~0.12 | 0.06~1.70 | - | - |
| | 080204L | | | | | | | | | | | | | | | ● | | | | | | | | | 7.2 | 4.76 | 2.38 | 0.4 | 2.3 | 0.01~0.15 | 0.08~1.70 | | |
| | 110202L | | | | | | | | | | | ● | | | | ● | | | | | | | | | 10.5 | 6.35 | 2.38 | 0.2 | 3.4 | 0.01~0.12 | 0.06~2.00 | | |
| | 110204L | | | | | | | | | | | ● | | | | ● | | | | | | | | | 10.0 | 6.35 | 2.38 | 0.4 | 3.4 | 0.01~0.15 | 0.08~2.00 | | |
| Medie lavorazioni – finitura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **TPGN** | TPGN 090204 | | | | | | | | | | | | | | | | | | | | | | | | 8.6 | 5.56 | 2.38 | 0.4 | - | 0.07~0.20 | 0.70~2.00 | - | - |
| | 110302 | | | | | | | | | | | | | | | | | | | | | | | | 10.5 | 6.35 | 3.18 | 0.2 | - | 0.05~0.15 | 0.50~2.00 | | |
| | 110304 | | ● | ● | ● | | | | | | | | | | | | | | | | | ● | ● | ● | 10.0 | 6.35 | 3.18 | 0.4 | - | 0.07~0.20 | 0.70~3.00 | | |
| | 110308 | | | | ● | | | | | | | | | | | | | | | | | | ● | | 9.0 | 6.35 | 3.18 | 0.8 | - | 0.10~0.25 | 1.00~3.00 | | |
| | 160302 | | | | | | | | | | | | | | | | | | | | | | | | 16.0 | 9.525 | 3.18 | 0.2 | - | 0.05~0.18 | 1.00~5.00 | | |
| | 160304 | | ● | ● | ● | | | | | | | | | | | | | | | | | ● | ● | ● | 15.5 | 9.525 | 3.18 | 0.4 | - | 0.07~0.20 | 1.00~5.00 | | |
| | 160308 | ● | ● | ● | ● | | | | | ● | | | | | | | | ● | | | ● | | ● | ● | 14.5 | 9.525 | 3.18 | 0.8 | - | 0.10~0.25 | 1.00~5.00 | | |
| | 160310 | | | | | | | | | | | | | | | | | | | | | | | | 13.4 | 9.525 | 3.18 | 1.0 | - | 0.10~0.25 | 1.00~5.00 | | |
| | 160312 | | | | ● | | | | | | | | | | | | | | | | ● | ● | | | 13.5 | 9.525 | 3.18 | 1.2 | - | 0.15~0.30 | 1.00~5.00 | | |
| | 160316 | | | | ● | | | | | | | | | | | | | | | | ● | ● | | ● | 12.5 | 9.525 | 3.18 | 1.6 | - | 0.15~0.30 | 1.00~5.00 | | |
| | 160404 | | | | | | | | | | | | | | | | | | | | | | | | 15.5 | 9.525 | 4.76 | 0.4 | - | 0.07~0.20 | 1.00~5.00 | | |
| | 220404 | | | | ● | | | | | | | | | | | | | | | | | ● | | ● | 21.0 | 12.7 | 4.76 | 0.4 | - | 0.07~0.20 | 1.50~7.00 | | |
| | 220408 | | | | ● | | | | | | | | | | | | | | | | | ● | | ● | 20.0 | 12.7 | 4.76 | 0.8 | - | 0.10~0.25 | 1.50~7.00 | | |
| | 220412 | | | | ● | | | | | | | | | | | | | | | | | | | | 19.0 | 12.7 | 4.76 | 1.2 | - | 0.15~0.30 | 1.50~7.00 | | |
| | 220430 | | | | | | | | | | | | | | | | | | | | | | | ● | 14.2 | 12.7 | 4.76 | 3.0 | - | 0.30~0.45 | 1.50~7.00 | | |
| | 220440 | | | | | | | | | | | | | | | | | | | | | | | | 11.6 | 12.7 | 4.76 | 4.0 | - | 0.30~0.50 | 1.50~7.00 | | |
| | 270408 | | | | | | | | | | | | | | | | | | | | | | | | 25.4 | 15.875 | 4.76 | 0.8 | - | 0.15~0.25 | 3.00~8.00 | | |
| | 270608 | | | | | | | | | | | | | | | | | | | | | | | | 25.4 | 15.875 | 6.35 | 0.8 | - | 0.15~0.25 | 3.00~8.00 | | |
| Medie lavorazioni – finitura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **TPGR-F** | TPGR 110302-F | | | | | | | | | | | | | | | | | | | | | | | | 10.5 | 6.35 | 3.18 | 0.2 | - | 0.05~0.15 | 0.10~1.50 | CTFPR/L | B79 |
| | 110304-F | | | | | | | | | | | | | | | | | | | | | | | | 10.0 | 6.35 | 3.18 | 0.4 | - | 0.05~0.20 | 0.30~1.50 | CTGPR/L | B79 |
| | 160304-F | | | | | | | | | | | | | | | | | | | | | | | | 15.5 | 9.525 | 3.18 | 0.4 | - | 0.08~0.25 | 0.50~2.00 | | |
| Finitura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **TPGR-M** | TPGR 110308-M | | | | | | | | | | | | | | | | | | | | | | | | 9.0 | 6.35 | 3.18 | 0.8 | - | 0.13~0.30 | 1.00~3.00 | CTFPR/L | B79 |
| | 160308-M | | | | | | | | | | | | | | | | | | | | | | | | 14.5 | 9.525 | 3.18 | 0.8 | - | 0.13~0.30 | 1.00~5.00 | CTGPR/L | B79 |
| Medie lavorazioni | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **TPGT** | TPGT 080202R | | | | | | | | | | | | | | | | | | | | | | | | 7.7 | 4.76 | 2.38 | 0.2 | 2.3 | 0.05~0.20 | 0.30~1.50 | STFPR/L | B111 |
| | 110302R | | | | | | | | | | | | | | | | | | | | | | | | 10.5 | 6.35 | 3.18 | 0.2 | 3.4 | 0.05~0.20 | 0.30~1.50 | (Bareno) | B119 |
| | 110304R | | | | | | | | | | | | | | | ● | | | | | | | | | 10.0 | 6.35 | 3.18 | 0.4 | 3.4 | 0.05~0.20 | 0.50~2.00 | STUPR/L | |
| | 110308R | | | | | | | | | | | | | | | | | | | | | | | | 9.0 | 6.35 | 3.18 | 0.8 | 3.4 | 0.07~0.25 | 0.50~2.00 | (Compact mini) | |
| | 160404R | | | | | | | | | | | | | | | ● | | | | | | | | | 15.5 | 9.525 | 4.76 | 0.4 | 4.4 | 0.05~0.20 | 0.70~3.00 | | |
| | 160408R | | | | | | | | | | | | | | | | | | | | | | | | 14.5 | 9.525 | 4.76 | 0.8 | 4.4 | 0.05~0.20 | 0.70~3.00 | | |
| | 080202L | | | | | | | | | | | ● | | | | | | ● | | | | | ● | | 7.7 | 4.76 | 2.38 | 0.2 | 2.3 | 0.05~0.20 | 0.30~1.50 | | |
| | 110302L | | | | | | | | | | | | | | | | | | | | | | | | 10.5 | 6.35 | 3.18 | 0.2 | 3.4 | 0.05~0.20 | 0.30~1.50 | | |
| | 110304L | | | | | | | | | | | | | | | ● | ● | ● | | | | | | | 10.0 | 6.35 | 3.18 | 0.4 | 3.4 | 0.05~0.20 | 0.50~2.00 | | |
| | 110308L | | | | | | | | | | | | | | | | | | | | | | | | 9.0 | 6.35 | 3.18 | 0.8 | 3.4 | 0.07~0.25 | 0.50~2.00 | | |
| | 160404L | | | | | | | | | | | | | | | ● | ● | ● | | | | | | | 15.5 | 9.525 | 4.76 | 0.4 | 4.4 | 0.05~0.20 | 0.70~3.00 | | |
| | 160408L | | | | | | | | | | | | | | | | | | | | | | | | 14.5 | 9.525 | 4.76 | 0.8 | 4.4 | 0.05~0.20 | 0.70~3.00 | | |
| Medie lavorazioni – finitura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **TPGT-C05** | TPGT 110304-C05 | | | | | | | | | | | | | | | | | | | | | | | | 10.0 | 6.35 | 3.18 | 0.4 | 3.4 | 0.05~0.30 | 0.50~2.00 | STFPR/L | B111 |
| | 160404-C05 | | | | | | | | | | | | | | | | | | | | | | | | 15.5 | 9.525 | 4.76 | 0.4 | 4.4 | 0.05~0.30 | 0.80~2.00 | (Bareno) | |
| Finitura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **TPGT-HFP** | TPGT 110304-HFP | | | | | | | | | | | | | | | | | | | | | | | | 10.0 | 6.35 | 3.18 | 0.4 | 3.4 | 0.05~0.25 | 0.30~1.50 | STFPR/L | B111 |
| | 160308-HFP | | | | | | | | | | | | | | | | | | | | | | | | 14.5 | 9.525 | 3.18 | 0.8 | 4.4 | 0.05~0.25 | 0.30~1.50 | (Bareno) | |
| Finitura | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15

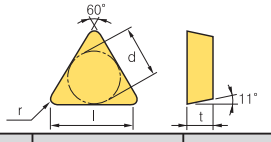
Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

● : Disponibile ○ : A richiesta

# TP ○○ △ 60° Positivo Angolo di spoglia : 11°

| Pezzo lavorato | | |
|---|---|---|
| Acciaio | P | ● ⬢ ⬢ ✱ ⬢ ⬢ ⬢ |
| Acciaio inossidabile | M | ⬢ ● ⬢ ✱ |
| Ghisa | K | ⬢ ⬢ ⬢ ⬢ |
| Materiali non ferrosi | N | |
| Leghe resistenti al calore, lega di titanio | S | ● ⬢ ⬢ ✱ |
| Materiali temprati | H | |

Applicazioni
● Taglio continuo
⬢ Uso generico
✱ Taglio interrotto




| Inserti | Articolo | | Rivestito | | | | | | | | | | | | Cermet | | Rivestito | | Non rivestito | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NC3010 | NC3020 | NC3120 | NC3030 | NC500H | PC8110 | NC9020 | NC9025 | NC5330 | PC5300 | PC9030 | NC6105 | NC6110 | NC315K | CN1000 | CN2000 | CN20 | CC105 | CC115 | ST30A | ST20 | ST30N | G10 |
| **TPGX** | **TPGX** | **090202L** | | | | | | | | | | | | | | | | | ● | | | | | | |
| | | **090204L** | | | | | | | | | | | | | | | | | ● | | | | | | |
| | | **090208L** | | | | | | | | | | | | | | | | | | | | | | | |
| | | **110304L** | | | | | | | | | | | | | | | | | ● | | | | | | |
| Medie lavorazioni – finitura | | | | | | | | | | | | | | | | | | | | | | | | | |
| **TPMR-F** | **TPMR** | **090202-F** | | | | | | | | | | | | | | | | | | | | | | | |
| | | **090204-F** | | | | | | | | | | | | | | | | | | | | | | | |
| | | **110302-F** | | | | | | | | | | | | | | | | | | | | | | | |
| | | **110304-F** | ● | ● | ● | ● | | | ● | | | | ● | | ● | | | | | | | | | | |
| | | **110308-F** | | | | | | | | | | | | | | | | | | | | | | | |
| | | **160304-F** | ● | ● | ● | ● | | ● | ● | | ● | | ● | | ● | | | | | | | | | | |
| | | **160308-F** | | | ● | | | | ● | | | | | | | | | | | | | | | | |
| Finitura | | | | | | | | | | | | | | | | | | | | | | | | | |
| **TPMR-M** | **TPMR** | **110304-M** | | | | | | | | | | | | | | | | | | | | | | | |
| | | **110308-M** | ● | ● | ● | ● | | | | | | | | | | | | | | | | | | | |
| | | **160304-M** | | | | ● | | | | | | | | | | | | | | | | | | | |
| | | **160308-M** | ● | ● | ● | ● | | ● | ● | | | | | | ● | | | | | | | | | | ● |
| | | **160312-M** | | | | ● | | | | | | | | | | | | | | | | | | | |
| | | **220408-M** | | ● | ● | | | | | | | | | | ● | | | | | | | | | | |
| Medie lavorazioni | | | | | | | | | | | | | | | | | | | | | | | | | |
| **TPUN** | **TPUN** | **090308** | | | | | | | | | | | | | | | | | | | | | | | |
| | | **110208** | | | | | | | | | | | | | | | | | | | | ● | | | |
| | | **110304** | | | | | | | | | | | | | | | | | | | | ● | | | |
| | | **110308** | | | | | | | | | | | | | | | | | | | | ● | | | |
| | | **160304** | ● | ● | ● | ● | | | | | | | | | | | | | | | | ● | | ● | ● |
| | | **160308** | | ● | ● | ● | | | | | | | | | | | | | | | | ● | ● | | ● |
| | | **160312** | | ● | ● | ● | | | | | | | | | | | | | | | | ● | | | |
| | | **220404** | | | | | | | | | | | | | | | | | | | | ● | | | |
| | | **220408** | | ● | ● | ● | | | | | | | | | | | | | | | | ● | | | |
| | | **220412** | | | | | | | | | | | | | | | | | | | | ● | | | |
| | | **330620** | | | | | | | | | | | | | | | | | | | | | | | |
| | | **160308TN** | | | | | | | | | | | | | | | | | | | | | | ● | |
| | | **160312TN** | | | | | | | | | | | | | | | | | | | | | | ● | |
| | | **220412TN** | | | | | | | | | | | | | | | | | | | | | | | |
| Medie lavorazioni – finitura | | | | | | | | | | | | | | | | | | | | | | | | | |
| **TPMT-VF** | **TPMT** | **110304-VF** | ● | ● | | | | | | | ● | | | | | | ○ | ○ | | | | | | | |
| | | **110308-VF** | ● | ● | | | | | | | ● | | | | | | | | | | | | | | |
| | | **160404-VF** | | | | | | | | | | | | | | | | | | | | | | | |
| | | **160408-VF** | | | | | | | | | | | | | | | | | | | | | | | |
| Finitura | | | | | | | | | | | | | | | | | | | | | | | | | |

| Pezzo lavorato | Inserti | Articolo | | Dimensioni (mm) l | d | t | r | $d_1$ | Condizioni di taglio fn | ap | Utensili applicabili Articolo | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Medie lavorazioni – finitura | **TPGX** | **TPGX** | **090202L** | 9.1 | 5.56 | 2.38 | 0.2 | - | 0.10~0.20 | 0.30~1.00 | - | - |
| | | | **090204L** | 8.6 | 5.56 | 2.38 | 0.4 | - | 0.10~0.25 | 0.50~1.00 | | |
| | | | **090208L** | 7.6 | 5.56 | 2.38 | 0.8 | - | 0.10~0.30 | 1.00~1.00 | | |
| | | | **110304L** | 10.0 | 6.35 | 3.18 | 0.4 | - | 0.10~0.25 | 0.50~1.20 | | |
| Finitura | **TPMR-F** | **TPMR** | **090202-F** | 9.1 | 5.56 | 2.38 | 0.2 | - | 0.05~0.15 | 0.10~1.00 | CTFPR/L | **B**79 |
| | | | **090204-F** | 8.6 | 5.56 | 2.38 | 0.4 | - | 0.05~0.15 | 0.10~1.00 | CTGPR/L | **B**79 |
| | | | **110302-F** | 10.5 | 6.35 | 3.18 | 0.2 | - | 0.05~0.15 | 0.10~1.50 | | |
| | | | **110304-F** | 10.0 | 6.35 | 3.18 | 0.4 | - | 0.05~0.20 | 0.30~1.50 | | |
| | | | **110308-F** | 9.0 | 6.35 | 3.18 | 0.8 | - | 0.05~0.25 | 0.30~1.50 | | |
| | | | **160304-F** | 15.5 | 9.525 | 3.18 | 0.4 | - | 0.08~0.25 | 0.50~2.00 | | |
| | | | **160308-F** | 14.5 | 9.525 | 3.18 | 0.8 | - | 0.08~0.25 | 0.50~3.00 | | |
| Medie lavorazioni | **TPMR-M** | **TPMR** | **110304-M** | 10.0 | 6.35 | 3.18 | 0.4 | - | 0.10~0.25 | 0.70~3.00 | CTFPR/L | **B**79 |
| | | | **110308-M** | 9.0 | 6.35 | 3.18 | 0.8 | - | 0.13~0.30 | 1.00~3.00 | CTGPR/L | **B**79 |
| | | | **160304-M** | 15.5 | 9.525 | 3.18 | 0.4 | - | 0.10~0.25 | 1.00~5.00 | | |
| | | | **160308-M** | 14.5 | 9.525 | 3.18 | 0.8 | - | 0.13~0.30 | 1.00~5.00 | | |
| | | | **160312-M** | 13.5 | 9.525 | 3.18 | 1.2 | - | 0.15~0.35 | 1.00~5.00 | | |
| | | | **220408-M** | 20.0 | 12.7 | 4.76 | 0.8 | - | 0.13~0.30 | 1.50~7.00 | | |
| Medie lavorazioni – finitura | **TPUN** | **TPUN** | **090308** | 7.6 | 5.56 | 3.18 | 0.8 | - | 0.10~0.30 | 0.50~2.00 | - | - |
| | | | **110208** | 9.0 | 6.35 | 2.38 | 0.8 | - | 0.15~0.40 | 1.00~3.00 | | |
| | | | **110304** | 10.0 | 6.35 | 3.18 | 0.4 | - | 0.10~0.30 | 1.00~3.00 | | |
| | | | **110308** | 9.0 | 6.35 | 3.18 | 0.8 | - | 0.15~0.40 | 1.00~3.00 | | |
| | | | **160304** | 15.5 | 9.525 | 3.18 | 0.4 | - | 0.10~0.30 | 1.00~5.00 | | |
| | | | **160308** | 14.5 | 9.525 | 3.18 | 0.8 | - | 0.15~0.40 | 1.00~5.00 | | |
| | | | **160312** | 13.5 | 9.525 | 3.18 | 1.2 | - | 0.20~0.50 | 1.50~5.00 | | |
| | | | **220404** | 21.0 | 12.7 | 4.76 | 0.4 | - | 0.10~0.30 | 1.50~7.00 | | |
| | | | **220408** | 20.0 | 12.7 | 4.76 | 0.8 | - | 0.15~0.40 | 1.50~7.00 | | |
| | | | **220412** | 19.0 | 12.7 | 4.76 | 1.2 | - | 0.20~0.50 | 1.50~7.00 | | |
| | | | **330620** | 27.8 | 19.05 | 6.35 | 2.0 | - | 0.30~0.70 | 3.00~10.00 | | |
| | | | **160308TN** | 14.5 | 9.525 | 3.18 | 0.8 | - | 0.15~0.40 | 1.00~5.00 | | |
| | | | **160312TN** | 13.5 | 9.525 | 3.18 | 1.2 | - | 0.20~0.50 | 1.50~5.00 | | |
| | | | **220412TN** | 19.0 | 12.7 | 4.76 | 1.2 | - | 0.20~0.50 | 1.50~7.00 | | |
| Finitura | **TPMT-VF** | **TPMT** | **110304-VF** | 10.0 | 6.35 | 3.18 | 0.4 | 3.4 | 0.05~0.20 | 0.3~1.5 | STFPR/L (Bareno) | **B**111 |
| | | | **110308-VF** | 9.0 | 6.35 | 3.18 | 0.8 | 3.4 | 0.10~0.25 | 0.3~1.5 | | |
| | | | **160404-VF** | 15.5 | 9.525 | 4.76 | 0.4 | 4.4 | 0.05~0.20 | 0.3~2.0 | | |
| | | | **160408-VF** | 14.5 | 9.525 | 4.76 | 0.8 | 4.4 | 0.10~0.25 | 0.3~2.0 | | |

• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15

Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

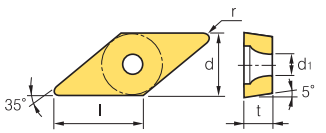
● : Disponibile ○ : A richiesta

# B Inserti di tornitura (Positivo)

## VB○○ 35° Positivo Angolo di spoglia : 5°

| Pezzo lavorato | | |
|---|---|---|
| Acciaio | P | ● ❷ ❷ ✱ ❷ ❷ |
| Acciaio inossidabile | M | ❷ ● ❷ ✱ ✱ |
| Ghisa | K | ❷ ❷ ❷ ● |
| Materiali non ferrosi | N | |
| Leghe resistenti al calore, lega di titanio | S | ● ❷ ✱ ✱ |
| Materiali temprati | H | |

Applicazioni
● Taglio continuo
❷ Uso generico
✱ Taglio interrotto




| Inserti | Articolo | | Rivestito | | | | | | | | | | | | | Cermet | | | Rivestito | | | Non rivestito | | Dimensioni (mm) | | | | | Condizioni di taglio | | Utensili applicabili | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NC3010 | NC3020 | NC3120 | NC3030 | NC500H | PC8110 | NC9020 | NC9025 | NC5330 | PC5300 | PC9030 | NC6105 | NC6110 | NC315K | CN1000 | CN2000 | CN20 | CC105 | CC115 | H01 | G10 | l | d | t | r | d1 | fn | ap | Articolo | Pag. |
| **VBGT**  Medie lavorazioni – finitura | VBGT | 160404 | | | | | | | | | | | | | | | ● | ● | | | | | | 15.6 | 9.525 | 4.76 | 0.4 | 4.4 | 0.07~0.20 | 0.50~1.50 | SVABR/L | B91 |
| | | 160408 | | | | | | | | | | | | | | | ● | ● | | | | | | 14.6 | 9.525 | 4.76 | 0.8 | 4.4 | 0.15~0.25 | 0.70~2.00 | SVHBR/L | B91 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SVJBR/L | B92 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SVVBN | B92 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SVQBR/L | B112 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SVUBR/L | B113 |
| **VBGT-HFP**  Finitura | VBGT | 110301-HFP | | | | | | | | | | | | | | | ● | ● | | | | | | 11.0 | 6.35 | 3.18 | 0.1 | 2.8 | 0.07~0.20 | 0.50~1.50 | SVABR/L | B91 |
| | | 160408-HFP | | | | | | | | | | | | | | | ● | ● | | | | | | 14.6 | 9.525 | 4.76 | 0.8 | 4.4 | 0.15~0.25 | 0.70~2.00 | SVHBR/L | B91 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SVJBR/L | B92 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SVVBN | B92 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SVQBR/L | B112 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SVUBR/L | B113 |
| **VBGT-KF**  Finitura (Auto tool) | VBGT | 1103003R-KF | | | | | | | | | | | | | | | | | | | | | | 11.0 | 6.35 | 3.18 | 0.03 | 2.8 | 0.01~0.06 | 0.04~1.30 | SVJBR/L | B92 |
| | | 110301R-KF | | | | | | | | | | | ● | | | | | | | | | | | 11.0 | 6.35 | 3.18 | 0.1 | 2.8 | 0.02~0.08 | 0.05~1.50 | | |
| | | 110302R-KF | | | | | | | | | | | ● | | | | | | | | | | | 11.0 | 6.35 | 3.18 | 0.2 | 2.8 | 0.03~0.13 | 0.06~1.70 | | |
| | | 1103003L-KF | | | | | | | | | | | | | | | | | | | | | | 11.0 | 6.35 | 3.18 | 0.03 | 2.8 | 0.01~0.06 | 0.04~1.30 | | |
| | | 110301L-KF | | | | | | | | | | | | | | | | | | | | | | 11.0 | 6.35 | 3.18 | 0.1 | 2.8 | 0.02~0.08 | 0.05~1.50 | | |
| | | 110302L-KF | | | | | | | | | | | | | | | | | | | | | | 11.0 | 6.35 | 3.18 | 0.2 | 2.8 | 0.03~0.13 | 0.06~1.70 | | |
| **VBGT-KM**  Medie lavorazioni – finitura (Auto Tool) | VBGT | 1103003R-KM | | | | | | | | | | | | | | | | | | | | | | 11.0 | 6.35 | 3.18 | 0.03 | 2.8 | 0.01~0.06 | 0.04~1.30 | SVJBR/L | B92 |
| | | 110301R-KM | | | | | | | | | | | ● | | | | | | | | | | | 11.0 | 6.35 | 3.18 | 0.1 | 2.8 | 0.02~0.08 | 0.05~1.50 | | |
| | | 110302R-KM | | | | | | | | | | | ● | | | | | | | | | | | 11.0 | 6.35 | 3.18 | 0.2 | 2.8 | 0.03~0.13 | 0.06~1.70 | | |
| | | 1103003L-KM | | | | | | | | | | | | | | | | | | | | | | 11.0 | 6.35 | 3.18 | 0.03 | 2.8 | 0.01~0.06 | 0.04~1.30 | | |
| | | 110301L-KM | | | | | | | | | | | | | | | | | | | | | | 11.0 | 6.35 | 3.18 | 0.1 | 2.8 | 0.02~0.08 | 0.05~1.50 | | |
| | | 110302L-KM | | | | | | | | | | | | | | | | | | | | | | 11.0 | 6.35 | 3.18 | 0.2 | 2.8 | 0.03~0.13 | 0.06~1.70 | | |
| **VBMT**  Medie lavorazioni – finitura | VBMT | 160404 | ● | ● | ● | ● | | ● | | | | | ● | | ● | ● | | ● | | | | | | 15.6 | 9.525 | 4.76 | 0.4 | 4.4 | 0.07~0.20 | 0.50~1.50 | SVABR/L | B91 |
| | | 160408 | ● | ● | ● | ● | | ● | | | | | ● | | ● | ● | | ● | | | | | | 14.6 | 9.525 | 4.76 | 0.8 | 4.4 | 0.15~0.25 | 0.70~2.00 | SVHBR/L | B91 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SVJBR/L | B92 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SVVBN | B92 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SVQBR/L | B112 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SVUBR/L | B113 |
| **VBMT-VM** Neuu  Medie lavorazioni | VBMT | 160404-VM | | | | | | | | | | | | | | | | | | | | | | 15.6 | 9.52 | 4.76 | 0.4 | 4.4 | 0.07~0.20 | 0.20~2.70 | SVABR/L | B91 |
| | | 160408-VM | | | | | | | | | | | | | | | | | | | | | | 14.6 | 9.52 | 4.76 | 0.8 | 4.4 | 0.09~0.27 | 0.50~2.70 | SVHBR/L | B91 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SVJBR/L | B92 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SVVBN | B92 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SVQBR/L | B112 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SVUBR/L | B113 |
| **VBMT-HMP**  Medie lavorazioni | VBMT | 110204-HMP Neuu | ● | ● | | | | | | | | | | | | | | | | | | | | 10.0 | 6.35 | 2.38 | 0.4 | 2.8 | 0.03~0.20 | 0.15~2.50 | SVABR/L | B91 |
| | | 110208-HMP | | | | | | | | | | | | | | | | | | | | | | 9.0 | 6.35 | 2.38 | 0.8 | 2.8 | 0.03~0.25 | 0.15~2.50 | SVHBR/L | B91 |
| | | 110304-HMP | ● | ● | ● | | | | | | | | | | | | | | | | | | | 10.0 | 6.35 | 3.18 | 0.4 | 3.4 | 0.03~0.20 | 0.15~2.70 | SVJBR/L | B92 |
| | | 110308-HMP | | | ● | | | | | | | | | | | | | | | | | | | 9.0 | 6.35 | 3.18 | 0.8 | 3.4 | 0.05~0.25 | 0.40~2.70 | SVVBN | B92 |
| | | 160404-HMP | ● | ● | ● | ● | | ● | ● | | ● | | | | ● | | | ● | | | | | | 15.6 | 9.525 | 4.76 | 0.4 | 4.4 | 0.07~0.20 | 0.20~2.70 | SVQBR/L | B112 |
| | | 160408-HMP Neuu | ● | ● | ● | ● | | ● | ● | | ● | ● | ● | | ○ | | | ● | | | | | | 14.6 | 9.525 | 4.76 | 0.8 | 4.4 | 0.09~0.27 | 0.50~2.70 | SVUBR/L | B113 |
| | | 160412-HMP | | | | | | | | | | | | | | | | | | | | | | 13.5 | 9.525 | 4.76 | 1.2 | 4.4 | 0.11~0.32 | 0.50~2.70 | | |
| **VBMT-VF** Neuu  Finitura | VBMT | 160404-VF | | | | | | | | | ● | ● | | | | | | ● | ● | | | | | 15.6 | 9.525 | 4.76 | 0.4 | 4.4 | 0.05~0.20 | 0.3~1.0 | SVABR/L | B91 |
| | | 160408-VF | | | | | | | | | ● | ● | | | | | | ● | ● | | | | | 14.6 | 9.525 | 4.76 | 0.8 | 4.4 | 0.10~0.25 | 0.3~1.0 | SVHBR/L | B91 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SVJBR/L | B92 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SVVBN | B92 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SVQBR/L | B112 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SVUBR/L | B113 |

• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15

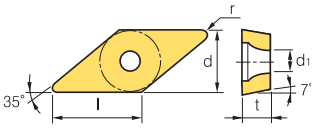
Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

● : Disponibile ○ : A richiesta

# VC○○ 35° Positivo Angolo di spoglia : 7°

| Pezzo lavorato | | |
|---|---|---|
| Acciaio | P | ● ⬌ ⬌ ✱ ⬌ ⬌ ⬌ |
| Acciaio inossidabile | M | ⬌ ● ⬌ ⬌ ✱ |
| Ghisa | K | ⬌ ⬌ |
| Materiali non ferrosi | N | |
| Leghe resistenti al calore, lega di titanio | S | ● ⬌ ✱ |
| Materiali temprati | H | |

Applicazioni
● Taglio continuo
⬌ Uso generico
✱ Taglio interrotto




| Inserti | Articolo | | Rivestito NC3010 | NC3020 | NC3120 | NC3030 | NC500H | PC8110 | NC9020 | NC9025 | NC5330 | PC5300 | PC9030 | NC6105 | NC6110 | NC315K | Cermet CN1000 | CN2000 | CN20 | Rivestito CC105 | CC115 | Non rivestito H01 | G10 | Dimensioni (mm) l | d | t | r | d1 | Condizioni di taglio fn | ap | Utensili applicabili Articolo | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VCGT-HFP** | VCGT | 110302-HFP | | | | | | | | | | | | | | | | | | | | | | 10.5 | 6.35 | 3.18 | 0.2 | 3.4 | 0.02~0.18 | 0.10~1.00 | SVJCR/L | B92 |
| Finitura | | 110304-HFP | | ● | ● | | | | | | | | | | | | | | | | | | | 10.0 | 6.35 | 3.18 | 0.4 | 3.4 | 0.03~0.18 | 0.15~1.20 | SVVCN | B93 |
| | | 110308-HFP | | | | | | | | | | | | | | | | | | | | | | 9.0 | 6.35 | 3.18 | 0.8 | 3.4 | 0.04~0.23 | 0.20~1.20 | SVQCR/L | B112 |
| | | 160404-HFP | | ● | ● | | | ○ | | | ● | | | | | | | | | | | | | 15.6 | 9.525 | 4.76 | 0.4 | 4.4 | 0.04~0.20 | 0.15~1.50 | SVUCR/L | B113 |
| | | 160408-HFP | | ● | ● | | | ○ | | | ● | | | | | | | | | | | | | 14.6 | 9.525 | 4.76 | 0.8 | 4.4 | 0.05~0.25 | 0.20~1.50 | | |
| **VCGT-KF** | VCGT | 1103003R-KF | | | | | | | | | | | | | | | | | | | | | | 11.0 | 6.35 | 3.18 | 0.03 | 2.8 | 0.01~0.06 | 0.04~1.30 | SVJCR/L | B112 |
| Finitura (Auto tool) | | 110301R-KF | | | | | | | | | | | ● | | | | | | | | | | | 11.0 | 6.35 | 3.18 | 0.1 | 2.8 | 0.02~0.08 | 0.05~1.50 | | |
| | | 110302R-KF | | | | | | | | | | | ● | | | | | | | | | | | 11.0 | 6.35 | 3.18 | 0.2 | 2.8 | 0.03~0.13 | 0.06~1.70 | | |
| | | 1103003L-KF | | | | | | | | | | | | | | | | | | | | | | 11.0 | 6.35 | 3.18 | 0.03 | 2.8 | 0.01~0.06 | 0.04~1.30 | | |
| | | 110301L-KF | | | | | | | | | | | | | | | | | | | | | | 11.0 | 6.35 | 3.18 | 0.1 | 2.8 | 0.02~0.08 | 0.05~1.50 | | |
| | | 110302L-KF | | | | | | | | | | | | | | | | | | | | | | 11.0 | 6.35 | 3.18 | 0.2 | 2.8 | 0.03~0.13 | 0.06~1.70 | | |
| **VCGT-KM** | VCGT | 1103003R-KM | | | | | | | | | | | | | | | | | | | | | | 11.0 | 6.35 | 3.18 | 0.03 | 2.8 | 0.01~0.06 | 0.04~1.30 | SVJCR/L | B112 |
| Medie lavorazioni (Auto Tool) | | 110301R-KM | | | | | | | | | | | ● | | | | | | | | | | | 11.0 | 6.35 | 3.18 | 0.1 | 2.8 | 0.02~0.08 | 0.05~1.50 | | |
| | | 110302R-KM | | | | | | ○ | | | | | ● | | | | | | | | | | | 11.0 | 6.35 | 3.18 | 0.2 | 2.8 | 0.03~0.13 | 0.06~1.70 | | |
| | | 1103003L-KM | | | | | | | | | | | | | | | | | | | | | | 11.0 | 6.35 | 3.18 | 0.03 | 2.8 | 0.01~0.06 | 0.04~1.30 | | |
| | | 110301L-KM | | | | | | | | | | | | | | | | | | | | | | 11.0 | 6.35 | 3.18 | 0.1 | 2.8 | 0.02~0.08 | 0.05~1.50 | | |
| | | 110302L-KM | | | | | | | | | | | | | | | | | | | | | | 11.0 | 6.35 | 3.18 | 0.2 | 2.8 | 0.03 ~0.13 | 0.06~1.70 | | |
| **VCMT-HFP** | VCMT | 110302-HFP | | | | | | | | | | | | | | | | | | | | | | 10.5 | 6.35 | 3.18 | 0.2 | 3.4 | 0.02~0.18 | 0.10~1.00 | SVJCR/L | B92 |
| Finitura | | 110304-HFP | | | | | | | | | | | | | | | | | | | | | | 10.0 | 6.35 | 3.18 | 0.4 | 3.4 | 0.03~0.18 | 0.15~1.20 | SVVCN | B93 |
| | | 110308-HFP | | | | | | | | | | | | | | | | | | | | | | 9.0 | 6.35 | 3.18 | 0.8 | 3.4 | 0.04~0.23 | 0.20~1.20 | SVQCR/L | B112 |
| | | 160404-HFP | | | ● | | | | | | ● | | | | | | | | | | | | | 15.6 | 9.525 | 4.76 | 0.4 | 4.4 | 0.04~0.20 | 0.15~1.50 | SVUCR/L | B113 |
| | | 160408-HFP | | | | | | | | | | | | | | | | | | | | | | 14.6 | 9.525 | 4.76 | 0.8 | 4.4 | 0.05~0.25 | 0.20~1.50 | | |
| **VCMT-VF** Neu | VCMT | 080202-VF | ● | | | | | | | | | | | | | | | | | | | | | 8.0 | 4.76 | 2.38 | 0.2 | 2.3 | 0.05~0.20 | 0.3~1.0 | SVJCR/L | B92 |
| Finitura | | 080204-VF | | | | | | | | | ● | | | | | | | | | | | | | 7.5 | 4.76 | 2.38 | 0.4 | 2.3 | 0.10~0.25 | 0.3~1.0 | SVVCN | B93 |
| | | 110304-VF | ○ | ○ | | ○ | | | | | | | | | | | | | | | | | | 10.0 | 6.35 | 3.18 | 0.4 | 3.4 | 0.03~0.18 | 0.15~1.20 | SVQCR/L | B112 |
| | | 160404-VF | | ○ | | | | | | | | | | | | | | | | | | | | 15.6 | 9.525 | 4.76 | 0.4 | 4.4 | 0.04~0.20 | 0.15~1.50 | SVUCR/L | B113 |
| **VCMT-HMP** | VCMT | 160404-HMP | ● | ● | ● | ● | | | ● | | ● | | ○ | | | | | | | | | | | 15.6 | 9.525 | 4.76 | 0.4 | 4.4 | 0.10~0.25 | 0.30~2.60 | SVJCR/L | B92 |
| Medie lavorazioni | | 160408-HMP | | ● | ● | ● | | | ● | | ● | | | | | | | | | | | | | 14.3 | 9.525 | 4.76 | 0.8 | 4.4 | 0.13~0.33 | 0.60~2.60 | SVVCN | B93 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SVQCR/L | B112 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SVUCR/L | B113 |
| **VCMT-VM** Neu | VCMT | 160404-VM | | | | | | | | | | | | | | | | | | | | | | 15.6 | 9.525 | 4.76 | 0.4 | 4.4 | 0.10~0.25 | 0.30~2.60 | SVJCR/L | B92 |
| Medie lavorazioni | | 160408-VM | | | | | | | | | | | | | | | | | | | | | | 14.6 | 9.525 | 4.76 | 0.8 | 4.4 | 0.13~0.33 | 0.60~2.60 | SVVCN | B93 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SVQCR/L | B112 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SVUCR/L | B113 |

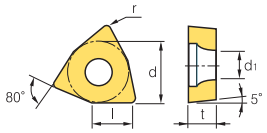
• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15
Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

● : Disponibile ○ : A richiesta

# WB○○ 80° Positivo Angolo di spoglia : 5°

| Pezzo lavorato | | |
|---|---|---|
| Acciaio | P | ● ⬌ |
| Acciaio inossidabile | M | ✱ |
| Ghisa | K | ● ● |
| Materiali non ferrosi | N | |
| Leghe resistenti al calore, lega di titanio | S | ✱ |
| Materiali temprati | H | |

Applicazioni
● Taglio continuo
⬌ Uso generico
✱ Taglio interrotto




| Inserti | Articolo | | Rivestito NC3010 | NC3020 | NC3120 | NC3030 | NC500H | PC8110 | NC9020 | NC9025 | NC5330 | PC5300 | PC9030 | NC6105 | NC6110 | NC315K | Cermet CN1000 | CN2000 | CN20 | Rivestito CC105 | CC115 | Non rivestito U20 | H01 | G10 | Dimensioni (mm) l | d | t | r | d1 | Condizioni di taglio fn | ap | Utensili applicabili Articolo | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WBGT** | WBGT | 020102R Neu | | | | | | | | | | | | | | | | | | | | | | | 2.6 | 3.97 | 1.59 | 0.2 | 2.2 | 0.01~0.05 | 0.10~0.30 | SWUBR/L (Compact mini) | B113 |
| | | S30204R | | | | | | | | | | | | | | | | | | | | | | | 3.0 | 4.76 | 2.38 | 0.4 | 2.4 | 0.01~0.10 | 0.10~0.50 | | |
| | | 020102L | | | | | | | | | | | ● | | | | | ● | | | | | ● | | 2.6 | 3.97 | 1.59 | 0.2 | 2.2 | 0.01~0.08 | 0.10~0.40 | | |
| Medie lavorazioni – finitura | | S30202L | | | | | | | | | | | ● | | | | | | | | | | | | 3.1 | 4.76 | 2.38 | 0.2 | 2.4 | 0.01~0.08 | 0.10~0.40 | | |
| | | S30204L | | | | | | | | | | | | | | | | | | | | | | | 3.0 | 4.76 | 2.38 | 0.4 | 2.4 | 0.01~0.10 | 0.10~0.50 | | |

• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15
Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

● : Disponibile ○ : A richiesta

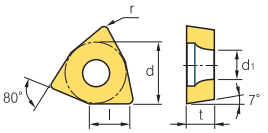
# B Inserti di tornitura (Positivo)

## WC○○ 80° Positivo Angolo di spoglia : 7°

| Pezzo lavorato | | | Rivestito | | | | | | | | | | | | | | Cermet | | | | Rivestito | | Non rivestito | | | Dimensioni (mm) | | | | | Condizioni di taglio | | Utensili applicabili | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Inserti | Articolo | | NC3010 | NC3020 | NC3120 | NC3030 | NC500H | PC8110 | NC9020 | NC9025 | NC5330 | PC5300 | PC9030 | NC6105 | NC6110 | NC315K | CN1000 | CN2000 | CN20 | CC105 | CC115 | U20 | H01 | G10 | l | d | t | r | $d_1$ | fn | ap | Articolo | Pag. |
| WCGT-C05 | WCGT 080408-C05 | | | ● | | | | | | | | | | | | | | | | | | | | 8.3 | 12.7 | 4.76 | 0.8 | 5.5 | 0.08~0.30 | 0.20~2.70 | SWACR/L SWLCR/L | B93 B113 |

Acciaio P
Acciaio inossidabile M
Ghisa K
Materiali non ferrosi N
Leghe resistenti al calore, lega di titanio S
Materiali temprati H

Applicazioni
● Taglio continuo
Uso generico
Taglio interrotto



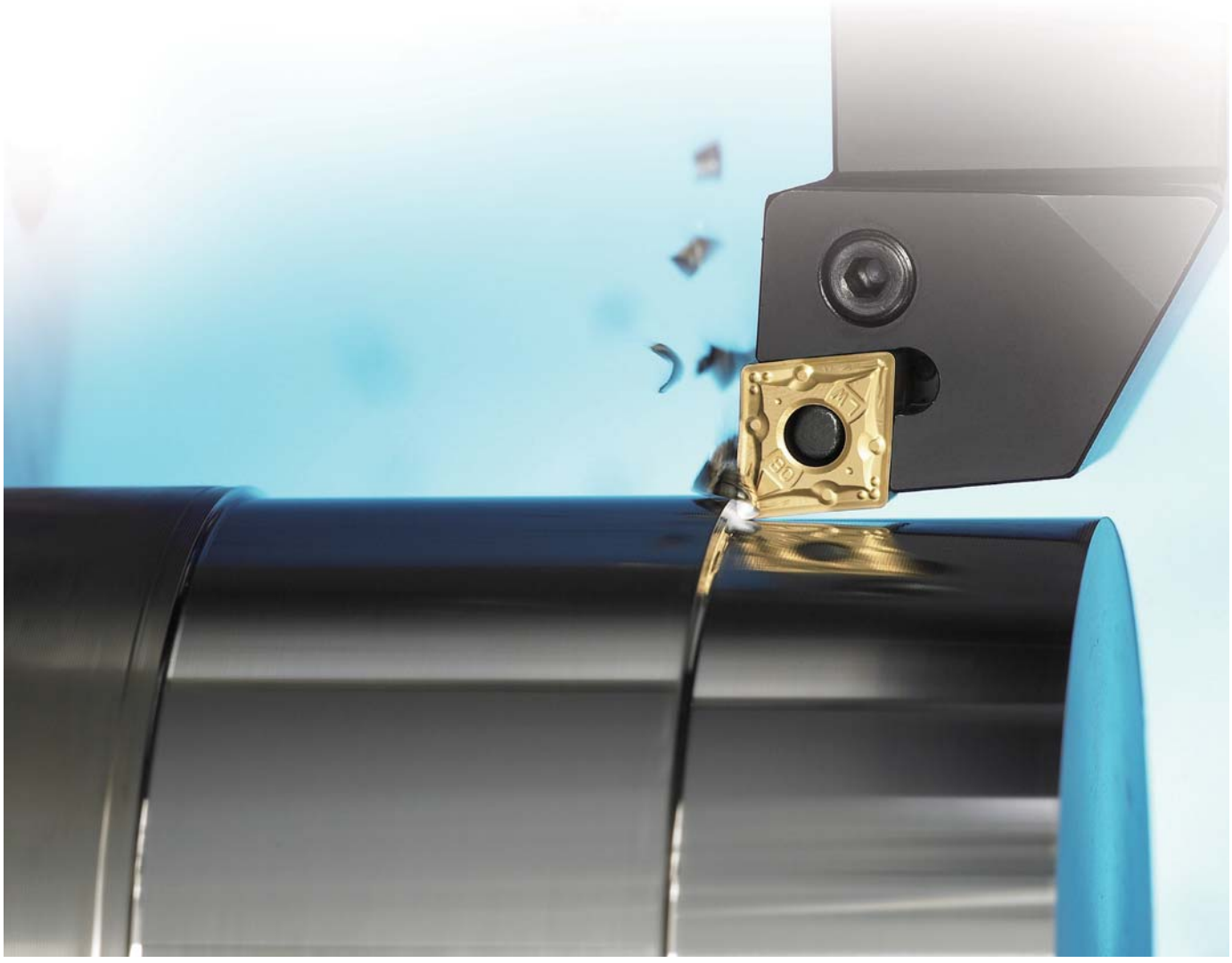


Finitura

• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15

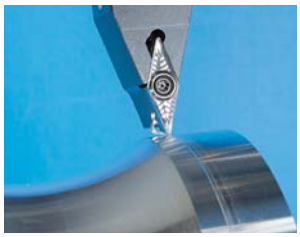
● : Disponibile ○ : A richiesta

Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm



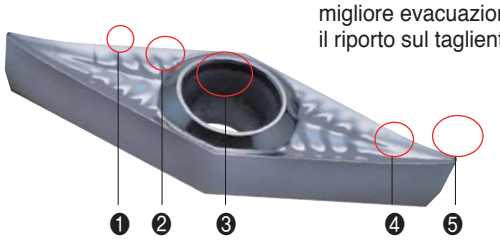
# Informazioni tecniche sull'alluminio

## Speciale rompitruciolo AK per alluminio



**Caratteristiche**

- Unico angolo di spoglia 3D per controllo ed evacuazione del truciolo migliori garantendo una lunga durata dell'utensile e riducendo gli sforzi di taglio.
- L'elevato angolo di spoglia sul tagliente riduce gli sforzi di taglio e aumenta la durata dell'utensile.
- Il lato superiore lappato consente una migliore evacuazione del truciolo ed evita il riporto sul tagliente.



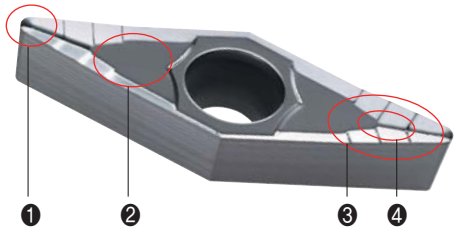

① Elevato angolo di spoglia e rompitruciolo brevettato - Minori sforzi di taglio
② Design unico dell'angolo di spoglia - Controllo ed evacuazione del truciolo eccellenti
③ Esclusivo design 3D del lato superiore
- Maggiore durata dell'utensile ed eccellente superficie di sgrossatura
④ Rompitruciolo brevettato & tagliente affilato
- Lo sforzo di taglio viene distribuito meglio e l'utensile dura di più
⑤ Lato superiore lappato
- Eccellenti prestazioni, minore riporto sul tagliente, ottima evacuazione del truciolo

## Speciale rompitruciolo AR per alluminio



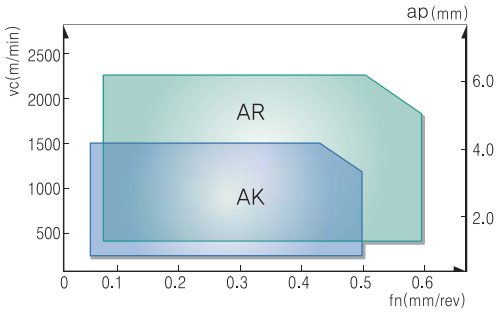
**Caratteristiche**

- Il rompitruciolo AR garantisce affidabilità e buone prestazioni di taglio ad elevate velocità e in condizioni di taglio interrotto.

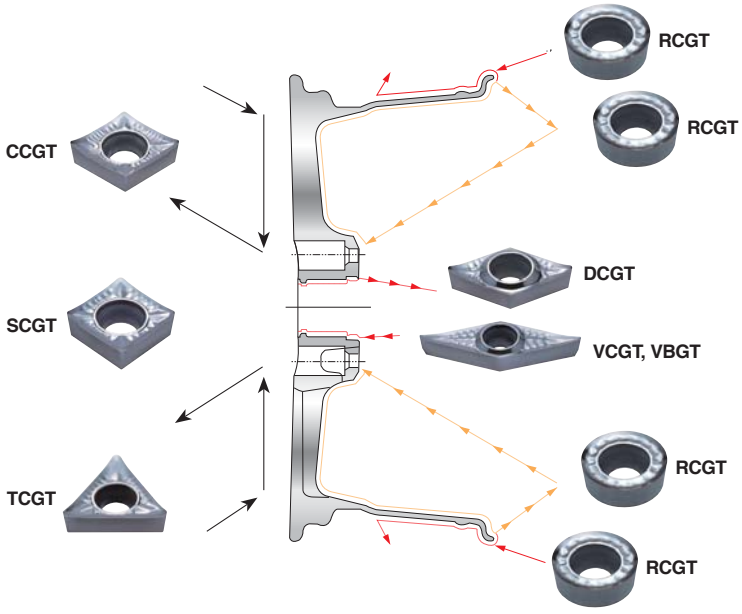



① Il tagliente piatto consente di migliorare la produttività con avanzamenti rapidi e garantisce un'ottima superficie di sgrossatura e affidabilità grazie al tagliente estremamente robusto
② Lo speciale lato superiore lappato consente una migliore evacuazione del truciolo ed evita il riporto sul tagliente
③ L'esclusiva tecnologia KORLOY applicata al tagliente e alla forma del tagliente consentono una migliore evacuazione del truciolo e una durata più lunga dell'utensile
④ Il design esclusivo KORLOY del rompitruciolo consente una migliore evacuazione del truciolo ad elevate velocità di lavorazione

## Rompitrucioli AK e AR speciali per alluminio




| | Raccomandazioni | Gradi |
|---|---|---|
| AK | ap=0.1~5.0mm<br>fn=0.03~0.5mm/giro | H01(Metallo duro sinterizzato non rivestito K10~K20)<br>ND1000(Rivestimento in diamante) |
| AR | ap=0.5~6.0mm<br>fn=0.05~0.6mm/giro | H01(Metallo duro sinterizzato non rivestito K10~K20)<br>ND1000(Rivestimento in diamante)<br>PD1000(Rivestimento DLC) |




## Caratteristiche di H01

- Indicato per la lavorazione di alluminio e acciaio legato
- Il lato superiore lappato riduce la formazione di riporto sul tagliente
- Il design 3D riduce gli sforzi di taglio e consente ottime prestazioni con rapidi avanzamenti e ad alte velocità

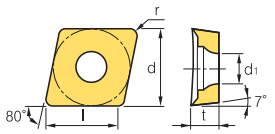
| Pezzo lavorato | | Durezza(HB) | kc(Mpa) | vc(m/min) | fn(mm/giro) |
|---|---|---|---|---|---|
| Lega di alluminio (forgiata) | prima del trattamento | 50 ~ 70 | 500 ~ 600 | 1000 ~ 2500 | 0.1 ~ 0.6 |
| | dopo il trattamento | 90 ~ 110 | 700 ~ 900 | 300 ~ 1000 | 0.1 ~ 0.5 |
| Lega di alluminio (fusa) | prima del trattamento | 70 ~ 80 | 700 ~ 800 | 300 ~ 1000 | 0.1 ~ 0.6 |
| | dopo il trattamento | 80 ~ 100 | 800 ~ 950 | 200 ~ 600 | 0.1 ~ 0.4 |
| Lega di rame | - | 90 ~ 110 | 700 | 250 ~ 600 | 0.1 ~ 0.5 |
| Metallo non ferroso ecc. | - | 100 | 1700 | 150 ~ 300 | 0.1 ~ 0.6 |

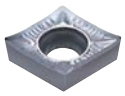
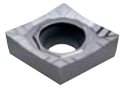
# B Inserti per alluminio (Positivo)

## CC○○ 80° Positivo Angolo di spoglia : 7°

| Pezzo lavorato | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Acciaio | P | ● | ⇕ | | | |
| | Acciaio inossidabile | M | | | | | |
| | Ghisa | K | ● | ⇕ | | | |
| | Materiali non ferrosi | N | | | ● | ● | ⇕ |
| | Leghe resistenti al calore, lega di titanio | S | | | | | |
| | Materiali temprati | H | | | | | |

Applicazioni
● Taglio continuo
⇕ Uso generico
✱ Taglio interrotto




| Inserti | Articolo | | Rivestito | | | Non rivestito | | Dimensioni (mm) | | | | | Condizioni di taglio | | Utensili applicabili | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | PC130 | PC230 | PD1000 | H01 | H10 | l | d | t | r | d1 | fn | ap | Articolo | Pag. |
| CCGT-AK  | CCGT | 060202-AK | | ● | | ● | | 6.2 | 6.35 | 2.38 | 0.2 | 2.8 | 0.01~0.12 | 0.05~3.00 | SCLCR/L | B108 |
| | | 060204-AK | ● | ● | | ● | ● | 6.0 | 6.35 | 2.38 | 0.4 | 2.8 | 0.02~0.15 | 0.10~3.00 | | |
| | | 060208-AK | | | | ● | | 5.6 | 6.35 | 2.38 | 0.8 | 2.8 | 0.02~0.20 | 0.10~4.00 | | |
| | | 09T302-AK | | ● | | ● | | 9.4 | 9.525 | 3.97 | 0.2 | 4.4 | 0.02~0.20 | 0.05~3.00 | | |
| | | 09T304-AK | ● | ● | ● | ● | | 9.2 | 9.525 | 3.97 | 0.4 | 4.4 | 0.02~0.30 | 0.10~5.00 | | |
| | | 09T308-AK | | ● | | ● | | 8.8 | 9.525 | 3.97 | 0.8 | 4.4 | 0.03~0.50 | 0.10~5.00 | | |
| | | 120402-AK | | ● | | ● | | 12.6 | 12.7 | 4.76 | 0.2 | 5.5 | 0.02~0.30 | 0.05~4.00 | | |
| | | 120404-AK | ● | ● | ● | ● | | 12.4 | 12.7 | 4.76 | 0.4 | 5.5 | 0.03~0.50 | 0.10~5.00 | | |
| | | 120408-AK | ● | ● | | ● | | 12.0 | 12.7 | 4.76 | 0.8 | 5.5 | 0.04~0.80 | 0.10~5.50 | | |
| CCGT-AR  | CCGT | 060202-AR | | | | ● | | 6.2 | 6.35 | 2.38 | 0.2 | 2.8 | 0.02~0.30 | 0.30~4.00 | SCLCR/L | B108 |
| | | 060204-AR | | | | ● | | 6.0 | 6.35 | 2.38 | 0.4 | 2.8 | 0.03~0.35 | 0.50~4.50 | | |
| | | 060208-AR | | | | ● | | 5.6 | 6.35 | 2.38 | 0.8 | 2.8 | 0.04~0.50 | 0.50~4.50 | | |
| | | 09T302-AR | | | | ● | | 9.4 | 9.525 | 3.97 | 0.2 | 4.4 | 0.03~0.45 | 0.30~4.00 | | |
| | | 09T304-AR | | | | ● | | 9.2 | 9.525 | 3.97 | 0.4 | 4.4 | 0.04~0.50 | 0.50~4.50 | | |
| | | 09T308-AR | | | | ● | | 8.8 | 9.525 | 3.97 | 0.8 | 4.4 | 0.05~0.60 | 0.50~6.00 | | |
| | | 120402-AR | | | | ● | | 12.6 | 12.7 | 4.76 | 0.2 | 5.5 | 0.04~0.50 | 0.30~5.00 | | |
| | | 120404-AR | | | | ● | | 12.4 | 12.7 | 4.76 | 0.4 | 5.5 | 0.05~0.60 | 0.50~6.00 | | |
| | | 120408-AR | | | | ● | | 12.0 | 12.7 | 4.76 | 0.8 | 5.5 | 0.06~0.65 | 0.50~6.00 | | |
| | | 120412-AR | | | | ● | | 11.6 | 12.7 | 4.76 | 1.2 | 5.5 | 0.08~0.70 | 0.50~6.50 | | |

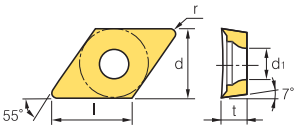
• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15
Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

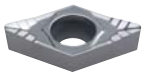
● : Disponibile ○ : A richiesta

## DC○○ 55° Positivo Angolo di spoglia : 7°

| Pezzo lavorato | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Acciaio | P | ● | ⇕ | | | |
| | Acciaio inossidabile | M | | | | | |
| | Ghisa | K | ● | ⇕ | | | |
| | Materiali non ferrosi | N | | | ● | ● | |
| | Leghe resistenti al calore, lega di titanio | S | | | | | |
| | Materiali temprati | H | | | | | |

Applicazioni
● Taglio continuo
⇕ Uso generico
✱ Taglio interrotto




| Inserti | Articolo | | Rivestito | | | Non rivestito | | Dimensioni (mm) | | | | | Condizioni di taglio | | Utensili applicabili | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | PC130 | PC230 | PD1000 | H01 | H10 | l | d | t | r | d1 | fn | ap | Articolo | Pag. |
| DCGT-AK  | DCGT | 070202-AK | | ● | | ● | | 7.5 | 6.35 | 2.38 | 0.2 | 2.8 | 0.01~0.20 | 0.05~3.00 | SDACR/L | B87 |
| | | 070204-AK | ● | | | ● | | 7.3 | 6.35 | 2.38 | 0.4 | 2.8 | 0.02~0.30 | 0.10~4.00 | SDJCR/L | B88 |
| | | 070208-AK | | | | ● | | 6.8 | 6.35 | 2.38 | 0.8 | 2.8 | 0.03~0.40 | 0.10~4.00 | SDNCN | B88 |
| | | 11T302-AK | | ● | | ● | | 11.4 | 9.525 | 3.97 | 0.2 | 4.4 | 0.02~0.30 | 0.05~4.00 | SDQCR/L | B109 |
| | | 11T304-AK | ● | ● | ● | ● | | 11.2 | 9.525 | 3.97 | 0.4 | 4.4 | 0.03~0.50 | 0.10~5.00 | SDUCR/L | B109 |
| | | 11T308-AK | | ● | | ● | | 10.8 | 9.525 | 3.97 | 0.8 | 4.4 | 0.03~0.50 | 0.10~5.00 | SDZCR/L | B109 |
| | | 11T312-AK | | | | ● | | 10.4 | 9.525 | 3.97 | 1.2 | 4.4 | 0.04~0.60 | 0.15~5.00 | | |
| DCGT-AR  | DCGT | 070202-AR | | | | ● | | 7.5 | 6.35 | 2.38 | 0.2 | 2.8 | 0.02~0.30 | 0.30~4.00 | SDACR/L | B87 |
| | | 070204-AR | | | | ● | | 7.3 | 6.35 | 2.38 | 0.4 | 2.8 | 0.03~0.40 | 0.50~5.00 | SDJCR/L | B88 |
| | | 070208-AR | | | | ● | | 6.8 | 6.35 | 2.38 | 0.8 | 2.8 | 0.04~0.50 | 0.50~5.00 | SDNCN | B88 |
| | | 11T302-AR | | | | ● | | 11.4 | 9.525 | 3.97 | 0.2 | 4.4 | 0.03~0.45 | 0.30~6.00 | SDQCR/L | B109 |
| | | 11T304-AR | | | | ● | | 11.2 | 9.525 | 3.97 | 0.4 | 4.4 | 0.04~0.50 | 0.50~6.00 | SDUCR/L | B109 |
| | | 11T308-AR | | | | ● | | 10.8 | 9.525 | 3.97 | 0.8 | 4.4 | 0.05~0.60 | 0.50~6.00 | SDZCR/L | B109 |
| | | 11T312-AR | | | | ● | | 10.4 | 9.525 | 3.97 | 1.2 | 4.4 | 0.08~0.65 | 0.50~6.50 | | |

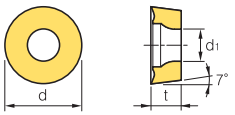
• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15
Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

● : Disponibile ○ : A richiesta

## RC○○ Positivo Angolo di spoglia : 7°

| Pezzo lavorato | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Acciaio | P | | | | | | | |
| Acciaio inossidabile | M | | | | | | | |
| Ghisa | K | | | | | | | |
| Materiali non ferrosi | N | | | | | ● | | |
| Leghe resistenti al calore, lega di titanio | S | | | | | | | |
| Materiali temprati | H | | | | | | | |

Applicazioni
● Taglio continuo
Uso generico
Taglio interrotto



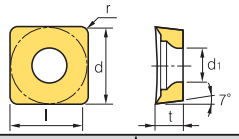

| Inserti | Articolo | Rivestito | | | Non rivestito | | Dimensioni (mm) | | | Condizioni di taglio | | Utensili applicabili | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | PC130 | PC230 | PD1000 | H01 | H10 | d | t | $d_1$ | fn | ap | Articolo | Pag. |
| RCGT-AK | RCGT 0602M0-AK | | | | ● | | 6.0 | 2.38 | 2.8 | 0.05~0.20 | 0.50~2.00 | SRDCN | B88 |
| | 0803M0-AK | | | | ● | | 8.0 | 3.18 | 3.35 | 0.05~0.25 | 0.50~2.50 | SRGCR/L | B89 |
| | 1003M0-AK | | | | ● | | 10.0 | 3.18 | 4.0 | 0.10~0.30 | 1.00~3.00 | | |
| | 10T3M0-AK | | | | | | 10.0 | 3.97 | 4.4 | 0.10~0.30 | 1.00~3.00 | | |
| | 1204M0-AK | | | | ● | | 12.0 | 4.76 | 4.4 | 0.10~0.35 | 1.00~3.50 | | |
| RCGT-AR | RCGT 0602M0-AR | | | | ● | | 6.0 | 2.38 | 2.8 | 0.05~0.20 | 0.50~2.00 | SRDCN | B88 |
| | 0803M0-AR | | | | ● | | 8.0 | 3.18 | 3.35 | 0.05~0.25 | 0.50~2.50 | SRGCR/L | B89 |
| | 1003M0-AR | | | | ● | | 10.0 | 3.18 | 4.0 | 0.10~0.30 | 1.00~3.00 | | |
| | 10T3M0-AR | | | | | | 10.0 | 3.97 | 4.4 | 0.10~0.30 | 1.00~3.00 | | |
| | 1204M0-AR | | | | ● | | 12.0 | 4.76 | 4.4 | 0.10~0.35 | 1.00~3.50 | | |

• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15
● : Disponibile ○ : A richiesta
Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

## SC○○ 90° Positivo Angolo di spoglia : 7°

| Pezzo lavorato | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Acciaio | P | | | | | | | |
| Acciaio inossidabile | M | | | | | | | |
| Ghisa | K | | | | | | | |
| Materiali non ferrosi | N | | | | | ● | | |
| Leghe resistenti al calore, lega di titanio | S | | | | | | | |
| Materiali temprati | H | | | | | | | |

Applicazioni
● Taglio continuo
Uso generico
Taglio interrotto




| Inserti | Articolo | Rivestito | | | Non rivestito | | Dimensioni (mm) | | | | | Condizioni di taglio | | Utensili applicabili | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | PC130 | PC230 | PD1000 | H01 | H10 | l | d | t | r | $d_1$ | fn | ap | Articolo | Pag. |
| SCGT-AK | SCGT 09T302-AK | | | | | | 9.3 | 9.525 | 3.97 | 0.2 | 4.4 | 0.02~0.30 | 0.10~4.00 | SSBCR/L | B89 |
| | 09T304-AK | | | | ● | | 9.1 | 9.525 | 3.97 | 0.4 | 4.4 | 0.04~0.40 | 0.10~5.00 | SSDCN | B89 |
| | 09T308-AK | | | | ● | | 8.7 | 9.525 | 3.97 | 0.8 | 4.4 | 0.03~0.40 | 0.10~5.00 | SSKCR/L | B90,110 |
| | 120404-AK | | | | ● | | 12.3 | 12.7 | 4.76 | 0.4 | 5.5 | 0.03~0.50 | 0.10~5.00 | SSSCR/L | B90 |
| | 120408-AK | | | | ● | | 11.9 | 12.7 | 4.76 | 0.8 | 5.5 | 0.04~0.60 | 0.15~5.50 | | |
| | 120416-AK | | | | | | 11.1 | 12.7 | 4.76 | 1.6 | 5.5 | | | | |
| SCGT-AR | SCGT 09T302-AR | | | | | | 9.3 | 9.525 | 3.97 | 0.2 | 4.4 | 0.03~0.40 | 0.50~5.00 | SSBCR/L | B89 |
| | 09T304-AR | | | | ● | | 9.1 | 9.525 | 3.97 | 0.4 | 4.4 | 0.04~0.50 | 0.50~6.00 | SSDCN | B89 |
| | 09T308-AR | | | | ● | | 8.7 | 9.525 | 3.97 | 0.8 | 4.4 | 0.04~0.50 | 0.50~6.50 | SSKCR/L | B90,110 |
| | 120404-AR | | | | ● | | 12.3 | 12.7 | 4.76 | 0.4 | 4.4 | 0.05~0.60 | 0.50~6.50 | SSSCR/L | B90 |
| | 120408-AR | | | | ● | | 11.9 | 12.7 | 4.76 | 0.8 | 5.5 | 0.05~0.60 | 0.50~7.00 | | |
| | 120416-AR | | | | | | 11.1 | 12.7 | 4.76 | 1.6 | 5.5 | | | | |

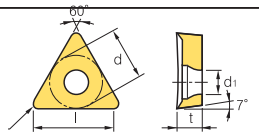
• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15
● : Disponibile ○ : A richiesta
Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

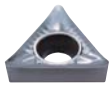
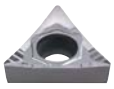
# B Inserti per alluminio (Positivo)

## TC○○ 60° Positivo Angolo di spoglia : 7°

| Pezzo lavorato | | | | | | | |
|---|---|---|---|---|---|---|---|
| Acciaio | P | ● | | | | | |
| Acciaio inossidabile | M | | | | | | |
| Ghisa | K | ● | | | | | |
| Materiali non ferrosi | N | | | | ● | | |
| Leghe resistenti al calore, lega di titanio | S | | | | | | |
| Materiali temprati | H | | | | | | |

Applicazioni
● Taglio continuo
Uso generico
Taglio interrotto




| Inserti | Articolo | Rivestito | | | Non rivestito | | Dimensioni (mm) | | | | | Condizioni di taglio | | Utensili applicabili | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | PC130 | PC230 | PD1000 | H01 | H10 | l | d | t | r | d1 | fn | ap | Articolo | Pag. |
| TCGT-AK  | TCGT 090202-AK | | | | ● | | 9.1 | 5.56 | 2.38 | 0.2 | 2.5 | 0.01~0.12 | 0.05~3.00 | STACR/L | B90 |
| | 090204-AK | | | | ● | | 8.6 | 5.56 | 2.38 | 0.4 | 2.5 | 0.02~0.15 | 0.10~4.00 | STFCR/L | B90,111 |
| | 110202-AK | | | | ● | | 10.5 | 6.35 | 2.38 | 0.2 | 2.8 | 0.02~0.20 | 0.05~4.00 | STGCR/L | B91 |
| | 110204-AK | | | | ● | | 10.0 | 6.35 | 2.38 | 0.4 | 2.8 | 0.03~0.30 | 0.10~4.00 | STTCR/L | B91 |
| | 110208-AK | | | | ● | | 9.0 | 6.35 | 2.38 | 0.8 | 2.8 | 0.03~0.40 | 0.10~5.00 | | |
| | 16T302-AK | | | | ● | | 15.0 | 9.525 | 3.97 | 0.2 | 4.4 | 0.02~0.30 | 0.05~5.00 | | |
| | 16T304-AK | ● | | | ● | | 15.5 | 9.525 | 3.97 | 0.4 | 4.4 | 0.03~0.40 | 0.10~5.50 | | |
| | 16T308-AK | | | | ● | | 14.5 | 9.525 | 3.97 | 0.8 | 4.4 | 0.03~0.50 | 0.10~5.50 | | |
| | 16T312-AK | | | | ● | | 13.5 | 9.525 | 3.97 | 1.2 | 4.4 | 0.04~0.60 | 0.15~5.50 | | |
| | 16T316-AK | | | | ● | | 12.5 | 9.525 | 3.97 | 1.6 | 4.4 | 0.05~0.80 | 0.15~5.50 | | |
| | 16T325-AK | | | | | | 10.0 | 9.525 | 3.97 | 2.5 | 4.4 | 0.06~0.90 | 0.20~7.00 | | |
| TCGT-AR  | TCGT 090202-AR | | | | | | 9.1 | 5.56 | 2.38 | 0.2 | 2.5 | 0.02~0.18 | 0.30~3.00 | STACR/L | B90 |
| | 090204-AR | | | | ● | | 8.6 | 5.56 | 2.38 | 0.4 | 2.5 | 0.02~0.25 | 0.30~5.00 | STFCR/L | B90,111 |
| | 110202-AR | | | | ● | | 10.5 | 6.35 | 2.38 | 0.2 | 2.8 | 0.02~0.30 | 0.30~4.00 | STGCR/L | B91 |
| | 110204-AR | | | | ● | | 10.0 | 6.35 | 2.38 | 0.4 | 2.8 | 0.03~0.40 | 0.30~5.00 | STTCR/L | B91 |
| | 110208-AR | | | | ● | | 9.0 | 6.35 | 2.38 | 0.8 | 2.8 | 0.04~0.45 | 0.50~6.00 | | |
| | 16T302-AR | | | | ● | | 15.0 | 9.525 | 3.97 | 0.2 | 4.4 | 0.03~0.45 | 0.30~5.00 | | |
| | 16T304-AR | | | | ● | | 15.5 | 9.525 | 3.97 | 0.4 | 4.4 | 0.04~0.50 | 0.50~6.00 | | |
| | 16T308-AR | | | | ● | | 14.5 | 9.525 | 3.97 | 0.8 | 4.4 | 0.05~0.60 | 0.50~6.00 | | |
| | 16T312-AR | | | | ● | | 13.5 | 9.525 | 3.97 | 1.2 | 4.4 | 0.06~0.65 | 0.50~6.00 | | |
| | 16T316-AR | | | | ● | | 12.5 | 9.525 | 3.97 | 1.6 | 4.4 | 0.08~0.70 | 0.50~6.50 | | |
| | 16T325-AR | | | | | | 10.0 | 9.525 | 3.97 | 2.5 | 4.4 | 0.10~0.10 | 0.80~7.00 | | |

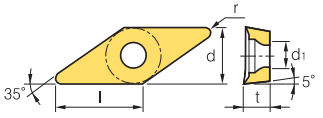
• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15
Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

● : Disponibile ○ : A richiesta

## VB○○ 35° Positivo Angolo di spoglia : 7°

| Pezzo lavorato | | | | | | | |
|---|---|---|---|---|---|---|---|
| Acciaio | P | | | | | | |
| Acciaio inossidabile | M | | | | | | |
| Ghisa | K | | | | | | |
| Materiali non ferrosi | N | | | | ● | | |
| Leghe resistenti al calore, lega di titanio | S | | | | | | |
| Materiali temprati | H | | | | | | |

Applicazioni
● Taglio continuo
Uso generico
Taglio interrotto




| Inserti | Articolo | Rivestito | | | Non rivestito | | Dimensioni (mm) | | | | | Condizioni di taglio | | Utensili applicabili | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | PC130 | PC230 | PD1000 | H01 | H10 | l | d | t | r | d1 | fn | ap | Articolo | Pag. |
| VBGT-AK  | VBGT 110302-AK | | | | ● | | 10.5 | 6.35 | 3.18 | 0.2 | 2.8 | 0.02~0.15 | 0.05~3.00 | SVABR/L | B91 |
| | 110304-AK | | | | ● | | 10.0 | 6.35 | 3.18 | 0.4 | 2.8 | 0.02~0.15 | 0.10~4.00 | SVJBR/L | B92 |
| | 110308-AK | | | | | | 9.0 | 6.35 | 3.18 | 0.8 | 2.8 | 0.03~0.18 | 0.10~5.00 | SVVBN | B92 |
| | 160402-AK | | | | | | 16.1 | 9.525 | 4.76 | 0.2 | 4.4 | 0.03~0.30 | 0.05~4.00 | SVQBR/L | B112 |
| | 160404-AK | | | | ● | | 15.6 | 9.525 | 4.76 | 0.4 | 4.4 | 0.03~0.40 | 0.10~5.00 | SVUBR/L | B113 |
| | 160408-AK | | | | ● | | 14.6 | 9.525 | 4.76 | 0.8 | 4.4 | 0.03~0.50 | 0.10~5.00 | | |
| | 160412-AK | | | | | | 13.6 | 9.525 | 4.76 | 1.2 | 4.4 | 0.05~0.60 | 0.10~5.50 | | |
| VBGT-AR  | VBGT 110302-AR | | | | ● | | 10.5 | 6.35 | 3.18 | 0.2 | 2.8 | 0.02~0.35 | 0.30~3.00 | SVABR/L | B91 |
| | 110304-AR | | | | ● | | 10.0 | 6.35 | 3.18 | 0.4 | 2.8 | 0.03~0.45 | 0.30~4.00 | SVJBR/L | B92 |
| | 110308-AR | | | | | | 9.0 | 6.35 | 3.18 | 0.8 | 2.8 | 0.03~0.50 | 0.50~6.00 | SVVBN | B92 |
| | 160402-AR | | | | | | 16.1 | 9.525 | 4.76 | 0.2 | 4.4 | 0.04~0.45 | 0.30~5.00 | SVQBR/L | B112 |
| | 160404-AR | | | | ● | | 15.6 | 9.525 | 4.76 | 0.4 | 4.4 | 0.04~0.50 | 0.50~6.00 | SVUBR/L | B113 |
| | 160408-AR | | | | ● | | 14.6 | 9.525 | 4.76 | 0.8 | 4.4 | 0.05~0.60 | 0.50~6.00 | | |
| | 160412-AR | | | | | | 13.6 | 9.525 | 4.76 | 1.2 | 4.4 | 0.05~0.70 | 0.50~6.50 | | |

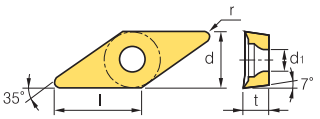
• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15
Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

● : Disponibile ○ : A richiesta

## VC○○ 35° Positivo Angolo di spoglia : 7°

| Pezzo lavorato | | | Rivestito | | | Non rivestito | |
|---|---|---|---|---|---|---|---|
| | | | PC130 | PC230 | PD1000 | H01 | H10 |
| | Acciaio | P | ● | ⬌ | | | |
| | Acciaio inossidabile | M | | | | | |
| | Ghisa | K | ● | ⬌ | | | |
| | Materiali non ferrosi | N | | | ● | ● | |
| | Leghe resistenti al calore, lega di titanio | S | | | | | |
| | Materiali temprati | H | | | | | |

Applicazioni
● Taglio continuo
⬌ Uso generico
✱ Taglio interrotto

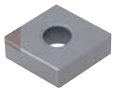
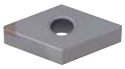
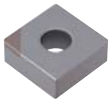
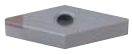
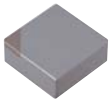
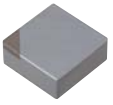
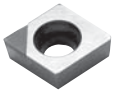
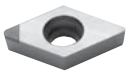
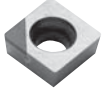



| Inserti | Articolo | | Dimensioni (mm) | | | | | Condizioni di taglio | | Utensili applicabili | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | l | d | t | r | d1 | fn | ap | Articolo | Pag. |
| VCGT-AK  | VCGT | 110301-AK | 10.2 | 6.35 | 3.18 | 0.1 | 2.8 | 0.02~0.15 | 0.05~3.00 | SVJCR/L | B92,112 |
| | | 110302-AK | 10.5 | 6.35 | 3.18 | 0.2 | 2.8 | 0.02~0.20 | 0.05~3.00 | SVVCN | B92 |
| | | 110304-AK | 10.0 | 6.35 | 3.18 | 0.4 | 2.8 | 0.02~0.25 | 0.10~4.00 | SVQCR/L | B112 |
| | | 110308-AK | 9.0 | 6.35 | 3.18 | 0.8 | 2.8 | 0.03~0.30 | 0.10~5.00 | SVUCR/L | B113 |
| | | 130302-AK | 10.5 | 7.94 | 3.18 | 0.2 | 3.4 | 0.02~0.35 | 0.10~5.00 | | |
| | | 130304-AK | 10.0 | 7.94 | 3.18 | 0.4 | 3.4 | 0.03~0.35 | 0.10~5.00 | | |
| | | 130308-AK | 9.0 | 7.94 | 3.18 | 0.8 | 3.4 | 0.04~0.40 | 0.10~5.00 | | |
| | | 160402-AK | 16.1 | 9.525 | 4.76 | 0.2 | 4.4 | 0.02~0.30 | 0.05~5.00 | | |
| | | 160404-AK | 15.6 | 9.525 | 4.76 | 0.4 | 4.4 | 0.03~0.40 | 0.10~5.00 | | |
| | | 160408-AK | 14.0 | 9.525 | 4.76 | 0.8 | 4.4 | 0.03~0.50 | 0.10~5.00 | | |
| | | 160412-AK | 13.6 | 9.525 | 4.76 | 1.2 | 4.4 | 0.03~0.50 | 0.10~5.00 | | |
| | | 220516-AK | 18.0 | 12.7 | 5.56 | 1.6 | 5.6 | 0.03~0.60 | 0.10~7.00 | | |
| | | 220525-AK | 15.6 | 12.7 | 5.56 | 2.5 | 5.6 | 0.05~0.70 | 0.10~7.00 | | |
| | | 220530-AK | 14.3 | 12.7 | 5.56 | 3.0 | 5.6 | 0.08~1.00 | 0.10~7.00 | | |
| VCGT-AR  | VCGT | 110301-AR | 10.2 | 6.35 | 3.18 | 0.1 | 2.8 | 0.02~0.20 | 0.10~3.00 | SVJCR/L | B92,112 |
| | | 110302-AR | 10.5 | 6.35 | 3.18 | 0.2 | 2.8 | 0.02~0.25 | 0.30~3.00 | SVVCN | B92 |
| | | 110304-AR | 10.0 | 6.35 | 3.18 | 0.4 | 2.8 | 0.03~0.35 | 0.30~4.00 | SVQCR/L | B112 |
| | | 110308-AR | 9.0 | 6.35 | 3.18 | 0.8 | 2.8 | 0.04~0.45 | 0.50~6.00 | SVUCR/L | B113 |
| | | 130302-AR | 10.5 | 7.94 | 3.18 | 0.2 | 3.4 | 0.02~0.40 | 0.50~3.00 | | |
| | | 130304-AR | 10.0 | 7.94 | 3.18 | 0.4 | 3.4 | 0.03~0.45 | 0.50~4.00 | | |
| | | 130308-AR | 9.0 | 7.94 | 3.18 | 0.8 | 3.4 | 0.04~0.50 | 0.50~5.00 | | |
| | | 160402-AR | 16.1 | 9.525 | 4.76 | 0.2 | 4.4 | 0.03~0.40 | 0.30~5.00 | | |
| | | 160404-AR | 15.6 | 9.525 | 4.76 | 0.4 | 4.4 | 0.04~0.50 | 0.50~6.00 | | |
| | | 160408-AR | 14.6 | 9.525 | 4.76 | 0.8 | 4.4 | 0.05~0.60 | 0.50~6.00 | | |
| | | 160412-AR | 13.6 | 9.525 | 4.76 | 1.2 | 4.4 | 0.06~0.65 | 0.50~6.50 | | |
| | | 220516-AR | 18.0 | 12.7 | 5.56 | 1.6 | 5.6 | 0.10~0.65 | 0.80~6.50 | | |
| | | 220525-AR | 15.6 | 12.7 | 5.56 | 2.5 | 5.6 | 0.10~0.70 | 0.80~7.00 | | |
| | | 220530-AR | 14.3 | 12.7 | 5.56 | 3.0 | 5.6 | 0.12~0.75 | 1.00~7.00 | | |

• Geometria tagliente: A24 ~ A27 • Rompitruciolo raccomandato: B04 ~ B10 • Sistema di codifica: B14 ~ B15
Nota) Unità : Avanzamento(fn) = mm/giro Profondità di passata(ap) = mm

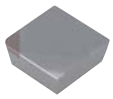
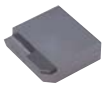
● : Disponibile ○ : A richiesta

## cBN Riaffilabile (Negativo / Positivo)

| | Inserti | Articolo | Gradi | | | | | | | | Dimensioni (mm) | | | | Utensili applicabili | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | KB410 | KB420 | KB425 | KB320 | KB210 | KB335 | KB350 | KB370 | Cerchio inscritto | Spessore | Raggio di punta | Ø foro | | |
| CN○○ 80° Neg. |  | CNMA 120404 | | | | ● | | | | | 12.7 | 4.76 | 0.4 | 5.16 | DCBNR/L, DCLNR/L<br>MCKNR/L, MCLNR/L<br>MCMNN, PCBNR/L<br>PCLNR/L | B64<br>B80, B106<br>B80, B68<br>B69 |
| | | 120404W | | | | | | | | | 12.7 | 4.76 | 0.4 | 5.16 | | |
| | | 120408 | | | | ● | | | | | 12.7 | 4.76 | 0.8 | 5.16 | | |
| | | 120408W | | | | | | | | | 12.7 | 4.76 | 0.8 | 5.16 | | |
| | | 120412 | | | | | | | | | 12.7 | 4.76 | 1.2 | 5.16 | | |
| | | 120412W | | | | | | | | | 12.7 | 4.76 | 1.2 | 5.16 | | |
| DN○○ 55° Neg. |  | DNMA 150404 | | | | ● | | | | | 12.7 | 4.76 | 0.4 | 5.16 | DDJNR/L, MDJNR/L<br>MDNNN, MDQNR/L<br>MDUNR/L, PDJNR/L<br>PDNNR/L, PDSNR/L<br>PDUNR/L | B65, B81<br>B81, B82<br>B106, B69<br>B70, B102<br>B103 |
| | | 150408 | | | | ● | | | | | 12.7 | 4.76 | 0.8 | 5.16 | | |
| | | 150412 | | | | | | | | | 12.7 | 4.76 | 1.2 | 5.16 | | |
| SN○○ 90° Neg. |  | SNMA 120404 | | | | ● | | | | | 12.7 | 4.76 | 0.4 | 5.16 | DSBNR/L, MSBNR/L<br>MSDNN, MSKNR/L<br>MSRNR/L, MSSNR/L<br>PSBNR/L, PSDNN<br>PSKNR/L, | B65, B82<br>B82, B83<br>B83, B84<br>B72, B72<br>B73 |
| | | 120408 | | | | ● | | | | | 12.7 | 4.76 | 0.8 | 5.16 | | |
| | | 120412 | | | | | | | | | 12.7 | 4.76 | 1.2 | 5.16 | | |
| TN○○ 60° Neg. |  | TNMA 160404 | | | | ● | | | | | 9.525 | 4.76 | 0.4 | 3.81 | MTENNS, MTFNR/L<br>MTGNR/L, MTJNR/L<br>PTFNR/L, PTGNR/L<br>PTTNR/L, WTENN<br>WTJNR/L, WTXNR/L | B84, B84<br>B85, B85<br>B74, B75<br>B75, B77<br>B77, B77 |
| | | 160408 | | | | ● | | | | | 9.525 | 4.76 | 0.8 | 3.81 | | |
| | | 160412 | | | | | | | | | 9.525 | 4.76 | 1.2 | 3.81 | | |
| | | 220404 | | | | | | | | | 12.7 | 4.76 | 0.4 | 5.16 | | |
| | | 220408 | | | | | | | | | 12.7 | 4.76 | 0.8 | 5.16 | | |
| | | 220412 | | | | | | | | | 12.7 | 4.76 | 1.2 | 5.16 | | |
| VN○○ 35° Neg. |  | VNMA 160404 | | | | ● | | | | | 9.525 | 4.76 | 0.4 | 3.81 | MVJNR/L<br>MVQNR/L<br>MVUNR/L<br>MVVNN | B85<br>B86<br>B106<br>B86 |
| | | 160408 | | | | ● | | | | | 9.525 | 4.76 | 0.8 | 3.81 | | |
| | | 160412 | | | | | | | | | 9.525 | 4.76 | 1.2 | 3.81 | | |
| CN○○ 80° Neg. |  | CNGN 090304 | | | | | | | | | 9.525 | 3.18 | 0.4 | | CCLNR/L | B94 |
| | | 090308 | | | | | | | | | 9.525 | 3.18 | 0.8 | | | |
| | | 090312 | | | | | | | | | 9.525 | 3.18 | 1.2 | | | |
| | | 090404 | | | | | | | | | 12.7 | 4.76 | 0.4 | | | |
| | | 090408 | | | | | | | | | 12.7 | 4.76 | 0.8 | | | |
| | | 090412 | | | | | | | | | 12.7 | 4.76 | 1.2 | | | |
| SN○○ 90° Neg. |  | SNGN 090304 | | | | | | | | | 9.525 | 3.18 | 0.4 | - | CSDNN<br>CSKNR/L | B94<br>B95 |
| | | 090308 | | | | | | | | | 9.525 | 3.18 | 0.8 | - | | |
| | | 090312 | | | | | | | | | 9.525 | 3.18 | 1.2 | - | | |
| | | 120404 | | | | | | | | | 12.7 | 4.76 | 0.4 | - | | |
| | | 120408 | | | | | | | | | 12.7 | 4.76 | 0.8 | - | | |
| | | 120412 | | | | | | | | | 12.7 | 4.76 | 1.2 | - | | |
| TN○○ 60° Neg. |  | TNGN 160404 | | | | | | | | | 9.525 | 4.76 | 0.4 | - | CTFNR/L<br>CTGNR/L | B95<br>B95 |
| | | 160408 | | | | | | | | | 9.525 | 4.76 | 0.8 | - | | |
| | | 160412 | | | | | | | | | 9.525 | 4.76 | 1.2 | - | | |
| CC○○ CP○○ 80° Pos. |  (CCMW) | CCMW 09T304 | | | | ● | | | | | 9.525 | 3.97 | 0.4 | 4.4 | SCACR/L<br>SCLCR/L | B87<br>B87 |
| | | 09T308 | | | | | | | | | 9.525 | 3.97 | 0.8 | 4.4 | | |
| | | CPGB 080204 | | | | | | | | | 7.94 | 2.38 | 0.4 | 3.8 | | |
| | | 080208 | | | | | | | | | 7.94 | 2.38 | 0.8 | 3.8 | | |
| | | 080304 | | | | | | | | | 9.525 | 3.18 | 0.4 | 2.8 | | |
| | | 080308 | | | | | | | | | 9.525 | 3.18 | 0.8 | 2.8 | | |
| | | 080312 | | | | | | | | | 9.525 | 3.18 | 1.2 | 2.8 | | |
| | | CPGW 080204 | | | | | | | | | 7.94 | 2.38 | 0.4 | 3.8 | | |
| | | 080208 | | | | | | | | | 7.94 | 2.38 | 0.8 | 3.8 | | |
| DC○○ 55° Pos. |  | DCMW 070204 | | | | | | | | | 6.35 | 2.38 | 0.4 | 2.8 | SDACR/L<br>SDJCR/L<br>SDNCN<br>SDQCR/L<br>SDUCR/L<br>SDZCR/L | B87<br>B88<br>B88<br>B89<br>B117<br>B99 |
| | | 070208 | | | | | | | | | 6.35 | 2.38 | 0.8 | 2.8 | | |
| | | 070212 | | | | | | | | | 6.35 | 2.38 | 1.2 | 2.8 | | |
| | | 11T304 | | | | | | | | | 9.525 | 3.97 | 0.4 | 4.4 | | |
| | | 11T308 | | | | | | | | | 9.525 | 3.97 | 0.8 | 4.4 | | |
| | | 11T312 | | | | | | | | | 9.525 | 3.97 | 1.2 | 4.4 | | |
| SC○○ 90° Pos. |  | SCMW 09T304 | | | | | | | | | 9.525 | 3.97 | 0.4 | 4.4 | SSBCR/L<br>SSDCN<br>SSKCR/L<br>SSSCR/L | B89<br>B89<br>B90<br>B90 |
| | | 09T308 | | | | | | | | | 9.525 | 3.97 | 0.8 | 4.4 | | |
| | | 09T312 | | | | | | | | | 9.525 | 3.97 | 1.2 | 4.4 | | |
| TC○○ 60° Pos. |  | TCGW 110204 | | | | | | | | | 6.35 | 2.38 | 0.4 | 2.8 | STACR/L<br>STFCR/L<br>STFPR/L<br>STGCR/L<br>STTCR/L | B90<br>B90<br>B118<br>B91<br>B91 |
| | | 110208 | | | | | | | | | 6.35 | 2.38 | 0.8 | 2.8 | | |

● : Disponibile ○ : A richiesta

# cBN Riaffilabile (Negativo / Positivo)

| | Inserti | Articolo | Gradi | | | | | | | | Dimensioni (mm) | | | | Utensili applicabili | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | KB410 | KB420 | KB425 | KB320 | KB210 | KB335 | KB350 | KB370 | Cerchio inscritto | Spessore | Raggio di punta | Ø foro | | |
| TC ○○ 60° Pos. |  | TCGW 16T304 | | | | | | | | | 9.525 | 3.97 | 0.4 | 2.8 | STACR/L<br>STFCR/L<br>STFPR/L<br>STGCR/L<br>STTCR/L | B90<br>B90<br>B118<br>B91<br>B91 |
| | | 16T308 | | | | | | | | | 9.525 | 3.97 | 0.8 | 2.8 | | |
| | | 16T312 | | | | | | | | | 9.525 | 3.97 | 1.2 | 2.8 | | |
| VB ○○<br>VC ○○<br>35° Pos. |  | VBMW 110204 | | | | | | | | | 6.35 | 2.38 | 0.4 | 2.8 | SVABR/L<br>SVHBR/L<br>SVJBR/L<br>SVQBR/L<br>SVUBR/L | B91<br>B91<br>B92<br>B112<br>B113 |
| | | 110208 | | | | | | | | | 6.35 | 2.38 | 0.8 | 2.8 | | |
| | | 110304 | | | | | | | | | 6.35 | 3.18 | 0.4 | 3.3 | | |
| | | 110308 | | | | | | | | | 6.35 | 3.18 | 0.8 | 3.3 | | |
| | | 160404 | | | | ● | | | | | 9.525 | 3.97 | 0.4 | 3.81 | | |
| | | 160408 | | | | | | | | | 9.525 | 3.97 | 0.8 | 3.81 | | |
| | | 160412 | | | | | | | | | 9.525 | 3.97 | 1.2 | 3.81 | | |
| | | VCMW 160404 | | | | | | | | | 9.525 | 4.76 | 0.4 | 3.81 | | |
| | | 110408 | | | | | | | | | 9.525 | 4.76 | 0.8 | 3.81 | | |
| | | 110412 | | | | | | | | | 9.525 | 4.76 | 1.2 | 3.81 | | |
| SP ○○ 90° Pos. |  | SPGN 090304 | | | | | | | | | 9.525 | 3.18 | 0.4 | - | CSDPN<br>CSKPR/L | B78<br>B79 |
| | | 090308 | | | | | | | | | 9.525 | 3.18 | 0.8 | - | | |
| | | 090312 | | | | | | | | | 9.525 | 3.18 | 1.2 | - | | |
| | | 120304 | | | | | | | | | 12.7 | 3.18 | 0.4 | - | | |
| | | 120308 | | | | | | | | | 12.7 | 3.18 | 0.8 | - | | |
| | | 120312 | | | | | | | | | 12.7 | 3.18 | 1.2 | - | | |
| TB ○○<br>TP ○○<br>60° Pos. |  <br>(TBGN) | TBGN 060102-B | | | | | | | | | 3.97 | 1.59 | 0.2 | - | CTFPR/L<br>CTGPR/L | B79<br>B79 |
| | | 060104-B | | | | | | | | | 3.97 | 1.59 | 0.4 | - | | |
| | | 060108-B | | | | | | | | | 3.97 | 1.59 | 0.8 | - | | |
| | | TPGN 110304 | | | | | | | | | 6.35 | 3.18 | 0.4 | - | | |
| | | 110308 | | | | | | | | | 6.35 | 3.18 | 0.8 | - | | |
| | | 10312 | | | | | | | | | 6.35 | 3.18 | 1.2 | - | | |
| | | 160304 | | | | | | | | | 9.525 | 3.18 | 0.4 | - | | |
| | | 160308 | | | | | | | | | 9.525 | 3.18 | 0.8 | - | | |
| | | 160312 | | | | | | | | | 9.525 | 3.18 | 1.2 | - | | |
| RN ○○ Neg. |  | RNGN 120400-B | | | | | | | | | 12.7 | 6.4 | - | - | CRDNN<br>CRGNR/L | B94<br>B949 |
| RB ○○<br>RC ○○<br>RT ○○<br>Pos. |  <br>  <br>  | RBG 08-B | | | | | | | | | 0.8 | 6.5 | - | - | | |
| | | 10-B | | | | | | | | | 10.0 | 9.0 | - | - | | |
| | | 12-B | | | | | | | | | 12.0 | 11.0 | - | - | | |
| | | 16-B | | | | | | | | | 16.0 | 13.0 | - | - | | |
| | | 20-B | | | | | | | | | 20.0 | 15.0 | - | - | | |
| | | 26-B | | | | | | | | | 26.0 | 15.0 | - | - | | |
| | | RCGA 0906M0 | | | | | | | | | 9.0 | 6.4 | - | - | | |
| | | RTGN 0508M0 | | | | | | | | | 5.0 | 7.5 | - | - | | |
| | | 0608M0 | | | | | | | | | 6.0 | 7.5 | - | - | | |
| | | 0711MO | | | | | | | | | 7.0 | 11.0 | - | - | | |
| | | RTGN 0811MO | | | | | | | | | 8.0 | 11.0 | - | - | | |
| | | 0914MO | | | | | | | | | 9.0 | 11.0 | - | - | | |
| | | 1014MO | | | | | | | | | 10.0 | 14.0 | - | - | | |
| | | 1214MO | | | | | | | | | 12.0 | 14.0 | - | - | | |
| Fresatura fresatura |  | SNEN 1504ADTR | | | | | | | | | - | 4.76 | - | - | | |
| | | 1504ADTL | | | | | | | | | - | 4.76 | - | - | | |
| | | 1504DTR-W | | | | | | | | | - | 4.76 | - | - | | |
| | | 1504DTL-W | | | | | | | | | - | 4.76 | - | - | | |

● : Disponibile ○ : A richiesta

# B Inserti cBN

## cBN per scanalatura e filettatura

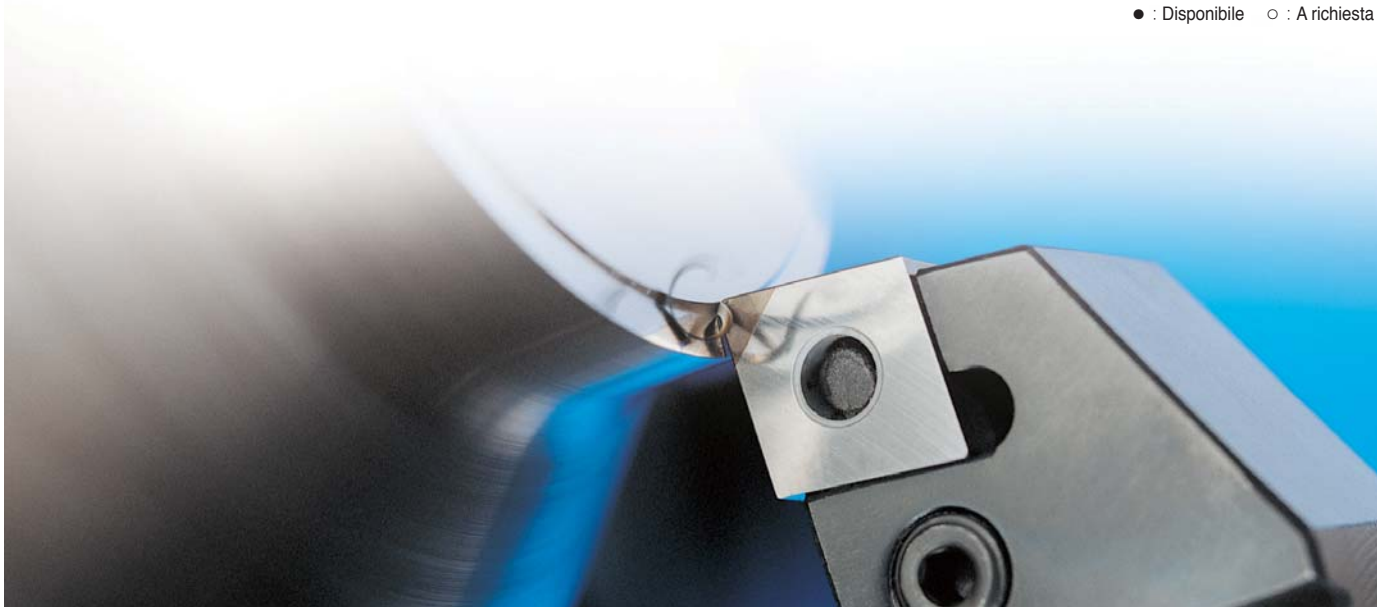
| | Inserti | Articolo | Gradi | | | Dimensioni (mm) | | | | | Utensili applicabili | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | KB420 | KB320 | KB335 | Lunghezza Spessore | Lunghezza utensile | Raggio di punta | Lunghezza utensile | Lunghezza Spessore | | |
| BN○○ |  | BNGNT 0200L | | | | 2.0 | 4.0 | 0.2 | 25 | 6.0 | | |
| | | 0200R | | | | 2.0 | 4.0 | 0.2 | 25 | 6.0 | | |
| | | 0250L | | | | 2.5 | 4.0 | 0.2 | 25 | 6.0 | | |
| | | 0250R | | | | 2.5 | 4.0 | 0.2 | 25 | 6.0 | | |
| | | 0300L | | | | 3.0 | 5.0 | 0.4 | 25 | 6.0 | | |
| | | 0300R | | | | 3.0 | 5.0 | 0.4 | 25 | 6.0 | | |
| | | 0400L | | | | 4.0 | 6.0 | 0.4 | 26 | 6.0 | | |
| | | 0400R | | | | 4.0 | 6.0 | 0.4 | 26 | 6.0 | | |
| | | 0500L | | | | 5.0 | 6.0 | 0.4 | 26 | 6.0 | | |
| | | 0500R | | | | 5.0 | 6.0 | 0.4 | 26 | 6.0 | | |
| | | 0600L | | | | 6.0 | 7.0 | 0.4 | 27 | 6.0 | | |
| | | 0600R | | | | 6.0 | 7.0 | 0.4 | 27 | 6.0 | | |
| |  | BNTT 1020L | | | | Passo 1.0~2.0 | | 0.13 | 25 | 2.0 | | |
| | | 1020R | | | | Passo 1.0~2.0 | | 0.13 | 25 | 2.0 | | |
| | | 1530L | | | | Passo 1.5~3.0 | | 0.13 | 25 | 2.0 | | |
| | | 1530R | | | | Passo 1.5~3.0 | | 0.13 | 25 | 2.0 | | |

● : Disponibile ○ : A richiesta

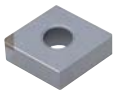
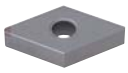
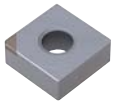
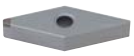
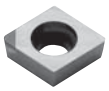
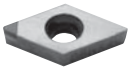
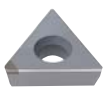
## cBN Mini barenatura

| | Inserti | Articolo | Gradi | Diametro min. ØD | Dimensioni (mm) | | | | Utensili applicabili | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | KB350 | | Lunghezza utensile | Diametro | Spessore | Raggio di punta | | |
| BN○○R |  | BNBB 03R | | 3.5 | 60 | 3.5 | 2.4 | 0.2 | | |
| | | 035R | | 4.0 | 60 | 3.5 | 2.9 | 0.2 | | |
| | | 04R | | 4.5 | 60 | 4.0 | 3.4 | 0.2 | | |
| | | 045R | | 5.0 | 60 | 4.5 | 3.9 | 0.2 | | |
| | | 05R | | 5.5 | 80 | 5.0 | 4.4 | 0.2 | | |
| | | 055R | | 6.0 | 80 | 5.5 | 4.9 | 0.2 | | |
| | | 06R | | 6.5 | 80 | 6.0 | 5.4 | 0.2 | | |
| | | 065R | | 7.0 | 80 | 6.5 | 5.9 | 0.2 | | |
| | | 07R | | 7.5 | 100 | 7.0 | 6.4 | 0.2 | | |
| | | 075R | | 8.0 | 100 | 7.5 | 6.9 | 0.2 | | |
| | | 08R | | 8.5 | 100 | 8.0 | 7.4 | 0.2 | | |

● : Disponibile ○ : A richiesta

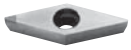
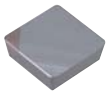


## cBN Mono-Uso (Negativo / Positivo)

| | Inserti | Articolo | Gradi | | | | | | | | Dimensioni (mm) | | | | Utensili applicabili | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | KB410 | KB420 | KB425 | KB320 | KB210 | KB335 | KB350 | KB370 | Cerchio inscritto | Spessore | Raggio di punta | Ø foro | | |
| CN○○ 80° Neg. |  | NU-CNMA 120404 | | | | ● | | | | | 12.7 | 4.76 | 0.4 | 5.16 | DCBNR/L, DCLNR/L | B64 |
| | | 120408 | | | | ● | | | | | 12.7 | 4.76 | 0.8 | 5.16 | MCKNR/L, MCLNR/L | B80, B106 |
| | | 120412 | | | | | | | | | 12.7 | 4.76 | 1.2 | 5.16 | MCMNN, PCBNR/L | B80, B68 |
| | | | | | | | | | | | | | | | PCLNR/L | B69 |
| DN○○ 55° Neg. |  | NU-DNMA 150404 | | | | | | | | | 12.7 | 4.76 | 0.4 | 5.16 | DDJNR/L, MDJNR/L | B65, B81 |
| | | 150408 | | | | | | | | | 12.7 | 4.76 | 0.8 | 5.16 | MDNNN, MDQNR/L | B81, B82 |
| | | 150412 | | | | | | | | | 12.7 | 4.76 | 1.2 | 5.16 | MDUNR/L, PDJNR/L | B106, B69 |
| | | | | | | | | | | | | | | | PDNNR/L, PDSNR/L | B70, B102 |
| | | | | | | | | | | | | | | | PDUNR/L | B103 |
| SN○○ 90° Neg. |  | NU-SNMA 120404 | | | | | | | | | 12.7 | 4.76 | 0.4 | 5.16 | DSBNR/L, MSBNR/L | B65, B82 |
| | | 120408 | | | | | | | | | 12.7 | 4.76 | 0.8 | 5.16 | MSDNN, MSKNR/L | B82, B83 |
| | | 120412 | | | | | | | | | 12.7 | 4.76 | 1.2 | 5.16 | MSRNR/L, MSSNR/L | B83, B84 |
| | | | | | | | | | | | | | | | PSBNR/L, PSDNN | B72, B72 |
| | | | | | | | | | | | | | | | PSKNR/L, | B73 |
| TN○○ 60° Neg. |  | NU-TNMA 160404 | | | | | | | | | 9.525 | 4.76 | 0.4 | 3.81 | MTENNS, MTFNR/L | B84, B84 |
| | | 160408 | | | | | | | | | 9.525 | 4.76 | 0.8 | 3.81 | MTGNR/L, MTJNR/L | B85, B85 |
| | | 160412 | | | | | | | | | 9.525 | 4.76 | 1.2 | 3.81 | PTFNR/L, PTGNR/L | B74, B75 |
| | | | | | | | | | | | | | | | PTTNR/L, WTENN | B75, B77 |
| | | | | | | | | | | | | | | | WTJNR/L, WTXNR/L | B77, B77 |
| VN○○ 35° Neg. |  | NU-VNMA 160404 | | | | | | | | | 9.525 | 4.76 | 0.4 | 3.81 | MVJNR/L | B85 |
| | | 160408 | | | | | | | | | 9.525 | 4.76 | 0.8 | 3.81 | MVQNR/L | B86 |
| | | 160412 | | | | | | | | | 9.525 | 4.76 | 1.2 | 3.81 | MVUNR/L | B106 |
| | | | | | | | | | | | | | | | MVVNN | B86 |
| CC○○ CP○○ 80° Pos. |  | NU-CCMW 060202 | | | | | | | | | 6.35 | 2.38 | 0.2 | 2.8 | SCACR/L | B87 |
| | | 060204 | | | | | | | | | 6.35 | 2.38 | 0.4 | 2.8 | SCLCR/L | B87 |
| | | 060208 | | | | | | | | | 6.35 | 2.38 | 0.8 | 2.8 | | |
| | | 09T302 | | | | | | | | | 9.525 | 3.97 | 0.2 | 4.4 | | |
| | | 09T304 | | | | | | | | | 9.525 | 3.97 | 0.4 | 4.4 | | |
| | | 09T308 | | | | | | | | | 9.525 | 3.97 | 0.8 | 4.4 | | |
| | | NU-CPMB 080204 | | | | | | | | | 7.94 | 2.38 | 0.4 | 3.4 | | |
| | | 080208 | | | | | | | | | 7.94 | 2.38 | 0.8 | 3.4 | | |
| | | 090304 | | | | | | | | | 9.525 | 3.18 | 0.4 | 4.4 | | |
| | | 090308 | | | | | | | | | 9.525 | 3.18 | 0.8 | 4.4 | | |
| DC○○ 55° Pos. |  | NU-DCMW 070202 | | | | | | | | | 6.35 | 2.38 | 0.2 | 2.8 | SDACR/L | B87 |
| | | 070204 | | | | | | | | | 6.35 | 2.38 | 0.4 | 2.8 | SDJCR/L | B88 |
| | | 070208 | | | | | | | | | 6.35 | 2.38 | 0.8 | 2.8 | SDNCN | B88 |
| | | 11T302 | | | | | | | | | 9.525 | 3.97 | 0.2 | 4.4 | SDQCR/L | B89 |
| | | 11T304 | | | | | | | | | 9.525 | 3.97 | 0.4 | 4.4 | SDUCR/L | B117 |
| | | 11T308 | | | | | | | | | 9.525 | 3.97 | 0.8 | 4.4 | SDZCR/L | B99 |
| TC○○ TP○○ 60° Pos. |  | NU-TCGW 090204 | | | | | | | | | 5.56 | 2.38 | 0.4 | 2.8 | STACR/L | B90 |
| | | 090208 | | | | | | | | | 5.56 | 2.38 | 0.8 | 2.8 | STFCR/L | B90 |
| | | 110202 | | | | | | | | | 6.35 | 2.38 | 0.2 | 2.3 | STFPR/L | B118 |
| | | 110204 | | | | | | | | | 6.35 | 2.38 | 0.4 | 2.3 | STGCR/L | B91 |
| | | 110208 | | | | | | | | | 6.35 | 2.38 | 0.8 | 2.3 | STTCR/L | B91 |
| | | 16T304 | | | | | | | | | 9.525 | 3.97 | 0.4 | 4.3 | | |
| | | 16T308 | | | | | | | | | 9.525 | 3.97 | 0.8 | 4.3 | | |
| | | NU-TPGW 080202 | | | | | | | | | 7.94 | 2.38 | 0.2 | 3.4 | | |
| | | 080204 | | | | | | | | | 7.94 | 2.38 | 0.4 | 3.4 | | |
| | | 080208 | | | | | | | | | 7.94 | 2.38 | 0.8 | 3.4 | | |
| | | 090204 | | | | | | | | | 5.56 | 2.38 | 0.4 | 2.8 | | |
| | | 090208 | | | | | | | | | 5.56 | 2.38 | 0.8 | 2.8 | | |
| | | 110302 | | | | | | | | | 6.35 | 3.18 | 0.2 | 2.8 | | |
| | | 110304 | | | | | | | | | 6.35 | 3.18 | 0.4 | 2.8 | | |
| | | 110308 | | | | | | | | | 6.35 | 3.18 | 0.8 | 2.8 | | |
| | | 160404 | | | | | | | | | 9.525 | 4.76 | 0.4 | 3.81 | | |
| | | 160408 | | | | | | | | | 9.525 | 4.76 | 0.8 | 3.81 | | |

● : Disponibile ○ : A richiesta

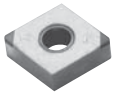
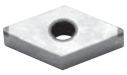
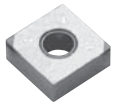
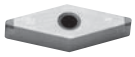
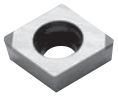
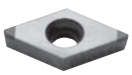
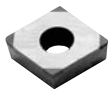
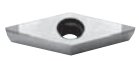
## cBN Mono-Uso (Negativo / Positivo)

| | Inserti | Articolo | Gradi | | | | | | | | Dimensioni (mm) | | | | Utensili applicabili | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | KB410 | KB420 | KB425 | KB320 | KB210 | KB335 | KB350 | KB370 | Cerchio inscritto | Spessore | Raggio di punta | Ø foro | | |
| VB ○○<br>VC ○○<br>35° Pos. |  | **NU-VBMW110202** | | | | | | | | | 6.35 | 2.38 | 0.2 | 2.3 | SVABR/L<br>SVHBR/L<br>SVJBR/L<br>SVQBR/L<br>SVUBR/L | **B**91<br>**B**91<br>**B**92<br>**B**112<br>**B**113 |
| | | **NU-VBMW110204** | | | | | | | | | 6.35 | 2.38 | 0.4 | 2.3 | | |
| | | **NU-VBMW110302** | | | | | | | | | 6.35 | 3.18 | 0.2 | 2.8 | | |
| | | **NU-VBMW110304** | | | | | | | | | 6.35 | 3.18 | 0.4 | 2.8 | | |
| | | **NU-VBMW110308** | | | | | | | | | 6.35 | 3.18 | 0.8 | 2.8 | | |
| | | **NU-VBMW160402** | | | | | | | | | 12.7 | 4.76 | 0.2 | 4.4 | | |
| | | **NU-VBMW160404** | | | | | | | | | 12.7 | 4.76 | 0.4 | 4.4 | | |
| | | **NU-VBMW160408** | | | | | | | | | 12.7 | 4.76 | 0.8 | 4.4 | | |
| | | **NU-VCMW110304** | | | | | | | | | 6.35 | 3.18 | 0.4 | 2.8 | | |
| | | **NU-VCMW110308** | | | | | | | | | 6.35 | 3.18 | 0.8 | 2.8 | | |
| | | **NU-VCMW160404** | | | | | | | | | 12.7 | 4.76 | 0.4 | 4.4 | | |
| | | **NU-VCMW160408** | | | | | | | | | 12.7 | 4.76 | 0.8 | 4.4 | | |
| | | **NU-VCMW160412** | | | | | | | | | 12.7 | 4.76 | 1.2 | 4.4 | | |
| SP ○○<br>90° Pos. |  | **NU-SPGN090304** | | | | | | | | | 9.525 | 3.18 | 0.4 | - | CSDPN<br>CSKPR/L | **B**78<br>**B**79 |
| | | **NU-SPGN090309** | | | | | | | | | 9.525 | 3.18 | 0.8 | - | | |
| | | **NU-SPGN120304** | | | | | | | | | 12.7 | 3.18 | 0.4 | - | | |
| | | **NU-SPGN120308** | | | | | | | | | 12.7 | 3.18 | 0.8 | - | | |
| | | **NU-SPGN120404** | | | | | | | | | 12.7 | 4.76 | 0.4 | - | | |
| | | **NU-SPGN120408** | | | | | | | | | 12.7 | 4.76 | 0.8 | - | | |
| TP ○○<br>60° Pos. |  | **NU-TPGN110304** | | | | | | | | | 6.35 | 3.18 | 0.4 | - | CTFPR/L<br>CTGPR/L | **B**79<br>**B**79 |
| | | **NU-TPGN110308** | | | | | | | | | 6.35 | 3.18 | 0.8 | - | | |
| | | **NU-TPGN160304** | | | | | | | | | 9.525 | 3.18 | 0.4 | - | | |
| | | **NU-TPGN160308** | | | | | | | | | 9.525 | 3.18 | 0.8 | - | | |

● : Disponibile ○ : A richiesta

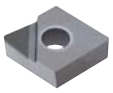
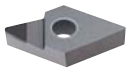
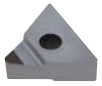
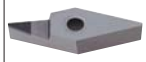
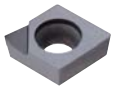
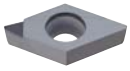


# cBN Multi-Tagliente (Negativo / Positivo)

| | Inserti | Articolo | | Non rivestito | | | | | | | | Rivestito | | Dimensioni (mm) | | | | Utensili applicabili | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | DBNX10 | DBNX20 | DBNX25 | DBN250 | DBN210 | DBN350 | DBN500 | DBN700 | DNC250 | DNC280 | Cerchio inscritto | Spessore | Raggio di punta | Ø foro | | |
| CN○○ 80° Neg. |  | 2NU-CNGA | 120404 | | | | | | | | | | | 12.7 | 4.76 | 0.4 | 5.16 | DCBNR/L, DCLNR/L<br>MCKNR/L, MCLNR/L<br>MCMNN, PCBNR/L<br>PCLNR/L | B64<br>B80, B106<br>B80, B68<br>B69 |
| | | | 120404W | | | | | | | | | | | 12.7 | 4.76 | 0.4 | 5.16 | | |
| | | | 120408 | | | | | | | | | | | 12.7 | 4.76 | 0.8 | 5.16 | | |
| | | | 120408W | | | | | | | | | | | 12.7 | 4.76 | 0.8 | 5.16 | | |
| | | | 120412 | | | | | | | | | | | 12.7 | 4.76 | 1.2 | 5.16 | | |
| | | | 120412W | | | | | | | | | | | 12.7 | 4.76 | 1.2 | 5.16 | | |
| | | 4NU-CNGA | 120404 | | | | | | | | | | | 12.7 | 4.76 | 0.4 | 5.16 | | |
| | | | 120404W | | | | | | | | | | | 12.7 | 4.76 | 0.4 | 5.16 | | |
| | | | 120408 | | | | | | | | | | | 12.7 | 4.76 | 0.8 | 5.16 | | |
| | | | 120408W | | | | | | | | | | | 12.7 | 4.76 | 0.8 | 5.16 | | |
| | | | 120412 | | | | | | | | | | | 12.7 | 4.76 | 1.2 | 5.16 | | |
| | | | 120412W | | | | | | | | | | | 12.7 | 4.76 | 1.2 | 5.16 | | |
| DN○○ 55° Neg. |  | 2NU-DNGA | 150404 | | | | | ● | | | | | | 12.7 | 4.76 | 0.4 | 5.16 | DDJNR/L, MDJNR/L<br>MDNNN, MDQNR/L<br>MDUNR/L, PDJNR/L<br>PDNNR/L, PDSNR/L<br>PDUNR/L | B65, B81<br>B81, B82<br>B106, B69<br>B70, B102<br>B103 |
| | | | 150408 | | | | | ● | | | | | | 12.7 | 4.76 | 0.8 | 5.16 | | |
| | | | 150412 | | | | | | | | | | | 12.7 | 4.76 | 1.2 | 5.16 | | |
| | | 4NU-DNGA | 150404 | | | | | | | | | | | 12.7 | 4.76 | 0.4 | 5.16 | | |
| | | | 150408 | | | | | | | | | | | 12.7 | 4.76 | 0.8 | 5.16 | | |
| | | | 150412 | | | | | | | | | | | 12.7 | 4.76 | 1.2 | 5.16 | | |
| SN○○ 90° Neg. |  | 2NU-SNGA | 120404 | | | | | ● | | | | | | 12.7 | 4.76 | 0.4 | 5.16 | DSBNR/L, MSBNR/L<br>MSDNN, MSKNR/L<br>MSRNR/L, MSSNR/L<br>PSBNR/L, PSDNN<br>PSKNR/L, | B65, B82<br>B82, B83<br>B83, B84<br>B72, B72<br>B73 |
| | | | 120408 | | | | | ● | | | | | | 12.7 | 4.76 | 0.8 | 5.16 | | |
| | | | 120412 | | | | | | | | | | | 12.7 | 4.76 | 1.2 | 5.16 | | |
| | | 4NU-SNGA | 120404 | | | | | | | | | | | 12.7 | 4.76 | 0.4 | 5.16 | | |
| | | | 120408 | | | | | | | | | | | 12.7 | 4.76 | 0.8 | 5.16 | | |
| | | | 120412 | | | | | | | | | | | 12.7 | 4.76 | 1.2 | 5.16 | | |
| | | 8NU-SNGA | 120404 | | | | | | | | | | | 12.7 | 4.76 | 0.4 | 5.16 | | |
| | | | 120408 | | | | | | | | | | | 12.7 | 4.76 | 0.8 | 5.16 | | |
| | | | 120412 | | | | | | | | | | | 12.7 | 4.76 | 1.2 | 5.16 | | |
| TN○○ 60° Neg. |  | 3NU-TNGA | 160404 | | | | | ● | | | | | | 12.7 | 4.76 | 0.4 | 5.16 | MTENNS, MTFNR/L<br>MTGNR/L, MTJNR/L<br>PTFNR/L, PTGNR/L<br>PTTNR/L, WTENN<br>WTJNR/L, WTXNR/L | B84, B84<br>B85, B85<br>B74, B75<br>B75, B77<br>B77, B77 |
| | | | 160408 | | | | | ● | | | | | | 9.525 | 4.76 | 0.8 | 3.81 | | |
| | | | 160412 | | | | | | | | | | | 9.525 | 4.76 | 1.2 | 3.81 | | |
| | | 6NU-TNGA | 160404 | | | | | | | | | | | 9.525 | 4.76 | 0.4 | 3.81 | | |
| | | | 160408 | | | | | | | | | | | 9.525 | 4.76 | 0.8 | 3.81 | | |
| | | | 160412 | | | | | | | | | | | 9.525 | 4.76 | 1.2 | 3.81 | | |
| VN○○ 35° Neg. |  | 2NU-VNGA | 160404 | | | | | ● | | | | | | 9.525 | 4.76 | 0.4 | 3.81 | MVJNR/L<br>MVQNR/L<br>MVUNR/L<br>MVVNN | B85<br>B86<br>B106<br>B86 |
| | | | 160408 | | | | | ● | | | | | | 9.525 | 4.76 | 0.8 | 3.81 | | |
| | | | 160412 | | | | | | | | | | | 9.525 | 4.76 | 1.2 | 3.81 | | |
| | | 4NU-VNGA | 160404 | | | | | | | | | | | 9.525 | 4.76 | 0.4 | 3.81 | | |
| | | | 160408 | | | | | | | | | | | 9.525 | 4.76 | 0.8 | 3.81 | | |
| | | | 160412 | | | | | | | | | | | 9.525 | 4.76 | 1.2 | 3.81 | | |
| CC○○ 80° Pos. |  | 2NU-CCMW | 060204 | | | | | | | | | | | 9.525 | 4.76 | 0.4 | 3.81 | SCACR/L<br>SCLCR/L | B87<br>B87 |
| | | 2NU-CCGW | 060204W | | | | | | | | | | | 6.35 | 2.38 | 0.4 | 2.8 | | |
| | | 2NU-CCMW | 060208 | | | | | | | | | | | 6.35 | 2.38 | 0.8 | 2.8 | | |
| | | 2NU-CCGW | 060208W | | | | | | | | | | | 6.35 | 2.38 | 0.8 | 2.8 | | |
| | | | 09T304 | | | | | ● | | | | | | 6.35 | 2.38 | 0.4 | 2.8 | | |
| | | | 09T304W | | | | | | | | | | | 9.525 | 4.76 | 0.4 | 3.81 | | |
| | | | 09T308 | | | | | ● | | | | | | 9.525 | 4.76 | 0.8 | 3.81 | | |
| | | | 09T308W | | | | | | | | | | | 9.525 | 4.76 | 0.8 | 3.81 | | |
| | | | 09T312 | | | | | | | | | | | 9.525 | 4.76 | 1.2 | 3.81 | | |
| | | | 09T312W | | | | | | | | | | | 9.525 | 4.76 | 1.2 | 4.4 | | |
| DC○○ 55° Pos. |  | 2NU-DCGW | 11T302 | | | | | | | | | | | 9.525 | 4.76 | 0.2 | 4.4 | SDACR/L<br>SDJCR/L<br>SDNCN<br>SDQCR/L<br>SDUCR/L<br>SDZCR/L | B87<br>B88<br>B88<br>B89<br>B117<br>B99 |
| | | | 11T304 | | | | | | | | | | | 9.525 | 3.97 | 0.4 | 4.4 | | |
| | | | 11T308 | | | | | | | | | | | 9.525 | 3.97 | 0.8 | 4.4 | | |
| SC○○ 90° Pos. |  | 4NU-SCGW | 09T304 | | | | | | | | | | | 9.525 | 3.97 | 0.4 | 4.4 | SSBCR/L<br>SSDCN<br>SSKCR/L<br>SSSCR/L | B89<br>B89<br>B90<br>B90 |
| | | | 09T308 | | | | | ● | | | | | | 9.525 | 3.97 | 0.8 | 4.4 | | |
| | | | 09T312 | | | | | ● | | | | | | 9.525 | 3.97 | 1.2 | 4.4 | | |
| TP○○ 60° Pos. |  | 3NU-TPGN | 110304 | | | | | | | | | | | 6.35 | 3.18 | 0.4 | - | CTFPR/L<br>CTGPR/L | B79<br>B79 |
| | | | 110308 | | | | | | | | | | | 6.35 | 3.18 | 0.8 | - | | |
| | | 3NU-TPGN | 160404 | | | | | | | | | | | 9.525 | 3.18 | 0.4 | - | | |
| | | | 160408 | | | | | | | | | | | 9.35 | 3.18 | 0.8 | - | | |
| |  | 3NU-TPGB | 110304 | | | | | ● | | | | | | 6.35 | 3.18 | 0.4 | 2.4 | | |
| | | | 110308 | | | | | ● | | | | | | 6.35 | 3.18 | 0.8 | 2.4 | | |
| | | 3NU-TPGW | 160404 | | | | | | | | | | | 9.525 | 4.76 | 0.4 | 3.81 | | |
| | | | 160408 | | | | | | | | | | | 9.525 | 4.76 | 0.8 | 3.81 | | |
| VB○○ 35° Pos. |  | 2NU-VBGW | 110304 | | | | | | | | | | | 6.35 | 3.18 | 0.4 | 2.8 | SVABR/L<br>SVHBR/L<br>SVJBR/L<br>SVQBR/L<br>SVUBR/L | B91<br>B91<br>B92<br>B112<br>B113 |
| | | | 110308 | | | | | | | | | | | 6.35 | 3.18 | 0.8 | 2.8 | | |
| | | | 160404 | | | | | ● | | | | | | 12.7 | 4.76 | 0.4 | 4.4 | | |
| | | | 160408 | | | | | ● | | | | | | 12.7 | 4.76 | 0.8 | 4.4 | | |

● : Disponibile ○ : A richiesta

# Inserti PCD (Negativo / Positivo)

| | Inserti | Articolo | | Gradi DP90 | Gradi DP150 | Gradi DP200 | Dimensioni (mm) Cerchio inscritto | Spessore | Raggio di punta | Ø foro | Utensili applicabili | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CN○○ 80° Neg. |  (CNMX) | CNMM | 120404 | | ● | | 12.7 | 4.76 | 0.4 | 5.16 | DCBNR/L, DCLNR/L MCKNR/L, MCLNR/L MCMNN, PCBNR/L PCLNR/L | B64 B100 B80, B106 B80, B68 B69 |
| | | | 120408 | | ● | | 12.7 | 4.76 | 0.8 | 5.16 | | |
| | | | 120412 | | | | 12.7 | 4.76 | 1.2 | 5.16 | | |
| | | CNMX | 120404 | | | | 12.7 | 4.76 | 0.4 | 5.16 | | |
| | | | 120408 | | | | 12.7 | 4.76 | 0.8 | 5.16 | | |
| | | | 120412 | | | | 12.7 | 4.76 | 1.2 | 5.16 | | |
| DN○○ 55° Neg. |  (DNMX) | DNMM | 150404 | | ● | | 12.7 | 4.76 | 0.4 | 5.16 | DDJNR/L, MDJNR/L MDNNN, MDQNR/L MDUNR/L, PDJNR/L PDNNR/L, PDSNR/L PDUNR/L | B65, B81 B81, B82 B106, B69 B70, B102 B103 |
| | | | 150408 | | ● | | 12.7 | 4.76 | 0.8 | 5.16 | | |
| | | | 150412 | | | | 12.7 | 4.76 | 1.2 | 5.16 | | |
| | | DNMX | 150404 | | | | 12.7 | 4.76 | 0.4 | 5.16 | | |
| | | | 150408 | | | | 12.7 | 4.76 | 0.8 | 5.16 | | |
| | | | 150412 | | | | 12.7 | 4.76 | 1.2 | 5.16 | | |
| TN○○ 60° Neg. |  | TNMX | 160404 | | | | 9.525 | 4.76 | 0.4 | 3.81 | MTENNS, MTFNR/L MTGNR/L, MTJNR/L PTFNR/L, PTGNR/L PTTNR/L, WTENN WTJNR/L, WTXNR/L | B84, B84 B85, B85 B74, B75 B75, B77 B77, B77 |
| | | | 160408 | | | | 9.525 | 4.76 | 0.8 | 3.81 | | |
| | | | 160412 | | | | 9.525 | 4.76 | 1.2 | 3.81 | | |
| VN○○ 35° Neg. |  | VNMX | 160404 | | | | 9.525 | 4.76 | 0.4 | 3.81 | MVJNR/L MVQNR/L MVUNR/L MVVNN | B85 B86 B106 B86 |
| | | | 160408 | | | | 9.525 | 4.76 | 0.8 | 3.81 | | |
| | | | 160412 | | | | 9.525 | 4.76 | 1.2 | 3.81 | | |
| CC○○ CP○○ 80° Pos. |  | CCMT | 060202 | | ● | | 6.35 | 2.38 | 0.2 | 2.8 | SCACR/L SCLCR/L | B87 B87 |
| | | | 060204 | | ● | | 6.35 | 2.38 | 0.4 | 2.8 | | |
| | | | 060208 | | | | 6.35 | 2.38 | 0.8 | 2.8 | | |
| | | | 09T304 | | ● | | 9.525 | 3.97 | 0.4 | 4.4 | | |
| | | | 09T308 | | ● | | 9.525 | 3.97 | 0.8 | 4.4 | | |
| | | | 09T312 | | | | 9.525 | 3.97 | 1.2 | 4.4 | | |
| | | CPMT | 080204 | | | | 7.94 | 2.38 | 0.4 | 3.4 | | |
| | | | 080208 | | | | 7.94 | 2.38 | 0.8 | 3.4 | | |
| | | | 080212 | | | | 7.94 | 2.38 | 1.2 | 3.4 | | |
| | | | 090304 | | | | 9.525 | 3.18 | 0.4 | 4.4 | | |
| | | | 090308 | | | | 9.525 | 3.18 | 0.8 | 4.4 | | |
| | | | 090312 | | | | 9.525 | 3.18 | 1.2 | 4.4 | | |
| DC○○ 55° Pos. |  | DCMT | 070202 | | ● | | 6.35 | 2.38 | 0.2 | 2.8 | SDACR/L SDJCR/L SDNCN SDQCR/L SDUCR/L SDZCR/L | B87 B88 B88 B89 B117 B99 |
| | | | 070204 | | ● | | 6.35 | 2.38 | 0.4 | 2.8 | | |
| | | | 070208 | | | | 6.35 | 2.38 | 0.8 | 2.8 | | |
| | | | 11T302 | | ● | | 9.525 | 3.97 | 0.2 | 4.4 | | |
| | | | 11T304 | | ● | | 9.525 | 3.97 | 0.4 | 4.4 | | |
| | | | 11T308 | | | | 9.525 | 3.97 | 0.8 | 4.4 | | |
| SC○○ SP○○ 90° Pos. |  (SCMT) | SCMT | 09T304 | | | | 9.525 | 3.97 | 0.4 | 4.4 | SSBCR/L SSDCN SSKCR/L SSSCR/L | B89 B89 B90 B90 |
| | | | 09T308 | | | | 9.525 | 3.97 | 0.8 | 4.4 | | |
| | | | 09T312 | | | | 9.525 | 3.97 | 1.2 | 4.4 | | |
| | | SPGW | 090302 | | | | 9.525 | 3.18 | 0.2 | 4.4 | | |
| | | | 090304 | | | | 9.525 | 3.18 | 0.4 | 4.4 | | |
| | | | 090308 | | | | 9.525 | 3.18 | 0.8 | 4.4 | | |
| TB○○ TC○○ TP○○ 60° 포지 |  (TBGW) | TBGW | 060102 | | ● | | 3.97 | 1.59 | 0.2 | 2.8 | STACR/L STFCR/L STFPR/L STGCR/L STTCR/L | B90 B90 B118 B91 B91 |
| | | | 060104 | | ● | | 3.97 | 1.59 | 0.4 | 2.8 | | |
| | | TCMT | 090201 | | | | 5.56 | 2.38 | 0.1 | 2.5 | | |
| | | | 090202 | | | | 5.56 | 2.38 | 0.2 | 2.5 | | |
| | | | 090204 | | | | 5.56 | 2.38 | 0.4 | 2.5 | | |
| | | | 110201 | | | | 6.35 | 2.38 | 0.1 | 2.8 | | |
| | | | 110202 | | | | 6.35 | 2.38 | 0.2 | 2.8 | | |
| | | | 110204 | | | | 6.35 | 2.38 | 0.4 | 2.8 | | |
| | | TPGB | 080204 | | | | 6.35 | 2.38 | 0.4 | 2.4 | | |
| | | | 080208 | | | | 6.35 | 2.38 | 0.8 | 2.4 | | |
| | | | 090204 | | | | 5.56 | 2.38 | 0.4 | 2.5 | | |
| | | | 090208 | | | | 5.56 | 2.38 | 0.8 | 2.5 | | |
| | | | 110304 | | | | 6.35 | 3.18 | 0.4 | 3.3 | | |
| | | | 110308 | | | | 6.35 | 3.18 | 0.8 | 3.3 | | |
| | | TPGW | 080202 | | | | 6.35 | 2.38 | 0.2 | 2.4 | | |
| | | | 080204 | | | | 6.35 | 2.38 | 0.4 | 2.4 | | |
| | | | 110302 | | | | 6.35 | 3.18 | 0.2 | 3.4 | | |
| | | | 110304 | | ● | | 6.35 | 3.18 | 0.4 | 3.4 | | |
| | | | 110308 | | ● | | 6.35 | 3.18 | 0.8 | 3.4 | | |
| | | | 160404 | | | | 9.525 | 4.76 | 0.4 | 3.81 | | |
| | | | 160408 | | | | 9.525 | 4.76 | 0.8 | 3.81 | | |
| | | TPGT | 110302 | | | | 9.525 | 3.18 | 0.2 | 3.81 | | |
| | | | 110304 | | | | 6.35 | 3.18 | 0.4 | 3.4 | | |

● : Disponibile ○ : A richiesta

# Inserti PCD (Positivo)

| | Inserti | Articolo | | Gradi | | | Dimensioni (mm) | | | | Utensili applicabili | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | DP90 | DP150 | DP200 | Cerchio inscritto | Spessore | Raggio di punta | Ø foro | | |
| VB ○○<br>VC ○○<br>35° Pos. | (VCMT) | VBMT | 110302 | | | | 6.35 | 3.18 | 0.2 | 3.4 | SVABR/L<br>SVHBR/L<br>SVJBR/L<br>SVQBR/L<br>SVUBR/L | B91<br>B91<br>B92<br>B112<br>B113 |
| | | | 110304 | | | | 6.35 | 3.18 | 0.4 | 3.4 | | |
| | | | 110308 | | | | 6.35 | 3.18 | 0.8 | 3.4 | | |
| | | | 160402 | | | | 9.525 | 4.76 | 0.2 | 4.4 | | |
| | | | 160404 | | | | 9.525 | 4.76 | 0.4 | 4.4 | | |
| | | | 160408 | | | | 9.525 | 4.76 | 0.8 | 4.4 | | |
| | | | 160412 | | | | 9.525 | 4.76 | 1.2 | 4.4 | | |
| | | VCMT | 110302 | | | | 6.35 | 3.18 | 0.2 | 3.4 | | |
| | | | 110304 | | | | 6.35 | 3.18 | 0.4 | 3.4 | | |
| | | | 110308 | | | | 6.35 | 3.18 | 0.8 | 3.4 | | |
| | | | 160404 | | | | 9.525 | 4.76 | 0.4 | 4.4 | | |
| | | | 160408 | | | | 9.525 | 4.76 | 0.8 | 4.4 | | |
| | | | 160412 | | | | 9.525 | 4.76 | 1.2 | 4.4 | | |
| TP ○○<br>60° Pos. | | TPGN | 090204 | | | | 5.56 | 2.38 | 0.4 | - | CTFPR/L<br>CTGPR/L | B79<br>B79 |
| | | | 090208 | | | | 5.56 | 2.38 | 0.8 | - | | |
| | | | 110302 | | | | 6.35 | 3.18 | 0.2 | - | | |
| | | | 110304 | | ● | | 6.35 | 3.18 | 0.4 | - | | |
| | | | 110308 | | ● | | 6.35 | 3.18 | 0.8 | - | | |
| | | | 160302 | | | | 9.525 | 3.18 | 0.2 | - | | |
| | | | 160304 | | | | 9.525 | 3.18 | 0.4 | - | | |
| | | | 160308 | | | | 9.525 | 3.18 | 0.8 | - | | |
| SP ○○<br>90° Pos. | | SPGN | 090304 | | ● | | 9.525 | 3.18 | 0.4 | - | CSDPN<br>CSKPR/L | B78<br>B79 |
| | | | 090308 | | | | 9.525 | 3.18 | 0.8 | - | | |
| | | | 120304 | | | | 12.7 | 3.18 | 0.4 | - | | |
| | | | 120308 | | | | 12.7 | 3.18 | 0.8 | - | | |

● : Disponibile ○ : A richiesta

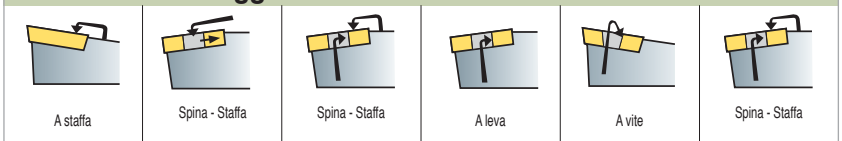


# B Sistema di codifica per portainserti per esterno (ISO)

| P | S | K | N | R | 25 | 25 | – | M | 12 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | | 8 | 9 |
| Sistema di bloccaggio | Forma dell'inserto | Angolo di lavorazione | Angolo di spoglia dell'inserto | Tipo di esecuzione | Altezza dello stelo | Larghezza dello stelo | | Lunghezza dello stelo | Lunghezza tagliente |

## 1 P S K N R 25 25 - M 12

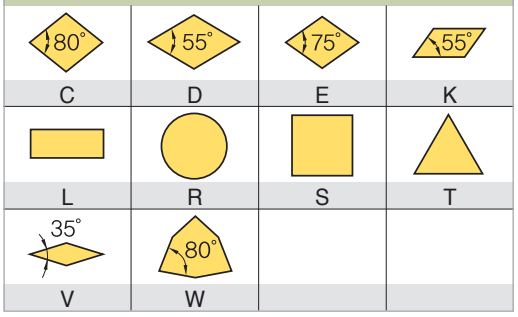
### Sistema di bloccaggio



| C | D | M | P | S | W |
|---|---|---|---|---|---|
| A staffa | Spina - Staffa | Spina - Staffa | A leva | A vite | Spina - Staffa |

## 2 P S K N R 25 25 - M 12

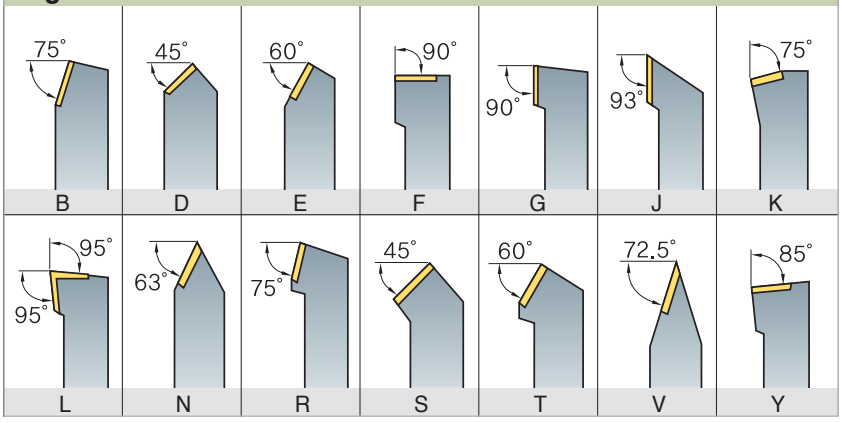
### Forma dell'inserto




| C | D | E | K | L | R | S | T | V | W |
|---|---|---|---|---|---|---|---|---|---|

## 3 P S K N R 25 25 - M 12

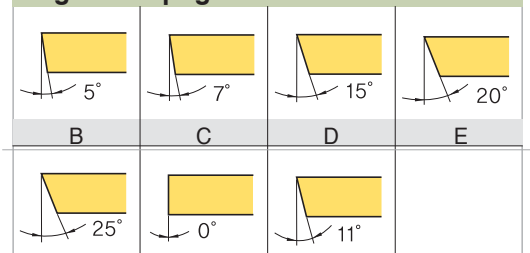
### Angolo di lavorazione




| B | D | E | F | G | J | K | L | N | R | S | T | V | Y |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

## 4 P S K N R 25 25 - M 12

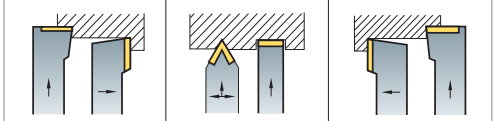
### Angolo di spoglia dell'inserto




| B | C | D | E | F | N | P |
|---|---|---|---|---|---|---|

## 5 P S K N R 25 25 - M 12

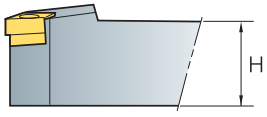
### Tipo di esecuzione



| L | N | R |
|---|---|---|

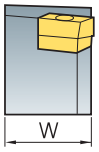
## 6 P S K N R 25 25 - M 12

### Altezza dello stelo



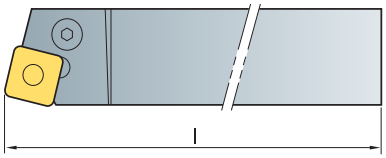

## 7 P S K N R 25 25 - M 12

### Larghezza dello stelo




## 8 P S K N R 25 25 - M 12

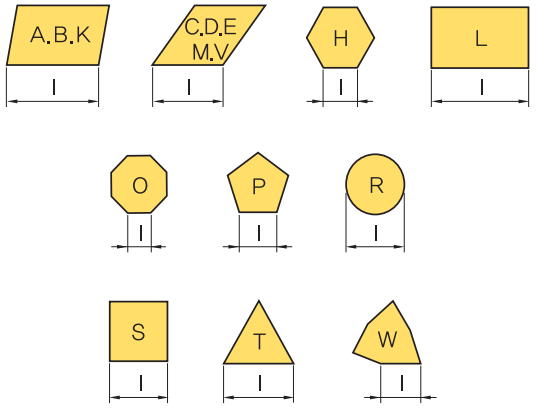
### Lunghezza dello stelo



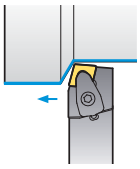
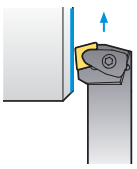
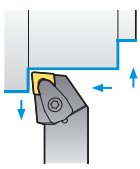
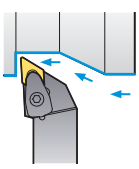
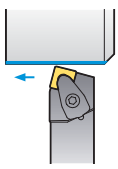
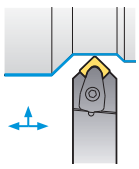
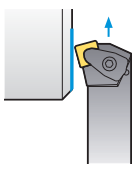
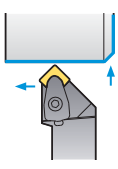

| | | | |
|---|---|---|---|
| A - 32 | H - 100 | Q - 180 | X-Speciale |
| B - 40 | J - 110 | R - 200 | |
| C - 50 | K - 125 | S - 250 | |
| D - 60 | L - 140 | T - 300 | |
| E - 70 | M - 150 | U - 350 | |
| F - 80 | N - 160 | V - 400 | |
| G - 90 | P - 170 | W - 450 | |

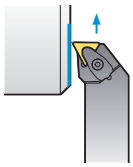
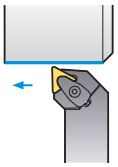
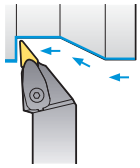
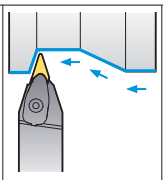
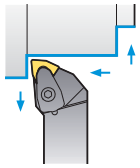
## 9 P S K N R 25 25 - M 12

### Lunghezza tagliente

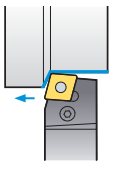
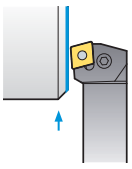
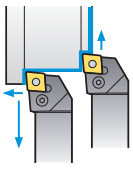
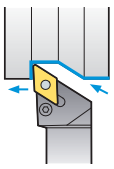
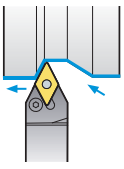
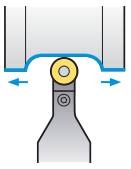
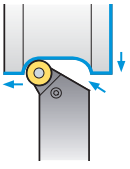
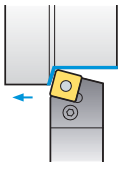


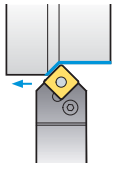
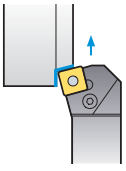
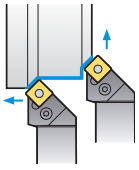
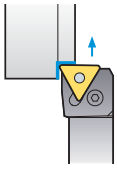
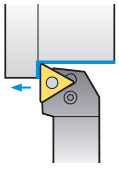
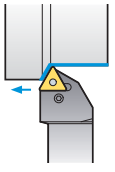
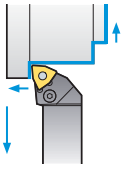
## Sistema doppio staffaggio

| Tipo di taglio |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|
| Articolo | DCBNR/L | DCKNR/L | DCLNR/L | DDJNR/L | DSBNR/L | DSDNN | DSKNR/L | DSSNR/L |
| Angolazione | 75° | 75° | 95° | 93° | 75° | 45° | 75° | 45° |
| Pag. | B64 | B64 | B64 | B65 | B65 | B65 | B66 | B66 |
| Tornitura | ● | | ● | ● | ● | ● | | ● |
| Copiatura | | | | ● | | | | |
| Sfacciatura | | ● | ● | | | | ● | ● |
| Svasatura | | | | | | ● | | |
| Tornitura gole | | | ● | ● | | | | |

| Tipo di taglio |  |  |  |  |  | | | |
|---|---|---|---|---|---|---|---|---|
| Articolo | DTFNR/L | DTGNR/L | DVJNR/L | DVVNN | DWLNR | | | |
| Angolazione | 90° | 90° | 93° | 72,5° | 95° | | | |
| Pag. | B66 | B67 | B67 | B67 | B67 | | | |
| Tornitura | | ● | ● | ● | ● | | | |
| Copiatura | | | ● | ● | | | | |
| Sfacciatura | ● | | | | ● | | | |
| Svasatura | | | | | | | | |
| Tornitura gole | | | ● | | ● | | | |

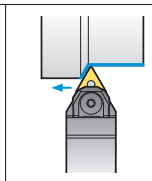
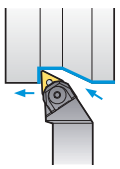
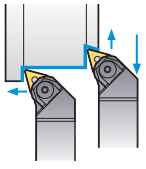
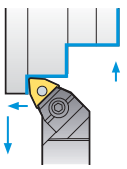
## Sistema di bloccaggio a leva

| Tipo di taglio |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|
| Articolo | PCBNR/L | PCKNR/L | PCLNR/L | PDJNR/L | PDNNR/L | PRDCN | PRGCR/L | PSBNR/L |
| Angolazione | 75° | 75° | 95° | 93° | 63° | – | – | 75° |
| Pag. | B68 | B68 | B69 | B69, B70 | B70 | B71 | B71 | B72 |
| Tornitura | ● | ● | ● | ● | ● | ● | ● | ● |
| Copiatura | | | | ● | ● | ● | ● | |
| Sfacciatura | | | ● | | | | | |
| Svasatura | | | | | | | | |
| Tornitura gole | | | ● | ● | | | | |

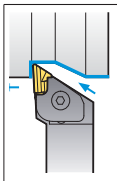
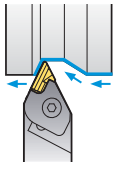
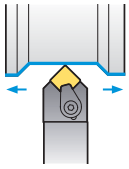
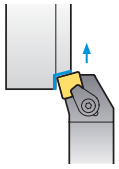
| Tipo di taglio |  |  |  |  |  |  |  | |
|---|---|---|---|---|---|---|---|---|
| Articolo | PSDNN | PSKNR/L | PSSNR/L | PTFNR/L | PTGNR/L | PTTNR/L | PWLNR/L | |
| Angolazione | 45° | 75° | 45° | 90° | 90° | 60° | 95° | |
| Pag. | B72, B73 | B73 | B74 | B74 | B75 | B75 | B76 | |
| Tornitura | ● | | ● | | ● | ● | ● | |
| Copiatura | | | | | | | | |
| Sfacciatura | | ● | ● | ● | | | ● | |
| Svasatura | | | | | | ● | | |
| Tornitura gole | | | | | | | ● | |

# B Indice portainserti per esterno

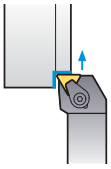
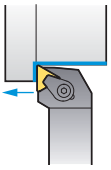
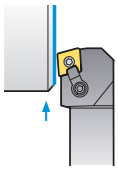
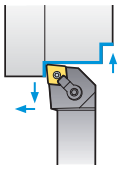
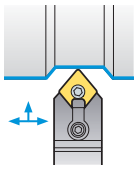
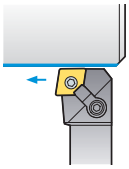
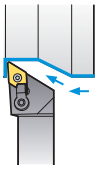
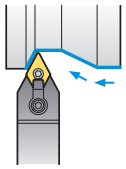
## Sistema di staffaggio a cuneo

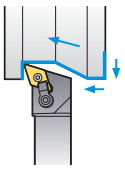
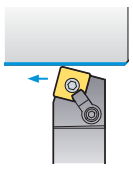
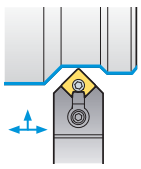
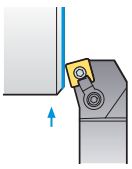
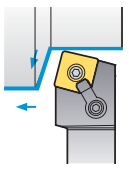
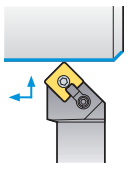
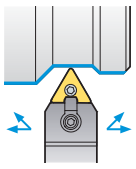
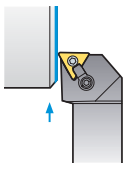
| Tipo di taglio |  |  |  |  |
|---|---|---|---|---|
| Articolo | WTENN | WTJNR/L | WTXNR/L | WWLNR/L |
| Angolazione | 60° | 93° | 105° | 95° |
| Pag. | B77 | B77 | B77 | B77 |
| Tornitura | ● | ● | ● | ● |
| Copiatura | ● | ● | ● | |
| Sfacciatura | | | | ● |
| Svasatura | | | | |
| Tornitura gole | | ● | ● | ● |

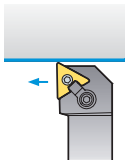
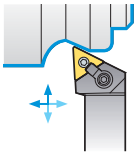
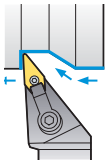
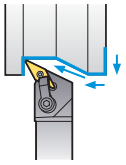
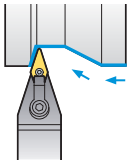
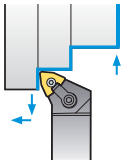
## Sistema a staffa

| Tipo di taglio |  |  |  |  |
|---|---|---|---|---|
| Articolo | CKJNR/L | CKNNR/L | CSDPN | CSKPR/L |
| Angolazione | 93° | 63° | 45° | 75° |
| Pag. | B78 | B78 | B78 | B79 |
| Tornitura | ● | ● | ● | |
| Copiatura | ● | ● | | |
| Sfacciatura | | | | ● |
| Svasatura | | | | |
| Tornitura gole | ● | | | |

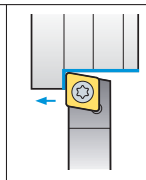
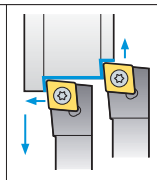
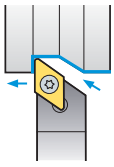
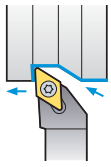
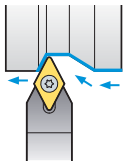
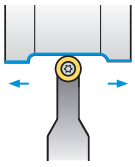
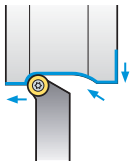
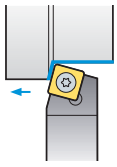
## Sistema leva-staffa

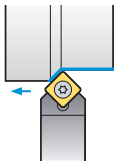
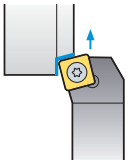
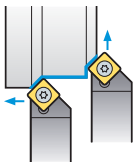
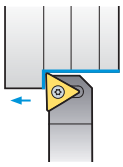
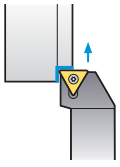
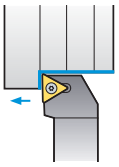
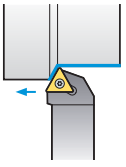
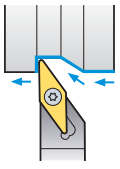
| Tipo di taglio |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|
| Articolo | CTFPR/L | CTGPR/L | MCKNR/L | MCLNR/L | MCMNN | MCRNR/L | MDJNR/L | MDNNN |
| Angolazione | 90° | 90° | 75° | 95° | 50° | 75° | 93° | 62,5° |
| Pag. | B79 | B79 | B80 | B80 | B80 | B81 | B81 | B81 |
| Tornitura | | ● | | ● | ● | ● | ● | ● |
| Copiatura | | | | | | | ● | ● |
| Sfacciatura | ● | | ● | ● | | | | |
| Svasatura | | | | | | | | |
| Tornitura gole | | | | ● | | | ● | |

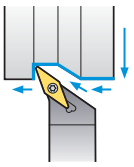
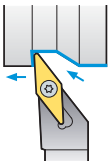
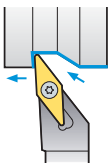
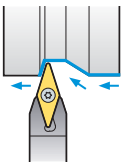
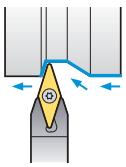
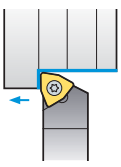
| Tipo di taglio |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|
| Articolo | MDQNR/L | MSBNR/L | MSDNN | MSKNR/L | MSRNR/L | MSSNR/L | MTENN | MTFNR/L |
| Angolazione | 107,5° | 75° | 45° | 75° | 75° | 45° | 60° | 90° |
| Pag. | B82 | B82 | B82 | B83 | B83 | B84 | B84 | B84 |
| Tornitura | ● | ● | ● | | ● | ● | ● | |
| Copiatura | ● | | | | | | ● | |
| Sfacciatura | | | | ● | | ● | | ● |
| Svasatura | | | | | | | | |
| Tornitura gole | ● | | | | | | | |

| Tipo di taglio |  |  |  |  |  |  | | |
|---|---|---|---|---|---|---|---|---|
| Articolo | MTGNR/L | MTJNR/L | MVJNR/L | MVQNR/L | MVVNN | MWLNR/L | | |
| Angolazione | 90° | 93° | 93° | 117,5° | 72,5° | 95° | | |
| Pag. | B85 | B85 | B85 | B86 | B86 | B86 | | |
| Tornitura | ● | ● | ● | ● | ● | ● | | |
| Copiatura | | ● | ● | ● | ● | | | |
| Sfacciatura | | ● | | | | ● | | |
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| Tornitura gole | | ● | ● | ● | | ● | | |

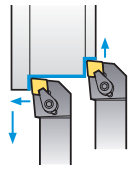
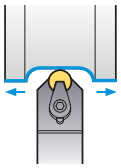
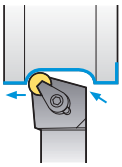
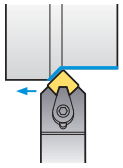
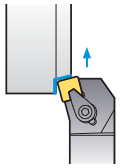
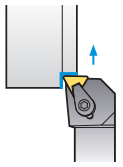
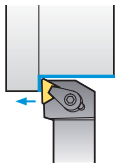
## Sistema a vite

| Tipo di taglio |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|
| Articolo | SCACR/L | SCLCR/L | SDACR/L | SDJCR/L | SDNCN | SRDCN | SRGCR/L | SSBCR/L |
| Angolazione | 90° | 95° | 90° | 93° | 63° | – | – | 75° |
| Pag. | B87 | B87 | B87 | B88 | B88 | B88 | B89 | B89 |
| Tornitura | ● | ● | ● | ● | ● | ● | ● | ● |
| Copiatura | | | ● | ● | ● | ● | ● | |
| Sfacciatura | | ● | | | | | | |
| Svasatura | | | | | | | | |
| Tornitura gole | | ● | | ● | | | | |

| Tipo di taglio |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|
| Articolo | SSDCN | SSKCR/L | SSSCR/L | STACR/L | STFCR/L | STGCR/L | STTCR/L | SVABR/L |
| Angolazione | 45° | 75° | 45° | 90° | 90° | 90° | 60° | 90° |
| Pag. | B89 | B90 | B90 | B90 | B90 | B91 | B91 | B91 |
| Tornitura | ● | | ● | ● | | ● | ● | ● |
| Copiatura | | | | | | | | ● |
| Sfacciatura | | ● | ● | | ● | | | |
| Svasatura | | | | | | | | |
| Tornitura gole | | | | | | | | ● |

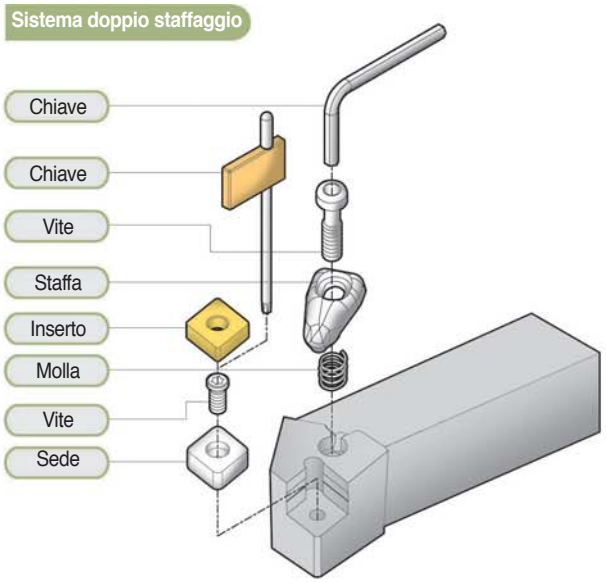
| Tipo di taglio |  |  |  |  |  |  | | |
|---|---|---|---|---|---|---|---|---|
| Articolo | SVHBR/L | SVJBR/L | SVJCR/L | SVVBN | SVVCN | SWACR/L | | |
| Angolazione | 107,5° | 93° | 93° | 72,5° | 72,5° | 90° | | |
| Pag. | B91 | B92 | B92 | B92 | B93 | B93 | | |
| Tornitura | ● | ● | ● | ● | ● | ● | | |
| Copiatura | ● | ● | ● | ● | ● | | | |
| Sfacciatura | | | | | | | | |
| Svasatura | | | | | | | | |
| Tornitura gole | ● | ● | ● | | | | | |

## Portainserti per inserti ceramici

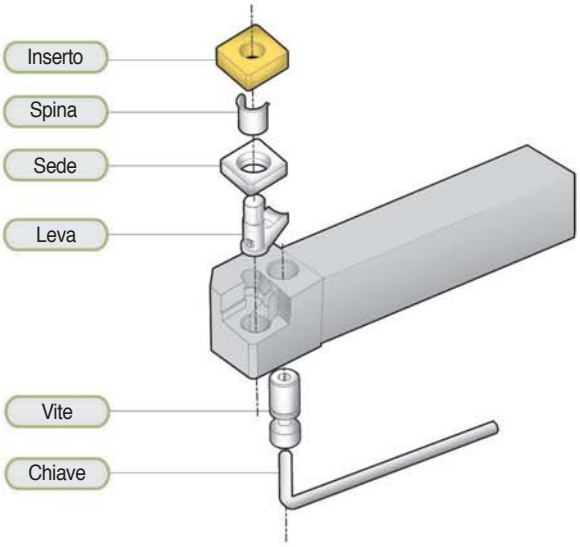
| Tipo di taglio |  |  |  |  |  |  |  | |
|---|---|---|---|---|---|---|---|---|
| Articolo | CCNLR/L | CRDNN | CRGNR/L | CSDNN | CSKNR/L | CTFNR/L | CTGNR/L | |
| Angolazione | 95° | – | – | 45° | 75° | 90° | 90° | |
| Pag. | B94 | B94 | B94 | B94 | B95 | B95 | B95 | |
| Tornitura | ● | ● | ● | ● | | | ● | |
| Copiatura | | | ● | | | | | |
| Sfacciatura | ● | | | | ● | ● | | |
| Svasatura | | | | | | | | |
| Tornitura gole | ● | | | | | | | |

## Istruzioni portainserti per esterno

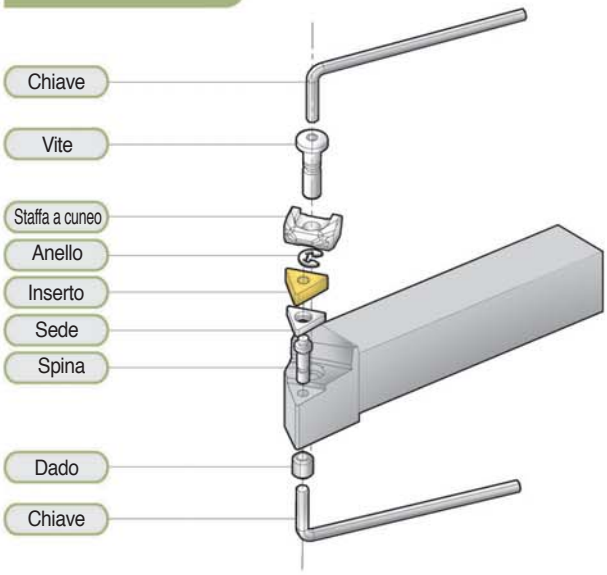
### Sistema doppio staffaggio



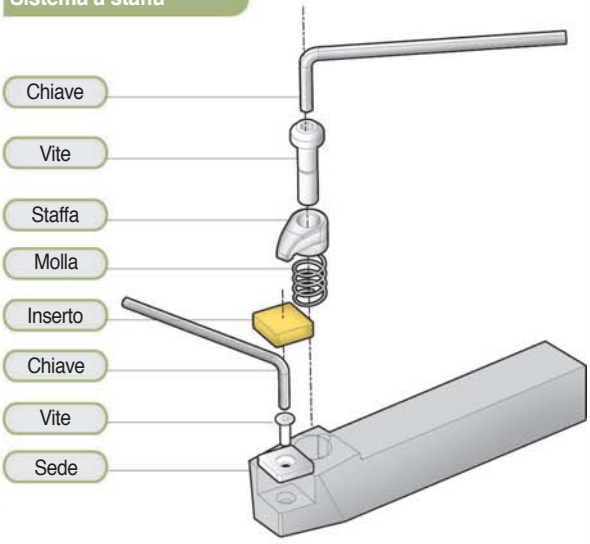

### Sistema di bloccaggio a leva



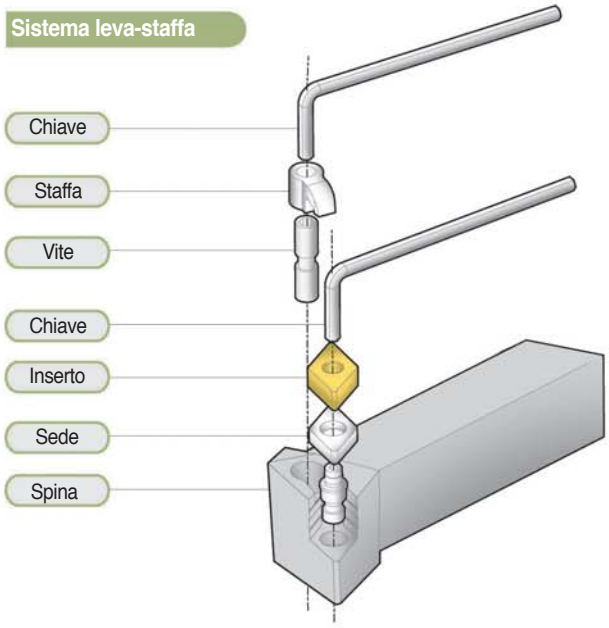

### Sistema di staffaggio a cuneo



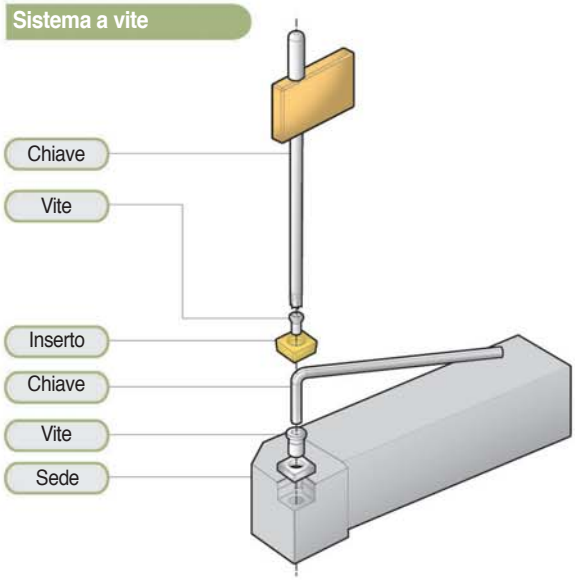

### Sistema a staffa




### Sistema leva-staffa




### Sistema a vite

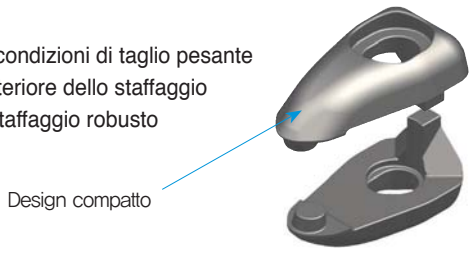


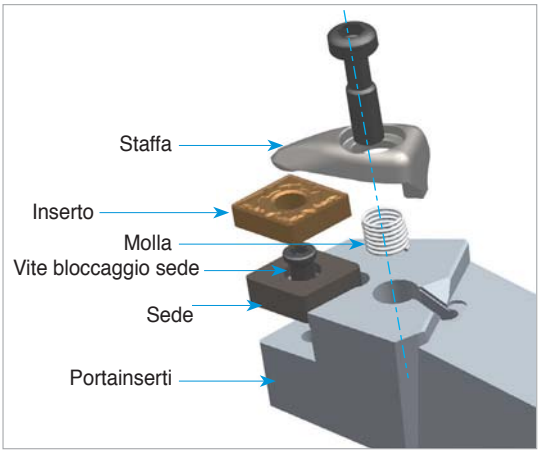
## Sistema doppio staffaggio

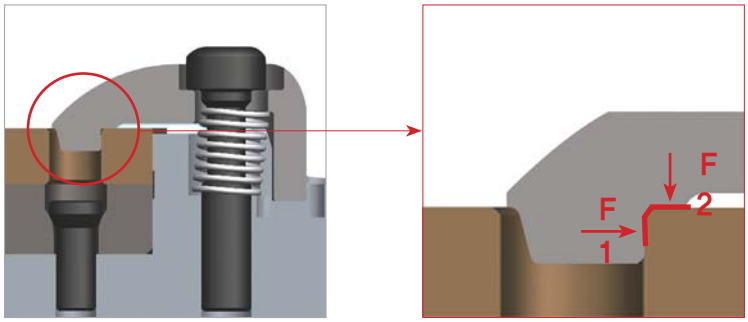
### Staffaggio robusto

#### Caratteristiche

- Staffaggio semplice e robusto a una vite
- Il robusto sistema di doppio staffaggio (superiore e interno) è indicato per lavorazioni con condizioni di taglio pesante
- Il portainserti garantisce la massima precisione grazie allo speciale design della parte posteriore dello staffaggio
- L'ottimale design compatto consente di evitare l'interferenza dei trucioli e garantisce uno staffaggio robusto



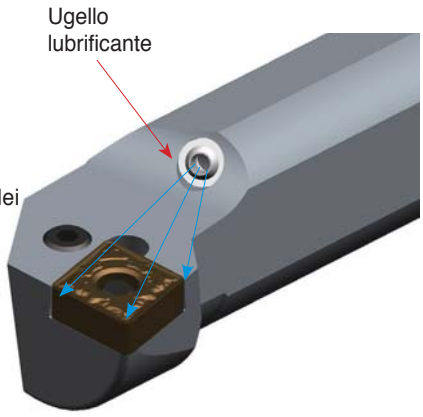



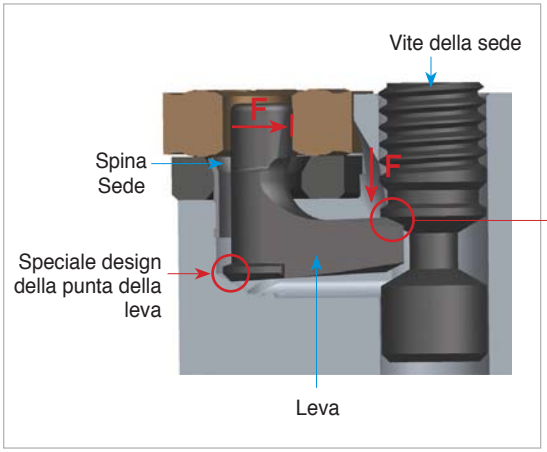

## Sistema di bloccaggio a leva

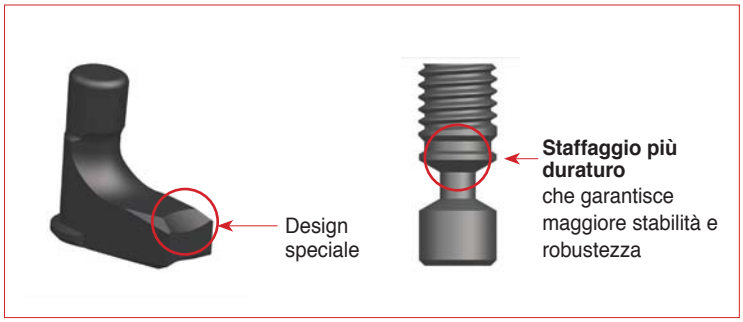
### Staffaggio robusto

#### Caratteristiche

- Il portainserti garantisce la massima precisione grazie allo speciale design e al miglior staffaggio
- Maggiore durata dei ricambi
- Maggiore durata dell'utensile grazie al robusto sistema di staffaggio e allo speciale design dei ricambi
- La descrizione dei singoli ricambi del portainserti ne agevola il controllo per ogni prodotto
- L'ugello di lubrificazione regolabile consente di modificare la direzione del lubrificante



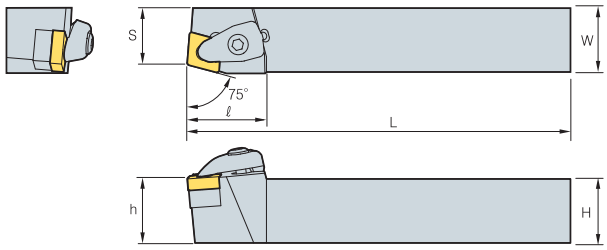



# B Sistema doppio staffaggio

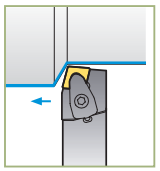
## DCBNR/L



CN□□




75°



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Staffa | Vite sede | Sede | Vite sede | Molla | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DCBNR/L | 2020-K12 | ● | ● | 20 | 20 | 125 | 17 | 20 | 31 | CN□□1204□□ | CVH4 | CHX0518 | SC44V | FTKA0410 | SPR0714 | HW30P |
| | 2525-M12 | ● | ● | 25 | 25 | 150 | 22 | 25 | 31 | | | | | | | |
| | 3225-P12 | ● | ● | 32 | 25 | 170 | 22 | 32 | 31 | | | | | | | |
| | 2525-M16 | | | 25 | 25 | 150 | 22 | 25 | 36 | CN□□1606□□ | CVH5 | CHX0622 | SC54V | FTKA0511 | SPR0811 | HW40L |
| | 3232-P16 | | | 32 | 32 | 170 | 27 | 32 | 36 | | | | | | | |
| | 3232-P19 | ○ | ○ | 32 | 32 | 170 | 27 | 32 | 40 | CN□□1906□□ | CVH6 | CHX0622 | SC63V | FTKA0511 | SPR0811 | HW40L |
| | 4040-S19 | | | 40 | 40 | 250 | 35 | 40 | 40 | | | | | | | |

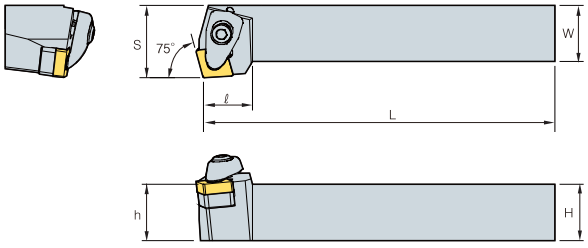
• Inserti applicabili, vedere pag. B16~B18

● : Disponibile ○ : A richiesta

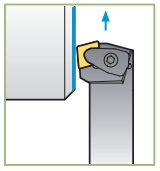
## DCKNR/L



CN□□




75°



• Inserto destro R

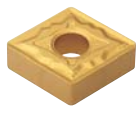
(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Staffa | Vite sede | Sede | Vite Sede | Molla | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DCKNR/L | 2020-K12 | | | 20 | 20 | 125 | 25 | 20 | 21 | CN□□1204□□ | CVH4 | CHX0518 | SC44V | FTKA0410 | SPR0714 | HW30P |
| | 2525-M12 | ● | ● | 25 | 25 | 150 | 32 | 25 | 21 | | | | | | | |
| | 3225-P12 | | | 32 | 25 | 170 | 32 | 32 | 21 | | | | | | | |
| | 3232-P16 | | | 32 | 32 | 170 | 40 | 32 | 26 | CN□□1606□□ | CVH5 | CHX0622 | SC54V | FTNA0511 | SPR0811 | HW40L |
| | 4040-S16 | | | 40 | 40 | 250 | 50 | 40 | 26 | | | | | | | |

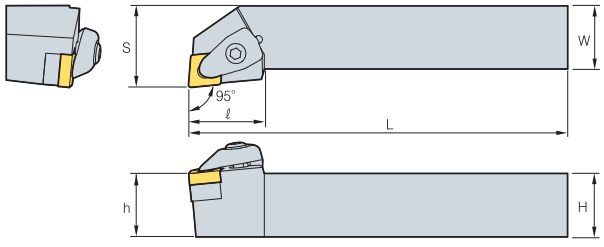
• Inserti applicabili, vedere pag. B16~B18

● : Disponibile ○ : A richiesta

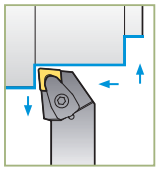
## DCLNR/L



CN□□




95°



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Staffa | Vite sede | Sede | Vite sede | Molla | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DCLNR/L | 2020-K09 | | | 20 | 20 | 125 | 25 | 20 | 24.5 | CN□□0903□□ | CVH3 | CHX0415 | SC32V | FTKA0307 | SPR0510 | HW25P |
| | 2525-M09 | | | 25 | 25 | 150 | 32 | 25 | 24.5 | | | | | | | |
| | 2020-K12 | ● | ● | 20 | 20 | 125 | 25 | 20 | 30 | CN□□1204□□ | CVH4 | CHX0518 | SC44V | FTKA0410 | SPR0714 | HW30P |
| | 2525-M12 | ● | ● | 25 | 25 | 150 | 32 | 25 | 30 | | | | | | | |
| | 3225-P12 | ● | ○ | 32 | 25 | 170 | 32 | 32 | 30 | | | | | | | |
| | 3232-P12 | ● | ● | 32 | 32 | 170 | 40 | 32 | 30 | | | | | | | |
| | 2525-M16 | ○ | ○ | 25 | 25 | 150 | 32 | 25 | 36 | CN□□1606□□ | CVH5 | CHX0622 | SC54V | FTNA0511 | SPR0811 | HW40L |
| | 3225-P16 | ○ | ○ | 32 | 25 | 170 | 32 | 32 | 36 | | | | | | | |
| | 3232-P16 | ○ | ○ | 32 | 32 | 170 | 40 | 32 | 36 | | | | | | | |
| | 2525-M19 | | | 25 | 25 | 150 | 32 | 25 | 40 | CN□□1906□□ | CVH6 | CHX0622 | SC63V | FTNA0511 | SPR0811 | HW40L |
| | 3225-P19 | | | 32 | 25 | 170 | 32 | 32 | 40 | | | | | | | |
| | 3232-P19 | ○ | ○ | 32 | 32 | 170 | 40 | 32 | 40 | | | | | | | |
| | 4040-S19 | ○ | ○ | 40 | 40 | 250 | 50 | 40 | 40 | | | | | | | |

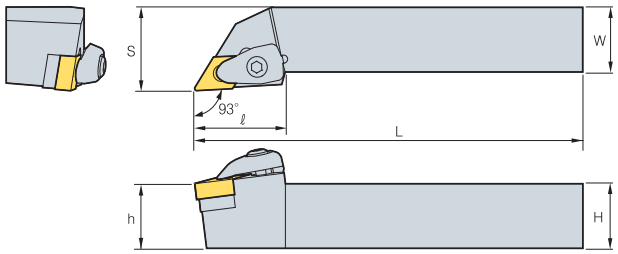
• Inserti applicabili, vedere pag. B16~B18

● : Disponibile ○ : A richiesta

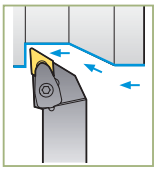
# DDJNR/L



DN□□




93°



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Staffa | Vite sede | Sede | Vite sede | Molla | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DDJNR/L | 2020-K11 | ○ | ○ | 20 | 20 | 125 | 25 | 20 | 30 | DN □□1104□□ | CVH3 | CHX0415 | SD32V | FTKA0307 | SPR0510 | HW25P |
| | 2525-M11 | ○ | ○ | 25 | 25 | 150 | 32 | 25 | 30 | | | | | | | |
| | 3225-P11 | | | 32 | 25 | 170 | 32 | 32 | 30 | | | | | | | |
| | 3232-P11 | | | 32 | 32 | 170 | 40 | 32 | 30 | | | | | | | |
| | 2020-K15 | ○ | ● | 20 | 20 | 125 | 25 | 20 | 35 | DN□□1506□□ | CVH4 | CHX0518 | SD43V | FTKA0410 | SPR0714 | HW30P |
| | 2525-M15 | ● | ● | 25 | 25 | 150 | 32 | 25 | 35 | | | | | | | |
| | 3225-P15 | ● | ● | 32 | 25 | 170 | 32 | 32 | 35 | | | | | | | |
| | 3232-P15 | ● | ● | 32 | 32 | 170 | 40 | 32 | 35 | | | | | | | |
| | 2020-K15-3 | ● | ● | 20 | 20 | 125 | 25 | 20 | 35 | DN□□1504□□ | CVH4 | CHX0518 | SD44V | FTKA0410 | SPR0714 | HW30P |
| | 2525-M15-3 | ● | ● | 25 | 25 | 150 | 32 | 25 | 35 | | | | | | | |
| | 3232-P15-3 | ● | ● | 32 | 32 | 170 | 40 | 32 | 35 | | | | | | | |

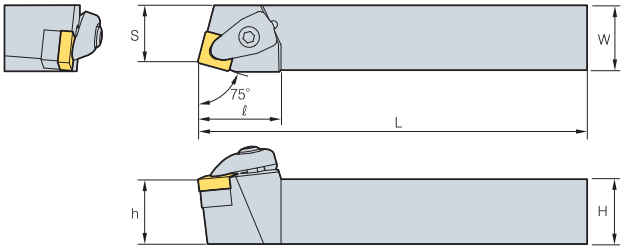
• Inserti applicabili, vedere pag. B19~B21

● : Disponibile ○ : A richiesta

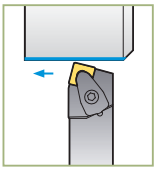
# DSBNR/L



SN□□




75°



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Staffa | Vite sede | Sede | Vite sede | Molla | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DSBNR/L | 2020-K09 | | | 20 | 20 | 125 | 17 | 20 | 25 | SN□□0903□□ | CVH3 | CHX0415 | SS32V | FTKA0307 | SPR0510 | HW25P |
| | 2525-M09 | | | 25 | 25 | 150 | 22 | 25 | 25 | | | | | | | |
| | 2020-K12 | ● | ● | 20 | 20 | 125 | 17 | 20 | 32 | SN□□1204□□ | CVH4 | CHX0518 | SS44V | FTKA0410 | SPR0714 | HW30P |
| | 2525-M12 | ● | ● | 25 | 25 | 150 | 22 | 25 | 32 | | | | | | | |
| | 3225-P12 | ● | ● | 32 | 25 | 170 | 22 | 32 | 32 | | | | | | | |
| | 3232-P12 | ● | ● | 32 | 32 | 170 | 27 | 32 | 32 | | | | | | | |
| | 2525-M15 | | | 25 | 25 | 150 | 22 | 25 | 38 | SN□□1506□□ | CVH5 | CHX0622 | SS54V | FTKA0511 | SPR0811 | HW40L |
| | 3225-P15 | | | 32 | 25 | 170 | 22 | 32 | 38 | | | | | | | |
| | 3232-P15 | | | 32 | 32 | 170 | 27 | 32 | 38 | | | | | | | |
| | 3232-P19 | | | 32 | 32 | 170 | 27 | 32 | 43 | SN□□1906□□ | CVH6 | CHX0622 | SS64V | FTNA0511 | SPR0811 | HW40L |
| | 4040-S19 | | | 40 | 40 | 250 | 35 | 40 | 43 | | | | | | | |

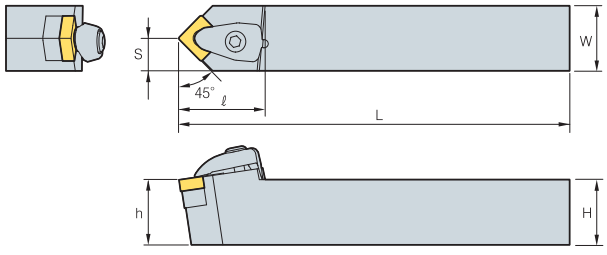
• Inserti applicabili, vedere pag. B22~B24

● : Disponibile ○ : A richiesta

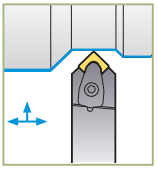
# DSDNN



SN□□




45°



(mm)

| Articolo | | Stock | H | W | L | S | h | ℓ | Inserto | Staffa | Vite sede | Sede | Vite sede | Molla | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DSDNN | 2020-K09 | | 20 | 20 | 125 | 10 | 20 | 26.5 | SN□□0903□□ | CVH3 | CHX0415 | SS32V | FTKA0307 | SPR0510 | HW25P |
| | 2020-K12 | ● | 20 | 20 | 125 | 10 | 20 | 33 | SN□□1204□□ | CVH4 | CHX0518 | SS44V | FTKA0410 | SPR0714 | HW30P |
| | 2525-M12 | ● | 25 | 25 | 150 | 12.5 | 25 | 33 | | | | | | | |
| | 3225-P12 | ● | 32 | 25 | 170 | 12.5 | 32 | 33 | | | | | | | |
| | 3232-P12 | ● | 32 | 32 | 170 | 16 | 32 | 33 | | | | | | | |
| | 2525-M15 | | 25 | 25 | 150 | 12.5 | 25 | 39.4 | SN□□1506□□ | CVH5 | CHX0622 | SS54V | FTKA0511 | SPR0811 | HW40L |
| | 3232-P15 | | 32 | 32 | 170 | 16 | 32 | 38 | | | | | | | |
| | 3232-P19 | ○ | 32 | 32 | 170 | 16 | 32 | 43 | SN□□1906□□ | CVH6 | CHX0622 | SS64V | FTNA0511 | SPR0811 | HW40L |
| | 4040-S19 | | 40 | 40 | 250 | 20 | 40 | 45 | | | | | | | |

• Inserti applicabili, vedere pag. B22~B24

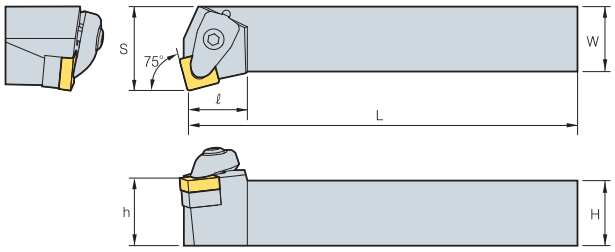
● : Disponibile ○ : A richiesta

# B Sistema doppio staffaggio

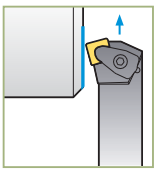
## DSKNR/L



SN□□




75°



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Staffa | Vite sede | Sede | Vite sede | Molla | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DSKNR/L | 2020-K09 | | | 20 | 20 | 125 | 25 | 20 | 20 | SN□□0903□□ | CVH3 | CHX0415 | SS32V | FTKA0307 | SPR0510 | HW25P |
| | 2020-K12 | ● | ● | 20 | 20 | 125 | 25 | 20 | 23 | SN□□1204□□ | CVH4 | CHX0518 | SS44V | FTKA0410 | SPR0714 | HW30P |
| | 2525-M12 | ○ | ● | 25 | 25 | 150 | 32 | 25 | 23 | | | | | | | |
| | 3232-P12 | ● | ● | 32 | 32 | 170 | 40 | 32 | 23 | | | | | | | |
| | 3232-P15 | | | 32 | 32 | 170 | 40 | 32 | 28 | SN□□1506□□ | CVH5 | CHX0622 | SS54V | FTKA0511 | SPR0811 | HW40L |
| | 3232-P19 | | | 32 | 32 | 170 | 40 | 32 | 35 | SN□□1906□□ | CVH6 | CHX0622 | SS64V | FTNA0511 | SPR0811 | HW40L |
| | 4040-S19 | | | 40 | 40 | 250 | 50 | 40 | 43 | | | | | | | |

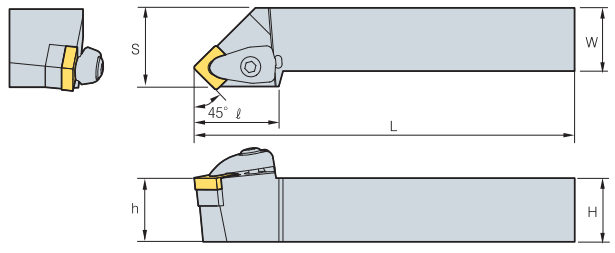
• Inserti applicabili, vedere pag. B22~B24

● : Disponibile ○ : A richiesta

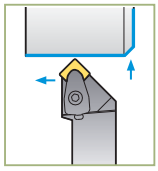
## DSSNR/L



SN□□




45°



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Staffa | Vite sede | Sede | Vite sede | Molla | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DSSNR/L | 2020-K09 | | | 20 | 20 | 125 | 25 | 20 | 28.5 | SN□□0903□□ | CVH3 | CHX0415 | SS32V | FTKA0307 | SPR0510 | HW25P |
| | 2020-K12 | ● | ● | 20 | 20 | 125 | 25 | 20 | 35 | SN□□1204□□ | CVH4 | CHX0518 | SS44V | FTKA0410 | SPR0714 | HW30P |
| | 2525-M12 | ● | ● | 25 | 25 | 150 | 32 | 25 | 35 | | | | | | | |
| | 3225-P12 | ● | ● | 32 | 25 | 170 | 32 | 32 | 35 | | | | | | | |
| | 3232-P12 | ● | ● | 32 | 32 | 170 | 40 | 32 | 35 | | | | | | | |
| | 2525-M15 | | | 25 | 25 | 150 | 32 | 25 | 38.5 | SN□□1506□□ | CVH5 | CHX0622 | SS54V | FTKA0511 | SPR0811 | HW40L |
| | 3232-P15 | | | 32 | 32 | 170 | 40 | 32 | 38.5 | | | | | | | |
| | 3232-P19 | ○ | | 32 | 32 | 170 | 40 | 32 | 46 | SN□□1906□□ | CVH6 | CHX0622 | SS64V | FTNA0511 | SPR0811 | HW40L |
| | 4040-S19 | | | 40 | 40 | 250 | 50 | 40 | 46 | | | | | | | |

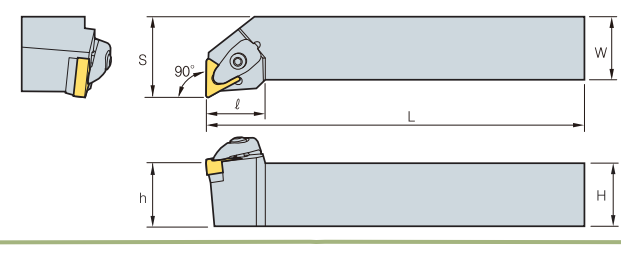
• Inserti applicabili, vedere pag. B22~B24

● : Disponibile ○ : A richiesta

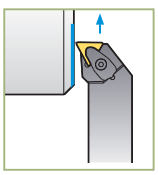
## DTFNR/L



TN□□




90°



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Staffa | Vite sede | Sede | Vite sede | Molla | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DTFNR/L | 2020-K16 | | | 20 | 20 | 125 | 25 | 20 | 24.5 | | | | | | | |
| | 2525-M16 | | | 25 | 25 | 150 | 32 | 25 | 24.5 | TN□□1604□□ | CVH3 | CHX0415 | ST32V | FTKA0307 | SPR0510 | HW25P |
| | 3232-P16 | | | 32 | 32 | 170 | 40 | 32 | 23.5 | | | | | | | |
| | 2525-M22 | | | 25 | 25 | 150 | 32 | 25 | 33 | | | | | | | |
| | 3225-P22 | | | 32 | 25 | 170 | 32 | 32 | 33 | TN□□2204□□ | CVH4 | CHX0518 | ST44V | FTKA0410 | SPR0714 | HW30P |
| | 3232-P22 | | | 32 | 32 | 170 | 40 | 32 | 33 | | | | | | | |

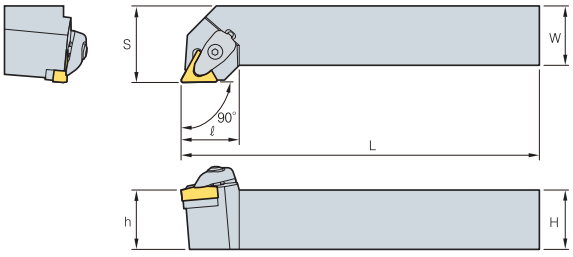
• Inserti applicabili, vedere pag. B26~B29

● : Disponibile ○ : A richiesta

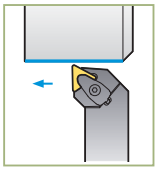
# DTGNR/L



TN□□




90°



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Staffa | Vite sede | Sede | Vite sede | Molla | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DTGNR/L | 2020-K16 | | | 20 | 20 | 125 | 25 | 20 | 24.5 | TN□□1604□□ | CVH3 | CHX0415 | ST32V | FTKA0307 | SPR0510 | HW25P |
| | 2525-M16 | | | 25 | 25 | 150 | 32 | 25 | 24.5 | | | | | | | |
| | 3232-P16 | | | 32 | 32 | 170 | 40 | 32 | 24.5 | | | | | | | |
| | 2525-M22 | | | 25 | 25 | 150 | 32 | 25 | 32.6 | TN□□2204□□ | CVH4 | CHX0518 | ST44V | FTKA0410 | SPR0714 | HW30P |
| | 3225-P22 | | | 32 | 25 | 170 | 32 | 32 | 32.6 | | | | | | | |
| | 3232-P22 | | | 32 | 32 | 170 | 40 | 32 | 32.6 | | | | | | | |

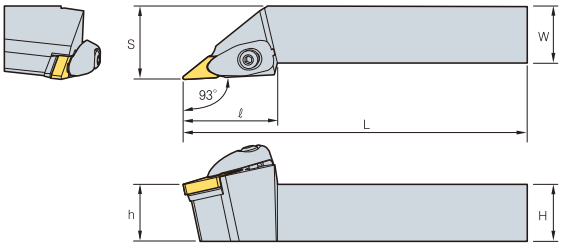
• Inserti applicabili, vedere pag. B26~B29

● : Disponibile ○ : A richiesta

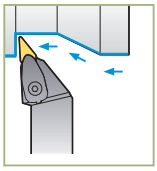
# DVJNR/L



VN□□




93°



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Staffa | Vite sede | Sede | Vite sede | Molla | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DVJNR/L | 2020-K16 | ○ | ○ | 20 | 20 | 125 | 25 | 20 | 41.5 | VN□□1604□□ | CVH3V | CHX0518 | SV32V | FTNA03508 | SPR0714 | HW30P |
| | 2525-M16 | ○ | ○ | 25 | 25 | 150 | 32 | 25 | 41.5 | | | | | | | |
| | 3232-P16 | ○ | ○ | 32 | 32 | 170 | 40 | 32 | 41.5 | | | | | | | |

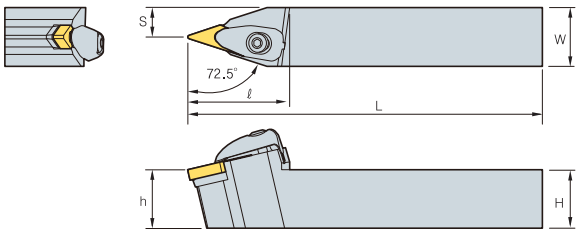
• Inserti applicabili, vedere pag. B30

● : Disponibile ○ : A richiesta

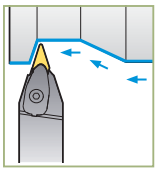
# DVVNN



VN□□




72.5°



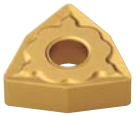
(mm)

| Articolo | | Stock | H | W | L | S | h | ℓ | Inserto | Staffa | Vite sede | Sede | Vite sede | Molla | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DVVNN | 2020-K16 | | 20 | 20 | 125 | 10 | 20 | 40 | VN□□1604□□ | CVH3V | CHX0518 | SV32V | FTNA03508 | SPR0714 | HW30P |
| | 2525-M16 | ○ | 25 | 25 | 150 | 12.5 | 25 | 40 | | | | | | | |
| | 3232-P16 | | 32 | 32 | 170 | 16 | 32 | 40 | | | | | | | |

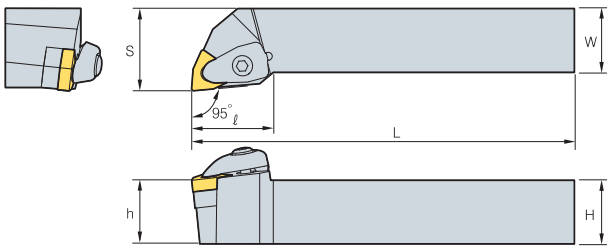
• Inserti applicabili, vedere pag. B30

● : Disponibile ○ : A richiesta

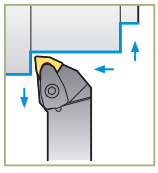
# DWLNR/L



WN□□




95°



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Staffa | Vite sede | Sede | Vite sede | Molla | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DWLNR/L | 2020-K06 | ○ | ○ | 20 | 20 | 125 | 25 | 20 | 26 | WN□□0604□□ | CVH3 | CHX0415 | SW32V | FTKA0307 | SPR0510 | HW25P |
| | 2525-M06 | ○ | ○ | 25 | 25 | 150 | 32 | 25 | 26 | | | | | | | |
| | 2020-K08 | ● | ● | 20 | 20 | 125 | 25 | 20 | 32 | WN□□0804□□ | CVH4 | CHX0518 | SW44V | FTKA0410 | SPR0714 | HW30P |
| | 2525-M08 | ● | ● | 25 | 25 | 150 | 32 | 25 | 32 | | | | | | | |

• Inserti applicabili, vedere pag. B31~B32

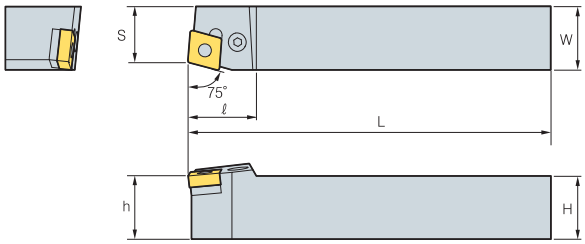
● : Disponibile ○ : A richiesta

# B Sistema di bloccaggio a leva

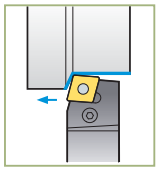
## PCBNR/L



CN□□




75°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Leva | Vite | Sede | Spina | Chiave | Punzone |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PCBNR/L 2020-K12 | ● | ● | 20 | 20 | 125 | 17 | 20 | 27 | CN□□1204□□ | LV4 | VHX0821 | SC42 | SP4 | HW30L | LSPS8 |
| 2525-M12 | ● | ● | 25 | 25 | 150 | 22 | 25 | 27 | | | | | | | |
| 3225-P12 | ● | ● | 32 | 25 | 170 | 22 | 32 | 27 | | | | | | | |
| 2525-M16 | ● | ● | 25 | 25 | 150 | 22 | 25 | 33 | CN□□1606□□ | LV5 | VHX0825 | SC53 | SP5 | HW30L | LSPS6 |
| 3232-P16 | ● | ● | 32 | 32 | 170 | 27 | 32 | 33 | | | | | | | |
| 3232-P19 | ● | ● | 32 | 32 | 170 | 27 | 32 | 36 | CN□□1906□□ | LV6N | VHX1027N | SC63N | SP6N | HW40L | LSPS6 |
| 4040-S19 | ● | ● | 40 | 40 | 250 | 35 | 40 | 36 | | | | | | | |
| 4040-S25 | ● | ● | 40 | 40 | 250 | 35 | 40 | 47 | CN□□2509□□ | LV8N | VHX1236N | SC84N | SP8N | HW50L | LSPS8 |
| 4040-S25-5 | ● | ● | 40 | 40 | 250 | 35 | 40 | 47 | CN□□2507□□ | | | | | | |

| Articolo | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Leva | Vite | Sede | Spina | Chiave | Punzone |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PCBNR/L 2020-K12N | | | 20 | 20 | 125 | 17 | 20 | 27 | CN□□1204□□ | LV4N | VHX0820N | SC42N | SP4N | HW30L | LSPS4 |
| 2525-M12N | | | 25 | 25 | 150 | 22 | 25 | 27 | | | | | | | |
| 3225-P12N | | | 32 | 25 | 170 | 22 | 32 | 27 | | | | | | | |
| 2525-M16N | | | 25 | 25 | 150 | 22 | 25 | 33 | CN□□1606□□ | LV5N | VHX0820AN | SC53N | SP5N | HW30L | LSPS5 |
| 3232-P16N | | | 32 | 32 | 170 | 27 | 32 | 33 | | | | | | | |

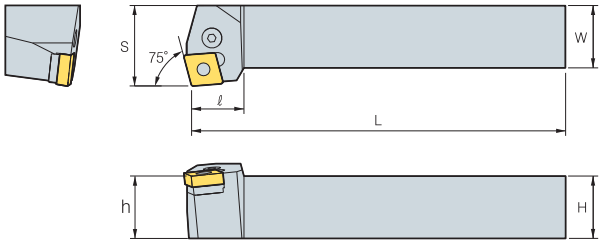
• Inserti applicabili, vedere pag. B16~B18

● : Disponibile ○ : A richiesta

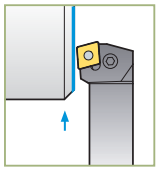
## PCKNR/L



CN□□




95°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Leva | Vite | Sede | Spina | Chiave | Punzone |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PCKNR/L 2020-K12 | ● | ● | 20 | 20 | 125 | 25 | 20 | 27 | CN□□1204□□ | LV4 | VHX0821 | SC42 | SP4 | HW30L | LSPS4 |
| 2525-M12 | ● | ○ | 25 | 25 | 150 | 32 | 25 | 27 | | | | | | | |
| 3225-P12 | | | 32 | 25 | 170 | 40 | 32 | 30 | | | | | | | |
| 3232-P16 | | | 32 | 32 | 170 | 40 | 32 | 26 | CN□□1606□□ | LV5 | VHX0825 | SC53 | SP5 | HW30L | LSPS5 |
| 4040-S16 | | | 40 | 40 | 250 | 50 | 40 | 25 | | | | | | | |

| Articolo | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Leva | Vite | Sede | Spina | Chiave | Punzone |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PCKNR/L 2020-K12N | | | 20 | 20 | 125 | 25 | 20 | 27 | CN□□1204□□ | LV4N | VHX0820N | SC42N | SP4N | HW30L | LSPS4 |
| 2525-M12N | | | 25 | 25 | 150 | 32 | 25 | 27 | | | | | | | |
| 3225-P12N | | | 32 | 25 | 170 | 40 | 32 | 30 | | | | | | | |
| 3232-P16N | | | 32 | 32 | 170 | 40 | 32 | 26 | CN□□1606□□ | LV5N | VHX0820AN | SC53N | SP5N | HW30L | LSPS5 |
| 4040-S16N | | | 40 | 40 | 250 | 50 | 40 | 25 | | | | | | | |

• Inserti applicabili, vedere pag. B16~B18

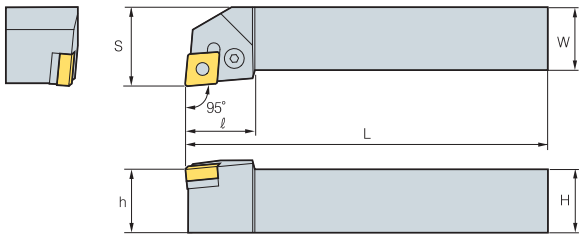
● : Disponibile ○ : A richiesta

- I nuovi portainserti e ricambi garantiscono ottime prestazioni e maggiore durata
- "N" indica il nuovo tipo (portainserti e ricambi)

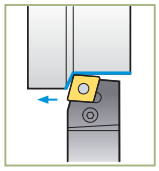
# PCLNR/L



CN□□




95°



• Inserto destro R

(mm)

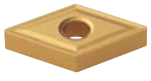
| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Leva | Vite | Sede | Spina | Chiave | Punzone |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PCLNR/L | 1616-H09 | ● | | 16 | 16 | 100 | 20 | 16 | 20 | CN□□0903□□ | LV3 | VHX0617 | SC32 | SP3 | HW25L | LSPS3 |
| | 2020-K09 | ● | ● | 20 | 20 | 125 | 25 | 20 | 22 | | | | | | | |
| | 2525-M09 | ● | ● | 25 | 25 | 150 | 32 | 25 | 22 | | | | | | | |
| | 1616-H12 | ● | ● | 16 | 16 | 100 | 20 | 16 | 28 | CN□□1204□□ | LV4 | VHX0821 | SC42 | SP4 | HW30L | LSPS4 |
| | 2020-K12 | ● | ● | 20 | 20 | 125 | 25 | 20 | 28 | | | | | | | |
| | 2525-M12 | ● | ● | 25 | 25 | 150 | 32 | 25 | 28 | | | | | | | |
| | 3225-P12 | ● | | 32 | 25 | 170 | 32 | 32 | 28 | | | | | | | |
| | 3232-P12 | ● | ● | 32 | 32 | 170 | 40 | 32 | 28 | | | | | | | |
| | 2525-M16 | ● | ● | 25 | 25 | 150 | 32 | 25 | 33 | CN□□1606□□ | LV5 | VHX0825 | SC53 | SP5 | HW30L | LSPS5 |
| | 3232-P16 | ● | ● | 32 | 32 | 170 | 40 | 32 | 33 | | | | | | | |
| | 2525-M19 | ● | ● | 25 | 25 | 150 | 32 | 25 | 36 | CN□□1906□□ | LV6N | VHX1027N | SC63N | SP6N | HW40L | LSPS6 |
| | 3225-P19 | ● | | 32 | 25 | 170 | 32 | 32 | 36 | | | | | | | |
| | 3232-P19 | ● | ● | 32 | 32 | 170 | 40 | 32 | 36 | | | | | | | |
| | 4040-P19 | ● | | 40 | 40 | 170 | 50 | 40 | 36 | | | | | | | |
| | 4040-S19 | ● | ● | 40 | 40 | 250 | 50 | 40 | 36 | | | | | | | |
| | 4040-S25 | ● | ● | 40 | 40 | 250 | 50 | 40 | 47 | CN□□2509□□ | LV8N | VHX1236N | SC84N | SP8N | HW50L | LSPS8 |
| | 5050-T25 | ● | ● | 50 | 50 | 300 | 60 | 50 | 47 | | | | | | | |
| | 4040-S25-5 | ● | ● | 40 | 40 | 250 | 50 | 40 | 47 | CN□□2507□□ | LV8N | VHX1236N | SC84N | SP8N | HW50L | LSPS8 |
| | 5050-S25-5 | | | 50 | 50 | 300 | 60 | 50 | 47 | | | | | | | |

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Leva | Vite | Sede | Spina | Chiave | Punzone |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PCLNR/L | 1616-H09N | | | 16 | 16 | 100 | 20 | 16 | 20 | CN□□0903□□ | LV3N | VHX0617N | SC32N | SP3N | HW25L | LSPS3 |
| | 2020-K09N | | | 20 | 20 | 125 | 25 | 20 | 22 | | | | | | | |
| | 2525-M09N | | | 25 | 25 | 150 | 32 | 25 | 22 | | | | | | | |
| | 1616-H12N | | | 16 | 16 | 100 | 20 | 16 | 28 | CN□□1204□□ | LV4N | VHX0817N<br>VHX0820N | SC42N | SP4N | HW30L | LSPS4 |
| | 2020-K12N | ● | ● | 20 | 20 | 125 | 25 | 20 | 28 | | | | | | | |
| | 2525-M12N | ● | | 25 | 25 | 150 | 32 | 25 | 28 | | | | | | | |
| | 3225-P12N | | | 32 | 25 | 170 | 32 | 32 | 28 | | | | | | | |
| | 3232-P12N | | | 32 | 32 | 170 | 40 | 32 | 28 | | | | | | | |
| | 2525-M16N | | | 25 | 25 | 150 | 32 | 25 | 33 | CN□□1606□□ | LV5N | VHX0820AN | SC53N | SP5N | HW30L | LSPS5 |
| | 3232-P16N | | | 32 | 32 | 170 | 40 | 32 | 33 | | | | | | | |

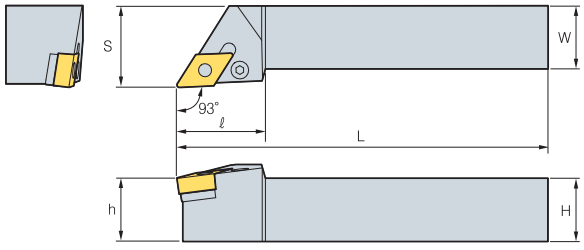
• Inserti applicabili, vedere pag. B16~B18

● : Disponibile ○ : A richiesta

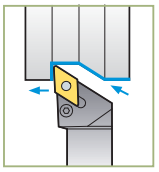
# PDJNR/L



DN□□




93°



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Leva | Vite | Sede | Spina | Chiave | Punzone |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PDJNR/L | 1616-H11 | ● | ○ | 16 | 16 | 100 | 20 | 16 | 25 | DN□□1104□□ | LV3 | VHX0617 | SD317 | SP3 | HW25L | LSPS3 |
| | 2020-K11 | ● | ○ | 20 | 20 | 125 | 25 | 20 | 25 | | | | | | | |
| | 2525-M11 | ● | ○ | 25 | 25 | 150 | 32 | 25 | 30 | | | | | | | |
| | 2020-K15 | ○ | ● | 20 | 20 | 125 | 25 | 20 | 35 | DN□□1506□□ | LV4B | VHX0821 | SD42 | SP4 | HW30L | LSPS4 |
| | 2525-M15 | ● | ○ | 25 | 25 | 150 | 32 | 25 | 35 | | | | | | | |
| | 3225-P15 | ○ | ○ | 32 | 25 | 170 | 32 | 32 | 35 | | | | | | | |
| | 3232-P15 | ● | ● | 32 | 32 | 170 | 40 | 32 | 35 | | | | | | | |
| | 2020-K15-3 | ● | | 20 | 20 | 125 | 25 | 20 | 35 | DN□□1504□□ | LV4 | VHX0821 | SD42 | SP4 | HW30L | LSPS4 |
| | 2525-M15-3 | ● | ○ | 25 | 25 | 150 | 32 | 25 | 35 | | | | | | | |
| | 3232-P15-3 | | | 32 | 32 | 170 | 40 | 32 | 35 | | | | | | | |

• Inserti applicabili, vedere pag. B19~B21

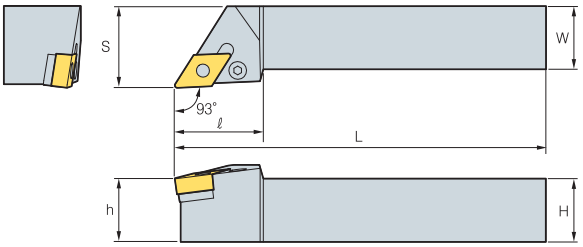
● : Disponibile ○ : A richiesta

# B Sistema di bloccaggio a leva

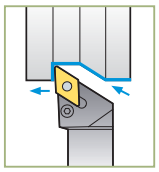
## PDJNR/L



DN□□




93°



• Inserto destro R

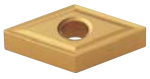
(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Leva | Vite | Sede | Spina | Chiave | Punzone |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PDJNR/L | 1616-H11N | | | 16 | 16 | 100 | 20 | 16 | 25 | DN□□1104□□ | LV3AN | VHX0617N | SD32N | SP3N-1 | HW25L | LSPS3 |
| | 2020-K11N | | | 20 | 20 | 125 | 25 | 20 | 25 | | | | | | | |
| | 2525-M11N | | | 25 | 25 | 150 | 32 | 25 | 30 | | | | | | | |
| | 2020-K15N | | | 20 | 20 | 125 | 25 | 20 | 35 | DN□□1506□□ | LV4BN | VHX0821N | SD42N | SP4N | HW30L | LSPS4 |
| | 2525-M15N | ● | | 25 | 25 | 150 | 32 | 25 | 35 | | | | | | | |
| | 3225-P15N | | | 32 | 25 | 170 | 32 | 32 | 35 | | | | | | | |
| | 3232-P15N | | | 32 | 32 | 170 | 40 | 32 | 35 | | | | | | | |
| | 2020-K15-3N | | | 20 | 20 | 125 | 25 | 20 | 35 | DN□□1504□□ | LV4BN | VHX0821N | SD43N | SP4N | HW30L | LSPS4 |
| | 2525-M15-3N | | | 25 | 25 | 150 | 32 | 25 | 35 | | | | | | | |
| | 3232-P15-3N | | | 32 | 32 | 170 | 40 | 32 | 35 | | | | | | | |

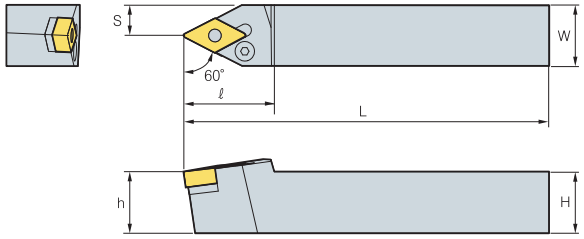
• Inserti applicabili, vedere pag. B19~B21

● : Disponibile ○ : A richiesta

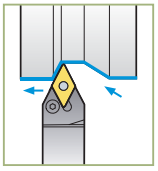
## PDNNR/L



DN□□




63°



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Leva | Vite | Sede | Spina | Chiave | Punzone |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PDNNR/L | 2020-K15 | ● | | 20 | 20 | 125 | 8 | 20 | 37 | DN□□1506□□ | LV4B | VHX0821 | SD42 | SP4 | HW30L | LSPS4 |
| | 2525-M15 | ● | | 25 | 25 | 150 | 12.5 | 25 | 37 | | | | | | | |
| | 3232-P15 | ● | | 32 | 32 | 150 | 16 | 32 | 37 | | | | | | | |
| | 4025-M15 | | | 40 | 25 | 170 | 12.5 | 32 | 37 | | | | | | | |
| | 2525-M15-3 | | | 25 | 25 | 150 | 12.5 | 25 | 37 | DN□□1504□□ | LV4 | VHX0821 | SD42 | SP4 | HW30L | LSPS4 |
| | 4025-M15-3 | | | 40 | 25 | 150 | 12.5 | 25 | 37 | | | | | | | |

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Leva | Vite | Sede | Spina | Chiave | Punzone |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PDNNR/L | 2020-K15N | | | 20 | 20 | 125 | 8 | 20 | 37 | DN□□1506□□ | LV4BN | VHX0821N | SD42N | SP4N | HW30L | LSPS4 |
| | 2525-M15N | | | 25 | 25 | 150 | 12.5 | 25 | 37 | | | | | | | |
| | 3232-P15N | | | 32 | 32 | 170 | 16 | 32 | 37 | | | | | | | |
| | 2525-M15-3N | | | 25 | 25 | 150 | 12.5 | 25 | 37 | DN□□1504□□ | LV4BN | VHX0821N | SD43N | SP4N | HW30L | LSPS4 |
| | 3232-P15-3N | | | 32 | 32 | 170 | 16 | 32 | 37 | | | | | | | |

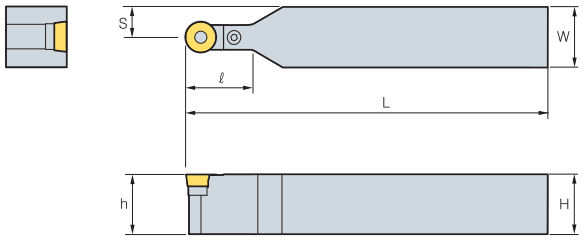
• Inserti applicabili, vedere pag. B19~B21

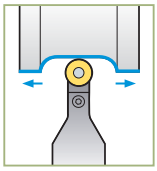
● : Disponibile ○ : A richiesta

# PRDCN



RCMX



• Inserto destro R

(mm)

| Articolo | | Stock | H | W | L | S | h | ℓ | Inserto | Leva | Vite | Sede | Spina | Chiave | Punzone |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PRDCN | 2020-M10 | ● | 20 | 20 | 150 | 15 | 20 | 24 | RCMX 1003M0 | LR10 | VHX0514 | SR10 | SP3 | HW20L | LPSP3 |
| | 2525-M10 | ● | 25 | 25 | 150 | 17.5 | 25 | 24 | | | | | | | |
| | 2525-M12 | ● | 25 | 25 | 150 | 18.5 | 25 | 24 | RCMX 1204M0 | LR12 | VHX0617 | SR12 | SP3 | HW25L | LPSP3 |
| | 2020-K12 | ● | 20 | 20 | 125 | 16 | 20 | 24 | | | | | | | |
| | 3225-Q12 | ● | 32 | 25 | 180 | 18.5 | 32 | 24 | | | | | | | |
| | 2525-Q16 | ● | 25 | 25 | 180 | 20.5 | 25 | 30 | RCMX 1606M0 | LR16 | VHX0621 | SR16 | SP4 | HW25L | LPSP4 |
| | 3225-Q16 | ● | 32 | 25 | 180 | 20.5 | 32 | 30 | | | | | | | |
| | 3232-Q16 | ● | 32 | 32 | 180 | 24 | 32 | 35 | | | | | | | |
| | 3232-Q20 | ● | 32 | 32 | 180 | 26 | 32 | 40 | RCMX 2006M0 | LR20 | VHX0823 | SR20 | SP5-1 | HW30L | LPSP5 |
| | 4040-S25 | ● | 40 | 40 | 250 | 32.5 | 40 | 42 | RCMX 2507M0 | LR25 | VHX1030 | SR25 | SP6N | HW40L | LPSP6 |
| | 4040-T25 | ● | 40 | 40 | 300 | 32.5 | 40 | 42 | | | | | | | |
| | 5050-U32 | ● | 50 | 50 | 350 | 41 | 50 | 52 | RCMX 3209M0 | LR32 | VHX1236 | SR32 | SP8N | HW50L | LPSP8 |

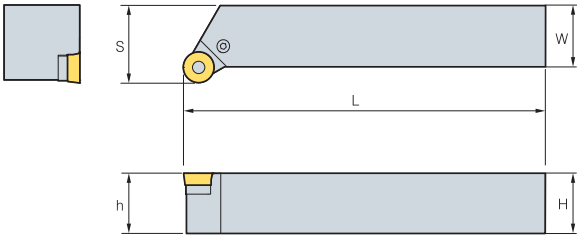
• Inserti applicabili, vedere pag. B36

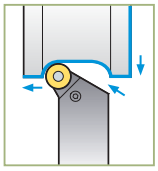
● : Disponibile ○ : A richiesta

# PRGCR/L



RCMX



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | Inserto | Leva | Vite | Sede | Spina | Chiave | Punzone |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PRGCR/L | 2020-K10 | ● | ● | 20 | 20 | 125 | 25 | 20 | RCMX 1003M0 | LR10 | VHX0514 | SR10 | SP3 | HW20L | LPSP3 |
| | 2525-M10 | ● | ● | 25 | 25 | 150 | 32 | 25 | | | | | | | |
| | 2020-K12 | ● | ● | 20 | 20 | 125 | 25 | 20 | RCMX 1204M0 | LR12 | VHX0617 | SR12 | SP3 | HW25L | LPSP3 |
| | 2525-M12 | ● | ● | 25 | 25 | 150 | 32 | 25 | | | | | | | |
| | 3225-P12 | ● | ● | 32 | 25 | 170 | 32 | 32 | | | | | | | |
| | 2525-M16 | ● | ● | 25 | 25 | 150 | 32 | 25 | RCMX 1606M0 | LR16 | VHX0621 | SR16 | SP4 | HW25L | LPSP4 |
| | 3225-P16 | ● | ● | 32 | 25 | 170 | 32 | 32 | | | | | | | |
| | 3232-P20 | ● | ● | 32 | 32 | 170 | 40 | 32 | RCMX 2006M0 | LR20 | VHX0823 | SR20 | SP5-1 | HW30L | LPSP5 |
| | 4040-S25 | ● | ● | 40 | 40 | 250 | 50 | 40 | RCMX 2507M0 | LR25 | VHX1030 | SR25 | SP6N | HW40L | LSPS6 |

• Inserti applicabili, vedere pag. B36

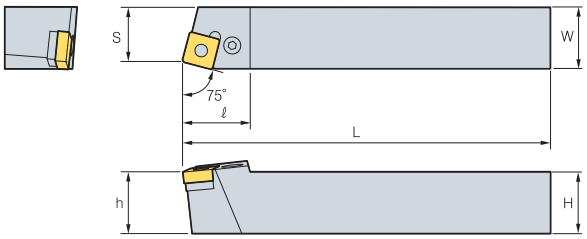
● : Disponibile ○ : A richiesta

# B Sistema di bloccaggio a leva

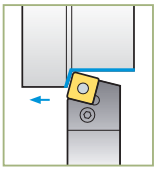
## PSBNR/L



SN□□




75°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Leva | Vite | Sede | Spina | Chiave | Punzone |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PSBNR/L 1616-H09 | | ● | 16 | 16 | 100 | 13 | 16 | 21 | SN□□0903□□ | LV3 | VHX0617 | SS32 | SP3 | HW25L | LPSP3 |
| 2020-K09 | | | 20 | 20 | 125 | 17 | 20 | 23 | | | | | | | |
| 2020-K12 | | | 20 | 20 | 125 | 17 | 20 | 28 | SN□□1204□□ | LV4 | VHX0821 | SS42 | SP4 | HW30L | LPSP4 |
| 2525-M12 | | ● | 25 | 25 | 150 | 22 | 25 | 28 | | | | | | | |
| 3225-P12 | ● | | 32 | 32 | 170 | 22 | 32 | 28 | | | | | | | |
| 3232-P12 | | | 32 | 32 | 170 | 27 | 32 | 28 | | | | | | | |
| 2525-M15 | ● | ● | 25 | 25 | 150 | 22 | 25 | 35 | SN□□1506□□ | LV5 | VHX0825 | SS53 | SP5 | HW30L | LPSP5 |
| 3232-P15 | | | 32 | 32 | 170 | 27 | 32 | 35 | | | | | | | |
| 3232-P19 | ● | ● | 32 | 32 | 170 | 27 | 32 | 40 | SN□□1906□□ | LV6N | VHX1027N | SS63N | SP6N | HW40L | LSPS6 |
| 4040-S19 | ● | ● | 40 | 40 | 250 | 35 | 40 | 40 | | | | | | | |
| 4040-S25 | ● | ● | 40 | 40 | 250 | 35 | 40 | 50 | SN□□2507□□ | LV8N | VHX1236N | SS84N | SP8N | HW50L | LSPS8 |
| 4040-S25-6 | ● | ● | 40 | 40 | 250 | 35 | 40 | 50 | SN□□2509□□ | LV8N | VHX1236N | SS84N | SP8N | HW50L | LSPS8 |
| 5050-T25 | ● | ● | 50 | 50 | 300 | 43 | 50 | 50 | SN□□2507□□ | LV8N | VHX1236N | SS84N | SP8N | HW50L | LSPS8 |

| Articolo | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Leva | Vite | Sede | Spina | Chiave | Punzone |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PSBNR/L 1616-H09N | | | 16 | 16 | 100 | 13 | 16 | 21 | SN□□0903□□ | LV3N | VHX0617N | SS32N | SP3N | HW25L | LSPS3 |
| 2020-K09N | | | 20 | 20 | 125 | 17 | 20 | 23 | | | | | | | |
| 2020-K12N | | | 20 | 20 | 125 | 17 | 20 | 28 | SN□□1204□□ | LV4N | VHX0820N | SS42N | SP4N | HW30L | LSPS4 |
| 2525-M12N | | | 25 | 25 | 150 | 22 | 25 | 28 | | | | | | | |
| 3225-P12N | | | 32 | 25 | 150 | 22 | 25 | 28 | | | | | | | |
| 3232-P12N | | | 32 | 32 | 170 | 27 | 32 | 28 | | | | | | | |
| 2525-M15N | | | 25 | 25 | 150 | 22 | 25 | 35 | SN□□1506□□ | LV5N | VHX0820AN | SS53N | SP5N | HW30L | LSPS5 |
| 3232-P15N | | | 32 | 32 | 170 | 27 | 32 | 35 | | | | | | | |

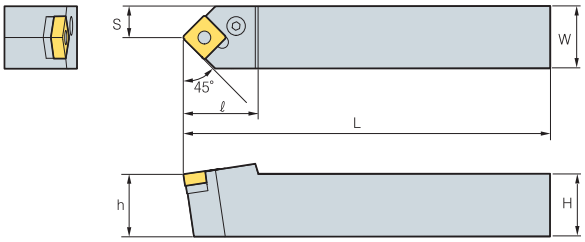
• Inserti applicabili, vedere pag. B22~B25

● : Disponibile ○ : A richiesta

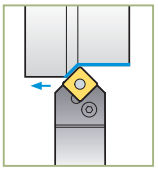
## PSDNN



SN□□




45°



(mm)

| Articolo | Stock | H | W | L | S | h | ℓ | Inserto | Leva | Vite | Sede | Spina | Chiave | Punzone |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PSDNN 1616-H09 | ● | 16 | 16 | 100 | 8 | 16 | 23 | SN□□0903□□ | LV3 | VHX0617 | SS32 | SP3 | HW25L | LSPS3 |
| 2020-K12 | ● | 20 | 20 | 125 | 10 | 20 | 30 | SN□□1204□□ | LV4 | VHX0821 | SS42 | SP4 | HW30L | LSPS4 |
| 2525-M12 | ● | 25 | 25 | 150 | 12.5 | 25 | 30 | | | | | | | |
| 3232-P12 | ● | 32 | 32 | 170 | 16 | 32 | 40 | | | | | | | |
| 2525-M15 | ● | 25 | 25 | 150 | 12.5 | 25 | 40 | SN□□1506□□ | LV5 | VHX0825 | SS53 | SP5 | HW30L | LSPS5 |
| 3232-P15 | | 32 | 32 | 170 | 16 | 32 | 40 | | | | | | | |
| 3225-P19 | | 32 | 25 | 170 | 12.5 | 32 | 40 | SN□□1906□□ | LV6N | VHX1027N | SS63N | SP6N | HW40L | LSPS6 |
| 3232-P19 | ● | 32 | 32 | 170 | 16 | 32 | 40 | | | | | | | |
| 4040-S19 | ● | 40 | 40 | 250 | 20 | 40 | 40 | | | | | | | |
| 4040-S25 | ● | 40 | 40 | 250 | 20 | 40 | 50 | SN□□2507□□ | LV8N | VHX1236N | SS84N | SP8N | HW50L | LSPS8 |
| 5050-T25 | ● | 50 | 50 | 300 | 25 | 50 | 50 | | | | | | | |
| 4040-S25-6 | ● | 40 | 40 | 250 | 20 | 40 | 50 | SN□□2509□□ | LV8N | VHX1236N | SS84N | SP8N | HW50L | LSPS8 |
| 5050-T25-6 | ● | 50 | 50 | 300 | 25 | 50 | 50 | | | | | | | |

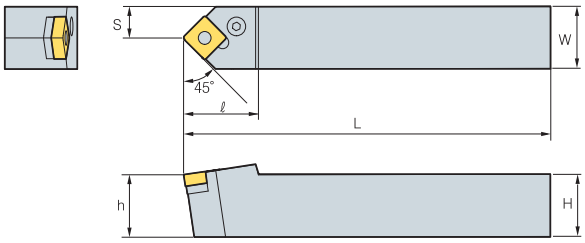
• Inserti applicabili, vedere pag. B22~B25

● : Disponibile ○ : A richiesta

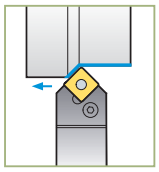
# PSDNN



SN□□




45°



(mm)

| Articolo | | Stock | | H | W | L | S | h | ℓ | Inserto | Leva | Vite | Sede | Spina | Chiave | Punzone |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PSDNN** | **1616-H09N** | | | 16 | 16 | 100 | 8 | 16 | 23 | SN□□0903□□ | LV3N | VHX0617N | SS32N | SP3N | HW25L | LSPS3 |
| | **2020-K12N** | | | 20 | 20 | 125 | 10 | 20 | 30 | SN□□1204□□ | LV4N | VHX0820N | SS42N | SP4N | HW30L | LSPS4 |
| | **2525-M12N** | | | 25 | 25 | 150 | 12.5 | 20 | 30 | | | | | | | |
| | **3225-P12N** | | | 32 | 25 | 170 | 12.5 | 32 | 30 | | | | | | | |
| | **3232-P12N** | | | 32 | 32 | 170 | 16 | 32 | 40 | | | | | | | |
| | **2525-M15N** | | | 25 | 25 | 150 | 12.5 | 25 | 40 | SN□□1506□□ | LV5N | VHX0820AN | SS53N | SP5N | HW30L | LSPS5 |
| | **3232-P15N** | | | 32 | 32 | 170 | 16 | 32 | 40 | | | | | | | |

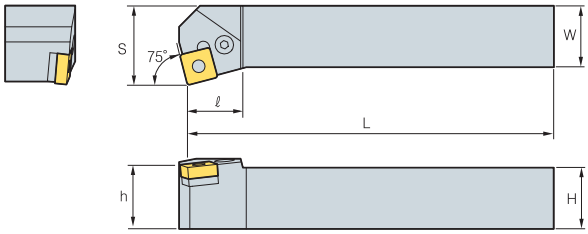
• Inserti applicabili, vedere pag. B22~B25

● : Disponibile ○ : A richiesta

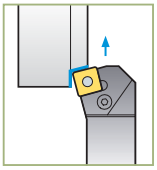
# PSKNR/L



SN□□




75°



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Leva | Vite | Sede | Spina | Chiave | Punzone |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PSKNR/L** | **1616-H09** | | | 16 | 16 | 100 | 20 | 16 | 17 | SN□□0903□□ | LV3 | VHX0617 | SS32 | SP3 | HW25L | LSPS3 |
| | **2020-K09** | | | 20 | 20 | 125 | 25 | 20 | 20 | | | | | | | |
| | **2020-K12** | ● | ● | 20 | 20 | 125 | 25 | 20 | 23 | SN□□1204□□ | LV4 | VHX0821 | SS42 | SP4 | HW30L | LSPS4 |
| | **2525-M12** | ● | ● | 25 | 25 | 150 | 32 | 25 | 23 | | | | | | | |
| | **3232-P12** | | | 32 | 32 | 170 | 40 | 32 | 23 | | | | | | | |
| | **2525-M15** | | | 25 | 25 | 150 | 32 | 25 | 28 | SN□□1506□□ | LV5 | VHX0825 | SS53 | SP5 | HW30L | LSPS5 |
| | **3232-P15** | | | 32 | 32 | 170 | 40 | 32 | 28 | | | | | | | |
| | **3232-P19** | ● | | 32 | 32 | 170 | 40 | 32 | 41.5 | SN□□1906□□ | LV6N | VHX1027N | SS63N | SP6N | HW40L | LSPS6 |
| | **4040-S19** | ● | ● | 40 | 40 | 250 | 50 | 40 | 41.5 | | | | | | | |
| | **4040-S25** | ● | ● | 40 | 40 | 250 | 50 | 40 | 46 | SN□□2507□□ | LV8N | VHX1236N | SS84N | SP8N | HW50L | LSPS8 |
| | **4040-S25-6** | ● | ● | 40 | 40 | 250 | 50 | 40 | 46 | SN□□2509□□ | LV8N | VHX1236N | SS84N | SP8N | HW50L | LSPS8 |
| | **5050-T25-6** | ● | | 50 | 50 | 300 | 60 | 50 | 37.5 | SN□□2509□□ | LV8N | VHX1236N | SS84N | SP8N | HW50L | LSPS8 |

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Leva | Vite | Sede | Spina | Chiave | Punzone |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PSKNR/L** | **1616-H09N** | | | 16 | 16 | 100 | 20 | 16 | 17 | SN□□0903□□ | LV3N | VHX0617N | SS32N | SP3N | HW25L | LSPS3 |
| | **2020-K09N** | | | 20 | 20 | 125 | 25 | 20 | 20 | | | | | | | |
| | **2020-K12N** | | | 20 | 20 | 125 | 25 | 20 | 26 | SN□□1204□□ | LV4N | VHX0820N | SS42N | SP4N | HW30L | LSPS4 |
| | **2525-M12N** | | | 25 | 25 | 150 | 32 | 25 | 26 | | | | | | | |
| | **3232-P12N** | | | 32 | 32 | 170 | 40 | 32 | 26 | | | | | | | |
| | **2525-M15N** | | | 25 | 25 | 150 | 32 | 25 | 32 | SN□□1506□□ | LV5N | VHX0820AN | SS53N | SP5N | HW30L | LSPS5 |
| | **3232-P15N** | | | 32 | 32 | 170 | 40 | 32 | 32 | | | | | | | |

• Inserti applicabili, vedere pag. B22~B25

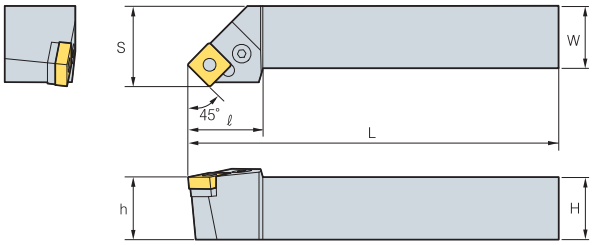
● : Disponibile ○ : A richiesta

# B Sistema di bloccaggio a leva

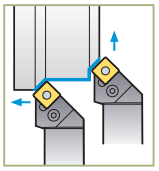
## PSSNR/L



SN□□




45°



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Leva | Vite | Sede | Spina | Chiave | Punzone |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PSSNR/L | 1616-H09 | ● | | 16 | 16 | 100 | 20 | 16 | 25 | SN□□0903□□ | LV3 | VHX0617 | SS32 | SP10 | HW25L | LSPS3 |
| | 2020-K12 | | ● | 20 | 20 | 125 | 25 | 20 | 30 | SN□□1204□□ | LV4 | VHX0821 | SS42 | SP4 | HW30L | LSPS4 |
| | 2525-M12 | | ● | 25 | 25 | 150 | 32 | 25 | 36 | | | | | | | |
| | 3232-P12 | | | 32 | 32 | 170 | 40 | 32 | 40 | | | | | | | |
| | 2525-M15 | | | 25 | 25 | 150 | 32 | 25 | 36 | SN□□1506□□ | LV5 | VHX0825 | SS53 | SP5 | HW30L | LSPS5 |
| | 3232-P15 | | ● | 32 | 32 | 170 | 40 | 32 | 45 | | | | | | | |
| | 3232-P19 | ● | ● | 32 | 32 | 170 | 40 | 32 | 41.5 | SN□□1906□□ | LV6N | VHX1027N | SS63N | SP6N | HW40L | LSPS6 |
| | 4040-R19 | ● | ● | 40 | 40 | 200 | 50 | 40 | 41.5 | | | | | | | |
| | 4040-S19 | ● | ● | 40 | 40 | 250 | 50 | 40 | 41.5 | | | | | | | |
| | 4040-S25 | ● | | 40 | 40 | 250 | 50 | 40 | 48 | SN□□2507□□ | LV8N | VHX1236N | SS84N | SP8N | HW50L | LSPS8 |
| | 4040-S25-6 | ● | ● | 40 | 40 | 250 | 50 | 40 | 48 | SN□□2509□□ | LV8N | VHX1236N | SS84N | SP8N | HW50L | LSPS8 |

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Leva | Vite | Sede | Spina | Chiave | Punzone |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PSSNR/L | 1616-H09N | | | 16 | 16 | 100 | 20 | 16 | 25 | SN□□0903□□ | LV3N | VHX0617N | SS32N | SP10 | HW25L | LSPS3 |
| | 2020-K12N | | | 20 | 20 | 125 | 25 | 20 | 30 | SN□□1204□□ | LV4N | VHX0821N | SS42N | SP4 | HW30L | LSPS4 |
| | 2525-M12N | | | 25 | 25 | 150 | 32 | 25 | 36 | | | | | | | |
| | 3225-P12N | | | 32 | 25 | 170 | 32 | 32 | 45 | | | | | | | |
| | 3232-P12N | | | 32 | 32 | 170 | 40 | 32 | 40 | | | | | | | |
| | 2525-M15N | | | 25 | 25 | 150 | 32 | 25 | 36 | SN□□1506□□ | LV5N | VHX08209N | SS53N | SP5 | HW30L | LSPS5 |
| | 3232-P15N | | | 32 | 32 | 170 | 40 | 32 | 45 | | | | | | | |

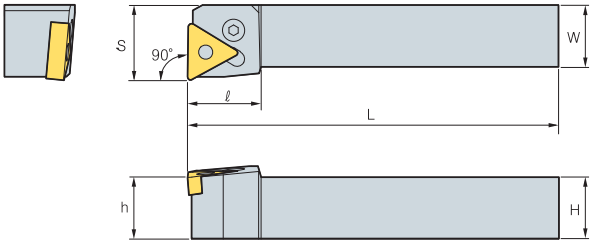
• Inserti applicabili, vedere pag. B22~B25

● : Disponibile ○ : A richiesta

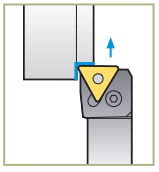
## PTFNR/L



TN □□




90°



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Leva | Vite | Sede | Spina | Chiave | Punzone |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PTFNR/L | 1616-H16 | | ● | 16 | 16 | 100 | 20 | 16 | 20 | TN□□1604□□ | LV3 | VHX0617 | ST317 | SP3 | HW25L | LSPS3 |
| | 2020-K16 | ● | ● | 20 | 20 | 125 | 25 | 20 | 20 | | | | | | | |
| | 2525-M16 | ● | | 25 | 25 | 150 | 32 | 25 | 20 | | | | | | | |
| | 2525-M22 | | ● | 25 | 25 | 150 | 32 | 25 | 25 | TN□□2204□□ | LV4 | VHX0821 | ST42 | SP4 | HW30L | LSPS4 |
| | 3232-P22 | | | 32 | 32 | 170 | 40 | 32 | 25 | | | | | | | |
| | 3232-P27 | | | 32 | 32 | 170 | 40 | 32 | 34 | TN□□2706□□ | LV5 | VHX0825 | ST53 | SP5 | HW30L | LSPS5 |
| | 4040-S27 | | | 40 | 40 | 250 | 50 | 40 | 34 | | | | | | | |

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Leva | Vite | Sede | Spina | Chiave | Punzone |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PTFNR/L | 1616-H16N | | | 16 | 16 | 100 | 20 | 16 | 20 | TN□□1604□□ | LV3N | VHX0617N | ST317N | SP3N | HW25L | LSPS3 |
| | 2020-K16N | | | 20 | 20 | 125 | 25 | 20 | 20 | | | | | | | |
| | 2525-M16N | | | 25 | 25 | 150 | 32 | 25 | 20 | | | | | | | |
| | 2525-M22N | | | 25 | 25 | 150 | 32 | 25 | 25 | TN□□2204□□ | LV4N | VHX0820N | ST42N | SP4N | HW30L | LSPS4 |
| | 3232-P22N | | | 32 | 32 | 170 | 40 | 32 | 25 | | | | | | | |
| | 3232-P27N | | | 32 | 32 | 170 | 40 | 32 | 34 | TN□□2706□□ | LV5AN | VHX0823N | ST53N | SP5N | HW30L | LSPS5 |
| | 4040-S27N | | | 40 | 40 | 250 | 50 | 40 | 34 | | | | | | | |

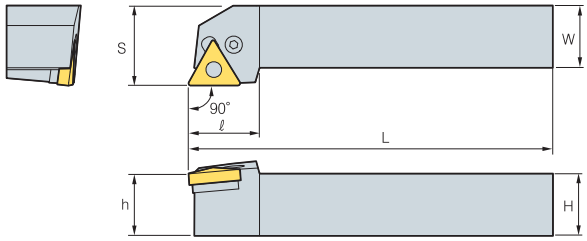
• Inserti applicabili, vedere pag. B26~B29

● : Disponibile ○ : A richiesta

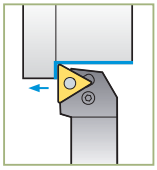
# PTGNR/L



TN □□




90°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Leva | Vite | Sede | Spina | Chiave | Punzone |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PTGNR/L 1212-F11 | ● | | 12 | 12 | 80 | 16 | 12 | 16 | TN□□1103□□ | LV2 | VHX0509B | - | - | HW20L | - |
| 1616-H11 | ● | | 16 | 16 | 100 | 20 | 16 | 18 | | | | | | | |
| 2020-K11 | ● | | 20 | 20 | 125 | 25 | 20 | 19 | | | | | | | |
| 2525-M11 | | | 25 | 25 | 150 | 32 | 25 | 20 | | | | | | | |
| 1616-H16 | ● | ● | 16 | 16 | 100 | 20 | 16 | 20 | TN□□1604□□ | LV3 | VHX0617 | ST317 | SP3 | HW25L | LSPS3 |
| 2020-K16 | ● | ● | 20 | 20 | 125 | 25 | 20 | 20 | | | | | | | |
| 2525-M16 | ● | | 25 | 25 | 150 | 32 | 25 | 20 | | | | | | | |
| 3232-P16 | ● | | 32 | 32 | 170 | 40 | 32 | 20 | | | | | | | |
| 2525-M22 | ● | | 25 | 25 | 150 | 32 | 25 | 28 | TN□□2204□□ | LV4 | VHX0821 | ST42 | SP4 | HW30L | LSPS4 |
| 3232-P22 | ● | | 32 | 32 | 170 | 40 | 32 | 28 | | | | | | | |
| 3232-P27 | | | 32 | 32 | 170 | 40 | 32 | 33 | TN□□2706□□ | LV5 | VHX0825 | T53 | SP5 | HW30L | LSPS5 |
| 4040-S27 | | | 40 | 40 | 250 | 50 | 40 | 33 | | | | | | | |

| Articolo | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Leva | Vite | Sede | Spina | Chiave | Punzone |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PTGNR/L 1616-H16N | | | 16 | 16 | 100 | 20 | 16 | 20 | TN□□1604□□ | LV3N | VHX0617N | ST317N | SP3N | HW25L | LSPS3 |
| 2020-K16N | | | 20 | 20 | 125 | 25 | 20 | 20 | | | | | | | |
| 2525-M16N | | | 25 | 25 | 150 | 32 | 25 | 20 | | | | | | | |
| 3232-P16N | | | 32 | 32 | 170 | 40 | 32 | 20 | | | | | | | |
| 2525-M22N | | | 25 | 25 | 150 | 32 | 25 | 28 | TN□□2204□□ | LV4N | VHX0820N | ST42N | SP4N | HW30L | LSPS4 |
| 3232-P22N | | | 32 | 32 | 170 | 40 | 32 | 28 | | | | | | | |
| 3232-P27N | | | 32 | 32 | 170 | 40 | 32 | 33 | TN□□2706□□ | LV5AN | VHX0823N | ST53N | SP5N | HW30L | LSPS5 |
| 4040-S27N | | | 40 | 40 | 250 | 50 | 40 | 33 | | | | | | | |

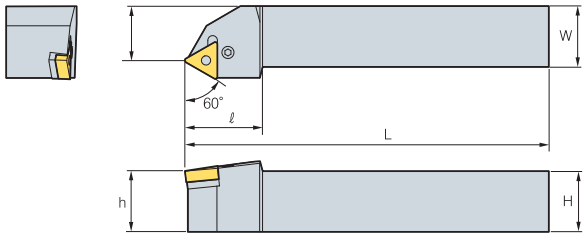
• Inserti applicabili, vedere pag. B26~B29

● : Disponibile ○ : A richiesta

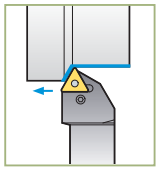
# PTTNR/L



TN□□




60°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Leva | Vite | Sede | Spina | Chiave | Punzone |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PTTNR/L 1616-H16 | | | 16 | 16 | 100 | 13 | 16 | 25 | TN□□1604□□ | LV3 | VHX0617 | ST317 | SP3 | HW25L | LSPS3 |
| 2020-K16 | ● | | 20 | 20 | 125 | 17 | 20 | 25 | | | | | | | |
| 2525-M16 | | | 25 | 25 | 150 | 22 | 25 | 32 | | | | | | | |
| 2525-M22 | | | 25 | 25 | 150 | 22 | 25 | 32 | TN□□2204□□ | LV4 | VHX0821 | ST42 | SP4 | HW30L | LSPS4 |

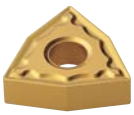
| Articolo | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Leva | Vite | Sede | Spina | Chiave | Punzone |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PTTNR/L 1616-H16N | | | 16 | 16 | 100 | 13 | 16 | 25 | TN□□1604□□ | LV3N | VHX0617N | ST317N | SP3N | HW25L | LSPS3 |
| 2020-K16N | | | 20 | 20 | 125 | 17 | 20 | 25 | | | | | | | |
| 2525-M16N | | | 25 | 25 | 150 | 22 | 25 | 32 | | | | | | | |
| 2525-M22N | | | 25 | 25 | 150 | 22 | 25 | 32 | TN□□2204□□ | LV4N | VHX0820N | ST42N | SP4N | HW30L | LSPS4 |

• Inserti applicabili, vedere pag. B26~B29

● : Disponibile ○ : A richiesta

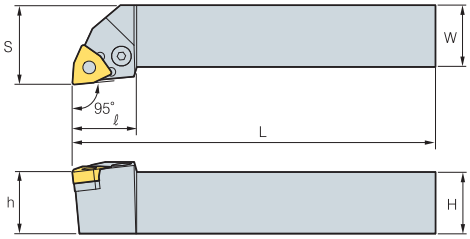
# B Sistema di bloccaggio a leva

## PWLNR/L

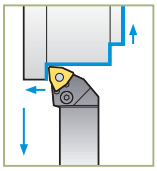


WN□□






95°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Leva | Vite | Sede | Spina | Chiave | Punzone |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PWLNR/L 1616-H06** | ● | | 16 | 16 | 100 | 20 | 16 | 20 | WN□□0604□□ | LV3 | VHX0617 | SW317 | SP3 | HW25L | LSPS3 |
| **2020-K06** | ● | | 20 | 20 | 125 | 25 | 20 | 20 | | | | | | | |
| **2525-M06** | | | 25 | 25 | 150 | 32 | 25 | 20 | | | | | | | |
| **2020-K08** | ● | ● | 20 | 20 | 125 | 25 | 20 | 26 | WN□□0804□□ | LV4 | VHX0821 | SW42 | SP4 | HW30L | LSPS4 |
| **2525-M08** | ● | | 25 | 25 | 150 | 32 | 25 | 26 | | | | | | | |

| Articolo | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Leva | Vite | Sede | Spina | Chiave | Punzone |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PWLNR/L 1616-H06N** | | | 16 | 16 | 100 | 20 | 16 | 20 | WN□□0604□□ | LV3N | VHX0617N | ST317N | SP3N | HW25L | LSPS3 |
| **2020-K06N** | | | 20 | 20 | 125 | 25 | 20 | 20 | | | | | | | |
| **2525-M06N** | | | 25 | 25 | 150 | 32 | 25 | 20 | | | | | | | |
| **2020-K08N** | | | 20 | 20 | 125 | 25 | 20 | 26 | WN□□0804□□ | LV4N | VHX0820N | ST42N | SP4N | HW30L | LSPS4 |
| **2525-N08N** | | | 25 | 25 | 150 | 32 | 25 | 26 | | | | | | | |

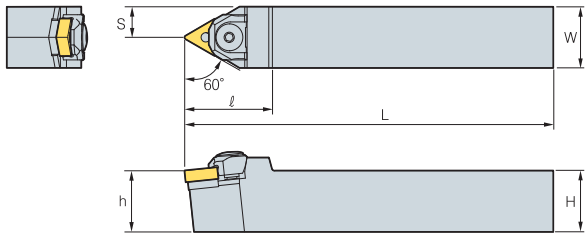
• Inserti applicabili, vedere pag. B31~B32

● : Disponibile ○ : A richiesta

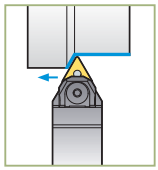
## WTENN



TN□□




60°



(mm)

| Articolo | | Stock | H | W | L | S | h | ℓ | Inserto | Staffa a cuneo | Vite | Anello di fermo | Sede | Spina | Dado | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WTENN | 2020-K16 | ● | 20 | 20 | 125 | 10 | 20 | 36 | TN□□1604□□ | CMH6R6 | MHX0626 | ER04 | ST32M | SP3M-1 | N0407 | HW30L |
| | 2525-M16 | ● | 25 | 25 | 150 | 12.5 | 25 | 36 | | | | | | SP3M | | |
| | 2525-M22 | ● | 25 | 25 | 150 | 12.5 | 25 | 42 | TN□□2204□□ | CMH6R1 | MHX0626 | ER04 | ST43M | SP4M | N0508 | HW30L |
| | 3232-P22 | ● | 32 | 32 | 170 | 16 | 32 | 42 | | | | | | | | |

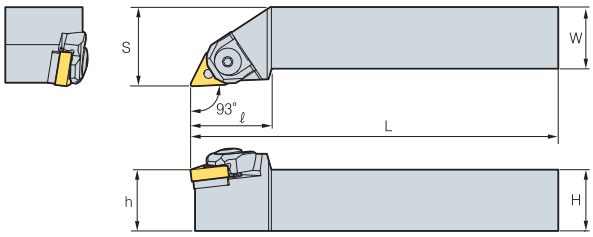
• Inserti applicabili, vedere pag. B26~B29

● : Disponibile ○ : A richiesta

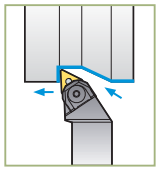
## WTJNR/L



TN□□




93°



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Staffa a cuneo | Vite | Anello di fermo | Sede | Spina | Dado | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WTJNR/L | 2020-K16 | ● | ● | 20 | 20 | 125 | 25 | 20 | 33 | TN□□1604□□ | CMH6R6 | MHX0626 | ER04 | ST32M | SP3M-1 | N0407 | HW30L |
| | 2525-M16 | ● | ● | 25 | 25 | 150 | 32 | 25 | 33 | | | | | | SP3M | | |
| | 3232-P16 | ● | ● | 32 | 32 | 170 | 40 | 32 | 33 | | | | | | | | |
| | 2525-M22 | ● | ● | 25 | 25 | 150 | 32 | 25 | 35 | TN□□2204□□ | CMH6R1 | MHX0626 | ER04 | ST43M | SP4M | N0508 | HW30L |
| | 3232-P22 | ● | ● | 32 | 32 | 170 | 40 | 32 | 35 | | | | | | | | |

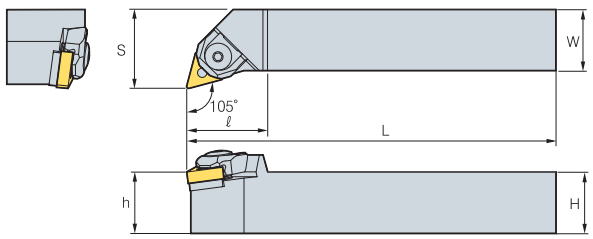
• Inserti applicabili, vedere pag. B26~B29

● : Disponibile ○ : A richiesta

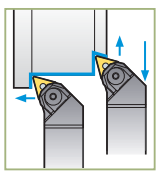
## WTXNR/L



TN□□




105°



• R type insert

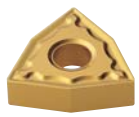
(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Staffa a cuneo | Vite | Anello di fermo | Sede | Spina | Dado | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WTXNR/L | 2020-K16 | ● | ● | 20 | 20 | 125 | 25 | 20 | 30 | TN□□1604□□ | CMH6R6 | MHX0626 | ER04 | ST32M | SP3M-1 | N0407 | HW25L |
| | 2525-M16 | ● | ● | 25 | 25 | 150 | 32 | 25 | 33 | | | | | | SP3M | | HW30L |
| | 3232-P16 | | | 32 | 32 | 170 | 40 | 32 | 33 | | | | | | | | |

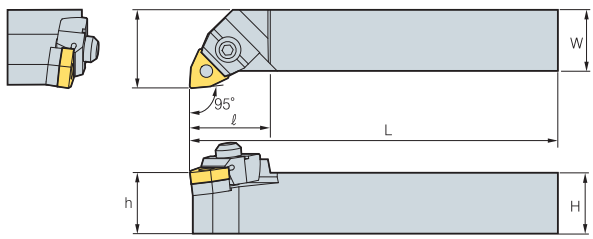
• Inserti applicabili, vedere pag. B26~B29

● : Disponibile ○ : A richiesta

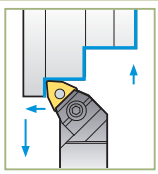
## WWLNR/L



WN□□




95°



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Staffa a cuneo | Vite | Anello di fermo | Sede | Spina | Dado | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WWLNR/L | 2020-K08 | ● | ● | 20 | 20 | 125 | 25 | 20 | 32 | WN□□0804□□ | CMH6R/L3 | MHX0630 | CR05 | SW43M | SP2M | N0508 | HW30L |
| | 2525-M08 | ● | ● | 25 | 25 | 150 | 32 | 25 | 33 | | CMH6R2 | | | | SP4M | | HW40L |
| | 3232-P08 | ● | ● | 32 | 32 | 170 | 40 | 32 | 33 | | CMH6R2 | | | | | | |

• Inserti applicabili, vedere pag. B31~B32

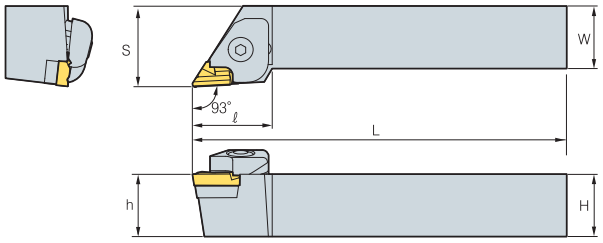
● : Disponibile ○ : A richiesta

# B Sistema a staffa

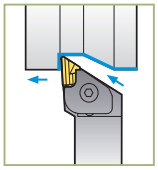
## CKJNR/L



KN□□




93°



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Staffa | Vite di staffaggio | Molla | Sede | Sede+Molla | Vite sede | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CKJNR | 2020-K16 | ● | | 20 | 20 | 125 | 25 | 20 | 32 | KN□□ 1604□□R | CTH6R1 | CHX0625 | SR3 | SK33C | PN0515 SR4 | SHX0310 | HW20L HW40L |
| | 2525-M16 | ● | | 25 | 25 | 150 | 32 | 25 | 32 | | | | | | | | |
| | 3225-M16 | | | 32 | 25 | 150 | 32 | 32 | 32 | | | | | | | | |
| | 3225-P16 | ● | | 32 | 25 | 170 | 32 | 32 | 32 | | | | | | | | |
| | 3232-P16 | ● | | 32 | 32 | 170 | 40 | 32 | 32 | | | | | | | | |
| | 4040-R16 | ● | | 40 | 40 | 200 | 50 | 40 | 32 | | | | | | | | |
| CKJNL | 2020-K16 | | ● | 20 | 20 | 125 | 25 | 20 | 32 | KN□□ 1604□□L | CTH6L1 | CHX0625 | SR3 | SK33CL | PN0515 SR4 | SHX0310 | HW20L HW40L |
| | 2525-M16 | | ● | 25 | 25 | 150 | 32 | 25 | 32 | | | | | | | | |
| | 3232-P16 | | ● | 32 | 32 | 170 | 40 | 32 | 32 | | | | | | | | |
| | 4040-R16 | | | 40 | 40 | 200 | 50 | 40 | 32 | | | | | | | | |

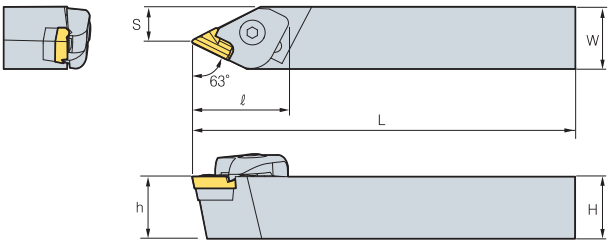
• Inserti applicabili, vedere pag. B21

● : Disponibile ○ : A richiesta

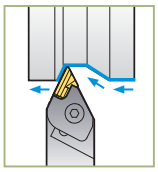
## CKNNR/L



KN□□




63°



• Inserto destro R

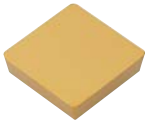
(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Staffa | Vite di staffaggio | Molla | Sede | Sede+Molla | Vite sede | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CKNNR | 2525-M16 | ● | | 25 | 25 | 150 | 14.3 | 25 | 37 | KN□□ 1604□□R | CTH6R1 | CHX0625 | SR3 | SK33C | PN0515 SR4 | SHX0310 | HW20L HW40L |
| | 3232-P16 | ● | | 32 | 32 | 170 | 16.8 | 32 | 37 | | | | | | | | |
| CKNNL | 2525-M16 | | | 25 | 25 | 150 | 14.3 | 25 | 37 | KN□□ 1604□□L | CTH6L1 | CHX0625 | SR3 | SK33CL | PN0515 SR4 | SHX0310 | HW20L HW40L |
| | 3232-P16 | | ● | 32 | 32 | 170 | 16.8 | 32 | 37 | | | | | | | | |

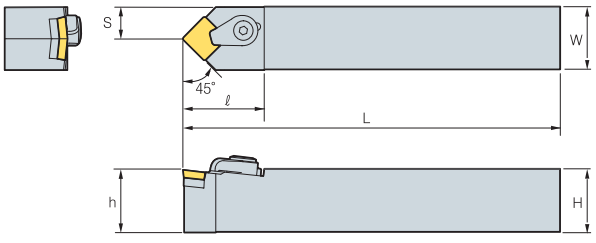
• Inserti applicabili, vedere pag. B21

● : Disponibile ○ : A richiesta

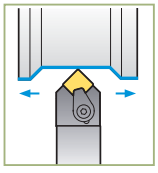
## CSDPN



SP□R




45°



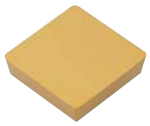
(mm)

| Articolo | | Stock | H | W | L | S | h | ℓ | Inserto | Staffa | Vite di staffaggio | Molla | Spina | C-ring | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CSDPN | 1616-H09 | | 16 | 16 | 100 | 8 | 16 | 30 | SP□R 0903□□ | CH53R1 | CH0515C | SS32C | SP3C | CR03C | HW25L |
| | 2525-M12 | ● | 25 | 25 | 150 | 12.5 | 25 | 35 | SP□R 1203□□ | CH6R5 | CHX0622C | SS42C | SP3C | CR04C | HW30L |

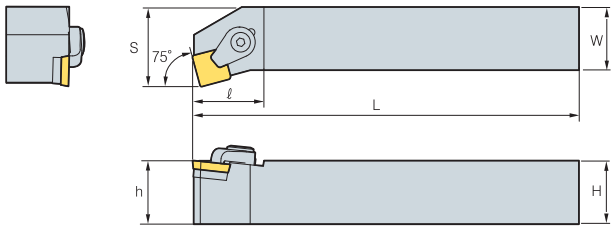
• Inserti applicabili, vedere pag. B37~B38

● : Disponibile ○ : A richiesta

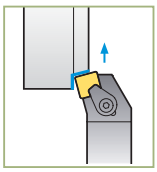
# CSKPR/L



SP□R




75°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Staffa | Vite di staffaggio | Sede | Spina | C-ring | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CSKPR/L 2525-M12** | ● | | 25 | 25 | 150 | 32 | 20 | 32 | SP□R 1203□□ | CH6R5 | CHX0622C | SS42C | SP3C | CR04C | HW30L |

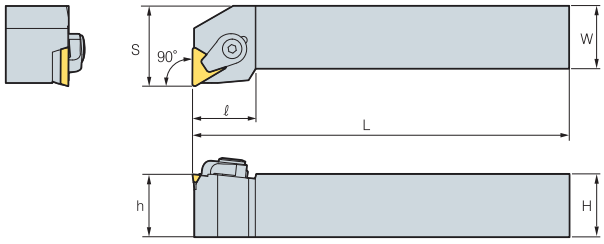
• Inserti applicabili, vedere pag. B37~B38

● : Disponibile ○ : A richiesta

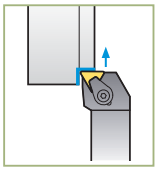
# CTFPR/L



TP□R




90°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Staffa | Vite di staffaggio | Sede | Spina | C-ring | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CTFPR/L 2020-K16** | ● | ● | 20 | 20 | 125 | 25 | 20 | 32 | TP□R 1603□□ | CH6R5 | CHX0622C | ST32C | SP3C | CR04C | HW30L |
| **2525-M16** | ● | ● | 25 | 25 | 150 | 32 | 25 | 32 | | | | | | | |

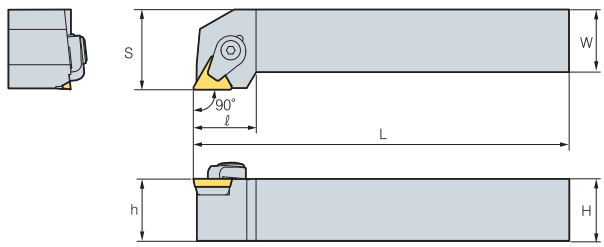
• Inserti applicabili, vedere pag. B40~B41

● : Disponibile ○ : A richiesta

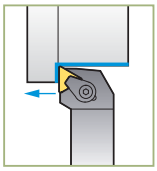
# CTGPR/L



TP□R




90°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Staffa | Vite di staffaggio | Sede | Spina | C-ring | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CTGPR/L 1212-F11** | ● | | 12 | 12 | 80 | 16 | 12 | 20 | TP□R 1103□□ | CH53R1 | CHX0515C | - | - | CR03C | HW25L |
| **1616-H11** | ● | | 16 | 16 | 100 | 20 | 16 | 20 | | | | | | | |
| **2020-K11** | | | 20 | 20 | 125 | 25 | 20 | 20 | | | | | | | |
| **2020-K16** | ● | ● | 20 | 20 | 125 | 25 | 20 | 25 | TP□R 1603□□ | CH6R5 | CHX0622C | ST32C | SP3C | CR04C | HW30L |
| **2525-M16** | ● | ● | 25 | 25 | 150 | 32 | 25 | 25 | | | | | | | |
| **2525-M22** | ● | | 25 | 25 | 150 | 32 | 25 | 32 | TP□R 2204□□ | CH83R1 | CHX0823C | ST43C | SP4C | CR05C | HW40L |
| **3232-P22** | | | 32 | 32 | 170 | 40 | 32 | 32 | | | | | | | |

• Inserti applicabili, vedere pag. B40~B41

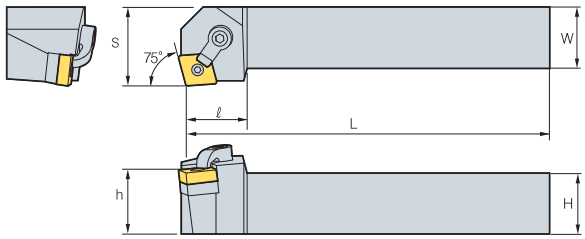
● : Disponibile ○ : A richiesta

# B Sistema leva-staffa

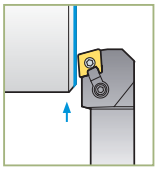
## MCKNR/L



CN□□




75°



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Staffa | Vite di staffaggio | Sede | Spina | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCKNR/L | 2020-K12 | | | 20 | 20 | 125 | 25 | 20 | 32 | CN□□1204□□ | CDH6N | DHA1/4-25 | SC43D | SP4D | HW31.8L HW23.8L |
| | 2525-M12 | ● | | 25 | 25 | 150 | 32 | 25 | 32 | | | | | | |
| | 3232-P12 | | | 32 | 32 | 170 | 40 | 32 | 32 | | | | | | |

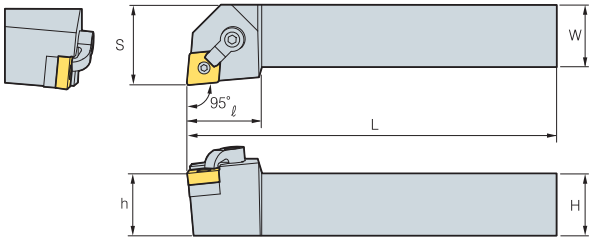
• Inserti applicabili, vedere pag. B16~B18

● : Disponibile ○ : A richiesta

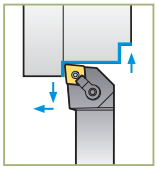
## MCLNR/L



CN□□




95°



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Staffa | Vite di staffaggio | Sede | Spina | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCLNR/L | 1616-H09 | | | 16 | 16 | 100 | 20 | 16 | 25 | CN□□0903□□ | CDH7N | DHA10-32-19 | SC32D | SP3DS | HW23.8L HW19.8L |
| | 2020-K09 | | | 20 | 20 | 125 | 25 | 20 | 25 | | | | | | |
| | 2525-M09 | | | 25 | 25 | 150 | 32 | 25 | 25 | | | | | | |
| | 2020-K12 | | | 20 | 20 | 125 | 25 | 20 | 32 | CN□□1204□□ | CDH6N | DHA1/4-25 | SC43D | SP4D | HW31.8L HW23.8L |
| | 2525-M12 | ● | | 25 | 25 | 150 | 32 | 25 | 32 | | | | | | |
| | 3225-P12 | | | 32 | 25 | 170 | 32 | 32 | 32 | | | | | | |
| | 3232-P12 | ● | | 32 | 32 | 170 | 40 | 32 | 32 | | | | | | |
| | 2525-M16 | ● | | 25 | 25 | 150 | 32 | 25 | 33 | CN□□1606□□ | CDH8N | DHA5/16-32 | SC53D | SP5D | HW39.7L HW31.8L |
| | 3232-P16 | ● | | 32 | 32 | 170 | 40 | 32 | 33 | | | | | | |
| | 4040-S16 | | | 40 | 40 | 250 | 50 | 40 | 33 | | | | | | |
| | 2525-M19 | | | 25 | 25 | 150 | 32 | 25 | 38 | CN□□1906□□ | CDH8N | DHA5/16-32 | SC63D | SP6D | HW39.7L HW35.7L |
| | 3232-P19 | | | 32 | 32 | 170 | 40 | 32 | 38 | | | | | | |
| | 4040-S19 | | | 40 | 40 | 250 | 50 | 40 | 38 | | | | | | |
| | 4040-S25 | | | 40 | 40 | 250 | 50 | 40 | 38 | CN□□2507□□ | CDH8N3 | DHA3/8-35 | SC84D | SP8D | HW39.7L HW47.6L |

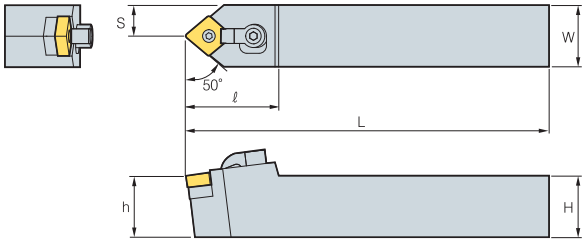
• Inserti applicabili, vedere pag. B16~B18

● : Disponibile ○ : A richiesta

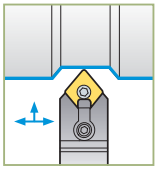
## MCMNN



CN□□




50°



(mm)

| Articolo | | Stock | H | W | L | S | h | ℓ | Inserto | Staffa | Vite di staffaggio | Sede | Spina | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCMNN | 2020-K12 | | 20 | 20 | 125 | 10 | 20 | 32 | CN□□1204□□ | CDH6N | DHA1/4-25 | SC43D | SP4D | HW31.8L HW23.8L |
| | 2525-M12 | | 25 | 25 | 150 | 12.5 | 25 | 32 | | | | | | |
| | 3232-P12 | | 32 | 32 | 170 | 16 | 32 | 32 | | | | | | |
| | 2525-M16 | | 25 | 25 | 150 | 12.5 | 25 | 40 | CN□□1606□□ | CDH8N | DHA5/16-32 | SC53S | SP5D | HW39.7L HW31.8L |
| | 3232-P16 | | 32 | 32 | 170 | 16 | 32 | 40 | | | | | | |
| | 3232-P19 | | 32 | 32 | 170 | 16 | 32 | 40 | CN□□1906□□ | CDH8N | DHA5/16-32 | SD63D | SP6D | HW39.7L HW35.7L |
| | 4040-S19 | | 40 | 40 | 250 | 20 | 40 | 32 | | | | | | |

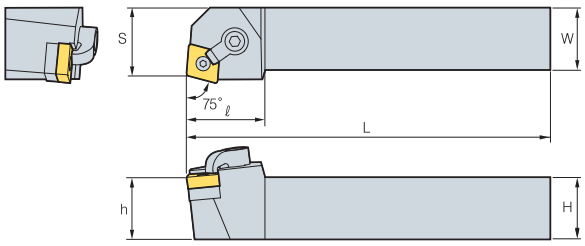
• Inserti applicabili, vedere pag. B16~B18

● : Disponibile ○ : A richiesta

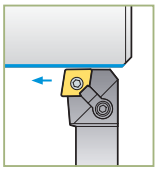
# MCRNR/L



CN□□




75°



• Inserto destro R

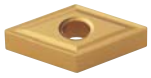
(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Staffa | Vite di staffaggio | Sede | Spina | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MCRNR/L | 2020-K12 | | | 20 | 20 | 125 | 22 | 20 | 32 | CN□□1204□□ | CDH8N1 | DHA5/16-32 | SC43D | SP4D | HW39.7L HW23.8L |
| | 2525-M12 | | | 25 | 25 | 150 | 27 | 25 | 32 | | | | | | |
| | 2525-M16 | | | 25 | 25 | 150 | 27 | 25 | 33 | CN□□1606□□ | CDH8N1 | DHA5/16-32 | SC53D | SP5D | HW39.7L HW31.8L |
| | 3232-P16 | | | 32 | 32 | 170 | 35 | 32 | 33 | | | | | | |
| | 3232-P19 | | | 32 | 32 | 170 | 35 | 32 | 38 | CN□□1906□□ | CDH8N1 | DHA5/16-32 | SC63D | SP6D | HW39.7L HW35.7L |
| | 4040-S19 | | | 40 | 40 | 250 | 43 | 40 | 38 | | | | | | |

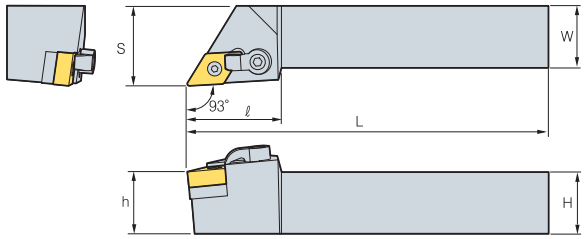
• Inserti applicabili, vedere pag. B16~B18

● : Disponibile ○ : A richiesta

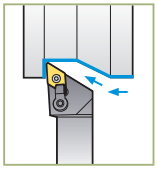
# MDJNR/L



DN□□




93°



• Inserto destro R

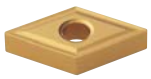
(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Staffa | Vite di staffaggio | Sede | Spina | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MDJNR/L | 2020-K11 | | | 20 | 20 | 125 | 25 | 20 | 32 | DN□□1104□□ | CDH6N | DHA1/4-19 | SD32D | SP3D | HW31.8L HW19.8L |
| | 2525-M11 | | | 25 | 25 | 150 | 32 | 25 | 32 | | | | | | |
| | 2020-K15-3 | ● | | 20 | 20 | 125 | 25 | 20 | 36 | DN□□1504□□ | CDH6N | DHA1/4-25 | SD43D | SP4D | HW31.8L HW23.8L |
| | 2525-M15-3 | ● | | 25 | 25 | 150 | 32 | 25 | 36 | | | | | | |
| | 3232-P15-3 | | | 32 | 32 | 170 | 40 | 32 | 36 | | | | | | |
| | 2020-K15 | | | 20 | 20 | 125 | 25 | 20 | 36 | DN□□1506□□ | CDH6N | DHA1/4-25 | SD43D | SP4DL | HW31.8L HW23.8L |
| | 2525-M15 | | | 25 | 25 | 150 | 32 | 25 | 36 | | | | | | |
| | 3232-P15 | | | 32 | 32 | 170 | 40 | 32 | 36 | | | | | | |

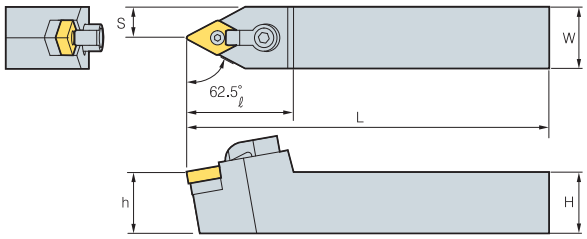
• Inserti applicabili, vedere pag. B19~B21

● : Disponibile ○ : A richiesta

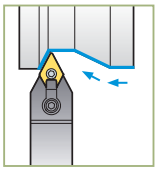
# MDNNN



DN□□




62.5°



(mm)

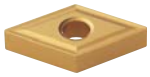
| Articolo | | Stock | H | W | L | S | h | ℓ | Inserto | Staffa | Vite di staffaggio | Sede | Spina | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MDNNN | 2525-M15-3 | ● | 25 | 25 | 150 | 12.5 | 25 | 41 | DN□□1504□□ | CDH8N | DHA5/16-32 | SD43D | SP4D | HW39.7L HW23.8L |
| | 2525-M15 | | 25 | 25 | 150 | 12.5 | 25 | 41 | DN□□1506□□ | CDH8N | DHA5/16-32 | SD43D | SP4DL | HW39.7L HW23.8L |

• Inserti applicabili, vedere pag. B19~B21

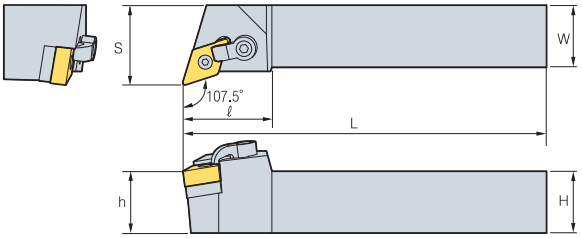
● : Disponibile ○ : A richiesta

# B Sistema leva-staffa

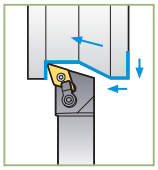
## MDQNR/L



DN□□




107.5°



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Staffa | Vite di staffaggio | Sede | Spina | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MDQNR/L | 2525-M15-3 | | ● | 25 | 25 | 150 | 32 | 25 | 36 | DN□□1504□□ | CDH6N | DHA1/4-25 | SD43D | SP4D | HW31.8L |
| | 3232-P15-3 | | | 32 | 32 | 170 | 40 | 32 | 36 | | | | | | HW23.8L |
| | 2525-M15 | ● | ● | 25 | 25 | 150 | 32 | 25 | 36 | DN□□1506□□ | CDH6N | DHA1/4-25 | SD43D | SP4DL | HW31.8L |
| | 3232-M15 | | | 32 | 32 | 170 | 40 | 32 | 36 | | | | | | HW23.8L |

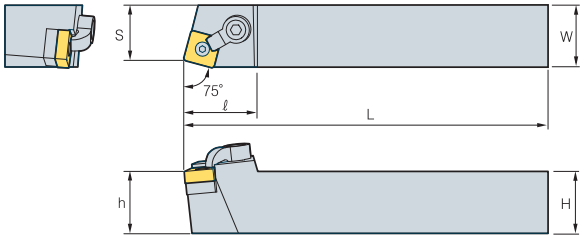
• Inserti applicabili, vedere pag. B19~B21

● : Disponibile ○ : A richiesta

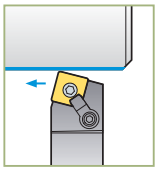
## MSBNR/L



SN□□




75°



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Staffa | Vite di staffaggio | Sede | Spina | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MSBNR/L | 2020-K12 | | | 20 | 20 | 125 | 17 | 20 | 32 | SN□□1204□□ | CDH8N1 | DHA5/16-32 | SS43D | SP4D | HW39.7L |
| | 2525-M12 | | | 25 | 25 | 150 | 22 | 25 | 32 | | | | | | HW23.8L |
| | 2525-M15 | | | 25 | 25 | 150 | 22 | 25 | 35 | SN□□1506□□ | CDH8N | DHA5/16-32 | SS53D | SP5D | HW39.7L |
| | 3232-P15 | | | 32 | 32 | 170 | 22 | 32 | 35 | | | | | | HW31.8L |
| | 3232-P19 | | | 32 | 32 | 170 | 27 | 32 | 40 | SN□□1906□□ | CDH8N | DHA5/16-32 | SS63D | SP6D | HW39.7L |
| | 4040-S19 | | | 40 | 40 | 250 | 35 | 40 | 40 | | | | | | HW35.7L |

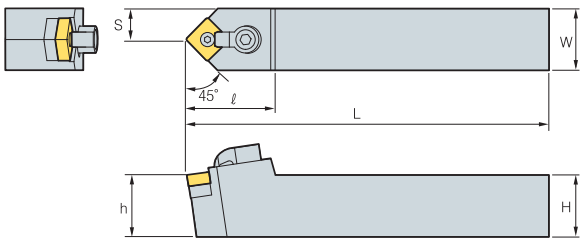
• Inserti applicabili, vedere pag. B22~B25

● : Disponibile ○ : A richiesta

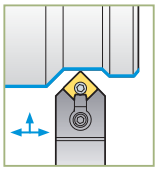
## MSDNN



SN□□




45°



(mm)

| Articolo | | Stock | H | W | L | S | h | ℓ | Inserto | Staffa | Vite di staffaggio | Sede | Spina | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MSDNN | 1616-H09 | | 16 | 16 | 100 | 8 | 16 | 28 | SN□□0903□□ | CDH7N | DHA10-32-19 | SS32D | SP3DS | HW19.8L |
| | 2020-K09 | | 20 | 20 | 125 | 10 | 20 | 28 | | | | | | HW23.8L |
| | 2020-K12 | | 20 | 20 | 125 | 10 | 20 | 32 | SN□□1204□□ | CDH8N1 | DHA5/16-32 | SS43D | SP4D | HW39.7L |
| | 2525-M12 | | 25 | 25 | 150 | 12.5 | 25 | 32 | | | | | | HW23.8L |
| | 3225-P12 | | 32 | 25 | 170 | 12.5 | 32 | 32 | | | | | | |
| | 2525-M15 | | 25 | 25 | 150 | 12.5 | 25 | 35 | SN□□1506□□ | CDH8N | DHA5/16-32 | SS53D | SP5D | HW39.7L |
| | 3225-P15 | | 32 | 25 | 170 | 12.5 | 32 | 35 | | | | | | HW31.8L |
| | 3232-P15 | | 32 | 32 | 170 | 16 | 32 | 35 | | | | | | |
| | 4040-S15 | | 40 | 40 | 250 | 20 | 40 | 35 | | | | | | |
| | 3232-P19 | | 32 | 32 | 170 | 16 | 32 | 42 | SN□□1906□□ | CDH8N | DHA5/16-32 | SS63D | SP6D | HW39.7L |
| | 4040-S19 | | 40 | 40 | 250 | 20 | 40 | 42 | | | | | | HW35.7L |

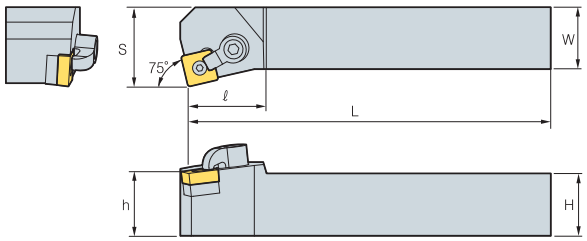
• Inserti applicabili, vedere pag. B22~B25

● : Disponibile ○ : A richiesta

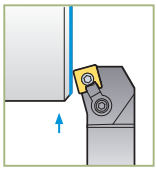
# MSKNR/L



SN□□




75°



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Staffa | Vite di staffaggio | Sede | Spina | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MSKNR/L | 1616-H09 | | | 16 | 16 | 100 | 20 | 16 | 28 | SN□□0903□□ | CDH7N | DHA10-32-19 | SS32D | SP3DS | HW19.8L |
| | 2020-K09 | | | 20 | 20 | 125 | 22 | 20 | 28 | | | | | | HW23.8L |
| | 2020-K12 | | | 20 | 20 | 125 | 25 | 20 | 32 | SN□□1204□□ | CDH8N1 | DHA5/16-32 | SS43D | SP4D | HW39.7L |
| | 2525-M12 | | | 25 | 25 | 150 | 32 | 25 | 32 | | | | | | HW23.8L |
| | 3225-P12 | | | 32 | 25 | 170 | 32 | 32 | 32 | | | | | | |
| | 2525-M15 | | | 25 | 25 | 150 | 32 | 25 | 35 | SN□□1506□□ | CDH8N | DHA5/16-32 | SS53D | SP5D | HW39.7L |
| | 3232-P15 | | | 32 | 32 | 170 | 40 | 32 | 35 | | | | | | HW31.8L |
| | 3232-P19 | | | 32 | 32 | 170 | 40 | 32 | 40 | SN□□1906□□ | CDH8N | DHA5/16-32 | SS63D | SP6D | HW39.7L |
| | 4040-S19 | | | 40 | 40 | 250 | 50 | 40 | 40 | | | | | | HW35.7L |
| | 4040-S25 | | | 40 | 40 | 250 | 50 | 40 | 40 | SN□□2507□□ | CDH8N3 | DHA3/8-35 | SS84D | SP8D | HW47.6L HW39.7L |

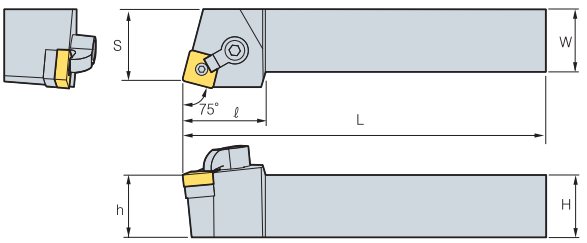
• Inserti applicabili, vedere pag. B22~B25

● : Disponibile ○ : A richiesta

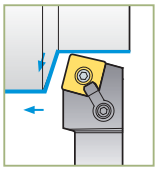
# MSRNR/L



SN□□




75°



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Staffa | Vite di staffaggio | Sede | Spina | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MSRNR/L | 1616-H09 | | | 16 | 16 | 100 | 17 | 16 | 28 | SN□□0903□□ | CDH7N | DHA10-32-19 | SS32D | SP3DS | HW19.8L |
| | 2020-K09 | | | 20 | 20 | 125 | 22 | 20 | 28 | | | | | | HW23.8L |
| | 2020-K12 | | | 20 | 20 | 125 | 22 | 20 | 32 | SN□□1204□□ | CDH8N1 | DHA5/16-32 | SS43D | SP4D | HW39.7L |
| | 2525-M12 | | | 25 | 25 | 150 | 27 | 25 | 32 | | | | | | HW23.8L |
| | 2525-M15 | | | 25 | 25 | 150 | 27 | 25 | 35 | SN□□1506□□ | CDH8N | DHA5/16-32 | SS53D | SP5D | HW39.7L |
| | 3232-P15 | | | 32 | 32 | 170 | 35 | 32 | 35 | | | | | | HW31.8L |
| | 3225-P19 | | | 32 | 25 | 170 | 27 | 32 | 40 | SN□□1906□□ | CDH8N | DHA5/16-32 | SS63D | SP6D | HW39.7L |
| | 3232-P19 | | | 32 | 32 | 170 | 35 | 32 | 40 | | | | | | HW35.7L |
| | 4040-S19 | | | 40 | 40 | 250 | 43 | 40 | 40 | | | | | | |
| | 4040-S25 | | | 40 | 40 | 250 | 43 | 40 | 40 | SN□□2507□□ | CDH8N3 | DHA3/8-35 | SS84D | SP8D | HW47.6L/HW39.7L |

• Inserti applicabili, vedere pag. B22~B25

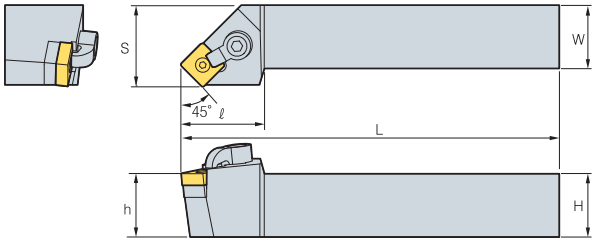
● : Disponibile ○ : A richiesta

# B Sistema leva-staffa

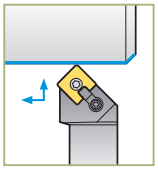
## MSSNR/L



SN□□




45°



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Staffa | Vite di staffaggio | Sede | Spina | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MSSNR/L | 1616-H09 | | | 16 | 16 | 100 | 20 | 16 | 28 | SN□□0903□□ | CDH7N | DHA10-32-19 | SS32D | SP3DS | HW19.8L |
| | 2020-K09 | | | 20 | 20 | 125 | 25 | 20 | 28 | | | | | | HW23.8L |
| | 2020-K12 | | | 20 | 20 | 125 | 25 | 20 | 32 | SN□□1204□□ | CDH8N1 | DHA5/16-32 | SS43D | SP4D | HW39.7L |
| | 2525-M12 | | | 25 | 25 | 150 | 32 | 25 | 32 | | | | | | HW23.8L |
| | 2525-M15 | | | 25 | 25 | 150 | 32 | 25 | 35 | SN□□1506□□ | CDH8N1 | DHA5/16-32 | SS53D | SP5D | HW39.7L |
| | 3232-P15 | | | 32 | 32 | 170 | 40 | 32 | 35 | | | | | | HW31.8L |
| | 3232-P19 | | | 32 | 32 | 170 | 40 | 32 | 40 | SN□□1906□□ | CDH8N1 | DHA5/16-32 | SS63D | SP6D | HW39.7L |
| | 4040-S19 | | | 40 | 40 | 250 | 50 | 40 | 40 | | | | | | HW35.7L |

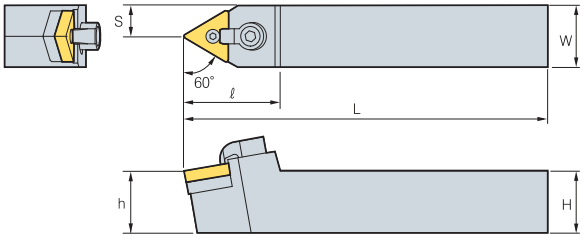
• Inserti applicabili, vedere pag. B26~B29

● : Disponibile ○ : A richiesta

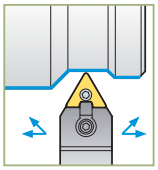
## MTENN



TN□□




60°



• Inserto destro R

(mm)

| Articolo | | Stock | H | W | L | S | h | ℓ | Inserto | Staffa | Vite di staffaggio | Sede | Spina | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MTENN | 2020-K16 | | 20 | 20 | 125 | 10 | 20 | 32 | TN□□1604□□ | CDH7N | DHA10-32-19 | ST32D | SP3D | HW23.8L |
| | 2525-M16 | | 25 | 25 | 150 | 12.5 | 25 | 32 | | | | | | HW19.8L |
| | 2525-M22 | | 25 | 25 | 150 | 12.5 | 25 | 35 | TN□□2204□□ | CDH8N1 | DHA5/16-32 | ST43D | SP4D | HW39.7L/HW23.8L |
| | 3232-P27 | | 32 | 32 | 170 | 16 | 32 | 35 | TN□□2706□□ | CDH8N1 | DHA5/16-32 | ST53D | SP5D | HW39.7L/HW31.8L |
| | 4040-S33 | | 40 | 40 | 250 | 20 | 40 | 40 | TN□□3307□□ | CDH8N | DHA5/16-32 | ST63D | SP6DL | HW39.7L/HW35.7L |

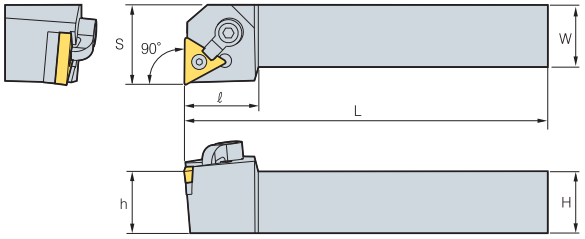
• Inserti applicabili, vedere pag. B26~B29

● : Disponibile ○ : A richiesta

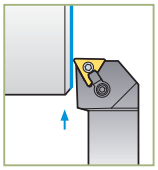
## MTFNR/L



TN□□




90°



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Staffa | Vite di staffaggio | Sede | Spina | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MTFNR/L | 1616-H16 | | | 16 | 16 | 100 | 20 | 16 | 32 | TN□□1604□□ | CDH7N | DHA10-32-19 | ST32D | SP3D | HW23.8L |
| | 2020-K16 | | | 20 | 20 | 125 | 25 | 20 | 32 | | | | | | HW19.8L |
| | 2525-M16 | | | 25 | 25 | 150 | 32 | 25 | 32 | | | | | | |
| | 2525-M22 | | | 25 | 25 | 150 | 32 | 25 | 32 | TN□□2204□□ | CDH8N1 | DHA5/16-32 | ST43D | SP4D | HW39.7L |
| | 3232-P22 | | | 32 | 32 | 170 | 40 | 32 | 32 | | | | | | HW23.8L |
| | 4040-S22 | | | 40 | 40 | 250 | 50 | 40 | 32 | | | | | | |
| | 3232-P27 | | | 32 | 32 | 170 | 40 | 32 | 35 | TN□□2706□□ | CDH8N1 | DHA5/16-32 | ST53D | SP5D | HW39.7L |
| | 4040-S27 | | | 40 | 40 | 250 | 50 | 40 | 35 | | | | | | HW31.8L |
| | 4040-S33 | | | 40 | 40 | 250 | 50 | 40 | 40 | TN□□3307□□ | CDH8N | DHA5/16-32 | ST63D | SP6DL | HW39.7L |
| | | | | | | | | | | | | | | | HW35.7L |

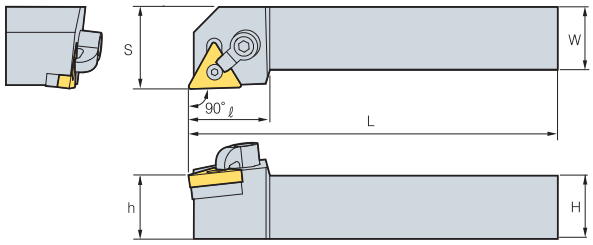
• Inserti applicabili, vedere pag. B26~B29

● : Disponibile ○ : A richiesta

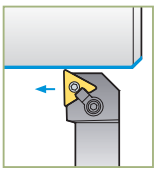
# MTGNR/L



TN□□




90°



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Staffa | Vite di staffaggio | Sede | Spina | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MTGNR/L | 1616-H16 | | | 16 | 16 | 100 | 20 | 16 | 32 | TN□□1604□□ | CDH7N | DHA10-32-19 | ST32D | SP3D | HW23.8L HW19.8L |
| | 2020-K16 | | | 20 | 20 | 125 | 25 | 20 | 32 | | | | | | |
| | 2525-M16 | | | 25 | 25 | 150 | 32 | 25 | 32 | | | | | | |
| | 2525-M22 | | | 25 | 25 | 150 | 32 | 25 | 32 | TN□□2204□□ | CDH8N1 | DHA5/16-32 | ST43D | SP4D | HW39.7L HW23.8L |
| | 3232-P22 | | | 32 | 32 | 170 | 40 | 32 | 32 | | | | | | |
| | 3232-P27 | | | 32 | 32 | 170 | 40 | 32 | 35 | TN□□2706□□ | CDH8N1 | DHA5/16-32 | ST53D | SP5D | HW39.7L HW31.8L |
| | 4040-S27 | | | 40 | 40 | 250 | 50 | 40 | 35 | | | | | | |
| | 4040-S33 | | | 40 | 40 | 250 | 50 | 40 | 40 | TN□□3307□□ | CDH8N | DHA5/16-32 | ST63D | SP6DL | HW39.7L HW35.7L |

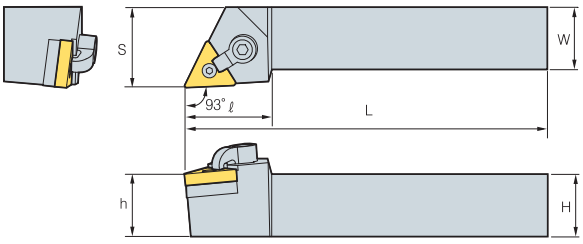
• Inserti applicabili, vedere pag. B26~B29

● : Disponibile ○ : A richiesta

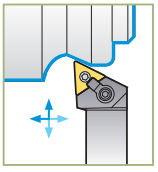
# MTJNR/L



TN□□




93°



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Staffa | Vite di staffaggio | Sede | Spina | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MTJNR/L | 2020-K16 | | | 20 | 20 | 125 | 25 | 20 | 32 | TN□□1604□□ | CDH7N | DHA10-32-19 | ST32D | SP3D | HW23.8L HW19.8L |
| | 2525-M16 | | | 25 | 25 | 150 | 32 | 25 | 32 | | | | | | |
| | 2525-M22 | | | 25 | 25 | 150 | 32 | 25 | 32 | TN□□2204□□ | CDH8N1 | DHA5/16-32 | ST43D | SP4D | HW39.7L HW23.8L |
| | 3232-P22 | | | 32 | 32 | 170 | 40 | 32 | 32 | | | | | | |
| | 3232-P27 | | | 32 | 32 | 170 | 40 | 32 | 35 | TN□□2706□□ | CDH8N1 | DHA5/16-32 | ST53D | SP5D | HW39.7L HW31.8L |
| | 4040-S27 | | | 40 | 40 | 250 | 50 | 40 | 35 | | | | | | |
| | 4040-S33 | | | 40 | 40 | 250 | 50 | 40 | 40 | TN□□3307□□ | CDH8N | DHA5/16-32 | ST63D | SP6DL | HW39.7L HW35.7L |

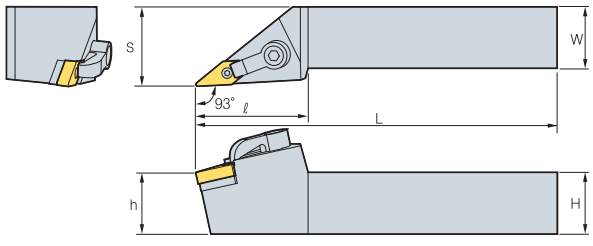
• Inserti applicabili, vedere pag. B26~B29

● : Disponibile ○ : A richiesta

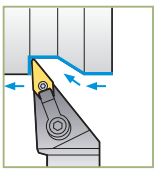
# MVJNR/L



VN□□




93°



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Staffa | Vite di staffaggio | Sede | Spina | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MVJNR/L | 2020-K16 | ● | ● | 20 | 20 | 125 | 25 | 20 | 37 | VN□□1604□□ | CDH8N2 | DHA5/16-32 | SV32D | SP3D | HW39.7L HW19.8L |
| | 2525-M16 | ● | ● | 25 | 25 | 150 | 32 | 25 | 37 | | | | | | |
| | 3232-P16 | | | 32 | 32 | 170 | 40 | 32 | 37 | | | | | | |
| | 2525-M22 | | | 25 | 25 | 150 | 32 | 25 | 50 | VN□□2204□□ | CDH8N2 | DHA5/16-32 | SV43D | SP4D | HW39.7L HW23.8L |
| | 3232-P22 | | | 32 | 32 | 170 | 40 | 32 | 50 | | | | | | |
| | 4040-S22 | | | 40 | 40 | 250 | 50 | 40 | 50 | | | | | | |

• Inserti applicabili, vedere pag. B30

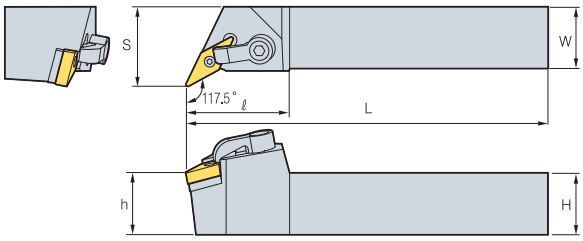
● : Disponibile ○ : A richiesta

# B Sistema leva-staffa

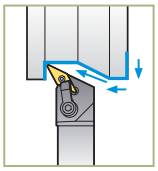
## MVQNR/L



VN□□




117.5°



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Staffa | Vite di staffaggio | Sede | Spina | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MVQNR/L** | **2020-K16** | ● | ● | 20 | 20 | 125 | 25 | 20 | 42 | VN□□1604□□ | CDH8N2 | DHA5/16-32 | SV32D | SP3D | HW39.7L HW19.8L |
| | **2525-M16** | ● | ● | 25 | 25 | 150 | 32 | 25 | 42 | | | | | | |
| | **3232-P16** | | | 32 | 32 | 170 | 40 | 32 | 37 | | | | | | |

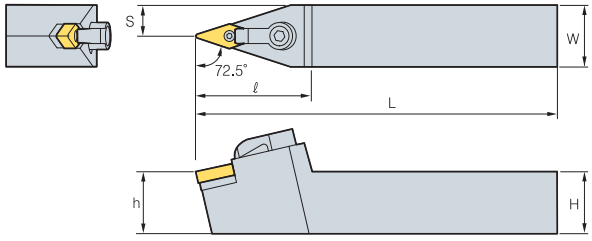
• Inserti applicabili, vedere pag. B30

● : Disponibile ○ : A richiesta

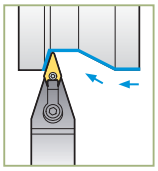
## MVVNN



VN□□




72.5°



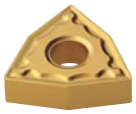
(mm)

| Articolo | | Stock | H | W | L | S | h | ℓ | Inserto | Staffa | Vite di staffaggio | Sede | Spina | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MVVNN** | **2020-K16** | ● | 20 | 20 | 125 | 25 | 20 | 42 | VN□□1604□□ | CDH8N2 | DHA5/16-32 | SV32D | SP3D | HW39.7L HW19.8L |
| | **2525-M16** | ● | 25 | 25 | 150 | 32 | 25 | 42 | | | | | | |

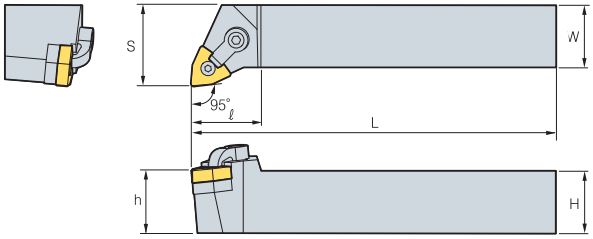
• Inserti applicabili, vedere pag. B30

● : Disponibile ○ : A richiesta

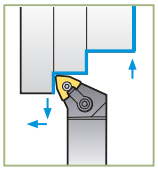
## MWLNR/L



WN□□




95°



• Inserto destro R

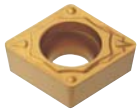
(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Staffa | Vite di staffaggio | Sede | Spina | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MWLNR/L** | **2020-K06** | | | 20 | 20 | 125 | 25 | 20 | 32 | WN□□0604□□ | CDH7N | DHA10-32-19 | SW32D | SP3D | HW19.8L HW23.8L |
| | **2525-M06** | | | 25 | 25 | 150 | 32 | 25 | 32 | | | | | | |
| | **3232-P06** | | | 32 | 32 | 170 | 40 | 32 | 32 | | | | | | |
| | **2020-K08** | ● | | 20 | 20 | 125 | 25 | 20 | 32 | WN□□0804□□ | CDH6N | DHA1/4-21 | SW43D | SP4D | HW31.8L HW23.8L |
| | **2525-M08** | ● | ● | 25 | 25 | 150 | 32 | 25 | 32 | | | | | | |
| | **3232-P08** | | | 32 | 32 | 170 | 40 | 32 | 32 | | | | | | |

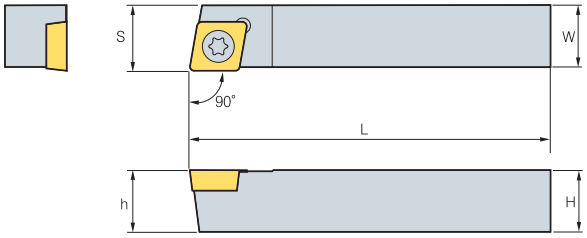
• Inserti applicabili, vedere pag. B31~B32

● : Disponibile ○ : A richiesta

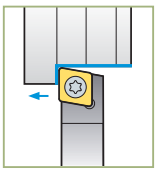
# SCACR/L



CC□□




90°



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | Inserto | Vite | Sede | Vite sede | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SCACR/L** | **1010-E06** | | ● | 10 | 10 | 70 | 10.5 | 10 | CC□□0602□□ | FTKA02565 | - | - | TW07P |
| | **1212-F09** | | | 12 | 12 | 80 | 12.5 | 12 | CC□□09T3□□ | FTKA03508 | - | - | TW15P |

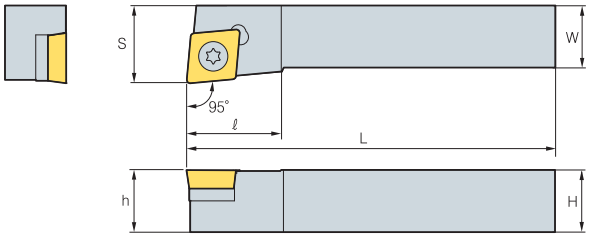
• Inserti applicabili, vedere pag. B33~B34, B46

● : Disponibile ○ : A richiesta

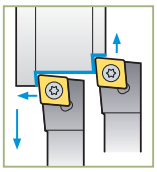
# SCLCR/L



CC□□




95°



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Vite | Sede | Vite sede | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SCLCR/L** | **0808-D06** | ● | ● | 08 | 08 | 60 | 10 | 08 | 10 | CC□□0602□□ | FTKA02565 | - | - | TW07P |
| | **1010-E06** | ● | ● | 10 | 10 | 70 | 16 | 10 | 10 | | | | | |
| | **1212-F09** | ● | ● | 12 | 12 | 80 | 20 | 12 | 16 | CC□□09T3□□ | FTGA03508 | - | - | TW15P |
| | **1616-H09** | ● | ● | 16 | 16 | 100 | 20 | 16 | 16 | | | | | |
| | **2020-K09** | ● | ● | 20 | 20 | 125 | 25 | 20 | 16 | | | | | |
| | **2020-K12** | ● | ● | 20 | 20 | 125 | 25 | 20 | 25 | CC□□1204□□ | FTGA0411F | SC42S | SHXN0610F | TW15P HW40L |
| | **2525-M12** | ● | ● | 25 | 25 | 150 | 32 | 25 | 26 | | | | | |

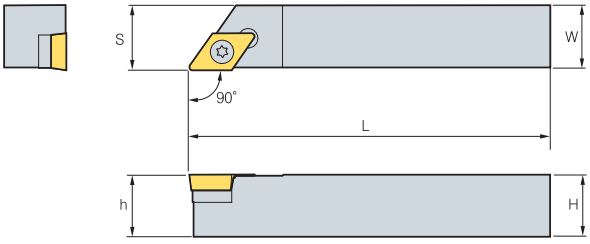
• Inserti applicabili, vedere pag. B33~B34, B46

● : Disponibile ○ : A richiesta

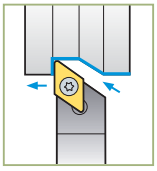
# SDACR/L



DC□□




90°



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | Inserto | Vite | Sede | Vite sede | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SDACR/L** | **1010-E07** | | | 10 | 10 | 70 | 10.5 | 10 | DC□□0702□□ | FTKA02565 | - | - | TW07P |
| | **1212-F11** | ● | | 12 | 12 | 80 | 12.5 | 12 | DC□□11T3□□ | FTKA03508 | - | - | TW15P |
| | **1616-H11** | ● | | 16 | 16 | 100 | 16.5 | 16 | | FTKA03512 | SD32S | SHXN0509F | TW15P, HW35L |

• Inserti applicabili, vedere pag. B35, B46

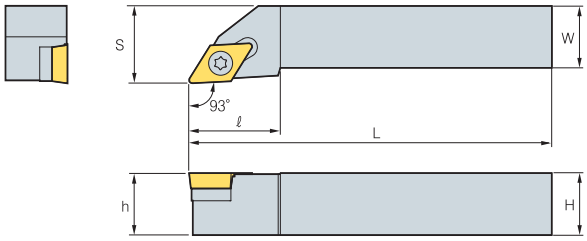
● : Disponibile ○ : A richiesta

# B Sistema a vite

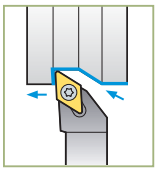
## SDJCR/L



DC□□




93°



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Vite | Sede | Vite sede | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SDJCR/L | 1010-E07 | ● | | 10 | 10 | 70 | 12 | 10 | 15 | DC□□0702□□ | FTKA02565 | - | - | TW07P |
| | 1212-F07 | ● | ● | 12 | 12 | 80 | 16 | 12 | 15 | | | | | |
| | 1616-H07 | ● | | 16 | 16 | 100 | 20 | 16 | 18 | | | | | |
| | 2020-K07 | ● | ● | 20 | 20 | 125 | 25 | 20 | 15 | | | | | |
| | 1212-F11 | ● | | 12 | 12 | 80 | 16 | 12 | 15 | DC□□11T3□□ | FTGA03512 | SD32S | SHXN0509F | TW15P, HW35L |
| | 1616-H11 | ● | ● | 16 | 16 | 100 | 20 | 16 | 24 | | | | | |
| | 2020-K11 | ● | ● | 20 | 20 | 125 | 25 | 20 | 24 | | | | | |
| | 2525-M11 | ● | ● | 25 | 25 | 150 | 32 | 25 | 29 | | | | | |

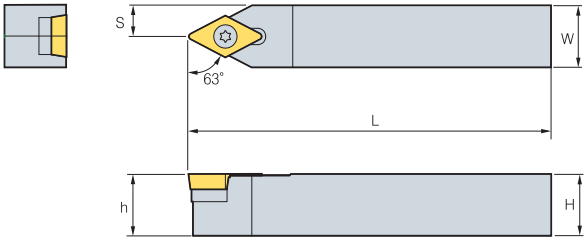
• Inserti applicabili, vedere pag. B35, B46

● : Disponibile ○ : A richiesta

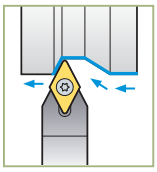
## SDNCN



DC□□




63°



(mm)

| Articolo | | Stock | H | W | L | S | h | Inserto | Vite | Sede | Vite sede | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SDNCN | 1010-E07 | ● | 10 | 10 | 70 | 5 | 10 | DC□□0702□□ | FTKA02565 | - | - | TW07P |
| | 1212-F07 | ● | 12 | 12 | 80 | 6 | 12 | | | | | |
| | 1212-H11 | ● | 12 | 12 | 100 | 6 | 12 | DC□□11T3□□ | FTGA03508 | - | - | TW15P |
| | 1616-H11 | ● | 16 | 16 | 100 | 8 | 16 | DC□□11T3□□ | FTGA03512 | SD32S | SHXN0509F | TW15P, HW35L |
| | 2020-K11 | ● | 20 | 20 | 125 | 10 | 20 | | | | | |

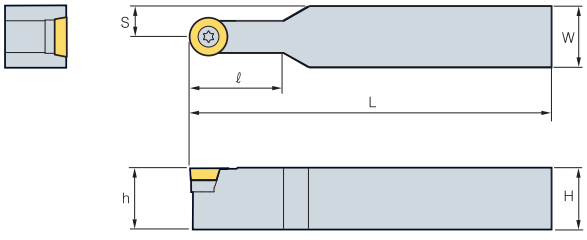
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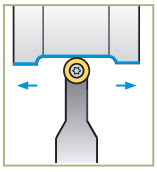
● : Disponibile ○ : A richiesta

## SRDCN



RCGT



(mm)

| Articolo | | Stock | H | W | L | S | h | ℓ | Inserto | Vite | Sede | Vite sede | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SRDCN | 1010-E06 | | 10 | 10 | 70 | 5 | 10 | 10 | RCGT 0602M0 | FTKA02565 | - | - | TW07P |
| | 1212-F06 | ● | 12 | 12 | 80 | 6 | 12 | 12 | | | | | |
| | 1616-H06 | | 16 | 16 | 100 | 8 | 16 | 12 | | | | | |
| | 2525-M06 | ● | 25 | 25 | 150 | 12.5 | 25 | 20 | | | | | |
| | 1616-H08 | ● | 16 | 16 | 100 | 8 | 16 | 16 | RCGT 0803M0 | FTNA0307 | - | - | TW09P |
| | 2020-K08 | | 20 | 20 | 125 | 10 | 20 | 20 | | | | | |
| | 2525-M08 | ● | 25 | 25 | 150 | 12.5 | 25 | 20 | | | | | |
| | 1616-H10 | | 16 | 16 | 100 | 8 | 16 | 25 | RCGT 1003M0 | FTKA03511A | SR10S | SHXN0509F | TW15P HW35L |
| | 2020-K10 | ● | 20 | 20 | 125 | 10 | 20 | 25 | | | | | |
| | 2525-M10 | ● | 25 | 25 | 150 | 12.5 | 25 | 25 | | | | | |
| | 2020-K12 | | 20 | 20 | 125 | 10 | 20 | 28 | RCGT 1204M0 | FTGA03512 | SR12S | SHXN0509F | TW15P HW35L |
| | 2525-M12 | ● | 25 | 25 | 150 | 12.5 | 25 | 28 | | | | | |

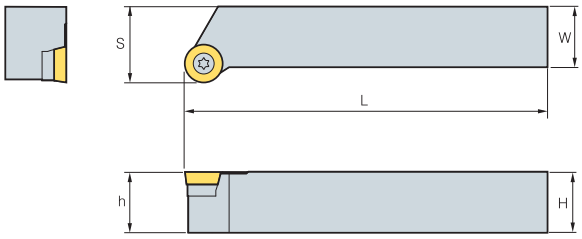
• Inserti applicabili, vedere pag. B47

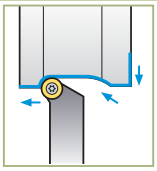
● : Disponibile ○ : A richiesta

# SRGCR/L



RCGT



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Vite | Sede | Vite sede | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SRGCR/L | 1010-E06 | | | 10 | 10 | 70 | 12 | 10 | - | RCGT 0602M0 | FTKA02565 | - | - | TW07P |
| | 1212-F06 | ● | | 12 | 12 | 80 | 16 | 12 | - | | | | | |
| | 1616-H06 | | | 16 | 16 | 100 | 20 | 16 | - | | | | | |
| | 1616-H08 | ● | | 16 | 16 | 100 | 20 | 16 | - | RCGT 0803M0 | FTNA0307 | - | - | TW09P |
| | 2020-K08 | | | 20 | 20 | 125 | 25 | 20 | - | | | | | |
| | 2525-M08 | | | 25 | 25 | 150 | 32 | 25 | - | | | | | |
| | 1616-H10 | | | 16 | 16 | 100 | 20 | 16 | - | RCGT 1003M0 | FTKA03511A | SR10S | SHXN0509F | TW15P HW35L |
| | 2020-K10 | ● | ● | 20 | 20 | 125 | 25 | 20 | - | | | | | |
| | 2525-M10 | | | 25 | 25 | 150 | 32 | 25 | - | | | | | |
| | 2020-K12 | ● | ● | 20 | 20 | 125 | 25 | 20 | - | RCGT 1204M0 | FTGA03512 | SR12S | SHXN0509F | TW15P HW35L |
| | 2525-M12 | ● | ● | 25 | 25 | 150 | 32 | 25 | - | | | | | |

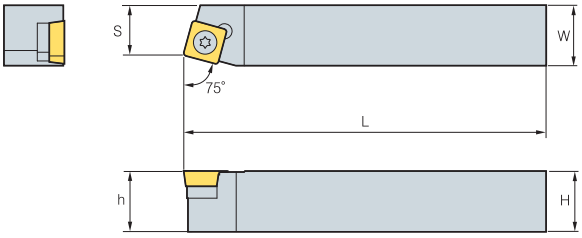
• Inserti applicabili, vedere pag. B47

● : Disponibile ○ : A richiesta

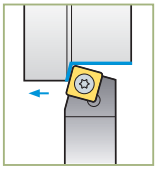
# SSBCR/L



SC□□




75°



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | Inserto | Vite | Sede | Vite sede | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SSBCR/L | 1212-F09 | | | 12 | 12 | 80 | 11 | 12 | SC□□09T3□□ | FTGA03508 | - | - | TW15P |
| | 1616-H09 | ● | | 16 | 16 | 100 | 13 | 16 | | FTGA03512 | S32S | SHXN0509F | TW15P, HW35L |
| | 2020-K12 | | | 20 | 20 | 125 | 17 | 20 | SC□□1204□□ | FTGA0411F | SS42S | SHXN0610F | TW15P, HW40L |

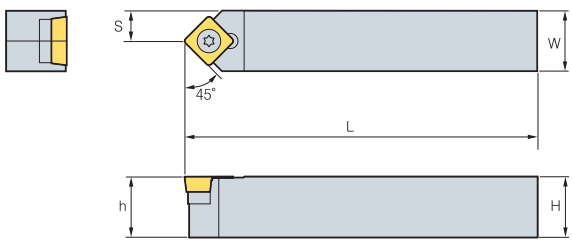
• Inserti applicabili, vedere pag. B36, B47

● : Disponibile ○ : A richiesta

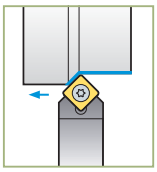
# SSDCN



SC□□




45°



(mm)

| Articolo | | Stock | H | W | L | S | h | Inserto | Vite | Sede | Vite sede | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SSDCN | 1212-F09 | ● | 12 | 12 | 80 | 6 | 12 | SC□□09T3□□ | FTGA03508 | - | - | TW15P |
| | 1616-H09 | ● | 16 | 16 | 100 | 8 | 16 | | FTGA03512 | SS32S | SHXN0509F | TW15P,HW35L |

• Inserti applicabili, vedere pag. B36, B47

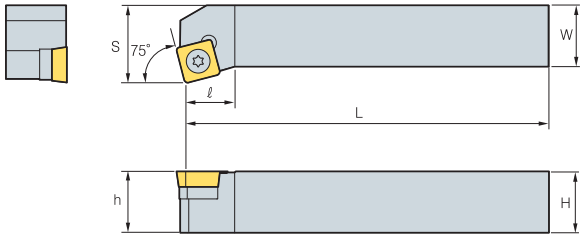
● : Disponibile ○ : A richiesta

# B Sistema a vite

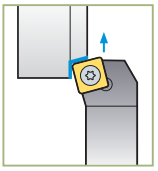
## SSKCR/L



SC□□




75°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Vite | Sede | Vite sede | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SSKCR/L 1616-H09** | | | 16 | 16 | 100 | 20 | 16 | 13 | SC□□09T3□□ | FTGA03512 | SS32S | SHXN0509F | TW15P, HW35L |

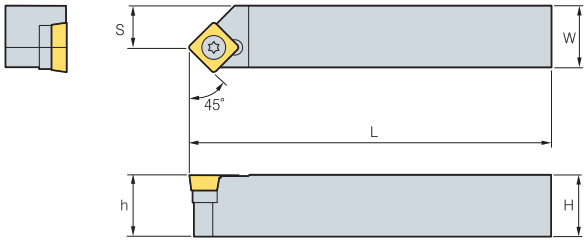
• Inserti applicabili, vedere pag. B36, B47

● : Disponibile ○ : A richiesta

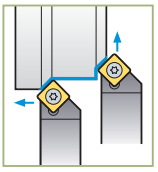
## SSSCR/L



SC□□




45



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | H | W | L | S | h | Inserto | Vite | Sede | Vite sede | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SSSCR/L 1616-H09** | | | 16 | 16 | 100 | 17 | 16 | SC□□09T3□□ | FTGA03512 | SS32S | SHXN0509F | TW15P, HW35L |
| **2020-K12** | | ● | 20 | 20 | 125 | 21 | 20 | SC□□1204□□ | FTGA0411F | SS42S | SHXN0610F | TW15P, HW40L |

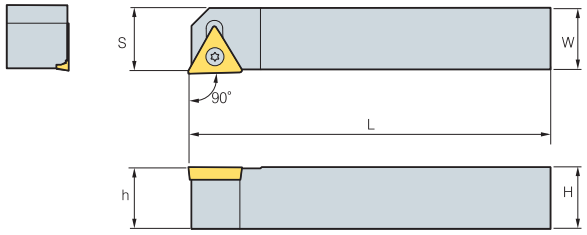
• Inserti applicabili, vedere pag. B36, B47

● : Disponibile ○ : A richiesta

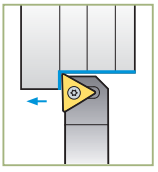
## STACR/L



TC□□




90°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | H | W | L | S | h | Inserto | Vite | Sede | Vite sede | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **STACR/L 1010-E09** | | | 10 | 10 | 70 | 10.5 | 10 | TC□□0902□□ | FTKA02206 | - | - | TW06P |
| **1212-F11** | ● | | 12 | 12 | 80 | 12.5 | 12 | TC□□1102□□ | FTKA02565 | - | - | TW07P |

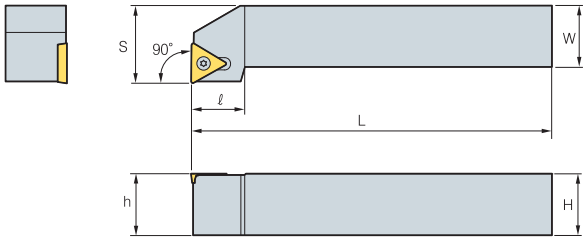
• Inserti applicabili, vedere pag. B39, B48

● : Disponibile ○ : A richiesta

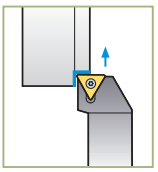
## STFCR/L



TC□□




90



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Vite | Sede | Vite sede | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **STFCR/L 1010-E09** | | | 10 | 10 | 70 | 12 | 10 | 10 | TC□□0902□□ | FTKA02206 | - | - | TW06P |
| **1212-F11** | | | 12 | 12 | 80 | 16 | 12 | 14 | TC□□1102□□ | FTKA02565 | - | - | W07P |
| **1616-H11** | | | 16 | 16 | 100 | 20 | 16 | 14 | | | | | |
| **1616-H16** | | | 16 | 16 | 100 | 20 | 16 | 19 | TC□□16T3□□ | FTGA03512 | ST32S | SHXN0509F | TW15P, HW35L |
| **2020-K16** | | ● | 20 | 20 | 125 | 25 | 20 | 19 | | | | | |

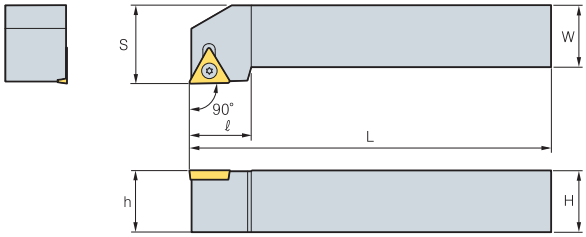
• Inserti applicabili, vedere pag. B39, B48

● : Disponibile ○ : A richiesta

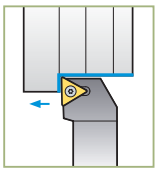
# STGCR/L



TC□□




90°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Vite | Sede | Vite sede | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **STGCR/L 0808-D09** | | | 08 | 08 | 60 | 10 | 08 | 11 | TC□□0902□□ | FTKA02206 | - | - | TW06P |
| **1010-E09** | ● | | 10 | 10 | 70 | 12 | 10 | 11 | | | | | |
| **1212-F11** | ● | ● | 12 | 12 | 80 | 16 | 12 | 14 | TC□□1102□□ | FTKA02565 | - | - | TW07P |
| **1616-H11** | ● | ● | 16 | 16 | 100 | 20 | 16 | 16 | | | | | |
| **2020-K16** | ● | ● | 20 | 20 | 125 | 25 | 20 | 21 | TC□□16T3□□ | FTGA03512 | ST32S | SHXN0509F | TW15P, HW35L |
| **2525-M16** | ● | ● | 25 | 25 | 150 | 32 | 25 | 21 | | | | | |

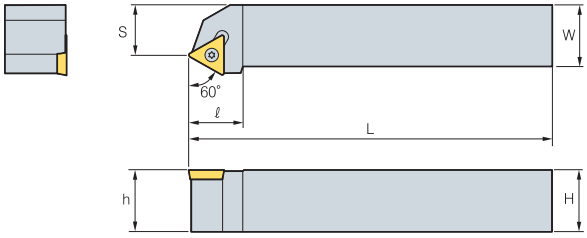
• Inserti applicabili, vedere pag. B39, B48

● : Disponibile ○ : A richiesta

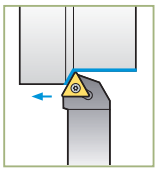
# STTCR/L



TC□□




60°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Vite | Sede | Vite sede | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **STTCR/L 1616-H11** | | | 16 | 16 | 100 | 13 | 16 | 14 | TC□□1102□□ | FTKA02565 | - | - | TW07P |
| **1616-H16** | | | 16 | 16 | 100 | 13 | 16 | 19 | TC□□16T3□□ | FTGA03512 | ST32S | SHXN0509F | TW15P, HW35L |
| **2020-K16** | | | 20 | 20 | 125 | 17 | 20 | 19 | | | | | |

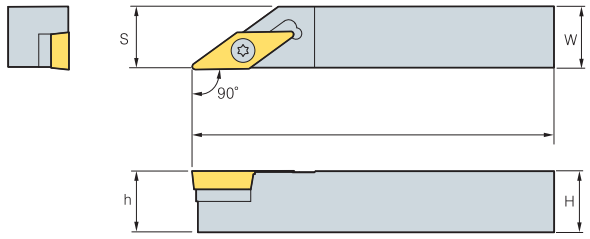
• Inserti applicabili, vedere pag. B39, B48

● : Disponibile ○ : A richiesta

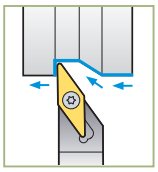
# SVABR/L



VB□□




90°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | H | W | L | S | h | Inserto | Vite | Sede | Vite sede | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SVABR/L 1616-H16** | | | 16 | 16 | 100 | 16.5 | 16 | VB□□1604□□ | FTG03512 | SV32S | SHXN0509F | TW15P, HW35L |
| **2020-K16** | | | 20 | 20 | 125 | 20.5 | 20 | | | | | |

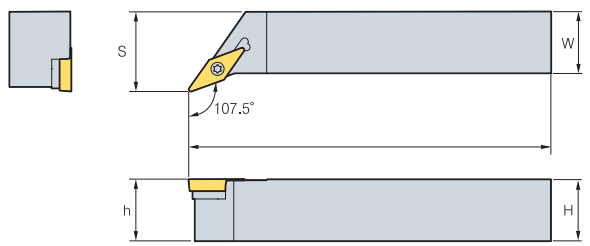
• Inserti applicabili, vedere pag. B42, B48

● : Disponibile ○ : A richiesta

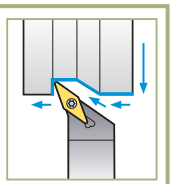
# SVHBR/L



VB□□




107.5°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | H | W | L | S | h | Inserto | Vite | Sede | Vite sede | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SVHBR/L 2525-M16** | ● | ● | 25 | 25 | 150 | 32 | 25 | VB□□1604□□ | FTG03512 | SV32S | SHXN0509F | TW15P |
| **3225-P16** | ● | ● | 32 | 25 | 170 | 32 | 32 | | | | | HW35L |

• Inserti applicabili, vedere pag. B42, B48

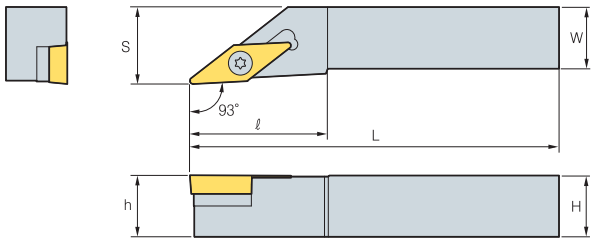
● : Disponibile ○ : A richiesta

# B Sistema a vite

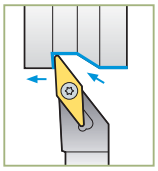
## SVJBR/L



VB□□




93°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Vite | Sede | Vite sede | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SVJBR/L 1212-F11** | ● | ● | 12 | 12 | 80 | 16 | 12 | 27 | VB□□1102□□ | FTKA02565 | - | - | TW07P |
| **1616-H11** | ● | | 16 | 16 | 100 | 20 | 16 | 27 | | | | | |
| **2020-K11** | ● | ● | 20 | 20 | 125 | 25 | 20 | 27 | | | | | |
| **1616-H16** | ● | | 16 | 16 | 100 | 20 | 16 | 36 | VB□□1604□□ | FTGA03512 | SV32S | SHXN0509F | TW15P, HW35L |
| **2020-K16** | ● | ● | 20 | 20 | 125 | 25 | 20 | 41 | | | | | |
| **2525-M16** | ● | ● | 25 | 25 | 150 | 32 | 25 | 41 | VB□□1604□□ | FTGA03512 | SV32S | SHXN0509F | TW15P, HW35L |
| **3225-P16** | ● | ● | 32 | 25 | 170 | 32 | 32 | 55 | | | | | |

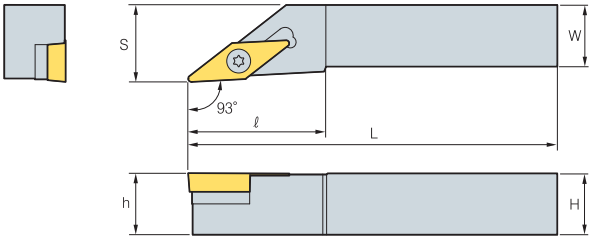
• Inserti applicabili, vedere pag. B42, B48

● : Disponibile ○ : A richiesta

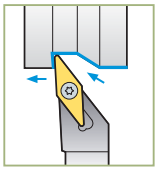
## SVJCR/L



VC□□




93°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Vite | Sede | Vite sede | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SVJCR/L 1212-F11** | ● | | 12 | 12 | 80 | 16 | 12 | 25 | VC□□1103□□ | FTKA02565 | - | - | TW07P |
| **1616-H11** | ● | | 16 | 16 | 100 | 20 | 16 | 25 | | | | | |
| **2020-K11** | ● | ● | 20 | 20 | 125 | 25 | 20 | 25 | | | | | |
| **1212-F13** | | | 12 | 12 | 80 | 16 | 12 | 32 | VC□□1303□□ | FTKA0307 | - | - | TW09P |
| **1616-H13** | | | 16 | 16 | 100 | 20 | 16 | 32 | | | | | |
| **2020-K13** | ● | | 20 | 20 | 125 | 25 | 20 | 32 | | | | | |
| **1616-H16** | | | 16 | 16 | 100 | 20 | 16 | 40 | VC□□1604□□ | FTGA03512 | SV32S | SHXN0509F | TW15P HW35L |
| **2020-K16** | ● | ● | 20 | 20 | 125 | 25 | 20 | 40 | | | | | |
| **2525-M16** | ● | ● | 25 | 25 | 150 | 32 | 25 | 40 | | | | | |

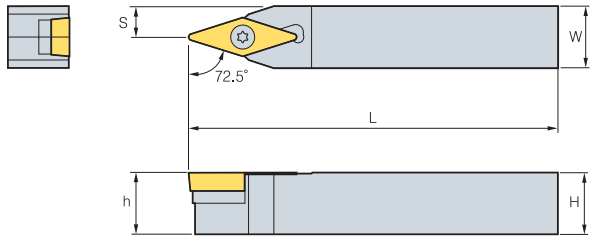
• Inserti applicabili, vedere pag. B43

● : Disponibile ○ : A richiesta

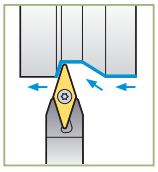
## SVVBN



VB□□




72.5°



(mm)

| Articolo | Stock | H | W | L | S | h | Inserto | Vite | Sede | Vite sede | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **SVVBN 1212-F11** | ● | 12 | 12 | 80 | 6 | 12 | VB□□1102□□ | FTKA02565 | - | - | TW07P |
| **1616-H11** | | 16 | 16 | 100 | 8 | 16 | | | | | |
| **2020-K11** | ● | 20 | 20 | 125 | 10 | 20 | | | | | |
| **1616-H16** | ● | 16 | 16 | 100 | 8 | 16 | VB□□1604□□ | FTGA03512 | SV32S | SHXN0509F | TW15P, HW35L |
| **2020-K16** | ● | 20 | 20 | 125 | 10 | 20 | | | | | |
| **2525-M16** | ● | 25 | 25 | 150 | 12.5 | 25 | | | | | |
| **3225-P16** | ● | 32 | 25 | 170 | 12.5 | 32 | | | | | |

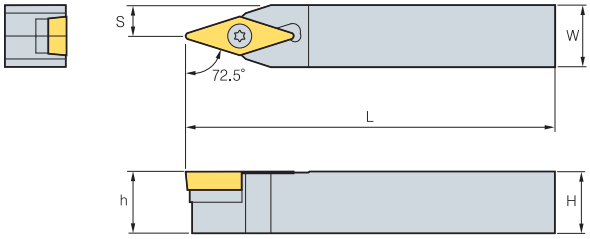
• Inserti applicabili, vedere pag. B42, B48

● : Disponibile ○ : A richiesta

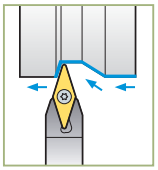
# SVVCN



VC□□




72.5°



(mm)

| Articolo | | Stock | H | W | L | S | h | Inserto | Vite | Sede | Vite sede | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SVVCN** | **1212-F11** | ● | 12 | 12 | 80 | 6 | 12 | VC□□1103□□ | FTKA02565 | - | - | TW07P |
| | **1616-H11** | | 16 | 16 | 100 | 8 | 16 | | | | | |
| | **2020-K11** | ● | 20 | 20 | 125 | 10 | 20 | | | | | |
| | **1212-F13** | | 12 | 12 | 80 | 6 | 12 | VC□□1303□□ | FTNA0307 | - | - | TW09P |
| | **1616-H13** | | 16 | 16 | 100 | 8 | 16 | | | | | |
| | **2020-K13** | ● | 20 | 20 | 125 | 10 | 20 | | | | | |
| | **1616-H16** | | 16 | 16 | 100 | 8 | 16 | VC□□1604□□ | FTGA03512 | SV32S | SHXN0509F | TW15P HW35L |
| | **2020-K16** | ● | 20 | 20 | 125 | 10 | 20 | | | | | |
| | **2525-M16** | ● | 25 | 25 | 150 | 12.5 | 25 | | | | | |

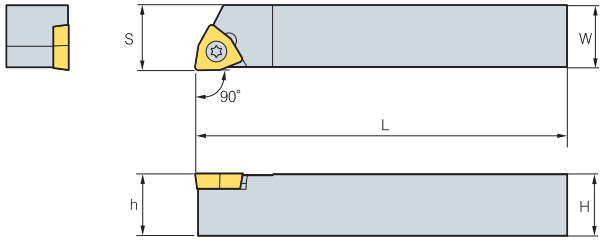
• Inserti applicabili, vedere pag. B43

● : Disponibile ○ : A richiesta

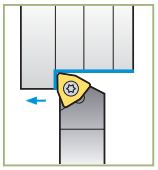
# SWACR/L



WC□□




90°



• Inserto destro R

(mm)

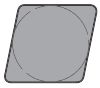
| Articolo | | Stock R | Stock L | H | W | L | S | h | Inserto | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **SWACR/L** | **1010-E04** | | | 10 | 10 | 70 | 10.1 | 10 | WC□□0402□□ | FTKA02565 | TW07P |
| | **1212-F04** | | | 12 | 12 | 80 | 12.1 | 12 | | | |
| | **1616-H06** | | | 16 | 16 | 100 | 16.1 | 16 | WC□□06T3□□ | FTGA03508 | TW15P |
| | **2020-K08** | | | 20 | 20 | 125 | 20.1 | 20 | WC□□0804□□ | FTGA0411F | TW15P |

• Inserti applicabili, vedere pag. B44

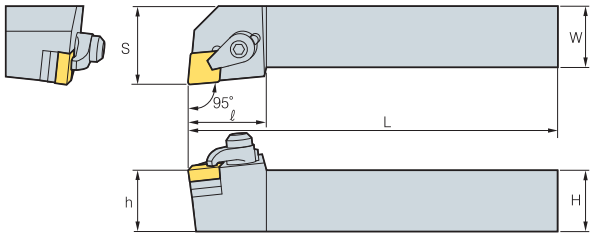
● : Disponibile ○ : A richiesta

# B Portainserti per inserti ceramici

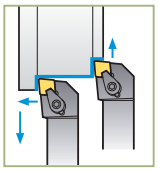
## CCLNR/L



CN□N




95°



• Inserto destro R

(mm)

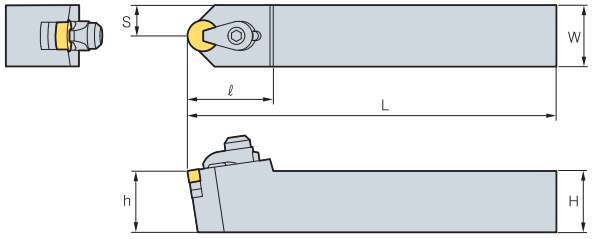
| Articolo | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Staffa | Vite | Sede | Molla | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CCLNR/L 2525-M12C | ● | | 25 | 25 | 150 | 32 | 25 | 32 | CN□N 1204□□ 1207□□ | CH6R3 | MHX0630 SHX0310 | SC42CC | SR3 | HW40L HW20L |

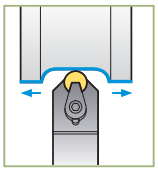
● : Disponibile ○ : A richiesta

## CRDNN



RN□N



(mm)

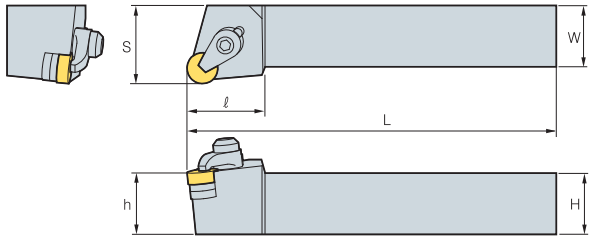
| Articolo | Stock | H | W | L | S | h | ℓ | Inserto | Staffa | Vite | Sede | Molla | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CRDNN 2525-M12C | ● | 25 | 25 | 150 | 12.5 | 25 | 35 | RN□N 1204□□ 1207 □□ | CH6R3 | MHX0630 SHX0310 | SR42CC | SR3 | HW40L HW20L |

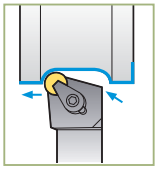
● : Disponibile ○ : A richiesta

## CRGNR/L



RN□N



• Inserto destro R

(mm)

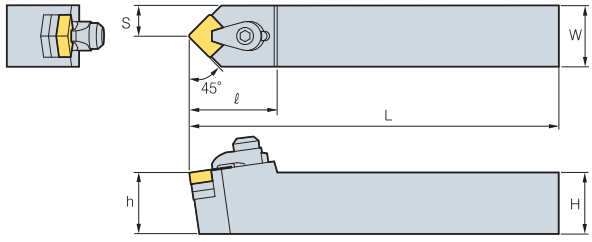
| Articolo | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Staffa | Vite | Sede | Molla | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CRGNR/L 2525-M12C | ● | | 25 | 25 | 150 | 32 | 25 | 32 | RN□N 1204□□ 1207□□ | CH6R3 | MHX0630 SHX0310 | SR42CC | SR3 | HW40L HW20L |

● : Disponibile ○ : A richiesta

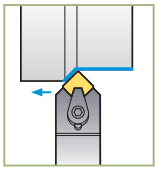
## CSDNN



SN□N




45°



(mm)

| Articolo | Stock | H | W | L | S | h | ℓ | Inserto | Staffa | Vite | Sede | Molla | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CSDNN 2525-M12C | ● | 25 | 25 | 125 | 12.5 | 25 | 35 | SN□N 1204□□ 1207□□ | CH6R3 | MHX0630 SHX0310 | SS42CC | SR3 | HW40L HW20L |

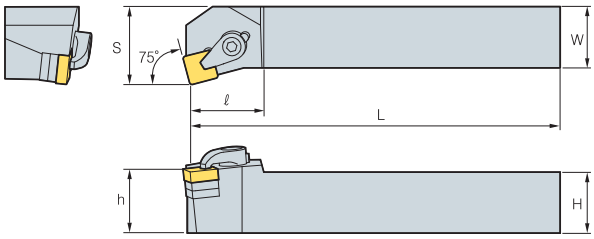
• Inserti applicabili, vedere pag. B25

● : Disponibile ○ : A richiesta

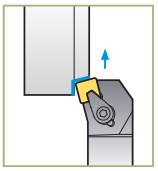
# CSKNR/L



SN□N




75°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Staffa | Vite | Sede | Molla | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CSKNR/L 2525-M12C | ● | | 25 | 25 | 150 | 32 | 25 | 28 | SN□N 1204□□ 1207□□ | CH6R3 | MHX0630 SHX0310 | SR42CC | SR3 | HW40L HW20L |

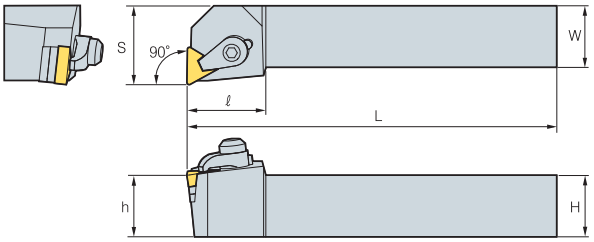
• Inserti applicabili, vedere pag. B25

● : Disponibile ○ : A richiesta

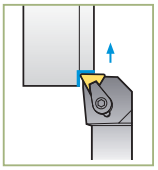
# CTFNR/L



TN□N




90°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Staffa | Vite | Sede | Molla | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CTFNR/L 2525-M16C | ● | | 25 | 25 | 150 | 32 | 25 | 32 | TN□N 1604□□ 1607□□ | CH6R3 | MHX0630 SHX0310 | ST32CC | SR3 | HW40L HW20L |

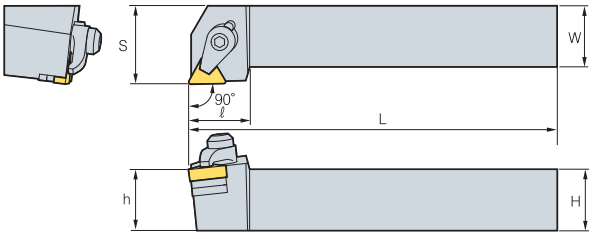
• Inserti applicabili, vedere pag. B26

● : Disponibile ○ : A richiesta

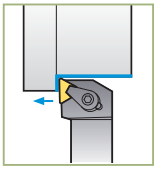
# CTGNR/L



TN□N




90°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | | W | L | S | h | ℓ | Inserto | Staffa | Vite | Sede | Molla | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CTGNR/L 2525-M16C | ● | | 25 | 25 | 150 | 32 | 25 | 25 | TN□N 1604□□ 1607□□ | CH6R3 | MHX0630 SHX0310 | ST32CC | SR3 | HW40L HW20L |

• Inserti applicabili, vedere pag. B26

● : Disponibile ○ : A richiesta

# B Sistema di codifica per bareni (ISO)

| S | 12 | M | – | S | T | F | P | R | – | 11 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | | 4 | 5 | 6 | 7 | 8 | | 9 |
| Tipo di bareno | Diametro | Lunghezza | | Metodo di montaggio dell'inserto | Forma dell'inserto | Angolazione bareno | Angolo di spoglia dell'inserto | Tipo di lavorazione | | Lunghezza tagliente |

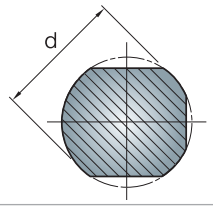
## 1 S 12 M - S T F P R - 11

### Tipo di bareno

"A" Acciaio con foro di lubrificazione
"E" Bareno in metallo duro con testa in acciaio e foro di lubrificazione
"C" Stelo in metallo duro
"S" Stelo in acciaio
"X" Speciale

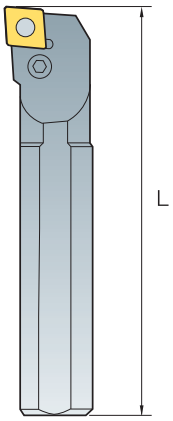
## 2 S 12 M - S T F P R - 11

### Diametro




## 3 S 12 M - S T F P R - 11

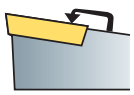
### Lunghezza

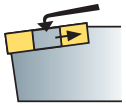


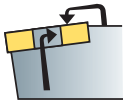

| length(L) | (mm) |
|---|---|
| H | 100 |
| J | 110 |
| K | 125 |
| M | 150 |
| N | 160 |
| Q | 180 |
| R | 200 |
| S | 250 |
| T | 300 |
| U | 350 |
| V | 400 |
| W | 450 |
| T | 500 |

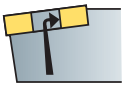
## 4 S 12 M - S T F P R - 11

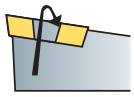
### Metodo di montaggio dell'inserto


A staffa — C


Spina - Staffa — D

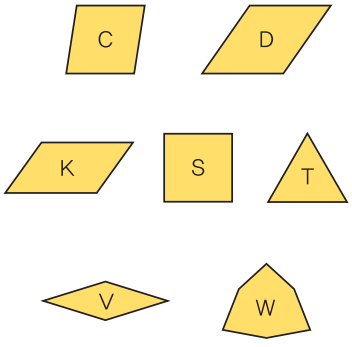

Spina - Staffa — M


A leva — P


A vite — S

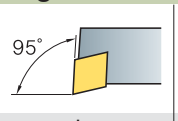
## 5 S 12 M - S T F P R - 11

### Forma dell'inserto

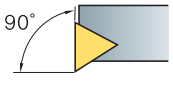



## 6 S 12 M - S T F P R - 11

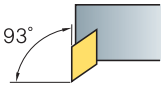
### Angolazione bareno



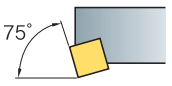
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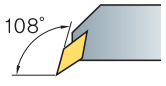
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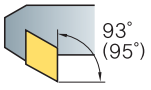
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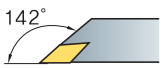
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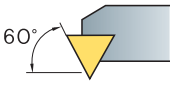
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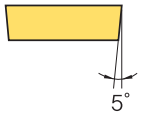
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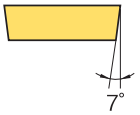
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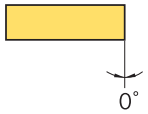
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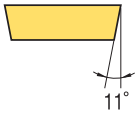
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C



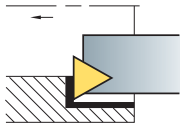
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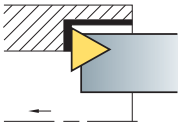


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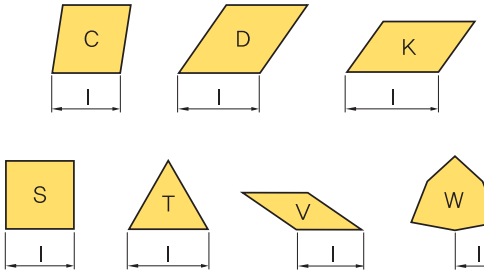
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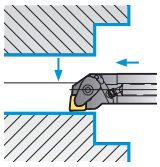
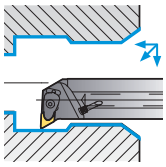
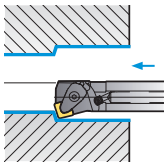
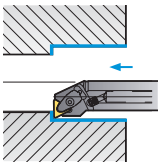
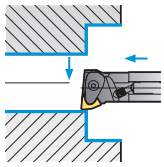

L

## 9 S 12 M - S T F P R - 11

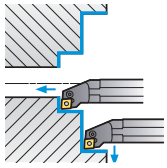
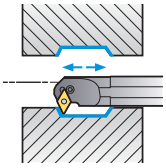
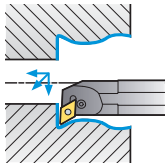
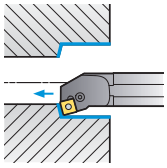
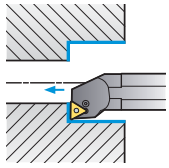
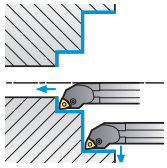
### Lunghezza tagliente



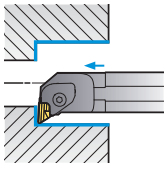
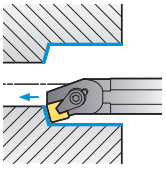
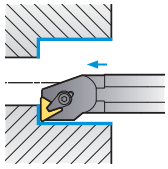
## Sistema doppio staffaggio

| Tipo di taglio |  |  |  |  |  | | |
|---|---|---|---|---|---|---|---|
| Articolo | DCLNR/L | DDUNR/L | DSKNR/L | DTFNR/L | DWLNR/L | | |
| Angolazione | 95° | 93° | 75° | 90° | 95° | | |
| Pag. | B100 | B100 | B100 | B101 | B101 | | |
| Copiatura | | ● | | | | | |
| Sfacciatura | ● | ● | | | ● | | |
| Tornitura gole | | | | | | | |
| Tornitura | ● | ● | ● | ● | ● | | |

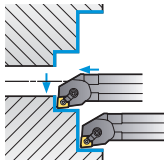
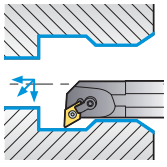
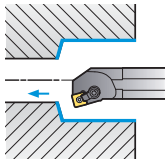
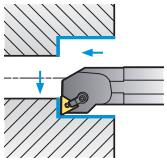
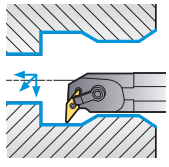
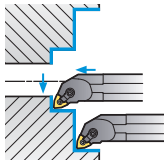
## Sistema di bloccaggio a leva

| Tipo di taglio |  |  |  |  |  |  | |
|---|---|---|---|---|---|---|---|
| Articolo | PCLNR/L | PDSNR/L | PDUNR/L | PSKNR/L | PTFNR/L | PWLNR/L | |
| Angolazione | 95° | 62,5° | 93° | 75° | 90° | 95° | |
| Pag. | B102 | B102 | B103 | B103 | B104 | B104 | |
| Copiatura | | ● | ● | | | | |
| Sfacciatura | ● | | | | | ● | |
| Tornitura gole | | ● | ● | | | | |
| Tornitura | ● | ● | ● | ● | ● | ● | |

## Sistema a staffa

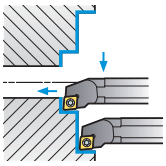
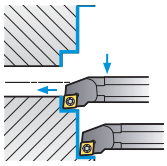
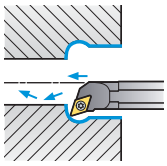
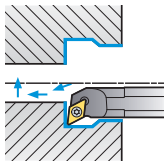
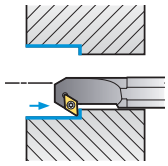
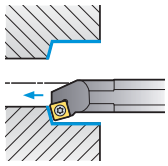
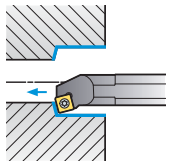
| Tipo di taglio |  |  |  | | | | |
|---|---|---|---|---|---|---|---|
| Articolo | CKUNR/L | CSKPR/L | CTFPR/L | | | | |
| Angolazione | 93° | 75° | 90° | | | | |
| Pag. | B105 | B105 | B105 | | | | |
| Copiatura | | | | | | | |
| Sfacciatura | | | | | | | |
| Tornitura gole | ● | | | | | | |
| Tornitura | ● | ● | ● | | | | |

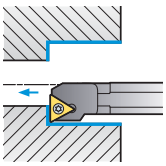
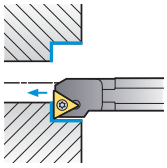
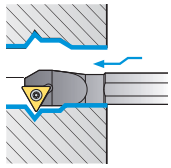
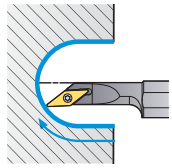
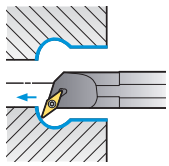
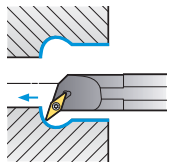
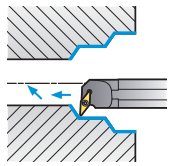
## Sistema leva-staffa

| Tipo di taglio |  |  |  |  |  |  | |
|---|---|---|---|---|---|---|---|
| Articolo | MCLNR/L | MDUNR/L | MSKNR/L | MTFNR/L | MVUNR/L | MWLNR/L | |
| Angolazione | 95° | 93° | 75° | 90° | 93° | 95° | |
| Pag. | B106 | B106 | B106 | B107 | B107 | B107 | |
| Copiatura | | ● | | | ● | | |
| Sfacciatura | ● | | | | | ● | |
| Tornitura gole | | ● | | | ● | | |
| Tornitura | ● | ● | ● | ● | ● | ● | |

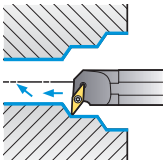
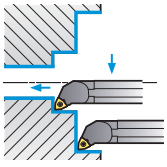
# B Indice bareni

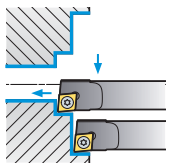
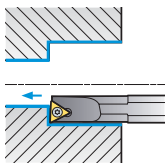
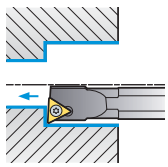
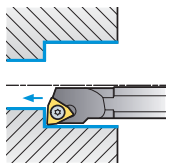
## Sistema a vite

| Tipo di taglio |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|
| Articolo | SCLCR/L | SCLPR/L | SDQCR/L | SDUCR/L | SDZCR/L | SSKCR/L | SSKPR/L |
| Angolazione | 95° | 95° | 107,5° | 93° | 3° | 75° | 75° |
| Pag. | B108 | B108 | B109 | B109 | B109 | B110 | B110 |
| Copiatura | | | ● | ● | | | |
| Sfacciatura | ● | ● | | | | | |
| Tornitura gole | | | ● | ● | ● | | |
| Tornitura | ● | ● | ● | ● | ● | ● | ● |

| Tipo di taglio |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|
| Articolo | STFCR/L | STFPR/L | STWPR/L | SVJCR/L | SVQBR/L | SVQCR/L | SVUBR/L |
| Angolazione | 90° | 90° | 60° | 142° | 108° | 108° | 93° |
| Pag. | B111 | B111 | B111 | B112 | B112 | B112 | B113 |
| Copiatura | | | | ● | ● | ● | ● |
| Sfacciatura | | | | | | | |
| Tornitura gole | | | | | ● | ● | ● |
| Tornitura | ● | ● | ● | ● | ● | ● | ● |

## Compact Mini

| Tipo di taglio |  |  |
|---|---|---|
| Articolo | SVUCR/L | SWLCR/L |
| Angolazione | 93° | 95° |
| Pag. | B113 | B113 |
| Copiatura | ● | |
| Sfacciatura | | ● |
| Tornitura gole | ● | |
| Tornitura | ● | ● |

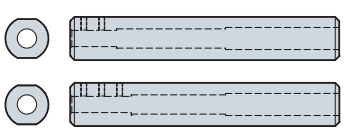
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| Angolazione | 95° | 93° | 93° | 93° |
| Pag. | B114 | B114 | B114 | B114 |
| Copiatura | | | | |
| Sfacciatura | ● | ● | | |
| Tornitura gole | | | ● | |
| Tornitura | ● | ● | ● | ● |

## Bareno con stelo in metallo duro

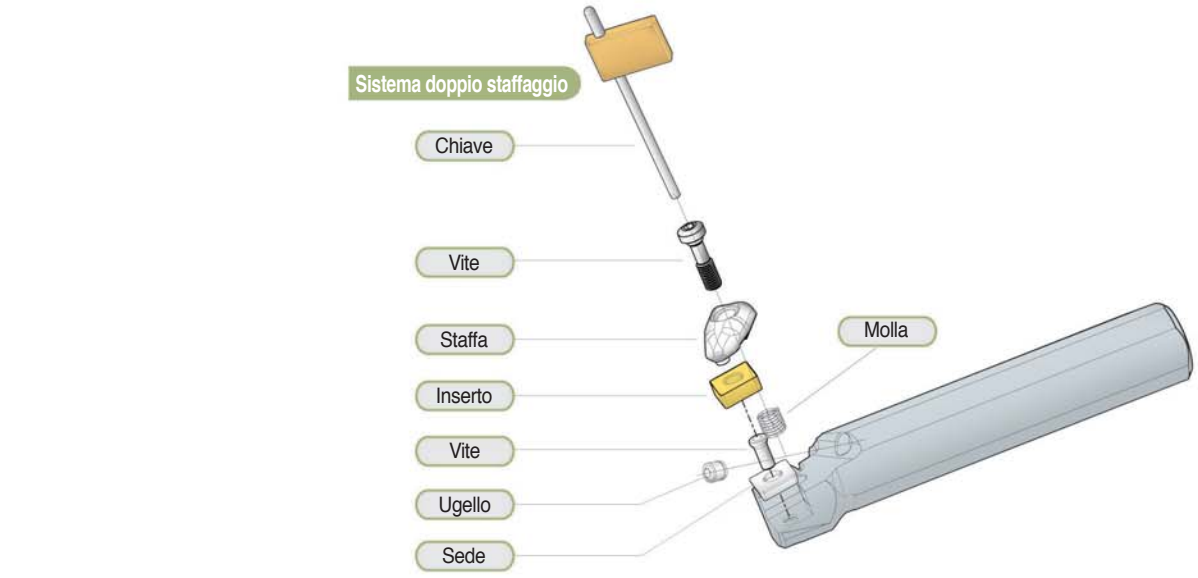
| Articolo | SCLCR/L | SCLPR/L | SDQCR/L | SDUCR/L | STFCR/L |
|---|---|---|---|---|---|
| Angolazione | 95° | 95° | 107,5° | 93° | 91° |
| Pag. | B115 | B116 | B116 | B117 | B117 |

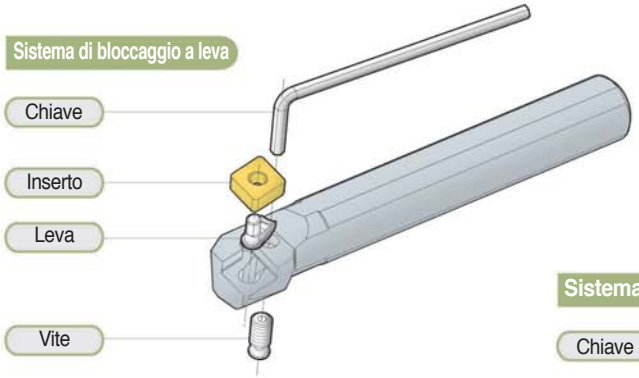
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|---|---|---|---|---|---|
| Angolazione | 91° | 93° | 93° | 93° | - |
| Pag. | B118 | B118 | B119 | B119 | - |

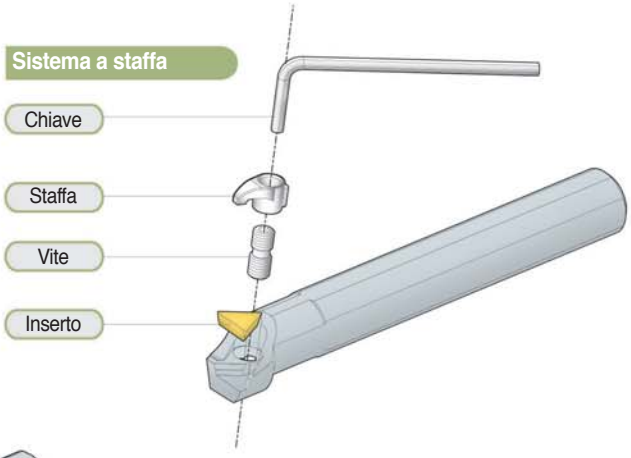
## Manicotti

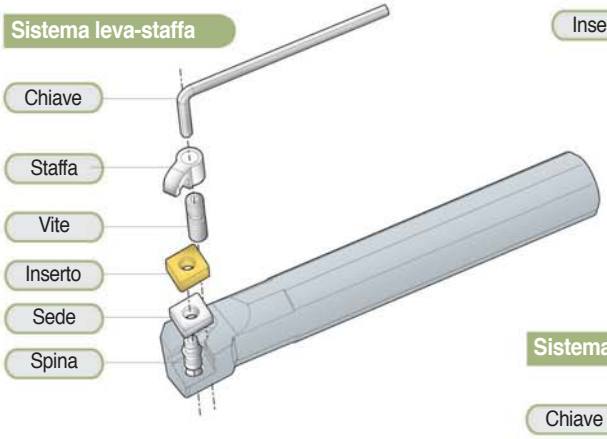
| Forma |  |
|---|---|
| Articolo | SL |
| Pag. | B128 |

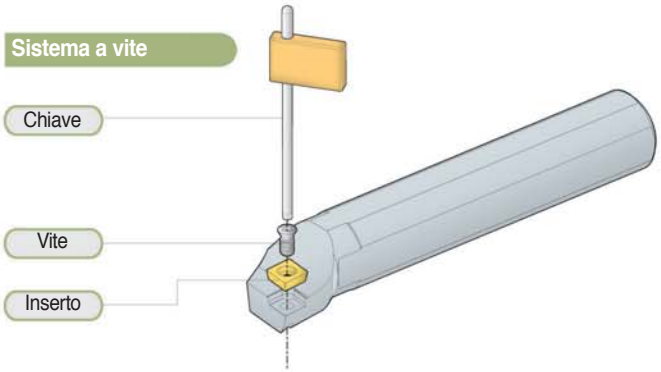
## Istruzioni di montaggio bareni



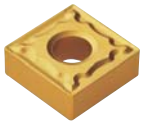



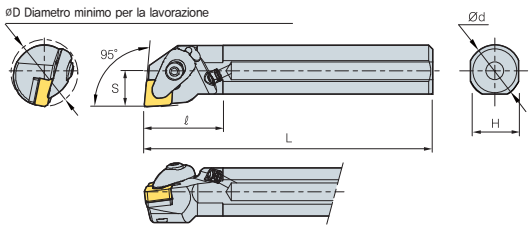



# B Sistema doppio staffaggio

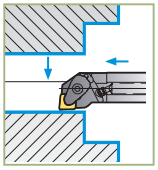
## DCLNR/L



SN□□




95°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | ød | H | L | S | ℓ | Inserto | Staffa | Vite di staffaggio | Sede | Vite sede | Molla | Ugello | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **A25R-DCLNR/L-09** | ● | ● | 32 | 25 | 23 | 200 | 17 | 27 | CN□□0903□□ | CVH3 | CHX0415 | SC32V | FTKA0307 | SPR0510 | CN0605 | HW25P |
| **A25R-DCLNR/L-12** | ● | ● | 32 | 25 | 23 | 200 | 17 | 28 | CN□□1204□□ | CVH4 | CHX0518 | SC42V | FTKA0410 | SPR0714 | CN0605 | HW30P |
| **A32S-DCLNR/L-12** | | ● | 40 | 32 | 30 | 250 | 22 | 27 | | | | | | | | |
| **A40T-DCLNR/L-12** | ○ | | 50 | 40 | 37 | 300 | 27 | 30 | | | | | | | | |
| **A50U-DCLNR/L-16** | | | 63 | 50 | 47 | 350 | 35 | 40 | CN□□1604□□ | CVH5 | CHX0622 | SC54V | FTNA0511 | SPR0811 | CN0605 | HW40L |

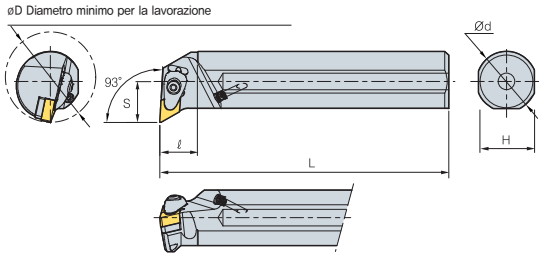
• Inserti applicabili, vedere pag. B16~B18

● : Disponibile ○ : A richiesta

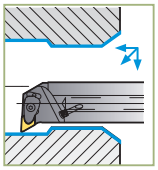
## DDUNR/L



DN□□




93°



• Inserto destro R

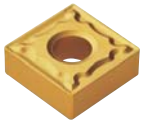
(mm)

| Articolo | Stock R | Stock L | øD | ød | H | L | S | ℓ | Inserto | Staffa | Vite di staffaggio | Sede | Vite sede | Molla | Ugello | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **A40T-DDUNR/L-15** | ● | | 50 | 40 | 37 | 300 | 27 | 25 | DN□□1506□□ | CVH4 | CHX0518 | SD44V | FTKA0410 | SPR0714 | CN0605 | HW30P |
| **A50U-DDUNR/L-15** | | | 63 | 50 | 47 | 350 | 35 | 30 | | | | | | | | |
| **A40T-DDUNR/L-15-3** | | | 50 | 40 | 37 | 300 | 27 | 25 | DN□□1504□□ | CVH4 | CHX0518 | SD43V | FTKA0410 | SPR0714 | CN0605 | HW30P |
| **A50U-DDUNR/L-15-3** | | | 63 | 50 | 47 | 350 | 35 | 30 | | | | | | | | |

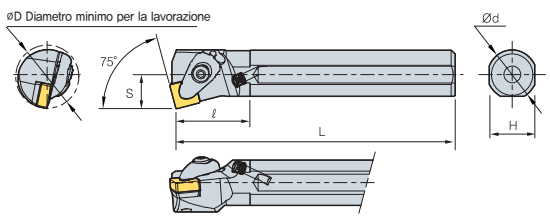
• Inserti applicabili, vedere pag. B19~B21

● : Disponibile ○ : A richiesta

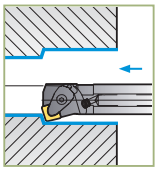
## DSKNR/L



SN□□




75°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | ød | H | L | S | ℓ | Inserto | Staffa | Vite di staffaggio | Sede | Vite sede | Molla | Ugello | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **A25R-DSKNR/L-09** | | | 32 | 25 | 23 | 200 | 17 | 27 | SN□□0903□□ | CVH3 | CHX0415 | SS32V | FTKA0307 | SPR0510 | CN0605 | HW25P |
| **A25R-DSKNR/L-12** | | | 32 | 25 | 23 | 200 | 17 | 28 | SN□□1204□□ | CVH4 | CHX0518 | SS42V | FTKA0410 | SPR0714 | CN0605 | HW30P |
| **A32S-DSKNR/L-12** | | | 40 | 32 | 30 | 250 | 22 | 28 | | | | | | | | |
| **A40T-DSKNR/L-12** | | | 50 | 40 | 37 | 300 | 27 | 28 | | | | | | | | |

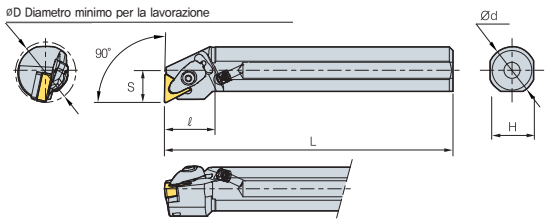
• Inserti applicabili, vedere pag. B22~B25

● : Disponibile ○ : A richiesta

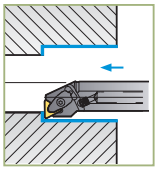
# DTFNR/L



TN□□




90°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | Ød | H | L | S | ℓ | Inserto | Staffa | Vite di staffaggio | Sede | Vite sede | Molla | Ugello | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **A25R-DTFNR/L-16** | ● | ● | 32 | 25 | 23 | 200 | 17 | 27 | TN□□1604□□ | CVH3 | CHX0415 | ST32V | FTKA0307 | SPR0510 | CN0605 | HW25P |
| **A32S-DTFNR/L-16** | ● | ● | 40 | 32 | 30 | 250 | 22 | 27 | | | | | | | | |
| **A40T-DTFNR/L-22** | ● | ● | 50 | 40 | 37 | 300 | 27 | 33 | TN□□2204□□ | CVH4 | CHX0518 | ST44V | FTKA0410 | SPR0714 | CN0605 | HW30P |
| **A50U-DTFNR/L-22** | ● | ● | 63 | 50 | 47 | 350 | 35 | 33 | | | | | | | | |

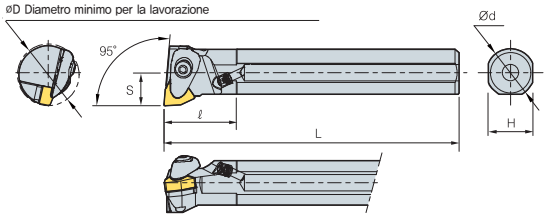
• Inserti applicabili, vedere pag. B26~B29

● : Disponibile ○ : A richiesta

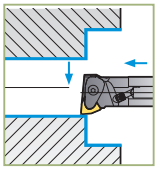
# DWLNR/L



WN□□




95°



• Inserto destro R

(mm)

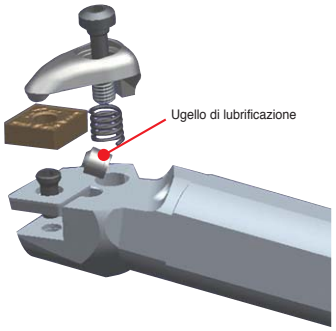
| Articolo | Stock R | Stock L | øD | Ød | H | L | S | ℓ | Inserto | Staffa | Vite di staffaggio | Sede | Vite sede | Molla | Ugello | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **A25R-DWLNR/L-06** | ● | ● | 32 | 25 | 23 | 200 | 17 | 19 | WN□□0604□□ | CVH3 | CHX0415 | SW32V | FTKA0307 | SPR0510 | CN0605 | HW25P |
| **A32S-DWLNR/L-06** | ● | ● | 40 | 32 | 30 | 250 | 22 | 20 | | | | | | | | |
| **A40T-DWLNR/L-06** | ● | ● | 50 | 40 | 37 | 300 | 27 | 25 | | | | | | | | |
| **A25R-DWLNR/L-08** | ● | ● | 33 | 25 | 23 | 200 | 17 | 20 | WN□□0804□□ | CVH4 | CHX0518 | SW42V | FTKA0410 | SPR0714 | CN0605 | HW30P |
| **A32S-DWLNR/L-08** | ● | ● | 40 | 32 | 30 | 250 | 22 | 24 | | | | | | | | |
| **A40T-DWLNR/L-08** | ● | ● | 50 | 40 | 37 | 300 | 27 | 25 | | | | | | | | |
| **A50U-DWLNR/L-08** | ● | ● | 63 | 50 | 47 | 350 | 35 | 32 | | | | | | | | |

• Inserti applicabili, vedere pag. B31~B32

● : Disponibile ○ : A richiesta

## Caratteristiche del sistema di doppio staffaggio (bareni)







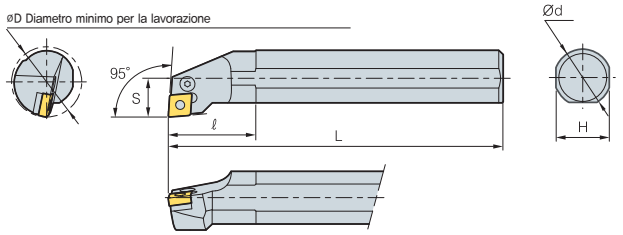

**Lunga durata dell'utensile e ottima superficie grazie all'ugello di lubrificazione regolabile**

# B Sistema di bloccaggio a leva

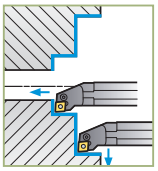
## PCLNR/L



CN□□




95°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | ød | H | L | S | ℓ | Inserto | Leva | Vite | Sede | Spina | Punzone | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **S16R-PCLNR/L-09** | ● | ● | 20 | 16 | 15 | 200 | 11 | 28 | CN□□0903□□ | LV3C | VHX0509B | – | – | – | HW20L |
| **S20S-PCLNR/L-09** | ● | ● | 25 | 20 | 18 | 250 | 13 | 32 | | | | | | | |
| **S25R-PCLNR/L-09** | ● | ○ | 32 | 25 | 23 | 200 | 17 | 36 | | | | | | | |
| **S25R-PCLNR/L-12** | ○ | ● | 32 | 25 | 23 | 200 | 17 | 40 | CN□□1204□□ | LV4A | VHX0613A | – | – | – | HW25L |
| **S32S-PCLNR/L-12** | ● | ● | 40 | 32 | 30 | 250 | 22 | 50 | | LV4 | VHX0821 | SC42B | SP4 | LSPS4 | HW30L |
| **S40T-PCLNR/L-12** | ● | ● | 50 | 40 | 37 | 300 | 27 | 55 | | | | | | | |
| **S50U-PCLNR/L-12** | ● | | 63 | 50 | 47 | 350 | 35 | 55 | | | | | | | |
| **S50U-PCLNR/L-19** | ● | ● | 70 | 50 | 47 | 350 | 35 | 63 | CN□□1906□□ | LV6 | VHX1027 | SC63 | SP6 | LSPS6 | HW40L |
| **A25R-PCLNR/L-12** | | | 32 | 25 | 24 | 200 | 17 | 40 | CN□□1204□□ | LV4A | VHX0613A | – | – | – | HW25L |
| **A32S-PCLNR/L-12** | | | 44 | 32 | 31 | 250 | 22 | 50 | | LV4 | VHX0821 | SC42B | SP4 | LSPS4 | HW30L |
| **A40T-PCLNR/L-12** | | | 50 | 40 | 47 | 300 | 27 | 60 | | | | | | | |

| Articolo | Stock R | Stock L | øD | ød | H | L | S | ℓ | Inserto | Leva | Vite | Sede | Spina | Punzone | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **S16R-PCLNR/L-09N** | | | 20 | 16 | 15 | 200 | 11 | 25 | CN□□0903□□ | LV3CN | VHX0509BN | – | – | – | HW20L |
| **S20S-PCLNR/L-09N** | | | 25 | 20 | 18 | 250 | 13 | 25 | | | | | | | |
| **S25R-PCLNR/L-09N** | | | 32 | 25 | 23 | 200 | 17 | 25 | | | | | | | |
| **S25R-PCLNR/L-12N** | | | 32 | 25 | 23 | 200 | 17 | 25 | CN□□1204□□ | LV4AN | VHX0613N | – | – | – | HW25L |
| **S32S-PCLNR/L-12N** | | | 40 | 32 | 30 | 250 | 22 | 30 | | LV4N | VHX0817N | SC42N | SP4N | LSPS4 | HW30L |
| **S40T-PCLNR/L-12N** | | | 50 | 40 | 37 | 300 | 27 | 30 | | LV4N | VHX0820N | SC42N | SP4N | LSPS4 | HW30L |
| **S50U-PCLNR/L-12N** | | | 63 | 50 | 47 | 350 | 35 | 30 | | | | | | | |
| **S50U-PCLNR/L-19N** | | | 63 | 50 | 47 | 350 | 35 | 30 | CN□□1906□□ | LV6N | VHX1027N | SC63N | SP6N | LSPS6 | HW40L |
| **A16R-PCLNR/L-09N** | | | 20 | 16 | 15 | 200 | 11 | 28 | CN□□0903□□ | LV3CN | VHX0509BN | – | – | – | HW20L |
| **A20S-PCLNR/L-09N** | | | 25 | 20 | 18 | 250 | 13 | 25 | | | | | | | |
| **A25R-PCLNR/L-09N** | | | 32 | 25 | 23 | 200 | 17 | 25 | | | | | | | |
| **A25R-PCLNR/L-12N** | | | 32 | 25 | 23 | 200 | 17 | 25 | CN□□1204□□ | LV4AN | VHX0613N | – | – | – | HW25L |
| **A32R-PCLNR/L-12N** | | | 40 | 32 | 30 | 250 | 22 | 30 | | LV4N | VHX0817N | SC42N | SP4N | LSPS4 | HW30L |
| **A40T-PCLNR/L-12N** | | | 50 | 40 | 37 | 300 | 27 | 30 | | LV4N | VHX0820N | SC42N | SP4N | LSPS4 | HW30L |
| **A50U-PCLNR/L-12N** | | | 63 | 50 | 47 | 350 | 35 | 30 | | | | | | | |
| **A50U-PCLNR/L-19N** | | | 63 | 50 | 47 | 350 | 35 | 30 | CN□□1906□□ | LV6N | VHX1027N | SC63N | SP6N | LSPS6 | HW40L |

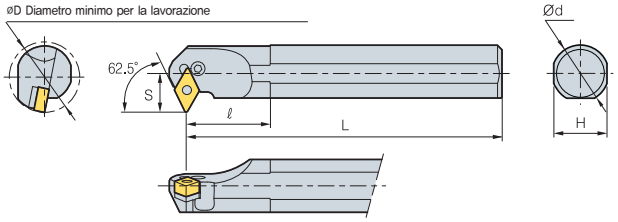
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● : Disponibile ○ : A richiesta

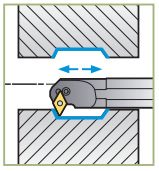
## PDSNR/L



DN□□




62.5°



• Inserto destro R

(mm)

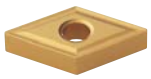
| Articolo | Stock R | Stock L | øD | ød | H | L | S | ℓ | Inserto | Leva | Vite | Sede | Spina | Punzone | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **S32S-PDSNR/L-15** | ● | ● | 40 | 32 | 30 | 250 | 22 | 45 | DN□□1506□□ | LV4B | VHX0821 | SD42 | SP4 | LSPS4 | HW30L |
| **S40T-PDSNR/L-15** | ● | ● | 50 | 40 | 37 | 300 | 27 | 43 | | | | | | | |
| **S32S-PDSNR/L-15-3** | | | 40 | 32 | 30 | 450 | 22 | 45 | DN□□1504□□ | LV4 | VHX0821 | SD42 | SP4 | LSPS4 | HW30L |
| **S40T-PDSNR/L-15-3** | | | 50 | 40 | 37 | 300 | 27 | 43 | | | | | | | |
| **A32S-PDSNR/L-15** | | | 40 | 32 | 31 | 250 | 22 | 45 | DN□□1506□□ | LV4B | VHX0821 | SD42 | SP4 | LSPS4 | HW30L |
| **A32S-PDSNR/L-15-3** | | | 40 | 32 | 31 | 250 | 22 | 45 | DN□□1504□□ | LV4 | VHX0821 | SD42 | SP4 | LSPS4 | HW30L |

| Articolo | Stock R | Stock L | øD | ød | H | L | S | ℓ | Inserto | Leva | Vite | Sede | Spina | Punzone | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **S32S-PDSNR/L-15N** | | | 40 | 32 | 30 | 250 | 22 | 15 | DN□□1506□□ | LV4BN | VHX0821 | SD42N | SP4N | LSPS4 | HW30L |
| **S40T-PDSNR/L-15N** | | | 50 | 40 | 37 | 300 | 27 | 15 | | | | | | | |
| **S32S-PDSNR/L-15-3N** | | | 40 | 32 | 30 | 250 | 22 | 15 | DN□□1504□□ | LV4BN | VHX0821 | SD43N | SP4N | LSPS4 | HW30L |
| **S40T-PDSNR/L-15-3N** | | | 50 | 40 | 37 | 300 | 27 | 15 | | | | | | | |
| **A32S-PDSNR/L-15N** | | | 40 | 32 | 30 | 250 | 22 | 15 | DN□□1506□□ | LV4BN | VHX0821 | SD42N | SP4N | LSPS4 | HW30L |
| **A40T-PDSNR/L-15N** | | | 50 | 40 | 37 | 300 | 27 | 15 | | | | | | | |
| **A32S-PDSNR/L-15-3N** | | | 40 | 32 | 30 | 450 | 22 | 15 | DN□□1504□□ | LV4BN | VHX0821 | SD43N | SP4N | LSPS4 | HW30L |
| **A40T-PDSNR/L-15-3N** | | | 50 | 40 | 37 | 300 | 27 | 15 | | | | | | | |

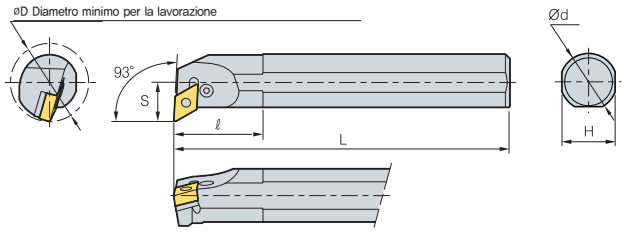
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● : Disponibile ○ : A richiesta

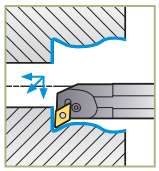
# PDUNR/L



DN□□




93°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | ød | H | L | S | ℓ | Inserto | Leva | Vite | Sede | Spina | Punzone | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **S20S-PDUNR/L-11** | | | 25 | 20 | 18 | 250 | 13 | 30 | DN□□1104□□ | LV3D | VHX0512B | – | – | – | HW20L |
| **S25R-PDUNR/L-11** | | | 32 | 25 | 23 | 200 | 17 | 35 | | | | | | | |
| **S32S-PDUNR/L-11** | | | 40 | 32 | 30 | 250 | 22 | 40 | | LV3 | VHX0617 | SD317 | SP3 | LSPS3 | HW25L |
| **S32S-PDUNR/L-15** | ● | | 40 | 32 | 30 | 250 | 22 | 50 | DN□□1506□□ | LV4B | VHX0821 | SD42 | SP4 | LSPS4 | HW30L |
| **S40T-PDUNR/L-15** | ● | ● | 50 | 40 | 37 | 300 | 27 | 50 | | | | | | | |
| **S50U-PDUNR/L-15** | ● | ● | 63 | 50 | 47 | 350 | 35 | 63 | | | | | | | |
| **S32S-PDUNR/L-15-3** | | | 40 | 32 | 30 | 250 | 22 | 50 | DN□□1504□□ | LV4 | VHX0821 | SD42 | SP4 | LSPS4 | HW30L |
| **S40T-PDUNR/L-15-3** | | | 50 | 40 | 37 | 300 | 27 | 50 | | | | | | | |
| **A32S-PDUNR/L-15** | | | 40 | 32 | 31 | 250 | 22 | 50 | DN□□1506□□ | LV4B | VHX0821 | SD42 | SP4 | LSPS4 | HW30L |
| **A32S-PDUNR/L-15-3** | | | 40 | 32 | 31 | 250 | 22 | 50 | DN□□1504□□ | LV4 | VHX0821 | SD42 | SP4 | LSPS4 | HW30L |

| Articolo | Stock R | Stock L | øD | ød | H | L | S | ℓ | Inserto | Leva | Vite | Sede | Spina | Punzone | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **S20S-PDUNR/L-11N** | | | 25 | 20 | 18 | 250 | 13 | 25 | DN□□1104□□ | LV3DN | VHX0512BN | – | – | – | HW20L |
| **S25R-PDUNR/L-11N** | | | 32 | 25 | 23 | 200 | 17 | 35 | | | | | | | |
| **S32S-PDUNR/L-11N** | | | 40 | 32 | 30 | 250 | 22 | 40 | | LV3AN | VHX0617N | SD317N | SP3N-1 | LSPS3 | HW30L |
| **S32S-PDUNR/L-15N** | | | 40 | 32 | 30 | 250 | 22 | 50 | DN□□1506□□ | LV4BN | VHX0821N | SD42N | SP4N | LSPS4 | HW30L |
| **S40T-PDUNR/L-15N** | | | 50 | 40 | 37 | 300 | 27 | 50 | | | | | | | |
| **S50U-PDUNR/L-15N** | | | 63 | 50 | 47 | 350 | 35 | 50 | | | | | | | |
| **S32S-PDUNR/L-15-3N** | | | 40 | 32 | 30 | 250 | 22 | 50 | DN□□1506□□ | LV4BN | VHX0821N | SD43N | SP4N | LSPS4 | HW30L |
| **S40T-PDUNR/L-15-3N** | | | 50 | 40 | 37 | 300 | 27 | 50 | | | | | | | |
| **A20S-PDUNR/L-11N** | | | 25 | 20 | 18 | 250 | 13 | 25 | DN□□1104□□ | LV3DN | VHX0512BN | – | – | – | HW20L |
| **A25R-PDUNR/L-11N** | | | 32 | 25 | 23 | 200 | 17 | 35 | | | | | | | |
| **A32S-PDUNR/L-11N** | | | 40 | 32 | 30 | 250 | 22 | 40 | | LV3AN | VHX0617N | SD317N | SP3N-1 | LSPS3 | HW30L |
| **A32S-PDUNR/L-15N** | | | 40 | 32 | 30 | 250 | 22 | 50 | DN□□1506□□ | LV4BN | VHX0821N | SD42N | SP4N | LSPS4 | HW30L |
| **A40T-PDUNR/L-15N** | | | 50 | 40 | 37 | 300 | 27 | 50 | | | | | | | |
| **A50U-PDUNR/L-15N** | | | 63 | 50 | 47 | 350 | 35 | 50 | | | | | | | |
| **A32S-PDUNR/L-15-3N** | | | 40 | 32 | 30 | 250 | 22 | 50 | DN□□1506□□ | LV4BN | VHX0821N | SD43N | SP4N | LSPS4 | HW30L |
| **A40T-PDUNR/L-15-3N** | | | 50 | 40 | 37 | 300 | 27 | 50 | | | | | | | |

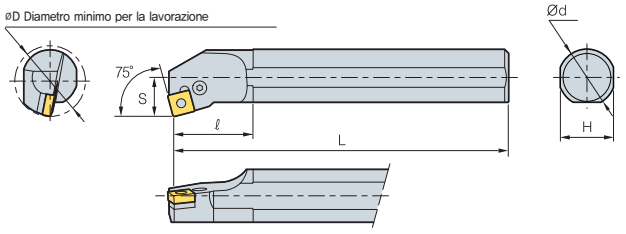
• Inserti applicabili, vedere pag. B19~B21

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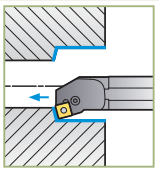
# PSKNR/L



SN□□




75°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | ød | H | L | S | ℓ | Inserto | Leva | Vite | Sede | Spina | Punzone | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **S25R-PSKNR/L-12** | ● | ● | 32 | 25 | 23 | 200 | 17 | 42 | SN□□1204□□ | LV4A | VHX0613A | – | – | – | HW25L |
| **S32S-PSKNR/L-12** | ● | ● | 40 | 32 | 30 | 250 | 22 | 45 | | LV4 | VHX0821 | SS42B | SP4 | LSPS4 | HW30L |
| **S40T-PSKNR/L-12** | ● | ● | 50 | 40 | 37 | 300 | 27 | 50 | | | | | | | |
| **A25R-PSKNR/L-12** | | | 32 | 25 | 23 | 200 | 17 | 42 | | LV4A | VHX0613A | – | – | – | HW25L |
| **A32S-PSKNR/L-12** | | | 40 | 32 | 30 | 250 | 22 | 50 | | LV4 | VHX0821 | SS42B | SP4 | LSPS4 | HW30L |

| Articolo | Stock R | Stock L | øD | ød | H | L | S | ℓ | Inserto | Leva | Vite | Sede | Spina | Punzone | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **S25R-PSKNR/L-12N** | | | 32 | 25 | 23 | 200 | 17 | 25 | SN□□1204□□ | LV4AN | VHX0613N | – | – | – | HW25L |
| **S32S-PSKNR/L-12N** | | | 40 | 32 | 30 | 250 | 22 | 30 | | LV4N | VHX0821N | SS42N | SP4N | LSPS4 | HW30L |
| **S40T-PSKNR/L-12N** | | | 50 | 40 | 37 | 300 | 27 | 30 | | | | | | | |
| **A25R-PSKNR/L-12N** | | | 32 | 25 | 23 | 200 | 17 | 25 | SN□□1204□□ | LV4AN | VHX0613N | – | – | – | HW25L |
| **A32S-PSKNR/L-12N** | | | 40 | 32 | 30 | 250 | 22 | 30 | | LV4N | VHX0821N | SS42N | SP4N | LSPS4 | HW30L |
| **A40T-PSKNR/L-12N** | | | 50 | 40 | 37 | 300 | 27 | 30 | | | | | | | |

• Inserti applicabili, vedere pag. B22~B25

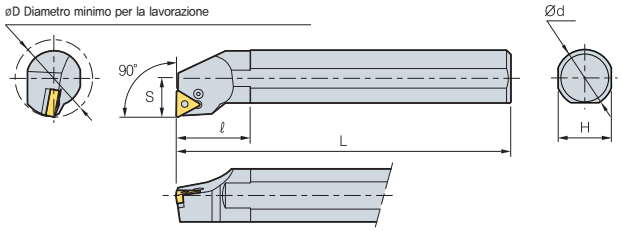
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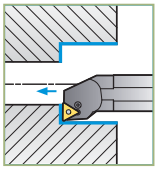
# B Sistema di bloccaggio a leva

## PTFNR/L



TN□□




• Inserto destro R

(mm)

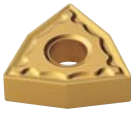
| Articolo | Stock R | Stock L | øD | ød | H | L | S | ℓ | Inserto | Leva | Vite | Sede | Spina | Punzone | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **S16R-PTFNR/L-11** | ● | | 20 | 16 | 15 | 200 | 11 | 28 | TN□□1103□□ | LV2 | VHX0509B | – | – | – | HW25L |
| **S20S-PTFNR/L-11** | ● | | 25 | 20 | 18 | 250 | 13 | 33 | | | | | | | |
| **S25R-PTFNR/L-11** | ● | | 32 | 25 | 23 | 200 | 17 | 36 | | | | | | | |
| **S25R-PTFNR/L-16** | | ● | 32 | 25 | 23 | 200 | 17 | 42 | TN□□1604□□ | LV3B | VHX0512B | – | – | – | HW20L |
| **S32S-PTFNR/L-16** | ● | ● | 44 | 32 | 30 | 250 | 22 | 50 | | LV3 | VHX0617 | ST317B | SP3 | LSPS3 | HW25L |
| **S40T-PTFNR/L-16** | ● | ● | 54 | 40 | 37 | 300 | 27 | 55 | | | | | | | |
| **A25R-PTFNR/L-16** | | | 32 | 25 | 24 | 200 | 17 | 40 | | LV3 | VHX0617 | ST317B | SP3 | LSPS3 | HW25L |
| **A32S-PTFNR/L-16** | | | 40 | 32 | 31 | 250 | 22 | 50 | | LV3 | VHX0617 | ST317B | SP3 | LSPS3 | HW25L |

| Articolo | Stock R | Stock L | øD | ød | H | L | S | ℓ | Inserto | Leva | Vite | Sede | Spina | Punzone | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **S25R-PTFNR/L-16N** | | | 32 | 25 | 23 | 200 | 17 | 42 | TN□□1604□□ | LV3BN | VHX0512B | - | - | - | HW20L |
| **S32S-PTFNR/L-16N** | | | 44 | 32 | 30 | 250 | 22 | 50 | | LV3N | VHX0617N | ST317N | SP3N | LSPS3 | HW25L |
| **S40T-PTFNR/L-16N** | | | 54 | 40 | 37 | 300 | 27 | 55 | | | | | | | |
| **A25R-PTFNR/L-16N** | | | 32 | 25 | 23 | 200 | 17 | 42 | TN□□1604□□ | LV3BN | VHX0512B | - | - | - | HW20L |
| **A32S-PTFNR/L-16N** | | | 44 | 32 | 30 | 250 | 22 | 50 | | LV3N | VHX0617N | ST317N | SP3N | LSPS3 | HW25L |
| **A40T-PTFNR/L-16N** | | | 54 | 40 | 37 | 300 | 27 | 55 | | | | | | | |

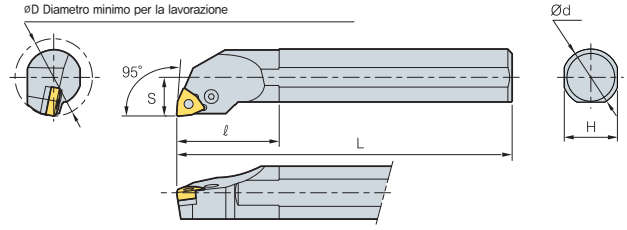
• Inserti applicabili, vedere pag. B26~B29

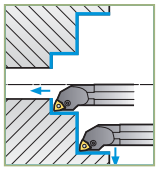
● : Disponibile ○ : A richiesta

## PWLNR/L



WN□□




• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | ød | H | L | S | ℓ | Inserto | Leva | Vite | Sede | Spina | Punzone | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **S20S-PWLNR/L-06** | | | 25 | 20 | 18 | 250 | 13 | 40 | WN□□0604□□ | LV3B | VHX0512B | - | - | - | HW20L |
| **S25R-PWLNR/L-06** | ● | | 32 | 25 | 23 | 200 | 17 | 40 | | | | | | | |
| **S32S-PWLNR/L-06** | ● | | 44 | 32 | 30 | 250 | 22 | 45 | | LV3B | VHX0613B | SW317 | SP3 | LSPS3 | HW25L |
| **S25R-PWLNR/L-08** | ● | | 32 | 25 | 23 | 200 | 17 | 45 | WN□□0804□□ | LV4A | VHX0613A | - | - | - | HW25L |
| **S32S-PWLNR/L-08** | ● | ● | 44 | 32 | 30 | 250 | 22 | 50 | | LV4 | VHX0821 | SW42 | SP4 | LSPS3 | HW30L |

| Articolo | Stock R | Stock L | øD | ød | H | L | S | ℓ | Inserto | Leva | Vite | Sede | Spina | Punzone | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **S20S-PWLNR/L-06N** | | | 25 | 20 | 18 | 250 | 13 | 40 | WN□□0604□□ | LV3BN | VHX0512BN | - | - | - | HW20L |
| **S25R-PWLNR/L-06N** | | | 32 | 25 | 23 | 200 | 17 | 40 | | LV3BN | VHX0512BN | - | - | - | HW20L |
| **S32S-PWLNR/L-06N** | | | 44 | 32 | 30 | 250 | 22 | 45 | | LV3N | VHX0617N | SW317N | SP3N | LSPS3 | HW25L |
| **S25R-PWLNR/L-08N** | | | 32 | 25 | 23 | 200 | 17 | 25 | WN□□0804□□ | LV4AN | VHX0613N | - | - | - | HW25L |
| **S32S-PWLNR/L-08N** | | | 44 | 32 | 30 | S | 22 | 25 | | LV4N | VHX0820N | SW42N | SP4N | LSPS4 | HW30L |

• Inserti applicabili, vedere pag. B31~B32

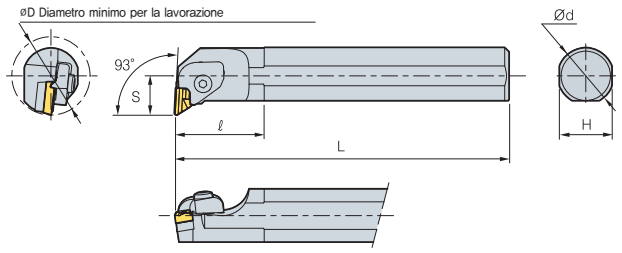
● : Disponibile ○ : A richiesta

- **I nuovi portainserti e ricambi garantiscono ottime prestazioni e maggiore durata**
- **“N” indica il nuovo tipo (portainserti e ricambi)**

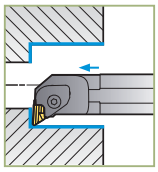
# CKUNR/L



KN□□




93°



• Inserto destro R

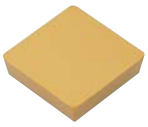
(mm)

| Articolo | Stock R | Stock L | øD | ød | H | L | S | ℓ | Inserto | Staffa | Vite di staffaggio | Molla | Sede | Sede+Molla | Vite sede | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **S32S-CKUNR-16** | ● | | 40 | 32 | 30 | 250 | 22 | 70 | KN□□1604□□L | CTH6LI | CHX0625 | SR3 SR4 | SK33CL | PN0515 | SHX0310 | HW40L HW20L |
| **S40T-CKUNR-16** | ● | | 50 | 40 | 37 | 300 | 27 | 60 | | | | | | | | |
| **S50U-CKUNR-16** | | | 63 | 50 | 43 | 350 | 35 | 55 | | | | | | | | |
| **S32S-CKUNL-16** | ● | | 40 | 32 | 30 | 250 | 22 | 70 | KN□□1604□□R | CTH6RI | CHX0625 | SR3 SR4 | SK33C | PN0515 | SHX0310 | HW20L |
| **S40T-CKUNL-16** | ● | | 50 | 40 | 37 | 300 | 27 | 60 | | | | | | | | |
| **S50U-CKUNL-16** | | | 63 | 50 | 43 | 350 | 35 | 55 | | | | | | | | |

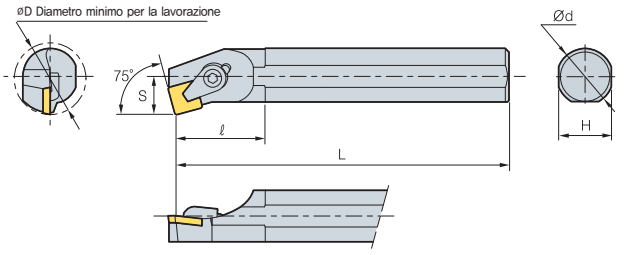
• Inserti applicabili, vedere pag. B21

● : Disponibile ○ : A richiesta

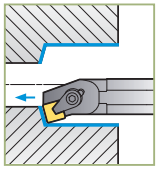
# CSKPR/L



SP□□




75°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | ød | H | L | S | ℓ | Inserto | Staffa | Vite di staffaggio | C–Ring | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **S16R-CSKPR/L-09** | ● | | 20 | 16 | 15 | 200 | 11 | 30 | SP□□1203□□ | CH5R5C | CHX0519C | CR03C | HW30L |
| **S20S-CSKPR/L-09** | ● | | 25 | 20 | 18 | 250 | 13 | 36 | | CH6R5 | CH0616 | CR04C | |
| **S25R-CSKPR/L-12** | ● | | 32 | 25 | 23 | 300 | 17 | 40 | SP□□0903□□ | CH4R1C | CHX0414 | CR02C | HW25L |
| **S20S-CSKPR/L-12** | ● | | 25 | 20 | 18 | 250 | 13 | 28 | | | | | |

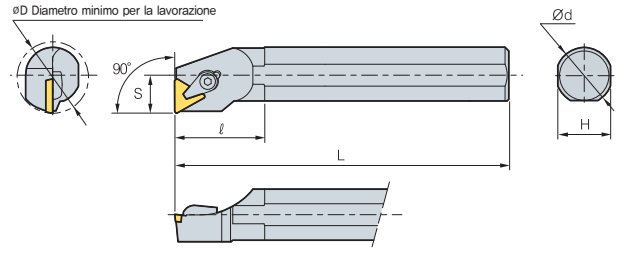
• Inserti applicabili, vedere pag. B37~B38

● : Disponibile ○ : A richiesta

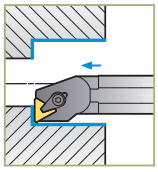
# CTFPR/L



TP□□




90°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | ød | H | L | S | ℓ | Inserto | Staffa | Vite di staffaggio | C–Ring | Sede | Spina | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **S12M-CTFPR/L-11** | ● | | 16 | 12 | 11 | 150 | 9 | 26 | TP□□1103□□ | CH4R1C | CHX0414C | CR02C | - | - | HW25L |
| **S16R-CTFPR/L-11** | ● | | 20 | 16 | 15 | 200 | 11 | 40 | | | | | | | |
| **S20S-CTFPR/L-11** | ● | ● | 25 | 20 | 18 | 250 | 13 | 40 | | | | | | | |
| **S16R-CTFPR/L-16** | ● | | 20 | 16 | 15 | 200 | 11 | 40 | TP□□1603□□ | CH5R5C | CHX0519C | CR03C | - | - | HW30L |
| **S20S-CTFPR/L-16** | ● | ● | 25 | 20 | 18 | 250 | 13 | 40 | | | | | | | |
| **S25R-CTFPR/L-16** | ● | ● | 32 | 25 | 23 | 200 | 17 | 40 | | CH6R5 | CHX0622C | CR04C | ST32C | SP3C | |
| **S32S-CTFPR/L-16** | ● | | 40 | 32 | 30 | 250 | 22 | 45 | | | | | | | |
| **S40T-CTFPR/L-16** | | | 50 | 40 | 37 | 300 | 27 | 60 | | | | | | | |
| **S40T-CTFPR/L-22** | | | 50 | 40 | 37 | 300 | 27 | 60 | TP□□2204□□ | CH83R1 | CH0823C | CR05C | ST43C | SP4C | HW40L |

• Inserti applicabili, vedere pag. B40~B41

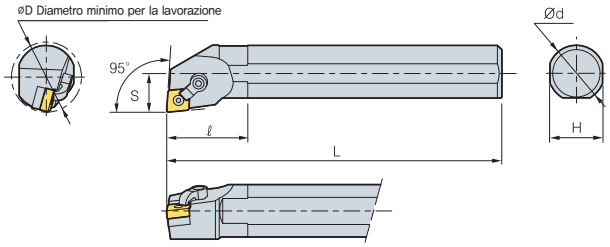
● : Disponibile ○ : A richiesta

# B Sistema leva-staffa

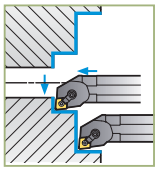
## MCLNR/L



CN□□




95°



• Inserto destro R

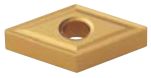
(mm)

| Articolo | Stock R | Stock L | øD | Ød | H | L | S | ℓ | Inserto | Staffa | Vite di staffaggio | Sede | Spina | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **S20S-MCLNR/L-09** | | | 25 | 20 | 18 | 250 | 13 | 36 | CN□□0903□□ | CDH7N | DHA10-32-19 | - | SP3D3 | HW19.8L |
| **S25R-MCLNR/L-09** | | | 32 | 25 | 23 | 200 | 17 | 36 | | | | | | HW23.8L |
| **S25R-MCLNR/L-12** | ● | | 32 | 25 | 23 | 200 | 17 | 36 | CN□□1204□□ | CDH6N | DHA1/4-21 | - | SP4DS | HW31.8L |
| **S32S-MCLNR/L-12** | ● | | 40 | 32 | 30 | 250 | 22 | 50 | | | | SC43D | SP4D | HW23.8L |
| **S40T-MCLNR/L-12** | | | 50 | 40 | 37 | 300 | 27 | 60 | | | | | | |
| **A25R-MCLNR/L-12** | | | 32 | 25 | 23 | 200 | 17 | 40 | CN□□1204□□ | CDH6N | DHA1/4-21 | - | SP4DS | HW31.8L |
| **A32S-MCLNR/L-12** | | | 40 | 32 | 30 | 250 | 22 | 50 | | | | SC43D | SP4D | HW23.8L |

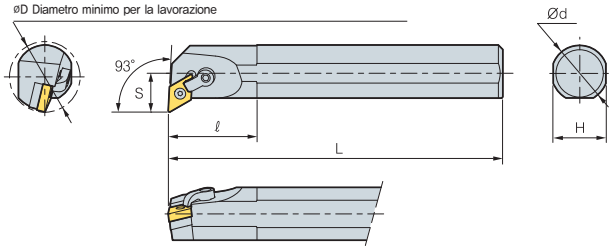
• Inserti applicabili, vedere pag. B16~B18

● : Disponibile ○ : A richiesta

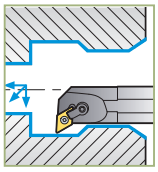
## MDUNR/L



DN□□




93°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | Ød | H | L | S | ℓ | Inserto | Staffa | Vite di staffaggio | Sede | Spina | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **S32S-MDUNR/L-15-3** | | | 40 | 32 | 30 | 250 | 22 | 50 | DN□□1504□□ | CDH6N | DHA1/4-21 | SD43D | SP4D | HW31.8L |
| **S40T-MDUNR/L-15-3** | | | 50 | 40 | 37 | 300 | 27 | 60 | | | | | | HW23.8L |
| **A32S-MDUNR/L-15-3** | | | 40 | 32 | 30 | 250 | 22 | 50 | | | | | | |

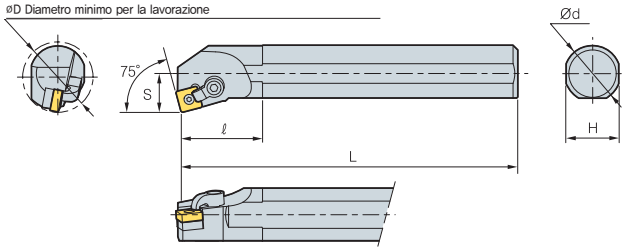
• Inserti applicabili, vedere pag. B19~B21

● : Disponibile ○ : A richiesta

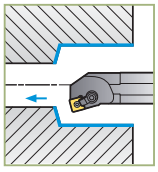
## MSKNR/L



SN□□




75°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | Ød | H | L | S | ℓ | Inserto | Staffa | Vite di staffaggio | Sede | Spina | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **S25R-MSKNR/L-12** | | | 32 | 25 | 23 | 200 | 17 | 36 | SN□□1204□□ | CDH8N1 | DHA5/16-28 | - | SP4DS | HW39.7L |
| **S32S-MSKNR/L-12** | | | 40 | 32 | 30 | 250 | 22 | 50 | | | | SS43D | SP4D | HW23.8L |
| **S40T-MSKNR/L-12** | | | 50 | 40 | 37 | 300 | 27 | 60 | | | | | | |
| **A25R-MSKNR/L-12** | | | 32 | 25 | 23 | 200 | 17 | 40 | SN□□1204□□ | CDH8N1 | DHA5/16-28 | - | SP4DS | HW39.7L |
| **A32S-MSKNR/L-12** | | | 40 | 32 | 30 | 250 | 22 | 50 | | | | SS43D | SP4D | HW23.8L |
| **A40T-MSKNR/L-12** | | | 50 | 40 | 37 | 300 | 27 | 60 | | | | | | |

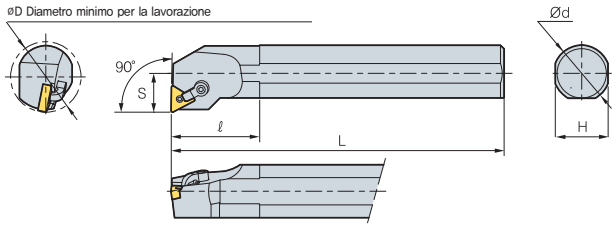
• Inserti applicabili, vedere pag. B22~B25

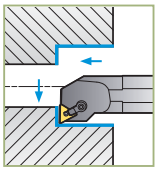
● : Disponibile ○ : A richiesta

# MTFNR/L



TN□□



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | ød | H | L | S | ℓ | Inserto | Staffa | Vite di staffaggio | Sede | Spina | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **S25R-MTFNR/L-16** | | | 32 | 25 | 23 | 200 | 17 | 36 | TN□□1604□□ | CDH7N1 | DHA10-32-19 | - | SP3D3 | HW23.8L |
| **S32S-MTFNR/L-16** | | | 40 | 32 | 30 | 250 | 22 | 50 | | | | ST32D | SP3D | HW19.8L |
| **S40T-MTFNR/L-16** | | | 50 | 40 | 37 | 300 | 27 | 60 | | | | | | |
| **A25R-MTFNR/L-16** | | | 32 | 25 | 23 | 200 | 17 | 40 | TN□□1604□□ | CDH7N1 | DHA10-32-19 | - | SP3D3 | HW23.8L |
| **A32S-MTFNR/L-16** | | | 40 | 32 | 30 | 250 | 22 | 50 | | | | ST32D | SP3D | HW19.8L |

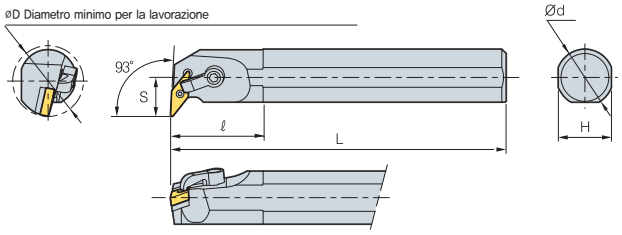
• Inserti applicabili, vedere pag. B26~B29

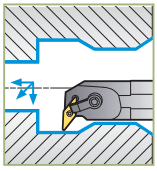
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# MVUNR/L



VN□□



• Inserto destro R

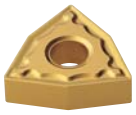
(mm)

| Articolo | Stock R | Stock L | øD | ød | H | L | S | ℓ | Inserto | Staffa | Vite di staffaggio | Sede | Spina | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **S32S-MVUNR/L-16** | | | 40 | 32 | 30 | 250 | 22 | 50 | VN□□1604□□ | CDH8N2 | DHA5/16-28 | SV32D | SP3D | HW39.7L |
| **S40T-MVUNR/L-16** | | | 50 | 40 | 37 | 300 | 27 | 60 | | | | | | HW19.8L |
| **A32S-MVUNR/L-16** | | | 40 | 32 | 30 | 250 | 22 | 50 | VN□□1604□□ | CDH8N2 | DHA5/16-28 | SV32D | SP3D | HW39.7L |
| **A40T-MVUNR/L-16** | | | 50 | 40 | 37 | 300 | 27 | 60 | | | | | | HW19.8L |

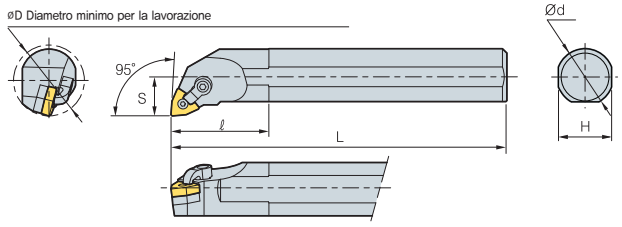
• Inserti applicabili, vedere pag. B30

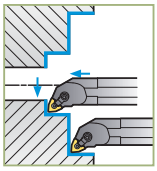
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# MWLNR/L



WN□□



• Inserto destro R

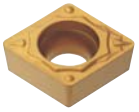
(mm)

| Articolo | Stock R | Stock L | øD | ød | H | L | S | ℓ | Inserto | Staffa | Vite di staffaggio | Sede | Spina | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **S25R-MWLNR/L-06** | ● | | 32 | 25 | 23 | 200 | 17 | 36 | WN□□0604□□ | CDH7N | DHA10/32-19 | - | SP3D3 | HW23.8L |
| **S32S-MWLNR/L-06** | | | 40 | 32 | 30 | 250 | 22 | 50 | | | | SW32D | SP3D | HW19.8L |
| **S40T-MWLNR/L-06** | | | 50 | 40 | 37 | 300 | 27 | 60 | | | | | | |
| **S25R-MWLNR/L-08** | ● | | 32 | 25 | 23 | 200 | 17 | 36 | WN□□0804□□ | CDH6N | DHA1/4-21 | - | SP4DS | HW31.8L |
| **S32S-MWLNR/L-08** | ● | | 40 | 32 | 30 | 250 | 22 | 50 | | | | SW43D | SP4D | HW23.8L |
| **S40T-MWLNR/L-08** | ● | | 50 | 40 | 37 | 300 | 27 | 60 | | | | | | |
| **A25R-MWLNR/L-06** | | | 32 | 25 | 23 | 200 | 17 | 40 | WN□□0604□□ | CDH7N | DHA10/32-19 | - | SP3D3 | HW31.8L |
| **A32S-MWLNR/L-06** | | | 40 | 32 | 30 | 250 | 22 | 50 | | | | SW32D | SP3D | HW19.8L |
| **A25R-MWLNR/L-08** | | | 32 | 25 | 23 | 200 | 17 | 40 | WN□□0804□□ | CDH6N | DHA1/4-21 | - | SP4DS | HW31.8L |
| **A32S-MWLNR/L-08** | | | 40 | 32 | 30 | 250 | 22 | 50 | | | | SW43D | SP4D | HW23.8L |

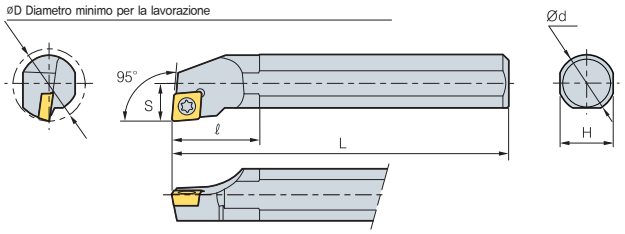
• Inserti applicabili, vedere pag. B31~B32

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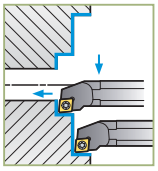
# SCLCR/L



CC□□




95°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | ød | H | L | S | ℓ | Inserto | Vite | Sede | Vite sede | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **S08K-SCLCR/L-06** | ● | ● | 10 | 8 | 7 | 125 | 5 | 14 | CC□□0602□□ | FTKA02555 | - | - | TW07P |
| **S10K-SCLCR/L-06** | ● | | 12 | 10 | 9 | 125 | 6 | 14 | | FTKA02565 | | | |
| **S10M-SCLCR/L-06** | ● | ● | 12 | 10 | 9 | 150 | 6 | 14 | | | | | |
| **S12M-SCLCR/L-06** | ● | ● | 16 | 12 | 11 | 150 | 9 | 25 | | | | | |
| **S16R-SCLCR/L-06** | | | 20 | 16 | 15 | 200 | 11 | 32 | | | | | |
| **S12M-SCLCR/L-09** | ● | ● | 16 | 12 | 11 | 150 | 9 | 25 | CC□□09T3□□ | FTGA03508 | - | - | TW15P |
| **S16R-SCLCR/L-09** | ● | ● | 20 | 16 | 15 | 200 | 11 | 32.5 | | | | | |
| **S20S-SCLCR/L-09** | ● | ● | 25 | 20 | 18 | 250 | 13 | 38 | | | | | |
| **S25R-SCLCR/L-09** | ● | ● | 32 | 25 | 23 | 200 | 17 | 45 | | FTGA03510 | | | |
| **S25R-SCLCR/L-12** | ● | ● | 32 | 25 | 23 | 200 | 17 | 45 | CC□□1204□□ | FTGA0411F | - | - | TW15P |
| **S32S-SCLCR/L-12** | ● | ● | 40 | 32 | 30 | 250 | 22 | 50 | | | SC42S | SHXN0610F | HW40L, TW15P |
| **S40T-SCLCR/L-12** | ● | ● | 50 | 40 | 37 | 300 | 27 | 60 | | | | | |
| **A08F-SCLCR/L-06** | | | 10 | 8 | 7.5 | 80 | 5 | 14 | CC□□0602□□ | FTKA02555 | - | - | TW07P |
| **A10H-SCLCR/L-06** | | | 12 | 10 | 9.5 | 100 | 6 | 14 | | FTKA02565 | | | |
| **A12K-SCLCR/L-06** | | | 16 | 12 | 11 | 125 | 9 | 25 | | | | | |
| **A12K-SCLCR/L-09** | | | 16 | 12 | 11 | 125 | 9 | 25 | CC□□09T3□□ | FTGA03508 | - | - | TW15P |
| **A16M-SCLCR/L-09** | | | 20 | 16 | 15 | 150 | 11 | 32.5 | | | | | |
| **A20Q-SCLCR/L-09** | ● | | 25 | 20 | 19 | 180 | 12 | 38 | | | | | |
| **A25R-SCLCR/L-09** | | | 32 | 25 | 24 | 200 | 17 | 45 | | FTGA03510 | | | |
| **A25R-SCLCR/L-12** | | | 32 | 25 | 24 | 200 | 17 | 45 | CC□□1204□□ | FTGA0411F | - | - | TW15P |
| **A32S-SCLCR/L-12** | | | 40 | 32 | 31 | 250 | 32 | 50 | | | SC42S | SHXN0610F | HW40L, TW15P |

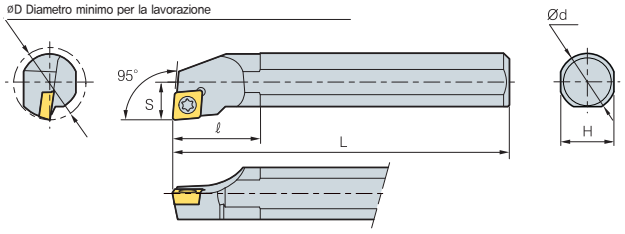
• Inserti applicabili, vedere pag. B33~B34, B46

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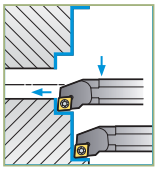
# SCLPR/L



CP□□




95°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | ød | H | L | S | ℓ | Inserto | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **S10M-SCLPR/L-08** | ● | | 12 | 10 | 9 | 150 | 6 | - | CP□□0802 | FTNA0305 | TW09P |
| **S12M-SCLPR/L-08** | ● | | 16 | 12 | 11 | 150 | 8 | 15 | | FTNA0307 | |
| **S16N-SCLPR/L-09** | ● | | 20 | 16 | 15 | 160 | 10 | 15 | CP□□0903 | FTNA0408 | TW15P |
| **S16R-SCLPR/L-09** | ● | | 20 | 16 | 15 | 200 | 10 | 15 | | | |
| **S20N-SCLPR/L-09** | ● | | 25 | 20 | 18 | 160 | 12.5 | 20 | | | |
| **S20S-SCLPR/L-09** | ● | | 25 | 20 | 15 | 250 | 12.5 | 20 | | | |
| **A10H-SCLPR/L-08** | | | 12 | 10 | 9.5 | 100 | 9 | -20 | CP□□0802 | FTNA0305 | TW09P |
| **A12K-SCLPR/L-08** | | | 16 | 12 | 11 | 125 | 8 | 15 | | FTNA0307 | |
| **A16M-SCLPR/L-09** | | | 20 | 16 | 15 | 150 | 10 | 28 | CP□□0903 | FTNA0408 | TW15P |
| **A20Q-SCLPR/L-09** | | | 25 | 20 | 19 | 180 | 12.5 | | | | |

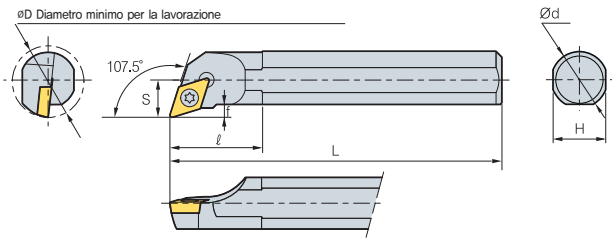
• Inserti applicabili, vedere pag. B34

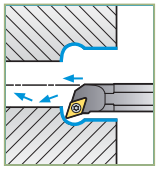
● : Disponibile ○ : A richiesta

# SDQCR/L



DC□□



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | ød | H | L | S | ℓ | f | Inserto | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S10M-SDQCR/L-07 | ● | ● | 13 | 10 | 9 | 150 | 7 | 20 | 2.5 | DC□□0702□□ | FTKA02555 | TW07P |
| S12M-SDQCR/L-07 | ● | ● | 16 | 12 | 11 | 150 | 9 | 22 | 3.5 | | FTKA02565 | |
| S16R-SDQCR/L-07 | ● | ● | 20 | 16 | 15 | 200 | 11 | 27 | 4 | | | |
| S16R-SDQCR/L-11 | ● | ● | 20 | 16 | 15 | 200 | 11 | 32 | 4 | DC□□11T3□□ | FTGA03508 | TW15P |
| S20S-SDQCR/L-11 | ● | ● | 25 | 20 | 18 | 250 | 13 | 32 | 4.5 | | | |
| S25R-SDQCR/L-11 | ● | | 32 | 25 | 23 | 200 | 17 | 32 | 7 | | FTGA03510 | |
| A10H-SDQCR/L-07 | | | 13 | 10 | 9.5 | 100 | 7 | 20 | 2 | DC□□0702□□ | FTKA02555 | TW07P |
| A12K-SDQCR/L-07 | | | 16 | 12 | 11 | 125 | 9 | 22 | 3 | | FTKA02565 | |
| A16M-SDQCR/L-11 | | | 20 | 16 | 15 | 150 | 11 | 27 | 3 | DC□□11T3□□ | FTGA03508 | TW15P |
| A20Q-SDQCR/L-11 | | | 25 | 20 | 19 | 180 | 13 | 32 | 3 | | | |
| A25R-SDQCR/L-11 | | | 32 | 25 | 24 | 200 | 17 | 32 | 4 | | FTGA03510 | |

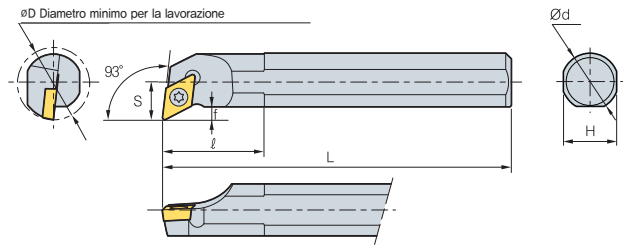
• Inserti applicabili, vedere pag. B35, B46

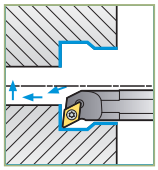
● : Disponibile ○ : A richiesta

# SDUCR/L



DC□□



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | ød | H | L | S | ℓ | f | Inserto | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S10M-SDUCR/L-07 | ● | ● | 13 | 10 | 9 | 150 | 7 | 0 | 2.5 | DC□□0702□□ | FTKA02555 | TW07P |
| S12M-SDUCR/L-07 | ● | ● | 16 | 12 | 11 | 150 | 9 | 22 | 3.5 | | FTKA02565 | |
| S16R-SDUCR/L-07 | ● | ● | 20 | 16 | 15 | 200 | 11 | 27 | 4 | | | |
| S16R-SDUCR/L-11 | ● | ● | 20 | 16 | 15 | 200 | 11 | 27 | 4 | DC□□11T3□□ | FTGA03508 | TW15P |
| S20S-SDUCR/L-11 | ● | ● | 25 | 20 | 18 | 250 | 13 | 40 | 4.3 | | | |
| S25R-SDUCR/L-11 | ● | ● | 32 | 25 | 23 | 200 | 17 | 46 | 6.8 | | FTGA03510 | |
| S32S-SDUCR/L-11 | ● | ● | 40 | 32 | 30 | 250 | 22 | 50 | 8.4 | | | |
| A10H-SDUCR/L-07 | | | 13 | 10 | 9.5 | 100 | 7 | 0 | 2 | DC□□0702□□ | FTKA02555 | TW07P |
| A12K-SDUCR/L-07 | | | 16 | 12 | 11 | 125 | 9 | 22 | 3 | | FTKA02565 | |
| A16M-SDUCR/L-07 | | | 20 | 16 | 15 | 150 | 11 | 27 | 3 | | | |
| A20Q-SDUCR/L-11 | ● | | 25 | 20 | 19 | 180 | 13 | 35 | 3 | DC□□11T3□□ | FTGA03508 | TW15P |
| A25R-SDUCR/L-11 | | | 32 | 25 | 24 | 200 | 17 | 46 | 4.5 | | FTGA03510 | |

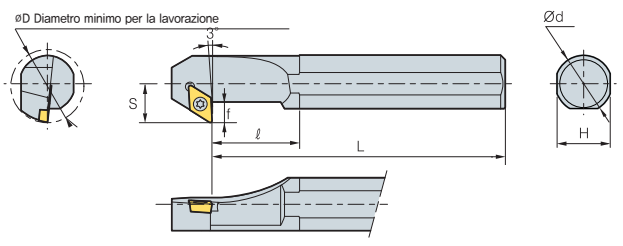
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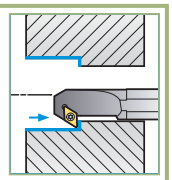
● : Disponibile ○ : A richiesta

# SDZCR/L



DC□□



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | ød | H | L | S | ℓ | f | Inserto | Vite | Sede | Vite sede | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S16R-SDZCR/L-07 | ● | | 20 | 16 | 15 | 200 | 11 | 20 | 4 | DC□□0702□□ | FTKA02565 | - | - | TW07P |
| S20S-SDZCR/L-07 | ● | | 25 | 20 | 18 | 250 | 13 | 25 | 4.5 | | | | | |
| S25R-SDZCR/L-11 | ● | | 32 | 25 | 23 | 200 | 17 | 30 | 6.9 | DC□□11T3□□ | FTGA03510 | - | - | TW15P |
| S32S-SDZCR/L-11 | ● | | 40 | 32 | 30 | 250 | 22 | 39 | 8.4 | | FTGA03512 | SD32S | SHXN0509F | TW15P, HW35L |
| S40T-SDZCR/L-11 | ● | | 50 | 40 | 37 | 300 | 27 | 47 | 9.4 | | | | | |
| A25R-SDZCR/L-11 | | | 32 | 25 | 24 | 200 | 17 | 30 | 4.5 | | FTGA03510 | - | - | TW15P |
| A32S-SDZCR/L-11 | | | 40 | 32 | 31 | 250 | 22 | 39 | 6 | | FTGA03512 | SD32S | SHXN0509F | TW15P, HW35L |

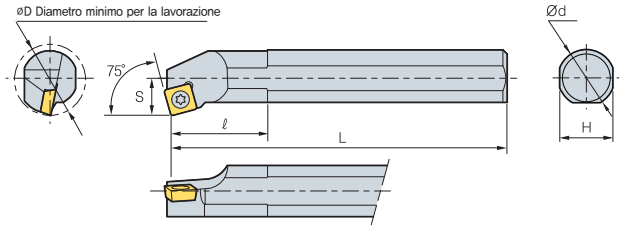
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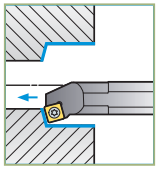
● : Disponibile ○ : A richiesta

# SSKCR/L



SC□□




• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | Ød | H | L | S | ℓ | Inserto | Vite | Sede | Vite sede | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **S12M-SSKCR/L-09** | ● | | 16 | 20 | 11 | 150 | 9 | 26 | SC□□09T3□□ | FTGA03507 | - | - | TW15P |
| **S16R-SSKCR/L-09** | ● | | 20 | 16 | 15 | 200 | 11 | 32 | | FTGA03508 | | | |
| **S20S-SSKCR/L-09** | ● | | 25 | 20 | 18 | 250 | 13 | 34 | | | | | |
| **S25R-SSKCR/L-12** | ● | ● | 32 | 25 | 23 | 200 | 17 | 36 | SC□□1204□□ | FTGA0411F | - | - | TW15P |
| **S32S-SSKCR/L-12** | ● | | 40 | 32 | 30 | 250 | 22 | 43 | | | SS42S | SHXN0610F | TW15P, HW40L |
| **A12K-SSKCR/L-09** | | | 16 | 12 | 11 | 125 | 9 | 26 | SC□□09T3□□ | FTGA03507 | - | - | TW15P |
| **A16M-SSKCR/L-09** | | | 20 | 16 | 15 | 150 | 11 | 32 | | FTGA03508 | | | |
| **A20Q-SSKCR/L-09** | | | 25 | 20 | 19 | 180 | 12 | 34 | | | | | |
| **A25R-SSKCR/L-12** | | | 32 | 25 | 24 | 200 | 17 | 36 | SC□□1204□□ | FTGA0411F | SS42S | SFXN0610F | TW15P |
| **A32S-SSKCR/L-12** | | | 40 | 32 | 31 | 250 | 22 | 43 | | | | | TW15P, HW40L |

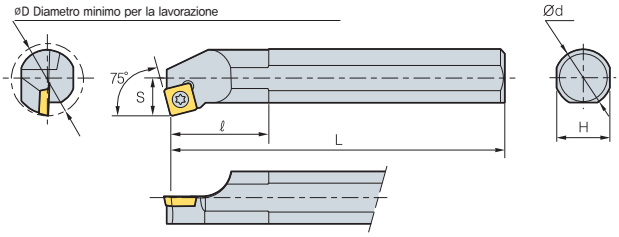
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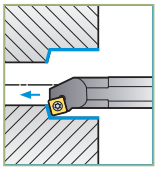
● : Disponibile ○ : A richiesta

# SSKPR/L



SP□□




• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | Ød | H | L | S | ℓ | Inserto | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **S12M-SSKPR/L-09** | ● | ● | 16 | 12 | 11 | 150 | 8 | 18 | SP□□0903□□ | FTNA0307 | TW09P |
| **S16N-SSKPR/L-09** | ● | ● | 20 | 16 | 15 | 160 | 10 | 30 | | | |
| **S16R-SSKPR/L-09** | ● | | 20 | 16 | 15 | 200 | 10 | 32 | | | |
| **S20N-SSKPR/L-09** | ● | ● | 25 | 20 | 18 | 160 | 12.5 | 32 | | | |
| **S20S-SSKPR/L-09** | ● | | 25 | 20 | 18 | 250 | 12.5 | 35 | | | |
| **A12K-SSKPR/L-09** | | | 16 | 12 | 11 | 125 | 8 | 21 | SP□□0903□□ | FTNA0305 | TW09P |
| **A16M-SSKPR/L-09** | | | 20 | 16 | 15 | 150 | 10 | 30 | | FTNA0307 | |
| **A20Q-SSKPR/L-09** | | | 25 | 20 | 19 | 180 | 12.5 | 32 | | | |

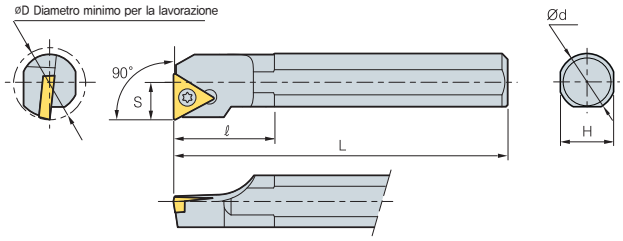
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● : Disponibile ○ : A richiesta

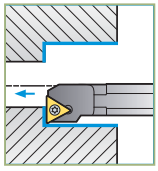
# STFCR/L



TC□□




90°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | ød | H | L | S | ℓ | Inserto | Vite | Sede | Vite sede | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **S10M-STFCR/L-09** | | ● | 13 | 10 | 9 | 150 | 7 | 23 | TC□□0902□□ | FTKA02206 | - | - | TW06P |
| **S12M-STFCR/L-09** | ● | | 16 | 12 | 11 | 150 | 9 | 28 | | | | | |
| **S12M-STFCR/L-11** | ● | ● | 16 | 12 | 11 | 150 | 9 | 30 | TC□□1102□□ | FTKA02565 | - | - | TW07P |
| **S16R-STFCR/L-11** | ● | ● | 20 | 16 | 15 | 200 | 11 | 35 | | | | | |
| **S20S-STFCR/L-11** | ● | ● | 25 | 20 | 18 | 250 | 13 | 36 | | | | | |
| **S20S-STFCR/L-16** | ● | | 25 | 20 | 18 | 250 | 13 | 40 | TC□□16T3□□ | FTGA03510 | - | - | TW15P |
| **S25R-STFCR/L-16** | ● | ● | 32 | 25 | 23 | 200 | 17 | 49 | | | | | |
| **S32S-STFCR/L-16** | ● | | 40 | 32 | 30 | 250 | 22 | 50 | TC□□16T3□□ | FTGA03512 | ST32S | SHXN0509F | TW15P, HW35L |
| **S40T-STFCR/L-16** | ● | | 50 | 40 | 37 | 300 | 27 | 60 | | | | | |
| **A10H-STFCR/L-09** | | | 13 | 10 | 9.5 | 100 | 7 | 23 | TC□□0902□□ | FTKA02206 | - | - | TW06P |
| **A12K-STFCR/L-09** | | | 16 | 12 | 11 | 125 | 9 | 23 | | | | | |
| **A12K-STFCR/L-11** | | | 16 | 12 | 11 | 125 | 9 | 30 | | | | | |
| **A16M-STFCR/L-11** | ● | | 20 | 16 | 15 | 150 | 11 | 35 | TC□□1102□□ | FTKA02565 | - | - | TW07P |
| **A20Q-STFCR/L-11** | | | 25 | 20 | 19 | 180 | 13 | 36 | | | | | |
| **A25R-STFCR/L-16** | | | 32 | 25 | 24 | 200 | 17 | 49 | TC□□16T3□□ | FTKA03510<br>FTGA03512 | -<br>ST32S | -<br>SHXN0509F | TW15P<br>TW15P, HW35L |
| **A32S-STFCR/L-16** | | | 40 | 32 | 31 | 250 | 22 | 50 | | | | | |

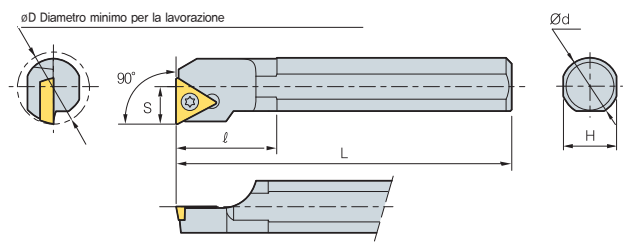
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● : Disponibile ○ : A richiesta

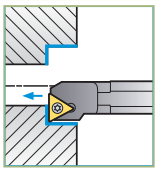
# STFPR/L



TP□□




90°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | ød | H | L | S | ℓ | Inserto | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **S10M-STFPR/L-11** | ● | | 12 | 10 | 9 | 150 | 6 | – | TP□□1103□□ | FTNA0305 | TW09P |
| **S12M-STFPR/L-11** | ● | | 16 | 12 | 11 | 150 | 8 | 10 | | FTNA0307 | TW09P |
| **S16N-STFPR/L-11** | ● | | 20 | 16 | 15 | 160 | 10 | 12 | | | |
| **S16R-STFPR/L-11** | ● | ● | 20 | 16 | 15 | 200 | 10 | 12 | | | |
| **S20N-STFPR/L-16** | ● | | 25 | 20 | 18 | 160 | 12.5 | 14 | TP□□1604□□ | FTNA0408 | TW15P |
| **S20S-STFPR/L-16** | ● | | 25 | 20 | 18 | 250 | 12.5 | 14 | | | |
| **A10H-STFPR/L-11** | | | 12 | 10 | 9.5 | 100 | 6 | – | TP□□1103□□ | FTNA0305 | TW09P |
| **A12K-STFPR/L-11** | | | 16 | 12 | 11 | 125 | 8 | 10 | | FTNA0307 | TW09P |
| **A16M-STFPR/L-11** | | | 20 | 16 | 15 | 150 | 10 | 12 | | | |
| **A20Q-STFPR/L-16** | | | 25 | 20 | 19 | 180 | 12.5 | 14 | TP□□1604□□ | FTNA0408 | TW15P |

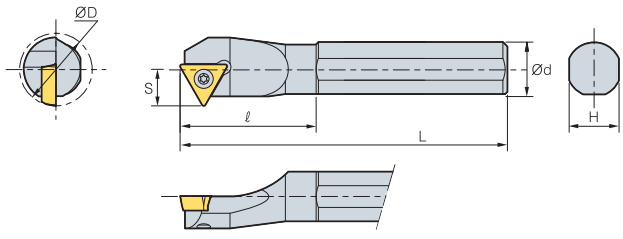
• Inserti applicabili, vedere pag. B40~B41

● : Disponibile ○ : A richiesta

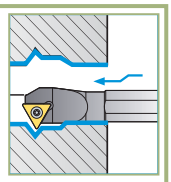
# STWPR/L



TP□□




60°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | ød | H | L | S | ℓ | Inserto | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **S10M-STWPR/L-11** | ● | ● | 12 | 10 | 9 | 150 | 6 | 23 | TPGH1102□□ | FTNA0305 | TW09P |
| **S12M-STWPR/L-11** | ● | ● | 16 | 12 | 11 | 150 | 8 | 30 | TPGH1103□□<br>TPMT1103□□ | FTNA0306 | TW09P |
| **S16R-STWPR/L-11** | ● | ● | 20 | 16 | 15 | 180 | 10 | 35 | | | |
| **S20R-STWPR/L-11** | ● | ● | 25 | 20 | 19 | 200 | 12.5 | 40 | | | |

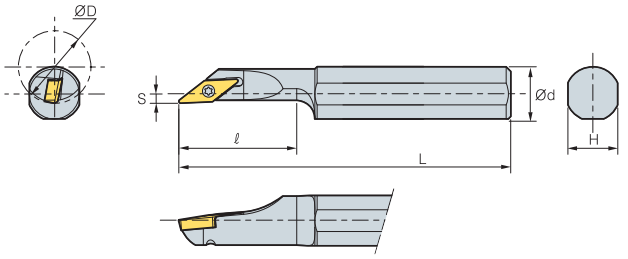
• Inserti applicabili, vedere pag. B40~B41

● : Disponibile ○ : A richiesta

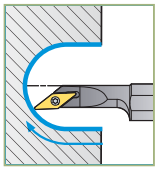
# SVJCR/L



VC□□




142°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | ød | H | L | S | ℓ | Inserto | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **S12M-SVJCR/L-08** | ● | ● | 16 | 12 | 11 | 150 | 2 | 26 | VCMT0802□□ | FTNA0204 | TW06P |
| **S16Q-SVJCR/L-08** | ● | ● | 20 | 16 | 15 | 180 | 2 | 36 | | | |

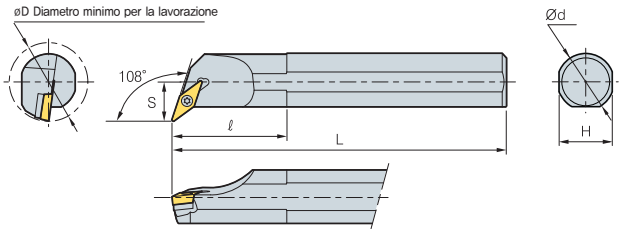
• Inserti applicabili, vedere pag. B43

● : Disponibile ○ : A richiesta

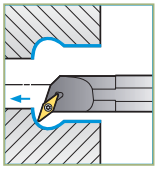
# SVQBR/L



VB□□




108°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | ød | H | L | S | ℓ | Inserto | Vite | Sede | Vite sede | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **S32S-SVQBR/L-16** | ● | | 40 | 32 | 30 | 250 | 22 | 56 | VB□□1604□□ | FTGA03515 | SV32S | SHXN0509F | TW15P, HW35L |
| **S40T-SVQBR/L-16** | | ● | 50 | 40 | 37 | 300 | 27 | 64 | | | | | |
| **A32S-SVQBR/L-16** | | | 40 | 32 | 31 | 250 | 22 | 56 | | | | | |

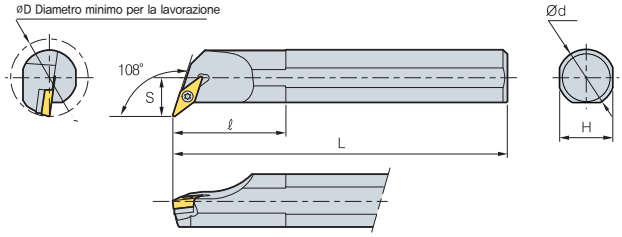
• Inserti applicabili, vedere pag. B42, B48

● : Disponibile ○ : A richiesta

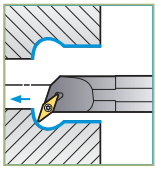
# SVQCR/L



VC□□




108°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | ød | H | L | S | ℓ | Inserto | Vite | Sede | Vite sede | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **S16R-SVQCR/L-11** | ● | | 20 | 16 | 15 | 200 | 11 | 35 | VC□□1103□□ | FTKA02565 | - | - | TW07P |
| **S20S-SVQCR/L-11** | | | 25 | 20 | 18 | 250 | 13 | 38 | | | | | |
| **S25R-SVQCR/L-11** | | | 32 | 25 | 23 | 200 | 17 | 42 | | | | | |
| **S20S-SVQCR/L-13** | ● | | 25 | 20 | 18 | 250 | 13 | 42 | VC□□1303□□ | FTKA0307 | - | - | TW07P |
| **S25R-SVQCR/L-13** | | | 32 | 25 | 23 | 200 | 17 | 45 | | | | | |
| **S25R-SVQCR/L-16** | ● | ● | 32 | 25 | 23 | 200 | 17 | 50 | VC□□1604□□ | FTGA03510 | - | - | TW15P |
| **S32S-SVQCR/L-16** | ● | ● | 40 | 32 | 30 | 250 | 22 | 56 | | FTGA03512 | SV32S | SHXN0509F | TW15P |
| **S40T-SVQCR/L-16** | ● | ● | 50 | 40 | 37 | 300 | 27 | 64 | | | | | HW35L |

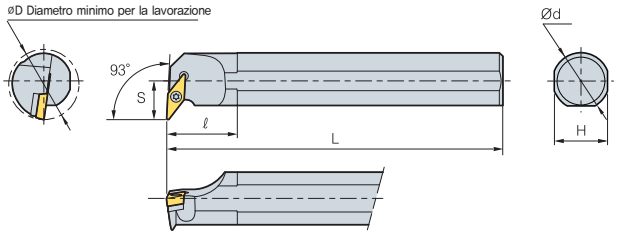
• Inserti applicabili, vedere pag. B43

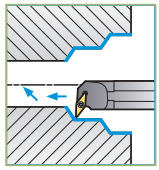
● : Disponibile ○ : A richiesta

# SVUBR/L



VB□□



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | Ød | H | L | S | ℓ | Inserto | Vite | Sede | Vite sede | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **S32S-SVUBR/L-16** | ● | | 40 | 32 | 30 | 250 | 22 | 56 | VB□□1604□□ | FTGA0351 | SV32S | SHXN0509F | TW15P, HW35L |
| **S40T-SVUBR/L-16** | ● | ● | 50 | 40 | 37 | 300 | 27 | 64 | | | | | |
| **A32S-SVUBR/L-16** | | | 40 | 32 | 31 | 250 | 22 | 56 | | | | | |

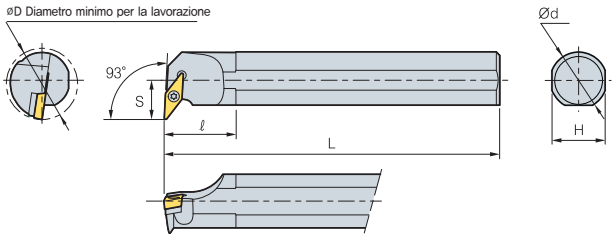
• Inserti applicabili, vedere pag. B42, B48

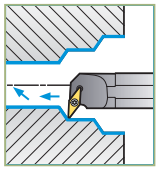
● : Disponibile ○ : A richiesta

# SVUCR/L



VC□□



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | Ød | H | L | S | ℓ | Inserto | Vite | Sede | Vite sede | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **S16R-SVUCR/L-11** | ● | | 20 | 16 | 15 | 200 | 11 | 30 | VC□□1103□□ | FTKA02565 | - | - | TW07P |
| **S20S-SVUCR/L-11** | | | 25 | 20 | 18 | 250 | 13 | 33 | | | | | |
| **S25T-SVUCR/L-11** | | | 32 | 25 | 23 | 300 | 17 | 38 | | | | | |
| **S20S-SVUCR/L-13** | ● | | 28 | 20 | 18 | 250 | 16 | 35 | VC□□1303□□ | FTKA0307 | - | - | TW09P |
| **S25R-SVUCR/L-13** | | | 32 | 25 | 23 | 200 | 17 | 40 | | | | | |
| **S25R-SVUCR/L-16** | ● | | 32 | 25 | 23 | 200 | 19 | 50 | VC□□1604□□ | FTGA03510 | - | - | TW15P |
| **S32S-SVUCR/L-16** | ● | | 40 | 32 | 30 | 250 | 22 | 56 | | FTGA03512 | SV32S | SHXN0509F | TW15P |
| **S40T-SVUCR/L-16** | ● | ● | 50 | 40 | 37 | 300 | 27 | 64 | | | | | HW35L |

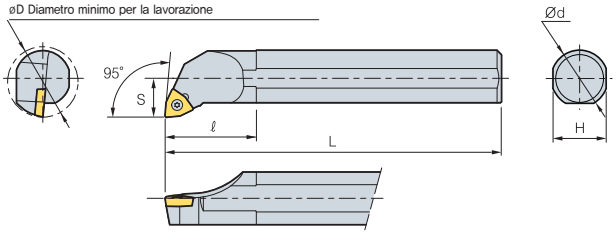
• Inserti applicabili, vedere pag. B43

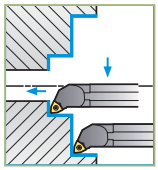
● : Disponibile ○ : A richiesta

# SWLCR/L



WC□□



• Inserto destro R

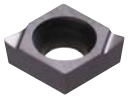
(mm)

| Articolo | Stock R | Stock L | øD | Ød | H | L | S | ℓ | Inserto | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **S25R-SWLCR/L-08** | ● | | 32 | 25 | 23 | 200 | 17 | 46 | WC□□0804□□ | FTGA0411F | TW15P |
| **S32S-SWLCR/L-08** | ● | | 40 | 32 | 30 | 250 | 22 | 51 | | | |
| **A25R-SWLCR/L-08** | | | 32 | 25 | 24 | 200 | 17 | 46 | WC□□0804□□ | FTGA0411F | TW15P |
| **A32S-SWLCR/L-08** | | | 40 | 32 | 31 | 250 | 22 | 51 | | | |

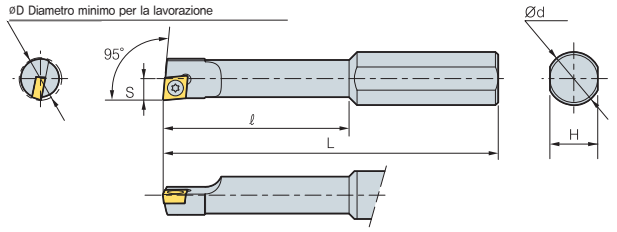
• Inserti applicabili, vedere pag. B44

● : Disponibile ○ : A richiesta

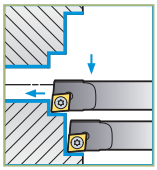
## SCLCR/L



CCET




95°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | ød | H | L | S | ℓ | Inserto | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **S10H-SCLCR/L-0305** | ● | | 5 | 10 | 9 | 100 | 2.5 | 25 | CCET 0301□□ | FTNA01633 | TW06P |
| **S10H-SCLCR/L-0306** | ● | | 6 | 10 | 9 | 100 | 3.0 | 25 | | | |
| **S10J-SCLCR/L-0407** | ● | | 7 | 10 | 9 | 110 | 3.5 | 30 | CCET 0401□□ | FTNA0238 | TW06P |
| **S10J-SCLCR/L-0408** | ● | | 8 | 10 | 9 | 110 | 4.0 | 30 | | | |

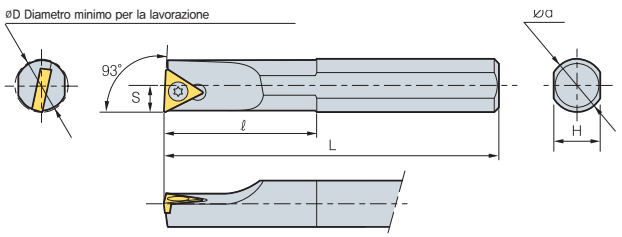
• Inserti applicabili, vedere pag. B33

● : Disponibile ○ : A richiesta

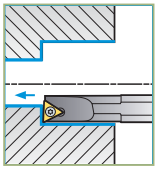
## STUBR/L



TB□□




93°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | ød | H | L | S | ℓ | Inserto | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **S08K-STUBR/L-06** | ● | | 8 | 8 | 7 | 125 | 4 | 30 | TB□□0601□□R/L | FTNA0204 | TW06P |
| **A08F-STUBR/L-06** | | | 8 | 8 | 7.5 | 80 | 4 | 30 | | | |

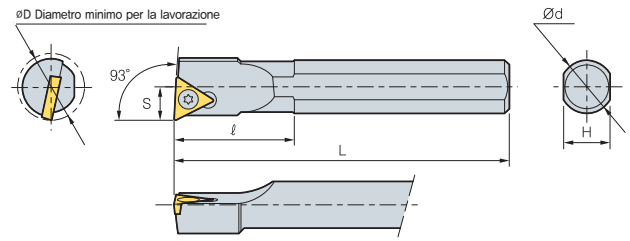
• Inserti applicabili, vedere pag. B38

● : Disponibile ○ : A richiesta

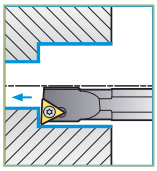
## STUPR/L



TP□□




93°



• Inserto destro R

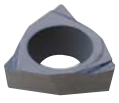
(mm)

| Articolo | Stock R | Stock L | øD | ød | H | L | S | ℓ | Inserto | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **S08K-STUPR/L-06** | ● | | 10 | 8 | 7 | 125 | 4 | 18 | TP□□0602□□R/L | FTNA02205 | TW06P |
| **A08F-STUPR/L-06** | | | 10 | 8 | 7.5 | 80 | 4 | 18 | | | |

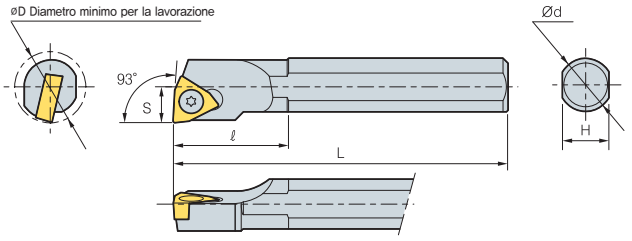
• Inserti applicabili, vedere pag. B40

● : Disponibile ○ : A richiesta

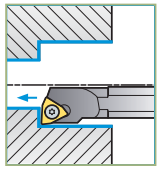
## SWUBR/L



WBGT




93°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | ød | H | L | S | ℓ | Inserto | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **S05H-SWUBR/L-02** | ● | | 5.5 | 5 | 4.5 | 100 | 2.75 | - | WBGT 0201□□R/L | FTNA0203 | TW06P |
| **S08K-SWUBR/L-02** | ● | | 8 | 8 | 7 | 125 | 4 | 30 | | FTNA02033 | |
| **S08K-SWUBR/L-S3** | | | 10 | 8 | 7 | 125 | 5 | 18 | WBGT S302□□R/L | FTNA02205 | TW06P |
| **A08F-SWUBR/L-02** | | | 8 | 8 | 7.5 | 80 | 4 | 30 | WBGT 0201□□R/L | FTNA0203 | TW06P |
| **A08F-SWUBR/L-S3** | | | 10 | 8 | 7.5 | 80 | 5 | 16 | WBGT S302□□R/L | FTNA02205 | TW06P |

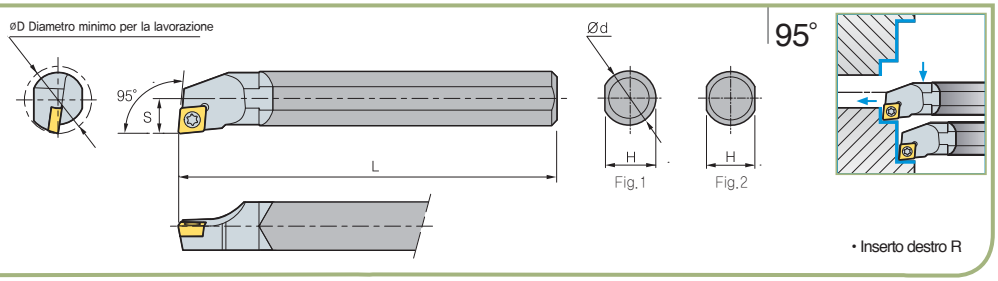
• Inserti applicabili, vedere pag. B43

● : Disponibile ○ : A richiesta

# SCLCR/L



CC□□




(mm)

| Articolo | Stock R | Stock L | øD | ød | H | L | S | Inserto | Vite | Chiave | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C04G-SCLCR/L-03 | ● | | 5 | 4 | 3.8 | 90 | 2.5 | CC □T0301 □□ | FTNA01633 | TW06P | 1 |
| C05H-SCLCR/L-03 | ● | | 6 | 5 | 4.4 | 100 | 3 | | | | |
| C06H-SCLCR/L-04 | ● | | 7 | 6 | 5.4 | 100 | 3.5 | CC □T0401 □□ | FTNA0238 | | |
| C07K-SCLCR/L-04 | ● | | 8 | 7 | 6.4 | 125 | 4 | | | | |
| C08K-SCLCR/L-06 | ● | | 10 | 8 | 7 | 125 | 5 | CC □T0602 □□ | FTKA02555 | TW07P | 2 |
| C10K-SCLCR/L-06 | ● | | 12 | 10 | 9 | 125 | 6 | | FTKA02565 | | |
| C10M-SCLCR/L-06 | ● | | 12 | 10 | 9 | 150 | 6 | | | | |
| C12M-SCLCR/L-06 | ● | | 14 | 12 | 11 | 150 | 7 | | | | |
| C12Q-SCLCR/L-06 | ● | | 14 | 12 | 11 | 180 | 7 | | | | |
| C12M-SCLCR/L-09 | ● | | 15 | 12 | 11 | 150 | 8 | CC □T09T3 □□ | FTGA03508 | TW15P | |
| C12Q-SCLCR/L-09 | ● | | 15 | 12 | 11 | 180 | 8 | | | | |
| C16R-SCLCR/L-09 | ● | | 20 | 16 | 15 | 250 | 10 | | | | |
| C16S-SCLCR/L-09 | ● | | 20 | 16 | 15 | 250 | 10 | | | | |
| C20R-SCLCR/L-09 | ● | | 25 | 20 | 18 | 200 | 13 | | | | |
| C20S-SCLCR/L-09 | ● | | 25 | 20 | 18 | 250 | 13 | | | | |
| C25T-SCLCR/L-12 | ● | | 32 | 25 | 23 | 300 | 17 | CC □T1204 □□ | FTGA0411F | | |
| E06H-SCLCR/L-04 | ● | | 7 | 6 | 5.4 | 100 | 3.5 | CC □T0401 □□ | FTNA0238 | TW06P | 1 |
| E07K-SCLCR/L-04 | ● | | 8 | 7 | 6.4 | 125 | 4 | | | | |
| E08K-SCLCR/L-06 | ● | | 10 | 8 | 7 | 125 | 5 | CC □T0602 □□ | FTKA02555 | TW07P | 2 |
| E10K-SCLCR/L-06 | ● | | 12 | 10 | 9 | 125 | 6 | | FTKA02565 | | |
| E10M-SCLCR/L-06 | ● | | 12 | 10 | 9 | 150 | 6 | | | | |
| E12M-SCLCR/L-06 | ● | | 14 | 12 | 11 | 150 | 7 | | | | |
| E12Q-SCLCR/L-06 | ● | | 14 | 12 | 11 | 180 | 7 | | | | |
| E12M-SCLCR/L-09 | ● | | 15 | 12 | 11 | 150 | 8 | CC □T09T3 □□ | FTGA03508 | TW15P | |
| E12Q-SCLCR/L-09 | ● | | 15 | 12 | 11 | 180 | 8 | | | | |
| E16R-SCLCR/L-09 | ● | | 20 | 16 | 15 | 250 | 10 | | | | |
| E16S-SCLCR/L-09 | ● | | 20 | 16 | 15 | 250 | 10 | | | | |
| E20R-SCLCR/L-09 | ● | | 25 | 20 | 18 | 200 | 13 | | | | |
| E20S-SCLCR/L-09 | ● | | 25 | 20 | 18 | 250 | 13 | | | | |
| E25T-SCLCR/L-12 | ● | | 32 | 25 | 23 | 300 | 17 | CC □T1204 □□ | FTGA0411F | | |

• Inserti applicabili, vedere pag. B33~B34

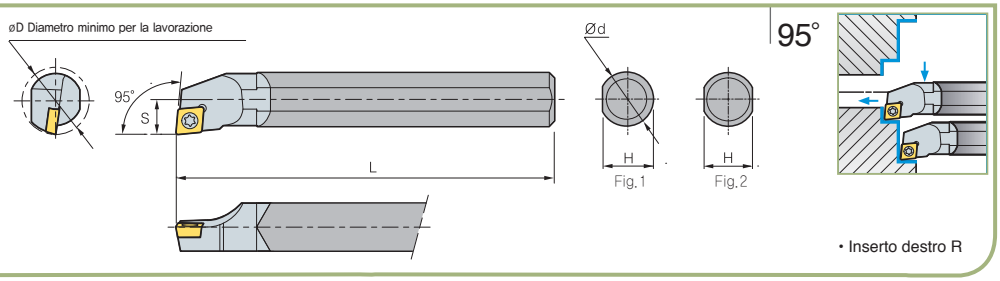
● : Disponibile ○ : A richiesta

# B Bareno con stelo in metallo duro

## SCLPR/L



CP□□




• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | Ød | H | L | S | Inserto | Vite | Chiave | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C10K-SCLPR/L-08 | ● | | 12 | 10 | 9 | 125 | 6 | CP □T0802 □□ | FTNA0305 | TW09P | 2 |
| C10M-SCLPR/L-08 | ● | | 12 | 10 | 9 | 150 | 6 | | | | |
| C12M-SCLPR/L-08 | ● | | 15 | 12 | 11 | 150 | 7.5 | | FTNA0306 | | |
| C12Q-SCLPR/L-08 | ● | | 15 | 12 | 11 | 180 | 7.5 | | | | |
| C12M-SCLPR/L-09 | ● | | 15 | 12 | 11 | 150 | 8 | CP □T0903 □□ | FTNA0408 | TW15P | |
| C12Q-SCLPR/L-09 | ● | | 15 | 12 | 11 | 180 | 8 | | | | |
| C16R-SCLPR/L-09 | ● | | 20 | 16 | 15 | 200 | 10 | | | | |
| C16S-SCLPR/L-09 | ● | | 20 | 16 | 15 | 250 | 10 | | | | |
| C20R-SCLPR/L-09 | ● | | 25 | 20 | 18 | 200 | 13 | | | | |
| C20S-SCLPR/L-09 | ● | | 25 | 20 | 18 | 250 | 13 | | | | |
| E10K-SCLPR/L-08 | ● | | 12 | 10 | 9 | 125 | 6 | CP □T0802 □□ | FTNA0305 | TW09P | 2 |
| E10M-SCLPR/L-08 | ● | | 12 | 10 | 9 | 150 | 6 | | | | |
| E12M-SCLPR/L-08 | ● | | 15 | 12 | 11 | 150 | 7.5 | | | | |
| E12Q-SCLPR/L-08 | ● | | 15 | 12 | 11 | 180 | 7.5 | | | | |
| E12M-SCLPR/L-09 | ● | | 15 | 12 | 11 | 150 | 8 | | FTNA0407 | | |
| E12Q-SCLPR/L-09 | ● | | 15 | 12 | 11 | 180 | 8 | | | | |
| E16R-SCLPR/L-09 | ● | | 20 | 16 | 15 | 200 | 10 | CP □T0903 □□ | FTNA0408 | TW15P | |
| E16S-SCLPR/L-09 | ● | | 20 | 16 | 15 | 250 | 10 | | | | |
| E20R-SCLPR/L-09 | ● | | 25 | 20 | 18 | 200 | 13 | | | | |
| E20S-SCLPR/L-09 | ● | | 25 | 20 | 18 | 250 | 13 | | | | |

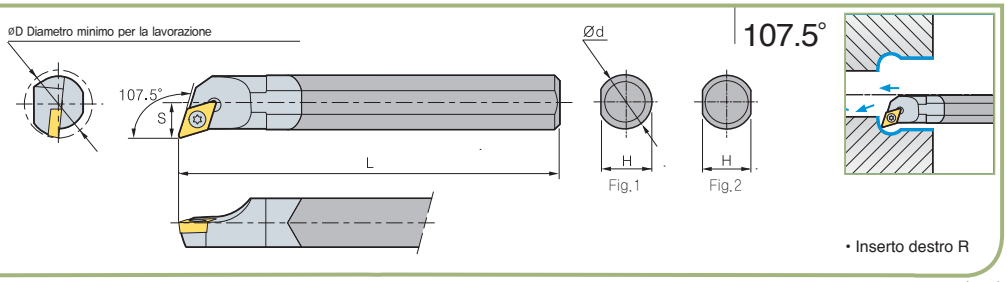
• Inserti applicabili, vedere pag. B34, B46

● : Disponibile ○ : A richiesta

## SDQCR/L



DC□□




• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | Ød | H | L | S | Inserto | Vite | Chiave | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C08K-SDQCR/L-07 | ● | | 10 | 8 | 7 | 125 | 6 | DC □T0702 □□ | FTKA02555 | TW07P | 2 |
| C10K-SDQCR/L-07 | ● | | 13 | 10 | 9 | 125 | 7 | | | | |
| C12M-SDQCR/L-07 | ● | | 16 | 12 | 11 | 150 | 9 | | FTKA02565 | | |
| C16R-SDQCR/L-07 | ● | | 20 | 16 | 15 | 200 | 11 | | | | |
| C16R-SDQCR/L-11 | ● | | 20 | 16 | 15 | 200 | 11 | DC □T11T3 □□ | FTGA03508 | TW15P | |
| C20R-SDQCR/L-11 | ● | | 25 | 20 | 18 | 200 | 13 | | | | |
| C20S-SDQCR/L-11 | ● | | 25 | 20 | 18 | 250 | 13 | | | | |
| E08K-SDQCR/L-07 | ● | | 10 | 8 | 7 | 125 | 6 | DC □T0702 □□ | FTKA02555 | TW07P | 2 |
| E10K-SDQCR/L-07 | ● | | 13 | 10 | 9 | 125 | 7 | | | | |
| E12M-SDQCR/L-07 | ● | | 16 | 12 | 11 | 150 | 9 | | FTKA02565 | | |
| E16R-SDQCR/L-07 | ● | | 20 | 16 | 15 | 200 | 11 | | | | |
| E16R-SDQCR/L-11 | ● | | 20 | 16 | 15 | 200 | 11 | DC □T11T3 □□ | FTGA03508 | TW15P | |
| E20R-SDQCR/L-11 | ● | | 25 | 20 | 18 | 200 | 13 | | | | |
| E20S-SDQCR/L-11 | ● | | 25 | 20 | 18 | 250 | 13 | | | | |

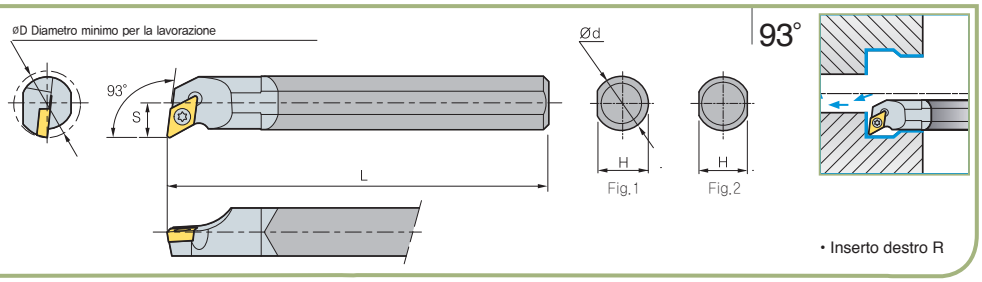
• Inserti applicabili, vedere pag. B35, B46

● : Disponibile ○ : A richiesta

# SDUCR/L



DC□□




• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | Ød | H | L | S | Inserto | Vite | Chiave | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C10K-SDUCR/L-07 | ● | | 13 | 10 | 9 | 125 | 7 | DC □T0702 □□ | FTKA02555 | TW07P | 2 |
| C10M-SDUCR/L-07 | ● | | 13 | 10 | 9 | 150 | 7 | | | | |
| C12M-SDUCR/L-07 | ● | | 16 | 12 | 11 | 150 | 9 | | FTKA02565 | | |
| C12Q-SDUCR/L-07 | ● | | 16 | 12 | 11 | 180 | 9 | | | | |
| C16R-SDUCR/L-07 | ● | | 20 | 16 | 15 | 200 | 11 | | | | |
| C16S-SDUCR/L-07 | ● | | 20 | 16 | 15 | 250 | 11 | | | | |
| C16R-SDUCR/L-11 | ● | | 20 | 16 | 15 | 200 | 11 | DC □T11T3 □□ | FTGA03508 | TW15P | |
| C16S-SDUCR/L-11 | ● | | 20 | 16 | 15 | 250 | 11 | | | | |
| C20R-SDUCR/L-11 | ● | | 25 | 20 | 18 | 200 | 13 | | | | |
| C20S-SDUCR/L-11 | ● | | 25 | 20 | 18 | 250 | 13 | | | | |
| C25T-SDUCR/L-11 | ● | | 32 | 25 | 23 | 300 | 17 | | FTGA03510 | | |
| E10K-SDUCR/L-07 | ● | | 13 | 10 | 9 | 125 | 7 | DC □T0702 □□ | FTKA02555 | TW07P | 2 |
| E10M-SDUCR/L-07 | ● | | 13 | 10 | 9 | 150 | 7 | | | | |
| E12M-SDUCR/L-07 | ● | | 16 | 12 | 11 | 150 | 9 | | FTKA02565 | | |
| E12Q-SDUCR/L-07 | ● | | 16 | 12 | 11 | 180 | 9 | | | | |
| E16R-SDUCR/L-07 | ● | | 20 | 16 | 15 | 200 | 11 | | | | |
| E16S-SDUCR/L-07 | ● | | 20 | 16 | 15 | 250 | 11 | | | | |
| E16R-SDUCR/L-11 | ● | | 20 | 16 | 15 | 200 | 11 | DC □T11T3 □□ | FTGA03508 | TW15P | |
| E16S-SDUCR/L-11 | ● | | 20 | 16 | 15 | 250 | 11 | | | | |
| E20R-SDUCR/L-11 | ● | | 25 | 20 | 18 | 200 | 13 | | | | |
| E20S-SDUCR/L-11 | ● | | 25 | 20 | 18 | 250 | 13 | | | | |
| E25T-SDUCR/L-11 | ● | | 32 | 25 | 23 | 300 | 17 | | FTGA03510 | | |

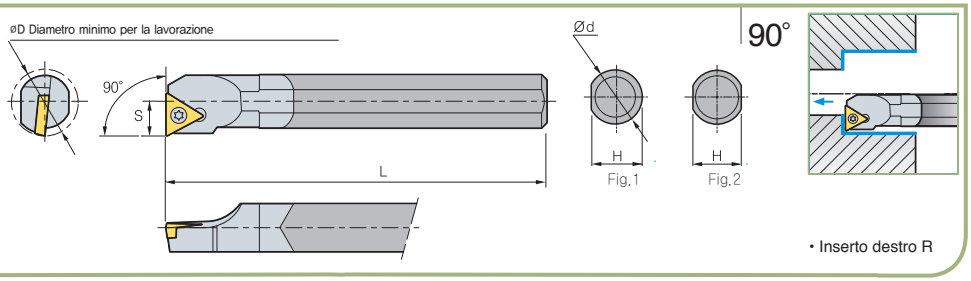
• Inserti applicabili, vedere pag. B35, B46

● : Disponibile ○ : A richiesta

# STFCR/L



TC□□




• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | Ød | H | L | S | Inserto | Vite | Chiave | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C08K-STFCR/L-09 | ● | | 10 | 8 | 7 | 125 | 5 | TC □T0902 □□ | FTKA02206 | TW06P | 2 |
| C10K-STFCR/L-09 | ● | ● | 12 | 10 | 9 | 125 | 6 | | | | |
| C10K-STFCR/L-11 | ● | | 12 | 10 | 9 | 125 | 6 | TC □T1102 □□ | FTKA02565 | TW07P | |
| C12M-STFCR/L-11 | ● | | 15 | 12 | 11 | 150 | 8 | | | | |
| C16R-STFCR/L-11 | ● | | 20 | 16 | 15 | 200 | 10 | | | | |
| C20R-STFCR/L-11 | ● | | 25 | 20 | 18 | 200 | 13 | | | | |
| C20S-STFCR/L-11 | ● | | 25 | 20 | 18 | 250 | 13 | | | | |
| C20R-STFCR/L-16 | ● | | 25 | 20 | 18 | 200 | 13 | TC □T16T3 □□ | FTGA03510 | TW15P | |
| C20S-STFCR/L-16 | ● | | 25 | 20 | 18 | 250 | 13 | | | | |
| E08K-STFCR/L-09 | ● | | 10 | 8 | 7 | 125 | 5 | TC □T0902 □□ | FTKA02206 | TW06P | 2 |
| E10K-STFCR/L-09 | ● | | 12 | 10 | 9 | 125 | 6 | | | | |
| E10K-STFCR/L-11 | ● | | 12 | 10 | 9 | 125 | 6 | TC □T1102 □□ | FTKA02565 | TW07P | |
| E12M-STFCR/L-11 | ● | | 15 | 12 | 11 | 150 | 8 | | | | |
| E16R-STFCR/L-11 | ● | | 20 | 16 | 15 | 200 | 10 | | | | |
| E20R-STFCR/L-11 | ● | | 25 | 20 | 18 | 200 | 13 | | | | |
| E20S-STFCR/L-11 | ● | | 25 | 20 | 18 | 250 | 13 | | | | |
| E20R-STFCR/L-16 | ● | | 25 | 20 | 18 | 200 | 13 | TC □T16T3 □□ | FTGA03510 | TW15P | |
| E20S-STFCR/L-16 | ● | | 25 | 20 | 18 | 250 | 13 | | | | |

• Inserti applicabili, vedere pag. B39, B48

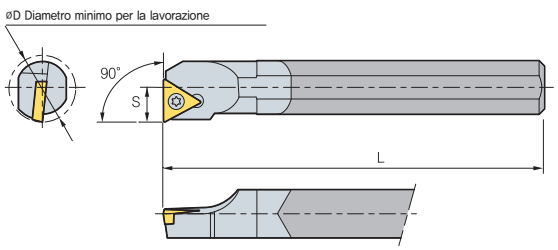
● : Disponibile ○ : A richiesta

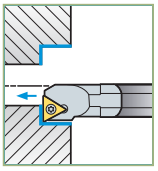
# B Bareno con stelo in metallo duro

## STFPR/L



TP□□




• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | ød | H | L | S | Inserto | Vite | Chiave | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **C08K-STFPR/L-08** | ● | | 10 | 8 | 7 | 125 | 5 | TP □T0802 □□ | FTNA02205 | TW06P | 2 |
| **C10K-STFPR/L-11** | ● | | 12 | 10 | 9 | 125 | 6 | TP □T1103 □□ | FTNA0305 | TW09P | |
| **C10M-STFPR/L-11** | ● | | 12 | 10 | 9 | 150 | 6 | | | | |
| **C12M-STFPR/L-11** | ● | | 15 | 12 | 11 | 150 | 8 | | FTNA0307 | | |
| **C12Q-STFPR/L-11** | ● | | 15 | 12 | 11 | 180 | 8 | | | | |
| **C16R-STFPR/L-11** | ● | | 20 | 16 | 15 | 200 | 10 | | | | |
| **C16S-STFPR/L-11** | ● | | 20 | 16 | 15 | 250 | 10 | | | | |
| **C20R-STFPR/L-11** | ● | | 25 | 20 | 18 | 200 | 13 | | | | |
| **C20S-STFPR/L-11** | ● | | 25 | 20 | 18 | 250 | 13 | | | | |
| **C20R-STFPR/L-16** | ● | | 25 | 20 | 18 | 200 | 13 | TP □T1604 □□ | FTNA0408 | TW15P | |
| **C20S-STFPR/L-16** | ● | | 25 | 20 | 18 | 250 | 13 | | | | |
| **C25T-STFPR/L-16** | ● | | 32 | 25 | 23 | 300 | 17 | | | | |
| **E08K-STFPR/L-08** | ● | | 10 | 8 | 7 | 125 | 5 | TP □T0802 □□ | FTNA02205 | TW06P | 2 |
| **E10K-STFPR/L-11** | ● | | 12 | 10 | 9 | 125 | 6 | TP □T1103 □□ | FTNA0305 | TW09P | |
| **E10M-STFPR/L-11** | ● | | 12 | 10 | 9 | 150 | 6 | | | | |
| **E12M-STFPR/L-11** | ● | | 15 | 12 | 11 | 150 | 8 | | FTNA0307 | | |
| **E12Q-STFPR/L-11** | ● | | 15 | 12 | 11 | 180 | 8 | | | | |
| **E16R-STFPR/L-11** | ● | | 20 | 16 | 15 | 200 | 10 | | | | |
| **E16S-STFPR/L-11** | ● | | 20 | 16 | 15 | 250 | 10 | | | | |
| **E20R-STFPR/L-11** | ● | | 25 | 20 | 18 | 200 | 13 | | | | |
| **E20S-STFPR/L-11** | ● | | 25 | 20 | 18 | 250 | 13 | | | | |
| **E20R-STFPR/L-16** | ● | | 25 | 20 | 18 | 200 | 13 | TP □T1604 □□ | FTNA0408 | TW15P | |
| **E20S-STFPR/L-16** | ● | | 25 | 20 | 18 | 250 | 13 | | | | |
| **E25T-STFPR/L-16** | ● | | 32 | 25 | 23 | 300 | 17 | | | | |

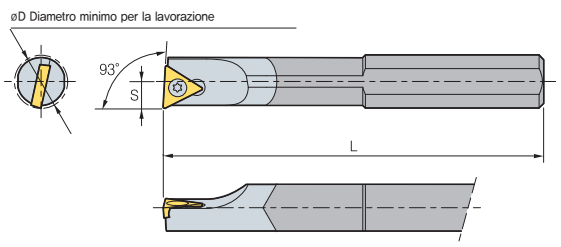
• Inserti applicabili, vedere pag. B40

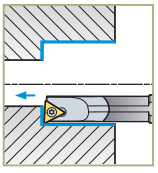
● : Disponibile ○ : A richiesta

## STUBR/L



TB□□




• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | ød | H | L | S | Inserto | Vite | Chiave | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **C08K-STUBR/L-06** | ● | ● | 10 | 8 | 7 | 125 | 5 | TB □T0601 □□ | FTNA0204 | TW06P | 2 |
| **C10K-STUBR/L-06** | ● | | 12 | 10 | 9 | 125 | 6 | | | | |
| **E08K-STUBR/L-06** | ● | | 10 | 8 | 7 | 125 | 5 | TB □T0601 □□ | FTNA0204 | TW06P | 2 |
| **E10K-STUBR/L-06** | ● | | 12 | 10 | 9 | 125 | 6 | | | | |

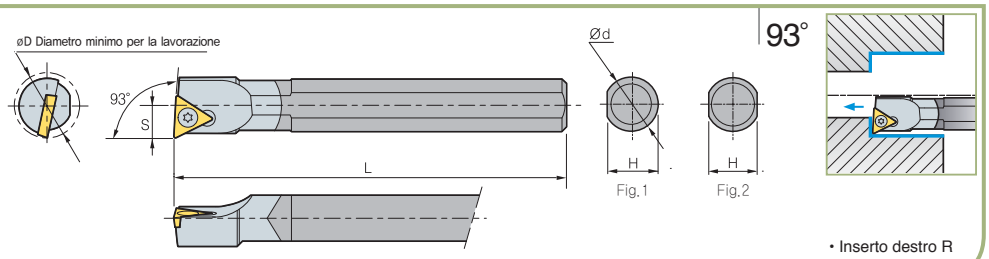
• Inserti applicabili, vedere pag. B38

● : Disponibile ○ : A richiesta

# STUPR/L



TP□□




• Inserto destro R

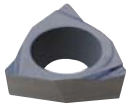
(mm)

| Articolo | Stock R | Stock L | øD | Ød | H | L | S | Inserto | Vite | Chiave | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C08K-STUPR/L-08 | ● | | 10 | 8 | 7 | 125 | 5 | TP □T0802 □□ | FTNA02205 | TW06P | 2 |
| C10K-STUPR/L-11 | ● | | 12 | 10 | 9 | 125 | 6 | TP □T1103 □□ | FTNA0305 | TW09P | |
| C10M-STUPR/L-11 | ● | | 12 | 10 | 9 | 150 | 6 | | | | |
| C12M-STUPR/L-11 | ● | | 15 | 12 | 11 | 150 | 8 | | FTNA0307 | | |
| C12Q-STUPR/L-11 | ● | | 15 | 12 | 11 | 180 | 8 | | | | |
| C16R-STUPR/L-11 | ● | | 20 | 16 | 15 | 200 | 10 | | | | |
| C16S-STUPR/L-11 | ● | | 20 | 16 | 15 | 250 | 10 | | | | |
| C20R-STUPR/L-11 | ● | | 25 | 20 | 18 | 200 | 13 | | | | |
| C20S-STUPR/L-11 | ● | | 25 | 20 | 18 | 250 | 13 | | | | |
| C20R-STUPR/L-16 | ● | | 25 | 20 | 18 | 200 | 13 | TP □T1604 □□ | FTNA0408 | TW15P | |
| C20S-STUPR/L-16 | ● | | 25 | 20 | 18 | 250 | 13 | | | | |
| C25T-STUPR/L-16 | ● | | 32 | 25 | 23 | 300 | 17 | | | | |
| E08K-STUPR/L-08 | ● | | 10 | 8 | 7 | 125 | 5 | TP □T0802 □□ | FTNA02205 | TW06P | 2 |
| E10K-STUPR/L-11 | ● | | 12 | 10 | 9 | 125 | 6 | TP □T1103 □□ | FTNA0305 | TW09P | |
| E10M-STUPR/L-11 | ● | | 12 | 10 | 9 | 150 | 6 | | | | |
| E12M-STUPR/L-11 | ● | | 15 | 12 | 11 | 150 | 8 | | FTNA0307 | | |
| E12Q-STUPR/L-11 | ● | | 15 | 12 | 11 | 180 | 8 | | | | |
| E16R-STUPR/L-11 | ● | | 20 | 16 | 15 | 200 | 10 | | | | |
| E16S-STUPR/L-11 | ● | | 20 | 16 | 15 | 250 | 10 | | | | |
| E20R-STUPR/L-11 | ● | | 25 | 20 | 18 | 200 | 13 | | | | |
| E20S-STUPR/L-11 | ● | | 25 | 20 | 18 | 250 | 13 | | | | |
| E20R-STUPR/L-16 | ● | | 25 | 20 | 18 | 200 | 13 | TP □T1604 □□ | FTNA0408 | TW15P | |
| E20S-STUPR/L-16 | ● | | 25 | 20 | 18 | 250 | 13 | | | | |
| E25T-STUPR/L-16 | ● | | 32 | 25 | 23 | 300 | 17 | | | | |

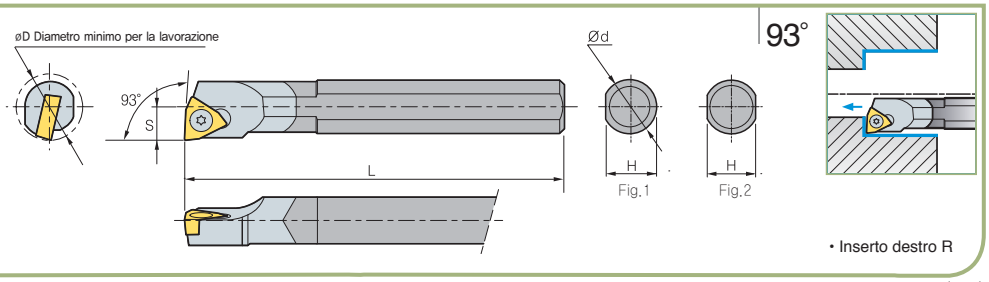
• Inserti applicabili, vedere pag. B40

● : Disponibile ○ : A richiesta

# SWUBR/L



WB□T




• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | Ød | H | L | S | Inserto | Vite | Chiave | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C05H-SWUBR/L-02 | ● | | 6 | 5 | 4.4 | 100 | 3 | WB □T0201 □□ | FTNA0203 | TW06P | 1 |
| C06H-SWUBR/L-02 | ● | | 7 | 6 | 5.4 | 100 | 3.5 | | | | |
| C08K-SWUBR/L-02 | ● | | 9 | 8 | 7 | 125 | 4.5 | | FTNA02033 | | 2 |
| C08K-SWUBR/L-S3 | ● | | 10 | 8 | 7 | 125 | 4.5 | WB □TS301 □□ | FTNA02205 | | |
| E06H-SWUBR/L-02 | ● | | 7 | 6 | 5.4 | 100 | 3.5 | WB □T0201 □□ | FTNA0203 | TW06P | 1 |
| E08K-SWUBR/L-02 | ● | | 9 | 8 | 7 | 125 | 4.5 | | FTNA02033 | | 2 |
| E08K-SWUBR/L-S3 | ● | | 10 | 8 | 7 | 125 | 5 | WB □TS301 □□ | FTNA02205 | | |

• Inserti applicabili, vedere pag. B43

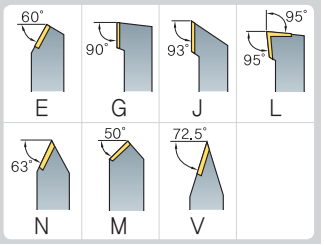
● : Disponibile ○ : A richiesta

※ Per i manicotti applicabili, vedere pag. B152

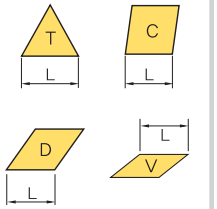
# B Guida tecnica ai sistemi di lavorazione HSK

## Sistema di codifica per HSK

**Tipo di staffaggio**
D : Doppio staffaggio
M : Staffaggio leva-staffa
P : A leva
S : A vite
W : Staffa a cuneo

**Angolo di lavorazione**



**Tipo di esecuzione**
R : Destra
L : Sinistra
N : Neutro

**Lunghezza del tagliente**



H63T – D C L N R DX – 12

**Attacco**
ICTM=HSK standard

**Forma dell'inserto**
C : 80° Diamante
D : 55° Diamante
S : 90° Quadrato
T : 60° Triangolo
V : 35° Diamante
W : 80° Esagono

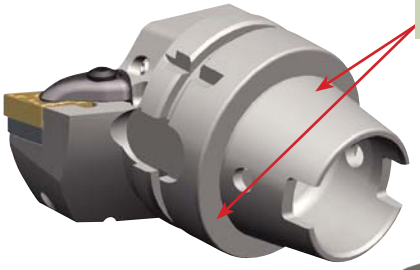
**Angolo di spoglia degli inserti**
N = 0°
B = 5°

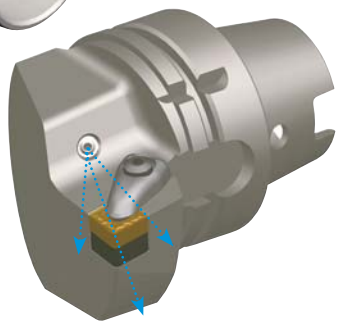
**Lunghezza del portainserti**
DX : 65
H : 100
L : 140

## Caratteristiche (macchine multifunzione)

### Caratteristiche del sistema di lavorazione HSK

- Ancoraggio su 2 lati ···› lato di battuta e parte conica
- Robustezza garantita nei movimenti statici e dinamici
- Precisione di staffaggio in varie applicazioni
- Indicato per alte velocità
- Indicato per pezzi di piccole dimensioni
- Ugello di lubrificazione facilmente regolabile

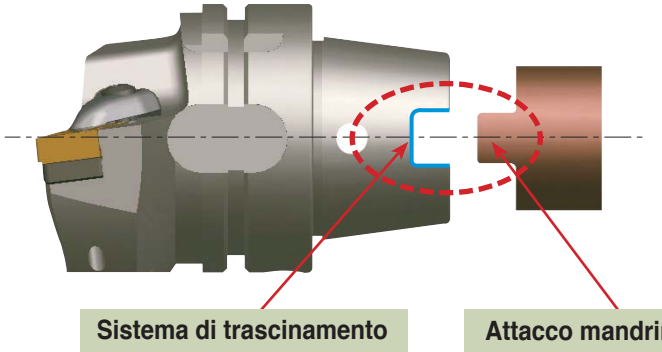



### ICTM (Interface Committee for Turning Mill)

- Interfaccia per macchinari di tornitura multifunzione, conforme agli standard ICTM sviluppati dalla collaborazione tra le 17 principali società giapponesi. Compatibile con macchine e centri di lavoro convenzionali HSK-A e multifunzione più diffusi.

### Migliore tolleranza del sistema di trascinamento : HSK-T63




### Confronto tolleranze (esempio)

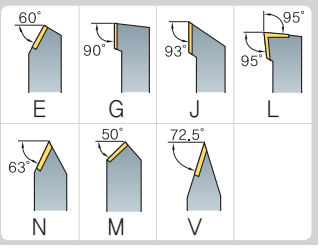
(mm)

| Note | Tolleranza max. | Tolleranza min. |
|---|---|---|
| ICTM STANDARD HSK–T63 | 0.075 | 0.035 |
| ISO STANDARD HSK–A63 | 0.33 | 0.08 |

## Sistema di codifica per KM

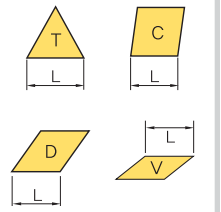
**Tipo di staffaggio**
D : Doppio staffaggio
M : Staffaggio leva-staffa
P : A leva
S : A vite
W : Staffa a cuneo

**Angolo di lavorazione**




**Tipo di esecuzione**
R : Destra
L : Sinistra
N : neutro

**Lunghezza del tagliente**




KM50 – D C L N R DX – 12

**Attacco**
50, 63UT
80ATC, 100

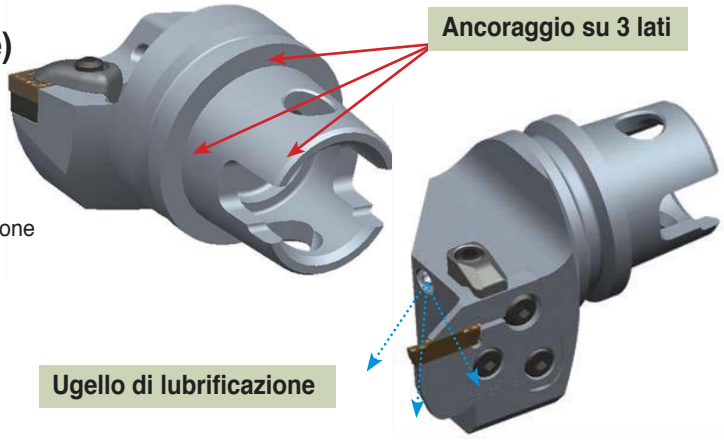
**Forma dell'inserto**
C : 80° Diamante
D : 55° Diamante
S : 90° Quadrato
T : 60° Triangolo
V : 35° Diamante
W : 80° Esagono

**Angolo di spoglia degli inserti**
N = 0°
B = 5°

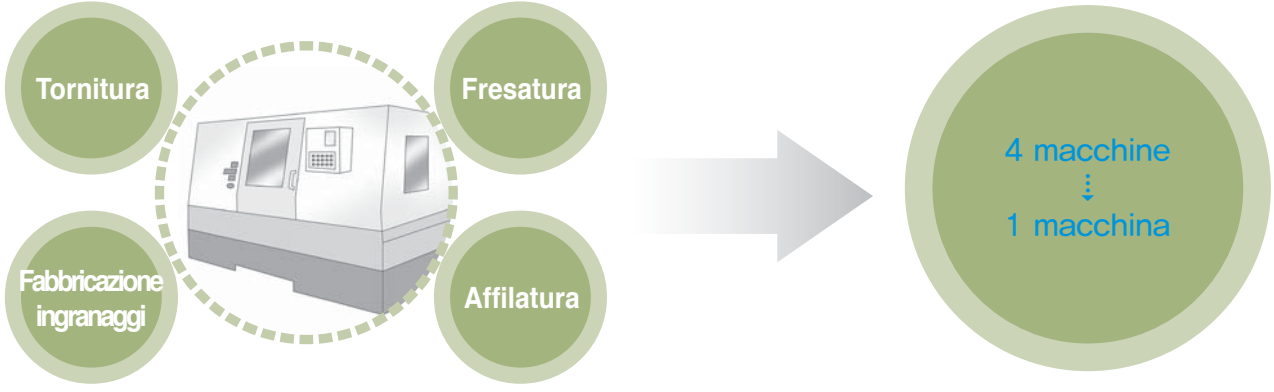
**Lunghezza del portainserti**
DX : 65
H : 100
L : 140

## Caratteristiche (macchine multifunzione)

- Ancoraggio su 3 lati / Maggiore precisione
- Sistema di staffaggio flessibile / Maggiore rigidità
- Varie dimensioni e stili
- Indicato per tornitura e fresatura
- Direzione del lubrificante regolabile grazie all'ugello di lubrificazione




## Macchina multifunzione



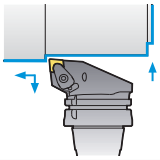
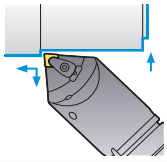
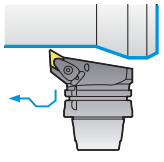
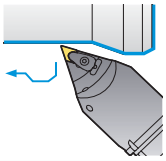
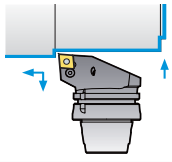
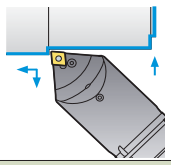
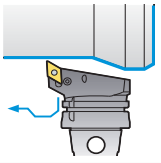

**Il sistema di lavorazione KM è indicato per un'ampia gamma di applicazioni.**

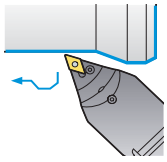
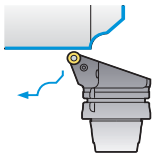
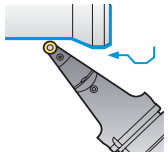
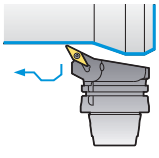
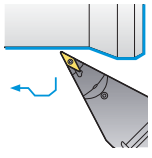
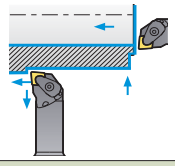
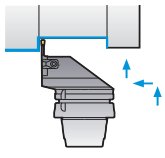
Processo esterno | Processo interno | Processo di scanalatura | Processo di foratura | Processo di troncatura

**KM50, KM63UT, KM80, KM100 è possibile produrre le versioni standard e speciale.**

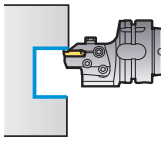
# B Indice sistema di lavorazione HSK/ KM

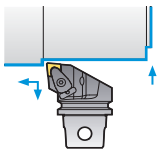
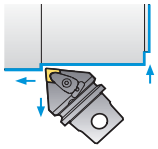
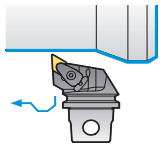
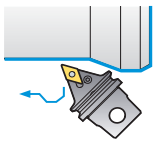
## Indice sistema di lavorazione HSK

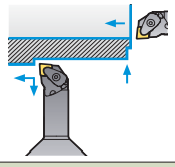
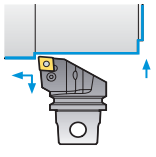
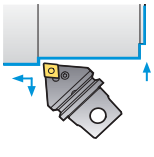
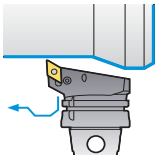
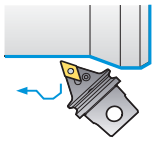
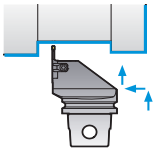
| Tipo di taglio |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|
| Articolo | H63T-DCLNR/L-DX12 | H63T-DCMNN-H/L12 | H63T-DDJNR/L-DX15 | H63T-DDNNN-H/L15 | H63T-PCLNR/L-DX12 | H63T-PCMNN-H/L12 | H63T-PDJNR/L-DX15 |
| Angolazione | 95° | 95° | 93° | 107° 30′ | 95° | 95° | 93° |
| Pag. | B123 | B123 | B123 | B123 | B124 | B124 | B124 |
| Tornitura | ● | ● | ● | ● | ● | ● | ● |
| Copiatura | | | ● | ● | | | ● |
| Sfacciatura | ● | ● | ● | ● | ● | ● | ● |
| Tornitura gole | ● | ● | ● | ● | ● | ● | ● |
| Tornitura interna | | | | | | | |

| Tipo di taglio |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|
| Articolo | H63T-PDNNN-H/L15 | H63T-PRDCR-DX12 | H63T-PRDCN-H/L12 | H63T-SVPBR/L-DX16 | H63T-SVVBN-H/L16 | H63T-A25K/A32L-DCLNR/L-12 | H63T-MCHR/L |
| Angolazione | 107° 30′ | | | 117° 30′ | 117° 30′ | 95° | |
| Pag. | B124 | B125 | B125 | B125 | B125 | B127 | B126 |
| Tornitura | ● | ● | ● | ● | ● | ● | ● |
| Copiatura | ● | ● | ● | ● | ● | | ● |
| Sfacciatura | ● | ● | ● | ● | ● | ● | ● |
| Tornitura gole | ● | ● | ● | ● | ● | ● | |
| Tornitura interna | | | | | | ● | |

## Indice sistema di lavorazione KM

| Tipo di taglio |  |
|---|---|
| Articolo | H63T-MCHR/L |
| Angolazione | |
| Pag. | B126 |
| Tornitura | |
| Copiatura | |
| Sfacciatura | ● |
| Tornitura gole | |
| Tornitura interna | |

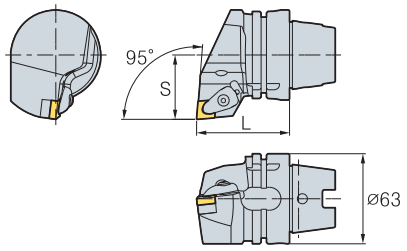
| Tipo di taglio |  |  |  |  |
|---|---|---|---|---|
| Articolo | KM50-DCLNR/L-C12<br>KM63UT-DCLNR/L-D12 | KM50-DCMNN-C12<br>KM63UT-DCMNN-D12 | KM50-DDJNR/L-C15(-3)<br>KM63UT-DCLNR/L-D15(-3) | KM50-DDNNN-C15(-3)<br>KM63UT-DDNNN-D15(-3) |
| Angolazione | 95° | 95° | 93° | 107° 30′ |
| Pag. | B129 | B129 | B129 | B130 |
| Tornitura | ● | ● | ● | ● |
| Copiatura | | | ● | ● |
| Sfacciatura | ● | ● | ● | ● |
| Tornitura gole | ● | ● | ● | ● |
| Tornitura interna | | | | |

| Tipo di taglio |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| Articolo | KM50-A25K-DCLNR/L-12<br>KM50-A32K-DCLNR/L-12<br>KM63UT-A25K-DCLNR/L-12<br>KM63UT-A32L-DCLNR/L-12 | KM50-PCLNR/L-C12<br>KM63UT-PCLNR/L-D12 | KM50-PCMNN-C12<br>KM63UT-PCMNN-D12 | KM50-PDJNR/L-C15(-3)<br>KM63UT-PCLNR/L-D15(-3) | KM50-PDNNN-C15(-3)<br>KM63UT-PDNNN-D15(-3) | KM50-MCHR/L<br>KM63UT-MCHR/L |
| Angolazione | 95° | 95° | 95° | 93° | 107° 30′ | |
| Pag. | B132 | B130 | B130 | B131 | B131 | B131 |
| Tornitura | ● | ● | ● | ● | ● | ● |
| Copiatura | | | | ● | ● | ● |
| Sfacciatura | ● | ● | ● | ● | ● | |
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| Tornitura interna | ● | | | | | |

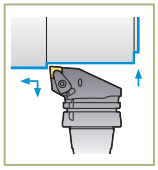
# DCLNR/L



CN□□




95°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | L | S | Inserto | Staffa | Vite | Sede | Vite sede | Molla | Ugello | Dado | Chiave | Tubo lubrif. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **H63T-DCLNR/L-DX12** | | | 65 | 45 | CN□□1204□□ | CVH4 | CHX0518 | SC44V | FTKA0410 | SPR0714 | CN0605 | - | HW30P | CP63T |

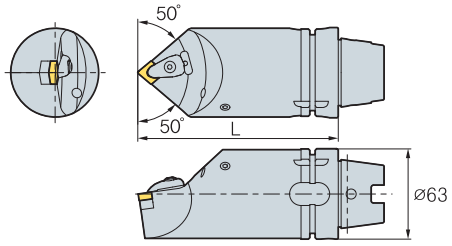
• Inserti applicabili, vedere pag. B16~B18

● : Disponibile ○ : A richiesta

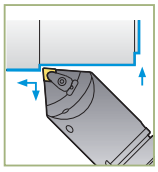
# DCMNN



CN□□




95°



(mm)

| Articolo | Stock | L | Inserto | Staffa | Vite | Sede | Vite sede | Molla | Ugello | Dado | Chiave | Tubo lubrif. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **H63T-DCMNM-H12** | | 100 | CN□□1204□□ | CVH4 | CHX0518 | SC44V | FTKA0410 | SPR0714 | CN0605 | KHA0808 | HW30P | CP63T |
| **H63T-DCMNM-L12** | | 140 | | | | | | | | | | |

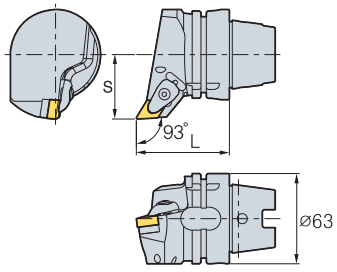
• Inserti applicabili, vedere pag. B16~B18

● : Disponibile ○ : A richiesta

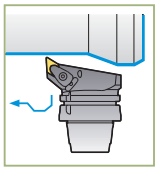
# DDJNR/L



DN□□




93°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | L | S | Inserto | Staffa | Vite | Sede | Vite sede | Molla | Ugello | Dado | Chiave | Tubo lubrif. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **H63T-DDJNR/L-DX15** | | | 65 | 45 | DN□□1506□□ | CVH4 | CHX0518 | SD43V | FTKA0410 | SPR0714 | CN0605 | - | HW30P | CP63T |
| **H63T-DDJNR/L-DX15-3** | | | 65 | 45 | DN□□1504□□ | | | SD44V | | | | | | |

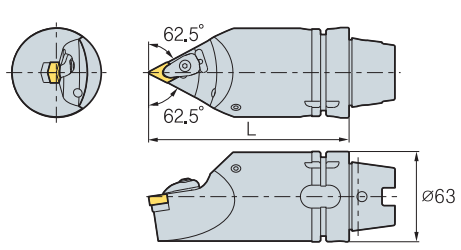
• Inserti applicabili, vedere pag. B19~B21

● : Disponibile ○ : A richiesta

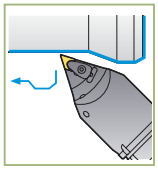
# DDNNN



DN□□




107° 30′



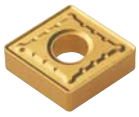
(mm)

| Articolo | Stock | L | Inserto | Staffa | Vite | Sede | Vite sede | Molla | Ugello | Dado | Chiave | Tubo lubrif. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **H63T-DDNNN-H15** | | 100 | DN□□1506□□ | CVH4 | CHX0518 | SD43V | FTKA0410 | SPR0714 | CN0605 | KHA0808 | HW30P | CP63T |
| **H63T-DDNNN-L15** | | 140 | | | | | | | | | | |
| **H63T-DDNNN-H15-3** | | 100 | DN□□1504□□ | CVH4 | CHX0518 | SD44V | FTKA0410 | SPR0714 | CN0605 | KHA0808 | HW30P | CP63T |
| **H63T-DDNNN-L15-3** | | 140 | | | | | | | | | | |

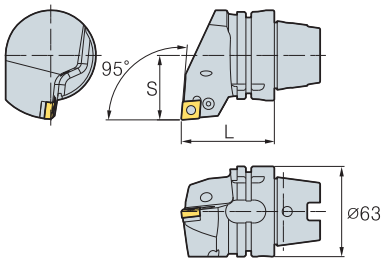
• Inserti applicabili, vedere pag. B19~B21

● : Disponibile ○ : A richiesta

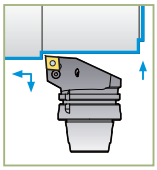
## PCLNR/L



CN□□




95°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | L | S | Inserto | Leva | Vite | Sede | Spina | Punzone | Ugello | Dado | Chiave | Tubo lubrif. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **H63T-PCLNR/L-DX12** | | | 65 | 45 | CN□□1204□□ | LV4N | VHX0820N | SC42N | SP4N | LSPS4 | CN0605 | - | HW30L | CP63T |

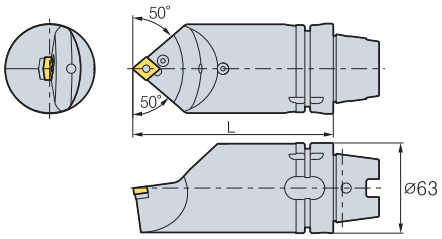
• Inserti applicabili, vedere pag. B16~B18

● : Disponibile ○ : A richiesta

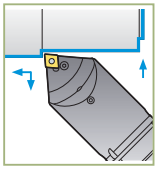
## PCMNN



CN□□




95°



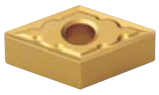
(mm)

| Articolo | Stock | L | Inserto | Leva | Vite | Sede | Spina | Punzone | Ugello | Dado | Chiave | Tubo lubrif. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **H63T-PCMNN-H12** | | 100 | CN□□1204□□ | LV4N | VHX0820N | SC42N | SP4N | LSPS4 | CN0605 | KHA0808 | HW30L | CP63T |
| **H63T-PCMNN-L12** | | 140 | | | | | | | | | | |

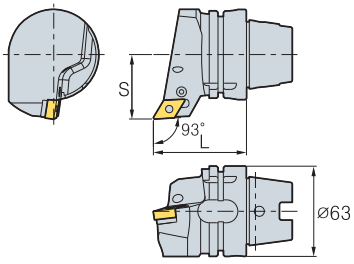
• Inserti applicabili, vedere pag. B16~B18

● : Disponibile ○ : A richiesta

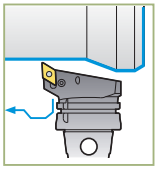
## PDJNR/L



DN□□




93°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | L | S | Inserto | Leva | Vite | Sede | Spina | Punzone | Ugello | Dado | Chiave | Tubo lubrif. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **H63T-PDJNR/L-DX15** | | | 65 | 45 | DN□□1506□□ | LV4BN | VHX0821N | SD42N | SP4N | LSPS4 | CN0605 | - | HW30L | CP63T |
| **H63T-PDJNR/L-DX15-3** | | | 65 | 45 | DN□□1504□□ | | | SD43N | | | | | | |

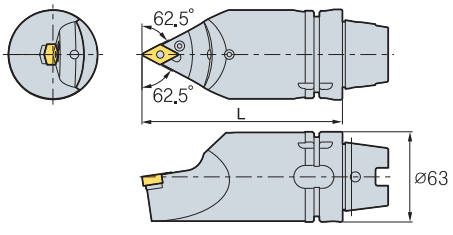
• Inserti applicabili, vedere pag. B19~B21

● : Disponibile ○ : A richiesta

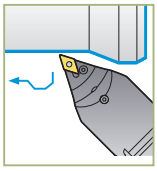
## PDNNN



DN□□




107° 30'



(mm)

| Articolo | Stock | L | Inserto | Leva | Vite | Sede | Spina | Punzone | Ugello | Dado | Chiave | Tubo lubrif. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **H63T-PDNNN-H15** | | 100 | DN□□1506□□ | LV4BN | VHX0821N | SD42N | SP4N | LSPS4 | CN0605 | KHA0808 | HW30L | CP63T |
| **H63T-PDNNN-L15** | | 140 | | | | | | | | | | |
| **H63T-PDNNN-H15-3** | | 100 | DN□□1504□□ | LV4BN | VHX0821N | SD43N | SP4N | LSPS4 | CN0605 | KHA0808 | HW30L | CP63T |
| **H63T-PDNNN-L15-3** | | 140 | | | | | | | | | | |

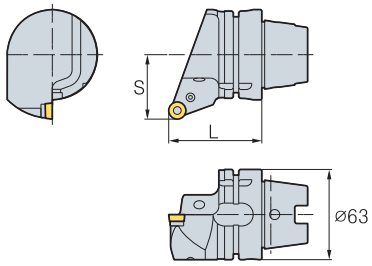
• Inserti applicabili, vedere pag. B19~B21

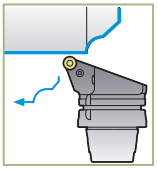
● : Disponibile ○ : A richiesta

# PRGCR/L



RCMX1204M0



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | L | S | Inserto | Leva | Vite | Sede | Spina | Punzone | Ugello | Dado | Chiave | Chiave | Tubo lubrif. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **H63T-PRGCR/L-DX12** | | | 65 | 45 | RCMX1204M0 | LR12 | VHX0617 | SR12 | SP3 | LSPS3 | CN0605 | - | HW25L | | CP63T |

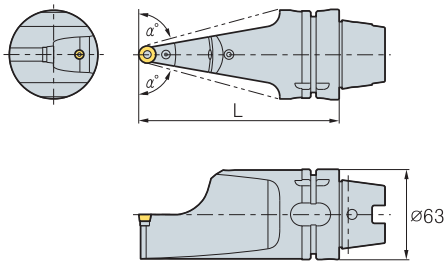
• Inserti applicabili, vedere pag. B36

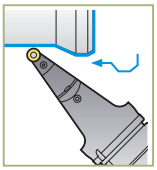
● : Disponibile ○ : A richiesta

# PRDCN



RCMX1204M0



(mm)

| Articolo | Stock | L | α° | Inserto | Leva | Vite | Sede | Spina | Punzone | Ugello | Dado | Chiave | Tubo lubrif. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **H63T-PRDCN-H12** | | 100 | 69 | RCMX1204M0 | LR12 | VHX0617 | SR12 | SP3 | LSPS3 | CN0605 | - | HW25L | CP63T |
| **H63T-PRDCN-L12** | | 140 | 75 | | | | | | | | | | |

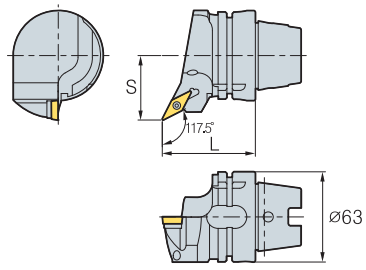
• Inserti applicabili, vedere pag. B36

● : Disponibile ○ : A richiesta

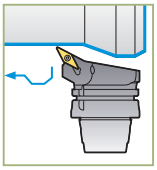
# SVPBR/L



VB□




117° 30'



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | L | S | Inserto | Vite | Vite sede | Sede | Ugello | Dado | Chiave | Chiave | Tubo lubrif. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **H63T-SVPBR/L-DX16** | | | 65 | 45 | VB□T1604□□ | FTGA03512 | SHXN0509F | SV32S | CN0605 | - | TW15P | HW32L | CP63T |

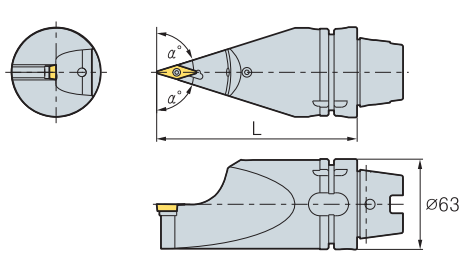
• Inserti applicabili, vedere pag. B42, B48

● : Disponibile ○ : A richiesta

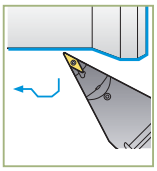
# SVVBN



VB□




117° 30'



(mm)

| Articolo | Stock | L | α° | Inserto | Vite | Vite sede | Sede | Ugello | Dado | Chiave | Chiave | Tubo lubrif. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **H63T-SVVBN-H16** | | 100 | 66.5 | VB□T1604□□ | FTGA03512 | SHXN0509F | SV32S | CN0605 | KHA0808 | TW15P | HW32L | CP63T |
| **H63T-SVVBN-L16** | | 140 | 72.5 | | | | | | | | | |

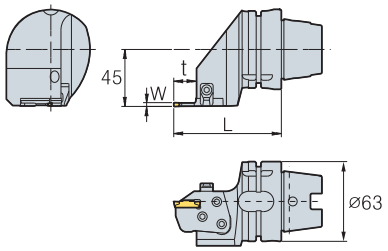
• Inserti applicabili, vedere pag. B36

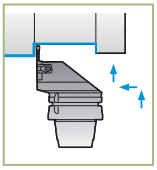
● : Disponibile ○ : A richiesta

# MCHR/L



MGMN / MGMR/L
MGGN / MRMN



• Inserto destro R

(mm)

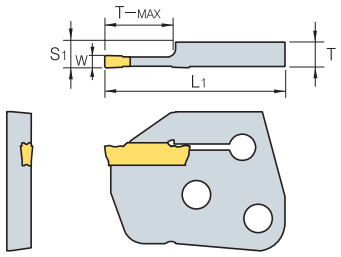
| Articolo | Stock R | Stock L | L | t | W | T–max | Inserto | Cartucce | Staffa | Vite di staffaggio | Vite | Vite | Ugello | Dado | Chiave | Tubo lubrif. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **H63T-MCHR/L** | | | 85 | 18 | 3 | 16 | MGMN | MCER/L3-T16 | CXH8N | DHA0818F | RHA0613 | FHGA0618 | CN0605 | - | HW40L | CP63T |
| | | | 85 | 18 | 4 | 16 | MGMR/L | MCER/L4-T16 | | | | | | | | |
| | | | 89 | 22 | 5 | 20 | MGGN | MCER/L5-T20 | | | | | | | | |
| | | | 89 | 22 | 6 | 20 | MRMN | MCER/L6-T20 | | | | | | | | |

● : Disponibile ○ : A richiesta

# MCER/L
## (Cartucce)



MGMN / MGMR/L
MGGN / MRMN




• Inserto destro R

(mm)

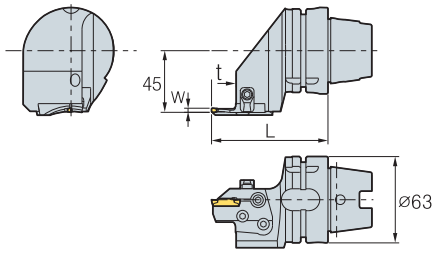
| Articolo | | Stock R | Stock L | T | $L_1$ | $S_1$ | T–max | Inserto W | Inserto Articolo | Utensili applicabili |
|---|---|---|---|---|---|---|---|---|---|---|
| **MCER/L** | **3-T16** | ● | ● | 6.00 | 44.5 | 6.35 | 16 | 3 | MGMN MGMR/L MGGN MGMN | H-63T-MCHR/L |
| | **4-T16** | ● | ● | 5.97 | 44.5 | 6.35 | 16 | 4 | | |
| | **5-T20** | ● | ● | 5.87 | 48.5 | 6.35 | 20 | 5 | | |
| | **6-T20** | ● | ● | 5.82 | 48.5 | 6.35 | 20 | 6 | | |

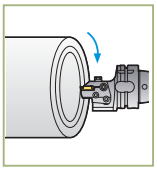
● : Disponibile ○ : A richiesta

# MCHR/L



MFMN300
MFMN400



• Inserto destro R

(mm)

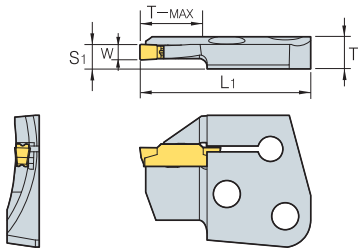
| Articolo | Stock R | Stock L | L | t | W | T–max | Inserto | Cartucce | Staffa | Vite di staffaggio | Vite | Vite | Ugello | Dado | Chiave | Tubo lubrif. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **H63T-MCHR/L** | | | 85 | 18 | 3 | 16 | MFMN300 | MCFR/L3-24/35-T16 | CXH8N | DHA0818F | RHA0613 | FHGA0618 | CN0605 | - | HW40L | |
| | | | 85 | 18 | 3 | 16 | | MCFR/L3-29/40-T16 | | | | | | | | |
| | | | 85 | 18 | 3 | 16 | | MCFR/L3-34/50-T16 | | | | | | | | |
| | | | 85 | 18 | 3 | 16 | | MCFR/L3-44/70-T16 | | | | | | | | |
| | | | 85 | 18 | 3 | 16 | | MCFR/L3-64/99-T16 | | | | | | | | |
| | | | 85 | 18 | 3 | 16 | MFMN400 | MCFR/L4-44/60-T16 | | | | | | | | |
| | | | 85 | 18 | 3 | 16 | | MCFR/L4-60/120-T16 | | | | | | | | |
| | | | 85 | 18 | 3 | 16 | | MCFR/L4-112/200-T16 | | | | | | | | |

● : Disponibile ○ : A richiesta

# MCFR/L
## (Cartucce)



MFMN300
MRMN400




• Inserto destro R

(mm)

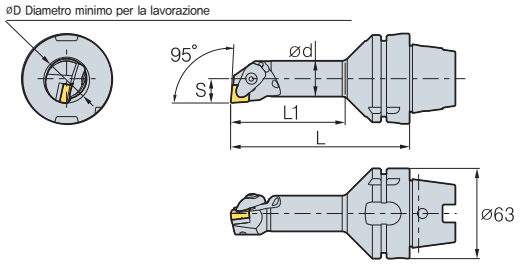
| Articolo | Stock | | T | L1 | S1 | T–max | Inserto | | Utensili applicabili |
|---|---|---|---|---|---|---|---|---|---|
| | R | L | | | | | W | Articolo | |
| **MCFR/L3-24/35-T16** | ● | ○ | 8.00 | 44.5 | 6.35 | 16 | 3 | MFMN300 | H63T-MCHR/L |
| **-29/40-T16** | ● | ○ | 8.00 | 44.5 | 6.35 | 16 | 3 | | |
| **-34/50-T16** | ● | ○ | 8.00 | 44.5 | 6.35 | 16 | 3 | | |
| **-44/70-T16** | ● | ○ | 8.00 | 44.5 | 6.35 | 16 | 3 | | |
| **-64/99-T16** | ● | ○ | 8.00 | 44.5 | 6.35 | 16 | 3 | | |
| **MCFR/L4-44/60-T16** | ● | ○ | 7.97 | 44.5 | 6.35 | 16 | 4 | MGHN400 | |
| **-60/120-T16** | ● | ○ | 7.97 | 44.5 | 6.35 | 16 | 4 | | |
| **-112/200-T16** | ● | ○ | 7.97 | 44.5 | 6.35 | 16 | 4 | | |

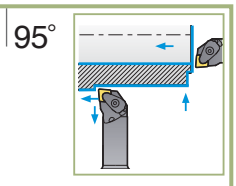
● : Disponibile ○ : A richiesta

# DCLNR/L



CN□□




• Inserto destro R

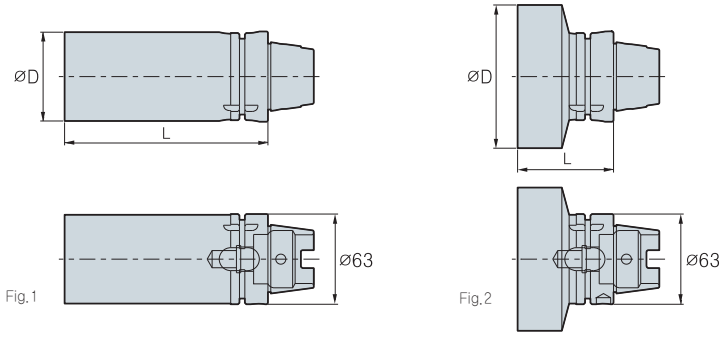
(mm)

| Articolo | Stock | | øD | ød | L | L1 | S | Inserto | Staffa | Vite | Sede | Vite sede | Molla | Ugello | Dado | Chiave | Tubo lubrif. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R | L | | | | | | | | | | | | | | | |
| **H63T-A25K-DCLNR/L-12** | | | 32 | 25 | 125 | 80 | 17 | CN□□1204□□ | CVH4 | CHX0518 | SC42V | FTKA0410 | SPR0714 | CN0605 | - | HW30P | CP63T |
| **H63T-A32K-DCLNR/L-12** | | | 40 | 32 | 140 | 98 | 22 | | | | | | | | | | |

• Inserti applicabili, vedere pag. B16~B18

● : Disponibile ○ : A richiesta

# Utensili grezzi

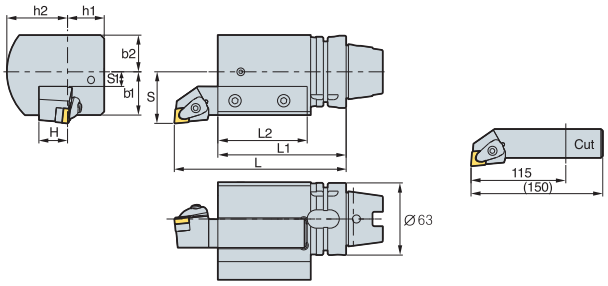



(mm)

| Articolo | Stock | øD | L | Fig. | Tubo lubrificante |
|---|---|---|---|---|---|
| **HSK-T63-BL62-102** | | 62 | 102 | Fig. 1 | CP63T |
| **HSK-T63-BL62-142** | | 62 | 142 | Fig. 1 | |
| **HSK-T63-BL100-67** | | 100 | 67 | Fig. 2 | |
| **HSK-T63-BL120-70** | | 120 | 70 | Fig. 2 | |

● : Disponibile ○ : A richiesta

## EV2525R/L-112



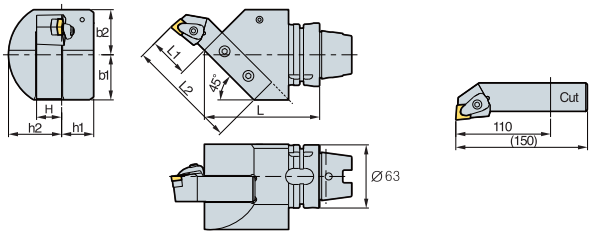

• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | L | L1 | L2 | H | h1 | h2 | S | S1 | b1 | b2 | Vite | Dado | Ugello | Chiave | Tubo lubrif. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **EV2525R/L-112** | | | 150 | 112 | 77 | 25 | 32 | 53 | 45 | 12.75 | 37.75 | 32 | KHA1231 | KHA0808 | CN0605 | HW50L | CP63T |

● : Disponibile ○ : A richiesta

## EV2525R/L-115



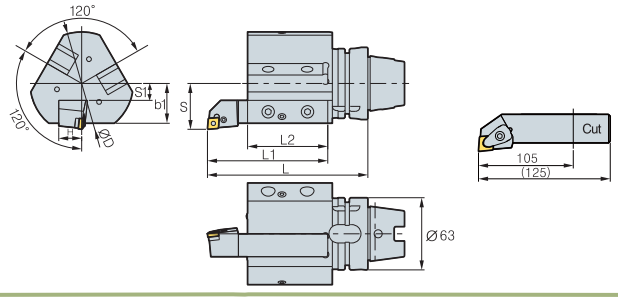

• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | L | L1 | L2 | H | h1 | h2 | b1 | b2 | Vite | Dado | Ugello | Chiave | Tubo lubrif. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **EV2525R/L-115** | | | 115 | 40 | 110 | 25 | 32 | 53 | 45 | 45 | KHA1231 | KHA0808 | CN0605 | HW50L | CP63T |

● : Disponibile ○ : A richiesta

## EV2525R/L-105-3



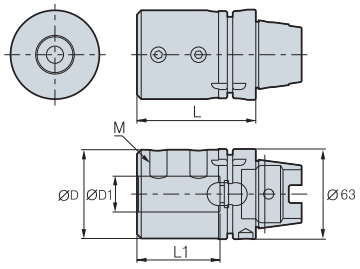

• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | L | L1 | L2 | H | ØD | S | S1 | B1 | Vite | Dado | Ugello | Chiave | Tubo lubrif. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **EV2020R/L-105-3** | | | 140 | 105 | 70 | 20 | 90 | 40 | 15 | 35 | KHA1231 | KHA0808 | CN0605 | HW50L | CP63T |

● : Disponibile ○ : A richiesta

## B○○–○○




• Inserto destro R

(mm)

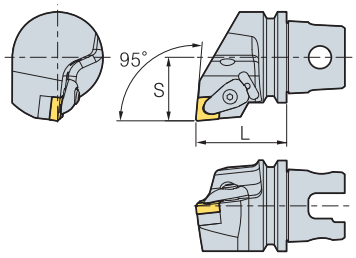
| Articolo | Stock R | Stock L | ØD | ØD1 | L | L1 | M | Vite | Chiave | Tubo lubrif. |
|---|---|---|---|---|---|---|---|---|---|---|
| **B08-65** | | | 28 | 8 | 65 | 40 | M8 | KHA1218 | HW50L | CP63T |
| **B10-70** | | | 35 | 10 | 70 | 45 | M8 | | | |
| **B12-70** | | | 42 | 12 | 70 | 45 | M8 | | | |
| **B16-75** | | | 48 | 16 | 75 | 50 | M10 | | | |
| **B20-75** | | | 52 | 20 | 75 | 50 | M10 | | | |
| **B25-83** | | | 62 | 25 | 83 | 58 | M12 | | | |
| **B32-87** | | | 62 | 32 | 87 | 62 | M12 | | | |
| **B40-97** | | | 65 | 40 | 97 | 72 | M16 | | | |

● : Disponibile ○ : A richiesta

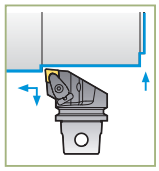
# DCLNR/L



CN□□




95°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | L | S | Inserto | Staffa | Vite | Sede | Vite sede | Molla | Ugello | Dado | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **KM50-DCLNR/L-C12** | | | 50 | 35 | CN□□1204□□ | CVH4 | CHX0518 | SC44V | FTKA0410 | SPR0714 | CN0605 | - | HW30P |
| **KM63UT-DCLNR/L-D12** | | | 60 | 43 | | | | | | | | | |

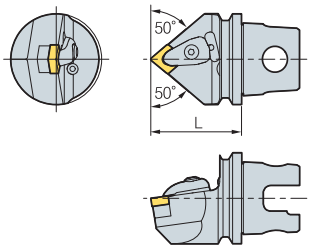
• Inserti applicabili, vedere pag. B16~B18

● : Disponibile ○ : A richiesta

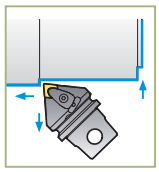
# DCMNN



CN□□




95°



(mm)

| Articolo | Stock | L | Inserto | Staffa | Vite | Sede | Vite sede | Molla | Ugello | Dado | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **KM50-DCMNN-C12** | | 50 | CN□□1204□□ | CVH4 | CHX0518 | SC44V | FTKA0410 | SPR0714 | CN0605 | KHA0808 | HW30P |
| **KM63UT-DCMNN-D12** | | 60 | | | | | | | | | |

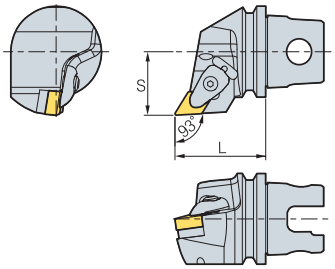
• Inserti applicabili, vedere pag. B16~B18

● : Disponibile ○ : A richiesta

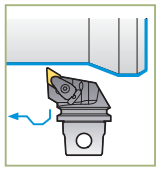
# DDJNR/L



DN□□




93°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | L | S | Inserto | Staffa | Vite | Sede | Vite sede | Molla | Ugello | Dado | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **KM50-DDJNR/L-C15** | | | 50 | 35 | DN□□1506□□ | CVH4 | CHX0518 | SD43V | FTKA0410 | SPR0714 | CN0605 | - | HW30P |
| **KM50-DDJNR/L-C15-3** | | | 50 | 35 | DN□□1504□□ | CVH4 | CHX0518 | SD44V | FTKA0410 | SPR0714 | CN0605 | - | HW30P |
| **KM63UT-DDJNR/L-D15** | | | 60 | 43 | DN□□1506□□ | CVH4 | CHX0518 | SD43V | FTKA0410 | SPR0714 | CN0605 | - | HW30P |
| **KM63UT-DDJNR/L-D15-3** | | | 60 | 43 | DN□□1504□□ | CVH4 | CHX0518 | SD44V | FTKA0410 | SPR0714 | CN0605 | - | HW30P |

• Inserti applicabili, vedere pag. B19~B21

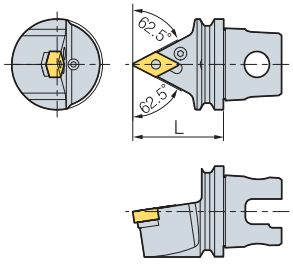
● : Disponibile ○ : A richiesta

# B Sistema di lavorazione KM

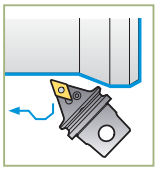
## DDNNN



DN□□




117° 30'



(mm)

| Articolo | Stock | L | Inserto | Staffa | Vite | Sede | Vite sede | Molla | Ugello | Dado | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **KM50-DDNNN-C15** | | 50 | DN□□1506□□ | CVH4 | CHX0518 | SD43V | FTKA0410 | SPR0714 | CN0605 | KHA0808 | HW30P |
| **KM50-DDNNN-C15-3** | | 50 | DN□□1504□□ | CVH4 | CHX0518 | SD44V | FTKA0410 | SPR0714 | CN0605 | KHA0808 | HW30P |
| **KM63UT-DDNNN-D15** | | 60 | DN□□1506□□ | CVH4 | CHX0518 | SD43V | FTKA0410 | SPR0714 | CN0605 | KHA0808 | HW30P |
| **KM63UT-DDNNN-D15-3** | | 60 | DN□□1504□□ | CVH4 | CHX0518 | SD44V | FTKA0410 | SPR0714 | CN0605 | KHA0808 | HW30P |

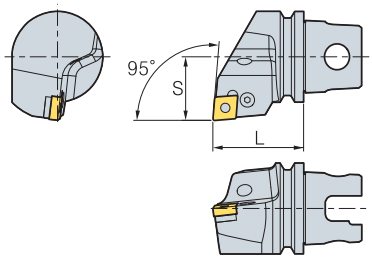
• Inserti applicabili, vedere pag. B19~B21

● : Disponibile ○ : A richiesta

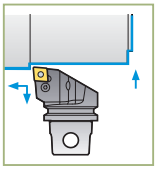
## PCLNR/L



CN□□




95°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | L | S | Inserto | Leva | Vite | Sede | Spina | Punzone | Ugello | Dado | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **KM50-PCLNR/L-C12** | | | 50 | 35 | CN□□1204□□ | LV4N | VHX0820N | SC42N | SP4N | LSPS4 | CN0605 | - | HW30L |
| **KM63UT-PCLNR/L-D12** | | | 60 | 43 | | | | | | | | | |

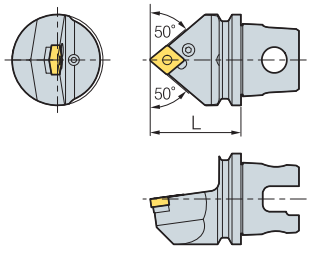
• Inserti applicabili, vedere pag. B16~B18

● : Disponibile ○ : A richiesta

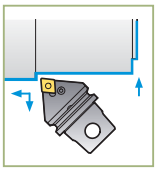
## PCMNN



CN□□




95°



• Inserto destro R

(mm)

| Articolo | Stock | L | Inserto | Leva | Vite | Sede | Spina | Punzone | Ugello | Dado | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **KM50-PCMNN-C12** | | 50 | CN□□1204□□ | LV4N | VHX0820N | SC42N | SP4N | LSPS4 | CN0605 | KHA0808 | HW30L |
| **KM63UT-PCMNN-D12** | | 60 | | | | | | | | | |

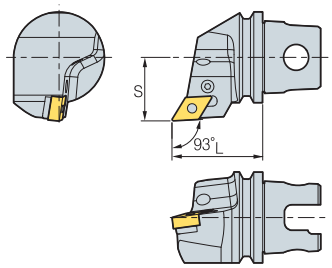
• Inserti applicabili, vedere pag. B16~B18

● : Disponibile ○ : A richiesta

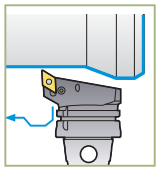
# PDJNR/L



DN□□




93°



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | L | S | Inserto | Leva | Vite | Sede | Spina | Punzone | Ugello | Dado | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **KM50-PDJNR/L-C15** | | | 50 | 35 | DN□□1506□□ | LV4BN | VHX0821N | SD42N | SP4N | LSPS4 | CN0605 | - | HW30L |
| **KM50-PDJNR/L-C15-3** | | | 50 | 35 | DN□□1504□□ | LV4BN | VHX0821N | SD43N | SP4N | LSPS4 | CN0605 | - | HW30L |
| **KM63UT-PDJNR/L-D15** | | | 60 | 43 | DN□□1506□□ | LV4BN | VHX0821N | SD42N | SP4N | LSPS4 | CN0605 | - | HW30L |
| **KM63UT-PDJNR/L-D15-3** | | | 60 | 43 | DN□□1504□□ | LV4BN | VHX0821N | SD43N | SP4N | LSPS4 | CN0605 | - | HW30L |

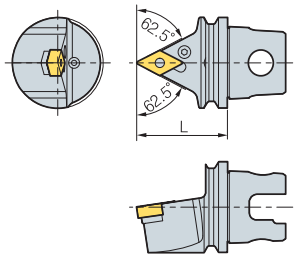
• Inserti applicabili, vedere pag. B19~B21

● : Disponibile ○ : A richiesta

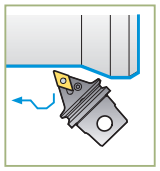
# PDNNN



DN□□




107° 30'



(mm)

| Articolo | Stock | Stock | L | S | Inserto | Leva | Vite | Sede | Spina | Punzone | Ugello | Dado | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **KM50-PDNNN-C15** | | | 50 | 35 | DN□□1506□□ | LV4BN | VHX0821N | SD42N | SP4N | LSPS4 | CN0605 | KHA0808 | HW30L |
| **KM50-PDNNN-C15-3** | | | 50 | 35 | DN□□1504□□ | LV4BN | VHX0821N | SD43N | SP4N | LSPS4 | CN0605 | KHA0808 | HW30L |
| **KM63UT-PDNNN-D15** | | | 60 | 43 | DN□□1506□□ | LV4BN | VHX0821N | SD42N | SP4N | LSPS4 | CN0605 | KHA0808 | HW30L |
| **KM63UT-PDNNN-D15-3** | | | 60 | 43 | DN□□1504□□ | LV4BN | VHX0821N | SD43N | SP4N | LSPS4 | CN0605 | KHA0808 | HW30L |

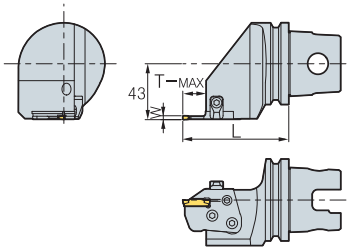
• Inserti applicabili, vedere pag. B19~B21

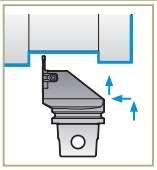
● : Disponibile ○ : A richiesta

# MCHR/L



MGMN / MGMR/L
MGGN / MRMN



(mm)

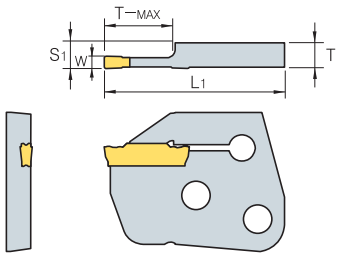
| Articolo | Stock R | Stock L | S | L | t | W | T–MAX | Inserto | Cartucce | Staffa | Vite di staffaggio | Vite | Vite | Ugello | Dado | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **KM50-MCHR/L** | | | 35 | 72.5 | 18 | 3 | 16 | MGMN<br>MGMR/L<br>MGGN<br>MRMN | MCER/L3-T16 | CHX8N | DHA0818F | RHA0613 | FHGA0618 | CN0605 | - | HW40L |
| | | | 35 | 72.5 | 18 | 4 | 16 | | MCER/L4-T16 | | | | | | | |
| | | | 35 | 76.5 | 22 | 5 | 20 | | MCER/L5-T20 | | | | | | | |
| | | | 35 | 76.5 | 22 | 6 | 20 | | MCER/L6-T20 | | | | | | | |
| **KM63UT-MCHR/L** | | | 43 | 81.5 | 18 | 3 | 16 | | MCER/L3-T16 | CHX8N | DHA0818F | RHA0613 | FHGA0618 | CN0605 | - | HW40L |
| | | | 43 | 81.5 | 18 | 4 | 16 | | MCER/L4-T16 | | | | | | | |
| | | | 43 | 85.5 | 22 | 5 | 20 | | MCER/L5-T20 | | | | | | | |
| | | | 43 | 85.5 | 22 | 6 | 20 | | MCER/L6-T20 | | | | | | | |

● : Disponibile ○ : A richiesta

# MCER/L (Cartucce)



MGMN / MGMR/L
MGGN / MRMN




• Inserto destro R

(mm)

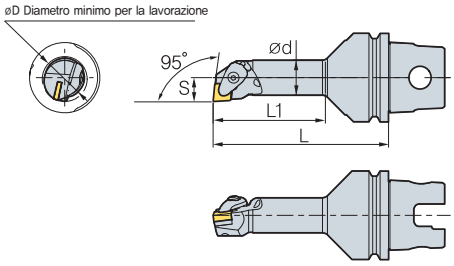
| Articolo | | Stock R | Stock L | T | L1 | S1 | T–MAX | Inserto W | Inserto Articolo | Utensili applicabili |
|---|---|---|---|---|---|---|---|---|---|---|
| MCER/L | 3-T16 | | | 6.00 | 44.5 | 6.35 | 16 | 3 | MGMN MGMR/L MGGN MRMN | H-63T-MCHR/L |
| | 4-T16 | | | 5.97 | 44.5 | 6.35 | 16 | 4 | | |
| | 5-T20 | | | 5.87 | 48.5 | 6.35 | 20 | 5 | | |
| | 6-T20 | | | 5.82 | 48.5 | 6.35 | 20 | 6 | | |

● : Disponibile ○ : A richiesta

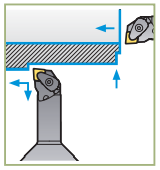
# KM○○-DCLNR/L



CN□□




95°



• Inserto destro R

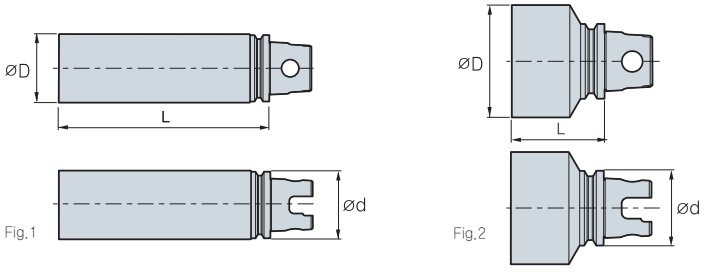
(mm)

| Articolo | Stock R | Stock L | øD | ød | L | L1 | S | Inserto | Staffa | Vite | Sede | Vite sede | Molla | Ugello | Dado | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KM50-A25K-DCLNR/L-12 | | | 32 | 25 | 125 | 80 | 17 | CN□□1204□□ | CVH4 | CHX0518 | SC42V | FTKA0410 | SPR0714 | CN0605 | - | HW30P |
| KM50-A32L-DCLNR/L-12 | | | 40 | 32 | 140 | 98 | 22 | | | | | | | | | |
| KM63UT-A25K-DCLNR/L-12 | | | 32 | 25 | 125 | 80 | 17 | | | | | | | | | |
| KM63UT-A32L-DCLNR/L-12 | | | 40 | 32 | 140 | 98 | 22 | | | | | | | | | |

• Inserti applicabili, vedere pag. B16~B18

● : Disponibile ○ : A richiesta

# Utensili grezzi




(mm)

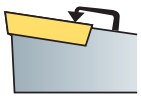
| Articolo | Stock | øD | L | ød | Fig. |
|---|---|---|---|---|---|
| KM50-BL7562 | | 45 | 62 | 50 | Fig. 1 |
| KM50-BL10562 | | 105 | 62 | 50 | Fig. 2 |
| KM63UT-BL65200 | | 65 | 200 | 63 | Fig. 1 |
| KM63UT-BL115150 | | 115 | 150 | 63 | Fig. 2 |

● : Disponibile ○ : A richiesta

| S | T | F | C | R | 12 | C | A | – | 16 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | 9 |
| Metodo di montaggio dell'inserto | Forma dell'inserto | Angolo di lavorazione | Angolo di spoglia dell'inserto | Tipo di esecuzione | Spessore | Codice cartuccia | Tipo di cartuccia | | Lunghezza del tagliente |

## 1 S T F C R 12 C A - 16

### Metodo di montaggio dell'inserto



| A staffa | A leva | A vite |
|---|---|---|
| C | P | S |

## 2 S T F C R 12 C A - 16

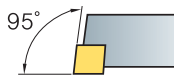
### Forma dell'inserto



| C | S | T |
|---|---|---|
| | | |

## 3 S T F C R 12 C A - 16

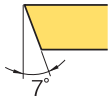
### Angolo di lavorazione




| L | S | F |
|---|---|---|
| R | K | G |
| W | T | |

## 4 S T F C R 12 C A - 16

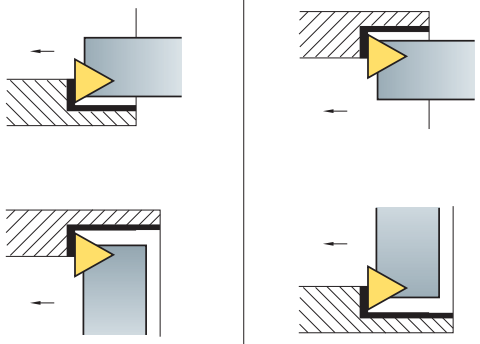
### Angolo di spoglia dell'inserto




| C | P | N |
|---|---|---|
| | | |

## 5 S T F C R 12 C A - 16

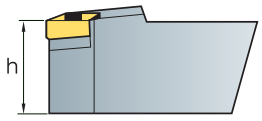
### Tipo di esecuzione



| R | L |
|---|---|
| | |

## 6 S T F C R 12 C A - 16

### Spessore




## 7 S T F C R 12 C A - 16

### Codice cartuccia

C
(Cartuccia)

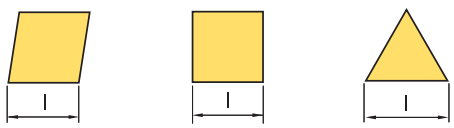
## 8 S T F C R 12 C A - 16

### Tipo di cartuccia

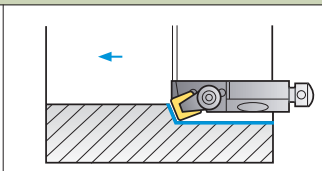
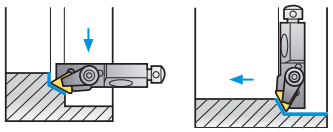
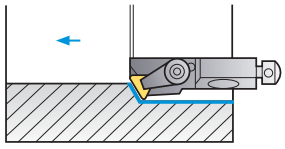
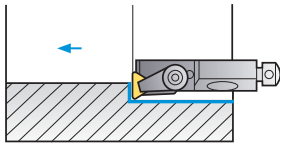
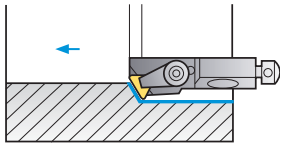
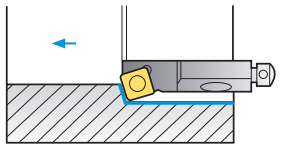
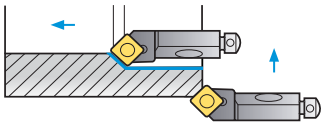
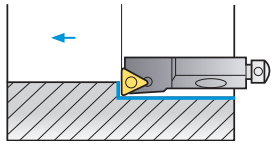
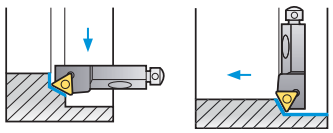
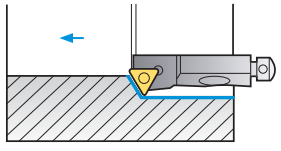
A
(ISO5611)

## 9 S T F C R 12 C A - 16

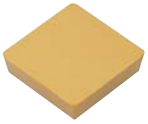
### Lunghezza tagliente



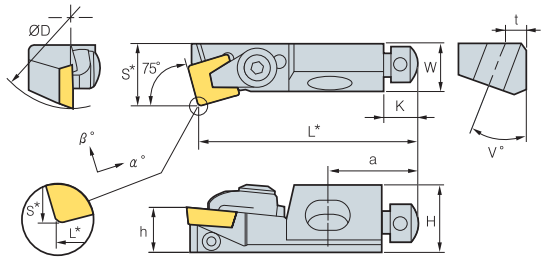
# B Indice cartucce

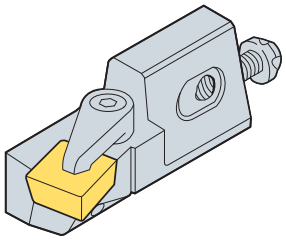
| | Tipo di taglio | | Articolo | Tornitura | Copiatura | Sfacciatura | Svasatura | Inserti applicabili | Pag. |
|---|---|---|---|---|---|---|---|---|---|
| Sistema a staffa | CSKPR/L |  | 10CA-09<br>12CA-12 | ● | | | | SP□R 0903□□<br>1203□□ | **B**135 |
| | CTTPR/L |  | 10CA-11<br>12CA-16 | ● | | | | TP□R 1103□□<br>1603□□ | **B**136 |
| | CTWPR/L |  | 10CA-11<br>12CA-16 | ● | | | | TP□R 1103□□<br>1603□□ | **B**136 |
| | CTFPR/L |  | 10CA-11<br>12CA-16 | ● | | ● | | TP□R 1103□□<br>1603□□ | **B**135 |
| | CTSPR/L |  | 10CA-11<br>12CA-16 | ● | | | | TP□R 1103□□<br>1603□□ | **B**135 |
| Sistema a vite | SSKCR/L |  | 10CA-09<br>12CA-12 | ● | | | | SC□T 09T3□□<br>1204□□ | **B**137 |
| | SSSCR/L |  | 10CA-09<br>12CA-12 | ● | | | ● | SC□T 09T3□□<br>1204□□ | **B**137 |
| | STFCR/L |  | 10CA-11<br>12CA-16 | ● | | ● | | TC□T 1102□□<br>16T3□□ | **B**137 |
| | STTCR/L |  | 10CA-11<br>12CA-16 | ● | | ● | | TC□T 1102□□<br>16T3□□ | **B**138 |
| | STWCR/L |  | 10CA-11<br>12CA-16 | ● | | | | TC□T 1102□□<br>16T3□□ | **B**138 |

# CSKPR/L



SP□R



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | H | W | L* | S* | h | K | α° | β° | a | t | v° | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CSKPR/L 10CA-09** | | | 40 | 15 | 11 | 50 | 14 | 10 | 8 | 6 | 0 | 20 | 5 | 20 | SP □R 0903 □□ |
| **12CA-12** | ● | | 50 | 20 | 15 | 55 | 20 | 12 | 8 | 6 | 0 | 20 | 6 | 20 | 1203 □□ |

• Inserti applicabili, vedere pag. B37~B48

• r=0.8 D=Diametro minimo per la lavorazione

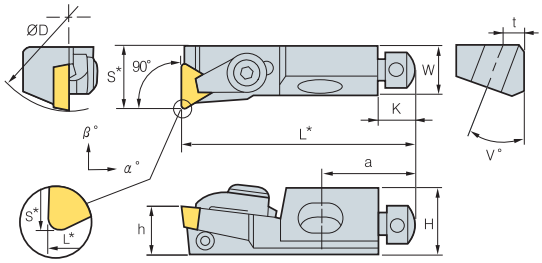
● : Disponibile ○ : A richiesta

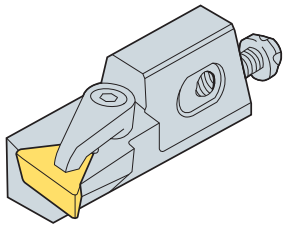
| Parti di ricambio | Staffa | Vite di regolazione assiale | Vite di regolazione radiale | Vite di montaggio | Rondella | Chiave | Chiave |
|---|---|---|---|---|---|---|---|
| **CSKPR/L 10CA-09** | CA05R | AZ0508F | KHA0408 | RHA0620 | WA0602 | TW15L | HW20L |
| **12CA-12** | CA06R | AZ0508F | KHA0412 | RHA0625 | WA0602 | TW15L | HW20L |

# CTFPR/L



TP□R



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | H | W | L* | S* | h | K | α° | β° | a | t | v° | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CTFPR/L 10CA-11** | ● | | 40 | 15 | 11 | 50 | 14 | 10 | 8 | 6 | 0 | 20 | 5 | 20 | TP □R 1103 □□ |
| **12CA-16** | | | 50 | 20 | 15 | 55 | 20 | 12 | 8 | 6 | 0 | 20 | 6 | 20 | 1603 □□ |

• Inserti applicabili, vedere pag. B40~B41

• r=0.4(l=11) r=0.8(l=16) D=Diametro minimo per la lavorazione

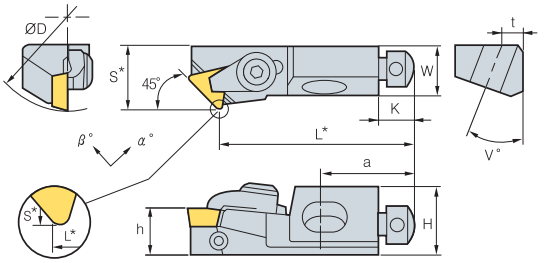
● : Disponibile ○ : A richiesta

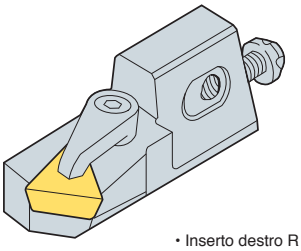
| Parti di ricambio | Staffa | Vite di regolazione assiale | Vite di regolazione radiale | Vite di montaggio | Rondella | Chiave | Chiave |
|---|---|---|---|---|---|---|---|
| **CTFPR/L 10CA-11** | CA05R | AZ0508F | KHA0408 | RHA0620 | WA0602 | TW25L | HW20L |
| **12CA-16** | CA06R | AZ0508F | KHA0412 | RHA0625 | WA0602 | TW30L | HW20L |

# CTSPR/L



TP□R



• Inserto destro R

(mm)

| Articolo | Stock R | Stock L | øD | H | W | L* | S* | h | K | α° | β° | a | t | v° | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CTSPR/L 10CA-11** | ● | | 40 | 15 | 11 | 44 | 14 | 10 | 8 | 4 | 0 | 20 | 5 | 20 | TP □R 1103 □□ |
| **12CA-16** | ● | | 50 | 20 | 15 | 47 | 20 | 12 | 8 | 5 | 0 | 20 | 6 | 20 | 1603 □□ |

• Inserti applicabili, vedere pag. B40~B41

• r=0.4(l=11) r=0.8(l=16) D=Diametro minimo per la lavorazione

● : Disponibile ○ : A richiesta

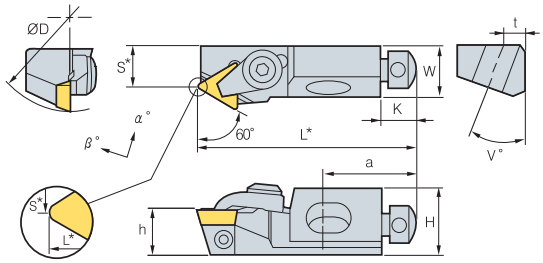
| Parti di ricambio | Staffa | Vite di regolazione assiale | Vite di regolazione radiale | Vite di montaggio | Rondella | Chiave | Chiave |
|---|---|---|---|---|---|---|---|
| **CTSPR/L 10CA-11** | CA05R | AZ0508F | KHA0408 | RHA0620 | WA0602 | TW25L | HW20L |
| **12CA-16** | CA06R | AZ0508F | KHA0412 | RHA0625 | WA0602 | TW30L | HW20L |

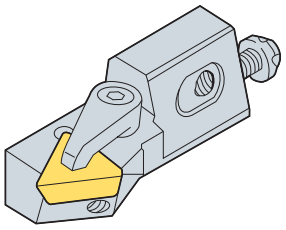
# B Sistema a staffa

## CTTPR/L



TP□R



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | øD | H | W | L* | S* | h | K | α° | β° | a | t | v° | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CTTPR/L** | **10CA-11** | ● | | 40 | 15 | 11 | 50 | 9 | 10 | 8 | 5 | 0 | 20 | 5 | 20 | TP □R 1103 □□ |
| | **12CA-16** | ● | | 50 | 20 | 15 | 55 | 20 | 12 | 8 | 5 | 0 | 20 | 6 | 20 | 1603 □□ |

• Inserti applicabili, vedere pag. B40~B41

* r=0.8 D=Diametro minimo per la lavorazione

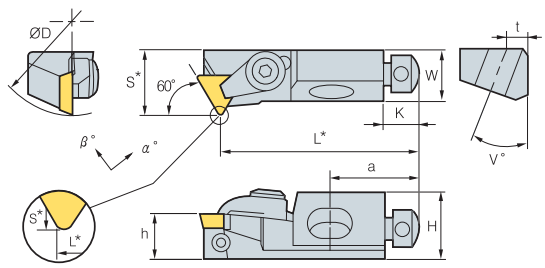
● : Disponibile ○ : A richiesta

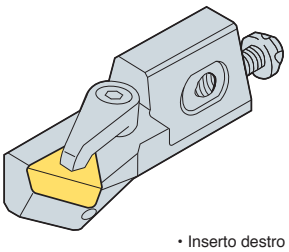
| Parti di ricambio | | Staffa | Vite di regolazione assiale | Vite di regolazione radiale | Vite di montaggio | Rondella | Chiave | Chiave |
|---|---|---|---|---|---|---|---|---|
| **CTTPR/L** | **10CA-11** | CA05R | AZ0508F | KHA0408 | RHA0620 | WA0602 | TW25L | HW20L |
| | **12CA-16** | CA06R | AZ0508F | KHA0412 | RHA0625 | WA0602 | TW30L | HW20L |

## CTWPR/L



TP□R



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | øD | H | W | L* | S* | h | K | α° | β° | a | t | v° | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CTWPR/L** | **10CA-11** | ● | | 40 | 15 | 11 | 44 | 14 | 10 | 8 | 5 | 0 | 20 | 5 | 20 | TP □R 1103 □□ |
| | **12CA-16** | ● | | 50 | 20 | 15 | 47 | 20 | 12 | 8 | 5 | 0 | 20 | 6 | 20 | 1603 □□ |

• Inserti applicabili, vedere pag. B40~B41

* r=0.8 D=Diametro minimo per la lavorazione

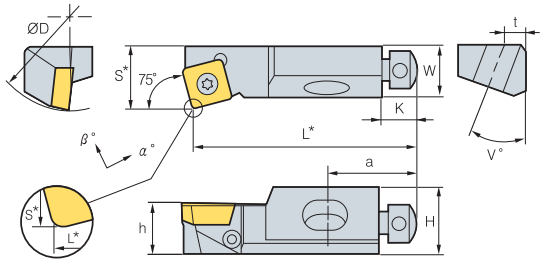
● : Disponibile ○ : A richiesta

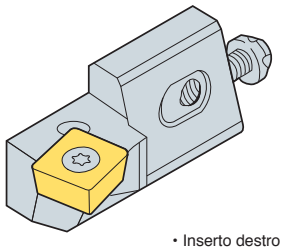
| Parti di ricambio | | Staffa | Vite di regolazione assiale | Vite di regolazione radiale | Vite di montaggio | Rondella | Chiave | Chiave |
|---|---|---|---|---|---|---|---|---|
| **CTWPR/L** | **10CA-11** | CA05R | AZ0508F | KHA0408 | RHA0620 | WA0602 | TW25L | HW20L |
| | **12CA-16** | CA06R | AZ0508F | KHA0412 | RHA0625 | WA0602 | TW30L | HW20L |

# SSKCR/L



SC□□



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | øD | H | W | L* | S* | h | K | α° | β° | a | t | v° | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SSKCR/L** | **10CA-09** | | | 40 | 15 | 11 | 50 | 14 | 10 | 8 | 0 | -4 | 20 | 5 | 20 | SC □□ 09T3 □□ |
| | **12CA-12** | | | 50 | 20 | 15 | 55 | 20 | 12 | 8 | 0 | -4 | 20 | 6 | 20 | SC □□ 1204 □□ |

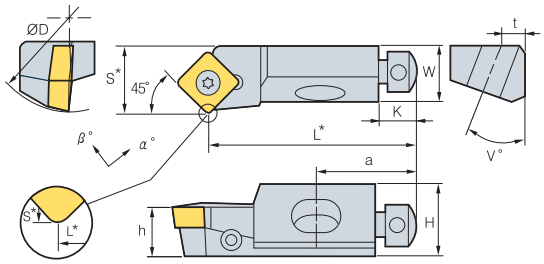
• Inserti applicabili, vedere pag. B36, B47 * r=0.8 D=Diametro minimo per la lavorazione ● : Disponibile ○ : A richiesta

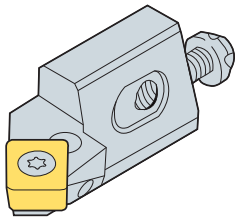
| Parti di ricambio | | Staffa | Vite di regolazione assiale | Vite di regolazione radiale | Vite di montaggio | Rondella | Chiave | Chiave |
|---|---|---|---|---|---|---|---|---|
| **CTTPR/L** | **10CA-11** | FTGA03508 | AZ0508F | KHA0408 | RHA0602 | WA0602 | TW 15P | HW20L |
| | **12CA-16** | FTGA0411F | AZ0508F | KHA0412 | RHA0625 | WA0602 | TW 15P | HW20L |

# SSSCR/L



SC□□



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | øD | H | W | L* | S* | h | K | α° | β° | a | t | v° | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SSSCR/L** | **10CA-09** | | | 40 | 15 | 11 | 44 | 14 | 10 | 8 | -5 | 0 | 20 | 5 | 20 | SC □□ 09T3 □□ |
| | **12CA-12** | | | 50 | 20 | 15 | 47 | 20 | 12 | 8 | -5 | 0 | 20 | 6 | 20 | SC □□ 1204 □□ |

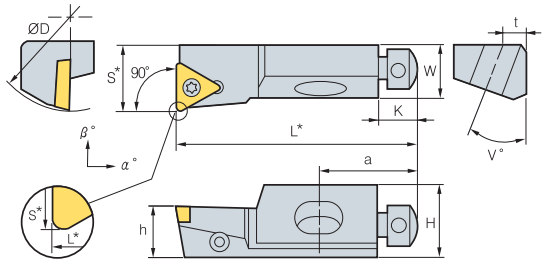
• Inserti applicabili, vedere pag. B36, B47 * r=0.8 D=Diametro minimo per la lavorazione ● : Disponibile ○ : A richiesta

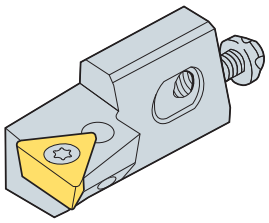
| Parti di ricambio | | Staffa | Vite di regolazione assiale | Vite di regolazione radiale | Vite di montaggio | Rondella | Chiave | Chiave |
|---|---|---|---|---|---|---|---|---|
| **SSSCR/L** | **10CA-09** | FTGA03508 | AZ0508F | KHA0408 | RHA0602 | WA0602 | TW 15P | HW20L |
| | **12CA-12** | FTGA0411F | AZ0508F | KHA0412 | RHA0625 | WA0602 | TW 15P | HW20L |

# STFCR/L



TC□□



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | øD | H | W | L* | S* | h | K | α° | β° | a | t | v° | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **STFCR/L** | **10CA-11** | | | 40 | 15 | 11 | 50 | 14 | 10 | 8 | 0 | -3 | 20 | 5 | 20 | TC □□ 1102 □□ |
| | **12CA-16** | | | 50 | 20 | 15 | 55 | 20 | 12 | 8 | 0 | -3 | 20 | 6 | 20 | TC □□ 16T3 □□ |

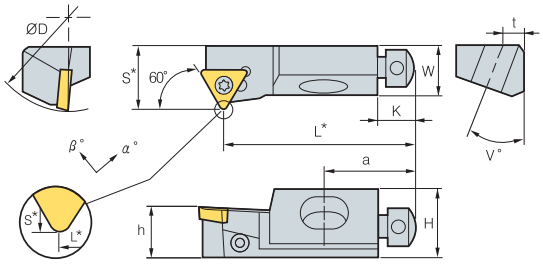
• Inserti applicabili, vedere pag. B39, B48 * r=0.4(l=11) r=0.8(l=16) D=Diametro minimo per la lavorazione ● : Disponibile ○ : A richiesta

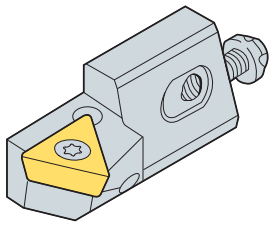
| Parti di ricambio | | Staffa | Vite di regolazione assiale | Vite di regolazione radiale | Vite di montaggio | Rondella | Chiave | Chiave |
|---|---|---|---|---|---|---|---|---|
| **STFCR/L** | **10CA-11** | FTKA02565 | AZ0508F | KHA0408 | RHA0602 | WA0602 | TW 15P | HW20L |
| | **12CA-16** | FTKA03508 | AZ0508F | KHA0412 | RHA0625 | WA0602 | TW 15P | HW20L |

# STTCR/L



TC□□



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | øD | H | W | L* | S* | h | K | α° | β° | a | t | v° | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **STTCR/L** | **10CA-11** | | | 40 | 15 | 11 | 50 | 9 | 10 | 8 | -5 | 0 | 20 | 5 | 20 | TC □□ 1102 □□ |
| | **12CA-16** | | | 50 | 20 | 15 | 47 | 20 | 12 | 8 | -3 | 0 | 20 | 6 | 20 | TC □□ 16T3 □□ |

• Inserti applicabili, vedere pag. B39, B48

• r=0.4(l=11) r=0.8(l=16) D=Diametro minimo per la lavorazione

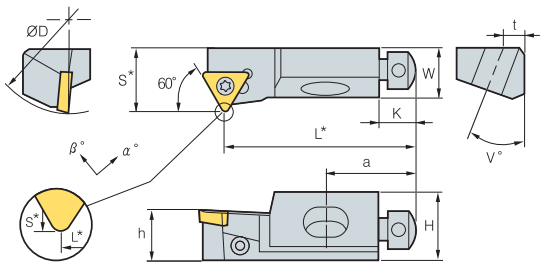
● : Disponibile ○ : A richiesta

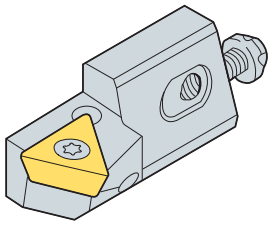
| Parti di ricambio | | Staffa | Vite di regolazione assiale | Vite di regolazione radiale | Vite di montaggio | Rondella | Chiave | Chiave |
|---|---|---|---|---|---|---|---|---|
| **STTCR/L** | **10CA-11** | FTKA02565 | AZ0508F | KHA0408 | RHA0602 | WA0602 | TW 07P | HW20L |
| | **12CA-16** | FTKA03508 | AZ0508F | KHA0412 | RHA0625 | WA0602 | TW 15P | HW20L |

# STWCR/L



TC□□



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | øD | H | W | L* | S* | h | K | α° | β° | a | t | v° | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **STWCR/L** | **10CA-11** | | | 40 | 15 | 11 | 44 | 14 | 10 | 8 | 0 | -4 | 20 | 5 | 20 | TC □□ 1102 □□ |
| | **12CA-16** | | | 50 | 20 | 15 | 47 | 20 | 12 | 8 | -5 | 0 | 20 | 6 | 20 | TC □□ 16T3 □□ |

• Inserti applicabili, vedere pag. B39, B48

• r=0.4(l=11) r=0.8(l=16) D=Diametro minimo per la lavorazione

● : Disponibile ○ : A richiesta

| Parti di ricambio | | Staffa | Vite di regolazione assiale | Vite di regolazione radiale | Vite di montaggio | Rondella | Chiave | Chiave |
|---|---|---|---|---|---|---|---|---|
| **STWCR/L** | **10CA-11** | FTKA02565 | AZ0508F | KHA0408 | RHA0602 | WA0602 | TW 15P | HW20L |
| | **12CA-16** | FTKA03508 | AZ0508F | KHA0412 | RHA0625 | WA0602 | TW 15P | HW20L |

## Sistema di codifica Auto Tools

| Tipo di utensile | Altezza del tagliente | Larghezza del tagliente | Inserto per tornitura gole Larghezza iniziale di taglio | | |
|---|---|---|---|---|---|
| B: Tornitura gole G : Scanalatura<br>C: Troncatura T : Filettatura<br>GB : Scanalatura e tornitura gole | | | | | |
| S | G | R | 06 | 06 | 10 | (15 - 10) | – | R05 |
| Identificativo taglio | | Tipo di esecuzione<br>R : Destra<br>L : Sinistra | | Profondità di taglio | | Passo | | Raggio di punta |

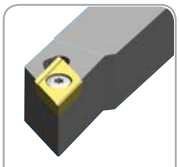
## Informazioni tecniche Auto Tools

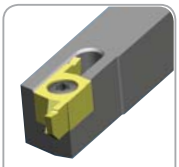
### Caratteristiche

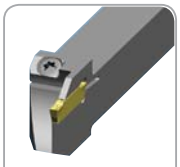
- Progettati per effettuare lavorazioni di precisione
- Ideali per interventi complicati
- Indicati per lavorare particolari di piccole dimensioni
- Gli inserti possono essere montati solo su un utensile corrispondente FGT
- Portainserti ISO Inclinazione “0”



### Tipo


ISO

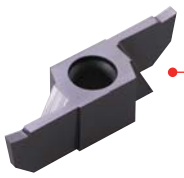

FGT

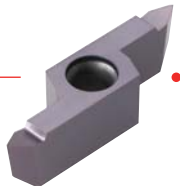

MGT

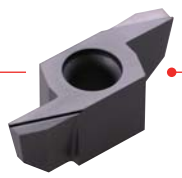

BEM

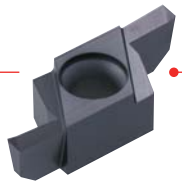
### Multi functional auto tool (FGT)

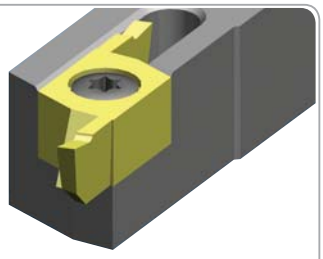
- **L’inserto si può montare solo sull’utensile corrispondente** (Es. : inserto 06 solo su portainserti da 06)


**SG :** Scanalatura


**ST :** Filettatura


**SB :** Tornitura gole

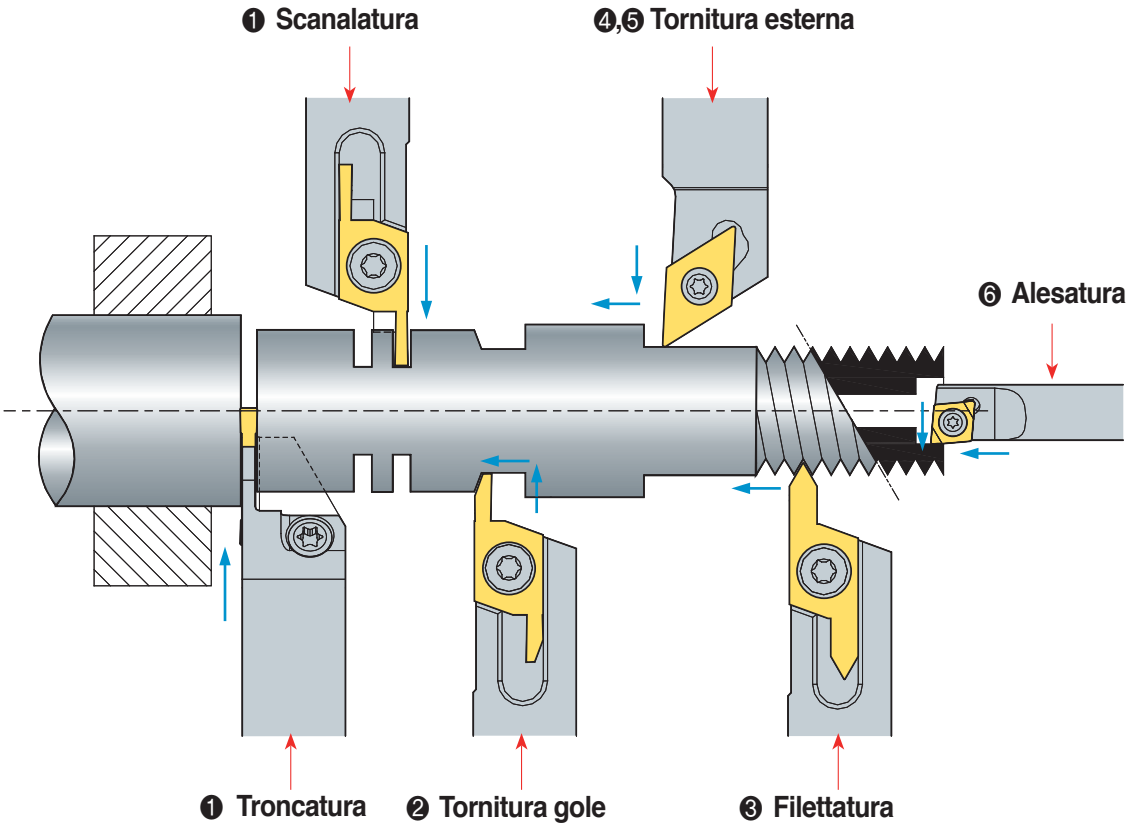

**SGB :** Scanalatura e tornitura gole


**SC :** Troncatura

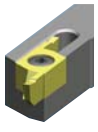
### Condizioni di taglio raccomandate

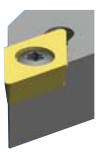
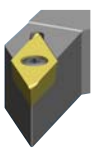
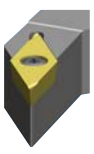
| | Tornitura | | Scanalatura | | Troncatura | | Tornitura gole | |
|---|---|---|---|---|---|---|---|---|
| Pezzo lavorato | Velocità taglio (m/min) | Avanzam. (mm/rev) | Velocità taglio (m/min) | Avanzam. (mm/rev) | Velocità taglio (m/min) | Avanzam. (mm/rev) | Velocità taglio (m/min) | Avanzam. (mm/rev) |
| Acciaio inossidabile | 50 ~ 120 | 0.02 ~ 0.20 | 30 ~ 120 | 0.02 ~ 0.05 | 30 ~ 120 | 0.02 ~ 0.05 | 30 ~ 120 | 0.02 ~ 0.20 |
| Acciaio al carbonio | 50 ~ 150 | 0.01 ~ 0.25 | 50 ~ 150 | 0.02 ~ 0.08 | 50 ~ 150 | 0.01 ~ 0.08 | 50 ~ 150 | 0.01 ~ 0.25 |
| Acciai non legati | 30 ~ 150 | 0.02 ~ 0.25 | 30 ~ 150 | 0.02 ~ 0.08 | 30 ~ 150 | 0.01 ~ 0.08 | 30 ~ 150 | 0.01 ~ 0.25 |
| Materiali non ferrosi | 70 ~ 200 | 0.03 ~ 0.25 | 70 ~ 200 | 0.03 ~ 0.10 | 70 ~ 200 | 0.03 ~ 0.10 | 70 ~ 200 | 0.03 ~ 0.30 |

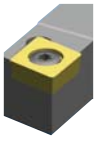
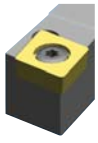
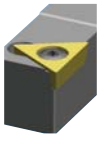
## Esempio di applicazioni




## Indice analitico

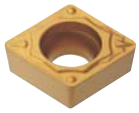
| | ① Troncatura e scanalatura | | | ② Tornitura gole | | ③ Filettatura |
|---|---|---|---|---|---|---|
| **Utensile** | SXGNR/L | SXGNR/L | MGEHR/L | SXGNR/L | SXGNR/L | SXGNR/L |
| **Inserto** | SG | SC | MGMN | SB | SGB | ST |
| **Dim. utensile** | 10 ~ 20mm | 10 ~ 20mm | 10 ~ 16mm | 10 ~ 20mm | 10 ~ 20mm | 10 ~ 20mm |
| **Forma inserto** |  |  |  |  |  |  |
| **Largh. taglio** | 1 ~ 3mm | 1 ~ 3mm | 1.5~2.5mm | 2 ~ 4mm | 2 ~ 3mm | Passo |
| **ØDmax** | Ø18 | Ø18 | Ø32 | Tmax8 | Tmax8.5 | 0.5~1.5/1.5~3.0 |
| **Pag.** | B143 | B143 | B145 | B143 | B143 | B143 |

| | ④ Tornitura esterna e copiatura | | | |
|---|---|---|---|---|
| **Utensile** | SDJCR/L | SDNCN | SVJBR/L | SVJCR/L |
| **Inserto** | DC□T | DC□T | VB□T | VC□T |
| **Dim. utensile** | 8 ~ 16mm | 8 ~ 16mm | 10 ~ 16mm | 10 ~ 16mm |
| **Forma inserto** |  |  |  |  |
| **Caratteristiche** | Inclinazione "0" | | | |
| **Pag.** | B141 | B142 | B142 | B142 |

| | ⑤ Tornitura esterna e sfacciatura | | |
|---|---|---|---|
| **Utensile** | SCACR/L | SCLCR/L | STACR/L |
| **Inserto** | CC□T | CC□T | TC□T |
| **ØDmax** | 8 ~ 16mm | 8 ~ 16mm | 8 ~ 10mm |
| **Forma inserto** |  |  |  |
| **Caratteristiche** | Inclinazione "0" | | |
| **Pag.** | B141 | B141 | B142 |

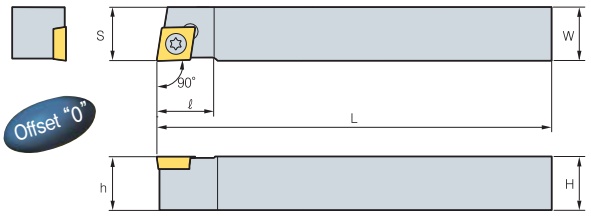
| | ⑥ Alesatura | | | | |
|---|---|---|---|---|---|
| **Utensile** | SCLCR/L | STUBR/L | STUPR/L | SWUBR/L | MSB |
| **Inserto** | CC□T | TB□T | TP□T | WB□T | - |
| **Diametro stelo** | Ø4~10 | Ø8 | Ø8 | Ø5~Ø8 | Ø4~Ø6 |
| **Forma inserto** |  |  |  |  |  |
| **ØDmin** | Ø5 | Ø8 | Ø10 | Ø5,5 | Ø3,2 |
| **Pag.** | B114 | B114 | B114 | B114 | B148~B152 |

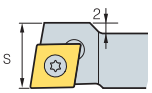
# SCACR/L



CCGT

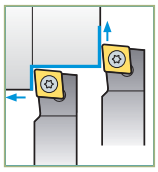
New




※ Solo SCACR/L1010-X09A corrisponde alla figura riportata qui sopra.

90°



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SCACR/L | 0808-X06A | ● | | 8 | 8 | 120 | 8 | 8 | 10 | CCGT 0602 □□ | FTKA02565 | TW 07P |
| | 1010-X06A | ● | | 10 | 10 | 120 | 10 | 10 | 10 | | | |
| | 1010-X09A | ● | | 10 | 10 | 120 | 12 | 10 | 13 | CCGT 09T3 □□ | FTKA0410 | TW 15P |
| | 1212-X09A | ● | | 12 | 12 | 120 | 12 | 12 | 16 | | | |
| | 1616-X09A | ● | | 16 | 16 | 120 | 16 | 16 | 16 | | | |

• Inserti applicabili, vedere pag. B33, B46

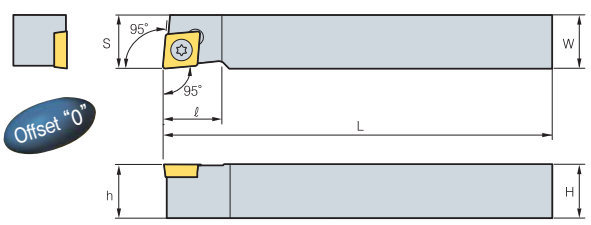
● : Disponibile ○ : A richiesta

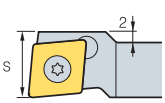
# SCLCR/L



CCGT

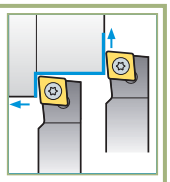
New




※ Solo SCLCR/L1010-X09A corrisponde alla figura riportata qui sopra.

95°



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SCLCR/L | 0808-X06A | | | 8 | 8 | 120 | 8 | 8 | 10 | CCGT 0602 □□ | FTKA02565 | TW 07P |
| | 1010-X06A | ○ | | 10 | 10 | 120 | 10 | 10 | 10 | | | |
| | 1010-X09A | | | 10 | 10 | 120 | 12 | 10 | 13 | CCGT 09T3 □□ | FTKA0410 | TW 15P |
| | 1212-X09A | ○ | | 12 | 12 | 120 | 12 | 12 | 16 | | | |
| | 1616-X09A | | | 16 | 16 | 120 | 16 | 16 | 16 | | | |

• Inserti applicabili, vedere pag. B33, B46

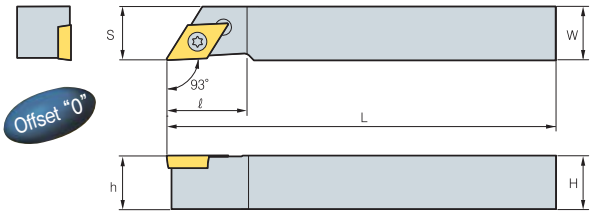
● : Disponibile ○ : A richiesta

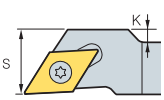
# SDJCR/L



DCGT

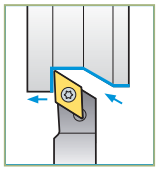
New




※ Solo SDJCR/L0808-X07A, 1010-X11A, 1212-X11A corrisponde alla figura riportata qui sopra.

93°



• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | K | ℓ | Inserto | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SDJCR/L | 0808-X07A | ● | | 8 | 8 | 120 | 10 | 8 | 2 | 18 | DCGT 0702 □□ | FTKA02565 | TW 07P |
| | 1010-X07A | ● | | 10 | 10 | 120 | 10 | 10 | - | 15 | | | |
| | 1010-X11A | ● | | 10 | 10 | 120 | 14 | 10 | 4 | 18 | DCGT 11T3 □□ | FTKA0410 | TW 15P |
| | 1212-X11A | ● | | 12 | 12 | 120 | 14 | 12 | 2 | 18 | | | |
| | 1616-X11A | | | 16 | 16 | 120 | 16 | 16 | - | 22 | | | |

• Inserti applicabili, vedere pag. B34, B46

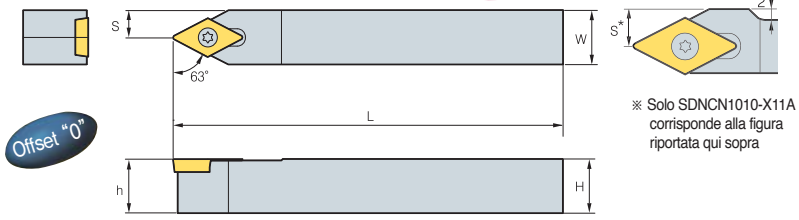
● : Disponibile ○ : A richiesta

# B Auto Tools - Tipo ISO

## SDNCN



DCGT




(mm)

| Articolo | | Stock | H | W | L | S | h | Inserto | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|
| **SDNCN** | **0808-X07A** | ● | 8 | 8 | 120 | 4 | 8 | DCGT 0702 □□ | FTKA02565 | TW 07P |
| | **1010-X07A** | ● | 10 | 10 | 120 | 5 | 10 | | | |
| | **1010-X11A** | ● | 10 | 10 | 120 | 7 | 10 | DCGT 11T3 □□ | FTKA0410 | TW 15P |
| | **1212-X11A** | ● | 12 | 12 | 120 | 6 | 12 | | | |
| | **1616-X11A** | ● | 16 | 16 | 120 | 8 | 16 | | | |

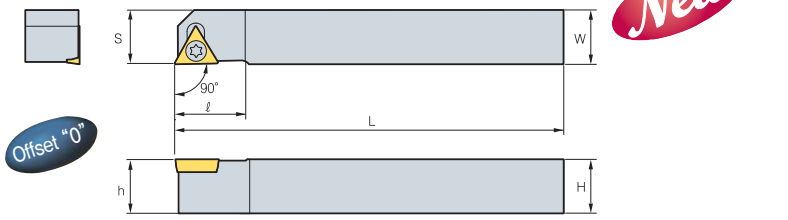
• Inserti applicabili, vedere pag. B34, B46

● : Disponibile ○ : A richiesta

## STACR/L



TCGT




(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | K | ℓ | Inserto | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **STACR/L** | **0808-X08A** | | | 8 | 8 | 120 | 8 | 8 | 1 | 12 | TCGT 0802 □□ | FTNA 0206 | TW 06P |
| | **1010-X08A** | | | 10 | 10 | 120 | 10 | 10 | 3 | 12 | | | |

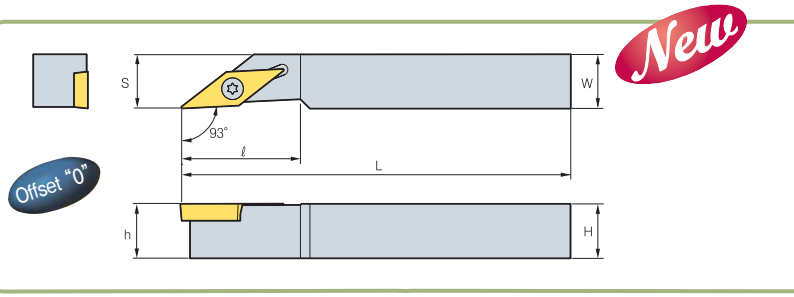
• Inserti applicabili, vedere pag. B39, B48

● : Disponibile ○ : A richiesta

## SVJBR/L



VBGT




(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SVJCR/L** | **1010-X11A** | ● | | 10 | 10 | 120 | 10 | 10 | 22 | VBGT 1103 □□ | FTKA 02565 | TW 07P |
| | **1212-X11A** | ● | | 12 | 12 | 120 | 12 | 12 | 22 | | | |
| | **1616-X11A** | | | 16 | 16 | 120 | 16 | 16 | 24 | | | |

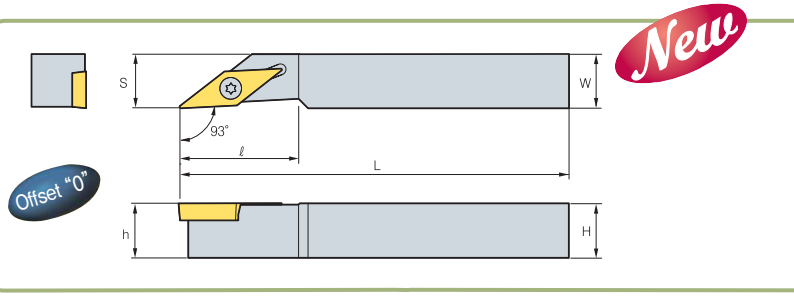
• Inserti applicabili, vedere pag. B43

● : Disponibile ○ : A richiesta

## SVJCR/L



VCGT



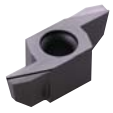

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserto | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SVJCR/L** | **1010-X11A** | ● | | 10 | 10 | 120 | 10 | 10 | 22 | VCGT 1103 □□ | FTKA 02565 | TW 07P |
| | **1212-X11A** | ● | | 12 | 12 | 120 | 12 | 12 | 22 | | | |
| | **1616-X11A** | ● | | 16 | 16 | 120 | 16 | 16 | 24 | | | |

• Inserti applicabili, vedere pag. B43

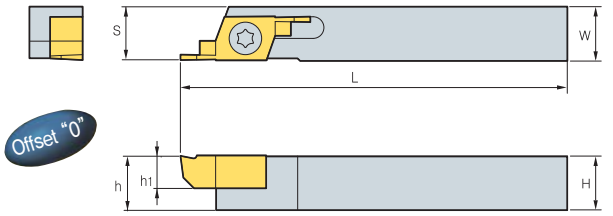
● : Disponibile ○ : A richiesta

# SXGNR/L



SBR, SGBR
SCR, STR, SGR

New




※ Solo SXGNR/L1212-X08A
corrisponde alla figura riportata qui sopra

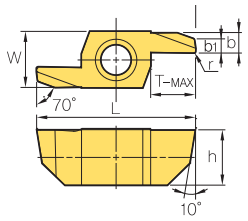
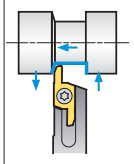
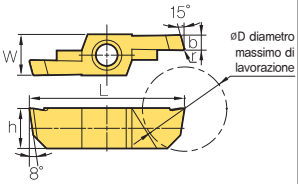
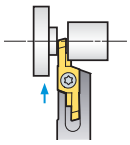
• Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | $h_1$ | Inserto | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SXGNR/L | 1010-X06A | ● | | 10 | 10 | 125 | 10 | 10 | 6 | S□R/L 06 | FTNA 0408 | TW 15P |
| | 1212-X06A | ● | | 12 | 12 | 125 | 12 | 12 | 6 | | | |
| | 1616-X06A | ● | | 16 | 16 | 125 | 16 | 16 | 6 | | | |
| | 2020-X06A | ● | | 20 | 20 | 125 | 20 | 20 | 6 | | | |
| | 1212-X08A | ● | | 12 | 12 | 130 | 12 | 12 | 8 | S□R/L 08 | FTNA 0411 | TW 15P |
| | 1616-X08A | | | 16 | 16 | 130 | 16 | 16 | 8 | | | |
| | 2020-X08A | | | 20 | 20 | 130 | 20 | 20 | 8 | | | |

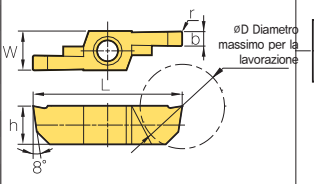
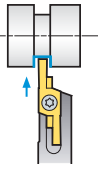
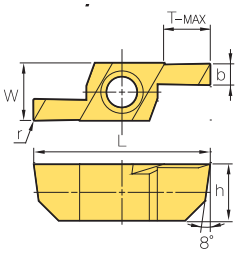
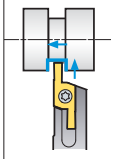
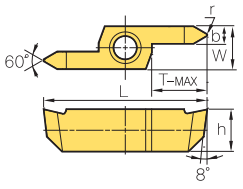
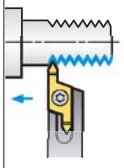
● : Disponibile ○ : A richiesta

## Inserti disponibili

| Applicazione | Inserto | Articolo | Rivestito PC5300 R | Dimensioni (mm) b1 | b | W | L | r | h | T-MAX | ØD | Disegno | Lavorazione |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tornitura gole | SBR/L | SBR/L 060520-10-R00 | | 1 | 2 | 8 | 22 | 0 | 6 | 5.5 | - |  |  |
| | | 060520-10-R05 | ● | 1 | 2 | 8 | 22 | 0.05 | 6 | 5.5 | - | | |
| | | 060520-10-R10 | ● | 1 | 2 | 8 | 22 | 0.1 | 6 | 5.5 | - | | |
| | | 060630-20-R00 | | 2 | 3 | 8 | 24 | 0 | 6 | 6.5 | - | | |
| | | 060630-20-R05 | ● | 2 | 3 | 8 | 24 | 0.05 | 6 | 6.5 | - | | |
| | | 060630-20-R10 | ● | 2 | 3 | 8 | 24 | 0.1 | 6 | 6.5 | - | | |
| | | 080630-20-R00 | | 2 | 3 | 8 | 23 | 0 | 8 | 6.5 | - | | |
| | | 080630-20-R05 | ● | 2 | 3 | 8 | 23 | 0.05 | 8 | 6.5 | - | | |
| | | 080630-20-R10 | ● | 2 | 3 | 8 | 23 | 0.1 | 8 | 6.5 | - | | |
| | | 080840-20-R00 | | 2 | 4 | 8 | 27 | 0 | 8 | 8.5 | - | | |
| | | 080840-20-R05 | ● | 2 | 4 | 8 | 27 | 0.05 | 8 | 8.5 | - | | |
| | | 080840-20-R10 | ● | 2 | 4 | 8 | 27 | 0.1 | 8 | 8.5 | - | | |
| Troncatura | SCR/L | SCR/L 060610-R00 | | - | 1 | 8 | 24 | 0 | 6 | - | 11 |  |  |
| | | 060610-R05 | ● | - | 1 | 8 | 24 | 0.05 | 6 | - | 11 | | |
| | | 060610-R10 | ● | - | 1 | 8 | 24 | 0.1 | 6 | - | 11 | | |
| | | 060615-R00 | | - | 1.5 | 8 | 24 | 0 | 6 | - | 11 | | |
| | | 060615-R05 | ● | - | 1.5 | 8 | 24 | 0.05 | 6 | - | 11 | | |
| | | 060615-R10 | ● | - | 1.5 | 8 | 24 | 0.1 | 6 | - | 11 | | |
| | | 060620-R00 | | - | 2 | 8 | 24 | 0 | 6 | - | 11 | | |
| | | 060620-R05 | ● | - | 2 | 8 | 24 | 0.05 | 6 | - | 11 | | |
| | | 060620-R10 | ● | - | 2 | 8 | 24 | 0.1 | 6 | - | 11 | | |
| | | 081015-R00 | | - | 1.5 | 8 | 31 | 0 | 8 | - | 18 | | |
| | | 081015-R05 | ● | - | 1.5 | 8 | 31 | 0.05 | 8 | - | 18 | | |
| | | 081015-R10 | ● | - | 1.5 | 8 | 31 | 0.1 | 8 | - | 18 | | |
| | | 081020-R00 | | - | 2 | 8 | 31 | 0 | 8 | - | 18 | | |
| | | 081020-R05 | ● | - | 2 | 8 | 31 | 0.05 | 8 | - | 18 | | |
| | | 081020-R10 | ● | - | 2 | 8 | 31 | 0.1 | 8 | - | 18 | | |
| | | 081025-R00 | | - | 2.5 | 8 | 31 | 0 | 8 | - | 18 | | |
| | | 081025-R05 | ● | - | 2.5 | 8 | 31 | 0.05 | 8 | - | 18 | | |
| | | 081025-R10 | ● | - | 2.5 | 8 | 31 | 0.1 | 8 | - | 18 | | |
| | | 081030-R00 | | - | 3 | 8 | 31 | 0 | 8 | - | 18 | | |
| | | 081030-R05 | ● | - | 3 | 8 | 31 | 0.05 | 8 | - | 18 | | |
| | | 081030-R10 | ● | - | 3 | 8 | 31 | 0.1 | 8 | - | 18 | | |

● : Disponibile ○ : A richiesta

## Inserto

| Applicazione | Inserto | Articolo | Rivestito PC5300 R | Dimensioni (mm) b | W | L | r | h | T–MAX | D | Pitch | Disegno | Lavorazione |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Scanalatura | SGR/L  | SGR/L 060610-R00 | | 1 | 8 | 24 | 0 | 6 | - | 11 | - |  |  |
| | | 060610-R05 | ● | 1 | 8 | 24 | 0.05 | 6 | - | 11 | - | | |
| | | 060610-R10 | ● | 1 | 8 | 24 | 0.1 | 6 | - | 11 | - | | |
| | | 060615-R00 | | 1.5 | 8 | 24 | 0 | 6 | - | 11 | - | | |
| | | 060615-R05 | ● | 1.5 | 8 | 24 | 0.05 | 6 | - | 11 | - | | |
| | | 060615-R10 | ● | 1.5 | 8 | 24 | 0.1 | 6 | - | 11 | - | | |
| | | 060620-R00 | | 2 | 8 | 24 | 0 | 6 | - | 11 | - | | |
| | | 060620-R05 | ● | 2 | 8 | 24 | 0.05 | 6 | - | 11 | - | | |
| | | 060620-R10 | ● | 2 | 8 | 24 | 0.1 | 6 | - | 11 | - | | |
| | | 081015-R00 | | 1.5 | 8 | 31 | 0 | 8 | - | 18 | - | | |
| | | 081015-R05 | ● | 1.5 | 8 | 31 | 0.05 | 8 | - | 18 | - | | |
| | | 081015-R10 | ● | 1.5 | 8 | 31 | 0.1 | 8 | - | 18 | - | | |
| | | 081020-R00 | | 2 | 8 | 31 | 0 | 8 | - | 18 | - | | |
| | | 081020-R05 | ● | 2 | 8 | 31 | 0.05 | 8 | - | 18 | - | | |
| | | 081020-R10 | ● | 2 | 8 | 31 | 0.1 | 8 | - | 18 | - | | |
| | | 081025-R00 | | 2.5 | 8 | 31 | 0 | 8 | - | 18 | - | | |
| | | 081025-R05 | ● | 2.5 | 8 | 31 | 0.05 | 8 | - | 18 | - | | |
| | | 081025-R10 | ● | 2.5 | 8 | 31 | 0.1 | 8 | - | 18 | - | | |
| | | 081030-R00 | | 3 | 8 | 31 | 0 | 8 | - | 18 | - | | |
| | | 081030-R05 | ● | 3 | 8 | 31 | 0.05 | 8 | - | 18 | - | | |
| | | 081030-R10 | ● | 3 | 8 | 31 | 0.1 | 8 | - | 18 | - | | |
| Scanalatura e tornitura gole | SGBR/L  | SGBR/L 0604520-R00 | | 2 | 8 | 22 | 0 | 6 | 5 | - | - |  |  |
| | | 0604520-R05 | | 2 | 8 | 22 | 0.05 | 6 | 5 | - | - | | |
| | | 0604520-R10 | | 2 | 8 | 22 | 0.1 | 6 | 5 | - | - | | |
| | | 0604525-R00 | | 2.5 | 8 | 22 | 0 | 6 | 5 | - | - | | |
| | | 0604525-R05 | | 2.5 | 8 | 22 | 0.05 | 6 | 5 | - | - | | |
| | | 0604525-R10 | | 2.5 | 8 | 22 | 0.1 | 6 | 5 | - | - | | |
| | | 0605530-R00 | | 3 | 8 | 24 | 0 | 6 | 6 | - | - | | |
| | | 0605530-R05 | | 3 | 8 | 24 | 0.05 | 6 | 6 | - | - | | |
| | | 0605530-R10 | | 3 | 8 | 24 | 0.1 | 6 | 6 | - | - | | |
| | | 0805525-R00 | | 2.5 | 8 | 24 | 0 | 8 | 6 | - | - | | |
| | | 0805525-R05 | | 2.5 | 8 | 24 | 0.05 | 8 | 6 | - | - | | |
| | | 0805525-R10 | | 2.5 | 8 | 24 | 0.1 | 8 | 6 | - | - | | |
| | | 0806530-R00 | | 3 | 8 | 26 | 0 | 8 | 7 | - | - | | |
| | | 0806530-R05 | | 3 | 8 | 26 | 0.05 | 8 | 7 | - | - | | |
| | | 0806530-R10 | | 3 | 8 | 26 | 0.1 | 8 | 7 | - | - | | |
| Filettatura | STR/L  | STR/L 06073215 | | 3.2 | 8 | 25 | 0.06 | 6 | 7 | - | 0.5-1.5 |  |  |
| | | 06073230 | | 3.2 | 8 | 25 | 0.19 | 6 | 7 | - | 1.5-3.0 | | |
| | | 08103215 | | 3.2 | 8 | 31 | 0.06 | 8 | 10.5 | - | 0.5-1.5 | | |
| | | 08103230 | | 3.2 | 8 | 31 | 0.19 | 8 | 10.5 | - | 1.5-3.0 | | |

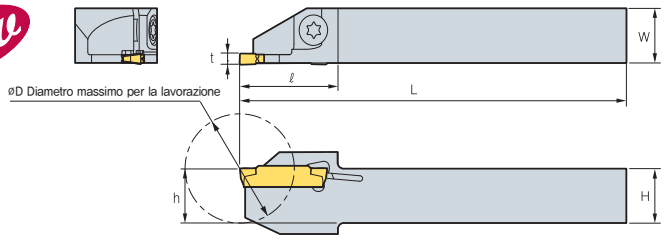
● : Disponibile ○ : A richiesta

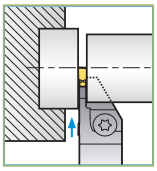
# MGEHR/L



MGMN

New



• Inserto destro R

(mm)

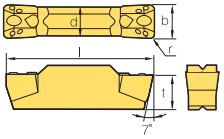
| Articolo | | Stock R | Stock L | øD | H=h | W | L | ℓ | t | Inserto | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MGEHR/L | 1010-X15A | ● | | 20 | 10 | 10 | 125 | 18 | 1.5 | MGMN150-G | ETNA 0412 | TW 15L |
| | 1212-X15A | ● | | 25 | 12 | 12 | 125 | 19.5 | 1.5 | | | |
| | 1010-X20A | ● | | 20 | 10 | 10 | 125 | 18 | 2 | MGMN200-M MGMN200-G | ETNA 0412 | TW 15L |
| | 1212-X20A | ● | | 25 | 12 | 12 | 125 | 19.5 | 2 | | | |
| | 1616-X20A | | | 32 | 16 | 16 | 125 | 25 | 2 | | | |
| | 1010-X25A | ● | | 20 | 10 | 10 | 125 | 20 | 2.5 | MGMN250-M MGMN250-G | ETNA 0412 | TW 15L |
| | 1212-X25A | ● | | 25 | 12 | 12 | 125 | 20 | 2.5 | | | |
| | 1616-X25A | | | 32 | 16 | 16 | 125 | 25 | 2.5 | | | |

● : Disponibile ○ : A richiesta

## Inserti disponibili

(mm)

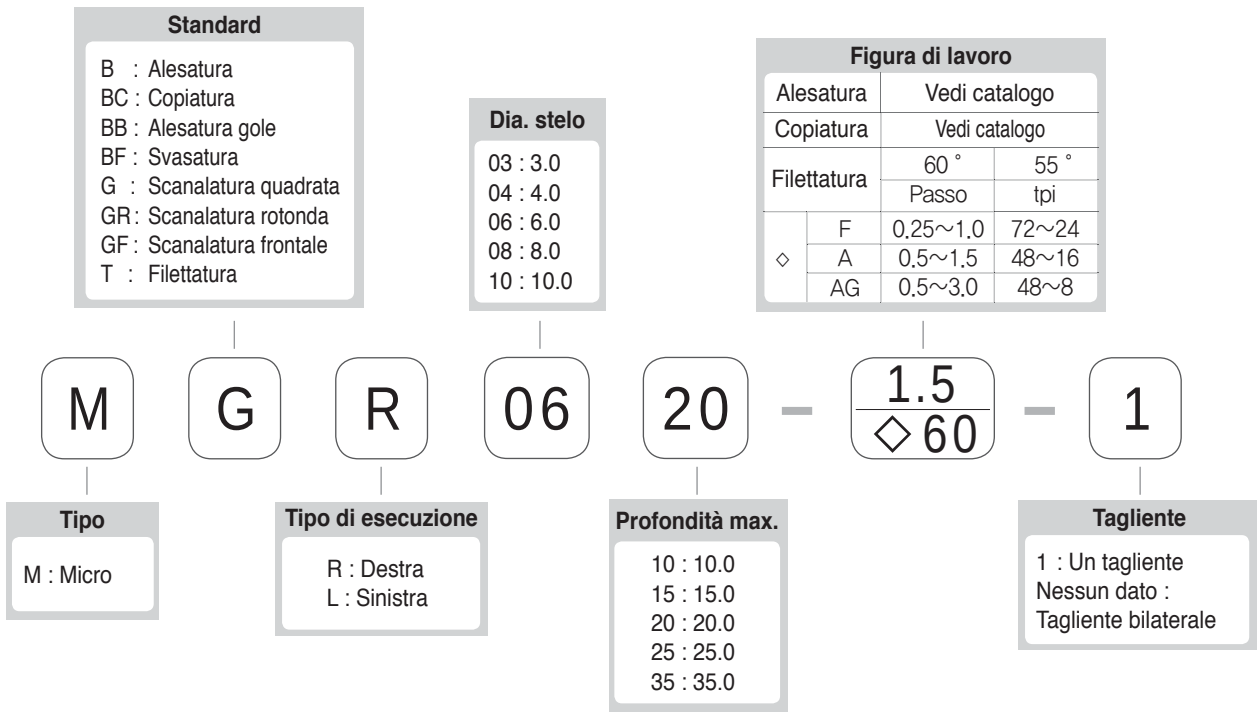
| Applicazione | Inserto | Articolo | | Rivestito NC3020 | NC3120 | NC5330 | NC3030 | PC5300 | PC9030 | Cermet CN2000 | CN20 | Non rivestito H01 | G10 | U20 | b | r | l | d | t | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Scanalatura · Troncatura | MGMN | MGMN | 150-G | ● | ● | | | ● | | | | | | | 1.5 | 0.15 | 16 | 1.2 | 3.5 | |
| | | | 200-G | ● | ● | | | | ● | | | | | | 2 | 0.2 | 16 | 1.6 | 3.5 | |
| | | | 200-M | ● | ● | | | ● | ● | | | | | | 2 | 0.2 | 16 | 1.6 | 3.5 | |
| | | | 250-G | ● | | | | ● | ● | | | | | | 2.5 | 0.2 | 18.5 | 2 | 3.85 | |
| | | | 250-M | ● | ● | | | ● | ● | | | | | | 2.5 | 0.2 | 18.5 | 2 | 3.85 | |




● : Disponibile ○ : A richiesta

# B Guida tecnica per utensili MSB

## Sistema di codifica MSB Tools




## MSB Tools

| | Tipo | Durezza(HB) | | Articolo |
|---|---|---|---|---|
| 01 | Alesatura | Alesatura | | MBR/L○○☆☆ |
| 02 | | Copiatura | | MBCR/L○○☆☆ |
| 03 | | Alesatura gole | | MBBR/L○○☆☆ |
| 04 | | Svasatura | | MBFR/L○○☆☆ |
| 05 | Scanalatura | Scanalatura quadrata | | MGR/L○○☆☆-□□ |
| 06 | | Scanalatura rotonda | | MGRR/L○○☆☆-□□ |
| 07 | | Scanalatura frontale | | MGFR/L○○00-□□ |
| 08 | Filettatura | Parziale | 60° | MTR/L○○☆☆-◇60 |
| | | | 55° | MTR/L○○☆☆-◇55 |

## Utensile

| | | | | | |
|---|---|---|---|---|---|
| Utensile | ○○ | Dia. stelo | Dia. stelo | | |
| | ☆☆ | Profondità di taglio Larghezza | Profondità applicabile | | |
| | □□ | scanalatura | Vedi catalogo | | |
| | ◇ | Passo/tpi | F | 0.25~1.0 | 72~24 |
| | | | A | 0.5~1.5 | 48~16 |
| | | | AG | 0.5~3.0 | 48~8 |

## Caratteristiche

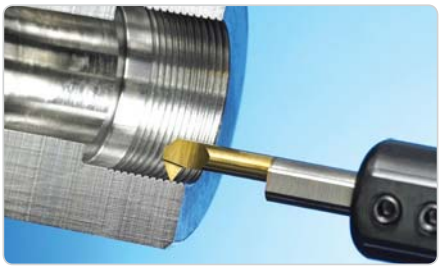
- Le eccellenti qualità Korloy garantiscono una lunga durata dell'utensile
- Indicati per varie applicazioni (Accessori, valvole, ricambi medicali, ricambi auto e ricambi di macchinari semiconduttori)
- Indicati per varie tipologie di lavorazioni (alesatura, scanalatura, filettatura ecc.)



## Lavorazione

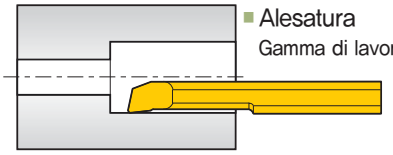




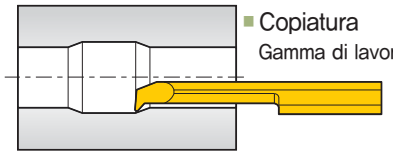


## Tipologie

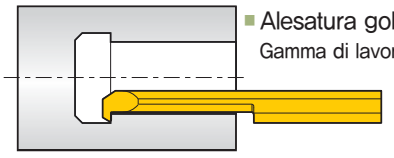
### ■ Alesatura



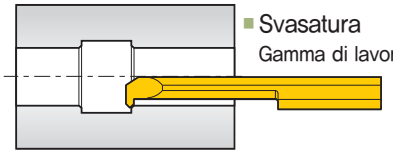
■ Alesatura
Gamma di lavorazione : Ø3.2~Ø10.2



■ Copiatura
Gamma di lavorazione : Ø4.2~Ø6.2

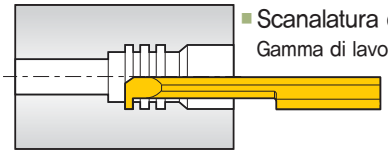


■ Alesatura gole
Gamma di lavorazione : Ø3.2~Ø6.2

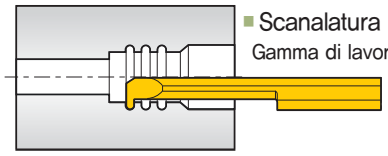


■ Svasatura
Gamma di lavorazione : Ø4.2~Ø6.2

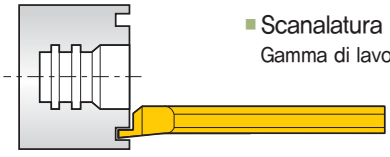
### ■ Copiatura



■ Scanalatura quadrata
Gamma di lavorazione :Ø3.2~Ø10.2

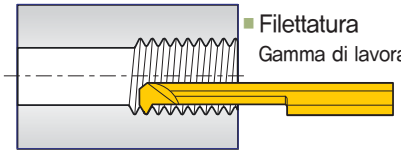


■ Scanalatura rotonda
Gamma di lavorazione : Ø3.2~Ø10.2



■ Scanalatura frontale
Gamma di lavorazione : Ø6.0~Ø12.4

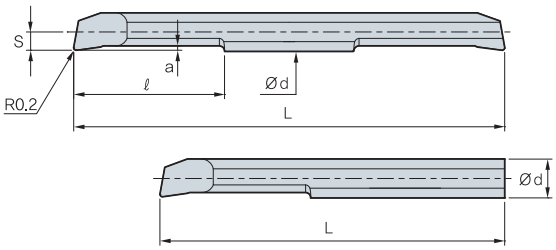
### ■ Threading

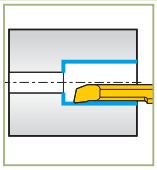


■ Filettatura
Gamma di lavorazione : Ø3.3~Ø6.2

# Alesatura





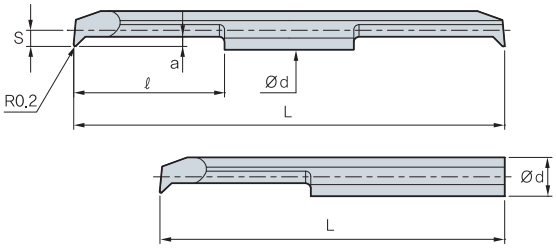



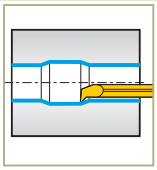
| Tagliente bilaterale | | | | Un tagliente | | | ød | Dia.min di lavorazione | ℓ | Lunghezza | | Dettaglio tagliente | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Articolo | Rivestito PC30M | Non rivestito Z12M | | Articolo | Rivestito PC30M | Non rivestito Z12M | | | | L 2 taglienti | L 1 tagliente | a | S |
| MBR 0310 | | | | MBR 0310-1 | | | 3.0 | 3.2 | 10 | 40 | 35 | 0.5 | 1.4 |
| 0315 | ● | | | 0315-1 | | | | | 15 | 50 | 45 | | |
| 0410 | | | | 0410-1 | | | 4.0 | 4.2 | 10 | 40 | 35 | 0.6 | 1.9 |
| 0415 | ● | | | 0415-1 | | | | | 15 | 50 | 45 | | |
| 0420 | | | | 0420-1 | | | | | 20 | 60 | 50 | | |
| 0610 | | | | 0610-1 | | | 6.0 | 6.2 | 10 | 45 | 40 | 0.75 | 2.9 |
| 0615 | ● | | | 0615-1 | | | | | 15 | 55 | 45 | | |
| 0620 | | | | 0620-1 | | | | | 20 | 65 | 50 | | |
| 0810 | | | | 0810-1 | | | 8.0 | 8.2 | 10 | 50 | 45 | 0.8 | 3.9 |
| 0820 | ● | | | 0820-1 | | | | | 20 | 70 | 60 | | |
| 0830 | | | | 0830-1 | | | | | 30 | 80 | 70 | | |
| 1015 | | | | 1015-1 | | | 10.0 | 10.2 | 15 | 60 | 60 | 1.0 | 4.9 |
| 1025 | ● | | | 1025-1 | | | | | 25 | 80 | 70 | | |
| 1035 | | | | 1035-1 | | | | | 35 | 100 | 80 | | |

● : Disponibile ○ : A richiesta

# Copiatura





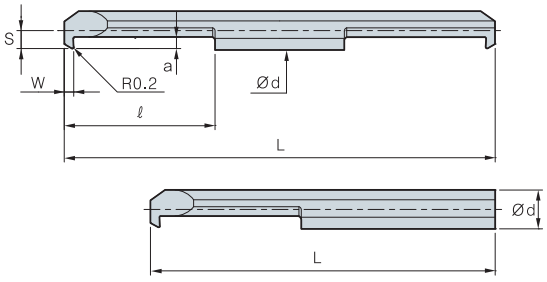



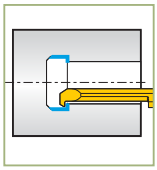
| Tagliente bilaterale | | | | Un tagliente | | | ød | Dia.min di lavorazione | ℓ | Lunghezza | | Dettaglio tagliente | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Articolo | Rivestito PC30M | Non rivestito Z12M | | Articolo | Rivestito PC30M | Non rivestito Z12M | | | | L 2 taglienti | L 1 tagliente | a | S |
| MBCR 0410 | | | | MBCR 0410-1 | | | 4.0 | 4.2 | 10 | 40 | 35 | 1.0 | 1.9 |
| 0415 | | | | 0415-1 | | | | | 15 | 50 | 45 | | |
| 0420 | | | | 0420-1 | | | | | 20 | 60 | 50 | | |
| 0610 | | | | 0610-1 | | | 6.0 | 6.2 | 10 | 45 | 40 | 1.3 | 2.9 |
| 0615 | | | | 0615-1 | | | | | 15 | 55 | 45 | | |
| 0620 | | | | 0620-1 | | | | | 20 | 60 | 50 | | |

● : Disponibile ○ : A richiesta

# Alesatura gole





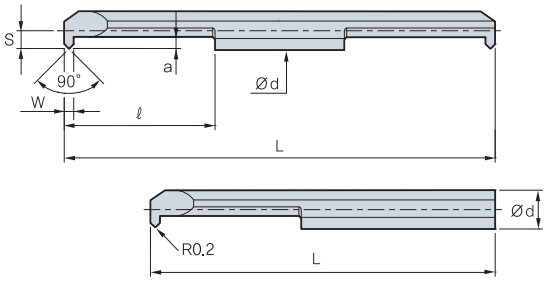



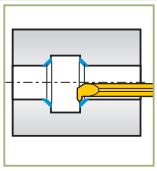
| Tagliente bilaterale | | | | Un tagliente | | | ø d | Dia.min di lavorazione | ℓ | Lunghezza | | Dettaglio tagliente | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Articolo | Rivestito PC30M | Non rivestito Z12M | | Articolo | Rivestito PC30M | Non rivestito Z12M | | | | L 2 taglienti | L 1 tagliente | W | a | S |
| MBBR 0310 | | | | MBBR 0310-1 | | | 3.0 | 3.2 | 10 | 40 | 35 | 1.5 | 0.8 | 1.4 |
| 0315 | | | | 0315-1 | | | | | 15 | 50 | 45 | | | |
| 0410 | | | | 0410-1 | | | 4.0 | 4.2 | 10 | 40 | 35 | 2.0 | 1.3 | 1.9 |
| 0415 | | | | 0415-1 | | | | | 15 | 50 | 45 | | | |
| 0420 | | | | 0420-1 | | | | | 20 | 60 | 50 | | | |
| 0610 | | | | 0610-1 | | | 6.0 | 6.2 | 10 | 45 | 40 | 2.0 | 1.9 | 2.9 |
| 0615 | | | | 0615-1 | | | | | 15 | 55 | 45 | | | |
| 0620 | | | | 0620-1 | | | | | 20 | 65 | 50 | | | |

● : Disponibile ○ : A richiesta

# Svasatura





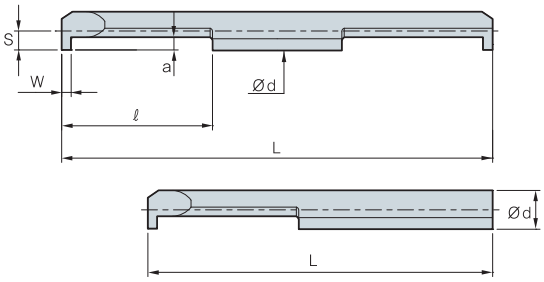



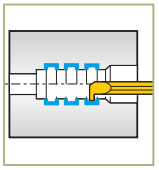
| Tagliente bilaterale | | | | Un tagliente | | | ø d | Dia.min di lavorazione | ℓ | Lunghezza | | Dettaglio tagliente | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Articolo | Rivestito PC30M | Non rivestito Z12M | | Articolo | Rivestito PC30M | Non rivestito Z12M | | | | L 2 taglienti | L 1 tagliente | W | a | S |
| MBFR 0410 | | | | MBFR 0410-1 | | | 4.0 | 4.2 | 10 | 40 | 35 | 0.8 | 1.0 | 1.9 |
| 0415 | | | | 0415-1 | | | | | 15 | 50 | 45 | | | |
| 0420 | | | | 0420-1 | | | | | 20 | 60 | 50 | | | |
| 0610 | | | | 0610-1 | | | 6.0 | 6.2 | 10 | 45 | 40 | 1.4 | 1.2 | 2.9 |
| 0615 | | | | 0615-1 | | | | | 15 | 55 | 45 | | | |
| 0620 | | | | 0620-1 | | | | | 20 | 65 | 50 | | | |

● : Disponibile ○ : A richiesta

# Scanalatura quadrata





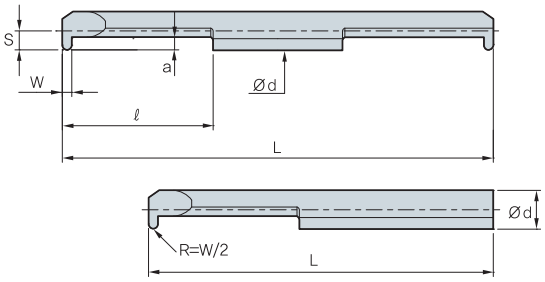



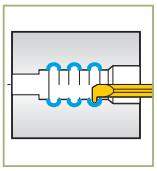
| Tagliente bilaterale | | | | Un tagliente | | | ø d | Dia.min di lavorazione | ℓ | Lunghezza | | Dettaglio tagliente | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Articolo | | Rivestito PC30M | Non rivestito Z12M | Articolo | | Rivestito PC30M | Non rivestito Z12M | | | | L 2 taglienti | L 1 tagliente | W | a | S |
| MGR | 0310-1.0 | | | MGR | 0310-1.0-1 | | | 3.0 | 3.2 | 10 | 40 | 35 | 1.0 | 0.8 | 1.4 |
| | 0315-1.0 | | | | 0315-1.0-1 | | | | | 15 | 50 | 45 | | | |
| | 0310-1.5 | | | | 0310-1.5-1 | | | | | 10 | 40 | 35 | 1.5 | | |
| | 0315-1.5 | | | | 0315-1.5-1 | | | | | 15 | 50 | 45 | | | |
| | 0410-1.0 | | | | 0410-1.0-1 | | | 4.0 | 4.2 | 10 | 40 | 35 | 1.0 | 1.4 | 1.9 |
| | 0420-1.0 | | | | 0420-1.0-1 | | | | | 20 | 60 | 50 | | | |
| | 0410-1.5 | | | | 0410-1.5-1 | | | | | 10 | 40 | 35 | 1.5 | | |
| | 0420-1.5 | | | | 0420-1.5-1 | | | | | 20 | 60 | 50 | | | |
| | 0410-2.0 | | | | 0410-2.0-1 | | | | | 10 | 40 | 35 | 2.0 | | |
| | 0420-2.0 | | | | 0420-2.0-1 | | | | | 20 | 60 | 50 | | | |
| | 0610-1.0 | | | | 0610-1.0-1 | | | 6.0 | 6.2 | 10 | 45 | 40 | 1.0 | 1.8 | 2.9 |
| | 0620-1.0 | | | | 0620-1.0-1 | | | | | 20 | 65 | 50 | | | |
| | 0610-1.5 | | | | 0610-1.5-1 | | | | | 10 | 45 | 40 | 1.5 | | |
| | 0620-1.5 | | | | 0620-1.5-1 | | | | | 20 | 65 | 50 | | | |
| | 0610-2.0 | | | | 0610-2.0-1 | | | | | 10 | 45 | 40 | 2.0 | | |
| | 0620-2.0 | | | | 0620-2.0-1 | | | | | 20 | 65 | 50 | | | |
| | 0610-2.5 | | | | 0610-2.5-1 | | | | | 10 | 45 | 40 | 2.5 | 2.0 | |
| | 0620-2.5 | | | | 0620-2.5-1 | | | | | 20 | 65 | 50 | | | |
| | 0820-1.5 | | | | 0820-1.5-1 | | | 8.0 | 8.2 | 20 | 70 | 60 | 1.5 | 2.5 | 3.9 |
| | 0820-2.0 | | | | 0820-2.0-1 | | | | | | | | 2.0 | | |
| | 0820-2.5 | | | | 0820-2.5-1 | | | | | | | | 2.5 | 3.5 | |
| | 0820-3.0 | | | | 0820-3.0-1 | | | | | | | | 3.0 | | |
| | 1025-1.5 | | | | 1025-1.5-1 | | | 10.0 | 10.2 | 25 | 80 | 70 | 1.5 | 2.5 | 4.9 |
| | 1025-2.0 | | | | 1025-2.0-1 | | | | | | | | 2.0 | | |
| | 1025-2.5 | | | | 1025-2.5-1 | | | | | | | | 2.5 | 3.5 | |
| | 1025-3.0 | | | | 1025-3.0-1 | | | | | | | | 3.0 | | |

● : Disponibile ○ : A richiesta

# Scanalatura rotonda





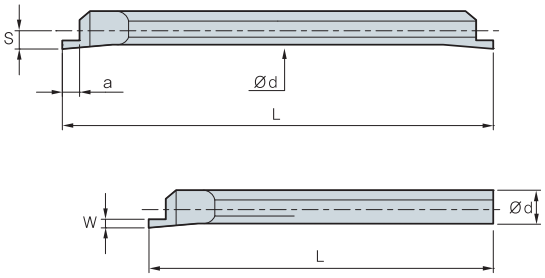



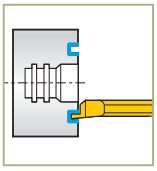
| Tagliente bilaterale | | | Un tagliente | | | ød | Dia.min di lavorazione | ℓ | Lunghezza L | | Dettaglio tagliente | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Articolo | Rivestito PC30M | Non rivestito Z12M | Articolo | Rivestito PC30M | Non rivestito Z12M | | | | 2 taglienti | 1 tagliente | W | a | S |
| MGRR 0310-0.8 | | | MGRR 0310-0.8-1 | | | 3.0 | 3.2 | 10 | 40 | 35 | 0.8 | 0.8 | 1.4 |
| 0315-0.8 | | | 0315-0.8-1 | | | | | 15 | 50 | 45 | | | |
| 0410-1.0 | | | 0410-1.0-1 | | | 4.0 | 4.2 | 10 | 40 | 35 | 1.0 | 1.0 | 1.9 |
| 0420-1.0 | | | 0420-1.0-1 | | | | | 20 | 60 | 50 | | | |
| 0610-1.0 | | | 0610-1.0-1 | | | 6.0 | 6.2 | 10 | 45 | 40 | 1.0 | 2.0 | 2.9 |
| 0620-1.0 | | | 0620-1.0-1 | | | | | 20 | 65 | 50 | | | |
| 0610-1.5 | | | 0610-1.5-1 | | | | | 10 | 45 | 40 | 1.5 | | |
| 0620-1.5 | | | 0620-1.5-1 | | | | | 20 | 65 | 50 | | | |
| 0610-2.0 | | | 0610-2.0-1 | | | | | 10 | 45 | 40 | 2.0 | | |
| 0620-2.0 | | | 0620-2.0-1 | | | | | 20 | 65 | 50 | | | |
| 0820-1.0 | | | 0820-1.0-1 | | | 8.0 | 8.2 | 20 | 70 | 60 | 1.0 | 2.3 | 3.9 |
| 0820-1.5 | | | 0820-1.5-1 | | | | | | | | 1.5 | | |
| 0820-2.0 | | | 0820-2.0-1 | | | | | | | | 2.0 | | |
| 1025-1.0 | | | 1025-1.0-1 | | | 10.0 | 10.2 | 25 | 80 | 70 | 1.0 | 2.8 | 4.9 |
| 1025-1.5 | | | 1025-1.5-1 | | | | | | | | 1.5 | | |
| 1025-2.0 | | | 1025-2.0-1 | | | | | | | | 2.0 | | |

● : Disponibile ○ : A richiesta

# Scanalatura frontale





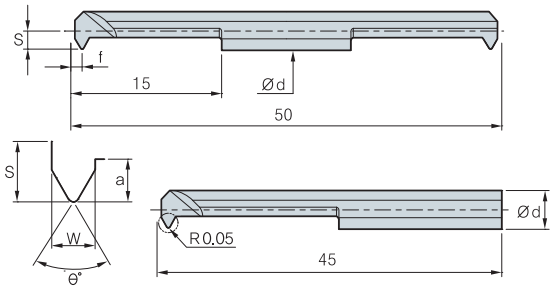



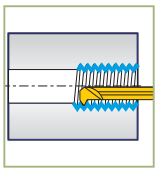
| Tagliente bilaterale | | | Un tagliente | | | ød | Dia.min di lavorazione | Lunghezza L | | Dettaglio tagliente | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Articolo | Rivestito PC30M | Non rivestito Z12M | Articolo | Rivestito PC30M | Non rivestito Z12M | | | 2 taglienti | 1 tagliente | W | a | S |
| MGFR 0400-1.0 | | | MGFR 0400-1.0-1 | | | 4.0 | 6.0 | 50 | 45 | 1.0 | 1.5 | 1.8 |
| 0400-1.5 | | | 0400-1.5-1 | | | | | | | 1.5 | 2.0 | |
| 0600-1.0 | | | 0600-1.0-1 | | | 6.0 | 8.5 | 50 | 45 | 1.0 | 1.5 | 2.9 |
| 0600-1.5 | | | 0600-1.5-1 | | | | | | | 1.5 | 2.0 | |
| 0600-2.0 | | | 0600-2.0-1 | | | | | | | 2.0 | 2.5 | |
| 0800-1.0 | | | 0800-1.0-1 | | | 8.0 | 10.4 | 70 | 60 | 1.5 | 2.0 | 3.9 |
| 0800-1.5 | | | 0800-1.5-1 | | | | | | | 2.0 | 2.5 | |
| 0800-2.0 | | | 0800-2.0-1 | | | | | | | 2.5 | 3.0 | |
| 1000-2.0 | | | 1000-2.0-1 | | | 10.0 | 12.4 | 80 | 70 | 2.0 | 2.5 | 4.9 |
| 1000-2.5 | | | 1000-2.5-1 | | | | | | | 2.5 | 3.0 | |
| 1000-3.0 | | | 1000-3.0-1 | | | | | | | 3.0 | 3.5 | |
| 1000-3.5 | | | 1000-3.5-1 | | | | | | | 3.5 | 4.0 | |
| 1000-4.0 | | | 1000-4.0-1 | | | | | | | 4.0 | 4.5 | |
| 1000-4.5 | | | 1000-4.5-1 | | | | | | | 4.5 | 5.0 | |

● : Disponibile ○ : A richiesta

# Filettatura





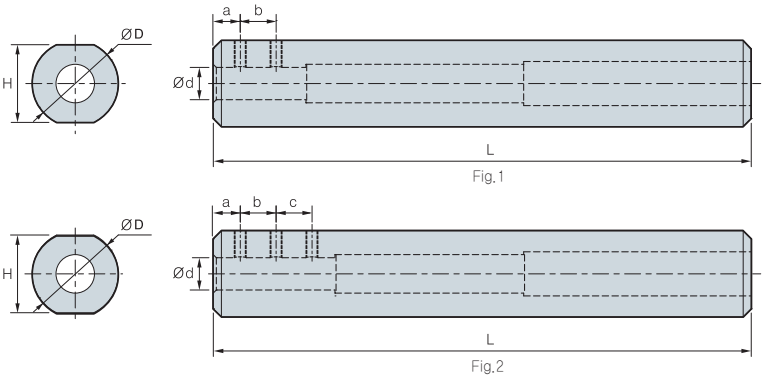



| Tagliente bilaterale | | | | Un tagliente | | | | ød | Dia.min di lavorazione | Filettatura | | | Dettaglio tagliente | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Articolo | | Rivestito PC30M | Non rivestito Z12M | Articolo | | Rivestito PC30M | Non rivestito Z12M | | | W | Passo/tpi | θ° | S | a | f |
| MTR | 0315-F60 | | | MTR | 0315-F60-1 | | | 3.0 | 3.3 | 1.2 | 0.5~1.0 | 60° | 1.45 | 1.2 | 0.6 |
| | 0415-F60 | | | | 0415-F60-1 | | | 4.0 | 4.3 | | | | 1.95 | | |
| | 0615-A60 | | | | 0615-A60-1 | | | 6.0 | 6.2 | 2.0 | 0.5~1.5 | | 2.90 | 2.2 | 1.0 |
| | 0315-F55 | | | | 0315-F55-1 | | | 3.0 | 3.3 | 1.2 | 48~24 | 55° | 1.45 | 1.2 | 0.6 |
| | 0415-F55 | | | | 0415-F55-1 | | | 4.0 | 4.3 | | | | 1.95 | | |
| | 0615-A55 | | | | 0615-A55-1 | | | 6.0 | 6.2 | 2.0 | 28~16 | | 2.9 | 2.2 | 1.0 |

● : Disponibile ○ : A richiesta

# Manicotti

## SL (Manicotti)




(mm)

| Articolo | Stock | ød | a | b | c | ØD | H | L | Vite | Chiave | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SL1603 | ● | 3 | 5 | - | - | 16 | 14 | 100 | M3 | HW15L | 1 |
| SL1604 | ● | 4 | 5 | 6 | - | | | | M4 | HW20L | |
| SL1605 | ● | 5 | 5 | 8 | - | | | | | | |
| SL1606 | ● | 6 | 5 | 6 | 6 | | | | | | 2 |
| SL1607 | ● | 7 | 5 | 6 | 8 | | | | | | |
| SL2008 | ● | 8 | 5 | 10 | 10 | 20 | 18 | 100 | M4 | HW20L | 2 |
| SL2010 | ● | 10 | 5 | 10 | 10 | | | | M5 | | |

※ Ottima tolleranza e superficie di sgrossatura

● : Disponibile ○ : A richiesta

# INDICE

## Utensili multifunzione

C


Esempio di applicazioni C02

**Serie MGT**

Informazioni tecniche per MGT C04
Cartuccia MGT C10
MGT C12
Scanalatura frontale MGT C17
MGT - Profilatura di alluminio C19
Inserti disponibili per la serie MGT C21
Modulo d'ordine per inserti speciali MGT C23

**Saw-man**

Saw-man C24
Scanalatura C26
Troncatura C30

**New Fine Tools**

Informazioni tecniche per New Fine Tools C31
New Fine Tools C32

**Multi Turn**

Informazioni tecniche per Multi Turn C34
Multi Turn C36

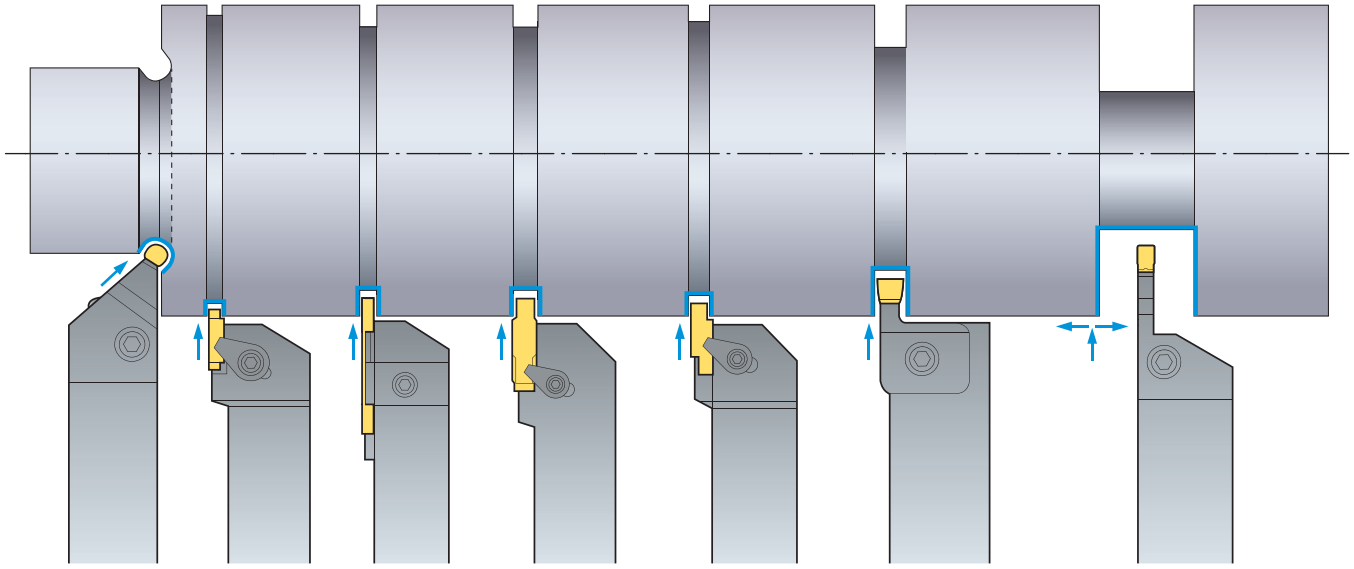
**Soluzioni per sbavatura**

Informazioni tecniche per sbavatura C37
Soluzioni per sbavatura C38
Modulo d'ordine per inserti speciali da sbavatura C44

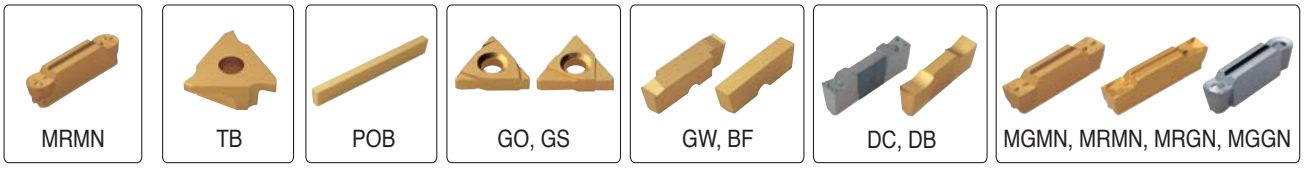



# C Esempio di applicazioni

## Per lavorazioni esterne

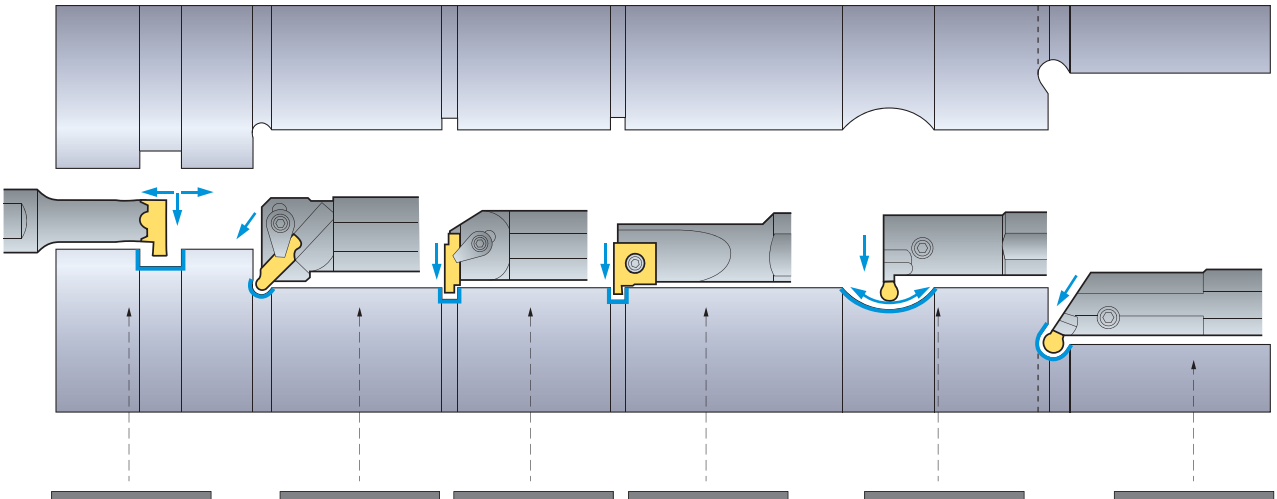


| MGEUR/L | TBH | PH | GH | GFT | DBH | MGEHR/L |
|---|---|---|---|---|---|---|
| Largh.:3.0~8.0<br>T-MAX:3.0~5.0 | Largh.:1.25~4.5<br>T-MAX:1.5~5.0 | Largh.:3.0~5.0<br>ØD-MAX:30~50 | Largh.:1.23~4.28<br>T-MAX:1.5~4.0 | Largh.:1.1~8.0<br>T-MAX:2.1~9.0 | Largh.:3.0~8.0<br>T-MAX:14 | Largh.:1.5~8.0<br>T-MAX:10~28 |

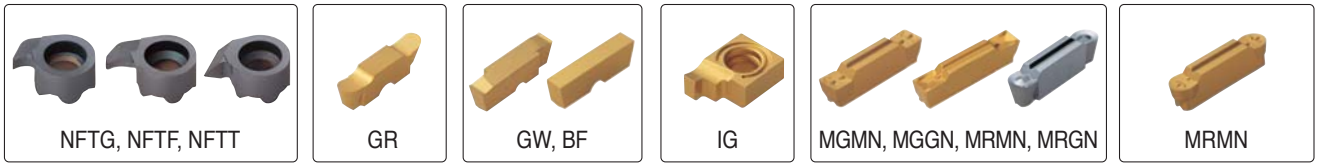


MRMN | TB | POB | GO, GS | GW, BF | DC, DB | MGMN, MRMN, MRGN, MGGN

## Per lavorazioni interne

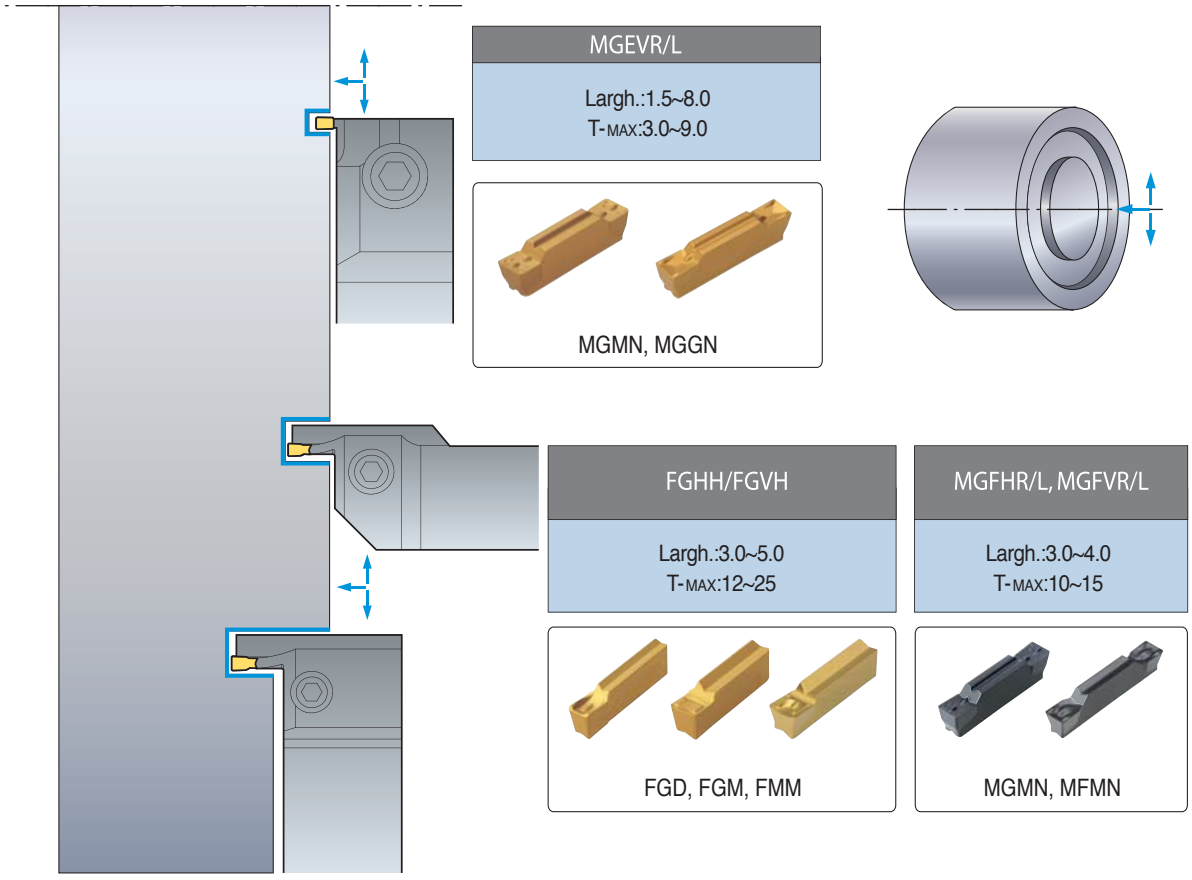


| NFTIH | GFIK | GFIP | IGH | MGIVR/L | MGIUR/L |
|---|---|---|---|---|---|
| Largh.:0.75~4.02<br>T-MAX:1.3~4.6 | Largh.:2.0~8.0<br>T-MAX:2.0~8.0 | Largh.:1.1~8.0<br>T-MAX:2.1~9.0 | Largh.:1.25~2.8<br>T-MAX:1.5~2.3 | Largh.:1.5~8.0<br>T-MAX:4.0~10 | Largh.:3.0~8.0<br>T-MAX:3.5~6.5 |

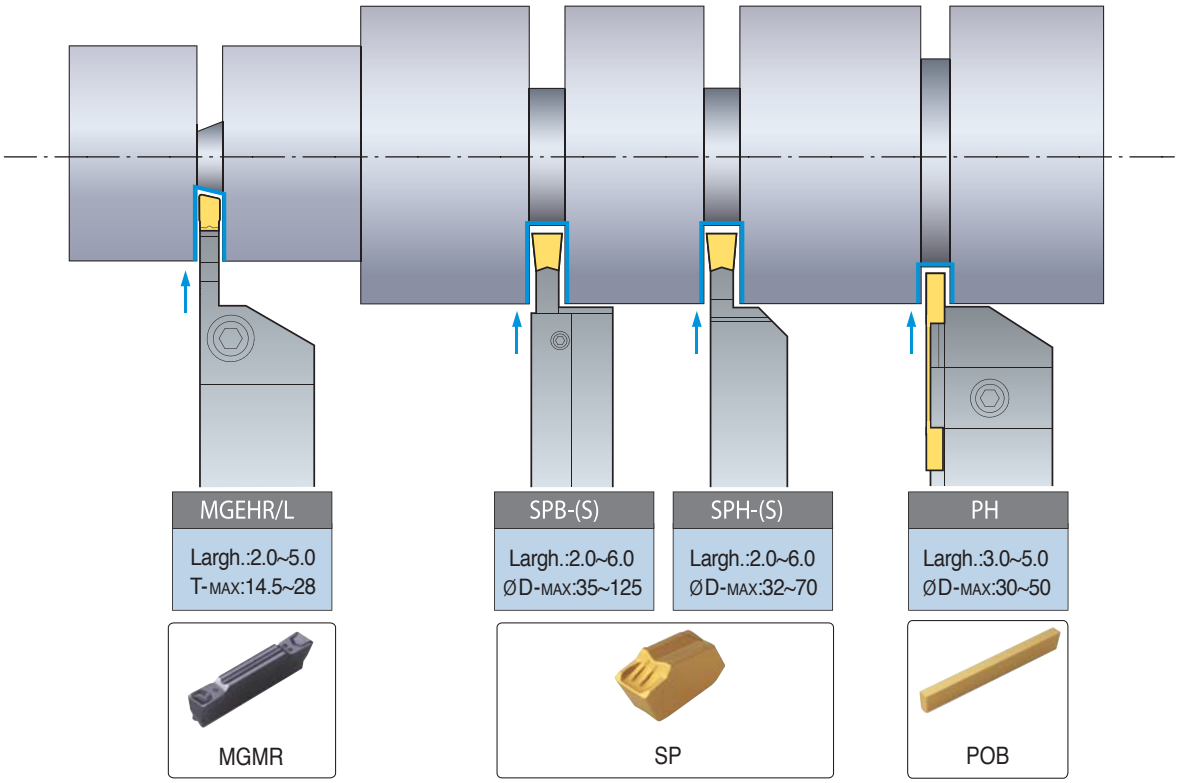


NFTG, NFTF, NFTT | GR | GW, BF | IG | MGMN, MGGN, MRMN, MRGN | MRMN

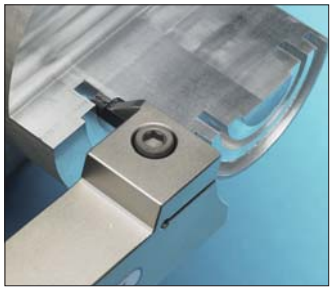
## Per scanalatura frontale




## Per troncatura



## Caratteristiche di MGT



### Caratteristiche

- **Gli inserti hanno due taglienti, per lavorazioni più economiche**
- **Operazioni multifunzione**
  Si riduce il tempo di lavorazione e aumenta la produttività grazie alla possibilità di eseguire scanalature, torniture, sfacciature e copiature con un'unica operazione.
- **Tempi inferiori di lavorazione e riduzione dei costi**
  Il sistema MGT di Korloy consente all'operatore di utilizzare un unico utensile per molteplici applicazioni, riducendo così il numero di utensili da utilizzare
- **Tagliente posizionato a 0°**
  Gli utensili MGT sono dotati di taglienti posizionati a 0° per garantire un'eccellente superficie di sgrossatura. Korloy può garantire un'ottima superficie di sgrossatura anche con avanzamenti rapidi, utilizzando la funzione wiper.

### Geometria del rompitruciolo



**MGM(G)N-M**
- Speciale progettazione del rompitruciolo per un ottimale controllo del truciolo rispetto alla geometria convenzionale e grazie all'uso di un rompitruciolo centrale
- Speciale forma convessa per un ottimale controllo del truciolo nelle lavorazioni esterne e una migliore evacuazione.
- Rompitruciolo studiato per tornitura e scanalatura



**MGMN-G**
- Speciale progettazione del rompitruciolo per la formazione di trucioli più stretti e una migliore evacuazione
- Indicato per lavorazioni di scanalatura



**MRMN-M**
- Geometria a pieno raggio per applicazioni che richiedono profilatura
- Indicato per lavorazioni di copiatura



**MFMN300**
- Speciale progettazione del rompitruciolo per la formazione di trucioli più stretti e una migliore evacuazione
- Rompitruciolo studiato per scanalatura frontale



**MRGN-A**
- Speciale geometria con tagliente positivo, ideale per la lavorazione dell'alluminio
- Il rompitruciolo lappato e l'elevato angolo di spoglia consentono un'ottima evacuazione del truciolo nella lavorazione dell'alluminio



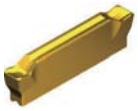
**MGMR-PS**
- Tagliente dal design affilato
- Raccomandato per la lavorazione di acciaio a basso tenore di carbonio e acciaio inossidabile
- Speciale progettazione del rompitruciolo per la formazione di trucioli più stretti e una migliore evacuazione.
- Indicato per avanzamenti rapidi e piccoli diametri di taglio



**MGMR-PT**
- Rompitruciolo robusto con tagliente negativizzato per tagli pesanti
- Indicato per avanzamenti rapidi
- Speciale progettazione del rompitruciolo per la formazione di trucioli più stretti e una migliore evacuazione



**MGMN-L**
- Tagliente affilato
- Bassi sforzi di taglio
- Per macchine CNC automatiche
- Per lavorazione di piccoli diametri



**MGMN-R**
- Tagliente robusto
- Per avanzamenti rapidi



**MGMN-T**
- Per tornitura e scanalatura
- Lo speciale design del rompitruciolo consente la formazione di trucioli più stretti e un miglior controllo



**MGMN-A**
- Buona evacuazione del truciolo
- Riduce la formazione di riporto sul tagliente

### Troncatura ( MGMN / MGMR/L )

| Pezzo lavorato | Velocità di taglio | | | | | | | | | | | Avanzamento | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CVD | | | | | PVD | | | | | Non rivestito | Larghezza di taglio (mm) | | | | |
| | NC3120 | NC3030 | NCM325 | NC5330 | NC500H | PC230 | PC8110 | PC5300 | PC3500 | PC6510 | ST30A | 2 | 3 | 4 | 5 | 6 |
| SM□□C | 80~180 | | | 80~180 | | 80~180 | | | | | | 0.02~0.15 | 0.03~0.2 | 0.08~0.3 | 0.10~0.4 | 0.12~0.5 |
| SCM | 70~150 | 70~150 | 70~150 | 70~150 | 70~150 | 70~150 | | | 70~150 | | | 0.02~0.15 | 0.03~0.2 | 0.08~0.3 | 0.10~0.4 | 0.12~0.5 |
| GC/GCD | | | | 50~100 | | | | | | 50~100 | 50~100 | 0.05~0.12 | 0.1~0.25 | 0.1~0.30 | 0.1~0.35 | 0.1~0.40 |
| STS | | | 50~120 | 50~120 | | | 50~120 | 60~140 | | | | 0.02~0.1 | 0.03~0.15 | 0.08~0.25 | 0.1~0.35 | 0.12~0.40 |
| Materiali non ferrosi (AL, Rame) | | | | | | | | | | | 200~450 | 0.05~0.1 | 0.05~0.2 | 0.05~0.25 | 0.05~0.30 | 0.05~0.35 |

### Sfacciatura ( FGD / FGM / FMM / MFMN / MGMN )

| Pezzo lavorato | Velocità di taglio | | | | | | | | Avanzamento | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | CVD | | | | PVD | | | Non rivestito | Larghezza di taglio (mm) | | |
| | NC6110 | NC3030 | NC5330 | NC3120 | PC3500 | PC215K | PC8110 / PC5300 | H01 | 3 | 4 | 5 |
| SM□□C | | | 100~160 | 100~160 | | | | | 0.05~0.1 | 0.05~0.12 | 0.05~0.15 |
| SCM | | 50~130 | 50~130 | 50~130 | 50~130 | | | | 0.05~0.1 | 0.05~0.12 | 0.05~0.15 |
| GC/GCD | 120~150 | | 120~150 | | | 120~150 | | | 0.05~0.1 | 0.05~0.12 | 0.05~0.15 |
| STS | | | 60~150 | | | | 60~150 | | 0.05~0.1 | 0.05~0.12 | 0.05~0.15 |
| Materiali non ferrosi (AL, Rame) | | | | | | | | 200~800 | 0.05~0.15 | 0.08~0.15 | 0.08~0.15 |

### Scanalatura, tornitura ( MGMN / MRMN )

| Pezzo lavorato | Velocità di taglio | | | | | | | | | | | | Avanzamento | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CVD | | | | PVD | | | | Cermet | | Non rivestito | | Larghezza di taglio (mm) | | | | | |
| | NC3010 | NC3120 | NC3030 | NC5330 | PC215K | PC5300 | PC230 | PC3500 | CN20 | CT10 | ST30A | ST20 | 0.5~1.0 | 1.0~2.0 | 2~3 | 3~4 | 4~5 | 6~8 |
| SM□□C | 80~200 | 80~200 | | 80~200 | | 80~180 | 80~200 | | 80~120 | 80~120 | | 80~120 | 0.03~0.08 | 0.04~0.09 | 0.05~0.1 | 0.05~0.12 | 0.05~0.15 | 0.05~0.2 |
| SCM | 80~180 | 80~180 | 80~180 | 80~180 | | 80~160 | 80~180 | 80~180 | 80~120 | | 80~120 | 80~120 | 0.03~0.07 | 0.04~0.08 | 0.05~0.08 | 0.05~0.1 | 0.05~0.12 | 0.05~0.15 |
| GC/GCD | | | | 60~130 | | 60~130 | | | | | | | 0.03~0.07 | 0.04~0.08 | 0.05~0.08 | 0.05~0.1 | 0.05~0.10 | 0.05~0.12 |
| STS | | | | 60~100 | 60~100 | | | | | | 60~100 | | 0.03~0.08 | 0.04~0.09 | 0.05~0.10 | 0.05~0.12 | 0.05~0.12 | 0.05~0.15 |
| Materiali non ferrosi (AL, Rame) | | | | | 150~300 | | | | | | 150~400 | | 0.05~0.12 | 0.05~0.15 | 0.05~0.15 | 0.08~0.15 | 0.08~0.15 | 0.10~0.20 |

# Utensili per scanalatura frontale

## Per scanalatura poco profonda

| MFMN300 | MGMN400-M |
|---|---|
|  |  |
| Larghezza di taglio 3mm | Larghezza di taglio 4mm |

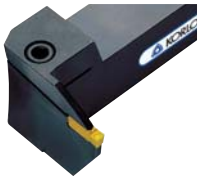
| MGFHR orizzontale | MGFVR verticale |
|---|---|
|  |  |
| Diametro lavorato ∅24~200mm | Diametro lavorato ∅24~60mm |

### Caratteristiche

- Utensili economici grazie all'uso di taglienti bilaterali
- Nuovo design dei rompitrucioli per un migliore controllo durante svariate applicazioni di scanalatura frontale
- Gli utensili di scanalatura frontale Korloy offrono un'ampia gamma di portainserti dalle svariate opzioni e vantaggi

## Per scanalatura profonda

| FGD | FGM | FMM |
|---|---|---|
|  |  |  |
| Scanalatura frontale profonda (classe G) | Scanalatura frontale (classe G) | Scanalatura frontale (classe M) |

| FGHH orizzontale | FGVH verticale |
|---|---|
|  |  |
| Diametro lavorato ∅25~140mm | Diametro lavorato ∅25~140mm |

### Caratteristiche

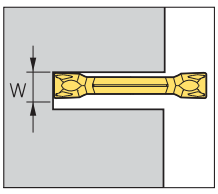
- Utensili indicati per le scanalature profonde con un unico tagliente (Tmax 25mm)
- Numerosi rompitrucioli disponibili che consentono all'operatore di svolgere svariati tipi di lavorazioni
- Ampia varietà di portainserti per numerose applicazioni

### Nota

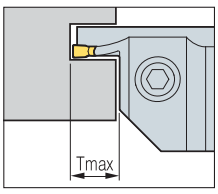
FGM e FMM consentono un'ampia gamma di applicazioni ma NON sono intercambiabili

## Tabella portainserti

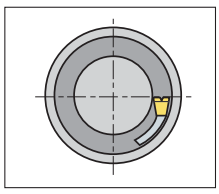
Attenersi alle 3 seguenti indicazioni per scegliere inserto e utensile adeguati per la vostra applicazione




- Scegliere lo stelo più grande in funzione del diametro di scanalatura iniziale richiesto dall'applicazione



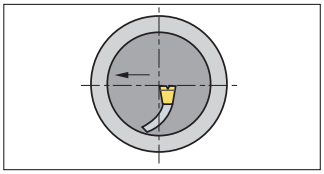

- Scegliere inserto e utensile che meglio soddisfano le condizioni dell'applicazione in funzione della larghezza di taglio e della forma del pezzo lavorato



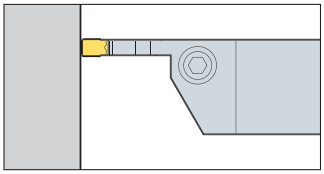
- Scegliere l'utensile con Tmax inferiore che possa soddisfare la profondità di taglio richiesta

## Avvertenze per la scanalatura frontale

Prima della lavorazione, controllare e regolare la posizione dell'utensile come segue



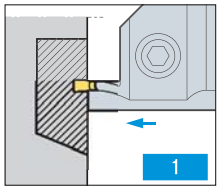
- Controllare l'altezza del tagliente al centro del pezzo lavorato
- Lavorare verso il centro e controllare la presenza di vibrazioni



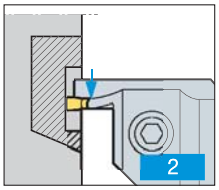
- Per una migliore superficie di sgrossatura, montare l'utensile in modo che sia perpendicolare alla linea del centro

## Ottimizzazione della scanalatura frontale

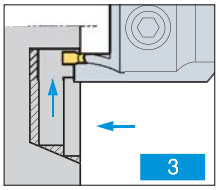
**Sgrossatura : Quando la velocità di taglio in scanalatura frontale è del 40% inferiore rispetto a una normale operazione di tornitura**




Scanalatura al diametro iniziale

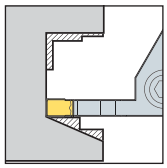



Tornitura frontale lontano dal centro

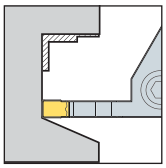



Tornitura frontale al centro

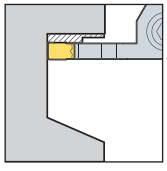
**Finitura : Quando la velocità di taglio in scanalatura frontale è del 40% inferiore rispetto a una normale operazione di tornitura**



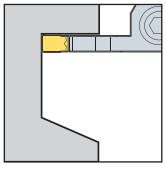
- Eseguire la scanalatura al diametro iniziale fino alla profondità di taglio finale e tornitura frontale lontano dal centro



- Finire il diametro esterno fino al fondo della cava per generare il raggio



- Eseguire la tornitura frontale al centro



- Eseguire la scanalatura per la dimensione desiderata

# Tornitura e scanalatura

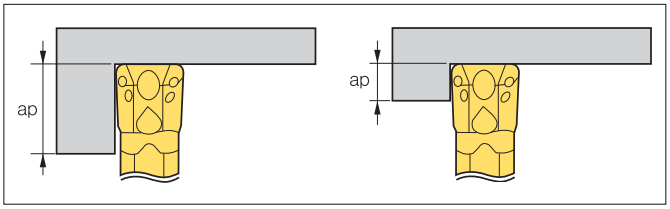
## Scelta dell'inserto

### Avanzamento

- Scegliere l'avanzamento massimo dopo aver analizzato le caratteristiche dell'inserto e la capacità della macchina (Fmax = W x 0.075).
- L'avanzamento massimo non deve essere superiore al raggio di punta dell'inserto
- In scanalatura, è possibile risolvere i problemi di evacuazione del truciolo utilizzando avanzamenti intermedi a piccoli intervalli

### Profondità di taglio

- La profondità di taglio minima deve essere superiore al raggio di punta dell'inserto
- Quando si stabilisce la profondità di taglio massimo, considerare lo sforzo di taglio della macchina
- In funzione della forma dell'inserto, è possibile cambiare l'inclinazione del pezzo lavorato e l'angolo di spoglia

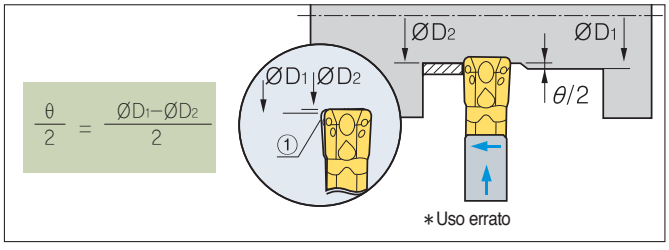



## Avvertenze per la tornitura

Gli utensili MGT sono studiati per attirare lo sforzo di taglio laterale dall'angolo di spoglia; questa caratteristica è più vantaggiosa rispetto a un inserto ISO standard. Inoltre, l'inserto MGT offre l'effetto "wiper" che migliora la superficie di sgrossatura.

## Avvertenze per la finitura

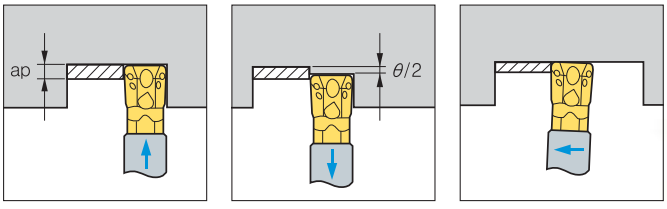
Dopo aver svolto la scanalatura nel diametro desiderato, l'operazione di tornitura continua può provocare la curvatura del pezzo lavorato. In questi casi, attenersi alla formula indicata che, controbilanciando i fattori, consente di ottenere il diametro desiderato.




Per eliminare la differenza nel diametro lavorato utilizzando l'angolo di spoglia (che normalmente si genera durante la tornitura finale) attenersi alle indicazioni riportate qui sopra.

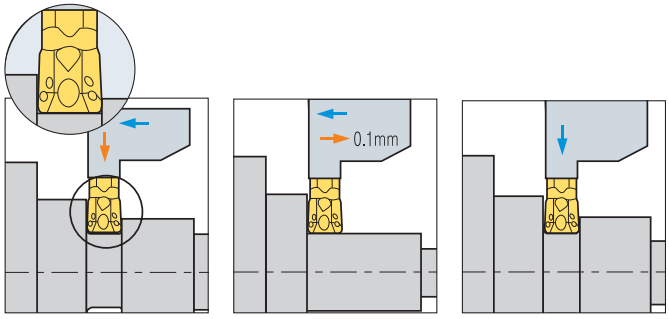
Per ottenere una buona superficie di sgrossatura senza modificare i parametri, attenersi alle seguenti indicazioni.

1) Eseguire la scanalatura del diametro desiderato
2) Riportare indietro l'utensile a una distanza totale di θ/2
3) Continuare la tornitura esterna per il diametro desiderato



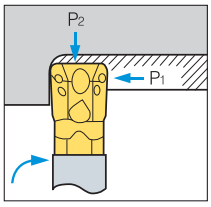

## Avvertenze per le applicazioni di tornitura MGT

Gli utensili M.G.T. sono indicati per scanalatura e tornitura ma anche come utensili multifunzione. Quando si utilizza un utensile M.G.T. tenere presente che l'utensile imita l'applicazione di una tornitura ISO standard. L'applicazione prevede un angolo di spoglia positivo. In caso di tornitura, queste condizioni possono portare alla normale usura dell'inserto; un processo di scanalatura potrebbe non soddisfare il diametro desiderato del pezzo lavorato. Per compensare questo problema, regolare l'utensile di 0,08 mm e riportarlo alla posizione originale di scanalatura.



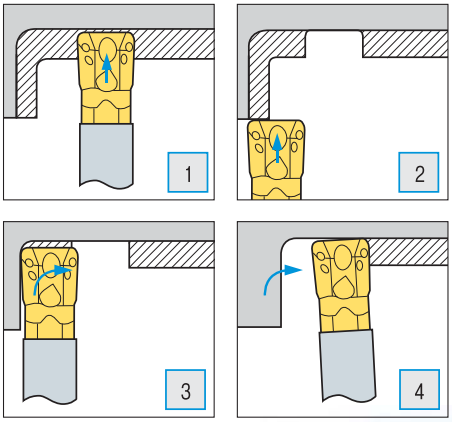

∗Uso errato

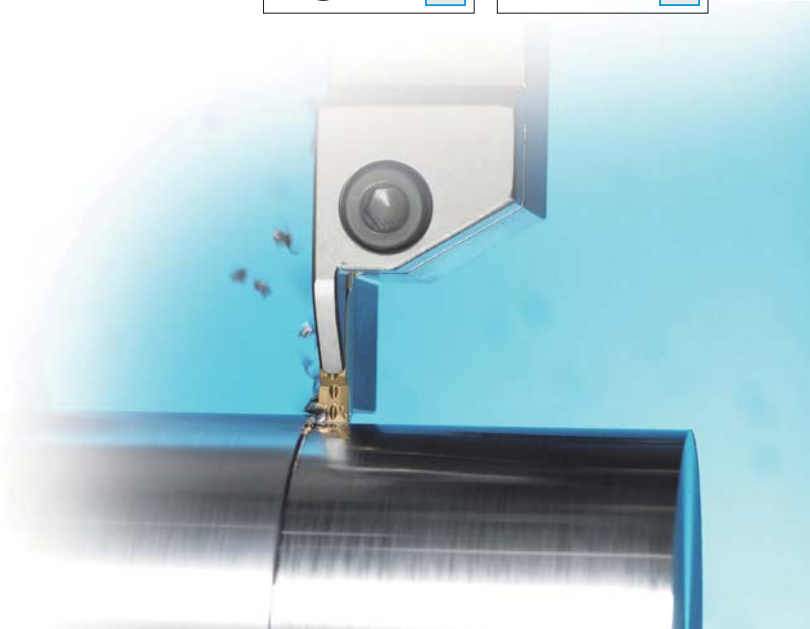
## Lavorazione di un pezzo con raggio inferiore al raggio di punta dell'inserto




∗Uso errato

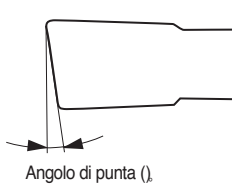
Stabilizzare la pressione dell'utensile. Gli utensili MGT creano sforzo di taglio durante la lavorazione di pezzi con raggio maggiore al raggio di punta dell'inserto (come illustrato in figura). Lo sforzo di taglio irregolare può inizialmente rompere l'inserto o l'utensile.



# Troncatura e scanalatura

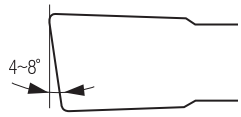
## Inserto



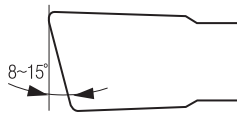

• **Applicazioni sull'angolo di punta**
**4**°- Tubature (tubi e barre)
**6**°- Tubature e barre integrali
**8**°- Barre integrali
**15**°- Barre integrali di piccolo diametro




**Angolo di punta 0°(Neutro)**
- Troncatura su barra integrale
- Dopo la troncatura rimane un testimone centrale
- Evitare di inclinare il pezzo lavorato durante la troncatura
- Indicato per troncature di profondità elevata




**Angolo di punta 4° ~ 8°**
- Riduce il testimone centrale che rimane sul pezzo
- Riduce le vibrazioni durante la troncatura di tubi o di barre integrali

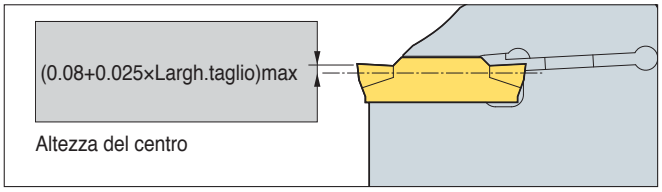



**Angolo di punta 8°~15°**
- Troncatura di piccoli diametri e di barre integrali
- Riduce le vibrazioni e il testimone centrale che rimane sul pezzo

※ Inserti disponibili : MGMR/L □□□ – □□ – PS/PT
Angolo di punta(°)

## Impostazione della troncatura

L'altezza dell'inserto deve essere pari a ±0.1mm basandosi sulla linea di centro
- Svolgere le operazioni di troncatura quanto più vicino possibile al mandrino per ridurre al minimo le vibrazioni




## Avvertenze

- Mantenere velocità e avanzamento di taglio costanti
- Utilizzare il giusto quantitativo di lubrificante per una prestazione ottimale
- Pulire adeguatamente la sede dell'inserto prima del montaggio

## Uso

- Se l'inserto è usurato, sostituirlo immediatamente per evitare di danneggiare il pezzo lavorato
- Se la sede dell'utensile è usurata o danneggiata, sostituirla con una nuova immediatamente per uno staffaggio più stabile
- Non affilare o riaffilare la sede dell'utensile

## Scelta dell'inserto

Per abbinare l'inserto giusto alle condizioni di taglio, considerare i seguenti fattori
- Larghezza dell'inserto
- Rompitruciolo
- Grado e raggio di punta

• Rapporto tra la larghezza di taglio e la profondità di taglio
- Gli inserti di tipo neutro con angolo di punta a 0 gradi sono più indicati nelle appicazioni con elevate profondità di taglio
- In genere, per acciaio legato la profondità di taglio massima è = W x 0.8

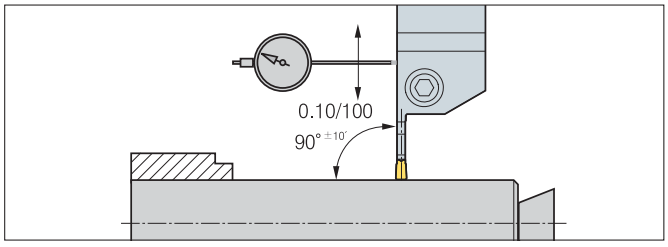
• Inserto con angolo di punta
Per ridurre le vibrazioni, si raccomanda l'uso di inserti con angolo di punta. Gli inserti con ampi angoli di punta riducono le vibrazioni ma accorciano la durata dell'utensile. Se le vibrazioni sono accettabili, si raccomanda l'uso di un inserto di tipo neutro.

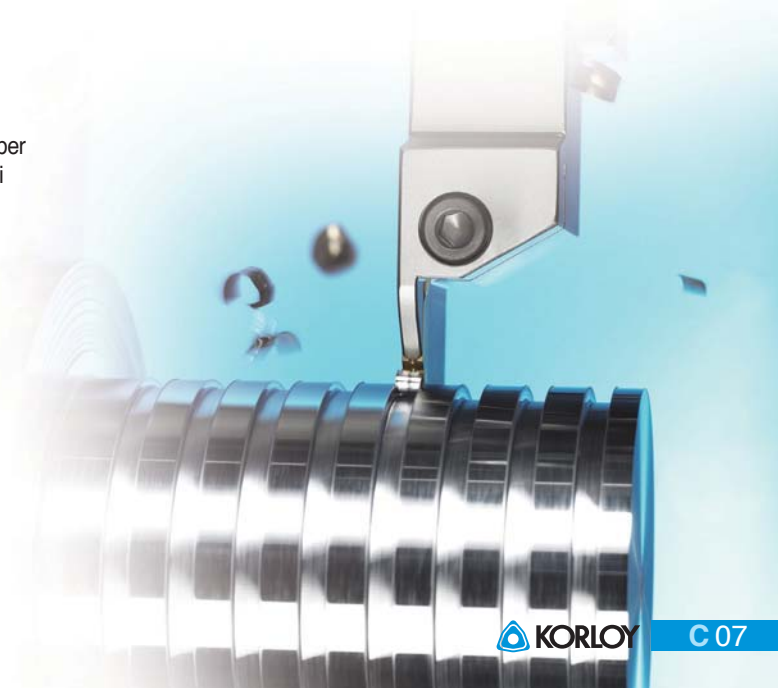
## Scelta del rompitruciolo

I nostri rompitrucioli sono studiati per produrre trucioli più stretti durante le operazioni di scanalatura. I trucioli più piccoli comportano generalmente i seguenti vantaggi
- Minore attrito tra i trucioli e il pezzo lavorato, per una migliore superficie di sgrossatura e finitura
- Grazie alla migliore evacuazione del truciolo, l'operatore può aumentare l'avanzamento poiché lo sforzo di taglio e inferiore

## Impostazione dell'utensile

Montare l'utensile nella corretta posizione di taglio sull'asse della macchina per creare una direzione perpendicolare o a 90°, in modo da ridurre le vibrazioni



# MGT - Profilatura di alluminio

## Caratteristiche

- Inserti progettati specificamente per la profilatura di alluminio
- Maggiore durata dell'utensile con il grado più indicato per l'applicazione
- Unico sistema di staffaggio che fissa l'inserto in modo stabile
- Ampia varietà di inserti disponibili per molteplici applicazioni

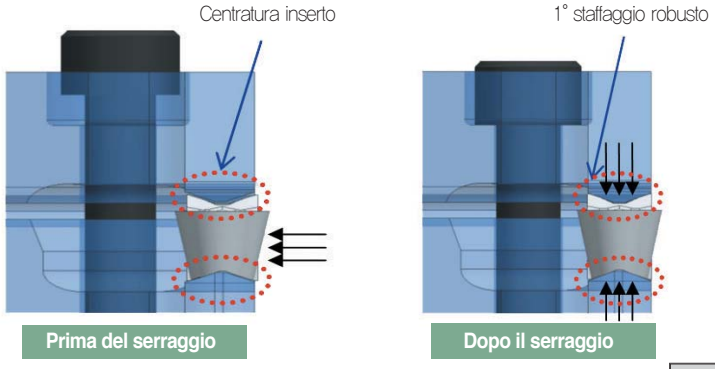


## Vari tipi di inserto

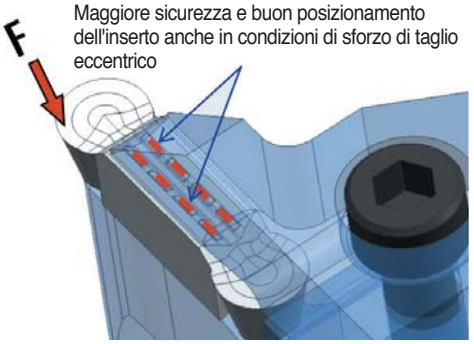
• Tipo MRGN : Geometria a tutto "Tondo"

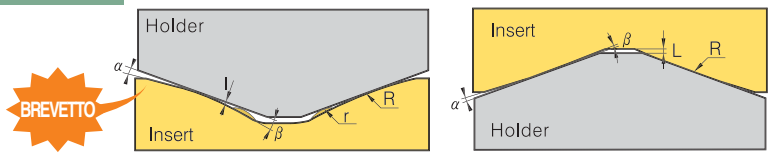
| MRGN-A(Uso generico) | MRGN-A5(Copiatura) | MRGN-AM(Media finitura) | MRGN-AP(PCD) | MVGN-A(Ultrafinitura) |
|---|---|---|---|---|
|  |  |  |  |  |
| Elevato angolo di spoglia, tagliente affilato | Staffaggio rinforzato | Per ghisa duttile | Migliore controllo del truciolo | Elevato angolo di spoglia |

## Nuovo sistema di staffaggio



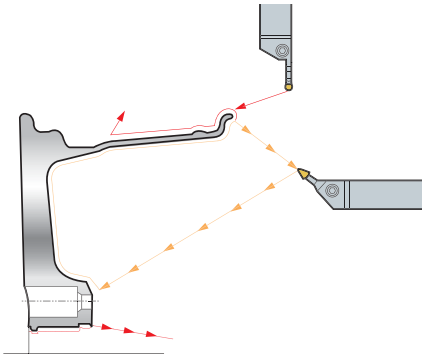

Serraggio rinforzato grazie al raggio progettato sul lato superiore e inferiore dell'inserto e alla forma convessa del lato superiore dell'inserto



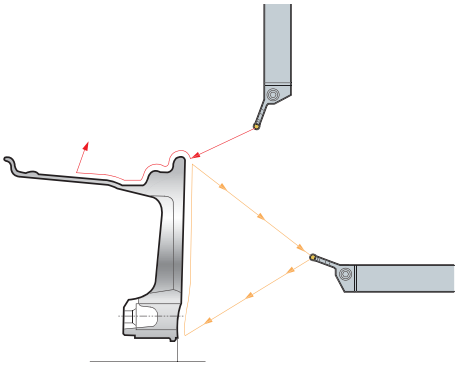




## Profilatura di alluminio

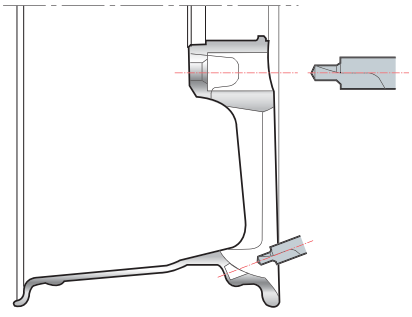
LAVORAZIONE A



LAVORAZIONE B



LAVORAZIONE C



## Condizioni di taglio raccomandate

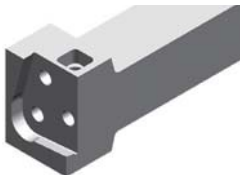
| Pezzo lavorato | | Durezza Brinell (HB) | kc (MPa) | vc (m/min) | fn (mm/giro) |
|---|---|---|---|---|---|
| Lega di alluminio (forgiata) | Non temprata | 50 ~ 70 | 500 ~ 600 | 1,000 ~ 2,500 | 0.1 ~ 0.6 |
| | Temprata | 90 ~ 110 | 700 ~ 900 | 300 ~ 1,000 | 0.1 ~ 0.5 |
| Lega di alluminio (fusa) | Non temprata | 70 ~ 80 | 700 ~ 800 | 300 ~ 1,000 | 0.1 ~ 0.5 |
| | Temprata | 80 ~ 110 | 800 ~ 950 | 200 ~ 600 | 0.1 ~ 0.4 |
| Lega di rame | | 90 ~ 110 | 700 ~ 900 | 300 ~ 800 | 0.1 ~ 0.5 |
| Lega di magnesio | | 70 ~ 80 | 700 ~ 800 | 300 ~ 1,000 | 0.1 ~ 0.5 |

## MGT- Cartuccia

### Sistema di codifica portainserti

| MC | H | R/L | 25 | 25 |
|---|---|---|---|---|
| Sistema cartucce MGT | Angolo di lavorazione | Tipo di esecuzione | Altezza (mm) | Larghezza (mm) |
| | H : Orizzontale<br>V : Verticale | | | |

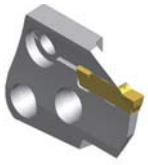
### Utensile

| Tipo orizzontale | | Tipo verticale | |
|---|---|---|---|
| MCHR | MCHL | MCVR | MCVL |
|  |  |  |  |

### Sistema di codifica cartucce

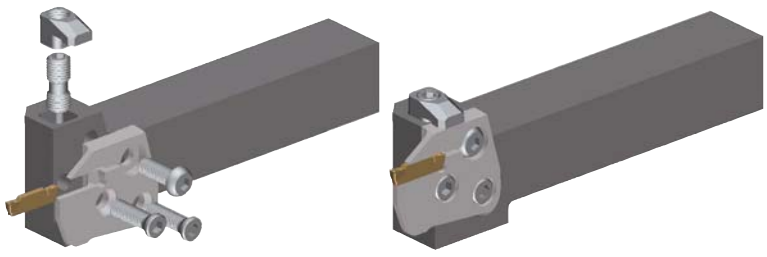
| MC | F | R/L | 3 | - | 24/35 | - | T16 |
|---|---|---|---|---|---|---|---|
| Sistema cartucce MGT | Tipo di lavorazione | Tipo di esecuzione | Larghezza di taglio (mm) | | Diametro di lavoro (mm) | | Profondità max. (mm) |
| | E : Processo esterno<br>F : Processo frontale | | | | | | |

### Cartuccia

| Processo esterno | | Processo frontale | |
|---|---|---|---|
| MCER | MCEL | MCFR | MCFL |
|  |  |  |  |

### Figura

- **Compatibile ed economico grazie al sistema suddiviso tra** cartuccia e portainserti che formano un unico corpo
- **Cartucce intercambiabili**
  - Gli assemblaggi possibili dipendono dal tipo di lavorazione
  - Riduzione dei costi degli utensili di oltre il 30%
  - Staffaggio superiore e laterale a vite
- **Staffaggio stabile e robusto**
  - Montaggio simultaneo di inserto e cartuccia
  - Montaggio e sostituzione utensile semplici
- **Montaggio stabile**
  - Montaggio semplice e più robusto



**Montaggio stabile grazie al doppio staffaggio a vite e staffa** ▶ semplice e robusto

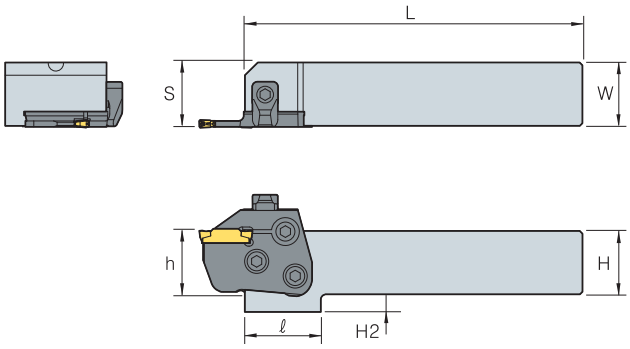
# C Cartuccia MGT

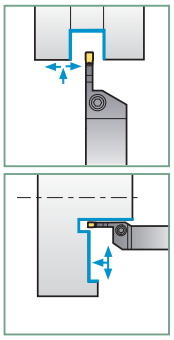
## MCHR/L
(Portainserti)



MCER/L
MCFR/L

Per scanalatura, tornitura, troncatura, profilatura



Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H=(h) | W | L | S | ℓ | $H_2$ | Cartuccia | Staffa | Vite di staffaggio | Vite di cerniera | Vite di serraggio | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MCHR/L** | **2020** | ● | ● | 20 | 20 | 133 | 20.7 | 30 | 12 | MCER/L MCFR/L | CXH8N | DHA0818F | RHA0613 | FHGA0618 | HW40L |
| | **2525** | ● | ● | 25 | 25 | 133 | 25.7 | 30 | 7 | | | | | | |
| | **3232** | ● | ● | 32 | 32 | 153 | 32.7 | - | - | | | | | | |

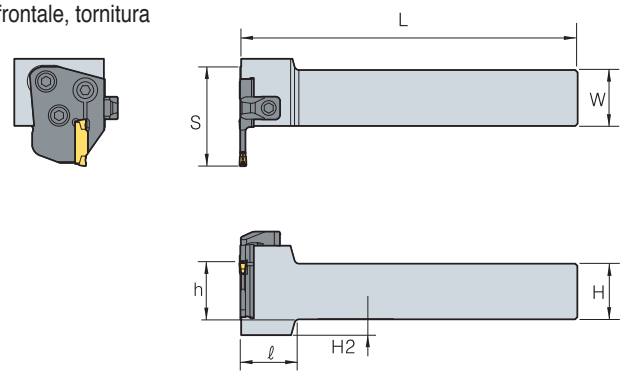
● : Disponibile ○ : A richiesta

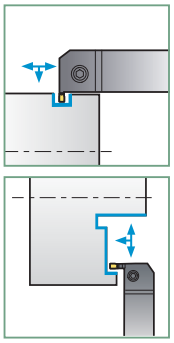
## MCVR/L
(Portainserti)



MCER/L
MCFR/L

Per scanalatura frontale, tornitura



Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H=(h) | W | L | S | ℓ | $H_2$ | Cartuccia | Staffa | Vite di staffaggio | Vite di cerniera | Vite di serraggio | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MCVR/L** | **2020** | ○ | ○ | 20 | 20 | 150 | 38 | 30 | 12 | MCER/L MCFR/L | CXH8N | DHA0818F | RHA0613 | FHGA0618 | HW40L |
| | **2525** | ○ | ○ | 25 | 25 | 150 | 43 | 30 | 7 | | | | | | |
| | **3232** | ○ | ○ | 32 | 32 | 170 | 50 | - | - | | | | | | |

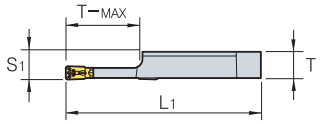
● : Disponibile ○ : A richiesta

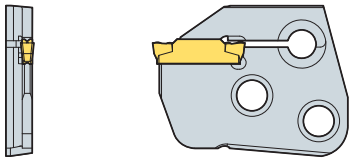
# MCER/L
## (Cartuccia)

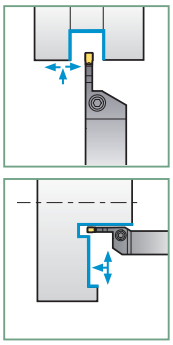


MGMN
MGMR
MGGN
MRMN

Per scanalatura, tornitura, troncatura, profilatura





Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | T | $L_1$ | $S_1$ | T–max | Inserti Spessore | Inserti Articolo | Portainserti |
|---|---|---|---|---|---|---|---|---|---|---|
| MCER/L | 3-T16 | ● | ● | 6.00 | 44.5 | 6.35 | 16 | 3 | MGMN MGMR/L MGGN MRMN | MCHR/L MCVR/L |
| | 4-T16 | ● | ● | 5.97 | 44.5 | 6.35 | 16 | 4 | | |
| | 5-T20 | ● | ● | 5.87 | 48.5 | 6.35 | 20 | 5 | | |
| | 6-T20 | ● | ● | 5.82 | 48.5 | 6.35 | 20 | 6 | | |

• Inserti applicabili, vedere pag. C21, C22

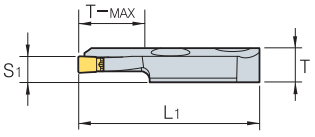
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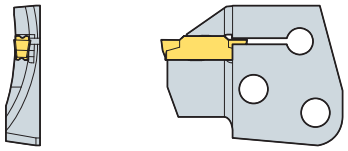
# MCFR/L
## (Cartuccia)

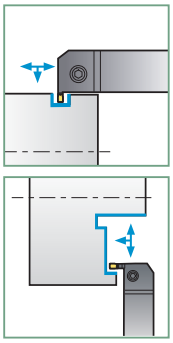


MFNM
MGMN

Per scanalatura frontale, tornitura





Inserto destro R

(mm)

| Articolo | Stock R | Stock L | T | $L_1$ | $S_1$ | T–max | Inserti Spessore | Inserti Articolo | Portainserti |
|---|---|---|---|---|---|---|---|---|---|
| MCFR/L3-24/35-T16 | ○ | ○ | 8.00 | 44.5 | 6.35 | 16 | 3 | MFMN300 | MCHR/L MCVR/L |
| MCFR/L3-29/40-T16 | ○ | ○ | 8.00 | 44.5 | 6.35 | 16 | 3 | | |
| MCFR/L3-34/50-T16 | ○ | ○ | 8.00 | 44.5 | 6.35 | 16 | 3 | | |
| MCFR/L3-44/70-T16 | ○ | ○ | 8.00 | 44.5 | 6.35 | 16 | 3 | | |
| MCFR/L3-64/99-T16 | ○ | ○ | 8.00 | 44.5 | 6.35 | 16 | 3 | | |
| MCFR/L4-44/60-T16 | ○ | ○ | 7.97 | 44.5 | 6.35 | 16 | 4 | MGMN400 | |
| MCFR/L4-60/120-T16 | ○ | ○ | 7.97 | 44.5 | 6.35 | 16 | 4 | | |
| MCFR/L4-112/200-T16 | ○ | ○ | 7.97 | 44.5 | 6.35 | 16 | 4 | | |

• Inserti applicabili, vedere pag. C21, C22

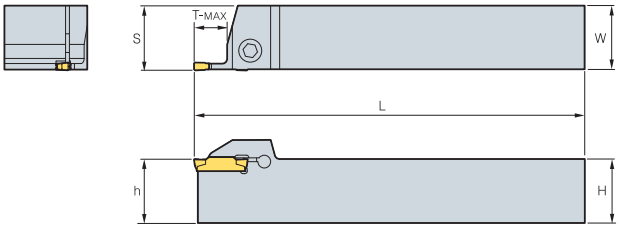
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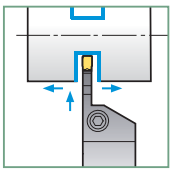
# MGEHR/L



MGMN MRMN
MGMR MRGN
MGGN

Per scanalatura, tornitura, troncatura, profilatura



Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H=(h) | W | L | S | T–MAX | Inserti | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MGEHR/L | 1616-1.5 | ● | ● | 16 | 16 | 100 | 16.2 | 14 | MGMN150-G | LTX0514 | TW20L |
| | 2020-1.5 | ● | ● | 20 | 20 | 125 | 20.2 | 14 | | | |
| | 2525-1.5 | ● | ● | 25 | 25 | 150 | 25.2 | 14 | | | |
| | 1212-2 | ● | | 12 | 12 | 100 | 14.25 | 14 | MGMN200-G<br>MGMN200-M<br>MGMR200-□□-□□ | MHA0512 | HW40L |
| | 1616-2 | ● | ● | 16 | 16 | 100 | 16.25 | 14 | | | |
| | 2020-2 | ● | ● | 20 | 20 | 125 | 20.25 | 14 | | | |
| | 2525-2 | ● | ● | 25 | 25 | 150 | 25.25 | 14 | | | |
| | 1616-2.5 | ● | ● | 16 | 16 | 100 | 16.30 | 16 | MGMN250-G<br>MGMN250-M | MHA0512 | HW40L |
| | 2020-2.5 | ● | ● | 20 | 20 | 125 | 20.30 | 16 | | | |
| | 2525-2.5 | ● | ● | 25 | 25 | 150 | 25.30 | 16 | | | |
| | 1616-3 | ● | ● | 16 | 16 | 100 | 16.35 | 18 | MGMN300-M/T<br>MGGN300-□□-M<br>MRMN300-M<br>MGMR300-□□-□□<br>MGMN300-□□-L/R | BHA0616 | HW50L |
| | 2020-3 | ● | ● | 20 | 20 | 125 | 20.4 | 18 | | | |
| | 2020-3-T10 | ● | | 20 | 20 | 125 | 20.4 | 10 | | | |
| | 2525-3 | ● | ● | 25 | 25 | 150 | 25.4 | 18 | | | |
| | 2525-3-T10 | ● | | 25 | 25 | 150 | 25.4 | 10 | | | |
| | 3232-3 | ● | ● | 32 | 32 | 170 | 32.4 | 18 | | | |
| | 3232-3-T10 | | | 32 | 32 | 170 | 32.4 | 10 | | | |
| | 2020-4 | ● | ● | 20 | 20 | 125 | 20.4 | 18 | MGMN400-M/T<br>MGGN400-□□-M<br>MRMN400-M<br>MGMR400-□□-□□<br>MGMN400-□□-L/R | | |
| | 2020-4-T10 | ● | | 20 | 20 | 125 | 20.4 | 10 | | | |
| | 2525-4 | ● | ● | 25 | 25 | 150 | 25.4 | 18 | | | |
| | 2525-4-T10 | ● | | 25 | 25 | 150 | 25.4 | 10 | | | |
| | 3232-4 | ● | ● | 32 | 32 | 170 | 32.4 | 18 | | | |
| | 3232-4-T10 | | | 32 | 32 | 170 | 32.4 | 10 | | | |
| | 2020-5 | ● | ● | 20 | 20 | 150 | 20.5 | 23 | MGMN500-M/T<br>MGGN500-□□-M<br>MRMN500-M<br>MGMR500-□□-□□<br>MGMN500-□□-L/R | | |
| | 2020-5-T15 | | | 20 | 20 | 150 | 20.5 | 15 | | | |
| | 2525-5 | ● | ● | 25 | 25 | 150 | 25.5 | 23 | | | |
| | 2525-5-T15 | | | 25 | 25 | 150 | 25.5 | 15 | | | |
| | 3232-5 | ● | ● | 32 | 32 | 170 | 32.5 | 23 | | | |
| | 3232-5-T15 | | | 32 | 32 | 170 | 32.5 | 15 | | | |
| | 2020-6 | ● | ● | 20 | 20 | 125 | 20.6 | 23 | MGMN600-M<br>MGGN600-□□-M<br>MRMN600-M | | |
| | 2020-6-T15 | | | 20 | 20 | 125 | 20.6 | 15 | | | |
| | 2525-6 | ● | ● | 25 | 25 | 150 | 25.6 | 23 | | | |
| | 2525-6-T15 | | | 25 | 25 | 150 | 25.6 | 15 | | | |
| | 3232-6 | ● | ● | 32 | 32 | 170 | 32.6 | 23 | | | |
| | 3232-6-T15 | | | 32 | 32 | 170 | 32.6 | 15 | | | |
| | 2525-8 | ● | ● | 25 | 25 | 150 | 26.1 | 28 | MRMN800-M<br>MGMN800-M | | |
| | 2525-8-T15 | ● | | 25 | 25 | 150 | 26.1 | 15 | | | |
| | 3232-8 | ● | | 32 | 32 | 170 | 33.1 | 28 | | | |
| | 3232-8-T15 | | | 32 | 32 | 170 | 33.1 | 16 | | | |
| | 2525-6A | ● | ● | 25 | 25 | 150 | 25.6 | 23 | MRGN600-A | | |
| | 2525-6A-T15 | | | 25 | 25 | 150 | 25.6 | 15 | | | |
| | 3232-6A | | | 32 | 32 | 170 | 32.6 | 23 | | | |
| | 3232-6A-T15 | | | 32 | 32 | 170 | 32.6 | 15 | | | |
| | 2525-8A | ● | ● | 25 | 25 | 150 | 26.1 | 28 | MRGN800-A | | |
| | 2525-8A-T15 | ● | ● | 25 | 25 | 150 | 26.1 | 16 | | | |
| | 3232-8A | | | 32 | 32 | 170 | 33.1 | 28 | | | |
| | 3232-8A-T15 | | | 32 | 32 | 170 | 33.1 | 15 | | | |

• Inserti applicabili, vedere pag. C21, C22

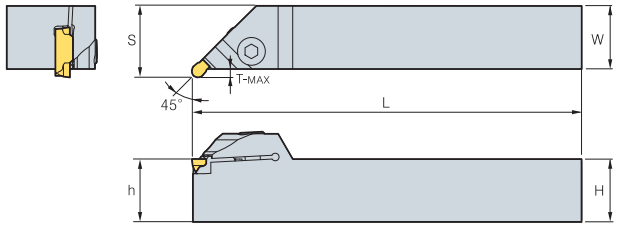
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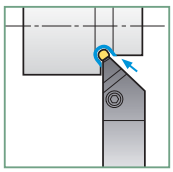
# MGEUR/L



MRMN
MRGN

Per spogliatura, profilatura



Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H=(h) | W | L | S | T–MAX | Inserti | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MGEUR/L | 2020-3 | ● | | 20 | 20 | 125 | 23 | 3 | MRMN300-M | BHA0616 | HW50L |
| | 2525-3 | ● | | 25 | 25 | 150 | 28 | 3 | | | |
| | 3232-3 | | | 32 | 32 | 170 | 35 | 3 | | | |
| | 2020-4 | | | 20 | 20 | 125 | 23 | 3 | MRMN400-M | | |
| | 2525-4 | ● | | 25 | 25 | 150 | 28 | 3 | | | |
| | 3232-4 | | | 32 | 32 | 170 | 35 | 3 | | | |
| | 2020-5 | | | 20 | 20 | 125 | 24 | 4 | MRMN500-M | | |
| | 2525-5 | ● | | 25 | 25 | 150 | 29 | 4 | | | |
| | 3232-5 | | | 32 | 32 | 170 | 36 | 4 | | | |
| | 2020-6 | | | 20 | 20 | 125 | 24 | 4 | MRMN600-M | | |
| | 2525-6 | ● | ● | 25 | 25 | 150 | 29 | 4 | | | |
| | 3232-6 | ● | ● | 32 | 32 | 170 | 36 | 4 | | | |
| | 2525-8 | | | 25 | 25 | 150 | 30 | 5 | MRMN800-M | | |
| | 3232-8 | | | 32 | 32 | 170 | 37 | 5 | | | |
| | 2525-6A | | | 25 | 25 | 150 | 29 | 4 | MRGN600-A | | |
| | 3232-6A | | | 32 | 32 | 170 | 36 | 4 | | | |
| | 2525-8A | | | 25 | 25 | 150 | 30 | 5 | MRGN800-A | | |
| | 3232-8A | | | 32 | 32 | 170 | 37 | 5 | | | |

• Inserti applicabili, vedere pag. C22

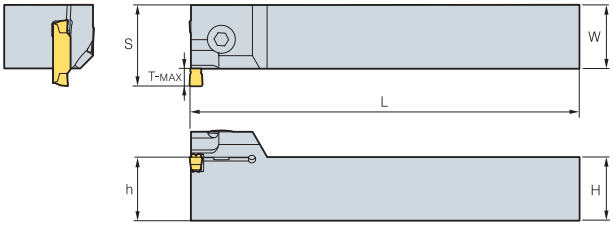
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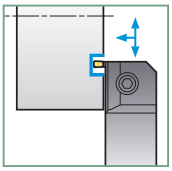
# MGEVR/L



MGMN MRMN
MGGN MRGN

Per scanalatura, tornitura, profilatura



Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H=(h) | W | L | S | T–MAX | Diametro min. | Inserti | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MGEVR/L | 2020-1.5 | | | 20 | 20 | 125 | 23 | 3 | 85 | MGMN150-G | LTX0514 | TW20L |
| | 2525-1.5 | | | 25 | 25 | 150 | 28 | 3 | 85 | | | |
| | 3232-1.5 | | | 32 | 32 | 170 | 35 | 3 | 85 | | | |
| | 2020-2 | ● | | 20 | 20 | 125 | 23.5 | 3.5 | 65 | MGMN200-M<br>MGMN200-G | BHA0616 | HW50L |
| | 2525-2 | | | 25 | 25 | 150 | 28.5 | 3.5 | 65 | | | |
| | 3232-2 | | | 32 | 32 | 170 | 35.5 | 3.5 | 65 | | | |
| | 2020-2.5 | | | 20 | 20 | 125 | 24 | 4 | 65 | MGMN250-M<br>MGMN250-G | | |
| | 2525-2.5 | | | 25 | 25 | 150 | 29 | 4 | 65 | | | |
| | 3232-2.5 | | | 32 | 32 | 170 | 36 | 4 | 65 | | | |
| | 2020-3 | ● | | 20 | 20 | 125 | 25.5 | 5 | 75 | MGMN300-M/T<br>MGGN300-□□-M<br>MRMN300-M<br>MGMN300-□□-L/R | | |
| | 2525-3 | ● | ● | 25 | 25 | 150 | 30.5 | 5 | 75 | | | |
| | 3232-3 | | | 32 | 32 | 170 | 37.5 | 5 | 75 | | | |
| | 2020-4 | ● | | 20 | 20 | 125 | 25.5 | 5 | 70 | MGMN400-M/T<br>MGGN400-□□-M<br>MRMN400-M<br>MGMN400-□□-L/R | | |
| | 2525-4 | ● | | 25 | 25 | 150 | 30.5 | 5 | 70 | | | |
| | 3232-4 | | | 32 | 32 | 170 | 37.5 | 5 | 70 | | | |
| | 2020-5 | | | 20 | 20 | 125 | 27 | 7 | 75 | MGMN500-M/T<br>MGGN500-□□-M<br>MRMN500-M<br>MGMN500-□□-L/R | | |
| | 2525-5 | | | 25 | 25 | 150 | 32 | 7 | 75 | | | |
| | 3232-5 | | | 32 | 32 | 170 | 39 | 7 | 75 | | | |
| | 2020-6 | | | 20 | 20 | 125 | 27 | 7 | 70 | MGMN600-M | | |
| | 2525-6 | | | 25 | 25 | 150 | 32 | 7 | 70 | MGGN600-□□-M | | |
| | 3232-6 | | | 32 | 32 | 170 | 39 | 7 | 70 | MRMN600-M | | |
| | 2525-8 | | | 25 | 25 | 150 | 34 | 9 | 50 | MRMN800-M | | |
| | 3232-8 | | | 32 | 32 | 170 | 41 | 9 | 50 | MGMN800-M | | |
| | 2525-6A | | | 25 | 25 | 150 | 32 | 7 | 70 | MRGN600-A | | |
| | 3232-6A | | | 32 | 32 | 170 | 39 | 7 | 70 | | | |
| | 2525-8A | | | 25 | 25 | 150 | 34 | 9 | 45 | MRGN800-A | | |
| | 3232-8A | | | 32 | 32 | 170 | 41 | 9 | 45 | | | |

• Inserti applicabili, vedere pag. C21, C22

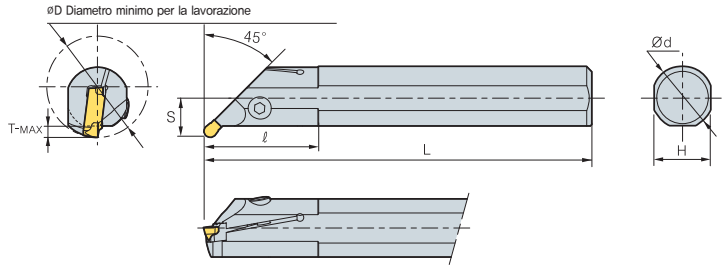
● : Disponibile ○ : A richiesta

# MGIUR/L



MRMN
MRGN

Per spogliatura, profilatura




Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | øD | ød | L | ℓ | T–MAX | H | S | Inserti | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MGIUR/L | 3520-3 | | | 35 | 20 | 150 | 45 | 3.5 | 18 | 13 | MRMN300-M | MHA0512 | HW40L |
| | 4025-3 | ● | | 40 | 25 | 200 | 45 | 3.5 | 23 | 15.5 | | | |
| | 5032-3 | | | 50 | 32 | 250 | 65 | 3.5 | 30 | 19 | | | |
| | 3520-4 | | | 35 | 20 | 150 | 45 | 3.5 | 18 | 13 | MRMN400-M | | |
| | 4025-4 | ● | | 40 | 25 | 200 | 45 | 3.5 | 23 | 15.5 | | | |
| | 5032-4 | ● | | 50 | 32 | 250 | 65 | 3.5 | 30 | 19 | | | |
| | 4025-5 | | | 40 | 25 | 200 | 45 | 3.5 | 23 | 15.5 | MRMN500-M | BHA0616 | HW50L |
| | 5032-5 | ● | | 50 | 32 | 250 | 65 | 3.5 | 30 | 19 | | BHA0620 | |
| | 4025-6 | | | 40 | 25 | 200 | 45 | 3.5 | 23 | 19 | MRMN600-M | BHA0616 | |
| | 5032-6 | | | 50 | 32 | 250 | 65 | 3.5 | 30 | 19 | | BHA0620 | |
| | 4025-8 | | | 40 | 25 | 200 | 45 | 6.5 | 23 | 15.5 | MRMN800-M | BHA0616 | |
| | 5032-8 | ● | | 50 | 32 | 250 | 65 | 6.5 | 30 | 19 | | BHA0620 | |
| | 4025-6A | | | 40 | 25 | 200 | 45 | 3.5 | 23 | 15.5 | MRGN600-A | BHA0616 | |
| | 5032-6A | | | 50 | 32 | 250 | 65 | 3.5 | 30 | 19 | | BHA0620 | |
| | 4025-8A | | | 40 | 25 | 200 | 45 | 5.0 | 23 | 18.5 | MRGN800-A | BHA0616 | |
| | 5032-8A | | | 50 | 32 | 250 | 65 | 6.5 | 30 | 22 | | BHA0620 | |

• Inserti applicabili, vedere pag. C22

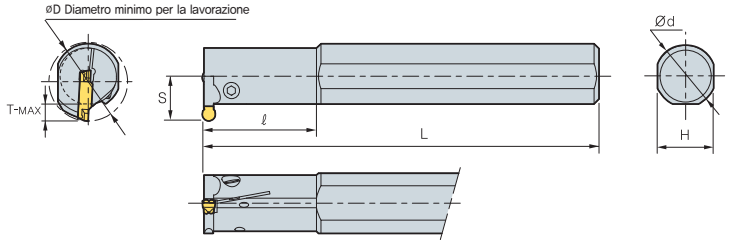
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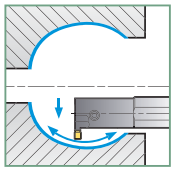
# MGIVR/L



MGMN MRMN
MGGN MRGN

Per scanalatura, tornitura, profilatura



Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | øD | ød | L | ℓ | T–MAX | H | S | Inserti | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MGIVR/L** | **2016-1.5** | | | 20 | 16 | 125 | 35 | 3.5 | 15 | 11.3 | | MHB0310 | HW25L |
| | **2520-1.5** | | | 25 | 20 | 150 | 45 | 3.5 | 18 | 13.1 | MGMN150-G | MHA0512 | HW40L |
| | **2925-1.5** | | | 29 | 25 | 200 | 45 | 3.5 | 23 | 16.2 | | | |
| | **2016-2** | ● | ● | 20 | 16 | 125 | 35 | 4.5 | 15 | 12.4 | MGMN200-G | MHB0310 | HW25L |
| | **2520-2** | ● | ● | 25 | 20 | 150 | 45 | 4.5 | 18 | 14.0 | MGMN200-M | MHA0512 | HW40L |
| | **2925-2** | ● | ● | 29 | 25 | 200 | 45 | 4.5 | 23 | 17.2 | MRMN200-M | | |
| | **2016-2.5** | | | 20 | 16 | 125 | 35 | 4.5 | 15 | 12.5 | MGMN250-G | MHB0310 | HW25L |
| | **2520-2.5** | | | 25 | 20 | 150 | 45 | 4.5 | 18 | 15.1 | MGMN250-M | MHB0512 | HW40L |
| | **2925-2.5** | | | 29 | 25 | 200 | 45 | 4.5 | 23 | 18.2 | | | |
| | **2520-3** | ● | ● | 25 | 20 | 150 | 45 | 5 | 18 | 15.6 | MGMN300-M/G/T | MHA0512 | HW40L |
| | **3125-3** | ● | ● | 31 | 25 | 200 | 45 | 6 | 23 | 18.9 | MGGN300-□□-M | | |
| | **3732-3** | ● | | 37 | 32 | 250 | 65 | 6 | 30 | 21.5 | MRMN300-M<br>MRMN300-□□-L/R | | |
| | **2520-4** | ● | ● | 25 | 20 | 150 | 45 | 6 | 18 | 15.6 | MGMN400-M/G/T | | |
| | **3125-4** | ● | | 31 | 25 | 200 | 45 | 6 | 23 | 18.9 | MGGN400-□□-M | | |
| | **3732-4** | ● | | 37 | 32 | 250 | 65 | 6 | 30 | 21.5 | MRMN400-M<br>MRMN400-□□-L/R | | |
| | **3125-5** | ● | | 31 | 25 | 200 | 45 | 8 | 23 | 19.4 | MGMN500-M/G/T | BHA0616 | HW50L |
| | **3732-5** | ● | ● | 37 | 32 | 250 | 65 | 8 | 30 | 21.5 | MGGN500-□□-M<br>MRMN500-M<br>MRMN500-□□-L/R | BHA0620 | |
| | **3125-6** | ● | ● | 31 | 25 | 200 | 45 | 8 | 23 | 19.4 | MGMN600-M/G | BHA0616 | |
| | **3732-6** | ● | | 37 | 32 | 250 | 65 | 8 | 30 | 21.5 | MGGN600-□□-M<br>MRMN600-M | BHA0620 | |
| | **3732-8** | ● | | 37 | 32 | 250 | 65 | 10 | 30 | 23.4 | MRMN800-M | | |
| | **4540-8** | ● | | 45 | 40 | 300 | 70 | 10 | 37 | 27.2 | MGMN800-M | | |
| | **3125-6A** | | | 31 | 25 | 200 | 45 | 8 | 23 | 19.4 | MRGN600-A | BHA0616 | |
| | **3732-6A** | | | 37 | 32 | 250 | 65 | 8 | 30 | 21.5 | | BHA0620 | |
| | **3732-8A** | | | 37 | 32 | 250 | 65 | 10 | 30 | 23.4 | MRGN800-A | | |
| | **4540-8A** | | | 45 | 40 | 300 | 70 | 10 | 37 | 27.2 | | | |

• Inserti applicabili, vedere pag. C21, C22

● : Disponibile ○ : A richiesta

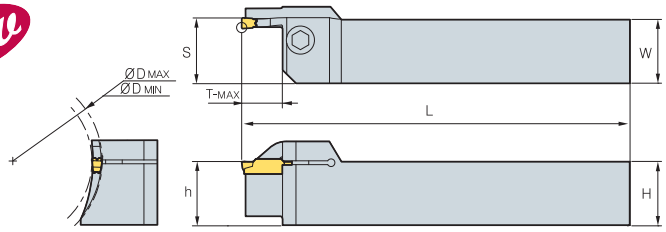
# MGFHR/L

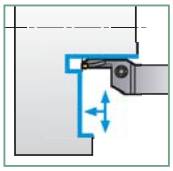


MFMN
MGMN

Per scanalatura frontale

New



Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H=(h) | W | L | S | T–MAX | min. (øD) | max. (øD) | Inserti | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MGFHR/L** | **325-24/35-T10** | ● | | 25 | 25 | 150 | 25.6 | 10 | 24 | 35 | MFMN300 | BHA0616 | HW50L |
| | **325-29/40-T10** | ● | | 25 | 25 | 150 | 25.6 | 10 | 29 | 40 | | | |
| | **325-34/50-T10** | ● | | 25 | 25 | 150 | 25.6 | 10 | 34 | 50 | | | |
| | **325-44/70-T10** | ● | | 25 | 25 | 150 | 25.6 | 10 | 44 | 70 | | | |
| | **325-64/99-T10** | ● | | 25 | 25 | 150 | 25.6 | 10 | 64 | 99 | | | |
| | **425-62/120-T15** | ● | | 25 | 25 | 150 | 25.6 | 15 | 62 | 120 | MGMN400-M/T | | |
| | **425-112/200-T15** | ● | | 25 | 25 | 150 | 25.6 | 15 | 112 | 200 | MGMN400-□□-L/R | | |

• Inserti applicabili, vedere pag. C21

● : Disponibile ○ : A richiesta

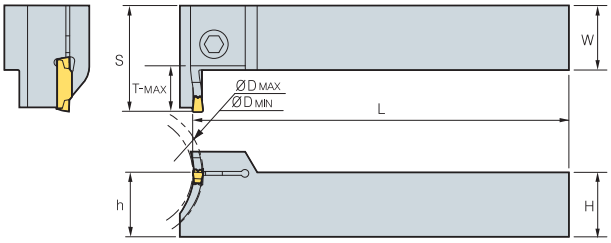
# MGFVR/L

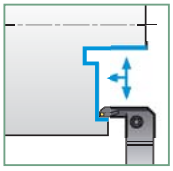


MFMN
MGMN

Per scanalatura frontale

New



Inserto destro R

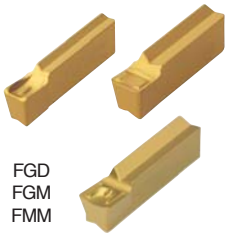
(mm)

| Articolo | | Stock R | Stock L | H=(h) | W | L | S | T–MAX | min. (øD) | max. (øD) | Inserti | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MGFVR/L** | **325-24/35-T10** | ● | | 25 | 25 | 150 | 36 | 10 | 24 | 35 | MFMN300 | MHA0512 | HW40L |
| | **325-29/40-T10** | ● | | 25 | 25 | 150 | 36 | 10 | 29 | 40 | | | |
| | **325-34/50-T10** | ● | | 25 | 25 | 150 | 36 | 10 | 34 | 50 | | | |
| | **325-44/70-T10** | ● | | 25 | 25 | 150 | 36 | 10 | 44 | 70 | | | |
| | **325-64/99T10** | ● | | 25 | 25 | 150 | 36 | 10 | 64 | 99 | | | |
| | **425-44/60-T10** | ● | | 25 | 25 | 150 | 41 | 15 | 44 | 60 | MGMN400-M/T | BHA0616 | HW50L |
| | **425-60/120-T10** | ● | | 25 | 25 | 150 | 41 | 15 | 60 | 120 | MGMN400-□□-L/R | | |
| | **425-112/200-T10** | ● | | 25 | 25 | 150 | 41 | 15 | 112 | 200 | | | |

• Inserti applicabili, vedere pag. C21

● : Disponibile ○ : A richiesta

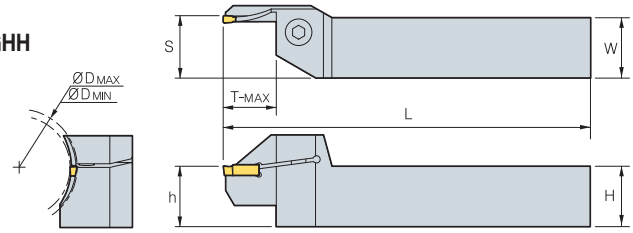
# FGHH

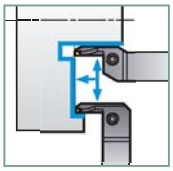


FGD
FGM
FMM

Per scanalatura frontale, tornitura

• **FGHH**



Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H=(h) | W | L | S | T–MAX | ØD MIN | ØD MAX | Inserti | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FGHH | 320R - 25/30 | ● | | 20 | 20 | 125 | 20.6 | 12 | 25 | 30 | FMM300R-03 | BHA0616 | HW50L |
| | 30/35 | ● | | 20 | 20 | 125 | 20.6 | 12 | 30 | 35 | | | |
| | 35/48 | ● | | 20 | 20 | 125 | 20.6 | 12 | 35 | 48 | | | |
| | 48/60 | | | 20 | 20 | 125 | 20.6 | 22 | 48 | 60 | FGD300R-03 FGM300R-03 | | |
| | 60/75 | | | 20 | 20 | 125 | 20.6 | 22 | 60 | 75 | | | |
| | 75/100 | | | 20 | 20 | 125 | 20.6 | 22 | 75 | 100 | | | |
| | 100/140 | | | 20 | 20 | 125 | 20.6 | 22 | 100 | 140 | | | |
| | 325R - 25/30 | ● | | 25 | 25 | 150 | 25.6 | 12 | 25 | 30 | FMM300R-03 | | |
| | 30/35 | ● | | 25 | 25 | 150 | 25.6 | 12 | 30 | 35 | | | |
| | 35/48 | ● | | 25 | 25 | 150 | 25.6 | 12 | 35 | 48 | | | |
| | 48/60 | ● | | 25 | 25 | 150 | 25.6 | 22 | 48 | 60 | FGD300R-03 FGM300R-03 | | |
| | 60/75 | ● | | 25 | 25 | 150 | 25.6 | 22 | 60 | 75 | | | |
| | 75/100 | ● | | 25 | 25 | 150 | 25.6 | 22 | 75 | 100 | | | |
| | 100/140 | ● | | 25 | 25 | 150 | 25.6 | 22 | 100 | 140 | | | |
| | 420R - 25/30 | ● | | 20 | 20 | 125 | 20.6 | 12 | 25 | 30 | FMM400R-04 | | |
| | 30/35 | ● | | 20 | 20 | 125 | 20.6 | 12 | 30 | 35 | | | |
| | 35/48 | ● | | 20 | 20 | 125 | 20.6 | 12 | 35 | 48 | | | |
| | 48/60 | | | 20 | 20 | 125 | 20.6 | 25 | 48 | 60 | FGD400R-04 FGM400R-04 | | |
| | 60/75 | | | 20 | 20 | 125 | 20.6 | 25 | 60 | 75 | | | |
| | 75/100 | | | 20 | 20 | 125 | 20.6 | 25 | 75 | 100 | | | |
| | 100/140 | | | 20 | 20 | 125 | 20.6 | 25 | 100 | 140 | | | |
| | 425R - 25/30 | ● | | 25 | 25 | 150 | 25.6 | 12 | 25 | 30 | FMM400R-04 | | |
| | 30/35 | ● | | 25 | 25 | 150 | 25.6 | 12 | 30 | 35 | | | |
| | 35/48 | ● | | 25 | 25 | 150 | 25.6 | 12 | 35 | 48 | | | |
| | 48/60 | ● | | 25 | 25 | 150 | 25.6 | 25 | 48 | 60 | FGD400R-04 FGM400R-04 | | |
| | 60/75 | ● | | 25 | 25 | 150 | 25.6 | 25 | 60 | 75 | | | |
| | 75/100 | ● | | 25 | 25 | 150 | 25.6 | 25 | 75 | 100 | | | |
| | 100/140 | ● | | 25 | 25 | 150 | 25.6 | 25 | 100 | 140 | | | |
| | 520R - 25/30 | ● | | 20 | 20 | 125 | 20.6 | 12 | 25 | 30 | FMM500R-04 | | |
| | 30/35 | ● | | 20 | 20 | 125 | 20.6 | 12 | 30 | 35 | | | |
| | 35/40 | ● | | 20 | 20 | 125 | 20.6 | 20 | 35 | 40 | | | |
| | 40/48 | ● | | 20 | 20 | 125 | 20.6 | 20 | 40 | 48 | | | |
| | 48/60 | | | 20 | 20 | 125 | 20.6 | 25 | 48 | 60 | FGD500R-04 FGM500R-04 | | |
| | 60/75 | | | 20 | 20 | 125 | 20.6 | 25 | 60 | 75 | | | |
| | 75/100 | | | 20 | 20 | 125 | 20.6 | 25 | 75 | 100 | | | |
| | 100/140 | | | 20 | 20 | 125 | 20.6 | 25 | 100 | 140 | | | |
| | 525R - 25/30 | ● | | 25 | 25 | 150 | 25.6 | 12 | 25 | 30 | FMM500R-04 | | |
| | 30/35 | ● | | 25 | 25 | 150 | 25.6 | 12 | 30 | 35 | | | |
| | 35/40 | ● | | 25 | 25 | 150 | 25.6 | 20 | 35 | 40 | | | |
| | 40/48 | ● | | 25 | 25 | 150 | 25.6 | 20 | 40 | 48 | | | |
| | 48/60 | ● | | 25 | 25 | 150 | 25.6 | 25 | 48 | 60 | FGD500R-04 FGM500R-04 | | |
| | 60/75 | ● | | 25 | 25 | 150 | 25.6 | 25 | 60 | 75 | | | |
| | 75/100 | ● | | 25 | 25 | 150 | 25.6 | 25 | 75 | 100 | | | |
| | 100/140 | ● | | 25 | 25 | 150 | 25.6 | 25 | 100 | 140 | | | |

• Inserti applicabili, vedere pag. C21

● : Disponibile ○ : A richiesta

# C Scanalatura frontale MGT

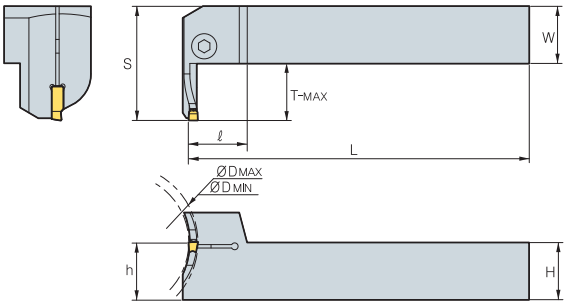
## FGVH

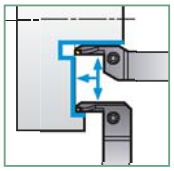


FGD
FGM
FMM

Per scanalatura frontale, tornitura

• **FGVH**



Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H=(h) | W | L | S | T–MAX | ØD MIN | ØD MAX | Inserti | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FGVH | 320R - 25/30 | ● | | 20 | 20 | 125 | 20.6 | 12 | 25 | 30 | FMM300R-03 | BHA0616 | HW50L |
| | 30/35 | ● | | 20 | 20 | 125 | 20.6 | 12 | 30 | 35 | | | |
| | 35/48 | ● | | 20 | 20 | 125 | 20.6 | 12 | 35 | 48 | | | |
| | 48/60 | | | 20 | 20 | 125 | 20.6 | 22 | 48 | 60 | FGD300R-03 FGM300R-03 | | |
| | 60/75 | | | 20 | 20 | 125 | 20.6 | 22 | 60 | 75 | | | |
| | 75/100 | | | 20 | 20 | 125 | 20.6 | 22 | 75 | 100 | | | |
| | 100/140 | | | 20 | 20 | 125 | 20.6 | 22 | 100 | 140 | | | |
| | 325R - 25/30 | ● | | 25 | 25 | 150 | 25.6 | 12 | 25 | 30 | FMM300R-03 | | |
| | 30/35 | ● | | 25 | 25 | 150 | 25.6 | 12 | 30 | 35 | | | |
| | 35/48 | ● | | 25 | 25 | 150 | 25.6 | 12 | 35 | 48 | | | |
| | 48/60 | ● | | 25 | 25 | 150 | 25.6 | 22 | 48 | 60 | FGD300R-03 FGM300R-03 | | |
| | 60/75 | ● | | 25 | 25 | 150 | 25.6 | 22 | 60 | 75 | | | |
| | 75/100 | ● | | 25 | 25 | 150 | 25.6 | 22 | 75 | 100 | | | |
| | 100/140 | ● | | 25 | 25 | 150 | 25.6 | 22 | 100 | 140 | | | |
| | 420R - 25/30 | ● | | 20 | 20 | 125 | 20.6 | 12 | 25 | 30 | FMM400R-04 | | |
| | 30/35 | ● | | 20 | 20 | 125 | 20.6 | 12 | 30 | 35 | | | |
| | 35/48 | ● | | 20 | 20 | 125 | 20.6 | 12 | 35 | 48 | | | |
| | 48/60 | | | 20 | 20 | 125 | 20.6 | 25 | 48 | 60 | FGD400R-04 FGM400R-04 | | |
| | 60/75 | | | 20 | 20 | 125 | 20.6 | 25 | 60 | 75 | | | |
| | 75/100 | | | 20 | 20 | 125 | 20.6 | 25 | 75 | 100 | | | |
| | 100/140 | | | 20 | 20 | 125 | 20.6 | 25 | 100 | 140 | | | |
| | 425R - 25/30 | ● | | 25 | 25 | 150 | 25.6 | 12 | 25 | 30 | FMM400R-04 | | |
| | 30/35 | ● | | 25 | 25 | 150 | 25.6 | 12 | 30 | 35 | | | |
| | 35/48 | ● | | 25 | 25 | 150 | 25.6 | 12 | 35 | 48 | | | |
| | 48/60 | ● | | 25 | 25 | 150 | 25.6 | 25 | 48 | 60 | FGD400R-04 FGM400R-04 | | |
| | 60/75 | ● | | 25 | 25 | 150 | 25.6 | 25 | 60 | 75 | | | |
| | 75/100 | ● | | 25 | 25 | 150 | 25.6 | 25 | 75 | 100 | | | |
| | 100/140 | ● | | 25 | 25 | 150 | 25.6 | 25 | 100 | 140 | | | |
| | 520R - 25/30 | ● | | 20 | 20 | 125 | 20.6 | 12 | 25 | 30 | FMM500R-04 | | |
| | 30/35 | ● | | 20 | 20 | 125 | 20.6 | 12 | 30 | 35 | | | |
| | 35/40 | ● | | 20 | 20 | 125 | 20.6 | 20 | 35 | 40 | | | |
| | 40/48 | ● | | 20 | 20 | 125 | 20.6 | 20 | 40 | 48 | | | |
| | 48/60 | | | 20 | 20 | 125 | 20.6 | 25 | 48 | 60 | FGD500R-04 FGM500R-04 | | |
| | 60/75 | | | 20 | 20 | 125 | 20.6 | 25 | 60 | 75 | | | |
| | 75/100 | | | 20 | 20 | 125 | 20.6 | 25 | 75 | 100 | | | |
| | 100/140 | | | 20 | 20 | 125 | 20.6 | 25 | 100 | 140 | | | |
| | 525R - 25/30 | ● | | 25 | 25 | 150 | 25.6 | 12 | 25 | 30 | FMM500R-04 | | |
| | 30/35 | ● | | 25 | 25 | 150 | 25.6 | 12 | 30 | 35 | | | |
| | 35/40 | ● | | 25 | 25 | 150 | 25.6 | 20 | 35 | 40 | | | |
| | 40/48 | ● | | 25 | 25 | 150 | 25.6 | 20 | 40 | 48 | | | |
| | 48/60 | ● | | 25 | 25 | 150 | 25.6 | 25 | 48 | 60 | FGD500R-04 FGM500R-04 | | |
| | 60/75 | ● | | 25 | 25 | 150 | 25.6 | 25 | 60 | 75 | | | |
| | 75/100 | ● | | 25 | 25 | 150 | 25.6 | 25 | 75 | 100 | | | |
| | 100/140 | ● | | 25 | 25 | 150 | 25.6 | 25 | 100 | 140 | | | |

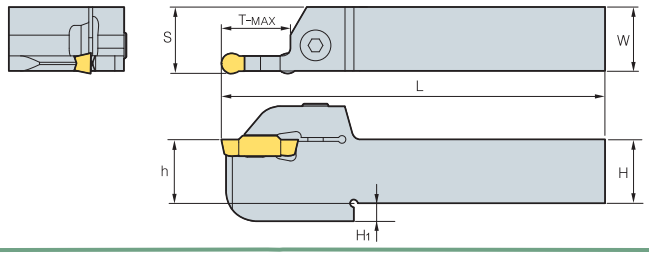
• Inserti applicabili, vedere pag. C21

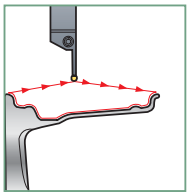
● : Disponibile ○ : A richiesta

# MGEHR



MRGN



Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H=(h) | H1 | W | L | S | T-MAX | Inserti | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MGEHR/L | 25N-6A | ● | | 25 | 7 | 25 | 150 | 25.55 | 23.5 | MRGN6N-A MRGN6N-AP MRGN6N-AM | BHA0620 | HW50L |
| | 32N-6A | | | 32 | 8 | 32 | 150 | 32.55 | 27 | | | |
| | 25N-6A5 | ● | | 25 | 7 | 25 | 150 | 25.55 | 23.5 | MRGN6N-A5 | | |
| | 32N-6A5 | | | 32 | 8 | 32 | 150 | 32.55 | 27 | | | |
| | 25N-8A | ● | | 25 | 7 | 25 | 150 | 25.55 | 23.5 | MRGN8N-A MRGN8N-AP MRGN8N-AM | | |
| | 32N-8A | ● | | 32 | 8 | 32 | 150 | 32.55 | 27 | | | |
| | 25N-8A5 | | | 25 | 7 | 25 | 150 | 25.55 | 23.5 | MRGN8N-A5 | | |
| | 32N-8A5 | | | 32 | 8 | 32 | 150 | 32.55 | 27 | | | |

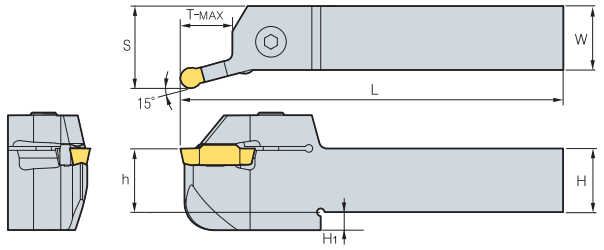
• Inserti applicabili, vedere pag. C22

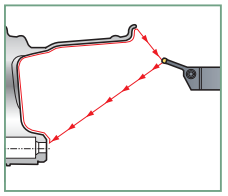
● : Disponibile ○ : A richiesta

# MGEHR/L-15



MRGN



Inserti sinistro L

(mm)

| Articolo | | Stock R | Stock L | H=(h) | H1 | W | L | S | T-MAX | Inserti | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MGEHR/L | 25N-6A-15 | ● | | 25 | 7 | 25 | 150 | 32.2 | 20 | MRGN6N-A MRGN6N-AP MRGN6N-AM | BHA0620 | HW50L |
| | 32N-6A-15 | | | 32 | 8 | 32 | 150 | 39.2 | 25 | | | |
| | 25N-6A5-15 | ● | | 25 | 7 | 25 | 150 | 32.2 | 20 | MRGN6N-A5 | | |
| | 32N-6A5-15 | | | 32 | 8 | 32 | 150 | 39.2 | 25 | | | |
| | 25N-8A-15 | ● | | 25 | 7 | 25 | 150 | 32.2 | 20 | MRGN8N-A MRGN8N-AP MRGN8N-AM | | |
| | 32N-8A-15 | ● | | 32 | 8 | 32 | 150 | 39.2 | 25 | | | |
| | 25N-8A5-15 | ● | | 25 | 7 | 25 | 150 | 32.2 | 20 | MRGN8N-A5 | | |
| | 32N-8A5-15 | ● | | 32 | 8 | 32 | 150 | 39.2 | 25 | | | |

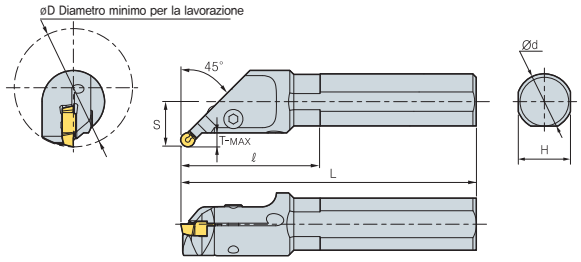
• Inserti applicabili, vedere pag. C22

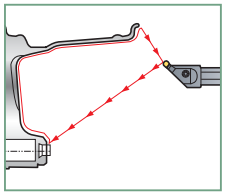
● : Disponibile ○ : A richiesta

# MGIUR/L-MR



MRGN



Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | øD | Ød | L | ℓ | T-MAX | H | S | Inserti | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MGIUR/L | 6832-8A-MR | ● | | 68 | 32 | 170 | 65 | 7 | 30 | 26 | MRGN8N-A/AM/AP MRGN8N-A5 | BHA0616 | HW50L |
| | 6832-8A5-MR | ● | | 68 | 32 | 170 | 65 | 7 | 30 | 26 | | | |

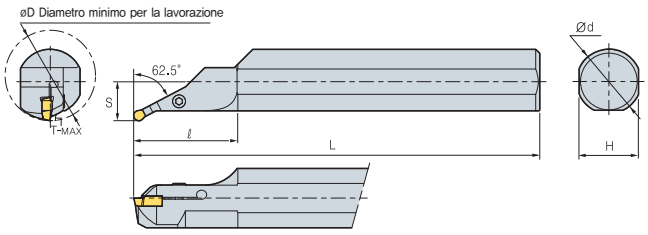
• Inserti applicabili, vedere pag. C22

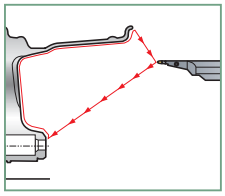
● : Disponibile ○ : A richiesta

## MGIXR/L-MR



MRGN



Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | øD | ød | L | ℓ | T–MAX | H | S | Inserti | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MGIXR/L | 7050-8A-MR | ● | | 70 | 50 | 350 | 80 | 5.5 | 46 | 30.2 | MRGN8N-A/AM/AP | BHA0616 | HW50L |
| | 7050-8A5-MR | ● | | 70 | 50 | 350 | 80 | 5.5 | 46 | 30.2 | MRGN8N-A5 | | |

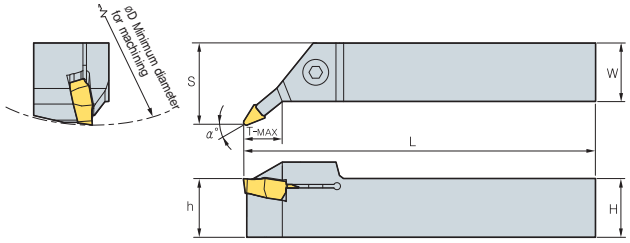
• Inserti applicabili, vedere pag. C22

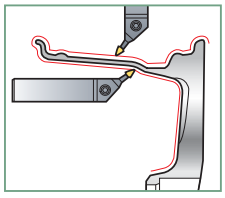
● : Disponibile ○ : A richiesta

## MGEXR/L



MVGN



Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H=(h) | W | L | S | T–MAX | α° | Inserti | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MGEXR/L | 25N-8A-5V | ● | | 25 | 25 | 150 | 29 | 23.5 | 5 | MVGN8N-A-R1.2 | BHA0620 | HW50L |
| | 25N-8A-22.5V | ● | | 25 | 25 | 150 | 35 | 27 | 22.5 | MVGN8N-A-R1.6 | | |

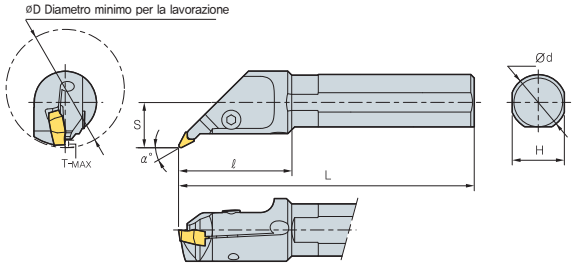
• Inserti applicabili, vedere pag. C22

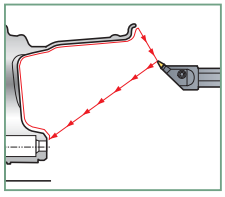
● : Disponibile ○ : A richiesta

## MGIUR/L-MV



MVGN



Inserto destro R

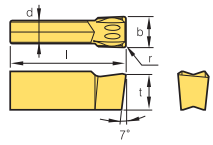
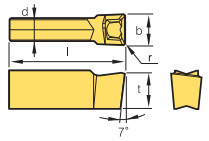
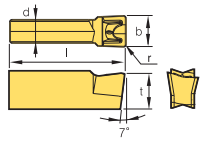
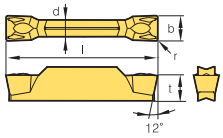
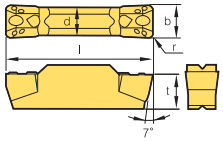
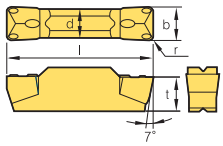
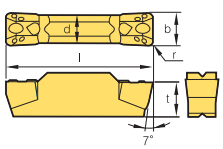
(mm)

| Articolo | | Stock R | Stock L | øD | ød | L | ℓ | T–MAX | H | S | α° | Inserti | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MGIUR/L | 6832-8A-MV | ● | | 68 | 32 | 170 | 65 | 4.5 | 30 | 26 | 27.5 | MVGN8N-A-R1.2<br>MVGN8N-A-R1.6 | BHA0616 | HW50L |

• Inserti applicabili, vedere pag. C22

● : Disponibile ○ : A richiesta

## Inserti disponibili

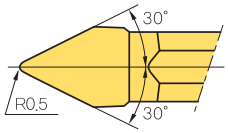
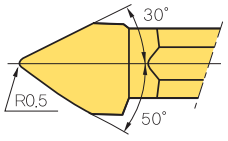
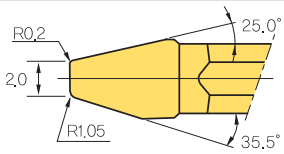
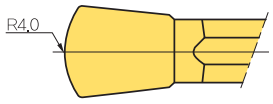
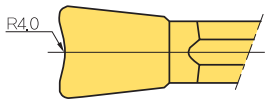
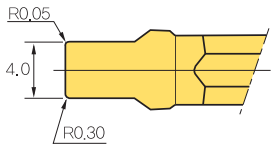
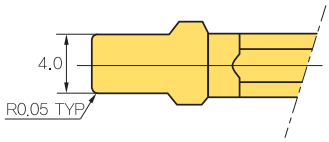
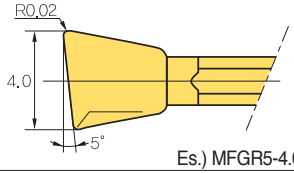
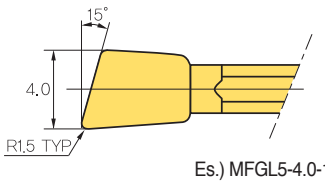
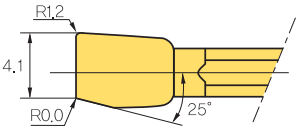
| Applicazione | Inserto | Articolo | | Rivestito NC3010 | NC3020 | NC3030 | NC3120 | PC5300 | PC9030 | NC5330 | PC6510 | PC8110 | Cermet CN20 | Dimensioni (mm) b | r | l | d | t | Disegno | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Scanalatura frontale | FGD | FGD | 300R-03 | | | ● | | | | | | | | 3.0 | 0.3 | 15.0 | 2.0 | 4.0 |  | C17 |
| |  | | 400R-04 | | | ● | | | | | | | | 4.0 | 0.4 | 15.0 | 3.0 | 4.5 | | |
| | | | 500R-04 | | | ● | | | | | | | | 5.0 | 0.4 | 15.0 | 4.0 | 5.0 | | |
| Scanalatura frontale | FGM | FGM | 300R-03 | | | | | | | | | | | 3.0 | 0.3 | 15.0 | 2.0 | 4.0 |  | C17 |
| |  | | 400R-04 | | | ● | | | | | | | | 4.0 | 0.4 | 15.0 | 3.0 | 4.5 | | |
| | | | 500R-04 | | | | | | | | | | | 5.0 | 0.4 | 15.0 | 4.0 | 5.0 | | |
| Scanalatura frontale | FMM | FMM | 300R-03 | | | ● | | | | | | ● | | 3.0 | 0.3 | 15.0 | 2.0 | 3.91 |  | C17 |
| |  | | 400R-04 | | | ● | | | | | ● | ● | | 4.0 | 0.4 | 15.0 | 3.0 | 3.96 | | |
| | | | 500R-04 | | | ● | | | | | | ● | | 5.0 | 0.4 | 15.0 | 4.0 | 4.42 | | |
| Scanalatura frontale | MFMN | MFMN | 300 | | | | ● | | | ● | | | | 3 | 0.2 | 18 | 2 | 3 |  | C11 C16 |
| |  | | | | | | | | | | | | | | | | | | | |
| Scanalatura · Tornitura | MGGN-M | MGGN | 300-02-M | | | | | | | | | | ● | 3.0 | 0.2 | 21.0 | 2.35 | 4.8 |  | C11 C12 C13 C15 |
| |  | | 300-04-M | | | | | | | | | | ● | 3.0 | 0.4 | 21.0 | 2.35 | 4.8 | | |
| | | | 300-08-M | | | | | | | | | | | 3.0 | 0.8 | 21.0 | 2.35 | 4.8 | | |
| | | | 400-02-M | | | | | | | | | | ● | 4.0 | 0.2 | 21.0 | 3.3 | 4.8 | | |
| | | | 400-04-M | | | | | | | | | | ● | 4.0 | 0.4 | 21.0 | 3.3 | 4.8 | | |
| | | | 400-08-M | | | | | | | | | | | 4.0 | 0.8 | 21.0 | 3.3 | 4.8 | | |
| | | | 500-02-M | | | | | | | | | | | 5.0 | 0.2 | 26.0 | 4.1 | 5.8 | | |
| | | | 500-04-M | | | | | | | | | | ● | 5.0 | 0.4 | 26.0 | 4.1 | 5.8 | | |
| | | | 500-08-M | | | | | | | | | | | 5.0 | 0.8 | 26.0 | 4.1 | 5.8 | | |
| | | | 600-02-M | | | | | | | | | | | 6.0 | 0.2 | 26.0 | 5.0 | 5.8 | | |
| | | | 600-04-M | | | | | | | | | | | 6.0 | 0.4 | 26.0 | 5.0 | 5.8 | | |
| | | | 600-08-M | | | | | | | | | | | 6.0 | 0.8 | 26.0 | 5.0 | 5.8 | | |
| Scanalatura | MGMN-G | MGMN | 150-G | | ● | | ● | ● | | | | | | 1.5 | 0.15 | 16.0 | 1.2 | 3.5 |  | C11 C12 C13 C15 |
| |  | | 200-G | | ● | ○ | ● | | ● | ● | | | | 2.0 | 0.2 | 16.0 | 1.6 | 3.5 | | |
| | | | 250-G | | ● | | | ● | ● | | | | | 2.5 | 0.2 | 18.5 | 2.0 | 3.85 | | |
| | | | 300-G | | | ○ | ○ | | ○ | ● | | | | 3.0 | 0.4 | 21.0 | 2.35 | 4.8 | | |
| | | | 400-G | | | | ○ | ● | | | | | | 4.0 | 0.4 | 21.0 | 3.3 | 4.8 | | |
| | | | 500-G | | | | | | | | | | | 5.0 | 0.8 | 26.0 | 4.1 | 5.8 | | |
| | | | 600-G | | | | | | | | | | | 6.0 | 0.8 | 26.0 | 5.0 | 5.8 | | |
| Scanalatura · Tornitura | MGMN-M | MGMN | 200-M | | ● | ● | ● | ● | ● | ● | | | | 2.0 | 0.2 | 16.0 | 1.2 | 3.5 |  | C12 C13 C15 C16 |
| |  | | 250-M | | ● | ○ | ● | ● | ● | | | | | 2.5 | 0.2 | 18.5 | 2.0 | 3.85 | | |
| | | | 300-02-M | | | | | | | ● | | | | 3.0 | 0.2 | 21.0 | 2.35 | 4.8 | | |
| | | | 300-M | ● | ● | ● | ● | ● | ● | | | | | 3.0 | 0.4 | 21.0 | 2.35 | 4.8 | | |
| | | | 350-03-M | | | | | | | | | | | 3.5 | 0.3 | 21.0 | 2.9 | 4.8 | | |
| | | | 400-02-M | | | | | | | | | | | 4.0 | 0.2 | 21.0 | 3.3 | 4.8 | | |
| | | | 400-M | | | ● | ● | ● | ○ | ● | | | | 4.0 | 0.4 | 21.0 | 3.3 | 4.8 | | |
| | | | 500-04-M | | | ● | | | | | | | | 5.0 | 0.4 | 26.0 | 4.1 | 5.8 | | |
| | | | 500-M | | | ● | ● | ○ | | ● | | | | 5.0 | 0.8 | 26.0 | 4.1 | 5.8 | | |
| | | | 600-M | | | ● | ● | | | ● | | | | 6.0 | 0.8 | 26.0 | 5.0 | 5.8 | | |
| | | | 800-M | | | ● | | ○ | | ● | | | | 8.0 | 0.8 | 31.0 | 6.0 | 6.5 | | |

## Inserti disponibili

| Applicazione | Inserto | Articolo | Rivestito NC3020 | NC3030 | NC3120 | PC8110 | PC9030 | PC3525 | PC5300 | PC6510 | PC230 | NC5330 | Cermet H01 | G10 | b | r | l | d | t | α° | Disegno | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Scanalatura | MGMN-L | MGMN 300-02-L | | ● | | | | | ● | | | | | | 3.0 | 0.2 | 21 | 2.35 | 4.8 | | | C11 C12 C16 |
| | | 400-02-L | | ● | | | | | ● | | | | | | 4.0 | 0.2 | 21 | 3.3 | 4.8 | | | |
| | | 500-04-L | | ● | | | | | ● | | | | | | 5.0 | 0.4 | 26 | 4.1 | 5.8 | | | |
| Scanalatura Troncatura | MGMN-R | MGMN 300-02-R | | ● | | | | | ● | | | | | | 3.0 | 0.2 | 21 | 2.35 | 4.8 | | | C11 C12 C16 |
| | | 400-02-R | | ● | | | | | ● | | | | | | 4.0 | 0.2 | 21 | 3.3 | 4.8 | | | |
| | | 500-04-R | | ● | | | | | ● | | | | | | 5.0 | 0.4 | 26 | 4.1 | 5.8 | | | |
| Scanalatura Tornitura | MGMN-T | MGMN 300-T | | ● | | | | | ● | | | | | | 3.0 | 0.4 | 21 | 2.35 | 4.8 | | | C11 C16 |
| | | 400-T | | ● | | | | | ● | | | | | | 4.0 | 0.4 | 21 | 3.3 | 4.8 | | | |
| | | 500-T | | ● | | | | | ● | | | | | | 5.0 | 0.8 | 26 | 4.1 | 5.8 | | | |
| Scanalatura | MGMN-A | MGGN 300-02-A | | | | | | | | | | | | | 3.0 | 0.2 | 21 | 2.35 | 4.8 | | | C11 C12 C13 C15 |
| | | 300-04-A | | | | | | | | | | | | | 3.0 | 0.4 | 21 | 2.35 | 4.8 | | | |
| | | 300-08-A | | | | | | | | | | | | | 3.0 | 0.8 | 21 | 2.35 | 4.8 | | | |
| Troncatura | MGMR/L-PS | MGMR/L 300-6D-PS | | | ● | | | ● | | | | | | | 3 | 0.2 | 21 | 2.35 | 4.8 | 6 | | C11 C12 |
| | | 300-8D-PS | | | ● | | | ● | | | | | | | 3 | 0.2 | 21 | 2.35 | 4.8 | 8 | | |
| | | 300-15D-PS | | | ● | | | ● | | | | | | | 3 | 0.2 | 21 | 2.35 | 4.8 | 15 | | |
| | | 400-4D-PS | | | ● | | | ● | | | | | | | 4 | 0.3 | 21 | 3.3 | 4.8 | 4 | | |
| | | 500-4D-PS | | | ● | | | ● | | | | | | | 5 | 0.3 | 26 | 4.1 | 5.8 | 4 | | |
| Troncatura | MGMR/L-PT | MGMR/L 200-6D-PT | | | ● | | | ● | | | | | | | 2 | 0.2 | 16 | 1.6 | 3.6 | 6 | | C11 |
| | | 300-6D-PT | | | ● | | | ● | | | | ● | | | 3 | 0.2 | 21 | 2.35 | 4.8 | 6 | | |
| | | 300-8D-PT | | | ● | | | ● | | | | | | | 3 | 0.2 | 21 | 2.35 | 4.8 | 8 | | |
| | | 300-15D-PT | | | ● | | | ● | | | | | | | 3 | 0.2 | 21 | 2.35 | 4.8 | 15 | | |
| | | 400-4D-PT | | | ● | | | ● | | | | | | | 4 | 0.3 | 21 | 3.3 | 4.8 | 4 | | |
| | | 500-4D-PT | | | ● | | | ● | | | | | | | 5 | 0.3 | 26 | 4.1 | 5.8 | 4 | | |
| Alluminio | MRGN-A | MRGN 400-A | | | | | | | | | | | | | 4.0 | 2.0 | 21.0 | 3.3 | 4.8 | | | C11 C12 C13 C14 C15 C19 |
| | | 500-A | | | | | | | | | | | | | 5.0 | 2.5 | 26.0 | 4.1 | 5.8 | | | |
| | | 600-A | | | | | | | | | | | ● | | 6.0 | 3.0 | 26.0 | 5.0 | 5.8 | | | |
| | | 800-A | | | | | | | | | | | ● | | 8.0 | 4.0 | 31.0 | 6.0 | 6.5 | | | |
| Spogliatura Profilatura | MRMN-M | MRMN 200-M | ● | | ● | | | | | | | | | | 2.0 | 1.0 | 16.0 | 1.50 | 3.5 | | | C11 C12 C13 C14 C15 |
| | | 300-M | ● | ● | ● | | | | ● | | ● | ● | | | 3.0 | 1.5 | 21.0 | 2.35 | 4.8 | | | |
| | | 400-M | ● | ● | ● | | | | | ● | | ● | | | 4.0 | 2.0 | 21.0 | 3.3 | 4.8 | | | |
| | | 500-M | ● | ● | ● | | | | ● | | ● | ● | | | 5.0 | 2.5 | 26.0 | 4.1 | 5.8 | | | |
| | | 600-M | ● | ● | ● | | | | | | | ● | | | 6.0 | 3.0 | 26.0 | 5.0 | 5.8 | | | |
| | | 800-M | ● | ● | ● | | | | | | | ● | | | 8.0 | 4.0 | 31.0 | 6.0 | 6.5 | | | |

| Applicazione | Inserto | Articolo | Rivestito DA150 | Non rivestito G10 | b | r | l | d | t | Disegno | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Per profilatura di alluminio | MVGN | MVGN 8N-A-R1.2 | | ● | | 1.2 | 30.0 | 6.0 | 6.9 | | C20 |
| | | 8N-A-R1.6 | | ● | | 1.6 | 30.0 | 6.0 | 6.9 | | |
| Per profilatura di alluminio | MRGN-A | MRGN 6N-A | | ● | 6.0 | 3.0 | 26.0 | 5.0 | 5.9 | | C19 C20 |
| | | 6N-AM | | ● | 6.0 | 3.0 | 26.0 | 5.0 | 5.9 | | |
| | | 6N-AP | | | 6.0 | 3.0 | 26.0 | 5.0 | 5.9 | | |
| | | 6N-A5 | | ● | 6.0 | 3.0 | 26.0 | 5.0 | 5.9 | | |
| | | 8N-A | | ● | 8.0 | 4.0 | 30.0 | 6.0 | 6.5 | | |
| | | 8N-AM | | ● | 8.0 | 4.0 | 30.0 | 6.0 | 6.5 | | |
| | | 8N-AP | | | 8.0 | 4.0 | 30.0 | 6.0 | 6.5 | | |
| | | 8N-A5 | | ● | 8.0 | 4.0 | 30.0 | 6.0 | 6.5 | | |

● : Disponibile ○ : A richiesta

| Articolo | Disegno |
|---|---|
| **M F G N 4 - 0.5R - 30D**<br>① ② ③ ④ ⑤ ⑥ ⑦<br>① Multi ② Forma ③ Affilatura<br>④ Direzione di alimentazione ⑤ Dimensioni inserto : 4mm ⑥ Raggio di punta : 0.5<br>⑦ Gradi : 30° |  <br>Es.) MFGN4-0.5R-30D |
| **MFGN4 - 0.5R - L 50 D - R 30D**<br>① ② ③ ④ ⑤ ⑥<br>① Rif. N. 1 ② Raggio di punta : 0.5 ③ Sinistra<br>④ Gradi : 50° ⑤ Destra ⑥ Gradi>30° |  <br>Es.) MFGN4-0.5R-L50D-R30D |
| **MFGN4 - 2.0 - R 020 250 - L 105 335**<br>① ② ③ ④ ⑤ ⑥ ⑦ ⑧<br>① Rif. N. 1 ② Larghezza tagliente : 2.0mm ③ Destra<br>④ Raggio di punta : 0.20 ⑤ Gradi : 25.0° ⑥ Sinistra<br>⑦ Raggio di punta : 1.05 ⑧ Gradi : 35.5° |  <br>Es.) MFGN4-2.0-R020250-L105335 |
| **MFGN5 - 4.0R F**<br>① ② ③<br>① Rif. N. 1 ② Raggio : 4.0 ③ Frontale (concavo) |  <br>Es.) MFGN5-4.0RF |
| **MFGN5 - 4.0R B**<br>① ② ③<br>① Rif. N. 1 ② Raggio : 4.0 ③ Posteriore (concavo) |  <br>Es.) MFGN5-4.0RB |
| **MFGN5 - 4.0 - R 005 - L 030**<br>① ② ③ ④ ⑤ ⑥<br>① Rif. N. 1 ② Larghezza tagliente : 4.0mm ③ Destra<br>④ Raggio di punta : 0.05 ⑤ Sinistra ⑥ Raggio di punta : 0.30 |  <br>Es.) MFGN5-4.0-R005-L030 |
| **MFGN5 - 4.0 - 0.05 R**<br>① ② ③<br>① Rif. N. 1<br>② Larghezza tagliente: 4.0mm<br>③ Raggio di punta: 0.05 |  <br>Es.) MFGN5-4.0-0.05R |
| **MFG R 5 - 4.0 - 5D - R 002 - L 115**<br>① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨<br>① Rif. N. 1 ② Destra ③ Dimensioni inserto: 5mm<br>④ Larghezza tagliente: 4.0mm ⑤ Angolo di punta: 5° ⑥ Destra<br>⑦ Raggio di punta: 0.02 ⑧ Sinistra ⑨ Raggio di punta: 1.15 |  <br>Es.) MFGR5-4.0-5D-R002-L115 |
| **MFG L 5 - 4.0 - 15D - 1.5R**<br>① ② ③ ④ ⑤ ⑥<br>① Rif. N. 1 ② Sinistra ③ Dimensioni inserto: 5mm<br>④ Larghezza tagliente: 4.0mm ⑤ Angolo di punta: 15° ⑥ Destra Raggio di punta: 1.5 |  <br>Es.) MFGL5-4.0-15D-1.5R |
| **MFG R 5 - 4.10 - 25D - R012 - L000**<br>① ② ③ ④ ⑤ ⑥ ⑦<br>① Rif. N. 1 ② Destra ③ Dimensioni inserto: 5mm<br>④ Larghezza tagliente: 4.1mm ⑤ Gradi: 25° ⑥ Destra Raggio di punta: 1.2<br>⑦ Sinistra Raggio di punta :0.0 |  <br>Es.) MFGR5-4.10-25D-R012-L000 |

# SPB/SPB-S
## (Lame)



SP

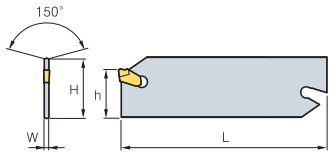



Fig. 1

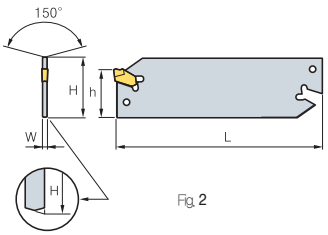
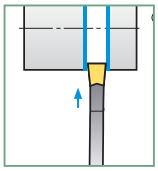



Fig. 2



Inserto destro R

(mm)

| Articolo | | Stock | H | W | L | h | Inserti | Chiave | | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|
| SPB | 226 | ● | 26 | 1.6 | 110 | 21 | SP200, 200R/L | SW50L | - | 1 |
| | 326 | ● | 26 | 2.4 | 110 | 21 | SP300, 300R/L | | | |
| | 426 | ● | 26 | 3.2 | 110 | 21 | SP400, 400R/L | | | |
| | 526 | ● | 26 | 4.0 | 110 | 21 | SP500, 500R/L | | | |
| | 626 | | 26 | 5.2 | 110 | 21 | SP600, 600R/L | | | |
| | 232 | ● | 32 | 1.6 | 150 | 25 | SP200, 200R/L | | | |
| | 332 | ● | 32 | 2.4 | 150 | 25 | SP300, 300R/L | | | |
| | 432 | ● | 32 | 3.2 | 150 | 25 | SP400, 400R/L | | | |
| | 532 | ● | 32 | 4.0 | 150 | 25 | SP500, 500R/L | | | |
| | 632 | ● | 32 | 5.2 | 150 | 25 | SP600, 600R/L | | | |
| SPB | 226-S | ● | 26 | 1.6 | 110 | 21 | SP200, 200R/L | - | SW15S | 2 |
| | 326-S | ● | 26 | 2.4 | 110 | 21 | SP300, 300R/L | | | |
| | 426-S | ● | 26 | 3.2 | 110 | 21 | SP400, 400R/L | | | |
| | 526-S | | 26 | 4.0 | 110 | 21 | SP500, 500R/L | | | |
| | 626-S | | 26 | 5.2 | 110 | 21 | SP600, 600R/L | | | |
| | 232-S | ● | 32 | 1.6 | 150 | 25 | SP200, 200R/L | | | |
| | 332-S | ● | 32 | 2.4 | 150 | 25 | SP300, 300R/L | | | |
| | 432-S | ● | 32 | 3.2 | 150 | 25 | SP400, 400R/L | | | |
| | 532-S | ● | 32 | 4.0 | 150 | 25 | SP500, 500R/L | | | |
| | 632-S | ● | 32 | 5.2 | 150 | 25 | SP600, 600R/L | | | |

• Inserti applicabili, vedere pag. C25

● : Disponibile ○ : A richiesta

# SPH/SPH-S
## (Portainserti)



SP

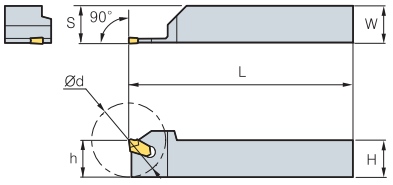



Fig. 1

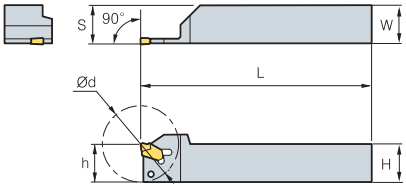
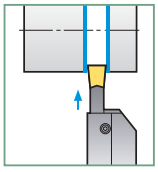



Fig. 2



Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H=(h) | W | L | Ød | S | Inserti | Chiave | | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SPH | 316R/L | | | 16 | 16 | 100 | 32 | 16.3 | SP300, 300R/L | SW50L | - | 1 |
| | 320R/L | ● | ● | 20 | 20 | 120 | 40 | 20.3 | SP300, 300R/L | | | |
| | 420R/L | ● | | 20 | 20 | 120 | 50 | 20.4 | SP400, 400R/L | | | |
| | 520R/L | | | 20 | 20 | 120 | 60 | 20.5 | SP500, 500R/L | | | |
| | 325R/L | ● | | 25 | 25 | 150 | 50 | 25.3 | SP300, 300R/L | | | |
| | 425R/L | ● | ● | 25 | 25 | 150 | 60 | 25.4 | SP400, 400R/L | | | |
| | 525R/L | ● | | 25 | 25 | 150 | 70 | 25.5 | SP500, 500R/L | | | |
| SPH | 316R/L-S | ● | | 16 | 16 | 100 | 32 | 16.3 | SP300, 300R/L | - | SW15S | 2 |
| | 320R/L-S | ● | | 20 | 20 | 120 | 40 | 20.3 | SP300, 300R/L | | | |
| | 420R/L-S | ● | | 20 | 20 | 120 | 50 | 20.4 | SP400, 400R/L | | | |
| | 520R/L-S | | | 20 | 20 | 120 | 60 | 20.5 | SP500, 500R/L | | | |
| | 325R/L-S | ● | | 25 | 25 | 150 | 50 | 25.3 | SP300, 300R/L | | | |
| | 425R/L-S | ● | | 25 | 25 | 150 | 60 | 25.4 | SP400, 400R/L | | | |
| | 525R/L-S | ● | | 25 | 25 | 150 | 70 | 25.5 | SP500, 500R/L | | | |

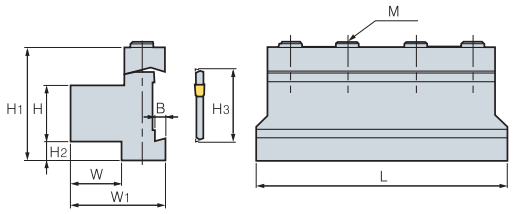
• Inserti applicabili, vedere pag. B16~B18

● : Disponibile ○ : A richiesta

# SMBB
## (Portalame)



SPB□□□(-S)




Inserto destro R

(mm)

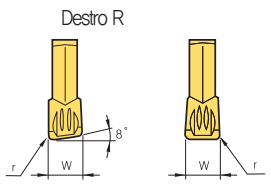
| Articolo | | Stock | H | W | H3 | L | H1 | H2 | W1 | B | M | Lame | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SMBB | 1626 | | 16 | 12 | 26 | 86 | 43 | 13 | 30 | 5.3 | 3-M6 | SPB□□□(-S) | HW50L |
| | 2026 | ● | 20 | 19 | 26 | 86 | 43 | 9 | 38 | 5.3 | 3-M6 | | |
| | 2032 | ● | 20 | 19 | 32 | 100 | 50 | 13 | 38 | 5.3 | 4-M6 | SPB□□□(-S) | |
| | 2526 | ● | 25 | 23 | 26 | 86 | 43 | 4 | 42 | 5.3 | 4-M6 | SPB□□□(-S) | |
| | 2532 | ● | 25 | 23 | 32 | 110 | 50 | 8 | 42 | 5.3 | 4-M6 | SPB□□□(-S) | |
| | 3232 | ● | 32 | 30 | 32 | 110 | 54 | 5 | 48 | 5.3 | 4-M6 | | |

• Inserti applicabili, vedere pag. C25

● : Disponibile ○ : A richiesta

## Inserti disponibili

(mm)

| Inserto | Articolo | | Rivestito NC3120 | NC3030 | NCM325 | NC5330 | PC3500 | NC500H | PC8110 | PC5300 | PC9030 | PC6510 | Non riv. ST30A | W | l | r | Disegno |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | SP | 200 | ● | ● | ● | ● | | | ● | ● | ● | ● | | 2.2 | 9.3 | 0.2 |  |
| | | 200R | | ● | | | | | ● | | ● | | | 2.2 | 9.3 | 0.2 | |
| | | 200L | | | | | | | | | ● | | | 2.2 | 9.3 | 0.2 | |
| | | 300 | ● | ● | ● | ● | | | ● | ● | ● | ● | ● | 3.1 | 11.3 | 0.2 | |
| | | 300R | ● | ● | ● | | | | ● | | | | | 3.1 | 11.3 | 0.2 | |
| | | 300L | | ● | | | | | ● | | | | | 3.1 | 11.3 | 0.2 | |
| | | 300H | | ● | | | | | | | | | | 3.1 | 11.4 | 0.2 | |
| | | 400 | ● | ● | ● | ● | | | ● | ● | ● | ● | | 4.1 | 11.3 | 0.25 | |
| | | 400R | | ● | | | | | ● | | | | | 4.1 | 11.3 | 0.25 | |
| | | 400L | | ● | | | | | ● | | | | | 4.1 | 11.3 | 0.25 | |
| | | 400H | | | | | | | | | | | | 4.1 | 11.4 | 0.25 | |
| | | 500 | ● | ● | ● | ● | | ● | ● | ● | | ● | | 5.1 | 11.4 | 0.3 | |
| | | 500R | | | | | | | | | | | | 5.1 | 11.4 | 0.3 | |
| | | 500L | | | | | | | | | | | | 5.1 | 11.4 | 0.3 | |
| | | 600 | | ● | | ● | | | | ● | | ● | | 6.4 | 11.4 | 0.35 | |
| | | 600R | | | | | | | | | | | | 6.4 | 11.4 | 0.35 | |
| | | 600L | | | | | | | | | | | | 6.4 | 11.4 | 0.35 | |



• Utensili applicabili, vedere pag. C24, C25

● : Disponibile ○ : A richiesta

## ● Caratteristiche degli utensili di troncatura

- Indicati per vari tipi di materiali da lavorare
  - Acciaio legato, ghisa, acciaio inossidabile ecc.
- Grazie allo speciale design dell'angolo di spoglia la durata dell'utensile è maggiore
- Raggio di punta minimo per evitare le vibrazioni
- Vari angoli di punta disponibili per un'ottimale lavorazione
- Grazie allo speciale design del rompitruciolo e del tagliente è possibile produrre trucioli di piccole dimensioni

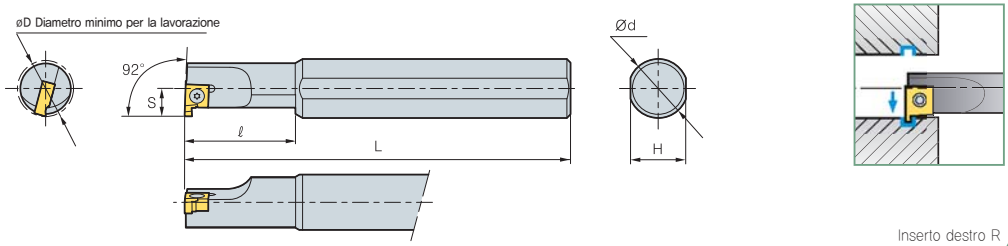
## Condizioni di taglio raccomandate

| Pezzo lavorato | CVD NC3120 | NC3030 | NCM325 | NC5330 | NC500H | PVD PC230 | PC8110 | PC5300 | PC3500 | PC6510 | Non rivestito ST30A | Larghezza di taglio (mm) 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SM C | 80~180 | | | 80~180 | | 80~180 | | | | | | 0.02~0.15 | 0.03~0.2 | 0.08~0.3 | 0.10~0.4 | 0.12~0.5 |
| SCM | 70~150 | 70~150 | 70~150 | 70~150 | 70~150 | 70~150 | | | 70~150 | | | 〃 | 〃 | 〃 | 〃 | 〃 |
| GC/GCD | | | | 50~100 | | | | | | 50~100 | 50~100 | 0.05~0.12 | 0.1~0.25 | 0.1~0.30 | 0.1~0.35 | 0.1~0.40 |
| STS | | | 50~120 | 50~120 | | | 50~120 | 60~140 | | | | 0.02~0.1 | 0.03~0.15 | 0.08~0.25 | 0.1~0.35 | 0.12~0.40 |
| Materiali non ferrosi (AL, Rame) | | | | | | | | | | | 200~450 | 0.05~0.1 | 0.05~0.2 | 0.05~0.25 | 0.05~0.30 | 0.05~0.35 |

## IGH Per scanalatura interna



IG



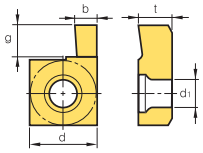

(mm)

| Articolo | | Stock R | Stock L | øD | ød | H | L | ℓ | S | Inserti | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IGH | 214R/L | ● | | 14 | 16 | 15 | 150 | 25 | 6.6 | IG125~280 | FTKA02565 | TW07P |
| | 216R/L | ● | | 16 | 16 | 15 | 150 | 30 | 7.6 | | | |
| | 220R/L | ● | | 20 | 20 | 18 | 200 | 40 | 9.6 | | | |

● : Disponibile ○ : A richiesta

## Inserti disponibili

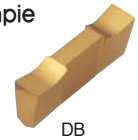
(mm)

| Applicazione | Inserto | Articolo | | Rivestito NC3010 | Rivestito NC3120 | Non rivestito H01 | Non rivestito G10 | Non rivestito ST30A | b | g | t | d | $d_1$ | Disegno |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Scanalatura interna |  | IG | 125 | | | | | ● | 1.25 | 1.5 | 3.18 | 6.35 | 2.8 |  |
| | | | 145 | | | | | ● | 1.45 | 1.5 | 3.18 | 6.35 | 2.8 | |
| | | | 175 | | | | | ● | 1.75 | 1.5 | 3.18 | 6.35 | 2.8 | |
| | | | 200 | | | | | ● | 2.0 | 2.3 | 3.18 | 6.35 | 2.8 | |
| | | | 230 | | | | | ● | 2.3 | 2.3 | 3.18 | 6.35 | 2.8 | |
| | | | 280 | | | | | ● | 2.8 | 2.3 | 3.18 | 6.35 | 2.8 | |

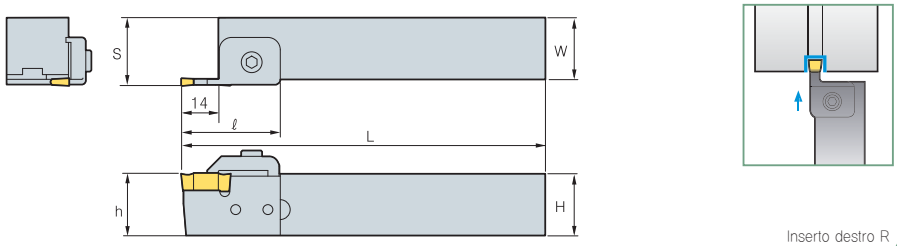


● : Disponibile ○ : A richiesta

## DBH Per scanalature profonde e ampie



DB
DC




(mm)

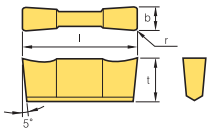
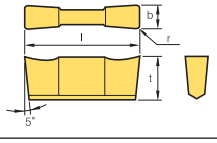
| Articolo | | Stock R | Stock L | H=(h) | W | L | ℓ | S * | S ** | Inserti * | Inserti ** | Staffa | Vite di staffaggio | Vite | Base | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DBH | 320R/L | ● | | 20 | 20 | 150 | 40 | 22.3 | 22.8 | DB300 DC300 | DB400 DC400 | CGH5R1 | MHA0512 | MHB0410 | LD34 | HW30L HW40L |
| | 325R/L | ● | | 25 | 25 | 150 | 40 | 27.3 | 27.8 | | | | | | | |
| | 520R/L | ● | | 20 | 20 | 150 | 40 | 23.8 | 24.3 | DB500 DC500 | DB600 | CGH5R2 | MHA0512 | MHB0410 | LD56 | HW30L HW40L |
| | 525R/L | ● | | 25 | 25 | 150 | 40 | 28.8 | 29.3 | | | | | | | |
| | 720R/L | | | 20 | 20 | 150 | 40 | 25.8 | 26.3 | DB700 | DB800 | CGH5R3 | MHA0512 | MHB0410 | LD78 | HW30L HW40L |
| | 725R/L | | | 25 | 25 | 150 | 40 | 30.8 | 31.3 | | | | | | | |

• Inserti : 'S' cambia in funzione di *, **

● : Disponibile ○ : A richiesta

## Inserti disponibili

(mm)

| Inserto | Articolo | | Rivestito NC3010 | Rivestito NC3120 | Cermet CN20 | Non rivestito H01 | Non rivestito G10 | b | l | t | r | Disegno |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | DB | 300 | | | ● | | | 3.0 | 20 | 7.5 | 0.2 |  |
| | | 400 | | | ● | | | 4.0 | 20 | 7.5 | 0.2 | |
| | | 500 | | | ● | | | 5.0 | 20 | 7.5 | 0.2 | |
| | | 600 | | | ● | | | 6.0 | 20 | 7.5 | 0.2 | |
| | | 700 | | | | | | 7.0 | 20 | 7.5 | 0.2 | |
| | | 800 | | | | | | 8.0 | 20 | 7.5 | 0.2 | |
|  | DC | 300 | | | ● | | | 3.0 | 20 | 7.5 | 0.2 |  |
| | | 400 | | | ● | | | 4.0 | 20 | 7.5 | 0.25 | |
| | | 500 | | | | | | 5.0 | 20 | 7.5 | 0.3 | |

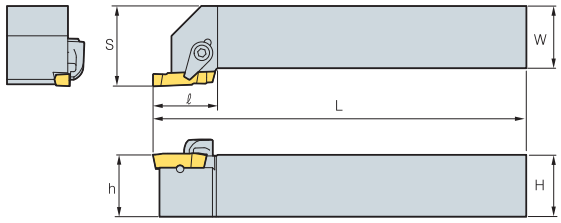


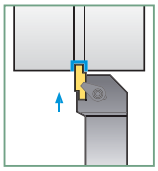
● : Disponibile ○ : A richiesta

## GFT Scanalatura esterna



GW
BF



Inserto destro R

(mm)

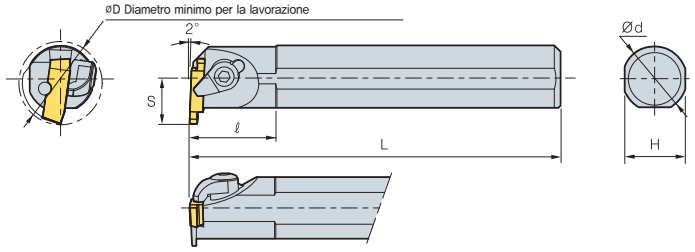
| Articolo | | Stock R | Stock L | H=(h) | W | L | ℓ | S | Inserti | Staffa | Vite | Perno | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GFT | 320R/L | ● | | 20 | 20 | 125 | 23.5 | 25 | GW110~300R/L,BF3 | CS5R1 | DHA0514 | PN0310 | HW25L |
| | 325R/L | ● | ● | 25 | 25 | 150 | 23.5 | 32 | | | | | |
| | 525R/L | ● | | 25 | 25 | 150 | 25.5 | 32 | GW315~500R/L,BF5 | CS6R1 | DHA0617 | PN0310 | HW30L |
| | 825R/L | ● | | 25 | 25 | 150 | 28.5 | 32 | GW600~800R/L,BF8 | CS8R1 | DHA0820 | PN0314 | HW40L |

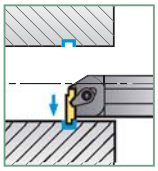
● : Disponibile ○ : A richiesta

## GFIP Scanalatura interna



BF
GW



Inserto destro R

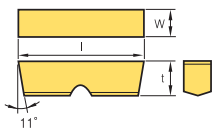
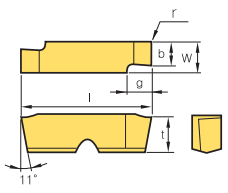
(mm)

| Articolo | | Stock R | Stock L | øD | ød | H | L | ℓ | S | Inserti | Staffa | C-ring | Vite | Perno | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GFIP | 316R/L | ● | ● | 20 | 16 | 15 | 150 | 17 | 11 | GW110~300R/L,BF3 | CH5R2 | CR04 | CHX0513 | PN0310 | HW25L |
| | 320R/L | ● | | 26 | 20 | 18 | 150 | 22 | 13 | | | | | | |
| | 325R/L | ● | | 32 | 25 | 23 | 200 | 22 | 17 | | CH6R2 | CR05 | CHX0616 | PN0310 | HW30L |
| | 340R/L | ● | | 50 | 40 | 37 | 300 | 32 | 27 | | | | | | |
| | 525R/L | ● | | 32 | 25 | 23 | 200 | 22 | 17 | GW315~500R/L,BF5 | | | | | |
| | 540R/L | ● | | 50 | 40 | 37 | 300 | 32 | 27 | | | | | | |
| | 840R/L | ● | | 50 | 40 | 37 | 300 | 32 | 27 | GW600~800R/L,BF8 | CS8R1 | - | DHA0820 | PN0314 | HW40L |

● : Disponibile ○ : A richiesta

## Inserti disponibili

(mm)

| Inserto | Articolo | | Non rivestito ST30A | | b | g | W | l | t | r | Disegno |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  | BF | -3 | ● | | | | 3.1 | 16.4 | 5.26 | - |  |
| | | -5 | ● | | | | 5.1 | 22.4 | 6.26 | - | |
| | | -8 | ● | | | | 8.1 | 27.4 | 7.26 | - | |
| | | | R | L | | | | | | | |
|  | GW | 110R/L | ● | ● | 1.1 | 2.1 | 3.1 | 16 | 5.0 | 0.2 |  |
| | | 130R/L | ● | ● | 1.3 | 2.3 | 3.1 | 16 | 5.0 | 0.2 | |
| | | 160R/L | ● | ● | 1.6 | 2.6 | 3.1 | 16 | 5.0 | 0.2 | |
| | | 185R/L | ● | ● | 1.85 | 2.9 | 3.1 | 16 | 5.0 | 0.2 | |
| | | 215R/L | ● | ● | 2.15 | 3.2 | 3.1 | 16 | 5.0 | 0.2 | |
| | | 265R/L | ● | ● | 2.65 | 3.7 | 3.1 | 16 | 5.0 | 0.2 | |
| | | 300R/L | ● | ● | 3.0 | 4.0 | 3.1 | 16 | 5.0 | 0.2 | |
| | | 315R/L | ● | ● | 3.15 | 4.2 | 5.1 | 22 | 6.0 | 0.3 | |
| | | 415R/L | ● | ● | 4.15 | 5.2 | 5.1 | 22 | 6.0 | 0.3 | |
| | | 500R/L | ● | ● | 5.0 | 6.0 | 5.1 | 22 | 6.0 | 0.3 | |
| | | 600R/L | ● | ○ | 6.0 | 7.0 | 8.1 | 27 | 7.0 | 0.3 | |
| | | 800R/L | ● | ○ | 8.0 | 9.0 | 8.1 | 27 | 7.0 | 0.3 | |

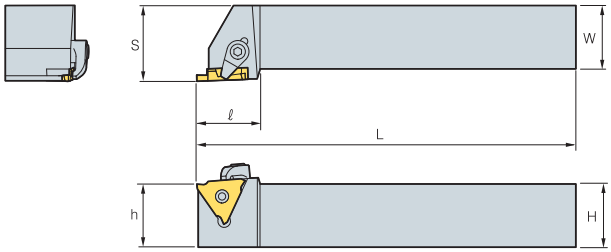
● : Disponibile ○ : A richiesta

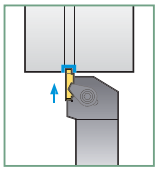
# C Utensili per scanalatura

## TBH Per gole Seeger



TB



Inserto destro R

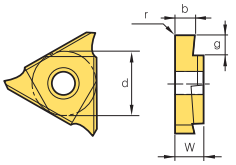
(mm)

| Articolo | | Stock R | Stock L | H=(h) | W | L | ℓ | S | Inserti | Staffa | Vite di staffaggio | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TBH | 320R/L-23 | | | 20 | 20 | 125 | 25.5 | 25 | TB3125-3230 | | | |
| | 320R/L-33 | | | 20 | 20 | 125 | 25.5 | 25 | TB3280-3330 | | | |
| | 320R/L-43 | | | 20 | 20 | 125 | 25.5 | 25 | TB3430 | | | |
| | 325R/L-23 | ● | | 25 | 25 | 150 | 25.5 | 30 | TB3125-3230 | | | |
| | 325R/L-33 | ● | | 25 | 25 | 150 | 25.5 | 30 | TB3280-3330 | | | |
| | 325R/L-43 | ● | | 25 | 25 | 150 | 25.5 | 30 | TB3430 | | | |
| | 420R/L-23 | ● | | 20 | 20 | 125 | 25.5 | 25 | TB4125-4230 | CS6R1 | DHA0617 | HW30L |
| | 420R/L-33 | ● | | 20 | 20 | 125 | 25.5 | 25 | TB4250-4330 | | | |
| | 420R/L-45 | ● | | 20 | 20 | 125 | 25.5 | 25 | TB4350-4450 | | | |
| | 425R/L-23 | ● | | 25 | 25 | 150 | 25.5 | 30 | TB4125-4230 | | | |
| | 425R/L-33 | ● | | 25 | 25 | 150 | 25.5 | 30 | TB4250-4330 | | | |
| | 425R/L-45 | ● | | 25 | 25 | 150 | 25.5 | 30 | TB4350-4450 | | | |

● : Disponibile ○ : A richiesta

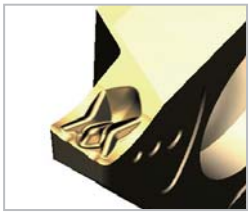
## Inserti disponibili

(mm)

| Applicazione | Inserto | Articolo | | Rivestito NC3010 | Rivestito NC3120 | Rivestito PC8110 | Rivestito PC5300 | Cermet CN2000 | Cermet CN20 | Non riv. ST20 | b | g | W | r | d | Disegno |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Per gole Seeger | TB  | TB | 3125R/L | | | | | | | | 1.25 | 1.5 | 4.76 | 0.2 | 9.525 |  |
| | | | 3145R/L | | | | | | | | 1.45 | 1.5 | 4.76 | 0.2 | 9.525 | |
| | | | 3175R/L | | | | | | | | 1.75 | 2.5 | 4.76 | 0.2 | 9.525 | |
| | | | 3185R/L | | | | | | | | 1.85 | 2.5 | 4.76 | 0.2 | 9.525 | |
| | | | 3200R/L | | | | | | | | 2.00 | 2.5 | 4.76 | 0.2 | 9.525 | |
| | | | 3230R/L | | | | | | | ● | 2.30 | 3.5 | 4.76 | 0.3 | 9.525 | |
| | | | 3280R/L | | | | | | | | 2.80 | 3.5 | 4.76 | 0.3 | 9.525 | |
| | | | 3330R/L | | | | | | | | 3.30 | 3.5 | 4.76 | 0.3 | 9.525 | |
| | | | 3430R/L | | | | | | | | 4.30 | 3.5 | 4.76 | 0.4 | 9.525 | |
| | | | 4125R/L | | | | | | ● | | 1.25 | 2.0 | 4.76 | 0.2 | 12.7 | |
| | | | 4145R/L | | | | | | ● | | 1.45 | 2.0 | 4.76 | 0.2 | 12.7 | |
| | | | 4150R/L | | | | | | ● | | 1.50 | 3.5 | 4.76 | 0.2 | 12.7 | |
| | | | 4175R/L | | | | | | ● | | 1.75 | 3.5 | 4.76 | 0.2 | 12.7 | |
| | | | 4185R/L | | | | | | ● | | 1.85 | 3.5 | 4.76 | 0.2 | 12.7 | |
| | | | 4200R/L | | | | | | ● | | 2.00 | 3.5 | 4.76 | 0.2 | 12.7 | |
| | | | 4215R/L | | | | | | | | 2.15 | 3.5 | 4.76 | 0.2 | 12.7 | |
| | | | 4230R/L | | | | | | ● | | 2.30 | 3.5 | 4.76 | 0.2 | 12.7 | |
| | | | 4250R/L | | | | | | ● | | 2.50 | 4.0 | 4.76 | 0.3 | 12.7 | |
| | | | 4265R/L | | | | | | | | 2.65 | 4.0 | 4.76 | 0.3 | 12.7 | |
| | | | 4280R/L | | | | | | ● | | 2.80 | 4.0 | 4.76 | 0.3 | 12.7 | |
| | | | 4300R/L | | | | | | ● | | 3.00 | 4.0 | 4.76 | 0.3 | 12.7 | |
| | | | 4330R/L | | | | | | ● | | 3.30 | 4.0 | 4.76 | 0.3 | 12.7 | |
| | | | 4350R/L | | | | | | | | 3.50 | 5.0 | 4.76 | 0.3 | 12.7 | |
| | | | 4400R/L | | | | | | | | 4.00 | 5.0 | 4.76 | 0.4 | 12.7 | |
| | | | 4430R/L | | | | | | ● | | 4.30 | 5.0 | 4.76 | 0.4 | 12.7 | |
| | | | 4450R/L | | | | | | | | 4.50 | 5.0 | 4.76 | 0.4 | 12.7 | |
| | TB-M  Neu | | 4200R-M | | | | | | | | 2.00 | 3.5 | 4.76 | 0.2 | 12.7 | |
| | | | 4215R-M | | | | | | | | 2.15 | 3.5 | 4.76 | 0.2 | 12.7 | |
| | | | 4230R-M | | | | | | | | 2.30 | 3.5 | 4.76 | 0.2 | 12.7 | |
| | | | 4250R-M | | | | | | | | 2.50 | 4.0 | 4.76 | 0.3 | 12.7 | |
| | | | 4265R-M | | | | | | | | 2.65 | 4.0 | 4.76 | 0.3 | 12.7 | |
| | | | 4280R-M | | | | | | | | 2.80 | 4.0 | 4.76 | 0.3 | 12.7 | |
| | | | 4300R-M | | | ● | ● | | | | 3.00 | 4.0 | 4.76 | 0.3 | 12.7 | |
| | | | 4330R-M | | | ○ | ● | | | | 3.30 | 4.0 | 4.76 | 0.3 | 12.7 | |
| | | | 4350R-M | | | ○ | ● | | | | 3.50 | 5.0 | 4.76 | 0.3 | 12.7 | |

Caratteeristiche di TB–M

- Indicato per macchine automatiche con rompitruciolo
- Superficie migliore

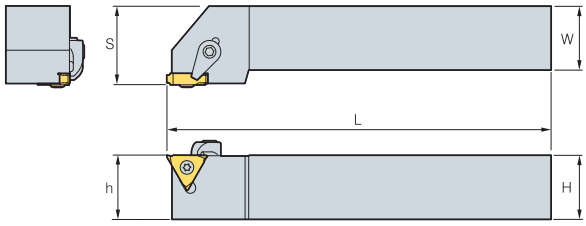


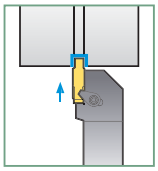
● : Disponibile ○ : A richiesta

## GH Per gole Seeger



GO
GS



Inserto destro R

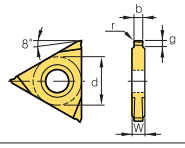
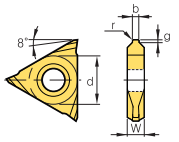
(mm)

| Articolo | | Stock R | Stock L | H=(h) | W | L | S | Inserti | Staffa | Vite di staffaggio | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GH | 2020R/L-3 | ● | | 20 | 20 | 125 | 22 | GS 125~280 | CS6R1 | DHA0617 | PTMA03508 | TW09P-HW30L |
| | 2525R/L-3 | ● | | 25 | 25 | 150 | 27 | GO 250 | | | | |
| | 2020R/L-4 | ● | | 20 | 20 | 125 | 21 | GS 330 / 430 | | | | |
| | 2525R/L-4 | ● | | 25 | 25 | 150 | 26 | GO 320 / 410 | | | | |

● : Disponibile ○ : A richiesta

## Inserti disponibili

(mm)

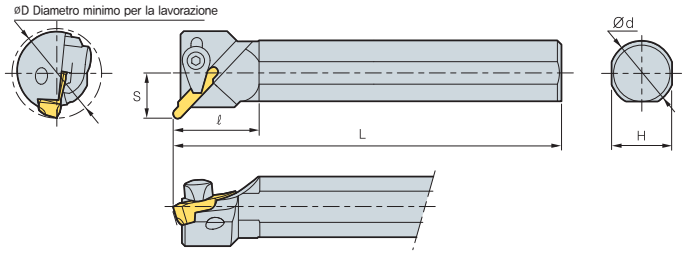
| Applicazione | Inserto | Articolo | | Rivestito NC3010 | Rivestito NC3120 | Non rivestito H01 | Non rivestito ST20 | Non rivestito ST30A | b | g | W | r | d | Disegno |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Scanalatura(Gole Seeger) |  | GO | 250 | | | | ● | | 2.5 | 1.5 | 3.3 | 0.35 | 9.525 |  |
| | | | 320 | | | | | | 3.2 | 2.0 | 3.8 | 0.35 | 9.525 | |
| | | | 410 | | | | | | 4.1 | 2.5 | 4.5 | 0.65 | 9.525 | |
| |  | GS | 125 | | | | ● | | 1.23 | 1.5 | 2.5 | 0.2 | 9.525 |  |
| | | | 145 | | | | ● | | 1.43 | 1.5 | 2.5 | 0.2 | 9.525 | |
| | | | 175 | | | | ● | | 1.73 | 2.0 | 2.5 | 0.2 | 9.525 | |
| | | | 185 | | | | ● | | 1.83 | 2.0 | 2.5 | 0.2 | 9.525 | |
| | | | 200 | | | | ● | | 2.03 | 2.5 | 2.5 | 0.2 | 9.525 | |
| | | | 230 | | | | ● | | 2.28 | 3.5 | 2.8 | 0.2 | 9.525 | |
| | | | 280 | | | | ● | | 2.78 | 3.5 | 3.3 | 0.3 | 9.525 | |
| | | | 330 | | | | ● | | 3.28 | 4.0 | 3.8 | 0.3 | 9.525 | |
| | | | 430 | | | | ● | | 4.28 | 4.0 | 4.5 | 0.4 | 9.525 | |

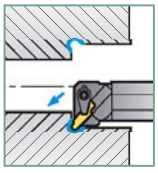
● : Disponibile ○ : A richiesta

## GFIK Spogliatura



GR



Inserto destro R

(mm)

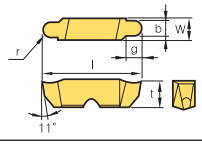
| Articolo | | Stock R | Stock L | øD | ød | H | L | ℓ | S | Inserti | Staffa | C-ring | Vite | Perno | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GFIK | 316R/L | | | 22 | 16 | 15 | 150 | 21.5 | 11 | GR3□□ | CH5R2 | CR04 | CHX0513 | PN0310 | HW25L |
| | 325R/L | | | 32 | 25 | 23 | 200 | 21.5 | 17 | | CH5R2 | CR04 | CHX0513 | PN0310 | HW25L |
| | 340R/L | | | 50 | 40 | 37 | 300 | 35.4 | 27 | | CS5R1 | - | DHA0514 | PN0310 | HW25L |
| | 525R/L | | | 32 | 25 | 23 | 200 | 27.5 | 17 | GR5□□ | CS6R1 | - | DHA0617 | PN0314 | HW30L |
| | 540R/L | | | 50 | 40 | 37 | 300 | 39.5 | 27 | | | | | | |
| | 840R/L | | | 50 | 40 | 37 | 300 | 41.8 | 27 | GR8□□ | CS8R1 | - | DHA0820 | PN0314 | HW40L |

• Stesso tipo di esecuzione degli utensili

● : Disponibile ○ : A richiesta

## Inserti disponibili

(mm)

| Applicazione | Inserto | Articolo | | Rivestito NC3010 | Rivestito NC3120 | Non rivestito H01 | Non rivestito ST20 | Non rivestito ST30A | b | g | W | l | t | r | Disegno |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Profilo |  | GR | 310R | | | | | | 2.0 | 2.0 | 3.1 | 15.9 | 5.0 | 1.0 |  |
| | | | 315R | | | | | | 3.0 | 2.9 | 3.1 | 15.9 | 5.0 | 1.5 | |
| | | | 520R | | | | | | 4.0 | 4.0 | 5.1 | 21.9 | 6.0 | 2.0 | |
| | | | 525R | | | | | | 5.0 | 5.0 | 5.1 | 21.8 | 6.0 | 2.5 | |
| | | | 830R | | | | | | 6.0 | 6.0 | 8.1 | 26.8 | 7.0 | 3.0 | |
| | | | 840R | | | | | | 8.0 | 8.0 | 8.1 | 26.7 | 7.0 | 4.0 | |

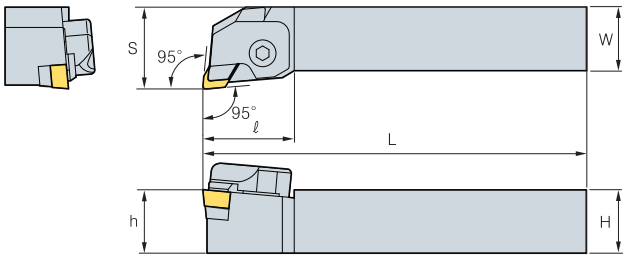
● : Disponibile ○ : A richiesta

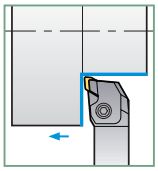
# C Utensili per troncatura

## EH Inserto riaffibilabile



ESB



Inserto destro R

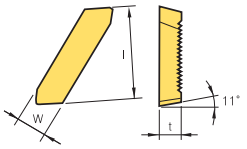
(mm)

| | Articolo | Stock | H(h) | W | L | ℓ | S | Inserti | Staffa | Vite di staffaggio | Rompitruciolo | Sede | Vite sede | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EH | 620R | ● | 20 | 20 | 125 | 36 | 27 | ESB 34 | CTH 6R2 | BHA0616 | CB20 | SES33C | SHX0310 | HW50L HW20L |
| | 625R | ● | 25 | 25 | 150 | 36 | 32 | | | | | | | |

● : Disponibile ○ : A richiesta

## Inserti disponibili

(mm)

| Applicazione | Inserto | Articolo | Non rivestito ST10 | Non rivestito ST20 | W | l | t | Disegno |
|---|---|---|---|---|---|---|---|---|
| Profilo |  | ESB 34 | | ● | 9.525 | 30.0 | 6.35 |  |

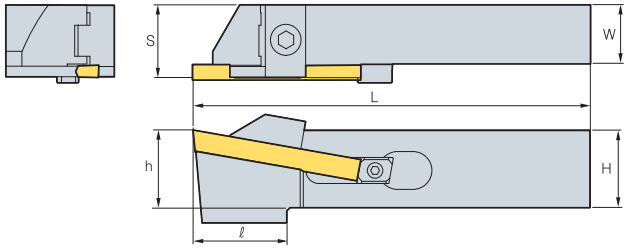


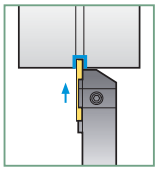
● : Disponibile ○ : A richiesta

## PH Per troncatura Scanalatura profonda



POB



Inserto destro R

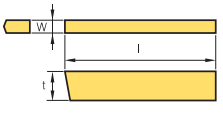
(mm)

| | Articolo | Stock R | Stock L | H | W | L | ℓ | S | h | Max (ø) | Inserti | Staffa | Vite di staffaggio | Fermo | Vite di fermo | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PH | 320R/L | ● | | 19 | 19 | 150 | 34 | 22.25 | 19 | 30 | POB300 | CGH6R1 | BHA0616 | STP5 | KHD0510 | HW25L-HW50L |
| | 325R/L | ● | | 25 | 19 | 150 | 34 | 22.25 | 25 | 40 | | | | | | |
| | 420R/L | ● | | 19 | 19 | 150 | 34 | 23.5 | 19 | 30 | POB400 | CGH6R2 | BHA0616 | STP5 | KHD0510 | HW25L-HW50L |
| | 425R/L | ● | | 25 | 19 | 150 | 34 | 23.5 | 25 | 40 | | | | | | |
| | 520R/L | ● | | 19 | 19 | 150 | 34 | 24.4 | 19 | 50 | POB500 | CGH6R3 | BHA0616 | STP5 | KHD0510 | HW25L-HW50L |
| | 525R/L | ● | | 25 | 19 | 150 | 34 | 24.4 | 25 | 50 | | | | | | |

● : Disponibile ○ : A richiesta

## Inserti disponibili

(mm)

| Applicazione | Inserto | Articolo | Non rivestito ST10 | Non rivestito ST20 | W | l | t | Disegno |
|---|---|---|---|---|---|---|---|---|
| Profilo |  | POB 300 | | ● | 3.0 | 55 | 6.0 |  |
| | | 400 | | ● | 4.0 | 55 | 7.0 | |
| | | 500 | | ● | 5.0 | 55 | 8.0 | |



● : Disponibile ○ : A richiesta

## New Fine Tools

### Sistema di codifica New Fine Tools

| NFTIH | 08 | 3 | 12 | – | S |
|---|---|---|---|---|---|
| | Diametro minimo | Profondità di entrata (ℓ/ØD) | Diametro attacco | | Materiale |

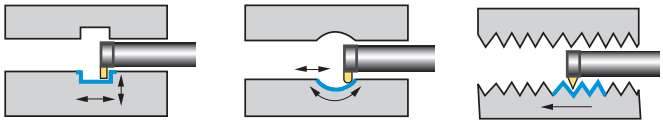
S : acciaio, C : metallo duro

### Applicazioni
‣Esecuzione interna di gole, profilatura, filettatura e barenatura Ø8mm~Ø16mm

### Caratteristiche
‣Lo staffaggio robusto e il design speciale dell'inserto sono indicati per la lavorazione di piccoli diametri.
‣Si possono montare sei tipi di inserti in un portainserti, per svariate applicazioni
‣Grazie al substrato tenace con TiAlN, aumenta la durata dell'utensile
‣Elevata precisione grazie all'inserto affilato



### Esempi di applicazioni



(Tornitura gole) (Copiatura) (Filettatura)

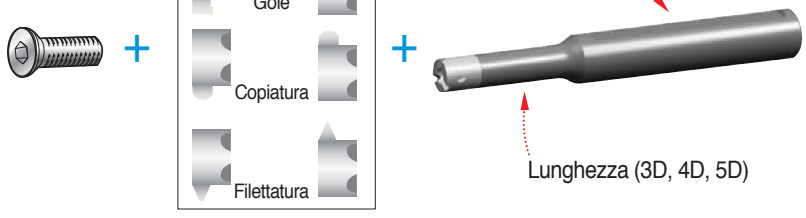
### Condizioni di taglio raccomandate

| Pezzo lavorato | Grado | | Condizioni di taglio | | | |
|---|---|---|---|---|---|---|
| | | | Minimo diamtero lavorabile (ØDmin) | | | |
| | PC130 | | Ø8 | Ø11 | Ø14 | Ø16 |
| Acciaio al carbonio | ◎ | vc | 30~80 | 30~100 | 30~100 | 30~100 |
| | | fn | 0.01~0.04 | 0.01~0.05 | 0.02~0.05 | 0.02~0.06 |
| Acciaio legato | ◎ | vc | 30~80 | 30~100 | 30~100 | 30~100 |
| | | fn | 0.01~0.02 | 0.01~0.04 | 0.02~0.04 | 0.02~0.05 |
| Ghisa | ○ | vc | 30~80 | 30~100 | 30~100 | 30~100 |
| | | fn | 0.01~0.05 | 0.01~0.05 | 0.02~0.05 | 0.02~0.05 |
| Leghe non ferrose | ○ | vc | 70~150 | 100~150 | 100~150 | 100~150 |
| | | fn | 0.02~0.06 | 0.02~0.06 | 0.02~0.06 | 0.02~0.06 |

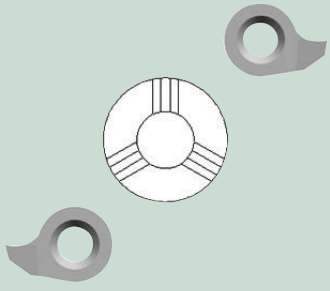
Nota
- In caso di craterizzazione, ridurre velocità di taglio e avanzamento
- Iniziare con parametri più bassi e poi aumentare gradatamente
- In caso di tornitura gole unilaterali di profondità superiore a 1mm, utilizzare avanzamenti intermedi

### Staffaggio

| Vite | Inserto | Utensile |
|---|---|---|

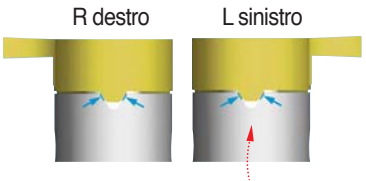



• Con lo stesso utensile si può utilizzare l'inserto destro o sinistro





Staffaggio particolarmente robusto




Unico utensile per entrambe le versioni degli inserti (L-R)

# NFTIH



NFTF
NFTT
NFTG

New

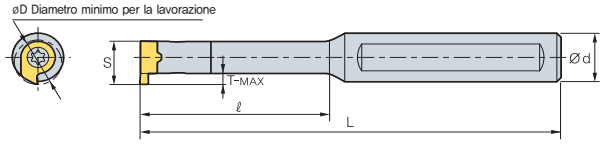



Fig.1

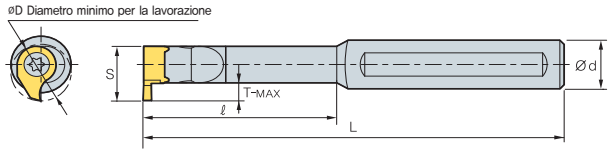



Fig.2

• Per NFTIH14~.
Inserto destro R

(mm)

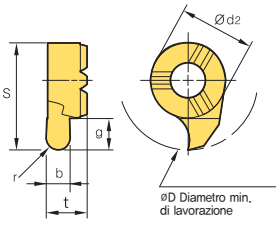
| Articolo | | Stock | øD | ød | L | ℓ | T-MAX | H | S | Inserti<br>NFTG : Scanalatura<br>NFTT : Filettatura<br>NFTF : Copiatura | Vite | Chiave | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NFTIH | 08206C | ● | 8 | 6 | 65 | - | 1.0 | 4 | 4.8 | NFTG08□□□R/L<br>NFTT08□□□R/L<br>NFTF08□□□R/L | PTKA02508 | TW08P | 1 |
| | 08212C | ● | 8 | 12 | 70 | 16 | 1.0 | 10 | 4.8 | | | | |
| | 08312C | ● | 8 | 12 | 80 | 24 | 1.0 | 10 | 4.8 | | | | |
| | 08312S | ● | 8 | 12 | 80 | 24 | 1.0 | 10 | 4.8 | | | | |
| | 08412C | ● | 8 | 12 | 90 | 32 | 1.0 | 10 | 4.8 | | | | |
| | 08512C | ● | 8 | 12 | 100 | 40 | 1.0 | 10 | 4.8 | | | | |
| | 11208C | ● | 11 | 8 | 80 | - | 2.3 | 7 | 6.7 | NFTG11□□□R/L<br>NFTT11□□□R/L<br>NFTF11□□□R/L | PTKA03510 | TW15P | 2 |
| | 11212C | ● | 11 | 12 | 75 | 22 | 2.3 | 11 | 6.7 | | | | |
| | 11312C | ● | 11 | 12 | 95 | 33 | 2.3 | 11 | 6.7 | | | | |
| | 11312S | ● | 11 | 12 | 95 | 33 | 2.3 | 11 | 6.7 | | | | |
| | 11412C | ● | 11 | 12 | 110 | 44 | 2.3 | 11 | 6.7 | | | | |
| | 11512C | ● | 11 | 12 | 120 | 55 | 2.3 | 11 | 6.7 | | | | |
| | 14012C | ● | 14 | 12 | 75 | 20 | 4.0 | 11 | 9.0 | NFTG14□□□R/L<br>NFTT14□□□R/L<br>NFTF14□□□R/L | PTKA0412 | TW15P | 2 |
| | 14016C | ● | 14 | 16 | 75 | 20 | 4.0 | 15 | 9.0 | | | | |
| | 14112C | ● | 14 | 12 | 100 | 34 | 4.0 | 11 | 9.0 | | | | |
| | 14116C | ● | 14 | 16 | 100 | 34 | 4.0 | 15 | 9.0 | | | | |
| | 14212C | ● | 14 | 12 | 110 | 45 | 4.0 | 11 | 9.0 | | | | |
| | 14216C | ● | 14 | 16 | 110 | 45 | 4.0 | 15 | 9.0 | | | | |
| | 14312C | ● | 14 | 12 | 130 | 64 | 4.0 | 11 | 9.0 | | | | |
| | 14316C | ● | 14 | 16 | 130 | 64 | 4.0 | 15 | 9.0 | | | | |
| | 16312C | ● | 16 | 12 | 130 | 48 | 4.3 | 11 | 10.2 | NFTG16□□□R/L<br>NFTT16□□□R/L<br>NFTF16□□□R/L | PTKA0512 | TW20P | 2 |
| | 16312S | ● | 16 | 12 | 130 | 48 | 4.3 | 11 | 10.2 | | | | |
| | 16412C | ● | 16 | 12 | 130 | 64 | 4.3 | 11 | 10.2 | | | | |
| | 16512C | ● | 16 | 12 | 150 | 80 | 4.3 | 11 | 10.2 | | | | |
| | 16316C | ● | 16 | 16 | 130 | 48 | 4.3 | 15 | 10.2 | | | | |
| | 16416C | ● | 16 | 16 | 130 | 64 | 4.3 | 15 | 10.2 | | | | |
| | 16516C | ● | 16 | 16 | 150 | 80 | 4.3 | 15 | 10.2 | | | | |

• Inserti applicabili, vedere pag. B16~B18

● : Disponibile ○ : A richiesta

## Inserti disponibili

(mm)

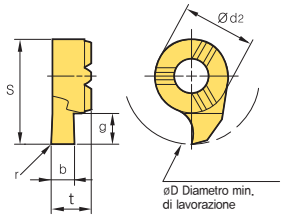
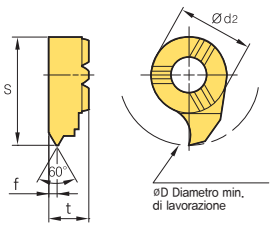
| Applicazione | Inserto | Articolo | | Rivestito PC130 | Rivestito PC5300 | D | b | r | S | g | Ød2 | t | Disegno |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Profilatura | New | NFTF | 08082R/L | ● | ○ | 8 | 0.82 | 0.41 | 7.75 | 1.3 | 5.9 | 3.85 |  |
| | | | 08122R/L | ● | ○ | | 1.22 | 0.61 | | 1.3 | | | |
| | | | 08182R/L | ● | ○ | | 1.82 | 0.91 | | 1.3 | | | |
| | | | 11082R/L | ● | ○ | 11 | 0.82 | 0.41 | 10.7 | 2.6 | 8 | 4.9 | |
| | | | 11122R/L | ● | ○ | | 1.22 | 0.61 | | 2.6 | | | |
| | | | 11182R/L | ● | ○ | | 1.82 | 0.91 | | 2.6 | | | |
| | | | 11202R/L | ● | ○ | | 2.02 | 1.01 | | 2.6 | | | |
| | | | 11302R/L | ● | ○ | | 3.02 | 1.51 | | 2.6 | | | |
| | | | 14122R/L | ● | ○ | 14 | 1.22 | 0.61 | 13.5 | 4.3 | 9 | 5.85 | |
| | | | 14182R/L | ● | ○ | | 1.82 | 0.91 | | 4.3 | | | |
| | | | 14202R/L | ● | ○ | | 2.02 | 1.01 | | 4.3 | | | |
| | | | 14222R/L | ● | ○ | | 2.22 | 1.11 | | 4.3 | | | |
| | | | 14302R/L | ● | ○ | | 3.02 | 1.51 | | 4.3 | | | |
| | | | 16182R/L | ● | ○ | 16 | 1.82 | 0.91 | 15.7 | 4.6 | 11 | 5.8 | |
| | | | 16222R/L | ● | ○ | | 2.22 | 1.11 | | 4.6 | | | |
| | | | 16302R/L | ● | ○ | | 3.02 | 1.51 | | 4.6 | | | |
| | | | 16402R/L | ● | ○ | | 4.02 | 2.01 | | 4.6 | | | |



● : Disponibile ○ : A richiesta

## Inserti disponibili

(mm)

| Applicazione | Inserto | Articolo | | Rivestito PC130 | Rivestito PC5300 | øD | b | r | S | g | ød2 | t | Passo | f | Disegno |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Scanalatura |  | NFTG | 08075R/L | ● | ○ | 8 | 0.75 | - | 7.75 | 1.3 | 5.9 | 3.85 | - | - |  |
| | | | 08085R/L | ● | ○ | | 0.85 | | | 1.3 | | | - | - | |
| | | | 08095R/L | ● | ○ | | 0.95 | | | 1.3 | | | - | - | |
| | | | 08121R/L | ● | ○ | | 1.21 | | | 1.3 | | | - | - | |
| | | | 08141R/L | ● | ○ | | 1.41 | | | 1.3 | | | - | - | |
| | | | 08152R/L | ● | ○ | | 1.52 | | | 1.3 | | | - | - | |
| | | | 08171R/L | ● | ○ | | 1.71 | | | 1.3 | | | - | - | |
| | | | 08202R/L | ● | ○ | | 2.02 | | | 1.3 | | | - | - | |
| | | | 11075R/L | ● | ○ | 11 | 0.75 | - | 10.7 | 1.8 | 8.0 | 4.9 | - | - | |
| | | | 11085R/L | ● | ○ | | 0.85 | | | 1.8 | | | - | - | |
| | | | 11095R/L | ● | ○ | | 0.95 | | | 1.8 | | | - | - | |
| | | | 11121R/L | ● | ○ | | 1.21 | | | 2.6 | | | - | - | |
| | | | 11141R/L | ● | ○ | | 1.41 | | | 2.6 | | | - | - | |
| | | | 11152 R/L | ● | ○ | | 1.52 | | | 2.6 | | | - | - | |
| | | | 11171R/L | ● | ○ | | 1.71 | | | 2.6 | | | - | - | |
| | | | 11202R/L | ● | ○ | | 2.02 | | | 2.6 | | | - | - | |
| | | | 11202R-02/L | ● | ○ | | 2.02 | 0.2 | | 2.6 | | | - | - | |
| | | | 11252R/L | ● | ○ | | 2.52 | | | 2.6 | | | - | - | |
| | | | 11302R/L | ● | ○ | | 3.02 | | | 2.6 | | | - | - | |
| | | | 14075R/L | ● | ○ | 14 | 0.75 | - | 13.5 | 1.8 | 9.0 | 5.85 | - | - | |
| | | | 14085R/L | ● | ○ | | 0.85 | | | 1.8 | | | - | - | |
| | | | 14095R/L | ● | ○ | | 0.95 | | | 1.8 | | | - | - | |
| | | | 14121R/L | ● | ○ | | 1.21 | | | 4.3 | | | - | - | |
| | | | 14141R/L | ● | ○ | | 1.41 | | | 4.3 | | | - | - | |
| | | | 14152R/L | ● | ○ | | 1.52 | | | 4.3 | | | - | - | |
| | | | 14171R/L | ● | ○ | | 1.71 | | | 4.3 | | | - | - | |
| | | | 14202R/L | ● | ○ | | 2.02 | | | 4.3 | | | - | - | |
| | | | 14252R/L | ● | ○ | | 2.52 | | | 4.3 | | | - | - | |
| | | | 14302R/L | ● | ○ | | 3.02 | | | 4.3 | | | - | - | |
| | | | 16075R/L | ● | ○ | 16 | 0.75 | - | 15.7 | 1.8 | 11 | 5.8 | - | - | |
| | | | 16085R/L | ● | ○ | | 0.85 | | | 1.8 | | | - | - | |
| | | | 16095R/L | ● | ○ | | 0.95 | | | 1.8 | | | - | - | |
| | | | 16121R/L | ● | ○ | | 1.21 | | | 4.6 | | | - | - | |
| | | | 16141R/L | ● | ○ | | 1.41 | | | 4.6 | | | - | - | |
| | | | 16171R/L | ● | ○ | | 1.71 | | | 4.6 | | | - | - | |
| | | | 16202R/L | ● | ○ | | 2.02 | | | 4.6 | | | - | - | |
| | | | 16252R/L | ● | ○ | | 2.52 | | | 4.6 | | | - | - | |
| | | | 16302R/L | ● | ○ | | 3.02 | | | 4.6 | | | - | - | |
| | | | 16352R/L | ● | ○ | | 3.52 | | | 4.6 | | | - | - | |
| | | | 16402R/L | ● | ○ | | 4.02 | | | 4.6 | | | - | - | |
| Filettatura |  | NFTT | 0805MR/L | ● | ○ | 8 | - | - | 7.75 | - | 6 | 3.85 | 0.5 | 1.0 |  |
| | | | 0810MR/L | ● | ○ | | - | | | - | | | 1.0 | 1.0 | |
| | | | 0815MR/L | ● | ○ | | - | | | - | | | 1.5 | 1.2 | |
| | | | 1110MR/L | ● | ○ | 11 | - | - | 10.7 | - | 8 | 4.9 | 1.0 | 1.2 | |
| | | | 1115MR/L | ● | ○ | | - | | | - | | | 1.5 | 1.2 | |
| | | | 1120MR/L | ● | ○ | | - | | | - | | | 2.0 | 1.2 | |
| | | | 1125MR/L | ● | ○ | | - | | | - | | | 2.5 | 1.2 | |
| | | | 1410MR/L | ● | ○ | 14 | - | - | 13.5 | - | 9 | 5.85 | 1.0 | 1.2 | |
| | | | 1415MR/L | ● | ○ | | - | | | - | | | 1.5 | 1.2 | |
| | | | 1420MR/L | ● | ○ | | - | | | - | | | 2.0 | 1.2 | |
| | | | 1425MR/L | ● | ○ | | - | | | - | | | 2.5 | 1.2 | |
| | | | 1610MR/L | ● | ○ | 16 | - | - | 15.7 | - | 11 | 5.8 | 1.0 | 1.2 | |
| | | | 1615MR/L | ● | ○ | | - | | | - | | | 1.5 | 1.2 | |
| | | | 1620MR/L | ● | ○ | | - | | | - | | | 2.0 | 1.2 | |
| | | | 1625MR/L | ● | ○ | | - | | | - | | | 2.5 | 1.2 | |
| | | | 1630MR/L | ● | ○ | | - | | | - | | | 3.0 | 1.5 | |
| | | | 1635MR/L | ● | ○ | | - | | | - | | | 3.5 | 1.6 | |
| | | | 1640MR/L | ● | ○ | | - | | | - | | | 4.0 | 1.8 | |





● : Disponibile ○ : A richiesta

# C Informazioni tecniche per Multi Turn

## Sistema di codifica utensile

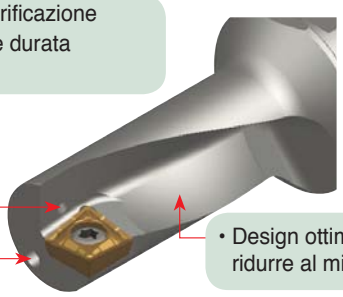
| MT | 20 | R | – | 2.25D |
|---|---|---|---|---|
| Articolo | Diametro utensile | Tipo di esecuzione | | Lunghezza di lavoro |

## Sistema di codifica inserti

| Q | C | M | T | 08 | 03 | 04 | – | CM |
|---|---|---|---|---|---|---|---|---|
| Forma dell'inserto | Angolo di spoglia | Tolleranza | Tipo di rompitruciolo | Lunghezza del tagliente | Altezza del tagliente | Raggio di punta | | Rompitruciolo |

## Design utensile mediante analisi FEM

- Doppio sistema di lubrificazione
- Evacuazione trucioli e durata dell'inserto eccellenti

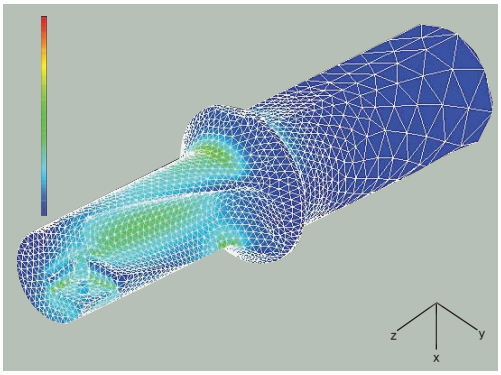


- Design ottimale dello scarico per ridurre al minimo gli sforzi di taglio

**Staffaggio**

Corretto : Posizione alta del tagliente
Errato : Posizione bassa del tagliente





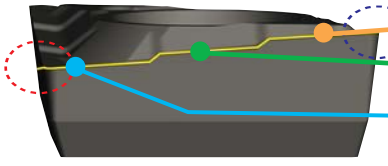

I ridotti sforzi di taglio prevengono i danni provocati dalle vibrazioni e garantiscono maggiore durata all'utensile

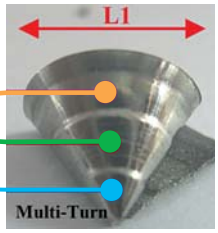
**Design ottimale**

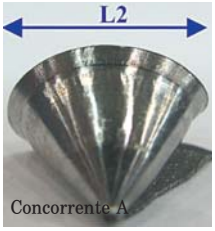
## Esecuzione del tagliente

Sistema di foratura

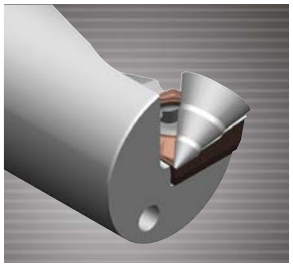
Tornitura (interna, esterna e frontale)

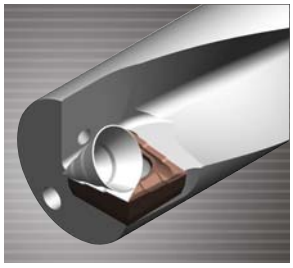





Speciale conformazione del truciolo grazie alla geometria del tagliente. Trucioli più piccoli garantiscono una migliore evacuazione





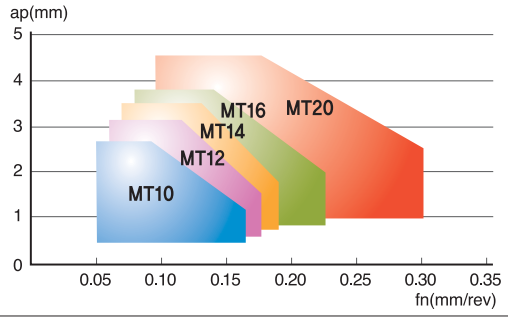
| Raffronto | Multi turn | Concorrente A | Concorrente B |
|---|---|---|---|
| fn 0.08 (mm/giro) | | | |
| fn 0.10 (mm/giro) | | | |
| Larghezza truciolo (percentuale) | 80% | 100% | 120% |

## Guida utente

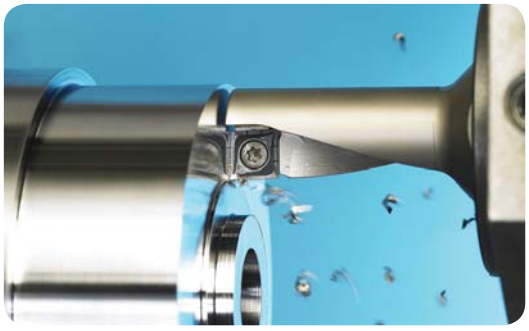
### Tornitura interna / esterna



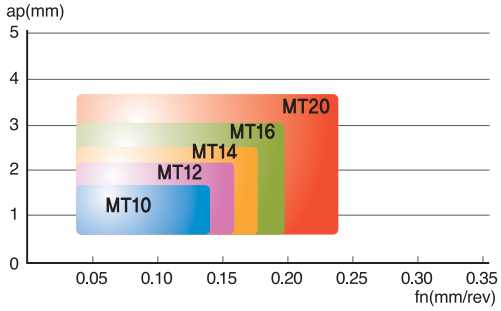
**Applicazioni**




### Sfacciatura



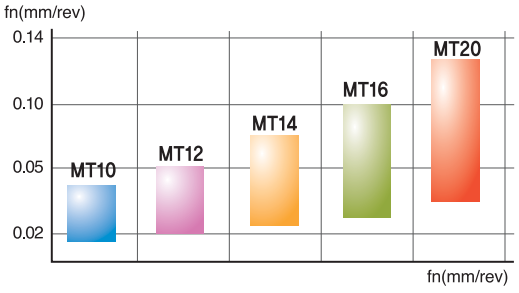
**Applicazioni**

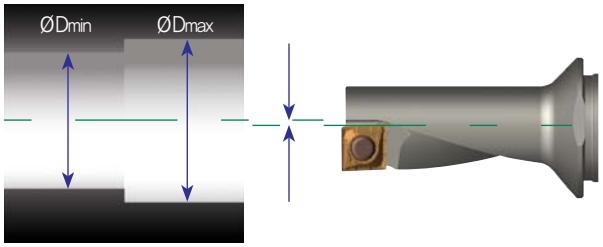



### Foratura



**Avanzamento di foratura per articolo**



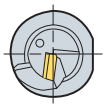

Il diametro di foratura è regolabile mediante spostamento sull'asse di lavoro

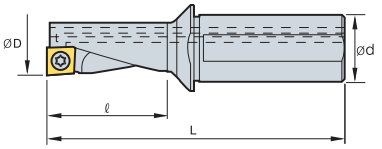
**• Applicazione (diametro min./max.)**

| Articolo | Diametro | ØDmin(mm) | ØDmax(mm) |
|---|---|---|---|
| **MT10R/L-2.25D** | 10 | 9.85 | 10.35 |
| **MT12R/L-2.25D** | 12 | 11.85 | 12.35 |
| **MT14R/L-2.25D** | 14 | 13.85 | 14.35 |
| **MT16R/L-2.25D** | 16 | 15.85 | 16.35 |
| **MT20R/L-2.25D** | 20 | 19.85 | 20.35 |

# MT (Multi–Turn)







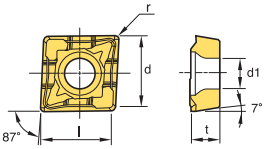

(mm)

| Articolo | Stock R | Stock L | øD | ød | ℓ | L | Inserti | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|
| **MT10R/L-2.25D** | ● | | 10 | 12 | 22.5 | 69.5 | QC..050204 | FTNA0204S | TW06P |
| **MT12R/L-2.25D** | ● | | 12 | 16 | 27.0 | 48.0 | QC..060204 | FTNA02205S | TW06P |
| **MT14R/L-2.25D** | ● | | 14 | 16 | 31.5 | 83.5 | QC..070304 | FTKA02555 | TW07P |
| **MT16R/L-2.25D** | ● | | 16 | 20 | 36.0 | 94.0 | QC..080304 | FTNA0306 | TW09P |
| **MT20R/L-2.25D** | ● | | 20 | 25 | 45.0 | 111.0 | QC..10T304 | FTNA03508 | TW15P |

● : Disponibile ○ : A richiesta

## Inserti disponibili

(mm)

| Inserto | Articolo | Stock P NC3120 | Stock M PC5300 | Stock K NC6110 | l | d | t | r | ød1 | Disegno |
|---|---|---|---|---|---|---|---|---|---|---|
|  | **QCMT 050204-CM** | ● | ● | ● | 5.0 | 5.4 | 2.10 | 0.4 | 2.3 |  |
| | **060204-CM** | ● | ● | ● | 6.0 | 6.4 | 2.38 | 0.4 | 2.5 | |
| | **070304-CM** | ● | ● | ● | 7.0 | 7.4 | 3.18 | 0.4 | 2.8 | |
| | **080304-CM** | ● | ● | ● | 8.0 | 8.4 | 3.18 | 0.4 | 3.4 | |
| | **10T304-CM** | ● | ● | ● | 10.0 | 10.4 | 3.97 | 0.4 | 4.0 | |



● : Disponibile ○ : A richiesta

## Sistema di codifica portainserti

| Forma dell'inserto | Angolo di spoglia | Altezza dello stelo | Ulteriori informazioni sull'utensile B: Sbavatura | Lunghezza del tagliente | Diametro minimo lavorabile |
|---|---|---|---|---|---|
| S R C P R 25 25 B – M 16 B – D32 | | | | | |

- **Staffaggio**
- **Utensile**
- **Tipo di esecuzione** R : Destra, L : Sinistra
- **Larghezza dello stelo**
- **Lunghezza dell'utensile**
- **Tipo di lavorazione dell'utensile**
  - B : Lavorazione interna
  - E : Lavorazione esterna
  - F : Lavorazione frontale
  - RW : Binario
  - BS : Bearing Shield

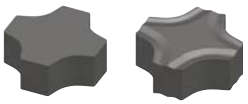
## Sistema di codifica inserti di sbavatura

ABC – EC6000AHL – BS – USER

- **ABC** — Sistema di sbavatura
- **EC6000AHL** — Articolo
- **BS** — Tipo di lavorazione dell'inserto
- **USER** — Cliente

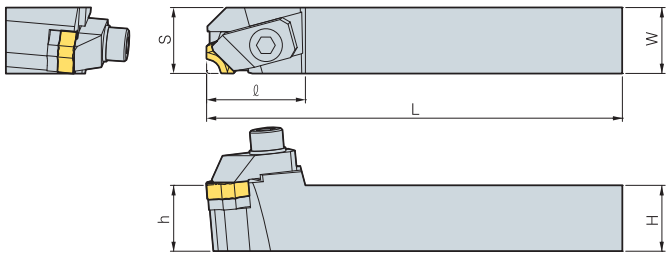


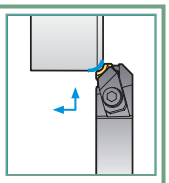
## Tipo CMSN...F



MC12□□
MC15□□

MC12□□-BR



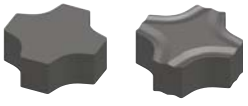
Inserto destro R

(mm)

| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserti | Staffa | Vite di staffaggio | Sede | Vite sede | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CMSNR/L | 2020B-L12F | | | 20 | 20 | 140 | 20 | 20 | 30 | MC12□□ | CBH4R/L | BHA0620 | SX42CB | SS0308 | HW40L |
| | 2023B-L12F | | | 20 | 23 | 140 | 23 | 20 | 32 | MC12□□-BR | | | | | |
| | 2525B-L12F | | | 25 | 25 | 140 | 25 | 25 | 35 | MC15□□ | CBH5R/L | BHA0620 | SX52CB | SS0308 | HW40L |

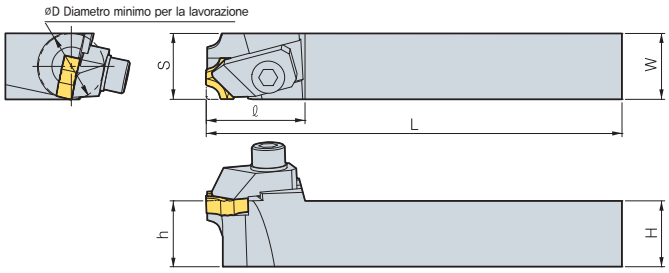
● : Disponibile ○ : A richiesta

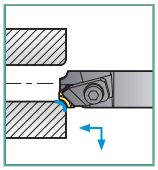
## Tipo CMSN...B



MC12□□

MC12□□-BR



Inserto destro R

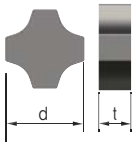
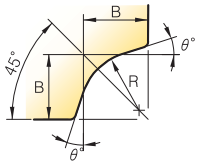
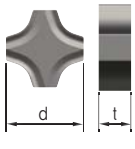
(mm)

| Articolo | | Stock R | Stock L | øD | H | W | L | S | h | ℓ | Inserti | Staffa | Vite di staffaggio | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CMSNR/L | 2020B-L12B-D20 | | | 20 | 20 | 20 | 140 | 20 | 20 | 30 | MC12□□ MC12□□-BR | CBH4R/L | BHA0620 | HW40L |
| | 2525B-L12B-D20 | | | 20 | 25 | 25 | 140 | 25 | 25 | 30 | | | | |
| | 1620B-L12B-D20 | | | 20 | 16 | 20 | 140 | 17 | 16 | 32 | | | | |
| | 2023B-L12B-D28 | | | 28 | 20 | 23 | 140 | 23 | 20 | 32 | | | | |

● : Disponibile ○ : A richiesta

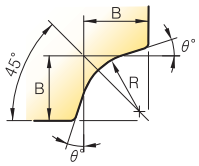
## Inserti disponibili

(mm)

| Inserto | Articolo | Stock CN20 | Stock CN2000 | R | θ° | B | d | t | Disegno |
|---|---|---|---|---|---|---|---|---|---|
|   | MC0906 | | | 0.6 | 12 | 1.8 | 9.525 | 3.18 |   |
| | MC0910 | | | 1.0 | 12 | 2.4 | | | |
| | MC1206 | | | 0.6 | 18 | 1.8 | 12.7 | 4.76 | |
| | MC1210 | | | 1.0 | 18 | 2.4 | | | |
| | MC1212 | | | 1.2 | 18 | 2.2 | | | |
| | MC1215 | | | 1.5 | 18 | 3.0 | | | |
| | MC1220 | | | 2.0 | 18 | 3.8 | | | |
| | MC1225 | | | 2.5 | 18 | 2.8 | | | |
| | MC1525 | | | 2.5 | 18 | 4.0 | 15.875 | 5.56 | |
| | MC1530 | | | 3.0 | 18 | 4.7 | | | |
| | MC1540 | | | 4.0 | 20 | 4.7 | | | |
|   | MC1206-BR | | | 0.6 | 18 | 1.8 | 12.7 | 4.76 | |
| | MC1210-BR | | | 1.0 | 18 | 2.4 | | | |
| | MC1212-BR | | | 1.2 | 18 | 2.2 | | | |
| | MC1215-BR | | | 1.5 | 18 | 3.0 | | | |
| | MC1220-BR | | | 2.0 | 18 | 3.2 | | | |
| | MC1230-BR | | | 3.0 | 18 | 3.7 | | | |
| | MC1235-BR | | | 3.5 | 18 | 3.9 | | | |

● : Disponibile ○ : A richiesta

## Modulo per ordini speciali

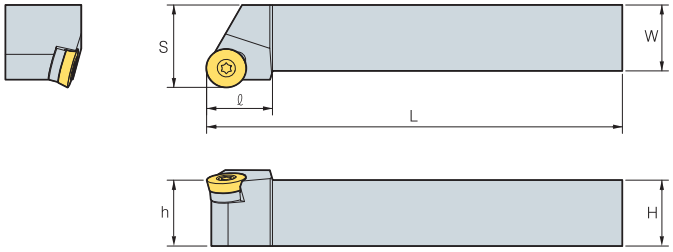


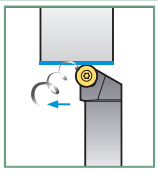

| Articolo | CN20 | CN2000 | R | θ° | B | d | t |
|---|---|---|---|---|---|---|---|
| MC... | | | | | | | |

## Tipo SRGP...E



RPGT1203M0
RPGT1604M0
RPGT2004M0



Inserto destro R

(mm)

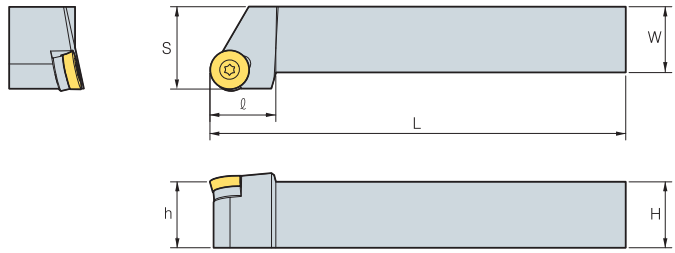
| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserti | Vite | Sede | Vite sede | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SRGPR/L | 2020B-L12E | | | 20 | 20 | 140 | 25 | 20 | 20 | RPGT1203M0 | FTKA0410 | SR1203S | SHXN0609F | TW15P |
| | 2020B-L16E | | | 20 | 20 | 140 | 25 | 20 | 20 | RPGT1604M0 | FTNA0513 | SR16T3S | SHXN0712F | TW20P |
| | 2525B-L20E | | | 25 | 25 | 140 | 32 | 25 | 30 | RPGT2004M0 | | SR20T3S | | |

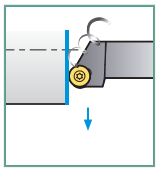
● : Disponibile ○ : A richiesta

## Tipo SRGP...F



RPGT1203M0
RPGT1604M0
RPGT2004M0



Inserto destro R

(mm)

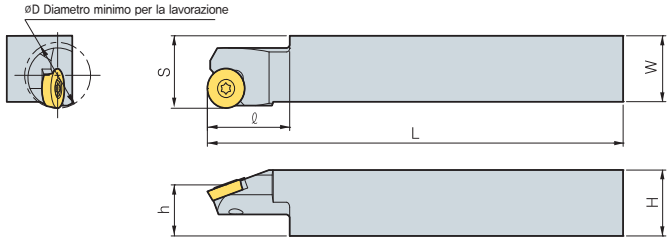
| Articolo | | Stock R | Stock L | H | W | L | S | h | ℓ | Inserti | Vite | Sede | Vite sede | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SRGPR/L | 2020B-L12F | | | 20 | 20 | 140 | 25 | 20 | 20 | RPGT1203M0 | FTKA0410 | SR1203S | SHXN0609F | TW15P |
| | 2020B-L16F | | | 20 | 20 | 140 | 25 | 20 | 20 | RPGT1604M0 | FTNA0513 | SR16T3S | SHXN0712F | TW20P |
| | 2525B-L20F | | | 25 | 25 | 140 | 32 | 25 | 30 | RPGT2004M0 | | SR20T3S | | |

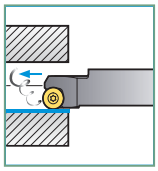
● : Disponibile ○ : A richiesta

## Tipo SRCP...B



RPGT0802M0
RPGT1203M0
RPGT1604M0



Inserto destro R

(mm)

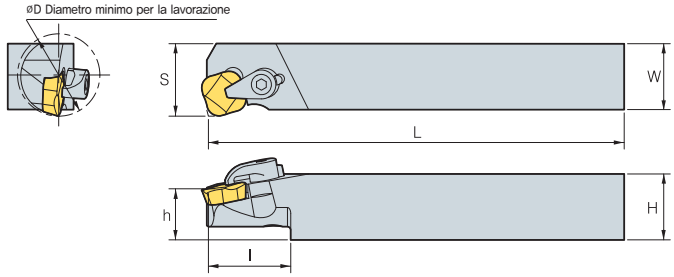
| Articolo | | Stock R | Stock L | øD | H | W | L | S | h | ℓ | Inserti | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SRCPR/L | 2020B-L08B-D12 | | | 12 | 20 | 20 | 140 | 21.5 | 15.5 | 25 | RPGT0802M0 | FTKA0305 | TW09P |
| | 1919B-L12B-D15 | | | 15 | 19 | 19 | 140 | 21 | 16 | 25 | RPGT1203M0 | FTNA0407 | TW15P |
| | 2020B-L12B-D20 | | | 20 | 20 | 20 | 140 | 22 | 15.5 | 25 | | | |
| | 2525B-L16B-D32 | | | 32 | 25 | 25 | 140 | 27 | 20 | 30 | RPGT1604M0 | FTKA0510 | TW20P |

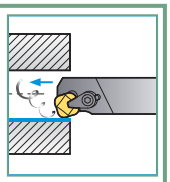
● : Disponibile ○ : A richiesta

## Tipo CSKP...B



SPGR120440L



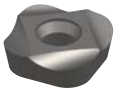
Inserto destro R

(mm)

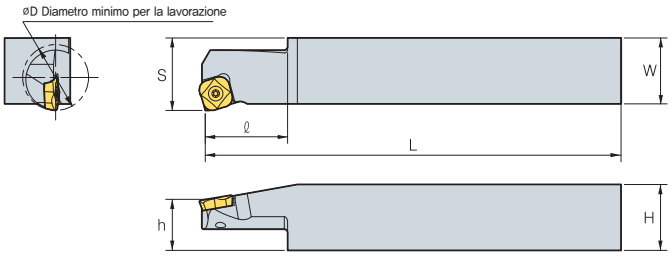
| Articolo | | Stock R | Stock L | øD | H | W | L | S | h | ℓ | Inserti | Staffa | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CSKPR 2020B-L12B-D25 | | | | 25 | 20 | 20 | 140 | 22 | 15.5 | 25 | SPGR120440L | CS6R1 | DHA0617 | HW30L |

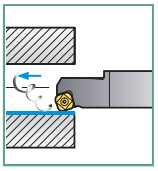
● : Disponibile ○ : A richiesta

# Tipo SSKP...B



SPGH090330L



Inserto destro R

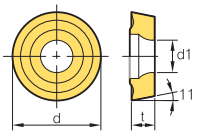
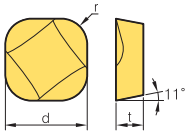
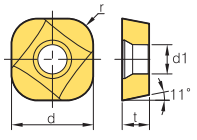
(mm)

| Articolo | | Stock R | Stock L | øD | H | W | L | S | h | ℓ | Inserti | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SSKPR | 2020B-L09B-D12 | | | 11.5 | 20 | 20 | 140 | 22 | 15.5 | 25 | SPGH090330L | FTNA0307 | TW09P |
| | 2020B-L09B-D13 | | | 13 | 20 | 20 | 140 | 22 | 15.5 | 25 | | | |
| | 2020B-L09B-D20 | | | 20 | 20 | 20 | 140 | 22 | 15.5 | 25 | | | |

● : Disponibile ○ : A richiesta

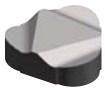
## Inserti disponibili

(mm)

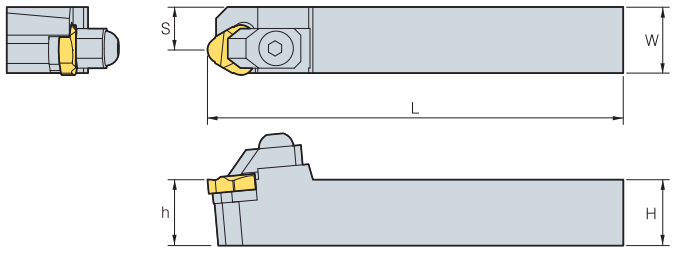
| Inserto | Articolo | Stock CN20 | Stock CN2000 | r | d | $d_1$ | t | Disegno |
|---|---|---|---|---|---|---|---|---|
|  | RPGT0802M0 | ○ | | - | 8 | 3.4 | 2.38 |  |
| | RPGT1203M0 | ○ | | - | 12 | 4.4 | 3.18 | |
| | RPGT1604M0 | ○ | | - | 16 | 5.5 | 4.76 | |
| | RPGT2004M0 | ○ | | - | 20 | 5.5 | 4.76 | |
|  | SPGR120440L | ○ | | 4.0 | 12..7 | - | 4.76 |  |
|  | SPGH090330L | ○ | | 3.0 | 9.525 | 3.4 | 3.18 |  |

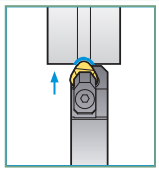
● : Disponibile ○ : A richiesta

## Tipo CKFN...RW



KORIC



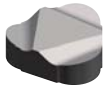
Inserto destro R

(mm)

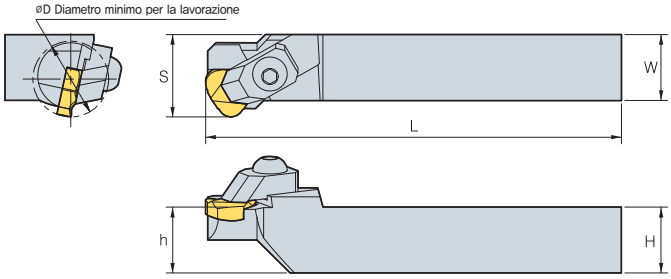
| Articolo | Stock R | Stock L | H | W | L | S | h | Inserti |
|---|---|---|---|---|---|---|---|---|
| **CKFNR2020B-L22RW** | | | 20 | 20 | 140 | 13 | 20 | KORIC2204 R |
| **CKFNR2020B-L27RW** | | | 20 | 20 | 140 | 12 | 20 | KORIC2704 R |
| **CKFNR2020B-L33RW** | | | 20 | 20 | 140 | 10 | 20 | KORIC3306 R |
| **CKFNR2525B-L44RW** | | | 25 | 25 | 140 | 12 | 25 | KORIC4408 R |

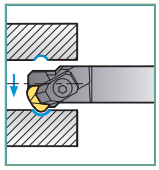
● : Disponibile ○ : A richiesta

## Tipo CKGN...RW



KORIC



Inserto destro R

(mm)

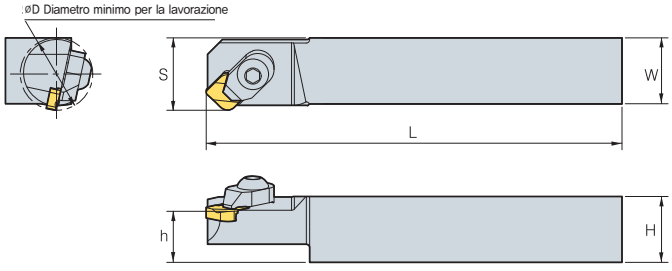
| Articolo | Stock R | Stock L | øD | H | W | L | S | h | Inserti |
|---|---|---|---|---|---|---|---|---|---|
| **CKGNR2022B-L22RW-D23** | | | 23 | 20 | 22 | 140 | 25 | 20 | KORIC2204 L |
| **CKGNR2022B-L27RW-D25** | | | 25 | 20 | 22 | 140 | 25 | 20 | KORIC2704 L |
| **CKGNR2025B-L33RW-D38** | | | 38 | 20 | 25 | 140 | 32 | 20 | KORIC3306 L |
| **CKGNR2528B-L38RW-D50** | | | 50 | 25 | 28 | 140 | 40 | 25 | KORIC3806 L |
| **CKGNR2528B-L44RW-D52** | | | 52 | 25 | 28 | 140 | 40 | 25 | KORIC4408 L |

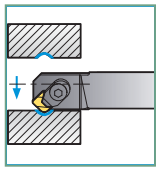
● : Disponibile ○ : A richiesta

## Tipo CSGN...RW



SNGN



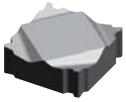
Inserto destro R

(mm)

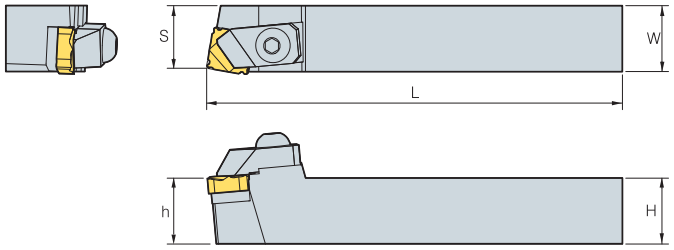
| Articolo | Stock R | Stock L | øD | H | W | L | S | h | Inserti |
|---|---|---|---|---|---|---|---|---|---|
| **CSGNR2020B-L09RW-D15** | | | 15 | 20 | 20 | 140 | 22 | 20 | SNGN0903WL |
| **CSGNL2020B-L09RW-D15** | | | 15 | 20 | 20 | 140 | 22 | 20 | SNGN0903WR |
| **CSGNR2020B-L09RW-D22** | | | 22 | 20 | 20 | 140 | 22 | 15.5 | SNGN0903WL |
| **CSGNL2020B-L09RW-D22** | | | 22 | 20 | 20 | 140 | 22 | 15.5 | SNGN0903WR |

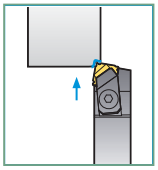
● : Disponibile ○ : A richiesta

## Tipo CSBN...BS



SNGN



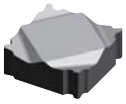
Inserto destro R

(mm)

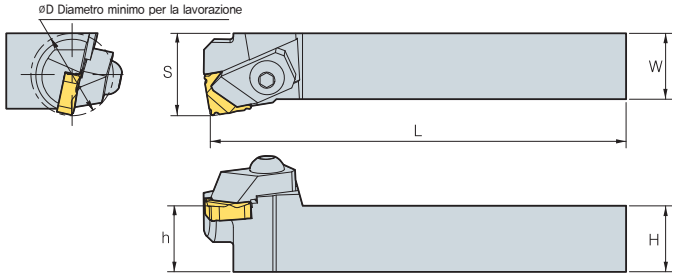
| Articolo | Stock R | Stock L | H | W | L | S | h | Inserti |
|---|---|---|---|---|---|---|---|---|
| **CSBNR2020B-L12BS** | | | 20 | 20 | 140 | 19 | 20 | SNGN1204SR |
| **CSBNL2020B-L12BS** | | | 20 | 20 | 140 | 19 | 20 | SNGN1204SL |
| **CSBNR2020B-L15BS** | | | 25 | 25 | 140 | 24 | 25 | SNGN1504SR |
| **CSBNL2020B-L15BS** | | | 25 | 25 | 140 | 24 | 25 | SNGN1504SR |

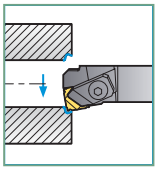
● : Disponibile ○ : A richiesta

## CSKN...BS Type



SNGN



Inserto destro R

(mm)

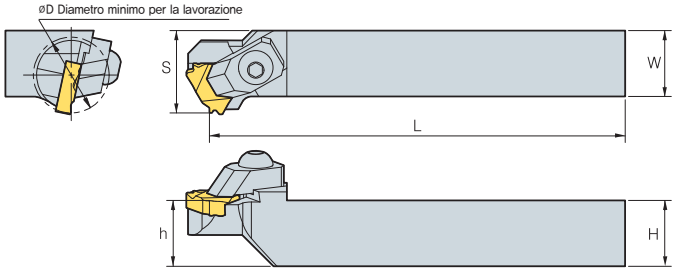
| Articolo | Stock R | Stock L | øD | H | W | L | S | h | Inserti |
|---|---|---|---|---|---|---|---|---|---|
| **CSKNR1622B-L09BS-D14** | | | 14 | 16 | 22 | 140 | 27 | 16 | SNGN0903SL |
| **CSKNL1622B-L09BS-D14** | | | 14 | 16 | 22 | 140 | 27 | 16 | SNGN0903SR |
| **CSKNR2022B-L12BS-D26** | | | 26 | 20 | 22 | 140 | 27 | 20 | SNGN1204SL |
| **CSKNL2022B-L12BS-D26** | | | 26 | 20 | 22 | 140 | 27 | 20 | SNGN1204SR |
| **CSKNR2525B-L15BS-D35** | | | 35 | 25 | 25 | 140 | 32 | 25 | SNGN1504SL |
| **CSKNL2525B-L15BS-D35** | | | 35 | 25 | 25 | 140 | 32 | 25 | SNGN1504SR |

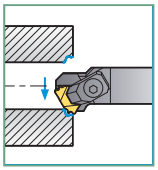
● : Disponibile ○ : A richiesta

## CTGN...BS Type



TNGN



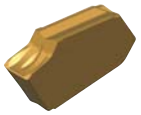
Inserto destro R

(mm)

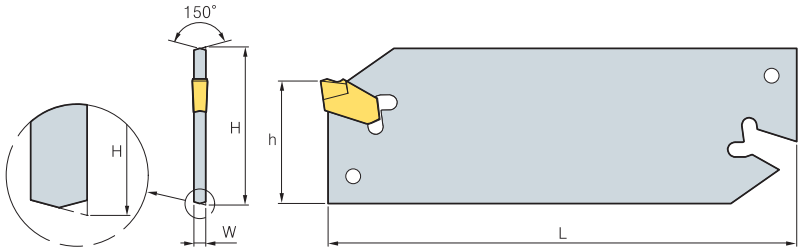
| Articolo | Stock R | Stock L | øD | H | W | L | S | h | Inserti |
|---|---|---|---|---|---|---|---|---|---|
| **CTGNR2021B-K22BS-D23** | | | 23 | 20 | 21 | 140 | 28 | 20 | TNGN2204SL |
| **CTGNL2021B-K22BS-D23** | | | 23 | 20 | 21 | 140 | 28 | 20 | TNGN2204SR |

● : Disponibile ○ : A richiesta

# Tipo SPB-S



SP



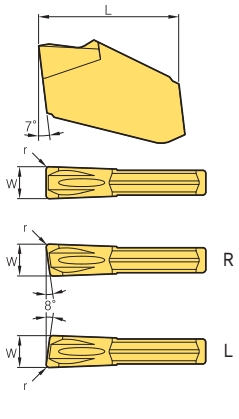

(mm)

| Articolo | | Stock | H | W | L | h | Inserti | Chiave |
|---|---|---|---|---|---|---|---|---|
| SPB | 1626-S | | 26 | 1.3 | 110 | 21 | SP160 | SW15S |
| | 1826-S | | 26 | 1.5 | 110 | 21 | SP180 | |
| | 226-S | ● | 26 | 1.6 | 110 | 21 | SP200, SP200R/L | |
| | 326-S | ● | 26 | 2.4 | 110 | 21 | SP300, SP300R/L | |
| | 426-S | ● | 26 | 3.2 | 110 | 21 | SP400, SP400R/L | |
| | 526-S | | 26 | 4.0 | 110 | 21 | SP500, SP500R/L | |
| | 626-S | | 26 | 5.2 | 110 | 21 | SP600, SP600R/L | |
| | 1632-S | | 32 | 1.3 | 150 | 25 | SP160 | |
| | 1832-S | | 32 | 1.5 | 150 | 25 | SP180 | |
| | 232-S | ● | 32 | 1.6 | 150 | 25 | SP200, SP200R/L | |
| | 332-S | ● | 32 | 2.4 | 150 | 25 | SP300, SP300R/L | |
| | 432-S | ● | 32 | 3.2 | 150 | 25 | SP400, SP400R/L | |
| | 532-S | ● | 32 | 4.0 | 150 | 25 | SP500, SP500R/L | |
| | 632-S | ● | 32 | 5.2 | 150 | 25 | SP600, SP600R/L | |

● : Disponibile ○ : A richiesta

## Inserti disponibili

(mm)

| Inserto | Articolo | | Stock NC3120 | NC3030 | NCM325 | NC5330 | PC230 | NC500H | PC5300 | PC8110 | PC9030 | PC6510 | W | L | r | Disegno |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | SP | 160 | | | | | | | | | | | 1.6 | 7.8 | 0.16 |  |
| | | 180 | | | | | | | | | | | 1.8 | 9.3 | 0.16 | |
| | | 200 | ● | ● | ● | ● | | | ● | ● | ● | ● | 2.2 | 9.3 | 0.2 | |
| | | 200R | | ● | | | | | | ● | ● | | 2.2 | 9.3 | 0.2 | |
| | | 200L | | | | | | | | | ● | | 2.2 | 9.3 | 0.2 | |
| | | 300 | ● | | ● | ● | ● | | ● | ● | | ● | 3.1 | 11.3 | 0.2 | |
| | | 300R | ● | ● | ● | | | | | ● | | | 3.1 | 11.3 | 0.2 | |
| | | 300L | | ● | | | | | | ● | | | 3.1 | 11.3 | 0.2 | |
| | | 400 | ● | ● | ● | ● | ● | | ● | ● | ● | ● | 4.1 | 11.3 | 0.25 | |
| | | 400R | | ● | | | | | | ● | | | 4.1 | 11.3 | 0.25 | |
| | | 400L | | ● | | | | | | ● | | | 4.1 | 11.3 | 0.25 | |
| | | 500 | ● | ● | ● | ● | | ● | ● | ● | | ● | 5.1 | 11.4 | 0.3 | |
| | | 500R | | ● | | | | | | | | | 5.1 | 11.4 | 0.3 | |
| | | 500L | | | | | | | | | | | 5.1 | 11.4 | 0.3 | |
| | | 600 | | | | ● | | | ● | | | ● | 6.4 | 11.4 | 0.35 | |
| | | 600R | | ● | | | | | | | | | 6.4 | 11.4 | 0.35 | |
| | | 600L | | | | | | | | | | | 6.4 | 11.4 | 0.35 | |

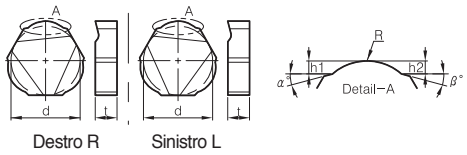
● : Disponibile ○ : A richiesta

# Modulo d'ordine per inserti speciali di sbavatura



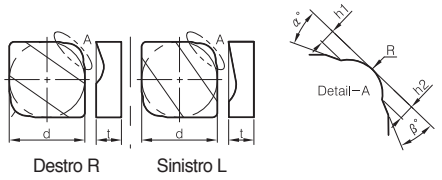
## Lavorazione Race-way

### Tipo KORIC... R/L




| | d | t | R | h1 | h2 | α° | β° |
|---|---|---|---|---|---|---|---|
| KORIC2204R/L | 12.7 | 4.76 | | | | | |
| KORIC2704R/L | 15.875 | 4.76 | | | | | |
| KORIC3306R/L | 19.05 | 6.0 | | | | | |
| KORIC3806R/L | 22.225 | 6.0 | | | | | |
| KORIC4408R/L | 25.4 | 8.0 | | | | | |

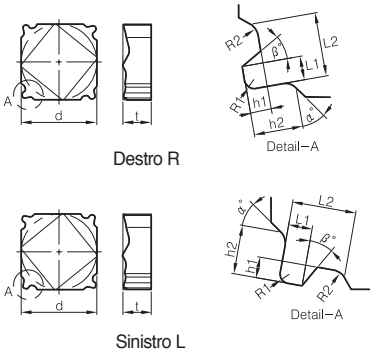
### Tipo SNGN... WR/L




| | d | t | R | h1 | h2 | α° | β° |
|---|---|---|---|---|---|---|---|
| SNGN0903WR/L | 9.525 | 3.18 | | | | | |
| SNGN1504WR/L | 15.875 | 4.76 | | | | | |
| SNGN1905WR/L | 19.05 | 5.56 | | | | | |
| | | | | | | | |
| | | | | | | | |

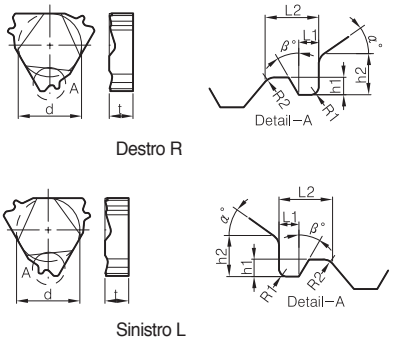
## Lavorazione Bearing shield

### Tipo SNGN...SR/L




| | d | t | $L_1$ | $L_2$ | $h_1$ | $h_2$ | $R_1$ | $R_2$ | α° | β° |
|---|---|---|---|---|---|---|---|---|---|---|
| SNGN0903SR/L | 9.525 | 3.18 | | | | | | | | |
| SNGN1204SR/L | 12.7 | 4.76 | | | | | | | | |
| SNGN1504SR/L | 15.875 | 4.76 | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

### Tipo TNGN...SR/L




| | d | t | $L_1$ | $L_2$ | $h_1$ | $h_2$ | $R_1$ | $R_2$ | α° | β° |
|---|---|---|---|---|---|---|---|---|---|---|
| TNGN02204SR/L | 12.7 | 4.76 | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
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| | | | | | | | | | | |

# INDICE

## Filettatura

D


Sistema di codifica degli inserti a filettare D02
Sistema di codifica interno / esterno D02
Informazioni tecniche per filettatura D03
Inserti a filettare con rompitruciolo D09

**Inserti a filettare**

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Profilo parziale 55° D11
Filettatura ISO D12
Filettatura UN D14
Filettatura Whitworth D16
Filettatura BSPT D18
Filettatura NPT D18
Filettatura NPTF D18
Filettatura DIN405 D19
Filettatura DIN103 D19
Filettatura ACME D19
Filettatura Stub ACME D20
Filettatura UNJ D20
Filettatura ABUT D21
Filettatura BBUT D22
Filettatura SAGE D22
Filettatura API D22
Filettatura BUT D23
Filettatura APIRD D23
Filettatura EL D23

**Portainserti a filettare**

Portainserti per esterno D24
Portainserti per interno D25
Portainserti tangenziale D26

**Ffrese a filettare**

Informazioni tecniche per frese a filettare D27
Inserti di fresatura a filettare D37
Portainserti di fresatura a filettare D42

**Frese integrali in metallo duro a filettare**

Informazioni tecniche per frese integrali in metallo duro a filettare D43
Frese integrali in metallo duro a filettare D44




# D Informazioni tecniche per filettatura

## Sistema di codifica per inserti a filettare

| E | R | H | 10 | (N) | – | 11 | (C) |
|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | | 6 | 7 |
| Portainserti | Tipo di esecuzione | Nome | Altezza dello stelo | Sede | | Dimensione inserto | Staffaggio |

### 1 E R H 10 (N) - 11 (C)

**Portainserti**

E : Per esterno I : Per interno

### 2 E R H 10 (N) - 11 (C)

**Tipo di esecuzione**

R : Destra L : Sinistra

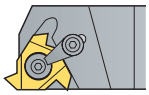
### 3 E R H 10 (N) - 11 (C)

**Nome**

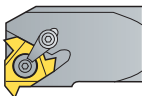
H : Utensile

### 4 E R H 10 (N) - 11 (C)

**Altezza dello stelo**



– Esterno
8, 10, 12, 16, 20, 25, 32, 40, 50



– Interno
10, 12, 13, 16, 20, 25, 32, 49, 50, 60

### 5 E R H 10 (N) - 11 (C)

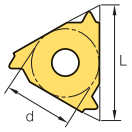
**Sede**

Nessun dato : Sede richiesta
N : Sede non richiesta

### 6 E R H 10 (N) - 11 (C)

**Dimensione inserto**

11 : d=6.35mm
16 : d=9.525mm
22 : d=12.7mm
27 : d=15.875mm




### 7 E R H 10 (N) - 11 (C)

**Staffaggio**

Nessun dato : Sistema a vite
C : Sistema a staffa

## Sistema di codifica per inserti a filettare

| E | R | M | 16 | – | 1.5 | ISO |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | | 5 | 6 |
| Tipo di inserto | Tipo di esecuzione | Rompitruciolo | Dimensione inserto | | Passo | Standard |

### 1 E R M 16 - 1.5 ISO

**Tipo di inserto**

E : Filettatura esterna I : Filettatura interna

### 2 E R M 16 - 1.5 ISO

**Tipo di esecuzione**

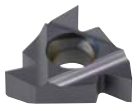
R : Destra L : Sinistra

### 3 E R M 16 - 1.5 ISO

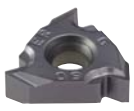
**Rompitruciolo**

M : Con rompitruciolo

**Forma dell'inserto**



〈 ER / IR 〉

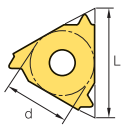


〈 ERM / IRM 〉

### 4 E R M 16 - 1.5 ISO

**Dimensione inserto**

11 : d=6.35mm
16 : d=9.525mm
22 : d=12.7mm
27 : d=15.875mm




### 5 E R M 16 - 1.5 ISO

**Passo**

| Profilo pieno | |
|---|---|
| mm | tpi |
| 0.35 - 6.0 | 72 - 3 |

| Profilo parziale | |
|---|---|
| mm | tpi |
| A 0.5 - 1.5 | 48 - 16 |
| AG 0.5 - 3.0 | 48 - 8 |
| G 1.75 - 3.0 | 14 - 8 |
| N 3.5 - 5.0 | 7 - 5 |
| Q 5.5 - 6.0 | 4.5 - 4 |

### 6 E R M 16 - 1.5 ISO

**Standard**

Profilo parziale 60°
Profilo parziale 55°
Filettatura ISO (Profilo pieno)
Filettatura UN (Profilo pieno) UN, UNC, UNF, UNEF
Filettatura Whitworth (Profilo pieno) BSW, BSF, BSP
Filettatura BSPT (Profilo pieno)
Filettatura NPT (Profilo pieno)
Filettatura NPTF (Profilo pieno)
Filettatura DIN 405
Filettatura DIN 103
Filettatura ACME
Filettatura Stub ACME
Filettatura UNJ
Filettatura ABUT
Filettatura BBUT
Filettatura metrica SAGE
Filettatura API
Filettatura BUT
Filettatura APIRD
Filettatura EL

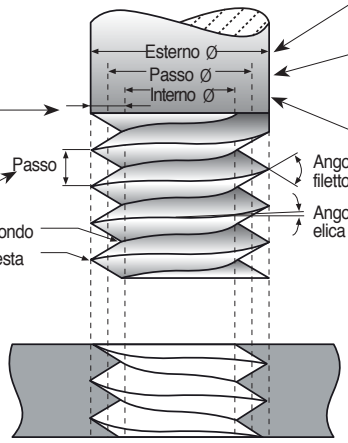
## Caratteristiche speciali

**Filetto esterno**
Filetto sulla superficie esterna della vite cilindrica o conica

**Altezza del filetto**
È la distanza tra la cresta e il fondo misurata sull'asse

**Passo**
È la distanza tra punti corrispondenti su forme filettate adiacenti misurata parallelamente all'asse. Questa distanza può essere espressa in millimetri o tpi (filetti per pollice), ovvero il corrispettivo del passo.

**Diametro nominale**
È il diametro i cui limiti si trovano entro le tolleranze consentite




**Diametro esterno**
È il diametro maggiore del filetto

**Diametro passo**
Sul filetto è il diametro di un cilindro immaginario la cui superficie taglia le forme del filetto nel punto in cui la larghezza del filetto e della scanalatura è uguale

**Diametro interno**
È il diametro minore del filetto

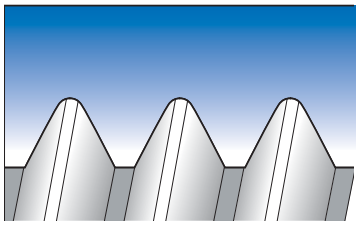
**Angolazione dell'elica**
È l'angolo che forma la cresta sul filetto

**Filetto cilindrico**
È il filetto su una forma cilindrica

**Filettatura conica**
È il filetto su una forma conica

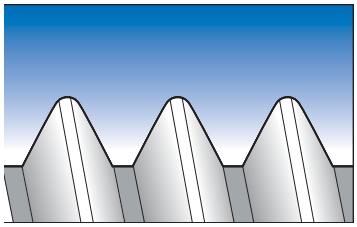
Filetto interno
È il filetto sulla superficie interna di una forma cilindrica o conica

### • Filettatura sinistra



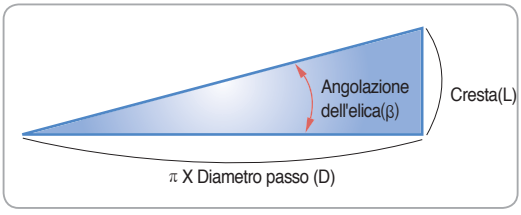
È il filetto che, da un punto di vista assiale, si avvita in senso antiorario. Tutte le filettature sinistre sono indicate con LH.

### • Filettatura destra



È il filetto che, da un punto di vista assiale, si avvita in senso orario. Le filettature sono sempre destre salvo quando diversamente specificato.

### • Angolazione dell'elica (β)

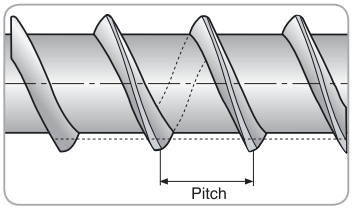



Nel punto in cui la cresta del filetto e la circonferenza del diametro del passo formano un triangolo inclinato verso destra, l'angolazione dell'elica è l'angolo opposto alla cresta.

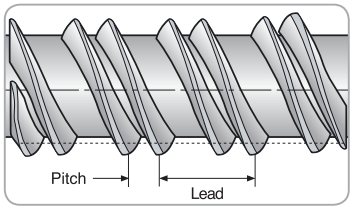
## Filettatura a più principi

È il filetto in cui la cresta è il multiplo maggiore del passo. La filettatura a più principi consente un avanzamento più rapido senza ricorrere a un filetto più largo.

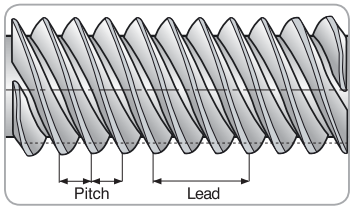
### • Lavorazione primo principio




### • Lavorazione secondo principio

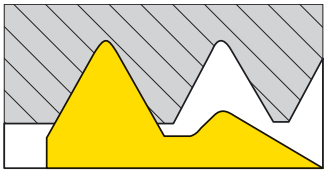



### • Lavorazione terzo principio (totale, 3 principi)



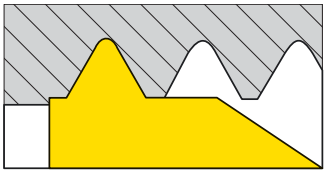

## Profilo dell'inserto

### • Profilo parziale



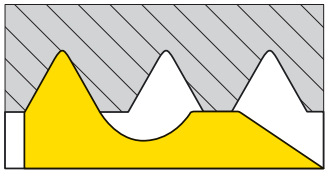
L'inserto con profilo parziale a V lavora senza usurare il diametro esterno del filetto. Lo stesso inserto può essere usato per vari passi di filetto con uguale angolazione.

### • Profilo pieno



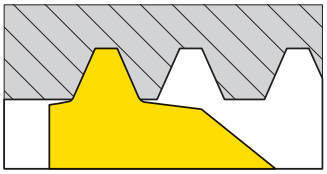
L'inserto con profilo pieno forma un profilo di filettatura completo, inclusa la cresta. Si richieste un inserto separato per ogni singolo passo.

### • Profilo pieno per passo fine



Il profilo pieno per il passo fine forma un filetto completo. La lavorazione del diametro più esterno viene generata dal secondo dente.

### • Semi pieno



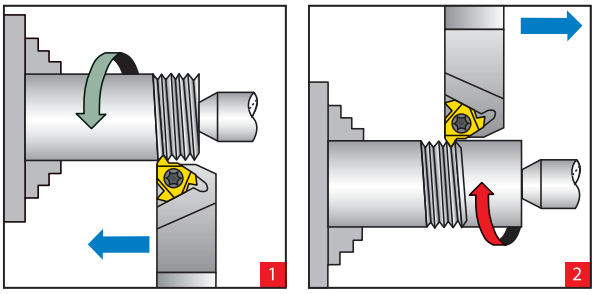
L'inserto con profilo semi pieno forma un filetto completo incluso il raggio della cresta ma senza lavorazione sul diametro esterno.
Utilizzato prevalentemente per profili trapezoidali.

# D Informazioni tecniche per filettatura

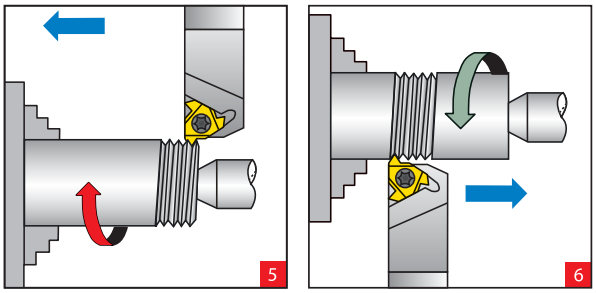
## Metodo di tornitura del filetto

| Filetto | Inserti e portainserti | Rotazione | Direzione di alimentazione | Elica | Disegno N. |
|---|---|---|---|---|---|
| Esterno destro | Est. DX | Antioraria | Verso il mandrino | Regolare | 1 |
| | Est. SX | Oraria | Dal mandrino | Invertita | 2 |
| Interno destro | Int. DX | Antioraria | Verso il mandrino | Regolare | 3 |
| | Int. SX | Oraria | Dal mandrino | Invertita | 4 |
| Esterno sinistro | Est. SX | Antioraria | Verso il mandrino | Regolare | 5 |
| | Est. DX | Oraria | Dal mandrino | Invertita | 6 |
| Interno sinistro | Int. SX | Antioraria | Verso il mandrino | Regolare | 7 |
| | Int. DX | Oraria | Dal mandrino | Invertita | 8 |

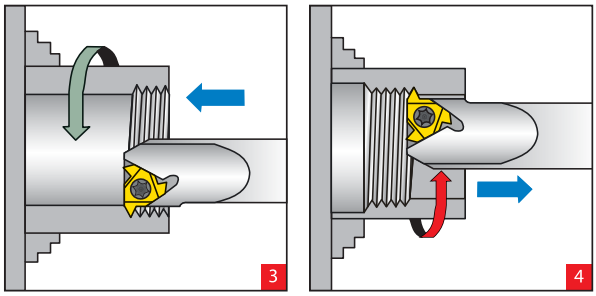
### • Filetto destro esterno



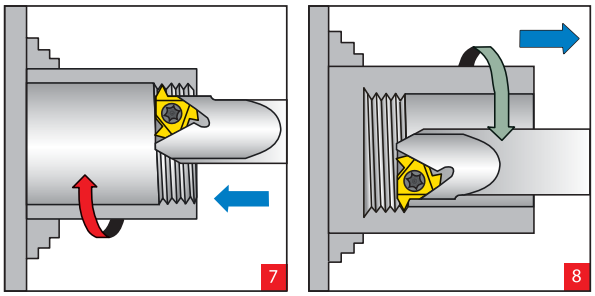

### • Filetto sinistro esterno



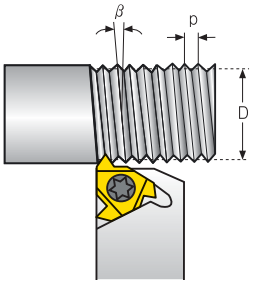

### • Filetto destro interno




### • Filetto sinistro interno




## Calcolo angolazione elica(β)



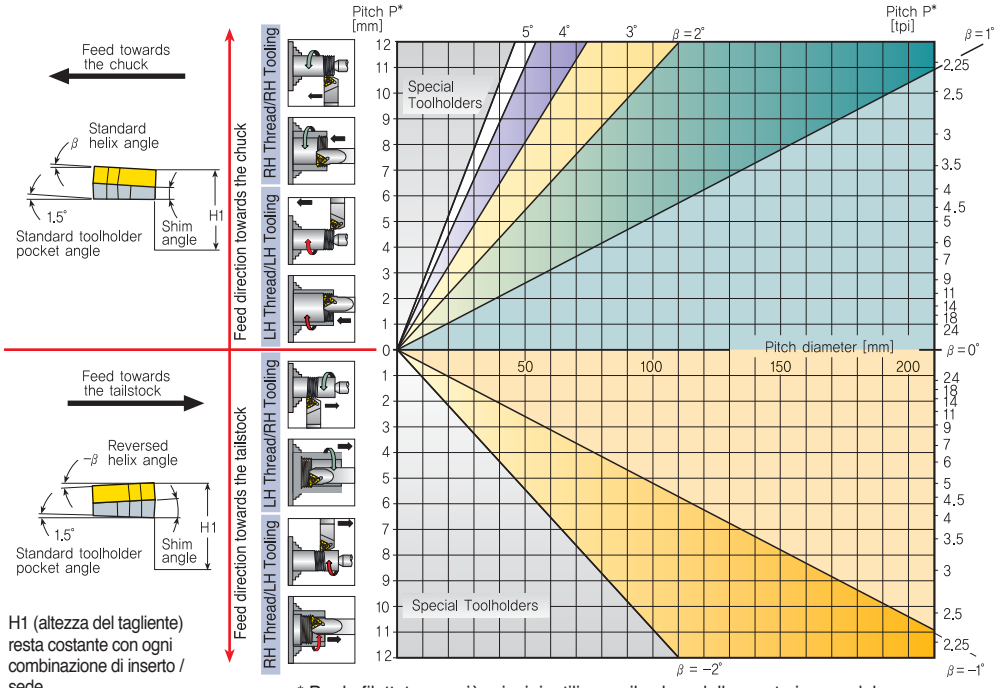

• L'angolazione dell'elica si calcola con la seguente formula:

$$\beta = \tan^{-1}\frac{P \times N}{\pi \times D}$$

β - Angolazione elica()°
P - Passo(mm)
N - N. di principi
D - Diametro passo(mm)
Cresta = P x N

• È anche possibile calcolare l'angolazione dell'elica dal diagramma riportato di seguito

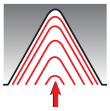
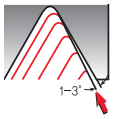
## Diagramma angolazione elica




H1 (altezza del tagliente) resta costante con ogni combinazione di inserto / sede

* Per la filettatura a più principi, utilizzare il valore della cresta invece del passo

## Metodo di avanzamento in profondità del filetto

| Avanzamento in profondità radiale | Avanzamento in profondità sul fianco | Avanzamento in profondità sul fianco alternato |
|---|---|---|
|  Il metodo dell'avanzamento in profondità radiale è il più semplice e veloce. L'avanzamento è perpendicolare all'asse di tornitura ed entrambi i fianchi dell'inserto svolgono la lavorazione. L'avanzamento in profondità radiale è raccomandato in 3 casi:<br>• quando il passo è inferiore a 16 tpi<br>• per materiale che produce trucioli corti<br>• per lavorare materiali temprati |  L'avanzamento in profondità sul fianco è raccomandato nei seguenti casi:<br>• Quando il passo è maggiore di 16 tpi. Utilizzando il metodo radiale, la lunghezza effettiva del tagliente sarebbe eccessiva, provocando scheggiature. Per TRAPEZ e ACME. Il metodo radiale comporta l'uso di tre taglienti, rendendo difficoltosa l'evacuazione del truciolo. |  Il metodo dell'avanzamento in profondità sul fianco alternato è raccomandato specialmente per i passi ampi e per i materiali con filettature lunghe.<br>Questo metodo suddivide il carico in parti uguali tra i due fianchi, usurando equamente i taglienti. L'avanzamento in profondità sul fianco alternato richiede una programmazione più complessa. |

## Sede

**Sede standard**







Angolazione dell'elica 1.5°

| Dimensione inserto | d | 9.525 | | 12.7 | | 15.875 | |
|---|---|---|---|---|---|---|---|
| | L | 16 | | 22 | | 27 | |
| Portainserti | | ER(L)H | IR(L)H | ER(L)H | IR(L)H | ER(L)H | IR(L)H |
| Codice d'ordine | | ATE16 | ATI16 | ATE22 | ATI22 | ATE27 | ATI27 |

※ L'angolazione della punta della sede standard è di 1,5°

## Grado applicabile

| Grado | Caratteristiche | Inserto disponibile |
|---|---|---|
| **PC5300** | • **Grado PVD universale**<br>Solo per tipo con rompitruciolo<br>Lavorazione stabile in numerose applicazioni grazie al substrato in metallo duro a grana fine dotato di un'equilibrata resistenza al calore e tenacità.<br>Eccellente resistenza all'usura e all'ossidazione grazie al rivestimento AiTN.<br>Eccezionali prestazioni nelle lavorazioni ad alte velocità. | ERM/IRM<br>(inserto con rompitruciolo) |
| **PC3030T** | • **Grado generico**<br>Substrato sub-micron tenace con rivestimento TiAlN che conferisce una buona resistenza alla rottura e un'eccellente resistenza all'usura. Prestazioni eccezionali su STS e materiali pastosi. | ER/IR<br>(Inserto rettificato) |

## Velocità di taglio raccomandata per pezzo lavorato (vc)

| ISO | Pezzo lavorato | ● ⟷ ✿ |
|---|---|---|
| **P** | Acciaio al carbonio, acciaio legato, ghisa | PC3030T<br>PC5300 |
| **M** | Acciaio inossidabile, acciaio resistente al calore,<br>acciaio legato al titanio | PC3030T<br>PC5300 |
| **K** | Ferro al carbonio, alluminio, ghisa acciaiosa, rame | PC3030T<br>PC5300 |

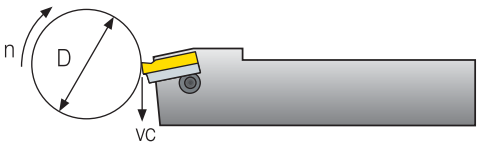
# D Informazioni tecniche per filettatura

## Velocità di taglio raccomandata per pezzo lavorato (vc)

| Materiale | | | Durezza Brinell (HB) | ISO vc(m/min) |
|---|---|---|---|---|
| | | | | PC3030T |
| P | Acciaio al carbonio | Basso tenore di carbonio (C=0.1-0.25 %) | 125 | 115~190 |
| | | Medio tenore di carbonio (C=0.25-0.55 %) | 150 | 100~175 |
| | | Elevato tenore di carbonio (C=0.55-0.85 %) | 170 | 90~155 |
| | Acciaio poco legato (leganti ≤ 5%) | Non temprato | 180 | 100~180 |
| | | Temprato | 275 | 75~140 |
| | | Temprato | 350 | 70~135 |
| | Acciaio molto legato (leganti > 5%) | Malleabile | 200 | 80~120 |
| | | Temprato | 325 | 50~100 |
| | Ghisa acciaiosa | Poco legata (leganti <5%) | 200 | 70~130 |
| | | Molto legata (leganti >5%) | 225 | 60~120 |
| M | Acciaio inossidabile ferritico | Non temprato | 200 | 70~130 |
| | | Temprato | 330 | 50~95 |
| | Acciaio inossidabile austenitico | Austenitico | 180 | 80~120 |
| | | Super austenitico | 200 | 30~100 |
| | Acciaio inossidabile fuso ferritico | Non temprato | 200 | 90~120 |
| | | Temprato | 330 | 65~110 |
| | Acciaio inossidabile fuso austenitico | Austenitico | 200 | 85~110 |
| | | Temprato | 330 | 60~100 |
| | Lega ad alte temperature | Malleabile (a base di ferro) | 200 | 45~60 |
| | | Invecchiato (a base di ferro) | 280 | 30~50 |
| | | Malleabile (a base di nichel o cobalto) | 250 | 20~30 |
| | | Invecchiato (a base di nichel o cobalto) | 350 | 15~25 |
| | Lega di titanio | Puro 99.5 Ti | 400Rm | 140~170 |
| | | a+b leghe | 1050Rm | 50~70 |
| K | Acciaio extra duro | Temprato e rinvenuto | 55HRC | 45~60 |
| | Ghisa malleabile | Ferritico (trucioli corti) | 130 | 70~120 |
| | | Pearlitico (trucioli lunghi) | 230 | 70~120 |
| | Ghisa grigia | Basso carico di rottura | 180 | 70~130 |
| | | Alto carico di rottura | 260 | 60~100 |
| | Ferro SG nodulare | Ferritico | 160 | 125~160 |
| | | Pearlitico | 260 | 90~120 |
| | Lega di alluminio saldata | Non invecchiato | 60 | 100~250 |
| | | Invecchiato | 100 | 80~180 |
| | Lega di alluminio | Fuso | 75 | 200~400 |
| | | Fuso e invecchiato | 90 | 200~280 |
| | | Silicio 13-22% | 130 | 60~150 |
| | Rame e lega di rame | Ottone | 90 | 80~120 |
| | | Bronzo e rame senza piombo | 100 | 80~120 |

## Calcolo di N [RPM]

$$n = \frac{vc \times 1000}{\pi \times D} \qquad vc = \frac{\pi \times D \times n}{1000}$$



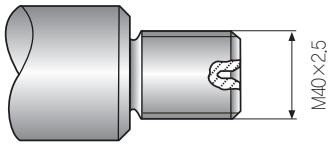

n - Giri al minuto [min-1]
vc - Velocità di taglio [m/min]
D - Diametro del pezzo lavorato [mm]

## Numero di passate

| Passo | mm | 0.50 | 0.75 | 1.00 | 1.25 | 1.50 | 1.75 | 2.00 | 2.50 | 3.00 | 3.50 | 4.00 | 4.50 | 5.00 | 5.50 | 6.00 | 8.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | tpi | 48 | 32 | 24 | 20 | 16 | 14 | 12 | 10 | 8 | 7 | 6 | 5.5 | 5 | 4.5 | 4 | 3 |
| N. di passate | | 4~6 | 4~7 | 4~8 | 5~9 | 6~10 | 7~12 | 7~12 | 8~14 | 9~16 | 10~18 | 11~18 | 11~19 | 12~20 | 12~20 | 12~20 | 15~24 |

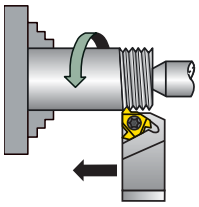
※ La profondità di passata è calcolato dividendo la profondità di taglio totale per il numero delle lavorazioni.
ex) ER16-1.5ISO, hmin 0.92 : Se si prevedono 10 lavorazioni, la profondità di passata è pari a 0.092(0.92/10)

## Procedura di tornitura del filetto



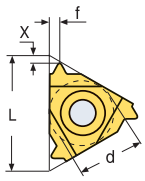

• Applicazione Filetto : Esterno destro
Filettatura ISO M40x2.5
Materiale : 4140 (25 HRC)

### ① Scegliere il metodo di tornitura del filetto



La direzione di alimentazione è verso il mandrino.
Pertanto si utilizzano inserto esterno destro e portainserti esterno destro.

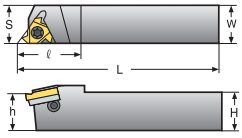
### ② Scegliere la dimensione dell'inserto




Inserto selezionato : **ER16 - 2.5 ISO**

| Dimensione inserto | | Passo | Codice d'ordine | Sede | Portainserti |
|---|---|---|---|---|---|
| d | L | mm | RH | RH | |
| 9.525 | 16 | 2.5 | ER16-2.5ISO | ATE16 | ERH□□-16 |

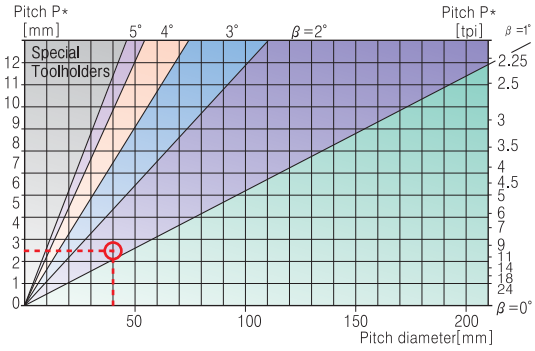
### ③ Scegliere il portainserti




**Portainserti selezionato : ERH 25 - 16**

| Dimensione inserto | Codice d'ordine | Dimensioni(mm) | | | | |
|---|---|---|---|---|---|---|
| d | RH | H=h | W | S | L | ℓ |
| 9.525 | ER25-16 | 25 | 25 | 25 | 153.6 | 30 |

### ④ Determinare l'angolazione dell'elica




Esmpio: utilizzando un passo di 2,5 mm (10 tpi) e con un pezzo lavorato di diametro 40mm (1,57″), l'angolazione dell'elica calcolata è di 1,5˚

### ⑤ Scegliere la sede corretta

Sede selezionata : **ATE16**

| Angolazione dell'elica risultante | | 1.5˚ |
|---|---|---|
| Dimensione inserto | d | 9.525 |
| | L | 16 |
| Codice d'ordine | | ATE16 |

### ⑥ Scegliere il grado di metallo duro e la velocità di taglio

Grado di metallo duro selezionato : PC3030T / Velocità di taglio : 140m/min

| Materiale | | | HB | vc(m/min) PC3030T |
|---|---|---|---|---|
| P | Acciaio poco legato (leganti ≤5%) | Non temprato | 180 | 85-145 |
| | | Temprato | 275 | 75-140 |
| | | Temprato | 350 | 70-135 |

### ⑦ Determinare il numero di passate

Grado di metallo duro selezionato : PC3030T / Velocità di taglio : 140m/min

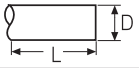
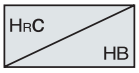
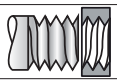
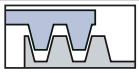
| Passo | mm | 1.50 | 1.75 | 2.00 | **2.50** | 3.00 | 3.50 | 4.00 |
|---|---|---|---|---|---|---|---|---|
| | tpi | 16 | 14 | 12 | 10 | 8 | 7 | 6 |
| N. di passate | | 6-10 | 7-12 | 7-12 | **8-14** | 9-16 | 10-18 | 11-18 |

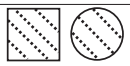
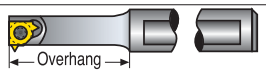
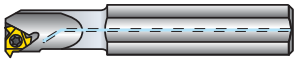
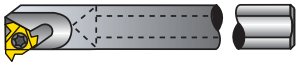
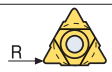
### ⑧ Sommario

| Tipo di filetto | ISO M40 x 2.5 Esterno destro |
|---|---|
| 1. Direzione di avanzamento | Verso il mandrino |
| 2. Inserto e grado | ER16-2.5 ISO, PC3030T |
| 3. Portainserti | ERH25-16 |
| 4. Angolazione dell'elica | 1.5˚ |
| 5. Sede | ATE16 |
| 6. Velocità di taglio | 140 m/min |
| 7. Numero di passate | 10 |

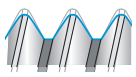
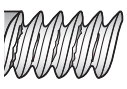
# D Informazioni tecniche per filettatura

## Le condizioni di taglio dipendono da ...

| | | |
|---|---|---|
| Pezzo lavorato | Tipo di materiale |  |
| | Dimensioni materiale |   |
| | Diametro e lunghezza Evacuazione del truciolo |  |
| | Durezza del materiale |   |
| Applicazione del filetto | Esterno o interno |  |
| | Forma del profilo |  |
| | Superficie di finitura |  |
| Macchina | Stabilità della macchina |  |
| | Max. RPM |   |
| | Stabilità del sistema di staffaggio |  |

| | | |
|---|---|---|
| Refrigerante | Tipo di refrigerante |  |
| Portainserti | Sezione portainserti |  |
| | Profondità di lavoro |   |
| | Opzione refrigerante interno |  |
| | Tipo di attacco : metallo duro, lega |  |
| Inserto | Grado metallo duro |   |
| | Forma del profilo : passo e profondità |  |
| | Raggio R |   |
| | Tipo di rompitruciolo |  |

## Soluzione dei problemi

| Problema | Possibile causa | Soluzione |
|---|---|---|
|  Maggiore usura del fianco | Velocità di taglio troppo elevata | Ridurre la velocità di taglio / usare un inserto rivestito |
| | Profondità di taglio scarsa/troppe passate | Aumentare la profondità di taglio per passata |
| | Grado in metallo duro non adatto | Utilizzare un grado in metallo duro rivestito |
| | Refrigerante insufficiente | Aumentare il flusso del refrigerante |
|  Usura del tagliente irregolare | Angolazione dell'elica non corretta | Scegliere la sede corretta |
| | Avanzamento in profondità errato | Utilizzare il metodo di avanzamento in profondità sul fianco alternato |
|  Elevata deformazione plastica | Profondità di taglio eccessiva | Ridurre la profondità di passata / aumentare il numero di passate |
| | Refrigerante insufficiente | Aumentare il flusso del refrigerante |
| | Velocità di taglio troppo elevata | Ridurre la velocità di taglio |
| | Grado in metallo duro non adatto | Utilizzare metallo duro più tenace |
| | Raggio di punta troppo piccolo | Utilizzare un inserto con raggio più ampio, se possibile |
|  Rottura del tagliente | Profondità di taglio eccessiva | Ridurre la profondità di passata / aumentare il numero di passate |
| | Elevata deformazione plastica | Utilizzare metallo duro più tenace |
| | Refrigerante insufficiente | Aumentare il flusso del refrigerante e/o correggere la direzione del flusso |
| | Grado in metallo duro non adatto | Utilizzare metallo duro più tenace |
| | Instabilità | Controllare la stabilità del sistema |
|  Riporto sul tagliente | Tagliente errato | Modificare la velocità di taglio |
| | Grado in metallo duro non adatto | Utilizzare metallo duro rivestito |
|  Il profilo del filetto è poco profondo | L'utensile non è posizionato all'altezza dell'asse del pezzo lavorato | Modificare l'altezza dell'utensile |
| | L'inserto non lavora la cresta del filetto | Misurare il diametro del pezzo lavorato |
| | Inserto usurato | Cambiare al più presto il tagliente |
|  Qualità scadente delle superficie lavorata | Velocità di taglio troppo bassa | Aumentare la velocità di taglio |
| | Sede errata | Scegliere la sede corretta |
| | Il metodo di avanzamento in profondità sul fianco non è indicato | Utilizzare il metodo di avanzamento in profondità sul fianco o radiale |

## Inserti a filettare con rompitruciolo

### Caratteristiche

- Inserto totalmente non rettificato con rompitruciolo dal design speciale per un buon controllo dell'evacuazione, a costi contenuti per soddisfare le esigenze del cliente
- L'inserto a filettare non rettificato Korloy garantisce un'ottima qualità di taglio nonché le stesse prestazioni di un inserto rettificato grazie alla precisione dei taglienti
- Filettatura ISO, Profilo parziale 60˚, Profilo parziale 55˚



Inserto esterno

• **ERM**

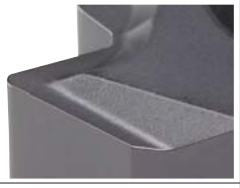
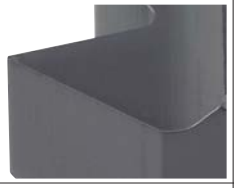
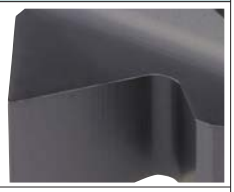
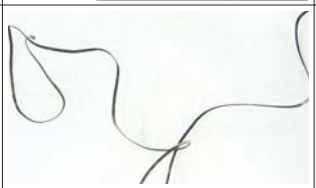
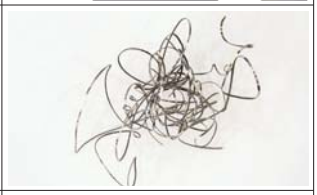


Inserto interno

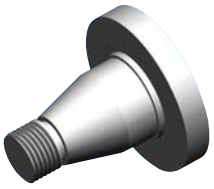
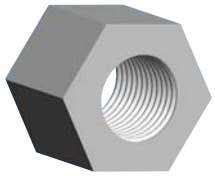
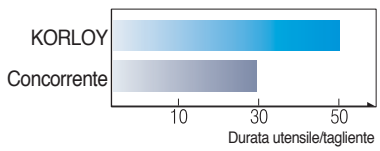
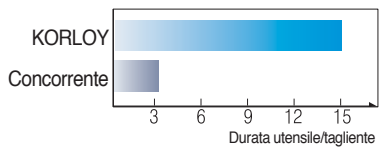
• **IRM**

### Test controllo del truciolo

- Pezzo lavorato : SCM440
- Articolo : ERM16-1.5ISO[PC3030T] / IRM16-1.5ISO[PC3030T]
- Velocità di taglio : 100m/min
- Passo : 1.5mm
- Passate : 6
- Con refrigerante

| Lavorazione | Filettatura esterna | | Filettatura interna | |
|---|---|---|---|---|
| **Classe** | **Inserto non rettificato (ERM)** | **Inserto rettificato (ER)** | **Inserto non rettificato (IRM)** | **Inserto rettificato (IR)** |
| **Rompitruciolo** |  |  |  |  |
| **Truciolo** |  |  |  |  |
| **Risultati** | Buon controllo del truciolo grazie al rompitruciolo che consente la curvatura del truciolo<br>→ Buona rottura del truciolo | Formazione di trucioli lunghi che non si rompono<br>→ Prestazione negativa e trucioli arrotolati sul pezzo lavorato | Il truciolo si arrotola bene grazie allo speciale design<br>→ Buona evacuazione del truciolo | Formazione di trucioli lunghi che non si rompono<br>→ Prestazione negativa con inceppamento dei trucioli sulla filettatura interna |

### Esempio di lavorazione

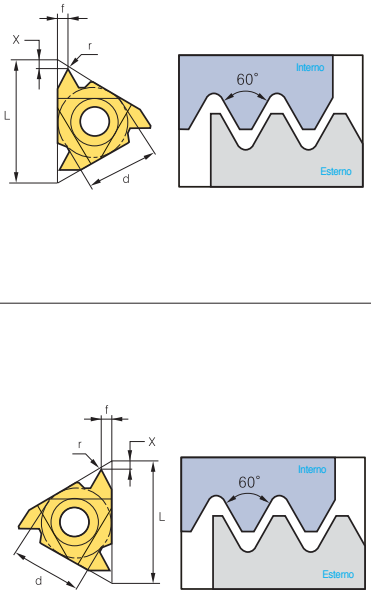
| Korloy | | ERM16-1.5ISO [PC3030T] | IRM16-2.0ISO [PC3030T] |
|---|---|---|---|
| **Concorrenti** | | **ERM16-1.5ISO [Concorrente K]** | **IRM16-2.0ISO [Concorrente S]** |
| **Pezzo lavorato** | Materiale | SCM440 | STS304 |
| | Figura |  |  |
| **Condizioni di taglio** | Velocità di taglio (m/min) | 63 | 120 |
| | Passate | 8 | 9 |
| | Lavorazione | Avanzamento in profondità radiale | Avanzamento in profondità radiale |
| | Passo | 1.5 | 2.0 |
| **Refrigerante** | | con refrigerante | con refrigerante |
| **Risultato** | |  |  |
| | | Maggiore durata dell'utensile e buon controllo del truciolo | Previene la rottura dell'inserto grazie al buon controllo del truciolo |

# D Inserto a filettare

## Profilo parziale 60°

(mm)

| Tipo | Articolo (destra) | PC3030T | Articolo (sinistra) | PC3030T | Passo (mm) | Passo (tpi) | d | L | r | x | f | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Esterno | **ER11-A60** | ● | **EL11-A60** | | 0.5~1.5 | 48~16 | 6.35 | 11 | 0.05 | 0.8 | 0.9 | |
| | **ER16-A60** | ● | **EL16-A60** | ● | 0.5~1.5 | 48~16 | 9.525 | 16 | 0.05 | 0.8 | 0.9 | |
| | **ER16-G60** | ● | **EL16-G60** | ● | 1.75~3.0 | 14~8 | 9.525 | 16 | 0.27 | 1.2 | 1.7 | |
| | **ER16-AG60** | ● | **EL16-AG60** | ● | 0.5~3.0 | 48~8 | 9.525 | 16 | 0.08 | 1.2 | 1.7 | |
| | **ER22-N60** | ● | **EL22-N60** | | 3.5~5.0 | 7~5 | 12.7 | 22 | 0.53 | 1.7 | 2.5 | |
| | **ER27-Q60** | ● | **EL27-Q60** | | 5.5~6.0 | 4.5~4 | 15.875 | 27 | 0.64 | 2.1 | 3.1 | |
| Interno | **IR11-A60** | ● | **IL11-A60** | | 0.5~1.5 | 48~16 | 6.35 | 11 | 0.05 | 0.8 | 0.9 | |
| | **IR16-A60** | ● | **IL16-A60** | ● | 0.5~1.5 | 48~16 | 9.525 | 16 | 0.05 | 0.8 | 0.9 | |
| | **IR16-G60** | ● | **IL16-G60** | | 1.75~3.0 | 14~8 | 9.525 | 16 | 0.16 | 1.2 | 1.7 | |
| | **IR16-AG60** | ● | **IL16-AG60** | ● | 0.5~3.0 | 48~8 | 9.525 | 16 | 0.05 | 1.2 | 1.7 | |
| | **IR22-N60** | ● | **IL22-N60** | | 3.5~5.0 | 7~5 | 12.7 | 22 | 0.30 | 1.7 | 2.5 | |
| | **IR27-Q60** | ● | **IL27-Q60** | | 5.5~6.0 | 4.5~4 | 15.875 | 27 | 0.30 | 1.8 | 2.7 | |



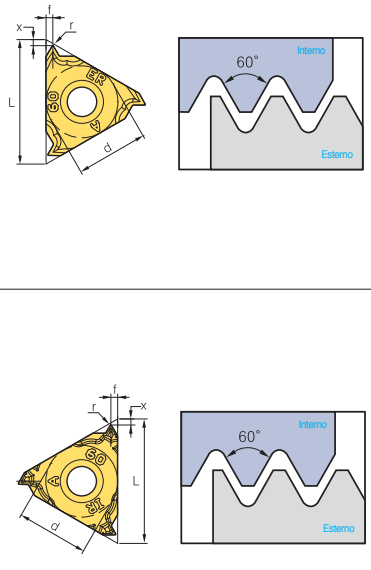

• Utensili applicabili, vedere pag. D24, D25

● : Disponibile ○ : A richiesta

## Profilo parziale 60° (con rompitruciolo)

(mm)

| Tipo | Articolo (destra) | PC3030T | PC5300 | Articolo (sinistra) | PC3030T | Passo (mm) | Passo (tpi) | d | L | r | x | f | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Esterno | **ERM16-A60** | | ○ | | | 0.5~1.5 | 48~16 | 9.525 | 16 | 0.05 | 0.8 | 0.9 | |
| | **ERM16-G60** | | ○ | | | 1.75~3.0 | 14~8 | 9.525 | 16 | 0.27 | 1.2 | 1.7 | |
| | **ERM16-AG60** | ● | ○ | | | 0.5~3.0 | 48~8 | 9.525 | 16 | 0.08 | 1.2 | 1.7 | |
| | **ERM22-N60** | | ○ | | | 3.5~5.0 | 7~5 | 12.7 | 22 | 0.53 | 1.7 | 2.5 | |
| Interno | **IRM11-A60** | ● | ○ | | | 0.5~1.5 | 48~16 | 6.35 | 11 | 0.08 | 0.8 | 0.9 | |
| | **IRM16-A60** | ● | ○ | | | 0.5~1.5 | 48~16 | 9.525 | 16 | 0.08 | 0.8 | 0.9 | |
| | **IRM16-G60** | | ○ | | | 1.75~3.0 | 14~8 | 9.525 | 16 | 0.12 | 1.2 | 1.7 | |
| | **IRM16-AG60** | ● | ○ | | | 0.5~3.0 | 48~8 | 9.525 | 16 | 0.08 | 1.2 | 1.7 | |
| | **IRM22-N60** | | ○ | | | 3.5~5.0 | 7~5 | 12.7 | 22 | 0.30 | 1.7 | 2.5 | |

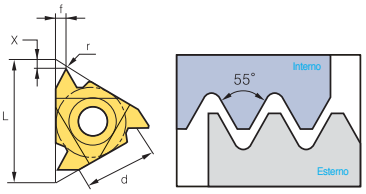
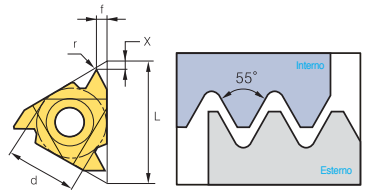



• Utensili applicabili, vedere pag. D24, D25

● : Disponibile ○ : A richiesta

## Profilo parziale 55°

(mm)

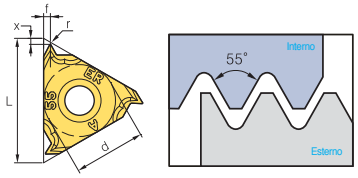
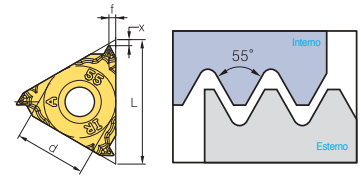
| Tipo | Articolo (destra) | PC3030T | Articolo (sinistra) | PC3030T | Passo (mm) | Passo (tpi) | d | L | r | x | f | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Esterno | **ER11-A55** | | **EL11-A55** | | 0.5~1.5 | 48~16 | 6.35 | 11 | 0.05 | 0.8 | 0.9 |  |
| | **ER16-A55** | ● | **EL16-A55** | ● | 0.5~1.5 | 48~16 | 9.525 | 16 | 0.05 | 0.8 | 0.9 | |
| | **ER16-G55** | ● | **EL16-G55** | | 1.75~3.0 | 14~8 | 9.525 | 16 | 0.21 | 1.2 | 1.7 | |
| | **ER16-AG55** | ● | **EL16-AG55** | ● | 0.5~3.0 | 48~8 | 9.525 | 16 | 0.07 | 1.2 | 1.7 | |
| | **ER22-N55** | | **EL22-N55** | ● | 3.5~5.0 | 7~5 | 12.7 | 27 | 0.43 | 1.7 | 2.5 | |
| | **ER27-Q55** | | **EL27-Q55** | ● | 5.5~6.0 | 4.5~4 | 15.875 | 27 | 0.60 | 2.0 | 2.9 | |
| Interno | **IR11-A55** | ● | **IL11-A55** | | 0.5~1.5 | 48~16 | 6.35 | 11 | 0.05 | 0.8 | 0.9 |  |
| | **IR16-A55** | ● | **IL16-A55** | | 0.5~1.5 | 48~16 | 9.525 | 16 | 0.05 | 0.8 | 0.9 | |
| | **IR16-G55** | ● | **IL16-G55** | | 1.75~3.0 | 14~8 | 9.525 | 16 | 0.21 | 1.2 | 1.7 | |
| | **IR16-AG55** | ● | **IL16-AG55** | | 0.5~3.0 | 48~8 | 9.525 | 16 | 0.07 | 1.2 | 1.7 | |
| | **IR22-N55** | ● | **IL22-N55** | | 3.5~5.0 | 7~5 | 12.7 | 22 | 0.43 | 1.7 | 2.5 | |
| | **IR27-Q55** | ● | **IL27-Q55** | | 5.5~6.0 | 4.5~4 | 15.875 | 27 | 0.60 | 2.0 | 2.9 | |

• Utensili applicabili, vedere pag. D24, D25

● : Disponibile ○ : A richiesta

## Profilo parziale 55° (con rompitruciolo)

(mm)

| Tipo | Articolo (destra) | PC3030T | PC5300 | Articolo (sinistra) | PC3030T | Passo (mm) | Passo (tpi) | d | L | r | x | f | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Esterno | **ERM16-A55** | ● | ○ | | | 0.5~1.5 | 48~16 | 9.525 | 16 | 0.08 | 0.8 | 0.9 |  |
| | **ERM16-G55** | ● | ○ | | | 1.75~3.0 | 14~8 | 9.525 | 16 | 0.21 | 1.2 | 1.7 | |
| | **ERM16-AG55** | ● | ○ | | | 0.5~3.0 | 48~8 | 9.525 | 16 | 0.07 | 1.2 | 1.7 | |
| | **ERM22-N55** | | ○ | | | 3.5~5.0 | 7~5 | 12.7 | 27 | 0.43 | 1.7 | 2.5 | |
| Interno | **IRM11-A55** | ● | ○ | | | 0.5~1.5 | 48~16 | 6.35 | 11 | 0.08 | 0.8 | 0.9 |  |
| | **IRM16-A55** | ● | ○ | | | 0.5~1.5 | 48~16 | 9.525 | 16 | 0.05 | 0.8 | 0.9 | |
| | **IRM16-G55** | | ○ | | | 1.75~3.0 | 14~8 | 9.525 | 16 | 0.08 | 1.2 | 1.7 | |
| | **IRM16-AG55** | ● | ○ | | | 0.5~3.0 | 48~8 | 9.525 | 16 | 0.08 | 1.2 | 1.7 | |
| | **IRM22-N55** | | ○ | | | 3.5~5.0 | 7~5 | 12.7 | 22 | 0.43 | 1.7 | 2.5 | |

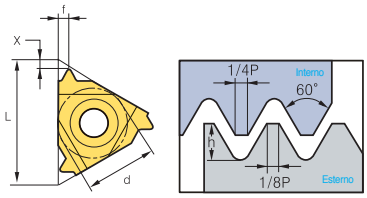
• Utensili applicabili, vedere pag. D24, D25

● : Disponibile ○ : A richiesta

## Filettatura ISO

(mm)

| Tipo | Articolo (destra) | PC3030T | Articolo (sinistra) | PC3030T | Passo (mm) | d | L | $h_{min}$ | x | f | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Esterno | **ER11-0.35ISO** | | **EL11-0.35ISO** | | 0.35 | 6.35 | 11 | 0.21 | 0.8 | 0.4 | |
| | **ER11-0.4ISO** | | **EL11-0.4ISO** | | 0.4 | 6.35 | 11 | 0.25 | 0.7 | 0.4 | |
| | **ER11-0.45ISO** | | **EL11-0.45ISO** | | 0.45 | 6.35 | 11 | 0.28 | 0.7 | 0.4 | |
| | **ER11-0.5ISO** | | **EL11-0.5ISO** | | 0.5 | 6.35 | 11 | 0.31 | 0.6 | 0.4 | |
| | **ER11-0.6ISO** | | **EL11-0.6ISO** | | 0.6 | 6.35 | 11 | 0.37 | 0.6 | 0.6 | |
| | **ER11-0.7ISO** | | **EL11-0.7ISO** | | 0.7 | 6.35 | 11 | 0.43 | 0.6 | 0.6 | |
| | **ER11-0.75ISO** | | **EL11-0.75ISO** | | 0.75 | 6.35 | 11 | 0.46 | 0.6 | 0.6 | |
| | **ER11-0.8ISO** | | **EL11-0.8ISO** | | 0.8 | 6.35 | 11 | 0.49 | 0.6 | 0.6 | |
| | **ER11-1.0ISO** | | **EL11-1.0ISO** | | 1.0 | 6.35 | 11 | 0.61 | 0.7 | 0.7 | |
| | **ER11-1.25ISO** | | **EL11-1.25ISO** | | 1.25 | 6.35 | 11 | 0.77 | 0.8 | 0.9 | |
| | **ER11-1.5ISO** | | **EL11-1.5ISO** | | 1.5 | 6.35 | 11 | 0.92 | 0.8 | 1.0 | |
| | **ER11-1.75ISO** | | **EL11-1.75ISO** | | 1.75 | 6.35 | 11 | 1.07 | 0.8 | 1.1 | |
| | **ER16-0.35ISO** | | **EL16-0.35ISO** | | 0.35 | 9.525 | 16 | 0.21 | 0.8 | 0.4 | |
| | **ER16-0.4ISO** | ● | **EL16-0.4ISO** | | 0.4 | 9.525 | 16 | 0.25 | 0.7 | 0.4 | |
| | **ER16-0.45ISO** | | **EL16-0.45ISO** | | 0.45 | 9.525 | 16 | 0.28 | 0.7 | 0.4 | |
| | **ER16-0.5ISO** | ● | **EL16-0.5ISO** | | 0.5 | 9.525 | 16 | 0.31 | 0.6 | 0.4 | |
| | **ER16-0.6ISO** | | **EL16-0.6ISO** | | 0.6 | 9.525 | 16 | 0.37 | 0.6 | 0.6 | |
| | **ER16-0.7ISO** | ● | **EL16-0.7ISO** | | 0.7 | 9.525 | 16 | 0.43 | 0.6 | 0.6 | |
| | **ER16-0.75ISO** | ● | **EL16-0.75ISO** | | 0.75 | 9.525 | 16 | 0.46 | 0.6 | 0.6 | |
| | **ER16-0.8ISO** | ● | **EL16-0.8ISO** | | 0.8 | 9.525 | 16 | 0.49 | 0.6 | 0.6 | |
| | **ER16-1.0ISO** | ● | **EL16-1.0ISO** | ● | 1.0 | 9.525 | 16 | 0.61 | 0.7 | 0.7 | |
| | **ER16-1.25ISO** | ● | **EL16-1.25ISO** | | 1.25 | 9.525 | 16 | 0.77 | 0.8 | 0.9 | |
| | **ER16-1.5ISO** | ● | **EL16-1.5ISO** | ● | 1.5 | 9.525 | 16 | 0.92 | 0.8 | 1.0 | |
| | **ER16-1.75ISO** | ● | **EL16-1.75ISO** | | 1.75 | 9.525 | 16 | 1.07 | 0.9 | 1.2 | |
| | **ER16-2.0ISO** | ● | **EL16-2.0ISO** | ● | 2.0 | 9.525 | 16 | 1.23 | 1.0 | 1.3 | |
| | **ER16-2.5ISO** | ● | **EL16-2.5ISO** | ● | 2.5 | 9.525 | 16 | 1.53 | 1.1 | 1.5 | |
| | **ER16-3.0ISO** | ● | **EL16-3.0ISO** | ● | 3.0 | 9.525 | 16 | 1.84 | 1.2 | 1.6 | |
| | **ER22-3.5ISO** | ● | **EL22-3.5ISO** | | 3.5 | 12.7 | 22 | 2.15 | 1.6 | 2.3 | |
| | **ER22-4.0ISO** | ● | **EL22-4.0ISO** | | 4.0 | 12.7 | 22 | 2.45 | 1.6 | 2.3 | |
| | **ER22-4.5ISO** | ● | **EL22-4.5ISO** | | 4.5 | 12.7 | 22 | 2.78 | 1.7 | 2.4 | |
| | **ER22-5.0ISO** | ● | **EL22-5.0ISO** | | 5.0 | 12.7 | 22 | 3.07 | 1.7 | 2.5 | |
| | **ER27-5.5ISO** | | **EL27-5.5ISO** | | 5.5 | 15.875 | 27 | 3.37 | 1.9 | 2.7 | |
| | **ER27-6.0ISO** | | **EL27-6.0ISO** | | 6.0 | 15.875 | 27 | 3.68 | 2.0 | 2.9 | |



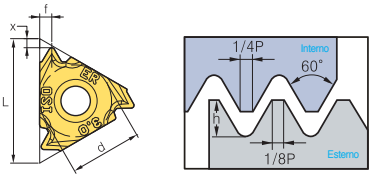

• Utensili applicabili, vedere pag. D24

● : Disponibile ○ : A richiesta

## Filettatura ISO (con rompitruciolo)

(mm)

| Tipo | Articolo (destra) | PC3030T | PC5300 | Articolo (sinistra) | PC3030T | Passo (mm) | d | L | $h_{min}$ | x | f | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Esterno | **ERM16-1.0ISO** | ○ | ○ | | | 1.0 | 9.525 | 16 | 0.61 | 0.7 | 0.7 | |
| | **ERM16-1.25ISO** | ○ | ○ | | | 1.25 | 9.525 | 16 | 0.77 | 0.8 | 0.9 | |
| | **ERM16-1.5ISO** | ● | ○ | | | 1.5 | 9.525 | 16 | 0.93 | 0.8 | 1.0 | |
| | **ERM16-1.75ISO** | ● | ○ | | | 1.75 | 9.525 | 16 | 1.09 | 0.9 | 1.2 | |
| | **ERM16-2.0ISO** | ● | ○ | | | 2.0 | 9.525 | 16 | 1.25 | 1.0 | 1.3 | |
| | **ERM16-2.5ISO** | ○ | ○ | | | 2.5 | 9.525 | 16 | 1.55 | 1.1 | 1.5 | |
| | **ERM16-3.0ISO** | ● | ○ | | | 3.0 | 9.525 | 16 | 1.87 | 1.2 | 1.6 | |
| | | | | | | | | | | | | |

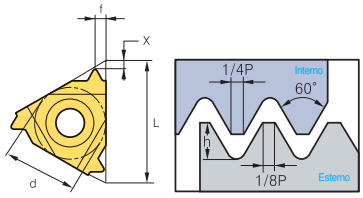



• Utensili applicabili, vedere pag. D24

● : Disponibile ○ : A richiesta

## Filettatura ISO

(mm)

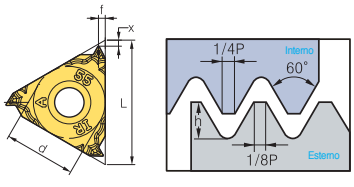
| Tipo | Articolo (destra) | PC3030T | Articolo (sinistra) | PC3030T | Passp (mm) | d | L | $h_{min}$ | x | f | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Interno | IR11-0.35ISO | | IL11-0.35ISO | | 0.35 | 6.35 | 11 | 0.20 | 0.8 | 0.3 |  |
| | IR11-0.4ISO | | IL11-0.4ISO | | 0.4 | 6.35 | 11 | 0.23 | 0.8 | 0.4 | |
| | IR11-0.45ISO | | IL11-0.45ISO | | 0.45 | 6.35 | 11 | 0.26 | 0.8 | 0.4 | |
| | IR11-0.5ISO | ● | IL11-0.5ISO | | 0.5 | 6.35 | 11 | 0.29 | 0.6 | 0.4 | |
| | IR11-0.6ISO | | IL11-0.6ISO | | 0.6 | 6.35 | 11 | 0.35 | 0.6 | 0.6 | |
| | IR11-0.7ISO | | IL11-0.7ISO | | 0.7 | 6.35 | 11 | 0.40 | 0.6 | 0.6 | |
| | IR11-0.75ISO | ● | IL11-0.75ISO | | 0.75 | 6.35 | 11 | 0.43 | 0.6 | 0.6 | |
| | IR11-0.8ISO | | IL11-0.8ISO | | 0.8 | 6.35 | 11 | 0.46 | 0.6 | 0.6 | |
| | IR11-1.0ISO | ● | IL11-1.0ISO | | 1.0 | 6.35 | 11 | 0.58 | 0.6 | 0.7 | |
| | IR11-1.25ISO | ● | IL11-1.25ISO | | 1.25 | 6.35 | 11 | 0.72 | 0.8 | 0.9 | |
| | IR11-1.5ISO | ● | IL11-1.5ISO | | 1.5 | 6.35 | 11 | 0.87 | 0.8 | 1.0 | |
| | IR11-1.75ISO | ● | IL11-1.75ISO | | 1.75 | 6.35 | 11 | 1.01 | 0.9 | 1.1 | |
| | IR11-2.0ISO | ● | IL11-2.0ISO | | 2.0 | 6.35 | 11 | 1.15 | 0.9 | 1.1 | |
| | IR11-2.5ISO | ● | IL11-2.5ISO | | 2.5 | 6.35 | 11 | 1.44 | 0.8 | 1.1 | |
| | IR16-0.35ISO | | IL16-0.35ISO | | 0.35 | 9.525 | 16 | 0.20 | 0.8 | 0.3 | |
| | IR16-0.4ISO | | IL16-0.4ISO | | 0.4 | 9.525 | 16 | 0.23 | 0.8 | 0.4 | |
| | IR16-0.45ISO | | IL16-0.45ISO | | 0.45 | 9.525 | 16 | 0.26 | 0.8 | 0.4 | |
| | IR16-0.5ISO | ● | IL16-0.5ISO | | 0.5 | 9.525 | 16 | 0.29 | 0.6 | 0.4 | |
| | IR16-0.6ISO | | IL16-0.6ISO | | 0.6 | 9.525 | 16 | 0.35 | 0.6 | 0.6 | |
| | IR16-0.7ISO | ● | IL16-0.7ISO | | 0.7 | 9.525 | 16 | 0.40 | 0.6 | 0.6 | |
| | IR16-0.75ISO | ● | IL16-0.75ISO | | 0.75 | 9.525 | 16 | 0.43 | 0.6 | 0.6 | |
| | IR16-0.8ISO | ● | IL16-0.8ISO | | 0.8 | 9.525 | 16 | 0.46 | 0.6 | 0.6 | |
| | IR16-1.0ISO | ● | IL16-1.0ISO | | 1.0 | 9.525 | 16 | 0.58 | 0.6 | 0.7 | |
| | IR16-1.25ISO | ● | IL16-1.25ISO | | 1.25 | 9.525 | 16 | 0.72 | 0.8 | 0.9 | |
| | IR16-1.5ISO | ● | IL16-1.5ISO | | 1.5 | 9.525 | 16 | 0.87 | 0.8 | 1.0 | |
| | IR16-1.75ISO | ● | IL16-1.75ISO | | 1.75 | 9.525 | 16 | 1.01 | 0.9 | 1.2 | |
| | IR16-2.0ISO | ● | IL16-2.0ISO | | 2.0 | 9.525 | 16 | 1.15 | 1.0 | 1.3 | |
| | IR16-2.5ISO | ● | IL16-2.5ISO | ● | 2.5 | 9.525 | 16 | 1.44 | 1.1 | 1.5 | |
| | IR16-3.0ISO | ● | IL16-3.0ISO | | 3.0 | 9.525 | 16 | 1.73 | 1.1 | 1.5 | |
| | IR22-3.5ISO | ● | IL22-3.5ISO | | 3.5 | 12.7 | 22 | 2.02 | 1.6 | 2.3 | |
| | IR22-4.0ISO | ● | IL22-4.0ISO | | 4.0 | 12.7 | 22 | 2.31 | 1.6 | 2.3 | |
| | IR22-4.5ISO | ● | IL22-4.5ISO | | 4.5 | 12.7 | 22 | 2.60 | 1.6 | 2.4 | |
| | IR22-5.0ISO | ● | IL22-5.0ISO | | 5.0 | 12.7 | 22 | 2.89 | 1.6 | 2.3 | |
| | IR27-5.5ISO | ● | IL27-5.5ISO | | 5.5 | 15.875 | 27 | 3.17 | 1.6 | 2.3 | |
| | IR27-6.0ISO | | IL27-6.0ISO | | 6.0 | 15.875 | 27 | 3.46 | 1.8 | 2.5 | |

• Utensili applicabili, vedere pag. D25

● : Disponibile ○ : A richiesta

## Filettatura ISO (con rompitruciolo)

(mm)

| Tipo | Articolo (destra) | PC3030T | PC5300 | Articolo (sinistra) | PC3030T | Passo (mm) | d | L | $h_{min}$ | x | f | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Interno | IRM11-1.5ISO | | ○ | | | 1.5 | 6.35 | 11 | 0.85 | 0.8 | 1.0 |  |
| | IRM16-1.0ISO | | ○ | | | 1.0 | 9.525 | 16 | 0.58 | 0.6 | 0.7 | |
| | IRM16-1.25ISO | | ○ | | | 1.25 | 9.525 | 16 | 0.72 | 0.8 | 0.9 | |
| | IRM16-1.5ISO | ● | ○ | | | 1.5 | 9.525 | 16 | 0.85 | 0.8 | 1.0 | |
| | IRM16-1.75ISO | | ○ | | | 1.75 | 9.525 | 16 | 1.01 | 0.9 | 1.2 | |
| | IRM16-2.0ISO | | ○ | | | 2.0 | 9.525 | 16 | 1.12 | 1.0 | 1.3 | |
| | IRM16-2.5ISO | | ○ | | | 2.5 | 9.525 | 16 | 1.44 | 1.1 | 1.5 | |
| | IRM16-3.0ISO | | ○ | | | 3.0 | 9.525 | 16 | 1.69 | 1.1 | 1.5 | |

• Utensili applicabili, vedere pag. D25

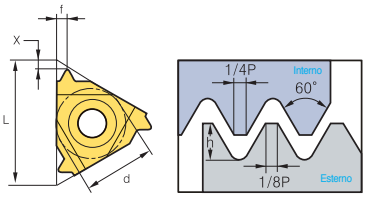
● : Disponibile ○ : A richiesta

# D Inserto a filettare

## Filettatura UN (UN, UNC, UNF, UNEF, UNS)

(mm)

| Tipo | Articolo (destra) | PC3030T | Articolo (sinistra) | PC3030T | Passo (tpi) | d | L | $h_{min}$ | x | f | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Esterno | ER11-72UN | | EL11-72UN | | 72 | 6.35 | 11 | 0.22 | 0.8 | 0.4 | |
| | ER11-64UN | | EL11-64UN | | 64 | 6.35 | 11 | 0.24 | 0.8 | 0.4 | |
| | ER11-56UN | | EL11-56UN | | 56 | 6.35 | 11 | 0.28 | 0.7 | 0.4 | |
| | ER11-48UN | | EL11-48UN | | 48 | 6.35 | 11 | 0.32 | 0.6 | 0.6 | |
| | ER11-44UN | | EL11-44UN | | 44 | 6.35 | 11 | 0.35 | 0.6 | 0.6 | |
| | ER11-40UN | | EL11-40UN | | 40z | 6.35 | 11 | 0.39 | 0.6 | 0.6 | |
| | ER11-36UN | | EL11-36UN | | 36 | 6.35 | 11 | 0.43 | 0.6 | 0.6 | |
| | ER11-32UN | | EL11-32UN | | 32 | 6.35 | 11 | 0.49 | 0.6 | 0.6 | |
| | ER11-28UN | | EL11-28UN | | 28 | 6.35 | 11 | 0.56 | 0.6 | 0.7 | |
| | ER11-27UN | | EL11-27UN | | 27 | 6.35 | 11 | 0.58 | 0.7 | 0.8 | |
| | ER11-24UN | | EL11-24UN | | 24 | 6.35 | 11 | 0.65 | 0.7 | 0.8 | |
| | ER11-20UN | | EL11-20UN | | 20 | 6.35 | 11 | 0.78 | 0.8 | 0.9 | |
| | ER11-18UN | | EL11-18UN | | 18 | 6.35 | 11 | 0.87 | 0.8 | 1.0 | |
| | ER11-16UN | | EL11-16UN | | 16 | 6.35 | 11 | 0.97 | 0.9 | 1.1 | |
| | ER11-14UN | | EL11-14UN | | 14 | 6.35 | 11 | 1.11 | 0.9 | 1.1 | |
| | ER16-72UN | | EL16-72UN | | 72 | 9.525 | 16 | 0.22 | 0.8 | 0.4 | |
| | ER16-64UN | | EL16-64UN | | 64 | 9.525 | 16 | 0.24 | 0.8 | 0.4 | |
| | ER16-56UN | | EL16-56UN | | 56 | 9.525 | 16 | 0.28 | 0.7 | 0.4 | |
| | ER16-48UN | | EL16-48UN | | 48 | 9.525 | 16 | 0.32 | 0.6 | 0.6 | |
| | ER16-44UN | | EL16-44UN | | 44 | 9.525 | 16 | 0.35 | 0.6 | 0.6 | |
| | ER16-40UN | | EL16-40UN | | 40 | 9.525 | 16 | 0.39 | 0.6 | 0.6 | |
| | ER16-36UN | | EL16-36UN | | 36 | 9.525 | 16 | 0.43 | 0.6 | 0.6 | |
| | ER16-32UN | ● | EL16-32UN | | 32 | 9.525 | 16 | 0.49 | 0.6 | 0.6 | |
| | ER16-28UN | ● | EL16-28UN | | 28 | 9.525 | 16 | 0.56 | 0.6 | 0.7 | |
| | ER16-27UN | | EL16-27UN | | 27 | 9.525 | 16 | 0.58 | 0.7 | 0.8 | |
| | ER16-24UN | | EL16-24UN | | 24 | 9.525 | 16 | 0.65 | 0.7 | 0.8 | |
| | ER16-20UN | ● | EL16-20UN | | 20 | 9.525 | 16 | 0.78 | 0.8 | 0.9 | |
| | ER16-18UN | ● | EL16-18UN | | 18 | 9.525 | 16 | 0.87 | 0.8 | 1.0 | |
| | ER16-16UN | ● | EL16-16UN | | 16 | 9.525 | 16 | 0.97 | 0.9 | 1.1 | |
| | ER16-14UN | ● | EL16-14UN | | 14 | 9.525 | 16 | 1.11 | 1.0 | 1.2 | |
| | ER16-13UN | ● | EL16-13UN | | 13 | 9.525 | 16 | 1.20 | 1.0 | 1.3 | |
| | ER16-12UN | ● | EL16-12UN | | 12 | 9.525 | 16 | 1.30 | 1.1 | 1.4 | |
| | ER16-11.5UN | | EL16-11.5UN | | 11.5 | 9.525 | 16 | 1.35 | 1.1 | 1.5 | |
| | ER16-11UN | ● | EL16-11UN | | 11 | 9.525 | 16 | 1.42 | 1.1 | 1.5 | |
| | ER16-10UN | ● | EL16-10UN | | 10 | 9.525 | 16 | 1.56 | 1.1 | 1.5 | |
| | ER16-9UN | ● | EL16-9UN | | 9 | 9.525 | 16 | 1.73 | 1.2 | 1.7 | |
| | ER16-8UN | ● | EL16-8UN | | 8 | 9.525 | 16 | 1.95 | 1.2 | 1.6 | |
| | ER22-7UN | | EL22-7UN | | 7 | 12.7 | 22 | 2.22 | 1.6 | 2.3 | |
| | ER22-6UN | ● | EL22-6UN | | 6 | 12.7 | 22 | 2.60 | 1.6 | 2.3 | |
| | ER22-5UN | | EL22-5UN | | 5 | 12.7 | 22 | 3.12 | 1.7 | 2.5 | |
| | ER27-4.5UN | | EL27-4.5UN | | 4.5 | 15.875 | 27 | 3.46 | 1.9 | 2.7 | |
| | ER27-4UN | | EL27-4UN | | 4 | 15.875 | 27 | 3.89 | 2.1 | 3.0 | |

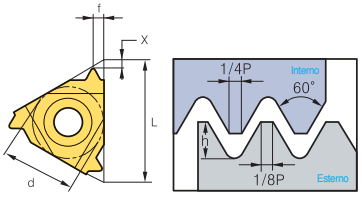



• Utensili applicabili, vedere pag. D24

● : Disponibile ○ : A richiesta

# Filettatura UN (UN, UNC, UNF, UNEF, UNS)

(mm)

| Tipo | Articolo (destra) | PC3030T | Articolo (sinistra) | PC3030T | Passo (tpi) | d | L | $h_{min}$ | x | f | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Interno | IR11-72UN | | IL11-72UN | | 72 | 6.35 | 11 | 0.20 | 0.8 | 0.3 |  |
| | IR11-64UN | | IL11-64UN | | 64 | 6.35 | 11 | 0.23 | 0.8 | 0.4 | |
| | IR11-56UN | | IL11-56UN | | 56 | 6.35 | 11 | 0.26 | 0.7 | 0.4 | |
| | IR11-48UN | | IL11-48UN | | 48 | 6.35 | 11 | 0.31 | 0.6 | 0.6 | |
| | IR11-44UN | | IL11-44UN | | 44 | 6.35 | 11 | 0.33 | 0.6 | 0.6 | |
| | IR11-40UN | | IL11-40UN | | 40 | 6.35 | 11 | 0.37 | 0.6 | 0.6 | |
| | IR11-36UN | | IL11-36UN | | 36 | 6.35 | 11 | 0.41 | 0.6 | 0.6 | |
| | IR11-32UN | | IL11-32UN | | 32 | 6.35 | 11 | 0.46 | 0.6 | 0.6 | |
| | IR11-28UN | | IL11-28UN | | 28 | 6.35 | 11 | 0.52 | 0.6 | 0.7 | |
| | IR11-27UN | | IL11-27UN | | 27 | 6.35 | 11 | 0.54 | 0.7 | 0.8 | |
| | IR11-24UN | | IL11-24UN | | 24 | 6.35 | 11 | 0.61 | 0.7 | 0.8 | |
| | IR11-20UN | | IL11-20UN | | 20 | 6.35 | 11 | 0.73 | 0.8 | 0.9 | |
| | IR11-18UN | | IL11-18UN | | 18 | 6.35 | 11 | 0.81 | 0.8 | 1.0 | |
| | IR11-16UN | | IL11-16UN | | 16 | 6.35 | 11 | 0.92 | 0.9 | 1.1 | |
| | IR11-14UN | | IL11-14UN | | 14 | 6.35 | 11 | 1.05 | 0.9 | 1.1 | |
| | IR11-12UN | | IL11-12UN | | 12 | 6.35 | 11 | 1.22 | 0.8 | 1.1 | |
| | IR11-11UN | ● | IL11-11UN | ● | 11 | 6.35 | 11 | 1.33 | 0.8 | 1.1 | |
| | IR16-72UN | | IL16-72UN | | 72 | 9.525 | 16 | 0.20 | 0.8 | 0.3 | |
| | IR16-64UN | | IL16-64UN | | 64 | 9.525 | 16 | 0.23 | 0.8 | 0.4 | |
| | IR16-56UN | | IL16-56UN | | 56 | 9.525 | 16 | 0.26 | 0.7 | 0.4 | |
| | IR16-48UN | | IL16-48UN | | 48 | 9.525 | 16 | 0.31 | 0.6 | 0.6 | |
| | IR16-44UN | | IL16-44UN | | 44 | 9.525 | 16 | 0.33 | 0.6 | 0.6 | |
| | IR16-40UN | | IL16-40UN | | 40 | 9.525 | 16 | 0.37 | 0.6 | 0.6 | |
| | IR16-36UN | | IL16-36UN | | 36 | 9.525 | 16 | 0.41 | 0.6 | 0.6 | |
| | IR16-32UN | | IL16-32UN | | 32 | 9.525 | 16 | 0.51 | 0.6 | 0.6 | |
| | IR16-28UN | ● | IL16-28UN | | 28 | 9.525 | 16 | 0.52 | 0.6 | 0.7 | |
| | IR16-27UN | | IL16-27UN | | 27 | 9.525 | 16 | 0.54 | 0.7 | 0.8 | |
| | IR16-24UN | ● | IL16-24UN | | 24 | 9.525 | 16 | 0.61 | 0.7 | 0.8 | |
| | IR16-20UN | ● | IL16-20UN | | 20 | 9.525 | 16 | 0.73 | 0.8 | 0.9 | |
| | IR16-18UN | ● | IL16-18UN | | 18 | 9.525 | 16 | 0.81 | 0.8 | 1.0 | |
| | IR16-16UN | ● | IL16-16UN | | 16 | 9.525 | 16 | 0.92 | 0.9 | 1.1 | |
| | IR16-14UN | ● | IL16-14UN | | 14 | 9.525 | 16 | 1.05 | 0.9 | 1.2 | |
| | IR16-13UN | | IL16-13UN | | 13 | 9.525 | 16 | 1.13 | 1.0 | 1.3 | |
| | IR16-12UN | ● | IL16-12UN | | 12 | 9.525 | 16 | 1.22 | 1.1 | 1.4 | |
| | IR16-11.5UN | | IL16-11.5UN | | 11.5 | 9.525 | 16 | 1.28 | 1.1 | 1.5 | |
| | IR16-11UN | ● | IL16-11UN | | 11 | 9.525 | 16 | 1.33 | 1.1 | 1.5 | |
| | IR16-10UN | ● | IL16-10UN | | 10 | 9.525 | 16 | 1.47 | 1.1 | 1.5 | |
| | IR16-9UN | ● | IL16-9UN | | 9 | 9.525 | 16 | 1.63 | 1.2 | 1.7 | |
| | IR16-8UN | ● | IL16-8UN | | 8 | 9.525 | 16 | 1.83 | 1.2 | 1.5 | |
| | IR22-7UN | | IL22-7UN | | 7 | 12.7 | 22 | 2.09 | 1.6 | 2.3 | |
| | IR22-6UN | | IL22-6UN | | 6 | 12.7 | 22 | 2.44 | 1.6 | 2.3 | |
| | IR22-5UN | | IL22-5UN | | 5 | 12.7 | 22 | 2.93 | 1.7 | 2.3 | |
| | IR27-4.5UN | | IL27-4.5UN | | 4.5 | 15.875 | 27 | 3.26 | 1.9 | 2.4 | |
| | IR27-4UN | | IL27-4UN | | 4 | 15.875 | 27 | 3.67 | 2.1 | 2.7 | |



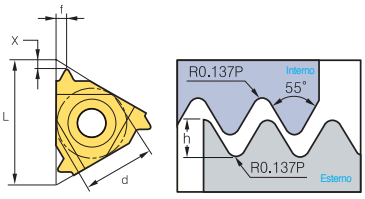
• Utensili applicabili, vedere pag. D25

● : Disponibile ○ : A richiesta

## Filettatura Whitworth (BSW, BSF, BSP, BSB)

(mm)

| Tipo | Articolo (destra) | PC3030T | Articolo (sinistra) | PC3030T | Passo (tpi) | d | L | $h_{min}$ | x | f | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Esterno | **ER11-72W** | | **EL11-72W** | | 72 | 6.35 | 11 | 0.23 | 0.7 | 0.4 | |
| | **ER11-60W** | | **EL11-60W** | | 60 | 6.35 | 11 | 0.27 | 0.7 | 0.4 | |
| | **ER11-56W** | | **EL11-56W** | | 56 | 6.35 | 11 | 0.29 | 0.7 | 0.4 | |
| | **ER11-48W** | | **EL11-48W** | | 48 | 6.35 | 11 | 0.34 | 0.6 | 0.6 | |
| | **ER11-40W** | | **EL11-40W** | | 40 | 6.35 | 11 | 0.41 | 0.6 | 0.6 | |
| | **ER11-36W** | | **EL11-36W** | | 36 | 6.35 | 11 | 0.45 | 0.6 | 0.6 | |
| | **ER11-32W** | | **EL11-32W** | | 32 | 6.35 | 11 | 0.51 | 0.6 | 0.6 | |
| | **ER11-28W** | | **EL11-28W** | | 28 | 6.35 | 11 | 0.58 | 0.6 | 0.7 | |
| | **ER11-26W** | | **EL11-26W** | | 26 | 6.35 | 11 | 0.63 | 0.7 | 0.8 | |
| | **ER11-24W** | | **EL11-24W** | | 24 | 6.35 | 11 | 0.68 | 0.7 | 0.8 | |
| | **ER11-22W** | | **EL11-22W** | | 22 | 6.35 | 11 | 0.74 | 0.8 | 0.9 | |
| | **ER11-20W** | | **EL11-20W** | | 20 | 6.35 | 11 | 0.81 | 0.8 | 0.9 | |
| | **ER11-19W** | | **EL11-19W** | | 19 | 6.35 | 11 | 0.86 | 0.8 | 1.0 | |
| | **ER11-18W** | | **EL11-18W** | | 18 | 6.35 | 11 | 0.90 | 0.8 | 1.0 | |
| | **ER11-16W** | | **EL11-16W** | | 16 | 6.35 | 11 | 1.02 | 0.9 | 1.1 | |
| | **ER11-14W** | | **EL11-14W** | | 14 | 6.35 | 11 | 1.16 | 1.0 | 1.2 | |
| | **ER16-72W** | | **EL16-72W** | | 72 | 9.525 | 16 | 0.23 | 0.7 | 0.4 | |
| | **ER16-60W** | | **EL16-60W** | | 60 | 9.525 | 16 | 0.27 | 0.7 | 0.4 | |
| | **ER16-56W** | | **EL16-56W** | | 56 | 9.525 | 16 | 0.29 | 0.7 | 0.4 | |
| | **ER16-48W** | | **EL16-48W** | | 48 | 9.525 | 16 | 0.34 | 0.6 | 0.6 | |
| | **ER16-40W** | | **EL16-40W** | | 40 | 9.525 | 16 | 0.41 | 0.6 | 0.6 | |
| | **ER16-36W** | | **EL16-36W** | | 36 | 9.525 | 16 | 0.45 | 0.6 | 0.6 | |
| | **ER16-32W** | | **EL16-32W** | | 32 | 9.525 | 16 | 0.51 | 0.6 | 0.6 | |
| | **ER16-30W** | | **EL16-30W** | | 30 | 9.525 | 16 | 0.55 | 0.6 | 0.7 | |
| | **ER16-28W** | ● | **EL16-28W** | | 28 | 9.525 | 16 | 0.58 | 0.6 | 0.7 | |
| | **ER16-26W** | ● | **EL16-26W** | | 26 | 9.525 | 16 | 0.63 | 0.7 | 0.8 | |
| | **ER16-24W** | ● | **EL16-24W** | | 24 | 9.525 | 16 | 0.68 | 0.7 | 0.8 | |
| | **ER16-22W** | | **EL16-22W** | | 22 | 9.525 | 16 | 0.74 | 0.8 | 0.9 | |
| | **ER16-20W** | ● | **EL16-20W** | | 20 | 9.525 | 16 | 0.81 | 0.8 | 0.9 | |
| | **ER16-19W** | ● | **EL16-19W** | | 19 | 9.525 | 16 | 0.86 | 0.8 | 1.0 | |
| | **ER16-18W** | ● | **EL16-18W** | | 18 | 9.525 | 16 | 0.90 | 0.8 | 1.0 | |
| | **ER16-16W** | ● | **EL16-16W** | | 16 | 9.525 | 16 | 1.02 | 0.9 | 1.1 | |
| | **ER16-14W** | ● | **EL16-14W** | | 14 | 9.525 | 16 | 1.16 | 1.0 | 1.2 | |
| | **ER16-12W** | ● | **EL16-12W** | | 12 | 9.525 | 16 | 1.36 | 1.1 | 1.4 | |
| | **ER16-11W** | ● | **EL16-11W** | | 11 | 9.525 | 16 | 1.48 | 1.1 | 1.5 | |
| | **ER16-10W** | ● | **EL16-10W** | | 10 | 9.525 | 16 | 1.63 | 1.1 | 1.5 | |
| | **ER16-9W** | ● | **EL16-9W** | | 9 | 9.525 | 16 | 1.81 | 1.2 | 1.7 | |
| | **ER16-8W** | ● | **EL16-8W** | | 8 | 9.525 | 16 | 2.03 | 1.2 | 1.5 | |
| | **ER22-7W** | | **EL22-7W** | | 7 | 12.7 | 22 | 3.32 | 1.6 | 2.3 | |
| | **ER22-6W** | ● | **EL22-6W** | | 6 | 12.7 | 22 | 2.71 | 1.6 | 2.3 | |
| | **ER22-5W** | | **EL22-5W** | | 5 | 12.7 | 22 | 3.25 | 1.7 | 2.4 | |
| | **ER27-4.5W** | | **EL27-4.5W** | | 4.5 | 15.875 | 27 | 3.61 | 1.8 | 2.6 | |
| | **ER27-4W** | | **EL27-4W** | | 4 | 15.875 | 27 | 4.07 | 2.0 | 2.9 | |

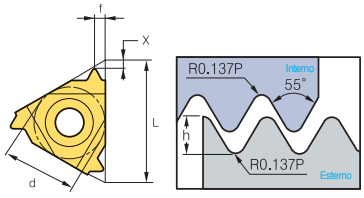



• Utensili applicabili, vedere pag. D24

● : Disponibile ○ : A richiesta

# Filettatura Whitworth (BSW, BSF, BSP, BSB)

(mm)

| Tipo | Articolo (destra) | PC3030T | Articolo (sinistra) | PC3030T | Passo (tpi) | d | L | $h_{min}$ | x | f | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Interno | IR11-72W | | IL11-72W | | 72 | 6.35 | 11 | 0.23 | 0.7 | 0.4 |  |
| | IR11-60W | | IL11-60W | | 60 | 6.35 | 11 | 0.27 | 0.7 | 0.4 | |
| | IR11-56W | | IL11-56W | | 56 | 6.35 | 11 | 0.29 | 0.7 | 0.4 | |
| | IR11-48W | | IL11-48W | | 48 | 6.35 | 11 | 0.34 | 0.6 | 0.6 | |
| | IR11-40W | | IL11-40W | | 40 | 6.35 | 11 | 0.41 | 0.6 | 0.6 | |
| | IR11-36W | | IL11-36W | | 36 | 6.35 | 11 | 0.45 | 0.6 | 0.6 | |
| | IR11-32W | | IL11-32W | | 32 | 6.35 | 11 | 0.51 | 0.6 | 0.6 | |
| | IR11-28W | | IL11-28W | | 28 | 6.35 | 11 | 0.58 | 0.6 | 0.7 | |
| | IR11-26W | | IL11-26W | | 26 | 6.35 | 11 | 0.63 | 0.7 | 0.8 | |
| | IR11-24W | | IL11-24W | | 24 | 6.35 | 11 | 0.68 | 0.7 | 0.8 | |
| | IR11-22W | | IL11-22W | | 22 | 6.35 | 11 | 0.74 | 0.8 | 0.9 | |
| | IR11-20W | | IL11-20W | | 20 | 6.35 | 11 | 0.81 | 0.8 | 0.9 | |
| | IR11-19W | ● | IL11-19W | | 19 | 6.35 | 11 | 0.86 | 0.8 | 1.0 | |
| | IR11-18W | | IL11-18W | | 18 | 6.35 | 11 | 0.90 | 0.8 | 1.0 | |
| | IR11-16W | ● | IL11-16W | | 16 | 6.35 | 11 | 1.02 | 0.9 | 1.1 | |
| | IR11-14W | ● | IL11-14W | | 14 | 6.35 | 11 | 1.16 | 0.9 | 1.1 | |
| | IR11-12W | | IL11-12W | | 12 | 6.35 | 11 | 1.32 | 0.9 | 1.2 | |
| | IR16-72W | | IL16-72W | | 72 | 9.525 | 16 | 0.23 | 0.7 | 0.4 | |
| | IR16-60W | | IL16-60W | | 60 | 9.525 | 16 | 0.27 | 0.7 | 0.4 | |
| | IR16-56W | | IL16-56W | | 56 | 9.525 | 16 | 0.29 | 0.7 | 0.4 | |
| | IR16-48W | | IL16-48W | | 48 | 9.525 | 16 | 0.34 | 0.6 | 0.6 | |
| | IR16-40W | | IL16-40W | | 40 | 9.525 | 16 | 0.41 | 0.6 | 0.6 | |
| | IR16-36W | | IL16-36W | | 36 | 9.525 | 16 | 0.45 | 0.6 | 0.6 | |
| | IR16-32W | | IL16-32W | | 32 | 9.525 | 16 | 0.51 | 0.6 | 0.6 | |
| | IR16-30W | | IL16-30W | | 30 | 9.525 | 16 | 0.55 | 0.6 | 0.7 | |
| | IR16-28W | | IL16-28W | | 28 | 9.525 | 16 | 0.58 | 0.6 | 0.7 | |
| | IR16-26W | ● | IL16-26W | | 26 | 9.525 | 16 | 0.63 | 0.7 | 0.8 | |
| | IR16-24W | | IL16-24W | | 24 | 9.525 | 16 | 0.68 | 0.7 | 0.8 | |
| | IR16-22W | | IL16-22W | | 22 | 9.525 | 16 | 0.74 | 0.8 | 0.9 | |
| | IR16-20W | ● | IL16-20W | | 20 | 9.525 | 16 | 0.81 | 0.8 | 0.9 | |
| | IR16-19W | ● | IL16-19W | | 19 | 9.525 | 16 | 0.86 | 0.8 | 1.0 | |
| | IR16-18W | ● | IL16-18W | | 18 | 9.525 | 16 | 0.90 | 0.8 | 1.0 | |
| | IR16-16W | ● | IL16-16W | | 16 | 9.525 | 16 | 1.02 | 0.9 | 1.1 | |
| | IR16-14W | ● | IL16-14W | | 14 | 9.525 | 16 | 1.16 | 1.0 | 1.2 | |
| | IR16-12W | ● | IL16-12W | | 12 | 9.525 | 16 | 1.36 | 1.1 | 1.4 | |
| | IR16-11W | ● | IL16-11W | | 11 | 9.525 | 16 | 1.48 | 1.1 | 1.5 | |
| | IR16-10W | ● | IL16-10W | | 10 | 9.525 | 16 | 1.63 | 1.1 | 1.5 | |
| | IR16-9W | ● | IL16-9W | | 9 | 9.525 | 16 | 1.81 | 1.2 | 1.7 | |
| | IR16-8W | | IL16-8W | | 8 | 9.525 | 16 | 2.03 | 1.2 | 1.5 | |
| | IR22-7W | | IL22-7W | | 7 | 12.7 | 22 | 3.32 | 1.6 | 2.3 | |
| | IR22-6W | | IL22-6W | | 6 | 12.7 | 22 | 2.71 | 1.6 | 2.3 | |
| | IR22-5W | | IL22-5W | | 5 | 12.7 | 22 | 3.25 | 1.7 | 2.4 | |
| | IR27-4.5W | ● | IL27-4.5W | | 4.5 | 15.875 | 27 | 3.61 | 1.8 | 2.6 | |
| | IR27-4W | ● | IL27-4W | | 4 | 15.875 | 27 | 4.07 | 2.0 | 2.9 | |



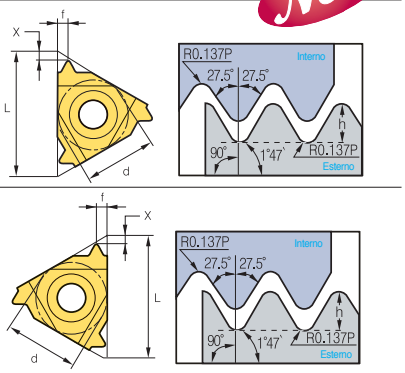
• Utensili applicabili, vedere pag. D25

● : Disponibile ○ : A richiesta

## Filettatura BSPT (British Standard Pipe Thread)

(mm)

| Tipo | Articolo (destra) | PC3030T | Articolo (sinistra) | PC3030T | Passo (tpi) | d | L | $h_{min}$ | x | f | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Esterno | **ER11-28BSPT** | | **EL11-28BSPT** | | 28 | 6.35 | 11 | 0.58 | 0.6 | 0.6 | |
| | **ER11-19BSPT** | | **EL11-19BSPT** | | 19 | 6.35 | 11 | 0.86 | 0.8 | 0.9 | |
| | **ER11-14BSPT** | | **EL11-14BSPT** | | 14 | 6.35 | 11 | 1.16 | 0.9 | 1.0 | |
| | **ER16-28BSPT** | | **EL16-28BSPT** | | 28 | 9.525 | 16 | 0.58 | 0.6 | 0.6 | |
| | **ER16-19BSPT** | ● | **EL16-19BSPT** | | 19 | 9.525 | 16 | 0.86 | 0.8 | 0.9 | |
| | **ER16-14BSPT** | ● | **EL16-14BSPT** | | 14 | 9.525 | 16 | 1.16 | 1.0 | 1.2 | |
| | **ER16-11BSPT** | ● | **EL16-11BSPT** | | 11 | 9.525 | 16 | 1.48 | 1.1 | 1.5 | |
| Interno | **IR11-28BSPT** | | **IL11-28BSPT** | | 28 | 6.35 | 11 | 0.58 | 0.6 | 0.6 | |
| | **IR11-19BSPT** | | **IL11-19BSPT** | | 19 | 6.35 | 11 | 0.86 | 0.8 | 0.9 | |
| | **IR11-14BSPT** | | **IL11-14BSPT** | | 14 | 6.35 | 11 | 1.16 | 0.9 | 1.0 | |
| | **IR16-28BSPT** | | **IL16-28BSPT** | | 28 | 9.525 | 16 | 0.58 | 0.6 | 0.6 | |
| | **IR16-19BSPT** | ● | **IL16-19BSPT** | | 19 | 9.525 | 16 | 0.86 | 0.8 | 0.9 | |
| | **IR16-14BSPT** | ● | **IL16-14BSPT** | | 14 | 9.525 | 16 | 1.16 | 1.0 | 1.2 | |
| | **IR16-11BSPT** | ● | **IL16-11BSPT** | | 11 | 9.525 | 16 | 1.48 | 1.1 | 1.5 | |



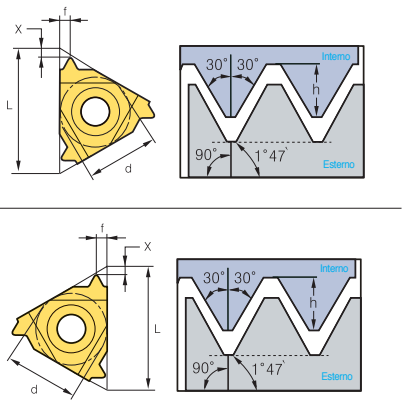

• Utensili applicabili, vedere pag. D22, D23

● : Disponibile ○ : A richiesta

## Filettatura NPT (National Pipe Thread)

(mm)

| Tipo | Articolo (destra) | PC3030T | Articolo (sinistra) | PC3030T | Passo (tpi) | d | L | $h_{min}$ | x | f | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Esterno | **ER11-27NPT** | | **EL11-27NPT** | | 27 | 6.35 | 11 | 0.66 | 0.7 | 0.8 | |
| | **ER11-18NPT** | | **EL11-18NPT** | | 18 | 6.35 | 11 | 1.01 | 0.8 | 1.0 | |
| | **ER11-14NPT** | | **EL11-14NPT** | | 14 | 6.35 | 11 | 1.33 | 0.8 | 1.0 | |
| | **ER16-27NPT** | | **EL16-27NPT** | | 27 | 9.525 | 16 | 0.66 | 0.7 | 0.8 | |
| | **ER16-18NPT** | ● | **EL16-18NPT** | | 18 | 9.525 | 16 | 1.01 | 0.8 | 1.0 | |
| | **ER16-14NPT** | ● | **EL16-14NPT** | | 14 | 9.525 | 16 | 1.33 | 0.9 | 1.2 | |
| | **ER16-11.5NPT** | ● | **EL16-11.5NPT** | | 11.5 | 9.525 | 16 | 1.64 | 1.1 | 1.5 | |
| | **ER16-8NPT** | ● | **EL16-8NPT** | | 8 | 9.525 | 16 | 2.42 | 1.3 | 1.8 | |
| Interno | **IR11-27NPT** | ● | **IL11-27NPT** | | 27 | 6.35 | 11 | 0.66 | 0.7 | 0.8 | |
| | **IR11-18NPT** | ● | **IL11-18NPT** | | 18 | 6.35 | 11 | 1.01 | 0.8 | 1.0 | |
| | **IR11-14NPT** | | **IL11-14NPT** | ● | 14 | 6.35 | 11 | 1.33 | 0.8 | 1.0 | |
| | **IR16-27NPT** | | **IL16-27NPT** | | 27 | 9.525 | 16 | 0.66 | 0.7 | 0.8 | |
| | **IR16-18NPT** | ● | **IL16-18NPT** | | 18 | 9.525 | 16 | 1.01 | 0.8 | 1.0 | |
| | **IR16-14NPT** | ● | **IL16-14NPT** | | 14 | 9.525 | 16 | 1.33 | 0.9 | 1.2 | |
| | **IR16-11.5NPT** | ● | **IL16-11.5NPT** | ● | 11.5 | 9.525 | 16 | 1.64 | 1.1 | 1.5 | |
| | **IR16-8NPT** | ● | **IL16-8NPT** | ● | 8 | 9.525 | 16 | 2.42 | 1.3 | 1.8 | |



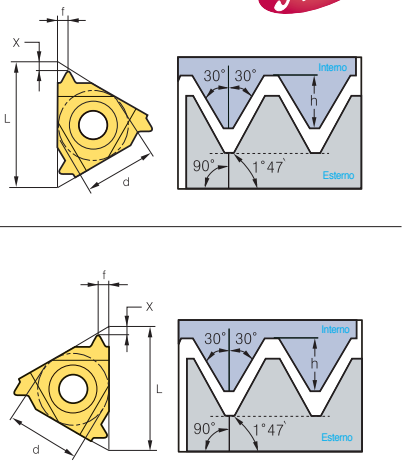

• Utensili applicabili, vedere pag. D22, D23

● : Disponibile ○ : A richiesta

## Filettatura NPTF (National Pipe Threads–Dryseal)

(mm)

| Tipo | Articolo (destra) | PC3030T | Articolo (sinistra) | PC3030T | Passo (tpi) | d | L | $h_{min}$ | x | f | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Esterno | **ER11-27NPTF** | | **EL11-27NPTF** | | 27 | 6.35 | 11 | 0.64 | 0.7 | 0.8 | |
| | **ER11-18NPTF** | | **EL11-18NPTF** | | 18 | 6.35 | 11 | 1.00 | 0.8 | 1.0 | |
| | **ER11-14NPTF** | | **EL11-14NPTF** | | 14 | 6.35 | 11 | 1.35 | 0.8 | 1.0 | |
| | **ER16-27NPTF** | | **EL16-27NPTF** | | 27 | 9.525 | 16 | 0.64 | 0.7 | 0.8 | |
| | **ER16-18NPTF** | ● | **EL16-18NPTF** | | 18 | 9.525 | 16 | 1.00 | 0.8 | 1.0 | |
| | **ER16-14NPTF** | | **EL16-14NPTF** | | 14 | 9.525 | 16 | 1.35 | 0.9 | 1.2 | |
| | **ER16-11.5NPTF** | | **EL16-11.5NPTF** | | 11.5 | 9.525 | 16 | 1.63 | 1.1 | 1.5 | |
| | **ER16-8NPTF** | | **EL16-8NPTF** | | 8 | 9.525 | 16 | 2.38 | 1.3 | 1.8 | |
| Interno | **IR11-27NPTF** | | **IL11-27NPTF** | | 27 | 6.35 | 11 | 0.64 | 0.7 | 0.8 | |
| | **IR11-18NPTF** | | **IL11-18NPTF** | | 18 | 6.35 | 11 | 1.00 | 0.8 | 1.0 | |
| | **IR11-14NPTF** | | **IL11-14NPTF** | | 14 | 6.35 | 11 | 1.35 | 0.8 | 1.0 | |
| | **IR16-27NPTF** | | **IL16-27NPTF** | | 27 | 9.525 | 16 | 0.64 | 0.7 | 0.8 | |
| | **IR16-18NPTF** | | **IL16-18NPTF** | | 18 | 9.525 | 16 | 1.00 | 0.8 | 1.0 | |
| | **IR16-14NPTF** | | **IL16-14NPTF** | | 14 | 9.525 | 16 | 1.35 | 0.9 | 1.2 | |
| | **IR16-11.5NPTF** | | **IL16-11.5NPTF** | | 11.5 | 9.525 | 16 | 1.63 | 1.1 | 1.5 | |
| | **IR16-8NPTF** | | **IL16-8NPTF** | | 8 | 9.525 | 16 | 2.38 | 1.3 | 1.8 | |



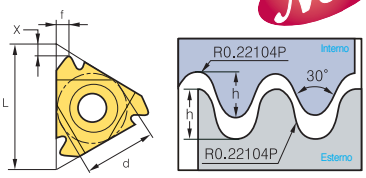

• Utensili applicabili, vedere pag. D24, D25

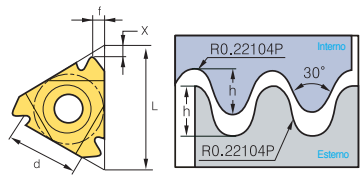
● : Disponibile ○ : A richiesta

## Filettatura DIN 405

(mm)

| Tipo | Articolo (destra) | PC3030T | Articolo (sinistra) | PC3030T | Passo (tpi) | d | L | $h_{min}$ | x | f | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Esterno | ER16-10RD | | EL16-10RD | | 10 | 9.525 | 16 | 1.27 | 1.1 | 1.2 | |
| | ER16-8RD | ● | EL16-8RD | | 8 | 9.525 | 16 | 1.59 | 1.4 | 1.3 | |
| | ER16-6RD | ● | EL16-6RD | | 6 | 9.525 | 16 | 2.12 | 1.5 | 1.7 | |
| | ER22-6RD | | EL22-6RD | | 6 | 12.7 | 22 | 2.12 | 1.5 | 1.7 | |
| | ER22-4RD | ● | EL22-4RD | | 4 | 12.7 | 22 | 3.18 | 2.2 | 2.3 | |
| | ER27-4RD | | EL27-4RD | | 4 | 15.875 | 27 | 3.18 | 2.2 | 2.3 | |
| Interno | IR16-10RD | | IL16-10RD | | 10 | 9.525 | 16 | 1.27 | 1.1 | 1.2 | |
| | IR16-8RD | | IL16-8RD | | 8 | 9.525 | 16 | 1.59 | 1.4 | 1.4 | |
| | IR16-6RD | | IL16-6RD | | 6 | 9.525 | 16 | 2.12 | 1.4 | 1.5 | |
| | IR22-6RD | | IL22-6RD | | 6 | 12.7 | 22 | 2.12 | 1.5 | 1.7 | |
| | IR22-4RD | | IL22-4RD | | 4 | 12.7 | 22 | 3.18 | 2.2 | 2.3 | |
| | IR27-4RD | | IL27-4RD | | 4 | 15.875 | 27 | 3.18 | 2.2 | 2.3 | |



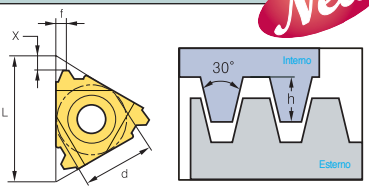

• Utensili applicabili, vedere pag. D22, D23

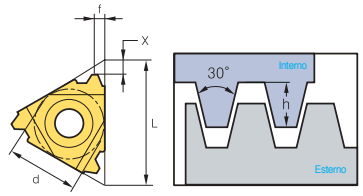
● : Disponibile ○ : A richiesta

## Filettatura DIN 103 (TR)

(mm)

| Tipo | Articolo (destra) | PC3030T | Articolo (sinistra) | PC3030T | Passo (mm) | d | L | $h_{min}$ | x | f | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Esterno | ER11-1.5TR | | EL11-1.5TR | | 1.5 | 6.35 | 11 | 0.90 | 0.8 | 0.9 | |
| | ER16-1.5TR | | EL16-1.5TR | | 1.5 | 9.525 | 16 | 0.90 | 1.0 | 1.1 | |
| | ER16-2.0TR | | EL16-2.0TR | | 2.0 | 9.525 | 16 | 1.25 | 1.1 | 1.3 | |
| | ER16-3.0TR | ● | EL16-3.0TR | | 3.0 | 9.525 | 16 | 1.75 | 1.3 | 1.5 | |
| | ER22-4.0TR | ● | EL22-4.0TR | | 4.0 | 12.7 | 22 | 2.25 | 1.7 | 1.9 | |
| | ER22-5.0TR | ● | EL22-5.0TR | | 5.0 | 12.7 | 22 | 2.75 | 2.1 | 2.5 | |
| | ER27-6.0TR | ● | EL27-6.0TR | | 6.0 | 15.875 | 27 | 3.50 | 2.3 | 2.7 | |
| Interno | IR11-1.5TR | | IL11-1.5TR | | 1.5 | 6.35 | 11 | 0.90 | 0.8 | 0.9 | |
| | IR16-1.5TR | | IL16-1.5TR | | 1.5 | 9.525 | 16 | 0.90 | 1.0 | 1.1 | |
| | IR16-2.0TR | | IL16-2.0TR | | 2.0 | 9.525 | 16 | 1.25 | 1.1 | 1.3 | |
| | IR16-2.5TR | | IL16-2.5TR | | 2.5 | 9.525 | 16 | 1.53 | 1.2 | 1.4 | |
| | IR16-3.0TR | ● | IL16-3.0TR | | 3.0 | 9.525 | 16 | 1.75 | 1.3 | 1.5 | |
| | IR22-4.0TR | ● | IL22-4.0TR | | 4.0 | 12.7 | 22 | 2.25 | 1.7 | 1.9 | |
| | IR22-5.0TR | ● | IL22-5.0TR | | 5.0 | 12.7 | 22 | 2.75 | 2.1 | 2.5 | |
| | IR27-6.0TR | | IL27-6.0TR | | 6.0 | 15.875 | 27 | 3.50 | 2.3 | 2.7 | |



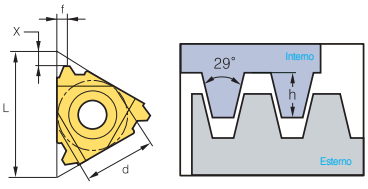

• Utensili applicabili, vedere pag. D22, D23

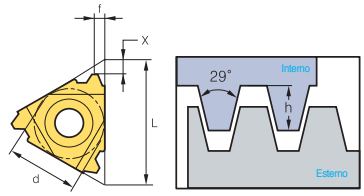
● : Disponibile ○ : A richiesta

## Filettatura ACME

(mm)

| Tipo | Articolo (destra) | PC3030T | Articolo (sinistra) | PC3030T | Passo (tpi) | d | L | $h_{min}$ | X | f | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Esterno | ER11-16ACME | | EL11-16ACME | | 16 | 6.35 | 11 | 0.92 | 1.0 | 1.1 | |
| | ER16-16ACME | | EL16-16ACME | | 16 | 9.525 | 16 | 0.92 | 1.0 | 1.1 | |
| | ER16-14ACME | | EL16-14ACME | | 14 | 9.525 | 16 | 1.03 | 1.0 | 1.2 | |
| | ER16-12ACME | | EL16-12ACME | | 12 | 9.525 | 16 | 1.19 | 1.1 | 1.2 | |
| | ER16-10ACME | | EL16-10ACME | | 10 | 9.525 | 16 | 1.52 | 1.3 | 1.4 | |
| | ER16-8ACME | | EL16-8ACME | | 8 | 9.525 | 16 | 1.84 | 1.4 | 1.5 | |
| | ER16-6ACME | | EL16-6ACME | | 6 | 9.525 | 16 | 2.37 | 1.7 | 1.9 | |
| | ER22-6ACME | ● | EL22-6ACME | ● | 6 | 12.7 | 22 | 2.37 | 1.8 | 2.1 | |
| | ER22-5ACME | ● | EL22-5ACME | ● | 5 | 12.7 | 22 | 2.79 | 2.0 | 2.3 | |
| | ER27-4ACME | | EL27-4ACME | | 4 | 15.875 | 27 | 3.43 | 2.4 | 2.7 | |
| Interno | IR11-16ACME | | IL11-16ACME | | 16 | 6.35 | 11 | 0.92 | 0.9 | 0.9 | |
| | IR16-16ACME | | IL16-16ACME | | 16 | 9.525 | 16 | 0.92 | 1.0 | 1.1 | |
| | IR16-14ACME | | IL16-14ACME | | 14 | 9.525 | 16 | 1.03 | 1.1 | 1.2 | |
| | IR16-12ACME | | IL16-12ACME | | 12 | 9.525 | 16 | 1.19 | 1.2 | 1.3 | |
| | IR16-10ACME | | IL16-10ACME | | 10 | 9.525 | 16 | 1.52 | 1.2 | 1.3 | |
| | IR16-8ACME | | IL16-8ACME | | 8 | 9.525 | 16 | 1.84 | 1.4 | 1.5 | |
| | IR16-6ACME | | IL16-6ACME | | 6 | 9.525 | 16 | 2.37 | 1.7 | 1.9 | |
| | IR22-6ACME | | IL22-6ACME | | 6 | 12.7 | 22 | 2.37 | 1.8 | 2.1 | |
| | IR22-5ACME | ● | IL22-5ACME | | 5 | 12.7 | 22 | 2.79 | 2.0 | 2.3 | |
| | IR27-4ACME | | IL27-4ACME | | 4 | 15.875 | 27 | 3.43 | 2.3 | 2.6 | |




• Utensili applicabili, vedere pag. D24, D25

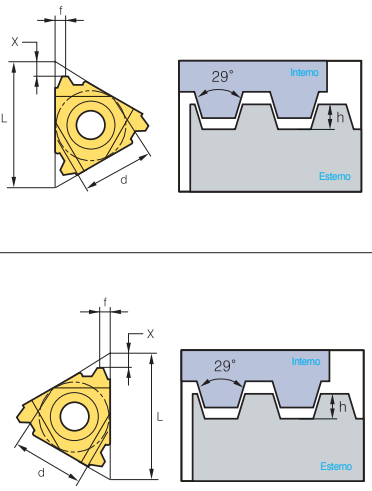
● : Disponibile ○ : A richiesta

# D Inserto a filettare

## Filettatura Stub ACME (STACME)

(mm)

| Tipo | Articolo (destra) | PC3030T | Articolo (sinistra) | PC3030T | Passo (tpi) | d | L | $h_{min}$ | x | f | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Esterno | ER11-16STACME | | EL11-16STACME | | 16 | 6.35 | 11 | 0.60 | 1.0 | 1.0 | |
| | ER16-16STACME | | EL16-16STACME | | 16 | 9.525 | 16 | 0.60 | 1.0 | 1.0 | |
| | ER16-14STACME | | EL16-14STACME | | 14 | 9.525 | 16 | 0.67 | 1.1 | 1.1 | |
| | ER16-12STACME | | EL16-12STACME | | 12 | 9.525 | 16 | 0.76 | 1.2 | 1.2 | |
| | ER16-10STACME | | EL16-10STACME | | 10 | 9.525 | 16 | 1.02 | 1.2 | 1.3 | |
| | ER16-8STACME | | EL16-8STACME | | 8 | 9.525 | 16 | 1.21 | 1.4 | 1.5 | |
| | ER16-6STACME | | EL16-6STACME | | 6 | 9.525 | 16 | 1.52 | 1.7 | 1.8 | |
| | ER22-6STACME | | EL22-6STACME | | 6 | 12.7 | 22 | 1.52 | 1.7 | 1.8 | |
| | ER22-5STACME | | EL22-5STACME | | 5 | 12.7 | 22 | 1.78 | 2.1 | 2.3 | |
| | ER27-4STACME | | EL27-4STACME | | 4 | 15.875 | 27 | 2.16 | 2.3 | 2.4 | |
| | ER27-3STACME | | EL27-3STACME | | 3 | 15.875 | 27 | 2.79 | 2.9 | 2.9 | |
| Interno | IR11-16STACME | | IL11-16STACME | | 16 | 6.35 | 11 | 0.60 | 1.0 | 1.0 | |
| | IR16-16STACME | | IL16-16STACME | | 16 | 9.525 | 16 | 0.60 | 1.0 | 1.0 | |
| | IR16-14STACME | | IL16-14STACME | | 14 | 9.525 | 16 | 0.67 | 1.1 | 1.1 | |
| | IR16-12STACME | | IL16-12STACME | | 12 | 9.525 | 16 | 0.76 | 1.1 | 1.2 | |
| | IR16-10STACME | | IL16-10STACME | | 10 | 9.525 | 16 | 1.02 | 1.2 | 1.3 | |
| | IR16-8STACME | | IL16-8STACME | | 8 | 9.525 | 16 | 1.21 | 1.4 | 1.5 | |
| | IR16-6STACME | | IL16-6STACME | | 6 | 9.525 | 16 | 1.52 | 1.7 | 1.8 | |
| | IR22-6STACME | | IL22-6STACME | | 6 | 12.7 | 22 | 1.52 | 1.7 | 1.8 | |
| | IR22-5STACME | | IL22-5STACME | | 5 | 12.7 | 22 | 1.78 | 2.1 | 2.3 | |
| | IR27-4STACME | | IL27-4STACME | | 4 | 15.875 | 27 | 2.16 | 2.3 | 2.4 | |
| | IR27-3STACME | | IL27-3STACME | | 3 | 15.875 | 27 | 2.79 | 2.9 | 2.9 | |



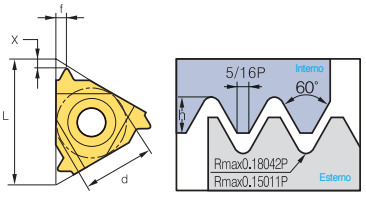

• Utensili applicabili, vedere pag. D24, D25

● : Disponibile ○ : A richiesta

## Filettatura UNJ

(mm)

| Tipo | Articolo (destra) | PC3030T | Articolo (sinistra) | PC3030T | Passo (tpi) | d | L | $h_{min}$ | x | f | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Esterno | ER11-48UNJ | | EL11-48UNJ | | 48 | 6.35 | 11 | 0.31 | 0.6 | 0.5 | |
| | ER11-44UNJ | | EL11-44UNJ | | 44 | 6.35 | 11 | 0.33 | 0.6 | 0.6 | |
| | ER11-40UNJ | | EL11-40UNJ | | 40 | 6.35 | 11 | 0.37 | 0.6 | 0.6 | |
| | ER11-36UNJ | | EL11-36UNJ | | 36 | 6.35 | 11 | 0.41 | 0.6 | 0.6 | |
| | ER11-32UNJ | | EL11-32UNJ | | 32 | 6.35 | 11 | 0.46 | 0.6 | 0.7 | |
| | ER11-28UNJ | | EL11-28UNJ | | 28 | 6.35 | 11 | 0.52 | 0.7 | 0.7 | |
| | ER11-24UNJ | ● | EL11-24UNJ | | 24 | 6.35 | 11 | 0.61 | 0.7 | 0.8 | |
| | ER11-20UNJ | | EL11-20UNJ | | 20 | 6.35 | 11 | 0.73 | 0.8 | 0.9 | |
| | ER11-18UNJ | | EL11-18UNJ | | 18 | 6.35 | 11 | 0.81 | 0.8 | 1.0 | |
| | ER11-16UNJ | | EL11-16UNJ | | 16 | 6.35 | 11 | 0.92 | 0.9 | 1.1 | |
| | ER11-14UNJ | | EL11-14UNJ | | 14 | 6.35 | 11 | 1.05 | 1.0 | 1.2 | |
| | ER16-48UNJ | | EL16-48UNJ | | 48 | 9.525 | 16 | 0.31 | 0.6 | 0.5 | |
| | ER16-44UNJ | | EL16-44UNJ | | 44 | 9.525 | 16 | 0.33 | 0.6 | 0.6 | |
| | ER16-40UNJ | | EL16-40UNJ | | 40 | 9.525 | 16 | 0.37 | 0.6 | 0.6 | |
| | ER16-36UNJ | | EL16-36UNJ | | 36 | 9.525 | 16 | 0.41 | 0.6 | 0.6 | |
| | ER16-32UNJ | | EL16-32UNJ | | 32 | 9.525 | 16 | 0.46 | 0.6 | 0.7 | |
| | ER16-28UNJ | | EL16-28UNJ | | 28 | 9.525 | 16 | 0.52 | 0.7 | 0.7 | |
| | ER16-24UNJ | | EL16-24UNJ | | 24 | 9.525 | 16 | 0.61 | 0.7 | 0.8 | |
| | ER16-20UNJ | | EL16-20UNJ | | 20 | 9.525 | 16 | 0.73 | 0.8 | 0.9 | |
| | ER16-18UNJ | | EL16-18UNJ | | 18 | 9.525 | 16 | 0.81 | 0.8 | 1.0 | |
| | ER16-16UNJ | | EL16-16UNJ | | 16 | 9.525 | 16 | 0.92 | 0.9 | 1.1 | |
| | ER16-14UNJ | | EL16-14UNJ | | 14 | 9.525 | 16 | 1.05 | 1.0 | 1.2 | |
| | ER16-13UNJ | | EL16-13UNJ | | 13 | 9.525 | 16 | 1.13 | 1.0 | 1.3 | |
| | ER16-12UNJ | ● | EL16-12UNJ | | 12 | 9.525 | 16 | 1.22 | 1.1 | 1.3 | |
| | ER16-11UNJ | | EL16-11UNJ | | 11 | 9.525 | 16 | 1.33 | 1.2 | 1.5 | |
| | ER16-10UNJ | | EL16-10UNJ | | 10 | 9.525 | 16 | 1.47 | 1.2 | 1.5 | |
| | ER16-9UNJ | | EL16-9UNJ | | 9 | 9.525 | 16 | 1.63 | 1.3 | 1.7 | |
| | ER16-8UNJ | | EL16-8UNJ | | 8 | 9.525 | 16 | 1.83 | 1.2 | 1.6 | |
| | ER22-7UNJ | | EL22-7UNJ | | 7 | 12.7 | 22 | 2.09 | 1.7 | 2.3 | |
| | ER22-6UNJ | | EL22-6UNJ | | 6 | 12.7 | 22 | 2.44 | 1.7 | 2.3 | |
| | ER22-5UNJ | | EL22-5UNJ | | 5 | 12.7 | 22 | 2.93 | 1.8 | 2.5 | |
| | ER27-4.5UNJ | | EL27-4.5UNJ | | 4.5 | 15.875 | 27 | 3.26 | 2.0 | 2.7 | |
| | ER27-4UNJ | | EL27-4UNJ | | 4 | 15.875 | 27 | 3.67 | 2.2 | 3.0 | |



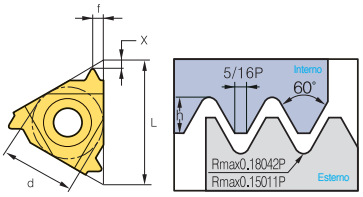

• Utensili applicabili, vedere pag. D24

● : Disponibile ○ : A richiesta

## Filettatura UNJ

(mm)

| Tipo | Articolo (destra) | PC3030T | Articolo (sinistra) | PC3030T | Passo (tpi) | d | L | $h_{min}$ | x | f | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Interno | **IR11-48UNJ** | | **IL11-48UNJ** | | 48 | 6.35 | 11 | 0.28 | 0.6 | 0.5 | |
| | **IR11-44UNJ** | | **IL11-44UNJ** | | 44 | 6.35 | 11 | 0.30 | 0.6 | 0.6 | |
| | **IR11-40UNJ** | | **IL11-40UNJ** | | 40 | 6.35 | 11 | 0.33 | 0.6 | 0.6 | |
| | **IR11-36UNJ** | | **IL11-36UNJ** | | 36 | 6.35 | 11 | 0.37 | 0.6 | 0.6 | |
| | **IR11-32UNJ** | | **IL11-32UNJ** | | 32 | 6.35 | 11 | 0.42 | 0.6 | 0.7 | |
| | **IR11-28UNJ** | | **IL11-28UNJ** | | 28 | 6.35 | 11 | 0.47 | 0.7 | 0.7 | |
| | **IR11-24UNJ** | | **IL11-24UNJ** | | 24 | 6.35 | 11 | 0.55 | 0.7 | 0.8 | |
| | **IR11-20UNJ** | | **IL11-20UNJ** | | 20 | 6.35 | 11 | 0.66 | 0.8 | 0.9 | |
| | **IR11-18UNJ** | | **IL11-18UNJ** | | 18 | 6.35 | 11 | 0.74 | 0.8 | 1.0 | |
| | **IR11-16UNJ** | | **IL11-16UNJ** | | 16 | 6.35 | 11 | 0.83 | 0.9 | 1.1 | |
| | **IR11-14UNJ** | | **IL11-14UNJ** | | 14 | 9.525 | 11 | 0.95 | 1.0 | 1.2 | |
| | **IR16-48UNJ** | | **IL16-48UNJ** | | 48 | 9.525 | 16 | 0.28 | 0.6 | 0.5 | |
| | **IR16-44UNJ** | | **IL16-44UNJ** | | 44 | 9.525 | 16 | 0.30 | 0.6 | 0.6 | |
| | **IR16-40UNJ** | | **IL16-40UNJ** | | 40 | 9.525 | 16 | 0.33 | 0.6 | 0.6 | |
| | **IR16-36UNJ** | | **IL16-36UNJ** | | 36 | 9.525 | 16 | 0.37 | 0.6 | 0.6 | |
| | **IR16-32UNJ** | | **IL16-32UNJ** | | 32 | 9.525 | 16 | 0.42 | 0.6 | 0.7 | |
| | **IR16-28UNJ** | | **IL16-28UNJ** | | 28 | 9.525 | 16 | 0.47 | 0.7 | 0.7 | |
| | **IR16-24UNJ** | | **IL16-24UNJ** | | 24 | 9.525 | 16 | 0.55 | 0.7 | 0.8 | |
| | **IR16-20UNJ** | | **IL16-20UNJ** | | 20 | 9.525 | 16 | 0.66 | 0.8 | 0.9 | |
| | **IR16-18UNJ** | | **IL16-18UNJ** | | 18 | 9.555 | 16 | 0.74 | 0.8 | 1.0 | |
| | **IR16-16UNJ** | | **IL16-16UNJ** | | 16 | 9.525 | 16 | 0.83 | 0.9 | 1.1 | |
| | **IR16-14UNJ** | | **IL16-14UNJ** | | 14 | 9.525 | 16 | 0.95 | 1.0 | 1.2 | |
| | **IR16-13UNJ** | | **IL16-13UNJ** | | 13 | 9.525 | 16 | 1.02 | 1.0 | 1.3 | |
| | **IR16-12UNJ** | | **IL16-12UNJ** | | 12 | 9.525 | 16 | 1.11 | 1.1 | 1.3 | |
| | **IR16-11UNJ** | | **IL16-11UNJ** | | 11 | 9.525 | 16 | 1.21 | 1.2 | 1.5 | |
| | **IR16-10UNJ** | | **IL16-10UNJ** | | 10 | 9.525 | 16 | 1.33 | 1.2 | 1.5 | |
| | **IR16-9UNJ** | | **IL16-9UNJ** | | 9 | 9.525 | 16 | 1.48 | 1.3 | 1.7 | |
| | **IR16-8UNJ** | | **IL16-8UNJ** | | 8 | 9.525 | 16 | 1.66 | 1.2 | 1.6 | |
| | **IR22-7UNJ** | | **IL22-7UNJ** | | 7 | 12.7 | 22 | 1.90 | 1.7 | 2.3 | |
| | **IR22-6UNJ** | | **IL22-6UNJ** | | 6 | 12.7 | 22 | 2.21 | 1.7 | 2.3 | |
| | **IR22-5UNJ** | | **IL22-5UNJ** | | 5 | 12.7 | 22 | 2.66 | 1.8 | 2.5 | |
| | **IR27-4.5UNJ** | | **IL27-4.5UNJ** | | 4.5 | 15.875 | 27 | 2.95 | 2.0 | 2.7 | |
| | **IR27-4UNJ** | | **IL27-4UNJ** | | 4 | 15.875 | 27 | 3.32 | 2.2 | 3.0 | |



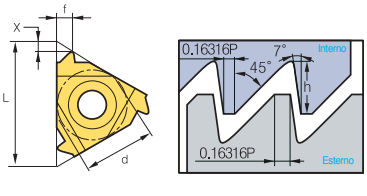

• Utensili applicabili, vedere pag. D25

● : Disponibile ○ : A richiesta

## Filettatura ABUT (American Buttress)

(mm)

| Tipo | Articolo (destra) | PC3030T | Articolo (sinistra) | PC3030T | Passo (tpi) | d | L | $h_{min}$ | x | f | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Esterno | **ER11-20ABUT** | | **EL11-20ABUT** | | 20 | 6.35 | 11 | 0.84 | 1.0 | 1.4 | |
| | **ER11-16ABUT** | | **EL11-16ABUT** | | 16 | 6.35 | 11 | 1.05 | 1.3 | 1.9 | |
| | **ER16-20ABUT** | | **EL16-20ABUT** | | 20 | 9.525 | 16 | 0.84 | 1.0 | 1.4 | |
| | **ER16-16ABUT** | | **EL16-16ABUT** | | 16 | 9.525 | 16 | 1.05 | 1.3 | 1.9 | |
| | **ER16-12ABUT** | | **EL16-12ABUT** | | 12 | 9.525 | 16 | 1.40 | 1.4 | 2.0 | |
| | **ER16-10ABUT** | | **EL16-10ABUT** | | 10 | 9.525 | 16 | 1.68 | 1.5 | 2.3 | |
| | **ER22-8ABUT** | | **EL22-8ABUT** | | 8 | 12.7 | 22 | 2.10 | 2.0 | 3.2 | |
| | **ER22-6ABUT** | | **EL22-6ABUT** | | 6 | 12.7 | 22 | 2.80 | 2.2 | 3.5 | |
| Interno | **IR11-20ABUT** | | **IL11-20ABUT** | | 20 | 6.35 | 11 | 0.84 | 1.0 | 1.4 | |
| | **IR11-16ABUT** | | **IL11-16ABUT** | | 16 | 6.35 | 11 | 1.05 | 1.3 | 1.9 | |
| | **IR16-20ABUT** | | **IL16-20ABUT** | | 20 | 9.525 | 16 | 0.84 | 1.0 | 1.4 | |
| | **IR16-16ABUT** | | **IL16-16ABUT** | | 16 | 9.525 | 16 | 1.05 | 1.3 | 1.9 | |
| | **IR16-12ABUT** | | **IL16-12ABUT** | | 12 | 9.525 | 16 | 1.40 | 1.4 | 2.0 | |
| | **IR16-10ABUT** | ● | **IL16-10ABUT** | | 10 | 9.525 | 16 | 1.68 | 1.5 | 2.3 | |
| | **IR22-8ABUT** | | **IL22-8ABUT** | | 8 | 12.7 | 22 | 2.10 | 2.0 | 3.2 | |
| | **IR22-6ABUT** | | **IL22-6ABUT** | | 6 | 12.7 | 22 | 2.80 | 2.2 | 3.5 | |



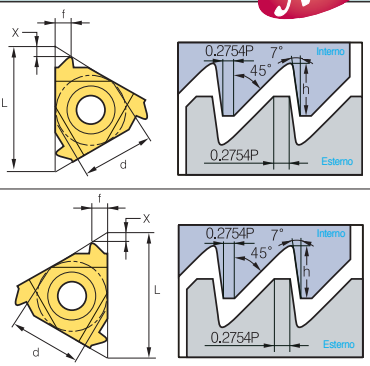

• Utensili applicabili, vedere pag. D24, D25

● : Disponibile ○ : A richiesta

## Filettatura BBUT (British Buttress)

(mm)

| Tipo | Articolo (destra) | PC3030T | Articolo (sinistra) | PC3030T | Passo (tpi) | d | L | $h_{min}$ | x | f | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Esterno | **ER16-16BBUT** | | **EL16-16BBUT** | | 16 | 9.525 | 16 | 0.80 | 1.1 | 1.6 | |
| | **ER16-12BBUT** | | **EL16-12BBUT** | | 12 | 9.525 | 16 | 1.07 | 1.4 | 2.1 | |
| | **ER16-10BBUT** | | **EL16-10BBUT** | | 10 | 9.525 | 16 | 1.28 | 1.4 | 2.2 | |
| | **ER16-8BBUT** | ● | **EL16-8BBUT** | | 8 | 9.525 | 16 | 1.61 | 1.6 | 2.5 | |
| | **ER22-8BBUT** | | **EL22-8BBUT** | | 8 | 12.7 | 22 | 1.61 | 1.6 | 2.5 | |
| Interno | **IR16-16BBUT** | | **IL16-16BBUT** | | 16 | 9.525 | 16 | 0.80 | 1.1 | 1.6 | |
| | **IR16-12BBUT** | | **IL16-12BBUT** | | 12 | 9.525 | 16 | 1.07 | 1.4 | 2.1 | |
| | **IR16-10BBUT** | | **IL16-10BBUT** | | 10 | 9.525 | 16 | 1.28 | 1.4 | 2.2 | |
| | **IR16-8BBUT** | | **IL16-8BBUT** | | 8 | 9.525 | 16 | 1.61 | 1.6 | 2.5 | |
| | **IR22-8BBUT** | | **IL22-8BBUT** | | 8 | 12.7 | 22 | 1.61 | 1.6 | 2.5 | |



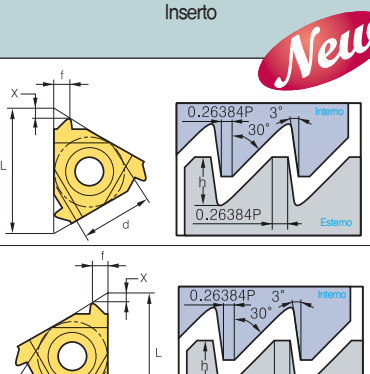

• Utensili applicabili, vedere pag. D24, D25

● : Disponibile ○ : A richiesta

## Filettatura SAGE (Metric Buttress)

(mm)

| Tipo | Articolo (destra) | PC3030T | Articolo (sinistra) | PC3030T | Passo (mm) | d | L | $h_{min}$ | x | f | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Esterno | **ER16-2.0SAGE** | | **EL16-2.0SAGE** | | 2.0 | 9.525 | 16 | 1.74 | 1.47 | 2.08 | |
| | **ER22-2.0SAGE** | | **EL22-2.0SAGE** | | 2.0 | 12.7 | 22 | 1.74 | 1.47 | 2.08 | |
| | **ER22-3.0SAGE** | | **EL22-3.0SAGE** | | 3.0 | 12.7 | 22 | 2.60 | 1.79 | 2.60 | |
| | **ER27-4.0SAGE** | ● | **EL27-4.0SAGE** | | 4.0 | 15.875 | 27 | 3.55 | 1.93 | 3.20 | |
| Interno | **IR16-2.0SAGE** | | **IL16-2.0SAGE** | | 2.0 | 9.525 | 16 | 1.50 | 1.52 | 2.2 | |
| | **IR22-3.0SAGE** | | **IL22-3.0SAGE** | | 3.0 | 12.7 | 22 | 2.25 | 1.66 | 2.9 | |
| | **IR27-4.0SAGE** | ● | **IL27-4.0SAGE** | | 4.0 | 5/8 | 27 | 3.09 | 2.12 | 3.2 | |



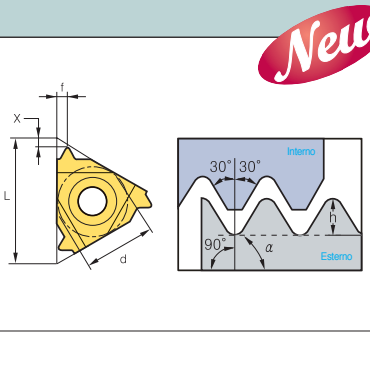

• Utensili applicabili, vedere pag. D24, D25

● : Disponibile ○ : A richiesta

## Filettatura API

(mm)

| Tipo | Articolo (destra) | PC3030T | Articolo (sinistra) | PC3030T | Passo (tpi) | d | L | $h_{min}$ | x | f | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Esterno | **ER22-4API382** | ● | **EL22-4API382** | | 4 | 12.7 | 22 | 3.09 | 2.1 | 2.8 | |
| | **ER22-4API383** | | **EL22-4API383** | | 4 | 12.7 | 22 | 3.08 | 2.1 | 2.8 | |
| | **ER22-4API502** | | **EL22-4API502** | | 4 | 12.7 | 22 | 3.75 | 2.0 | 2.9 | |
| | **ER22-4API503** | | **EL22-4API503** | | 4 | 12.7 | 22 | 3.74 | 2.0 | 2.9 | |
| | **ER22-5API403** | ● | **EL22-5API403** | | 5 | 12.7 | 22 | 2.99 | 1.8 | 2.6 | |
| | **ER22-6API551** | | **EL22-6API551** | | 6 | 12.7 | 22 | 1.41 | 2.6 | 2.0 | |
| | **ER27-4API382** | ● | **EL27-4API382** | | 4 | 15.875 | 27 | 3.09 | 2.1 | 2.8 | |
| | **ER27-4API383** | ● | **EL27-4API383** | | 4 | 15.875 | 27 | 3.08 | 2.1 | 2.8 | |
| | **ER27-4API502** | ● | **EL27-4API502** | | 4 | 15.875 | 27 | 3.75 | 2.1 | 3.1 | |
| | **ER27-4API503** | ● | **EL27-4API503** | | 4 | 15.875 | 27 | 3.74 | 2.1 | 3.1 | |
| | **ER27-5API403** | ○ | **EL27-5API403** | | 5 | 15.875 | 27 | 2.99 | 1.9 | 2.7 | |
| Interno | **IR22-4API382** | | **IL22-4API382** | | 4 | 12.7 | 22 | 3.09 | 2.1 | 2.8 | |
| | **IR22-4API383** | | **IL22-4API383** | | 4 | 12.7 | 22 | 3.08 | 2.1 | 2.8 | |
| | **IR22-4API502** | | **IL22-4API502** | | 4 | 12.7 | 22 | 3.75 | 2.1 | 3.1 | |
| | **IR22-4API503** | | **IL22-4API503** | | 4 | 12.7 | 22 | 3.74 | 2.0 | 2.9 | |
| | **IR22-5API403** | ● | **IL22-5API403** | | 5 | 12.7 | 22 | 2.99 | 1.8 | 2.6 | |
| | **IR22-6API551** | ● | **IL22-6API551** | | 6 | 12.7 | 22 | 1.41 | 2.6 | 2.0 | |
| | **IR27-4API382** | ● | **IL27-4API382** | | 4 | 15.875 | 27 | 3.09 | 2.1 | 2.8 | |
| | **IR27-4API383** | ● | **IL27-4API383** | | 4 | 15.875 | 27 | 3.08 | 2.1 | 2.8 | |
| | **IR27-4API502** | ● | **IL27-4API502** | | 4 | 15.875 | 27 | 3.75 | 2.1 | 3.1 | |
| | **IR27-4API503** | ● | **IL27-4API503** | | 4 | 15.875 | 27 | 3.74 | 2.1 | 3.1 | |
| | **IR27-5API403** | | **IL27-5API403** | | 5 | 15.875 | 27 | 2.99 | 1.9 | 2.7 | |

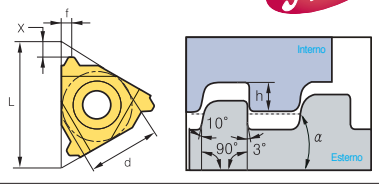
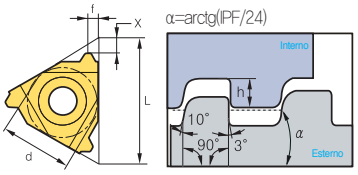



• Utensili applicabili, vedere pag. D24, D25

● : Disponibile ○ : A richiesta

## Filettatura BUT (API Buttress Casing)

(mm)

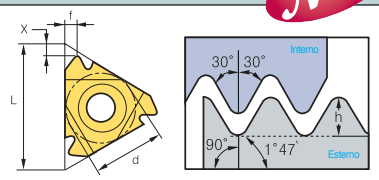
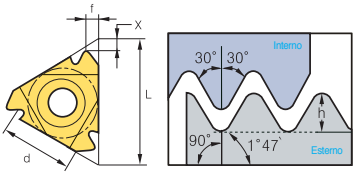
| Tipo | Articolo (destra) | PC3030T | Articolo (sinistra) | PC3030T | Passo (mm) | IPF | d | L | $h_{min}$ | x | f | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Esterno | **ER22-5BUT75** | ● | **EL22-5BUT75** | | 5 | 0.75 | 12.7 | 22 | 1.55 | 3.1 | 1.9 |  |
| | **ER22-5BUT1** | ● | **EL22-5BUT1** | | 5 | 1 | 12.7 | 22 | 1.55 | 3.1 | 1.9 | |
| Interno | **IR22-5BUT75** | ● | **IL22-5BUT75** | | 5 | 0.75 | 12.7 | 22 | 1.55 | 2.8 | 1.9 |  |
| | **IR22-5BUT1** | ● | **IL22-5BUT1** | | 5 | 1 | 12.7 | 22 | 1.55 | 2.8 | 1.9 | |

• Utensili applicabili, vedere pag. D24, D25

● : Disponibile ○ : A richiesta

## Filettatura APIRD (API Round Casing & Tubing)

(mm)

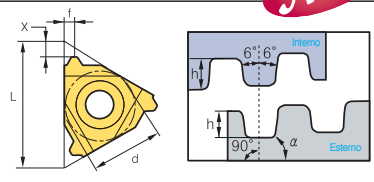
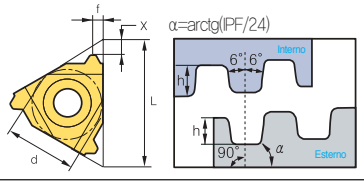
| Tipo | Articolo (destra) | PC3030T | Articolo (sinistra) | PC3030T | Passo (tpi) | d | L | $h_{min}$ | x | f | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Esterno | **ER16-10APIRD** | ● | **EL16-10APIRD** | | 10 | 9.525 | 16 | 1.41 | 1.2 | 1.4 |  |
| | **ER16-8APIRD** | ● | **EL16-8APIRD** | | 8 | 9.525 | 16 | 1.81 | 1.3 | 1.5 | |
| Interno | **IR16-10APIRD** | ● | **IL16-10APIRD** | | 10 | 9.525 | 16 | 1.41 | 1.2 | 1.4 |  |
| | **IR16-8APIRD** | ● | **IL16-8APIRD** | | 8 | 9.525 | 16 | 1.81 | 1.3 | 1.5 | |

• Utensili applicabili, vedere pag. D24, D25

● : Disponibile ○ : A richiesta

## Filettatura EL (Extreme Line Casing)

(mm)

| Tipo | Articolo (destra) | PC3030T | Articolo (sinistra) | PC3030T | Passo (mm) | IPF | d | L | $h_{min}$ | x | f | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Esterno | **ER22-6EL15** | | **EL22-6EL15** | | 6 | 1.5 | 12.7 | 22 | 1.21 | 1.9 | 1.9 |  |
| | **ER22-5EL125** | | **EL22-5EL125** | | 5 | 1.25 | 12.7 | 22 | 1.71 | 2.3 | 2.4 | |
| Interno | **IR22-6EL15** | | **IL22-6EL15** | | 6 | 1.5 | 12.7 | 22 | 1.39 | 1.8 | 1.9 |  |
| | **IR22-5EL125** | | **IL22-5EL125** | | 5 | 1.25 | 12.7 | 22 | 1.91 | 2.2 | 2.4 | |

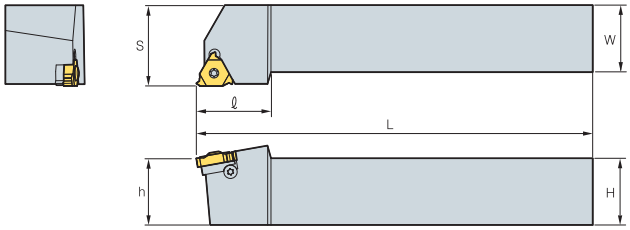
• Utensili applicabili, vedere pag. D24, D25

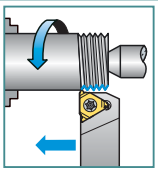
● : Disponibile ○ : A richiesta

# D Portainserti per esterno

## ER(L)H
(Sistema a vite)





In figura: utensile destro

(mm)

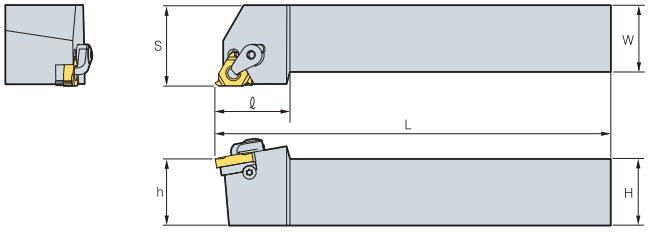
| Articolo | | Stock R | Stock L | Cerchio inscritto | H | W | L | S | h | ℓ | Vite inserto | Vite sede | Vite DX | Vite LX | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ER(L)H | 08N-11 | | | 6.35 | 8 | 8 | 136.4 | 11 | 8 | 17.5 | ST11N | - | - | - | TW08P |
| | 10N-11 | | | 6.35 | 10 | 10 | 70.0 | 11 | 10 | 17.5 | | | | | |
| | 12N-11 | ● | | 6.35 | 12 | 12 | 80.0 | 12 | 12 | 17.5 | | | | | |
| | 12N-16 | | | 9.525 | 12 | 12 | 83.2 | 16 | 12 | 22 | ST16N | - | - | - | TW10P |
| | 09-16 | | | 9.525 | 9.52 | 9.52 | 63.6 | 16 | 9.52 | 20.5 | ST16 | STA16 | ATE16 | ATI16 | TW10P |
| | 12-16 | ● | | 9.525 | 12 | 12 | 83.2 | 16 | 12 | 22 | | | | | |
| | 16-16 | ● | ● | 9.525 | 16 | 16 | 100.0 | 16 | 16 | 20.5 | | | | | |
| | 20-16 | ● | ● | 9.525 | 20 | 20 | 128.6 | 20 | 20 | 30 | | | | | |
| | 25-16 | ● | ● | 9.525 | 25 | 25 | 153.6 | 25 | 25 | 30 | | | | | |
| | 32-16 | ● | ● | 9.525 | 32 | 32 | 173.6 | 32 | 32 | 30 | | | | | |
| | 25-22 | ● | | 12.7 | 25 | 25 | 155.7 | 25 | 25 | 36 | ST22 | STA22 | ATE22 | ATI22 | TW20P |
| | 32-22 | ● | | 12.7 | 32 | 32 | 175.7 | 32 | 32 | 36 | | | | | |
| | 40-22 | ● | | 12.7 | 40 | 40 | 205.7 | 40 | 40 | 36 | | | | | |
| | 25-27 | ● | | 15.875 | 25 | 25 | 151.6 | 32 | 25 | 35 | ST27 | STA27 | ATE27 | ATI27 | TW25L |
| | 32-27 | ● | | 15.875 | 32 | 32 | 176.6 | 32 | 32 | 40 | | | | | |
| | 40-27 | ● | | 15.875 | 40 | 40 | 206.6 | 40 | 40 | 40 | | | | | |
| | 50-27 | | | 15.875 | 50 | 50 | 256.6 | 50 | 50 | 40 | | | | | |

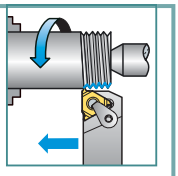
• Inserti applicabili, vedere pag. D10, D11, D13, D15, D17~D22 • L'angolazione dell'elica è 1,5° per tutti i portainserti • Non occorre la sede per i portainserti di tipo N

● : Disponibile ○ : A richiesta

## ER(L)H-C
(Sistema a staffa)





In figura: utensile destro

(mm)

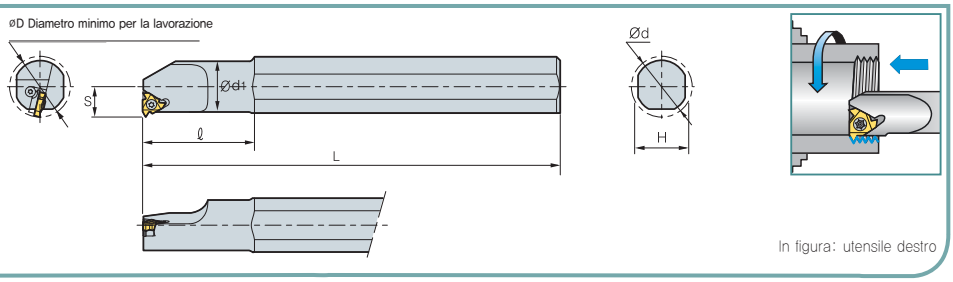
| Articolo | | Stock R | Stock L | Cerchio inscritto | H | W | L | S | h | ℓ | Vite sede | Staffa | Vite DX | Vite LX | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ER(L)H-C | 20-16C | ● | | 9.525 | 20 | 20 | 128.6 | 20 | 20 | 30 | STA16 | CTH16 | ATE16 | ATI16 | TW10P TW15P |
| | 25-16C | ● | ● | 9.525 | 25 | 25 | 153.6 | 25 | 25 | 30 | | | | | |
| | 32-16C | ● | | 9.525 | 32 | 32 | 173.6 | 32 | 32 | 30 | | | | | |
| | 25-22C | ● | | 12.7 | 25 | 25 | 155.7 | 25 | 25 | 36 | STA22 | CTH22 | ATE22 | ATI22 | TW20P |
| | 32-22C | ● | | 12.7 | 32 | 32 | 175.7 | 32 | 32 | 36 | | | | | |
| | 40-22C | ● | | 12.7 | 40 | 40 | 205.7 | 40 | 40 | 36 | | | | | |
| | 25-27C | ● | | 15.875 | 25 | 25 | 151.6 | 25 | 25 | 35 | STA27 | CTH27 | ATE27 | ATI27 | TW25L |
| | 32-27C | | | 15.875 | 32 | 32 | 176.6 | 32 | 32 | 40 | | | | | |
| | 40-27C | | | 15.875 | 40 | 40 | 206.6 | 40 | 40 | 40 | | | | | |
| | 50-27C | | | 15.875 | 50 | 50 | 256.6 | 50 | 50 | 40 | | | | | |

• Inserti applicabili, vedere pag. D10, D11, D13, D15, D17~D22 • L'angolazione dell'elica è 1,5 ° per tutti i portainserti

● : Disponibile ○ : A richiesta

# IR(L)H
(Sistema a vite)






In figura: utensile destro

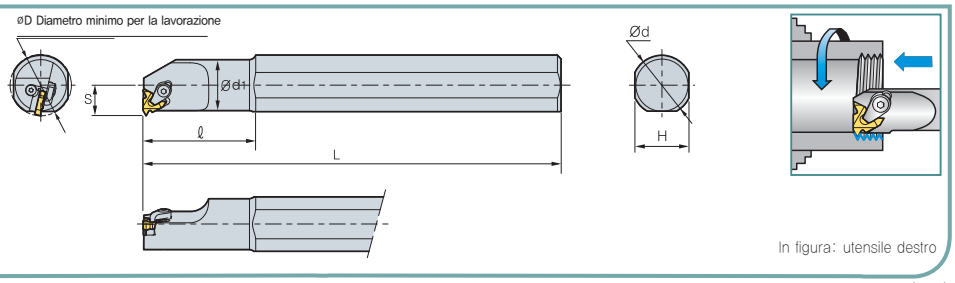
(mm)

| Articolo | | Stock R | Stock L | Cerchio inscritto | øD | Ød | Ød1 | H | L | S | ℓ | Vite inserto | Vite sede | Vite DX | Vite SX | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IR(L)H | 10DN-11 | ● | ● | 6.35 | 13 | 10 | 10.0 | 9.5 | 100 | 7.3 | - | ST11N | - | - | - | TW08P |
| | 10N-11 | ● | | 6.35 | 13 | 20 | 10.0 | 18.0 | 180 | 7.3 | 25 | | | | | |
| | 13N-11 | ● | | 6.35 | 16 | 20 | 13.0 | 18.0 | 180 | 8.9 | 32 | | | | | |
| | 13N-16 | ● | ● | 9.525 | 17 | 20 | 12.7 | 18.0 | 180 | 10.3 | 32 | ST16N | - | - | - | TW10P |
| | 16N-16 | ● | | 9.525 | 20 | 20 | 16.0 | 18.0 | 180 | 11.5 | 40 | | | | | |
| | 16DN-16 | ● | ● | 9.525 | 20 | 16 | 16.0 | 15.2 | 150 | 11.3 | 32 | | | | | |
| | 20-16 | ● | ● | 9.525 | 24 | 20 | 20.0 | 18.0 | 180 | 13.4 | 40 | ST16 | STA16 | ATI16 | ATE16 | TW10P |
| | 25-16 | ● | | 9.525 | 29 | 32 | 25.0 | 29.0 | 250 | 16.3 | 60 | | | | | |
| | 25D-16 | ● | | 9.525 | 29 | 25 | 24.5 | 22.6 | 200 | 16.1 | 45 | | | | | |
| | 32-16 | ● | | 9.525 | 36 | 32 | 32.0 | 29.0 | 250 | 19.6 | 60 | | | | | |
| | 40-16 | ● | | 9.525 | 44 | 40 | 40.0 | 36.0 | 300 | 23.8 | 60 | | | | | |
| | 20N-22 | ● | | 12.7 | 27 | 20 | 20.0 | 18.0 | 180 | 15.6 | 50 | ST22N | - | - | - | TW20P |
| | 25-22 | ● | | 12.7 | 32 | 32 | 25.0 | 29.0 | 250 | 17.4 | 60 | ST22 | STA22 | ATI22 | ATE22 | TW20P |
| | 25D-22 | ● | | 12.7 | 32 | 25 | 24.6 | 22.6 | 200 | 17.2 | 45 | | | | | |
| | 32-22 | ● | | 12.7 | 39 | 32 | 32.0 | 29.0 | 250 | 21.5 | 60 | | | | | |
| | 40-22 | ● | | 12.7 | 47 | 40 | 40.0 | 36.0 | 300 | 25.8 | 60 | | | | | |
| | 32-27 | | | 15.875 | 40 | 32 | 32.0 | 29.0 | 250 | 22.4 | 60 | ST27 | STA27 | ATI27 | ATE27 | TW25L |
| | 40-27 | ● | | 15.875 | 48 | 40 | 40.0 | 36.0 | 300 | 26.4 | 60 | | | | | |
| | 50-27 | ● | | 15.875 | 58 | 50 | 50.0 | 45.0 | 350 | 31.4 | 75 | | | | | |
| | 60-27 | ● | | 15.875 | 69 | 60 | 60.0 | 54.0 | 400 | 36.4 | 75 | | | | | |

• Inserti applicabili, vedere pag. D10, D12, D14, D16~D22
• L'angolazione dell'elica è 1,5 ° per tutti i portainserti
• Non occorre la sede per i portainserti di tipo N
● : Disponibile ○ : A richiesta

# IR(L)H-C
(Sistema a staffa)






In figura: utensile destro

(mm)

| Articolo | | Stock R | Stock L | Cerchio inscritto | øD | Ød | Ød1 | H | L | S | ℓ | Vite sede | Staffa | Vite DX | Vite SX | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IR(L)H | 20-16C | ● | | 9.525 | 24 | 20 | 20.0 | 18.0 | 180 | 13.4 | 50 | STA16 | CTH16 | ATI16 | ATE16 | TW10P TW15P |
| | 25-16C | ● | | 9.525 | 29 | 32 | 25.0 | 28.0 | 250 | 16.3 | 60 | | | | | |
| | 25D-16C | ● | | 9.525 | 29 | 25 | 24.6 | 22.6 | 200 | 16.1 | 45 | | | | | |
| | 32-16C | ● | | 9.525 | 36 | 32 | 32.0 | 29.0 | 250 | 19.6 | 60 | | | | | |
| | 40-16C | ● | | 9.525 | 44 | 40 | 40.0 | 36.0 | 300 | 23.8 | 60 | | | | | |
| | 25-22C | ● | | 12.7 | 32 | 32 | 25.0 | 29.0 | 250 | 17.4 | 60 | STA22 | CTH22 | ATI22 | ATE22 | TW20P |
| | 25D-22C | ● | | 12.7 | 32 | 25 | 24.6 | 22.6 | 200 | 17.2 | 45 | | | | | |
| | 32-22C | ● | | 12.7 | 39 | 32 | 32.0 | 29.0 | 250 | 21.5 | 60 | | | | | |
| | 40-22C | ● | | 12.7 | 47 | 40 | 40.0 | 36.0 | 300 | 25.8 | 60 | | | | | |
| | 32-27C | | | 15.875 | 40 | 32 | 32.0 | 29.0 | 250 | 22.4 | 60 | STA27 | CTH27 | ATI27 | ATE27 | TW25L |
| | 40-27C | | | 15.875 | 48 | 40 | 40.0 | 36.0 | 300 | 26.4 | 60 | | | | | |
| | 50-27C | | | 15.875 | 58 | 50 | 50.0 | 45.0 | 350 | 31.4 | 75 | | | | | |
| | 60-27C | | | 15.875 | 69 | 60 | 60.5 | 54.0 | 400 | 36.4 | 75 | | | | | |

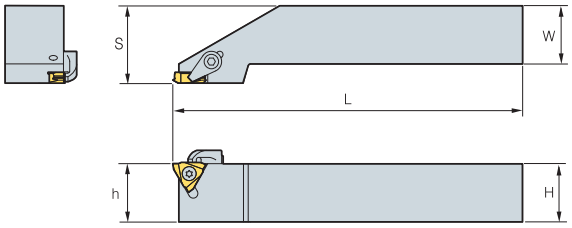
• Inserti applicabili, vedere pag. D10, D12, D14, D16~D22
• L'angolazione dell'elica è 1,5 ° per tutti i portainserti
● : Disponibile ○ : A richiesta

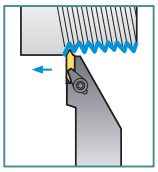
# D Portainserti tangenziale

## VTH



VETR



In figura: utensile destro

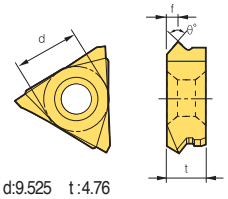
(mm)

| Articolo | | Stock | H=(h) | W | L | S | Inserti | Staffa | Vite di staffaggio | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VTH | 2020R | ● | 20 | 20 | 125 | 26.4 | VETR | CS6R1 | DHA0617 | FTKA03510 | TW15P, HW30L |
| | 2525R | ● | 25 | 25 | 150 | 33.4 | | | | | |
| | 3225R | | 32 | 25 | 170 | 33.4 | | | | | |

● : Disponibile ○ : A richiesta

## Inserto a filettare tangenziale

(mm)

| Inserto | Articolo | | Rivestito PC130 | Cermet CN20 | Non rivestito ST10 | Passo (mm) | θ | f | Inserto |
|---|---|---|---|---|---|---|---|---|---|
|  | VETR | 080 | | | | 0.8 | 60° | 1.4 |  d:9.525 t:4.76 |
| | | 100 | | | ● | 1.0 | 60° | 1.4 | |
| | | 125 | | | ● | 1.25 | 60° | 1.4 | |
| | | 150 | | | ● | 1.5 | 60° | 1.2 | |
| | | 175 | | | ● | 1.75 | 60° | 1.2 | |
| | | 200 | | | ● | 2.0 | 60° | 1.2 | |
| | | 250 | | | ● | 2.5 | 60° | 1.4 | |
| | | 300 | | | ● | 3.0 | 60° | 1.6 | |
| | | 150F | | ● | ● | 0.8-1.5 | 60° | 1.4 | |
| | | 300F | ● | ● | ● | 1.5-3.0 | 60° | 1.6 | |

● : Disponibile ○ : A richiesta

## Sistema di codifica dei portainserti per frese a filettare

| TM | S | R | L | 25 | – | 11 |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | | 6 |
| Forma dell'inserto | Portainserti | Tipo di esecuzione | Attacco | Dia. stelo | | Lunghezza del tagliente |

**1** TM S R L 25 - 11

**Forma dell'inserto**

TM : Fresatura a filettare (Thread Milling)

**2** TM S R L 25 - 11

**Portainserti**

S : Attacco

**3** TM S R L 25 - 11

**Tipo di esecuzione**

R : Destra
L : Sinistra

**4** TM S R L 25 - 11

**Attacco**

Neutro : Standard
L : Lungo
T : Conico

**5** TM S R L 25 - 11

**Dia. stelo**

25 : 25.0mm

**6** TM S R L 25 - 11

**Lunghezza del tagliente**

10 : 10.4mm
11 : 11mm
16 : 16mm
22 : 22mm
27 : 27mm
38 : 38.5mm

## Sistema di codifica degli inserti per frese a filettare

| TM | 2 | I | 16 | – | 1.5 | ISO |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | | 5 | 6 |
| Forma dell'inserto | Tagliente | Tipo di inserto | Lunghezza del tagliente | | Passo | Standard |

**1** TM 2 I 16 - 1.5 ISO

**Forma dell'inserto**

TM : Fresatura a filettare (Thread Milling)

**2** TM 2 I 16 - 1.5 ISO

**Tagliente**

Nessun dato : 1 tagliente
2 : 2 taglienti

**3** TM 2 I 16 - 1.5 ISO

**Tipo di inserto**

I : Interno
E : Esterno
EI : Esterno e interno

**4** TM 2 I 16 - 1.5 ISO

**Lunghezza del tagliente**

10 : 10.4mm
11 : 11mm
16 : 16mm
22 : 22mm
27 : 27mm
38 : 38.5mm

**5** TM 2 I 16 - 1.5 ISO

**Passo**

mm : 0.5 - 6.0
tpi : 48 - 6

**6** TM 2 I 16 - 1.5 ISO

**Standard**

Filettatura ISO

Filettatura UN(UNC, UNF, UNEF)

Filettatura UNJ

Filettatura Whit Worth (BSW, BSF, BSP, BSB)

Filettatura NPT(National Pipe Thread)

Filettatura NPTF(National Pipe Thread)

Filettatura BSPT(British Standard Pipe Thread)

# D Informazioni tecniche per frese integrali in metallo duro a filettare

## Scegliere l'utensile appropriato alla lavorazione

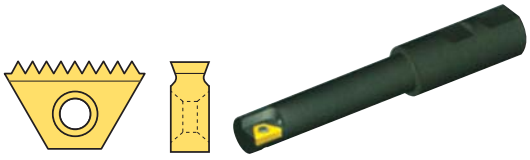
Portainserti : TMSR Inserto : TM L=10.4mm
Per piccoli diametri di alesatura fino a 9,5 mm



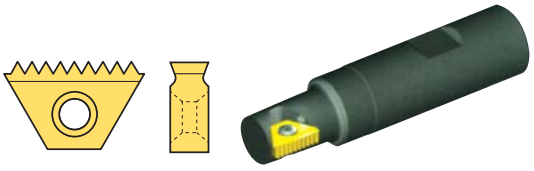
Portainserti : TMSR Inserto : TM2
Per filetti di lunghezza standard



Portainserti : TMSR Inserto : TM2
Per filetti lunghi o distanziati

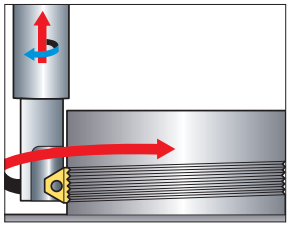


Portainserti : TMSR Inserto : TM2(BSPT, NPT, NPTF)
Per filetti di lunghezza standard

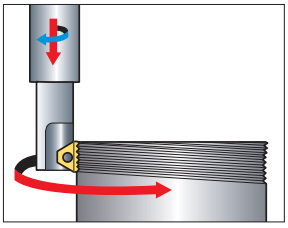


## Metodi di fresatura a filettare

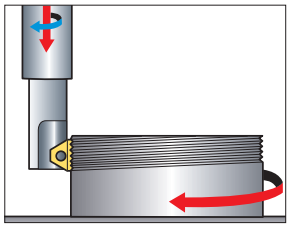
### Filettatura esterna



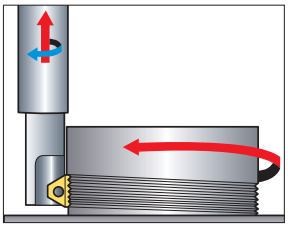
Filetto destro -
Fresatura convenzionale



Filetto sinistro -
Fresatura convenzionale

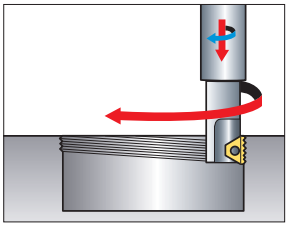


Filetto destro -
Fresatura convenzionale

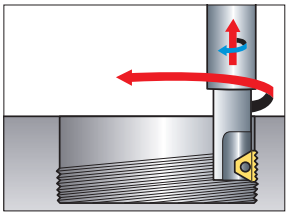


Filetto sinistro -
Fresatura convenzionale

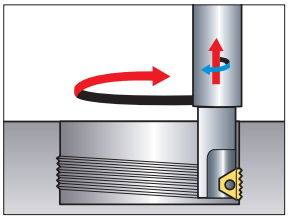
### Filettatura interna



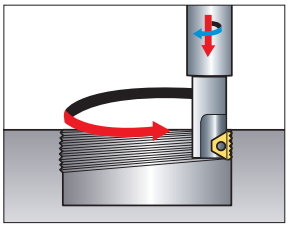
Filetto destro -
Fresatura convenzionale



Filetto sinistro -
Fresatura convenzionale



Filetto destro -
Fresatura convenzionale



Filetto sinistro -
Fresatura convenzionale

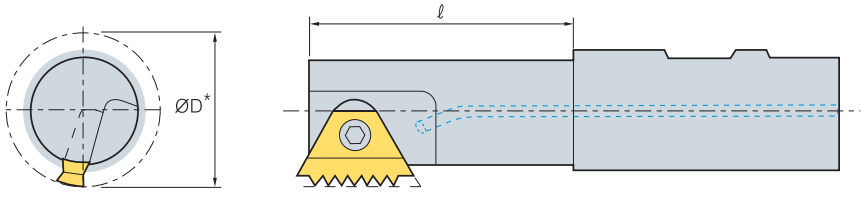
## Raccomandazioni* per alcune specifiche di filettatura INTERNA

### ISO

| Passo | Diam. nominale | Portainserti | Inserto | ℓ-Profondità | D-diametro | Prof. filetto min. |
|---|---|---|---|---|---|---|
| mm | mm | | | portainserti | utensile* | Prof. profilo |
| 0.75 | 11 | TMSR 12-10 | TM2I 10-0.75ISO | 12.0 | 9.0 | 0.43 |
| 1.0 | 12-14 | TMSR 12-10 | TM2I 10-1.0ISO | 12.0 | 9.0 | 0.58 |
| | 15-18 | TMSR 12-11 | TM2I 11-1.0ISO | 12.0 | 11.5 | |
| | 20 | TMSR 16-16 | TM2I 16-1.0ISO | 22.0 | 17.0 | |
| | 22 | TMSR 20-22 | TM2I 22-1.0ISO | 29.0 | 19.0 | |
| | 24 | TMSR 20-16 | TM2I 16-1.0ISO | 43.0 | 20.0 | |
| | 25-28 | TMSRL 25-16 | TM2I 16-1.0ISO | 25.0 | 22.0 | |
| 1.25 | 14 | TMSR 12-10 | TM2I 10-1.25ISO | 12.0 | 9.0 | 0.72 |
| 1.5 | 14-15 | TMSR 12-10 | TM2I 10-1.5ISO | 12.0 | 9.0 | 0.87 |
| | 16-20 | TMSR 12-11 | TM2I 11-1.5ISO | 12.0 | 11.5 | |
| | 22 | TMSR 16-16 | TM2I 16-1.5ISO | 22.0 | 17.0 | |
| | 24 | TMSR 20-22 | TM2I 22-1.5ISO | 29.0 | 19.0 | |
| | 25-26 | TMSR 20-16 | TM2I 16-1.5ISO | 43.0 | 20.0 | |
| | 27-30 | TMSRL 25-16 | TM2I 16-1.5ISO | 25.0 | 22.0 | |
| | 35-42 | TMSR 25-27 | TM2I 27-1.5ISO | 52.0 | 30.0 | |
| | 45 | TMSR 32-27 | TM2I 27-1.5ISO | 58.0 | 37.0 | |
| 2.0 | 22 | TMSRT 16-16 | TM2I16-2.0ISO | 22.0 | 15.5 | 1.15 |
| | 24 | TMSR 16-16 | TM2I 16-2.0ISO | 22.0 | 17.0 | |
| | 25 | TMSR 20-22 | TM2I 22-2.0ISO | 29.0 | 19.0 | |
| | 27 | TMSR 20-16 | TM2I 16-2.0ISO | 43.0 | 20.0 | |
| | 28-32 | TMSRL 25-16 | TM2I 16-2.0ISO | 25.0 | 22.0 | |
| | 39-42 | TMSR 25-27 | TM2I 27-2.0ISO | 52.0 | 30.0 | |
| | 45-48 | TMSR 32-27 | TM2I 27-2.0ISO | 58.0 | 37.0 | |
| 3.0 | 42-48 | TMSR 25-27 | TM2I 27-3.0ISO | 52.0 | 30.0 | 1.73 |
| | 50-52 | TMSR 32-27 | TM2I 27-3.0ISO | 58.0 | 37.0 | |
| 4.0 | 45-52 | TMSR 25-27 | TM2I 27-4.0ISO | 52.0 | 30.0 | 2.31 |
| | 55 | TMSR 32-38 | TM2I 38-4.0ISO | 55.0 | 35.0 | |
| | 56-58 | TMSR 32-27 | TM2I 27-4.0ISO | 58.0 | 37.0 | |
| | 60-65 | TMSR 40-38 | TM2I 38-4.0ISO | 65.0 | 46.0 | |
| 5.0 | 48-52 | TMSR 32-38 | TM2I 38-5.0ISO | 55.0 | 35.0 | 2.89 |
| 5.5 | 56 | TMSR 32-38 | TM2I 38-5.5ISO | 55.0 | 35.0 | 3.17 |
| | 60 | TMSR 40-38 | TM2I 38-5.5ISO | 65.0 | 46.0 | |
| 6.0 | 64-68 | TMSR 40-38 | TM2I 38-6.0ISO | 65.0 | 46.0 | 3.46 |

- L'utensile raccomandato è il più grande per le specifiche di filettatura indicate

* Si possono anche usare utensili di diametro uguale o inferiore ($D_2$)

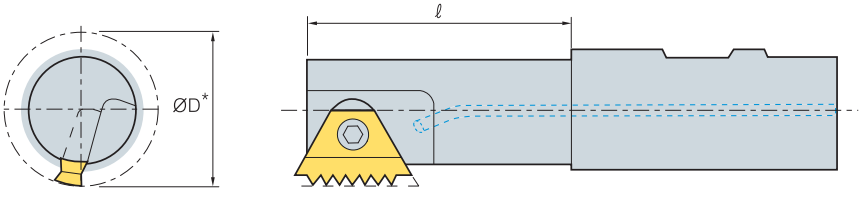


## Filettatura UN

| Passo | Diametro nominale | Portainserti | Inserto | ℓ- Profondità | D-Diametro | Prof. filetto min. |
|---|---|---|---|---|---|---|
| tpi | Pollici | | | portainserti | utensile* | Prof. profilo |
| 32 | 7/16-1/2 | TMSR 12-10 | TMI 10-32UN | 12.0 | 9.0 | 0.46 |
| | 9/16-11/16 | TMSR 12-11 | TM2I 11-32UN | 12.0 | 11.5 | |
| | 3/4-13/16 | TMSR 16-16 | TM2I 16-32UN | 22.0 | 17.0 | |
| | 7/8-15/16 | TMSR 20-16 | TM2I 16-32UN | 43.0 | 20.0 | |
| | 1 | TMSR 25-16 | TM2I 16-32UN | 25.0 | 22.0 | |
| 28 | 7/16-1/2 | TMSR 12-10 | TMI 10-28UN | 12.0 | 9.0 | 0.52 |
| | 9/16-3/4 | TMSR 12-11 | TM2I 11-28UN | 12.0 | 115 | |
| | 13/16-7/8 | TMSR 16-16 | TM2I 16-28UN | 22.0 | 17.0 | |
| | 15/16 | TMSR 20-16 | TM2I 16-28UN | 43.0 | 20.0 | |
| | 1-1 1/8 | TMSRL 25-16 | TM2I 16-28UN | 25.0 | 22.0 | |
| 24 | 9/16-11/16 | TMSR 12-11 | TM2I 11-24UN | 12.0 | 11.5 | 0.61 |
| 20 | 1/2-9/16 | TMSR 12-10 | TMI 10-20UN | 12.0 | 9.0 | 0.73 |
| | 5/8-13/16 | TMSR 12-11 | TM2I 11-20UN | 12.0 | 11.5 | |
| | 7/8 | TMSR 16-16 | TM2I 16-20UN | 22.0 | 17.0 | |
| | 15/16-1 | TMSR 20-16 | TM2I 16-20UN | 43.0 | 20.0 | |
| | 1 1/16-1 1/8 | TMSRL 25-16 | TM2I 16-20UN | 25.0 | 22.0 | |
| | 1 3/8-1 5/8 | TMSR 25-27 | TM2I 27-20UN | 52.0 | 30.0 | |
| | 1 11/16-1 13/16 | TMSR 32-27 | TM2I 27-20UN | 28.0 | 37.0 | |
| 18 | 5/8 | TMSR 12-11 | TM2I 11-18UN | 12.0 | 11.5 | 0.81 |
| | 1 1/16-1 3/16 | TMSRL 25-16 | TM2I 16-18UN | 25.0 | 22.0 | |
| | 1 7/16-1 5/8 | TMSR 25-27 | TM2I 27-18UN | 52.0 | 30.0 | |
| | 1 11/16 | TMSR 32-27 | TM2I 27-18UN | 58.0 | 37.0 | |
| 16 | 11/16-13/16 | TMSR 12-11 | TM2I 11-16UN | 12.0 | 11.5 | 0.92 |
| | 7/8-15/16 | TMSR 16-16 | TM2I 16-16UN | 22.0 | 17.0 | |
| | 1 | TMSR 20-16 | TM2I 16-16UN | 43.0 | 20.0 | |
| | 1 1/16-1 3/16 | TMSRL 25-16 | TM2I 16-16UN | 25.0 | 22.0 | |
| | 1 7/16-1 5/8 | TMSR 25-27 | TM2I 27-16UN | 52.0 | 30.0 | |
| | 1 11/16-1 7/8 | TMSR 32-27 | TM2I 27-16UN | 58.0 | 37.0 | |
| 14 | 7/8 | TMSR 12-11 | TM2I 11-14UN | 12.0 | 11.5 | 1.05 |
| 12 | 7/8 | TMSRT 16-16 | TM2I 16-12UN | 22.0 | 15.5 | 1.22 |
| | 15/16 | TMSR 16-16 | TM2I 16-12UN | 22.0 | 17.0 | |
| | 1 | TMSR 20-22 | TM2I 22-12UN | 29.0 | 19.0 | |
| | 1 1/16 | TMSR 20-16 | TM2I 16-12UN | 43.0 | 20.0 | |
| | 1 1/8-1 1/4 | TMSRL 25-16 | TM2I 16-12UN | 25.0 | 22.0 | |
| | 1 1/2-1 11/16 | TMSR 25-27 | TM2I 27-12UN | 52.0 | 30.0 | |
| | 1 3/4-1 15/16 | TMSR 32-27 | TM2I 27-12UN | 58.0 | 37.0 | |
| 8 | 1 11/16-1 15/16 | TMSR 25-27 | TM2I 27-8UN | 52.0 | 30.0 | 1.83 |
| | 2-1 1/8 | TMSR 32-27 | TM2I 27-8UN | 58.0 | 37.0 | |
| 6 | 2-2 1/8 | TMSR 25-27 | TM2I 27-6UN | 52.0 | 30.0 | 2.44 |
| | 2 1/4 | TMSR 32-27 | TM2I 27-6UN | 58.0 | 37.0 | |
| | 2 3/8-2 1/2 | TMSR 40-38 | TM2I 38-6UN | 65.0 | 46.0 | |
| 4.5 | 2-2 1/4 | TMSR 32-38 | TM2I 38-4.5UN | 55.0 | 35.0 | 3.26 |
| 4 | 2 1/2 | TMSR 40-38 | TM2I 38-4UN | 65.0 | 46.0 | 3.67 |

• L'utensile raccomandato è il più grande per le specifiche di filettatura indicate

* Si possono anche usare utensili di diametro uguale o inferiore ($D_2$)



## Filetatura UNJ

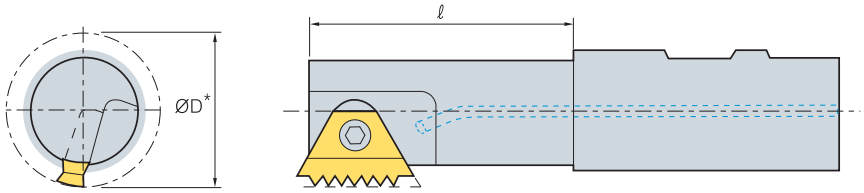
| Passo | Diametro nom. | Portainserti | Inserto | ℓ-Profondità | D-Diametro | Prof. filetto min. |
|---|---|---|---|---|---|---|
| tpi | Pollici | | | portainserti | utensile* | Prof. profilo |
| 24 | 9/16-11/16 | TMSR 12-11 | TM2I 11-24UNJ | 12.0 | 11.5 | 0.55 |
| 20 | 1/2 | TMSR 12-10 | TMI 10-20UNJ | 12.0 | 9.0 | 0.66 |
| | 3/4-13/16 | TMSR 12-11 | TM2I 11-20UNJ | 12.0 | 11.5 | |
| | 7/8 | TMSR 16-16 | TM2I 16-20UNJ | 22.0 | 17.0 | |
| | 15/16-1 | TMSR 20-16 | TM2I 16-20UNJ | 43.0 | 20.0 | |
| 18 | 5/8 | TMSR 12-11 | TM2I 11-18UNJ | 12.0 | 11.5 | 0.74 |
| | 1 1/16-1 3/16 | TMSRL 25-16 | TM2I 16-18UNJ | 25.0 | 22.0 | |
| 16 | 11/16-13/16 | TMSR 12-11 | TM2I 11-16UNJ | 12.0 | 11.5 | 0.83 |
| | 7/8-15/16 | TMSR 16-16 | TM2I 16-16UNJ | 22.0 | 17.0 | |
| | 1 | TMSR 20-16 | TM2I 16-16UNJ | 43.0 | 20.0 | |
| | 1 1/16-1 3/16 | TMSRL 25-16 | TM2I 16-16UNJ | 25.0 | 22.0 | |
| | 1 7/16-1 5/8 | TMSR 25-27 | TM2I 27-16UNJ | 52.0 | 30.0 | |
| | 1 11/16-1 7/8 | TMSR 32-27 | TM2I 27-16UNJ | 58.0 | 37.0 | |
| 14 | 7/8 | TMSR 12-11 | TM2I 11-14UNJ | 12.0 | 11.5 | 0.95 |
| 12 | 7/8 | TMSRT 16-16 | TM2I 16-12UNJ | 22.0 | 15.5 | 1.11 |
| | 15/16-1 | TMSR 16-16 | TM2I 16-12UNJ | 22.0 | 17.0 | |
| | 1 1/16 | TMSR 20-16 | TM2I 16-12UNJ | 43.0 | 20.0 | |
| | 1 1/8-1 1/4 | TMSRL 25-16 | TM2I 16-12UNJ | 25.0 | 22.0 | |
| | 1 1/2-1 11/16 | TMSR 25-27 | TM2I 27-12UNJ | 52.0 | 30.0 | |
| | 1 3/4-1 15/16 | TMSR 32-27 | TM2I 27-12UNJ | 58.0 | 37.0 | |

## Filettatura W

| Passo | Diametro nom. | Portainserti | Inserto | ℓ-Profondità | D-Diametro | Prof. filetto min. |
|---|---|---|---|---|---|---|
| tpi | inch | | | portainserti | utensile* | Prof. profilo |
| 26 | 1/2-9/16 | TMSR 12-10 | TMEI 10-26W | 12.0 | 9.0 | 0.63 |
| | 5/8-3/4 | TMSR 12-11 | TM2EI 11-26 W | 12.0 | 11.5 | |
| | 13/16-7/8 | TMSR 16-16 | TM2EI 16-26W | 22.0 | 17.0 | |
| | 15/16-1 | TMSR 20-16 | TM2EI 16-26W | 43.0 | 20.0 | |
| | 1 1/16-1 1/8 | TMSRL 25-16 | TM2EI 16-26W | 25.0 | 22.0 | |
| 20 | 9/16 | TMSR 12-10 | TM2EI 10-20W | 12.0 | 9.0 | 0.81 |
| | 5/8-13/16 | TMSR 12-11 | TM2EI 11-20W | 12.0 | 11.5 | |
| | 7/8-15/16 | TMSR 16-16 | TM2EI 16-20W | 22.0 | 17.0 | |
| | 1 | TMSR 20-16 | TM2EI 16-20W | 43.0 | 20.0 | |
| | 1 1/16-1 3/16 | TMSRL 25-16 | TM2EI 16-20W | 25.0 | 22.0 | |
| 16 | 13/16 | TMSR 16-16 | TM2EI 16-16W | 22.0 | 15.5 | 1.02 |
| | 7/8-15/16 | TMSR 16-16 | TM2EI 16-16W | 22.0 | 17.0 | |
| | 1-1 1/16 | TMSR 20-16 | TM2EI 16-16W | 43.0 | 20.0 | |
| | 1 1/8-1 1/4 | TMSRL 25-16 | TM2EI 16-16W | 25.0 | 22.0 | |
| | 1.4-1 5/8 | TMSR 25-27 | TM2EI 27-16W | 52.0 | 30.0 | |
| | 1 3/4-1.9 | TMSR 32-27 | TM2EI 27-16W | 28.0 | 37.0 | |
| 12 | 1 1/2-1 3/4 | TMSR 25-27 | TM2EI 27-12W | 52.0 | 30.0 | 1.36 |
| | 1 7/8 | TMSR 32-27 | TM2EI 27-12W | 58.0 | 37.0 | |
| 8 | 1 7/8-1.9 | TMSR 25-27 | TM2EI 27-8W | 52.0 | 30.0 | 2.03 |
| | 2.1-2 1/8 | TMSR 32-27 | TM2EI 27-8W | 58.0 | 37.0 | |
| 7 | 2 | TMSR 25-27 | TM2EI 27-7W | 52.0 | 30.0 | 2.32 |
| 6 | 2.1-2 1/8 | TMSR 25-27 | TM2EI 27-6W | 52.0 | 30.0 | 2.71 |
| | 2 1/4 | TMSR 32-38 | TM2EI 38-6W | 55.0 | 35.0 | |
| | 2 3/8-2.6 | TMSR 32-27 | TM2EI 27-6W | 58.0 | 37.0 | |
| | 2 5/8-2 3/4 | TMSR 40-38 | TM2EI 38-6W | 65.0 | 46.0 | |
| 5 | 3 | TMSR 40-38 | TM2EI 38-5W | 65.0 | 46.0 | 3.25 |
| 4.5 | 3 1/2 | TMSR 40-38 | TM2EI 38-4.5W | 65.0 | 46.0 | 3.61 |

• L'utensile raccomandato è il più grande per le specifiche di filettatura indicate.

* Si possono anche usare utensili di diametro uguale o inferiore ($D_2$)



## Filettatura BSPT

| Passo | Diametro nominale | Portainserti | Inserto | ℓ- Profondità | D-Diametro | Prof. filetto min. |
|---|---|---|---|---|---|---|
| tpi | Pollici | | | portainserti | utensile* | Prof. profilo |
| 19 | 3/8 | TMSR 21-11 | TM2EI 11-19 BSPT | 20.0 | 11.5 | 0.86 |
| 14 | 1/2-3/4 | TMSRT 16-11 | TM2EI 16-14 BSPT | 22.0 | 15.5 | 1.16 |
| 11 | 1-1 1/4 | TMSRT 20-16 | TM2EI 16-11 BSPT | 23.0 | 19.0 | 1.48 |
| | 1 1/2 | TMSR 25-27 | TM2EI 27-11 BSPT | 52.0 | 30.0 | |
| | 2-6 | TMSRT 32-27 | TM2EI 27-11 BSPT | 58.0 | 37.0 | |

• L'utensile raccomandato è il più grande per le specifiche di filettatura indicate

* Si possono anche usare utensili di diametro uguale o inferiore ($D_2$)

## Filettatura NPT

| Passo | Diametro nominale | Portainserti | Inserto | ℓ- Profondità | D-Diametro | Prof. filetto min. |
|---|---|---|---|---|---|---|
| tpi | Pollici | | | portainserti | utensile* | Prof. profilo |
| 14 | 1/2 | TMSRT 16-16 | TM2EI 16-14 NPT | 22.0 | 15.5 | 1.33 |
| | 3/4 | TMSRT 20-16 | TM2EI 16-14 NPT | 23.0 | 19.0 | |
| 11.5 | 1 | TMSRT 20-16 | TM2EI 16-11.5 NPT | 23.0 | 19.0 | 1.64 |
| | 1 1/4 | TMSR 25-27 | TM2EI 27-11.5 NPT | 52.0 | 30.0 | |
| | 1 1/2-2 | TMSRT 32-27 | TM2EI 27-11.5 NPT | 58.0 | 37.0 | |
| 8 | 2 1/2 | TMSRT 32-27 | TM2EI 27-8 NPT | 58.0 | 37.0 | 2.42 |
| | 3-24 | TMSR 40-38 | TM2EI 38-8 NPT | 65.0 | 46.0 | |

• L'utensile raccomandato è il più grande per le specifiche di filettatura indicate

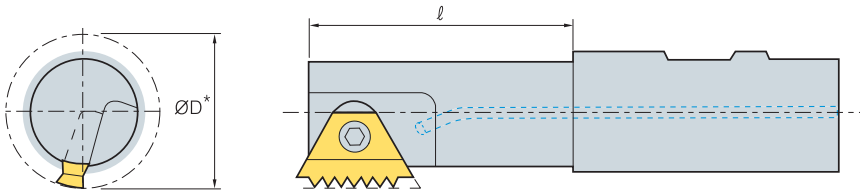
* Si possono anche usare utensili di diametro uguale o inferiore ($D_2$)

## Filettatura NPTF

| Passo | Diametro nominale | Portainserti | Inserto | ℓ- Profondità | D-Diametro | Prof. filetto min. |
|---|---|---|---|---|---|---|
| tpi | Pollici | | | portainserti | utensile* | Prof. profilo |
| 14 | 1/2 | TMSRT 16-16 | TM2EI 16-14 NPTF | 22.0 | 15.5 | 1.35 |
| | 3/4 | TMSRT 20-16 | TM2EI 16-14 NPTF | 23.0 | 19.0 | |
| 11.5 | 1 | TMSRT 20-16 | TM2EI 16-11.5 NPTF | 23.0 | 19.0 | 1.63 |
| | 1 1/2 | TMSR 25-27 | TM2EI 27-11.5 NPTF | 52.0 | 30.0 | |
| | 2 | TMSRT 32-27 | TM2EI 27-11.5 NPTF | 58.0 | 37.0 | |
| 8 | 2 1/2 | TMSRT 32-27 | TM2EI 27-8 NPTF | 58.0 | 37.0 | 2.38 |
| | 3 | TMSR 40-38 | TM2EI 38-8 NPTF | 65.0 | 46.0 | |

• L'utensile raccomandato è il più grande per le specifiche di filettatura indicate

* Si possono anche usare utensili di diametro uguale o inferiore ($D_2$)



## Diametri minimi di alesatura per la fresatura a filettare

| Passo | | 0.5 | 0.6 | 0.7 | 0.75<br>0.80 | 0.9 | 1.0 | 1.25 | 1.5 | 1.75 | 2.0 | - | 2.5 | 3.0 | 3.5 | 4.0 | 4.5 | 5.0 | 5.5 | - | 6.0 | - |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | tpi | 48 | 44 | 36 | 32 | 28 | 26<br>24 | 20<br>19 | 18<br>16 | 14 | 13<br>12 | 11.5<br>11 | 10 | 9<br>8 | 7 | 6 | - | 5 | - | 4.5 | - | 4 |
| Portainserti | Diametro | Diametro minimo di lavorazione | | | | | | | | | | | | | | | | | | | | |
| TMSR 12-10 | 9.0 | 9.5 | 9.7 | 9.9 | 10.0 | 10.4 | 10.7 | 11.4 | 12.0 | | | | | | | | | | | | | |
| TMSR 20-10 | 9.0 | 9.5 | 9.7 | 9.9 | 10.0 | 10.4 | 10.7 | 11.4 | 12.0 | | | | | | | | | | | | | |
| TMSR 12-11 | 11.5 | 12.0 | 12.2 | 12.4 | 12.5 | 12.9 | 13.2 | 13.9 | 14.5 | 15.1 | | | | | | | | | | | | |
| TMSR 20-11 | 11.5 | 12.0 | 12.2 | 12.4 | 12.5 | 12.9 | 13.2 | 13.9 | 14.5 | 15.1 | | | | | | | | | | | | |
| TMSRL 25-11 | 11.5 | 12.0 | 12.2 | 12.4 | 12.5 | 12.9 | 13.2 | 13.9 | 14.5 | 15.1 | | | | | | | | | | | | |
| TMSRT 16-16 | 15.5 | 16.0 | 16.2 | 16.4 | 16.5 | 16.9 | 17.2 | 17.9 | 18.5 | 19.0 | 19.5 | 20.0 | | | | | | | | | | |
| TMSR 16-16 | 17.0 | 17.6 | 17.8 | 18.0 | 18.2 | 18.7 | 19.0 | 19.6 | 20.0 | 20.5 | 21.0 | 21.5 | | | | | | | | | | |
| TMSR 16-22 | 17.0 | 17.6 | 17.8 | 18.0 | 18.2 | 18.7 | 19.0 | 19.6 | 20.0 | 20.5 | 21.0 | 21.5 | | | | | | | | | | |
| TMSR 20-22 | 19.0 | 19.7 | 20.0 | 20.2 | 20.4 | 20.8 | 21.0 | 21.6 | 22.0 | 22.5 | 23.0 | 23.5 | | | | | | | | | | |
| TMSRT 20-16 | 19.0 | 19.7 | 20.0 | 20.2 | 20.4 | 20.8 | 21.0 | 21.6 | 22.0 | 22.5 | 23.0 | 23.5 | | | | | | | | | | |
| TMSR 20-16 | 20.0 | 20.7 | 21.0 | 21.2 | 21.4 | 21.8 | 22.0 | 22.6 | 23.0 | 23.5 | 24.0 | 24.5 | | | | | | | | | | |
| TMSRW 25-22 | 22.0 | 22.7 | 23.0 | 23.2 | 23.4 | 23.8 | 24.0 | 24.6 | 25.0 | 25.5 | 26.0 | 26.5 | | | | | | | | | | |
| TMSRL 25-22 | 22.0 | 22.7 | 23.0 | 23.2 | 23.4 | 23.8 | 24.0 | 24.6 | 25.0 | 25.5 | 26.0 | 26.5 | | | | | | | | | | |
| TMSRL 25-16 | 22.0 | 22.7 | 23.0 | 23.2 | 23.4 | 23.8 | 24.0 | 24.6 | 25.0 | 25.5 | 26.0 | 26.5 | | | | | | | | | | |
| TMSR 25-27 | 30.0 | 30.7 | 31.0 | 31.2 | 31.4 | 31.8 | 32.0 | 32.8 | 33.5 | 34.1 | 34.6 | 35.6 | 36.6 | 39.0 | 42.0 | 45.0 | 48.0 | | | | | |
| TMSRL 25-27 | 30.0 | 30.7 | 31.0 | 31.2 | 31.4 | 31.8 | 32.0 | 32.8 | 33.5 | 34.1 | 34.6 | 35.6 | 36.6 | 39.0 | 42.0 | 45.0 | 48.0 | | | | | |
| TMSR 32-38 | 35.0 | | | | | | | | 38.5 | 39.1 | 39.6 | 40.6 | 42.0 | 44.0 | 47.0 | 50.0 | 53.4 | 42.5 | 50.0 | 44.6 | 57.5 | 56.6 |
| TMSR 32-27 | 37.0 | 38.0 | 38.2 | 38.4 | 38.6 | 39.1 | 39.5 | 40.4 | 41.0 | 41.5 | 42.0 | 43.0 | 44.0 | 46.5 | 49.0 | 52.0 | 55.5 | | | | | |
| TMSRL 32-27 | 37.0 | 38.0 | 38.2 | 38.4 | 38.6 | 39.1 | 39.5 | 40.4 | 41.0 | 41.5 | 42.0 | 43.0 | 44.0 | 46.5 | 49.0 | 52.0 | 55.5 | | | | | |
| TMSRT 32-27 | 37.0 | 38.0 | 38.2 | 38.4 | 38.6 | 39.1 | 39.5 | 40.0 | 41.0 | 41.5 | 42.0 | 43.0 | 44.0 | 46.5 | 49.0 | 52.0 | 55.5 | | | | | |
| TMSR 40-38 | 46.0 | | | | | | | | 49.5 | 50.1 | 50.6 | 51.6 | 53.0 | 55.0 | 55.2 | 55.6 | 55.0 | 52.5 | 54.0 | 54.5 | 57.5 | 56.6 |
| TMSRL 40-38 | 46.0 | | | | | | | | 49.5 | 50.1 | 50.6 | 51.6 | 53.0 | 55.0 | 55.2 | 55.6 | 55.0 | 52.5 | 54.0 | 54.5 | 57.5 | 56.6 |

## Informazioni sulla fresatura a filettare

Per eseguire un'operazione di fresatura a filettare, occorre una macchina con controllo a tre assi in grado di svolgere l'interpolazione elicoidale. L'interpolazione elicoidale è una funzione CNC in grado di generare un movimento dell'utensile lungo un percorso elicoidale. Questo moto elicoidale associa un movimento circolare su un piano a un moto lineare su un altro piano, simultaneamente e perpendicolarmente al primo. Ad esempio, il percorso dal punto A al punto B (Fig. A) sull'esterno del cilindro associa un movimento circolare sul piano XY a un movimento lineare in direzione Z.
Nella maggior parte dei sistemi CNC questa funzione può essere eseguita in due modi:

GO2 : Interpolazione elicoidale in senso orario
GO3 : Interpolazione elicoidale in senso antiorario

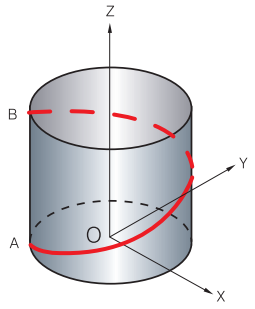


Fig.A

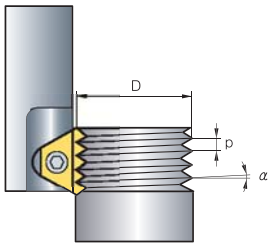


Fig.B

L'operazione di fresatura a filettare (Fig. B) consiste in una rotazione circolare dell'utensile attorno al proprio asse e in un moto orbitante lungo la circonferenza del pezzo lavorato. Durante questa orbita, l'utensile si posta verticalmente di un passo. Questi movimenti associati alla geometria dell'inserto creano la forma del filetto desiderata. È possibile utilizzare l'utensile in tre modi diversi per lavorare il pezzo e per produrre la filettatura:

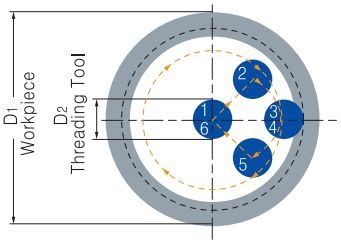
1. Arco tangenziale
2. Radiale
3. Linea tangenziale

# D Informazioni tecniche per frese integrali in metallo duro a filettare

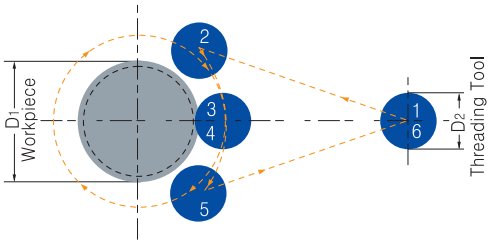
## Arco tangenziale

Con questo metodo l'utensile entra ed esce regolarmente dal pezzo lavorato. Non lascia segni sul pezzo lavorato e non si producono vibrazioni, anche con i materiali più duri. Sebbene richieda una programmazione leggermente più complessa rispetto al metodo radiale (vedere di seguito), questo metodo è raccomandato per la produzioni di filetti di ottima qualità.

• **Filettatura interna**




• **Filettatura esterna**



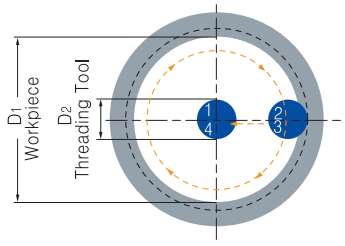

**1-2 :** metodo veloce
**2-3 :** l'utensile entra lungo l'arco tangenziale, con avanzamento simultaneo lungo l'asse Z
**3-4 :** movimento elicoidale durante un'orbita completa (360° )
**4-5 :** l'utensile esce lungo l'arco tangenziale, con avanzamento continuo lungo l'asse Z
**5-6 :** ritorno veloce

## Radiale

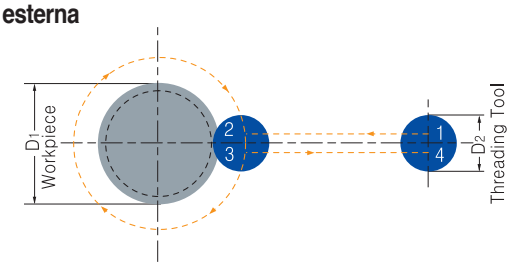
Si tratta del metodo più semplice. Occorre segnalare due difetti di poco conto prodotti dal metodo radiale:
A. È possibile che un piccolo segno verticale venga lasciato sul punto di entrata (e uscita).
B. Quando si utilizza questo metodo con materiali molto duri, l'utensile tende a vibrare avvicinandosi al fondo della profondità di taglio.

Nota: L'avanzamento radiale durante l'entrata verso il fondo della profondità del profilo deve essere solo 1/3 del successivo avanzamento circolare!

• **Filettatura interna**




• **Filettatura esterna**

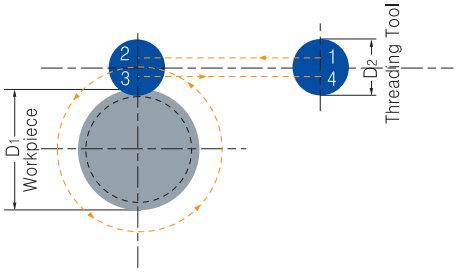



**1-2 :** entrata radiale
**2-3 :** movimento elicoidale durante un'orbita completa (360° )
**3-4 :** uscita radiale

## Linea tangenziale

Questo metodo è molto semplice e comporta gli stessi vantaggi del metodo arco tangenziale. Tuttavia, è applicabile solo per la filettatura esterna.

• **Filettatura esterna**




**1-2 :** entrata radiale con avanzamento simultaneo lungo l'asse Z
**2-3 :** movimento elicoidale durante un'orbita completa (360° )
**3-4 :** uscita radiale

## Preparazione della fresatura a filettare

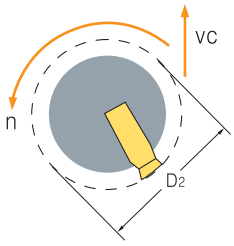
### Calcolo di velocità e avanzamento di rotazione al tagliente

$$n = \frac{vc \times 1000}{\pi \times D_2}$$

$$vc = \frac{n \times \pi \times D2}{1000}$$

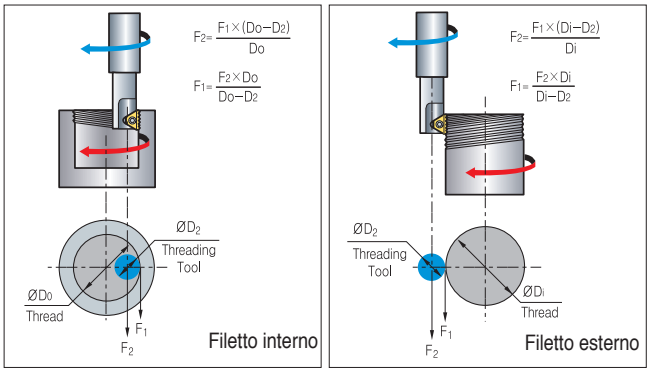
$$F1 = n \times z \times fn$$

**n** - Velocità di rotazione [R.P.M]
**vc** - Velocità di taglio [m/min]
**$D_2$** - Diametro portainserti [mm]
**$F_1$** - Avanzamento a tagliente [mm/min]
**z** - N. di taglienti
**fn** - Avanzamento a dente per giro [mm/rev]




### Calcolo dell'avanzamento sull'asse dell'utensile

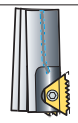
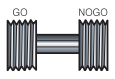
Nella maggior parte delle macchine CNC, l'avanzamento richiesto per la programmazione è quello dell'asse dell'utensile. Quando si verifica un movimento lineare dell'utensile, l'avanzamento al tagliente e l'asse sono identici ma con un movimento circolare dell'utensile sono diversi.
Le equazioni definiscono il rapporto esistente tra l'avanzamento al tagliente l'asse dell'utensile.




## Gradi e applicazioni

| Grado | Applicazione |
|---|---|
| **PC9570T** | Raccomandato per acciaio e ghisa<br>Tenace substrato sub-micron e rivestimento TiCN<br>Offre ottima resistenza alla rottura ed eccellente resistenza all'usura |
| **PC9070T** | **Grado generico**<br>Maggiore resistenza all'usura grazie al nuovo rivestimento multistrato<br>Risultati migliori nella lavorazione dell'acciaio inossidabile e HSS |

## Soluzione dei problemi

| Problema | | Possibile causa | Soluzione |
|---|---|---|---|
|  | Maggiore usura del fianco | Velocità di taglio troppo elevata<br>Il truciolo è troppo sottile<br>Refrigerante insufficiente | Ridurre la velocità di taglio / usare un inserto rivestito<br>Aumentare l'avanzamento<br>Aumentare il flusso del refrigerante |
|  | Scheggiatura del tagliente | Il truciolo è troppo spesso<br>Vibrazioni | Ridurre l'avanzamento / Utilizzare il metodo arco tangenziale<br>Aumentare i giri al minuto<br>Controllare la stabilità |
|  | Riporto sul tagliente | Tagliente errato<br>Grado in metallo duro non adatto | Modificare la velocità di taglio<br>Utilizzare un grado in metallo duro rivestito |
|  | Vibrazioni | Avanzamento troppo elevato<br>Il profilo è troppo profondo<br>La lunghezza del filetto è eccessiva | Ridurre l'avanzamento<br>Eseguire due passate, aumentando la profondità di passata per ognuna di esse<br>Eseguire due passate, ognuna delle quali lavora solo per metà della lunghezza del filetto<br>Eseguire due passate, ognuna delle quali lavora solo per metà della lunghezza del filetto |
|  | Insufficiente precisione del filetto | Curvatura dell'utensile | Ridurre l'avanzamento / Eseguire un taglio a "zero" |

# D Informazioni tecniche per frese integrali in metallo duro a filettare

## Condizioni di taglio raccomandate

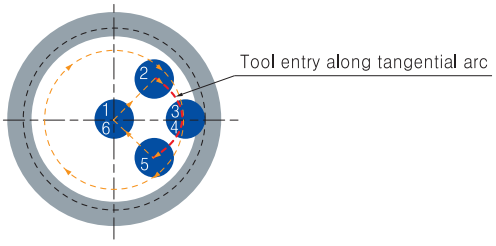
| Pezzo lavorato | | | Durezza Brinell HB | vc[m/min] | | Avanzamento fz[mm/t] | |
|---|---|---|---|---|---|---|---|
| | | | | Grado | | Inserti | Fresa integrale |
| | | | | PC9570T | PC9070M | | |
| P | Acciaio non legato | Basso tenore di carbonio (C+0.1-0.25%) | 125 | 100-210 | 80-250 | 0.05-0.3 | 0.03-0.15 |
| | | Medio tenore di carbonio (C=0.25-0.55%) | 150 | 100-180 | 80-230 | 0.05-0.25 | 0.03-0.1 |
| | | Elevato tenore di carbonio (C=0.55-0.85%) | 170 | 100-170 | 80-200 | 0.05-0.2 | 0.03-0.08 |
| | Acciaio poco legato (leganti≤5%) | Non temprato | 180 | 90-160 | 60-180 | 0.05-0.25 | 0.03-0.1 |
| | | Temprato | 275 | 80-150 | 60-170 | 0.05-0.2 | 0.03-0.07 |
| | | Temprato | 350 | 70-140 | 60-160 | 0.05-0.15 | 0.01-0.03 |
| | Acciaio molto legato | Malleabile | 200 | 60-130 | 40-100 | 0.05-0.2 | 0.03-0.05 |
| | | Temprato | 325 | 70-110 | 30-80 | 0.05-0.1 | 0.01-0.03 |
| | Ghisa | Poco legata (leganti <5%) | 200 | 100-170 | 80-250 | 0.05-0.15 | 0.03-0.1 |
| | | Molto legata (leganti >5%) | 225 | 70-120 | 60-170 | 0.05-0.1 | 0.01-0.03 |
| M | Acciaio inossidabile ferritico | Non temprato | 200 | 100-170 | 60-150 | 0.05-0.15 | 0.04-0.1 |
| | | Temprato | 330 | 100-170 | 60-120 | 0.05-0.1 | 0.01-0.05 |
| | Acciaio inossidabile austenitico | Austenitico | 180 | 70-140 | 60-140 | 0.05-0.15 | 0.04-0.1 |
| | | Super austenitico | 200 | 70-140 | 60-130 | 0.05-0.1 | 0.04-0.1 |
| | Acciaio inossidabile fuso ferritico | Non temprato | 200 | 70-140 | 60-160 | 0.05-0.15 | 0.04-0.1 |
| | | Temprato | 330 | 70-140 | 60-110 | 0.05-0.1 | 0.03-0.05 |
| | Acciaio inossidabile fuso austenitico | Austenitico | 200 | 70-120 | 60-150 | 0.05-0.15 | 0.04-0.1 |
| | | Temprato | 330 | 70-120 | 60-100 | 0.05-0.1 | 0.03-0.05 |
| | Leghe ad alta temperatura | Malleabile (a base di ferro) | 200 | 20-45 | 30-60 | 0.05-0.1 | 0.04-0.1 |
| | | Invecchiato (a base di ferro) | 280 | 20-30 | 20-50 | 0.02-0.05 | 0.01-0.03 |
| | | Malleabile (a base di nichel o cobalto) | 250 | 15-20 | 15-35 | 0.02-0.05 | 0.01-0.03 |
| | | Invecchiato (a base di nichel o cobalto) | 350 | 10-15 | 15-30 | 0.02-0.05 | 0.01-0.03 |
| | Leghe di titanio | Puro 99.5 Ti | 400Rm | 70-140 | 40-80 | 0.02-0.05 | 0.03-0.05 |
| | | Leghe $\alpha+\beta$ | 1050Rm | 20-50 | 20-50 | 0.02-0.05 | 0.03-0.05 |
| K | Acciaio extra duro | Temprato e rinvenuto | 55HRC | 20-45 | 15-45 | 0.01-0.03 | 0.005-0.01 |
| | Ghisa malleabile | Ferritico (trucioli corti) | 130 | 60-130 | 70-160 | 0.02-0.08 | 0.01-0.03 |
| | | Pearlitico (trucioli lunghi) | 230 | 60-120 | 60-150 | 0.02-0.05 | 0.03-0.05 |
| | Ghisa grigia | Basso carico di rottura | 180 | 60-130 | 70-160 | 0.05-0.15 | 0.05-0.1 |
| | | Alto carico di rottura | 260 | 60-100 | 40-120 | 0.05-0.1 | 0.03-0.05 |
| | Ferro SG nodulare | Ferritico | 160 | 60-125 | 40-110 | 0.05-0.15 | 0.05-0.1 |
| | | Pearlitico | 260 | 50-90 | 40-100 | 0.05-0.1 | 0.03-0.05 |
| | Leghe di alluminio saldate | Non invecchiato | 60 | 100-250 | 200-300 | 0.1-0.4 | 0.1-0.25 |
| | | Invecchiato | 100 | 100-180 | 150-250 | 0.1-0.3 | 0.1-0.2 |
| | Leghe di alluminio | Fuso | 75 | 150-400 | 100-200 | 0.1-0.3 | 0.1-0.2 |
| | | Fuso e invecchiato | 90 | 150-280 | 120-220 | 0.05-0.25 | 0.1-0.15 |
| | | Silicio 13-22% | 130 | 80-150 | 200-300 | 0.1-0.3 | 0.1-0.2 |
| | Rame e leghe di rame | Ottone | 90 | 120-210 | 200-300 | 0.1-0.3 | 0.1-0.25 |
| | | Bronzo e rame senza piombo | 100 | 120-210 | 150-250 | 0.05-0.25 | 0.1-0.2 |

### Raccomandazione :

All'entrata dell'utensile, impostare l'avanzamento [mm/dente] del 70% in meno rispetto all'avanzamento di filettatura

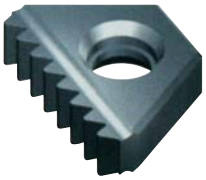
### Esempio :

Avanzamento di filettatura: 0.3[mm/t]
Avanzamento di entrata dell'utensile: 0.09[mm/t]

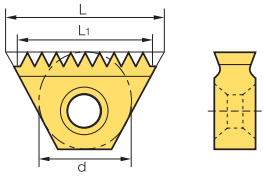


# Filettatura metrica ISO

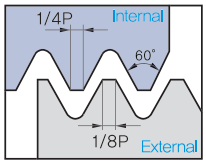
Esterno / Interno



New




Defined by : R262 (DIN 13)
Tolleranza : 6g/6H




(mm)

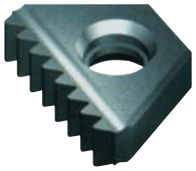
| Dimensione inserto | | Passo | Articolo | | | | $L_1$ | Tagliente | Portainserti |
|---|---|---|---|---|---|---|---|---|---|
| d | L | (mm) | Esterno | PC9570T | Interno | PC9570T | | | |
| 6.0 | 10.4 | 0.5 | - | | TMI10–0.5ISO | ● | 10.0 | 20 | TMSR - 10 |
| | | 0.75 | - | | TMI10–0.75ISO | | 9.75 | 13 | |
| | | 1.0 | - | | TMI10–1.0ISO | ● | 9.0 | 9 | |
| | | 1.25 | - | | TMI10–1.25ISO | | 8.75 | 7 | |
| | | 1.5 | - | | TMI10–1.5ISO | ● | 9.0 | 6 | |
| 6.35 | 11 | 0.5 | - | | TM2I11–0.5ISO | | 10.0 | 20 | TMSR - 11 |
| | | 0.75 | TM2E11-0.75ISO | | TM2I11–0.75ISO | ● | 10.5 | 14 | |
| | | 1.0 | TM2E11-1.0ISO | | TM2I11–1.0ISO | ● | 10.0 | 10 | |
| | | 1.25 | TM2E11-1.25ISO | | – | | 10.0 | 8 | |
| | | 1.25 | - | | TM2I11–1.25ISO | ● | 8.75 | 7 | |
| | | 1.5 | TM2E11-1.5ISO | | – | | 9.0 | 6 | |
| | | 1.5 | - | | TM2I11–1.5ISO | ● | 10.5 | 7 | |
| 9.525 | 16 | 0.5 | - | | TM2I16–0.5ISO | | 15.0 | 30 | TMSR - 16 |
| | | 0.75 | TM2E16-0.75ISO | | TM2I16–0.75ISO | | 15.0 | 20 | |
| | | 0.8 | - | | TM2I16–0.8ISO | | 14.4 | 18 | |
| | | 1.0 | TM2E16-1.0ISO | | – | | 14.0 | 14 | |
| | | 1.0 | - | | TM2I16–1.0ISO | | 15.0 | 15 | |
| | | 1.25 | TM2E16-1.25ISO | | TM2I16–1.25ISO | | 15.0 | 12 | |
| | | 1.5 | TM2E16-1.5ISO | | TM2I16–1.5ISO | ● | 15.0 | 10 | |
| | | 1.75 | TM2E16-1.75ISO | | TM2I16–1.75ISO | | 14.0 | 8 | |
| | | 2.0 | TM2E16-2.0ISO | | TM2I16–2.0ISO | ● | 14.0 | 7 | |
| 9.525B | 22 | 1.0 | TM2E22-1.0ISO | | TM2I22–1.0ISO | | 22.0 | 22 | TMSR - 22 |
| | | 1.25 | TM2E22-1.25ISO | | TM2I22–1.25ISO | | 21.25 | 17 | |
| | | 1.5 | TM2E22-1.5ISO | | TM2I22–1.5ISO | ● | 21.0 | 14 | |
| | | 1.75 | TM2E22-1.75ISO | | TM2I22–1.75ISO | | 21.0 | 12 | |
| | | 2.0 | TM2E22-2.0ISO | | TM2I22–2.0ISO | ● | 22.0 | 11 | |
| 15.875 | 27 | 1.0 | TM2E27-1.0ISO | | TM2I27–1.0ISO | | 26.0 | 26 | TMSR - 27 |
| | | 1.25 | TM2E27-1.25ISO | | TM2I27–1.25ISO | | 25.0 | 20 | |
| | | 1.5 | TM2E27-1.5ISO | | TM2I27–1.5ISO | ● | 25.5 | 17 | |
| | | 1.75 | TM2E27-1.75ISO | | TM2I27–1.75ISO | | 24.5 | 14 | |
| | | 2.0 | TM2E27-2.0ISO | | TM2I27–2.0ISO | ● | 24.0 | 12 | |
| | | 2.5 | TM2E27-2.5ISO | | TM2I27–2.5ISO | | 25.0 | 10 | |
| | | 3.0 | TM2E27-3.0ISO | | TM2I27–3.0ISO | ● | 24.0 | 8 | |
| | | 3.5 | TM2E27-3.5ISO | | TM2I27–3.5ISO | ● | 24.5 | 7 | |
| | | 4.0 | TM2E27-4.0ISO | | TM2I27–4.0ISO | ● | 24.0 | 6 | |
| | | 4.5 | TM2E27-4.5ISO | | TM2I27–4.5ISO | ● | 22.5 | 5 | |
| 19.05B | 38.5 | 1.5 | TM2E38-1.5ISO | | TM2I38–1.5ISO | | 36.0 | 24 | TMSR - 38 |
| | | 2.0 | TM2E38-2.0ISO | | TM2I38–2.0ISO | | 36.0 | 18 | |
| | | 3.0 | TM2E38-3.0ISO | | TM2I38–3.0ISO | | 36.0 | 12 | |
| | | 4.0 | TM2E38-4.0ISO | | TM2I38–4.0ISO | | 32.0 | 8 | |
| | | 4.5 | TM2E38-4.5ISO | | TM2I38–4.5ISO | | 31.5 | 7 | |
| | | 5.0 | TM2E38-5.0ISO | | TM2I38–5.0ISO | ● | 30.0 | 6 | |
| | | 5.5 | TM2E38-5.5ISO | | TM2I38–5.5ISO | | 33.0 | 6 | |
| | | 6.0 | TM2E38-6.0ISO | | TM2I38–6.0ISO | ● | 30.0 | 5 | |

• Utensili applicabili, vedere pag. D42

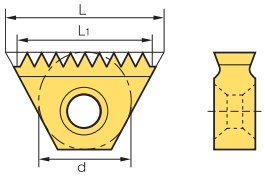
● : Disponibile ○ : A richiesta

# Filettatura UN

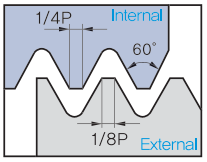
Esterno / Interno



New




Defined by : ANSI B1.1.74
Tolleranza : Class 2A/2B




(mm)

| Dimensione inserto | | Passo | Articolo | | | | L1 | Tagliente | Portainserti |
|---|---|---|---|---|---|---|---|---|---|
| d | L | (tpi) | Esterno | PC9570T | Interno | PC9570T | | | |
| 6.0 | 10.4 | 32 | - | | TMI10-32UN | | 9.53 | 12 | TMSR - 10 |
| | | 28 | - | | TMI10-28UN | | 9.07 | 10 | |
| | | 24 | - | | TMI10-24UN | | 9.53 | 9 | |
| | | 20 | - | | TMI10-20UN | | 8.89 | 7 | |
| | | 18 | - | | TMI10-18UN | | 8.47 | 6 | |
| | | 16 | - | | TMI10-16UN | | 7.94 | 5 | |
| 6.35 | 11 | 48 | - | | TM2I11-48UN | | 10.05 | 19 | TMSR - 11 |
| | | 40 | - | | TM2I11-40UN | | 10.16 | 16 | |
| | | 32 | - | | TM2I11-32UN | ● | 10.32 | 13 | |
| | | 28 | TM2E11-28UN | | TM2I11-28UN | | 9.98 | 11 | |
| | | 27 | TM2E11-27UN | | TM2I11-27UN | | 10.35 | 11 | |
| | | 24 | TM2E11-24UN | | TM2I11-24UN | | 9.53 | 9 | |
| | | 20 | TM2E11-20UN | | TM2I11-20UN | ● | 10.16 | 8 | |
| | | 18 | TM2E11-18UN | | TM2I11-18UN | | 9.88 | 7 | |
| | | 16 | TM2E11-16UN | | TM2I11-16UN | | 9.53 | 6 | |
| | | 14 | TM2E11-14UN | | TM2I11-14UN | | 9.07 | 5 | |
| 9.525 | 16 | 40 | - | | TM2I16-40UN | | 14.61 | 40 | TMSR - 16 |
| | | 32 | - | | TM2I16-32UN | | 15.08 | 32 | |
| | | 28 | TM2E16-28UN | | TM2I16-28UN | | 14.51 | 28 | |
| | | 27 | TM2E16-27UN | | TM2I16-27UN | | 14.11 | 27 | |
| | | 24 | TM2E16-24UN | | TM2I16-24UN | | 14.82 | 24 | |
| | | 20 | TM2E16-20UN | | TM2I16-20UN | | 13.97 | 20 | |
| | | 18 | TM2E16-18UN | | TM2I16-18UN | ● | 14.11 | 18 | |
| | | 16 | TM2E16-16UN | | TM2I16-16UN | | 14.29 | 16 | |
| | | 14 | TM2E16-14UN | | TM2I16-14UN | ● | 14.51 | 14 | |
| | | 13 | TM2E16-13UN | | TM2I16-13UN | | 13.68 | 13 | |
| | | 12 | TM2E16-12UN | | TM2I16-12UN | ● | 14.82 | 12 | |
| | | 11.5 | TM2E16-11.5UN | | TM2I16-11.5UN | | 13.25 | 11.5 | |
| 9.525B | 22 | 24 | TM2E22-24UN | | TM2I22-24UN | | 21.16 | 20 | TMSR - 22 |
| | | 20 | TM2E22-20UN | | TM2I22-20UN | | 21.59 | 17 | |
| | | 18 | TM2E22-18UN | | TM2I22-18UN | | 21.17 | 15 | |
| | | 16 | TM2E22-16UN | | TM2I22-16UN | | 20.64 | 13 | |
| | | 14 | TM2E22-14UN | | TM2I22-14UN | | 21.77 | 12 | |
| | | 13 | TM2E22-13UN | | TM2I22-13UN | | 21.49 | 11 | |
| | | 12 | TM2E22-12UN | | TM2I22-12UN | | 21.17 | 10 | |
| 15.875 | 27 | 24 | TM2E27-24UN | | TM2I27-24UN | | 25.40 | 24 | TMSR - 27 |
| | | 20 | TM2E27-20UN | | TM2I27-20UN | | 25.40 | 20 | |
| | | 18 | TM2E27-18UN | | TM2I27-18UN | | 25.40 | 18 | |
| | | 16 | TM2E27-16UN | | TM2I27-16UN | | 25.40 | 16 | |
| | | 14 | TM2E27-14UN | | TM2I27-14UN | | 25.40 | 14 | |
| | | 13 | TM2E27-13UN | | TM2I27-13UN | | 25.40 | 13 | |
| | | 12 | TM2E27-12UN | | TM2I27-12UN | | 25.40 | 12 | |
| | | 11.5 | TM2E27-11.5UN | | TM2I27-11.5UN | | 24.30 | 11 | |
| | | 11 | TM2E27-11UN | | TM2I27-11UN | | 25.40 | 11 | |
| | | 10 | TM2E27-10UN | | - | | 22.86 | 9 | |
| | | 10 | - | | TM2I27-10UN | | 25.40 | 10 | |
| | | 9 | TM2E27-9UN | | TM2I27-9UN | | 22.58 | 8 | |
| | | 8 | TM2E27-8UN | | TM2I27-8UN | | 22.23 | 7 | |
| | | 7 | TM2E27-7UN | | - | | 21.77 | 6 | |
| | | 7 | - | | TM2I27-7UN | | 25.40 | 7 | |
| | | 6 | TM2E27-6UN | | - | | 21.17 | 5 | |
| | | 6 | - | | TM2I27-6UN | | 25.40 | 6 | |
| 19.05 | 38.5 | 6 | TM2E38-6UN | | TM2I38-6UN | | 38.87 | 8 | TMSR - 38 |
| | | 5 | TM2E38-5UN | | TM2I38-5UN | | 30.48 | 6 | |
| | | 4.5 | TM2E38-4.5UN | | TM2I38-4.5UN | | 33.87 | 6 | |
| | | 4 | TM2E38-4UN | | TM2I38-4UN | | 31.75 | 5 | |

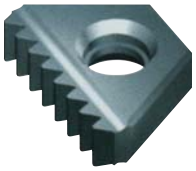
• Utensili applicabili, vedere pag. D42

Tutti gli inserti, a eccezione del codice TMI10, hanno 2 taglienti

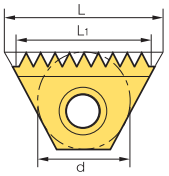
● : Disponibile ○ : A richiesta

# Filettatura UNJ

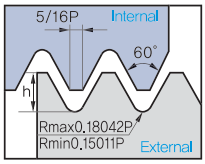
Esterno / Interno



New




Defined by : MIL-S-8879C
Tolleranza : 3A/3B




(mm)

| Dimensione inserto | | Passo | Articolo | | | | L1 | Tagliente | Portainserti |
|---|---|---|---|---|---|---|---|---|---|
| d | L | (tpi) | Esterno | PC9070T | Interno | PC9070T | | | |
| 6.0 | 10.4 | 24 | - | | TMI10-24UNJ | | 9.53 | 9 | TMSR - 10 |
| | | 20 | - | | TMI10-20UNJ | | 8.89 | 7 | |
| | | 18 | - | | TMI10-18UNJ | | 8.47 | 6 | |
| | | 16 | - | | TMI10-16UNJ | | 9.53 | 8 | |
| 6.35 | 11 | 24 | TM2E11-24UNJ | | TM2I11-24UNJ | | 9.53 | 9 | TMSR - 11 |
| | | 20 | TM2E11-20UNJ | | TM2I11-20UNJ | | 10.16 | 8 | |
| | | 18 | - | | TM2I11-18UNJ | | 9.88 | 7 | |
| | | 16 | TM2E11-16UNJ | | TM2I11-16UNJ | | 9.53 | 6 | |
| | | 14 | TM2E11-14UNJ | | TM2I11-14UNJ | | 9.07 | 5 | |
| 9.525 | 16 | 24 | TM2E16-24UNJ | | TM2I16-24UNJ | | 14.82 | 14 | TMSR - 16 |
| | | 20 | TM2E16-20UNJ | | TM2I16-20UNJ | | 13.97 | 11 | |
| | | 18 | TM2E16-18UNJ | | TM2I16-18UNJ | | 14.11 | 10 | |
| | | 16 | TM2E16-16UNJ | | TM2I16-16UNJ | | 14.29 | 9 | |
| | | 14 | TM2E16-14UNJ | | TM2I16-14UNJ | | 14.51 | 8 | |
| | | 13 | TM2E16-13UNJ | | - | | 13.68 | 7 | |
| | | 12 | TM2E16-12UNJ | | TM2I16-12UNJ | | 14.82 | 7 | |
| 15.875 | 27 | 16 | TM2E27-16UNJ | | TM2I27-16UNJ | | 25.40 | 16 | TMSR - 27 |
| | | 12 | TM2E27-12UNJ | | TM2I27-12UNJ | | 25.40 | 12 | |
| | | 11 | TM2E27-11UNJ | | TM2I27-11UNJ | | 25.40 | 11 | |

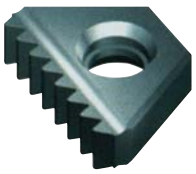
• Utensili applicabili, vedere pag. D42

Tutti gli inserti, a eccezione del codice TMI10, hanno 2 taglienti

● : Disponibile ○ : A richiesta

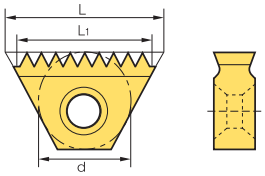
# Filettatura Whithworth (BSW, BSF, BSP, BSB)

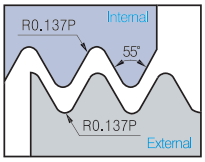
Esterno / Interno



New

BSW Defined by : B.S.84:1956, DIN 259, ISO228/1:1982
BSP Defind by : B.S.2779:1956
Tolleranza : BSW-Medium class A, BSP-Medium class




(mm)

| Dimensione inserto | | Passo | Articolo | PC9070T | L1 | Tagliente | Portainserti |
|---|---|---|---|---|---|---|---|
| d | L | (tpi) | Esterno + Interno | | | | |
| 6.0 | 10.4 | 28 | **TMEI10-28W** | | 9.07 | 10 | TMSR - 10 |
| | | 26 | **TMEI10-26W** | | 8.79 | 9 | |
| | | 24 | **TMEI10-24W** | | 9.53 | 9 | |
| | | 20 | **TMEI10-20W** | | 8.89 | 7 | |
| | | 19 | **TMEI10-19W** | | 9.36 | 7 | |
| 6.35 | 11 | 28 | **TM2EI11-28W** | | 9.98 | 11 | TMSR - 11 |
| | | 26 | **TM2EI11-26W** | | 9.77 | 10 | |
| | | 24 | **TM2EI11-24W** | | 9.53 | 9 | |
| | | 20 | **TM2EI11-20W** | | 10.16 | 8 | |
| | | 19 | **TM2EI11-19W** | | 9.36 | 7 | |
| | | 14 | **TM2EI11-14W** | | 9.07 | 5 | |
| 9.525 | 16 | 26 | **TM2EI16-26W** | | 14.65 | 15 | TMSR - 16 |
| | | 24 | **TM2EI16-24W** | | 14.82 | 14 | |
| | | 20 | **TM2EI16-20W** | | 13.97 | 11 | |
| | | 19 | **TM2EI16-19W** | | 14.71 | 11 | |
| | | 18 | **TM2EI16-18W** | ● | 14.11 | 10 | |
| | | 16 | **TM2EI16-16W** | | 14.29 | 9 | |
| | | 14 | **TM2EI16-14W** | | 14.51 | 8 | |
| | | 12 | **TM2EI16-12W** | | 14.82 | 7 | |
| | | 11 | **TM2EI16-11W** | ● | 13.85 | 6 | |
| 9.525B | 22 | 24 | **TM2EI22-24W** | | 21.17 | 20 | TMSR - 22 |
| | | 20 | **TM2EI22-20W** | | 21.59 | 17 | |
| | | 19 | **TM2EI22-19W** | | 21.39 | 16 | |
| | | 18 | **TM2EI22-18W** | | 21.17 | 15 | |
| | | 16 | **TM2EI22-16W** | | 20.64 | 13 | |
| | | 14 | **TM2EI22-14W** | | 21.77 | 12 | |
| | | 12 | **TM2EI22-12W** | | 21.17 | 10 | |
| | | 11 | **TM2EI22-11W** | | 20.78 | 9 | |
| 15.875 | 27 | 16 | **TM2EI27-16W** | | 25.4 | 16 | TMSR - 27 |
| | | 14 | **TM2EI27-14W** | | 25.4 | 14 | |
| | | 12 | **TM2EI27-12W** | | 23.28 | 11 | |
| | | 11 | **TM2EI27-11W** | ● | 23.09 | 10 | |
| | | 10 | **TM2EI27-10W** | | 25.40 | 10 | |
| | | 9 | **TM2EI27-9W** | | 22.58 | 8 | |
| | | 8 | **TM2EI27-8W** | | 22.23 | 7 | |
| | | 7 | **TM2EI27-7W** | | 21.77 | 6 | |
| | | 6 | **TM2EI27-6W** | | 21.17 | 5 | |
| 19.05B | 38.5 | 11 | **TM2EI38-11W** | | 34.64 | 15 | TMSR - 38 |
| | | 6 | **TM2EI38-6W** | | 33.87 | 8 | |
| | | 5 | **TM2EI38-5W** | | 30.48 | 6 | |
| | | 4.5 | **TM2EI38-4.5W** | | 33.87 | 6 | |
| | | | **TM2EI38-15W** | | - | | |

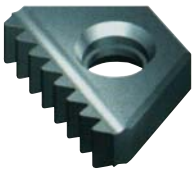
• Utensili applicabili, vedere pag. D42

Tutti gli inserti, a eccezione del codice TMI10, hanno 2 taglienti

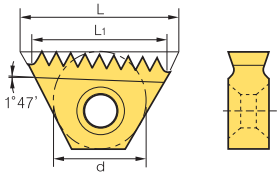
● : Disponibile ○ : A richiesta

# Filettatura NPT

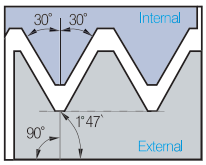
Esterno / Interno



New




Defined by : USAS B2.1:1968
Tolleranza : Standard NPT




(mm)

| Dimensione inserto | | Passo | Articolo | PC9070T | L1 | Tagliente | Portainserti | |
|---|---|---|---|---|---|---|---|---|
| d | L | (tpi) | Esterno + Interno | | | | DX | SX |
| 9.525 | 16 | 18 | **TM2E16-18NPT *** | | 14.11 | 10 | TMSRT - 16 | TMSLT - 16 |
| | | 14 | **TM2EI16-14NPT** | | 14.51 | 8 | | |
| | | 11.5 | **TM2EI16-11.5NPT** | | 13.25 | 6 | | |
| 9.525B | 22 | 14 | **TM2EI22-14NPT** | | 21.77 | 12 | TMSRT - 22 | TMSLT - 22 |
| 15.875 | 27 | 11.5 | **TM2EI27-11.5NPT** | | 24.30 | 11 | TMSR - 27 | TMSL - 27 |
| | | 8 | **TM2EI27-8NPT** | | 22.23 | 7 | | |
| 19.05B | 38.5 | 11.5 | **TM2EI38-11.5NPT** | | 35.34 | 16 | TMSR - 38 | TMSL - 38 |
| | | 8 | **TM2EI38-8NPT** | | 31.75 | 10 | | |

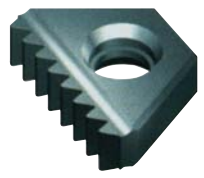
• Utensili applicabili, vedere pag. D42

* TM2E16-18NPT è per la filettatura esterna

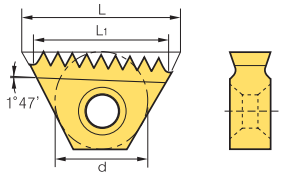
● : Disponibile ○ : A richiesta

# Filettatura NPTF

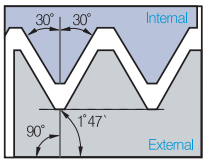
Esterno / Interno



New




Defined by : ANSI 1.20.3-1976
Tolleranza : Standard NPTF




(mm)

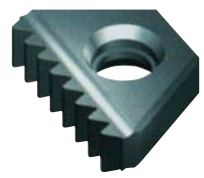
| Dimensione inserto | | Passo | Articolo | PC9070T | L1 | Tagliente | Portainserti | |
|---|---|---|---|---|---|---|---|---|
| d | L | (tpi) | Esterno + Interno | | | | DX | SX |
| 9.525 | 16 | 14 | **TM2EI16-14NPTF** | ● | 14.51 | 8 | TMSRT - 16 | TMSLT - 16 |
| | | 11.5 | **TM2EI16-11.5NPTF** | | 13.25 | 6 | | |
| 9.525B | 22 | 14 | **TM2EI22-14NPTF** | | 21.77 | 12 | TMSRT - 22 | TMSLT - 22 |
| | | 11.5 | **TM2EI22-11.5NPTF** | | 19.88 | 9 | | |
| 15.875 | 27 | 11.5 | **TM2EI27-11.5NPTF** | | 24.30 | 11 | TMSR - 27 | TMSL - 27 |
| | | 8 | **TM2EI27-8NPTF** | | 22.23 | 7 | | |
| 19.05B | 38.5 | 11.5 | **TM2EI38-11.5NPTF** | | 35.34 | 16 | TMSR - 38 | TMSL - 38 |
| | | 8 | **TM2EI38-8NPTF** | | 31.75 | 10 | | |

• Utensili applicabili, vedere pag. D42

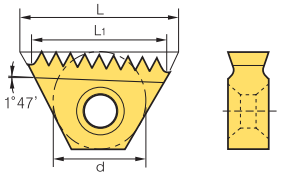
● : Disponibile ○ : A richiesta

# Filettatura BSPT

Esterno / Interno

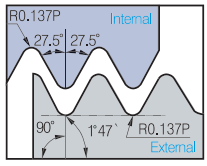


New




Standard TM

Defined by : B.S 21:1985
Tolleranza : Standard BSPT




(mm)

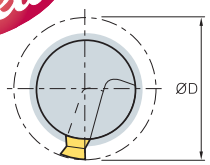
| Dimensione inserto | | Passo | Articolo | PC9070T | L1 | Tagliente | Portainserti | |
|---|---|---|---|---|---|---|---|---|
| d | L | (tpi) | Esterno + Interno | | | | DX | SX |
| 6.35 | 11 | 19 | **TM2EI11-19BSPT** | | 9.36 | 7 | TMSR - 10 | TMSL - 10 |
| 9.525 | 16 | 14 | **TM2EI16-14BSPT** | | 14.51 | 8 | TMSRT - 16 | TMSLT - 16 |
| | | 11 | **TM2EI16-11BSPT** | | 13.85 | 6 | | |
| 15.875 | 27 | 11 | **TM2EI27-11BSPT** | | 23.09 | 10 | TMSR - 27 | TMSL - 27 |

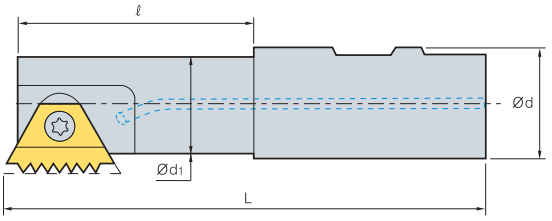
• Utensili applicabili, vedere pag. D42

● : Disponibile ○ : A richiesta

## Standard

New




(mm)

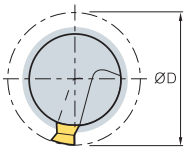
| Dim. inserto d | Articolo | Stock | ØD | Ød | Ød1 | ℓ | L | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|
| 6.0 | **TMSR12-10** | ● | 9.0 | 12 | 6.8 | 12.0 | 69.0 | STM10 | TW07P |
| | **TMSR20-10** | ● | 9.0 | 20 | 6.8 | 17.0 | 84.0 | | |
| 6.35 | **TMSR12-11** | ● | 11.5 | 12 | 8.9 | 12.0 | 70.0 | STM11 | TW08P |
| | **TMSR20-11** | ● | 11.5 | 20 | 8.9 | 20.0 | 85.0 | | |
| 9.525 | **TMSR16-16** | ● | 17.0 | 16 | 13.6 | 22.0 | 90.0 | STM1622 | TW10P |
| | **TMSR20-16** | ● | 20.0 | 20 | 16.6 | 43.0 | 95.0 | | |
| 9.525B | **TMSR16-22** | ● | 17.0 | 16 | 13.5 | 29.0 | 79.5 | STM1622 | TW10P |
| | **TMSR20-22** | ● | 19.0 | 20 | 15.5 | 29.0 | 81.5 | | |
| | **TMSR25-22** | ● | 19.0 | 25 | 15.5 | 30.0 | 92.3 | | |
| | **TMSRW25-22** | ● | 22.0 | 25 | 18.5 | 30.0 | 90.8 | | |
| 15.875 | **TMSR25-27** | ● | 30.0 | 25 | 24.0 | 52.0 | 110.0 | STM27 | TW25L |
| | **TMSL25-27** | ● | 30.0 | 25 | 24.0 | 52.0 | 110.0 | | |
| | **TMSR32-27** | ● | 37.0 | 32 | 31.0 | 58.0 | 120.0 | | |
| 19.05 | **TMSR32-38** | ● | 35.0 | 32 | 27.0 | 53.0 | 115.0 | STM38 | TW30L |
| | **TMSR40-38** | ● | 46.0 | 40 | 38.0 | 63.0 | 135.0 | | |

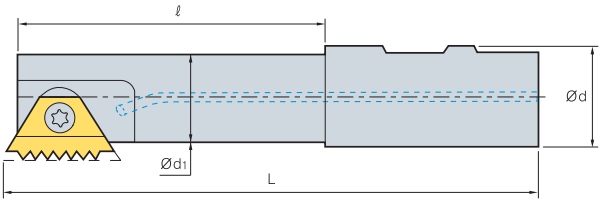
• Inserti applicabili, vedere pag. E37~E41

● : Disponibile ○ : A richiesta

## Lungo

New




(mm)

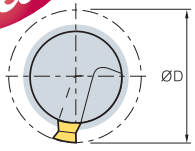
| Dim. inserto d | Articolo | Stock | ØD | Ød | Ød1 | ℓ | L | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|
| 6.35 | **TMSRL25-11** | ● | 11.5 | 25 | 8.9 | 17.0 | 125.0 | STM11 | TW08P |
| 9.525B | **TMSRL25-16** | ● | 22.0 | 25 | 18.6 | 25.0 | 125.0 | STM1622 | TW10P |
| 9.525B | **TMSRL20-22** | ● | 19.0 | 20 | 15.5 | 44.0 | 96.5 | STM1622 | TW10P |
| | **TMSRL25-22** | ● | 22.0 | 25 | 18.6 | 63.5 | 125.0 | | |
| 15.875 | **TMSRL25-27** | ● | 30.0 | 25 | 24.0 | 92.0 | 150.0 | STM27 | TW25L |
| | **TMSRL32-27** | ● | 37.0 | 32 | 31.0 | 98.0 | 160.0 | | |
| 19.05B | **TMSRL40-38** | ● | 46.0 | 40 | 38.0 | 93.0 | 168.0 | STM38 | TW30L |

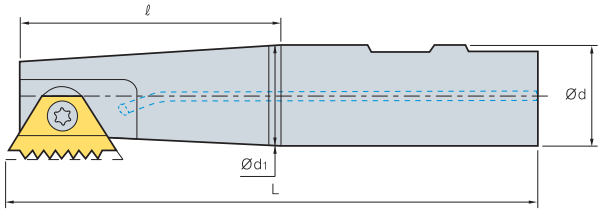
• Inserti applicabili, vedere pag. E37~E41

● : Disponibile ○ : A richiesta

## Conico

New




(mm)

| Dim. inserto d | Articolo | Stock | ØD | Ød | Ød1 | ℓ | L | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|
| 9.525 | **TMSRT16-16** | ● | 15.5 | 16 | 12.5 | 22.0 | 90.0 | STM1622 | TW10P |
| | **TMSRT20-16** | | 19.0 | 20 | 15.0 | 23.0 | 85.0 | STMT16 | |
| 9.525B | **TMSRT16-22** | | 17.0 | 16 | 13.5 | 29.0 | 79.5 | STM1622 | TW10P |
| | **TMSRT20-22** | | 19.0 | 20 | 15.5 | 29.0 | 81.5 | | |
| 15.875 | **TMSRT32-27** | | 37.0 | 32 | 31.0 | 58.0 | 120.0 | STM27 | TW25L |

• Inserti applicabili, vedere pag. E37~E41

● : Disponibile ○ : A richiesta

## Sistema di codifica delle frese integrali a filettare

| STM | D | 3T | 03 | 012 | L034 | – | I | 0.35 | ISO |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | | 7 | 8 | 9 |
| Tipo | Eliche | N. eliche | Dia. stelo | Diametro di taglio | Lunghezza del tagliente | | Tipo di utensile | Passo | Standard |

### 1 STM D 3T 03 012 L034 - I 0.35 ISO

**Tipo**

Fresa integrale a filettare

### 2 STM D 3T 03 012 L034 - I 0.35 ISO

**Eliche**

HC : Heli Cool
HCR : Heli Radial Cooling
HCC : Heli Cool Chamfering
HCD : Heli Cool C/F & Drilling
D : Deep Threading

### 3 STM D 3T 03 012 L034 - I 0.35 ISO

**N. eliche**

3T : 3 eliche
2L : 4 eliche, elica sinistra

### 4 STM D 3T 03 012 L034 - I 0.35 ISO

**Dia. stelo**

03 : 3.0mm

### 5 STM D 3T 03 012 L034 - I 0.35 ISO

**Diametro di taglio**

012 : 1.20mm

### 6 STM D 3T 03 012 L034 - I 0.35 ISO

**Lunghezza del tagliente**

L034 : 3.4mm

### 7 STM D 3T 03 012 L034 - I 0.35 ISO

**Tipo di utensile**

I : Interno, E : Esterno

### 8 STM D 3T 03 012 L034 - I 0.35 ISO

**Passo**

mm : 0.35 ~ 3.0
tpi : 72 ~ 12

### 9 STM D 3T 03 012 L034 - I 0.35 ISO

**Standard**

Filettatura metrica ISO
Filettatura UN
Lunghezza tagliente UNJ
Filettatura Whitworth (BSW, BSF, BSP, BSB)
Filettatura NPT (National Pipe Thread)
Filettatura NPTF (National Pipe Thread)
Filettatura BSPT(British Standard Pipe Thread)



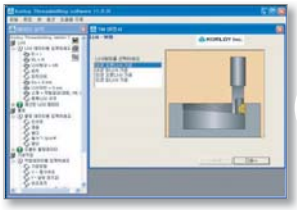
# TM-INFO Guida per l'utente

Composizione programma CNC
TM INFO compone in breve tempo programmi CNC per le lavorazioni di fresatura a filettare

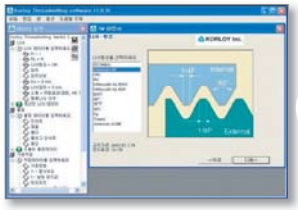
▶Multilingue ▶Operazione Windows



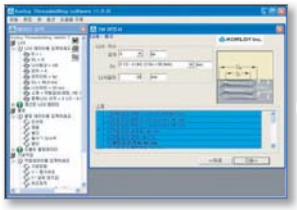

1 Scegliere il tipo di filetto



2 Scegliere lo standard del filetto



3 Scegliere il tipo di filetto



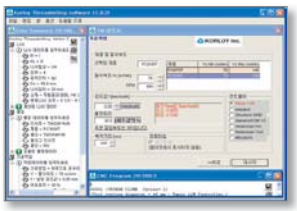
4 Inserire i parametri di filettatura



5 Selezionare il metodo di lavoro



6 Selezionare l'utensile



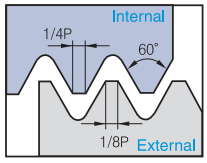
7 Confermare i dati di lavorazione e il controller



Visitare il nostro sito web per il download.
http://www.korloy.com

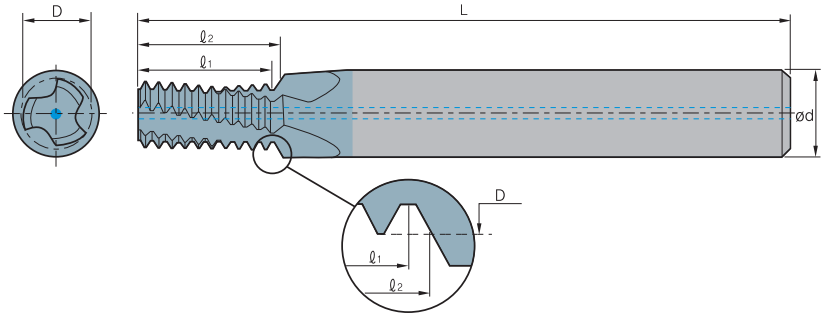
# Filettatura ISO

Interno




Defined by : R262 (DIN 13)
Tolleranza : 6H

New




## Fresa a elica con refrigerante interno

1.5d ( ℓ2≤1.5×Diametro filetto)

| Filetto | | Passo | Articolo | PC9070M | Dimensioni(mm) | | | | | N. scan. | Tagliente | *Diam. alesaggio |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M Largo | M Fine | mm | Interno | | ød | D | L | ℓ1 | ℓ2 | z | zt | mm |
| M3×0.5 | M3.5~M16×0.5 | 0.5 | **STMHC04024L04-I0.50ISO** | | 4 | 2.40 | 45 | 4.5 | 4.7 | 3 | 9 | 2.5 |
| M4×0.7 | | 0.7 | **STMHC04031L06-I0.70ISO** | | 4 | 3.15 | 45 | 6.3 | 6.6 | 3 | 9 | 3.3 |
| M5×0.8 | | 0.8 | **STMHC04039L07-I0.80ISO** | | 4 | 3.90 | 45 | 7.2 | 7.6 | 3 | 9 | 4.2 |
| M6×1.0 | M8~M40×1.0 | 1.0 | **STMHC06048L09-I1.00ISO** | ● | 6 | 4.80 | 57 | 9.0 | 9.5 | 3 | 9 | 5.0 |
| M8×1.25 | | 1.25 | **STMHC08065L13-I1.25ISO** | ● | 8 | 6.50 | 61 | 12.5 | 13.1 | 3 | 10 | 6.8 |
| M10×1.5 | M12~M48×1.5 | 1.5 | **STMHC10082L15-I1.50ISO** | | 10 | 8.20 | 73 | 15.0 | 15.7 | 3 | 10 | 8.5 |
| M12×1.75 | | 1.75 | **STMHC10099L18-I1.75ISO** | | 10 | 9.90 | 73 | 17.5 | 18.4 | 4 | 10 | 10.2 |
| M14×2.0 | M17~M80×2.0 | 2.0 | **STMHC12116L21-I2.00ISO** | | 12 | 11.60 | 73 | 20.0 | 21.0 | 4 | 10 | 12.0 |
| M16×2.0 | M17~M80×2.0 | 2.0 | **STMHC14136L25-I2.00ISO** | | 14 | 13.60 | 92 | 24.0 | 25.0 | 4 | 12 | 14.0 |

● : Disponibile ○ : A richiesta

## Fresa a elica con refrigerante interno

2d ( ℓ2≤2×Diametro filetto)

| Filetto | | Passo | Articolo | PC9070M | Dimensioni(mm) | | | | | N. scan. | Tagliente | *Diam. alesaggio |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M Largo | M Fine | mm | Interno | | ød | D | L | ℓ1 | ℓ2 | z | zt | mm |
| M3×0.5 | M3.5~M16×0.5 | 0.5 | **STMHC04024L06-I0.50ISO** | | 4 | 2.40 | 45 | 6.0 | 6.2 | 3 | 12 | 2.5 |
| | M4×0.5 | 0.5 | **STMHC04032L08-I0.50ISO** | | 4 | 3.20 | 45 | 8.0 | 8.2 | 3 | 16 | 3.5 |
| | M5×0.5 | 0.5 | **STMHC06042L10-I0.50ISO** | ● | 6 | 4.20 | 57 | 10.0 | 10.2 | 3 | 20 | 4.5 |
| M4×0.7 | | 0.7 | **STMHC04031L08-I0.70ISO** | ● | 4 | 3.15 | 45 | 8.4 | 8.7 | 3 | 12 | 3.3 |
| | M6×0.75 | 0.75 | **STMHC06050L12-I0.75ISO** | ● | 6 | 5.00 | 57 | 12.0 | 12.4 | 3 | 16 | 5.3 |
| M5×0.8 | | 0.8 | **STMHC04039L10-I0.80ISO** | ● | 4 | 3.90 | 45 | 10.4 | 10.8 | 3 | 13 | 4.2 |
| M6×1.0 | M8~M40×1.0 | 1.0 | **STMHC06048L12-I1.00ISO** | ● | 6 | 4.80 | 57 | 12.0 | 12.5 | 3 | 12 | 5.0 |
| | M8×1.0 | 1.0 | **STMHC08067L16-I1.00ISO** | | 8 | 6.70 | 61 | 16.0 | 16.5 | 3 | 16 | 7.0 |
| | M10×1.0 | 1.0 | **STMHC10087L20-I1.00ISO** | | 10 | 8.70 | 73 | 20.0 | 20.5 | 3 | 20 | 9.0 |
| | M12×1.0 | 1.0 | **STMHC12107L24-I1.00ISO** | ● | 12 | 10.70 | 73 | 24.0 | 24.5 | 4 | 24 | 11.0 |
| M8×1.25 | | 1.25 | **STMHC08065L16-I1.25ISO** | ● | 8 | 6.50 | 61 | 16.2 | 16.9 | 3 | 13 | 6.8 |
| | M10×1.25 | 1.25 | **STMHC10085L20-I1.25ISO** | ● | 10 | 8.50 | 73 | 20.0 | 20.6 | 3 | 16 | 8.8 |
| M10×1.5 | M12~M48×1.5 | 1.5 | **STMHC10082L20-I1.50ISO** | ● | 10 | 8.20 | 73 | 19.5 | 20.2 | 3 | 13 | 8.5 |
| | M12×1.5 | 1.5 | **STMHC10099L24-I1.50ISO** | ● | 10 | 9.90 | 73 | 24.0 | 24.7 | 4 | 16 | 10.5 |
| | M14×1.5 | 1.5 | **STMHC12119L29-I1.50ISO** | | 12 | 11.90 | 80 | 28.5 | 29.2 | 4 | 19 | 12.5 |
| | M16×1.5 | 1.5 | **STMHC14139L32-I1.50ISO** | ● | 14 | 13.90 | 92 | 31.5 | 32.2 | 4 | 21 | 14.5 |
| M12×1.75 | | 1.75 | **STMHC10099L25-I1.75ISO** | ● | 10 | 9.90 | 73 | 24.5 | 25.4 | 4 | 14 | 10.2 |
| M14×2.0 | M17~M80×2.0 | 2.0 | **STMHC12116L29-I2.00ISO** | ● | 12 | 11.60 | 80 | 28.0 | 29.0 | 4 | 14 | 12.0 |
| M16×2.0 | M17~M80×2.0 | 2.0 | **STMHC14136L33-I2.00ISO** | ● | 14 | 13.60 | 92 | 32.0 | 33.0 | 4 | 16 | 14.0 |
| M18×2.5 | | 2.5 | **STMHC16148L36-I2.50ISO** | | 16 | 14.80 | 92 | 35.0 | 36.2 | 4 | 14 | 15.5 |
| M 20×2.5 | | 2.5 | **STMHC18171L41-I2.50ISO** | ● | 18 | 17.10 | 102 | 40.0 | 41.2 | 4 | 16 | 17.5 |
| M 24×3.0 | | 3.0 | **STMHC20199L49-I3.00ISO** | ● | 20 | 19.90 | 102 | 48.0 | 49.5 | 4 | 16 | 21.0 |

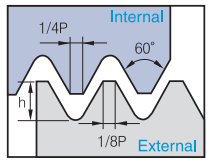
∗ Il diametro di alesaggio si applica al diametro più piccolo del filetto

Lunghezza filetto max = $\ell_2 - \frac{\text{Passo}}{4}$

● : Disponibile ○ : A richiesta

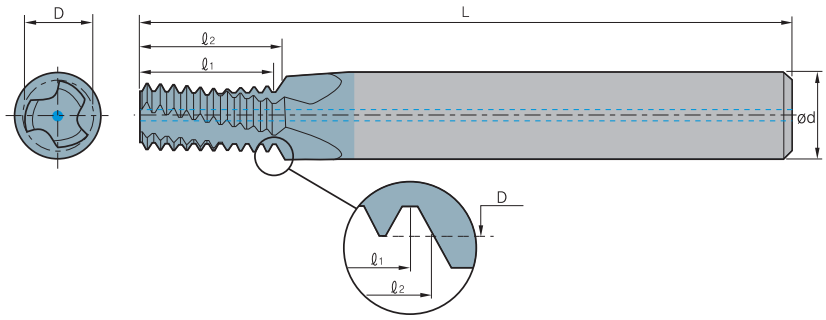
# Filettatura UN

Interno




Defined by : ANSI B1.1.74
Tolleranza : 2B

New




## Fresa a elica con refrigerante interno

1,5d ( ℓ2≤1,5×Diametro filetto)

| Filetto | | | Passo | Articolo | PC9070M | Dimensioni(mm) | | | | | N. scan. | Tagliente | *Diam. alesaggio |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| UNC | UNF | UNEF | tpi | Interno | | ød | D | L | ℓ1 | ℓ2 | z | zt | mm |
| N.10~24 | 5/16″ ,3/8″×24 | 9/16″~11/16″×24 | 24 | **STMHC04035L07-I24UNC** | | 4 | 3.58 | 45 | 7.4 | 7.9 | 3 | 7 | 3.8 |
| N.10~24 | 5/16″ ,3/8″×24 | 9/16″~11/16″×24 | 24 | **STMHC06041L08-I24UNC** | | 6 | 4.15 | 57 | 8.5 | 9.0 | 3 | 8 | 4.5 |
| 1/4″×20 | 7/16″ ,1/2″×20 | 3/4″~1″×20 | 20 | **STMHC06048L09-I20UNC** | | 6 | 4.88 | 57 | 8.9 | 9.5 | 3 | 7 | 5.2 |
| 5/16″×18 | 9/16″ ,5/8″×18 | 11/16″~1 11/16″×18 | 18 | **STMHC08061L11-I18UNC** | | 8 | 6.15 | 61 | 11.3 | 12.0 | 3 | 8 | 6.5 |
| 3/8″×16 | 3/4″×16 | | 16 | **STMHC08076L15-I16UNC** | | 8 | 7.65 | 61 | 14.3 | 15.1 | 3 | 9 | 8.0 |
| 7/16″×14 | 7/8″×14 | | 14 | **STMHC10090L17-I14UNC** | | 10 | 9.00 | 73 | 16.3 | 17.2 | 3 | 9 | 9.3 |
| 1/2″×13 | | | 13 | **STMHC12104L20-I13UNC** | | 12 | 10.35 | 73 | 19.5 | 20.5 | 4 | 10 | 10.8 |
| 9/16″×12 | 1″~1 1/2″×12 | | 12 | **STMHC12118L22-I12UNC** | | 12 | 11.80 | 73 | 21.2 | 22.2 | 4 | 10 | 12.3 |

● : Disponibile ○ : A richiesta

## Fresa a elica con refrigerante interno

2d ( ℓ2≤2×Diametro filetto)

| Filetto | | | Passo | Articolo | PC9070M | Dimensioni(mm) | | | | | N. scan. | Tagliente | *Diam. alesaggio |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| UNC | UNF | UNEF | tpi | Interno | | ød | D | L | ℓ1 | ℓ2 | z | zt | mm |
| | N.10~32 | N. 12~3/8″×32 | 32 | **STMHC04038L09-I32UNF** | | 4 | 3.80 | 45 | 9.5 | 9.9 | 3 | 12 | 4.0 |
| | | N. 12~3/8″×32 | 32 | **STMHC06044L11-I32UNEF** | | 6 | 4.40 | 57 | 11.1 | 11.5 | 3 | 14 | 4.7 |
| | N.12, 1/4″×28 | 7/16″; 1/2″×28 | 28 | **STMHC06043L11-I28UNF** | | 6 | 4.30 | 57 | 10.9 | 11.3 | 3 | 12 | 4.6 |
| | 1/4″×28 | 7/16″; 1/2″×28 | 28 | **STMHC06052L13-I28UNF** | ● | 6 | 5.15 | 57 | 12.7 | 13.1 | 3 | 14 | 5.5 |
| | | 7/16″; 1/2″×28 | 28 | **STMHC10099L22-I28UNEF** | | 10 | 9.90 | 73 | 21.8 | 22.2 | 3 | 24 | 10.2 |
| N.10~24 | 5/16″, 3/8″×24 | 9/16″~11/16″×24 | 24 | **STMHC04035L10-I24UNC** | | 4 | 3.58 | 45 | 9.5 | 10.0 | 3 | 9 | 3.8 |
| N.12~24 | 5/16″, 3/8″×24 | 9/16″~11/16″×24 | 24 | **STMHC06041L11-I24UNC** | | 6 | 4.15 | 57 | 10.6 | 11.1 | 3 | 10 | 4.5 |
| | 5/16″, 3/8″×24 | 9/16″~11/16″×24 | 24 | **STMHC08066L16-I24UNF** | | 8 | 6.68 | 61 | 15.9 | 16.4 | 3 | 15 | 6.8 |
| | 3/8″×24 | 9/16″~11/16″×24 | 24 | **STMHC10082L19-I24UNF** | | 10 | 8.20 | 73 | 19.0 | 19.6 | 3 | 18 | 8.5 |
| | | 9/16″~11/16″×24 | 24 | **STMHC14129L29-I24UNEF** | | 14 | 12.90 | 92 | 28.6 | 29.1 | 4 | 27 | 13.2 |
| 1/4″×20 | 7/16″, 1/2″×20 | 3/4″~1″×20 | 20 | **STMHC06048L13-I20UNC** | | 6 | 4.88 | 57 | 12.7 | 13.3 | 3 | 10 | 5.2 |
| | 7/16″, 1/2″×20 | 3/4″~1″×20 | 20 | **STMHC10096L22-I20UNF** | | 10 | 9.60 | 73 | 21.6 | 22.2 | 3 | 17 | 9.8 |
| | 1/2″×20 | 3/4″~1″×20 | 20 | **STMHC12111L26-I20UNF** | | 12 | 11.10 | 80 | 25.4 | 26.0 | 3 | 20 | 11.5 |
| | | 3/4″~1″×20 | 20 | **STMHC18174L38-I20UNEF** | | 18 | 17.40 | 102 | 38.1 | 38.7 | 4 | 30 | 17.8 |
| 5/16″×18 | 9/16″, 5/8″×18 | 11/16″~1 11/16″×18 | 18 | **STMHC08061L16-I18UNC** | | 8 | 6.15 | 61 | 15.5 | 16.2 | 3 | 11 | 6.5 |
| | 9/16″, 5/8″×18 | 11/16″~1 11/16″×18 | 18 | **STMHC14125L28-I18UNF** | | 14 | 12.50 | 92 | 28.2 | 28.9 | 4 | 20 | 12.8 |
| | 5/8″×18 | 11/16″~1 11/16″×18 | 18 | **STMHC16141L31-I18UNF** | | 16 | 14.10 | 92 | 31.0 | 31.7 | 4 | 22 | 14.5 |
| 3/8″×16 | 3/4″×16 | | 16 | **STMHC08076L19-I16UNC** | | 8 | 7.65 | 61 | 19.0 | 19.8 | 3 | 12 | 8.0 |
| | 3/4″×16 | | 16 | **STMHC18170L38-I16UNF** | | 18 | 17.00 | 102 | 38.1 | 38.8 | 4 | 24 | 17.5 |
| 7/16″×14 | 7/8″×14 | | 14 | **STMHC10090L22-I14UNC** | | 10 | 9.00 | 73 | 21.8 | 22.7 | 3 | 12 | 9.3 |
| | 7/8″×14 | | 14 | **STMHC20199L44-I14UNF** | | 20 | 19.90 | 102 | 43.5 | 44.4 | 4 | 24 | 20.5 |
| 1/2″×13 | | | 13 | **STMHC12104L26-I13UNC** | | 12 | 10.35 | 80 | 25.4 | 26.4 | 4 | 13 | 10.8 |
| 9/16″×12 | 1″~1 1/2″×12 | | 12 | **STMHC12118L28-I12UNC** | | 12 | 11.80 | 80 | 27.5 | 28.6 | 4 | 13 | 12.3 |
| | 1″~1 1/2″×12 | | 12 | **STMHC20199L51-I12UNF** | | 20 | 19.90 | 102 | 50.8 | 51.9 | 4 | 24 | 23.5 |
| 5/8″×11 | | | 11 | **STMHC14131L33-I11UNC** | | 14 | 13.10 | 92 | 32.3 | 33.5 | 4 | 14 | 13.5 |
| 3/4″×10 | | | 10 | **STMHC16159L39-I10UNC** | | 16 | 15.90 | 92 | 38.1 | 39.4 | 4 | 15 | 16.5 |
| 7/8″×9 | | | 9 | **STMHC20190L46-I9UNC** | | 20 | 19.00 | 102 | 45.2 | 46.6 | 4 | 16 | 19.5 |
| 1″×8 | | | 8 | **STMHC20199L52-I8UNC** | | 20 | 19.90 | 102 | 50.8 | 52.4 | 4 | 16 | 22.0 |

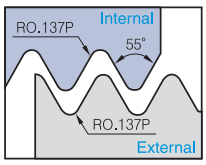
∗ Il diametro di alesaggio si applica al diametro più piccolo del filetto.

Lunghezza filetto max = ℓ2 − Passo/4

● : Disponibile ○ : A richiesta

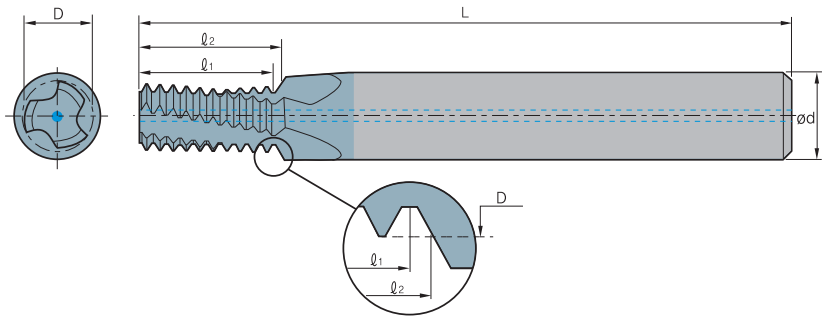
# Filettatura Whitworth

## Esterno / Interno




Defined by : B.S.84 : 1956,
DIN 259, ISO228/1 : 1982
Tolleranza : Medium class A

New




## Fresa a elica con refrigerante interno

2d ( ℓ2≤2×Diametro filetto)

| Filetto | | Passo | Articolo | PC9070M | Dimensioni(mm) | | | | | N. scan. | Tagliente | * Diam. alesaggio |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BSW | BSF | tpi | Esterno / Interno | | ød | D | L | ℓ1 | ℓ2 | z | zt | mm |
| | 1/4″×26 | 26 | **STMHC06050L13-EI26BSF** | | 6 | 5.00 | 57 | 12.7 | 13.2 | 3 | 13 | 5.3 |
| | 5/16″×22 | 22 | **STMHC08063L16-EI22BSF** | | 8 | 6.35 | 61 | 16.2 | 16.7 | 3 | 14 | 6.7 |
| 1/4″×20 | 3/8″×20 | 20 | **STMHC06044L13-EI20BSW** | | 6 | 4.45 | 57 | 12.7 | 13.3 | 3 | 10 | 5.0 |
| | 3/8″×20 | 20 | **STMHC08076L19-EI20BSF** | | 8 | 7.65 | 61 | 19.0 | 197 | 3 | 15 | 8.2 |
| 5/16″×18 | 7/16″×18 | 18 | **STMHC06058L16-EI18BSW** | | 6 | 5.85 | 57 | 15.5 | 16.2 | 3 | 11 | 6.5 |
| | 7/16″×18 | 18 | **STMHC10092L23-EI18BSF** | | 10 | 9.20 | 73 | 22.6 | 23.3 | 3 | 16 | 9.7 |
| 3/8″×16 | 1/2″, 9/16″×16 | 16 | **STMHC08072L19-EI16BSW** | | 8 | 7.20 | 61 | 19.0 | 19.8 | 3 | 12 | 7.9 |
| | 1/2″, 9/16″×16 | 16 | **STMHC12105L26-EI16BSF** | | 12 | 10.50 | 80 | 25.4 | 26.2 | 4 | 16 | 11.1 |
| | 9/16″×16 | 16 | **STMHC14122L29-EI16BSF** | | 14 | 12.15 | 92 | 28.6 | 29.4 | 4 | 18 | 12.6 |
| 7/16″×14 | 5/8″, 11/16″×14 | 14 | **STMHC10085L22-EI14BSW** | | 10 | 8.50 | 73 | 21.8 | 22.7 | 3 | 12 | 9.2 |
| | 5/8″, 11/16″×14 | 14 | **STMHC14134L31-EI14BSF** | | 14 | 13.40 | 92 | 30.8 | 31.7 | 4 | 17 | 14.0 |
| | 11/16″×14 | 14 | **STMHC16150L35-EI14BSF** | | 16 | 15.00 | 92 | 34.5 | 35.4 | 4 | 19 | 15.6 |
| 1/2″×12 | 3/4″×12 | 12 | **STMHC10096L26-EI12BSW** | | 10 | 9.65 | 73 | 25.4 | 26.5 | 3 | 12 | 10.5 |
| 9/16″×12 | 3/4″×12 | 12 | **STMHC12113L28-EI12BSW** | | 12 | 11.25 | 80 | 27.5 | 28.6 | 4 | 13 | 12.1 |
| | 3/4″×12 | 12 | **STMHC18162L39-EI12BSF** | | 18 | 16.20 | 102 | 38.1 | 39.2 | 4 | 18 | 16.8 |
| 5/8″×11 | 7/8″×11 | 11 | **STMHC14126L33-EI11BSW** | | 14 | 12.60 | 92 | 32.3 | 33.5 | 4 | 14 | 13.4 |
| 11/16″×11 | | 11 | **STMHC16142L35-EI11BSW** | | 16 | 14.20 | 92 | 34.6 | 35.8 | 4 | 15 | 15.0 |

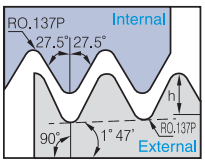
∗ Il diametro di alesaggio si applica al diametro più piccolo del filetto

Lunghezza filetto max = ℓ2 − Passo/4

● : Disponibile ○ : A richiesta

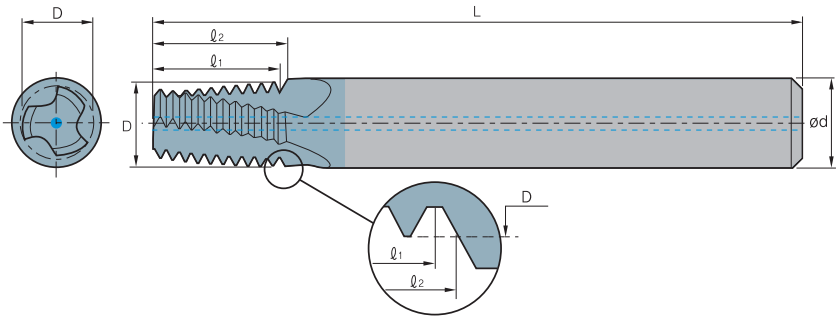
# Filettatura BSPT

Esterno / Interno




Defined by : B.S.21 : 1985
Tolleranza : Standard BSPT

New




## Fresa a elica con refrigerante interno

| Filetto | Passo | Articolo | PC9070M | Dimensioni(mm) | | | | | N. scan. | Tagliente | *Diam. alesaggio |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Standard | tpi | Esterno / Interno | | ød | D | L | ℓ1 | ℓ2 | z | zt | mm |
| 1/16″×28 | 28 | **STMHC06059L10-EI28BSPT** | | 6 | 5.90 | 57 | 10.0 | 10.2 | 3 | 11 | 6.7 |
| 1/8″×28 | 28 | **STMHC08076L10-EI28BSPT** | | 8 | 7.65 | 61 | 10.0 | 10.2 | 3 | 11 | 8.7 |
| 1/4″×19 | 19 | **STMHC10099L15-EI19BSPT** | | 10 | 9.90 | 73 | 14.7 | 15.4 | 3 | 11 | 11.8 |
| 3/8″×19 | 19 | **STMHC12111L15-EI19BSPT** | | 12 | 11.15 | 73 | 14.7 | 15.4 | 4 | 11 | 15.2 |
| 1/2″, 3/4″×14 | 14 | **STMHC16142L22-EI14BSPT** | | 16 | 14.25 | 92 | 21.8 | 22.7 | 4 | 12 | 19.0 |
| 1″, 1 1/2″, 2″, 2 1/2″×11 | 11 | **STMHC20196L28-EI11BSPT** | | 20 | 19.60 | 102 | 27.7 | 28.9 | 4 | 12 | 30.7 |

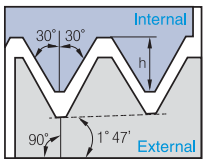
∗ Il diametro di alesaggio si applica al diametro più piccolo del filetto

Lunghezza filetto max = $\ell_2 - \frac{\text{Passo}}{4}$

● : Disponibile ○ : A richiesta

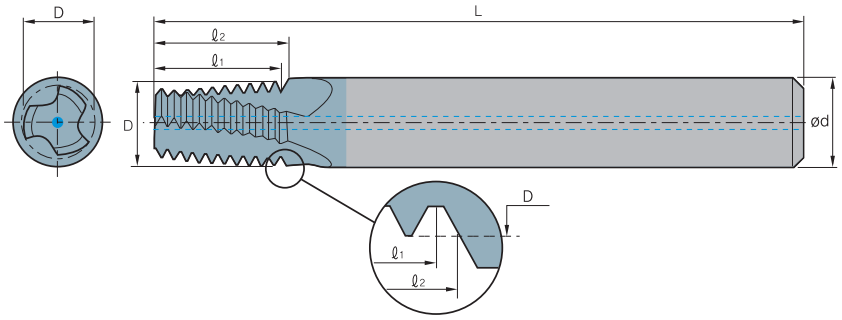
# Filettatura NPT

Esterno / Interno




Defined by : USAS B2.1:1968
Tolleranza : Standard NPT

New



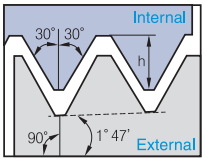

## Fresa a elica con refrigerante interno

| Filetto | Passo | Articolo | PC9070M | Dimensioni(mm) | | | | | N. scan. | Tagliente | *Diam. alesaggio |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Standard | tpi | Esterno / Interno | | ød | D | L | ℓ1 | ℓ2 | z | zt | mm |
| 1/16″×27 | 27 | **STMHC06059L09-EI27NPT** | | 6 | 5.90 | 57 | 9.4 | 9.9 | 3 | 10 | 6.3 |
| 1/8″×27 | 27 | **STMHC08076L09-EI27NPT** | ● | 8 | 7.65 | 61 | 9.4 | 9.9 | 3 | 10 | 8.5 |
| 1/4″×18 | 18 | **STMHC10099L14-EI18NPT** | ● | 10 | 9.90 | 73 | 14.1 | 14.8 | 3 | 10 | 11.1 |
| 3/8″×18 | 18 | **STMHC12111L14-EI18NPT** | ● | 12 | 11.15 | 73 | 14.1 | 14.8 | 4 | 10 | 14.5 |
| 1/2″, 3/4″×14 | 14 | **STMHC16142L19-EI14NPT** | ● | 16 | 14.25 | 92 | 18.1 | 19.0 | 4 | 10 | 17.7, 23.0 |
| 1″, 1 1/14, 1 1/2″, 2″×11.5 | 11.5 | **STMHC20196L23-EI11.5NPT** | | 20 | 19.60 | 102 | 22.1 | 23.2 | 4 | 10 | 29.0, 37.7, 44.0, 56.0 |
| 2 1/2″×8 ; 3″×8 | 8 | **STMHC20196L33-EI8NPT** | | 20 | 19.60 | 102 | 31.7 | 33.3 | 4 | 10 | 66.5, 82.1 |

● : Disponibile ○ : A richiesta

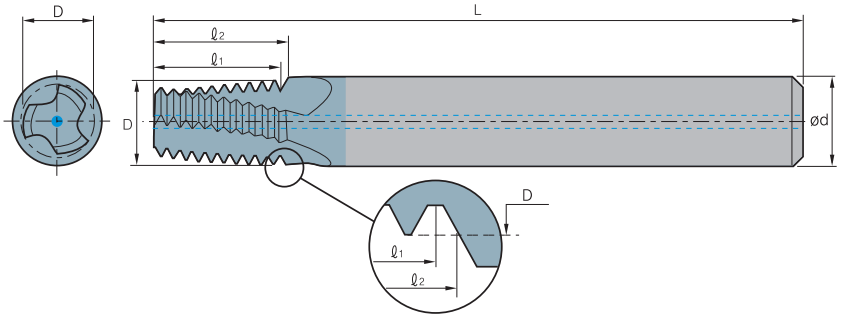
# Filettatura NPTF

Esterno / Interno




Defined by : ANSI 1.20.3-1976
Tolleranza : Standard NPTF

New




## Fresa a elica con refrigerante interno

| Filetto | Passo | Articolo | PC9070M | Dimensioni(mm) | | | | | N. scan. | Tagliente | *Diam. alesaggio |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Standard | tpi | Esterno / Interno | | ød | D | L | ℓ1 | ℓ2 | z | zt | mm |
| 1/16″×27 | 27 | **STMHC06059L09-EI27NPTF** | ● | 6 | 5.90 | 57 | 9.4 | 9.9 | 3 | 10 | 6.3 |
| 1/8″×27 | 27 | **STMHC08076L09-EI27NPTF** | | 8 | 7.65 | 61 | 9.4 | 9.9 | 3 | 10 | 8.5 |
| 1/4″×18 | 18 | **STMHC10099L14-EI18NPTF** | | 10 | 9.90 | 73 | 14.1 | 14.8 | 3 | 10 | 11.1 |
| 3/8″×18 | 18 | **STMHC12111L14-EI18NPTF** | | 12 | 11.15 | 73 | 14.1 | 14.8 | 4 | 10 | 14.5 |
| 1/2″, 3/4″×14 | 14 | **STMHC16142L19-EI14NPTF** | | 16 | 14.25 | 92 | 18.1 | 19.0 | 4 | 10 | 17.7, 23.4 |
| 1″, 1 1/14, 1 1/2″, 2″×11.5 | 11.5 | **STMHC20196L23-EI11.5NPTF** | | 20 | 19.60 | 102 | 22.1 | 23.2 | 4 | 10 | 29.0, 37.7, 43.7, 55.6 |
| 2 1/2″×8 ; 3″×8 | 8 | **STMHC20196L33-EI8NPTF** | | 20 | 19.60 | 102 | 31.7 | 33.3 | 4 | 10 | 66.3, 82.1 |

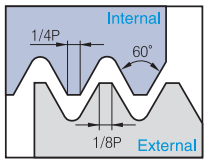
∗ Il diametro di alesaggio si applica al diametro più piccolo del filetto

Lunghezza filetto max = ℓ2 − Passo / 4

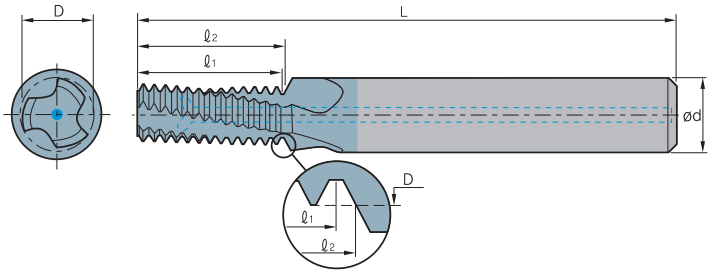
● : Disponibile ○ : A richiesta

# Filettatura ISO

Interno




Defined by : R262 (DIN 13)
Tolleranza : 6H




## Frese a elica con refrigerante radiale

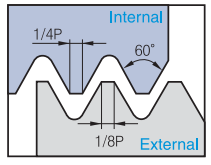
2d ( ℓ2≤2×Diametro filetto)

| Filetto | | Passo | Articolo | PC9070M | Dimensioni(mm) | | | | | N. Scan. | Tagliente | *Diam. alesaggio |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M Largo | M Fine | mm | Interno | | ød | D | L | ℓ1 | ℓ2 | z | zt | mm |
| M6×1.0 | M8~M40×1.0 | 1.0 | **STMHCR06048L12-I1.00ISO** | | 6 | 4.8 | 57 | 12.0 | 12.5 | 3 | 12 | 5.0 |
| | M10×1.0 | 1.0 | **STMHCR10087L20-I1.00ISO** | | 10 | 8.7 | 73 | 20.0 | 20.5 | 3 | 20 | 9.0 |
| | M12×1.0 | 1.0 | **STMHCR12107L24-I1.00ISO** | | 12 | 10.7 | 73 | 24.0 | 24.5 | 4 | 24 | 11.0 |
| M8×1.25 | | 1.25 | **STMHCR08065L16-I1.25ISO** | | 8 | 6.5 | 64 | 16.3 | 16.9 | 3 | 13 | 6.8 |
| M10×1.5 | M12~M48×1.5 | 1.5 | **STMHCR10082L20-I1.50ISO** | | 10 | 8.2 | 73 | 19.5 | 20.3 | 3 | 13 | 8.5 |
| | M12×1.5 | 1.5 | **STMHCR10099L24-I1.50ISO** | | 10 | 9.9 | 73 | 24.0 | 24.8 | 4 | 16 | 10.5 |
| | M14×1.5 | 1.5 | **STMHCR12119L29-I1.50ISO** | | 12 | 11.9 | 84 | 28.5 | 29.3 | 4 | 19 | 12.5 |
| | M16×1.5 | 1.5 | **STMHCR14139L32-I1.50ISO** | | 14 | 13.9 | 84 | 31.5 | 32.3 | 4 | 21 | 14.5 |
| M12×1.75 | | 1.75 | **STMHCR10099L25-I1.75ISO** | | 10 | 9.9 | 73 | 24.5 | 25.4 | 4 | 14 | 10.2 |

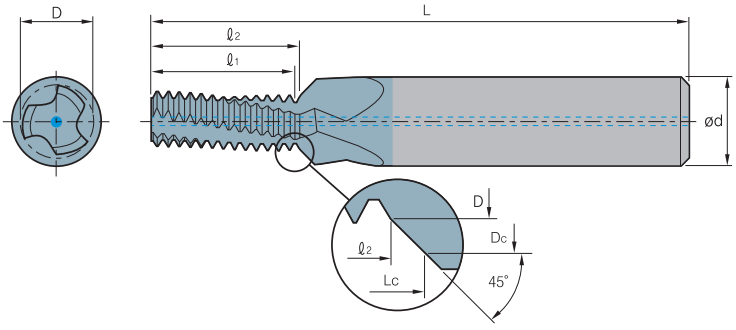
● : Disponibile ○ : A richiesta

# Filettatura ISO

Interno




Defined by : R262 (DIN 13)
Tolleranza : 6H




## Frese a elica con refrigerante interno - Svasatore

2d ( ℓ2≤2×Diametro filetto)

| Filetto | | Passo | Articolo | PC9070M | Dimensioni(mm) | | | | | | | N. Scan. | Tagliente | *Diam. alesaggio |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M Largo | M Fine | mm | Interno | | ød | D | Dc | L | ℓ1 | ℓ2 | Lc | z | zt | mm |
| M6×1.0 | M8~M40×1.0 | 1.0 | **STMHCC08048L12-I1.00ISO** | | 8 | 4.8 | 6.3 | 61 | 12.0 | 12.5 | 13.3 | 3 | 12 | 5.0 |
| | M10×1.0 | 1.0 | **STMHCC12087L20-I1.00ISO** | | 12 | 8.7 | 10.3 | 73 | 20.0 | 20.5 | 21.3 | 3 | 20 | 9.0 |
| | M12×1.0 | 1.0 | **STMHCC14107L24-I1.00ISO** | | 14 | 10.7 | 12.3 | 80 | 24.0 | 24.5 | 25.3 | 4 | 24 | 11.0 |
| M8×1.25 | | 1.25 | **STMHCC10065L16-I1.25ISO** | | 10 | 6.5 | 8.3 | 73 | 16.3 | 16.9 | 17.8 | 3 | 13 | 6.8 |
| M10×1.5 | M12~M48×1.5 | 1.5 | **STMHCC12082L20-I1.50ISO** | | 12 | 8.2 | 10.3 | 80 | 19.5 | 20.3 | 21.3 | 3 | 13 | 8.5 |
| | M12×1.5 | 1.5 | **STMHCC14099L24-I1.50ISO** | | 14 | 9.9 | 12.3 | 80 | 24.0 | 24.8 | 26.0 | 4 | 16 | 10.5 |
| | M14×1.5 | 1.5 | **STMHCC16119L29-I1.50ISO** | | 16 | 11.9 | 14.3 | 92 | 28.5 | 29.3 | 30.5 | 4 | 19 | 12.5 |
| | M16×1.5 | 1.5 | **STMHCC18139L32-I1.50ISO** | | 18 | 13.9 | 16.3 | 92 | 31.5 | 32.3 | 33.5 | 4 | 21 | 14.5 |
| M12×1.75 | | 1.75 | **STMHCC14099L25-I1.75ISO** | | 14 | 9.9 | 12.3 | 80 | 24.5 | 25.4 | 26.6 | 4 | 14 | 10.2 |

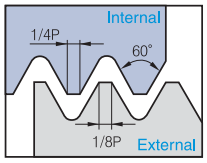
∗ Il diametro di alesaggio si applica al diametro più piccolo del filetto

Lunghezza filetto max = $\ell_2 - \frac{\text{Passo}}{4}$

● : Disponibile ○ : A richiesta

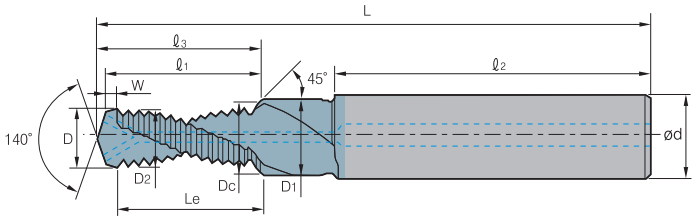
# Filettatura ISO

Interno




Defined by : R262 (DIN 13)
Tolleranza : 6H

New




## Foratura, svasatura e filettatura con refrigerante interno

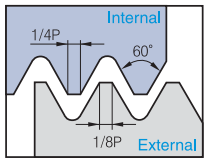
| Filetto | Articolo | PC9070M | Passo | Dimensioni(mm) | | | | | | | | | | | N. scan. | Tagliente |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ISO 2D M Largo | Interno | | mm | L | ℓ3 | ℓ1 | ℓ2 | W | Le | D | ød | D1 | Dc | D2 | z | zt |
| M6×1.0 | **STMHCD-IM6×1.0ISO-2D** | | 1.0 | 62.0 | 14.5 | 13.7 | 36 | 1.0 | 12.7 | 5.0 | 8 | 6.6 | 6.3 | 4.85 | 2 | 11 |
| M8×1.25 | **STMHCD-IM8×1.25ISO-2D** | | 1.25 | 74.0 | 18.2 | 17.1 | 40 | 1.3 | 15.8 | 6.8 | 10 | 9.0 | 8.3 | 6.45 | 2 | 11 |
| M10×1.5 | **STMHCD-IM10×1.5ISO-2D** | | 1.5 | 79.0 | 23.4 | 22.1 | 45 | 1.5 | 20.6 | 8.5 | 12 | 11.0 | 10.3 | 8.08 | 2 | 12 |
| M12×1.75 | **STMHCD-IM12×1.75ISO-2D** | | 1.75 | 89.0 | 27.1 | 25.5 | 45 | 1.5 | 24.0 | 10.3 | 14 | 13.5 | 12.3 | 9.74 | 2 | 12 |
| ISO 2,5D M Largo | | | | | | | | | | | | | | | | |
| M6×1.0 | **STMHCD-IM6×1.0ISO-2.5D** | | 1.0 | 62.0 | 16.5 | 15.7 | 36 | 1.0 | 14.7 | 5.0 | 8 | 6.6 | 6.3 | 4.85 | 2 | 13 |
| M8×1.25 | **STMHCD-IM8×1.25ISO-2.5D** | | 1.25 | 74.0 | 23.2 | 22.1 | 40 | 1.3 | 20.8 | 6.8 | 10 | 9.0 | 8.3 | 6.45 | 2 | 15 |
| M10×1.5 | **STMHCD-IM10×1.5ISO-2.5D** | | 1.5 | 79.0 | 27.9 | 26.6 | 45 | 1.5 | 25.1 | 8.5 | 12 | 11.0 | 10.3 | 8.08 | 2 | 15 |

Lunghezza filetto max. = $\ell_2 - \frac{\text{Passo}}{4}$

● : Disponibile ○ : A richiesta

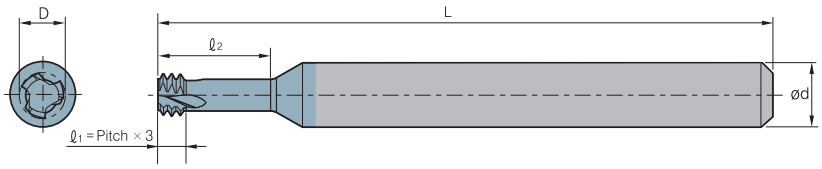
# Filettatura ISO

Interno




Defined by : R262 (DIN 13)
Tolleranza : 6H

New




## Filettatura profonda

2d ( ℓ2≤2×Diametro filetto)

| Filetto | | Passo | Articolo | PC9070M | Dimensioni(mm) | | | | N. Scan. | Tagliente | *Diam. alesaggio |
|---|---|---|---|---|---|---|---|---|---|---|---|
| M Largo | M Fine | mm | Interno | | ød | D | L | ℓ2 | z | zt | mm |
| M1.6×0.35 | | 0.35 | **STMD3T03012L034-I0.35ISO** | | 3 | 1.20 | 30 | 3.4 | 3 | 3 | 1.25 |
| M2×0.4 | | 0.4 | **STMD3T06015L042-I0.4ISO** | | 6 | 1.55 | 57 | 4.2 | 3 | 3 | 1.6 |
| M2.2×0.45 | | 0.45 | **STMD3T06016L046-I0.45ISO** | | 6 | 1.65 | 57 | 4.6 | 3 | 3 | 1.75 |
| M2.5×0.45 | | 0.45 | **STMD3T06019L052-I0.45ISO** | | 6 | 1.95 | 57 | 5.2 | 3 | 3 | 2.05 |
| M3×0.5 | M3.5~M16×0.5 | 0.5 | **STMD3T06024L062-I0.5ISO** | | 6 | 2.40 | 57 | 6.2 | 3 | 3 | 2.5 |
| M3.5×0.6 | | 0.6 | **STMD3T06027L073-I0.6ISO** | | 6 | 2.75 | 57 | 7.3 | 3 | 3 | 2.9 |
| M4×0.7 | | 0.7 | **STMD3T06031L083-I0.7ISO** | | 6 | 3.15 | 57 | 8.3 | 3 | 3 | 3.3 |
| M5×0.8 | | 0.8 | **STMD3T06040L104-I0.8ISO** | | 6 | 4.05 | 57 | 10.4 | 3 | 3 | 4.2 |
| M6×1.0 | M8~M40×1.0 | 1.0 | **STMD3T06048L125-I1.0ISO** | | 6 | 4.80 | 57 | 12.5 | 3 | 3 | 5.0 |
| M8×1.25 | | 1.25 | **STMD3T08065L166-I1.25ISO** | | 8 | 6.50 | 63 | 16.6 | 3 | 3 | 6.8 |
| M10×1.5 | M12~M48×1.50 | 1.5 | **STMD3T10082L208-I1.50ISO** | | 10 | 8.20 | 73 | 20.8 | 3 | 3 | 8.5 |
| M12×1.75 | | 1.75 | **STMD3T10099L250-I1.75ISO** | | 10 | 9.90 | 73 | 25.0 | 3 | 3 | 10.3 |

● : Disponibile ○ : A richiesta

## Filettatura profonda

3d ( ℓ2≤3×Diametro filetto)

| Filetto | | Passo | Articolo | PC9070M | Dimensioni(mm) | | | | N. Scan. | Tagliente | *Diam. alesaggio |
|---|---|---|---|---|---|---|---|---|---|---|---|
| M Largo | M Fine | mm | Interno | | ød | D | L | ℓ2 | z | zt | mm |
| M1.6×0.35 | | 0.35 | **STMD3T03012L050-I0.35ISO** | | 3 | 1.20 | 30 | 5.0 | 3 | 3 | 1.25 |
| M2×0.4 | | 0.4 | **STMD3T06015L062-I0.4ISO** | | 6 | 1.55 | 57 | 6.2 | 3 | 3 | 1.6 |
| M2.5×0.45 | | 0.45 | **STMD3T06019L077-I0.45ISO** | | 6 | 1.95 | 57 | 7.0 | 3 | 3 | 2.05 |
| M3×0.5 | M3.5~M16×0.5 | 0.5 | **STMD3T06024L092-I0.5ISO** | | 6 | 2.40 | 57 | 9.2 | 3 | 3 | 2.5 |
| M4×0.7 | | 0.7 | **STMD3T06031L123-I0.7ISO** | | 6 | 3.15 | 57 | 12.3 | 3 | 3 | 3.3 |
| M5×0.8 | | 0.8 | **STMD3T06040L154-I0.8ISO** | | 6 | 4.05 | 57 | 15.4 | 3 | 3 | 4.2 |
| M6×1.0 | M8~M40×1.0 | 1.0 | **STMD3T06048L185-I1.0ISO** | | 6 | 4.80 | 57 | 18.5 | 3 | 3 | 5.0 |
| M8×1.25 | | 1.25 | **STMD3T08065L246-I1.25ISO** | | 8 | 6.50 | 63 | 24.6 | 3 | 3 | 6.8 |

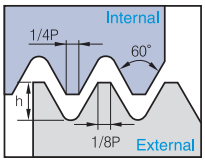
∗ Il diametro di alesaggio si applica al diametro più piccolo del filetto

Lunghezza filetto max. = $\ell_2 - \frac{\text{Passo}}{4}$

● : Disponibile ○ : A richiesta

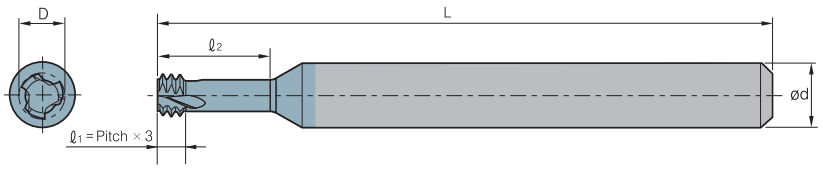
# Filettatura UN

Interno




Defined by : ANSI B1.1.74
Tolleranza : 2B

New




## Filettatura profonda

2d ( ℓ2≤2×Diametro filetto)

| Filetto | | Passo | Articolo | PC9070M | Dimensioni(mm) | | | | N. scan. | Tagliente | *Diam. alesaggio |
|---|---|---|---|---|---|---|---|---|---|---|---|
| UNC | UNF | tpi | Interno | | ød | D | L | ℓ2 | z | zt | mm |
| | N.1~72 | 72 | **STMD3T06014L039-I72UN** | | 6 | 1.45 | 57 | 3.9 | 3 | 3 | 1.6 |
| N.1~64 | N.2~64 | 64 | **STMD3T06014L042-I64UN** | | 6 | 1.40 | 57 | 4.2 | 3 | 3 | 1.5 |
| N.2~56 | N.3~56 | 56 | **STMD3T06016L050-I56UN** | | 6 | 1.65 | 57 | 5.0 | 3 | 3 | 1.8 |
| N.3~48 | N.4~48 | 48 | **STMD3T06019L060-I48UN** | | 6 | 1.90 | 57 | 6.0 | 3 | 3 | 2.1 |
| N.4, N.5~40 | N.6~40 | 40 | **STMD3T06021L060-I40UN** | | 6 | 2.10 | 57 | 6.0 | 3 | 3 | 2.3 |
| N.5~40 | N.6~40 | 40 | **STMD3T06024L072-I40UN** | | 6 | 2.45 | 57 | 7.2 | 3 | 3 | 2.6 |
| | N.8~36 | 36 | **STMD3T06033L087-I36UN** | | 6 | 3.30 | 57 | 8.7 | 3 | 3 | 3.5 |
| N.6, N.8~32 | N.10~32 | 32 | **STMD3T06025L074-I32UN** | | 6 | 2.55 | 57 | 7.4 | 3 | 3 | 2.8 |
| N.8~32 | N.10~32 | 32 | **STMD3T06032L100-I32UN** | | 6 | 3.20 | 57 | 10.0 | 3 | 3 | 3.5 |
| | 1/4″×28 | 28 | **STMD3T06052L132-I28UN** | | 6 | 5.25 | 57 | 13.2 | 3 | 3 | 5.5 |
| N.10~24 | 5/16″×24 | 24 | **STMD3T06035L102-I24UN** | | 6 | 3.58 | 57 | 10.2 | 3 | 3 | 3.9 |
| | 5/16″×24 | 24 | **STMD3T08066L165-I24UN** | | 8 | 6.68 | 63 | 16.5 | 3 | 3 | 6.9 |
| 1/4″×20 | 7/16″×20 | 20 | **STMD3T06048L134-I20UN** | | 6 | 4.88 | 57 | 13.4 | 3 | 3 | 5.2 |
| | 7/16″×20 | 20 | **STMD3T010095L230-I20UN** | | 10 | 9.55 | 73 | 23.0 | 3 | 3 | 9.9 |
| 3/8″×16 | | 16 | **STMD3T08067L191-I16UN** | | 8 | 6.70 | 63 | 19.1 | 3 | 3 | 8.0 |
| 7/16″×14 | | 14 | **STMD3T10090L233-I14UN** | | 10 | 9.00 | 73 | 23.3 | 3 | 3 | 9.4 |

● : Disponibile ○ : A richiesta

## Filettatura profonda

3d ( ℓ2≤3×Diametro filetto)

| Filetto | | Passo | Articolo | PC9070M | Dimensioni(mm) | | | | N. scan. | Tagliente | *Diam. alesaggio |
|---|---|---|---|---|---|---|---|---|---|---|---|
| UNC | UNF | tpi | Interno | | ød | D | L | ℓ2 | z | zt | mm |
| | N.1~72 | 72 | **STMD3T06014L057-I72UN** | | 6 | 1.45 | 57 | 5.75 | 3 | 3 | 1.6 |
| N.4, N.5~40 | N.6~40 | 40 | **STMD3T06021L090-I40UN** | | 6 | 2.10 | 57 | 9.0 | 3 | 3 | 2.3 |
| N.5~40 | N.6~40 | 40 | **STMD3T06024L100-I40UN** | | 6 | 2.45 | 57 | 10.0 | 3 | 3 | 2.6 |
| N.6, N.8~32 | N.10~32 | 32 | **STMD3T06025L110-I32UN** | | 6 | 2.55 | 57 | 11.0 | 3 | 3 | 2.8 |
| N.8~32 | N.10~32 | 32 | **STMD3T06032L130-I32UN** | | 6 | 3.20 | 57 | 13.0 | 3 | 3 | 3.4 |
| | 1/4″ 28 | 28 | **STMD3T06052L196-I28UN** | | 6 | 5.25 | 57 | 19.6 | 3 | 3 | 5.5 |
| | 5/16″×24 | 24 | **STMD3T08066L245-I24UN** | | 8 | 6.68 | 63 | 24.5 | 3 | 3 | 6.9 |
| 1/4″×20 | 7/16″×20 | 20 | **STMD3T06048L198-I20UN** | | 6 | 4.88 | 57 | 19.8 | 3 | 3 | 5.1 |

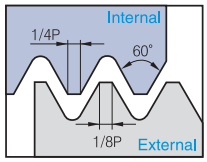
∗ Il diametro di alesaggio si applica al diametro più piccolo del filetto

Lunghezza filetto max. = $\ell_2 - \frac{\text{Passo}}{4}$

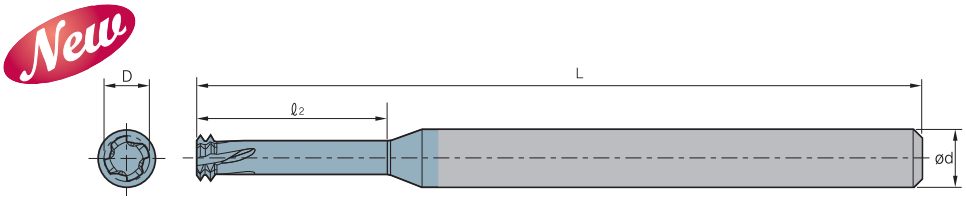
● : Disponibile ○ : A richiesta

# Filettatura ISO

Interno




Defined by : R262 (DIN 13)
Tolleranza : 6H




## Filettatura profonda per materiali duri (~HRC62)

2d ( ℓ2≤2×Diametro filetto)

| Filetto | | Passo | Articolo | PC9070M | Dimensioni(mm) | | | | N. Scan. | Tagliente | *Diam. alesaggio |
|---|---|---|---|---|---|---|---|---|---|---|---|
| M Largo | M Fine | mm | Interno | | ød | D | L | ℓ2 | z | zt | mm |
| M2×0.4 | | 0.4 | **STMD2L06015L042-I0.4ISO** | | 6 | 1.55 | 76 | 4.60 | 4 | 2 | 1.6 |
| M2.2×0.45 | | 0.45 | **STMD2L06016L046-I0.45ISO** | | 6 | 1.65 | 76 | 5.05 | 4 | 2 | 1.8 |
| M2.5×0.45 | | 0.45 | **STMD2L06019L052-I0.45ISO** | | 6 | 1.95 | 76 | 5.65 | 4 | 2 | 2.05 |
| M3×0.5 | M3.5~M16×0.5 | 0.5 | **STMD2L06024L062-I0.5ISO** | | 6 | 2.40 | 76 | 6.75 | 4 | 2 | 2.55 |
| M3.5×0.6 | | 0.6 | **STMD2L06027L073-I0.6ISO** | | 6 | 2.75 | 76 | 7.90 | 4 | 2 | 2.95 |
| M4×0.7 | | 0.7 | **STMD2L06031L083-I0.7ISO** | | 6 | 3.15 | 76 | 9.05 | 4 | 2 | 3.35 |
| M5×0.8 | | 0.8 | **STMD2L06040L104-I0.8ISO** | | 6 | 4.05 | 76 | 11.20 | 4 | 2 | 4.3 |
| M6×1.0 | M8~M40×1.0 | 1.0 | **STMD2L06048L125-I1.0ISO** | | 6 | 4.80 | 76 | 13.50 | 4 | 2 | 5.1 |
| M8×1.25 | | 1.25 | **STMD2L08065L166-I1.25ISO** | | 8 | 6.50 | 80 | 17.85 | 4 | 2 | 6.8 |
| M10×1.5 | M12~M48×1.50 | 1.5 | **STMD2L08079L208-I1.50ISO** | | 8 | 7.90 | 80 | 22.30 | 4 | 2 | 8.6 |
| M12×1.75 | | 1.75 | **STMD2L10099L250-I1.75ISO** | | 10 | 9.90 | 101 | 26.75 | 4 | 2 | 10.4 |

● : Disponibile ○ : A richiesta

## Filettatura profonda per materiali duri (~HRC62)

3d ( ℓ2≤3×Diametro filetto)

| Filetto | | Passo | Articolo | PC9070M | Dimensioni(mm) | | | | N. Scan. | Tagliente | *Diam. alesaggio |
|---|---|---|---|---|---|---|---|---|---|---|---|
| M Coarse | M Fine | mm | Interno | | ød | D | L | ℓ2 | z | zt | mm |
| M2×0.4 | | 0.4 | **STMD2L06015L062-I0.4ISO** | | 6 | 1.55 | 76 | 6.60 | 4 | 2 | 1.6 |
| M2.2×0.45 | | 0.45 | **STMD2L06019L077-I0.45ISO** | | 6 | 1.95 | 76 | 8.15 | 4 | 2 | 2.05 |
| M3×0.5 | M3.5~M16×0.5 | 0.5 | **STMD2L06024L092-I0.5ISO** | | 6 | 2.40 | 76 | 9.75 | 4 | 2 | 2.55 |
| M4×0.7 | | 0.7 | **STMD2L06031L123-I0.7ISO** | | 6 | 3.15 | 76 | 13.05 | 4 | 2 | 3.35 |
| M5×0.8 | | 0.8 | **STMD2L06040L154-I0.8ISO** | | 6 | 4.05 | 76 | 16.20 | 4 | 2 | 4.3 |
| M6×1.0 | M8~M40×1.0 | 1.0 | **STMD2L06048L185-I1.0ISO** | | 6 | 4.80 | 76 | 19.50 | 4 | 2 | 5.1 |
| M8×1.25 | | 1.25 | **STMD2L08065L246-I1.25ISO** | | 8 | 6.50 | 80 | 25.85 | 4 | 2 | 6.8 |

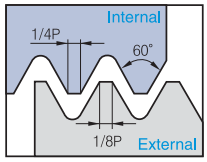
∗ Il diametro di alesaggio si applica al diametro più piccolo del filetto

Lunghezza filetto max. = $\ell_2 - \frac{\text{Passo}}{4}$

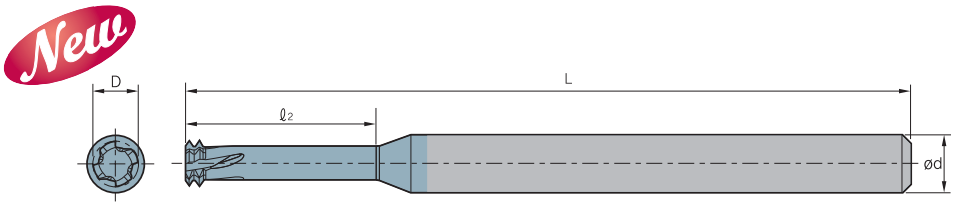
● : Disponibile ○ : A richiesta

# Filettatura UN

Interno




Defined by : ANSI B1.1.74
Tolleranza : 2B




## Filettatura profonda per materiali duri (~HRC62)

2d ( ℓ2≤2×Diametro filetto)

| Filetto | | Passo | Articolo | PC9070M | Dimensioni(mm) | | | | N. scan. | Tagliente | *Diam. alesaggio |
|---|---|---|---|---|---|---|---|---|---|---|---|
| UNC | UNF | tpi | Interno | | ød | D | L | ℓ2 | z | zt | mm |
| N.2~56 | N.3~56 | 56 | **STMD2L06016L050-I56UN** | | 6 | 1.65 | 76 | 5.45 | 4 | 2 | 1.80 |
| N.3~48 | N.4~48 | 48 | **STMD2L06019L060-I48UN** | | 6 | 1.90 | 76 | 6.53 | 4 | 2 | 2.10 |
| N.4~40 ; N.5-40 | N.6~40 | 40 | **STMD2L06021L060-I40UN** | | 6 | 2.10 | 76 | 6.64 | 4 | 2 | 2.35 |
| N.5~40 | N.6~40 | 40 | **STMD2L06024L072-I40UN** | | 6 | 2.45 | 76 | 7.84 | 4 | 2 | 2.65 |
| | N.8~36 | 36 | **STMD2L06033L087-I36UN** | | 6 | 3.30 | 76 | 9.41 | 4 | 2 | 3.55 |
| N.6~32 ; N.8~32 | N.10~32 | 32 | **STMD2L06025L074-I32UN** | | 6 | 2.55 | 76 | 8.20 | 4 | 2 | 2.85 |
| N.8~32 | N.10~32 | 32 | **STMD2L06032L100-I32UN** | | 6 | 3.20 | 76 | 10.79 | 4 | 2 | 3.50 |
| | 1/4″×28 | 28 | **STMD2L06052L132-I28UN** | | 6 | 5.25 | 76 | 14.11 | 4 | 2 | 5.55 |
| N.10~24 | 5/16″×24 | 24 | **STMD2L06035L102-I24UN** | | 6 | 3.58 | 76 | 11.26 | 4 | 2 | 3.90 |
| | 5/16″×24 | 24 | **STMD2L08066L165-I24UN** | | 8 | 6.68 | 76 | 17.56 | 4 | 2 | 7.00 |
| 1/4″×20 | 7/16″×20 | 20 | **STMD2L06048L134-I20UN** | | 6 | 4.88 | 76 | 14.67 | 4 | 2 | 5.20 |
| | 7/16″×20 | 20 | **STMD2L10095L230-I20UN** | | 10 | 9.55 | 101 | 24.27 | 4 | 2 | 9.90 |
| 3/8″×16 | | 16 | **STMD2L08076L197-I16UN** | | 8 | 7.65 | 80 | 21.29 | 4 | 2 | 8.00 |
| 7/16″×14 | | 14 | **STMD2L10090L233-I14UN** | | 10 | 9.00 | 101 | 25.11 | 4 | 2 | 9.50 |
| 1/2″×13 | | 13 | **STMD2L10099L256-I13UN** | | 10 | 9.90 | 101 | 27.55 | 4 | 2 | 10.90 |

● : Disponibile ○ : A richiesta

## Filettatura profonda per materiali duri (~HRC62)

3d ( ℓ2≤3×Diametro filetto)

| Filetto | | Passo | Articolo | PC9070M | Dimensioni(mm) | | | | N. scan. | Tagliente | *Diam. alesaggio |
|---|---|---|---|---|---|---|---|---|---|---|---|
| UNC | UNF | tpi | Interno | | ød | D | L | ℓ2 | z | zt | mm |
| N.4~40, N.5~40 | N.6~40 | 40 | **STMD2L06021L090-I40UN** | | 6 | 2.10 | 76 | 9.64 | 4 | 2 | 2.35 |
| N.5~40 | N.6~40 | 40 | **STMD2L06024L100-I40UN** | | 6 | 2.45 | 76 | 10.64 | 4 | 2 | 2.65 |
| N.6~32, N.8~32 | N.10~32 | 32 | **STMD2L06025L110-I32UN** | | 6 | 2.55 | 76 | 11.79 | 4 | 2 | 2.85 |
| N.8~32 | N.10~32 | 32 | **STMD2L06032L130-I32UN** | | 6 | 3.20 | 76 | 13.79 | 4 | 2 | 3.50 |
| | 1/4″×28 | 28 | **STMD2L06052L196-I28UN** | | 6 | 5.25 | 76 | 20.51 | 4 | 2 | 5.55 |
| | 5/16″×24 | 24 | **STMD2L08066L245-I24UN** | | 8 | 6.68 | 80 | 25.56 | 4 | 2 | 7.00 |
| 1/4″~20 | 7/16″×20 | 20 | **STMD2L06048L198-I20UN** | | 6 | 4.88 | 76 | 21.07 | 4 | 2 | 5.20 |
| 7/16″×14 | | 14 | **STMD2L10090L335-I14UN** | | 10 | 9.00 | 101 | 35.31 | 4 | 2 | 9.50 |

∗ Il diametro di alesaggio si applica al diametro più piccolo del filetto

Lunghezza filetto max. = $\ell_2 - \frac{\text{Passo}}{4}$

● : Disponibile ○ : A richiesta

# INDICE

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E


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Modulo d'ordine per frese per ingranaggi E227

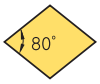
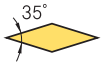
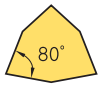



# E Sistema di codifica per inserti di fresatura (ISO)

| S | P | K | R | 12 |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| Forma dell'inserto | Angolo di spoglia | Tolleranza | Caratteristiche costruttive | Lunghezza del tagliente, diametro del cerchio inscritto |

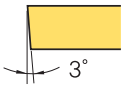
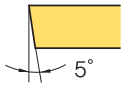
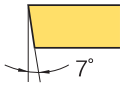
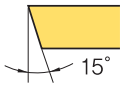
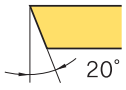
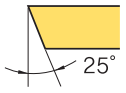
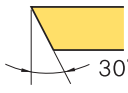
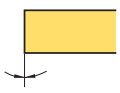
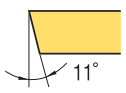
## 1 S P K R 12 03 ED 08 S R - MX

### Forma dell'inserto

| | | | | | |
|---|---|---|---|---|---|
|  A |  C |  D |  H |  L |  O |
|  R |  S |  T |  V |  W | |

## 2 S P K R 12 03 ED 08 S R - MX

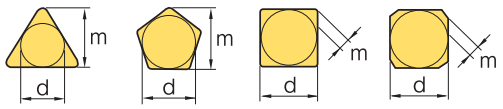
### Angolo di spoglia

| | | | | |
|---|---|---|---|---|
|  A |  B |  C |  D |  E |
|  F |  G |  N |  P | |

## 3 S P K R 12 03 ED 08 S R - MX

### Tolleranza

d : Cerchio inscritto
t : Spessore
m : Vedi disegno




(mm)

| Classe | d | m | t |
|---|---|---|---|
| A | ±0.025 | ±0.005 | ±0.025 |
| C | ±0.025 | ±0.013 | ±0.025 |
| H | ±0.013 | ±0.013 | ±0.025 |
| E | ±0.025 | ±0.025 | ±0.025 |
| G | ±0.025 | ±0.025 | ±0.13 |
| J | ±0.05 ~ ±0.15 | ±0.005 | ±0.025 |
| K | ±0.05 ~ ±0.15 | ±0.013 | ±0.025 |
| L | ±0.05 ~ ±0.15 | ±0.025 | ±0.025 |
| M | ±0.05 ~ ±0.15 | ±0.08 ~ ±0.20 | ±0.13 |
| U | ±0.08 ~ ±0.25 | ±0.13 ~ ±0.38 | ±0.13 |

■ Tolleranza forma dell'inserto C,E,H,M,O,P,R,S,T,W (caso eccezionale)

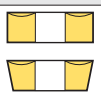
| d | Tolleranza d | | Tolleranza m | |
|---|---|---|---|---|
| | J,K,L,M,N | U | M,N | U |
| 6.35 | ±0.05 | ±0.08 | ±0.08 | ±0.13 |
| 9.525 | ±0.05 | ±0.08 | ±0.08 | ±0.13 |
| 12.7 | ±0.08 | ±0.13 | ±0.13 | ±0.20 |
| 15.875 | ±0.10 | ±0.18 | ±0.15 | ±0.27 |
| 19.05 | ±0.10 | ±0.18 | ±0.15 | ±0.27 |
| 25.4 | ±0.13 | ±0.25 | ±0.18 | ±0.38 |

■ Tolleranza forma dell'inserto D (caso eccezionale)

| d | Tolleranza d | Tolleranza m |
|---|---|---|
| 6.35 | ±0.05 | ±0.11 |
| 9.525 | ±0.05 | ±0.11 |
| 12.7 | ±0.08 | ±0.15 |
| 15.875 | ±0.10 | ±0.18 |
| 19.05 | ±0.10 | ±0.18 |

## 4 S P K R 12 03 ED 08 S R - MX

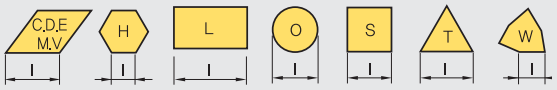
### Caratteristiche costruttive

| | | | |
|---|---|---|---|
|  A |  B |  C |  F |
|  G |  H |  J |  M |
|  N |  Q |  R |  T |
|  U |  W | speciale X | |

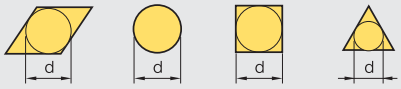
## 5 S P K R 12 03 ED 08 S R - MX

### Lunghezza del tagliente, diametro del cerchio inscritto

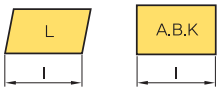
■ Sistema metrico




■ Pollici




· Utilizzare unità 1/32″ per inserti dal cerchio inscritto inferiore a 1/4″
· Utilizzare unità 1/8″ per inserti dal cerchio inscritto maggiore di 1/4″




※ In caso di inserto rettangolare o a rombo, indicare la lunghezza del tagliente invece del cerchio inscritto.

■ Tabella delle corrispondenze tra sistema metrico e pollici

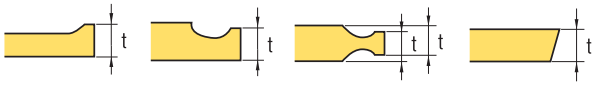
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| △ | 06 | 09 | 11 | 16 | 22 | 27 | 33 | 44 |
| ○ □ | 03 | 05 | 06 | 09 | 12 | 15 | 19 | 25 |
| 55° | 04 | 06 | 07 | 11 | 15 | 19 | 23 | 31 |
| 80° | 03 | 05 | 06 | 09 | 12 | 16 | 19 | 25 |
| Cerchio inscritto | 5/32″ | 7/32″ | 1/4″ | 3/8″ | 1/2″ | 5/8″ | 3/4″ | 1″ |
| Pollici | 5 | 7 | 2(8) | 3 | 4 | 5 | 6 | 8 |

# 03 ED 08 S R - MX

| 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|
| Spessore | Raggio di punta (R) | Preparazione tagliente | Tipo di esecuzione | Rompitruciolo di fresatura |

## 6 S P K R 12 **03** ED 08 S R - MX

### Spessore

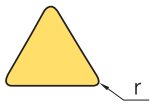



| Simbolo | | Spessore (t) | |
|---|---|---|---|
| Metrico | Pollici | mm | Pollici |
| 01 | 1(2) | 1.59 | 1/16 |
| T0 | 1.125 | 1.79 | 9/128 |
| T1 | 1.2 | 1.98 | 5/64 |
| 02 | 1.5(3) | 2.38 | 3/32 |
| T2 | 1.75 | 2.78 | 7/64 |
| 03 | 2 | 3.18 | 1/8 |
| T3 | 2.5 | 3.97 | 5/32 |
| 04 | 3 | 4.76 | 3/16 |
| 05 | 3.5 | 5.56 | 7/32 |
| 06 | 4 | 6.35 | 1/4 |
| 07 | 5 | 7.94 | 5/16 |
| 09 | 6 | 9.52 | 3/8 |
| 11 | 7 | 11.11 | 7/16 |
| 12 | 8(16) | 12.70 | 1/2 |

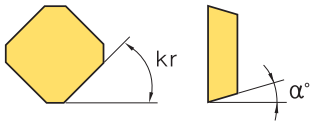
( ) Simbolo per inserti di piccolo diametro

## 7 S P K R 12 03 **ED 08** S R - MX

### Raggio di punta (R)



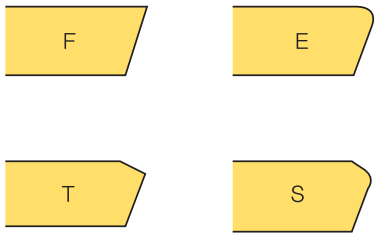

| r | | Simbolo | | r | | Simbolo | |
|---|---|---|---|---|---|---|---|
| mm | Pollici | mm | Pollici | mm | Pollici | mm | Pollici |
| 00 | 0 | 0.0 | | 12 | 3 | 1.2 | 3/64 |
| 02 | | 0.2 | | 15 | | 1.5 | |
| 04 | 1 | 0.4 | 1/64 | 16 | 4 | 1.6 | 4/64 |
| 05 | | 0.5 | | 24 | 6 | 2.4 | 6/64 |
| 08 | 2 | 0.8 | 2/64 | 32 | 8 | 3.2 | 8/64 |
| 10 | | 1.0 | | 40 | | 4.0 | |




| Angolo di registrazione | Angolo di spoglia | |
|---|---|---|
| kr | α° | |
| A - 45° | A - 3° | F - 25° |
| D - 60° | B - 5° | G - 30° |
| E - 75° | C - 7° | N - 0 ° |
| F - 85° | D - 15° | P - 11° |
| P - 90° | E - 20° | |
| Z - Speciale | | |

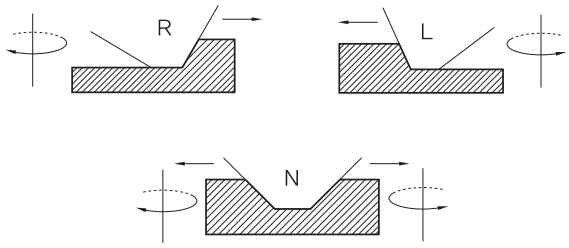
## 8 S P K R 12 03 ED 08 **S** R - MX

### Preparazione tagliente



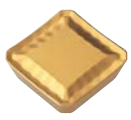
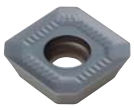
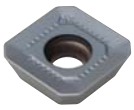

## 9 S P K R 12 03 ED 08 S **R** - MX

### Tipo di esecuzione



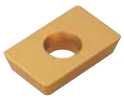
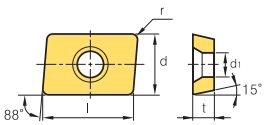
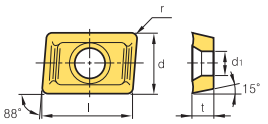
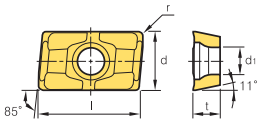
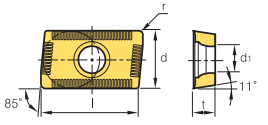
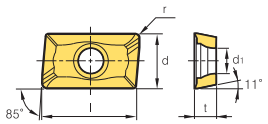
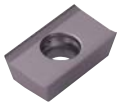
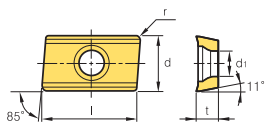
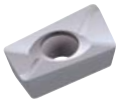
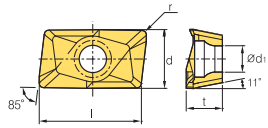
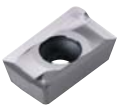
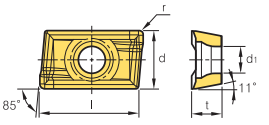
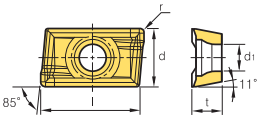
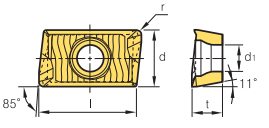
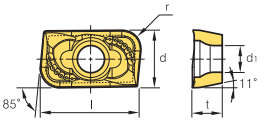

## 10 S P K R 12 03 ED 08 S R - **MX**

### Rompitruciolo di fresatura

| | | | |
|---|---|---|---|
|  |  |  |  |
| MA | MF | MM | MX |
|  |  |  |  |
| MA | MF | MM | MR |
|  |  |  | |
| MA | MF | MM | |

| Pezzo lavorato | | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Acciaio | P | ✱ | ✱ | ● | ✱ | ✱ | ✱ | | | | | | | ✱ | | | ✱ | |
| | Acciaio inossidabile | M | | | | ✱ | ✱ | ✱ | | | | | | | | | | | |
| | Ghisa | K | | | ✱ | ✱ | | | | ✱ | | | | | | | ✱ | | |
| | Materiali non ferrosi | N | | | | ✱ | | | | | | ● | | | | ✱ | | | |
| | Leghe resist. al calore, lega titanio | S | | | | ✱ | ✱ | | | | | | | | | | | | |
| | Materiali temprati | H | | | | ✱ | | | | | | | | | | | | | |

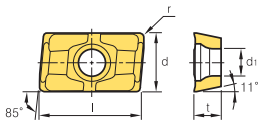
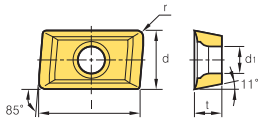
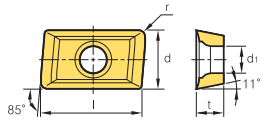
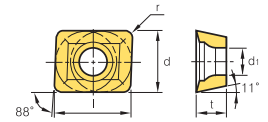
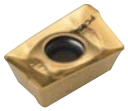
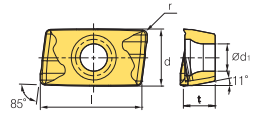
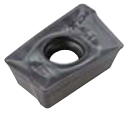
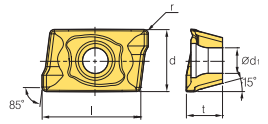
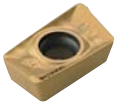
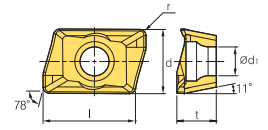
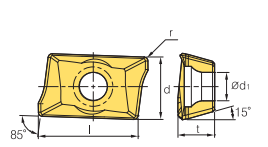
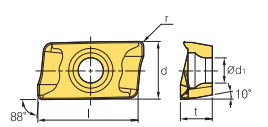
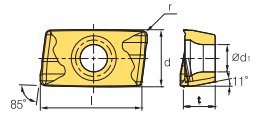
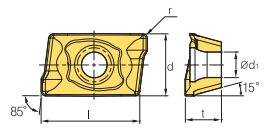
Applicazioni
● Taglio continuo
✱ Uso generico
✱ Taglio interrotto

| Inserti | Articolo | Rivestito | | | | | | | | | | Cermet | | | Non rivestito | | | | Dimensioni (mm) | | | | | Geometria | Utensili disponibili |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | l | d | t | r | $d_1$ | | |
| **ADKA**  | **ADKA 150308R** | | | | | | | | | | | | | | | | | | 15.0 | 9.525 | 3.18 | 0.8 | 4.5 |  | - |
| | **150308SR** | ● | | | | | | | | | | | | | | | | | 15.0 | 9.525 | 3.18 | 0.8 | 4.5 | | |
| | **150308TR** | | | | | | | | | | | | | ● | | | | | 15.0 | 9.525 | 3.18 | 0.8 | 4.5 | | |
| **ADLT**  | **ADLT 150308R** | ● | | | | | | | | | | | | | | | | | 15.0 | 9.525 | 3.18 | 0.8 | 4.5 |  | E149 |
| | **150308SR** | | | | ● | | | | | | | | | | | | ● | | 15.0 | 9.525 | 3.18 | 0.8 | 4.5 | | |
| | **150308TR** | | | | | | | | | | | | | ● | | | | | 15.0 | 9.525 | 3.18 | 0.8 | 4.5 | | |
| **APFT-X22**  | **APFT 1604PDSR-X22** | | | | ● | | | | | | | | | | | | | | 16.4 | 9.525 | 4.76 | 0.8 | 4.4 |  | E85 E94 |
| | **1604PDTR-X22** | | | | | | | | | | | | | | | | | | 16.4 | 9.525 | 4.76 | 0.8 | 4.4 | | |
| **APFT-X28**  | **APFT 1604PDR-X28** | | | | | | | | | | | | | | | | | | 16.4 | 9.525 | 4.76 | 0.8 | 4.4 |  | E85 E94 |
| | **1604PDSR-X28** | | | | | | | | | | | | | | | | | | 16.4 | 9.525 | 4.76 | 0.8 | 4.4 | | |
| | **1604PDTR-X28** | | | | | | | | | | | | | | | | | | 16.4 | 9.525 | 4.76 | 0.8 | 4.4 | | |
| **APKT**  | **APKT 1604PDSR** | ● | | | ● | | | | ● | | | | | | | | | | 16.4 | 9.525 | 4.76 | 0.8 | 4.4 |  | E85 E94 |
| **APKT-MA**  | **APKT 1604PDFR-MA** | | | | | | | | | | ● | | | ● | | | | | 16.4 | 9.525 | 4.76 | 0.2 | 4.4 |  | E85 E94 |
| **APKT-MA2**  | **APKT 1604PDFR-MA2** | | | | | | | | | | | | | | | | | | 16.5 | 9.56 | 5.76 | 0.8 | 4.5 |  | E85 E94 |
| | **160416FR-MA2** | | | | | | | | | | | | | | | | | | 16.5 | 9.56 | 5.76 | 1.6 | 4.5 | | |
| | **160432FR-MA2** | | | | | | | | | | | | | | | | | | 16.5 | 9.56 | 5.76 | 3.2 | 4.5 | | |
| **APKT-MA3**  | **APKT 1604PDFR-MA3** | | | | | | | | | | | | | | ● | | | | 16.4 | 9.525 | 5.0 | 0.8 | 4.4 |  | E85 E94 |
| | **160420FR-MA3** | | | | | | | | | | | | | | | | | | | | | | | | |
| **APKT-MF**  | **APKT 1604PDSR-MF** | ● | | | | ● | | | | | | | | | | | | | 16.4 | 9.525 | 5.0 | 0.8 | 4.4 |  | E85 E94 E99 |
| | | | | | | | | | | | | | | | | | | | 16.0 | 9.525 | 5.0 | 2.0 | 4.4 | | |
| **APKT-MM**  | **APKT 1604PDSR-MM** | ● | ● | | ● | ● | ● | ● | ● | | | | | | | | | | 16.4 | 9.525 | 5.2 | 0.8 | 4.4 |  | E85 E94 E99 |
| **APKT-MM1**  | **APKT 160432R-MM1** | ● | | | | | | | | | | | | | | | | | 16.4 | 9.525 | 4.76 | 3.2 | 4.4 |  | E85 E94 |

● : Disponibile ○ : A richiesta

| Pezzo lavorato | | |
|---|---|---|
| Acciaio | P | ● ● ✱ ✱ |
| Acciaio inossidabile | M | ✱ ✱ |
| Ghisa | K | ● ✱ |
| Materiali non ferrosi | N | |
| Leghe resist. al calore, lega titanio | S | ✱ ✱ |
| Materiali temprati | H | ● |

Applicazioni
● Taglio continuo
● Uso generico
✱ Taglio interrotto

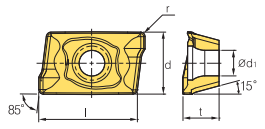
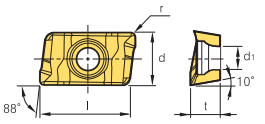
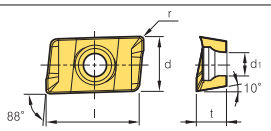
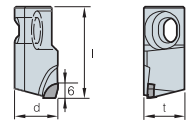
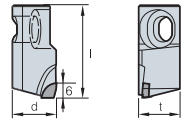
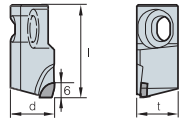
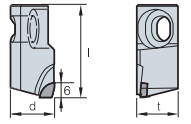
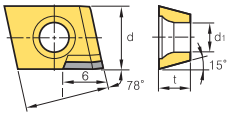
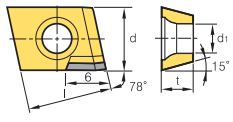
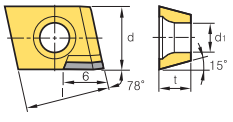
| Inserti | Articolo | | Rivestito | | | | | | | | | Cermet | | | Non rivestito | | | | Dimensioni (mm) | | | | | Geometria | Utensili disponibili |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | l | d | t | r | $d_1$ | | |
| **APKT-X22**  | APKT | 1604PDSR-X22 | ● | | | | | | | | | | | | | | | | | 16.4 | 9.525 | 4.76 | 0.8 | 4.4 |  | E85 E94 |
| | | 1604PDTR-X22 | | | | | | | | | | | | | | | | | | 16.4 | 9.525 | 4.76 | 0.8 | 4.4 | | |
| **APKT-X23**  | APKT | 1604PDR-X23 | | | | | | | | | | | | | | | | | | 16.3 | 9.525 | 4.76 | 1.0 | 4.4 |  | E85 E94 |
| | | 1604PDTR-X23 | | | | | | | | | | | | | | | | | | 16.3 | 9.525 | 4.76 | 1.0 | 4.4 | | |
| **APKT-X24**  | APKT | 1604PDR-X24 | | | | | | | | | | | | | | | | | | 16.3 | 9.525 | 4.76 | 1.0 | 4.4 |  | E85 E94 |
| | | 1604PDFR-X24 | | | | | | | | | | | | | | | | | | 16.3 | 9.525 | 4.76 | 1.0 | 4.4 | | |
| **APLT**  | APLT | 070304R | ● | | | | | | | | | | | | | | | | | 7.5 | 6.35 | 3.18 | 0.4 | 2.8 |  | E149 |
| **APMT-MF**  | APMT | 11T3PDSR-MF | ● | | ● | ● | ● | ● | | | | | | | | | | | | 11.2 | 6.467 | 3.6 | 0.5 | 2.85 |  | E84~ E110 |
| | | 1604PDSR-MF | ● | | ● | ● | ● | ● | | | | | | | | | | | | 16.4 | 9.41 | 5.76 | 0.8 | 4.5 | | |
| | | 1806PDSR-MF | ● | | ● | ● | ● | ● | | | | | | | | | | | | 17.4 | 10.98 | 6.35 | 0.8 | 4.5 | | |
| **APMT-ML**  | APMT | 1806PDSR-ML | ● | | ● | ● | ● | ● | | | | | | | | | | | | 17.4 | 10.98 | 6.35 | 0.8 | 4.5 |  | E86, E89 E95, E98 E103, E105 E108 E110 |
| **APMT-MM**  | APMT | 060202PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | 6 | 4.24 | 2.6 | 0.2 | 2.0 |  | E84~ E110 |
| | | 0602PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | 6 | 4.24 | 2.6 | 0.4 | 2.0 | | |
| | | 060208PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | 6 | 4.24 | 2.6 | 0.8 | 2.0 | | |
| | | 060212R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | 6 | 4.24 | 2.6 | 1.2 | 2.0 | | |
| | | 060216R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | 6 | 4.24 | 2.6 | 1.6 | 2.0 | | |
| | | 0903PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | 9.4 | 6.21 | 3.6 | 0.4 | 2.8 |  | |
| | | 090308PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | 9.4 | 6.21 | 3.6 | 0.8 | 2.8 | | |
| | | 090312R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | 9.4 | 6.21 | 3.6 | 1.2 | 2.8 | | |
| | | 090316R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | 9.4 | 6.21 | 3.6 | 1.6 | 2.8 | | |
| | | 090320R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | 9.2 | 6.21 | 3.6 | 2.0 | 2.8 | | |
| | | 090331R-MM | | | | | | | | | | | | | | | | | | 9.2 | 6.21 | 3.6 | 3.1 | 2.8 | | |
| | | 090332R-MM | | | | | | | | | | | | | | | | | | 9.2 | 6.21 | 3.6 | 3.2 | 2.8 | | |
| | | 11T3PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | 11.2 | 6.467 | 3.6 | 0.5 | 2.85 |  | |
| | | 11T308PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | 11.2 | 6.467 | 3.6 | 0.8 | 2.85 | | |
| | | 11T312PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | 11.2 | 6.467 | 3.6 | 1.2 | 2.85 | | |
| | | 11T316R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | 11 | 6.467 | 3.6 | 1.6 | 2.85 | | |
| | | 11T318R-MM | | | | | | | | | | | | | | | | | | 11 | 6.467 | 3.6 | 1.8 | 2.85 | | |
| | | 11T324R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | 11 | 6.467 | 3.6 | 2.4 | 2.85 | | |
| | | 1604PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | 16.4 | 9.41 | 5.76 | 0.8 | 4.5 |  | |
| | | 160410PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | 16.4 | 9.41 | 5.76 | 1.0 | 4.5 | | |
| | | 160416PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | 16.4 | 9.41 | 5.76 | 1.6 | 4.5 | | |
| | | 160424R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | 16 | 9.41 | 5.76 | 2.4 | 4.5 | | |
| | | 160430R-MM | | | | | | | | | | | | | | | | | | 16 | 9.41 | 5.76 | 3.0 | 4.5 | | |
| | | 160432R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | 16 | 9.41 | 5.76 | 3.2 | 4.5 | | |
| | | 180604PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | 17.4 | 10.98 | 6.35 | 0.4 | 4.5 |  | |
| | | 1806PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | 17.4 | 10.98 | 6.35 | 0.4 | 4.5 | | |
| | | 180612PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | 17.4 | 10.98 | 6.35 | 1.2 | 4.5 | | |
| | | 180616PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | 17.4 | 10.98 | 6.35 | 1.6 | 4.5 | | |
| | | 180620PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | 17.4 | 10.98 | 6.35 | 2.0 | 4.5 | | |
| | | 180624PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | 17.4 | 10.98 | 6.35 | 2.4 | 4.5 | | |

● : Disponibile ○ : A richiesta

# E Inserti di fresatura

| Pezzo lavorato | | |
|---|---|---|
| Acciaio | P | ⇕ |
| Acciaio inossidabile | M | |
| Ghisa | K | |
| Materiali non ferrosi | N | ● ⇕ |
| Leghe resist. al calore, lega titanio | S | |
| Materiali temprati | H | |

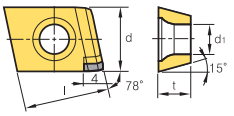
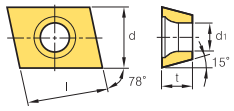
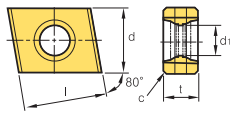
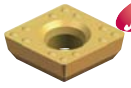
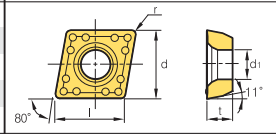
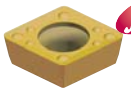
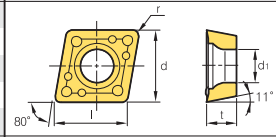
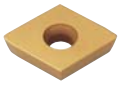
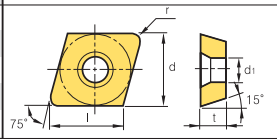
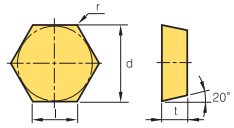
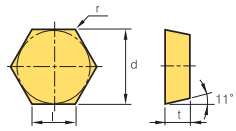
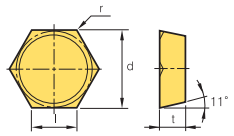
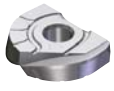
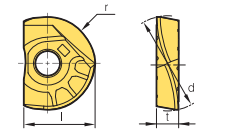
Applicazioni
● Taglio continuo
⇕ Uso generico
⇔ Taglio interrotto

| Inserti | Articolo | Rivestito | | | | | | | | | Cermet | | | Non rivestito | | | | Dimensioni (mm) | | | | | | Geometria | Utensili disponibili |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | l | d | t | r | $d_1$ | C | | |
| **APMT-MM** New | APMT 180630R-MM | | | | | | | | | | ● | | | | | | | | 16.7 | 10.98 | 6.35 | 3.0 | 4.5 | - |  | E84~ E110 |
| | 180632R-MM | | | | | | | | | | ● | | | | | | | | 16.7 | 10.98 | 6.35 | 3.2 | 4.5 | - | | |
| | 180640R-MM | | | | | | | | | | ● | | | | | | | | 16.7 | 10.98 | 6.35 | 4.0 | 4.5 | - | | |
| | 180648R-MM | | | | | | | | | | ● | | | | | | | | 16.7 | 10.98 | 6.35 | 4.8 | 4.5 | - | | |
| | 180650R-MM | | | | | | | | | | ● | | | | | | | | 16.7 | 10.98 | 6.35 | 5.0 | 4.5 | - | | |
| | 180660R-MM | | | | | | | | | | ● | | | | | | | | 16.7 | 10.98 | 6.35 | 6.0 | 4.5 | - | | |
| | 180664R-MM | | | | | | | | | | ● | | | | | | | | 16.7 | 10.98 | 6.35 | 6.4 | 4.5 | - | | |
| **APXT-MA**  | APXT 11T3PDR-MA | | | | | | | | | | | | | | ● | | | | 11.3 | 6.594 | 3.6 | 0.5 | 2.85 | - |  | E92 E96 E99 E100 |
| | 11T318R-MA | | | | | | | | | | | | | | ● | | | | 11.3 | 6.594 | 3.6 | 1.8 | 2.85 | - | | |
| **APXT-MR**  | APXT 11T3PDSR-MR | ● | | | ● | | | | | | | | | | | | | | 11.3 | 6.594 | 3.6 | 0.5 | 2.85 | - |  | E96 |
| | 11T308PDR-MR | ● | | | ● | | | | | | | | | | | | | | 11.3 | 6.594 | 3.6 | 0.8 | 2.85 | - | | |
| **BAPDR/L-XAF**  Tagliente affilato | BAPDR-XAF | | | | | | | | | | ● | | | | | | | | 31 | 14 | 13.8 | - | - | - |  | E77 |
| | BAPDL-XAF | | | | | | | | | | ● | | | | | | | | 31 | 14 | 13.8 | - | - | - | | |
| **BAPDR/L-XAW**  Tagliente affilato Inserto Wiper | BAPDR -XAW | | | | | | | | | | ● | | | | | | | | 31 | 13.8 | 13.8 | - | - | - |  | E77 |
| | BAPDL- XAW | | | | | | | | | | ● | | | | | | | | 31 | 13.8 | 13.8 | - | - | - | | |
| **BAPDR-NAF**  Tagliente rinforzato | BAPDR-NAF | | | | | | | | | | | | | | | | | | 31 | 14 | 13.8 | - | - | - |  | E77 |
| **BAPDR/L-NAW**  Tagliente rinforzato Inserto Wiper | BAPDR-NAW | | | | | | | | | | | | | | | | | | 31 | 13.8 | 13.8 | - | - | - |  | E77 |
| | BAPDL-NAW | | | | | | | | | | | | | | | | | | 31 | 13.8 | 13.8 | - | - | - | | |
| **CDEW-NAF**  Tagliente rinforzato | CDEW 1204R-NAF | | | | | | | | | | ● | | | | | | | | 12.7 | 9.525 | 4.76 | - | 4.4 | - |  | E77 |
| | 1204L-NAF | | | | | | | | | | ● | | | | | | | | 12.7 | 9.525 | 4.76 | - | 4.4 | - | | |
| **CDEW-NAW**  Tagliente rinforzato Inserto Wiper | CDEW 1204R-NAW | | | | | | | | | | ● | | | | | | | | 12.7 | 9.525 | 4.76 | - | 4.4 | - |  | E77 |
| | 1204L-NAW | | | | | | | | | | ● | | | | | | | | 12.7 | 9.525 | 4.76 | - | 4.4 | - | | |
| **CDEW-XAF**  Tagliente affilato | CDEW 1204R-XAF | | | | | | | | | | ● | | | | | | | | 12.7 | 9.525 | 4.76 | - | 4.4 | - |  | E77 |
| | 1204L-XAF | | | | | | | | | | ● | | | | | | | | 12.7 | 9.525 | 4.76 | - | 4.4 | - | | |

● : Disponibile ○ : A richiesta

| Pezzo lavorato | | |
|---|---|---|
| Acciaio | P | |
| Acciaio inossidabile | M | |
| Ghisa | K | |
| Materiali non ferrosi | N | |
| Leghe resist. al calore, lega titanio | S | |
| Materiali temprati | H | |

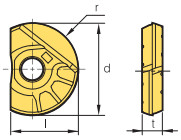
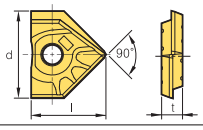
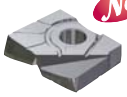
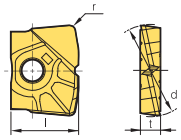
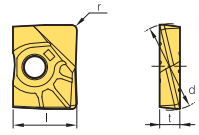
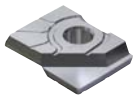
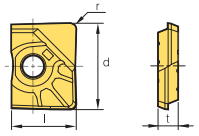
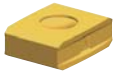
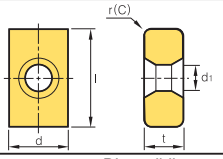
Applicazioni
● Taglio continuo
Uso generico
Taglio interrotto

| Inserti | Articolo | | Rivestito | | | | | | | | | Cermet | | | Non rivestito | | | | Dimensioni (mm) | | | | | | Geometria | Utensili disponibili |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC210F | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | l | d | t | r | $d_1$ | C | | |
| **CDEW-XAW**  Tagliente affilato Inserto Wiper | CDEW | 1204R-XAW | | | | | | | | | ● | ● | | | | | | | | 12.7 | 9.525 | 4.76 | - | 4.4 | - |  | E77 |
| | | 1204L-XAW | | | | | | | | | ● | ● | | | | | | | | 12.7 | 9.525 | 4.76 | - | 4.4 | - | | |
| **CDEW-XCF**  Tagliente affilato | CDEW | 1204R-XCF | | | | | | | | | | | | | | ● | | | | 12.7 | 9.525 | 4.76 | - | 4.4 | - |  | E77 |
| | | 1204L-XCF | | | | | | | | | | | | | | | | | | 12.7 | 9.525 | 4.76 | - | 4.4 | - | | |
| **CNHQ**  | CNHQ | 1005-C0.5 | | | | | | | | | | | | | | | | | | 10 | 10 | 5.4 | - | 4.7 | 0.5 |  | E187 E188 |
| | | 1305-C0.5 | | | | | | | | | | | | | | | | | | 12.7 | 10 | 5.4 | - | 4.7 | 0.5 | | |
| | | 1606-C0.5 | | | | | | | | | | | | | | | | | | 16 | 12 | 6.4 | - | 5.9 | 0.5 | | |
| **CPMH**  New | CPMH | 120408-MM | | | | ● | | | | | | | | | | | | | | 12.9 | 12.7 | 4.76 | 0.8 | 5.5 | - |  | E171 |
| **CPMT**  New | CPMT | 060204-MM | | | | ● | | | | | | | | | | | | | | 6.4 | 6.35 | 2.38 | 0.4 | 2.75 | - |  | E171 |
| | | 080308-MM | | | | ● | | | | | | | | | | | | | | 8.1 | 7.938 | 3.40 | 0.8 | 3.18 | - | | |
| | | 09T308-MM | | | | ● | | | | | | | | | | | | | | 9.7 | 9.525 | 3.97 | 0.8 | 4.4 | - | | |
| **EDCW**  | EDCW | 1604ZDFR | | | | | | | | | | | | | | | | ● | | 16.4 | 15.875 | 4.76 | 0.8 | 5.5 | - |  | E205 |
| | | 1605ZDTR | | | | | | | | | | | | | | | | | | 16.4 | 15.875 | 4.76 | 0.8 | 5.5 | - | | |
| **HECN**  | HECN | 090408FN | | | | | | | | | | | | | | | | | | 9.0 | 15.875 | 4.76 | 0.8 | - | - |  | E205 |
| | | 090408SN | | | | | | | | | | | | | | | | | | 9.0 | 15.875 | 4.76 | 0.8 | - | - | | |
| | | 090408TN | | | | | | | | | | | | | | | | | | 9.0 | 15.875 | 4.76 | 0.8 | - | - | | |
| | | 110412FN | | | | | | | | | | | | | | | | | | 11.0 | 19.05 | 4.76 | 1.2 | - | - | | |
| | | 110412TN | | | | | | | | | | | | | | | | | | 11.0 | 19.05 | 4.76 | 1.2 | - | - | | |
| **HPEN**  | HPEN | 090408FN | | | | | | | | | | | | | | | | | | 9.0 | 15.875 | 4.76 | 0.8 | - | - |  | E206 |
| | | 090408SN | | | | | | | | | | | | | | | | | | 9.0 | 15.875 | 4.76 | 0.8 | - | - | | |
| | | 090408EN | | | | | | | | | | | | | | | | | | 9.0 | 15.875 | 4.76 | 0.8 | - | - | | |
| | | 110412FN | | | | | | | | | | | | | | | | | | 11.0 | 19.05 | 4.76 | 1.2 | - | - | | |
| **HPEN-WC**  | HPEN | 090408-WC | | | | | | | | | | | | | | | | | | 9.0 | 15.875 | 4.76 | 0.8 | - | - |  | E206 |
| | | 110412-WC | | | | | | | | | | | | | | | | | | 11.0 | 19.05 | 4.76 | 1.2 | - | - | | |
| **LBH**  | LBH | 080 | | | | | | | | | ● | | | | | | | | | 7.0 | 8 | 2.4 | 4 | - | - |  | E157 |
| | | 090 | | | | | | | | | ○ | | | | | | | | | 7.5 | 9 | 2.4 | 4.5 | - | - | | |
| | | 100 | | | | | | | | | ● | | | | | | | | | 8.5 | 10 | 2.6 | 5 | - | - | | |
| | | 110 | | | | | | | | | ○ | | | | | | | | | 9.0 | 11 | 2.6 | 5.5 | - | - | | |
| | | 120 | | | | | | | | | ● | | | | | | | | | 10.0 | 12 | 3 | 6 | - | - | | |
| | | 130 | | | | | | | | | ○ | | | | | | | | | 10.5 | 13 | 3 | 6.5 | - | - | | |
| | | 160 | | | | | | | | | ● | | | | | | | | | 12.0 | 16 | 4 | 8 | - | - | | |
| | | 170 | | | | | | | | | ○ | | | | | | | | | 12.5 | 17 | 4 | 8.5 | - | - | | |
| | | 200 | | | | | | | | | ● | | | | | | | | | 15.0 | 20 | 5 | 10 | - | - | | |
| | | 210 | | | | | | | | | ○ | | | | | | | | | 15.5 | 21 | 5 | 10.5 | - | - | | |
| | | 250 | | | | | | | | | ● | | | | | | | | | 18.5 | 25 | 6 | 12.5 | - | - | | |
| | | 260 | | | | | | | | | ○ | | | | | | | | | 19.0 | 26 | 6 | 13 | - | - | | |
| | | 300 | | | | | | | | | ● | | | | | | | | | 22.5 | 30 | 7 | 15 | - | - | | |
| | | 310 | | | | | | | | | ○ | | | | | | | | | 23.0 | 31 | 7 | 15.5 | - | - | | |
| | | 320 | | | | | | | | | ● | | | | | | | | | 23.5 | 32 | 7 | 16 | - | - | | |

● : Disponibile ○ : A richiesta

| Pezzo lavorato | | |
|---|---|---|
| | Acciaio | P |
| | Acciaio inossidabile | M |
| | Ghisa | K |
| | Materiali non ferrosi | N |
| | Leghe resist. al calore, lega titanio | S |
| | Materiali temprati | H |

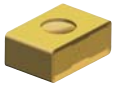
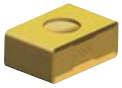
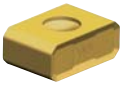
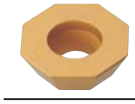
Applicazioni
● Taglio continuo
◓ Uso generico
✠ Taglio interrotto

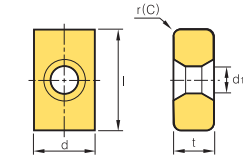
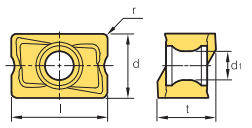
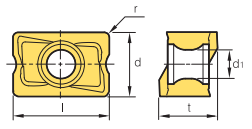
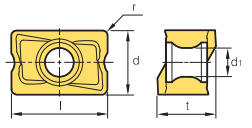
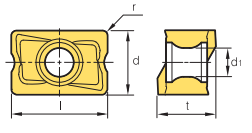
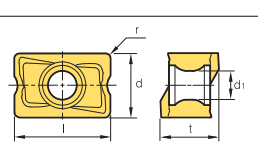
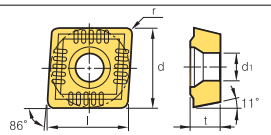
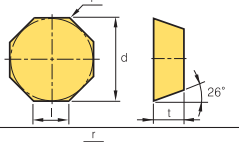
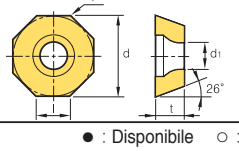
| Inserti | Articolo | | Rivestito | | | | | | | | | Cermet | | | Non rivestito | | | | Dimensioni (mm) | | | | | Geometria | Utensili disponibili |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC210F | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | l | d | t | r | $d_1$ | | |
| LBS  | LBS | 080 | | | | | | | | | ● | | | | | | | | | 7.0 | 8 | 2.4 | 4 | - |  | E157 |
| | | 090 | | | | | | | | | ● | | | | | | | | | 7.5 | 9 | 2.4 | 4.5 | - | | |
| | | 100 | | | | | | | | | ● | | | | | | | | | 8.5 | 10 | 2.6 | 5 | - | | |
| | | 110 | | | | | | | | | ● | | | | | | | | | 9.0 | 11 | 2.6 | 5.5 | - | | |
| | | 120 | | | | | | | | | ● | | | | | | | | | 10.0 | 12 | 3 | 6 | - | | |
| | | 130 | | | | | | | | | ● | | | | | | | | | 10.5 | 13 | 3 | 6.5 | - | | |
| | | 160 | | | | | | | | | ● | | | | | | | | | 12.0 | 16 | 4 | 8 | - | | |
| | | 170 | | | | | | | | | ● | | | | | | | | | 12.5 | 17 | 4 | 8.5 | - | | |
| | | 200 | | | | | | | | | ● | | | | | | | | | 15.0 | 20 | 5 | 10 | - | | |
| | | 210 | | | | | | | | | ● | | | | | | | | | 15.5 | 21 | 5 | 10.5 | - | | |
| | | 250 | | | | | | | | | ● | | | | | | | | | 18.5 | 25 | 6 | 12.5 | - | | |
| | | 260 | | | | | | | | | ● | | | | | | | | | 19.0 | 26 | 6 | 13 | - | | |
| | | 300 | | | | | | | | | ● | | | | | | | | | 22.5 | 30 | 7 | 15 | - | | |
| | | 310 | | | | | | | | | ● | | | | | | | | | 23.0 | 31 | 7 | 15.5 | - | | |
| | | 320 | | | | | | | | | ● | | | | | | | | | 23.5 | 32 | 7 | 16 | - | | |
| LCF  | LCF | 160-D90 | | | | | | | | | ● | | | | | | | | | 13.7 | 16 | 4 | - | - |  | E157 |
| | | 200-D90 | | | | | | | | | ● | | | | | | | | | 17.0 | 20 | 5 | - | - | | |
| | | 250-D90 | | | | | | | | | ● | | | | | | | | | 21.5 | 25 | 6 | - | - | | |
| LFH  | LFH | 100 | | | | | | | | | ● | | | | | | | | | 8.5 | 10 | 2.6 | 1.0 | - |  | E157 |
| | | 120 | | | | | | | | | ● | | | | | | | | | 10.0 | 12 | 3 | 1.0 | - | | |
| | | 160 | | | | | | | | | ● | | | | | | | | | 12.0 | 16 | 4 | 1.5 | - | | |
| | | 200 | | | | | | | | | ● | | | | | | | | | 15.0 | 20 | 5 | 1.5 | - | | |
| | | 250 | | | | | | | | | ● | | | | | | | | | 18.5 | 25 | 6 | 2.0 | - | | |
| | | 300 | | | | | | | | | ● | | | | | | | | | 22.5 | 30 | 7 | 2.0 | - | | |
| | | 320 | | | | | | | | | ● | | | | | | | | | 23.5 | 32 | 7 | 2.0 | - | | |
| LRH  | LR(H) | 100-R05 | | | | | | | | | ● | | | | | | | | | 8.5 | 10 | 2.6 | 0.5 | - |  LRH형 | E157 |
| | | 100-R10 | | | | | | | | | ● | | | | | | | | | 8.5 | 10 | 2.6 | 1.0 | - | | |
| | | 100-R20 | | | | | | | | | ● | | | | | | | | | 8.5 | 10 | 2.6 | 2.0 | - | | |
| | | 110-R05 | | | | | | | | | ○ | | | | | | | | | 9.0 | 11 | 2.6 | 0.5 | - | | |
| | | 120-R05 | | | | | | | | | ● | | | | | | | | | 10.0 | 12 | 3 | 0.5 | - | | |
| | | 120-R10 | | | | | | | | | ● | | | | | | | | | 10.0 | 12 | 3 | 1.0 | - | | |
| | | 120-R20 | | | | | | | | | ● | | | | | | | | | 10.0 | 12 | 3 | 2.0 | - | | |
| | | 130-R05 | | | | | | | | | ○ | | | | | | | | | 10.5 | 13 | 3 | 0.5 | - | | |
| | | 160-R05 | | | | | | | | | ● | | | | | | | | | 12.0 | 16 | 4 | 0.5 | - | | |
| | | 160-R10 | | | | | | | | | ● | | | | | | | | | 12.0 | 16 | 4 | 1.0 | - | | |
| | | 160-R20 | | | | | | | | | ● | | | | | | | | | 12.0 | 16 | 4 | 2.0 | - | | |
| | | 160-R30 | | | | | | | | | ● | | | | | | | | | 12.0 | 16 | 4 | 3.0 | - | | |
| | | 170-R05 | | | | | | | | | ○ | | | | | | | | | 12.5 | 17 | 4 | 0.5 | - | | |
| | | 200-R05 | | | | | | | | | ● | | | | | | | | | 15.0 | 20 | 5 | 0.5 | - | | |
| | | 200-R10 | | | | | | | | | ● | | | | | | | | | 15.0 | 20 | 5 | 1.0 | - | | |
| | | 200-R20 | | | | | | | | | ● | | | | | | | | | 15.0 | 20 | 5 | 2.0 | - | | |
| | | 200-R30 | | | | | | | | | ● | | | | | | | | | 15.0 | 20 | 5 | 3.0 | - | | |
| | | 210-R05 | | | | | | | | | ○ | | | | | | | | | 15.5 | 21 | 5 | 0.5 | - | | |
| | | 250-R05 | | | | | | | | | ● | | | | | | | | | 18.5 | 25 | 6 | 0.5 | - | | |
| | | 250-R10 | | | | | | | | | ● | | | | | | | | | 18.5 | 25 | 6 | 1.0 | - | | |
| | | 250-R20 | | | | | | | | | ● | | | | | | | | | 18.5 | 25 | 6 | 2.0 | - | | |
| | | 250-R30 | | | | | | | | | ● | | | | | | | | | 18.5 | 25 | 6 | 3.0 | - | | |
| | | 260-R05 | | | | | | | | | ● | | | | | | | | | 19.0 | 26 | 6 | 0.5 | - | | |
| | | 300-R10 | | | | | | | | | ○ | | | | | | | | | 22.5 | 30 | 7 | 1.0 | - | | |
| | | 300-R20 | | | | | | | | | ● | | | | | | | | | 22.5 | 30 | 7 | 2.0 | - | | |
| | | 300-R30 | | | | | | | | | ● | | | | | | | | | 22.5 | 30 | 7 | 3.0 | - | | |
| | | 310-R05 | | | | | | | | | ○ | | | | | | | | | 23.0 | 31 | 7 | 0.5 | - | | |
| | | 320-R10 | | | | | | | | | ● | | | | | | | | | 23.5 | 32 | 7 | 1.0 | - | | |
| | | 320-R20 | | | | | | | | | ● | | | | | | | | | 23.5 | 32 | 7 | 2.0 | - | | |
| | | 320-R30 | | | | | | | | | ● | | | | | | | | | 23.5 | 32 | 7 | 3.0 | - | | |
| LR  (speciale) | | | | | | | | | | | | | | | | | | | | | | | | |  LR형 | |
| LNCS  | LNCS | 1907-C1.5-WC | | | | | | | | | | | | | | | | | | - | - | - | - | - | | E213 |
| | | 1907-R3.0-WC | | | | | | | | | | | | | | | | | | - | - | - | - | - | | |
| LNE  | LNE | 324-R0.8 | | | | | | | | | | | | | | | | | | 15.9 | 9.525 | 6.35 | 0.8 | 4.4 |  | |
| | | 324-C1.0 | | | | | | | | | | | | | | | | | | 15.9 | 9.525 | 6.35 | 1.0 | 4.4 | | |

● : Disponible ○ : A richiesta

| Pezzo lavorato | | |
|---|---|---|
| | Acciaio | P |
| | Acciaio inossidabile | M |
| | Ghisa | K |
| | Materiali non ferrosi | N |
| | Leghe resist. al calore, lega titanio | S |
| | Materiali temprati | H |

Applicazioni
● Taglio continuo
Uso generico
Taglio interrotto

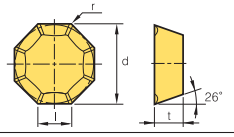
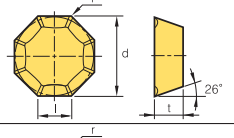
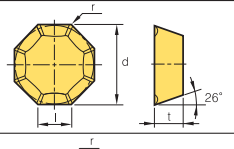
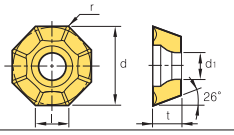
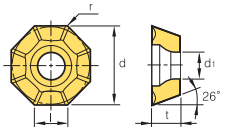
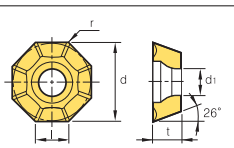
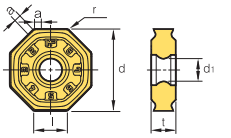
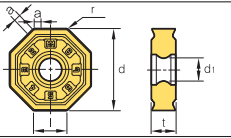
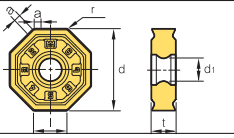
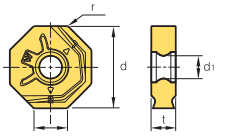
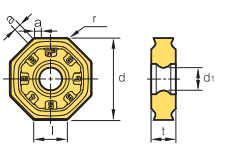
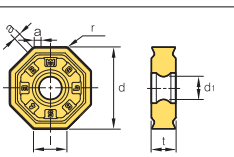
| Inserti | Articolo | | Rivestito | | | | | | | | | Cermet | | | Non rivestito | | | | Dimensioni (mm) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | l | d | t | r | $d_1$ |
| **KEL-MF**  | KEL | 150608-MF | | | | | | | | | | | | | | | | | | 15.88 | 10.2 | 6.35 | 0.8 | - |
| | KEL | 150608-ML | | | | | | | | | | | | | | | | | | 15.88 | 10.2 | 6.35 | 0.8 | - |
| **KEL-QNN**  | KEL | 1506QNN-MF | | | | | | | | | | | | | | | | | | 15.88 | 10.2 | 6.35 | 0.8 | - |
| | KEL | 1506QNN-ML | | | | | | | | | | | | | | | | | | 15.88 | 10.2 | 6.35 | 0.8 | - |
| **KEL-ANN**  | KEL | 1506ANN-MF | | | | | | | | | | | | | | | | | | 15.88 | 10.2 | 6.35 | 0.8 | - |
| | KEL\ | 1506ANN-ML | | | | | | | | | | | | | | | | | | 15.88 | 10.2 | 6.35 | 0.8 | - |
| **LNM(E)X-MF**  | LNMX | 100605PNR-MF | | | | ● | ● | | | ● | | | | | | | | | | 10.0 | 6.5 | 6.5 | 0.5 | 3.5 |
| | LNEX | 100605PNR-MF | | | | ● | ● | | | ● | | | | | | | | | | 10.0 | 6.5 | 6.5 | 0.5 | 3.5 |
| | LNMX | 100608PNR-MF | | | | ● | ○ | | | ● | | | | | | | | | | 10.0 | 6.5 | 6.5 | 0.8 | 3.5 |
| | LNEX | 100608PNR-MF | | | | ● | ○ | | | ● | | | | | | | | | | 10.0 | 6.5 | 6.5 | 0.8 | 3.5 |
| **LNM(E)X-MF**  | LNMX | 151004PNR-MF | | | | ● | ○ | | | ● | | | | | | | | | | 15.0 | 10.0 | 10.0 | 0.4 | 4.5 |
| | LNEX | 151004PNR-MF | | | | ● | ○ | | | ● | | | | | | | | | | 15.0 | 10.0 | 10.0 | 0.4 | 4.5 |
| | LNMX | 151008PNR-MF | | | | ● | ● | | | ● | | | | | | | | | | 15.0 | 10.0 | 10.0 | 0.8 | 4.5 |
| | LNEX | 151008PNR-MF | | | | ● | ● | | | ● | | | | | | | | | | 15.0 | 10.0 | 10.0 | 0.8 | 4.5 |
| | LNMX | 151016PNR-MF | | | | ● | ○ | | | ● | | | | | | | | | | 15.0 | 10.0 | 10.0 | 1.6 | 4.5 |
| | LNEX | 151016PNR-MF | | | | ● | ○ | | | ● | | | | | | | | | | 15.0 | 10.0 | 10.0 | 1.6 | 4.5 |
| **LNM(E)X-MM**  | LNMX | 100605PNR-MM | | | ● | ● | ● | ○ | ○ | ● | | | | | | | | | | 10.0 | 6.5 | 6.5 | 0.5 | 3.5 |
| | LNEX | 100605PNR-MM | | | ● | ● | ● | | | ● | | | | | | | | | | 10.0 | 6.5 | 6.5 | 0.5 | 3.5 |
| | LNMX | 100608PNR-MM | | | | ● | ○ | | | ● | | | | | | | | | | 10.0 | 6.5 | 6.5 | 0.8 | 3.5 |
| | LNEX | 100608PNR-MM | | | | ● | ○ | | | ● | | | | | | | | | | 10.0 | 6.5 | 6.5 | 0.8 | 3.5 |
| | LNMX | 100605PNL-MM | | | | ● | | | | ● | | | | | | | | | | 10.0 | 6.5 | 6.5 | 0.5 | 3.5 |
| | LNEX | 100605PNL-MM | | | | ● | | | | ● | | | | | | | | | | 10.0 | 6.5 | 6.5 | 0.5 | 3.5 |
| **LNM(E)X-MM**  | LNMX | 151004PNR-MM | | | | ● | ● | ● | ● | ● | | | | | | | | | | 15.0 | 10.0 | 10.0 | 0.4 | 4.5 |
| | LNEX | 151004PNR-MM | | | | ● | ● | | | ● | | | | | | | | | | 15.0 | 10.0 | 10.0 | 0.4 | 4.5 |
| | LNMX | 151008PNR-MM | | | ● | ● | | | | ● | | | | | | | | | | 15.0 | 10.0 | 10.0 | 0.8 | 4.5 |
| | LNEX | 151008PNR-MM | | | ● | ● | | | | ● | | | | | | | | | | 15.0 | 10.0 | 10.0 | 0.8 | 4.5 |
| | LNMX | 151016PNR-MM | | | | ● | | | | ● | | | | | | | | | | 15.0 | 10.0 | 10.0 | 1.6 | 4.5 |
| | LNEX | 151016PNR-MM | | | | ● | | | | ● | | | | | | | | | | 15.0 | 10.0 | 10.0 | 1.6 | 4.5 |
| | LNMX | 151008PNL-MM | | | | ● | | | | ● | | | | | | | | | | 15.0 | 10.0 | 10.0 | 0.8 | 4.5 |
| | LNEX | 151008PNL-MM | | | | ● | | | | ● | | | | | | | | | | 15.0 | 10.0 | 10.0 | 0.8 | 4.5 |
| **LNEX-MA**  | LNEX | 100605PNR-MA | | | | ● | | | | ● | | | | | | ● | | | | 10.0 | 6.5 | 6.5 | 0.5 | 3.5 |
| | LNEX | 151004PNR-MA | | | | ● | | | | ● | | | | | | ● | | | | 15.0 | 10.0 | 10.0 | 0.4 | 4.5 |
| | LNEX | 151008PNR-MA | | | | ● | | | | ● | | | | | | ● | | | | 15.0 | 10.0 | 10.0 | 0.8 | 4.5 |
| **MPMT**  | MPMT | 090308 | | | | | | ● | | | | | | | | | | | | 9.5 | 9.525 | 3.18 | 0.8 | 4.5 |
| | | 120408 | | | | ○ | | ● | | | | | | | | | | | | 12.7 | 12.7 | 4.76 | 0.8 | 5.5 |
| **OFCN**  | OFCN | 0704SN | | | | ● | | ● | | ● | | | | | | | | | | 7.4 | 18 | 4.86 | 0.5 | - |
| | | 0704FN | | | | | | | | | | | | | | | | | | 7.4 | 18 | 4.86 | 0.5 | - |
| | | 070408SN | | | | | | | | | | | | | | | | | | 7.4 | 18 | 4.86 | 0.8 | - |
| | | 070408FN | | | | | | | | | | | | | | | | | | 7.4 | 18 | 4.86 | 0.8 | - |
| | | 070408TN | | | | | | | | | | | | | | | | | | 7.4 | 18 | 4.86 | 0.8 | - |
| **OFCW**  | OFCW | 05T3SN | | | | | | | | | | | | | | | | | | 5.2 | 12.7 | 3.85 | 0.5 | 4.4 |
| | | 05T3FN | | | | | | | | | | | | | | | | | | 5.2 | 12.7 | 3.85 | 0.5 | 4.4 |
| | | 05T308FN | | | | | | | | | | | | | | | | | | 5.2 | 12.7 | 3.85 | 0.8 | 4.4 |

| Geometria | Utensili disponibili |
|---|---|
|  | E209 E210 E211 E212 |
| | E209 |
| | E212 |
|  | E60 E64 E67 E68 E70 |
|  | E61 E64 E67 E69 |
|  | E60 E62 E64 E65 E67 E68 E70 |
|  | E61 E63 E64 E66 E67 E69 |
|  | E60 E61 E64 E67 E68 E69, E70 |
|  | |
|  | E42 |
|  | E42 |

● : Disponibile ○ : A richiesta

| Pezzo lavorato | | |
|---|---|---|
| Acciaio | P | ✱ ● ⬢ ⬢ ✱ ✱ |
| Acciaio inossidabile | M | ✱ ✱ ✱ |
| Ghisa | K | ⬢ ⬢ ⬢ |
| Materiali non ferrosi | N | ⬢ |
| Leghe resist. al calore, lega titanio | S | ✱ ✱ |
| Materiali temprati | H | ⬢ |

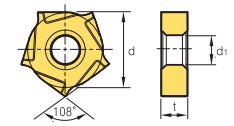
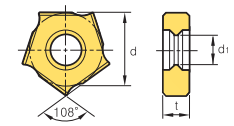
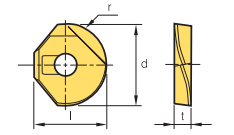
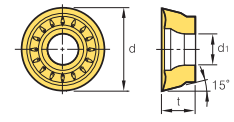
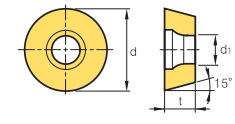
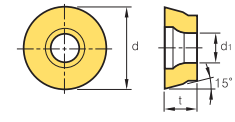
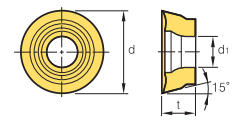
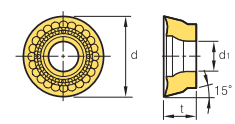
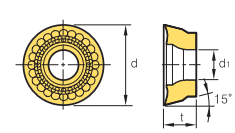
Applicazioni
● Taglio continuo
⬢ Uso generico
✱ Taglio interrotto

| Inserti | Articolo | | Rivestito | | | | | | | | | Cermet | | | Non rivestito | | | | Dimensioni (mm) | | | | | | Geometria | Utensili disponibili |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | l | d | t | r | $d_1$ | a | | |
| **OFKR-MA** | OFKR | 0704FN-MA | | | | | | | | | | | | | | ● | | | | 7.4 | 18 | 4.76 | 0.5 | - | - |  | E42 |
|  | | 0704EN-MA | | | | | | | | | | | | | | | | | | 7.4 | 18 | 4.76 | 0.5 | - | - | | |
| **OFKR-MF** | OFKR | 0704SN-MF | ● | ● | | ● | ● | | | | | | | | | | | | | 7.4 | 18 | 4.76 | 0.5 | - | - |  | E42 |
|  | | 070408SN-MF | | | | | | | | | | | | | | | | | | 7.4 | 18 | 4.76 | 0.8 | - | - | | |
| **OFKR-MM** | OFKR | 0704SN-MM | ● | ● | | ● | | ● | ● | ● | | | | | | | | | | 7.4 | 18 | 4.76 | 0.5 | - | - |  | E42 |
|  | | 070408SN-MM | ● | | | | | | | | | | | | | | | | | 7.4 | 18 | 4.76 | 0.8 | - | - | | |
| **OFKT-MA** | OFKT | 05T3FN-MA | | | | | | | | | | | | | | ● | | | | 5.2 | 12.7 | 3.97 | 0.5 | 4.4 | - |  | E42 |
|  | | 05T3EN-MA | | | | | | | | | | | | | | | | | | 5.2 | 12.7 | 3.97 | 0.5 | 4.4 | - | | |
| | | 0704FN-MA | | | | | | | | | | | | | | ● | | | | 7.4 | 18 | 4.76 | 0.5 | 5.8 | - | | |
| | | 0704EN-MA | | | | | | | | | | | | | | | | | | 7.4 | 18 | 4.76 | 0.5 | 5.8 | - | | |
| **OFKT-MF** | OFKT | 05T3SN-MF | ● | ● | | | | | | | | | | | | | | | | 5.2 | 12.7 | 3.97 | 0.5 | 4.4 | - |  | E42 |
|  | | 05T308SN-MF | | | | | | | | | | | | | | | | | | 5.2 | 12.7 | 3.97 | 0.8 | 5.8 | - | | |
| **OFKT-MM** | OFKT | 05T3SN-MM | ● | ● | | ● | | | ● | | | | | | | | | | | 5.2 | 12.7 | 3.97 | 0.5 | 4.4 | - |  | E42 |
|  | | 05T308SN-MM | | | | | | | | | | | | | | | | | | 5.2 | 12.7 | 3.97 | 0.8 | 4.4 | - | | |
| | | 0704SN-MM | ● | | | | | | | | | | | | | | | | | 7.4 | 18 | 4.76 | 0.5 | 5.5 | - | | |
| **ONHX-MF** | ONHX | 060608-MF | | | | ○ | | | | ○ | | | | | | | | | | 6.6 | 16.0 | 6.0 | 0.8 | 5.6 | - |  | E71 |
|  Neu | | 080608-MF | | | | ● | ○ | | ● | ● | | | | | | | | | | 8.4 | 20.2 | 6.0 | 0.8 | 5.6 | - | | |
| | | 0606ANN-MF | | | | ● | ● | | ● | ● | | | | | | | | | | 6.6 | 16.0 | 6.0 | 0.8 | 5.6 | 1.03 | | |
| | | 0806ANN-MF | | | | ● | ● | | ● | ● | | | | | | | | | | 8.4 | 20.2 | 6.0 | 0.8 | 5.6 | 1.53 | | |
| **ONHX-MM** | ONHX | 060608-MM | | | | ○ | | | | ○ | | | | | | | | | | 6.6 | 16.0 | 6.0 | 0.8 | 5.6 | - |  | E71 |
|  Neu | | 080608-MM | | | | ● | ○ | | ● | ● | | | | | | | | | | 8.4 | 20.2 | 6.0 | 0.8 | 5.6 | - | | |
| | | 0606ANN-MM | | | ● | ● | ● | | ● | ● | | | | | | | | | | 6.6 | 16.0 | 6.0 | 0.8 | 5.6 | 1.03 | | |
| | | 0806ANN-MM | | | ● | ● | ● | | ● | ● | | | | | | | | | | 8.4 | 20.2 | 6.0 | 0.8 | 5.6 | 1.53 | | |
| **ONHX-MA** | ONHX | 060608-MA | | | | ● | | | | ● | | | | | | ● | | | | 6.6 | 16.0 | 6.0 | 0.8 | 5.6 | - |  | E71 |
|  Neu | | 080608-MA | | | | ● | | | | ● | | | | | | ● | | | | 8.4 | 20.2 | 6.0 | 0.8 | 5.6 | - | | |
| **ONHX-W** | ONHX | 060608-W | | | | | | | | | | | | | | | | | | 6.5 | 16.0 | 6.0 | 0.8 | 5.6 | - |  | E71 |
|  Neu | | 080608-W | | | | ● | ● | | ● | ● | | | | | | | | | | 8.2 | 20.2 | 6.0 | 0.8 | 5.6 | - | | |
| **ONMX-MF** | ONMX | 060608-MF | | | | ○ | | | | ○ | | | | | | | | | | 6.6 | 16.0 | 6.0 | 0.8 | 5.6 | - |  | E71 |
|  Neu | | 080608-MF | | | | ● | ○ | | ● | ● | | | | | | | | | | 8.4 | 20.2 | 6.0 | 0.8 | 5.6 | - | | |
| | | 0606ANN-MF | | | | ● | ● | | ● | ● | | | | | | | | | | 6.6 | 16.0 | 6.0 | 0.8 | 5.6 | 1.03 | | |
| | | 0806ANN-MM | | | | ● | ● | | ● | ● | | | | | | | | | | 8.4 | 20.2 | 6.0 | 0.8 | 5.6 | 1.53 | | |
| **ONMX-MM** | ONMX | 060608-MM | | | | ○ | | | | ○ | | | | | | | | | | 6.6 | 16.0 | 6.0 | 0.8 | 5.6 | - |  | E71 |
|  Neu | | 080608-MM | | | | ● | ○ | | ● | ● | | | | | | | | | | 8.4 | 20.2 | 6.0 | 0.8 | 5.6 | - | | |
| | | 0606ANN-MM | | | ● | ● | ● | | ● | ● | | | | | | | | | | 6.6 | 16.0 | 6.0 | 0.8 | 5.6 | 1.03 | | |
| | | 0806ANN-MM | | | ● | ● | ● | | ● | | | | | | | | | | | 8.4 | 20.2 | 6.0 | 0.8 | 5.6 | 1.53 | | |

● : Disponibile ○ : A richiesta

| Pezzo lavorato | | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PC210F | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Acciaio | P | ❶ | ✱ | ● | ❶ | ✱ | ✱ | | | | ● | | | | | | | |
| | Acciaio inossidabile | M | | | | | ✱ | ✱ | ✱ | | | ● | | | | | | | |
| | Ghisa | K | | | ❶ | ❶ | ❶ | | | ❶ | ✱ | ● | | | | | | | |
| | Materiali non ferrosi | N | | | | | | | | | | ● | | | | ❶ | | | |
| | Leghe resist. al calore, lega titanio | S | | | | | ✱ | ✱ | | | | ● | | | | | | | |
| | Materiali temprati | H | | | | | ❶ | | | | | ● | | | | | | | |

Applicazioni
● Taglio continuo
❶ Uso generico
✱ Taglio interrotto

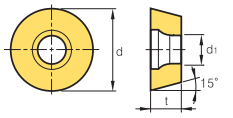
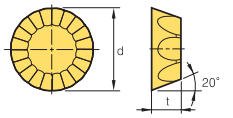
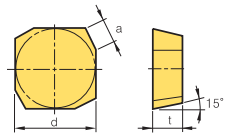
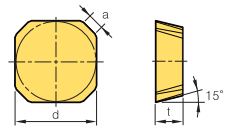
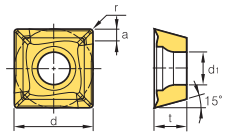
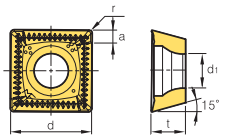
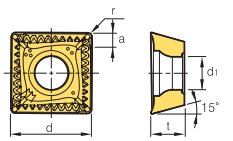
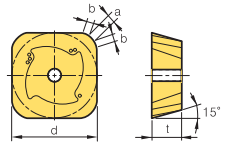
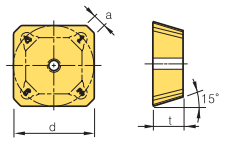
| Inserti | Articolo | | Rivestito | | | | | | | | | | Cermet | | | Non rivestito | | | | Dimensioni (mm) | | | | | | Geometria | Utensili disponibili |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PC210F | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | l | d | t | r | $d_1$ | Fresa Diametro | | |
| PNEJ | PNEJ | 1223N | | | | ● | | | | | | | | | | | | | | - | 12.7 | 2.3 | - | 5.0 | 4.0 |  | E193 E194 |
| | | 1225N | | | | | | | | | | | | | | | | | | - | 12.7 | 2.5 | - | 5.0 | 4.5 | | |
| | | 1230N | | | | | | | | | | | | | | | | | | - | 12.7 | 3.0 | - | 5.0 | 5.0 | | |
| | | 1235N | | | | | | | | | | | | | | | | | | - | 12.7 | 3.5 | - | 5.0 | 6.0 | | |
| | | 1240N | | ● | | ● | | | | | | | | | | | | | | - | 12.7 | 4.0 | - | 5.0 | 7.0 | | |
| | | 1245N | ● | | | ● | | | | | ● | | | | | | | | | - | 12.7 | 4.5 | - | 5.0 | 8.0 | | |
| | | 1250N | | | | | | | | | | | | | | | | | | - | 12.7 | 5.0 | - | 5.0 | 9.0 | | |
| | | 1255N | | | | ● | | | | | | | | | | | | | | - | 12.7 | 5.5 | - | 5.0 | 10.0 | | |
| | | 1260N | | | | | | | | | | | | | | | | | | - | 12.7 | 6.0 | - | 5.0 | 11.0 | | |
| | | 1265N | | ● | | | | | | | | | | | | | | | | - | 12.7 | 6.5 | - | 5.0 | 12.0 | | |
| | | 1270N | | | | | | | | | | | | | | | | | | - | 12.7 | 7.0 | - | 5.0 | 13.0 | | |
| | | 1275N | | ● | | | | | | | | | | | | | | | | - | 12.7 | 7.5 | - | 5.0 | 14.0 | | |
| | | 1285N | | | | | | | | | | | | | | | | | | - | 12.7 | 8.5 | - | 5.0 | 16.0 | | |
| PNEJ-C | PNEJ | 1223N-C03 | | | | | | | | | | | | | | | | | | - | 12.7 | 2.3 | - | 5.0 | 4.0 |  ※ C03 : Svasatura 0,3 mm C05 : Svasatura 0,5 mm | E193 E194 |
| | | 1230N-C03 | | | | | | | | | | | | | | | | | | - | 12.7 | 3.0 | - | 5.0 | 5.0 | | |
| | | 1235N-C03 | | | | | | | | | | | | | | | | | | - | 12.7 | 3.5 | - | 5.0 | 6.0 | | |
| | | 1240N-C05 | | | | | | | | | | | | | | | | | | - | 12.7 | 4.0 | - | 5.0 | 7.0 | | |
| | | 1245N-C05 | | | | | | | | | | | | | | | | | | - | 12.7 | 4.5 | - | 5.0 | 8.0 | | |
| | | 1250N-C05 | | | | | | | | | | | | | | | | | | - | 12.7 | 5.0 | - | 5.0 | 9.0 | | |
| | | 1255N-C05 | | | | | | | | | | | | | | | | | | - | 12.7 | 5.5 | - | 5.0 | 10.0 | | |
| | | 1260N-C05 | | | | | | | | | | | | | | | | | | - | 12.7 | 6.0 | - | 5.0 | 11.0 | | |
| | | 1265N-C05 | | | | | | | | | | | | | | | | | | - | 12.7 | 6.5 | - | 5.0 | 12.0 | | |
| ※ | | 1270N-C05 | | | | | | | | | | | | | | | | | | - | 12.7 | 7.0 | - | 5.0 | 13.0 | | |
| | | 1275N-C05 | | | | | | | | | | | | | | | | | | - | 12.7 | 7.5 | - | 5.0 | 14.0 | | |
| RC | RC | 16 | | | | | | | | | | ● | | | | | | | | 15.8 | 16 | 3.5 | 8 | - | - |  | E161 |
| | | 20 | | | | | | | | | | ● | | | | | | | | 17.8 | 20 | 4 | 10 | - | - | | |
| | | 25 | | | | | | | | | | ● | | | | | | | | 22.0 | 25 | 5 | 12.5 | - | - | | |
| | | 30 | | | | | | | | | | ● | | | | | | | | 26.8 | 30 | 6 | 15 | - | - | | |
| | | 32 | | | | | | | | | | ● | | | | | | | | 27.8 | 32 | 6 | 16 | - | - | | |
| RDCT-MA | RDCT | 10T3M0-MA | | | | | | | | | | | | | | ● | | | | - | 10 | 3.97 | - | 3.85 | - |  | E129 E132 E134 |
| | | 1204M0-MA | | | | | | | | | | | | | | ● | | | | - | 12 | 4.76 | - | 4.5 | - | | |
| RDHW | RDHW | 0501M0F | | | | | | | | | | | | | | | | | | - | 5 | 1.59 | - | 2.3 | - |  | E131 E134 |
| | | 0501M0E | | | | | ○ | | ● | | | | | | | | | | | - | 5 | 1.59 | - | 2.3 | - | | |
| | | 0501M0S | | | | | | | | | | | | | | | | | | - | 5 | 1.59 | - | 2.3 | - | | |
| | | 06T1M0F | | | | | | | | | | | | | | | | | | - | 6 | 1.98 | - | 2.5 | - | | |
| | | 06T1M0E | | | | | ○ | | ● | | | | | | | | | | | - | 6 | 1.98 | - | 2.5 | - | | |
| | | 06T1M0S | | | | | | | | | | | | | | | | | | - | 6 | 1.98 | - | 2.5 | - | | |
| | | 0702M0F | | | | | | | | | | | | | | | | | | - | 7 | 2.38 | - | 2.8 | - | | |
| | | 0702M0E | | | | | ○ | | ● | | | | | | | | | | | - | 7 | 2.38 | - | 2.8 | - | | |
| | | 0702M0S | | | | | | | | | | | | | | | | | | - | 7 | 2.38 | - | 2.8 | - | | |
| | | 0803M0F | | | | | | | | | | | | | | | | | | - | 8 | 3.18 | - | 3.4 | - | | |
| | | 0803M0E | | | | | ○ | | ● | | | | | | | | | | | - | 8 | 3.18 | - | 3.4 | - | | |
| | | 0803M0S | | | | | | | | | | | | | | | | | | - | 8 | 3.18 | - | 3.4 | - | | |
| RDHW | | 1605M0F | | | | | | | | | | | | | | | | | | - | 16 | 5.56 | - | 5.5 | - |  | E130 E133 E134 |
| | | 1605M0E | | | | | | | | | | | | | | | | | | - | 16 | 5.56 | - | 5.5 | - | | |
| | | 1605M0S | | | | | | | | | | | | | | | | | | - | 16 | 5.56 | - | 5.5 | - | | |
| | | 2006M0F | | | | | | | | | | | | | | | | | | - | 20 | 6.35 | - | 5.5 | - | | |
| | | 2006M0E | | | | | | | | | | | | | | | | | | - | 20 | 6.35 | - | 5.5 | - | | |
| | | 2006M0S | | | | | | | | | | | | | | | | | | - | 20 | 6.35 | - | 5.5 | - | | |
| RDKT-MF | RDKT | 10T3M0-MF | | | | ● | ● | ● | ● | | | | | | | | | | | - | 10 | 3.97 | - | 3.85 | - |  | E129 E132 E133 E134 |
| | | 1204M0-MF | | | | ● | ● | ● | ● | | | | | | | | | | | - | 12 | 4.76 | - | 4.5 | - | | |
| | | 1605M0-MF | | | | | | | | | | | | | | | | | | - | 16 | 5.56 | - | 5.5 | - | | |
| RDKT-ML | RDKT | 1605M0-ML | | | | | | | | | | | | | | | | | | - | 16 | 5.56 | - | 5.5 | - |  | E130 E133 E134 |
| RDKT-MM | RDKT | 10T3M0-MM | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | | | | - | 10 | 3.97 | - | 3.85 | - |  | E129 E132 E133 E134 |
| | | 1204M0-MM | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | | | | - | 12 | 4.76 | - | 4.5 | - | | |
| | | 1605M0-MM | | | | ● | | ● | | | | | | | | | | | | - | 16 | 5.56 | - | 5.5 | - | | |
| | | 2006M0-MM | | | | ● | ○ | ● | | | | | | | | | | | | - | 20 | 6.35 | - | 5.5 | - | | |

● : Disponibile ○ : A richiesta

# E Inserti di fresatura

| Pezzo lavorato | | |
|---|---|---|
| Acciaio | P | ● ✱ ● ✱ ✱ |
| Acciaio inossidabile | M | ✱ ✱ ✱ ✱ |
| Ghisa | K | ● ● ✱ |
| Materiali non ferrosi | N | ● ● |
| Leghe resist. al calore, lega titanio | S | ✱ ✱ |
| Materiali temprati | H | ● |

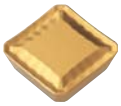
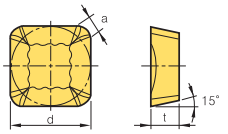
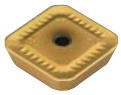
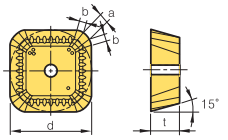
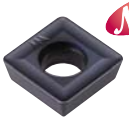
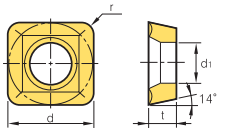
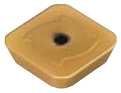
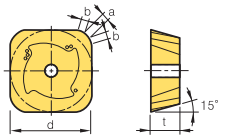
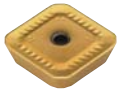
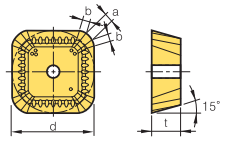
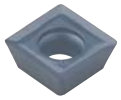
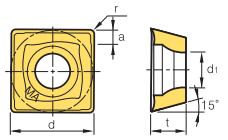
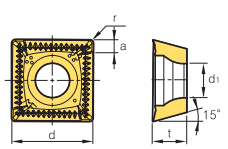
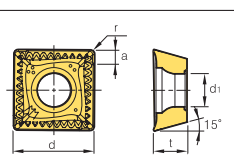
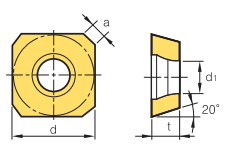
Applicazioni
● Taglio continuo
● Uso generico
✱ Taglio interrotto

| Inserti | Articolo | Rivestito | | | | | | | | | Cermet | | | Non rivestito | | | | Dimensioni (mm) | | | | | | | Geometria | Utensili disponibili |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | l | d | t | r | $d_1$ | a | b | | |
| **RDKW** | **RDKW 0501M0E** | | | | ● | | | | | | | | | | | | | | - | 5 | 1.59 | - | 2.3 | - | - |  | **E131** |
| | **06T1M0E** | | | | ● | ○ | | | | | | | | | | | | | - | 6 | 1.98 | - | 2.5 | - | - | | **E134** |
| | **0702M0E** | | | | ● | ○ | | | | | | | | | | | | | - | 7 | 2.38 | - | 2.8 | - | - | | |
| | **0803M0E** | | | | ● | ○ | | | | | | | | | | | | | - | 8 | 3.18 | - | 3.4 | - | - | | |
| **REKR-MM** | **REKR 170400-MM** | | | | | | | | | | | | | | | | | | - | 17.8 | 4.76 | - | - | - | - |  | **E42** |
| **SDCN** | **SDCN 42R** | | | | | | | | | | | | | | | | | | - | 12.7 | 3.18 | - | - | 3.5 | - |  | **E204** |
| | **42L** | | | | | | | | | | | | | | ● | | | | - | 12.7 | 3.18 | - | - | 3.5 | - | | |
| | **53R** | | | | | | | | | | | | | | | | | | - | 15.875 | 4.76 | - | - | 5.0 | - | | |
| | **53L** | | | | | | | | | | | | | | | | | | - | 15.875 | 4.76 | - | - | 5.0 | - | | |
| | **42M** | | | | | | | | | | | | | | | ● | | | - | 12.7 | 3.18 | - | - | 1.5 | - |  ▶Geometria del tagliente · G : Lato leggero, tagliente affilato · S20 : STS · RH : Tagliente rinforzato ▶Geometria tratto raschiante · M : AEFN · MT : AETN | **E29** **E30** |
| | **42M-G** | | | | | | | | | | | | | ● | | | | | - | 12.7 | 3.18 | - | - | 1.5 | - | | |
| | **42MT** | | ● | | | | | | | | | | ● | ● | | | ● | ● | - | 12.7 | 3.18 | - | - | 1.5 | - | | |
| | **42MT-RH** | | | | ● | | | | | | | | | | | | | | - | 12.7 | 3.18 | - | - | 1.5 | - | | |
| | **42MT-S20** | | | | | | | ● | | | | | | | | | | | - | 12.7 | 3.18 | - | - | 1.5 | - | | |
| | **53M** | | | | | | | | | | | | | | | ● | | | - | 15.875 | 4.76 | - | - | 1.5 | - | | |
| | **53M-G** | | | | | | | | | | | | | | ● | | | | - | 15.875 | 4.76 | - | - | 1.5 | - | | |
| | **53MT** | ● | ● | | | | | | | | | | ● | ● | | | ● | ● | - | 15.875 | 4.76 | - | - | 1.5 | - | | |
| | **53MT-RH** | | | | ● | | | | | | | | | | | | | | - | 15.875 | 4.76 | - | - | 1.5 | - | | |
| | **53MT-S20** | | | | | | | ● | | | | | | | | | | | - | 15.875 | 4.76 | - | - | 1.5 | - | | |
| | **1203AEEN** | | | | | | | | | | | | | | | | | | - | 12.7 | 3.18 | - | - | 1.5 | - | | |
| | **1203AEEN-RH** | | | | | | | | | | | | | | | | | | - | 12.7 | 3.18 | - | - | 1.43 | - | | |
| | **1203AESN** | | | | | | | | | | | | | | | | | | - | 12.7 | 3.18 | - | - | 1.5 | - | | |
| | **1203AESN-RH** | | | | | | | | | | | | | | | | | | - | 12.7 | 3.18 | - | - | 1.43 | - | | |
| | **1504AEEN** | | | | | | | | | | | | | | | | | | - | 15.875 | 4.76 | - | - | 1.5 | - | | |
| | **1504AEEN-RH** | | | | | ● | | | ● | | | | | | | | | | - | 15.875 | 4.76 | - | - | 1.43 | - | | |
| | **1504AESN** | | | | | | | | | | | | | | | | | | - | 15.875 | 4.76 | - | - | 1.5 | - | | |
| | **1504AESN-RH** | | | | | | | | ● | | | | | | | | | | - | 15.875 | 4.76 | - | - | 1.43 | - | | |
| **SDET-MA** | **SDET 09M402R-MA** | | | | | | | | | | ● | | | | ● | | | | - | 9.525 | 3.923 | 0.2 | 4.0 | 1.2 | - |  | **E126** **E127** **E128** |
| | **09M404R-MA** | | | | | | | | | | | | | | | | | | - | 9.525 | 3.923 | 0.4 | 4.0 | 1.2 | - | | |
| | **09M405R-MA** | | | | | | | | | | | | | | | | | | - | 9.525 | 3.923 | 0.5 | 4.0 | 1.2 | - | | |
| | **130504R-MA** | | | | | | | | | | ● | | | | ● | | | | - | 13.5 | 5.56 | 0.4 | 5.56 | 2.2 | - | | |
| **SDET-MF** | **SDET 09M405R-MF** | | | | | | | | | | | | | | | | | | - | 9.525 | 4 | 0.5 | 4 | 1.2 | - |  | **E126** **E127** **E128** |
| | **130508R-MF** | | | | | | | | | | | | | | | | | | - | 13.5 | 5.56 | 0.8 | 5.56 | 2.2 | - | | |
| **SDET-MM** | **SDET 09M405R-MM** | | | | | | | | | | | | | | | | | | - | 9.525 | 4 | 0.5 | 4 | 1.2 | - |  | **E126** **E127** **E128** |
| | **130508R-MM** | | | | | | | | | | | | | | | | | | - | 13.5 | 5.56 | 0.8 | 5.56 | 2.2 | - | | |
| **SDKN-SM** | **SDKN 1203AESN-SM** | | | | | | ● | | | | | | | | | | | | - | 12.7 | 3.18 | - | - | 1.64 | 0.59 |  | **E29** **E30** |
| | **1203AEEN-SM** | | | | | | | | | | | | | | | | | | - | 12.7 | 3.18 | - | - | 1.64 | 0.59 | | |
| | **1504AESN-SM** | | | | | | ● | | | | | | | | | | | | - | 15.875 | 4.76 | - | - | 1.64 | 0.58 | | |
| | **1504AEEN-SM** | | | | | | | | | | | | | | | | | | - | 15.875 | 4.76 | - | - | 1.64 | 0.58 | | |
| **SDKN-SU** | **SDKN 1203AESN-SU** | | | | ● | ○ | ● | | | | | | | | | | | | - | 12.7 | 3.18 | - | - | 1.64 | 0.59 |  | **E29** **E30** |
| | **1504AESN-SU** | | | | ● | ○ | ● | | | | | | | | | | | | - | 15.875 | 4.76 | - | - | 1.64 | 0.58 | | |

● : Disponibile ○ : A richiesta

| Pezzo lavorato | | |
|---|---|---|
| Acciaio | P | ✱ ✱ ● ✱ ✱ ✱ ○ ○ ○ ○ ○ ✱ ○ ○ ○ ○ |
| Acciaio inossidabile | M | ○ ○ ○ ✱ ✱ ✱ ○ ○ ○ ○ ○ ○ ○ ○ ○ |
| Ghisa | K | ○ ○ ✱ ✱ ○ ○ ✱ ○ ○ ○ ○ ○ ○ ○ ○ |
| Materiali non ferrosi | N | ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ✱ ○ ○ ○ |
| Leghe resist. al calore, lega titanio | S | ○ ○ ○ ✱ ✱ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ |
| Materiali temprati | H | ○ ○ ○ ✱ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ |

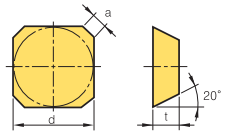
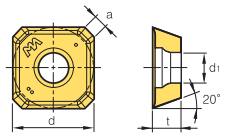
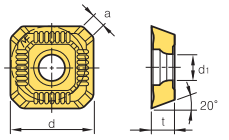
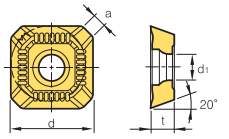
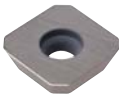
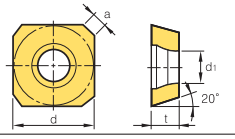
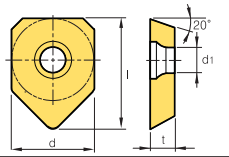
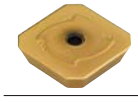
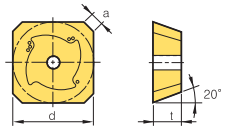
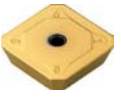
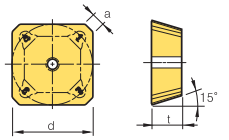
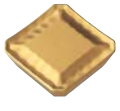
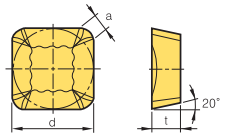
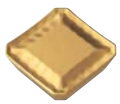
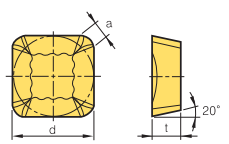
Applicazioni
● Taglio continuo
✱ Uso generico
✱ Taglio interrotto

| Inserti | Articolo | Rivestito | | | | | | | | | Cermet | | | Non rivestito | | | | Dimensioni (mm) | | | | | | | Geometria | Utensili disponibili |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NCM325 | NCM335 | NC5330 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | l | d | t | r | $d_1$ | a | b | | |
| **SDKR-MX**  | **SDKR 1203AESN-MX** | | | | | | | | | | | | | | | | | - | 12.7 | 3.18 | - | - | 1.46 | - |  | E29 E30 |
| | **1203AETN-MX** | | | | | | | | | | | | | | | | | - | 12.7 | 3.18 | - | - | 1.46 | - | | |
| | **1203AEN-MX** | ● | | ● | | | | | | | | | | | | | | - | 12.7 | 3.18 | - | - | 1.46 | - | | |
| | **1504AESN-MX** | | ● | | | | | | | | | | | | | | | - | 15.875 | 4.76 | - | - | 1.45 | - | | |
| | **1504AETN-MX** | | | | | | | | | | | | | | | | | - | 15.875 | 4.76 | - | - | 1.45 | - | | |
| | **1504AEN-MX** | ● | | ● | | | | | | | | | | | | | | - | 15.875 | 4.76 | - | - | 1.45 | - | | |
| **SDKR-SM**  | **SDKR 1203AESN-SM** | | | | | | | | | | | | | | | | | - | 12.7 | 3.18 | - | - | 1.43 | 0.71 |  | E29 E30 |
| | **1504AESN-SM** | | | | | | | | | | | | | | | | | - | 15.875 | 4.76 | - | - | 1.64 | 0.58 | | |
| **SDMT-MM**  | **SDMT 090308-MM** | | | | ○ | ○ | | | | | | | | | | | | - | 9.525 | 3.18 | 0.8 | 4.4 | - | - |  | E149 E162 E163 E164 |
| **SDXN-FM**  | **SDXN 1203AESN-FM** | | | | ● | | ● | | | | | | | | | | | - | 12.7 | 3.18 | - | - | 1.43 | 0.71 |  | E29 E30 |
| | **1203AEEN-FM** | | | | | | | | | | | | | | | | | - | 12.7 | 3.18 | - | - | 1.43 | 0.71 | | |
| | **1504AESN-FM** | | | | ● | | | | | | | | | | | | | - | 15.875 | 4.76 | - | - | 1.43 | 0.70 | | |
| | **1504AEEN-FM** | | | | | | | | | | | | | | | | | - | 15.875 | 4.76 | - | - | 1.43 | 0.70 | | |
| **SDXR-FM**  | **SDXR 1203AESN-FM** | | | | | | | | | | | | | | | | | - | 12.7 | 3.18 | - | - | 1.43 | 0.71 |  | E29 E30 |
| | **1504AESN-FM** | | | | | | | | | | | | | | | | | - | 15.875 | 4.76 | - | - | 1.43 | 0.70 | | |
| **SDXT-MA**  | **SDXT 09M405R-MA** | | | | | | | | | | | | | ● | | | | - | 9.525 | 4.0 | 0.5 | 4.0 | 1.2 | - |  | E126 E127 E128 E189 E190 |
| | **130508R-MA** | | | | | | | | | | | | | ● | | | | - | 13.5 | 5.56 | 0.8 | 5.56 | 2.2 | - | | |
| **SDXT-MF**  | **SDXT 09M403R-MF** | | | | | | | | | | | | | | | | | - | 9.525 | 4.0 | 0.3 | 4.0 | 1.2 | - |  | E126 E127 E128 E189 E190 |
| | **09M403L-MF** | | | | | | | | | | | | | | | | | - | 9.525 | 4.0 | 0.3 | 4.0 | 1.2 | - | | |
| | **09M404R-MF** | | | | | | | | | | | | | | | | | - | 9.525 | 4.0 | 0.4 | 4.0 | 1.2 | - | | |
| | **09M404L-MF** | | | | | | | | | | | | | | | | | - | 9.525 | 4.0 | 0.4 | 4.0 | 1.2 | - | | |
| | **09M405R-MF** | ● | ● | ● | | ● | | ● | | | | | | | | | | - | 9.525 | 4.0 | 0.5 | 4.0 | 1.2 | - | | |
| | **09M405L-MF** | | | | | | | | | | | | | | | | | - | 9.525 | 4.0 | 0.5 | 4.0 | 1.2 | - | | |
| | **130508R-MF** | ● | ● | ● | | ● | | ● | | | | | | | | | | - | 13.5 | 5.56 | 0.8 | 5.56 | 2.2 | - | | |
| **SDXT-MM**  | **SDXT 09M405R-MM** | ● | ● | ● | ● | ● | | ● | ● | | | | | | | | | - | 9.525 | 4.0 | 0.5 | 4.0 | 1.2 | - |  | E126 E127 E128 E189 E190 |
| | **09M405L-MM** | | | | | | | | | | | | | | | | | - | 9.525 | 4.0 | 0.5 | 4.0 | 1.2 | - | | |
| | **130508R-MM** | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | | | - | 13.5 | 5.56 | 0.8 | 5.56 | 2.2 | - | | |
| | **130508L-MM** | | | | | | | | | | | | | | | | | - | 13.5 | 5.56 | 0.8 | 5.56 | 2.2 | - | | |
| | **130538-MM** | | | | | | | | | | | | | | | | | - | 13.5 | 5.56 | 3.8 | 5.56 | 2.2 | - | | |
| | | | | | | | | | | | | | | | | | | | | | | | | - | | |
| **SECA**  | **SECA 1204AFSN** | ● | ● | | | | | | | | | | | | | | | - | 12.7 | 4.76 | - | 5.56 | 2.66 | - |  | - |
| | **1204AFTN** | | | | ● | | ● | | | | | | ● | | | | | - | 12.7 | 4.76 | - | 5.56 | 2.66 | - | | |
| | **1204AFFN** | | | | | | | | | | | | | | | | | - | 12.7 | 4.76 | - | 5.56 | 2.66 | - | | |
| | **1204AFEN** | | | | | | | | | | | | | | | | | - | 12.7 | 4.76 | - | 5.56 | 2.66 | - | | |
| | **1504AFSN** | | | | | | | | | | | | | | | | | - | 15.875 | 4.76 | - | 5.5 | 2.8 | - | | |
| | **1504AFTN** | | | | | | | | | | | | | | | | | - | 15.875 | 4.76 | - | 5.5 | 2.8 | - | | |
| | **1504AFFN** | | | | | | | | | | | | | | | | | - | 15.875 | 4.76 | - | 5.5 | 2.8 | - | | |

● : Disponibile ○ : A richiesta

| Pezzo lavorato | | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Acciaio | P | ✱ | ✱ | ● | ✱ | ✱ | ✱ | | | | | ✱ | ✱ | ✱ | | | ● | |
| | Acciaio inossidabile | M | | | | ✱ | ✱ | ✱ | | | | | | | | | | | |
| | Ghisa | K | | | ✱ | ✱ | | | | ✱ | | | | | | | ✱ | | |
| | Materiali non ferrosi | N | | | | | | | | | | ● | | | | ● | | | |
| | Leghe resist. al calore, lega titanio | S | | | | ✱ | ✱ | | | | | | | | | | | | |
| | Materiali temprati | H | | | | ✱ | | | | | | | | | | | | | |

Applicazioni
● Taglio continuo
✱ Uso generico
✱ Taglio interrotto

| Inserti | Articolo | | Rivestito | | | | | | | | | | Cermet | | | Non rivestito | | | | Dimensioni (mm) | | | | | | Geometria | Utensili disponibili |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | l | d | t | $d_1$ | a | b | | |
|  SECN | SECN | 1203AFFN | | | | | | | | | | | | | | ● | ● | | | - | 12.7 | 3.18 | - | 2.36 | - |  ▶Forma del tagliente · S20 : STS | E31 E32 |
| | | 1203AFTN | | | | | | | | | | | ● | ● | ● | | | ● | | - | 12.7 | 3.18 | - | 2.36 | - | | |
| | | 1203AFEN | | | | | | | | | | | | | | | | | | - | 12.7 | 3.18 | - | 2.36 | - | | |
| | | 1203AFSN | ● | ● | ● | | | | | | | | | | | | | | | - | 12.7 | 3.18 | - | 2.36 | - | | |
| | | 1203AFEN-RH | | | | | ● | | | ● | | | | | | | | | | - | 12.7 | 3.18 | - | 2.36 | - | | |
| | | 1203AFSN-RH | | | | | | | | ● | | | | | | | | | | - | 12.7 | 3.18 | - | 2.36 | - | | |
| | | 1203AFTN-S20 | | | | | | | ● | | | | | | | | | | | - | 12.7 | 3.18 | - | 2.36 | - | | |
| | | 1504AFFN | | | | | | | | | | | | | | | ● | | | - | 15.875 | 4.76 | - | 2.4 | - | | |
| | | 1504AFTN | | | | | | | | | | | | | ● | | | ● | | - | 15.875 | 4.76 | - | 2.4 | - | | |
| | | 1504AFEN | | | | | | | | | | | | | | | | | | - | 15.875 | 4.76 | - | 2.4 | - | | |
| | | 1504AFSN | ● | ● | ● | | | | | | | | | | | | | | | - | 15.875 | 4.76 | - | 2.4 | - | | |
| | | 1504AFEN-RH | | | | | | | | ● | | | | | | | | | | - | 15.875 | 4.76 | - | 2.4 | - | | |
| | | 1504AFSN-RH | | | | | | | | ● | | | | | | | | | | - | 15.875 | 4.76 | - | 2.4 | - | | |
| | | 1504AFTN-S20 | | | | | | | | | | | | | | | | | | | | | | | | | |
|  SEET-MA | SEET | 0903AGFN-MA | | | | | | | | | | ● | | | | ● | | | | - | 9.525 | 3.18 | 3.4 | 2.11 | - |  | E123 E124 E125 |
| | | 14M4AGFN-MA | | | | | | | | | | ● | | | | ● | | | | - | 14.0 | 4.0 | 4.4 | 2.64 | - | | |
|  SEET-MF | SEET | 0903AGSN-MF | ● | | ● | | ● | | ● | | | | | | | | | | | - | 9.525 | 3.18 | 3.4 | 2.11 | - |  | E123 E124 E125 |
| | | 14M4AGSN-MF | ● | ● | ● | | ● | | ● | ● | | | | | | | | | | - | 14 | 4.0 | 4.4 | 2.64 | - | | |
|  SEET-MM | SEET | 0903AGSN-MM | ● | | ● | | ● | | ● | | | | | | | | | | | - | 9.525 | 3.18 | 3.4 | 2.11 | - |  | E123 E124 E125 |
| | | 14M4AGSN-MM | ● | ● | ● | ● | ● | | ● | | | | | | | | | | | - | 14 | 4 | 4.4 | 2.64 | - | | |
|  SEEW | SEEW | 0903AGTN | | | | | | | | | | | | | ● | | | | | - | 9.525 | 3.18 | 3.4 | 2.11 | - |  | E123 E124 E125 |
| | | 14M4AGTN | | | | | | | | | | | | | ● | | | | | - | 14.0 | 4.0 | 4.4 | 2.64 | - | | |
|  SEEW-W | SEEW | 14M4AGFN-W | | | | | | | | | | | | | | | | | | 18.2 | 14.0 | 4.0 | 4.4 | - | - |  | E123 E124 E125 |
| | | 14M4AGSN-W | | | | | | | | | | | | | | | | | | 18.6 | 14.0 | 4.0 | 4.4 | - | - | | |
| | | 14M4AGTN-W | | | | ● | ○ | | | ● | | | | | | | | | | 18.6 | 14.0 | 4.0 | 4.4 | - | - | | |
|  SEKN-SM | SEKN | 1203AFSN-SM | | | | | | | | | | | | | | | | | | - | 12.7 | 3.18 | - | 2.46 | - |  | E31 E32 |
| | | 1203AFEN-SM | | | | | | | | | | | | | | | | | | - | 12.7 | 3.18 | - | 2.46 | - | | |
| | | 1504AFSN-SM | | | | | | | | | | | | | | | | | | - | 15.875 | 4.76 | - | 2.50 | - | | |
| | | 1504AFEN-SM | | | | | | | | | | | | | | | | | | - | 15.875 | 4.76 | - | 2.50 | - | | |
|  SEKN-SU | SEKN | 1203AFSN-SU | | | | ● | ● | ● | | | | | | | | | | | | - | 12.7 | 3.18 | - | 1.98 | 1.64 |  | E31 E32 |
| | | 1504AFSN-SU | | | | ● | ● | ● | | | | | | | | | | | | - | 15.875 | 4.76 | - | 2.04 | 1.64 | | |
|  SEKR-MF1 | SEKR | 1203AFSN-MF1 | | | | | | | | | | | | | | | | | | - | 12.7 | 3.18 | - | 2.3 | - |  | E31 E32 |
|  SEKR-MX | SEKR | 1203AFSN-MX | ● | ● | ● | | | | ● | | | | | | ● | | | | | - | 12.7 | 3.18 | - | 2.3 | - |  | E31 E32 |
| | | 1204AFSN-MX | ● | | | | | | | | | | | | | | | | | - | 12.7 | 4.76 | - | 2.3 | - | | |
| | | 1504AFSN-MX | ● | ● | ● | | | | ● | | | | | | | | | | | - | 15.875 | 4.76 | - | 2.4 | - | | |

● : Disponibile ○ : A richiesta

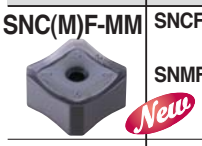
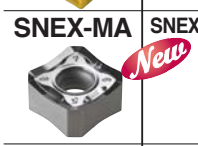
| Pezzo lavorato | | | Rivestito | | | | | | | | | Cermet | | | Non rivestito | | | | Applicazioni |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| | Acciaio | P | ✱ | ✱ | ● | ✱ | ✱ | ✱ | | | | | | | | | | ✱ | | ● Taglio continuo |
| | Acciaio inossidabile | M | | | | | ✱ | ✱ | ✱ | | | | | | | | | | | ✱ Uso generico |
| | Ghisa | K | | | ✱ | | ✱ | | | ✱ | ✱ | | | | | | ✱ | | | ✱ Taglio interrotto |
| | Materiali non ferrosi | N | | | | | | | | | | | | | | ✱ | | | | |
| | Leghe resist. al calore, lega titanio | S | | | | | ✱ | ✱ | | | | | | | | | | | | |
| | Materiali temprati | H | | | | | ✱ | | | | | | | | | | | | | |

| Inserti | Articolo | | Dimensioni (mm) l | d | t | r | $d_1$ | a | Geometria | Utensili disponibili |
|---|---|---|---|---|---|---|---|---|---|---|
| **SEKR-SM** | SEKR | 1203AFSN-SM | - | 12.7 | 3.18 | - | - | 2.46 | | E31 |
| | | 1504AFSN-SM | - | 15.875 | 4.76 | - | - | 2.50 | | E32 |
| **SEKR-X35** | SEKR | 1203AFSN-X35 | - | 12.7 | 3.18 | - | - | 2.361 | | E31 |
| | | 1203AFFN-X35 | - | 12.7 | 3.18 | - | - | 2.361 | | |
| | | 1204AFFN-X35 | - | 12.7 | 4.76 | - | - | 2.361 | | |
| **SEMN** | SEMN | 1204AZ | - | 12.7 | 4.76 | - | - | 2.0 | | E31 |
| **SEXN-FM** | SEXN | 1203AFSN-FM | - | 12.7 | 3.18 | - | - | 2.36 | | E31 |
| | | 1203AFEN-FM | - | 12.7 | 3.18 | - | - | 2.36 | | E32 |
| | | 1504AFSN-FM | - | 15.875 | 4.76 | - | - | 2.40 | | |
| | | 1504AFEN-FM | - | 15.875 | 4.76 | - | - | 2.40 | | |
| **SEXR-FM** | SEXR | 1203AFSN-FM | - | 12.7 | 3.18 | - | - | 2.36 | | E31 |
| | | 1504AFSN-FM | - | 15.875 | 4.76 | - | - | 2.40 | | E32 |
| **SEXT-MF** | SEXT | 0903AGSN-MF | - | 9.525 | 3.18 | - | 3.4 | 2.11 | | E123 |
| | | 14M4AGSN-MF | - | 14.0 | 4.0 | - | 4.4 | 2.64 | | E124 E125 |
| **SEXT-MM** | SEXT | 0903AGSN-MM | - | 9.525 | 3.18 | - | 3.4 | 2.11 | | E123 |
| | | 14M4AGSN-MM | - | 14.0 | 4.0 | - | 4.4 | 2.64 | | E124 E125 |
| **SEXT-MR** | SEXT | 0903AGSN-MR | - | 9.525 | 3.18 | - | 3.4 | 2.11 | | E123 |
| | | 14M4AGSN-MR | - | 14.0 | 4.0 | - | 4.4 | 2.64 | | E124 E125 |
| **SFCN** | SFCN | 1203EFR | - | 12.7 | 3.18 | - | - | 2.5 | | E33 |
| **SNC(M)F-MF** | SNCF | 1206ANN-MF | - | 12.7 | 6.6 | - | - | 2 | | E72 |
| | | 1507ANN-MF | - | 15.875 | 7.35 | - | - | 2.1 | | |
| | SNMF | 1206ANN-MF | - | 12.7 | 6.6 | - | - | 2 | | |
| | | 1507ANN-MF | - | 15.875 | 7.35 | - | - | 2.1 | | |
| New | SNCF | 1206ENN-MF | - | 12.7 | 6.6 | - | - | 1.8 | | E73 |
| | | 1507ENN-MF | - | 15.875 | 7.35 | - | - | 1.8 | | |
| | SNMF | 1206ENN-MF | - | 12.7 | 6.6 | - | - | 1.8 | | |
| | | 1507ENN-MF | - | 15.875 | 7.35 | - | - | 1.8 | | |
| **SNC(M)F-MF** New | SNCF | 1206QNN-MF | - | 12.7 | 6.6 | 0.8 | | 1 | | E74 |
| | SNMF | 1206QNN-MF | - | 12.7 | 6.6 | 0.8 | | 1 | | |

● : Disponibile ○ : A richiesta

| Pezzo lavorato | | |
|---|---|---|
| Acciaio | P | ● ✱ ✱ |
| Acciaio inossidabile | M | ✱ ✱ |
| Ghisa | K | ● ✱ ● |
| Materiali non ferrosi | N | ● ● |
| Leghe resist. al calore, lega titanio | S | ✱ ✱ |
| Materiali temprati | H | ● |

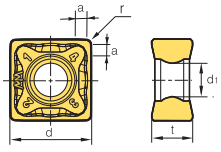
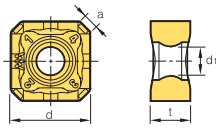
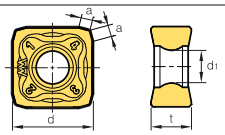
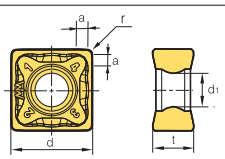
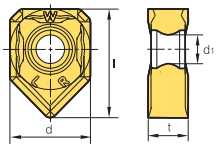
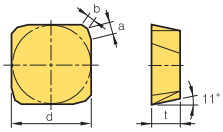
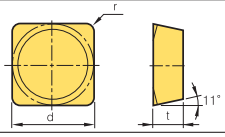
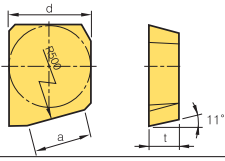
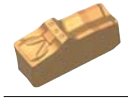
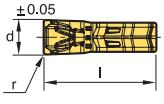
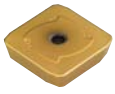
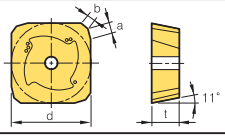
Applicazioni
● Taglio continuo
● Uso generico
✱ Taglio interrotto

| Inserti | Articolo | | Rivestito | | | | | | | | | Cermet | | | Non rivestito | | | | Dimensioni (mm) | | | | | | | Geometria | Utensili disponibili |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | DP200 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | l | d | t | r | $d_1$ | a | b | | |
| SNC(M)F-MM | SNCF | 1206ANN-MM | | | | ● | | ● | | | | | | | | | | | | - | 12.7 | 6.6 | - | - | 2 | - |  | E72 |
| | | 1507ANN-MM | | | | ● | | ● | | | | | | | | | | | | - | 15.875 | 7.35 | - | - | 2.1 | - | | |
| | SNMF | 1206ANN-MM | | | | ● | | | | | | | | | | | | | | - | 12.7 | 6.6 | - | - | 2 | - | | |
| | | 1507ANN-MM | | | | ● | | | | | | | | | | | | | | - | 15.875 | 7.35 | - | - | 2.1 | - | | |
| SNC(M)F-MM | SNCF | 1206ENN-MM | | | | ● | | ● | | | | | | | | | | | | - | 12.7 | 6.6 | - | - | 1.8 | - |  | E73 |
| | | 1507ENN-MM | | | | ● | | ● | | | | | | | | | | | | - | 15.875 | 7.35 | - | - | 1.8 | - | | |
| | SNMF | 1206ENN-MM | | | | ● | | | | | | | | | | | | | | - | 12.7 | 6.6 | - | - | 1.8 | - | | |
| | | 1507ENN-MM | | | | ● | | | | | | | | | | | | | | - | 15.875 | 7.35 | - | - | 1.8 | - | | |
| SNC(M)F-MM | SNCF | 1206QNN-MM | | | | ● | | ● | | ○ | | | | | | | | | | - | 12.7 | 6.6 | 0.8 | - | 1 | - |  | E74 |
| | SNMF | 1206QNN-MM | | | | ● | | | | | | | | | | | | | | - | 12.7 | 6.6 | 0.8 | - | 1 | - | | |
| SNCN | SNCN | 1204ENN | ● | | | | | | | | | | | | | ● | ● | ● | | - | 12.7 | 4.76 | - | - | 1.4 | 1.0 |  | E203 |
| | | 1504ENN | | | | | | | | | | | | | | | ● | | | - | 15.875 | 4.76 | - | - | 1.4 | 1.0 | | |
| SNEF | SNEF | 435 | | | | | | | | ● | | | | | | | | | | - | 12.7 | 4.76 | 2.0 | - | - | - |  | E207 |
| | | 535 | | | | | | | | | | | | | | | | | | - | 15.875 | 4.76 | 2.0 | - | - | - | | |
| SNEX | SNEX | 101010 | | | | | | | | ● | | | | | | | | | | - | 10 | 10 | 1.0 | 4.6 | - | - |  | E200 |
| | | 1010ZNN | | | | | | | | | | | | | | | | | | - | 10 | 10 | (1.0) | 4.6 | - | - | | |
| SNEX-CU1 | SNEX | 101010-CU1 | | | | | | | | ● | | | | | | | | | | - | 10 | 10 | 1.0 | 4.6 | - | - |  | E200 |
| | | 1010ZNN-CU1 | | | | | | | | ● | | | | | | | | | | - | 10 | 10 | (1.0) | 4.6 | - | - | | |
| | | 121212-CU1 | | | | | | | | ● | | | | | | | | | | - | 12.7 | 12.7 | 1.2 | 5.6 | - | - | | |
| | | 1212ZNN-CU1 | | | | | | | | ● | | | | | | | | | | - | 12.7 | 12.7 | (1.2) | 5.6 | - | - | | |
| SNEX-MA | SNEX | 1206ANN-MA | | | | ● | | | | ● | | | | | | ● | | | | - | 12.7 | 6.35 | - | 4.5 | 2.36 | - |  | E55 |
| | | 1206ENN-MA | | | | ● | | | | ● | | | | | | ● | | | | - | 12.7 | 6.35 | - | 5.2 | 1.82 | - | | E57 |
| | | 1206QNN-MA | | | | | | | | | | | | | | | | | | - | 12.7 | 6.35 | - | 5.2 | 1.39 | - | | E59 |
| | | 120612-MA | | | | ● | | | | ● | | | | | | ● | | | | - | 12.7 | 6.35 | 1.2 | 5.2 | - | - | | |
| SNEW | SNEW | 09T3ADFR | | | | | | | | | | | | | | ● | | | | 9.525 | 9.525 | 3.97 | 0.5 | 4.4 | - | - |  | E78 |
| SNEW-NAF | SNEW | 09T3ADTR-XAF | | | | | | | | | | ● | | | | | | | | 9.525 | 9.525 | 3.97 | 0.5 | 4.4 | - | - |  | E78 |
| | | 09T3ADTR-NAF | | | | | | | | | | ● | | | | | | | | | | | | | | | | |
| SNKN | SNKN | 1204ENN | | | | | | | | ● | | | | | | | | | | - | 12.7 | 4.76 | - | - | 1.4 | 1.0 |  | E34 |
| | | 1504ENN | ● | | | | | | | | | | | | | | | | | - | 15.875 | 4.76 | - | - | 1.4 | 1.0 | | E203 |
| SNM(E)X-MF | SNMX | 1206ANN-MF | | | | ● | ● | | | ● | | | | | | | | | | - | 12.7 | 6.35 | - | 4.5 | 2.36 | - |  | E55 |
| | SNEX | 1206ANN-MF | | | | ● | ● | | | ● | | | | | | | | | | - | 12.7 | 6.35 | - | 4.5 | 2.36 | - | | E56 |
| | SNMX | 1507ANN-MF | | | | ○ | | | | ○ | | | | | | | | | | - | 15.875 | 7.94 | - | 5.6 | 3.15 | - | | |
| | SNEX | 1507ANN-MF | | | | ○ | | | | ○ | | | | | | | | | | - | 15.875 | 7.94 | - | 5.6 | 3.15 | - | | |
| SNM(E)X-MF | SNMX | 1206ENN-MF | | | | ● | ● | | | ● | | | | | | | | | | - | 12.7 | 6.35 | - | 5.2 | 1.82 | - |  | E57 |
| | SNEX | 1206ENN-MF | | | | ● | ● | | | ● | | | | | | | | | | - | 12.7 | 6.35 | - | 5.2 | 1.82 | - | | E58 |
| | SNMX | 1507ENN-MF | | | | ○ | | | | ○ | | | | | | | | | | - | 15.875 | 7.94 | - | 5.6 | 2.66 | - | | |
| | SNEX | 1507ENN-MF | | | | ○ | | | | ○ | | | | | | | | | | - | 15.875 | 7.94 | - | 5.6 | 2.66 | - | | |

● : Disponibile ○ : A richiesta

| Pezzo lavorato | | |
|---|---|---|
| Acciaio | P | ● ✱ ● ● ✱ ✱ |
| Acciaio inossidabile | M | ✱ ✱ ✱ |
| Ghisa | K | ● ● ✱ ● ● |
| Materiali non ferrosi | N | ● |
| Leghe resist. al calore, lega titanio | S | ✱ ✱ |
| Materiali temprati | H | ● |

Applicazioni
● Taglio continuo
● Uso generico
✱ Taglio interrotto

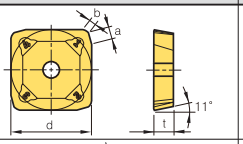
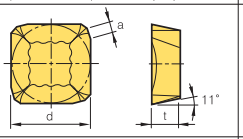
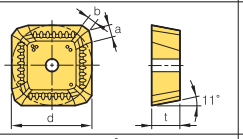
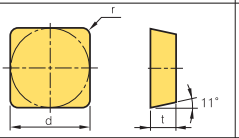
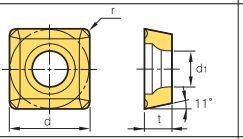
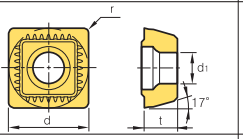
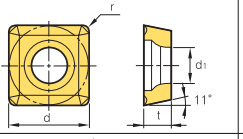
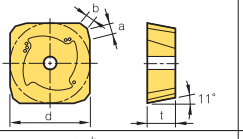
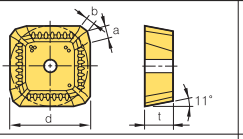
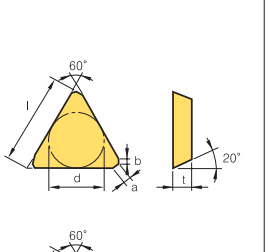
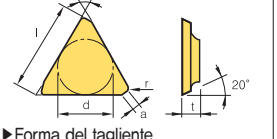
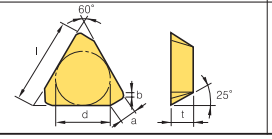
| Inserti | Articolo | Rivestito | | | | | | | | | Cermet | | | Non rivestito | | | | | Dimensioni (mm) | | | | | | | Geometria | Utensili disponibili |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC8110 | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | l | d | t | r | $d_1$ | a | b | | |
| **SNM(E)X-MF**  | **SNMX 1206QNN-MF** | | | | ● | | | | ● | | | | | | | | | | - | 12.7 | 6.35 | - | 4.5 | 2.36 | - |  | E59 |
| | **SNEX 1206QNN-MF** | | | | ● | | | | ● | | | | | | | | | | - | 12.7 | 6.35 | - | 4.5 | 2.36 | - | | |
| | **SNMX 120612-MF** | | | | ● | | | | ● | | | | | | | | | | - | 12.7 | 6.35 | 1.2 | 4.5 | - | - | | |
| | **SNEX 120612-MF** | | | | ● | | | | ● | | | | | | | | | | - | 12.7 | 6.35 | 1.2 | 4.5 | - | - | | |
| **SNM(E)X-MM** New  | **SNMX 1206ANN-MM** | ○ | | ● | ● | ● | | ● | ● | | | | | | | | | | - | 12.7 | 6.35 | - | 4.5 | 2.36 | - |  | E55 E56 |
| | **SNEX 1206ANN-MM** | ● | | ● | ● | ● | | | ● | | | | | | | | | | - | 12.7 | 6.35 | - | 4.5 | 2.36 | - | | |
| | **SNMX 1507ANN-MM** | | | | ○ | | | | ○ | | | | | | | | | | - | 15.875 | 7.94 | - | 5.6 | 3.15 | - | | |
| | **SNEX 1507ANN-MM** | | | | ○ | | | | ○ | | | | | | | | | | - | 15.875 | 7.94 | - | 5.6 | 3.15 | - | | |
| **SNM(E)X-MM** New  | **SNMX 1206ENN-MM** | | | ● | ● | ● | | | ● | | | | | | | | | | - | 12.7 | 6.35 | - | 5.2 | 1.82 | - |  | E57 E58 |
| | **SNEX 1206ENN-MM** | | | ● | ● | ● | | | ● | | | | | | | | | | - | 12.7 | 6.35 | - | 5.2 | 1.82 | - | | |
| | **SNMX 1507ENN-MM** | | | | ○ | | | | ○ | | | | | | | | | | - | 15.875 | 7.94 | - | 5.6 | 2.66 | - | | |
| | **SNEX 1507ENN-MM** | | | | ○ | | | | ○ | | | | | | | | | | - | 15.875 | 7.94 | - | 5.6 | 2.66 | - | | |
| **SNM(E)X-MM**  | **SNMX 1206QNN-MM** | | | | ● | | | | ● | | | | | | | | | | - | 12.7 | 6.35 | - | 4.5 | 2.36 | - |  | E59 |
| | **SNEX 1206QNN-MM** | | | | ● | | | | ● | | | | | | | | | | - | 12.7 | 6.35 | - | 4.5 | 2.36 | - | | |
| | **SNMX 120612-MM** | | | | ● | | | | ● | | | | | | | | | | - | 12.7 | 6.35 | 1.2 | 4.5 | - | - | | |
| | **SNEX 120612-MM** | | | | ● | | | | ● | | | | | | | | | | - | 12.7 | 6.35 | 1.2 | 4.5 | - | - | | |
| **SNEX-W**  | **SNEX 1206ANN-W** | | | | ● | ○ | | | ● | | | | | | | | | | 17.13 | 12.7 | 6.35 | - | 4.5 | - | - |  | E55 |
| **SPCN**  | **SPCN 1203EDR** | ● | ● | ● | | | | | | | | | | ● | ● | ● | ● | ● | - | 12.7 | 3.18 | - | - | 1.4 | 1.0 |  | E35 E36 |
| | **1203EDL** | | | | | | | | ● | | | | | | | ● | ● | | - | 12.7 | 3.18 | - | - | 1.4 | 1.0 | | |
| | **1203EDR-G** | | | | | | | | | | | | | | ● | | | | - | 12.7 | 3.18 | - | - | 1.4 | 1.0 | | |
| | **1203EDER-RH** | | | | | ● | | | ● | ○ | | | | | | | | | - | 12.7 | 3.18 | - | - | 1.63 | 0.8 | | |
| | **1203EDSR-RH** | | | | | | | | ● | ○ | | | | | | | | | - | 12.7 | 3.18 | - | - | 1.63 | 0.8 | | |
| | **1203EDTR-RH** | | | | ● | | | | | | | | | | | | | | - | 12.7 | 3.18 | - | - | 1.63 | 0.8 | | |
| | **1203EDR-S20** | | | | | | | ● | | | | | | | | | | | - | 12.7 | 3.18 | - | - | 1.4 | 1.0 | | |
| | **1204EDR** | | | | | | | | | | | | | | | | | | - | 12.7 | 4.76 | - | - | 1.4 | 1.0 | | |
| | **150412T** | | | | | | | | | | | | | | | | ● | | - | 15.875 | 4.76 | 1.2 | - | - | - | | |
| | **1504EDR** | ● | | ● | | | | | | | | | | ● | | ● | ● | ● | - | 15.875 | 4.76 | - | - | 1.4 | 1.0 | | |
| | **1504EDSR** | | ● | | | | | | | | | | | | | | | | - | 15.875 | 4.76 | - | - | 1.4 | 1.0 | | |
| | **1504EDL** | | | | | | | | | | | | | | | | | | - | 15.875 | 4.76 | - | - | 1.4 | 1.0 | | |
| | **1504EDR-G** | | | | | | | | | | | | | | ● | | | | - | 15.875 | 4.76 | - | - | 1.4 | 1.0 | | |
| | **1504EDER-RH** | | | | | ● | | | ● | ○ | | | | | | | | | - | 15.875 | 4.76 | - | - | 1.64 | 0.8 | | |
| | **1504EDSR-RH** | | | | | | | | | ○ | | | | | | | | | - | 15.875 | 4.76 | - | - | 1.64 | 0.8 | | |
| | **1504EDTR-RH** | | | | | | | | | | | | | | | | | | - | 15.875 | 4.76 | - | - | 1.64 | 0.8 | | |
| | **1504EDR-S20** | | | | | | | ● | | | | | | | | | | | - | 15.875 | 4.76 | - | - | 1.4 | 1.0 | | |
| **SPEN-WC**  | **SPEN 120416-WC** | | | | | | | | | | | | | | | | | | - | 12.7 | 4.76 | 1.6 | - | - | - |  | E35 E36 |
| | **150412-WC** | | | | | | | | | | | | | | | | | | - | 15.875 | 4.76 | 1.2 | - | - | - | | |
| | **150416-WC** | | | | | | | | | | | | | | | | | | - | 15.875 | 4.76 | 1.6 | - | - | - | | |
| | **150420-WC** | | | | | | | | | | | | | | | | | | - | 15.875 | 4.76 | 2.0 | - | - | - | | |
| | **190424-WC** | | | | | | | | | | | | | | | | | | - | 19.05 | 4.76 | 2.4 | - | - | - | | |
| **SPEX**  | **SPEX 1203EDR-1** | | | | | | | | | | | | | | | | | | - | 12.7 | 3.18 | - | - | 10.2 | - |  | E35 E36 |
| | **1203EDL-1** | | | | | | | | | | | | | | | | | | - | 12.7 | 3.18 | - | - | 10.2 | - | | |
| | **1504EDR-1** | | | | | | | | | | | | | | | | | | - | 15.875 | 4.76 | - | - | 10.2 | - | | |
| | **1504EDL-1** | | | | | | | | | | | | | | | | | | - | 15.875 | 4.76 | - | - | 10.2 | - | | |
| | **1904EDR-1** | | | | | | | | | | | | | | | | | | - | 19.05 | 4.76 | - | - | 10.2 | - | | |
| | **1904EDL-1** | | | | | | | | | | | | | | | | | | - | 19.05 | 4.76 | - | - | 10.2 | - | | |
| **SPFN**  | **SPFN 200-N** | | | | | | | | | | | | | | | | | | 8.8 | 2.2 | - | 0.2 | - | - | - |  | E195 |
| | **300-N** | | | | | | | | | | | | | | | | | | 9.8 | 3.0 | - | 0.2 | - | - | - | | |
| | **400-N** | | | | | | | | | | | | | | | | | | 9.8 | 4.0 | - | 0.25 | - | - | - | | |
| **SPKN-SM**  | **SPKN 1203EDSR-SM** | | | | | | | | | | | | | | | | | | - | 12.7 | 3.18 | - | - | 1.66 | 0.92 |  | E35 E36 |
| | **1203EDER-SM** | | | | | | | | | | | | | | | | | | - | 12.7 | 3.18 | - | - | 1.66 | 0.92 | | |
| | **1504EDSR-SM** | | | | | | | | | | | | | | | | | | - | 15.875 | 4.76 | - | - | 1.62 | 0.93 | | |
| | **1504EDER-SM** | | | | | | | | | | | | | | | | | | - | 15.875 | 4.76 | - | - | 1.62 | 0.93 | | |

● : Disponibile ○ : A richiesta

# Inserti di fresatura

| Pezzo lavorato | | |
|---|---|---|
| Acciaio | P | ✱ ✱ ● ✱ ✱ ✱ |
| Acciaio inossidabile | M | ✱ ✱ ✱ |
| Ghisa | K | ✱ ✱ ✱ ✱ |
| Materiali non ferrosi | N | ✱ ✱ |
| Leghe resist. al calore, lega titanio | S | ✱ ✱ |
| Materiali temprati | H | ✱ |

Applicazioni
● Taglio continuo
✱ Uso generico
✱ Taglio interrotto

| Inserti | Articolo | | Rivestito | | | | | | | | | Cermet | | | Non rivestito | | | | Dimensioni (mm) | | | | | | | Geometria | Utensili disponibili |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | l | d | t | r | $d_1$ | a | b | | |
| **SPKN-SU** | SPKN | 1203EDSR-SU | | | | ● | ● | | | | | | | | | | | | | 12.7 | 12.7 | 3.18 | - | - | 1.66 | 0.92 |  | E35 E36 |
| | | 1203EDSL-SU | | | | ● | | ● | | | | | | | | | | | | 12.7 | 12.7 | 3.18 | - | - | 1.66 | 0.92 | | |
| | | 1504EDSR-SU | | | | ● | ● | | | | | | | | | | | | | 15.875 | 15.875 | 4.76 | - | - | 1.62 | 0.93 | | |
| | | 1504EDSL-SU | | | | ● | | ● | | | | | | | | | | | | 15.875 | 15.875 | 4.76 | - | - | 1.62 | 0.93 | | |
| **SPKR-MX** | SPKR | 1203EDSR-MX | ● | ● | ● | ● | | | | | | | | | | | | | | - | 12.7 | 3.18 | - | - | 1.4 | - |  | E35 E36 |
| | | 1203EDSL-MX | ● | | | | | | | | | | | | | | | | | - | 12.7 | 3.18 | - | - | 1.4 | - | | |
| | | 1504EDR-MX | ● | | | | | | | | | | | | | | | | | - | 15.875 | 4.76 | - | - | 1.45 | - | | |
| | | 1504EDSR-MX | | ● | | ● | | | | | | | | | | | | | | - | 15.875 | 4.76 | - | - | 1.45 | - | | |
| **SPKR-SM** | SPKR | 1203EDSR-SM | | | | | | | | | | | | | | | | | | - | 12.7 | 3.18 | - | - | 1.66 | 0.92 |  | E35 E36 |
| | | 1504EDSR-SM | | | | | | | | | | | | | | | | | | - | 15.875 | 4.76 | - | - | 1.63 | 0.93 | | |
| **SPMN** | SPMN | 120308 | | | | | | | | | | | | | | | | ● | | - | 12.7 | 3.18 | 0.8 | - | - | - |  | E167 |
| **SPMT** | SPMT | 060304 | ● | | | ● | | | | | | | | | | | | | | - | 6.35 | 3.18 | 0.4 | 2.8 | - | - |  | E149 E163 E164 |
| **SPMT-KC** | SPMT | 110408-KC | | | | ● | | | | | | | | | | ● | ● | | | - | 11.5 | 4.8 | 0.8 | 4.5 | - | - |  | E167 |
| **SPMT-MM** | SPMT | 120408-MM | | | | ● | | | | | | | | | | | | | | - | 12.7 | 4.76 | 0.8 | 5.6 | - | - |  | E109 E149 E163 E164 |
| | | 120508-MMN | | | | | | | | | | | | | | | | | | - | 12.7 | 5.56 | 0.8 | 5.6 | - | - | | |
| **SPXN-FM** | SPXN | 1203EDSR-FM | | | | ● | | ● | | | | | | | | | | | | - | 12.7 | 3.18 | - | - | 1.41 | 1.00 |  | E35 E36 |
| | | 1203EDER-FM | | | | | | | | | | | | | | | | | | - | 12.7 | 3.18 | - | - | 1.41 | 1.00 | | |
| | | 1504EDSR-FM | | | | ● | | ● | | | | | | | | | | | | - | 15.875 | 4.76 | - | - | 1.38 | 1.01 | | |
| | | 1504EDER-FM | | | | | | | | | | | | | | | | | | - | 15.875 | 4.76 | - | - | 1.38 | 1.01 | | |
| **SPXR-FM** | SPXR | 1203EDSR-FM | | | | | | ● | | | | | | | | | | | | - | 12.7 | 3.18 | - | - | 1.41 | 1.00 |  | E35 E36 |
| | | 1504EDSR-FM | | | | | | ● | | | | | | | | | | | | - | 15.875 | 4.76 | - | - | 1.38 | 1.01 | | |
| **TEC(E)N** | TECN | 22R | | | | | | | | | | | | | | ● | | | | 11.0 | 6.35 | 3.18 | - | - | 1.0 | 0.5 |  | E41 |
| | | 22TR | | | | | | | | | | | | | ● | | | ● | | 11.0 | 6.35 | 3.18 | 0.8 | - | 0.5 | - | | |
| | | 32R | | | | | | | | | | | | | | ● | | | | 16.5 | 9.525 | 3.18 | - | - | 1.0 | 0.5 | | |
| | | 32R-G | | ● | | | | | | | | | | | ● | | | ● | | 16.5 | 9.525 | 3.18 | - | - | 1.0 | 0.5 | | |
| | | 32TR | | | | | | | ● | | | | | | | | | | | 16.5 | 9.525 | 3.18 | 0.8 | - | 0.5 | - | | |
| | | 32TR-S20 | | | | | | | | | | | | | | | | | | 16.5 | 9.525 | 3.18 | 0.8 | - | 0.5 | - | | |
| | | 43R-G | | | | | | | | | | | | | | | | | | 22.0 | 12.7 | 4.76 | - | - | 2.0 | 0.5 | | |
| | | 43TR-Z | | | | | | | | | | | | | | | | | | 22.0 | 12.7 | 4.76 | 0.8 | - | 1.5 | - | | |
| | | 43TR | | | | | | | | | | | | | | | | | | 22.0 | 12.7 | 4.76 | 0.8 | - | 1.5 | - | | |
| | TEEN | 32TR | | | | | | | | | | | | | | | | | ● | 16.5 | 9.525 | 3.18 | 0.8 | - | 0.5 | - | | |
| **TEEN** | TEEN | 43R-Z | | | | | | | | | | | | | | | | | | 22.0 | 12.7 | 4.76 | - | - | 2.0 | 0.5 |  ▶Forma del tagliente · G : Lato leggero, tagliente affilato · S20 : STS · ZH : Foro aggiunto | |
| | | 43TR-Z | | | | | | | | | | | | | | | | ● | | 22.0 | 12.7 | 4.76 | 0.8 | - | 1.5 | - | | |
| | | 43TR-ZH | | | | ● | | ● | | | | | | | | | | | | 22.0 | 12.7 | 4.76 | 0.8 | - | 1.5 | - | | |
| | | 43R | | | | | | | | | | | | | | ● | | | | 22.0 | 12.7 | 4.76 | - | - | 2.0 | 0.5 | | |
| | | 43R-G | | | | | | | | | | | | | ● | | | | | 22.0 | 12.7 | 4.76 | - | - | 2.0 | 0.5 | | |
| | | 43TR | ● | ● | | | | | ● | | | ● | | ● | | | | ● | ● | 22.0 | 12.7 | 4.76 | 0.8 | - | 1.5 | - | | |
| | | 43TR-S20 | | | | | | | ● | | | | | | | | | | | 22.0 | 12.7 | 4.76 | 0.8 | - | 1.5 | - | | |
| **TFCN** | TFCN | 2203PFR | | | | | | | | | | | | | ● | | | | | 22.0 | 12.7 | 3.18 | - | - | 2.42 | 0.71 |  | E37 |
| | | 2203PFL | | | | | | | | | | | | | ● | | | | | 22.0 | 12.7 | 3.18 | - | - | 2.42 | 0.71 | | |

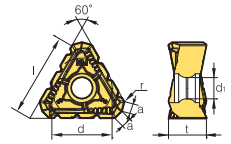
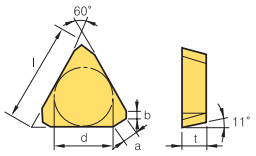
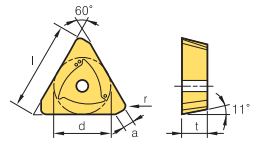
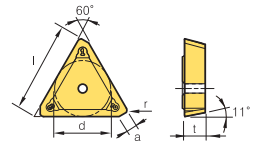
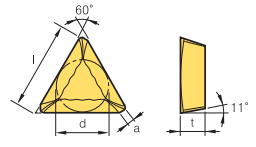
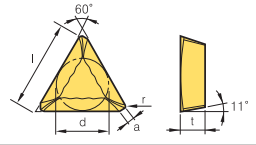
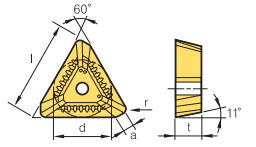
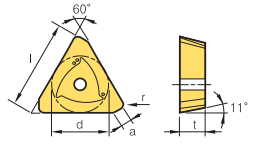




● : Disponibile ○ : A richiesta

| Pezzo lavorato | | |
|---|---|---|
| | Acciaio | P |
| | Acciaio inossidabile | M |
| | Ghisa | K |
| | Materiali non ferrosi | N |
| | Leghe resist. al calore, lega titanio | S |
| | Materiali temprati | H |

Applicazioni
● Taglio continuo
Uso generico
Taglio interrotto

| Inserti | Articolo | Rivestito | | | | | | | | | Cermet | | | Non rivestito | | | | Dimensioni (mm) | | | | | | | Geometria | Utensili disponibili |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC8110 | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | l | d | t | r | $d_1$ | a | b | | |
| **TNMX** | **TNMX2710AZNR-NM** | | ● | | | ○ | | | | | | | | | | | | | 27 | 15.875 | 10 | 0.8 | 5.6 | 2.63 | - |  | **E46** **E47** |
| **TPCN** | **TPCN 1103PPN** | | | | | | | | | | | | | ● | | ● | ● | ● | 11.0 | 6.35 | 3.18 | - | - | 0.7 | 0.7 |  | **E38** **E191** **E192** |
| | **1103PPTN** | | | | | | | | | | | | | ● | | ● | ● | ● | 11.0 | 6.35 | 3.18 | - | - | 0.7 | 0.7 | | |
| | **1603PDR** | ● | | ● | | | | | | | | | | | | | | | 16.5 | 9.525 | 3.18 | - | - | 1.2 | 0.7 | | |
| | **1603PPN** | ● | | | | | | | ● | | | | | ● | | ● | | | 16.5 | 9.525 | 3.18 | - | - | 1.2 | 1.2 | | |
| | **1603PPR** | ● | | | | | | | | | | | | ● | | ● | ● | ● | 16.5 | 9.525 | 3.18 | - | - | 1.2 | 1.0 | | |
| | **1603PPR-G** | | | | | | | | | | | | | | ● | | | | 16.5 | 9.525 | 3.18 | - | - | 1.2 | 1.0 | | |
| | **1603PPSR** | | ● | | | | | | | | | | | | | | | | 16.5 | 9.525 | 3.18 | - | - | 1.2 | 1.0 | | |
| | **1603PPTN** | | | | | | | | | | | | | | | | | | 16.5 | 9.525 | 3.18 | - | - | 1.2 | 1.2 | | |
| | **1603PPTR** | | | | | | | | | | | | | | | | | | 16.5 | 9.525 | 3.18 | - | - | 1.2 | 1.0 | | |
| | **1603PPR-RH** | | | | ○ | | | | | | | | | | | | | | 16.5 | 9.525 | 3.18 | - | - | 1.2 | 1.0 | | |
| | **1603PDER-RH** | | | | | ● | ● | | ● | | | | | | | | | | 16.5 | 9.525 | 3.18 | 0.8 | - | 1.5 | - | | |
| | **1603PDSR-RH** | | | | | | | | ● | | | | | | | | | | 16.5 | 9.525 | 3.18 | 0.8 | - | 1.5 | - | | |
| | **1603PDR-S20** | | | | | | | ● | | | | | | | | | | | 16.5 | 9.525 | 3.18 | - | - | 1.2 | 0.7 | | |
| | **2204PDR** | ● | | ● | | | | | | | | | | ● | | ● | ● | ● | 22.0 | 12.7 | 4.76 | - | - | 1.4 | 0.7 | | |
| | **2204PDR-G** | | | | | | | | | | | | | | ● | | | | 22.0 | 12.7 | 4.76 | - | - | 1.4 | 0.7 | | |
| | **2204PDL** | | | | | | | | | | | | | | | | ● | | 22.0 | 12.7 | 4.76 | - | - | 1.4 | 0.7 | | |
| | **2204PDSR** | | ● | | | | | | | | | | | | | | | | 22.0 | 12.7 | 4.76 | - | - | 1.4 | 0.7 | | |
| | **2204PDTR** | | | | | | | | | | | | | | | | | | 22.0 | 12.7 | 4.76 | - | - | 1.4 | 0.7 | | |
| | **2204PPN** | | | | | | | | | | | | | | | | | | 22.0 | 12.7 | 4.76 | - | - | 1.2 | 1.2 | | |
| | **2204PPTN** | | | | | | | | | | | | | | | | | | 22.0 | 12.7 | 4.76 | - | - | 1.2 | 1.2 | | |
| | **2204PDR-RH** | | | | | | | | | | | | | | | | | | 22.0 | 12.7 | 4.76 | 0.8 | - | 1.8 | - | | |
| | **2204PDER-RH** | | | | | ● | | | ● | ○ | | | | | | | | | 22.0 | 12.7 | 4.76 | 0.8 | - | 1.8 | - | | |
| | **2204PDSR-RH** | | | | | | | | ● | ○ | | | | | | | | | 22.0 | 12.7 | 4.76 | 0.8 | - | 1.8 | - | | |
| | **2204PDR-S20** | | | | | | | ● | | | | | | | | | | | 22.0 | 12.7 | 4.76 | - | - | 1.4 | 0.7 | | |
| **TPKN-SM** | **TPKN 1603PDSR-SM** | | | | | | | | | | | | | | | | | | 16.5 | 9.525 | 3.18 | 1.0 | - | 1.70 | |  | **E38** |
| | **1603PDER-SM** | | | | | | | | | | | | | | | | | | 16.5 | 9.525 | 3.18 | 1.0 | - | 1.70 | | | |
| | **2204PDSR-SM** | | | | | | ● | | | | | | | | | | | | 22.0 | 12.7 | 4.76 | 1.0 | - | 1.91 | | | |
| | **2204PDER-SM** | | | | | | | | | | | | | | | | | | 22.0 | 12.7 | 4.76 | 1.0 | - | 1.91 | | | |
| **TPKN-SU** | **TPKN 1603PDSL-SU** | | | | ● | | | | | | | | | | | | | | 16.5 | 9.925 | 3.18 | 1.0 | - | 1.7 | - |  | **E38** |
| | **1603PDSR-SU** | | | | ● | ○ | ● | | | | | | | | | | | | 16.5 | 9.925 | 3.18 | 1.0 | - | 1.7 | - | | |
| | **2204PDSL-SU** | | | | ● | | | | | | | | | | | | | | 22 | 12.7 | 4.76 | 1.0 | - | 1.91 | - | | |
| | **2204PDSR-SU** | | | | ● | ● | ● | | | | | | | | | | | | 22 | 12.7 | 4.76 | 1.0 | - | 1.91 | - | | |
| **TPKR-MX** | **TPKR 1603PDSN-MX** | | | | | | | | | | | | | | | | | | 16.5 | 9.525 | 3.18 | - | - | 1.2 | 1.2 |  | **E38** |
| | **1603PDSR-MX** | | | | | | | | | | | | | | | | | | 16.5 | 9.525 | 3.18 | - | - | 1.2 | 0.7 | | |
| | **1603PPR-MX** | ● | | | | | | | | | | | | | | | | | 16.5 | 9.525 | 3.18 | - | - | 1.2 | 1.0 | | |
| | **1603PPSN-MX** | ● | | | | | | | | | | | | | | | | | 16.5 | 9.525 | 3.18 | - | - | 1.2 | 1.2 | | |
| | **1603PPSR-MX** | | ● | | | | | | | | | | | | | | | | 16.5 | 9.525 | 3.18 | - | - | 1.2 | 1.0 | | |
| | **2204PDR-MX** | ● | | | | | | | | | | | | | | | | | 22.0 | 12.7 | 4.76 | 1.0 | - | 1.4 | - | | |
| | **2204PDSR-MX** | | ● | ● | | | | | | | | | | | | | | | 22.0 | 12.7 | 4.76 | 1.0 | - | 1.4 | - | | |
| | **2204PPR-MX** | | | | | | | | | | | | | | | | | | 22.0 | 12.7 | 4.76 | 1.0 | - | 1.4 | - |  | |
| **TPKR-SM** | **TPKR 1603PDSR-SM** | | | | | | | | | | | | | | | | | | 16.5 | 9.525 | 3.18 | 1.0 | - | 1.70 | - |  | **E38** |
| | **2204PDSR-SM** | | | | | | | | | | | | | | | | | | 22.0 | 12.7 | 4.76 | 1.0 | - | 1.91 | - | | |
| **TPXN-FM** | **TPXN 1603PDSR-FM** | | | | | ● | ● | | | | | | | | | | | | 16.5 | 9.525 | 3.18 | 1.0 | - | 1.30 | - |  | **E38** |
| | **1603PDER-FM** | | | | | | | | | | | | | | | | | | 16.5 | 9.525 | 3.18 | 1.0 | - | 1.30 | - | | |
| | **2204PDSR-FM** | | | | | ● | ● | | | | | | | | | | | | 22.0 | 12.7 | 4.76 | 1.0 | - | 1.51 | - | | |
| | **2204PDER-FM** | | | | | | | | | | | | | | | | | | 22.0 | 12.7 | 4.76 | 1.0 | - | 1.51 | - | | |

● : Disponibile ○ : A richiesta

| Pezzo lavorato | | |
|---|---|---|
| | Acciaio | P |
| | Acciaio inossidabile | M |
| | Ghisa | K |
| | Materiali non ferrosi | N |
| | Leghe resist. al calore, lega titanio | S |
| | Materiali temprati | H |

Applicazioni
● Taglio continuo
Uso generico
Taglio interrotto

| Inserti | Articolo | | Rivestito | | | | | | | | | Cermet | | | Non rivestito | | | | Dimensioni (mm) | | | | | | | Geometria | Utensili disponibili |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | l | $l_2$ | $l_1$ | d | t | r | $d_1$ | f | | |
| **TPXR-FM** | TPXR | 1603PDSR-FM | | | | | | ● | | | | | | | | | | | | 16.5 | | | 9.525 | 3.18 | 1.0 | | | | E38 |
| | | 2204PDSR-FM | | | | | | ● | | | | | | | | | | | | 22.0 | | | 12.7 | 4.76 | 1.0 | | | | |
| **TWX-KC** Neu | TWX | 16R-KC | | | | ● | | | | | | | | | | | | | | 16.5 | | | 9.52 | 3.97 | 0.8 | 4.45 | | | E169 |
| | | 22R-KC | | | | ● | | | | | | | | | | | | | | 22 | | | 12.7 | 4.76 | 0.8 | 4.45 | | | |
| **VCKT-MA** | VCKT | 220530N-MA | | | | | | | | | | | | | | ● | | | | 15.6 | - | - | 12.7 | 5.56 | 3.0 | 5.6 | - | | E176 E177 |
| **VDKT-MA** | VDKT | 11T210N-MA | | | | | | | | | | | | | | ● | | | | 8.8 | - | - | 6.35 | 2.87 | 1.0 | 2.8 | - | | E177 E178 |
| | | 11T220N-MA | | | | | | | | | | | | | | ● | | | | 6.7 | - | - | 6.35 | 2.87 | 2.0 | 2.8 | - | | |
| **WDKT-MH** | WDKT | 080316ZDSR-MH | | | | ● | ● | ● | ● | | | | | | | | | | | - | - | - | 8.0 | 3.18 | 1.6 | 3.3 | 1.8 | | E145 |
| | | 10T320ZDSR-MH | | | | ● | ● | ● | ● | | | | | | | | | | | - | - | - | 10.0 | 3.97 | 2.0 | 4.3 | 2.3 | | E146 |
| | | 130520ZDSR-MH | | | | ● | ● | ● | ● | | | | | | | | | | | - | - | - | 13.5 | 5.56 | 2.0 | 5.56 | 3.1 | | E147 |
| | | 150625ZDSR-MH | | | | ● | ● | ● | ● | | | | | | | | | | | - | - | - | 15.0 | 6.35 | 2.5 | 5.56 | 3.4 | | E148 |
| **WNMX-MM** Neu | WNMX | 09T316ZNN-MM | | | | ● | ● | ● | ● | | | | | | | | | | | - | - | - | 9.525 | 3.97 | 1.6 | 3.6 | 1.7 | | E140 |
| | | 130520ZNN-MM | | | | ● | ● | ● | ● | | | | | | | | | | | | | | 12.7 | 5.56 | 2.0 | 4.7 | 2.5 | | E141 E142 E143 E144 |
| **XCET-KC** | XCET | 310404ER-KC | | | | ● | | | | | | | | | | | ● | ● | | 30.9 | - | - | 9.525 | 4.5 | 0.4 | 4.4 | - | | E168 |
| **XEKT-MA** Neu | XEKT | 19M504FR-MA | | | | | | | | | | ● | | | | ● | | | | 18 | 16.4 | 1.4 | - | 5 | 0.4 | 4.4 | - | | E179 |
| | | 19M508FR-MA | | | | | | | | | | ● | | | | ● | | | | 18 | 16.4 | 1.0 | - | 5 | 0.8 | 4.4 | - | | E180 |
| | | 19M512FR-MA | | | | | | | | | | ● | | | | ● | | | | 18 | 16.4 | 0.6 | - | 5 | 1.2 | 4.4 | - | | E181 |
| | | 19M516FR-MA | | | | | | | | | | ● | | | | ● | | | | 17.5 | 16.4 | 0.5 | - | 5 | 1.6 | 4.4 | - | | E182 |
| | | 19M518FR-MA | | | | | | | | | | ● | | | | | | | | 17.5 | 16.4 | 0.5 | - | 5 | 1.8 | 4.4 | - | | |
| | | 19M520FR-MA | | | | | | | | | | ● | | | | ● | | | | 17.5 | 16.4 | 0.5 | - | 5 | 2.0 | 4.4 | - | | |
| | | 19M530FR-MA | | | | | | | | | | ● | | | | ● | | | | 17 | 16.4 | 0.7 | - | 5 | 3.0 | 4.4 | - | | |
| | | 19M532FR-MA | | | | | | | | | | ● | | | | ● | | | | 17 | 16.4 | 0.5 | - | 5 | 3.2 | 4.4 | - | | |
| | | 19M540FR-MA | | | | | | | | | | ● | | | | ● | | | | 16.5 | 16.4 | 0.5 | - | 5 | 4.0 | 4.4 | - | | |
| | | 19M550FR-MA | | | | | | | | | | ● | | | | ● | | | | 16 | 16.4 | 0.4 | - | 5 | 5.0 | 4.4 | - | | |
| | | 250604FR-MA | | | | | | | | | | | | | | ● | | | | 24.5 | 21.9 | 1.5 | - | 6.35 | 0.4 | 6.0 | - | | |
| | | 250608FR-MA | | | | | | | | | | | | | | ● | | | | 24.5 | 21.9 | 1.2 | - | 6.35 | 0.8 | 6.0 | - | | |
| | | 250612FR-MA | | | | | | | | | | | | | | ● | | | | 24.5 | 21.9 | 0.8 | - | 6.35 | 1.2 | 6.0 | - | | |
| | | 250616FR-MA | | | | | | | | | | | | | | ● | | | | 24.5 | 21.9 | 0.4 | - | 6.35 | 1.6 | 6.0 | - | | |
| | | 250620FR-MA | | | | | | | | | | | | | | ● | | | | 24 | 21.9 | 0.5 | - | 6.35 | 2.0 | 6.0 | - | | |
| | | 250630FR-MA | | | | | | | | | | | | | | ● | | | | 23.7 | 21.9 | 0.6 | - | 6.35 | 3.0 | 6.0 | - | | |
| | | 250632FR-MA | | | | | | | | | | | | | | ● | | | | 23.7 | 21.9 | 0.4 | - | 6.35 | 3.2 | 6.0 | - | | |
| | | 250640FR-MA | | | | | | | | | | | | | | ● | | | | 22.8 | 21.9 | 1.2 | - | 6.35 | 4.0 | 6.0 | - | | |
| | | 250650FR-MA | | | | | | | | | | | | | | ● | | | | 22.7 | 21.9 | 0.4 | - | 6.35 | 5.0 | 6.0 | - | | |
| **ZDMT-R-MM** Neu | ZDMT | 080310R-MM | | | | ● | | | | | | | | | | | | | | 8.4 | - | - | 6.73 | 3.2 | 10 | 2.8 | - | | E164 |
| | | 110312.5R-MM | | | | ● | | | | | | | | | | | | | | 10.6 | - | - | 8.5 | 3.65 | 12.5 | 2.8 | - | | |
| | | 130416R-MM | | | | ● | | | | | | | | | | | | | | 13.2 | - | - | 10.5 | 4.76 | 16 | 4.4 | - | | |

● : Disponibile ○ : A richiesta

| Pezzo lavorato | | |
|---|---|---|
| Acciaio | P | |
| Acciaio inossidabile | M | |
| Ghisa | K | |
| Materiali non ferrosi | N | |
| Leghe resist. al calore, lega titanio | S | |
| Materiali temprati | H | |

Applicazioni
● Taglio continuo
Uso generico
Taglio interrotto

| Inserti | Articolo | | Rivestito | | | | | | | | | Cermet | | | Non rivestito | | | | Dimensioni (mm) | | | | | | | Geometria | Utensili disponibili |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | l | $l_2$ | $l_1$ | d | t | r | $d_1$ | f | | |
| **ZPET-MM** | ZPET | 080M-MM | | | | | ○ | | | | | | | | | | | | | 16 | - | - | 8.0 | 3.5 | 8 | 2.9 | - | | E162 E163 |
| | | 100M-MM | | | | ● | ○ | | | | | | | | | | | | | 19 | - | - | 10.4 | 4.5 | 10 | 3.4 | - | | |
| | | 125M-MM | | | | ● | ○ | | | | | | | | | | | | | 24 | | | 12.9 | 5.3 | 12.5 | 4.5 | | | |
| | | 150M-MM | | | | ● | ○ | | | | | | | | | | | | | 28 | | | 15.4 | 7 | 15 | 5.6 | | | |
| | | 160M-MM | | | | ● | ○ | | | | | | | | | | | | | 28.5 | | | 16.4 | 7 | 16 | 5.6 | | | |
| | | 200M-MM | | | | ● | ○ | | | | | | | | | | | | | 38 | - | - | 20.7 | 8 | 20 | 6.6 | - | | |
| | | 250M-MM | | | | | ○ | | | | | | | | | | | | | 48 | - | - | 25.9 | 9.5 | 25 | 8.6 | - | | |
| | ZPET | 080S-MM | | | | | | | | | | | | | | | | | | 15 | - | - | 6.6 | 3.1 | 8 | 2.9 | - | | |
| | | 100S-MM | | | | ● | ○ | | | | | | | | | | | | | 15.5 | | | 8.4 | 3.8 | 10 | 3.4 | | | |
| | | 125S-MM | | | | ● | ○ | | | | | | | | | | | | | 20.5 | | | 10.7 | 4.5 | 12.5 | 4.5 | | | |
| | | 150S-MM | | | | ● | ○ | | | | | | | | | | | | | 25 | - | - | 12.4 | 6.5 | 15 | 5.6 | - | | |
| | | 160S-MM | | | | ● | ○ | | | | | | | | | | | | | 26 | | | 13.4 | 6.5 | 16 | 5.6 | | | |
| | | 200S-MM | | | | ● | ○ | | | | | | | | | | | | | 32 | | | 16.7 | 7 | 20 | 6.6 | | | |
| | | 250S-MM | | | | | | | | | | | | | | | | | | 40 | | | 20.7 | 8.5 | 25 | 8.6 | | | |
| **ZPMT-MM** | ZPMT | 1504PPSR-MM | | | | ● | | | | | | | | | | | | | | 15.9 | - | - | 12.7 | 4.76 | - | 5.6 | - | | E109 E149 |
| | | 1505PPSR-MMN | | | | | | | | | | | | | | | | | | 15.9 | - | - | 12.7 | 5.76 | - | 5.6 | - | | |
| **ZPMT-R-MM** | ZPMT | 160520R-MM | | | | ● | | | | | | | | | | | | | | 16.1 | - | - | 12.7 | 5.56 | 20 | 5.6 | - | | E164 |
| | | 160525R-MM | | | | ● | | | | | | | | | | | | | | 16.9 | - | - | 12.7 | 5.56 | 25 | 5.6 | - | | |
| | | 160531.5R-MM | | | | ● | | | | | | | | | | | | | | 17.6 | - | - | 12.7 | 5.56 | 31.5 | 5.6 | - | | |
| **ZPMT-R-MR** | ZPMT | 160525R-MR | | | | | | | | | | | | | | | | | | 17.6 | - | - | 12.7 | 5.56 | 25 | 5.6 | - | | E164 |

● : Disponibile ○ : A richiesta

# E Tabella corpi fresa

| Tipo | Fresa Korloy | Articolo | Forma | Angolo | Diametro | Caratteristiche | Tipo di lavorazione | | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sfacciatura | Spallamento | Svuotamento | Copiatura | Ramping, elicoidale | |
| Corpi fresa per spianatura | Mill-max | ADN(M) 4000/5000 |  | 45° | Ø80~Ø315 | Tagliente molto robusto e ottima evacuazione del truciolo | ● | | | | | E29 E30 |
| | | AE(M) 4000/5000 |  | 45° | Ø80~Ø315 | Bassi sforzi di taglio e buona lavorabilità | ● | | | | | E31 E32 |
| | | EF(M) 4000 | Al  | 75° | Ø80~Ø315 | Elevato angolo di spoglia per lavorare saldatura | ● | | | | | E33 |
| | | EN(M) 4000 |  | 75° | Ø80~Ø315 | Economico grazie agli inserti bilaterali | ● | | | | | E34 |
| | | EPN(M) 4000/5000 |  | 75° | Ø80~Ø315 | Doppio angolo di spoglia positivo e bassi sforzi di taglio | ● | | | | | E35 E36 |
| | | PF(M) 4000 | Al  | 90° | Ø80~Ø315 | Elevato angolo di spoglia e buona lavorabilità | ● | ● | ● | | | E37 |
| | | PPN(M) 4000 |  | 90° | Ø80~Ø315 | Doppio angolo di spoglia positivo e bassi sforzi di taglio | ● | ● | ● | | | E38 |
| | Turbo mill | ADS 4000/5000 |  | 45° | Ø50~Ø63 | Anti-vibrazioni | | | | | | E39 E40 |
| | | PES 2000/3000/4000 |  | 90° | Ø20~Ø63 | Elevato angolo di spoglia, buona efficienza di taglio | | | | | | E41 |
| | Double mill | AFO(M)4000 |  | 45° | Ø80~Ø125 | Elevato angolo di spoglia e bassi sforzi di taglio Economico (8 taglienti disponibili) | ● | | | | | E42 |
| | | AFO(M)5000 | | | Ø80~Ø315 | | | | | | | |
| | New Power buster | PBA5000 |  | 45° | Ø80~Ø315 | Inserto bilaterale. Sgrossatura ad elevate profondità ed elevati avanzamenti. | ● | | | | | E46 |
| | | PBZ5000 |  | 80° | Ø80~Ø315 | | ● | | | | | E47 |
| | Aero mill | APD(M) Tipo A, Tipo B | Al  | 90° | Ø80~Ø315 | Corpo fresa in alluminio indicato per lavorazioni ad alte velocità. Disponibili inserti in metallo duro sinterizzato e PCD. È possibile la bilanciatura G2.5. | ● | | | | | E77 |
| | Aero mill mini | MAPDS | Al  | 90° | Ø40~Ø63 | Indicata per lavorazioni di finitura di alluminio con inserti PCD Bilanciatura classe G2.5 | ● | | | | | E78 |
| | | MAPD | Al  | 90° | Ø32~Ø40 | | ● | | | | | E78 |
| | Rich mill | RM8AC(M) 4000 |  | 45° | Ø50~Ø400 | 8 taglienti disponibili Inserto bilaterale per acciaio, ghisa, acciaio inossidabile, alluminio | ● | | | | | E55 E56 |
| | | RM8AC(M) 5000 New | | | Ø80~Ø400 | | | | | | | |
| | | RM8EC(M) 4000 |  | 75° | Ø50~Ø400 | 8 taglienti disponibili Inserto bilaterale per acciaio, ghisa | ● | | | | | E57 E58 |
| | | RM8EC(M) 5000 New | | | Ø80~Ø400 | | | | | | | |

Al Fresa per alluminio

| Tipo | Fresa Korloy | Articolo | Forma | Angolo | Diametro | Caratteristiche | Tipo di lavorazione | | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sfacciatura | Spallamento | Svuotamento | Copiatura | Ramping, elicoidale | |
| Corpi fresa per spianatura | Rich mill | RM8QC(M) 4000 |  | 88° | Ø63~Ø200 | 8 taglienti dispnibili. Riduce il taglio interrotto nella lavorazione della ghisa. | ● | | | | | E59 |
| | | RM16AC(M) New 6000/8000 |  | 45° | Ø63~Ø400 | 16 taglienti disponibili. È possibile utilizzare gli inserti wiper per un'ottima superficie di finitura. Inserto e staffaggio robusti. | ● | | | | | E71 |
| | | RMT8A(M) 4000/5000 |  | 45° | Ø80~Ø315 | Semplice sostituzione dell'inserto e buona lavorabilità grazie al sistema di montaggio a leva. 8 taglienti disponibili. | ● | | | | | E72 |
| | | RMT8E(M) 4000/5000 |  | 75° | Ø80~Ø315 | | ● | | | | | E73 |
| | | RMT8Q(M) |  | 88° | Ø80~Ø315 | Ottima superficie di finitura. | ● | | | | | E74 |
| Frese per stampi | Rich mill | RM4PC(M)3000 |  | 90° | Ø40~Ø100 | 4 taglienti disponibili. Elevato angolo di spoglia. Bassi sforzi di taglio. Ottima rigidità dell'inserto. | ● | ● | ● | | ● | E60~ E70 |
| | | RM4PC(M)4000 | | | Ø50~Ø160 | | | | | | | |
| | Alpha-mill | AMC(M) New 1000S/1500S/ 2000S |  | 90° | Ø32~Ø100 | Rompitruciolo dal design tridimensionale per scanalataura, spallamento e spianatura. | ● | | | ● | ● | E84 |
| | | AMC(M) New 3000S/3000S-K/ 4000S |  | 90° | Ø40~Ø200 | | | ● | ● | ● | ● | E85 E86 |
| | | AMC(M) New 1000SE/2000SE/ 3000SE |  | 75° | Ø40~Ø100 | | | | | | | E87 |
| | | AMC(M) New 2000M/3000M/ 4000M |  | 90° | Ø50~Ø125 | | ● | | | | | E88 E89 |
| | Future mill | FMAC(M)3000 |  | 45° | Ø50~Ø125 | Inserti e corpo fresa accurati, ottima evacuazione del truciolo. | ● | | | | | E123 |
| | | FMAC(M)4000 | | | Ø50~Ø200 | | | | | | | |
| | | FMAC(M)3000A |  | 45° | Ø63~Ø125 | Ottima per lavorazioni ad alte velocità; bassi sforzi di taglio grazie al corpo in alluminio leggero. | ● | | | | | E124 |
| | | FMAC(M)4000A | | | Ø63~Ø315 | | | | | | | |
| | | FMPC(M)3000 |  | 90° | Ø50~Ø100 | 4 taglienti disponibili, è possibile applicare svariati insertiper la lavorazione di diversitipi di materiali. | ● | ● | ● | | | E126 |
| | | FMPC(M)4000 | | | Ø63~Ø125 | | | | | | | |
| | | FMPC(M)3000A |  | 90° | Ø63~Ø100 | Ottima per lavorazioni ad alte velocità; bassi sforzi di taglio grazie al corpo in alluminio leggero. | | ● | ● | | | E127 |
| | | FMPC(M)4000A | | | Ø63~Ø315 | | | | | | | |
| | | FMRC(M)3000 |  | – | Ø40~Ø100 | 4~8 taglienti disponibili Doppio lato di contatto tra l'inserto e l'alloggiamento della fresa per uno staffaggio più stabile. Sistema antirotazione. | ● | | | | ● | E129 |
| | | FMRC(M)4000 | | | Ø50~Ø125 | | | | | | | |
| | | FMRC(M)5000 |  | – | Ø50~Ø125 | | | | | | | E130 |
| | | FMRC(M)6000 | | | Ø63~Ø160 | | | | | | | |
| | HRM | HRMC(M)13 |  | 15° | Ø50~Ø80 | Robusto doppio staffaggio. 3 taglienti disponibili; indicata per elevati avanzamenti e bassi sforzi di taglio. | ● | | | ● | ● | E145 ~ E148 |
| | | HRMC(M)15 | | | Ø63~Ø160 | | | | | | | |

Al Fresa per alluminio

# E Tabella corpi fresa

| Tipo | Fresa Korloy | Articolo | Forma | Angolo | Diametro | Caratteristiche | Tipo di lavorazione: Sfacciatura | Spallamento | Svuotamento | Copiatura | Ramping, elicoidale | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Frese per stampi | HRMD | HRMDC(M)09 |  | 14° | Ø40~Ø100 | Inserto bilaterale a 6 taglienti. Indicata per lavorazioni ad alte velocità grazie al semplice ma robusto staffaggio a vite. | ● | ● | ● | ● | ● | E140 ~ E144 |
| | | HRMDC(M)13 | | | Ø50~Ø125 | | | | | | | |
| | T-Cutter | TFE |  | 90° | Ø21~Ø50 | Per svuotamento | ● | ● | ● | ● | ● | E171 |
| | Sistema di lavorazione BT/HSK | BT30/40/50 |  | 90° | Ø10~Ø50 | Progettata per migliorare la rigidità nella lavorazione. Grazie al sistema di raffreddamento interno è anche possibile ottenere una buona evacuazione del truciolo. Per alte velocità ed elevate profondità. | ● | ● | ● | ● | ● | E102 E103 E104 E105 |
| | | HSK63/100 | | | | | | | | | | |
| | Neu | BT30/40/50 |  | 90° | Ø16~Ø100 | | ● | ● | ● | | | E106 E107 E108 E110 E111 |
| | | HSK63/100 | | | | | | | | | | |
| | | BT30/40/50–MAT |  | 90° | Ø12~Ø40 | Indicata per Alpha-Mill, Rich Mill, FMR, Laser Mill, HRM(D), Pro-A, Pro-X Sistema modulare da M06 a M16 | ● | ● | ● | ● | ● | E112 E113 |
| | | HSK63/100–MAT | | | | | | | | | | |
| | | BT50 HAT4000 |  | 90° | Ø50~Ø80 | È possibile sostituire solo la testina e garantire una maggiore efficienza. | ● | ● | ● | | | E109 |
| Frese per alluminio | Pro-X mill | PAXC(M)5000 | Aℓ  | 90° | Ø40~Ø125 | Staffaggio robusto. Ottima rigidità del corpo fresa per lavorazioni rettangolari e curve. | ● | ● | ● | ● | ● | E179 |
| | | PAXC(M)6000 | | | Ø50~Ø125 | | | | | | | |
| | Pro-A mill | PAC(M) 4000 | Aℓ  | 90° | Ø40~Ø100 | L'inserto lappato controlla l'evacuazione del truciolo ed evita la formazione di riporto sul tagliente. | ● | ● | ● | ● | ● | E176 |
| Fresa per ghisa ad alto avanzamento | Fresa ad alto avanzamento | ANH 4000/5000 |  | 45° | Ø100~Ø450 | Ottima robustezza ed evacuazione del truciolo. | ● | | | | | E203 |
| | | CDH 4000/5000 |  | 65° | Ø100~Ø450 | Doppio angolo di spoglia positivo; minimi sforzi di taglio. | ● | | | | | E204 |
| | | DEH 5000 | Aℓ  | 60° | Ø100~Ø450 | Per alluminio e alluminio legato. Inserto esagonale disponibile. | ● | | | | | E205 |
| | | DPH 5000 |  | 60° | Ø100~Ø450 | Inserto esagonale disponibile. Fresa economica. | ● | | | | | E206 |
| | | PNH 4000/5000 |  | 90° | Ø125~Ø450 | Inserto wiper disponibile. Doppio angolo di spoglia negativo; ottima superficie di finitura. | ● | | | | | E207 |
| | | PPH 4000 |  | 90° | Ø125~Ø450 | Inserto quadrato e wiper disponibilili. Ottima superficie di finitura. | ● | | | | | E208 |
| | shave mill Ultra | SVUM6000 |  | 90° | Ø80~Ø315 | Buona rigidità e riduzione dei costi grazie al semplice sistema di staffaggio a vite. | ● | | | | | E213 |
| | | SVUM6000–B |  | 90° | Ø80~Ø315 | Scentratura facile da maneggiare grazie allo speciale tagliente molto tenace di Korloy. | ● | | | | | E214 |

Aℓ Fresa per alluminio

| Tipo | Fresa Korloy | | Articolo | Forma | Angolo | Diametro | Caratteristiche | Tipo di lavorazione: Sfacciatura | Spallamento | Svuotamento | Copiatura | Ramping, elicoidale | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fresa per ghisa ad alto avanzamento | Storm Mill | | SQN3000 |  | 88° | Ø80~Ø450 | Fresa generica per vari utilizzi. | ● | | | | | E209 |
| | | | SFN3000 | | 85° | | | | | | | | E210 |
| | | | SEN3000 | | 75° | | | | | | | | E211 |
| | | | SAN3000 | | 45° | | | | | | | | E212 |
| Fresa a disco a inserti | Tangenziale | Fresa a disco | TAFCP |  | – | Ø100~Ø315 | È possibile eseguire vari profondità di taglio grazie alla lunghezza regolabile. Dalle medie lavorazioni alla sgrossatura, in funzione del tagliente rafforzato. | | ● | ● | | | E187 |
| | | | TAFCB |  | – | Ø100~Ø315 | | ● | ● | ● | | | E187 |
| | | Fresa a disco | TAHCP |  | – | Ø100~Ø315 | | | ● | ● | | | E188 |
| | | | TAHCB |  | – | Ø100~Ø315 | | ● | ● | ● | | | E188 |
| | Radiale | Fresa a disco | RAFCP |  | – | Ø100~Ø315 | Ampia gamma di lavorazioni grazie all'altezza regolabile del tagliente.<br>Indicata per medie lavorazioni e finitura di gole ristrette grazie alla buona evacuazione del truciolo. Rompitruciolo tridimensionale. | | ● | ● | | | E189 |
| | | | RAFCB |  | – | Ø100~Ø315 | | ● | ● | ● | | | E189 |
| | | Fresa a disco | RAHCP |  | – | Ø100~Ø315 | | | ● | ● | | | E190 |
| | | | RAHCB |  | – | Ø100~Ø315 | | ● | ● | ● | | | E190 |
| Frese a disco | Fresa a disco | | FC |  | – | Ø80~Ø315 | Buona evacuazione del truciolo e bassi sforzi di taglio. Lavorazione efficiente. | | ● | ● | | | E191 |
| | Fresa a disco | | HC |  | – | Ø100~Ø315 | Buona evacuazione del truciolo e bassi sforzi di taglio. Lavorazione efficiente. | | ● | ● | | | E192 |
| | – | | SPP(M) |  | – | Ø80~Ø200 | Economico grazie all'uso di inserto pentagonale. Indicata per scanalature strette e profonde. | | | ● | | | E193 |
| | | | SPB(M) |  | – | Ø80~Ø200 | Economico grazie all'uso di inserto pentagonale. Indicata per scanalature strette e profonde. | | | ● | | | E194 |
| | | | SPS New |  | – | Ø50~Ø200 | Per scanalature strette e profonde. | | | ● | | | E195 |
| | New Fresa a disco | | RM4PFCB |  | – | Ø80~Ø160 | Inserto bilaterale a 4 taglienti, molto economico. | | | ● | | | E62<br>E63 |
| | | | RM4PFCP |  | – | Ø80~Ø160 | Inserto bilaterale a 4 taglienti, molto economico. | | | ● | | | E65<br>E66 |
| | New Fresa a disco | | RM4PHCB |  | – | Ø80~Ø160 | Inserto bilaterale a 4 taglienti, molto economico. | | | ● | | | E64 |
| | | | RM4PHCP |  | – | Ø80~Ø160 | Inserto bilaterale a 4 taglienti, molto economico. | | | ● | | | E67 |

Al Fresa per alluminio

# E Tabella attacchi

| Tipo | Fresa Korloy | Articolo | Forma | Angolo | Diametro | Caratteristiche | Tipo di lavorazione | | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sfacciatura | Spallamento | Svuotamento | Copiatura | Ramping, elicoidale | |
| Corpi fresa per spianatura | Turbo mill | ADS 4000/5000 |  | 45° | Ø50~Ø63 | Fresa a passo differenziato per prevenire le vibrazioni. | ● | | | | | E39 E40 |
| | | PES 2000/3000/4000 |  | 90° | Ø20~Ø63 | Buona lavorabilità grazie all'elevato angolo di spoglia. | ● | ● | ● | | | E41 |
| Frese per stampi | Rich mill | RM4PS3000 |  | 90° | Ø14~Ø50 | 4 taglienti disponibili. Elevato angolo di spoglia e ridotti sforzi di taglio. Ottima rigidità dell'inserto. | ● | ● | ● | | ● | E68 |
| | | RM4PS4000 | | | Ø32~Ø63 | | ● | ● | ● | | ● | E69 |
| | Alpha-mill | AMS New 1000S/1500S 2000S/3000S 3000S-K/4000S |  | 90° | Ø10~Ø63 | La combinazione di design tridimensionale ed elevato angolo di spoglia consente un'efficace evacuazione del truciolo a bassi sforzi di taglio. Sistema di raffreddamento interno. Ampia scelta di inserti per numerosi tipi di lavorazioni È possibile eseguire lavorazioni a profondità e avanzamenti elevati. | ● | ● | ● | ● | ● | E90 E91 E92 E93 E94 E95 |
| | | AMS New 1000SE/2000SE 3000SE |  | 75° | Ø25~Ø63 | | ● | | | | | E96 |
| | | AMS New 1000M/1500M 2000M/4000M |  | 90° | Ø16~Ø50 | | ● | ● | ● | ● | ● | E97 E98 |
| | | AMS New 1000MH/1500MH 2000MH/3000MH |  | 90° | Ø14~Ø40 | | ● | ● | ● | ● | ● | E99 |
| | Future mill | FMAS3000 |  | 45° | Ø25~Ø63 | Per lavorazioni di precisione. Ottima evacuazione del truciolo. | ● | | | | | E125 |
| | | FMAS4000 | | | Ø50~Ø63 | | | | | | | |
| | | FMPS3000 |  | 90° | Ø25~Ø63 | 4 taglienti disponibili. Tagliente robusto e bassi sforzi di taglio. | ● | | | | | E128 |
| | | FMPS4000 | | | Ø40~Ø63 | | | | | | | |
| | | FMRS 1000/1500/2000 2500/3000/4000 5000/6000 |  | – | Ø8~Ø63 | Sistema di doppio staffaggio, comoda sostituzione dell'inserto. | ● | ● | ● | ● | ● | E131 E132 E133 |
| | HRM | HRMS 08/10/13/15 |  | 15° | Ø20~Ø63 | Robusto doppio staffaggio. 3 taglienti disponibili. Lavorazioni ad elevanti avanzamenti e bassi sforzi di taglio. | ● | ● | ● | ● | ● | E146 E147 E148 |
| | HRMD | HRMDS 09/13 |  | 14° | Ø25~Ø63 | 6 taglienti disponibili; per elevati avanzamenti, multifunzione. Comodo sistema di staffaggio a una vite. | ● | ● | ● | ● | ● | E142 E143 E144 |

Al Fresa per alluminio

| Tipo | Fresa Korloy | Articolo | Forma | Angolo | Diametro | Caratteristiche | Tipo di lavorazione | | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sfacciatura | Spallamento | Svuotamento | Copiatura | Ramping, elicoidale | |
| Frese per stampi | Tank mill | THE |  | 90° | Ø25~Ø50 | Angolo elicoidale positivo per miglioarere l'evacuazione del truciolo. Speciale trattamento sulla superficie per evitare la rottura del corpo fresa e migliorarne la rigidità. Tagliente robusto. | ● | ● | | | | E149 |
| | Laser mill | LBE□□ |  | – | Ø8~Ø32 | Fresa integrale a testa sferica per stampi di precisione. Fresa integrale a testa sferica per finitura stampi con design MQL. | ● | ● | ● | ● | | E158<br>E158<br>E160 |
| | | LBE□□–C |  | – | Ø8~Ø32 | Fresa integrale a testa sferica per stampi di precisione. Portainserti rigido con semplice design di finitura MQL. Stelo in metallo duro. | ● | ● | ● | | | E157<br>E159 |
| | Mach mill | BFE |  | – | Ø16~Ø32 | Migliori prestazioni di taglio con il design di tipo S e sistema di staffaggio a V. | ● | ● | ● | ● | | E161 |
| | | GBE New |  | – | Ø16~Ø50 | Il design elicoidale del tagliente può ridurre lo sforzo di taglio durante la lavorazione. Applicazione sicura per prevenire la rotazione e aumentare la durata dell'utensile. | ● | ● | ● | ● | | E162 |
| | | BRE New |  | – | Ø20~Ø50 | Il modello con scarico agevola l'evacuazione del truciolo. L'esclusivo design del tagliente previene la rottura del corpo fresa. | ● | ● | ● | ● | | E164 |
| | Utensile di svasatura | CE New |  | 15°<br>30°<br>45°<br>60° | Ø25~Ø30<br>Ø25~Ø35<br>Ø7~Ø39<br>Ø25~Ø42 | Per svasatura posteriore e frontale di elevata qualità e vari tipi di svasatura laterale. | – | – | – | – | – | E167 |
| | | |  | 30°<br>45°<br>60° | Ø5~Ø35<br>Ø5~Ø48<br>Ø5~Ø57 | Vari gradi di svasatura disponibili. È possibile eseguire svasature lunghe. | – | – | – | – | – | E167 |
| | | CE New |  | 45° | ~Ø28 | Fresa per centratura, scanalatura, e svasatura. | – | – | – | – | – | E169 |
| | | CT |  | 45° | ~Ø18 | Fresa per centratura, scanalatura, e svasatura. | – | – | – | – | – | E170 |
| | | CS |  | 45°<br>60° | Ø4~Ø28 | Fresa per svasatura. | – | – | – | – | – | E170 |
| Frese per alluminio | Pro-X mill | PAXS 5000/6000 | Al  | 90° | Ø20~Ø40<br>Ø25~Ø40 | Staffaggio straordinariamente stabile, corpo fresa robusto. Per lavorazioni rettangolari e curvatura. | ● | ● | ● | ● | ● | E180 |
| | Pro-A mill | PAS 2000/4000 | Al  | 90° | Ø12~Ø42<br>Ø32~Ø40 | Lo speciale lato superiore lappato consente una migliore evacuazione del truciolo ed evita il riporto sul tagliente. | ● | ● | ● | ● | ● | E177 |
| Fresatura a filettare | | TM |  | – | Ø32~Ø50 | Per filettatura interna ed esterna. | ● | | | | | - |

Al Fresa per alluminio

# Tabella adattatori modulari



## Modulare

- Tipo FMRM
  - Vedere pag. E134



- Tipo LBE–MHD
  - Vedere pag. E160



- Tipo PAM
  - Vedere pag. E178



- Tipo AMM
  - Vedere pag. E100



- Tipo RM4PM
  - Vedere pag. E70



- Tipo HRMM
  - Vedere pag. E148



- Tipo HRMDM
  - Vedere pag. E144



- Tipo PAXM
  - Vedere pag. E181

**Tipo stelo in acciaio**
- Vedere pag. E183



**Tipo stelo in metallo duro**
- Vedere pag. E184



**Attacchi BT**
- Vedere pag. E111



**Attacchi HSK**
- Vedere pag. E112



# ADN(M)4000

AA 45° | • AR : 15° • RR : –4°



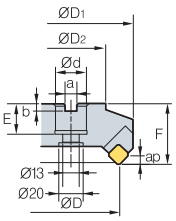


Fig. 1

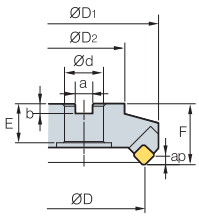


Fig. 2

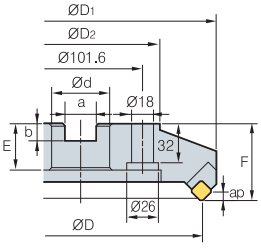


Fig. 3

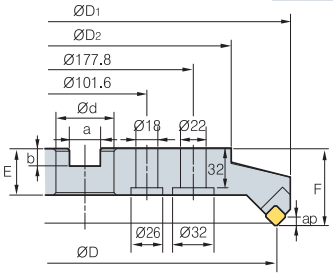


Fig. 4

(mm)

| Articolo | | Stock R | Stock L | ⊚ | øD | øD1 | øD2 | ød | a | b | E | F | ap | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ADN(M) | 4080R/L | ●(○) | ○ | 4 | 80 | 105 | 57 | 25.4(27) | 9.5(12.4) | 6(7) | 25(22) | 50 | 6 | 1.9 | 1 |
| | 4100R/L | ●(○) | | 5 | 100 | 125 | 67 | 31.75(32) | 12.7(14.4) | 8(8) | 32(28) | 50 | 6 | 2.5 | 2 |
| | 4125R/L | ●(○) | | 6 | 125 | 149 | 87 | 38.1(40) | 15.9(16.4) | 10(9) | 38(30) | 63 | 6 | 4.3 | 2 |
| | 4160R/L | ●(●) | | 8 | 160 | 183 | 107 | 50.8(40) | 19.0(16.4) | 11(9) | 38(30) | 63 | 6 | 6.4 | 2 |
| | 4200R/L | ● | | 10 | 200 | 223 | 130 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 6 | 8.7 | 3 |
| | 4250R/L | ● | | 12 | 250 | 273 | 180 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 6 | 14.0 | 3 |
| | 4315R/L | ● | | 14 | 315 | 338 | 240 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 6 | 21.0 | 4 |

• ( )Sistema metrico

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Base | Cuneo | Vite del cuneo | Vite della base | Chiave |
|---|---|---|---|---|
|  |  |  |  |  |
| LADN4R/L | WEPN4R/L | DHA0821F | LTX0514 | HW40 |

## Mandrini disponibili

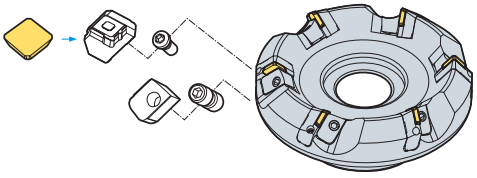
| Articolo | Attacco generico | Attacchi NC ADN | Attacchi NC ADNM |
|---|---|---|---|
| ADN(M)4080R/L | NT*□□(M/U)-FMA25.4-25 | BT**□□-FMA25.4 -□□ | FMC27 |
| 4100R/L | NT*□□(M/U)-FMA31.75 - □□ | BT**□□-FMA31.75 -□□ | FMC32 |
| 4125R/L | NT*□□(M/U)-FMA38.1 - □□ | BT**□□-FMA38.1 -□□ | FMB40 |
| 4160R/L | NT*□□(M/U)-FMA50.8 - □□ | BT**□□-FMA50.8 -□□ | FMB40 |
| 4200R/L | NT*□□(M/U)-FMA47.625-25, KCP-8*** | BT**□□-FMA47.625-□□ | FMB60 |
| 4250R/L | NT*□□(M/U)-FMA47.625-25, KCP-8*** | BT**□□-FMA47.625-□□ | FMB60 |
| 4315R/L | KCP-8***(Center Ring Plug) | | |

*Numero □□–NT **Numero □□–BT ***Over Milling 5

## Condizioni di taglio raccomandate

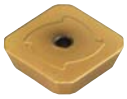
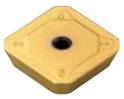
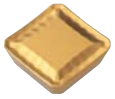
| Pezzo lavorato | Condizioni di taglio vc(m/min) | Condizioni di taglio fz(mm/t) | Gradi |
|---|---|---|---|
| P | 150 ~ 300 | 0.05 ~ 0.15 | NCM325 |
| | 120 ~ 230 | 0.05 ~ 0.20 | PC3500 |
| | 100 ~ 200 | 0.05 ~ 0.20 | ST30A |
| M | 50 ~ 200 | 0.05 ~ 0.20 | PC9530 |
| | 50 ~ 120 | 0.05 ~ 0.20 | ST30A |
| K | 150 ~ 250 | 0.05 ~ 0.30 | PC6510 |
| | 100 ~ 200 | 0.05 ~ 0.30 | G10 |

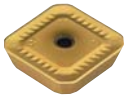
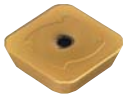
Montaggio



• Inserti disponibili, vedere pag. : E12, E13
• Attacchi e viti disponibili : E215~E217

## Inserti disponibili

| SDCN | SDKN-SM | SDKN-SU | SDKR-MX |
|---|---|---|---|
|  |  |  |  |

| SDKR-SM | SDXN-FM | SDXR-FM |
|---|---|---|
|  |  |  |

| Articolo | | Rivestito NCM325 | NCM535 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SDCN | 42M | | | | | | | | | | | | | | | ● | | | E12 |
| | 42M-G | | | | | | | | | | | | | | ● | | | | |
| | 42MT | | ● | | | | | | | | | | | ● | | | ● | ● | |
| | 42MT-RH | | | | ● | | | | | | | | | | | | | | |
| | 42MT-S20 | | | | | | | ● | | | | | | | | | | | |
| | 1203AEEN | | | | | | | | | | | | | | | | | | |
| | 1203AEEN-RH | | | | | | | | ● | | | | | | | | | | |
| | 1203AESN | | | | | | | | | | | | | | | | | | |
| | 1203AESN-RH | | | | ● | | | | ● | | | | | | | | | | |
| SDKN | 1203AESN-SM | | | | | | ● | | | | | | | | | | | | E12 |
| | 1203AEEN-SM | | | | | | | | | | | | | | | | | | |
| | 1203AESN-SU | | | | ● | ● | ● | | | | | | | | | | | | |
| SDKR | 1203AESN-MX | | | | | | | | | | | | | | | | | | E13 |
| | 1203AETN-MX | | | | | | | | | | | | | | | | | | |
| | 1203AEN-MX | ● | | ● | | | | | | | | | | | | | | | |
| | 1203AESN-SM | | | | | | | | | | | | | | | | | | |
| SDXN | 1203AESN-FM | | | | ● | | ● | | | | | | | | | | | | E13 |
| | 1203AEEN-FM | | | | | | | | | | | | | | | | | | |
| SDXR | 1203AESN-FM | | | | | | | | | | | | | | | | | | E13 |

● : Disponibile ○ : A richiesta

# ADN(M)5000

AA 45° | • AR : 15° • RR : –4°



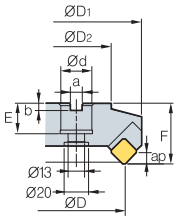


Fig. 1

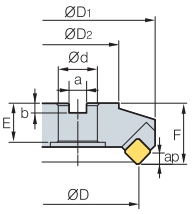


Fig. 2

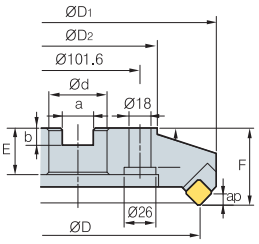


Fig. 3

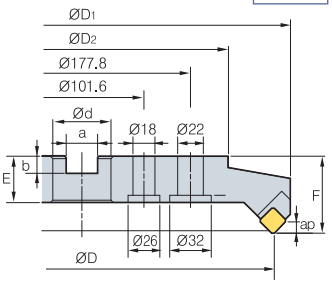


Fig. 4

(mm)

| Articolo | | Stock R | Stock L | | øD | øD1 | øD2 | ød | a | b | E | F | ap | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ADN(M) | 5080R/L | ● | | 4 | 80 | 107 | 57 | 25.4(27) | 9.5(12.4) | 6(7) | 25(22) | 50 | 8 | 2.0 | 1 |
| | 5100R/L | ● | | 5 | 100 | 126 | 67 | 31.75(32) | 12.7(14.4) | 8(8) | 32(28) | 50 | 8 | 2.7 | 2 |
| | 5125R/L | ● | | 6 | 125 | 150 | 87 | 38.1(40) | 15.9(16.4) | 10(9) | 38(30) | 63 | 8 | 4.3 | 2 |
| | 5160R/L | ● | | 8 | 160 | 185 | 107 | 50.8(40) | 19.0(16.4) | 11(9) | 38(30) | 63 | 8 | 6.5 | 2 |
| | 5200R/L | ● | | 10 | 200 | 225 | 130 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 8 | 9.1 | 3 |
| | 5250R/L | ● | | 12 | 250 | 275 | 180 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 8 | 14.5 | 3 |
| | 5315R/L | ● | | 14 | 315 | 340 | 240 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 8 | 21.0 | 4 |

• ( )Sistema metrico

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Base | Cuneo | Vite del cuneo | Vite della base | Chiave |
|---|---|---|---|---|
|  |  |  |  |  |
| LADN5R/L | WEPN5R/L | DHA0821F | LTX0514 | HW40 |

## Mandrini disponibili

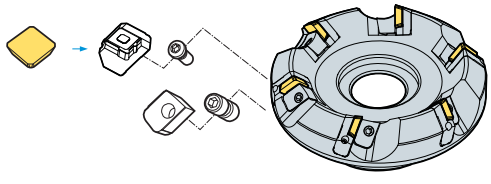
| Articolo | Attacco generico | Attacchi NC ADN | Attacchi NC ADNM |
|---|---|---|---|
| ADN(M)5080R/L | NT*□□ (M/U)-FMA25.4-25 | BT**□□-FMA25.4 -□□ | FMC27 |
| 5100R/L | NT*□□ (M/U)-FMA31.75 -□□ | BT**□□-FMA31.75 -□□ | FMC32 |
| 5125R/L | NT*□□ (M/U)-FMA38.1 -□□ | BT**□□-FMA38.1 -□□ | FMB40 |
| 5160R/L | NT*□□ (M/U)-FMA50.8 -□□ | BT**□□-FMA50.8 -□□ | FMB40 |
| 5200R/L | NT*□□ (M/U)-FMA47.625-25, KCP-8*** | BT**□□-FMA47.625 -□□ | FMB60 |
| 5250R/L | NT*□□ (M/U)-FMA47.625-25, KCP-8*** | BT**□□-FMA47.625 -□□ | FMB60 |
| 5315R/L | KCP-8***(Center Ring Plug) | | |

*Numero □□–NT **Numero □□–BT ***Over Milling 5

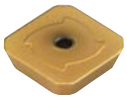
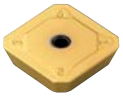
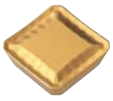
## Condizioni di taglio raccomandate

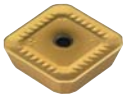
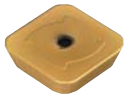
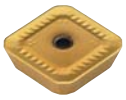
| Pezzo lavorato | Condizioni di taglio vc(m/min) | Condizioni di taglio fz(mm/t) | Gradi |
|---|---|---|---|
| P | 150 ~ 300<br>120 ~ 230<br>100 ~ 200 | 0.05 ~ 0.15<br>0.05 ~ 0.20<br>0.05 ~ 0.20 | NCM325<br>PC3500<br>ST30A |
| M | 50 ~ 200<br>50 ~ 120 | 0.05 ~ 0.20<br>0.05 ~ 0.20 | PC9530<br>ST30A |
| K | 150 ~ 250<br>100 ~ 200 | 0.05 ~ 0.30<br>0.05 ~ 0.30 | PC6510<br>G10 |

Montaggio



## Inserti disponibili

| SDCN | SDKN-SM | SDKN-SU | SDKR-MX |
|---|---|---|---|
|  |  |  |  |

| SDKR-SM | SDXN-FM | SDXR-FM |
|---|---|---|
|  |  |  |

| Articolo | | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SDCN | 53M | | | | | | | | | | | | | | | ● | | | |
| | 53M-G | | | | | | | | | | | | | | ● | | | | |
| | 53MT | ● | ● | | | | | | | | | | ● | ● | | | ● | ● | |
| | 53MT-RH | | | | ● | | | | | | | | | | | | | | |
| | 53MT-S20 | | | | | | | ● | | | | | | | | | | | E12 |
| | 1504AEEN | | | | | | | | | | | | | | | | | | |
| | 1504AEEN-RH | | | | | ● | | | ● | | | | | | | | | | |
| | 1504AESN | | | | | | | | | | | | | | | | | | |
| | 1504AESN-RH | | | | | | | | ● | | | | | | | | | | |
| SDKN | 1504AESN-SM | | | | | | ● | | | | | | | | | | | | |
| | 1504AEEN-SM | | | | | | | | | | | | | | | | | | E12 |
| | 1504AESN-SU | | | | ● | ● | ● | | | | | | | | | | | | |
| SDKR | 1504AESN-MX | | ● | | | | | | | | | | | | | | | | |
| | 1504AETN-MX | | | | | | | | | | | | | | | | | | E13 |
| | 1504AEN-MX | ● | | ● | | | | | | | | | | | | | | | |
| | 1504AESN-SM | | | | | | | | | | | | | | | | | | |
| SDXN | 1504AESN-FM | | | | ● | | | | | | | | | | | | | | E13 |
| | 1504AEEN-FM | | | | | | | | | | | | | | | | | | |
| SDXR | 1504AESN-FM | | | | | | | | | | | | | | | | | | E13 |

● : Disponibile ○ : A richiesta

• Inserti disponibili, vedere pag. : E12, E13
• Attacchi e viti disponibili : E215~E217

# AE(M)4000

AA 45° | • AR : 20° • RR : -3°



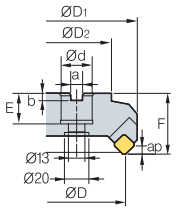


Fig. 1

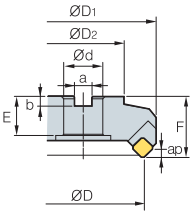


Fig. 2

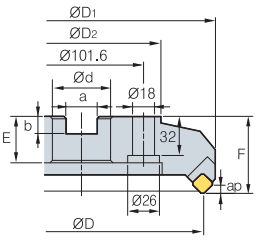


Fig. 3

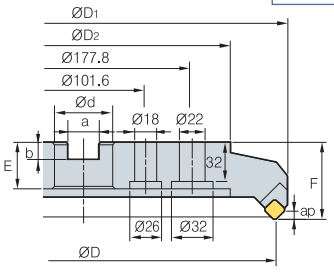


Fig. 4

(mm)

| Articolo | | Stock R | Stock L | | øD | øD1 | øD2 | ød | a | b | E | F | ap | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AE(M) | 4080R/L | •(•) | | 4 | 80 | 103 | 60 | 25.4(27) | 9.5(12.4) | 6(7) | 25(22) | 50 | 5.5 | 1.7 | 1 |
| | 4100R/L | •(•) | | 5 | 100 | 122 | 80 | 31.75(32) | 12.7(14.4) | 8(8) | 32(28) | 50 | 5.5 | 2.9 | 2 |
| | 4125R/L | •(•) | | 6 | 125 | 146 | 100 | 38.1(40) | 15.9(16.4) | 10(9) | 38(30) | 63 | 5.5 | 4.4 | 2 |
| | 4160R/L | •(•) | | 8 | 160 | 181 | 120 | 50.8(40) | 19.0(16.4) | 11(9) | 38(30) | 63 | 5.5 | 6.1 | 2 |
| | 4200R/L | •(•) | | 10 | 200 | 220 | 130 | 47.625(60) | 25.4(25.7) | 13.5(14) | 38(38) | 63 | 5.5 | 8.9 | 3 |
| | 4250R/L | •(•) | | 12 | 250 | 270 | 180 | 47.625(60) | 25.4(25.7) | 13.5(14) | 38(38) | 63 | 5.5 | 15.7 | 3 |
| | 4315R/L | (•) | | 15 | 315 | 335 | 240 | 47.625(60) | 25.4(25.7) | 13.5(14) | 38(38) | 63 | 5.5 | 25.1 | 4 |

• ( )Sistema metrico

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Base | Cuneo | Vite del cuneo | Vite della base | Chiave |
|---|---|---|---|---|
|  |  |  |  |  |
| LAE4R/L | WAE4R/L | DHA0821F | LTX0512 | HW40 |

## Mandrini disponibili

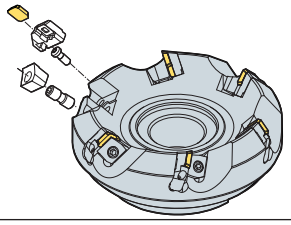
| Articolo | Attacco generico | Attacchi NC AE | Attacchi NC AEM |
|---|---|---|---|
| AE(M)4080R/L | NT*□□(M/U)-FMA25.4-25 | BT**□□-FMA25.4-□□ | FMC27 |
| 4100R/L | NT*□□(M/U)-FMA31.75-□□ | BT**□□-FMA31.75-□□ | FMC32 |
| 4125R/L | NT*□□(M/U)-FMA38.1-□□ | BT**□□-FMA38.1-□□ | FMB40 |
| 4160R/L | NT*□□(M/U)-FMA50.8-□□ | BT**□□-FMA50.8-□□ | FMB40 |
| 4200R/L | NT*□□(M/U)-FMA47.625-25, KCP-8*** | BT**□□-FMA47.625-□□ | FMB60 |
| 4250R/L | NT*□□(M/U)-FMA47.625-25, KCP-8*** | BT**□□-FMA47.625-□□ | FMB60 |
| 4315R/L | KCP-8***(Center Ring Plug) | | |

*Numero □□–NT **Numero □□–BT ***Over Milling 5

## Condizioni di taglio raccomandate

| Pezzo lavorato | Condizioni di taglio vc(m/min) | Condizioni di taglio fz(mm/t) | Gradi |
|---|---|---|---|
| P | 150 ~ 300<br>120 ~ 230<br>100 ~ 200 | 0.05 ~ 0.15<br>0.05 ~ 0.20<br>0.05 ~ 0.20 | NCM325<br>PC3500<br>ST30A |
| M | 50 ~ 200<br>50 ~ 120 | 0.05 ~ 0.20<br>0.05 ~ 0.20 | PC9530<br>ST30A |
| K | 150 ~ 250<br>100 ~ 200 | 0.05 ~ 0.30<br>0.05 ~ 0.30 | PC6510<br>G10 |

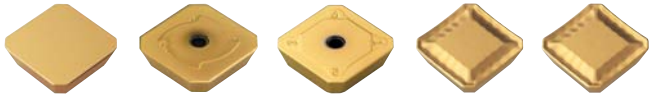
Montaggio



• Inserti disponibili, vedere pag. : E14, E15
• Attacchi e viti disponibili : E215~E217

## Inserti disponibili

SECN | SEKN-SM | SEKN-SU | SEKR-MF1 | SEKR-MX



SEKR-X35 | SEKR-SM | SEXN-FM | SEXR-FM



| Articolo | | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SECN | 1203AFFN | | | | | | | | | | | | | | ● | ● | | | E14 |
| | 1203AFTN | | | | | | | | | | | ● | ● | ● | | | ● | | |
| | 1203AFEN | | | | | | | | | | | | | | | | | | |
| | 1203AFSN | ● | ● | ● | | | | | | | | | | | | | | | |
| | 1203AFEN-RH | | | | | ● | | | ● | | | | | | | | | | |
| | 1203AFSN-RH | | | | | | | | ● | | | | | | | | | | |
| | 1203AFTN-S20 | | | | | | | ● | | | | | | | | | | | |
| SEKN | 1203AFSN-SM | | | | | | | | | | | | | | | | | | E14 |
| | 1203AFEN-SM | | | | | | | | | | | | | | | | | | |
| | 1203AFSN-SU | | | | ● | ● | ● | | | | | | | | | | | | |
| SEKR | 1203AFSN-MF1 | | | | | | | | | | | | | | | | | | E14 E15 |
| | 1203AFSN-MX | ● | ● | ● | | | | ● | | | | | | ● | | | | | |
| | 1203AFSN-X35 | | | | | | | | | | | | | | | | | | |
| | 1203AFFN-X35 | | | | | | | | | | | | | | | | | | |
| | 1203AFSN-SM | | | | | | | | | | | | | | | | | | |
| SEXN | 1203AFSN-FM | | | | ● | | ● | | | | | | | | | | | | E15 |
| | 1203AFEN-FM | | | | | | | | | | | | | | | | | | |
| SEXR | 1203AFSN-FM | | | | | | ● | | | | | | | | | | | | E15 |

● : Disponibile ○ : A richiesta

# AE(M)5000

AA 45° | • AR : 20° • RR : -3°



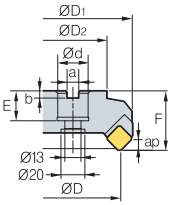


Fig. 1

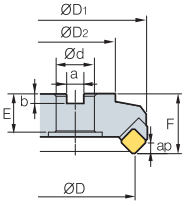


Fig. 2

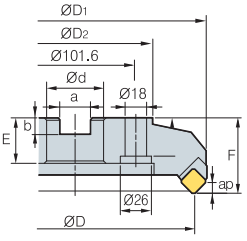


Fig. 3

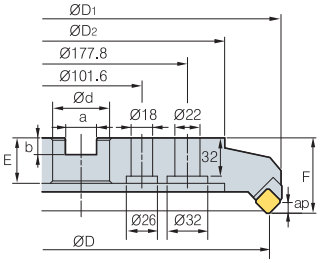


Fig. 4

(mm)

| Articolo | | Stock R | Stock L | | øD | øD1 | øD2 | ød | a | b | E | F | ap | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AE(M) | 5080R/L | | | 4 | 80 | 103 | 60 | 25.4(27) | 9.5(12.4) | 6(7) | 25(22) | 50 | 7.5 | 1.7 | 1 |
| | 5100R/L | | | 5 | 100 | 122 | 80 | 31.75(32) | 12.7(14.4) | 8(8) | 32(28) | 50 | 7.5 | 2.9 | 2 |
| | 5125R/L | ● | | 6 | 125 | 146 | 100 | 38.1(40) | 15.9(16.4) | 10(9) | 38(30) | 63 | 7.5 | 4.4 | 2 |
| | 5160R/L | ● | | 8 | 160 | 181 | 120 | 50.8(40) | 19.0(16.4) | 11(9) | 38(30) | 63 | 7.5 | 6.1 | 2 |
| | 5200R/L | ● | | 10 | 200 | 220 | 130 | 47.625(60) | 25.4(25.7) | 13.5(14) | 38(38) | 63 | 7.5 | 8.9 | 3 |
| | 5250R/L | | | 12 | 250 | 270 | 180 | 47.625(60) | 25.4(25.7) | 13.5(14) | 38(38) | 63 | 7.5 | 15.7 | 3 |
| | 5315R/L | | | 15 | 315 | 335 | 240 | 47.625(60) | 25.4(25.7) | 13.5(14) | 38(38) | 63 | 7.5 | 25.1 | 4 |

• ( )Sistema metrico

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Base | Cuneo | Vite del cuneo | Vite della base | Chiave |
|---|---|---|---|---|
|  |  |  |  |  |
| LAE5R/L | WAE5R/L | DHA0821F | LTX0512 | HW40 |

## Mandrini disponibili

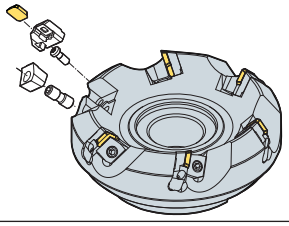
| Articolo | Attacco generico | Attacchi NC AE | Attacchi NC AEM |
|---|---|---|---|
| AE(M)5080R/L | NT*□□(M/U)-FMA25.4-25 | BT**□□-FMA25.4 -□□ | FMC27 |
| 5100R/L | NT*□□(M/U)-FMA31.75 -□□ | BT**□□-FMA31.75 -□□ | FMC32 |
| 5125R/L | NT*□□(M/U)-FMA38.1 -□□ | BT**□□-FMA38.1 -□□ | FMB40 |
| 5160R/L | NT*□□(M/U)-FMA50.8 -□□ | BT**□□-FMA50.8 -□□ | FMB40 |
| 5200R/L | NT*□□(M/U)-FMA47.625-25, KCP-8*** | BT**□□-FMA47.625-□□ | FMB60 |
| 5250R/L | NT*□□(M/U)-FMA47.625-25, KCP-8*** | BT**□□-FMA47.625-□□ | FMB60 |
| 5315R/L | KCP-8***(Center Ring Plug) | | |

*Numero □□–NT **Numero □□–BT ***Over Milling 5

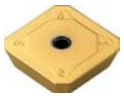
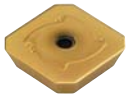
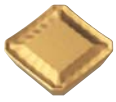
## Condizioni di taglio raccomandate

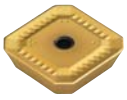
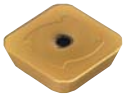
| Pezzo lavorato | Condizioni di taglio vc(m/min) | Condizioni di taglio fz(mm/t) | Gradi |
|---|---|---|---|
| P | 150 ~ 300<br>120 ~ 230<br>100 ~ 200 | 0.05 ~ 0.15<br>0.05 ~ 0.20<br>0.05 ~ 0.20 | NCM325<br>PC3500<br>ST30A |
| M | 50 ~ 200<br>50 ~ 120 | 0.05 ~ 0.20<br>0.05 ~ 0.20 | PC9530<br>ST30A |
| K | 150 ~ 250<br>100 ~ 200 | 0.05 ~ 0.30<br>0.05 ~ 0.30 | PC6510<br>G10 |

Montaggio



## Inserti disponibili

| SECN | SEKN-SU | SEKN-SM | SEKR-MX |
|---|---|---|---|
|  |  |  |  |

| SEKR-SM | SEXN-FM | SEXR-FM |
|---|---|---|
|  |  |  |

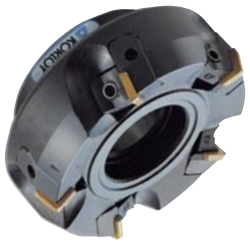
| Articolo | | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SECN | 1504AFFN | | | | | | | | | | | | | | | ● | | | |
| | 1504AFTN | | | | | | | | | | | | | ● | | | | ● | |
| | 1504AFEN | | | | | | | | | | | | | | | | | | |
| | 1504AFSN | ● | ● | ● | | | | | | | | | | | | | | | E14 |
| | 1504AFEN-RH | | | | | | | | ● | | | | | | | | | | |
| | 1504AFSN-RH | | | | | | | | ● | | | | | | | | | | |
| | 1504AFTN-S20 | | | | | | | | | | | | | | | | | | |
| SEKN | 1504AFSN-SM | | | | | | | | | | | | | | | | | | |
| | 1504AFEN-SM | | | | | | | | | | | | | | | | | | E14 |
| | 1504AFSN-SU | | | | ● | ● | ● | | | | | | | | | | | | |
| SEKR | 1504AFSN-MX | ● | ● | ● | | | | | | | | | | | | | | | E14 |
| | 1504AFSN-SM | | | | | | | | | | | | | | | | | | |
| SEXN | 1504AFSN-FM | | | | ● | | | | | | | | | | | | | | E15 |
| | 1504AFEN-FM | | | | | | | | | | | | | | | | | | |
| SEXR | 1504AFSN-FM | | | | | | | | | | | | | | | | | | E15 |

● : Disponibile ○ : A richiesta

• Inserti disponibili, vedere pag. : E14, E15
• Attacchi e viti disponibili : E215~E217

# EF(M)4000

AA 75° | • AR : 18° • RR : 11°



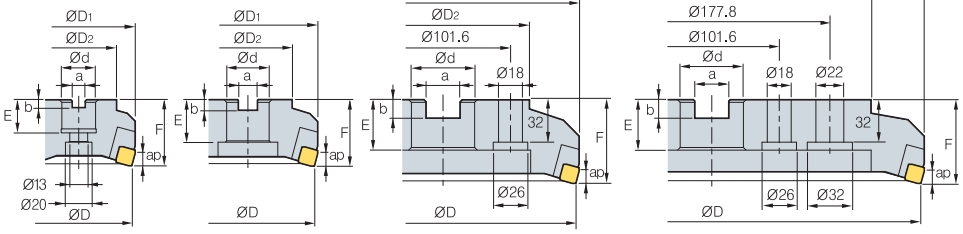



Fig. 1 Fig. 2 Fig. 3 Fig. 4

(mm)

| Articolo | | Stock R | Stock L | ⊙ | øD | øD1 | øD2 | ød | a | b | E | F | ap | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EF(M) | 4080R/L | ● | | 4 | 80 | 89 | 57 | 25.4(27) | 9.5(12.4) | 6(7) | 25(22) | 50 | 8.0 | 1.5 | 1 |
| | 4100R/L | ● | | 5 | 100 | 108 | 70 | 31.75(32) | 12.7(14.4) | 8(8) | 32(28) | 50 | 8.0 | 2.1 | 2 |
| | 4125R/L | ● | | 6 | 125 | 133 | 87 | 38.1(40) | 15.9(16.4) | 10(9) | 38(30) | 63 | 8.0 | 3.8 | 2 |
| | 4160R/L | ● | | 8 | 160 | 168 | 107 | 50.8(40) | 19.0(16.4) | 11(9) | 38(30) | 63 | 8.0 | 5.5 | 2 |
| | 4200R/L | ● | | 10 | 200 | 208 | 130 | 47.625(60) | 25.4(25.7) | 13.5(14) | 38(38) | 63 | 8.0 | 8.2 | 3 |
| | 4250R/L | | | 12 | 250 | 257 | 180 | 47.625(60) | 25.4(25.7) | 13.5(14) | 38(38) | 63 | 8.0 | 13.4 | 3 |
| | 4315R/L | | | 16 | 315 | 322 | 240 | 47.625(60) | 25.4(25.7) | 13.5(14) | 38(38) | 63 | 8.0 | 21.2 | 4 |

• ( )Sistema metrico

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Base | Cuneo | Vite del cuneo | Vite della base | Chiave |
|---|---|---|---|---|
|  |  |  |  |  |
| LEF4R/L<br>LEF4R1*/L1* | WEFR/L | DHA0821F | LTX0512 | HW40 |

∗ : Ø80 ~ Ø125

## Mandrini disponibili

| Articolo | Attacco generico | Attacchi NC EF | Attacchi NC EFM |
|---|---|---|---|
| EF(M)4080R/L | NT*□□(M/U)-FMA25.4-25-□□ | BT**□□-FMA25.4-□□ | FMC27 |
| 4100R/L | NT*□□(M/U)-FMA31.75-□□ | BT**□□-FMA31.75-□□ | FMC32 |
| 4125R/L | NT*□□(M/U)-FMA38.1-□□ | BT**□□-FMA38.1-□□ | FMB40 |
| 4160R/L | NT*□□(M/U)-FMA50.8-□□ | BT**□□-FMA50.8-□□ | FMB40 |
| 4200R/L | NT*□□(M/U)-FMA47.625-25, KCP-8*** | BT**□□-FMA47.625-□□ | FMB60 |
| 4250R/L | NT*□□(M/U)-FMA47.625-25, KCP-8*** | BT**□□-FMA47.625-□□ | FMB60 |
| 4315R/L | KCP-8***(Center Ring Plug) | | |

*Numero □□–NT **Numero □□–BT ***Over Milling 5

## Condizioni di taglio raccomandate

| Pezzo lavorato | Condizioni di taglio vc(m/min) | Condizioni di taglio fz(mm/t) | Gradi |
|---|---|---|---|
| K | 400 ~ 500 | 0.05 ~ 0.20 | H01 |

## Inserti disponibili

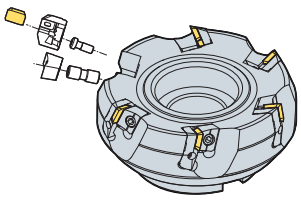
SFCN



| Articolo | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SFCN 1203EFR | | | | | | | | | | | | | | ● | ● | | | E15 |

● : Disponibile ○ : A richiesta

Montaggio



• Inserti disponibili, vedere pag. : E15
• Attacchi e viti disponibili : E215~E217

# EN(M)4000

AA 75° | • AR : -6° • RR : -5°



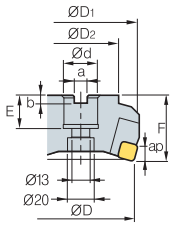


Fig. 1

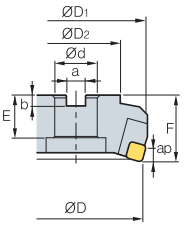


Fig. 2

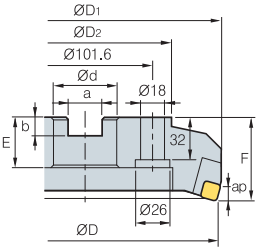


Fig. 3

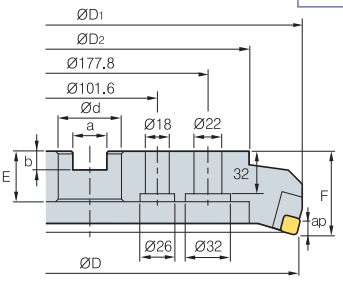


Fig. 4

(mm)

| Articolo | | Stock R | Stock L | ⚙ | øD | øD1 | øD2 | ød | a | b | E | F | ap | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EN(M) | 4080R/L | ● | | 5 | 80 | 87 | 57 | 25.4(27) | 9.5(12.4) | 6(7) | 25(22) | 50 | 8.5 | 1.4 | 1 |
| | 4100R/L | ● | | 6 | 100 | 107 | 67 | 31.75(32) | 12.7(14.4) | 8(8) | 32(28) | 50 | 8.5 | 2.1 | 2 |
| | 4125R/L | ● | ● | 8 | 125 | 132 | 87 | 38.1(40) | 15.9(16.4) | 10(9) | 38(30) | 63 | 8.5 | 3.8 | 2 |
| | 4160R/L | ● | ● | 10 | 160 | 167 | 107 | 50.8(40) | 19.0(16.4) | 11(9) | 38(30) | 63 | 8.5 | 5.7 | 2 |
| | 4200R/L | ● | ● | 12 | 200 | 207 | 130 | 47.625(60) | 25.4(25.7) | 13.5(14) | 38(38) | 63 | 8.5 | 8.4 | 3 |
| | 4250R/L | ● | | 16 | 250 | 257 | 180 | 47.625(60) | 25.4(25.7) | 13.5(14) | 38(38) | 63 | 8.5 | 13.8 | 3 |
| | 4315R/L | | | 20 | 315 | 322 | 240 | 47.625(60) | 25.4(25.7) | 13.5(14) | 38(38) | 63 | 8.5 | 21.6 | 4 |

• ( )Sistema metrico

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Base | Cuneo | Vite del cuneo | Vite della base | Chiave |
|---|---|---|---|---|
|  |  |  |  |  |
| LEN4R/L | WENR/L<br>WENR1*/L1* | DHA0830<br>DHA0825* | LTX0512 | HW40 |

∗ : Ø80 ~ Ø100

## Mandrini disponibili

| Articolo | Attacco generico | Attacchi NC EN | Attacchi NC ENM |
|---|---|---|---|
| EN(M) 4080R/L | NT*□□(M/U)-FMA25.4-25-□□ | BT**□□-FMA25.4-□□ | FMC27 |
| 4100R/L | NT*□□(M/U)-FMA31.75-□□ | BT**□□-FMA31.75-□□ | FMC32 |
| 4125R/L | NT*□□(M/U)-FMA38.1-□□ | BT**□□-FMA38.1-□□ | FMB40 |
| 4160R/L | NT*□□(M/U)-FMA50.8-□□ | BT**□□-FMA50.8-□□ | FMB40 |
| 4200R/L | NT*□□(M/U)-FMA47.625-25, KCP-8*** | BT**□□-FMA47.625-□□ | FMB60 |
| 4250R/L | NT*□□(M/U)-FMA47.625-25, KCP-8*** | BT**□□-FMA47.625-□□ | FMB60 |
| 4315R/L | KCP-8***(Center Ring Plug) | | |

*Numero □□–NT **Numero □□–BT ***Over Milling 5

## Condizioni di taglio raccomandate

| Pezzo lavorato | Condizioni di taglio vc(m/min) | Condizioni di taglio fz(mm/t) | Gradi |
|---|---|---|---|
| P | 150 ~ 300<br>120 ~ 230<br>100 ~ 200 | 0.05 ~ 0.15<br>0.05 ~ 0.20<br>0.05 ~ 0.20 | **NCM325**<br>**PC3500**<br>**ST30A** |
| M | 50 ~ 200<br>50 ~ 120 | 0.05 ~ 0.20<br>0.05 ~ 0.20 | **PC9530**<br>**ST30A** |
| K | 150 ~ 250<br>100 ~ 200 | 0.05 ~ 0.30<br>0.05 ~ 0.30 | **PC6510**<br>**G10** |

## Inserti disponibili

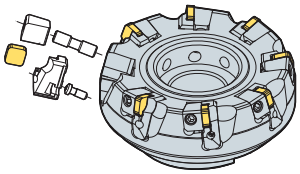
SNCN SNKN




| Articolo | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SNCN 1204ENN | ● | | | | | | | | | | | | | | ● | ● | ● | E16 |
| SNKN 1204ENN | | | | | | | | ● | | | | | | | | | | E16 |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |

● : Disponibile ○ : A richiesta

Montaggio



• Inserti disponibili, vedere pag. : E16
• Attacchi e viti disponibili : E215~E217

# EPN(M)4000

AA 75°

• AR : 7°
• RR : 0°



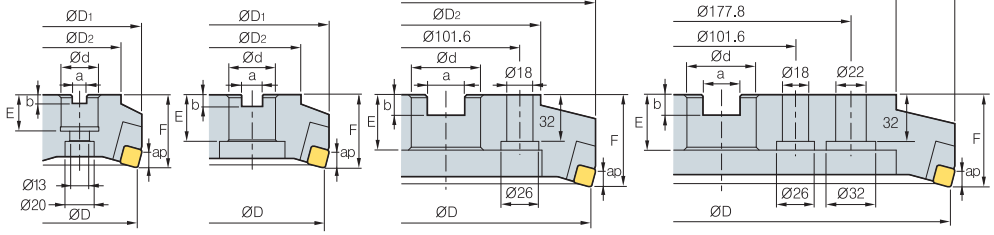



Fig. 1 Fig. 2 Fig. 3 Fig. 4

(mm)

| Articolo | | Stock R | Stock L | ⌀ | øD | øD1 | øD2 | ød | a | b | E | F | ap | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EPN(M) | 4080R/L | •(•) | | 5 | 80 | 86 | 57 | 25.4(27) | 9.5(12.4) | 6(7) | 25(22) | 50 | 9 | 1.4 | 1 |
| | 4100R/L | •(•) | | 6 | 100 | 107 | 67 | 31.75(32) | 12.7(14.4) | 8(8) | 32(28) | 50 | 9 | 2.1 | 2 |
| | 4125R/L | •(•) | ● | 8 | 125 | 132 | 87 | 38.1(40) | 15.9(16.4) | 10(9) | 38(30) | 63 | 9 | 3.8 | 2 |
| | 4160R/L | •(•) | ● | 10 | 160 | 166 | 107 | 50.8(40) | 19.0(16.4) | 11(9) | 38(30) | 63 | 9 | 5.7 | 2 |
| | 4200R/L | •(•) | ● | 12 | 200 | 206 | 130 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 9 | 8.2 | 3 |
| | 4250R/L | •(•) | | 16 | 250 | 256 | 180 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 9 | 13.5 | 3 |
| | 4315R/L | • | | 20 | 315 | 321 | 240 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 9 | 21.1 | 4 |

• ( )Sistema metrico

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Base | Cuneo | Vite del cuneo | Vite della base | Chiave |
|---|---|---|---|---|
|  |  |  |  |  |
| LEPN4R/L<br>LEPN4R1*/L1* | WEPN4R/L | DHA0821F<br>DHA0818F* | LTX0514 | HW40 |

∗ : Ø80 ~ Ø100

## Mandrini disponibili

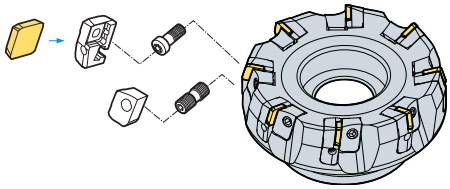
| Articolo | Attacco generico | Attacchi NC EPN | Attacchi NC EPNM |
|---|---|---|---|
| EPN(M) 4080R/L | NT*□□(M/U)-FMA25.4-25 | BT**□□-FMA25.4-□□ | FMC27 |
| 4100R/L | NT*□□(M/U)-FMA31.75-□□ | BT**□□-FMA31.75-□□ | FMC32 |
| 4125R/L | NT*□□(M/U)-FMA38.1-□□ | BT**□□-FMA38.1-□□ | FMB40 |
| 4160R/L | NT*□□(M/U)-FMA50.8-□□ | BT**□□-FMA50.8-□□ | FMB40 |
| 4200R/L | NT*□□(M/U)-FMA47.625-25, KCP-8*** | BT**□□-FMA47.625-□□ | FMB60 |
| 4250R/L | NT*□□(M/U)-FMA47.625-25, KCP-8*** | BT**□□-FMA47.625-□□ | FMB60 |
| 4315R/L | KCP-8***(Center Ring Plug) | | |

*Numero □□–NT **Numero □□–BT ***Over Milling 5

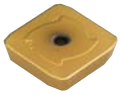
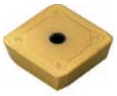
## Condizioni di taglio raccomandate

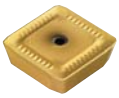
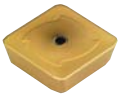
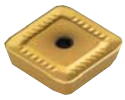
| Pezzo lavorato | Condizioni di taglio vc(m/min) | Condizioni di taglio fz(mm/t) | Gradi |
|---|---|---|---|
| P | 150 ~ 300<br>120 ~ 230<br>100 ~ 200 | 0.05 ~ 0.15<br>0.05 ~ 0.20<br>0.05 ~ 0.20 | NCM325<br>PC3500<br>ST30A |
| M | 50 ~ 200<br>50 ~ 120 | 0.05 ~ 0.20<br>0.05 ~ 0.20 | PC9530<br>ST30A |
| K | 150 ~ 250<br>100 ~ 200 | 0.05 ~ 0.30<br>0.05 ~ 0.30 | PC6510<br>G10 |

Montaggio



## Inserti disponibili

| SPCN | SPKN-SM | SPKN-SU | SPKR-MX |
|---|---|---|---|
|  |  |  |  |

| SPKR-SM | SPXN-FM | SPXR-FM |
|---|---|---|
|  |  |  |

| Articolo | | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC8110 | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SPCN | 1203EDR | ● | ● | ● | | | | | | | | | | ● | ● | ● | ● | ● | |
| | 1203EDL | | | | | | | ● | | | | | | | | ● | ● | | |
| | 1203EDR-G | | | | | | | | | | | | | | ● | | | | |
| | 1203EDER-RH | | | | | ● | | | ● | ○ | | | | | | | | | E17 |
| | 1203EDSR-RH | | | | | | | | ● | ○ | | | | | | | | | |
| | 1203EDTR-RH | | | | ● | | | | | | | | | | | | | | |
| | 1203EDR-S20 | | | | | | | ● | | | | | | | | | | | |
| SPKN | 1203EDSR-SM | | | | | | | | | | | | | | | | | | E17 |
| | 1203EDER-SM | | | | | | | | | | | | | | | | | | E18 |
| | 1203EDSR-SU | | | | ● | ● | ● | | | | | | | | | | | | E18 |
| | 1203EDSL-SU | | | | ● | | | | | | | | | | | | | | |
| SPKR | 1203EDSR-MX | ● | ● | ● | ● | | | | | | | | | | | | | | E18 |
| | 1203EDSL-MX | ● | | | | | | | | | | | | | | | | | |
| | 1203EDSR-SM | | | | | | | | | | | | | | | | | | |
| SPXN | 1203EDSR-FM | | | | ● | | ● | | | | | | | | | | | | E18 |
| | 1203EDER-FM | | | | | | | | | | | | | | | | | | |
| SPXR | 1203EDSR-FM | | | | | | ● | | | | | | | | | | | | E18 |

● : Disponibile ○ : A richiesta

• Inserti disponibili, vedere pag. : E17, E18
• Attacchi e viti disponibili : E215~E217

# EPN(M)5000

AA 75° | • AR : 7° • RR : 0°



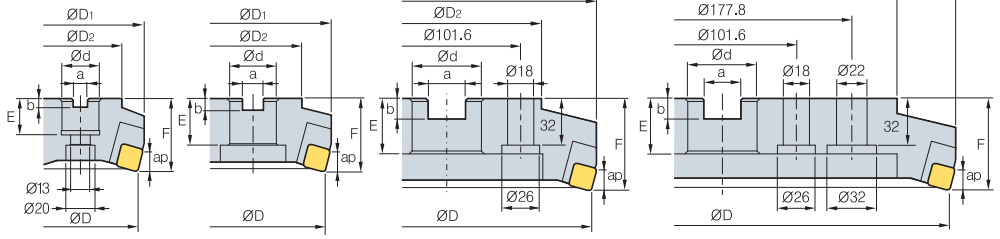



Fig. 1 Fig. 2 Fig. 3 Fig. 4

(mm)

| Articolo | | Stock R | Stock L | | øD | øD1 | øD2 | ød | a | b | E | F | ap | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EPN(M) | 5080R/L | ●(●) | | 5 | 80 | 91 | 57 | 25.4(27) | 9.5(12.4) | 6(7) | 25(22) | 50 | 12 | 1.5 | 1 |
| | 5100R/L | ●(●) | | 6 | 100 | 110 | 67 | 31.75(32) | 12.7(14.4) | 8(8) | 32(28) | 50 | 12 | 2.1 | 2 |
| | 5125R/L | ●(●) | ● | 8 | 125 | 134 | 87 | 38.1(40) | 15.9(16.4) | 10(9) | 38(30) | 63 | 12 | 3.9 | 2 |
| | 5160R/L | ●(●) | ● | 10 | 160 | 169 | 107 | 50.8(40) | 19.0(16.4) | 11(9) | 38(30) | 63 | 12 | 5.7 | 2 |
| | 5200R/L | ●(●) | ● | 12 | 200 | 209 | 130 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 12 | 8.4 | 3 |
| | 5250R/L | ●(●) | | 16 | 250 | 259 | 180 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 12 | 13.6 | 3 |
| | 5315R/L | ●(●) | | 20 | 315 | 324 | 240 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 12 | 21.6 | 4 |

• ( )Sistema metrico

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Base | Cuneo | Vite del cuneo | Vite della base | Chiave |
|---|---|---|---|---|
|  |  |  |  |  |
| LEPN5R/L<br>LEPN5R1*/L1* | WEPN5R/L | DHA0821F<br>DHA0818F* | LTX0514 | HW40 |

* : Ø80 ~ Ø100

## Mandrini disponibili

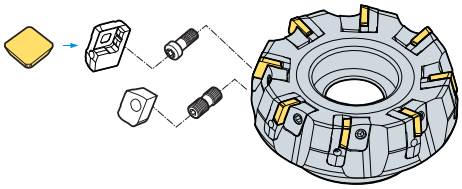
| Articolo | Attacco generico | Attacchi NC | |
|---|---|---|---|
| | | EPN | EPNM |
| EPN(M) 5080R/L | NT*□□(M/U)-FMA25.4-25 | BT**□□-FMA25.4-□□ | FMC27 |
| 5100R/L | NT*□□(M/U)-FMA31.75-□□ | BT**□□-FMA31.75-□□ | FMC32 |
| 5125R/L | NT*□□(M/U)-FMA38.1-□□ | BT**□□-FMA38.1-□□ | FMB40 |
| 5160R/L | NT*□□(M/U)-FMA50.8-□□ | BT**□□-FMA50.8-□□ | FMB40 |
| 5200R/L | NT*□□(M/U)-FMA47.625-25, KCP-8*** | BT**□□-FMA47.625-□□ | FMB60 |
| 5250R/L | NT*□□(M/U)-FMA47.625-25, KCP-8*** | BT**□□-FMA47.625-□□ | FMB60 |
| 5315R/L | KCP-8***(Center Ring Plug) | | |

*Numero □□–NT **Numero □□–BT ***Over Milling 5

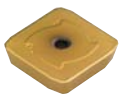
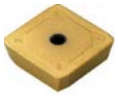
## Condizioni di taglio raccomandate

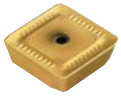
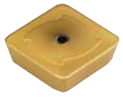
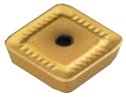
| Pezzo lavorato | Condizioni di taglio vc(m/min) | Condizioni di taglio fz(mm/t) | Gradi |
|---|---|---|---|
| P | 150 ~ 300<br>120 ~ 230<br>100 ~ 200 | 0.05 ~ 0.15<br>0.05 ~ 0.20<br>0.05 ~ 0.20 | NCM325<br>PC3500<br>ST30A |
| M | 50 ~ 200<br>50 ~ 120 | 0.05 ~ 0.20<br>0.05 ~ 0.20 | PC9530<br>ST30A |
| K | 150 ~ 250<br>100 ~ 200 | 0.05 ~ 0.30<br>0.05 ~ 0.30 | PC6510<br>G10 |

Montaggio



## Inserti disponibili

| SPCN | SPKN-SM | SPKN-SU | SPKR-MX |
|---|---|---|---|
|  |  |  |  |

| SPKR-SM | SPXN-FM | SPXR-FM |
|---|---|---|
|  |  |  |

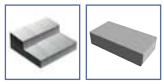
| Articolo | | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC8110 | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SPCN | 150412T | | | | | | | | | | | | | | | | ● | | |
| | 1504EDR | ● | | ● | | | | | | | | | | ● | | ● | ● | ● | |
| | 1504EDSR | | ● | | | | | | | | | | | | | | | | |
| | 1504EDL | | | | | | | | | | | | | | | | | | |
| | 1504EDR-G | | | | | | | | | | | | | | ● | | | | E17 |
| | 1504EDER-RH | | | | | ● | | | ● | ○ | | | | | | | | | |
| | 1504EDSR-RH | | | | | | | | | ○ | | | | | | | | | |
| | 1504EDTR-RH | | | | | | | | | | | | | | | | | | |
| | 1504EDR-S20 | | | | | | | ● | | | | | | | | | | | |
| SPKN | 1504ESR-SM | | | | | | | | | | | | | | | | | | E17 |
| | 1504EDER-SM | | | | | | | | | | | | | | | | | | |
| | 1504EDSR-SU | | | | ● | ● | ● | | | | | | | | | | | | E18 |
| | 1504EDSL-SU | | | | ● | | | | | | | | | | | | | | |
| SPKR | 1504EDR-MX | ● | | | | | | | | | | | | | | | | | |
| | 1504EDSR-MX | | ● | | ● | | | | | | | | | | | | | | E18 |
| | 1504EDSR-SM | | | | | | | | | | | | | | | | | | |
| SPXN | 1504EDSR-FM | | | | ● | | ● | | | | | | | | | | | | E18 |
| | 1504EDER-FM | | | | | | | | | | | | | | | | | | |
| SPXR | 1504EDSR-FM | | | | | | ● | | | | | | | | | | | | E18 |

● : Disponibile ○ : A richiesta

• Inserti disponibili, vedere pag. : E17, E18
• Attacchi e viti disponibili : E215~E217

# PF(M)4000

AA 90° | • AR : 15° • RR : 14°





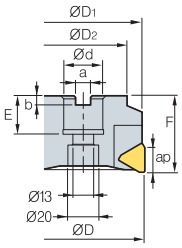



Fig. 1

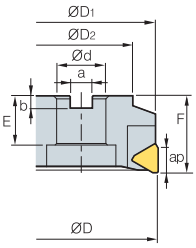



Fig. 2

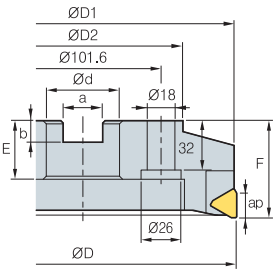



Fig. 3

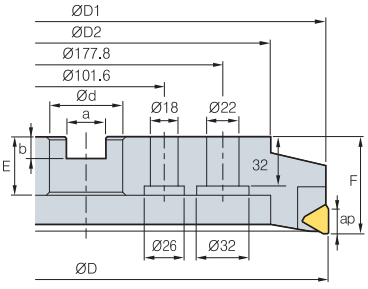



Fig. 4

(mm)

| Articolo | | Stock R | Stock L | ⚙ | øD | øD1 | øD2 | ød | a | b | E | F | ap | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PF(M) | 4080R/L | ● | | 4 | 80 | 79 | 57 | 25.4(27) | 9.5(12.4) | 6(7) | 25(22) | 50 | 16 | 1.2 | 1 |
| | 4100R/L | ● | | 4 | 100 | 97 | 67 | 31.75(32) | 12.7(14.4) | 8(8) | 32(28) | 50 | 16 | 1.8 | 2 |
| | 4125R/L | ● | | 7 | 125 | 122 | 87 | 38.1(40) | 15.9(16.4) | 10(9) | 38(30) | 63 | 16 | 3.1 | 2 |
| | 4160R/L | ● | | 9 | 160 | 158 | 107 | 50.8(40) | 19.0(16.4) | 11(9) | 38(30) | 63 | 16 | 5.6 | 2 |
| | 4200R/L | | | 11 | 200 | 197 | 130 | 47.625(60) | 25.4(25.7) | 13.5(14) | 38(38) | 63 | 16 | 8.8 | 3 |
| | 4250R/L | | | 15 | 250 | 247 | 180 | 47.625(60) | 25.4(25.7) | 13.5(14) | 38(38) | 63 | 16 | 16 | 3 |
| | 4315R/L | | | 19 | 315 | 311 | 240 | 47.625(60) | 25.4(25.7) | 13.5(14) | 38(38) | 63 | 16 | 22 | 4 |

• ( )Sistema metrico

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Base | Cuneo | Vite del cuneo | Vite della base | Chiave |
|---|---|---|---|---|
|  |  |  |  |  |
| LPF4R/L<br>LPF4R1**/L1** | WPFR/L | DHA0821F<br>DHA0818F* | LTX0512 | HW40 |

* : Ø80 ~ Ø100 / ** : Ø80 ~ Ø125

## Mandrini disponibili

| Articolo | Attacco generico | Attacchi NC | |
|---|---|---|---|
| | | PF | PFM |
| PF(M) 4080R/L | NT*□□(M/U)-FMA25.4-25 -□□ | BT**□□-FMA25.4 -□□ | FMC27 |
| 4100R/L | NT*□□(M/U)-FMA31.75 -□□ | BT**□□-FMA31.75 -□□ | FMC32 |
| 4125R/L | NT*□□(M/U)-FMA38.1 -□□ | BT**□□-FMA38.1 -□□ | FMB40 |
| 4160R/L | NT*□□(M/U)-FMA50.8 -□□ | BT**□□-FMA50.8 -□□ | FMB40 |
| 4200R/L | NT*□□(M/U)-FMA47.625-25, KCP-8*** | BT**□□-FMA47.625-□□ | FMB60 |
| 4250R/L | NT*□□(M/U)-FMA47.625-25, KCP-8*** | BT**□□-FMA47.625-□□ | FMB60 |
| 4315R/L | KCP-8***(Center Ring Plug) | | |

*Numero □□–NT **Numero □□–BT ***Over Milling 5

## Condizioni di taglio raccomandate

| Pezzo lavorato | Condizioni di taglio vc(m/min) | Condizioni di taglio fz(mm/t) | Gradi |
|---|---|---|---|
| P | 150 ~ 300<br>120 ~ 230<br>100 ~ 200 | 0.05 ~ 0.15<br>0.05 ~ 0.20<br>0.05 ~ 0.20 | **NCM325**<br>**PC3500**<br>**ST30A** |
| M | 50 ~ 200<br>50 ~ 120 | 0.05 ~ 0.20<br>0.05 ~ 0.20 | **PC9530**<br>**ST30A** |
| K | 150 ~ 250<br>100 ~ 200 | 0.05 ~ 0.30<br>0.05 ~ 0.30 | **PC6510**<br>**G10** |

## Inserti disponibili

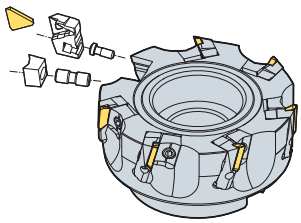
TFCN



| Articolo | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TFCN 2203PFR | | | | | | | | | | | | | | ● | | | | E18 |
| 2203PFL | | | | | | | | | | | | | | ● | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |

● : Disponibile ○ : A richiesta

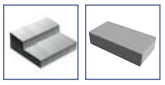
Montaggio

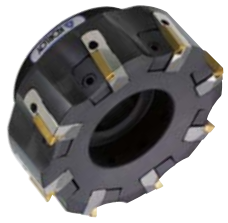


• Inserti disponibili, vedere pag. : E18
• Attacchi e viti disponibili : E215~E217

# PPN(M)4000

AA 90° • AR : 7° • RR : 0°





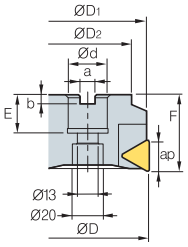


Fig. 1

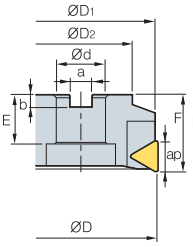


Fig. 2

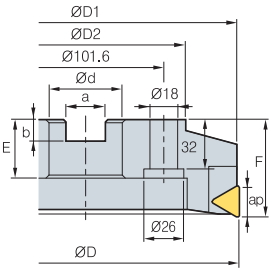


Fig. 3

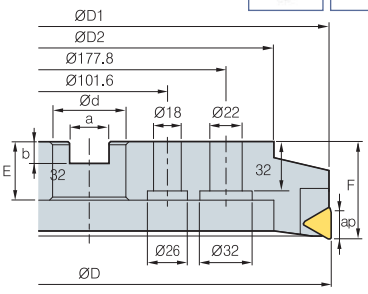


Fig. 4

(mm)

| Articolo | | Stock R | Stock L | ⚙ | øD | øD1 | øD2 | ød | a | b | E | F | ap | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PPN(M) | 4080R/L | ●(●) | | 5 | 80 | 79 | 57 | 25.4(27) | 9.5(12.4) | 6(7) | 25(22) | 50 | 18 | 1.3 | 1 |
| | 4100R/L | ●(●) | | 6 | 100 | 99 | 67 | 31.75(32) | 12.7(14.4) | 8(8) | 32(28) | 50 | 18 | 1.9 | 2 |
| | 4125R/L | ●(●) | | 8 | 125 | 124 | 87 | 38.1(40) | 15.9(16.4) | 10(9) | 38(30) | 63 | 18 | 3.5 | 2 |
| | 4160R/L | ●(●) | | 10 | 160 | 158 | 107 | 50.8(40) | 19.0(16.4) | 11(9) | 38(30) | 63 | 18 | 5.6 | 2 |
| | 4200R/L | ●(●) | | 12 | 200 | 198 | 130 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 18 | 8.1 | 3 |
| | 4250R/L | ● | | 16 | 250 | 248 | 180 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 18 | 13.3 | 3 |
| | 4315R/L | ● | | 20 | 315 | 313 | 240 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 18 | 21.4 | 4 |

• ( )Sistema metrico

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Base | Cuneo | Vite del cuneo | Vite della base | Chiave |
|---|---|---|---|---|
|  |  |  |  |  |
| LPPN4R/L<br>LPPN4R1*/L1* | WPPN4R/L | DHA0821F<br>DHA0818F* | LTX0514 | HW40 |

∗ : Ø80 ~ Ø100

## Mandrini disponibili

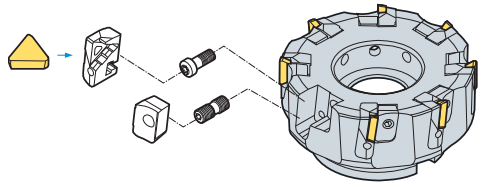
| Articolo | Attacco generico | Attacchi NC PPN | Attacchi NC PPNM |
|---|---|---|---|
| PPN(M) 4080R/L | NT*□□ (M/U)-FMA25.4-25 | BT**□□-FMA25.4 -□□ | FMC27 |
| 4100R/L | NT*□□ (M/U)-FMA31.75 -□□ | BT**□□-FMA31.75 -□□ | FMC32 |
| 4125R/L | NT*□□ (M/U)-FMA38.1 -□□ | BT**□□-FMA38.1 -□□ | FMB40 |
| 4160R/L | NT*□□ (M/U)-FMA50.8 -□□ | BT**□□-FMA50.8 -□□ | FMB40 |
| 4200R/L | NT*□□ (M/U)-FMA47.625-25, KCP-8*** | BT**□□-FMA47.625-□□ | FMB60 |
| 4250R/L | NT*□□ (M/U)-FMA47.625-25, KCP-8*** | BT**□□-FMA47.625-□□ | FMB60 |
| 4315R/L | KCP-8***(Center Ring Plug) | | |

*Numero □□–NT **Numero □□–BT ***Over Milling 5

## Condizioni di taglio raccomandate

| Pezzo lavorato | Condizioni di taglio vc(m/min) | Condizioni di taglio fz(mm/t) | Gradi |
|---|---|---|---|
| P | 150 ~ 300<br>120 ~ 230<br>100 ~ 200 | 0.05 ~ 0.15<br>0.05 ~ 0.20<br>0.05 ~ 0.20 | NCM325<br>PC3500<br>ST30A |
| M | 50 ~ 200<br>50 ~ 120 | 0.05 ~ 0.20<br>0.05 ~ 0.20 | PC9530<br>ST30A |
| K | 150 ~ 250<br>100 ~ 200 | 0.05 ~ 0.30<br>0.05 ~ 0.30 | PC6510<br>G10 |

Montaggio



## Inserti disponibili

| TPCN | TPKN-SM | TPKN-SU | TPKR-MX |
|---|---|---|---|
|  |  |  |  |

| TPKR-SM | TPXN-FM | TPXR-FM |
|---|---|---|
|  |  |  |

| Articolo | | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC8110 | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TPCN | 2204PDR | ● | | ● | | | | | | | | | | ● | | ● | ● | ● | E19 |
| | 2204PDR-G | | | | | | | | | | | | | | ● | | | | |
| | 2204PDL | | | | | | | | | | | | | | | | ● | | |
| | 2204PDSR | | ● | | | | | | | | | | | | | | | | |
| | 2204PDTR | | | | | | | | | | | | | | | | | | |
| | 2204PDR-RH | | | | | | | | | | | | | | | | | | |
| | 2204PDER-RH | | | | | ● | | | ● | ○ | | | | | | | | | |
| | 2204PDSR-RH | | | | | | | | ● | ○ | | | | | | | | | |
| | 2204PDR-S20 | | | | | | | ● | | | | | | | | | | | |
| TPKN | 2204PDSR-SM | | | | | | ● | | | | | | | | | | | | E19 |
| | 2204PDER-SM | | | | | | | | | | | | | | | | | | |
| | 2204PDSR-SU | | | | ● | ● | ● | | | | | | | | | | | | |
| | 2204PDSL-SU | | | | ● | | | | | | | | | | | | | | |
| TPKR | 2204PDR-MX | ● | | | | | | | | | | | | | | | | | E19 |
| | 2204PDSR-MX | | ● | ● | | | | | | | | | | | | | | | |
| | 2204PPR-MX | | | | | | | | | | | | | | | | | | |
| | 2204PDSR-SM | | | | | | | | | | | | | | | | | | |
| TPXN | 2204PDSR-FM | | | | | ● | ● | | | | | | | | | | | | E19 |
| | 2204PDER-FM | | | | | | | | | | | | | | | | | | |
| TPXR | 2204PDSR-FM | | | | | | ● | | | | | | | | | | | | E20 |

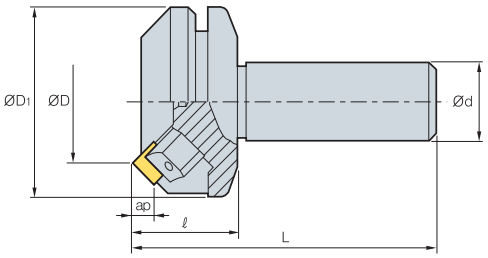
● : Disponibile ○ : A richiesta

• Inserti disponibili, vedere pag. : E19, E20
• Attacchi e viti disponibili : E215~E217

# ADS4000

AA 45° | • AR : 15° • RR : –3°






(mm)

| Articolo | | Stock R | Stock L | ⊙ | øD | øD1 | ød | ℓ | L | ap | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ADS | 4050R | ● | | 3 | 50 | 75 | 32 | 40 | 120 | 6.5 | 1.8 |
| | 4050RS42 | | | 3 | 50 | 75 | 42 | 40 | 120 | 6.5 | 2.2 |
| | 4063R | ● | | 4 | 63 | 87 | 32 | 40 | 120 | 6.5 | 2.3 |
| | 4063RS42 | | | 4 | 63 | 87 | 42 | 40 | 120 | 6.5 | 2.7 |

● : Disponibile ○ : A richiesta

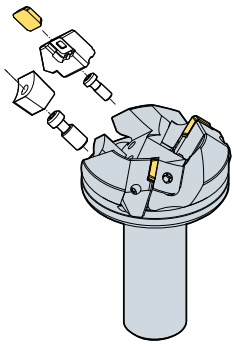
## Parti di ricambio

| Base | Cuneo | Vite del cuneo | Vite della base | Chiave |
|---|---|---|---|---|
|  |  |  |  |  |
| LASS4R/L | WASR/L | WTX0817 | LTX0512 | TW25 |

## Condizioni di taglio raccomandate

| Pezzo lavorato | Condizioni di taglio vc(m/min) | Condizioni di taglio fz(mm/t) | Gradi |
|---|---|---|---|
| P | 150 ~ 300<br>120 ~ 230<br>100 ~ 200 | 0.05 ~ 0.15<br>0.05 ~ 0.20<br>0.05 ~ 0.20 | NCM325<br>PC3500<br>ST30A |
| M | 50 ~ 200<br>50 ~ 120 | 0.05 ~ 0.20<br>0.05 ~ 0.20 | PC9530<br>ST30A |
| K | 150 ~ 250<br>100 ~ 200 | 0.05 ~ 0.30<br>0.05 ~ 0.30 | PC6510<br>G10 |

Montaggio



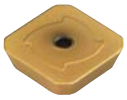
• Inserti disponibili, vedere pag. : E12, E13

## Inserti disponibili

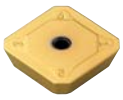
SDCN



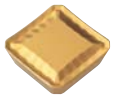
SDKN-SM



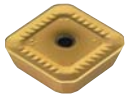
SDKN-SU



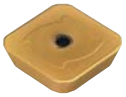
SDKR-MX



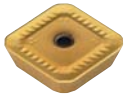
SDKR-SM



SDXN-FM



SDXR-FM



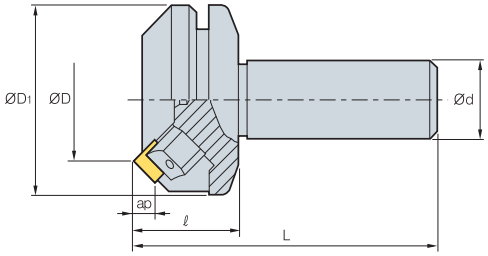
| Articolo | | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SDCN | 42M | | | | | | | | | | | | | | | ● | | | E12 |
| | 42M-G | | | | | | | | | | | | | | ● | | | | |
| | 42MT | | ● | | | | | | | | | | ● | ● | | | ● | ● | |
| | 42MT-RH | | | | ● | | | | | | | | | | | | | | |
| | 42MT-S20 | | | | | | | ● | | | | | | | | | | | |
| | 1203AEEN | | | | | | | | | | | | | | | | | | |
| | 1203AEEN-RH | | | | | | | | | | | | | | | | | | |
| | 1203AESN | | | | | | | | | | | | | | | | | | |
| | 1203AESN-RH | | | | | | | | | | | | | | | | | | |
| SDKN | 1203AESN-SM | | | | | | ● | | | | | | | | | | | | E12 |
| | 1203AEEN-SM | | | | | | | | | | | | | | | | | | |
| | 1203AESN-SU | | | | ● | ● | ● | | | | | | | | | | | | |
| SDKR | 1203AESN-MX | | | | | | | | | | | | | | | | | | E13 |
| | 1203AETN-MX | | | | | | | | | | | | | | | | | | |
| | 1203AEN-MX | ● | | ● | | | | | | | | | | | | | | | |
| | 1203AESN-SM | | | | | | | | | | | | | | | | | | |
| SDXN | 1203AESN-FM | | | | ● | | ● | | | | | | | | | | | | E13 |
| | 1203AEEN-FM | | | | | | | | | | | | | | | | | | |
| SDXR | 1203AESN-FM | | | | | | | | | | | | | | | | | | E13 |

● : Disponibile ○ : A richiesta

# ADS5000

AA 45°
• AR : 15°
• RR : –3°






(mm)

| Articolo | | Stock R | Stock L | | øD | øD1 | ød | ℓ | L | ap | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ADS | 5050R | ● | | 3 | 50 | 75 | 32 | 40 | 120 | 8.5 | 1.9 |
| | 5050R-S42 | | | 3 | 50 | 75 | 42 | 40 | 120 | 8.5 | 2.3 |
| | 5063R | ● | | 4 | 63 | 87 | 32 | 40 | 120 | 8.5 | 2.4 |
| | 5063R-S42 | | | 4 | 63 | 87 | 42 | 40 | 120 | 8.5 | 2.8 |

● : Disponibile ○ : A richiesta

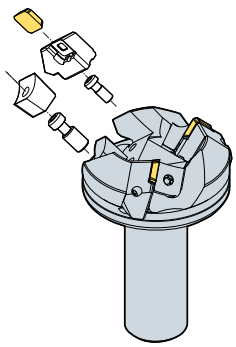
## Parti di ricambio

| Base | Cuneo | Vite del cuneo | Vite della base | Chiave |
|---|---|---|---|---|
|  |  |  |  |  |
| LASS5R/L | WASR/L | WTX0817 | LTX0512 | TW25 |

## Condizioni di taglio raccomandate

| Pezzo lavorato | Condizioni di taglio vc(m/min) | Condizioni di taglio fz(mm/t) | Gradi |
|---|---|---|---|
| P | 150 ~ 300<br>120 ~ 230<br>100 ~ 200 | 0.05 ~ 0.15<br>0.05 ~ 0.20<br>0.05 ~ 0.20 | NCM325<br>PC3500<br>ST30A |
| M | 50 ~ 200<br>50 ~ 120 | 0.05 ~ 0.20<br>0.05 ~ 0.20 | PC9530<br>ST30A |
| K | 150 ~ 250<br>100 ~ 200 | 0.05 ~ 0.30<br>0.05 ~ 0.30 | PC6510<br>G10 |

Montaggio



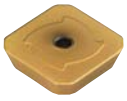
• Inserti disponibili, vedere pag. : E12, E13

## Inserti disponibili

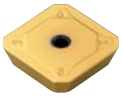
SDCN



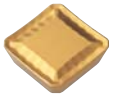
SDKN-SM



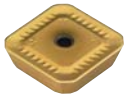
SDKN-SU



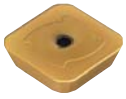
SDKR-MX



SDKR-SM



SDXN-FM



SDXR-FM

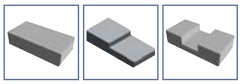


| Articolo | | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SDCN | 53M | | | | | | | | | | | | | | ● | | | | E12 |
| | 53M-G | | | | | | | | | | | | | | ● | | | | |
| | 53MT | ● | ● | | | | | | | | | | ● | ● | | | ● | ● | |
| | 53MT-RH | | | | ● | | | | | | | | | | | | | | |
| | 53MT-S20 | | | | | | | ● | | | | | | | | | | | |
| | 1504AEEN | | | | | | | | | | | | | | | | | | |
| | 1504AEEN-RH | | | | | ● | | | ● | | | | | | | | | | |
| | 1504AESN | | | | | | | | | | | | | | | | | | |
| | 1504AESN-RH | | | | | | | | ● | | | | | | | | | | |
| SDKN | 1504AESN-SM | | | | | | ● | | | | | | | | | | | | E12 |
| | 1504AEEN-SM | | | | | | | | | | | | | | | | | | |
| | 1504AESN-SU | | | | ● | ○ | ● | | | | | | | | | | | | |
| SDKR | 1504AESN-MX | | ● | | | | | | | | | | | | | | | | E13 |
| | 1504AETN-MX | | | | | | | | | | | | | | | | | | |
| | 1504AEN-MX | ● | | ● | | | | | | | | | | | | | | | |
| | 1504AESN-SM | | | | | | | | | | | | | | | | | | |
| SDXN | 1504AESN-FM | | | | ● | | | | | | | | | | | | | | E13 |
| | 1504AEEN-FM | | | | | | | | | | | | | | | | | | |
| SDXR | 1504AESN-FM | | | | | | | | | | | | | | | | | | E13 |

● : Disponibile ○ : A richiesta

# PES2000/3000/4000

AA 90° | • AR : 10°~15° • RR : 2°~-3°





Tipo 2000/3000 Tipo 4000

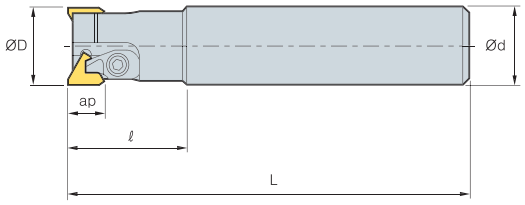



Fig. 1

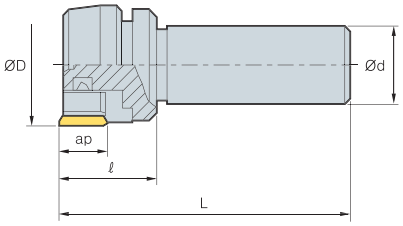



Fig. 2

(mm)

| Articolo | | Stock R | Stock L | ⊚ | øD | ød | ℓ | L | ap | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PES | 2020R | ● | | 2 | 20 | 20 | 30 | 110 | 8 | 0.3 | 1 |
| | 2025R | ● | | 2 | 25 | 25 | 35 | 120 | 8 | 0.5 | 1 |
| PES | 3030R | | | 2 | 30 | 32 | 45 | 160 | 13 | 0.9 | 1 |
| | 3032R | ● | | 2 | 32 | 32 | 45 | 160 | 13 | 1.0 | 1 |
| | 3033R | | | 2 | 33 | 32 | 45 | 160 | 13 | 1.1 | 1 |
| | 3035R | | | 2 | 35 | 32 | 45 | 160 | 13 | 1.2 | 1 |
| | 3036R | | | 2 | 36 | 32 | 45 | 160 | 13 | 1.3 | 1 |
| | 3040R | ● | | 2 | 40 | 32 | 45 | 160 | 13 | 1.4 | 1 |
| PES | 4050R | ● | | 3 | 50 | 32 | 40 | 120 | 16.5 | 1.2 | 2 |
| | 4050R-S42 | | | 3 | 50 | 42 | 40 | 120 | 16.5 | 1.5 | 2 |
| | 4063R | ● | | 4 | 63 | 32 | 40 | 120 | 16.5 | 1.5 | 2 |
| | 4063R-S42 | | | 4 | 63 | 42 | 40 | 120 | 16.5 | 1.8 | 2 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Base | Cuneo | Vite del cuneo | Vite della base |
|---|---|---|---|---|
| |  |  |  |  |
| Tipo 2000 | - | - | - | CHX0407 |
| Tipo 3000 | - | - | - | CHX0510 |
| Tipo 4000 | LPTS4R/L | WPTSR | DHA0815 | LTX0512 |
| | Chiave | | Clamp | Ring |
| |  |  |  |  |
| Tipo 2000 | HW25L | - | CH4R1 | ER03 |
| Tipo 3000 | HW30L | - | CH5R1 | ER04 |
| Tipo 4000 | - | HW40 | - | - |

## Condizioni di taglio raccomandate

| Pezzo lavorato | Condizioni di taglio vc(m/min) | Condizioni di taglio fz(mm/t) | Gradi |
|---|---|---|---|
| P | 150 ~ 300<br>120 ~ 230<br>100 ~ 200 | 0.05 ~ 0.15<br>0.05 ~ 0.20<br>0.05 ~ 0.20 | NCM325<br>PC3500<br>ST30A |
| M | 50 ~ 200<br>50 ~ 120 | 0.05 ~ 0.20<br>0.05 ~ 0.20 | PC9530<br>ST30A |
| K | 150 ~ 250<br>100 ~ 200 | 0.05 ~ 0.30<br>0.05 ~ 0.30 | PC6510<br>G10 |

## Inserti disponibili

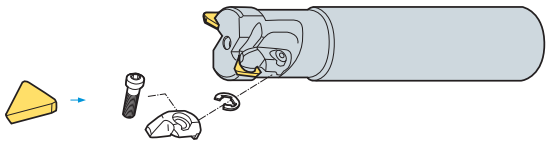
TECN TEEN




| Tipo | Articolo | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 | TECN 22R | | | | | | | | | | | | | | | ● | | | E18 |
| | 22TR | | | | | | | | | | | | | ● | | | ● | | |
| 3000 | TECN 32R | | | | | | | | | | | | | | | ● | | | E18 |
| | 32TR | | | | | | | ● | | | | | | | | | | | |
| | 32TR-S20 | | | | | | | | | | | | | | | | | | |
| 4000 | TEEN 43R | | | | | | | | | | | | | | | ● | | | E18 |
| | 43R-G | | | | | | | | | | | | | | ● | | | | |
| | 43TR | ● | ● | | | | | | ● | | | ● | | ● | | | ● | ● | |
| | 43TR-S20 | | | | | | | ● | | | | | | | | | | | |
| | 43TR-Z | | | | | | | | | | | | | | | | ● | | |
| | 43TR-ZH | | | | ● | | | ● | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |

● : Disponibile ○ : A richiesta

Montaggio



• Inserti disponibili, vedere pag. : E18

# AFO(M)4000/5000

AA 45°
• AR : 15°
• RR : 5°





Tipo 4000

Tipo 5000

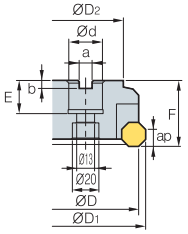



Fig. 1

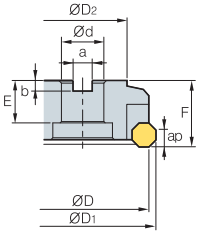



Fig. 2

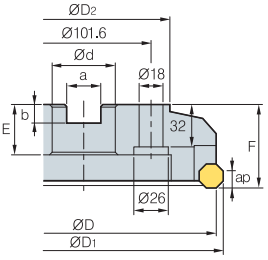



Fig. 3

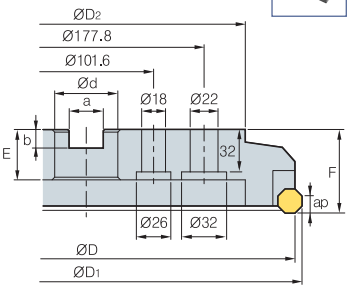



Fig. 4

(mm)

| Articolo | | Stock R | Stock L | ⚙ | øD | øD1 | øD2 | ød | a | b | E | F | ap | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AFO(M) | 4080R/L | (•) | | 5 | 80 | 88 | 60 | 25.4(27) | 9.5(12.4) | 6(7) | 25(22) | 50 | 6.5 | 1.4 | 1 |
| | 4100R/L | (•) | | 6 | 100 | 108 | 80 | 31.75(32) | 12.7(14.4) | 8(8) | 32(28) | 50 | 6.5 | 2.0 | 1 |
| | 4125R/L | (•) | | 8 | 125 | 133 | 100 | 38.1(40) | 15.9(16.4) | 10(9) | 38(30) | 63 | 6.5 | 3.1 | 1 |
| AFO(M) | 5080R/L | •(•) | | 5 | 80 | 91 | 60 | 25.4(27) | 9.5(12.4) | 6(7) | 25(22) | 50 | 9.5 | 1.4 | 1 |
| | 5100R/L | •(•) | | 6 | 100 | 111 | 80 | 31.75(32) | 12.7(14.4) | 8(8) | 32(28) | 50 | 9.5 | 2.0 | 2 |
| | 5125R/L | •(•) | | 8 | 125 | 136 | 100 | 38.1(40) | 15.9(16.4) | 10(9) | 38(30) | 63 | 9.5 | 3.1 | 2 |
| | 5160R/L | •(•) | | 10 | 160 | 171 | 120 | 50.8(40) | 19.0(16.4) | 11(9) | 38(30) | 63 | 9.5 | 5.2 | 2 |
| | 5200R/L | •(•) | | 12 | 200 | 211 | 130 | 47.625(60) | 25.4(25.7) | 13.5(14) | 38(38) | 63 | 9.5 | 7.5 | 3 |
| | 5250R/L | (•) | | 16 | 250 | 261 | 180 | 47.625(60) | 25.4(25.7) | 13.5(14) | 38(38) | 63 | 9.5 | 16.1 | 3 |
| | 5315R/L | (•) | | 20 | 315 | 326 | 240 | 47.625(60) | 25.4(25.7) | 13.5(14) | 38(38) | 63 | 9.5 | 22.8 | 4 |

• ( )Sistema metrico

● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Base | Cuneo | Vite del cuneo | Vite | Chiave | |
|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |
| Tipo 4000 | LAF04R/L | WAFO4R/L | DHA0815 | FTKA0408 | TW15S | - |
| Tipo 5000 | LAF05R/L<br>LAF05R*/L-1* | WEFR/L | DHA0821F | LTX0512 | - | HW40 |

∗ : Ø80 ~ Ø100

## Mandrini disponibili

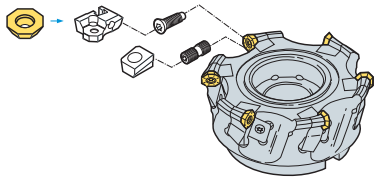
| Articolo | | Attacco generico | Attacchi NC AFO | Attacchi NC AFOM |
|---|---|---|---|---|
| AFO(M) | 4080R/L | NT*□□(M/U)-FMA25.4-25 | BT** □□-FMA25.4 -□□ | FMC27 |
| | 4100R/L | NT*□□(M/U)-FMA31.75 -□□ | BT**□□-FMA31.75 -□□ | FMC32 |
| | 4125R/L | NT*□□(M/U)-FMA38.1 -□□ | BT**□□-FMA38.1 -□□ | FMB40 |
| AFO(M) | 5080R/L | NT*□□(M/U)-FMA25.4-25 | BT**□□-FMA25.4 -□□ | FMC27 |
| | 5100R/L | NT*□□(M/U)-FMA31.75 -□□ | BT**□□-FMA31.75 -□□ | FMC32 |
| | 5125R/L | NT*□□(M/U)-FMA38.1 -□□ | BT**□□-FMA38.1 -□□ | FMB40 |
| | 5160R/L | NT*□□(M/U)-FMA50.8 -□□ | BT**□□-FMA50.8 -□□ | FMB40 |
| | 5200R/L | NT*□□(M/U)-FMA47.625-25, KCP-8*** | BT**□□-FMA47.625-□□ | FMB60 |
| | 5250R/L | NT*□□(M/U)-FMA47.625-25, KCP-8*** | BT**□□-FMA47.625-□□ | FMB60 |
| | 5315R/L | KCP-8***(Center Ring Plug) | | |

*Numero □□–NT **Numero □□–BT ***Over Milling 5

## Condizioni di taglio raccomandate

| Pezzo lavorato | Condizioni di taglio vc(m/min) | Condizioni di taglio fz(mm/t) | Gradi |
|---|---|---|---|
| P | 150 ~ 300<br>120 ~ 230<br>100 ~ 200 | 0.05 ~ 0.15<br>0.05 ~ 0.20<br>0.05 ~ 0.20 | NCM325<br>PC3500<br>ST30A |
| M | 50 ~ 200<br>50 ~ 120 | 0.05 ~ 0.20<br>0.05 ~ 0.20 | PC9530<br>ST30A |
| K | 150 ~ 250<br>100 ~ 200 | 0.05 ~ 0.30<br>0.05 ~ 0.30 | PC6510<br>G10 |

Montaggio

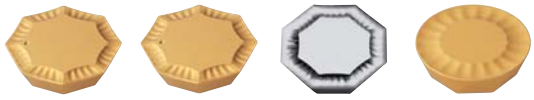


## Inserti disponibili

OFCW OFKT-MF OFKT-MM OFKT-MA OFCN



OFKR-MF OFKR-MM OFKR-MA REKR-MM



| Tipo | Articolo | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4000 | OFCW 05T3SN | | | | | | | | | | | | | | | | | | E9 |
| | 05T3FN | | | | | | | | | | | | | | | | | | |
| | 05T308FN | | | | | | | | | | | | | | | | | | |
| | OFKT 05T3SN-MF | ● | ● | | | | | | | | | | | | | | | | E10 |
| | 05T308SN-MF | | | | | | | | | | | | | | | | | | |
| | 05T3SN-MM | ● | ● | | ● | | | ● | | | | | | | | | | | |
| | 05T308SN-MM | | | | | | | | | | | | | | | | | | |
| | 05T3FN-MA | | | | | | | | | | | | | | ● | | | | |
| | 05T3EN-MA | | | | | | | | | | | | | | | | | | |
| 5000 | OFCN 0704SN | | | | ● | | ● | | ● | | | | | | | | | | E9 |
| | 0704FN | | | | | | | | | | | | | | | | | | |
| | 070408SN | | | | | | | | | | | | | | | | | | |
| | 070408FN | | | | | | | | | | | | | | | | | | |
| | OFKR 0704SN-MF | ● | ● | | ● | ● | | | | | | | | | | | | | E10 |
| | 070408SN-MF | | | | | | | | | | | | | | | | | | |
| | 0704SN-MM | ● | ● | | ● | | ● | ● | ● | | | | | | | | | | |
| | 070408SN-MM | ● | | | | | | | | | | | | | | | | | |
| | 0704FN-MA | | | | | | | | | | | | | | ● | | | | |
| | 0704EN-MA | | | | | | | | | | | | | | | | | | |
| | OFKT 0704SN-MM | ● | | | | | | | | | | | | | | | | | E10 |
| | 0704FN-MA | | | | | | | | | | | | | | ● | | | | |
| | 0704EN-MA | | | | | | | | | | | | | | | | | | |
| | REKR 170400-MM | | | | | | | | | | | | | | | | | | E12 |

● : Disponibile ○ : A richiesta

• Inserti disponibili, vedere pag. : E9, E10, E12
• Attacchi e viti disponibili : E215~E217

# Power buster

## Sistema di codifica

| PB | A | C | M | 5 | 100 | R/L | – | M |
|---|---|---|---|---|---|---|---|---|
| Power Buster: Power buster | Angolazione: A : 45° Z : 80° | Tipo di utensile: C : Fresa S : Stelo | Tipo di stelo M : Metrico I : Pollici | Cerchio inscritto: 5 : 15,875mm | Diametro utensile: ØD : 100mm | Tipo di esecuzione: R : Destra L : Sinistra | | N. di denti: Neutro: Passo massimo M : Passo fine |

## Caratteristiche

- Nuovo utensile 'Power Buster di nuovissima generazione; lo speciale design del tagliente consente di ridurre gli sforzi di taglio di quasi il 20%.
- Il tagliente consente di tagliare i trucioli in pezzi piccoli e di controllarne bene l'evacuazione. Riduce le interferenze con la fresa e garantisce una buona durata dell'utensile.
- L'inserto bilaterale a 6 taglienti garantisce ottima rigidità, lunga durata e costi ridotti.
- AA (angolazione): disponibile 45° e 80° (stesso inserto utilizzato)
- Applicazione: Elevata profondità ditaglio e rapidi avanzamenti (acciaio, ghisa)

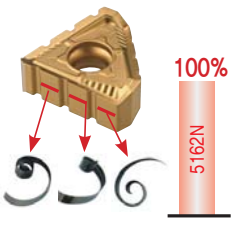
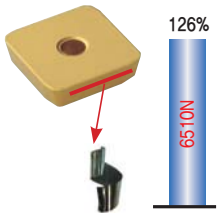
## Caratteristiche dell'inserto

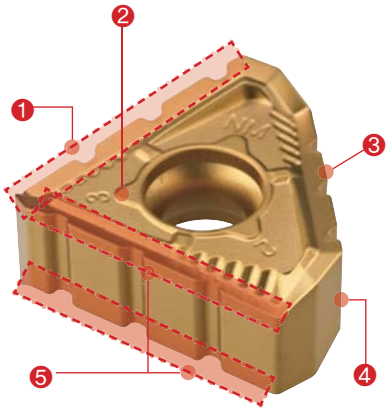
### ❶ Tagliente principale

- Bassi sforzi di taglio
- Ottimo controllo del truciolo ed evacuazione di trucioli di piccole dimensioni
- Inserto bilaterale a 6 taglienti
- Design del tagliente ideale per sgrossatura di acciaio e ghisa

**▶ Confronto tra il controllo del truciolo e lo sforzo di taglio**

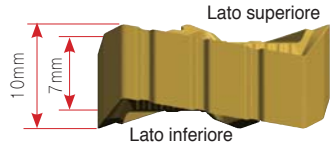
Pezzo lavorato: 24CrMo4,
vc=200m/min, ap=8mm, ae=90mm, fz=0.3mm/t

| Power Buster | Inserto di fresatura ISO |
|---|---|
|   |   |



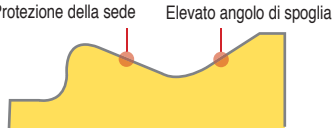

### ❷ Lato superiore e inferiore

- Inserto dal design equilibrato per uno staffaggio stabile
- Inserto spesso (oltre 2 volte rispetto agli inserti normali) che garantisce elevata rigidità



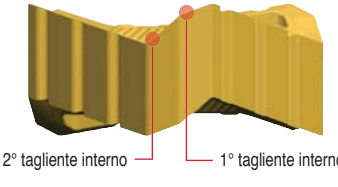

### ❸ Rompitruciolo

- Elevato angolo di spoglia per minori sforzi di taglio
- Buona evacuazione del truciolo a varie velocità e profondià di taglio
- Alloggiamento dell'inserto protetto per uno staffaggio più preciso



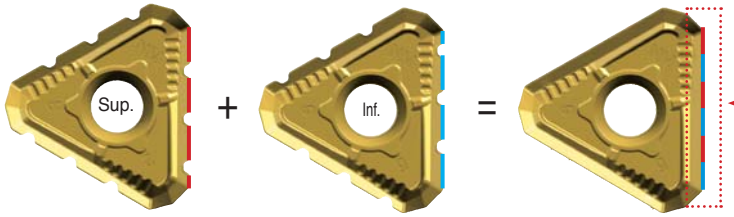

### ❹ Tagliente interno

- Elevato angolo di spoglia per evitare interferenze col truciolo
- Tagliente interno disponibile per frese AA 45° e 80°



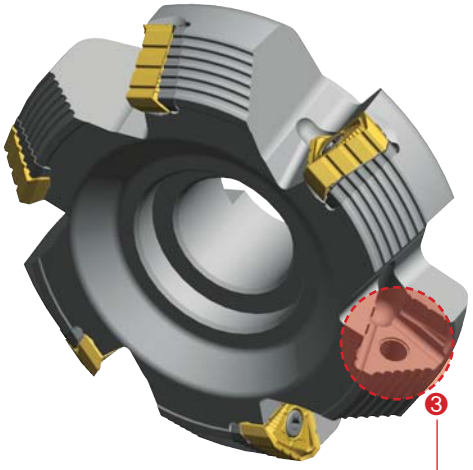

### ❺ Sistema 2 in 1

Il tagliente su entrambi i lati dell'inserto permette di coprire tutte le aree di taglio sovrapposte




Tagliente bilaterale perfetto

## Caratteristiche della fresa




### ❶ Sistema a vite

Sistema di staffaggio a vite semplice e robusto



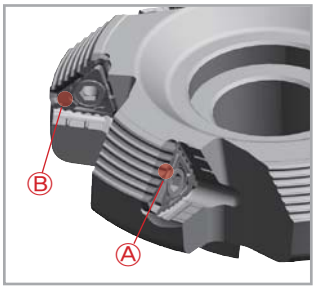
### ❷ Assemblaggio più rigido e stabile

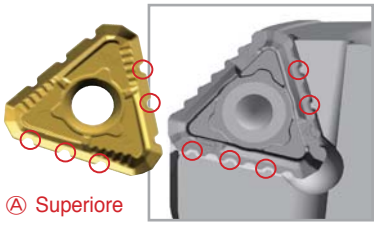
- Sistema di staffaggio robusto. Protegge la fresa da possibili danni. La sede sagomata garantisce un'elevata accuratezza nello staffaggio

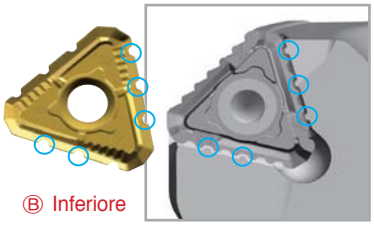


### ❸ Montare la sottoplacchetta in funzione del design delle scanalature

Montare la sede a passo alternato come in figura

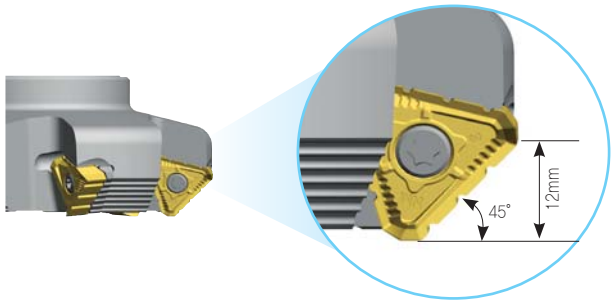


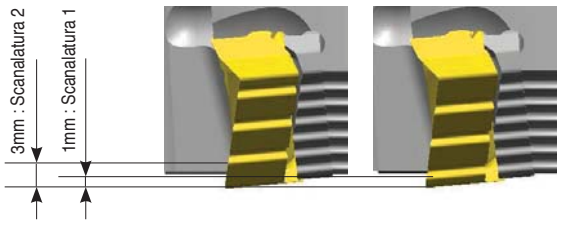



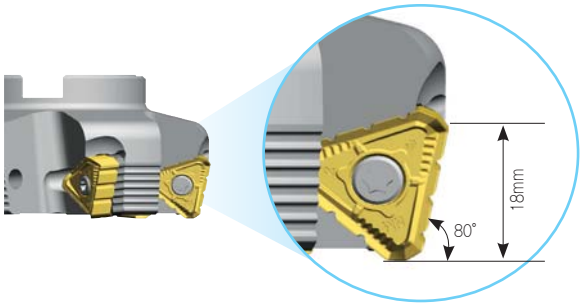

### Sistema multitagliente

Design dell'inserto per fresa AA 45° e 80°

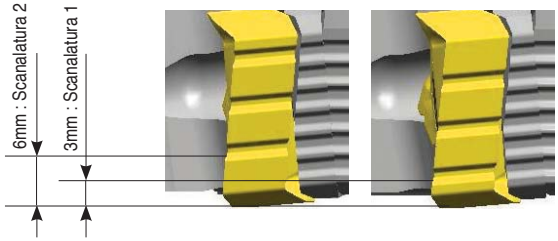



Le scanalature sono utili con profondità di taglio superiori a 1 mm



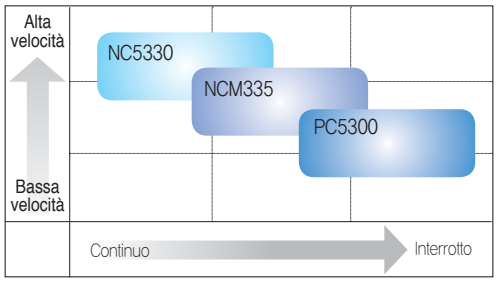

Le scanalature sono utili con profondità di taglio superiori a 3 mm



## Condizioni di taglio raccomandate

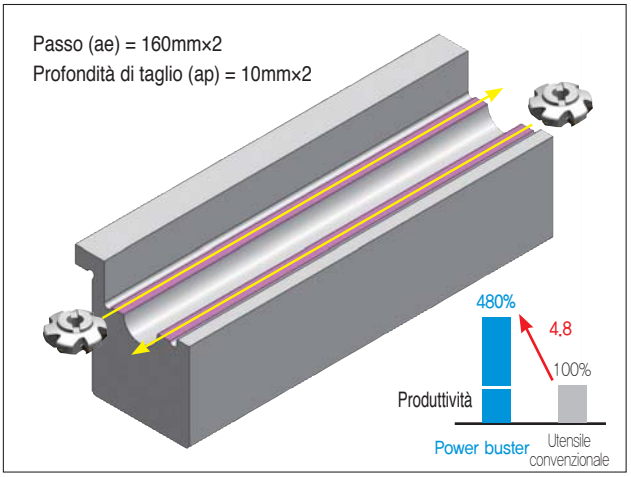
| ISO | Pezzo lavorato | NC5330 | MCM335 | PC5300 |
|---|---|---|---|---|
| | | fz (mm/t) | | |
| | | 0.1–0.2–0.3 | 0.1–0.2–0.3 | 0.1–0.2–0.3 |
| | | vc (m/min) | | |
| P | Acciaio al carbonio | 300–250–200 | 280–230–180 | 250–200–160 |
| P | Acciaio legato | 250–210–180 | 230–180–150 | 180–150–120 |
| P | Acciaio pressofuso | 180–150–130 | 160–130–110 | 140–120–100 |
| K | Ghisa grigia | 280–220–180 | 250–200–160 | 220–180–150 |
| K | Ghisa malleabile | 250–200–160 | 230–180–150 | 180–150–130 |
| K | Ghisa nodulare | 230–180–150 | 210–160–130 | 160–120–120 |

## Grado in funzione di velocità e interruzione di taglio



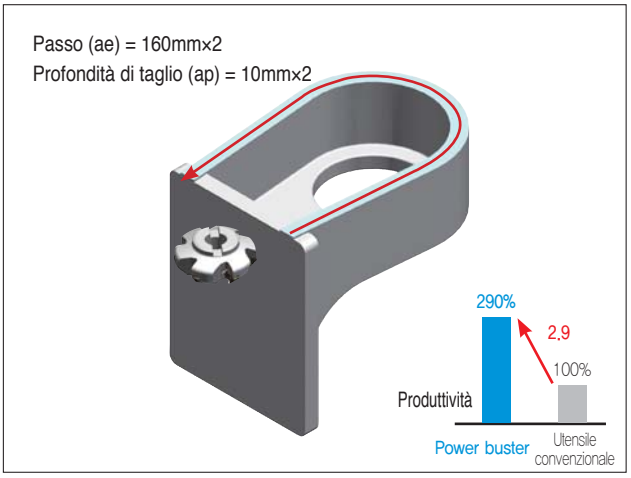

## Test Power Buster

■ Blocco cilindro per motore di nave (ghisa)




| Articolo | Power Buster | Utensile convenzionale |
|---|---|---|
| Diametro(ØD) | 200mm | 200mm |
| ⦾ | 12 denti | 12 denti |
| Grado | NC9025 | Rivestimento PVD per ghisa |
| vc | 170m/min | 130m/min |
| rpm | 270/min | 207/min |
| fz | 0.24mm/t | 0.16mm/t |
| vf | 780mm/min | 400mm/min |
| ap | 10mm x 2 passate | 4mm x 5 passate |
| min | 28.2min/ea | 137.5min/ea |
| Produttività 4,8 volte maggiore | | • Inserto convenzionale a 4 taglienti (senza scanalatura) per fresa AA 45° |

■ Lavorazione pesante (acciaio legato)




| Articolo | Power buster | Utensile convenzionale |
|---|---|---|
| Diametro(ØD) | 125mm | 100mm |
| ⦾ | 8 denti | 8 denti |
| Grade | NCM335 | Rivestimento PVD per ghisa |
| vc | 180m/min | 150m/min |
| rpm | 458/min | 477/min |
| fz | 0.15mm/t | 0.10mm/t |
| vf | 550mm/min | 382mm/min |
| ap | 5mm x 2 passate | 2.5mm x 4 passate |
| min | 5min/ea | 14.7min/ea |
| Produttività 2,9 volte maggiore | | •Inserto bilaterale a 8 taglienti (senza scanalatura) per fresa AA 45° |

# PBAC 5000 New

AA 45° | • AR : −5° • RR : −11°



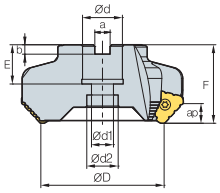



Fig. 1

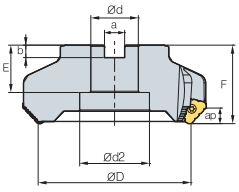



Fig. 2

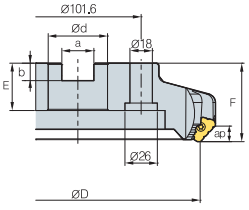



Fig. 3

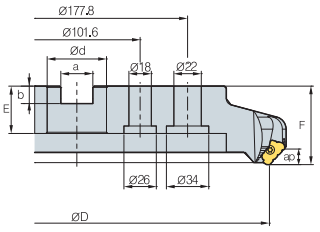



Fig. 4

(mm)

| Articolo | | Stock R | Stock L | ⌀ | øD | ød | ød1 | ød2 | a | b | E | F | ap | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PBAC(M) | 5080R/L | | | 4 | 80 | 25.4(27) | 14 | 20 | 9.5(12.4) | 6(7) | 25(22) | 50 | 12 | 1 |
| | 5100R/L | | | 4 | 100 | 31.75(32) | - | 45 | 12.7(14.4) | 8(8) | 32(28) | 50 | 12 | 2 |
| | 5125R/L | | | 6 | 125 | 38.1(40) | - | 56 | 15.9(16.4) | 10(9) | 38(32) | 63 | 12 | 2 |
| | 5160R/L | | | 8 | 160 | 50.8(40) | - | 100 | 19(16.4) | 11(9) | 38(32) | 63 | 12 | 2 |
| | 5200R/L | | | 10 | 200 | 47.625(60) | - | - | 25.4(25.7) | 14(14) | 38(38) | 63 | 12 | 2 |
| | 5250R/L | | | 12 | 250 | 47.625(60) | - | - | 25.4(25.7) | 14(14) | 38(38) | 63 | 12 | 3 |
| | 5315R/L | | | 14 | 315 | 47.625(60) | - | - | 25.4(25.7) | 14(14) | 38(38) | 63 | 12 | 4 |
| PBAC(M) | 5080R/L-M | | | 6 | 80 | 25.4(27) | 14 | 20 | 9.5(12.4) | 6(7) | 25(22) | 50 | 12 | 1 |
| | 5100R/L-M | | | 6 | 100 | 31.75(32) | - | 45 | 12.7(14.4) | 8(8) | 32(28) | 50 | 12 | 2 |
| | 5125R/L-M | | | 8 | 125 | 38.1(40) | - | 56 | 15.9(16.4) | 10(9) | 38(32) | 63 | 12 | 2 |
| | 5160R/L-M | | | 10 | 160 | 50.8(40) | - | 100 | 19(16.4) | 11(9) | 38(32) | 63 | 12 | 2 |
| | 5200R/L-M | | | 12 | 200 | 47.625(60) | - | - | 25.4(25.7) | 14(14) | 38(38) | 63 | 12 | 2 |
| | 5250R/L-M | | | 14 | 250 | 47.625(60) | - | - | 25.4(25.7) | 14(14) | 38(38) | 63 | 12 | 3 |
| | 5315R/L-M | | | 16 | 315 | 47.625(60) | - | - | 25.4(25.7) | 14(14) | 38(38) | 63 | 12 | 4 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Vite | Sede | Vite sede | Chiave |
|---|---|---|---|
|  |  |  |  |
| FTGA0518 | ST53AZR | SHXN0712F | TW20-100 |

## Inserti disponibili

TNMX-NM

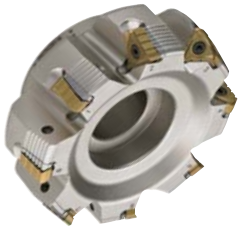


| Articolo | Rivestito NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TNMX 2710AZNR-NM | ● | ● | | ○ | | | | | | | | | | | | | E19 |
| 2710AZNL-NM | | | | | | | | | | | | | | | | | |

• Inserti disponibili, vedere pag. : E19
• Attacchi e viti disponibili : E215~E217

# PBZC 5000 New

AA 80° | • AR : −5° • RR : −12°



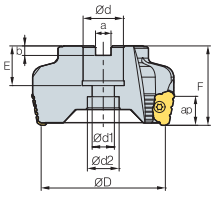


Fig. 1

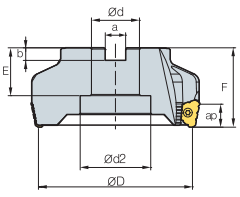


Fig. 2

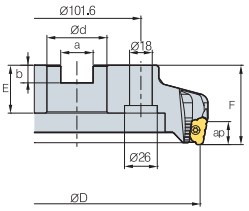


Fig. 3

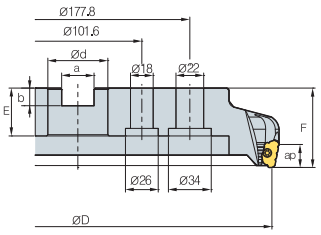


Fig. 4

(mm)

| Articolo | | Stock R | Stock L | ⌀ | øD | ød | ød1 | ød2 | a | b | E | F | ap | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PBZC(M) | 5080R/L | | | 4 | 80 | 25.4(27) | 14 | 20 | 9.5(12.4) | 6(7) | 25(22) | 50 | 18 | 1 |
| | 5100R/L | | | 4 | 100 | 31.75(32) | - | 45 | 12.7(14.4) | 8(8) | 32(28) | 50 | 18 | 2 |
| | 5125R/L | | | 6 | 125 | 38.1(40) | - | 56 | 15.9(16.4) | 10(9) | 38(32) | 63 | 18 | 2 |
| | 5160R/L | | | 8 | 160 | 50.8(40) | - | 100 | 19(16.4) | 11(9) | 38(32) | 63 | 18 | 2 |
| | 5200R/L | | | 10 | 200 | 47.625(60) | - | - | 25.4(25.7) | 14(14) | 38(38) | 63 | 18 | 2 |
| | 5250R/L | | | 12 | 250 | 47.625(60) | - | - | 25.4(25.7) | 14(14) | 38(38) | 63 | 18 | 3 |
| | 5315R/L | | | 14 | 315 | 47.625(60) | - | - | 25.4(25.7) | 14(14) | 38(38) | 63 | 18 | 4 |
| PBZC(M) | 5080R/L-M | | | 6 | 80 | 25.4(27) | 14 | 20 | 9.5(12.4) | 6(7) | 25(22) | 50 | 18 | 1 |
| | 5100R/L-M | | | 6 | 100 | 31.75(32) | - | 45 | 12.7(14.4) | 8(8) | 32(28) | 50 | 18 | 2 |
| | 5125R/L-M | | | 8 | 125 | 38.1(40) | - | 56 | 15.9(16.4) | 10(9) | 38(32) | 63 | 18 | 2 |
| | 5160R/L-M | | | 10 | 160 | 50.8(40) | - | 100 | 19(16.4) | 11(9) | 38(32) | 63 | 18 | 2 |
| | 5200R/L-M | | | 12 | 200 | 47.625(60) | - | - | 25.4(25.7) | 14(14) | 38(38) | 63 | 18 | 2 |
| | 5250R/L-M | | | 14 | 250 | 47.625(60) | - | - | 25.4(25.7) | 14(14) | 38(38) | 63 | 18 | 3 |
| | 5315R/L-M | | | 16 | 315 | 47.625(60) | - | - | 25.4(25.7) | 14(14) | 38(38) | 63 | 18 | 4 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Vite | Sede | Vite sede | Chiave |
|---|---|---|---|
|  |  |  |  |
| FTGA0518 | ST53AZR | SHXN0712F | TW20-100 |

## Inserti disponibili

TNMX-NM



| Articolo | Rivestito NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TNMX 2710AZNR-NM | ● | ● | | ○ | | | | | | | | | | | | | E19 |
| 2710AZNL-NM | | | | | | | | | | | | | | | | | |

• Inserti disponibili, vedere pag. : E19
• Attacchi e viti disponibili : E215~E217

● : Disponibile ○ : A richiesta

## Sistema di codifica di Rich Mill

| RM16 | A | C | M | 4 | 100 | H | R | – | M |
|---|---|---|---|---|---|---|---|---|---|
| RM4 : Numero di denti–4<br>RM8 : Numero di denti–8<br>RM16 : Numero di denti–16<br>RMT8 : Numero di denti–8<br>(Sistema di montaggio a leva) | Angolazione<br>A : 45 °<br>D : 30 °<br>E : 15 °<br>F : 5 °<br>P : 0 °<br>Q : 2 ° | Tipo di utensile<br>C : Fresa<br>S : Stelo | M : Metrico<br>A : Pollici | Cerchio inscritto inserto<br>3 : 9,525<br>4 : 12,7<br>5 : 15,875 | Diametro utensile<br>Ø100 | Tipo di refrigerante<br>H : Interno<br>Neutro : Non interno | Tipo esecuzione<br>R : Destra<br>L : Sinistra | | Tipo di passo<br>M : Fine<br>H : Extra fine |

## Caratteristiche

- La serie Rich mill è una delle innovazioni in grado di fornire più taglienti grazie agli inserti bilaterali nonché una maggiore durata dell'utensile.
- La sua esclusiva geometria e lo speciale tagliente garantiscono bassi sforzi di taglio e lunga durata dell'utensile.
- La serie Rich mill ha un'ampia gamma di applicazioni dall'acciaio all'acciaio inossidabile fino alla ghisa e all'alluminio.
- L'inserto negativo consente di irrobustire l'utensile e di farlo durare più a lungo.
- La serie Rich mill disponse del sistema di staffaggio a vite e a leva.

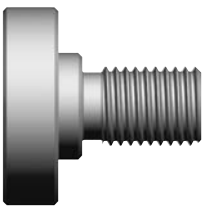


## Vite di staffaggio Rich Mill





Vite di staffaggio
(Ø50~Ø125 → esagonale)



Vite di staffaggio
(Ø160~Ø250 → per spianatura generica)

## Rich Mill RM8

### Inserto bilaterale a 8 Taglienti

- Innovativo inserto bilaterale con il quale è possibile utilizzare 8 taglienti. Una scelta che risulta più economica rispetto a un inserto convenzionale.
- Eccellente superficie di finitura è garantita dalla particolare geometria dell'inserto e dal tagliente positivizzato. Possibilità di utilizzo su materiali come: acciaio, acciaio inossidabile, ghisa e alluminio.
- La geometria innovativa e i vari gradi disponibili assicurano un'ottima durata dell'utensile.
- Possibilità di scelta tra vari passi e rompitruciolo in funzione della lavorazione.
- La fresa Light Rich mill è indicata per lavorazioni ad elevate velocità e a bassa potenza.

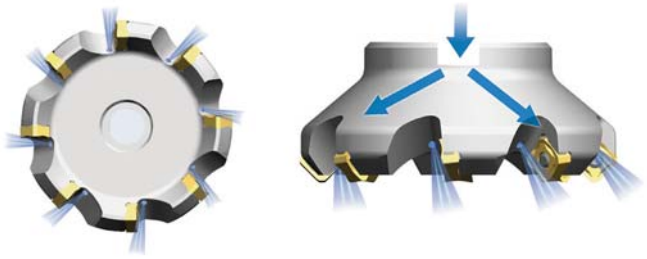




Sfacciatura

### Sistema refrigerante interno

- L'esclusivo sistema di distribuzione del refrigerante permette di migliorare l'evacuazione del truciolo. Per ottenere questo risultato la direzione del flusso del refrigerante è stata attentamente disegnata affinché arrivi direttamente sul punto di lavoro dell'inserto.

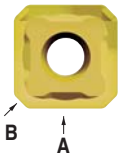
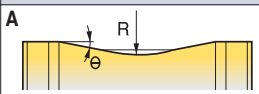
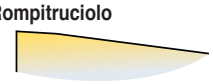


Sistema di distribuzione del refrigerante attentamente progettata per diminuire lo sforzo di taglio ed evacuare il truciolo

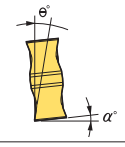
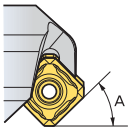
### Rompitruciolo

| Inserto | | Tagliente | Caratteristiche |
|---|---|---|---|
| Per alluminio **MA** |  |  | Grazie al tagliente affilato e alla superficie lappata, garantisce una buona evacuazione del truciolo e resistenza agli urti |
| Media finitura **MF** |  |  | Bassi sforzi di taglio, indicato per media finitura e materiali pastosi |
| Uso generico **MM** |  |  | Rompitruciolo versatile. Uso generico |
| Wiper **W** |  |  | Design speciale del tagliente indicato per operazioni di sgrossatura accurata |

### Caratteristiche dell'inserto

| Inserto | Tagliente | Caratteristiche |
|---|---|---|
|   | A   | Inclinazione dell'inserto per conferire un taglio più dolce |
| | B   | Progettato con tecnologia wiper per ottenere un tagliente più dolce e una migliore superficie di finitura |
| | Rompitruciolo  | Taglio dolce ed elevato angolo di spoglia |

### Caratteristiche della fresa

| Forma | Tagliente | Caratteristiche |
|---|---|---|
|  |   | Elevato angolo di spoglia e tagliente positivizzato per un basso sforzo di taglio |
| |   | Eccellenti risultati nella spianatura e svasatura<br>• RM8A A=45°<br>• RM8E A=75°<br>• RM8Q A=88° |

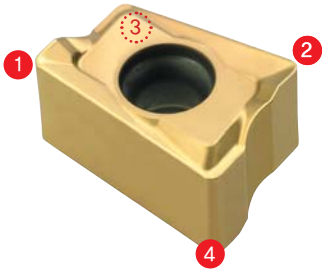
### Condizioni di taglio raccomandate

| ISO | Grado | SNM(E)X1206A(E)NN-MF | | SNM(E)X1206A(E)NN-MM | | SNEX1206A(E)NN-MA | | Max-ap | SNM(E)X1507A(E)NN-MF | | SNM(E)X1507A(E)NN-MM | | Max-ap |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | vc(m/min) | fz(mm/t) | vc(m/min) | fz(mm/t) | vc(m/min) | fz(mm/t) | | vc(m/min) | fz(mm/t) | vc(m/min) | fz(mm/t) | |
| P | NC5330 | - | - | 150~300 | 0.1~0.35 | - | - | RM8A 6.0mm<br>RM8E 9.0mm<br>RM8Q 11.5mm | - | - | 150~300 | 0.1~0.35 | RM8A 7.5mm<br>RM8E 11mm |
| | NCM325 | 200~300 | 0.05~0.3 | 150~300 | 0.1~0.35 | 200~350 | 0.03~0.25 | | 200~300 | 0.05~0.3 | 150~300 | 0.1~0.35 | |
| | PC3500 | 200~300 | 0.05~0.3 | 150~300 | 0.1~0.35 | 200~350 | 0.03~0.25 | | 200~300 | 0.05~0.3 | 150~300 | 0.1~0.35 | |
| K | PC6510 | 150~300 | 0.08~0.35 | 150~300 | 0.1~0.4 | - | - | | 150~300 | 0.08~0.35 | 150~300 | 0.1~0.4 | |
| | PC5300 | 150~300 | 0.08~0.35 | 150~300 | 0.1~0.4 | - | - | | 150~300 | 0.08~0.35 | 150~300 | 0.1~0.4 | |
| M | PC9530 | 100~180 | 0.05~0.3 | 120~180 | 0.1~0.35 | 120~200 | 0.03~0.2 | | - | - | - | - | |
| | PC5300 | - | - | - | - | - | - | | 100~180 | 0.05~0.3 | 120~180 | 0.1~0.35 | |

## Rich Mill RM4

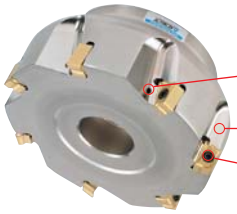
### Inserto bilaterale a 4 Taglienti

- RM4 è un sistema di fresatura multi-funzionale che offre 4 taglienti grazie a un innovativo inserto bilaterale.
- Lo speciale rompitruciolo permette di ottenere un elevato angolo di spoglia e un taglio dolce per diminuire lo sforzo di taglio
- RM4 è un sistema multifunzione per spianatura, lavorazioni laterali, spallamento retto, ramping, contornatura elicoidale e scanalatura
- La speciale geometria del tagliente e la varietà di gradi disponibilil conferiscono robustezza e lunga durata dell'inserto




### Caratteristiche

- L'inserto bilaterale consente di utilizzare 4 taglienti
- L'elevato angolo di spoglia consente un taglio dolce con bassi sforzi di taglio
- Inserto negativo robusto
- Utensile multifunzione efficiente ed economico



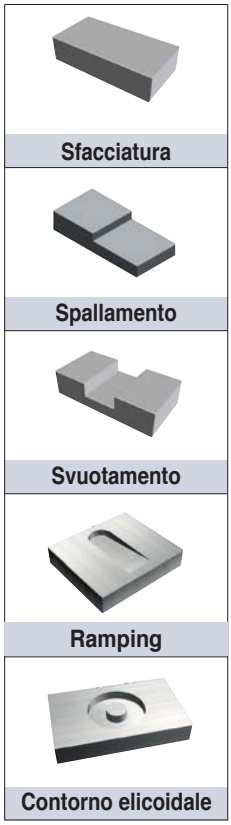
- Il sistema di raffreddamento interno garantisce una maggiore durata dell'utensile in quanto il refrigerante è direzionato direttamente sul tagliente
- Scarico ampio per una migliore evacuazione del truciolo
- Semplice sistema di staffaggio a vite

### Inserti

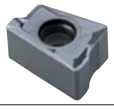
- Inserto bilaterale a 4 taglienti
- Elevato angolo di spoglia
- Flessibilità
- Utensile multifunzione efficiente ed economico
- Inserto negativo con tagliente robusto



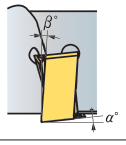
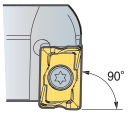

### Usi




### Rompitruciolo

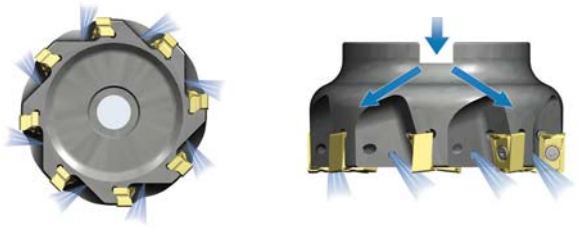
| Inserto | | Tagliente | Caratteristiche |
|---|---|---|---|
| Per alluminio MA |  |  | Grazie al tagliente affilato, migliora la produttività, soprattuto per la lavorazione di alluminio o in caso di bassi sforzi di taglio. |
| Media finitura **MF** |  |  | Grazie ai bassi sforzi di taglio, è indicato per le lavorazioni di media finitura di materiali pastosi. |
| Uso generico **MM** |  |  | Design indicato per uso generico. |

### Configurazione

| Inserto | Angolazione dell'inserto | Caratteristiche |
|---|---|---|
|  |  | Elevato angolo di spoglia e angolazione positivizzata per bassi sforzi di taglio<br>→ Migliora la lavorabilità |
| |  | Svariate applicazioni: spianatura, spallamento, scanalatura, ramping, contornamento elicoidale ecc. |

## Sistema di raffreddamento interno

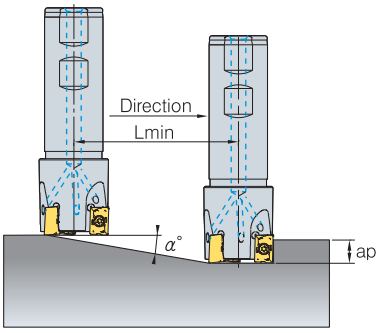
▸ L'esclusivo sistema di distribuzione del refrigerante permette di migliorare l'evacuazione del truciolo. Per ottenere questo risultato la direzione del flusso del refrigerante è stata attentamente disegnata affinchè arrivi direttamente sul punto di lavoro dell'inserto.



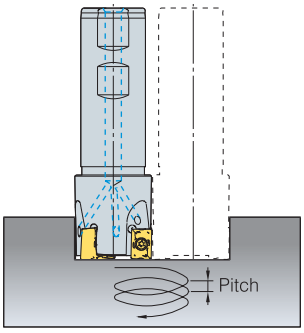
Sistema di distribuzione del refrigerante attentamente progettato per diminuire lo sforzo di taglio ed evacuare il truciolo

## Ramping e fresatura elicoidale

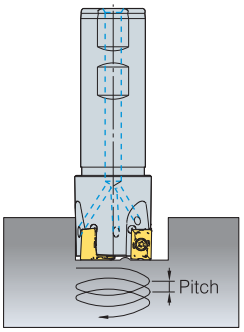
1. Ramping




2. Fresatura elicoidale per esecuzione di un foro cieco




3. Fresatura elicoidale per esecuzione di un foro passante




| 1. Ramping | | | | 2. Foro cieco | | | | 3.Foro passante | |
|---|---|---|---|---|---|---|---|---|---|
| Articolo | D | α° | Lmin | Diametro max del foro | Passo max | Diametro min del foro | Passo max | Diametro min del foro | Passo max |
| RM4PS3014HR | 14 | 5 | 114 | 27 | 3 | 25 | 2.5 | 19 | 1.0 |
| RM4PS3016HR | 16 | 4 | 143 | 31 | 3 | 29 | 2.0 | 23 | 1.0 |
| RM4PS3018HR | 18 | 4 | 143 | 35 | 3 | 33 | 3.0 | 27 | 2.0 |
| RM4PS3020HR | 20 | 4 | 143 | 39 | 4 | 37 | 3.0 | 31 | 2.0 |
| RM4PS3025HR | 25 | 3.5 | 163 | 49 | 4 | 47 | 4.0 | 41 | 3.0 |
| RM4PS3032HR | 32 | 3 | 191 | 63 | 4.5 | 61 | 4.0 | 55 | 3.5 |
| RM4PS3040HR | 40 | 2 | 286 | 79 | 4 | 77 | 3.5 | 71 | 3.0 |
| RM4PS3050HR | 50 | 1.5 | 382 | 99 | 3.5 | 97 | 3.5 | 91 | 3.0 |
| RM4PC(M)3040HR | 40 | 2 | 286 | 79 | 4 | 77 | 4.0 | 71 | 3.0 |
| RM4PC(M)3050HR | 50 | 1.5 | 382 | 99 | 3.5 | 97 | 3.5 | 91 | 3.0 |
| RM4PC(M)3063HR | 63 | 1 | 573 | 125 | 3 | 123 | 3.0 | 117 | 2.5 |
| RM4PC(M)3080HR | 80 | 1 | 573 | 159 | 4 | 157 | 4.0 | 151 | 3.5 |
| RM4PCM3100HR | 100 | 0.5 | 1146 | 199 | 2 | 197 | 2.0 | 191 | 2.0 |
| RM4PS4032HR | 32 | 2.5 | 229 | 62 | 4 | 59.5 | 3.0 | 49 | 2.0 |
| RM4PS4040HR | 40 | 2.0 | 286 | 78 | 4 | 75.5 | 3.0 | 65 | 2.0 |
| RM4PS4050HR | 50 | 2.0 | 286 | 98 | 5 | 95.5 | 4.0 | 85 | 3.5 |
| RM4PS4063HR | 63 | 2.0 | 286 | 124 | 5 | 121.5 | 5.0 | 111 | 5.0 |
| RM4PC(M)4050HR | 50 | 2.0 | 286 | 98 | 5 | 95.5 | 4.0 | 85 | 3.5 |
| RM4PC(M)4063HR | 63 | 2.0 | 286 | 124 | 5 | 121.5 | 5.0 | 111 | 5.0 |
| RM4PC(M)4080HR | 80 | 1.5 | 382 | 158 | 5 | 155.5 | 5.0 | 145 | 5.0 |
| RM4PCM4100HR | 100 | 1.0 | 573 | 198 | 5 | 195.5 | 4.5 | 185 | 4.0 |
| RM4PC(M)4125HR | 125 | 1.0 | 573 | 248 | 5 | 245.5 | 5.0 | 235 | 5.0 |
| RM4PC(M)4160R | 160 | 0.5 | 1146 | 318 | 4 | 315.5 | 3.5 | 305 | 3.5 |

Lmin. si riferisce a una profondità di passata(ap) di 10 mm (Lmin = 10/tan α)

## Condizioni di taglio raccomandate

| ISO | Grado | LNM(E)X100605PNR-MF | | LNM(E)X100605PNR-MM | | LNEX100605PNR-MA | | Max-ap | LNM(E)X151008PNR-MF | | LNM(E)X151008PNR-MM | | LNEX151008PNR-MA | | Max-ap |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | vc(m/min) | fz(mm/t) | vc(m/min) | fz(mm/t) | vc(m/min) | fz(mm/t) | | vc(m/min) | fz(mm/t) | vc(m/min) | fz(mm/t) | vc(m/min) | fz(mm/t) | |
| P | NCM325 | - | - | - | - | - | - | 9.0mm | 150~300 | 0.05~0.3 | 120~300 | 0.05~0.35 | 150~300 | 0.03~0.2 | 14.0mm |
| P | PC3500 | 150~300 | 0.05~0.25 | 120~300 | 0.05~0.3 | 150~300 | 0.03~0.2 | | 150~300 | 0.05~0.3 | 120~300 | 0.05~0.35 | 150~300 | 0.03~0.2 | |
| K | PC6510 | 150~300 | 0.08~0.3 | 120~300 | 0.08~0.35 | - | - | | 150~300 | 0.08~0.35 | 120~300 | 0.08~0.35 | - | - | |
| M | PC5300 | 120~180 | 0.05~0.25 | 100~180 | 0.05~0.3 | 120~200 | 0.03~0.2 | | 120~180 | 0.05~0.3 | 100~180 | 0.05~0.3 | 120~200 | 0.03~0.2 | |

## Rich Mill RM16

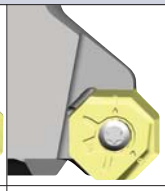
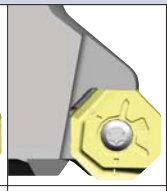
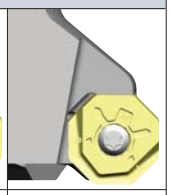
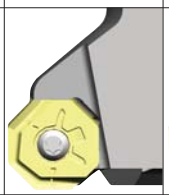
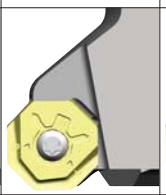
- Inserto economico a 16 taglienti
- Riduce i costi nelle medie lavorazioni
- Inserto wiper utilizzabile per una buona rugosità della superficie
- La speciale geometria del tagliente e la varietà di gradi disponibili conferiscono robustezza e lunga durata dell'inserto.
- Quando si utilizzano 16 taglienti, la profondità di taglio massima è 5,5mm, se si utilizzano 8 taglienti, la profondità di taglio massima è 13mm
- L'inserto wiper è posizionato 0,05mm sotto l'inserto di spianatura nella fresa
- Se l'avanzamento è maggiore della lunghezza del tagliente wiper (7mm), posizionare simmetricamente 2 inserti wiper



## Rompitruciolo

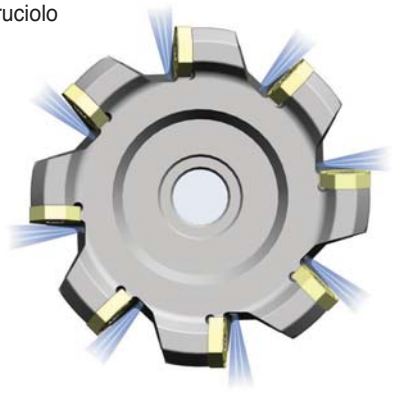
| Inserto | | Tagliente | Caratteristiche |
|---|---|---|---|
| Per alluminio MA |  |  | Grazie al tagliente affilato migliora la produttività, soprattutto per la lavorazione di alluminio o in caso di bassi sforzi di taglio. |
| **Media finitura MF** |  |  | Grazie ai bassi sforzi di taglio, è indicato per le lavorazioni di media finitura di materiali pastosi. |
| Uso generico **MM** |  |  | Rompitruciolo versatile. Uso generico. |
| Wiper **W** |  |  | Buona rugosità della superficie rispetto al rompitruciolo MM e MF. |

## Istruzioni per l'inserto wiper

| Tipo esecuzione | Corretto | Errato | | | |
|---|---|---|---|---|---|
| **Destra** |  |  |  |  |  |
| | ○ | × | × | × | × |
| **Sinistra** |  |  |  |  |  |
| | ○ | × | × | × | × |

## Sistema di raffreddamento interno

- Speciale design dello scarico per una migliore evacuazione del truciolo
- Il sistema di raffreddamento interno riduce gli sforzi di taglio e migliora l'evacuazione del truciolo



## Condizioni di taglio raccomandate

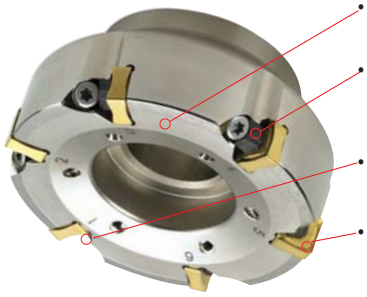
| ISO | Grado | ONM(H)X060608-MM | | ONM(H)X060608-MF | | ONHX060608-W | | ONM(H)X080608-MM | | ONM(H)X080608-MF | | ONHX080608-W | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | vc(m/min) | fz(mm/t) | vc(m/min) | fz(mm/t) | vc(m/min) | fz(mm/t) | vc(m/min) | fz(mm/t) | vc(m/min) | fz(mm/t) | vc(m/min) | fz(mm/t) |
| P | NCM325 | 150~300 | 0.1~0.35 | 200~300 | 0.05~0.3 | 200~300 | 0.05~0.2 | 150~300 | 0.1~0.4 | 200~300 | 0.05~0.35 | 200~300 | 0.05~0.25 |
| P | PC3500 | 150~300 | 0.1~0.35 | 200~300 | 0.05~0.3 | 200~300 | 0.05~0.2 | 150~300 | 0.1~0.4 | 200~300 | 0.05~0.35 | 200~300 | 0.05~0.25 |
| P | PC3535 | 120~250 | 0.1~0.35 | 150~250 | 0.05~0.3 | 150~250 | 0.05~0.2 | 120~250 | 0.1~0.4 | 150~250 | 0.05~0.35 | 150~250 | 0.05~0.25 |
| M | PC5300 | 120~180 | 0.1~0.35 | 100~180 | 0.05~0.3 | 100~180 | 0.05~0.2 | 120~180 | 0.1~0.4 | 100~180 | 0.05~0.35 | 100~180 | 0.05~0.25 |
| K | PC6510 | 150~300 | 0.1~0.4 | 150~300 | 0.08~0.35 | 150~300 | 0.05~0.25 | 150~300 | 0.1~0.45 | 150~300 | 0.08~0.4 | 150~300 | 0.05~0.3 |

# Rich Mill RMT8

## Sistema di staffaggio di nuova generazione

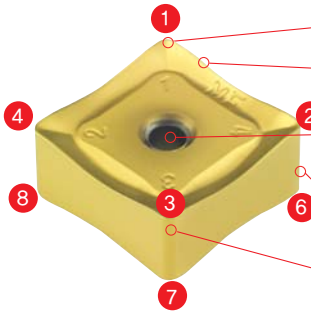
- Nuovo sistema di montaggio a leva che assicura un adeguato sforzo di taglio e agevola la sostituzione dell'inserto.
- I nuovi gradi resistenti alla scheggiatura garantiscono una buona rugosità della superficie e una maggiore durata dell'utensile
- Grazie allo speciale design del rompitruciolo è possibile svolgere qualsiasi lavorazione
- Le frese RMT con vari passi possono sostituire le frese convenzionali ISO

## Caratteristiche di RMT



- Elevata rigidità del corpo fresa
- Nuovo sistema di montaggio a leva che assicura un adeguato sforzo di taglio e agevola la sostituzione dell'inserto
- Design tridimensionale dello scarico per un buon controllo del truciolo
- Economica grazie agli inserti bilaterali a 8 taglienti

## Caratteristiche dell'inserto RMT (R/L)

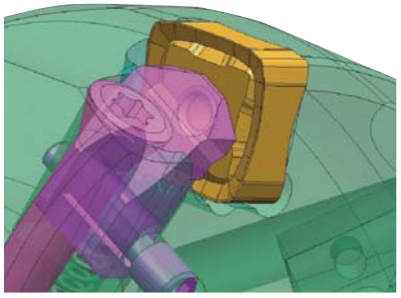


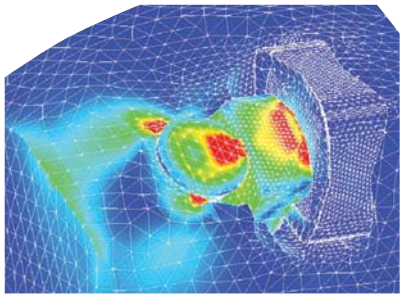

- Economico grazie agli 8 taglienti
- Bassi sforzi di taglio grazie all'elevato angolo di spoglia del rompitruciolo
- Svasatura di staffaggio
- Gradi rivestiti con migliore resistenza alla scheggiatura
- Design del tagliente minore ideale per le lavorazioni R/L
  Buona rugosità della superficie

## Analisi della forza di staffaggio

| Inserto | | Tagliente | Caratteristiche |
|---|---|---|---|
| Finitura MF |  |  | Lo speciale design dell'inserto è particolarmente indicato per ottenere bassi sforzi di taglio nelle medie lavorazioni, HRSA |
| Uso generico MM |  |  | Design indicato per fresatura generica e un'ampia gamma di applicazioni |

## Analisi della forza di staffaggio





## Gradi e rompitrucioli raccomandati

| ISO | Grado | MM | MF |
|---|---|---|---|
| P | NCM325 | | ○ |
| | PC3500 | | ○ |
| | PC3545 | | ○ |
| M | PC5300 | | ◎ |
| K | PC6510 | | ◎ |

◎:Ottimo ○:Corretto

## Condizioni di taglio raccomandate

| ISO | Grado | MM | | MF | |
|---|---|---|---|---|---|
| | | vc(m/min) | fz(mm/t) | vc(m/min) | fz(mm/t) |
| P | NCM325 | 150~300 | 0.05~0.3 | 150~300 | 0.05~0.2 |
| | PC3500 | 150~300 | 0.05~0.3 | 150~300 | 0.05~0.2 |
| | PC3545 | 150~300 | 0.05~0.3 | 150~300 | 0.05~0.2 |
| M | PC5300 | 120~180 | 0.05~0.2 | 120~180 | 0.05~0.2 |
| K | PC6510 | 150~300 | 0.05~0.3 | 150~300 | 0.05~0.2 |

## Rich Mill series

| Tipo di fresa | | Diametro fresa | AA | Applicazione | | Caratteristiche | Pag. |
|---|---|---|---|---|---|---|---|
| RM8A<br>RM8AC4000 (RM8ACM)<br>RM8AC5000 (RM8ACM) |  | Ø50~Ø400 | 45° | SNEX1206ANN-MF<br>SNMX1206ANN-MF<br>SNEX1206ANN-MM<br>SNMX1206ANN-MM<br>SNEX1206ANN-MA | SNEX1206ANN-W<br>SNEX1507ANN-MF<br>SNMX1507ANN-MF<br>SNEX1507ANN-MM<br>SNMX1507ANN-MM | • Economica a 8 taglienti<br>• Bassi sforzi di taglio ed eccellente taglio dolce | E55<br>E56 |
| RM8E<br>RM8EC4000 (RM8ECM)<br>RM8EC5000 (RM8ECM) |  | Ø50~Ø400 | 75° | SNEX1206ENN-MF<br>SNMX1206ENN-MF<br>SNEX1206ENN-MM<br>SNMX1206ENN-MM<br>SNEX1206ENN-MA | SNEX1507ENN-MF<br>SNMX1507ENN-MF<br>SNEX1507ENN-MM<br>SNMX1507ENN-MM | | E57<br>E58 |
| RM8EQ<br>RM8QC4000 (RM8QCM) |  | Ø63~Ø200 | 88° | SNEX1206QNN-MF<br>SNMX1206QNN-MF<br>SNEX1206QNN-MM<br>SNMX1206QNN-MM<br>SNEX1206QNN-MA | SNEX120612-MF<br>SNMX120612-MF<br>SNEX120612-MM<br>SNMX120612-MM<br>SNEX120612-MA | | E59 |
| RM4P<br>RM4PC3000 (RM4PCM) |  | Ø40~Ø100 | 90° | LNEX100605PNR-MF<br>LNMX100605PNR-MF<br>LNEX100605PNR-MM<br>LNMX100605PNR-MM<br>LNEX100608PNR-MF<br>LNMX100608PNR-MF | LNEX100608PNR-MM<br>LNMX100608PNR-MM<br>LNEX100605PNR-MA<br>LNEX100605PNL-MM<br>LNMX100605PNL-MM | • Economica a 4 taglienti.<br>• Sistema a vite per svuotamento, spianatura. | E60<br>E61 |
| RM4P<br>RM4PC4000 (RM4PCM) | | Ø50~Ø160 | | LNEX151004PNR-MF<br>LNMX151004PNR-MF<br>LNEX151004PNR-MM<br>LNMX151004PNR-MM<br>LNEX151008PNR-MF<br>LNMX151008PNR-MF<br>LNEX151008PNR-MM<br>LNMX151008PNR-MM | LNEX151016PNR-MF<br>LNMX151016PNR-MF<br>LNEX151016PNR-MM<br>LNMX151016PNR-MM<br>LNEX151004PNR-MA<br>LNEX151008PNR-MA<br>LNEX151008PNL-MM<br>LNMX151008PNL-MM | | |
| RM4PS3000 |  | Ø14~Ø50 | 90° | LNEX100605PNR-MF<br>LNMX100605PNR-MF<br>LNEX100605PNR-MM<br>LNMX100605PNR-MM<br>LNEX100608PNR-MF<br>LNMX100608PNR-MF | LNEX100608PNR-MM<br>LNMX100608PNR-MM<br>LNEX100605PNR-MA<br>LNEX100605PNL-MM<br>LNMX100605PNL-MM | | E68 |
| RM4PS4000 | | Ø32~Ø63 | | LNEX151004PNR-MF<br>LNMX151004PNR-MF<br>LNEX151004PNR-MM<br>LNMX151004PNR-MM<br>LNEX151008PNR-MF<br>LNMX151008PNR-MF<br>LNEX151008PNR-MM<br>LNMX151008PNR-MM | LNEX151016PNR-MF<br>LNMX151016PNR-MF<br>LNEX151016PNR-MM<br>LNMX151016PNR-MM<br>LNEX151004PNR-MA<br>LNEX151008PNR-MA<br>LNEX151008PNL-MM<br>LNMX151008PNL-MM | | E69 |
| RM4PM3000<br>Tipo modulare |  | Ø14~Ø50 | 90° | LNEX100605PNR-MF<br>LNMX100605PNR-MF<br>LNEX100605PNR-MM<br>LNMX100605PNR-MM<br>LNEX100608PNR-MF<br>LNMX100608PNR-MF | LNEX100608PNR-MM<br>LNMX100608PNR-MM<br>LNEX100605PNR-MA<br>LNEX100605PNL-MM<br>LNMX100605PNL-MM | | E70 |
| RM16AC<br>RM16AC6000<br>RM16AC8000<br>(RM16ACM) |  | Ø63~Ø400 | 45° | ONHX060608-MF / MM<br>ONMX060608-MF / MM<br>ONHX0606ANN-MF / MM<br>ONMX0606ANN-MF / MM<br>ONHX080608-MF / MM<br>ONMX080608-MF / MM | ONHX0806ANN-MF / MM<br>ONMX0806ANN-MF / MM<br>ONHX060608-MA<br>ONHX060608-W<br>ONHX080608-MA<br>ONHX080608-W | • Economica a 16 taglienti<br>• Inserto wiper per buona rugosità della superficie | E71 |
| RMT8A<br>RMT8A4000<br>RMT8A5000<br>(RMT8AM) |  | Ø80~Ø315 | 45° | SNCF1206ANN-MF / MM<br>SNCF1507ANN-MF / MM<br>SNMF1206ANN-MF / MM<br>SNMF1507ANN-MF / MM | | • Economica a 8 taglienti.<br>• Ottima durata dell'utensile ed eccellente tenacità grazie ai bassi sforzi di taglio e all'elevato angolo di spoglia del tagliente.<br>• Ottime prestazioni e maggiore resistenza alla scheggiatura. | E72 |
| RMT8E<br>RMT8E4000<br>RMT8E5000<br>(RMT8EM) |  | Ø80~Ø315 | 75° | SNCF1206ENN-MF / MM<br>SNCF1507ENN-MF / MM<br>SNMF1206ENN-MF / MM<br>SNMF1507ENN-MF / MM | | | E73 |
| RMT8Q<br>(RMT8QM) |  | Ø80~Ø315 | 88° | SNCF1206QNN-MF<br>SNCF1507QNN-MM<br>SNMF1206QNN-MF<br>SNMF1507QNN-MM | | | E74 |

# RM8AC(M)4000 New

AA 45° | • AR : –6° • RR : –9°~–6°



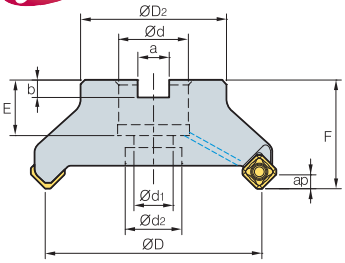



Fig. 1

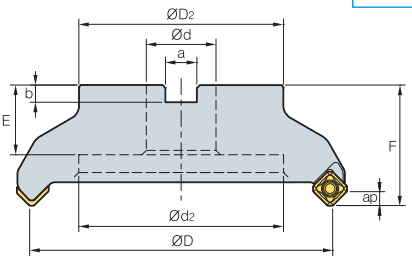



Fig. 2

(mm)

| Articolo | | Stock R | Stock L | ⌀ | øD | øD2 | Ød | Ød1 | Ød2 | a | b | E | F | ap | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RM8ACM | 4050HR-M | (●) | | 4 | 50 | 49 | 22 | 11 | 18 | 10.4 | 6.3 | 20 | 40 | 6.0 | 0.5 | 1 |
| | 4050HR-H | (●) | | 6 | 50 | 49 | 22 | 11 | 18 | 10.4 | 6.3 | 20 | 40 | 6.0 | 0.5 | 1 |
| | 4063HR-M | (●) | | 6 | 63 | 49 | 22 | 11 | 18 | 10.4 | 6.3 | 20 | 40 | 6.0 | 0.7 | 1 |
| | 4063HR-H | (●) | | 8 | 63 | 49 | 22 | 11 | 18 | 10.4 | 6.3 | 20 | 40 | 6.0 | 0.7 | 1 |
| RM8AC | 4080HR | ●(●) | | 5 | 80 | 57 | 25.4(27) | 14 | 20 | 9.5(12.4) | 6(7) | 25(23) | 50 | 6.0 | 1.2 | 1 |
| (RM8ACM) | 4080HR-M | ●(●) | | 7 | 80 | 57 | 25.4(27) | 14 | 20 | 9.5(12.4) | 6(7) | 25(23) | 50 | 6.0 | 1.2 | 1 |
| | 4080HR-H | ●(●) | | 10 | 80 | 57 | 25.4(27) | 14 | 20 | 9.5(12.4) | 6(7) | 25(23) | 50 | 6.0 | 1.3 | 1 |
| | 4100HR | ●(●) | | 6 | 100 | 67 | 31.75(32) | 18 | 26 | 12.7(14.4) | 8 | 33(25.5) | 63(50) | 6.0 | 1.7 | 1 |
| | 4100HR-M | ●(●) | | 8 | 100 | 67 | 31.75(32) | 18 | 26 | 12.7(14.4) | 8 | 33(25.5) | 63(50) | 6.0 | 1.7 | 1 |
| | 4100HR-H | ●(●) | | 12 | 100 | 67 | 31.75(32) | 18 | 26 | 12.7(14.4) | 8 | 33(25.5) | 63(50) | 6.0 | 1.7 | 1 |
| | 4125HR | ● | | 8 | 125 | 87 | 38.1(40) | 22 | 32 | 15.9(16.4) | 10(9) | 36(30) | 63 | 6.0 | 3.6 | 1 |
| | 4125HR-M | ●(●) | | 10 | 125 | 87 | 38.1(40) | 22 | 32 | 15.9(16.4) | 10(9) | 36(30) | 63 | 6.0 | 3.6 | 1 |
| | 4125HR-H | ●(●) | | 16 | 125 | 87 | 38.1(40) | 22 | 32 | 15.9(16.4) | 10(9) | 36(30) | 63 | 6.0 | 3.7 | 1 |
| | 4160R | | | 10 | 160 | 107 | 50.8(40) | - | 107 | 19(16.4) | 11(9) | 38(32) | 63 | 6.0 | 4.8 | 2 |
| | 4160R-M | ●(●) | | 12 | 160 | 107 | 50.8(40) | - | 107 | 19(16.4) | 11(9) | 38(32) | 63 | 6.0 | 5.3 | 2 |
| | 4160R-H | ●(●) | | 20 | 160 | 107 | 50.8(40) | - | 107 | 19(16.4) | 11(9) | 38(32) | 63 | 6.0 | 5.4 | 2 |
| | 4200R-M | ● | | 14 | 200 | 130 | 47.625(60) | - | 135 | 25.4(25.7) | 14 | 38(32) | 63 | 6.0 | 7.1 | 2 |
| | 4200R-H | ● | | 24 | 200 | 130 | 47.625(60) | - | 135 | 25.4(25.7) | 14 | 38(32) | 63 | 6.0 | 7.1 | 2 |
| | 4250R-M | ● | | 16 | 250 | 180 | 47.625(60) | - | 180 | 25.4(25.7) | 14 | 38(32) | 63 | 6.0 | 11.9 | 2 |
| | 4250R-H | ● | | 30 | 250 | 180 | 47.625(60) | - | 180 | 25.4(25.7) | 14 | 38(32) | 63 | 6.0 | 12.0 | 2 |
| | 4315R | | | 18 | 315 | 240 | 47.625(60) | - | 238 | 25.4(25.7) | 14 | 38 | 63 | 6.0 | 18.8(18.6) | 2 |
| | 4315R-M | | | 20 | 315 | 240 | 47.625(60) | - | 238 | 25.4(25.7) | 14 | 38 | 63 | 6.0 | 18.8(18.6) | 2 |
| | 4400R-M | | | 28 | 400 | 260 | 47.625(60) | - | 238 | 25.4(25.7) | 14 | 38 | 80 | 6.0 | 37.7(37.4) | 2 |

• ( )Sistema metrico

● : Disponibile ○ : A richiesta

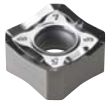
## Parti di ricambio

| Vite | Chiave |
|---|---|
|  |  |
| FTKA0410 | TW15S |

## Mandrini disponibili

| Articolo | | Attacchi RM8AC | Attacchi RM8ACM |
|---|---|---|---|
| RM8ACM | 4050HR-M<br>4050HR-H<br>4063HR-M<br>4063HR-H | - | BT□□-FMC22-□□ |
| RM8AC (RM8ACM) | 4080HR<br>4080HR-M<br>4080HR-H | BT□□-FMA25.4-□□ | BT□□-FMC27-□□ |
| | 4100HR<br>4100HR-M<br>4100HR-H | BT□□-FMA31.75-□□ | BT□□-FMC32-□□ |
| | 4125HR<br>4125HR-M<br>4125HR-H | BT□□-FMA38.1-□□ | BT□□-FMB40-□□<br>BT□□-FMC40-□□ |
| | 4160R<br>4160R-M<br>4160R-H | BT□□-FMA50.8-□□ | |
| | 4200R-M<br>4200R-H<br>4250R-M<br>4250R-H<br>4315R<br>4315R-M<br>4400R-M | BT□□-FMA47.625-□□ | BT□□-FMB60-□□ |

## Inserti disponibili

| SNEX-MF | SNEX-MM | SNEX-MA |
|---|---|---|
|  |  |  |
| **SNEX-W** | **SNMX-MF** | **SNMX-MM** |
|  |  |  |

| Articolo | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SNEX 1206ANN-MF** | | | | ● | ● | | | ● | | | | | | | | | | E16 E17 |
| **SNEX 1206ANN-MM** | ● | | ● | ● | ● | | | ● | | | | | | | | | | |
| **SNMX 1206ANN-MF** | | | | ● | ● | | | ● | | | | | | | | | | |
| **SNMX 1206ANN-MM** | ○ | | ● | ● | ● | | ● | ● | | | | | | | | | | |
| **SNEX 1206ANN-MA** | | | | ● | | | | ● | | | | | | ● | | | | |
| **SNEX 1206ANN-W** | | | | ● | | | | ● | | | | | | | | | | |

● : Disponibile ○ : A richiesta

• Inserti disponibili, vedere pag. : E16, E17
• Attacchi e viti disponibili : E215~E217

# RM8AC(M)5000

New

AA 45°

• AR : -6°
• RR : -9°~-6°



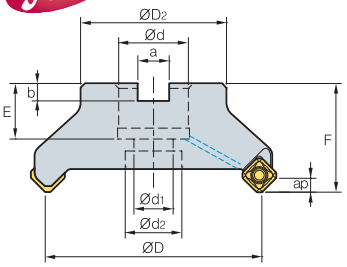



Fig. 1

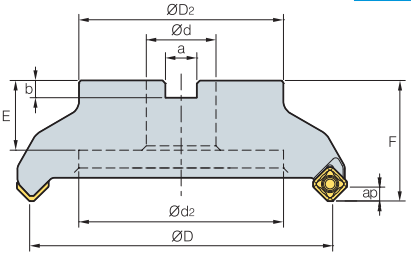



Fig. 2

(mm)

| Articolo | | Stock R | Stock L | ⊚ | ØD | ØD2 | Ød | Ød1 | Ød2 | a | b | E | F | ap | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RM8AC (RM8ACM) | 5080HR-M | ●(●) | | 6 | 80 | 57 | 25.4(27) | 14 | 20 | 9.5(12.4) | 6(7) | 25(23) | 50 | 7.5 | 1.2 | 1 |
| | 5100HR-M | ●(●) | | 7 | 100 | 67 | 31.75(32) | 18 | 26 | 12.7(14.4) | 8.0 | 33(25) | 63(50) | 7.5 | 2.5(1.8) | 1 |
| | 5125HR-M | ●(●) | | 8 | 125 | 87 | 38.1(40) | 22 | 32 | 15.9(16.4) | 10(9) | 35(30) | 63 | 7.5 | 3.6 | 1 |
| | 5160R-M | ●(●) | | 10 | 160 | 107 | 50.8(40) | - | 107 | 19(16.4) | 11(9) | 38(32) | 63 | 7.5 | 5(4.56) | 2 |
| | 5200R-M | ●(●) | | 12 | 200 | 130 | 47.625(60) | - | 135 | 25.4(25.7) | 14.0 | 38 | 63 | 7.5 | 7.1(6.8) | 2 |
| | 5250R-M | ●(●) | | 15 | 250 | 180 | 47.625(60) | - | 180 | 25.4(25.7) | 14.0 | 38 | 63 | 7.5 | 11.9(10.6) | 2 |
| | 5315R-M | | | 20 | 315 | 240 | 47.625(60) | - | 238 | 25.4(25.7) | 14.0 | 38 | 63 | 7.5 | 19.1(18.9) | 2 |
| | 5400R-M | | | 28 | 400 | 260 | 47.625(60) | - | 238 | 25.4(25.7) | 14.0 | 38 | 80 | 7.5 | 37.7(37.5) | 2 |

• ( )Sistema metrico

● : Disponibile ○ : A richiesta

## Parti di ricambio

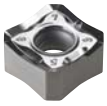
| Vite | Chiave |
|---|---|
|  |  |
| FTGA0513 | TW20-100 |

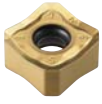
## Mandrini disponibili

| Articolo | | Attacchi RM8AC | Attacchi RM8ACM |
|---|---|---|---|
| RM8AC (RM8ACM) | 5080HR-M | BT□□-FMA25.4-□□ | BT□□-FMC27-□□ |
| | 5100HR-M | BT□□-FMA31.75-□□ | BT□□-FMC32-□□ |
| | 5125HR-M | BT□□-FMA38.1-□□ | BT□□-FMB40-□□<br>BT□□-FMC40-□□ |
| | 5160R-M | BT□□-FMA50.8-□□ | |
| | 5200R-M<br>5250R-M<br>5315R-M<br>5400R-M | BT□□-FMA47.625-□□ | BT□□-FMB60-□□ |

• Inserti disponibili, vedere pag. : E16, E17
• Attacchi e viti disponibili : E215~E217

## Inserti disponibili

| SNEX-MF | SNEX-MM | SNEX-MA |
|---|---|---|
|  |  |  |

| SNMX-MF | SNMX-MM |
|---|---|
|  |  |

| Articolo | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SNEX 1507ANN-MF | | | | ○ | | | | ○ | | | | | | | | | | E16 E17 |
| SNEX 1507ANN-MM | | | | ○ | | | | ○ | | | | | | | | | | |
| SNMX 1507ANN-MF | | | | ○ | | | | ○ | | | | | | | | | | |
| SNMX 1507ANN-MM | | | | ○ | | | | ○ | | | | | | | | | | |

● : Disponibile ○ : A richiesta

# RM8EC(M)4000

AA 75°
• AR : -6°
• RR : -8°~-6°



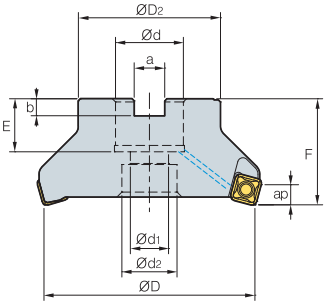



Fig. 1

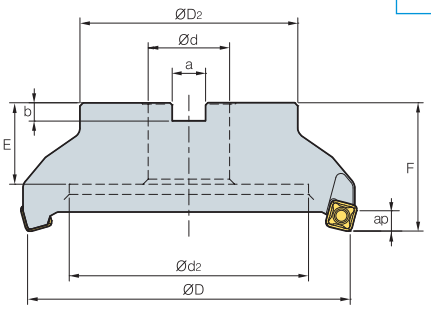



Fig. 2

(mm)

| Articolo | | Stock R | Stock L | ⌀ | øD | øD2 | ød | ød1 | ød2 | a | b | E | F | ap | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RM8EC (RM8ECM) | 4050HR-M | (●) | | 4 | 50 | 49 | 22 | 11 | 18 | 10.4 | 6.3 | 20 | 40 | 9.0 | 0.4 | 1 |
| | 4063HR-M | (●) | | 6 | 63 | 49 | 22 | 11 | 18 | 10.4 | 6.3 | 20 | 40 | 9.0 | 0.6 | 1 |
| | 4080HR | ● | | 5 | 80 | 57 | 25.4(27) | 14 | 20 | 9.5(12.4) | 6(7) | 25(23) | 50 | 9.0 | 1.2 | 1 |
| | 4080HR-M | (●) | | 7 | 80 | 57 | 25.4(27) | 14 | 20 | 9.5(12.4) | 6(7) | 25(23) | 50 | 9.0 | 1.1 | 1 |
| | 4100HR | ● | | 6 | 100 | 67 | 31.75(32) | 18 | 26 | 12.7(14.4) | 8 | 33(25) | 63(50) | 9.0 | 1.6 | 1 |
| | 4100HR-M | (●) | | 8 | 100 | 67 | 31.75(32) | 18 | 26 | 12.7(14.4) | 8 | 33(25) | 63(50) | 9.0 | 2.5 | 1 |
| | 4125HR | ● | | 8 | 125 | 87 | 38.1(40) | 22 | 32 | 15.9(16.4) | 10(9) | 35(29) | 63 | 9.0 | 2.9(3.3) | 1 |
| | 4125HR-M | (●) | | 10 | 125 | 87 | 38.1(40) | 22 | 32 | 15.9(16.4) | 10(9) | 35(29) | 63 | 9.0 | 3.0 | 1 |
| | 4160R | ● | | 10 | 160 | 107 | 50.8(40) | - | 107 | 19(16.4) | 11(9) | 38(32) | 63 | 9.0 | 4.4 | 2 |
| | 4160R-M | (●) | | 12 | 160 | 107 | 50.8(40) | - | 107 | 19(16.4) | 11(9) | 38(32) | 63 | 9.0 | 4.0 | 2 |
| | 4200R-M | | | 16 | 200 | 130 | 47.625(60) | - | 135 | 25.4(25.7) | 14 | 38(32) | 63 | 9.0 | 5.9 | 2 |
| | 4250R-M | | | 16 | 250 | 180 | 47.625(60) | - | 180 | 25.4(25.7) | 14 | 38 | 63 | 9.0 | 10.9(10.6) | 2 |
| | 4315R-M | | | 20 | 315 | 240 | 47.625(60) | - | 238 | 25.4(25.7) | 14 | 38 | 63 | 9.0 | 18.1(17.9) | 2 |
| | 4400R-M | | | 28 | 400 | 260 | 47.625(60) | - | 238 | 25.4(25.7) | 14 | 38 | 80 | 9.0 | 31.8(31.5) | 2 |

• ( )Sistema metrico

● : Disponibile ○ : A richiesta

## Parti di ricambio

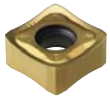
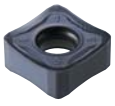
| Vite | Chiave |
|---|---|
|  |  |
| PTKA0411-R3 | TW15S |

## Mandrini disponibili

| Articolo | | Attacchi RM8EC | Attacchi RM8ECM |
|---|---|---|---|
| RM8EC (RM8ECM) | 4050HR-M 4063HR-M | - | BT□□-FMC22-□□ |
| | 4080HR 4080HR-M | BT□□-FMA25.4-□□ | BT□□-FMC27-□□ |
| | 4100HR 4100HR-M | BT□□-FMA31.75-□□ | BT□□-FMC32-□□ |
| | 4125HR 4125HR-M | BT□□-FMA38.1-□□ | BT□□-FMB40-□□ BT□□-FMC40-□□ |
| | 4160R 4160R-M | BT□□-FMA50.8-□□ | |
| | 4200R-M 4250R-M 4315R-M 4400R-M | BT□□-FMA47.625-□□ | BT□□-FMB60-□□ |

• Inserti disponibili, vedere pag. : E16, E17
• Attacchi e viti disponibili : E215~E217

## Inserti disponibili

| SNEX-MF | SNEX-MM | SNEX-MA |
|---|---|---|
|  |  |  |

| SNMX-MF | SNMX-MM |
|---|---|
|  |  |

| Articolo | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SNEX 1206ENN-MF | | | | ● | ● | | | ● | | | | | | | | | | E16 E17 |
| SNEX 1206ENN-MM | | | ● | ● | ● | | | ● | | | | | | | | | | |
| SNMX 1206ENN-MF | | | | ● | ● | | | ● | | | | | | | | | | |
| SNMX 1206ENN-MM | | | ● | ● | ● | | | ● | | | | | | | | | | |
| SNEX 1206ENN-MA | | | | ● | | | | ● | | | | | | ● | | | | |

● : Disponibile ○ : A richiesta

# RM8EC(M)5000

New

AA 75°
• AR : −6°
• RR : −8°~−6°



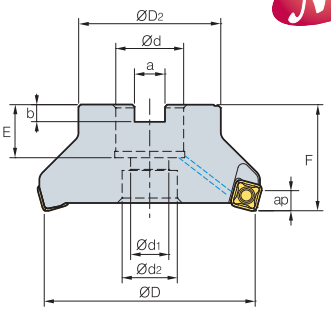



Fig. 1

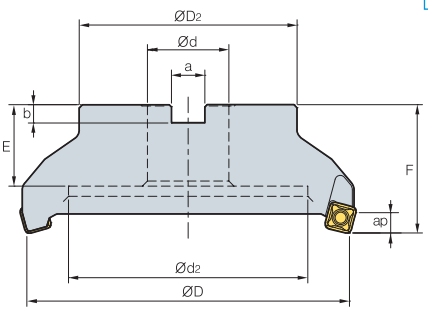



Fig. 2

(mm)

| Articolo | | Stock R | Stock L | ⌀ | øD | øD2 | ød | ød1 | ød2 | a | b | E | F | ap | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RM8EC (RM8ECM) | 5080HR-M | ●(●) | | 6 | 80 | 57 | 25.4(27) | 14 | 20 | 9.5(12.4) | 6(7) | 25(23) | 50 | 11.0 | 1.1 | 1 |
| | 5100HR-M | ●(●) | | 7 | 100 | 67 | 31.75(32) | 18 | 26 | 12.7(14.4) | 8 | 33(25) | 63(50) | 11.0 | 2.1(1.7) | 1 |
| | 5125HR-M | ●(●) | | 8 | 125 | 87 | 38.1(40) | 22 | 32 | 15.9(16.4) | 10(9) | 35(30) | 63 | 11.0 | 3.4(3.3) | 1 |
| | 5160R-M | ●(●) | | 10 | 160 | 107 | 50.8(40) | - | 107 | 19(16.4) | 11(9) | 38(32) | 63 | 11.0 | 4.4(4.1) | 2 |
| | 5200R-M | ●(●) | | 12 | 200 | 130 | 47.625(60) | - | 135 | 25.4(25.7) | 14 | 38 | 63 | 11.0 | 6.4(6.1) | 2 |
| | 5250R-M | ●(●) | | 15 | 250 | 180 | 47.625(60) | - | 180 | 25.4(25.7) | 14 | 38 | 63 | 11.0 | 11.0(10.7) | 2 |
| | 5315R-M | | | 20 | 315 | 240 | 47.625(60) | - | 238 | 25.4(25.7) | 14 | 38 | 63 | 11.0 | 18.0(17.7) | 2 |
| | 5400R-M | | | 28 | 400 | 260 | 47.625(60) | - | 238 | 25.4(25.7) | 14 | 38 | 80 | 11.0 | 35.7(35.4) | 2 |

• ( )Sistema metrico

● : Disponibile ○ : A richiesta

## Parti di ricambio

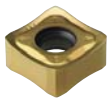
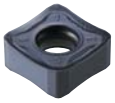
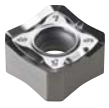
| Vite | Chiave |
|---|---|
|  |  |
| FTGA0513 | TW20-100 |

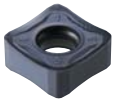
## Mandrini disponibili

| Articolo | | Attacchi RM8AC | Attacchi RM8ACM |
|---|---|---|---|
| RM8EC (RM8ECM) | 5080HR-M | BT□□-FMA25.4-□□ | BT□□-FMC27-□□ |
| | 5100HR-M | BT□□-FMA31.75-□□ | BT□□-FMC32-□□ |
| | 5125HR-M | BT□□-FMA38.1-□□ | BT□□-FMB40-□□<br>BT□□-FMC40-□□ |
| | 5160R-M | BT□□-FMA50.8-□□ | |
| | 5200R-M | BT□□-FMA47.625-□□ | BT□□-FMB60-□□ |
| | 5250R-M | | |
| | 5315R-M | | |
| | 5400R-M | | |

• Inserti disponibili, vedere pag. : E16, E17
• Attacchi e viti disponibili : E215~E217

## Inserti disponibili

| SNEX-MF | SNEX-MM | SNEX-MA |
|---|---|---|
|  |  |  |

| SNMX-MF | SNMX-MM |
|---|---|
|  |  |

| Articolo | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SNEX 1507ENN-MF | | | | ○ | | | | ○ | | | | | | | | | | E16 E17 |
| SNEX 1507ENN-MM | | | | ○ | | | | ○ | | | | | | | | | | |
| SNMX 1507ENN-MF | | | | ○ | | | | ○ | | | | | | | | | | |
| SNMX 1507ENN-MM | | | | ○ | | | | ○ | | | | | | | | | | |

● : Disponibile ○ : A richiesta

# RM8QC(M)4000

AA 88° | • AR : -6° • RR : -8°~-6°



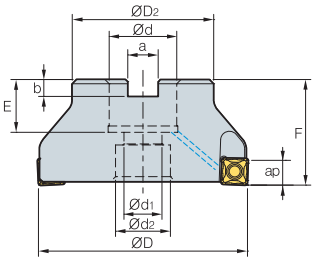



Fig. 1

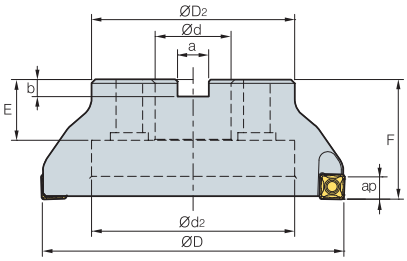



Fig. 2

(mm)

| Articolo | | Stock R | Stock L | | øD | øD2 | Ød | Ød1 | Ød2 | a | b | E | F | ap | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RM8QC (RM8QCM) | 4063HR-M | (●) | | 6 | 63 | 49 | 22 | 11 | 18 | 10.4 | 6.3 | 20 | 40 | 11.5 | | 1 |
| | 4063HR-H | | | 8 | 63 | 49 | 22 | 11 | 18 | 10.4 | 6.3 | 20 | 40 | 11.5 | | 1 |
| | 4080HR-M | ●(●) | | 7 | 80 | 57 | 25.4(27) | 14 | 20 | 9.75(12.4) | 6(7) | 25(23) | 50 | 11.5 | | 1 |
| | 4080HR-H | | | 10 | 80 | 57 | 25.4(27) | 14 | 20 | 9.75(12.4) | 6(7) | 25(23) | 50 | 11.5 | | 1 |
| | 4100HR-M | ●(●) | | 8 | 100 | 67 | 31.75(32) | 18 | 26 | 12.95(14.4) | 8 | 33(25.5) | 63(50) | 11.5 | | 1 |
| | 4100HR-H | | | 12 | 100 | 67 | 31.75(32) | 18 | 26 | 12.95(14.4) | 8 | 33(25.5) | 63(50) | 11.5 | | 1 |
| | 4125HR-M | ●(●) | | 10 | 125 | 87 | 38.1(40) | 22 | 32 | 16.15(16.4) | 10(9) | 36(30) | 63 | 11.5 | | 1 |
| | 4125HR-H | | | 14 | 125 | 87 | 38.1(40) | 22 | 32 | 16.15(16.4) | 10(9) | 36(30) | 63 | 11.5 | | 1 |
| | 4160R-M | ●(●) | | 12 | 160 | 107 | 50.8(40) | - | 107 | 19.25(16.4) | 11(9) | 38(32) | 63 | 11.5 | | 2 |
| | 4160R-H | | | 20 | 160 | 107 | 50.8(40) | - | 107 | 19.25(16.4) | 11(9) | 38(32) | 63 | 11.5 | | 2 |
| | 4200R-M | | | 14 | 200 | 130 | 47.625(60) | - | 135 | 25.4(25.7) | 14 | 38(32) | 63 | 11.5 | | 2 |
| | 4200R-H | | | 24 | 200 | 130 | 47.625(60) | - | 135 | 25.4(25.7) | 14 | 38(32) | 63 | 11.5 | | 2 |

• ( )Sistema metrico

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Vite | Chiave |
|---|---|
|  |  |
| PTKA0411-R3 | TW15S |

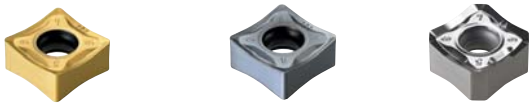
## Mandrini disponibili

| Articolo | | Attacchi RM8QC | Attacchi RM8QCM |
|---|---|---|---|
| RM8QC (RM8QCM) | 4063HR-M 4063HR-H | - | BT□□-FMC22-□□ |
| | 4080HR-M 4080HR-H | BT□□-FMA25.4-□□ | BT□□-FMC27-□□ |
| | 4100HR-M 4100HR-H | BT□□-FMA31.75-□□ | BT□□-FMC32-□□ |
| | 4125HR-M 4125HR-H | BT□□-FMA38.1-□□ | BT□□-FMB40-□□ BT□□-FMC40-□□ |
| | 4160R-M 4160R-H | BT□□-FMA50.8-□□ | |
| | 4200R-M 4200R-H | BT□□-FMA47.625-□□ | BT□□-FMB60-□□ |

• Inserti disponibili, vedere pag. : E17
• Attacchi e viti disponibili : E215~E217

## Inserti disponibili

SNEX-MF | SNEX-MM | SNEX-MA



SNMX-MF | SNMX-MM



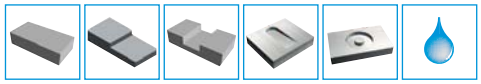
| Articolo | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito HD1 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SNEX 1206QNN-MF | | | | ● | | | | ● | | | | | | | | | | E17 |
| SNMX 1206QNN-MF | | | | ● | | | | ● | | | | | | | | | | |
| SNEX 1206QNN-MM | | | | ● | | | | ● | | | | | | | | | | |
| SNMX 1206QNN-MM | | | | ● | | | | ● | | | | | | | | | | |
| SNEX 1206QNN-MA | | | | ● | | | | ● | | | | | | ● | | | | |
| SNEX 120612-MF | | | | ○ | | | | ○ | | | | | | | | | | |
| SNMX 120612-MF | | | | ○ | | | | ○ | | | | | | | | | | |
| SNEX 120612-MM | | | | ● | | | | ● | | | | | | | | | | |
| SNMX 120612-MM | | | | ● | | | | ● | | | | | | | | | | |
| SNEX 120612-MA | | | | ● | | | | ● | | | | | | ● | | | | |

● : Disponibile ○ : A richiesta

# RM4PC(M)3000 New

AA 90°

• AR : −6°
• RR : −19°~−13°





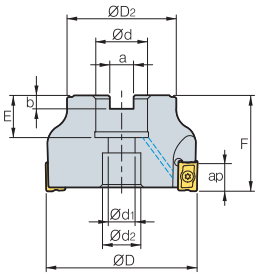



Fig. 1

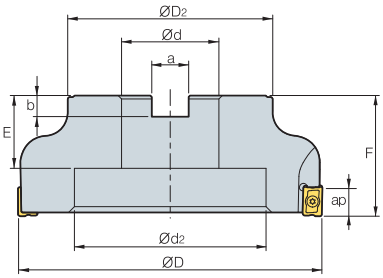



Fig. 2

(mm)

| Articolo | | Stock R | Stock L | ⊙ | øD | øD2 | ød | ød1 | ød2 | a | b | E | F | ap | kg | Bullone | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RM4PC(M) | 3040HR | (●) | | 4 | 40 | 35 | 16 | 9 | 14 | 8.4 | 5.6 | 19 | 40 | 9.0 | 0.24 | SB0825 | 1 |
| | 3040HR-M | (●) | | 5 | 40 | 35 | 16 | 9 | 14 | 8.4 | 5.6 | 19 | 40 | 9.0 | 0.23 | SB0825 | 1 |
| | 3050HR | (●) | | 5 | 50 | 42 | 22 | 11 | 18 | 10.4 | 6.3 | 20 | 40 | 9.0 | 0.36 | SB1025 | 1 |
| | 3050HR-M | (●) | | 7 | 50 | 42 | 22 | 11 | 18 | 10.4 | 6.3 | 20 | 40 | 9.0 | 0.35 | SB1025 | 1 |
| | 3063HR | (●) | | 7 | 63 | 49 | 22 | 11 | 18 | 10.4 | 6.3 | 20 | 40 | 9.0 | 0.61 | SB1025 | 1 |
| | 3063HR-M | (●) | | 9 | 63 | 49 | 22 | 11 | 18 | 10.4 | 6.3 | 20 | 40 | 9.0 | 0.6 | SB1025 | 1 |
| | 3080HR | (●) | | 8 | 80 | 57 | 25.4(27) | 14 | 20 | 9.5(12.4) | 6.0(7.0) | 25(23) | 50 | 9.0 | 1.25(1.24) | SB1230 | 1 |
| | 3080HR-M | ●(●) | | 10 | 80 | 57 | 25.4(27) | 14 | 20 | 9.5(12.4) | 6.0(7.0) | 25(23) | 50 | 9.0 | 1.24(1.23) | SB1230 | 1 |
| | 3100HR | ●(●) | | 9 | 100 | 67 | 31.75(32) | 18 | 26 | 12.7(14.4) | 8.0(8.0) | 33(25) | 63(50) | 9.0 | 2.46(1.94) | SB1630 | 1 |
| | 3100HR-M | ●(●) | | 12 | 100 | 67 | 31.75(32) | 18 | 26 | 12.7(14.4) | 8.0(8.0) | 33(25) | 63(50) | 9.0 | 2.44(1.93) | SB1630 | 1 |

• ( )Sistema metrico

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Vite | Chiave |
|---|---|
|  |  |
| FTKA0307 | TW09S |

## Mandrini disponibili

| Articolo | | Attacchi RM4PC | Attacchi RM4PCM |
|---|---|---|---|
| RM4PC(M) | 3040HR<br>3040HR-M | - | BT□□-FMC16-□□ |
| | 3050HR<br>3050HR-M<br>3063HR<br>3063HR-M | - | BT□□-FMC22-□□ |
| | 3080HR<br>3080HR-M | BT□□-FMA25.4-□□ | BT□□-FMC27-□□ |
| | 3100HR<br>3100HR-M | BT□□-FMA31.75-□□ | BT□□-FMC32-□□ |

• Inserti disponibili, vedere pag. : E09
• Attacchi e viti disponibili : E215~E217

## Inserti disponibili

LNEX-MF LNEX-MM LNEX-MA LNMX-MF LNMX-MM



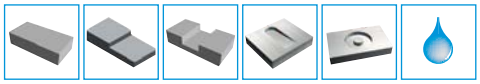
| Articolo | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LNEX 100605PNR-MF | | | | ● | ● | | | ● | | | | | | | | | | E09 |
| LNMX 100605PNR-MF | | | | ● | ● | | | ● | | | | | | | | | | |
| LNEX 100605PNR-MM | | | ● | ● | ● | ○ | ○ | ● | | | | | | | | | | |
| LNMX 100605PNR-MM | | | ● | ● | ● | | | ● | | | | | | | | | | |
| LNEX 100608PNR-MF | | | | ● | ○ | | | ● | | | | | | | | | | |
| LNMX 100608PNR-MF | | | | ● | ○ | | | ● | | | | | | | | | | |
| LNEX 100608PNR-MM | | | | ● | ○ | | | ● | | | | | | | | | | |
| LNMX 100608PNR-MM | | | | ● | ○ | | | ● | | | | | | | | | | |
| LNEX 100605PNR-MA | | | | | | | | | | | | | | ● | | | | |
| LNEX 100605PNL-MM | | | | ● | | | | ● | | | | | | | | | | |
| LNMX 100605PNL-MM | | | | ● | | | | ● | | | | | | | | | | |

● : Disponibile ○ : A richiesta

# RM4PC(M)4000 New

AA 90°

• AR : −6°
• RR : −19°~−13°





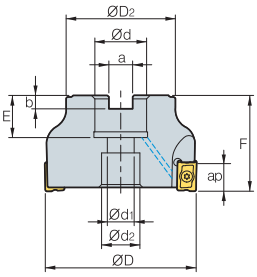



Fig. 1

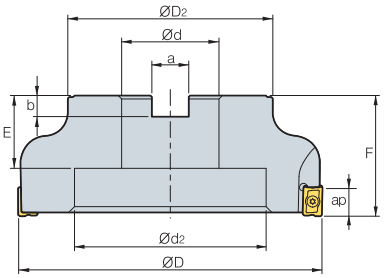



Fig. 2

(mm)

| Articolo | | Stock R | Stock L | ⊙ | øD | øD2 | ød | ød1 | ød2 | a | b | E | F | ap | kg | Bullone | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RM4PC(M) | 4050HR | (●) | | 3 | 50 | 46 | 22 | 11 | 18 | 10.4 | 6.3 | 20 | 40 | 14 | 0.36 | SB1025 | 1 |
| | 4050HR-M | (●) | | 4 | 50 | 46 | 22 | 11 | 18 | 10.4 | 6.3 | 20 | 40 | 14 | 0.35 | SB1025 | 1 |
| | 4063HR | (●) | | 4 | 63 | 49 | 22 | 11 | 18 | 10.4 | 6.3 | 20 | 40 | 14 | 0.56 | SB1025 | 1 |
| | 4063HR-M | (●) | | 6 | 63 | 49 | 22 | 11 | 18 | 10.4 | 6.3 | 20 | 40 | 14 | 0.57 | SB1025 | 1 |
| | 4080HR | ●(●) | | 5 | 80 | 57 | 25.4(27) | 14 | 20 | 9.5(12.4) | 6.0(7.0) | 25(23) | 50 | 14 | 1.18(1.16) | SB1230 | 1 |
| | 4080HR-M | ●(●) | | 7 | 80 | 57 | 25.4(27) | 14 | 20 | 9.5(12.4) | 6.0(7.0) | 25(23) | 50 | 14 | 1.17(1.14) | SB1230 | 1 |
| | 4100HR | ●(●) | | 5 | 100 | 67 | 31.75(32) | 18 | 26 | 12.7(14.4) | 8.0(8.0) | 33(25) | 63(50) | 14 | 2.35(1.84) | SB1630 | 1 |
| | 4100HR-M | ●(●) | | 8 | 100 | 67 | 31.75(32) | 18 | 26 | 12.7(14.4) | 8.0(8.0) | 33(25) | 63(50) | 14 | 2.31(1.82) | SB1630 | 1 |
| | 4125HR | ●(●) | | 7 | 125 | 87 | 38.1(40) | 22 | 32 | 15.9(16.4) | 10(9.0) | 35(30) | 63 | 14 | 3.87(3.79) | SB2040 | 1 |
| | 4125HR-M | ●(●) | | 10 | 125 | 87 | 38.1(40) | 22 | 32 | 15.9(16.4) | 10(9.0) | 35(30) | 63 | 14 | 3.82(3.70) | SB2040 | 1 |
| | 4160R | | | 8 | 160 | 107 | 50.8(40) | - | 100 | 19(16.4) | 11(9.0) | 38(32) | 63 | 14 | 5.0(4.75) | MBA | 2 |
| | 4160R-M | | | 12 | 160 | 107 | 50.8(40) | - | 100 | 19(16.4) | 11(9.0) | 38(32) | 63 | 14 | 4.97(4.71) | MBA | 2 |

• ( )Sistema metrico

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Vite | Chiave |
|---|---|
|  |  |
| FTKA0412B | TW15S |

## Mandrini disponibili

| Articolo | Attacchi RM4PC | Attacchi RM4PCM |
|---|---|---|
| RM4PC(M) 4050HR, 4050HR-M, 4063HR, 4063HR-M | - | BT□□-FMC22-□□ |
| 4080HR, 4080HR-M, 4100HR, 4100HR-M, 4125HR, 4125HR-M, 4160R, 4160R-M | BT□□-FMA 25.4-□□ | BT□□-FMC27-□□ |
| | BT□□-FMA31.75-□□ | BT□□-FMC32-□□ |
| | BT□□-FMA38.1-□□ | BT□□-FMB40-□□<br>BT□□-FMC40-□□ |
| | BT□□-FMA50.8-□□ | |

• Inserti disponibili, vedere pag. : E09
• Attacchi e viti disponibili : E215~E217

## Inserti disponibili

LNEX-MF LNEX-MM LNEX-MA LNMX-MF LNMX-MM

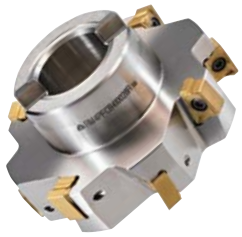


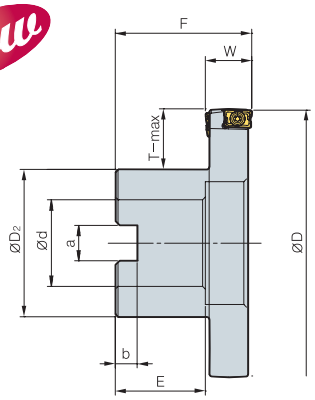
| Articolo | | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LNEX | 151004PNR-MF | | | | ● | | | | ● | | | | | | | | | | E09 |
| LNMX | 151004PNR-MF | | | | ● | | | | ● | | | | | | | | | | |
| LNEX | 151004PNR-MM | | | | ● | ● | ● | ● | ● | | | | | | | | | | |
| LNMX | 151004PNR-MM | | | | ● | ● | | | ● | | | | | | | | | | |
| LNEX | 151008PNR-MF | | | | ● | ○ | | | ● | | | | | | | | | | |
| LNMX | 151008PNR-MF | | | | ● | ○ | | | ● | | | | | | | | | | |
| LNEX | 151008PNR-MM | | | | ● | ● | | | ● | | | | | | | | | | |
| LNMX | 151008PNR-MM | | | | ● | ● | | | ● | | | | | | | | | | |
| LNEX | 151016PNR-MF | | | | ● | ○ | | | ● | | | | | | | | | | |
| LNMX | 151016PNR-MF | | | | ● | ○ | | | ● | | | | | | | | | | |
| LNEX | 151016PNR-MM | | | | ● | | | | ● | | | | | | | | | | |
| LNMX | 151016PNR-MM | | | | ● | | | | ● | | | | | | | | | | |
| LNEX | 151004PNR-MA | | | | | | | | | | | | | | ● | | | | |
| LNEX | 151008PNR-MA | | | | | | | | | | | | | | ● | | | | |
| LNEX | 151008PNL-MM | | | | ● | | | | ● | | | | | | | | | | |
| LNMX | 151008PNL-MM | | | | ● | | | | ● | | | | | | | | | | |

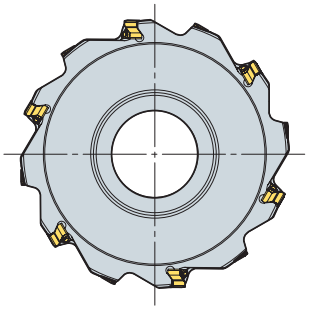
● : Disponibile ○ : A richiesta

# RM4PFCB3000

New





(mm)

| Articolo | Stock R | Stock L | ⊚ | ØD | ØD2 | Ød | a | b | E | F | W | T-max |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **RM4PFCB 308011R** | | | 10 | 80 | 40 | 25.4 | 9.5 | 6 | 25 | 50 | 11 | 19 |
| **308013R** | | | 10 | 80 | 40 | 25.4 | 9.5 | 6 | 25 | 50 | 13 | 19 |
| **308015R** | | | 10 | 80 | 40 | 25.4 | 9.5 | 6 | 25 | 50 | 15 | 19 |
| **308017R** | | | 10 | 80 | 40 | 25.4 | 9.5 | 6 | 25 | 50 | 17 | 19 |
| **310011R** | | | 12 | 100 | 54 | 31.75 | 12.7 | 8 | 32 | 50 | 11 | 22 |
| **310013R** | | | 12 | 100 | 54 | 31.75 | 12.7 | 8 | 32 | 50 | 13 | 22 |
| **310015R** | | | 12 | 100 | 54 | 31.75 | 12.7 | 8 | 32 | 50 | 15 | 22 |
| **310017R** | | | 12 | 100 | 54 | 31.75 | 12.7 | 8 | 32 | 50 | 17 | 22 |
| **312511R** | | | 14 | 125 | 70 | 38.1 | 15.9 | 10 | 38 | 60 | 11 | 26 |
| **312513R** | | | 14 | 125 | 70 | 38.1 | 15.9 | 10 | 38 | 60 | 13 | 26 |
| **312515R** | | | 14 | 125 | 70 | 38.1 | 15.9 | 10 | 38 | 60 | 15 | 26 |
| **312517R** | | | 14 | 125 | 70 | 38.1 | 15.9 | 10 | 38 | 60 | 17 | 26 |
| **316011R** | | | 16 | 160 | 70 | 38.1 | 15.9 | 10 | 38 | 60 | 11 | 44 |
| **316013R** | | | 16 | 160 | 70 | 38.1 | 15.9 | 10 | 38 | 60 | 13 | 44 |
| **316015R** | | | 16 | 160 | 70 | 38.1 | 15.9 | 10 | 38 | 60 | 15 | 44 |
| **316017R** | | | 16 | 160 | 70 | 38.1 | 15.9 | 10 | 38 | 60 | 17 | 44 |

• ( )Sistema metrico

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Vite | Chiave |
|---|---|
|  |  |
| FTKA0307 | TW09S |

## Mandrini disponibili

| Articolo | Attacchi RM4PFCB |
|---|---|
| RM4PFCB 308011R<br>308013R<br>308015R<br>308017R | BT□□-FMA 25.4-□□ |
| 310011R<br>310013R<br>310015R<br>310017R | BT□□-FMA 31.75-□□ |
| 312511R<br>312513R<br>312515R<br>312517R<br>316011R<br>316013R<br>316015R<br>316017R | BT□□-FMA38.1-□□ |

• Inserti disponibili, vedere pag. : E09
• Attacchi e viti disponibili : E215~E217

## Inserti disponibili

LNEX-MM LNMX-MM



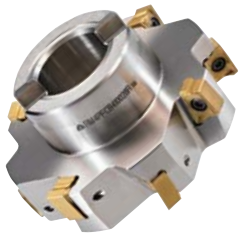


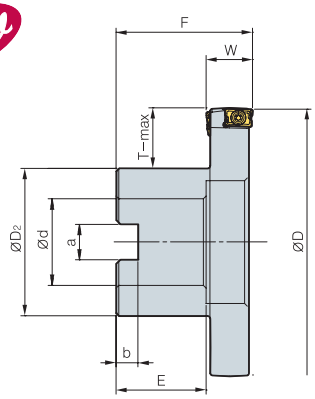
| Articolo | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **LNEX 100605PNR-MM** | | | ● | ● | ● | ○ | ○ | ● | | | | | | | | | | **E**09 |
| **LNMX 100605PNR-MM** | | | ● | ● | ● | | | ● | | | | | | | | | | |
| **LNEX 100605PNL-MM** | | | | ● | | | | ● | | | | | | | | | | |
| **LNMX 100605PNL-MM** | | | | ● | | | | ● | | | | | | | | | | |

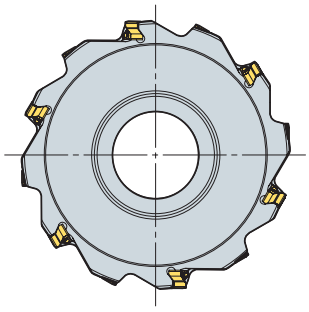
● : Disponibile ○ : A richiesta

# RM4PFCB4000

New





(mm)

| Articolo | Stock R | Stock L | ⊚ | ØD | ØD2 | Ød | a | b | E | F | W | T-max |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RM4PFCB 408022R | | | 6 | 80 | 40 | 25.4 | 9.5 | 6 | 25 | 50 | 22 | 19 |
| 408024R | | | 6 | 80 | 40 | 25.4 | 9.5 | 6 | 25 | 50 | 24 | 19 |
| 408026R | | | 6 | 80 | 40 | 25.4 | 9.5 | 6 | 25 | 50 | 26 | 19 |
| 408028R | | | 6 | 80 | 40 | 25.4 | 9.5 | 6 | 25 | 50 | 28 | 19 |
| 410022R | | | 8 | 100 | 54 | 31.75 | 12.7 | 8 | 32 | 50 | 22 | 22 |
| 410024R | | | 8 | 100 | 54 | 31.75 | 12.7 | 8 | 32 | 50 | 24 | 22 |
| 410026R | | | 8 | 100 | 54 | 31.75 | 12.7 | 8 | 32 | 50 | 26 | 22 |
| 410028R | | | 8 | 100 | 54 | 31.75 | 12.7 | 8 | 32 | 50 | 28 | 22 |
| 412522R | | | 10 | 125 | 70 | 38.1 | 15.9 | 10 | 38 | 60 | 22 | 26 |
| 412524R | | | 10 | 125 | 70 | 38.1 | 15.9 | 10 | 38 | 60 | 24 | 26 |
| 412526R | | | 10 | 125 | 70 | 38.1 | 15.9 | 10 | 38 | 60 | 26 | 26 |
| 412528R | | | 10 | 125 | 70 | 38.1 | 15.9 | 10 | 38 | 60 | 28 | 26 |
| 416022R | | | 12 | 160 | 70 | 38.1 | 15.9 | 10 | 38 | 60 | 22 | 44 |
| 416024R | | | 12 | 160 | 70 | 38.1 | 15.9 | 10 | 38 | 60 | 24 | 44 |
| 416026R | | | 12 | 160 | 70 | 38.1 | 15.9 | 10 | 38 | 60 | 26 | 44 |
| 416028R | | | 12 | 160 | 70 | 38.1 | 15.9 | 10 | 38 | 60 | 28 | 44 |

• ( )Sistema metrico

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Vite | Chiave |
|---|---|
|  |  |
| FTKA0412B | TW15S |

## Mandrini disponibili

| Articolo | Attacchi RM4PFCB |
|---|---|
| RM4PFCB 408022R<br>408024R<br>408026R<br>408028R | BT□□-FMA25.4-□□ |
| 410022R<br>410024R<br>410026R<br>410028R | BT□□-FMA 31.75-□□ |
| 412522R<br>412524R<br>412526R<br>412528R<br>412522R<br>412524R<br>412526R<br>412528R | BT□□-FMA38.1-□□ |

• Inserti disponibili, vedere pag. : E09
• Attacchi e viti disponibili : E215~E217

## Inserti disponibili

LNEX-MM LNMX-MM



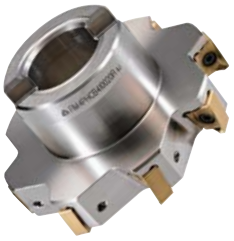


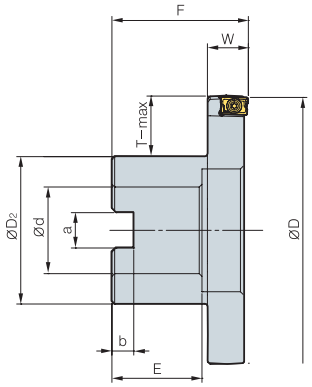
| Articolo | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LNEX 151008PNR-MM | | | ● | ● | ● | | | ● | | | | | | | | | | E09 |
| LNMX 151008PNR-MM | | | ● | ● | ● | | | ● | | | | | | | | | | |
| LNEX 151008PNL-MM | | | | ● | | | | ● | | | | | | | | | | |
| LNMX 151008PNL-MM | | | | ● | | | | ● | | | | | | | | | | |

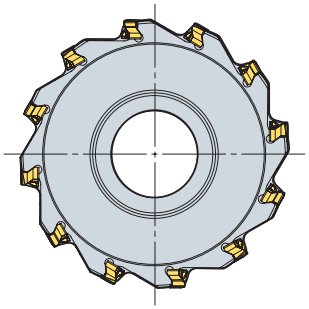
● : Disponibile ○ : A richiesta

# RM4PHCB3000/4000

New





(mm)

| Articolo | Stock R | Stock L | ⚙ | ØD | ØD₂ | Ød | a | b | E | F | W | T–max |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RM4PHCB 308015R | | | 10 | 80 | 40 | 25.4 | 9.5 | 6 | 25 | 50 | 15 | 19 |
| 310015R | | | 12 | 100 | 54 | 31.75 | 12.7 | 8 | 32 | 50 | 15 | 22 |
| 312515R | | | 14 | 125 | 70 | 38.1 | 15.9 | 10 | 38 | 60 | 15 | 26 |
| 316015R | | | 16 | 160 | 70 | 38.1 | 15.9 | 10 | 38 | 60 | 15 | 44 |
| RM4PHCB 408020R | | | 6 | 80 | 40 | 25.4 | 9.5 | 6 | 25 | 50 | 20 | 19 |
| 410020R | | | 8 | 100 | 54 | 31.75 | 12.7 | 8 | 32 | 50 | 20 | 22 |
| 412520R | | | 10 | 125 | 70 | 38.1 | 15.9 | 10 | 38 | 60 | 20 | 26 |
| 416020R | | | 12 | 160 | 70 | 38.1 | 15.9 | 10 | 38 | 60 | 20 | 44 |

• ( )Sistema metrico

● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Vite | Chiave |
|---|---|---|
| |  |  |
| Tipo 3000 | FTKA0307 | TW09S |
| Tipo 4000 | FTKA0412B | TW15S |

## Mandrini disponibili

| Tipo | Articolo | Attacchi RM4PHCB |
|---|---|---|
| Tipo 3000 | RM4PHCB 308015R | BT□□-FMA25.4-□□ |
| | 310015R | BT□□-FMA 31.75-□□ |
| | 312515R<br>316015R | BT□□-FMA38.1-□□ |
| Tipo 4000 | RM4PHCB 408020R | BT□□-FMB25.4-□□ |
| | 410020R | BT□□-FMA 31.75-□□ |
| | 412520R<br>416020R | BT□□-FMA38.1-□□ |

• Inserti disponibili, vedere pag. : E09
• Attacchi e viti disponibili : E215~E217

## Inserti disponibili

LNEX-MF LNEX-MM LNEX-MA LNMX-MF LNMX-MM



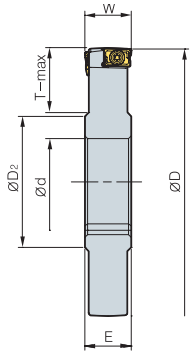
| Tipo | Articolo | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3000 | LNEX 100605PNR-MF | | | | ● | ● | | | ● | | | | | | | | | | E09 |
| | LNMX 100605PNR-MF | | | | ● | ● | ○ | ○ | ● | | | | | | | | | | |
| | LNEX 100605PNR-MM | | | ● | ● | ● | | | ● | | | | | | | | | | |
| | LNMX 100605PNR-MM | | | ● | ● | ● | | | ● | | | | | | | | | | |
| | LNEX 100608PNR-MF | | | | ● | ○ | | | ● | | | | | | | | | | |
| | LNMX 100608PNR-MF | | | | ● | ○ | | | ● | | | | | | | | | | |
| | LNEX 100608PNR-MM | | | | ● | ○ | | | ● | | | | | | | | | | |
| | LNMX 100608PNR-MM | | | | ● | ○ | | | ● | | | | | | | | | | |
| | LNEX 100605PNR-MA | | | | | | | | | | | | | | ● | | | | |
| 4000 | LNEX 151004PNR-MF | | | | ● | | | | ● | | | | | | | | | | E09 |
| | LNMX 151004PNR-MF | | | | ● | | | | ● | | | | | | | | | | |
| | LNEX 151004PNR-MM | | | | ● | ● | ● | ● | ● | | | | | | | | | | |
| | LNMX 151004PNR-MM | | | | ● | ● | | | ● | | | | | | | | | | |
| | LNEX 151008PNR-MF | | | | ● | ● | | | ● | | | | | | | | | | |
| | LNMX 151008PNR-MF | | | | ● | ● | | | ● | | | | | | | | | | |
| | LNEX 151008PNR-MM | | | ● | ● | | | | ● | | | | | | | | | | |
| | LNMX 151008PNR-MM | | | ● | ● | | | | ● | | | | | | | | | | |
| | LNEX 151016PNR-MF | | | | ● | ○ | | | ● | | | | | | | | | | |
| | LNMX 151016PNR-MF | | | | ● | ○ | | | ● | | | | | | | | | | |
| | LNEX 151016PNR-MM | | | | ● | | | | ● | | | | | | | | | | |
| | LNMX 151016PNR-MM | | | | ● | | | | ● | | | | | | | | | | |
| | LNEX 151004PNR-MA | | | | | | | | | | | | | | ● | | | | |
| | LNEX 151008PNR-MA | | | | | | | | | | | | | | ● | | | | |

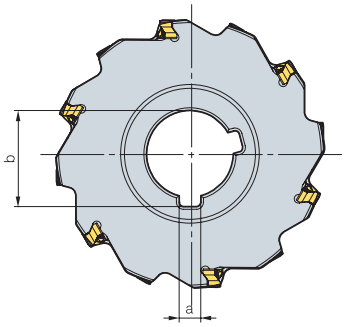
● : Disponibile ○ : A richiesta

# RM4PFCP3000

New






(mm)

| Articolo | Stock R | Stock L | ⌀ | øD | øD2 | ød | a | b | E | W | T–max |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RM4PFCP 308011R | | | 10 | 80 | 41.5 | 25.4 | 6.35 | 28 | 11 | 11 | 17 |
| 308013R | | | 10 | 80 | 41.5 | 25.4 | 6.35 | 28 | 13 | 13 | 17 |
| 308015R | | | 10 | 80 | 41.5 | 25.4 | 6.35 | 28 | 15 | 15 | 17 |
| 308017R | | | 10 | 80 | 41.5 | 25.4 | 6.35 | 28 | 17 | 17 | 17 |
| 310011R | | | 12 | 100 | 48 | 31.75 | 7.94 | 35.2 | 11 | 11 | 24 |
| 310013R | | | 12 | 100 | 48 | 31.75 | 7.94 | 35.2 | 13 | 13 | 24 |
| 310015R | | | 12 | 100 | 48 | 31.75 | 7.94 | 35.2 | 15 | 15 | 24 |
| 310017R | | | 12 | 100 | 48 | 31.75 | 7.94 | 35.2 | 17 | 17 | 24 |
| 312511R | | | 14 | 125 | 58 | 38.1 | 9.53 | 42.3 | 11 | 11 | 32 |
| 312513R | | | 14 | 125 | 58 | 38.1 | 9.53 | 42.3 | 13 | 13 | 32 |
| 312515R | | | 14 | 125 | 58 | 38.1 | 9.53 | 42.3 | 15 | 15 | 32 |
| 312517R | | | 14 | 125 | 58 | 38.1 | 9.53 | 42.3 | 17 | 17 | 32 |
| 316011R | | | 16 | 160 | 58 | 38.1 | 9.53 | 42.3 | 11 | 11 | 49 |
| 316013R | | | 16 | 160 | 58 | 38.1 | 9.53 | 42.3 | 13 | 13 | 49 |
| 316015R | | | 16 | 160 | 58 | 38.1 | 9.53 | 42.3 | 15 | 15 | 49 |
| 316017R | | | 16 | 160 | 58 | 38.1 | 9.53 | 42.3 | 17 | 17 | 49 |

• ( )Sistema metrico

● : Disponibile ○ : A richiesta

## Parti di ricambio

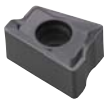
| Vite | Chiave |
|---|---|
|  |  |
| FTKA0307 | TW09S |

## Mandrini disponibili

| Articolo | Attacchi RM4PFCP |
|---|---|
| RM4PFCP 308011R<br>308013R<br>308015R<br>308017R | BT□□-SCA25.4-□□ |
| 310011R<br>310013R<br>310015R<br>310017R | BT□□-SCA31.75-□□ |
| 312511R<br>312513R<br>312515R<br>312517R<br>316011R<br>316013R<br>316015R<br>316017R | BT□□-SCA38.1-□□ |

• Inserti disponibili, vedere pag. : E09
• Attacchi e viti disponibili : E215~E217

## Inserti disponibili

| LNEX-MM | LNMX-MM |
|---|---|
|  |  |

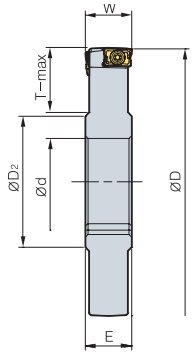
| Articolo | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LNEX 100605PNR-MM | | | ● | ● | ● | ○ | ○ | ● | | | | | | | | | | E09 |
| LNMX 100605PNR-MM | | | ● | ● | ● | | | ● | | | | | | | | | | |
| LNEX 100605PNL-MM | | | | ● | | | | ● | | | | | | | | | | |
| LNMX 100605PNL-MM | | | | ● | | | | ● | | | | | | | | | | |

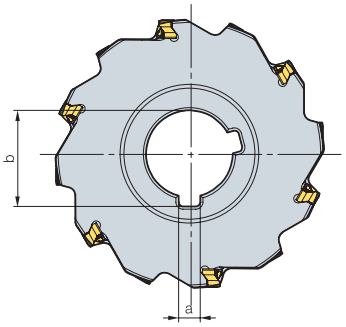
● : Disponibile ○ : A richiesta

# RM4PFCP4000

New






(mm)

| Articolo | Stock R | Stock L | | øD | øD2 | ød | a | b | E | W | T-max |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RM4PFCP 408022R | | | 6 | 80 | 41.5 | 25.4 | 6.35 | 28 | 22 | 22 | 17 |
| 408024R | | | 6 | 80 | 41.5 | 25.4 | 6.35 | 28 | 24 | 24 | 17 |
| 408026R | | | 6 | 80 | 41.5 | 25.4 | 6.35 | 28 | 26 | 26 | 17 |
| 408028R | | | 6 | 80 | 41.5 | 25.4 | 6.35 | 28 | 28 | 28 | 17 |
| 410022R | | | 8 | 100 | 48 | 31.75 | 7.94 | 35.2 | 22 | 22 | 24 |
| 410024R | | | 8 | 100 | 48 | 31.75 | 7.94 | 35.2 | 24 | 24 | 24 |
| 410026R | | | 8 | 100 | 48 | 31.75 | 7.94 | 35.2 | 26 | 26 | 24 |
| 410028R | | | 8 | 100 | 48 | 31.75 | 7.94 | 35.2 | 28 | 28 | 24 |
| 412522R | | | 10 | 125 | 58 | 38.1 | 9.53 | 42.3 | 22 | 22 | 32 |
| 412524R | | | 10 | 125 | 58 | 38.1 | 9.53 | 42.3 | 24 | 24 | 32 |
| 412526R | | | 10 | 125 | 58 | 38.1 | 9.53 | 42.3 | 26 | 26 | 32 |
| 412528R | | | 10 | 125 | 58 | 38.1 | 9.53 | 42.3 | 28 | 28 | 32 |
| 416022R | | | 12 | 160 | 58 | 38.1 | 9.53 | 42.3 | 22 | 22 | 49 |
| 416024R | | | 12 | 160 | 58 | 38.1 | 9.53 | 42.3 | 24 | 24 | 49 |
| 416026R | | | 12 | 160 | 58 | 38.1 | 9.53 | 42.3 | 26 | 26 | 49 |
| 416028R | | | 12 | 160 | 58 | 38.1 | 9.53 | 42.3 | 28 | 28 | 49 |

• ( )Sistema metrico

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Vite | Chiave |
|---|---|
|  |  |
| FTKA0412B | TW15S |

## Mandrini disponibili

| Articolo | Attacchi RM4PFCP |
|---|---|
| RM4PFCP 408022R<br>408024R<br>408026R<br>408028R | BT□□-SCA25.4-□□ |
| 410022R<br>410024R<br>410026R<br>410028R | BT□□-SCA 31.75-□□ |
| 412522R<br>412524R<br>412526R<br>412528R<br>412522R<br>412524R<br>412526R<br>412528R | BT□□-SCA38.1-□□ |

• Inserti disponibili, vedere pag. : E09
• Attacchi e viti disponibili : E215~E217

## Inserti disponibili

| LNEX-MM | LNMX-MM |
|---|---|
|  |  |

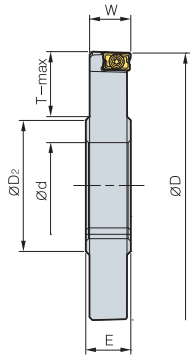
| Articolo | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LNEX 151008PNR-MM | | | ● | ● | ● | | | ● | | | | | | | | | | E09 |
| LNMX 151008PNR-MM | | | ● | ● | ● | | | ● | | | | | | | | | | |
| LNEX 151008PNL-MM | | | | ● | | | | ● | | | | | | | | | | |
| LNMX 151008PNL-MM | | | | ● | | | | ● | | | | | | | | | | |

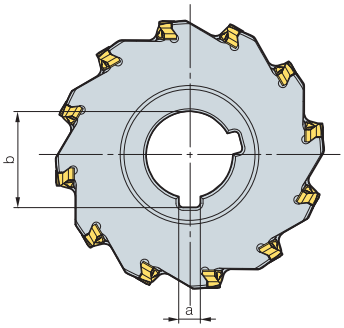
● : Disponibile ○ : A richiesta

# RM4PHCP3000/4000

New






(mm)

| Articolo | Stock R | Stock L | ⌀ | ØD | ØD2 | Ød | a | b | E | W | T-max |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RM4PHCP 308015R | | | 10 | 80 | 41.5 | 25.4 | 6.35 | 28 | 16.5 | 15.1 | 17 |
| 310015R | | | 12 | 100 | 48 | 31.75 | 7.94 | 35.2 | 16.5 | 15.1 | 24 |
| 312515R | | | 14 | 125 | 58 | 38.1 | 9.53 | 42.3 | 16.5 | 15.1 | 32 |
| 316015R | | | 16 | 160 | 58 | 38.1 | 9.53 | 42.3 | 16.5 | 15.1 | 49 |
| RM4PHCP 408020R | | | 6 | 80 | 41.5 | 25.4 | 6.35 | 28 | 22 | 19.8 | 17 |
| 410020R | | | 8 | 100 | 48 | 31.75 | 7.94 | 35.2 | 22 | 19.8 | 24 |
| 412520R | | | 10 | 125 | 58 | 38.1 | 9.53 | 42.3 | 22 | 19.8 | 32 |
| 416020R | | | 12 | 160 | 58 | 38.1 | 9.53 | 42.3 | 22 | 19.8 | 49 |

• ( )Sistema metrico

● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Vite | Chiave |
|---|---|---|
| |  |  |
| Tipo 3000 | FTKA0307 | TW09S |
| Tipo 4000 | FTKA0412B | TW15S |

## Mandrini disponibili

| Tipo | Articolo | Attacchi RM4PHCP |
|---|---|---|
| Tipo 3000 | RM4PHCP 308015R | BT□□-SCA25.4-□□ |
| | 310015R | BT□□-SCA31.75-□□ |
| | 312515R<br>316015R | BT□□-SCA38.1-□□ |
| Tipo 4000 | RM4PHCP 408020R | BT□□-SCA25.4-□□ |
| | 410020R | BT□□-SCA31.75-□□ |
| | 412520R<br>416020R | BT□□-SCA38.1-□□ |

• Inserti disponibili, vedere pag. : E09
• Attacchi e viti disponibili : E215~E217

## Inserti disponibili

LNEX-MF LNEX-MM LNEX-MA LNMX-MF LNMX-MM

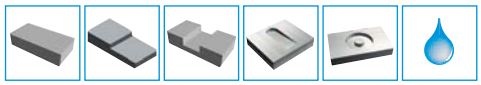


| Tipo | Articolo | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3000 | LNEX 100605PNR-MF | | | | ● | ● | | | ● | | | | | | | | | | E09 |
| | LNMX 100605PNR-MF | | | | ● | ● | ○ | ○ | ● | | | | | | | | | | |
| | LNEX 100605PNR-MM | | | ● | ● | ● | | | ● | | | | | | | | | | |
| | LNMX 100605PNR-MM | | | ● | ● | ● | | | ● | | | | | | | | | | |
| | LNEX 100608PNR-MF | | | | ● | ○ | | | ● | | | | | | | | | | |
| | LNMX 100608PNR-MF | | | | ● | ○ | | | ● | | | | | | | | | | |
| | LNEX 100608PNR-MM | | | | ● | ○ | | | ● | | | | | | | | | | |
| | LNMX 100608PNR-MM | | | | ● | ○ | | | ● | | | | | | | | | | |
| | LNEX 100605PNR-MA | | | | | | | | | | | | | | ● | | | | |
| 4000 | LNEX 151004PNR-MF | | | | ● | | | | ● | | | | | | | | | | E09 |
| | LNMX 151004PNR-MF | | | | ● | | | | ● | | | | | | | | | | |
| | LNEX 151004PNR-MM | | | | ● | ● | ● | ● | ● | | | | | | | | | | |
| | LNMX 151004PNR-MM | | | | ● | ● | | | ● | | | | | | | | | | |
| | LNEX 151008PNR-MF | | | | ● | ● | | | ● | | | | | | | | | | |
| | LNMX 151008PNR-MF | | | | ● | ● | | | ● | | | | | | | | | | |
| | LNEX 151008PNR-MM | | | ● | ● | | | | ● | | | | | | | | | | |
| | LNMX 151008PNR-MM | | | ● | ● | | | | ● | | | | | | | | | | |
| | LNEX 151016PNR-MF | | | | ● | ○ | | | ● | | | | | | | | | | |
| | LNMX 151016PNR-MF | | | | ● | ○ | | | ● | | | | | | | | | | |
| | LNEX 151016PNR-MM | | | | ● | | | | ● | | | | | | | | | | |
| | LNMX 151016PNR-MM | | | | ● | | | | ● | | | | | | | | | | |
| | LNEX 151004PNR-MA | | | | | | | | | | | | | | ● | | | | |
| | LNEX 151008PNR-MA | | | | | | | | | | | | | | ● | | | | |

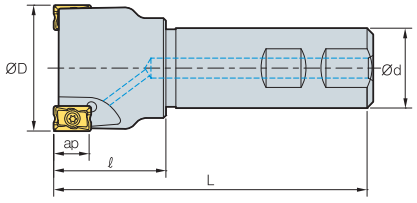
● : Disponibile ○ : A richiesta

# RM4PS3000 New

AA 90°
• AR : −6°
• RR : −39°~−16°








(mm)

| Articolo | Stock | | øD | ød | ℓ | L | ap | kg |
|---|---|---|---|---|---|---|---|---|
| RM4PS 3014HR-S16 | ● | 1 | 14 | 16 | 23 | 90 | 9.0 | 0.11 |
| 3016HR-S16 | ● | 1 | 16 | 16 | 25 | 90 | 9.0 | 0.11 |
| 3018HR-S16 | ● | 2 | 18 | 16 | 23 | 90 | 9.0 | 0.12 |
| 3020HR-S20 | ● | 2 | 20 | 20 | 30 | 100 | 9.0 | 0.21 |
| 3020HR-S20M | ● | 3 | 20 | 20 | 30 | 100 | 9.0 | 0.21 |
| 3025HR-S25 | ● | 2 | 25 | 25 | 35 | 115 | 9.0 | 0.38 |
| 3025HR-S25M | ● | 3 | 25 | 25 | 35 | 115 | 9.0 | 0.38 |
| 3032HR-S32 | ● | 3 | 32 | 32 | 40 | 125 | 9.0 | 0.69 |
| 3032HR-S32M | ● | 4 | 32 | 32 | 40 | 125 | 9.0 | 0.7 |
| 3040HR-S32 | ● | 4 | 40 | 32 | 42 | 130 | 9.0 | 0.86 |
| 3040HR-S32M | ● | 5 | 40 | 32 | 42 | 130 | 9.0 | 0.85 |
| 3040HR-S40 | | 4 | 40 | 40 | 42 | 130 | 9.0 | 1.17 |
| 3040HR-S40M | | 5 | 40 | 40 | 42 | 130 | 9.0 | 1.17 |
| 3040HR-S42 | | 4 | 40 | 42 | 42 | 130 | 9.0 | 1.26 |
| 3040HR-S42M | | 5 | 40 | 42 | 42 | 130 | 9.0 | 1.25 |
| 3050HR-S32 | ● | 5 | 50 | 32 | 45 | 135 | 9.0 | 1.06 |
| 3050HR-S32M | ● | 7 | 50 | 32 | 45 | 135 | 9.0 | 1.05 |
| 3050HR-S40 | | 5 | 50 | 40 | 45 | 135 | 9.0 | 1.38 |
| 3050HR-S40M | | 7 | 50 | 40 | 45 | 135 | 9.0 | 1.37 |
| 3050HR-S42 | | 5 | 50 | 42 | 45 | 135 | 9.0 | 1.48 |
| 3050HR-S42M | | 7 | 50 | 42 | 45 | 135 | 9.0 | 1.48 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Vite | Chiave |
|---|---|
|  |  |
| FTKA0307 | TW09S |

• Inserti disponibili, vedere pag. : E09

## Inserti disponibili

LNEX-MF LNEX-MM LNEX-MA LNMX-MF LNMX-MM



| Articolo | Rivestito | | | | | | | | | | Cermet | | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| LNEX 100605PNR-MF | | | | ● | ● | | | ● | | | | | | | | | | E09 |
| LNMX 100605PNR-MF | | | | ● | ● | | | ● | | | | | | | | | | |
| LNEX 100605PNR-MM | | | ● | ● | ● | ○ | ○ | ● | | | | | | | | | | |
| LNMX 100605PNR-MM | | | ● | ● | ● | | | ● | | | | | | | | | | |
| LNEX 100608PNR-MF | | | | ● | ○ | | | ● | | | | | | | | | | |
| LNMX 100608PNR-MF | | | | ● | ○ | | | ● | | | | | | | | | | |
| LNEX 100608PNR-MM | | | | ● | ○ | | | ● | | | | | | | | | | |
| LNMX 100608PNR-MM | | | | ● | ○ | | | ● | | | | | | | | | | |
| LNEX 100605PNR-MA | | | | | | | | | | | | | | ● | | | | |
| LNEX 100605PNL-MM | | | | ● | | | | ● | | | | | | | | | | |
| LNMX 100605PNL-MM | | | | ● | | | | ● | | | | | | | | | | |

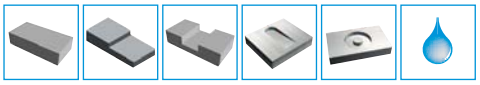
● : Disponibile ○ : A richiesta

# RM4PS4000

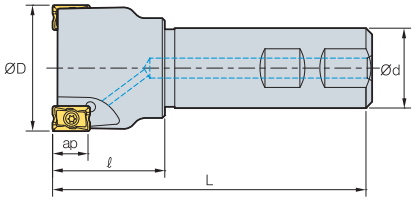
New

AA 90°

• AR : -6°
• RR : -24°~-14°








(mm)

| Articolo | | Stock | | øD | ød | ℓ | L | ap | kg |
|---|---|---|---|---|---|---|---|---|---|
| RM4PS | 4032HR-S32 | ● | 2 | 32 | 32 | 40 | 125 | 14 | 0.68 |
| | 4040HR-S32 | ● | 3 | 40 | 32 | 42 | 125 | 14 | 0.83 |
| | 4040HR-S40 | | 3 | 40 | 40 | 42 | 125 | 14 | 1.14 |
| | 4040HR-S42 | | 3 | 40 | 42 | 42 | 125 | 14 | 1.23 |
| | 4050HR-S32 | ● | 3 | 50 | 32 | 45 | 125 | 14 | 1.02 |
| | 4050HR-S32M | ● | 4 | 50 | 32 | 45 | 125 | 14 | 1.02 |
| | 4050HR-S40 | | 3 | 50 | 40 | 45 | 125 | 14 | 1.35 |
| | 4050HR-S40M | | 4 | 50 | 40 | 45 | 125 | 14 | 1.34 |
| | 4050HR-S42 | | 3 | 50 | 42 | 45 | 125 | 14 | 1.45 |
| | 4050HR-S42M | | 4 | 50 | 42 | 45 | 125 | 14 | 1.45 |
| | 4063HR-S32 | ● | 4 | 63 | 32 | 45 | 125 | 14 | 1.25 |
| | 4063HR-S32M | ● | 6 | 63 | 32 | 45 | 125 | 14 | 1.24 |
| | 4063HR-S40 | | 4 | 63 | 40 | 45 | 125 | 14 | 1.62 |
| | 4063HR-S40M | | 6 | 63 | 40 | 45 | 125 | 14 | 1.61 |
| | 4063HR-S42 | | 4 | 63 | 42 | 45 | 125 | 14 | 1.71 |
| | 4063HR-S42M | | 6 | 63 | 42 | 45 | 125 | 14 | 1.7 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Vite | Chiave |
|---|---|
|  |  |
| FTKA0412B | TW15S |

• Inserti disponibili, vedere pag. : E09

## Inserti disponibili

LNEX-MF LNEX-MM LNEX-MA LNMX-MF LNMX-MM

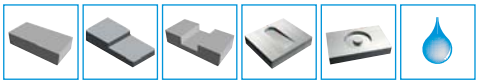


| Articolo | | Rivestito | | | | | | | | | Cermet | | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| LNEX | 151004PNR-MF | | | | ● | | | | ● | | | | | | | | | | |
| LNMX | 151004PNR-MF | | | | ● | | | | ● | | | | | | | | | | |
| LNEX | 151004PNR-MM | | | | ● | ● | ● | ● | ● | | | | | | | | | | |
| LNMX | 151004PNR-MM | | | | ● | ● | | | ● | | | | | | | | | | |
| LNEX | 151008PNR-MF | | | | ● | ● | | | ● | | | | | | | | | | |
| LNMX | 151008PNR-MF | ○ | | | ● | ● | | | ● | | | | | | | | | | |
| LNEX | 151008PNR-MM | ○ | | ● | ● | | | | ● | | | | | | | | | | |
| LNMX | 151008PNR-MM | | | ● | ● | | | | ● | | | | | | | | | | E09 |
| LNEX | 151016PNR-MF | | | | ● | ○ | | | ● | | | | | | | | | | |
| LNMX | 151016PNR-MF | | | | ● | ○ | | | ● | | | | | | | | | | |
| LNEX | 151016PNR-MM | | | | ● | | | | ● | | | | | | | | | | |
| LNMX | 151016PNR-MM | | | | ● | | | | ● | | | | | | | | | | |
| LNEX | 151004PNR-MA | | | | | | | | | | | | | | ● | | | | |
| LNEX | 151008PNR-MA | | | | | | | | | | | | | | ● | | | | |

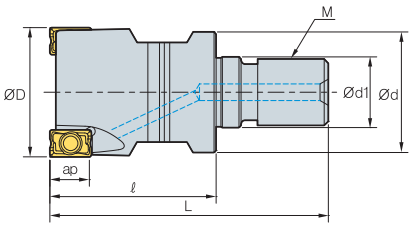
● : Disponibile ○ : A richiesta

# RM4PM New

AA 90°
• AR : −6°
• RR : −39°~−16°








(mm)

| Articolo | | Stock | | øD | ød | ød1 | ℓ | L | M | ap | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RM4PM | 3014HR-M06 | ● | 1 | 14 | 12 | 6.5 | 25 | 40 | M06 | 9.0 | 0.02 |
| | 3016HR-M08 | ● | 1 | 16 | 14.5 | 8.5 | 25 | 42 | M08 | 9.0 | 0.02 |
| | 3018HR-M08 | ● | 2 | 18 | 14.5 | 8.5 | 25 | 42 | M08 | 9.0 | 0.03 |
| | 3020HR-M10 | ● | 2 | 20 | 18 | 10.5 | 30 | 51 | M10 | 9.0 | 0.06 |
| | 3025HR-M12 | ● | 2 | 25 | 23 | 12.5 | 35 | 59 | M12 | 9.0 | 0.11 |
| | 3032HR-M16 | ● | 3 | 32 | 28 | 17 | 40 | 67 | M16 | 9.0 | 0.21 |
| | 3040HR-M16 | ● | 4 | 40 | 28 | 17 | 40 | 67 | M16 | 9.0 | 0.26 |
| | 3050HR-M16 | ● | 5 | 50 | 30 | 17 | 45 | 72 | M16 | 9.0 | 0.41 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Vite | Chiave |
|---|---|
|  |  |
| FTKA0307 | TW09S |

## Adattatori disponibili

| Articolo | | Adattatori disponibili |
|---|---|---|
| RM4PM | 3014HR-M06 | MAT - M06 |
| | 3016HR-M08 | MAT - M08 |
| | 3018HR-M08 | MAT - M08 |
| | 3020HR-M10 | MAT - M10 |
| | 3025HR-M12 | MAT - M12 |
| | 3032HR-M16 | MAT - M16 |
| | 3040HR-M16 | MAT - M16 |
| | 3050HR-M16 | MAT - M16 |

• Inserti disponibili, vedere pag. : E09
• Applicable adaptor, see pages : E133~E134

## Inserti disponibili

LNEX-MF LNEX-MM LNEX-MA LNMX-MF LNMX-MM



| Articolo | Rivestito | | | | | | | | | | Cermet | | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| LNEX 100605PNR-MF | | | | ● | ● | | | ● | | | | | | | | | | E09 |
| LNMX 100605PNR-MF | | | | ● | ● | | | ● | | | | | | | | | | |
| LNEX 100605PNR-MM | | | ● | ● | ● | ○ | ○ | ● | | | | | | | | | | |
| LNMX 100605PNR-MM | | | ● | ● | ● | | | ● | | | | | | | | | | |
| LNEX 100608PNR-MF | | | | ● | ○ | | | ● | | | | | | | | | | |
| LNMX 100608PNR-MF | | | | ● | ○ | | | ● | | | | | | | | | | |
| LNEX 100608PNR-MM | | | | ● | ○ | | | ● | | | | | | | | | | |
| LNMX 100608PNR-MM | | | | ● | ○ | | | ● | | | | | | | | | | |
| LNEX 100605PNR-MA | | | | | | | | | | | | | | ● | | | | |
| LNEX 100605PNL-MM | | | | ● | | | | ● | | | | | | | | | | |
| LNMX 100605PNL-MM | | | | ● | | | | ● | | | | | | | | | | |

● : Disponibile ○ : A richiesta

Articolo : RM4PM3032HR-M16
Dimensione filettatura testa modulare (M16)
=
Spec. adattatore. : MAT-M16-035-S32S
Dimensione filettatura adattatore (M16)

# RM16AC(M)6000/8000 New

AA 45° | • AR : -6° • RR : -6°



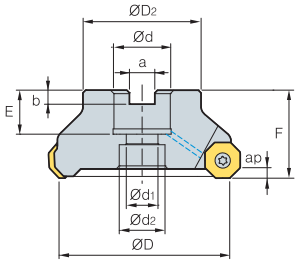



Fig. 1

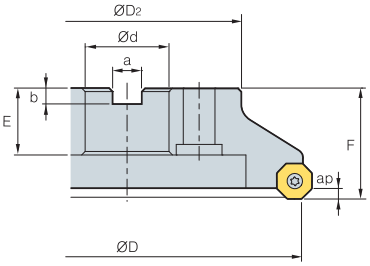



Fig. 2

(mm)

| Articolo | | Stock | | øD | øD2 | Ød | Ød1 | Ød2 | a | b | E | F | ap | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RM16AC(M) | 6063HR-M | ●(●) | 5 | 63 | 49 | 22 | 11 | 18 | 10.4 | 6.3 | 20 | 40 | 4.0 | 0.6 | 1 |
| | 6080HR-M | ●(●) | 6 | 80 | 57 | 25.4(27) | 14 | 20 | 9.5(12.4) | 6(7) | 25(23) | 50 | 4.0 | 1.2 | 1 |
| | 6100HR-M | ●(●) | 7 | 100 | 67 | 31.75(32) | 18 | 26 | 12.7(14.4) | 8 | 33(25) | 63(50) | 4.0 | 1.9 | 1 |
| | 6125HR-M | ●(●) | 8 | 125 | 87 | 38.1(40) | 22 | 32 | 15.9(16.4) | 10(9) | 35(29) | 63 | 4.0 | 3.5 | 1 |
| | 6160R-M | | 10 | 160 | 107 | 50.8(40) | - | 107 | 19(16.4) | 11(9) | 38(32) | 63 | 4.0 | 4.1 | 2 |
| | 6200R-M | | 12 | 200 | 130 | 47.625(60) | - | 135 | 25.4(25.7) | 14 | 38(32) | 63 | 4.0 | 6.1 | 2 |
| | 6250R-M | | 15 | 250 | 180 | 47.625(60) | - | 180 | 25.4(25.7) | 14 | 38 | 63 | 4.0 | 11.5 | 2 |
| | 6315R-M | | 20 | 315 | 240 | 47.625(60) | - | 238 | 25.4(25.7) | 14 | 38 | 63 | 4.0 | 18.9 | 2 |
| | 6400R-M | | 26 | 400 | 260 | 47.625(60) | - | 238 | 25.4(25.7) | 14 | 38 | 80 | 4.0 | 32.7 | 2 |
| RM16AC(M) | 8063HR-M | (●) | 5 | 63 | 49 | 22 | 11 | 18 | 10.4 | 6.3 | 20 | 40 | 5.5 | 0.7 | 1 |
| | 8080HR-M | ●(●) | 6 | 80 | 57 | 25.4(27) | 14 | 20 | 9.5(12.4) | 6(7) | 25(23) | 50 | 5.5 | 1.2 | 1 |
| | 8100HR-M | ●(●) | 7 | 100 | 67 | 31.75(32) | 18 | 26 | 12.7(14.4) | 8 | 33(25) | 63(50) | 5.5 | 1.8 | 1 |
| | 8125HR-M | ●(●) | 8 | 125 | 87 | 38.1(40) | 22 | 32 | 15.9(16.4) | 10(9) | 35(29) | 63 | 5.5 | 3.5 | 1 |
| | 8160R-M | ●(●) | 10 | 160 | 107 | 50.8(40) | - | 107 | 19(16.4) | 11(9) | 38(32) | 63 | 5.5 | 4.5 | 2 |
| | 8200R-M | (●) | 12 | 200 | 130 | 47.625(60) | - | 135 | 25.4(25.7) | 14 | 38(32) | 63 | 5.5 | 5.8 | 2 |
| | 8250R-M | | 14 | 250 | 180 | 47.625(60) | - | 180 | 25.4(25.7) | 14 | 38 | 63 | 5.5 | 11.4 | 2 |
| | 8315R-M | | 18 | 315 | 240 | 47.625(60) | - | 238 | 25.4(25.7) | 14 | 38 | 63 | 5.5 | 18.8 | 2 |
| | 8400R-M | | 24 | 400 | 260 | 47.625(60) | - | 238 | 25.4(25.7) | 14 | 38 | 80 | 5.5 | 32.7 | 2 |

• ( )Sistema metrico

● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Vite | Chiave |
|---|---|---|
| |  |  |
| Tipo 6000 | FTGA0513 | TW20-100 |
| Tipo 8000 | FTGA0513 | TW20-100 |

## Mandrini disponibili

| Articolo | | Attacchi | |
|---|---|---|---|
| | | RM16AC | RM16ACM |
| RM16AC(M) | 6063HR-M | - | BT□□-FMC22-□□ |
| | 6080HR-M | BT□□- FMA25.4-□□ | BT□□-FMC27-□□ |
| | 6100HR-M | BT□□-FMA31.75-□□ | BT□□-FMC32-□□ |
| | 6125HR-M | BT□□-FMA38.1-□□ | BT□□-FMB40-□□ |
| | 6160R-M | BT□□-FMA50.8-□□ | BT□□-FMC40-□□ |
| | 6200R-M | BT□□-FMA47.625-□□ | BT□□-FMB60-□□ |
| | 6250R-M | | |
| | 6315R-M | | |
| | 6400R-M | | |
| RM16AC(M) | 8063HR-M | - | BT□□-FMC22-□□ |
| | 8080HR-M | BT□□-FMA25.4-□□ | BT□□-FMC27-□□ |
| | 8100HR-M | BT□□-FMA31.75-□□ | BT□□-FMC32-□□ |
| | 8125HR-M | BT□□-FMA38.1-□□ | BT□□-FMB40-□□ |
| | 8160R-M | BT□□-FMA50.8-□□ | BT□□-FMC40-□□ |
| | 8200R-M | BT□□-FMA47.625-□□ | BT□□-FMB60-□□ |
| | 8250R-M | | |
| | 8315R-M | | |
| | 8400R-M | | |

• Inserti disponibili, vedere pag. : E09
• Attacchi e viti disponibili : E215~E217

## Inserti disponibili

| ONHX-MF | ONHX-MM | ONHX-W |
|---|---|---|
|  |  |  |
| **ONHX-MA** | **ONMX-MF** | **ONMX-MM** |
|  |  |  |

| Tipo | Articolo | Rivestito | | | | | | | | | Cermet | | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| 6000 | ONMX 060608-MM | | | | ○ | | | | ○ | | | | | | | | | | E10 |
| | ONHX 060608-MM | | | | ● | ○ | | ● | ● | | | | | | | | | | |
| | ONMX 060608-MF | | | | ○ | | | | ○ | | | | | | | | | | |
| | ONHX 060608-MF | | | | ● | ○ | | ● | ● | | | | | | | | | | |
| | ONHX 060608-W | | | | | | | | | | | | | | | | | | |
| | ONMX 0606ANN-MM | | | ● | ● | ● | | ● | ● | | | | | | | | | | |
| | ONHX 0606ANN-MM | | | | ● | ● | | ● | ● | | | | | | | | | | |
| | ONMX 0606ANN-MF | | | ● | ● | ● | | ● | ● | | | | | | | | | | |
| | ONHX 0606ANN-MF | | | | ● | ● | | ● | ● | | | | | | | | | | |
| | ONHX 060608-MA | | | | ● | | | | ● | | | | | | ● | | | | |
| 8000 | ONMX 080608-MM | | | | ● | ○ | | ● | ● | | | | | | | | | | E10 |
| | ONHX 080608-MM | | | | ● | ○ | | ● | ● | | | | | | | | | | |
| | ONMX 080608-MF | | | | ● | ○ | | ● | ● | | | | | | | | | | |
| | ONHX 080608-MF | | | | | | | | | | | | | | | | | | |
| | ONHX 080608-W | | | | ● | ● | | ● | ● | | | | | | | | | | |
| | ONMX 0806ANN-MM | | | | ● | ● | | ● | ● | | | | | | | | | | |
| | ONHX 0806ANN-MM | | | | | ● | | | | | | | | | | | | | |
| | ONMX 0806ANN-MF | | | | ● | ● | | ● | ● | | | | | | | | | | |
| | ONHX 0806ANN-MF | | | | | ● | | | | | | | | | | | | | |
| | ONHX 080608-MA | | | | ● | | | | ● | | | | | | ● | | | | |

● : Disponibile ○ : A richiesta

# RMT8A(M)4000/5000

New

AA 45°

• AR : −5°
• RR : −6°



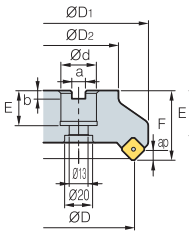


Fig. 1

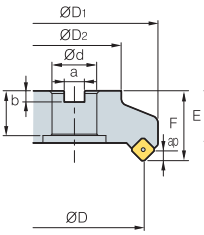


Fig. 2

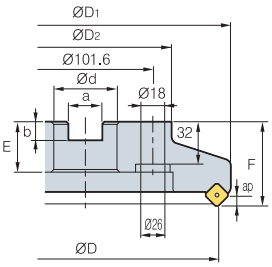


Fig. 3

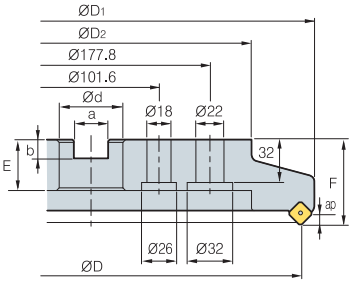


Fig. 4

(mm)

| Articolo | | Stock | ⊚ | ØD | ØD1 | ØD2 | Ød | a | b | E | F | ap | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RMT8A(M) | 4080R | ○ | 5 | 80 | 100 | 57 | 25.4(27) | 9.5(12.4) | 6(7) | 25(22) | 50 | 4 | 1.6 | 1 |
| | 4080R-M | | 6 | 80 | 100 | 57 | 25.4(27) | 9.5(12.4) | 6(7) | 25(22) | 50 | 4 | 1.6 | 1 |
| | 4100R | ● | 6 | 100 | 120 | 70 | 31.75(32) | 12.7(14.4) | 8(8) | 32(28) | 50 | 4 | 2.3 | 2 |
| | 4100R-M | | 8 | 100 | 120 | 70 | 31.75(32) | 12.7(14.4) | 8(8) | 32(28) | 50 | 4 | 2.3 | 2 |
| | 4125R | ○ | 8 | 125 | 144 | 87 | 38.1(40) | 15.9(16.4) | 10(9) | 38(30) | 63 | 4 | 4.3 | 2 |
| | 4125R-M | | 10 | 125 | 144 | 87 | 38.1(40) | 15.9(16.4) | 10(9) | 38(30) | 63 | 4 | 4.3 | 2 |
| | 4160R | ● | 10 | 160 | 179 | 110 | 50.8(40) | 19.0(16.4) | 11(9) | 38(30) | 63 | 4 | 6.5 | 2 |
| | 4160R-M | | 14 | 160 | 179 | 110 | 50.8(40) | 19.0(16.4) | 11(9) | 38(30) | 63 | 4 | 6.5 | 2 |
| | 4200R | | 12 | 200 | 219 | 130 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 4 | 8.8 | 3 |
| | 4200R-M | | 18 | 200 | 219 | 130 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 4 | 8.8 | 3 |
| | 4250R | | 16 | 250 | 269 | 180 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 4 | 14.1 | 3 |
| | 4250R-M | | 22 | 250 | 269 | 180 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 4 | 14.1 | 3 |
| | 4315R | | 20 | 315 | 334 | 240 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 4 | 22.3 | 4 |
| | 4315R-M | | 28 | 315 | 334 | 240 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 4 | 22.3 | 4 |
| RMT8A(M) | 5080R | ● | 5 | 80 | 104 | 57 | 25.4(27) | 9.5(12.4) | 6(7) | 25(22) | 50 | 6 | 1.8 | 1 |
| | 5080R-M | | 6 | 80 | 104 | 57 | 25.4(27) | 9.5(12.4) | 6(7) | 25(22) | 50 | 6 | 1.8 | 1 |
| | 5100R | ● | 6 | 100 | 124 | 70 | 31.75(32) | 12.7(14.4) | 8(8) | 32(28) | 50 | 6 | 2.6 | 2 |
| | 5100R-M | | 8 | 100 | 124 | 70 | 31.75(32) | 12.7(14.4) | 8(8) | 32(28) | 50 | 6 | 2.6 | 2 |
| | 5125R | ● | 8 | 125 | 149 | 87 | 38.1(40) | 15.9(16.4) | 10(9) | 38(30) | 63 | 6 | 4.3 | 2 |
| | 5125R-M | | 10 | 125 | 149 | 87 | 38.1(40) | 15.9(16.4) | 10(9) | 38(30) | 63 | 6 | 4.3 | 2 |
| | 5160R | ● | 10 | 160 | 184 | 110 | 50.8(40) | 19.0(16.4) | 11(9) | 38(30) | 63 | 6 | 6.5 | 2 |
| | 5160R-M | | 14 | 160 | 184 | 110 | 50.8(40) | 19.0(16.4) | 11(9) | 38(30) | 63 | 6 | 6.5 | 2 |
| | 5200R | | 12 | 200 | 224 | 130 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 6 | 9.0 | 3 |
| | 5200R-M | | 18 | 200 | 224 | 130 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 6 | 9.0 | 3 |
| | 5250R | | 16 | 250 | 274 | 180 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 6 | 14.4 | 3 |
| | 5250R-M | | 22 | 250 | 274 | 180 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 6 | 14.4 | 3 |
| | 5315R | | 20 | 315 | 339 | 240 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 6 | 22.2 | 4 |
| | 5315R-M | | 28 | 315 | 339 | 240 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 6 | 22.2 | 4 |

• ( )Sistema metrico

● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Vite | Vite | Molla | Leva | Chiave |
|---|---|---|---|---|---|
| |  |  |  |  |  |
| Tipo 4000 | ETKA0523 | KHB0417 | SPR0315 | LTC05SR-RM4 | TW20-100 |
| Tipo 5000 | ETKA0625 | KHB0417 | SPR0415 | LTC06SR-RM5 | TW20-100 |

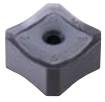
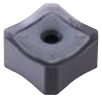
## Mandrini disponibili

| Articolo | Attacco generico | Attacchi NC | |
|---|---|---|---|
| | | RMT8A | RMT8AM |
| RMT8A(M) □080R | NT*□□(M/U)-FMA25.4-25 | BT**□□-FMA25.4 -□□ | FMC27 |
| □100R | NT*□□(M/U)-FMA31.75-□□ | BT**□□-FMA31.75 -□□ | FMC32 |
| □125R | NT*□□(M/U)-FMA38.1 -□□ | BT**□□-FMA38.1 -□□ | FMB40 |
| □160R | NT*□□(M/U)-FMA50.8 -□□ | BT**□□-FMA50.8 -□□ | FMB40 |
| □200R | NT*□□(M/U)-FMA47.625-25, KCP-8*** | BT**□□-FMA47.625-□□ | FMB60 |
| □250R | NT*□□(M/U)-FMA47.625-25, KCP-8*** | BT**□□-FMA47.625-□□ | FMB60 |
| □315R | KCP-8***(Center Ring Plug) | | |

*Numero □□−NT **Numero □□−BT ***Over Milling 5

• Inserti disponibili, vedere pag. : E15, E16
• Attacchi e viti disponibili : E215~E217

## Inserti disponibili

| SNC(M)F-MF | SNC(M)F-MM |
|---|---|
|  |  |

| Tipo | Articolo | Rivestito | | | | | | | | | Cermet | | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| 4000 | SNCF 1206ANN-MF | | | | ● | | | | ● | | | | | | | | | | |
| | SNCF 1206ANN-MM | | | | ● | | | | ● | | | | | | | | | | E15 |
| | SNMF 1206ANN-MF | | | | ● | | | | | | | | | | | | | | E16 |
| | SNMF 1206ANN-MM | | | | ● | | | | | | | | | | | | | | |
| 5000 | SNCF 1507ANN-MF | | | | ○ | | | | ● | | | | | | | | | | |
| | SNCF 1507ANN-MM | | | | ● | | | | ● | | | | | | | | | | E15 |
| | SNMF 1507ANN-MF | | | | ● | | | | | | | | | | | | | | E16 |
| | SNMF 1507ANN-MM | | | | ○ | | | | | | | | | | | | | | |

● : Disponibile ○ : A richiesta

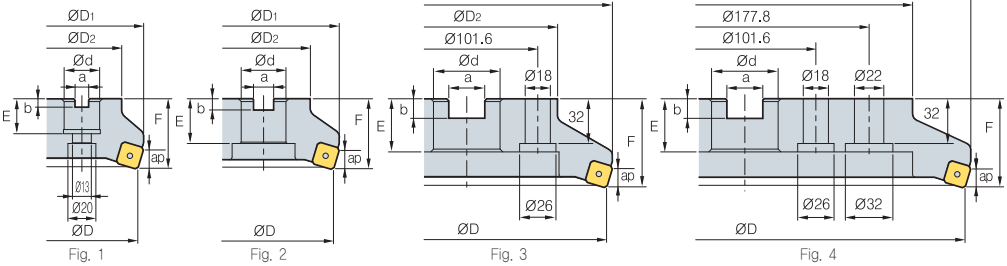
# RMT8E(M)4000/5000

New

AA 75°

• AR : -6°
• RR : -8°~-6°






(mm)

| Articolo | | Stock | | øD | øD1 | øD2 | ød | a | b | E | F | ap | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RMT8E(M) | 4080R | ● | 5 | 80 | 87 | 57 | 25.4(27) | 9.5(12.4) | 6(7) | 25(22) | 50 | 5 | 1.5 | 1 |
| | 4080R-M | | 6 | 80 | 87 | 57 | 25.4(27) | 9.5(12.4) | 6(7) | 25(22) | 50 | 5 | 1.5 | 1 |
| | 4100R | ● | 6 | 100 | 107 | 67 | 31.75(32) | 12.7(14.4) | 8(8) | 32(28) | 50 | 5 | 2 | 2 |
| | 4100R-M | | 8 | 100 | 107 | 67 | 31.75(32) | 12.7(14.4) | 8(8) | 32(28) | 50 | 5 | 2 | 2 |
| | 4125R | ● | 8 | 125 | 132 | 87 | 38.1(40) | 15.9(16.4) | 10(9) | 38(30) | 63 | 5 | 3.8 | 2 |
| | 4125R-M | | 10 | 125 | 132 | 87 | 38.1(40) | 15.9(16.4) | 10(9) | 38(30) | 63 | 5 | 3.8 | 2 |
| | 4160R | ● | 10 | 160 | 167 | 107 | 50.8(40) | 19.0(16.4) | 11(9) | 38(30) | 63 | 5 | 5.8 | 2 |
| | 4160R-M | | 14 | 160 | 167 | 107 | 50.8(40) | 19.0(16.4) | 11(9) | 38(30) | 63 | 5 | 5.8 | 2 |
| | 4200R | | 12 | 200 | 207 | 130 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 5 | 7.9 | 3 |
| | 4200R-M | | 18 | 200 | 207 | 130 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 5 | 7.9 | 3 |
| | 4250R | | 16 | 250 | 257 | 180 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 5 | 13.0 | 3 |
| | 4250R-M | | 22 | 250 | 257 | 180 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 5 | 13.0 | 3 |
| | 4315R | | 20 | 315 | 322 | 240 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 5 | 20.5 | 4 |
| | 4315R-M | | 28 | 315 | 322 | 240 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 5 | 20.5 | 4 |
| RMT8E(M) | 5080R | ● | 5 | 80 | 88 | 57 | 25.4(27) | 9.5(12.4) | 6(7) | 25(22) | 50 | 8 | 1.4 | 1 |
| | 5080R-M | | 6 | 80 | 88 | 57 | 25.4(27) | 9.5(12.4) | 6(7) | 25(22) | 50 | 8 | 1.4 | 1 |
| | 5100R | ● | 6 | 100 | 108 | 67 | 31.75(32) | 12.7(14.4) | 8(8) | 32(28) | 50 | 8 | 1.9 | 2 |
| | 5100R-M | | 8 | 100 | 108 | 67 | 31.75(32) | 12.7(14.4) | 8(8) | 32(28) | 50 | 8 | 1.9 | 2 |
| | 5125R | ● | 8 | 125 | 133 | 87 | 38.1(40) | 15.9(16.4) | 10(9) | 38(30) | 63 | 8 | 3.7 | 2 |
| | 5125R-M | | 10 | 125 | 133 | 87 | 38.1(40) | 15.9(16.4) | 10(9) | 38(30) | 63 | 8 | 3.7 | 2 |
| | 5160R | ● | 10 | 160 | 168 | 107 | 50.8(40) | 19.0(16.4) | 11(9) | 38(30) | 63 | 8 | 5.7 | 2 |
| | 5160R-M | | 14 | 160 | 168 | 107 | 50.8(40) | 19.0(16.4) | 11(9) | 38(30) | 63 | 8 | 5.7 | 2 |
| | 5200R | | 12 | 200 | 208 | 130 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 8 | 7.5 | 3 |
| | 5200R-M | | 18 | 200 | 208 | 130 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 8 | 7.5 | 3 |
| | 5250R | | 16 | 250 | 258 | 180 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 8 | 12.4 | 3 |
| | 5250R-M | | 22 | 250 | 258 | 180 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 8 | 12.4 | 3 |
| | 5315R | | 20 | 315 | 323 | 240 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 8 | 19.9 | 4 |
| | 5315R-M | | 28 | 315 | 323 | 240 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 8 | 19.9 | 4 |

• ( )Sistema metrico

● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Vite | Vite | Molla | Leva | Chiave |
|---|---|---|---|---|---|
| |  |  |  |  |  |
| Tipo 4000 | ETKA0523 | KHB0417 | SPR0315 | LTC05SR-RM4 | TW20-100 |
| Tipo 5000 | ETKA0625 | KHB0417 | SPR0415 | LTC06SR-RM5 | TW20-100 |

## Mandrini disponibili

| Articolo | Attacco generico | Attacchi NC | |
|---|---|---|---|
| | | RMT8A | RMT8AM |
| RMT8A(M) □080R | NT*□□(M/U)-FMA25.4-25 | BT**□□-FMA25.4 -□□ | FMC27 |
| □100R | NT*□□(M/U)-FMA31.75-□□ | BT**□□-FMA31.75 -□□ | FMC32 |
| □125R | NT*□□(M/U)-FMA38.1 -□□ | BT**□□-FMA38.1 -□□ | FMB40 |
| □160R | NT*□□(M/U)-FMA50.8 -□□ | BT**□□-FMA50.8 -□□ | FMB40 |
| □200R | NT*□□(M/U)-FMA47.625-25, KCP-8*** | BT**□□-FMA47.625-□□ | FMB60 |
| □250R | NT*□□(M/U)-FMA47.625-25, KCP-8*** | BT**□□-FMA47.625-□□ | FMB60 |
| □315R | KCP-8***(Center Ring Plug) | | |

*Numero □□-NT **Numero □□-BT ***Over Milling 5

• Inserti disponibili, vedere pag. : E15, E16
• Attacchi e viti disponibili : E215~E217

## Inserti disponibili

SNC(M)F-MF SNC(M)F-MM




| Tipo | Articolo | Rivestito | | | | | | | | | Cermet | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| 4000 | SNCF 1206ENN-MF | | | | ● | | | | ● | | | | | | | | | | E15 E16 |
| | SNCF 1206ENN-MM | | | | ● | | ● | | | | | | | | | | | | |
| | SNMF 1206ENN-MF | | | | ● | | | | | | | | | | | | | | |
| | SNMF 1206ENN-MM | | | | ● | | | | | | | | | | | | | | |
| 5000 | SNCF 1507ENN-MF | | | | ● | | | | ● | | | | | | | | | | E15 E16 |
| | SNCF 1507ENN-MM | | | | ● | | ● | | | | | | | | | | | | |
| | SNMF 1507ENN-MF | | | | ● | | | | | | | | | | | | | | |
| | SNMF 1507ENN-MM | | | | ● | | | | | | | | | | | | | | |

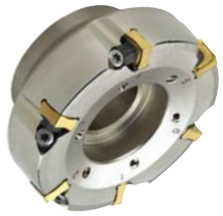
● : Disponibile ○ : A richiesta

# RMT8Q(M)

New

AA 88°

• AR : -6°
• RR : -11°~-8°



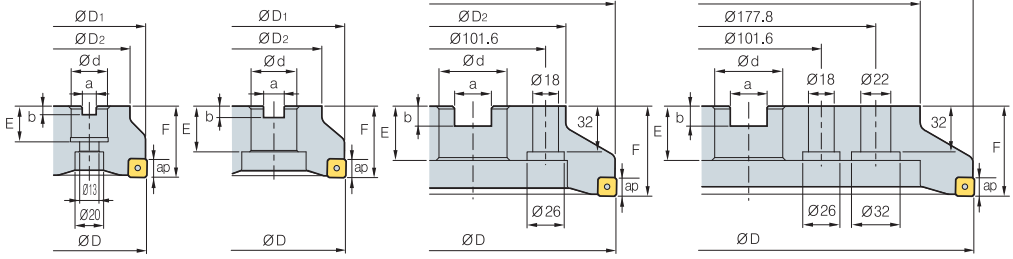



Fig. 1 Fig. 2 Fig. 3 Fig. 4

(mm)

| Articolo | | Stock | ⚙ | øD | øD1 | øD2 | ød | a | b | E | F | ap | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RMT8Q(M) | 4080R | ● | 5 | 80 | 79 | 57 | 25.4(27) | 9.5(12.4) | 6(7) | 25(22) | 50 | 5 | 1.4 | 1 |
| | 4080R-M | ● | 6 | 80 | 79 | 57 | 25.4(27) | 9.5(12.4) | 6(7) | 25(22) | 50 | 5 | 1.4 | 1 |
| | 4100R | ● | 6 | 100 | 99 | 67 | 31.75(32) | 12.7(14.4) | 8(8) | 32(28) | 50 | 5 | 1.8 | 2 |
| | 4100R-M | ● | 8 | 100 | 99 | 67 | 31.75(32) | 12.7(14.4) | 8(8) | 32(28) | 50 | 5 | 1.8 | 2 |
| | 4125R | ●(●) | 8 | 125 | 124 | 87 | 38.1(40) | 15.9(16.4) | 10(9) | 38(30) | 63 | 5 | 3.6 | 2 |
| | 4125R-M | ● | 10 | 125 | 124 | 87 | 38.1(40) | 15.9(16.4) | 10(9) | 38(30) | 63 | 5 | 3.6 | 2 |
| | 4160R | ● | 10 | 160 | 159 | 107 | 50.8(40) | 19.0(16.4) | 11(9) | 38(30) | 63 | 5 | 5.7 | 2 |
| | 4160R-M | | 14 | 160 | 159 | 107 | 50.8(40) | 19.0(16.4) | 11(9) | 38(30) | 63 | 5 | 5.7 | 2 |
| | 4200R | | 12 | 200 | 199 | 130 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 5 | 7.5 | 3 |
| | 4200R-M | | 18 | 200 | 199 | 130 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 5 | 7.5 | 3 |
| | 4250R | | 16 | 250 | 249 | 180 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 5 | 12.5 | 3 |
| | 4250R-M | | 22 | 250 | 249 | 180 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 5 | 12.5 | 3 |
| | 4315R | | 20 | 315 | 314 | 240 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 5 | 19.9 | 4 |
| | 4315R-M | | 28 | 315 | 314 | 240 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 5 | 19.9 | 4 |

• ( )Sistema metrico

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Vite | Vite | Molla | Leva | Chiave |
|---|---|---|---|---|
|  |  |  |  |  |
| ETKA0523 | KHB0417 | SPR0315 | LTC05SR-RM4 | TW20-100 |

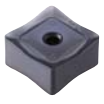
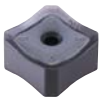
## Mandrini disponibili

| Articolo | Attacco generico | Attacchi NC | |
|---|---|---|---|
| | | RMT8A | RMT8AM |
| RMT8A(M) □080R | NT*□□(M/U)-FMA25.4-5 | BT**□□-FMA25.4 -□□ | FMC27 |
| □100R | NT*□□(M/U)-FMA31.75-□□ | BT**□□-FMA31.75 -□□ | FMC32 |
| □125R | NT*□□(M/U)-FMA38.1 -□□ | BT**□□-FMA38.1 -□□ | FMB40 |
| □160R | NT*□□(M/U)-FMA50.8 -□□ | BT**□□-FMA50.8 -□□ | FMB40 |
| □200R | NT*□□(M/U)-FMA47.625-25, KCP-8*** | BT**□□-FMA47.625-□□ | FMB60 |
| □250R | NT*□□(M/U)-FMA47.625-25, KCP-8*** | BT**□□-FMA47.625-□□ | FMB60 |
| □315R | KCP-8***(Center Ring Plug) | | |

*Numero □□–NT **Numero □□–BT ***Over Milling 5

• Inserti disponibili, vedere pag. : E15, E16
• Attacchi e viti disponibili : E215~E217

## Inserti disponibili

| SNMF-MF | SNMF-MM |
|---|---|
|  |  |

| Articolo | Rivestito | | | | | | | | | | Cermet | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| SNMF 1206QNN-MF | | | | ● | | | | | | | | | | | | | | E15 E16 |
| 1206QNN-MM | | | | ● | | | | | | | | | | | | | | |

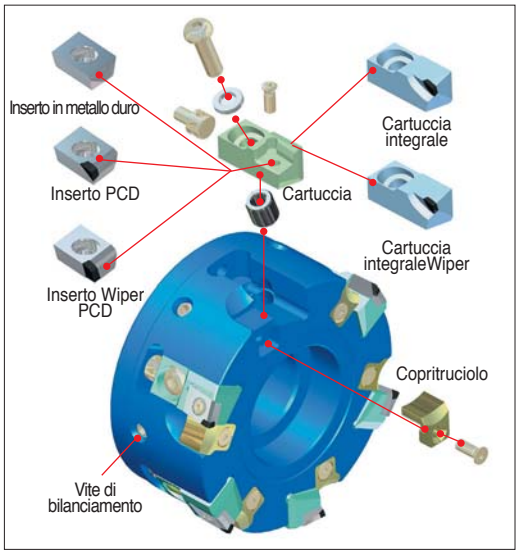
● : Disponibile ○ : A richiesta

## Aero Mill

### Caratteristiche speciali

- Eccellenti prestazioni ottenibili soprattutto nelle lavorazioni ad alta velocità grazie al corpo fresa in alluminio leggero che pesa il 50% di un corpo fresa convenzionale in acciaio
- Frese ad alta velocità che garantiscono lavorazioni estremamente accurate
- Lo speciale alluminio e l'elevato angolo di spoglia dell'inserto assicurano una lavorazione rigida e stabile.
- È possibile ottenere un'eccellente superficie di finitura grazie ai bassi sforzi di taglio
- Bilanciabile fino al livello G2.5

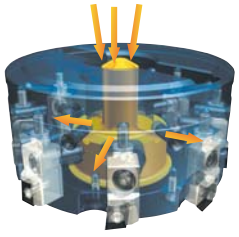
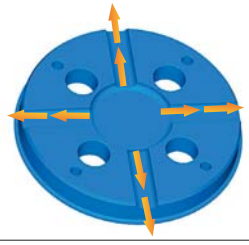
### Assemblaggio della fresa



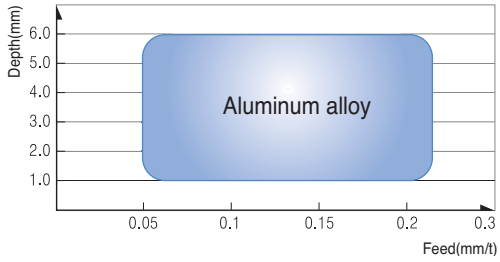

- Maggiore stabilità grazie al sistema a cartuccia
- Sia l'inserto, sia la cartuccia sono disponibili sulla stessa fresa
- Si possono realizzare tutte le lavorazioni, dalla sgrossatura alla finitura, grazie all'ampia tasca di scarico del truciolo
- È possibile eseguire lavorazioni di sgrossatura e finitura con l'inserto PCD in metallo duro
- È possibile evitare la rottura della fresa applicando il copritruciolo

### Sistema di raffreddamento interno

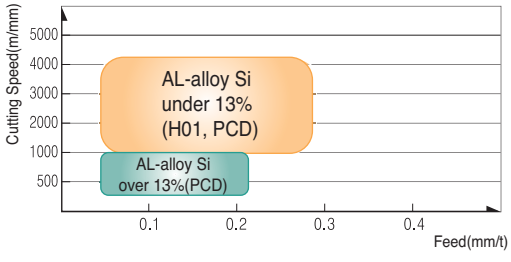
- Lo speciale sistema di raffreddamento interno distribuisce il refrigerante dal centro della fresa fino all'inserto. In questo modo il raffreddamento è più rapido e l'evacuazione del truciolo migliore.
- Il getto del refrigerante è indirizzato direttamente sul tagliente dell'inserto, ottimizzando in tal modo l'evacuazione del truciolo.
- La vite del refrigerante è disponibile fino al diametro 160, il coprirefrigerante è disponibile a partire dal diametro 200. I dispositivi del sistema di raffreddamento sono venduti separatamente.
  Il sistema di raffreddamento interno prevede l'uso di un attacco predisposto.

| Vite del refrigerante | Coprirefrigerante |
|---|---|
|  |  |
| Per Ø80~Ø160 | Per Ø200 e superiore |

### Applicazioni



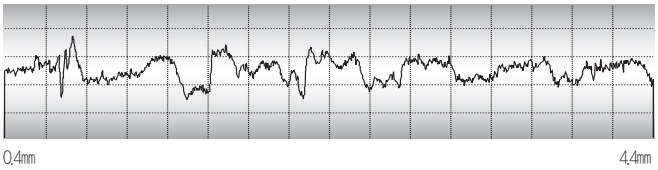

### Condizioni di taglio raccomandate




### Parametri di lavoro massimi

- Macchina : PCV620
- vc = 1570m/min
- Pezzo lavorato : A6061
- n =5000 rpm
- Fresa : APDM100R-A6Z
- vf = 3000mm/min
- Inserto : CDEW1204R-XCF(H01)
- fz = 0.1mm/t
- ap = 0.5mm

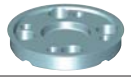
- Rmax : 2.1㎛
- Rz : 1.6㎛
- Ra : 0.3㎛




### Parametri di lavoro

| Diametro(mm) | Giri massimi (giri/min) |
|---|---|
| Ø80 | 16,000 |
| Ø100 | 15,000 |
| Ø125 | 12,500 |
| Ø160 | 10,000 |
| Ø200 | 8,000 |
| Ø250 | 6,500 |
| Ø315 | 5,000 |

### Parti del sistema di raffreddaemento

| Diametro(mm) | Tipo | Articolo | Forma | Nota |
|---|---|---|---|---|
| Ø80 | Vite refrigerante | CBP080-IN/MM |  | Extra Charge |
| Ø100 | Vite refrigerante | CBP100-IN<br>CBP100-MM-1 | | |
| Ø125 | Vite refrigerante | CBP125-IN<br>CBP125-MM-1 | | |
| Ø160 | Vite refrigerante | CBP160-IN<br>CBP160-MM | | |
| Ø200 | Coprirefrigerante | CCP200 |  | Extra Charge |
| Ø250 | Coprirefrigerante | CCP250 | | |
| Ø315 | Coprirefrigerante | CCP315 | | |

•Scelta : CBP100-IN : Tipo APD, generico per articoli non marcati

## Aero Mill -Mini

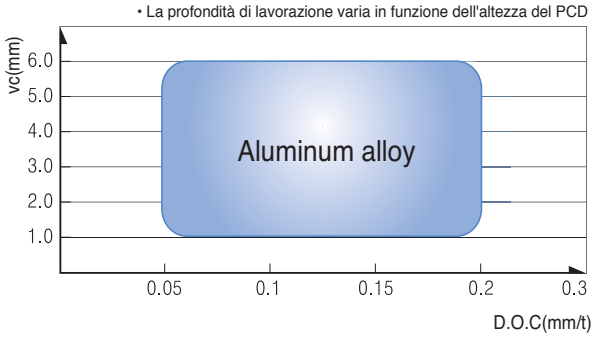
### Sistema di codifica

| Aero Mill | Angolo di spoglia dell'inserto | Diametro(Ø) | Tipo di esecuzione (R/L) | |
|---|---|---|---|---|
| M | A P D (S) | 040 | – H R | 24 |
| Mini | Angolazione | ( ) : Fresa S : Diametro attacco | H : Refrigerante | Numero di denti |

### Caratteristiche speciali

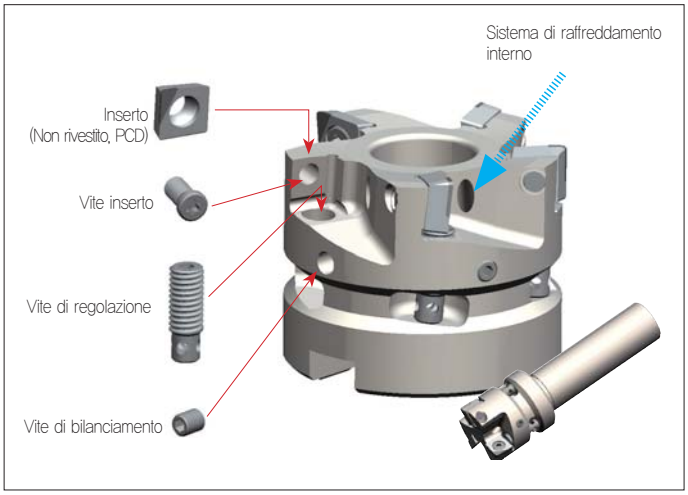
- Buone prestazioni nelle lavorazioni di piccoli-medi diametri
- Buona durata del corpo fresa in acciaio
- Vari gradi in metallo duro rivestito / PCD sono disponibili per la lavorazione di svariati materiali
- Livello di bilanciamento : G2.5

### Applicazioni

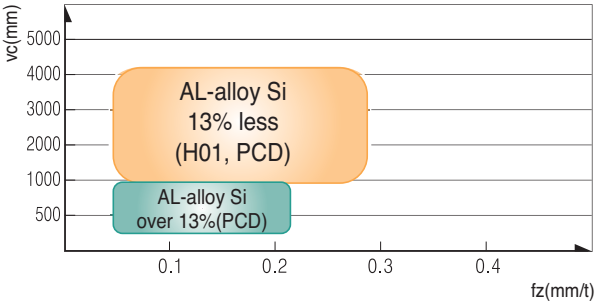



### Struttura di Aero Mill -Mini

- Design semplice e robusto del sistema di staffaggio a vite.
- Gamma di regolazione : ±0.1mm Max
- Passo di regolazione : Min. 2 micro metrico
- Ampia tasca di scarico per le operazioni di sgrossatura e lavorazioni dell'alluminio.
- Sistema di raffreddamento interno




### Condizioni di taglio raccomandate

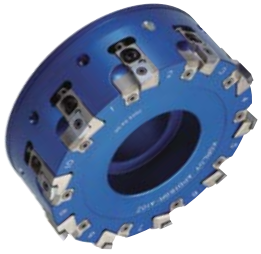



### Profondità max. RPM

| Diametro | Max. rpm(min–1) |
|---|---|
| Ø32 | 26,000 |
| Ø40 | 24,500 |
| Ø50 | 22,000 |
| Ø63 | 20,000 |

# APD(M)-A/B

AA 90° | • AR : 6° • RR : 5~9°



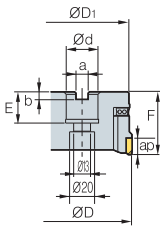



Fig. 1

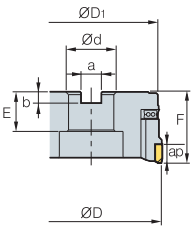



Fig. 2

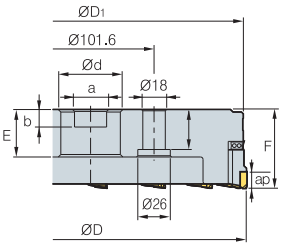



Fig. 3

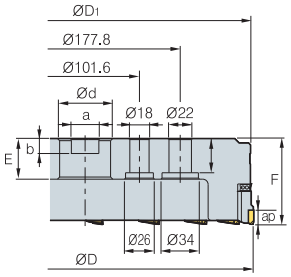



Fig. 4

(mm)

| Articolo | | Stock R | Stock L | ⚙ | ØD | ØD1 | Ød | a | b | E | F | ap | Max rpm | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| APD(M) | 080R/L-A6Z | ●(●) | | 6 | 80 | 76 | 25.4(27) | 9.5(12.4) | 6(7) | 25(22) | 50 | 10 | 16000 | 0.75 | 1 |
| | 100R/L-A6Z | ●(●) | | 6 | 100 | 95 | 31.75(32) | 12.7(14.4) | 8(8) | 32(28) | 50 | 10 | 15000 | 0.95 | 2 |
| | 125R/L-A8Z | ●(●) | | 8 | 125 | 120 | 38.1(40) | 15.9(16.4) | 10(9) | 38(30) | 63 | 10 | 12500 | 1.8 | 2 |
| | 160R/L-A10Z | | | 10 | 160 | 155 | 50.8(40) | 19.0(16.4) | 11(9) | 38(30) | 63 | 10 | 10000 | 2.9 | 2 |
| | 200R/L-A12Z | | | 12 | 200 | 195 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 10 | 8000 | 4.0 | 3 |
| | 250R/L-A16Z | | | 16 | 250 | 245 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 10 | 6500 | 6.3 | 3 |
| | 315R/L-A18Z | | | 18 | 315 | 310 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 80 | 10 | 5000 | 11.3 | 4 |
| APD(M) | 080R/L-B6Z | | | 6 | 80 | 76 | 25.4(27) | 9.5(12.4) | 6(7) | 25(22) | 50 | 6 | 16000 | 0.75 | 1 |
| | 100R/L-B6Z | | | 6 | 100 | 95 | 31.75(32) | 12.7(14.4) | 8(8) | 32(28) | 50 | 6 | 15000 | 0.95 | 2 |
| | 125R/L-B8Z | | | 8 | 125 | 120 | 38.1(40) | 15.9(16.4) | 10(9) | 38(30) | 63 | 6 | 12500 | 1.8 | 2 |
| | 160R/L-B10Z | | | 10 | 160 | 155 | 50.8(40) | 19.0(16.4) | 11(9) | 38(30) | 63 | 6 | 10000 | 2.9 | 2 |
| | 200R/L-B12Z | | | 12 | 200 | 195 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 6 | 8000 | 4.0 | 3 |
| | 250R/L-B16Z | | | 16 | 250 | 245 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 63 | 6 | 6500 | 6.3 | 3 |
| | 315R/L-B18Z | | | 18 | 315 | 310 | 47.625(60) | 25.4(25.7) | 14(14) | 38(38) | 80 | 6 | 5000 | 11.3 | 4 |

• Tipo A : Cartuccia + Inserto, Tipo B : Lama • ( )Sistema metrico ● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Cartuccia | Copritruciolo | Vite copritruciolo | Vite inserto |
|---|---|---|---|---|
| |  |  |  |  |
| APD–A | LAPDR/L-AJ | CAPDR/L-AJ | PTMA0411 | FTNA0411 |
| APD–B | - | CAPDR/L-AJ | PTMA0411 | - |
| | **Vite regolazione** | **Vite cartuccia** | **Chiave inserto** | **Chiave cartuccia** |
| |  |  |  |  |
| APD–A | AZ0514 | BHA0619-NYLOK | TW15S | HW50 |
| APD–B | AZ0514 | BHA0619-NYLOK | - | HW50 |

## Mandrini disponibili

| Articolo | | Attacco generico | Attacchi NC |
|---|---|---|---|
| APD(M) | 080R/L | NT*□□(M/U)-FMA25.4-25 | BT** □□-FMA25.4 -□□ |
| | 100R/L | NT*□□(M/U)-FMA31.75 -□□ | BT** □□-FMA31.75 -□□ |
| | 125R/L | NT*□□(M/U)-FMA38.1 -□□ | BT** □□-FMA38.1 -□□ |
| | 160R/L | NT*□□(M/U)-FMA50.8 -□□ | BT** □□-FMA50.8 -□□ |
| | 200R/L | NT*□□(M/U)-FMA47.625-25, KCP-8*** | BT** □□-FMA47.625-□□ |
| | 250R/L | NT*□□(M/U)-FMA47.625-25, KCP-8*** | BT** □□-FMA47.625-□□ |
| | 315R/L | KCP-8***(Center Ring Plug) | - |

*Numero □□–NT **Numero □□–BT ***Over Milling 5

## Condizioni di taglio raccomandate

| Pezzo lavorato | Condizioni di taglio vc(m/min) | Condizioni di taglio fz(mm/t) | Gradi |
|---|---|---|---|
| Alluminio | 1,000 ~ 4,000<br>500 ~ 2,500 | 0.05 ~ 0.30<br>0.05 ~ 0.20 | **DA200**<br>**H01** |

• Inserti disponibili, vedere pag. : E06, E07
• Attacchi e viti disponibili : E215~E217

## Inserti disponibili

| CDEW-XCF | CDEW-XAF,NAF | CDEW-XAW,NAW |
|---|---|---|
|  |  |  |

| Articolo | | PCD DA200 | Cermet CN2000 | Cermet CN20 | Cermet CN30 | Non rivestito H01 | Non rivestito G10 | Non rivestito ST30A | Non rivestito ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|
| CDEW | 1204R-XCF | | | | | ● | | | | E06 E07 |
| | 1204L-XCF | | | | | | | | | |
| | 1204R-XAF | ● | | | | | | | | |
| | 1204L-XAF | ● | | | | | | | | |
| | 1204R-NAF | ● | | | | | | | | |
| | 1204R-XAW | ● | | | | | | | | |
| | 1204L-XAW | ● | | | | | | | | |
| | 1204R-NAW | ● | | | | | | | | |

● : Disponibile ○ : A richiesta

## Lame disponibili

| BAPDR-XAF | BAPDR-NAF | BAPDR-XAW | BAPDR-NAW |
|---|---|---|---|
|  |  |  |  |

| Articolo | PCD DA200 | Pag. |
|---|---|---|
| BAPDR-XAF | ● | E06 |
| BAPDL-XAF | ● | |
| BAPDR-NAF | | E06 |
| BAPDR-XAW | ● | E06 |
| BAPDL-XAW | ● | |
| BAPDR-NAW | | E06 |
| BAPDL-NAW | | |

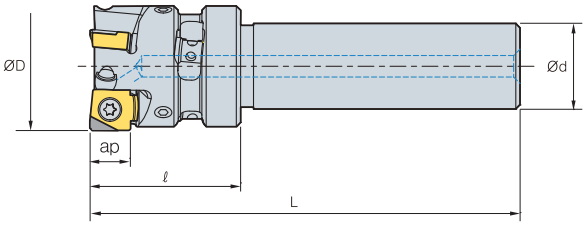
● : Disponibile ○ : A richiesta

# MAPDS000HR/L-Z0

New

AA 90°
• AR : 6°
• RR : −4°~−1°






(mm)

| Articolo | Stock R | Stock L | ⊚ | øD | ød | ℓ | L | ap | Max rpm | kg |
|---|---|---|---|---|---|---|---|---|---|---|
| MAPDS 032HR/L-Z3 | ● | | 3 | 32 | 20 | 35 | 100 | 5 | 26,000 | 0.35 |
| 040HR/L-Z4 | ● | | 4 | 40 | 20 | 35 | 100 | 5 | 24,500 | 0.42 |

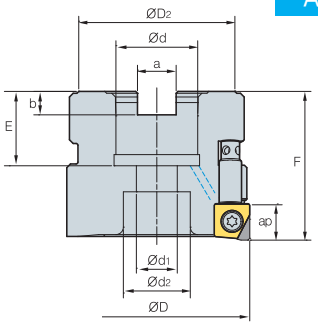
● : Disponibile ○ : A richiesta

# MAPD000HR/L-Z0

New

AA 90°
• AR : 6°
• RR : −1°~−12°






(mm)

| Articolo | Stock R | Stock L | ⊚ | øD | øD2 | ød | a | b | E | F | ød1 | ød2 | ap | Max rpm | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MAPD 040HR/L-Z4 | ● | | 4 | 40 | 34 | 16 | 8.4 | 5.6 | 18 | 40 | 9 | 14 | 5 | 24,000 | 0.24 |
| 050HR/L-Z5 | ● | | 5 | 50 | 42 | 22 | 10.4 | 6.3 | 20 | 40 | 11 | 18 | 5 | 22,000 | 0.35 |
| 063HR/L-Z6 | ● | | 6 | 63 | 42 | 22 | 10.4 | 6.3 | 20 | 40 | 11 | 18 | 5 | 20,000 | 0.65 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Vite | | | Chiave | |
|---|---|---|---|---|
| Inserto | Di regolazione | Di bilanciamento | Inserto | Di regolazione |
|  |  |  |  |  |
| FTKA0408 | AHX0617F-NYLOK | KHD0405 | TW15S | HW20L |

## Mandrini disponibili

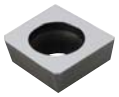
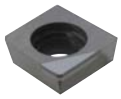
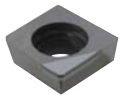
| Articolo | ød | Attacchi NC |
|---|---|---|
| MAPD 040HR/L-Z4 | 16 | BT** □□-FMC16-□□ |
| 050HR/L-Z5 | 22 | BT** □□-FMC22-□□ |
| 063HR/L-Z6 | 22 | BT** □□-FMC22-□□ |

## Condizioni di taglio raccomandate

| Pezzo lavorato | Condizioni di taglio vc(m/min) | Condizioni di taglio fz(mm/t) | Gradi |
|---|---|---|---|
| Alluminio | 1,000 ~ 4,000<br>500 ~ 2,500 | 0.05 ~ 0.30<br>0.05 ~ 0.20 | DA200<br>H01 |

• Inserti disponibili, vedere pag. : E11, E12
• Attacchi e viti disponibili : E172~E174

## Inserti disponibili

| SNEW | SNEW-XAF | SNEW-NAF |
|---|---|---|
|  |  |  |

| Articolo | PCD DP200 | Cermet CN2000 | Cermet CN20 | Cermet CN30 | Non rivestito H01 | Non rivestito G10 | Non rivestito ST30A | Non rivestito ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|
| SNEW 09T3ADFR | | | | | ● | | | | E16 |
| 09T3ADTR-XAF | | | | | | | | | |
| 09T3ADTR-NAF | | | | | | | | | |

● : Disponibile ○ : A richiesta

## Vite del refrigerante (non inclusa)

| Articolo | Fresa applicabile |
|---|---|
| CB0525 | MAPD40HR/L-Z4 |
| CB1025 | MAPD050HR/L-Z5, MAPD063HR/L-Z6 |

• I dettagli relativi la vite del refrigerante sono riportati a catalogo

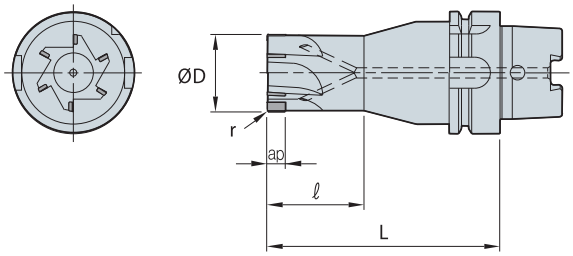
## Geometria delle frese a spianare PCD

| PDF | 6 | 032 | – | HSK63A |
|---|---|---|---|---|
| Frese a spianare PCD | Tagliente | Dia. | | Stelo |

## Frese a spianare PCD

AA 90° | • AR : 0° • RR : 0°






(mm)

| Articolo | | ⊙ | Gradi DP150 | Gradi DP200 | øD | r | ap | ℓ | L |
|---|---|---|---|---|---|---|---|---|---|
| PDF | 4032-HSK50A | 4 | | | 32 | 0.5 | 8 | 50 | 120 |
| | 4040-HSK50A | 4 | | | 40 | 0.5 | 8 | 50 | 120 |
| | 4032-HSK63A | 4 | | | 32 | 0.5 | 8 | 50 | 120 |
| | 4040-HSK63A | 4 | | | 40 | 0.5 | 8 | 50 | 120 |
| | 4050-HSK63A | 4 | | | 50 | 0.5 | 8 | 50 | 120 |
| | 6063-HSK63A | 6 | | | 63 | 0.5 | 12 | - | 100 |
| | 6063-HSK100A | 6 | | | 63 | 0.5 | 12 | - | 100 |

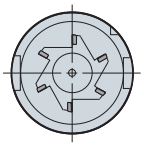
● : Disponibile ○ : A richiesta

### ● Condizioni di taglio raccomandate

| Pezzo lavorato | vc(m/min) | fz(mm/t) | ap(mm) |
|---|---|---|---|
| Alluminio, ottone, leghe | 200~2,000 | 0.02~0.1 | 0.05~4.0 |

## Modulo d'ordine speciale per PCD





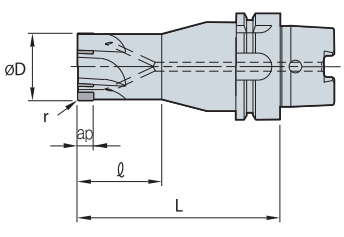



Fig. 1

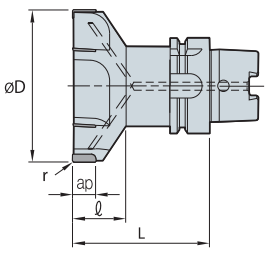



Fig. 2

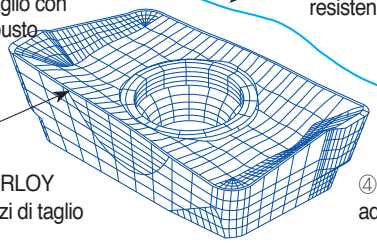
| Articolo | Fig | Tagliente | Spec.(mm) øD | r | ap | ℓ | L | Spec. stelo |
|---|---|---|---|---|---|---|---|---|
| PDF | | | | | | | | |

## Alpha-Mill

### Inserto Alpha-mill

① Inserto di lunga durata progettato per alte velocità, elevati avanzamenti e maggiori profondità di taglio con bassi sforzi e tagliente robusto

② La curvatura Alpha riduce gli sforzi di taglio mentre migliorano la robustezza del tagliente e la resistenza all'usura



③ Lo speciale design KORLOY consente di ridurre gli sforzi di taglio

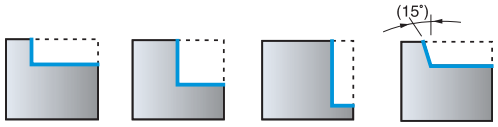
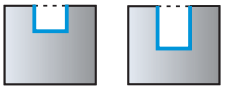
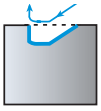
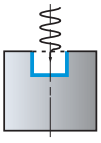
④ Elevata efficienza e gradi adatti ai più svariati materiali



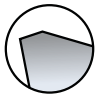
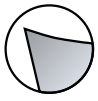
### Applicazione e caratteristiche

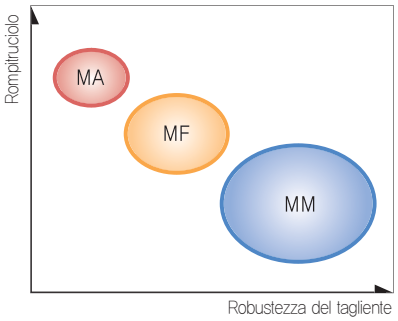
- L'innovativa curvatura del tagliente e lo speciale design del rompitruciolo garantiscono lavorazioni a 90° e bassi sforzi di taglio
- Grazie alle frese multifunzionali si possono svolgere svariate applicazioni (spianatura, scanalatura, spallamento retto ecc.)
- Maggiore durata dell'inserto per ogni singola lavorazione
- Prestazioni eccellenti con elevate profondità di taglio grazie al tagliente robusto e ai bassi sforzi di taglio

### Esempio di applicazioni

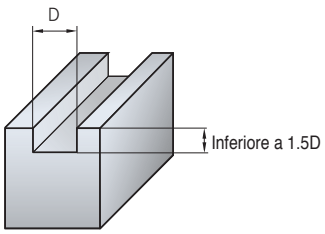
| Spallamento | | | | Svuotamento |
|---|---|---|---|---|
|  | | | |  |
| **Foratura** | | **Ramping** | | **Contornatura elicoidale** |
|  | |  | |  |

### Gradi e rompitruciolo raccomandati per pezzo lavorato

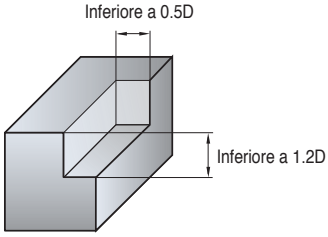
| Rompi-truciolo | Tagliente | | Rompitruciolo e grado raccomandati per pezzo lavorato (●: 1°) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Acciaio basso tenore carbonio Acciaio leggero | | Acciaio alto tenore carbonio Acciaio legato | | Acciaio inossidabile | | Ghisa | | Lega di alluminio | |
| | | | C/B | Gradi | C/B | Gradi | C/B | Gradi | C/B | Gradi | C/B | Gradi |
| MF |  | Tagliente affilato | ● | ● PC3500<br>○ NCM325<br>○ NCM335<br>○ NC5330 | | ● PC3500<br>○ PC3545<br>○ NCM325<br>○ NCM335<br>○ NC5330 | | ● PC5300<br>○ PC9530 | | ● PC5300<br>○ PC6510 | – | – |
| MM |  | Tagliente robusto | – | ● PC3500<br>○ NCM325<br>○ NCM335<br>○ NC5330 | ● | ● PC3500<br>○ NCM325<br>○ NCM335<br>○ NC5330 | ● | ● PC5300<br>○ PC9530 | ● | ● PC5300<br>○ PC6510 | – | – |
| MA |  | Tagliente affilato | – | – | – | – | – | – | – | – | ● | H01 |



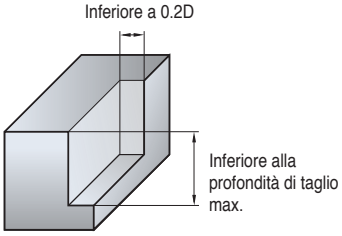
## Profondità di taglio raccomandata




① Scanalatura




② Spallamento




③ Spallamento

## Condizioni di taglio raccomandate (per multitagliente)

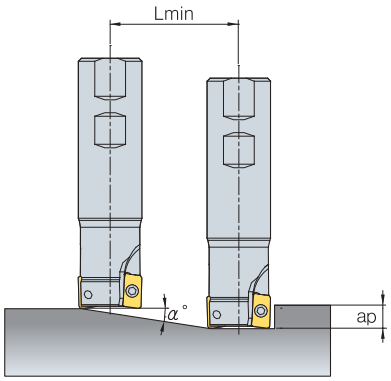
| Pezzo lavorato | Gradi | Fig. | Diametro utensile | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Ø20, 25 | | Ø32, 40 | | Ø50, 63 | | Ø80, 100 | |
| | | | vc(m/min) | fz(mm/t) | vc(m/min) | fz(mm/t) | vc(m/min) | fz(mm/t) | vc(m/min) | fz(mm/t) |
| Acciaio leggero, Acciaio a basso tenore carbonio | NC5330 NCM325 PC3500 | ① | 80~100 | 0.05~0.08 | 100~120 | 0.05~0.08 | 100~120 | 0.05~0.08 | 100~120 | 0.05~0.08 |
| | | ② | 100~120 | 0.08~0.1 | 120~140 | 0.08~0.1 | 120~140 | 0.08~0.1 | 120~140 | 0.08~0.1 |
| | | ③ | 100~120 | 0.1~0.15 | 140~140 | 0.1~0.15 | 120~140 | 0.1~0.15 | 130~150 | 0.1~0.15 |
| Acciaio a elevato tenore di carbonio Acciaio legato | NC5330 NCM325 PC3500 | ① | 60~80 | 0.05 | 80~100 | 0.05 | 80~100 | 0.05 | 80~100 | 0.05 |
| | | ② | 80~100 | 0.05~0.08 | 100~120 | 0.08~0.1 | 100~120 | 0.08~0.1 | 100~120 | 0.08~0.1 |
| | | ③ | 80~100 | 0.1~0.15 | 110~130 | 0.1~0.15 | 100~120 | 0.1~0.15 | 110~130 | 0.1~0.15 |
| Acciaio per utensili legato | NC5330 NCM325 PC3500 | ① | 50~70 | 0.05 | 70~90 | 0.05 | 70~90 | 0.05 | 70~90 | 0.05 |
| | | ② | 60~80 | 0.05~0.08 | 90~120 | 0.05~0.08 | 100~120 | 0.05~0.08 | 100~120 | 0.05~0.08 |
| | | ③ | 90~110 | 0.12~0.18 | 100~130 | 0.1~0.15 | 100~120 | 0.1~0.15 | 110~130 | 0.1~0.15 |
| Acciaio inossidabile | PC5300 PC9530 | ① | 50~70 | 0.054 | 70~90 | 0.05 | 70~90 | 0.05 | 70~90 | 0.05 |
| | | ② | 60~80 | 0.05~0.08 | 90~120 | 0.05~0.08 | 100~120 | 0.05~0.08 | 100~120 | 0.05~0.08 |
| | | ③ | 90~110 | 0.1~0.15 | 100~130 | 0.1~0.15 | 110~130 | 0.1~0.15 | 110~130 | 0.1~0.15 |
| Ghisa | PC6510 PC5300 | ① | 70~90 | 0.1~0.12 | 70~90 | 0.1~0.12 | 90~120 | 0.1~0.12 | 90~120 | 0.1~0.12 |
| | | ② | 80~100 | 0.12 | 90~120 | 0.12 | 100~140 | 0.12 | 100~140 | 0.12 |
| | | ③ | 80~100 | 0.15~0.2 | 100~130 | 0.15~0.2 | 120~150 | 0.15~0.2 | 120~150 | 0.15~0.2 |
| Lega di alluminio | H01 | ① | 200~800 | 0.1~0.2 | 300~900 | 0.1~0.2 | 400~1,000 | 0.1~0.2 | 400~1,000 | 0.1~0.2 |
| | | ② | 250~900 | 0.15~0.3 | 300~950 | 0.15~0.3 | 400~1,000 | 0.1~0.4 | 400~1,000 | 0.1~0.4 |
| | | ③ | 250~900 | 0.15~0.3 | 300~950 | 0.15~0.3 | 400~1,000 | 0.1~0.4 | 400~1,000 | 0.1~0.4 |
| Materiali temprati | PC3545 PC5300 | ① | 50~70 | 0.03 | 60~90 | 0.03 | 60~90 | 0.03 | 60~90 | 0.03 |
| | | ② | 60~80 | 0.05~0.08 | 80~100 | 0.05~0.08 | 80~100 | 0.05~0.08 | 80~100 | 0.05~0.08 |
| | | ③ | 80~100 | 0.05~0.08 | 80~100 | 0.05~0.08 | 80~100 | 0.05~0.08 | 80~100 | 0.05~0.08 |

## Condizioni di taglio raccomandate (un tagliente)

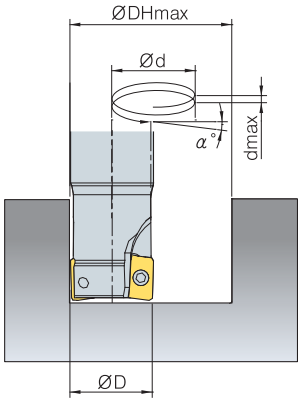
| Pezzo lavorato | Gradi | Fig. | Diametro utensile | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Ø20, 25 | | Ø32, 40 | | Ø50, 63 | | Ø80, 100 | |
| | | | vc(m/min) | fz(mm/t) | vc(m/min) | fz(mm/t) | vc(m/min) | fz(mm/t) | vc(m/min) | fz(mm/t) |
| Acciaio leggero, Acciaio a basso tenore carbonio | NC5330 NCM325 PC3500 | ① | 60~80 | 0.05~0.08 | 80~120 | 0.05~0.08 | 120~200 | 0.05~0.08 | 150~200 | 0.05~0.08 |
| | | ② | 80~120 | 0.08~0.1 | 120~180 | 0.08~0.1 | 180~250 | 0.08~0.1 | 200~250 | 0.08~0.1 |
| | | ③ | 80~120 | 0.1~0.15 | 120~180 | 0.1~0.15 | 180~250 | 0.1~0.15 | 200~250 | 0.1~0.15 |
| Acciaio a elevato tenore di carbonio Acciaio legato | NC5330 NCM325 PC3500 | ① | 50~80 | 0.05 | 80~110 | 0.05 | 100~150 | 0.05 | 100~150 | 0.05 |
| | | ② | 80~100 | 0.05~0.08 | 110~150 | 0.05~0.1 | 150~200 | 0.05~0.1 | 150~200 | 0.05~0.1 |
| | | ③ | 80~100 | 0.1~0.15 | 120~150 | 0.1~0.15 | 180~200 | 0.1~0.15 | 80~200 | 0.1~0.15 |
| Acciaio per utensili legato | NC5330 NCM325 PC3500 | ① | 50~70 | 0.05 | 80~100 | 0.05 | 100~130 | 0.05 | 100~130 | 0.05 |
| | | ② | 70~100 | 0.05~0.08 | 100~130 | 0.05~0.1 | 130~180 | 0.05~0.1 | 130~180 | 0.05~0.1 |
| | | ③ | 70~100 | 0.1~0.15 | 100~150 | 0.1~0.15 | 130~180 | 0.1~0.15 | 130~180 | 0.1~0.15 |
| Acciaio inossidabile | PC5300 PC9530 | ① | 50~70 | 0.05 | 80~100 | 0.05 | 100~130 | 0.05 | 100~130 | 0.05 |
| | | ② | 70~100 | 0.05~0.08 | 100~130 | 0.05~0.1 | 130~180 | 0.05~0.1 | 130~180 | 0.05~0.1 |
| | | ③ | 70~100 | 0.1~0.15 | 100~150 | 0.1~0.15 | 130~180 | 0.1~0.15 | 130~180 | 0.1~0.15 |
| Ghisa | PC6510 PC5300 | ① | 80~100 | 0.08~0.12 | 80~100 | 0.15 | 120~150 | 0.15 | 120~150 | 0.15 |
| | | ② | 100~120 | 0.12~0.15 | 100~130 | 0.15~0.18 | 150~200 | 0.15~0.18 | 150~200 | 0.15~0.18 |
| | | ③ | 100~120 | 0.15~0.2 | 100~130 | 0.15~0.2 | 150~200 | 0.15~0.2 | 150~200 | 0.15~0.2 |
| Lega di alluminio | H01 | ① | 250~800 | 0.15~0.2 | 300~900 | 0.15~0.2 | 400~1,000 | 0.1~0.2 | 400~1,000 | 0.1~0.2 |
| | | ② | 250~900 | 0.2~0.25 | 350~950 | 0.2~0.25 | 400~1,000 | 0.2~0.3 | 400~1,000 | 0.2~0.3 |
| | | ③ | 250~900 | 0.25~0.3 | 350~950 | 0.25~0.3 | 400~1,000 | 0.3~0.1 | 400~1,000 | 0.3~0.4 |
| Materiali temprati | PC3545 PC5300 | ① | 50~70 | 0.03 | 60~90 | 0.03 | 60~90 | 0.03 | 60~90 | 0.03 |
| | | ② | 60~80 | 0.05~0.08 | 80~100 | 0.05~0.08 | 80~100 | 0.05~0.08 | 80~100 | 0.05~0.08 |
| | | ③ | 80~100 | 0.05~0.08 | 80~100 | 0.05~0.08 | 80~100 | 0.05~0.08 | 80~100 | 0.05~0.08 |

## Condizioni di taglio per ramping e fresatura elicoidale

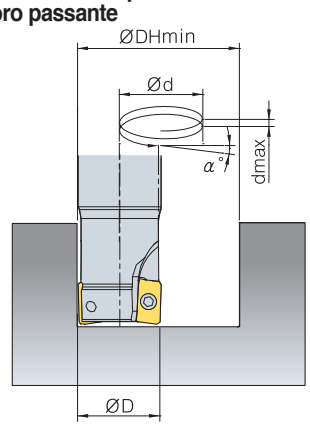
**1. Ramping**




**2. Foro cieco**




**3. Fresatura elicoidale per esecuzione di un foro passante**

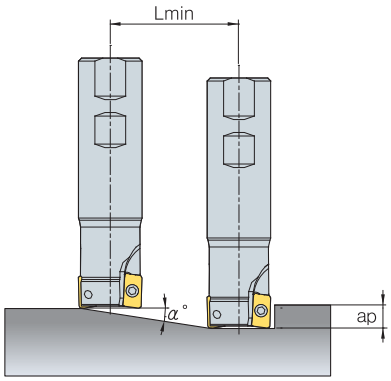



| Articolo | Diametro utensile ØD(min) | Ramping | | | Foro cieco | | | | Fresatura elicoidale per foro passante | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | ap | Angolazione max. α(°) | Lmin(mm) | Diametro max. foro ØDHmax(mm) | Passo max. dmax(mm) | Diametro min. foro ØDHmin(mm) | Passo max. dmax(mm) | Diametro min. foro ØDHmin(mm) | Passo max. dmax(mm) |
| **AMS1010HS** | 10 | 5 | 6.5 | 44 | 18.8 | 2.1 | 17.6 | 2.0 | 13 | 1.5 |
| **AMS1011HS** | 11 | | 5.6 | 51 | 20.8 | 2.0 | 19.6 | 1.9 | 15 | 1.5 |
| **AMS1012HS** | 12 | | 4.9 | 58 | 22.8 | 2.0 | 21.6 | 1.9 | 17 | 1.5 |
| **AMS1014HS** | 14 | | 3.9 | 73 | 26.8 | 1.8 | 25.6 | 1.8 | 21 | 1.4 |
| **AMS1015HS** | 15 | | 3.6 | 80 | 28.8 | 1.8 | 27.6 | 1.7 | 23 | 1.4 |
| **AMS1016HS** | 16 | | 3.3 | 87 | 30.8 | 1.8 | 29.6 | 1.7 | 25 | 1.4 |
| **AMS1017HS** | 17 | | 3.0 | 94 | 32.8 | 1.7 | 31.6 | 1.7 | 27 | 1.4 |
| **AMS1018HS** | 18 | | 2.8 | 101 | 34.8 | 1.7 | 33.6 | 1.7 | 29 | 1.4 |
| **AMS1020HS** | 20 | | 2.5 | 115 | 38.8 | 1.7 | 37.6 | 1.6 | 33 | 1.4 |
| **AMS1021HS** | 21 | | 2.3 | 123 | 40.8 | 1.7 | 39.6 | 1.6 | 35 | 1.4 |
| **AMS1022HS** | 22 | | 2.2 | 130 | 42.8 | 1.6 | 41.6 | 1.6 | 37 | 1.4 |
| **AMS1025HS** | 25 | | 1.9 | 151 | 48.8 | 1.6 | 47.6 | 1.6 | 43 | 1.4 |
| **AMS1026HS** | 26 | | 1.8 | 158 | 50.8 | 1.6 | 49.6 | 1.6 | 45 | 1.4 |
| **AMS1032HS** | 32 | | 1.4 | 201 | 62.8 | 1.6 | 61.6 | 1.5 | 57 | 1.4 |
| **AMS1033HS** | 33 | | 1.4 | 208 | 64.8 | 1.6 | 63.6 | 1.5 | 59 | 1.4 |
| **AMC1032HS** | 32 | | 1.4 | 201 | 62.8 | 1.6 | 61.6 | 1.5 | 57 | 1.4 |
| **AMC1040HS** | 40 | | 1.1 | 258 | 78.8 | 1.5 | 77.6 | 1.5 | 73 | 1.4 |
| **AMC1050HS** | 50 | | 0.9 | 330 | 98.8 | 1.5 | 97.6 | 1.5 | 93 | 1.4 |
| **AMC1063HS** | 63 | | 0.7 | 423 | 124.8 | 1.5 | 123.6 | 1.5 | 119 | 1.4 |
| **AMS1510HS** | 10 | 9 | 7.5 | 68 | 18.8 | 2.5 | 17.4 | 2.3 | 11 | 1.5 |
| **AMS1512HS** | 12 | | 6.5 | 79 | 22.8 | 2.6 | 21.4 | 2.4 | 15 | 1.7 |
| **AMS1513HS** | 13 | | 5.7 | 90 | 24.8 | 2.5 | 23.4 | 2.3 | 17 | 1.7 |
| **AMS1514HS** | 14 | | 6.3 | 82 | 26.8 | 2.9 | 25.4 | 2.8 | 19 | 2.1 |
| **AMS1516HS** | 16 | | 5.0 | 102 | 30.8 | 2.7 | 29.4 | 2.6 | 23 | 2.0 |
| **AMS1517HS** | 17 | | 4.6 | 112 | 32.8 | 2.6 | 31.4 | 2.5 | 25 | 2.0 |
| **AMS1518HS** | 18 | | 4.2 | 122 | 34.8 | 2.6 | 33.4 | 2.5 | 27 | 2.0 |
| **AMS1519HS** | 19 | | 3.9 | 132 | 36.8 | 2.5 | 35.4 | 2.4 | 29 | 2.0 |
| **AMS1520HS** | 20 | | 3.6 | 142 | 38.8 | 2.5 | 37.4 | 2.4 | 31 | 2.0 |
| **AMS1521HS** | 21 | | 3.4 | 152 | 40.8 | 2.4 | 39.4 | 2.3 | 33 | 2.0 |
| **AMS1522HS** | 22 | | 3.2 | 162 | 42.8 | 2.4 | 41.4 | 2.3 | 35 | 1.9 |
| **AMS1524HS** | 24 | | 2.8 | 182 | 46.8 | 2.3 | 45.4 | 2.2 | 39 | 1.9 |
| **AMS1525HS** | 25 | | 2.7 | 192 | 48.8 | 2.3 | 47.4 | 2.2 | 41 | 1.9 |
| **AMS1528HS** | 28 | | 2.3 | 222 | 54.8 | 2.2 | 53.4 | 2.2 | 47 | 1.9 |
| **AMS1530HS** | 30 | | 2.1 | 242 | 58.8 | 2.2 | 57.4 | 2.1 | 51 | 1.9 |
| **AMS1532HS** | 32 | | 2.0 | 262 | 62.8 | 2.2 | 61.4 | 2.1 | 55 | 1.9 |
| **AMS1535HS** | 35 | | 1.8 | 292 | 68.8 | 2.1 | 67.4 | 2.1 | 61 | 1.9 |
| **AMS1540HS** | 40 | | 1.5 | 342 | 78.8 | 2.1 | 77.4 | 2.0 | 71 | 1.9 |
| **AMC15040HS** | 40 | | 1.5 | 342 | 78.8 | 2.1 | 77.4 | 2.0 | 71 | 1.9 |
| **AMC15050HS** | 50 | | 1.2 | 442 | 98.8 | 2.0 | 97.4 | 2.0 | 91 | 1.9 |
| **AMC15063HS** | 63 | | 0.9 | 572 | 124.8 | 2.0 | 123.4 | 1.9 | 117 | 1.8 |
| **AMC15080HS** | 80 | | 0.7 | 742 | 158.8 | 1.9 | 157.4 | 1.9 | 151 | 1.8 |
| **AMC15100HS** | 100 | | 0.5 | 942 | 198.8 | 1.9 | 197.4 | 1.9 | 191 | 1.8 |

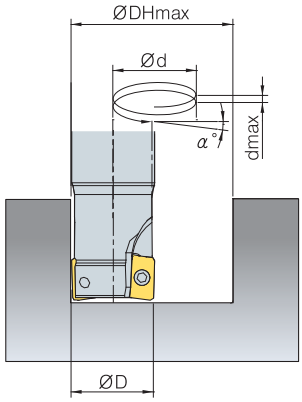
$$L\,min = \frac{ap}{\tan \alpha^{\circ}} \quad (mm)$$

## Condizioni di taglio per ramping e fresatura elicoidale

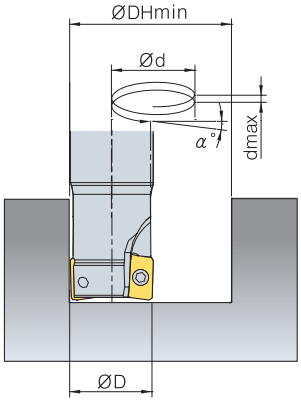
1. Ramping




2. Foro cieco




3. Fresatura elicoidale per esecuzione di un foro passante




| Articolo | Diametro utensile ØD(min) | Ramping | | | Foro cieco | | | | Fresatura elicoidale per foro passante | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | ap | Angolazione max. α(°) | Lmin(mm) | Diametro max. foro ØDHmax(mm) | Passo max. dmax(mm) | Diametro min. foro ØDHmin(mm) | Passo max. dmax(mm) | Diametro min. foro ØDHmin(mm) | Passo max. dmax(mm) |
| **AMS2010HS** | 10 | 10 | 16.82 | 33 | 18 | 5.4 | 16.4 | 5.0 | 11 | 3.3 |
| **AMS2012HS** | 12 | | 11.69 | 48 | 22 | 4.6 | 20.4 | 4.2 | 15 | 3.1 |
| **AMS2014HS** | 14 | | 7.55 | 75 | 26 | 3.4 | 24.4 | 3.2 | 19 | 2.5 |
| **AMS2016HS** | 16 | | 10.30 | 55 | 30 | 5.5 | 28 | 5.1 | 23 | 4.2 |
| **AMS2018HS** | 18 | | 8.23 | 69 | 34 | 4.9 | 32 | 4.6 | 27 | 3.9 |
| **AMS2020HS** | 20 | | 5.60 | 102 | 38 | 3.7 | 36 | 3.5 | 31 | 3.0 |
| **AMS2022HS** | 22 | | 5.15 | 111 | 42 | 3.8 | 40 | 3.6 | 35 | 3.2 |
| **AMS2025HS** | 25 | | 3.92 | 146 | 48 | 3.3 | 46 | 3.2 | 41 | 2.8 |
| **AMS2032HS** | 32 | | 2.70 | 212 | 62 | 2.9 | 60 | 2.8 | 55 | 2.6 |
| **AMS2040HS** | 40 | | 1.98 | 289 | 78 | 2.7 | 76 | 2.6 | 71 | 2.5 |
| **AMS2050HS** | 50 | | 1.48 | 386 | 98 | 2.5 | 96 | 2.5 | 91 | 2.4 |
| **AMS2063HS** | 63 | | 1.11 | 514 | 124 | 2.4 | 122 | 2.4 | 117 | 2.3 |
| **AMC2050HS** | 50 | | 0.36 | 1576 | 98 | 0.6 | 96 | 0.6 | 91 | 0.6 |
| **AMC2063HS** | 63 | | 0.27 | 2104 | 124 | 0.6 | 122 | 0.6 | 117 | 0.6 |
| **AMC2080HS** | 80 | | 0.21 | 2784 | 158 | 0.6 | 156 | 0.6 | 151 | 0.5 |
| **AMC2100HS** | 100 | | 0.16 | 3584 | 198 | 0.6 | 196 | 0.5 | 191 | 0.5 |
| **AMS3025HS** | 25 | 10 | 4.72 | 121 | 48 | 4.0 | 46 | 3.8 | 36 | 3.0 |
| **AMS3032HS** | 32 | | 3.00 | 191 | 62 | 3.2 | 60 | 3.1 | 50 | 2.6 |
| **AMS3040HS** | 40 | | 2.29 | 250 | 78 | 3.1 | 76 | 3.0 | 66 | 2.6 |
| **AMS3050HS** | 50 | | 1.64 | 350 | 98 | 2.8 | 96 | 2.7 | 86 | 2.5 |
| **AMS3063HS** | 63 | | 1.22 | 470 | 124 | 2.6 | 122 | 2.6 | 112 | 2.4 |
| **AMC3040HS** | 40 | | 1.99 | 288 | 78 | 2.7 | 76 | 2.6 | 66 | 2.3 |
| **AMC3050HS** | 50 | | 1.67 | 343 | 98 | 2.9 | 96 | 2.8 | 86 | 2.5 |
| **AMC3063HS** | 63 | | 1.22 | 470 | 124 | 2.6 | 122 | 2.6 | 112 | 2.4 |
| **AMC3080HS** | 80 | | 0.90 | 636 | 158 | 2.5 | 156 | 2.5 | 146 | 2.3 |
| **AMC3100HS** | 100 | | 0.69 | 830 | 198 | 2.4 | 196 | 2.4 | 186 | 2.2 |
| **AMS2025MH** | 25 | 10 | 1.50 | 764 | 48 | 1.3 | 46 | 1.2 | - | - |
| **AMS2032MH** | 32 | | 1.50 | 1146 | 62 | 1.6 | 60 | 1.6 | - | - |
| **AMS3040MH** | 40 | 16 | 1.50 | 1528 | 78 | 2.0 | 76 | 2.0 | - | - |
| **AMS4020HS** | 20 | 16 | 9.5 | 98 | 38.8 | 6.5 | 37.4 | 6.2 | 31 | 5.2 |
| **AMS4021HS** | 21 | | 5.2 | 179 | 40.8 | 3.7 | 39.4 | 3.6 | 33 | 3.0 |
| **AMS4025HS** | 25 | | 7.6 | 122 | 48.8 | 6.5 | 47.4 | 6.3 | 41 | 5.5 |
| **AMS4026HS** | 26 | | 7.1 | 130 | 50.8 | 6.4 | 49.4 | 6.2 | 43 | 5.4 |
| **AMS4032HS** | 32 | | 3.4 | 276 | 62.8 | 3.7 | 61.4 | 3.6 | 55 | 3.3 |
| **AMS4033HS** | 33 | | 3.2 | 288 | 64.8 | 3.7 | 63.4 | 3.6 | 57 | 3.2 |
| **AMS4040HS** | 40 | | 2.5 | 376 | 78.8 | 3.4 | 77.4 | 3.4 | 71 | 3.1 |
| **AMS4050HS** | 50 | | 1.9 | 502 | 98.8 | 3.2 | 97.4 | 3.2 | 91 | 3.0 |
| **AMS4063HS** | 63 | | 1.4 | 665 | 124.8 | 3.1 | 123.4 | 3.0 | 117 | 2.9 |
| **AMC4050HS** | 50 | | 1.9 | 502 | 98.8 | 3.2 | 97.4 | 3.2 | 91 | 3.0 |
| **AMC4063HS** | 63 | | 1.4 | 665 | 124.8 | 3.1 | 123.4 | 3.0 | 117 | 2.9 |
| **AMC4080HS** | 80 | | 1.1 | 878 | 158.8 | 2.9 | 157.4 | 2.9 | 151 | 2.8 |
| **AMC4100HS** | 100 | | 0.8 | 1128 | 198.8 | 2.9 | 197.4 | 2.9 | 191 | 2.8 |
| **AMC4125HS** | 125 | | 0.6 | 1442 | 248.8 | 2.8 | 247.4 | 2.8 | 241 | 2.7 |

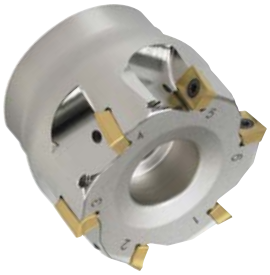
$$L\ min = \frac{ap}{\tan \alpha^{\circ}} \ (mm)$$

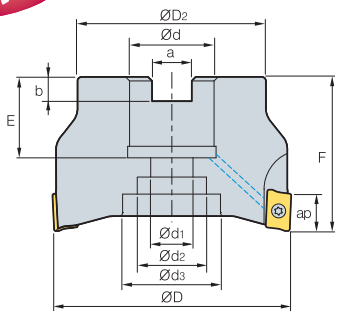
# AMC(M)1000S/1500S/2000S

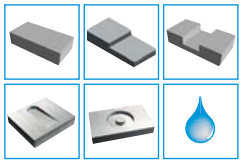
New

AA 90°

• AR : 9°~13°
• RR : -14°~5°





• RR(RR°)

(mm)

| Articolo | | Stock | | øD | øD2 | ød | ød1 | ød2 | ød3 | a | b | E | F | ap | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AMC(M) | 1032HS | (○) | 8 | 32 | 30 | 16 | 9 | 14 | - | 8.4 | 5.6 | 19 | 40 | 5.6 | 0.15 |
| New | 1040HS-16 | (○) | 10 | 40 | 34 | 16 | 9 | 14 | - | 8.4 | 5.6 | 19 | 40 | 5.6 | 0.24 |
| | 1040HS-22 | (○) | 10 | 40 | 34 | 22 | 11 | 18 | - | 10.4 | 6.3 | 21 | 40 | 5.6 | 0.24 |
| | 1050HS | (○) | 12 | 50 | 42 | 22 | 11 | 18 | - | 10.4 | 6.3 | 21 | 40 | 5.6 | 0.36 |
| | 1063HS | (○) | 14 | 63 | 49 | 22 | 11 | 18 | - | 10.4 | 6.3 | 21 | 40 | 5.6 | 0.61 |
| AMC(M) | 15040HS | (●) | 5 | 40 | 34 | 16 | 9 | 14 | - | 8.4 | 5.6 | 19 | 40 | 9 | 0.22 |
| New | 15050HS | (●) | 6 | 50 | 42 | 22 | 11 | 18 | - | 10.4 | 6.3 | 21 | 40 | 9 | 0.34 |
| | 15063HS | (●) | 8 | 63 | 49 | 22 | 11 | 18 | - | 10.4 | 6.3 | 21 | 40 | 9 | 0.57 |
| | 15080HS | ●(●) | 10 | 80 | 57 | 25.4(27) | 14 | 25 | 35 | 9.5(12.4) | 6(7) | 24(23) | 50 | 9 | 1.10 |
| | 15100HS | ●(●) | 12 | 100 | 67 | 31.75(32) | 18 | 26 | 42 | 12.7(14.4) | 8(8) | 32(26) | 63 | 9 | 2.10 |
| AMC(M) | 2040HS | (●) | 5 | 40 | 34 | 16 | 9 | 14 | - | 8.4 | 5.6 | 18 | 40 | 11 | 0.22 |
| | 2050HS | ●(●) | 6 | 50 | 42 | 22 | 11 | 18 | - | 10.4 | 6.3 | 20 | 40 | 11 | 0.34 |
| | 2063HS | ●(●) | 8 | 63 | 49 | 22 | 11 | 18 | - | 10.4 | 6.3 | 20 | 40 | 11 | 0.57 |
| | 2080HS | ○(●) | 10 | 80 | 57 | 25.4(27) | 14 | 20 | - | 9.5(12.4) | 6(7) | 25(22) | 50 | 11 | 1.10 |
| | 2100HS | | 12 | 100 | 67 | 31.75(32) | 18 | 26 | - | 12.7(14.4) | 8(8) | 32(28) | 63 | 11 | 2.10 |

• ( )Sistema metrico

● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Vite | Chiave | | Dia. fresa applicabile |
|---|---|---|---|---|
| |  |  |  | |
| Tipo 1000 | FTKA01842 | - | TW06S-A | Ø32~Ø63 |
| Tipo 1500 | FTKA02555S | TW08S | - | Ø10~Ø14 |
| | FTKA02565S | | | Ø16~Ø100 |
| Tipo 2000 | FTKA02550S | TW08S | - | Ø10~Ø14 |
| | FTKA02565S | | | Ø16~Ø100 |

## Mandrini disponibili

| Tipo | Articolo | | Ød | Attacchi NC |
|---|---|---|---|---|
| 1000 | AMC(M) | 1032HS | 16 | BT□□-FMC16-□□ |
| | | 1040HS-16 | 16 | BT□□-FMC16-□□ |
| | | 1040HS-22 | 22 | BT□□-FMC22-□□ |
| | | 1050HS | 22 | BT□□-FMC22-□□ |
| | | 1063HS | 22 | BT□□-FMC22-□□ |
| 1500 | AMC(M) | 15040HS | 16 | BT□□-FMC16-□□ |
| | | 15050HS | 22 | BT□□-FMC22-□□ |
| | | 15063HS | 22 | BT□□-FMC22-□□ |
| | | 15080HS | 25.4 | BT□□-FMA25.4-□□ |
| | | | 27 | BT□□-FMC27-□□ |
| | | 15100HS | 31.75 | BT□□-FMA31.75-□□ |
| | | | 32 | BT□□-FMC32-□□ |
| 2000 | AMC(M) | 2040HS | 16 | BT□□-FMC16-□□ |
| | | 2050HS | 22 | BT□□-FMC22-□□ |
| | | 2063HS | 22 | BT□□-FMC22-□□ |
| | | 2080HS | 25.4 | BT□□-FMA25.4-□□ |
| | | | 27 | BT□□-FMC27-□□ |
| | | 2100HS | 31.75 | BT□□-FMA31.75-□□ |
| | | | 32 | BT□□-FMC32-□□ |

• Inserti disponibili, vedere pag. : E05
• Attacchi e viti disponibili : E215~E217

## Inserti disponibili

APMT-MM APMT-MF




| Tipo | Articolo | Rivestito | | | | | | | | | | Cermet | | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| 1000 | APMT 060202PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | E05 |
| | 0602PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 060208PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 060212R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| 1500 | 0903PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | E05 |
| | 090308PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 090312R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 090316R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 090320R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| 2000 | 11T3PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | E05 |
| | 11T3PDSR-MF | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 11T308PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 11T312PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 11T316R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 11T318R-MM | | | | | | | | | | | | | | | | | | |
| | 11T324R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |

● : Disponibile ○ : A richiesta

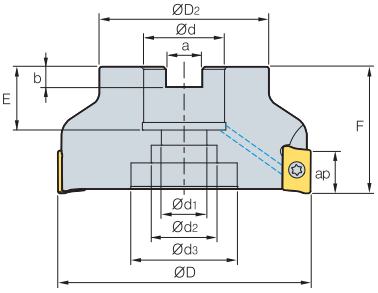
# AMC(M)3000S/3000S-K

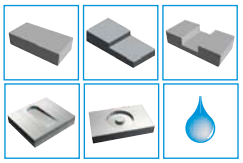
New

AA 90°

• AR : 14°
• RR : −12°~8°





(mm)

| Articolo | | Stock | ⌀ | øD | øD2 | ød | ød1 | ød2 | ød3 | a | b | E | F | ap | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AMC(M) | 3040HS | (●) | 4 | 40 | 34 | 16 | 9 | 14 | - | 8.4 | 5.6 | 18 | 40 | 16 | 0.15 |
| | 3050HS | (●) | 5 | 50 | 42 | 22 | 11 | 18 | - | 10.4 | 6.3 | 20 | 40 | 16 | 0.24 |
| | 3063HS | (●) | 6 | 63 | 49 | 22 | 11 | 18 | - | 10.4 | 6.3 | 20 | 40 | 16 | 0.24 |
| | 3080HS | ●(●) | 7 | 80 | 57 | 25.4(27) | 14 | 20 | - | 9.5(12.4) | 6(7) | 25(22) | 50 | 16 | 0.36 |
| | 3100HS | ●(●) | 8 | 100 | 67 | 31.75(32) | 18 | 26 | - | 12.7(14.4) | 8(8) | 32(28) | 63 | 16 | 0.61 |
| AMC(M) | 3040HS-K | ● | 4 | 40 | 34 | 16 | 9 | 14 | - | 8.4 | 5.6 | 18 | 40 | 16 | 0.15 |
| New | 3050HS-K | ●(○) | 5 | 50 | 42 | 22 | 11 | 18 | - | 10.4 | 6.3 | 20 | 40 | 16 | 0.24 |
| | 3063HS-K | ● | 6 | 63 | 49 | 22 | 11 | 18 | - | 10.4 | 6.3 | 20 | 40 | 16 | 0.24 |
| | 3080HS-K | ● | 7 | 80 | 57 | 25.4(27) | 14 | 20 | - | 9.5(12.4) | 6(7) | 25(22) | 50 | 16 | 0.36 |
| | 3100HS-K | ● | 8 | 100 | 67 | 31.75(32) | 18 | 26 | - | 12.7(14.4) | 8(8) | 32(28) | 63 | 16 | 0.61 |

• ( )Sistema metrico

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Vite | Chiave | Dia. fresa applicabile |
|---|---|---|
|  |  | |
| FTKA0408 | TW15S | Ø25 |
| FTKA0410 | | Ø32~Ø100 |

## Mandrini disponibili

| Articolo | | ød | Attacchi NC |
|---|---|---|---|
| AMC(M) | 3040HS | 16 | BT□□-FMC16-□□ |
| | 3050HS | 22 | BT□□-FMC22-□□ |
| | 3063HS | 22 | BT□□-FMC22-□□ |
| | 3080HS | 25.4 | BT□□-FMA25.4-□□ |
| | | 27 | BT□□-FMC27-□□ |
| | 3100HS | 31.75 | BT□□-FMA31.75-□□ |
| | | 32 | BT□□-FMC32-□□ |
| AMC(M) | 3040HS-K | 16 | BT□□-FMC16-□□ |
| | 3050HS-K | 22 | BT□□-FMC22-□□ |
| | 3063HS-K | 22 | BT□□-FMC22-□□ |
| | 3080HS-K | 25.4 | BT□□-FMA25.4-□□ |
| | | 27 | BT□□-FMC27-□□ |
| | 3100HS-K | 31.75 | BT□□-FMA31.75-□□ |
| | | 32 | BT□□-FMC32-□□ |

• Inserti disponibili, vedere pag. : E04, E05
• Attacchi e viti disponibili : E215~E217

## Inserti disponibili

APFT-X22 APFT-X28 APMT-MF APMT-MM APKT APKT-MF APKT-MM APKT-MM1



APKT-MA APKT-MA2 APKT-MA3 APKT-X22 APKT-X23 APKT-X24



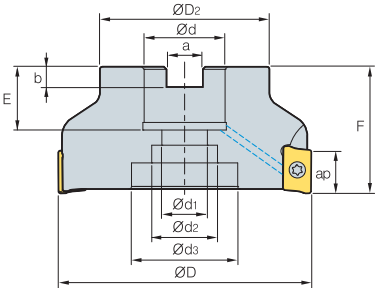
| Articolo | | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| APFT | 1604PDSR-X22 | | | | ● | | | | | | | | | | | | | | | |
| | 1604PDTR-X22 | | | | | | | | | | | | | | | | | | | |
| | 1604PDR-X28 | | | | | | | | | | | | | | | | | | | E04 |
| | 1604PDSR-X28 | | | | | | | | | | | | | | | | | | | |
| | 1604PDTR-X28 | | | | | | | | | | | | | | | | | | | |
| APKT | 1604PDSR | ● | | | ● | | | | ● | | | | | | | | | | | |
| | 1604PDSR-MF | ● | | | | ● | | | | | | | | | | | | | | |
| | 1604PDSR-MM | ● | ● | | ● | ● | ● | ● | ● | | | | | | | | | | | |
| | 160432R-MM1 | ● | | | | | | | | | | | | | | | | | | |
| | 1604PDFR-MA | | | | | | | | | | ● | | | | ● | | | | AMS 3000-K | |
| | 1604PDFR-MA2 | | | | | | | | | | | | | | | | | | | |
| | 160416FR-MA2 | | | | | | | | | | | | | | | | | | | E04 |
| | 160432FR-MA2 | | | | | | | | | | | | | | | | | | | E05 |
| | 1604PDFR-MA3 | | | | | | | | | | | | | | ● | | | | | |
| | 1604PDSR-X22 | ● | | | | | | | | | | | | | | | | | | |
| | 1604PDTR-X22 | | | | | | | | | | | | | | | | | | | |
| | 1604PDR-X23 | | | | | | | | | | | | | | | | | | | |
| | 1604PDTR-X23 | | | | | | | | | | | | | | | | | | | |
| | 1604PDR-X24 | | | | | | | | | | | | | | | | | | | |
| | 1604PDTR-X24 | | | | | | | | | | | | | | | | | | | |
| APMT | 1604PDSR-MM | ● | | ● | ● | ● | ● | ● | | | | | | | | | | | | |
| | 1604PDSR-MF | ● | | ● | ● | ● | ● | ● | | | | | | | | | | | | |
| | 160410PDSR-MM | ● | | ● | ● | ● | ● | ● | | | | | | | | | | | AMS 3000 | E05 |
| | 160416PDSR-MM | ● | | ● | ● | ● | ● | ● | | | | | | | | | | | | |
| | 160424R-MM | ● | | ● | ● | ● | ● | ● | | | | | | | | | | | | |
| | 160430R-MM | | | | | | | | | | | | | | | | | | | |
| | 160432R-MM | ● | | ● | ● | | ● | ● | | | | | | | | | | | | |

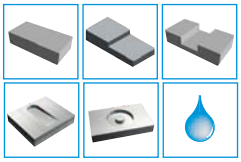
● : Disponibile ○ : A richiesta

# AMC(M)4000S New

AA 90°
• AR : 13°~15°
• RR : −12°~7°





(mm)

| Articolo | | Stock | | øD | øD2 | ød | ød1 | ød2 | ød3 | a | b | E | F | ap | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AMC(M) | 4050HS | | 5 | 50 | 42 | 22 | 11 | 18 | - | 10.4 | 6.3 | 21 | 40 | 17 | 0.28 |
| New | 4063HS | (●) | 6 | 63 | 49 | 22 | 11 | 18 | - | 10.4 | 6.3 | 21 | 40 | 17 | 0.50 |
| | 4080HS | ●(●) | 7 | 80 | 57 | 25.4(27) | 14 | 20 | 35 | 9.5(12.4) | 6(7) | 24(23) | 50 | 17 | 1.00 |
| | 4100HS | ●(●) | 8 | 100 | 67 | 31.75(32) | 18 | 26 | 42 | 12.7(14.4) | 8(8) | 32(25) | 63(50) | 17 | 2.10 |
| | 4125HS | ● | 9 | 125 | 87 | 38.1(40) | 22 | 32 | 52 | 15.9(16.4) | 10(9) | 35(29) | 63 | 17 | 3.30 |
| | 4160S | | 10 | 160 | 107 | 50.8(40) | - | - | 100 | 19(16.4) | 11(9) | 38(32) | 63 | 17 | 3.6 |
| | 4200S | | 10 | 200 | 108 | 47.625(60) | - | - | 132 | 25.4(25.7) | 14(14) | 40(38) | 63 | 17 | 6 |

• ( )Sistema metrico

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Vite | Chiave | Dia. fresa applicabile |
|---|---|---|
|  |  | |
| FTKA0408 | TW15S | Ø20~Ø25 |
| FTKA0410 | | Ø32~Ø200 |

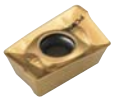
## Mandrini disponibili

| Articolo | | Ød | Attacchi NC |
|---|---|---|---|
| AMC(M) | 4050HS | 22 | BT□□-FMC22-□□ |
| | 4063HS | 22 | BT□□-FMC22-□□ |
| | 4080HS | 25.4 | BT□□-FMA25.4-□□ |
| | | 27 | BT□□-FMC27-□□ |
| | 4100HS | 31.75 | BT□□-FMA31.75-□□ |
| | | 32 | BT□□-FMC32-□□ |
| | 4125HS | 38.1 | BT□□-FMA38.1-□□ |
| | | 40 | BT□□-FMC40-□□ |
| | 4160S | 50.8 | BT□□-FMA50.8-□□ |
| | | 40 | BT□□-FMC40-□□ |
| | 4200S | 47.625 | BT□□-FMA47.625-□□ |
| | | 60 | BT□□-FMC60-□□ |

• Inserti disponibili, vedere pag. : E05, E06
• Attacchi e viti disponibili : E215~E217

## Inserti disponibili

APMT-MF APMT-MM





| Articolo | | Rivestito | | | | | | | | | | Cermet | | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| APMT | 1806PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | E06 E07 |
| | 1806PDSR-MF | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 1806PDSR-ML | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180612PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180616PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180620PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180624PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180630R-MM | | | | | | | | | | | | | | | | | | |
| | 180632R-MM | | | | | | | | | | | | | | | | | | |

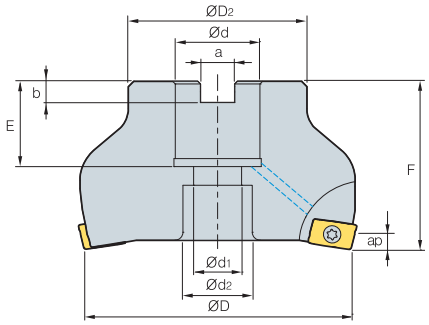
● : Disponibile ○ : A richiesta

# AMC(M)1000SE/2000SE/3000SE

AA 75°

• AR : 4.5°
• RR : 0°




(mm)

| Articolo | | Stock | ⌀ | øD | øD2 | ød | ød1 | ød2 | a | b | E | F | ap | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AMC(M) | 1040HSE | | 4 | 40 | 34 | 16 | 9 | 14 | 8.4 | 5.6 | 19 | 40 | 2.5 | 0.26 |
| | 1050HSE | | 5 | 50 | 42 | 22 | 11 | 18 | 104 | 6.3 | 21 | 40 | 2.5 | 0.39 |
| AMC(M) | 2080HSE | (●) | 5 | 80 | 57 | 25.4(27) | 14 | 20 | 9.5(12.4) | 6.0(7.0) | 25(22) | 50 | 4 | 1.2 |
| | 2100HSE | | 6 | 100 | 67 | 31.75(32) | 18 | 26 | 12.7(14.4) | 8.0(8.0) | 32(28) | 63 | 4 | 2.33 |
| AMC(M) | 3080HSE | ● | 4 | 80 | 57 | 25.4(27) | 14 | 20 | 9.5(12.4) | 6.0(7.0) | 25(22) | 50 | 6 | 1.3 |
| | 3100HSE | ● | 5 | 100 | 67 | 31.75(32) | 18 | 26 | 12.7(14.4) | 8.0(8.0) | 32(28) | 63 | 6 | 2.3 |

• ( )Sistema metrico

● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Vite | Chiave | | Dia. fresa applicabile |
|---|---|---|---|---|
| |  |  |  | |
| Tipo 1000 | FTKA01842 | – | TW06S–A | Ø10~Ø63 |
| Tipo 2000 | FTKA02550S | TW08S | - | Ø10~Ø14 |
| | FTKA02565S | | | Ø16~Ø100 |
| Tipo 3000 | FTKA0408 | TW08S | - | Ø25 |
| | FTKA0410 | | | Ø32~Ø100 |

## Mandrini disponibili

| Articolo | | Ød | Attacchi NC |
|---|---|---|---|
| AMC(M) | 1040HSE | 16 | BT□□-FMC16 -□□ |
| | 1050HSE | 22 | BT□□-FMC22-□□ |
| AMC(M) | 2080SE | 25.4 | BT□□-FMA25.4-□□ |
| | | 27 | BT□□-FMC27-□□ |
| | 2100SE | 31.75 | BT□□-FMA31.75-□□ |
| | | 32 | BT□□-FMC32-□□ |
| AMC(M) | 3080SE | 25.4 | BT□□-FMA25.4-□□ |
| | | 27 | BT□□-FMC27-□□ |
| | 3100SE | 31.75 | BT□□-FMA31.75-□□ |
| | | 32 | BT□□-FMC32-□□ |

• Inserti disponibili, vedere pag. : E05
• Attacchi e viti disponibili : E215~E217

## Inserti disponibili

APMT-MF APMT-MM




| Tipo | Articolo | Rivestito | | | | | | | | | | Cermet | | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| 1000 | APMT 060202PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | E05 |
| | 0602PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 060208PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 060212R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| 2000 | APMT 11T3PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | E05 |
| | 11T3PDSR-MF | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 11T308PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 11T312PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 11T316R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 11T318R-MM | | | | | | | | | | | | | | | | | | |
| | 11T324R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| 3000 | APMT 1604PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | E05 |
| | 1604PDSR-MF | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 160410PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 160416PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 160424R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 160430R-MM | | | | | | | | | | | | | | | | | | |
| | 160432R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |

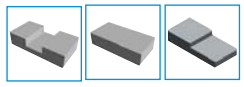
● : Disponibile ○ : A richiesta

# AMC(M)2000M/3000M

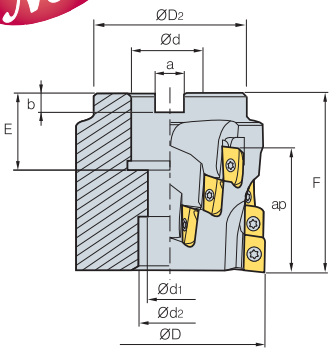
New

AA 90°

• AR : 9°
• RR : –9°~–5°








(mm)

| Articolo | | Stock | | øD | øD2 | ød | ød1 | ød2 | ød3 | a | b | E | F | N. eliche | ap | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AMC(M) | 2050M | ●(●) | 16 | 50 | 40 | 22.225(22) | 11 | 18 | - | 8(10.4) | 5(6.3) | 29(21) | 58 | 4 | 39 | 0.7 |
| | 2063M | ●(●) | 16 | 63 | 50 | 25.4(27) | 13.5 | 20 | - | 9.5(12.4) | 6(7) | 25(25) | 58 | 4 | 39 | 0.8 |
| | 2080M | ●(●) | 20 | 80 | 60 | 31.75(32) | - | 45 | - | 12.7(14.4) | 8(8) | 35(28) | 63 | 5 | 39 | 0.96 |
| | 2100M | (●) | 24 | 100 | 80 | 38.1(40) | - | 56 | - | 15.9(16.4) | 10(9) | 38(30) | 63 | 6 | 39 | 1.2 |
| AMC(M) | 3063M | | 16 | 63 | 57 | 25.4(27) | 14 | 20 | 28 | 9.5(12.4) | 6(7) | 38(38) | 85 | 4 | 57 | 1.1 |
| | 3080M | | 20 | 80 | 67 | 31.75(32) | 14 | 26 | 40 | 12.7(14.4) | 8(8) | 40(40) | 100 | 4 | 71 | 2.23 |
| | 3100M | | 30 | 100 | 87 | 38.1(40) | 22 | 32 | 60 | 15.9(16.4) | 10(9) | 40(40) | 100 | 6 | 71 | 3.59 |

• ( )Sistema metrico

● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Vite | Chiave | Dia. fresa applicabile |
|---|---|---|---|
| |  |  | |
| Tipo 2000 | FTKA02550S | TW08S | Ø10~Ø14 |
| | FTKA02565S | | Ø16~Ø100 |
| Tipo 3000 | FTKA0408 | TW15S | Ø25 |
| | FTKA0410 | | Ø32~Ø100 |

## Mandrini disponibili

| Articolo | | | Ød | Attacchi NC |
|---|---|---|---|---|
| Tipo 2000 | AMC(M) | 2050M | 22.225 | BT□□-SMA22.225-□□<br>BT□□-FMA22.225-□□ |
| | | | 22 | BT□□-SMC22-□□<br>BT□□-FMC22-□□ |
| | | 2063M | 25.4 | BT□□-SMA25.4-□□<br>BT□□-FMA25.4-□□ |
| | | | 27 | BT□□-SMC27-□□<br>BT□□-FMC27-□□ |
| | | 2080M | 31.75 | BT□□-SMA31.75-□□<br>BT□□-FMA31.75-□□ |
| | | | 32 | BT□□-SMC32-□□<br>BT□□-FMC32-□□ |
| | | 2100M | 38.1 | BT□□-SMA38.1-□□<br>BT□□-FMA38.1-□□ |
| | | | 40 | BT□□-SMC40-□□<br>BT□□-FMC40-□□ |
| Tipo 3000 | AMC(M) | 3063M | 25.4 | BT□□-SMA25.4-□□<br>BT□□-FMA25.4-□□ |
| | | | 27 | BT□□-SMC27-□□<br>BT□□-FMC27-□□ |
| | | 3080M | 31.75 | BT□□-SMA31.75-□□<br>BT□□-FMA31.75-□□ |
| | | | 32 | BT□□-SMC32-□□<br>BT□□-FMC32-□□ |
| | | 3100M | 38.1 | BT□□-SMA38.1-□□<br>BT□□-FMA38.1-□□ |
| | | | 40 | BT□□-SMC40-□□<br>BT□□-FMC40-□□ |

• Inserti disponibili, vedere pag. : E05
• Attacchi e viti disponibili : E215~E217

## Inserti disponibili

APMT-MF APMT-MM

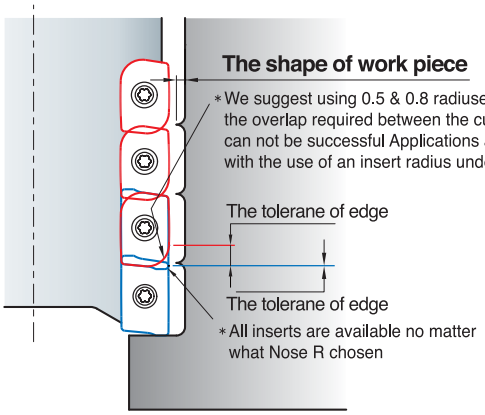




| Tipo | Articolo | | Rivestito | | | | | | | | | | Cermet | | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| 2000 | APMT | 11T3PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | E05 |
| | | 11T3PDSR-MF | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | | 11T308PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | | 11T312PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | | 11T316R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | | 11T318R-MM | | | | | | | | | | | | | | | | | | |
| | | 11T324R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| 3000 | APMT | 1604PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | E05 |
| | | 1604PDSR-MF | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | | 160410PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | | 160416PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | | 160424R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | | 160430R-MM | | | | | | | | | | | | | | | | | | |
| | | 160432R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |

● : Disponibile ○ : A richiesta

## Prestare attenzione quando gli inserti sono avvitati

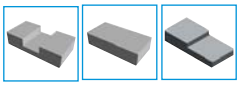


# AMC(M)4000M

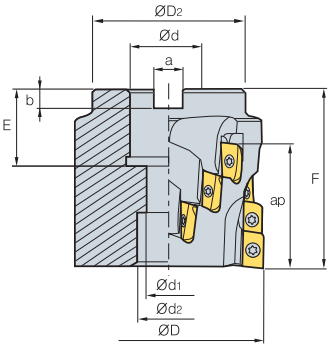
New

AA 90°

• AR : 9°
• RR : -9°~-5°








(mm)

| Articolo | | Stock | | øD | øD2 | ød | ød1 | ød2 | ød3 | a | b | E | F | N. eliche | ap | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AMC(M) | 4063M | | 16 | 63 | 57 | 25.4(27) | 14 | 20 | 28 | 9.5(12.4) | 6(7) | 38(38) | 85 | 4 | 61.1 | 1.1 |
| | 4080M | | 20 | 80 | 67 | 31.75(32) | 14 | 26 | 40 | 12.7(14.4) | 8(8) | 40(40) | 100 | 4 | 76.1 | 2.23 |
| | 4100M | | 30 | 100 | 87 | 38.1(40) | 22 | 32 | 60 | 15.9(16.4) | 10(9) | 40(40) | 100 | 6 | 76.1 | 3.59 |
| | 4125M | | 18 | 125 | 87 | 38.1(40) | 22 | 32 | 52 | 15.9(16.4) | 10(9) | 36(29) | 68 | 6 | 46.1 | 4.0 |

• ( )Sistema metrico

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Vite | Chiave | Dia. fresa applicabile |
|---|---|---|
| FTKA0408 | TW15S | Ø20~Ø25 |
| FTKA0410 | | Ø32~Ø200 |

## Mandrini disponibili

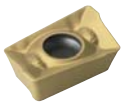
| Articolo | | Ød | Attacchi NC |
|---|---|---|---|
| Tipo 4000 | AMC(M) 4063M | 25.4 | BT□□-SMA25.4-□□ |
| | | | BT□□-FMA25.4-□□ |
| | | 27 | BT□□-SMC27-□□ |
| | | | BT□□-FMC27-□□ |
| | 4080M | 31.75 | BT□□-SMA31.75-□□ |
| | | | BT□□-FMA31.75-□□ |
| | | 32 | BT□□-SMC32-□□ |
| | | | BT□□-FMC32-□□ |
| | 4100M | 38.1 | BT□□-SMA38.1-□□ |
| | | | BT□□-FMA38.1-□□ |
| | | 40 | BT□□-SMC40-□□ |
| | | | BT□□-FMC40-□□ |
| | 4125M | 38.1 | BT□□-SMA38.1-□□ |
| | | | BT□□-FMA38.1-□□ |
| | | 40 | BT□□-SMC40-□□ |
| | | | BT□□-FMC40-□□ |

• Inserti disponibili, vedere pag. : E05
• Attacchi e viti disponibili : E215~E217

## Inserti disponibili

APMT-MF APMT-MM

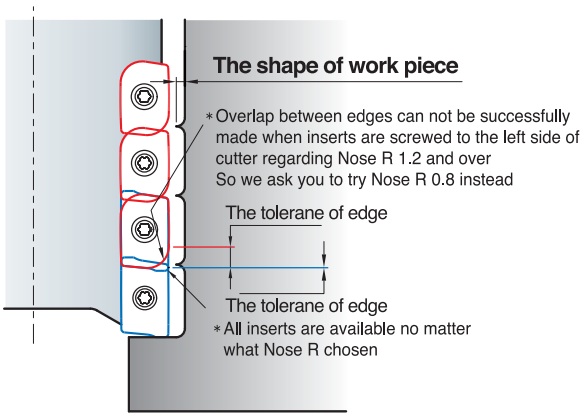




| Articolo | | Rivestito | | | | | | | | | Cermet | | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| APMT | 1806PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | E05 E06 |
| | 1806PDSR-MF | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 1806PDSR-ML | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180612PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180616PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180620PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180624PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180630R-MM | | | | | | | | | | | | | | | | | | |
| | 180632R-MM | | | | | | | | | | | | | | | | | | |

● : Disponibile ○ : A richiesta

## Prestare attenzione quando gli inserti sono avvitati

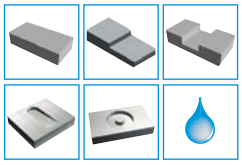


# AMS1000S

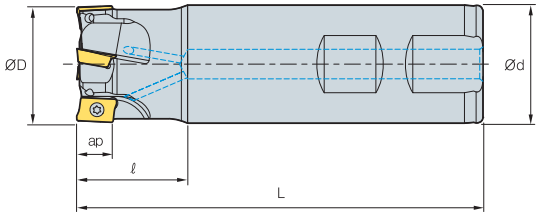
New

AA 90°

• AR : 7.5°~13°
• RR : -17°~-6°








(mm)

| Articolo | | Stock | ⊚ | øD | ød | ℓ | L | ap | kg |
|---|---|---|---|---|---|---|---|---|---|
| AMS | 1010HS | ● | 2 | 10 | 10 | 20 | 80 | 5.6 | 0.04 |
| | 1011HS | ● | 2 | 11 | 10 | 20 | 80 | 5.6 | 0.04 |
| | 1012HS-2 | ● | 2 | 12 | 12 | 25 | 80 | 5.6 | 0.06 |
| | 1012HS-2L12 | | 2 | 12 | 12 | 25 | 120 | 5.6 | 0.09 |
| | 1012HS-3 | ● | 3 | 12 | 12 | 25 | 80 | 5.6 | 0.06 |
| | 1014HS-2 | ● | 2 | 14 | 16 | 25 | 90 | 5.6 | 0.11 |
| | 1014HS-2L16 | | 2 | 14 | 16 | 25 | 140 | 5.6 | 0.18 |
| | 1014HS-3 | ● | 3 | 14 | 16 | 25 | 90 | 5.6 | 0.11 |
| | 1015HS | ● | 3 | 15 | 16 | 25 | 90 | 5.6 | 0.11 |
| | 1015HS-3L16 | | 3 | 15 | 16 | 25 | 140 | 5.6 | 0.18 |
| | 1016HS-3 | ● | 3 | 16 | 16 | 25 | 90 | 5.6 | 0.12 |
| | 1016HS-3L16 | | 3 | 16 | 16 | 25 | 160 | 5.6 | 0.22 |
| | 1016HS-4 | ● | 4 | 16 | 16 | 25 | 90 | 5.6 | 0.12 |
| | 1017HS | ● | 4 | 17 | 16 | 25 | 90 | 5.6 | 0.12 |
| | 1017HS-3L16 | | 3 | 17 | 16 | 25 | 160 | 5.6 | 0.22 |
| | 1018HS | ● | 4 | 18 | 16 | 25 | 90 | 5.6 | 0.12 |
| | 1018HS-4L16 | | 4 | 18 | 16 | 25 | 180 | 5.6 | 0.25 |
| | 1020HS-4 | ○ | 4 | 20 | 20 | 30 | 110 | 5.6 | 0.23 |
| | 1020HS-4L20 | | 4 | 20 | 20 | 30 | 200 | 5.6 | 0.43 |
| | 1020HS-5 | ○ | 5 | 20 | 20 | 30 | 110 | 5.6 | 0.23 |
| | 1021HS | | 5 | 21 | 20 | 30 | 110 | 5.6 | 0.24 |
| | 1021HS-4L20 | | 4 | 21 | 20 | 30 | 200 | 5.6 | 0.43 |
| | 1022HS | ● | 5 | 22 | 20 | 30 | 110 | 5.6 | 0.27 |
| | 1025HS | ● | 7 | 25 | 25 | 30 | 120 | 5.6 | 0.39 |
| | 1026HS | ● | 7 | 26 | 25 | 30 | 120 | 5.6 | 0.39 |
| | 1032HS | ● | 8 | 32 | 32 | 35 | 120 | 5.6 | 0.65 |
| | 1033HS | ● | 8 | 33 | 32 | 35 | 120 | 5.6 | 0.65 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Vite | Chiave | Dia. fresa applicabile |
|---|---|---|
|  |  | |
| FTKA01842 | TW06S-A | Ø10~Ø63 |

## Inserti disponibili

APMT-MM



| Articolo | Rivestito | | | | | | | | | Cermet | | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| APMT 060202PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| 0602PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| 060208PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | E05 |
| 060212R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| 060216R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |

• Inserti disponibili, vedere pag. : E05

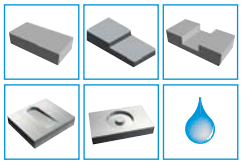
● : Disponibile ○ : A richiesta

# AMS1500S

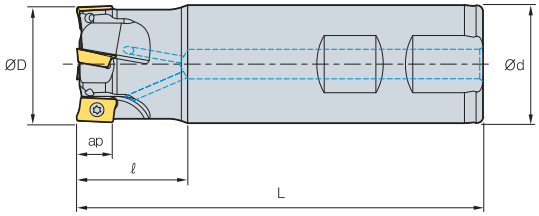
New

AA 90°

• AR : 7.5°~12.5°
• RR : -28°~-14°








(mm)

| Articolo | | Stock | | øD | ød | ℓ | L | ap | kg |
|---|---|---|---|---|---|---|---|---|---|
| AMS | 15010HS | ● | 1 | 10 | 10 | 25 | 80 | 9 | 0.04 |
| | 15010HS-1L16 | | 1 | 10 | 16 | 30 | 160 | 9 | 0.21 |
| | 15012HS | ● | 1 | 12 | 16 | 25 | 80 | 9 | 0.10 |
| | 15012HS-1L16 | | 1 | 12 | 16 | 30 | 160 | 9 | 0.21 |
| | 15013HS | ● | 1 | 13 | 12 | 25 | 80 | 9 | 0.10 |
| | 15014HS | ● | 1 | 14 | 16 | 25 | 80 | 9 | 0.10 |
| | 15014HS-1L16 | | 1 | 14 | 16 | 30 | 160 | 9 | 0.21 |
| | 15016HS | ● | 2 | 16 | 16 | 30 | 90 | 9 | 0.11 |
| | 15016HS-2L16 | ● | 2 | 16 | 16 | 30 | 160 | 9 | 0.21 |
| | 15017HS | ● | 2 | 17 | 16 | 30 | 90 | 9 | 0.12 |
| | 15017HS-2L16 | | 2 | 17 | 16 | 30 | 160 | 9 | 0.21 |
| | 15018HS | ● | 2 | 18 | 16 | 30 | 90 | 9 | 0.14 |
| | 15018HS-2L16 | | 2 | 18 | 16 | 30 | 160 | 9 | 0.21 |
| | 15019HS | ● | 2 | 19 | 16 | 30 | 90 | 9 | 0.16 |
| | 15020HS | ● | 2 | 20 | 20 | 30 | 90 | 9 | 0.18 |
| | 15020HS-2L20 | ● | 2 | 20 | 20 | 30 | 160 | 9 | 0.34 |
| | 15020HS-3 | ● | 3 | 20 | 20 | 30 | 90 | 9 | 0.18 |
| | 15021HS | ● | 2 | 21 | 20 | 30 | 90 | 9 | 0.20 |
| | 15021HS-2L20 | | 2 | 21 | 20 | 30 | 160 | 9 | 0.34 |
| | 15021HS-3 | | 3 | 21 | 20 | 30 | 90 | 9 | 0.2 |
| | 15022HS | ● | 3 | 22 | 20 | 30 | 110 | 9 | 0.23 |
| | 15022HS-3L20 | | 3 | 22 | 20 | 30 | 180 | 9 | 0.38 |
| | 15024HS | ● | 3 | 24 | 20 | 30 | 110 | 9 | 0.30 |
| | 15024HS-4 | ● | 4 | 24 | 20 | 30 | 110 | 9 | 0.3 |
| | 15025HS-3S20 | ● | 3 | 25 | 20 | 30 | 110 | 9 | 0.35 |
| | 15025HS | ● | 3 | 25 | 25 | 30 | 110 | 9 | 0.35 |
| | 15025HS-3L25 | ● | 3 | 25 | 25 | 30 | 180 | 9 | 0.59 |
| | 15025HS-4S20 | | 4 | 25 | 20 | 30 | 110 | 9 | 0.25 |
| | 15025HS-4S25 | ● | 4 | 25 | 25 | 30 | 110 | 9 | 0.25 |
| | 15028HS | ● | 4 | 28 | 25 | 30 | 110 | 9 | 0.36 |
| | 15028HS-4L25 | | 4 | 28 | 25 | 30 | 180 | 9 | 0.61 |
| | 15028HS-5 | ● | 5 | 28 | 25 | 30 | 110 | 9 | 0.36 |
| | 15030HS | ● | 4 | 30 | 25 | 30 | 110 | 9 | 0.38 |
| | 15030HS-4L25 | | 4 | 30 | 25 | 30 | 180 | 9 | 0.62 |
| | 15030HS-5 | | 5 | 30 | 25 | 30 | 110 | 9 | 0.38 |
| | 15032HS | ● | 4 | 32 | 32 | 30 | 110 | 9 | 0.60 |
| | 15032HS-4L32 | ● | 4 | 32 | 32 | 30 | 180 | 9 | 1.00 |
| | 15032HS-5 | ● | 5 | 32 | 32 | 30 | 110 | 9 | 0.6 |
| | 15035HS | ● | 5 | 35 | 32 | 30 | 110 | 9 | 0.70 |
| | 15035HS-6 | ● | 6 | 35 | 32 | 30 | 110 | 9 | 0.7 |
| | 15040HS-S32 | ● | 5 | 40 | 32 | 35 | 130 | 9 | 0.80 |
| | 15040HS-5L32 | | 5 | 40 | 32 | 35 | 200 | 9 | 1.20 |
| | 15040HS-6S32 | ● | 6 | 40 | 32 | 35 | 130 | 9 | 0.8 |
| | 15040HS-S40 | ● | 5 | 40 | 40 | 35 | 130 | 9 | 1.13 |
| | 15040HS-6S40 | | 6 | 40 | 40 | 35 | 130 | 9 | 1.13 |
| | 15040HS-S42 | ● | 5 | 40 | 42 | 35 | 130 | 9 | 1.23 |
| | 15040HS-6S42 | | 6 | 40 | 42 | 35 | 130 | 9 | 1.23 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Vite | Chiave | Dia. fresa applicabile |
|---|---|---|
|  |  | |
| FTKA02555S | TW08S | Ø10~Ø14 |
| FTKA02565S | | Ø16~Ø100 |

## Inserti disponibili

APMT-MM



| Articolo | Rivestito | | | | | | | | | Cermet | | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| APMT 0903PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | E05 |
| 090308PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| 090312R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| 090316R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| 090320R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |

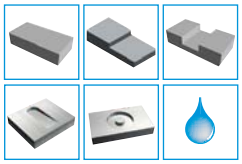
• Inserti disponibili, vedere pag. : E05

● : Disponibile ○ : A richiesta

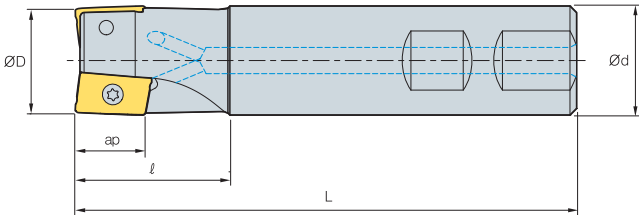
# AMS2000S

AA 90°

• AR : 3°~14°
• RR : −25°~−18°








(mm)

| | Articolo | Stock | | øD | ød | ℓ | L | ap | kg |
|---|---|---|---|---|---|---|---|---|---|
| AMS | 2010HS | ● | 1 | 10 | 10 | 20 | 85 | 11 | 0.04 |
| | 2010HS-1L16 | | 1 | 10 | 16 | 30 | 160 | 11 | 0.21 |
| | 2012HS | ● | 1 | 12 | 16 | 25 | 85 | 11 | 0.10 |
| | 2012HS-1L16 | | 1 | 12 | 16 | 30 | 160 | 11 | 0.21 |
| | 2014HS | ● | 1 | 14 | 16 | 25 | 90 | 11 | 0.12 |
| | 2014HS-1L16 | | 1 | 14 | 16 | 30 | 160 | 11 | 0.21 |
| | 2016HS | ● | 2 | 16 | 16 | 25 | 90 | 11 | 0.12 |
| | 2016HS-2L16 | | 2 | 16 | 16 | 30 | 180 | 11 | 0.21 |
| | 2018HS | ● | 2 | 18 | 16 | 25 | 90 | 11 | 0.12 |
| | 2018HS-2L16 | | 2 | 18 | 16 | 30 | 180 | 11 | 0.21 |
| | 2020HS | ● | 2 | 20 | 20 | 30 | 100 | 11 | 0.21 |
| | 2020HS-2L20 | ● | 2 | 20 | 20 | 30 | 210 | 11 | 0.49 |
| | 2022HS | ● | 3 | 22 | 20 | 35 | 115 | 11 | 0.25 |
| | 2022HS-3L20 | | 3 | 22 | 20 | 35 | 180 | 11 | 0.38 |
| | 2025HS | ● | 3 | 25 | 25 | 35 | 115 | 11 | 0.40 |
| | 2025HS-3L25 | ● | 3 | 25 | 25 | 40 | 180 | 11 | 0.59 |
| | 2032HS | ● | 4 | 32 | 32 | 40 | 125 | 11 | 0.70 |
| | 2032HS-4L32 | ● | 4 | 32 | 32 | 50 | 180 | 11 | 1.00 |
| | 2040HS | ● | 5 | 40 | 32 | 42 | 130 | 11 | 0.84 |
| | 2040HS-5L32 | ● | 5 | 40 | 32 | 50 | 200 | 11 | 1.20 |
| | 2040HS-S40 | | 5 | 40 | 40 | 42 | 130 | 11 | 1.15 |
| | 2040HS-S42 | | 5 | 40 | 42 | 42 | 130 | 11 | 2.00 |
| | 2050HS | ● | 6 | 50 | 32 | 45 | 135 | 11 | 1.06 |
| | 2050HS-S40 | | 6 | 50 | 40 | 45 | 135 | 11 | 1.38 |
| | 2050HS-S42 | | 6 | 50 | 42 | 45 | 135 | 11 | 1.50 |
| | 2063HS | | 8 | 63 | 32 | 45 | 135 | 11 | 1.31 |
| | 2063HS-S40 | | 8 | 63 | 40 | 45 | 135 | 11 | 1.62 |
| | 2063HS-S42 | | 8 | 63 | 42 | 45 | 135 | 11 | 1.70 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Vite | Chiave | Dia. fresa applicabile |
|---|---|---|
|  |  | |
| FTKA02550S | TW08S | Ø10~Ø14 |
| FTKA02565S | | Ø16~Ø100 |

## Inserti disponibili

| APMT-MF | APMT-MM | APXT-MA |
|---|---|---|
|  |  |  |

| Articolo | Rivestito | | | | | | | | | Cermet | | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| APMT11T3PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| APMT11T3PDSR-MF | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| APMT11T308PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| APMT11T312PDSR-MF | ● | | ● | ● | ● | ● | | | | | | | | | | | | E05 |
| APMT11T316R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | E06 |
| APMT11T318R-MM | | | | | | | | | | | | | | | | | | |
| APMT11T324R-MM | ● | | ● | ● | | ● | | | | | | | | | | | | |
| APXT11T3PDR-MA | | | | | | | | | | | | | | ● | | | | |

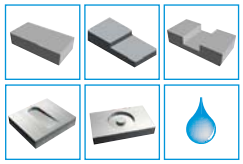
● : Disponibile ○ : A richiesta

• Inserti disponibili, vedere pag. : E05, E06

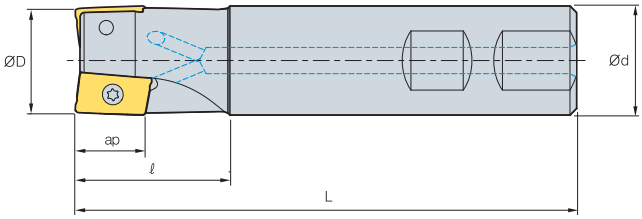
# AMS3000S

AA 90°

• AR : 3°~14°
• RR : −18°~−10°








(mm)

| Articolo | | Stock | ⊙ | øD | ød | ℓ | L | ap | kg |
|---|---|---|---|---|---|---|---|---|---|
| AMS | 3025HS | ● | 2 | 25 | 25 | 35 | 115 | 16 | 0.40 |
| | 3025HS-2M25 | ● | 2 | 25 | 25 | 35 | 180 | 16 | 0.65 |
| | 3025HS-2L25 | ● | 2 | 25 | 25 | 60 | 220 | 16 | 0.75 |
| | 3032HS | ● | 3 | 32 | 32 | 40 | 125 | 16 | 0.69 |
| | 3032HS-2M32 | | 2 | 32 | 32 | 40 | 200 | 16 | 1.13 |
| | 3032HS-2L32 | ● | 2 | 32 | 32 | 65 | 260 | 16 | 1.52 |
| | 3032HS-3M32 | | 3 | 32 | 32 | 40 | 200 | 16 | 1.12 |
| | 3032HS-3L32 | | 3 | 32 | 32 | 65 | 260 | 16 | 1.48 |
| | 3040HS | ● | 4 | 40 | 32 | 42 | 130 | 16 | 0.80 |
| | 3040HS-3M32 | ● | 3 | 40 | 32 | 42 | 200 | 16 | 1.24 |
| | 3040HS-3L32 | | 3 | 40 | 32 | 42 | 260 | 16 | 1.61 |
| | 3040HS-4M32 | | 4 | 40 | 32 | 42 | 200 | 16 | 1.21 |
| | 3040HS-4L32 | ● | 4 | 40 | 32 | 42 | 260 | 16 | 1.58 |
| | 3040HS-S40 | ● | 4 | 40 | 40 | 42 | 130 | 16 | 1.10 |
| | 3040HS-S42 | ● | 4 | 40 | 42 | 42 | 130 | 16 | 1.20 |
| | 3050HS | ● | 5 | 50 | 32 | 45 | 135 | 16 | 1.00 |
| | 3050HS-S40 | | 5 | 50 | 40 | 45 | 135 | 16 | 1.30 |
| | 3050HS-S42 | | 5 | 50 | 42 | 45 | 135 | 16 | 1.40 |
| | 3063HS | ● | 6 | 63 | 32 | 45 | 135 | 16 | 1.25 |
| | 3063HS-S40 | ● | 6 | 63 | 40 | 45 | 135 | 16 | 1.50 |
| | 3063HS-S42 | | 6 | 63 | 42 | 45 | 135 | 16 | 1.54 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Vite | Chiave | Dia. fresa applicabile |
|---|---|---|
|  |  | |
| FTKA0408 | TW15S | Ø25 |
| FTKA0410 | | Ø32~Ø100 |

## Inserti disponibili

APMT-MF



APMT-MM



| Articolo | Rivestito | | | | | | | | | | Cermet | | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| APMT1604PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| APMT1604PDSR-MF | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| APMT160410PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| APMT160416PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | E05 |
| APMT160424R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| APMT160430R-MM | | | | | | | | | | | | | | | | | | |
| APMT160432R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |

● : Disponibile ○ : A richiesta

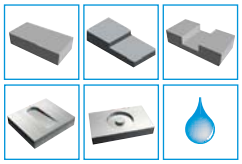
• Inserti disponibili, vedere pag. : E05

# AMS3000S-K

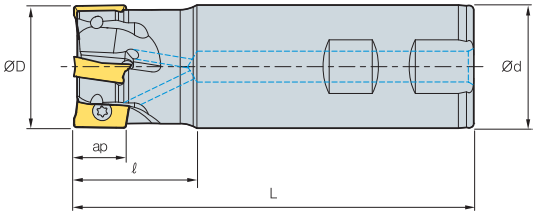
New

AA 90°

• AR : 14°
• RR : −18°~−10°








(mm)

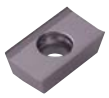
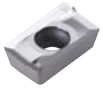
| Articolo | | Stock | ⊙ | øD | ød | ℓ | L | ap | kg |
|---|---|---|---|---|---|---|---|---|---|
| AMS | 3025HS-K | | 2 | 25 | 25 | 35 | 115 | 16 | 0.4 |
| | 3032HS-K | ● | 3 | 32 | 32 | 40 | 125 | 16 | 0.69 |
| | 3040HS-K | ● | 4 | 40 | 32 | 42 | 130 | 16 | 0.8 |
| | 3040HS-K-S40 | | 4 | 40 | 40 | 42 | 130 | 16 | 1.1 |
| | 3040HS-K-S42 | | 4 | 40 | 42 | 42 | 130 | 16 | 1.2 |
| | 3050HS-K | | 5 | 50 | 32 | 45 | 135 | 16 | 1.0 |
| | 3050HS-K-S40 | | 5 | 50 | 40 | 45 | 135 | 16 | 1.3 |
| | 3050HS-K-S42 | | 5 | 50 | 42 | 45 | 135 | 16 | 1.4 |
| | 3063HS-K | | 6 | 63 | 32 | 45 | 135 | 16 | 1.25 |
| | 3063HS-K-S40 | | 6 | 63 | 40 | 45 | 135 | 16 | 1.5 |
| | 3063HS-K-S42 | | 6 | 63 | 42 | 45 | 135 | 16 | 1.54 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Vite | Chiave | | Dia. fresa applicabile |
|---|---|---|---|
|  |  |  | |
| FTKA0408 | TW15S | - | Ø25 |
| FTKA0410 | | | Ø32~Ø100 |

## Inserti disponibili

| APKT | APKT-MF | APKT-MM | APKT-MM1 | APKT-MA |
|---|---|---|---|---|
|  |  |  |  |  |
| **APKT-MA2** | **APKT-MA3** | **APKT-X22** | **APKT-X23** | **APKT-X24** |
|  |  |  |  |  |

• Inserti disponibili, vedere pag. : E04, E05

## Inserti disponibili

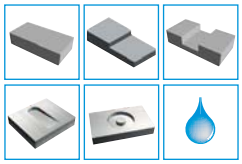
| Articolo | | Rivestito | | | | | | | | | Cermet | | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| APFT | 1604PDSR-X22 | | | | ● | | | | | | | | | | | | | | E04 |
| | 1604PDTR-X22 | | | | | | | | | | | | | | | | | | |
| | 1604PDR-X28 | | | | | | | | | | | | | | | | | | |
| | 1604PDSR-X28 | | | | | | | | | | | | | | | | | | |
| | 1604PDTR-X28 | | | | | | | | | | | | | | | | | | |
| APKT | 1604PDSR | ● | | | ● | | | | ● | | | | | | | | | | E04 E05 |
| | 1604PDSR-MF | ● | | | | ● | | | | | | | | | | | | | |
| | 1604PDSR-MM | ● | ● | | ● | ● | ● | ● | ● | | | | | | | | | | |
| | 160432R-MM1 | ● | | | | | | | | | | | | | | | | | |
| | 1604PDFR-MA | | | | | | | | | | ● | | | | ● | | | | |
| | 1604PDFR-MA2 | | | | | | | | | | | | | | | | | | |
| | 160416FR-MA2 | | | | | | | | | | | | | | | | | | |
| | 160432FR-MA2 | | | | | | | | | | | | | | | | | | |
| | 1604PDFR-MA3 | | | | | | | | | | | | | | ● | | | | |
| | 1604PDSR-X22 | ● | | | | | | | | | | | | | | | | | |
| | 1604PDTR-X22 | | | | | | | | | | | | | | | | | | |
| | 1604PDR-X23 | | | | | | | | | | | | | | | | | | |
| | 1604PDTR-X23 | | | | | | | | | | | | | | | | | | |
| | 1604PDR-X24 | | | | | | | | | | | | | | | | | | |
| | 1604PDTR-X24 | | | | | | | | | | | | | | | | | | |

● : Disponibile ○ : A richiesta

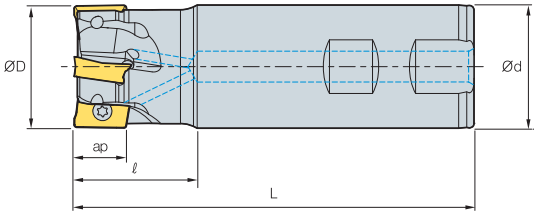
# AMS4000S New

AA 90°

• AR : 7°~13°
• RR : -20°~-6°








(mm)

| Articolo | | Stock | | øD | ød | ℓ | L | ap | kg |
|---|---|---|---|---|---|---|---|---|---|
| AMS | 4020HS | ● | 1 | 20 | 20 | 30 | 90 | 17 | 0.18 |
| | 4020HS-M | | 1 | 20 | 20 | 30 | 160 | 17 | 0.17 |
| | 4021HS | ● | 1 | 21 | 20 | 30 | 90 | 17 | 0.19 |
| | 4021HS-M | | 1 | 21 | 20 | 30 | 160 | 17 | 0.34 |
| | 4025HS | ● | 2 | 25 | 25 | 40 | 110 | 17 | 0.35 |
| | 4025HS-2M25 | | 2 | 25 | 25 | 40 | 180 | 17 | 0.58 |
| | 4025HS-2L25 | ● | 2 | 25 | 25 | 40 | 230 | 17 | 0.8 |
| | 4026HS | ● | 2 | 26 | 25 | 40 | 110 | 17 | 0.37 |
| | 4026HS-2M25 | | 2 | 26 | 25 | 40 | 180 | 17 | 0.60 |
| | 4026HS-2L25 | | 2 | 26 | 25 | 40 | 230 | 17 | 0.82 |
| | 4032HS | ● | 3 | 32 | 32 | 40 | 125 | 17 | 0.65 |
| | 4032HS-2M32 | | 2 | 32 | 32 | 50 | 200 | 17 | 1.17 |
| | 4032HS-2L32 | ● | 2 | 32 | 32 | 50 | 260 | 17 | 1.5 |
| | 4032HS-3M32 | ● | 3 | 32 | 32 | 50 | 200 | 17 | 1.10 |
| | 4032HS-3L32 | | 3 | 32 | 32 | 50 | 260 | 17 | 1.48 |
| | 4033HS | ● | 3 | 33 | 32 | 40 | 125 | 17 | 0.68 |
| | 4033HS-2M32 | | 2 | 33 | 32 | 50 | 200 | 17 | 1.12 |
| | 4033HS-2L32 | | 2 | 33 | 32 | 50 | 260 | 17 | 1.55 |
| | 4033HS-3M32 | | 3 | 33 | 32 | 50 | 200 | 17 | 1.12 |
| | 4033HS-3L32 | | 3 | 33 | 32 | 50 | 260 | 17 | 1.55 |
| | 4040HS-3M32 | ● | 3 | 40 | 32 | 50 | 200 | 17 | 1.20 |
| | 4040HS-3L32 | ● | 3 | 40 | 32 | 50 | 260 | 17 | 1.60 |
| | 4040HS-4M32 | | 4 | 40 | 32 | 50 | 200 | 17 | 1.20 |
| | 4040HS-4L32 | | 4 | 40 | 32 | 50 | 260 | 17 | 1.60 |
| | 4040HS-S32 | ● | 4 | 40 | 32 | 40 | 130 | 17 | 0.76 |
| | 4040HS-S40 | ● | 4 | 40 | 40 | 40 | 130 | 17 | 1.10 |
| | 4040HS-S42 | ● | 4 | 40 | 42 | 40 | 130 | 17 | 1.20 |
| | 4050HS-S32 | ● | 5 | 50 | 32 | 40 | 135 | 17 | 0.95 |
| | 4050HS-S40 | ● | 5 | 50 | 40 | 40 | 135 | 17 | 1.30 |
| | 4050HS-S42 | ● | 5 | 50 | 42 | 40 | 135 | 17 | 1.40 |
| | 4063HS-S32 | ● | 6 | 63 | 32 | 40 | 135 | 17 | 1.25 |
| | 4063HS-S40 | ● | 6 | 63 | 40 | 40 | 135 | 17 | 1.60 |
| | 4063HS-S42 | ● | 6 | 63 | 42 | 40 | 135 | 17 | 1.70 |

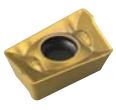
● : Disponibile ○ : A richiesta

## Parti di ricambio

| Vite | Chiave | Dia. fresa applicabile |
|---|---|---|
| FTKA0408 | TW15S | Ø20~Ø25 |
| FTKA0410 | | Ø32~Ø100 |

## Inserti disponibili

| APMT-MM | APMT-MF | APMT-ML |
|---|---|---|







• Inserti disponibili, vedere pag. : E05, E06

## Inserti disponibili

| Articolo | | Rivestito | | | | | | | | | Cermet | | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| APMT | 180604PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | E05 E06 |
| | 180604PDSR-MF | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 1806PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 1806PDSR-MF | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 1806PDSR-ML | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180612PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180616PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180620PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180624PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180630R-MM | | | | | | | | | | | | | | | | | | |
| | 180632R-MM | | | | | | | | | | | | | | | | | | |

● : Disponibile ○ : A richiesta

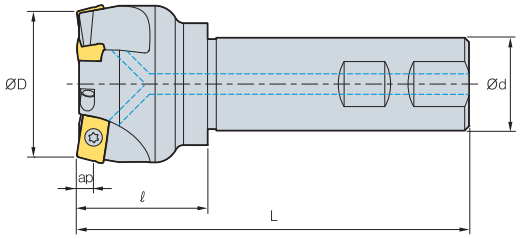
# AMS1000SE2000SE/3000SE

New

AA 75°

• AR : -4.5°~-1°
• RR : -3°~0°






(mm)

| Articolo | | Stock | ⊙ | ØD | Ød | ℓ | L | ap | kg |
|---|---|---|---|---|---|---|---|---|---|
| AMS | 1025HSE | | 3 | 25 | 25 | 30 | 115 | 2.5 | 0.41 |
| AMS | 2025HSE | ● | 2 | 25 | 25 | 30 | 115 | 4 | 0.4 |
| | 2032HSE | ● | 3 | 32 | 32 | 40 | 125 | 4 | 0.72 |
| | 2040HSE | ● | 3 | 40 | 32 | 40 | 130 | 4 | 0.86 |
| New | 2040HSE-S40 | | 3 | 40 | 40 | 40 | 130 | 4 | 1.2 |
| New | 2040HSE-S42 | | 3 | 40 | 42 | 40 | 130 | 4 | 1.3 |
| | 2050HSE | | 4 | 50 | 32 | 40 | 135 | 4 | 0.98 |
| New | 2050HSE-S40 | | 4 | 50 | 40 | 40 | 135 | 4 | 1.3 |
| New | 2050HSE-S42 | | 4 | 50 | 42 | 40 | 135 | 4 | 1.4 |
| | 2063HSE | ● | 5 | 63 | 32 | 40 | 135 | 4 | 1.24 |
| New | 2063HSE-S40 | | 5 | 63 | 40 | 40 | 135 | 4 | 1.57 |
| New | 2063HSE-S42 | | 5 | 63 | 42 | 40 | 135 | 4 | 1.62 |
| AMS | 3050HSE | | 3 | 50 | 32 | 45 | 135 | 6 | 1.0 |
| New | 3050HSE-S40 | | 3 | 50 | 40 | 45 | 135 | 6 | 1.3 |
| New | 3050HSE-S42 | | 3 | 50 | 42 | 45 | 135 | 6 | 1.4 |
| | 3063HSE | ● | 4 | 63 | 32 | 45 | 135 | 6 | 1.3 |
| New | 3063HSE-S40 | | 4 | 63 | 40 | 45 | 135 | 6 | 1.6 |
| New | 3063HSE-S42 | | 4 | 63 | 42 | 45 | 135 | 6 | 1.7 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Vite | Chiave | | Dia. fresa applicabile |
|---|---|---|---|---|
| |  |  |  | |
| Tipo 1000 | FTKA01842 | - | TW06S-A | Ø10~Ø63 |
| Tipo 2000 | FTKA02550S | TW08S | - | Ø10~Ø14 |
| | FTKA02565S | | | Ø16~Ø100 |
| Tipo 3000 | FTKA0408 | TW15S | - | Ø25 |
| | FTKA0410 | | | Ø32~Ø100 |

## Inserti disponibili

| APMT-MF | APMT-MM |
|---|---|
|  |  |

• Inserti disponibili, vedere pag. : E05

## Inserti disponibili

| Tipo | Articolo | | Rivestito | | | | | | | | | Cermet | | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST720 | |
| 1000 | APMT | 060202PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | E05 |
| | | 0602PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | | 060208PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | | 060212R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | | 060216R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| 2000 | APMT | 11T3PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | E05 |
| | | 11T3PDSR-MF | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | | 11T308PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | | 11T312PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | | 11T316R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | | 11T318R-MM | | | | | | | | | | | | | | | | | | |
| | | 11T324R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | APXT | 11T3PDSR-MR | | | | | | | | | | | | | | | | | | |
| | | 11T308PDR-MR | | | | | | | | | | | | | | | | | | |
| | | 11T3PDR-MA | | | | | | | | | | | | | | ● | | | | |
| | | 11T318R-MA | | | | | | | | | | | | | | | | | | |
| 3000 | APMT | 1604PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | E05 |
| | | 1604PDSR-MF | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | | 160410PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | | 160416PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | | 160424R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | | 160430R-MM | | | | | | | | | | | | | | | | | | |
| | | 160432R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |

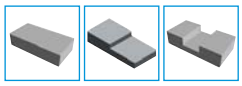
● : Disponibile ○ : A richiesta

# AMS1000M/1500M

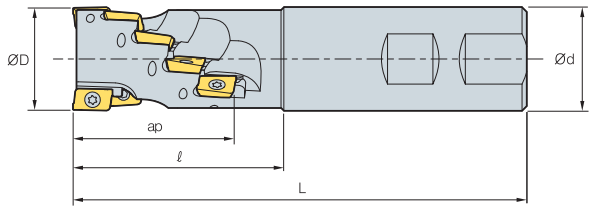
New

AA 90°

• AR : 7°~9°
• RR : -13°~-10°








(mm)

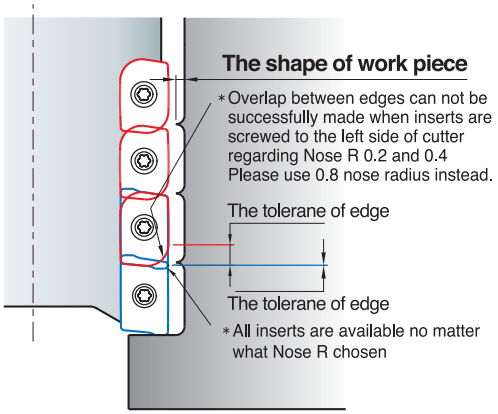
| Articolo | | Stock | | ØD | Ød | ℓ | L | N. eliche | ap | kg |
|---|---|---|---|---|---|---|---|---|---|---|
| AMS | 1016M | | 6 | 16 | 16 | 30 | 80 | 2 | 15.5 | 0.3 |
| | 1020M | | 12 | 20 | 20 | 32 | 85 | 3 | 20.5 | 0.3 |
| | 1025M | | 20 | 25 | 25 | 39 | 95 | 4 | 25.5 | 0.3 |
| AMS | 15020M | | 3 | 20 | 20 | 42 | 105 | 1 | 26.5 | 0.3 |
| | 15025M | | 8 | 25 | 25 | 50 | 110 | 2 | 35 | 0.3 |
| | 15032M | | 10 | 32 | 32 | 60 | 120 | 2 | 44 | 0.3 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Vite | Chiave | | Dia. fresa applicabile |
|---|---|---|---|---|
| |  |  |  | |
| Tipo 1000 | FTKA01842 | - | TW06S-A | Ø10~Ø63 |
| Tipo 1500 | FTKA02555 | TW08S | - | Ø10~Ø14 |
| | FTKA02565S | | | Ø16~Ø100 |

## Prestare attenzione quando gli inserti sono avvitati




## Inserti disponibili

APMT-MM



| Tipo | Articolo | Rivestito | | | | | | | | | | Cermet | | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| 1000 | APMT 060202PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | E05 |
| | 0602PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 060208PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 060212R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 060216R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| 1500 | APMT 0903PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | E05 |
| | 090308PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 090312R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 090316R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 090320R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |

• Inserti disponibili, vedere pag. : E05

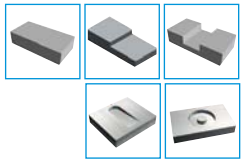
● : Disponibile ○ : A richiesta

# AMS2000M/4000M

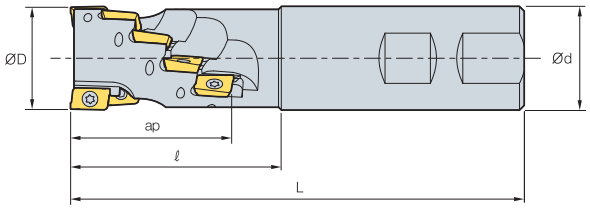
New

AA 90°

• AR : 7°~9°
• RR : -13°~-10°








(mm)

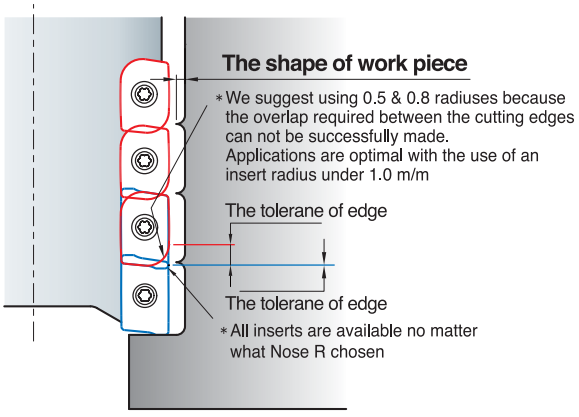
| Articolo | | Stock | ⊚ | øD | ød | ℓ | L | N. eliche | ap | kg |
|---|---|---|---|---|---|---|---|---|---|---|
| AMS | 2020M | ● | 3 | 20 | 20 | 45 | 120 | 1 | 29.4 | 0.32 |
| | 2025M | ● | 8 | 25 | 25 | 55 | 130 | 2 | 38.9 | 0.40 |
| | 2032M | ● | 10 | 32 | 32 | 65 | 140 | 2 | 48.5 | 0.65 |
| | 2040M | ● | 14 | 40 | 40 | 75 | 150 | 2 | 58 | 0.75 |
| AMS | 4032M | | 4 | 32 | 32 | 60 | 130 | 2 | 31.6 | 0.65 |
| | 4040M | | 6 | 40 | 40 | 70 | 140 | 2 | 46 | 1.11 |
| | 4050M-S40 | | 6 | 50 | 40 | 55 | 125 | 2 | 46 | 1.22 |
| | 4050M | | 8 | 50 | 40 | 70 | 140 | 2 | 61 | 1.37 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Vite | Chiave | | Dia. fresa applicabile |
|---|---|---|---|---|
| Tipo 2000 | FTKA02565S | TW08S | - | Ø10~Ø14 |
| | FTKA02565S | | | Ø16~Ø100 |
| Tipo 4000 | FTKA0408 | TW15S | - | Ø20~Ø25 |
| | FTKA0410 | | | Ø32~Ø200 |

## Prestare attenzione quando gli inserti sono avvitati




## Inserti disponibili

APMT-MF APMT-MM





| Tipo | Articolo | Rivestito | | | | | | | | | Cermet | | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| 2000 | APMT 11T3PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | E05 |
| | 11T3PDSR-MF | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 11T308PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 11T312PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 11T316R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 11T318R-MM | | | | | | | | | | | | | | | | | | |
| | 11T324R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| 4000 | APMT 1806PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | E05 E06 |
| | 1806PDSR-MF | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 1806PDSR-ML | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180612PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180616PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180620PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180624PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180630R-MM | | | | | | | | | | | | | | | | | | |
| | 180632R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |

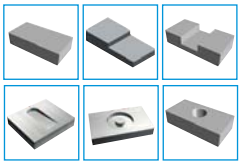
● : Disponibile ○ : A richiesta

• Inserti disponibili, vedere pag. : E05, E06

# AMS1000MH/2000MH/3000MH

AA 90°

• AR : 9°~12°
• RR : −12°~−10°



New



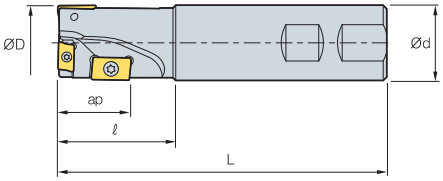


Fig. 1

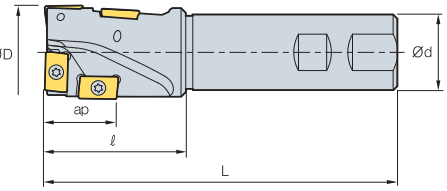


Fig. 2

(mm)

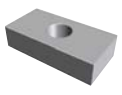
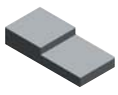
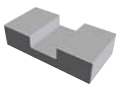
| Articolo | | Stock | | øD | ød | ℓ | L | ap | kg | APMT 0602 | APMT 0903 | APMT 11T3– | APKT 1604– | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AMS | 1014MH | ○ | 3 | 14 | 12 | 30 | 120 | 11 | 0.16 | 3 | - | - | - | 1 |
| | 1016MH | ○ | 3 | 16 | 14 | 30 | 140 | 11 | 0.20 | 3 | - | - | - | 1 |
| | 1018MH | ○ | 3 | 18 | 16 | 30 | 140 | 11 | 0.21 | 3 | - | - | - | 1 |
| AMS | 15020MH | ○ | 3 | 20 | 20 | 35 | 140 | 17 | 0.31 | 1 | 2 | - | - | 1 |
| AMS | 2025MH | ● | 3 | 25 | 25 | 40 | 130 | 20 | 0.45 | - | - | 3 | - | 1 |
| | 2032MH | ● | 3 | 32 | 32 | 50 | 140 | 30 | 0.75 | - | - | 1 | 2 | 1 |
| AMS | 3040MH-K | ○ | 4 | 40 | 32 | 60 | 150 | 40 | 0.90 | - | - | - | 4 | 2 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Vite | Chiave | | Dia. fresa applicabile |
|---|---|---|---|---|
| |  |  |  | |
| Tipo 1000 | FTKA01842 | - | TW06S-A | Ø10~Ø63 |
| Tipo 1500 | FTKA02565S | TW08S | | Ø16~Ø100 |
| Tipo 2000 | FTKA02550S | TW08S | - | Ø10~Ø14 |
| | FTKA02565S | | | Ø16~Ø100 |
| Tipo 3000 | FTKA0408 | TW15S | - | Ø25 |
| | FTKA0410 | | | Ø32~Ø100 |

## Condizioni di taglio raccomandate

| | Drilling | Shouldering | Slotting |
|---|---|---|---|
| |  |  |  |
| vc(m/min) | 80~200 | 80~200 | 80~200 |
| fz(mm/t) | 0.03~0.06 | 0.05~0.25 | 0.05~0.2 |

•Si consiglia di mantenere la profondità di foratura al di sotto di 0,25D
•Si consiglia di mantenere la profondità itnermedita tra 0,2 e 0,3mm

## Inserti disponibili

| APKT-MF | APKT-MM | APMT-MF | APMT-MM |
|---|---|---|---|
|  |  |  |  |

| Tipo | Articolo | Rivestito | | | | | | | | | Cermet | | | Non rivestito | | | | 적용 홀더 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| 1000 | APMT 060202PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | E05 |
| | 0602PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 060208PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| 1500 | APMT 0903PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | E05 |
| | 090308PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| 2000 | APMT 11T3PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | E05 |
| | 11T3PDSR-MF | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 11T308PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 11T312PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 11T316R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 11T318R-MM | | | | | | | | | | | | | | | | | | |
| | 11T324R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | APXT 11T3PDR-MA | | | | | | | | | | | | | | ● | | | | E06 |
| 3000 | APKT 1604PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | E04 |
| | 1604PDSR-MF | ● | | ● | ● | ● | ● | | | | | | | | | | | | |

● : Disponibile ○ : A richiesta

• Inserti disponibili, vedere pag. : E04, E05, E06

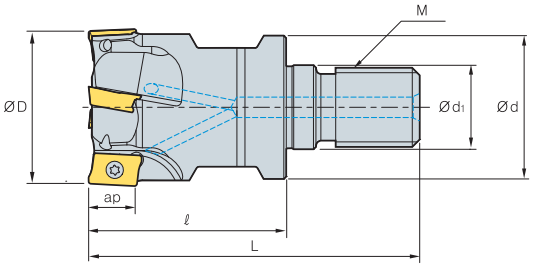
# AMM1000/1500/2000

New

AA 90°

• AR : 7.5°~12.5°
• RR : −28°~−6°






(mm)

| Articolo | | Stock | | ØD | Ød | Ød1 | ℓ | L | M | ap | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AMM | 1012HR-M06 | ● | 3 | 12 | 11 | 6.5 | 25 | 40 | M06 | 5.6 | 0.02 |
| | 1016HR-M08 | | 4 | 16 | 14.5 | 8.5 | 25 | 42 | M08 | 5.6 | 0.03 |
| | 1020HR-M10 | ● | 5 | 20 | 18 | 10.5 | 30 | 51 | M10 | 5.6 | 0.07 |
| | 1025HR-M12 | ● | 7 | 25 | 23 | 12.5 | 35 | 59 | M12 | 5.6 | 0.12 |
| | 1032HR-M16 | ● | 8 | 32 | 29 | 17 | 40 | 67 | M16 | 5.6 | 0.23 |
| AMM | 15010HR-M06 | ● | 1 | 10 | 9.5 | 6.5 | 25 | 40 | M06 | 9 | 0.01 |
| | 15012HR-M06 | | 1 | 12 | 11 | 6.5 | 25 | 40 | M06 | 9 | 0.02 |
| | 15016HR-M08 | ● | 2 | 16 | 14.5 | 8.5 | 25 | 42 | M08 | 9 | 0.03 |
| | 15020HR-M10 | ● | 2 | 20 | 18 | 10.5 | 30 | 51 | M10 | 9 | 0.06 |
| | 15025HR-M12 | ● | 3 | 25 | 23 | 12.5 | 35 | 59 | M12 | 9 | 0.12 |
| | 15032HR-M16 | ● | 4 | 32 | 29 | 17 | 40 | 67 | M16 | 9 | 0.22 |
| AMM | 2016HR-M08 | | 2 | 16 | 14.5 | 8.5 | 25 | 42 | M08 | 11 | 0.04 |
| | 2020HR-M10 | | 2 | 20 | 18 | 10.5 | 30 | 51 | M10 | 11 | 0.07 |
| | 2025HR-M12 | ● | 3 | 25 | 23 | 12.5 | 35 | 59 | M12 | 11 | 0.04 |
| | 2032HR-M16 | | 4 | 32 | 29 | 17 | 40 | 67 | M16 | 11 | 0.23 |
| | 2040HR-M16 | | 5 | 40 | 29 | 17 | 40 | 67 | M16 | 11 | 0.25 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Vite | Chiave | | Dia. fresa applicabile |
|---|---|---|---|---|
| Tipo 1000 | FTKA01842 | - | TW06S-A | Ø10~Ø63 |
| Tipo 1500 | FTKA02555S | TW08S | - | Ø10~Ø14 |
| | FTKA02565S | | | Ø16~Ø100 |
| Tipo 2000 | FTKA02550S | TW08S | - | Ø10~Ø14 |
| | FTKA02565S | | | Ø16~Ø100 |

## Adattatori disponibili

| Articolo | | Adattatori disponibili |
|---|---|---|
| AMM | 1012HR-M06 | MAT - M06 |
| | 1016HR-M08 | MAT - M08 |
| | 1020HR-M10 | MAT - M10 |
| | 1025HR-M12 | MAT - M12 |
| | 1032HR-M16 | MAT - M16 |
| | 15010HR-M06 | MAT - M06 |
| | 15012HR-M06 | MAT - M06 |
| | 15016HR-M08 | MAT - M08 |
| | 15020HR-M10 | MAT - M10 |
| | 15025HR-M12 | MAT - M12 |
| | 15032HR-M16 | MAT - M16 |
| | 2016HR-M08 | MAT - M08 |
| | 2020HR-M10 | MAT - M10 |
| | 2025HR-M12 | MAT - M12 |
| | 2032HR-M16 | MAT - M16 |
| | 2040HR-M16 | MAT - M16 |

• Inserti disponibili, vedere pag. : E05, E06
• Adattatori applicabili, vedere pag.: E133~E134

## Inserti disponibili

APMT-MM APMT-MF APXT-MA





| Tipo | Articolo | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1000 | APMT 060202PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | E05 |
| | 0602PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 060208PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 060212R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 060216R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| 1500 | APMT 0903PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | E05 |
| | 090308PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 090312R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 090316R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 090320R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| 2000 | APMT 11T3PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | E05 E06 |
| | 11T3PDSR-MF | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 11T308PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 11T312PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 11T316R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 11T318R-MM | | | | | | | | | | | | | | | | | | |
| | 11T324R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | APXT 11T3PDR-MA | | | | | | | | | | | | | | ● | | | | |

● : Disponibile ○ : A richiesta

Articolo : AMM1032HR-M16
Dimensione filettatura testa modulare (M16)

=

Adaptor Spec. : MAT-M16-035-S32S
Dimensione filettatura adattatore (M16)

## Sistema di lavorazione BT/HSK

### Codifica per geometria a un tagliente o multitagliente

| BT50 | HAT | 4 | 063 | 114 | – | 4 | F |
|---|---|---|---|---|---|---|---|
| Tipo di stelo | Nome articolo | Serie | Dia. | Lungh.(ap) | | N. eliche | Parte frontale o serie lunga |
| BT30/40/50<br>HSK40/50/63/100 | AM<br>HAT<br>RM | Tipo 1000<br>Tipo 1500<br>Tipo 2000<br>Tipo 3000<br>Tipo 4000 | Dia. di taglio :<br>Ø63 | Lungh. : 114<br>HS :<br>Refrigerante | | N. eliche : 4<br>N. denti:4 | Parte frontale (Y/N)<br>Y : F<br>Neutro : No<br>L : Serie lunga |

### Codifica per geometria modulare

| BT50 | – | MAT | – | M16 | – | 092 |
|---|---|---|---|---|---|---|
| Tipo di stelo | | Articolo | | M Dimensioni | | Lungh. totale (L) |
| BT30/40/50<br>HSK40/50/63/100 | | MAT | | M Dimensioni<br>: M16 | | Lunghezza totale :<br>92 |

## Sistema DBT

### Caratteristiche stelo (D)BT

- Garantisce ottima robustezza grazie alla possibilità di staffaggio su due lati
- Garantisce maggiore robustezza ad alte velocità
- Garantisce una migliore rugosità della superficie

### DBT




### BT



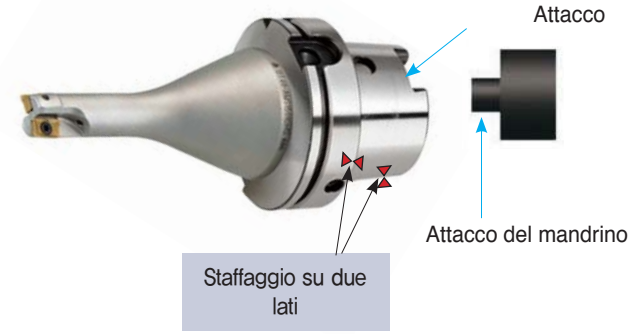

• Migliore rugosità della superficie

## Sistema HSK

### Caratteristiche stelo HSK

- Garantisce ottima robustezza grazie alla possibilità di staffaggio su due lati
- Garantisce maggiore robustezza ad alte velocità
- Garantisce una migliore rugosità della superficie
- Garantisce massima precisione

### Confronto tra HSK A e HSK T




### HSK Confronto tolleranze

| Tipo di attacco | Tolleranza max. | Tolleranza min. | Disponibilità |
|---|---|---|---|
| HSK-T | 0.075 | 0.035 | Macchina multifunzione |
| HSK-A | 0.33 | 0.08 generico | MCT |

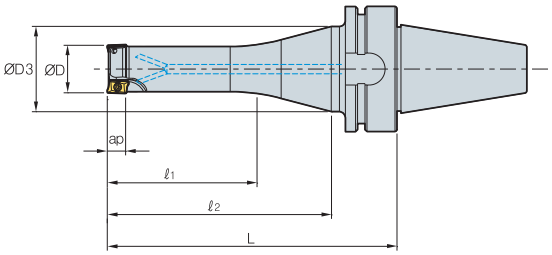
# BT30/40 AM1000/1500HS

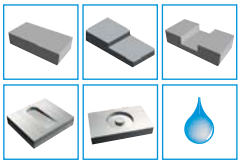
New

AA 90°

• AR : 7.5°~13°
• RR : -28°~-7°





(mm)

| | Articolo | Stock | | øD | øD3 | ℓ1 | ℓ2 | L | ap |
|---|---|---|---|---|---|---|---|---|---|
| BT30 | AM1010HS-2 | | 2 | 10 | 43 | 35 | 83 | 112 | 5.6 |
| | AM1012HS-2 | | 2 | 12 | 43 | 35 | 83 | 112 | 5.6 |
| | AM1012HS-3 | | 3 | 12 | 43 | 35 | 83 | 112 | 5.6 |
| | AM1016HS-3 | | 3 | 16 | 43 | 35 | 83 | 112 | 5.6 |
| | AM1016HS-4 | | 4 | 16 | 43 | 35 | 83 | 112 | 5.6 |
| | AM1020HS-4 | | 4 | 20 | 43 | 45 | 98 | 127 | 5.6 |
| | AM1020HS-5 | | 5 | 20 | 43 | 45 | 98 | 127 | 5.6 |
| BT40 | AM15016HS-2 | | 2 | 16 | 43 | 45 | 83 | 117 | 9 |
| | AM15016HS-2L | | 2 | 16 | 43 | 35 | 118 | 152 | 9 |
| | AM15020HS-2 | | 2 | 20 | 43 | 60 | 98 | 132 | 9 |
| | AM15020HS-3 | | 3 | 20 | 43 | 60 | 98 | 132 | 9 |
| | AM15020HS-2L | | 2 | 20 | 43 | 50 | 118 | 152 | 9 |
| | AM15025HS-3 | | 3 | 25 | 43 | 75 | 113 | 147 | 9 |
| | AM15025HS-4 | | 4 | 25 | 43 | 75 | 113 | 147 | 9 |
| | AM15025HS-3L | | 3 | 25 | 43 | 65 | 133 | 167 | 9 |
| | AM15032HS-4 | | 4 | 32 | 43 | 80 | 113 | 147 | 9 |
| | AM15032HS-5 | | 5 | 32 | 43 | 80 | 113 | 147 | 9 |
| | AM15032HS-4L | | 4 | 32 | 43 | 70 | 133 | 167 | 9 |
| | AM15040HS-5 | | 5 | 40 | 47 | 60 | 98 | 132 | 9 |
| | AM15040HS-6 | | 6 | 40 | 47 | 60 | 98 | 132 | 9 |
| | AM15040HS-5L | | 5 | 40 | 47 | 50 | 118 | 152 | 9 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Vite | Chiave | | Dia. fresa applicabile |
|---|---|---|---|---|
| |  |  |  | |
| Tipo 1000 | FTKA01842 | - | TW06S-A | Ø10~Ø63 |
| Tipo 1500 | FTKA02555S | TW08S | - | Ø10~Ø14 |
| | FTKA02565S | | | Ø16~Ø100 |

## Inserti disponibili

APMT-MM



| Tipo | Articolo | Rivestito | | | | | | | | | Cermet | | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| 1000 | APMT 060202PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | E05 |
| | 0602PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 060208PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 060212R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 060216R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| 1500 | APMT 0903PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | E05 |
| | 090308PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 090312R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 090316R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 090320R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |

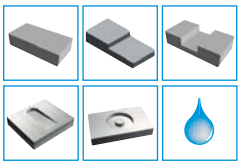
• Inserti disponibili, vedere pag. : E05

● : Disponibile ○ : A richiesta

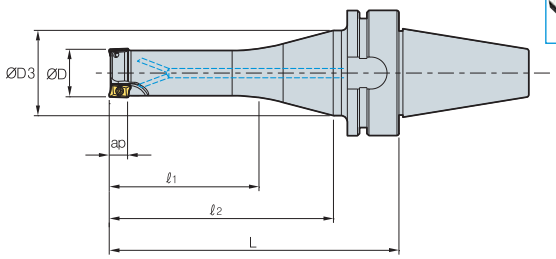
# BT40/50 AM2000/3000/4000HS

AA 90°

• AR : 7°~10°
• RR : -20°~-7°








(mm)

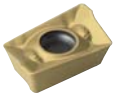
| | Articolo | Stock | | ØD | ØD3 | ℓ1 | ℓ2 | L | ap |
|---|---|---|---|---|---|---|---|---|---|
| BT40 | AM2016HS-2 | | 2 | 16 | 43 | 45 | 83 | 117 | 11 |
| | AM2016HS-2L | | 2 | 16 | 43 | 35 | 118 | 152 | 11 |
| | AM2020HS-2 | | 2 | 20 | 43 | 60 | 98 | 132 | 11 |
| | AM2020HS-2L | | 2 | 20 | 43 | 50 | 118 | 152 | 11 |
| | AM2025HS-3 | | 3 | 25 | 43 | 75 | 113 | 147 | 11 |
| | AM2025HS-3L | | 3 | 25 | 43 | 65 | 113 | 147 | 11 |
| | AM2032HS-4 | | 4 | 32 | 43 | 80 | 113 | 147 | 11 |
| | AM2032HS-4L | | 4 | 32 | 43 | 70 | 133 | 167 | 11 |
| | AM2040HS-5 | | 5 | 40 | 47 | 60 | 98 | 132 | 11 |
| | AM2040HS-5L | | 5 | 40 | 47 | 50 | 118 | 152 | 11 |
| | AM2050HS-6 | | 6 | 50 | 47 | 60 | 98 | 132 | 11 |
| | AM2050HS-6L | | 6 | 50 | 47 | 50 | 118 | 152 | 11 |
| BT50 | AM3025HS-2 | | 2 | 25 | 43 | 65 | 113 | 158 | 16 |
| | AM3025HS-2L | | 2 | 25 | 43 | 55 | 123 | 168 | 16 |
| | AM3032HS-3 | | 3 | 32 | 43 | 70 | 113 | 158 | 16 |
| | AM3032HS-3L | | 3 | 32 | 43 | 60 | 123 | 168 | 16 |
| | AM3040HS-4 | | 4 | 40 | 47 | 50 | 98 | 143 | 16 |
| | AM3040HS-4L | | 4 | 40 | 47 | 40 | 108 | 153 | 16 |
| | AM3050HS-5 | | 5 | 50 | 47 | 50 | 98 | 143 | 16 |
| | AM3050HS-5L | | 5 | 50 | 47 | 40 | 108 | 153 | 16 |
| BT50 | AM4020HS-1 | | 1 | 20 | 43 | 50 | 98 | 143 | 17 |
| | AM4025HS-2 | | 2 | 25 | 43 | 65 | 113 | 158 | 17 |
| | AM4032HS-3 | | 3 | 32 | 43 | 70 | 113 | 158 | 17 |
| | AM4032HS-3L | | 3 | 32 | 43 | 60 | 123 | 168 | 17 |
| | AM4040HS-4 | | 4 | 40 | 47 | 50 | 98 | 143 | 17 |
| | AM4040HS-4L | | 4 | 40 | 47 | 40 | 108 | 153 | 17 |
| | AM4050HS-5 | | 5 | 50 | 47 | 50 | 98 | 143 | 17 |
| | AM4050HS-5L | | 5 | 50 | 47 | 40 | 108 | 153 | 17 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Vite | Chiave | Dia. fresa applicabile |
|---|---|---|---|
| |  |  | |
| Tipo 2000 | FTKA02550S | TW08S | Ø10~Ø14 |
| | FTKA02565S | | Ø16~Ø100 |
| Tipo 3000 | FTKA0408 | TW15S | Ø25 |
| | FTKA0410 | | Ø32~Ø100 |
| Tipo 4000 | FTKA0408 | TW15S | Ø20~Ø25 |
| | FTKA0410 | | Ø32~Ø200 |

## Inserti disponibili

| APMT-MM | APMT-MF |
|---|---|
|  |  |

• Inserti disponibili, vedere pag. : E05, E06

| Tipo | Articolo | Rivestito | | | | | | | | | Cermet | | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| 2000 | APMT 11T3PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | E05 |
| | 11T3PDSR-MF | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 11T308PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 11T312PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 11T316R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 11T318R-MM | | | | | | | | | | | | | | | | | | |
| | 11T324R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| 3000 | APMT 1604PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | E05 |
| | 1604PDSR-MF | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 160410PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 160416PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 160424R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 160430R-MM | | | | | | | | | | | | | | | | | | |
| | 160432R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| 4000 | APMT 180604PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | E05 E06 |
| | 180604PDSR-MF | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 1806PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 1806PDSR-MF | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 1806PDSR-ML | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180612PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180616PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180620PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180624PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180630R-MM | | | | | | | | | | | | | | | | | | |
| | 180632R-MM | | | | | | | | | | | | | | | | | | |

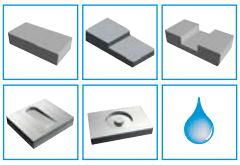
● : Disponibile ○ : A richiesta

# HSK63A AM1000/1500HS

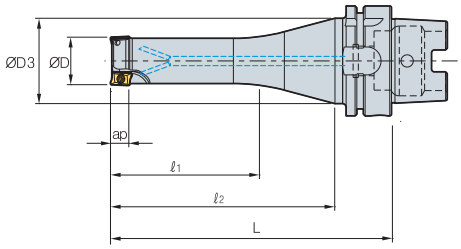
New

AA 90°

• AR : 7.5°~13°
• RR : -28°~-7°








(mm)

| Articolo | | Stock | | øD | øD3 | ℓ1 | ℓ2 | L | ap |
|---|---|---|---|---|---|---|---|---|---|
| HSK63A | AM1010HS-2 | | 2 | 10 | 43 | 35 | 83 | 116 | 5.6 |
| | AM1012HS-2 | | 2 | 12 | 43 | 35 | 83 | 116 | 5.6 |
| | AM1012HS-3 | | 3 | 12 | 43 | 35 | 83 | 116 | 5.6 |
| | AM1016HS-3 | | 3 | 16 | 43 | 35 | 83 | 116 | 5.6 |
| | AM1016HS-4 | | 4 | 16 | 43 | 35 | 83 | 116 | 5.6 |
| | AM1020HS-4 | | 4 | 20 | 43 | 45 | 98 | 131 | 5.6 |
| | AM1020HS-5 | | 5 | 20 | 43 | 45 | 98 | 131 | 5.6 |
| HSK63A | AM15016HS-2 | | 2 | 16 | 43 | 45 | 83 | 116 | 9 |
| | AM15016HS-2L | | 2 | 16 | 43 | 35 | 118 | 151 | 9 |
| | AM15020HS-2 | | 2 | 20 | 43 | 60 | 98 | 131 | 9 |
| | AM15020HS-3 | | 3 | 20 | 43 | 60 | 98 | 131 | 9 |
| | AM15020HS-2L | | 2 | 20 | 43 | 50 | 118 | 151 | 9 |
| | AM15025HS-3 | | 3 | 25 | 43 | 75 | 113 | 146 | 9 |
| | AM15025HS-4 | | 4 | 25 | 43 | 75 | 113 | 146 | 9 |
| | AM15025HS-3L | | 3 | 25 | 43 | 65 | 133 | 166 | 9 |
| | AM15032HS-4 | | 4 | 32 | 43 | 80 | 113 | 146 | 9 |
| | AM15032HS-5 | | 5 | 32 | 43 | 80 | 113 | 146 | 9 |
| | AM15032HS-4L | | 4 | 32 | 43 | 70 | 133 | 166 | 9 |
| | AM15040HS-5 | | 5 | 40 | 47 | 60 | 98 | 131 | 9 |
| | AM15040HS-6 | | 6 | 40 | 47 | 60 | 98 | 131 | 9 |
| | AM15040HS-5L | | 5 | 40 | 47 | 50 | 118 | 151 | 9 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Vite | Chiave | | Dia. fresa applicabile |
|---|---|---|---|---|
| |  |  |  | |
| Tipo 1000 | FTKA01842 | - | TW06S-A | Ø10~Ø63 |
| Tipo 1500 | FTKA02555S | TW08S | - | Ø10~Ø14 |
| | FTKA02565S | | | Ø16~Ø100 |

## Inserti disponibili

APMT-MM



| Tipo | Articolo | | Rivestito | | | | | | | | | Cermet | | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| 1000 | APMT | 060202PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | E05 |
| | | 0602PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | | 060208PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | | 060212R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | | 060216R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| 1500 | APMT | 0903PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | E06 |
| | | 090308PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | | 090312R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | | 090316R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | | 090320R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |

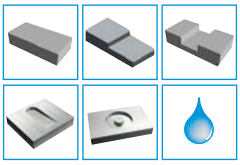
● : Disponibile ○ : A richiesta

• Inserti disponibili, vedere pag. : E05, E06

# HSK63A AM2000/3000/4000HS

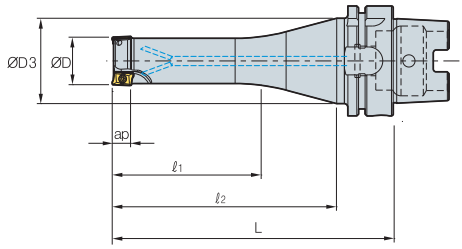
AA 90°

• AR : 7°~10°
• RR : -20°~-7°



New






(mm)

| | Articolo | Stock | | ØD | ØD3 | ℓ1 | ℓ2 | L | ap |
|---|---|---|---|---|---|---|---|---|---|
| HSK63A | AM2016HS-2 | | 2 | 16 | 43 | 45 | 83 | 116 | 11 |
| | AM2016HS-2L | | 2 | 16 | 43 | 35 | 118 | 151 | 11 |
| | AM2020HS-2 | | 2 | 20 | 43 | 60 | 98 | 131 | 11 |
| | AM2020HS-2L | | 2 | 20 | 43 | 50 | 118 | 151 | 11 |
| | AM2025HS-3 | | 3 | 25 | 43 | 75 | 113 | 146 | 11 |
| | AM2025HS-3L | | 3 | 25 | 43 | 65 | 113 | 146 | 11 |
| | AM2032HS-4 | | 4 | 32 | 43 | 80 | 113 | 146 | 11 |
| | AM2032HS-4L | | 4 | 32 | 43 | 70 | 133 | 166 | 11 |
| | AM2040HS-5 | | 5 | 40 | 47 | 60 | 98 | 131 | 11 |
| | AM2040HS-5L | | 5 | 40 | 47 | 50 | 118 | 151 | 11 |
| | AM2050HS-6 | | 6 | 50 | 47 | 60 | 98 | 131 | 11 |
| | AM2050HS-6L | | 6 | 50 | 47 | 50 | 118 | 151 | 11 |
| HSK63A | AM3025HS-2 | | 2 | 25 | 43 | 65 | 113 | 146 | 16 |
| | AM3025HS-2L | | 2 | 25 | 43 | 55 | 123 | 156 | 16 |
| | AM3032HS-3 | | 3 | 32 | 43 | 70 | 113 | 146 | 16 |
| | AM3032HS-3L | | 3 | 32 | 43 | 60 | 123 | 156 | 16 |
| | AM3040HS-4 | | 4 | 40 | 47 | 50 | 98 | 131 | 16 |
| | AM3040HS-4L | | 4 | 40 | 47 | 40 | 108 | 141 | 16 |
| | AM3050HS-5 | | 5 | 50 | 47 | 50 | 98 | 131 | 16 |
| | AM3050HS-5L | | 5 | 50 | 47 | 40 | 108 | 141 | 16 |
| HSK63A | AM4020HS-1 | | 1 | 20 | 43 | 50 | 98 | 131 | 17 |
| | AM4025HS-2 | | 2 | 25 | 43 | 65 | 113 | 146 | 17 |
| | AM4032HS-3 | | 3 | 32 | 43 | 70 | 113 | 146 | 17 |
| | AM4032HS-3L | | 3 | 32 | 43 | 60 | 123 | 156 | 17 |
| | AM4040HS-4 | | 4 | 40 | 47 | 50 | 98 | 131 | 17 |
| | AM4040HS-4L | | 4 | 40 | 47 | 40 | 108 | 141 | 17 |
| | AM4050HS-5 | | 5 | 50 | 47 | 50 | 98 | 131 | 17 |
| | AM4050HS-5L | | 5 | 50 | 47 | 40 | 108 | 141 | 17 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Vite | Chiave | | Dia. fresa applicabile |
|---|---|---|---|---|
| |  |  |  | |
| Tipo 2000 | FTKA02550S | TW08S | - | Ø10~Ø14 |
| | FTKA02565S | | | Ø16~Ø100 |
| Tipo 3000 | FTKA0408 | TW15S | - | Ø25 |
| | FTKA0410 | | | Ø32~Ø100 |
| Tipo 4000 | FTKA0408 | TW15S | - | Ø20~Ø25 |
| | FTKA0410 | | | Ø32~Ø200 |

## Inserti disponibili

| APMT-MM | APMT-MM |
|---|---|
|  |  |

• Inserti disponibili, vedere pag. : E05, E06

| Tipo | Articolo | Rivestito | | | | | | | | | | Cermet | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| 2000 | APMT 11T3PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | E05 |
| | 11T3PDSR-MF | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 11T308PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 11T312PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 11T316R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 11T318R-MM | | | | | | | | | | | | | | | | | | |
| | 11T324R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| 3000 | APMT 1604PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | E05 |
| | 1604PDSR-MF | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 160410PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 160416PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 160424R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 160430R-MM | | | | | | | | | | | | | | | | | | |
| | 160432R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| 4000 | APMT 180604PDSR-MM | ● | | ● | ● | ● | | | | | | | | | | | | | E05 E06 |
| | 180604PDSR-MF | ● | | ● | ● | ● | | | | | | | | | | | | | |
| | 1806PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 1806PDSR-MF | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 1806PDSR-ML | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180612PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180616PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180620PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180624PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180630R-MM | | | | | | | | | | | | | | | | | | |
| | 180632R-MM | | | | | | | | | | | | | | | | | | |

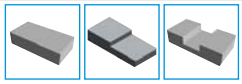
● : Disponibile ○ : A richiesta

# BT30/40 AM1000/1500

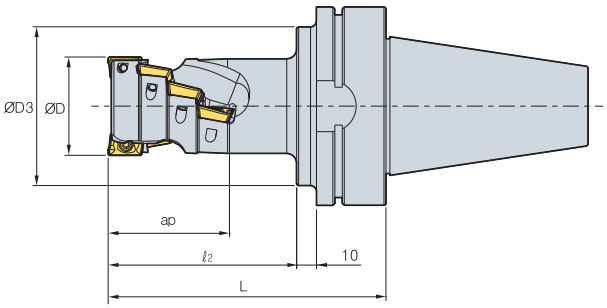
New

AA 90°

• AR : 12.5°~13°
• RR : -17°~-6°








(mm)

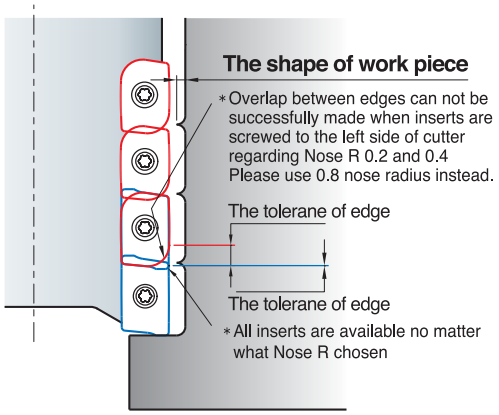
| | Articolo | Stock | | øD | øD3 | ℓ2 | L | N. eliche | ap |
|---|---|---|---|---|---|---|---|---|---|
| BT30 | AM1016015-2 | | 6 | 16 | 80 | 30 | 62 | 2 | 15.5 |
| | AM1020020-3 | | 12 | 20 | 80 | 32 | 64 | 3 | 20.5 |
| | AM1025025-4 | | 20 | 25 | 80 | 39 | 71 | 4 | 25.5 |
| BT40 | AM1016015-2 | | 6 | 16 | 80 | 30 | 67 | 2 | 15.5 |
| | AM1020020-3 | | 12 | 20 | 80 | 32 | 69 | 3 | 20.5 |
| | AM1025025-4 | | 20 | 25 | 80 | 39 | 76 | 4 | 25.5 |
| BT30 | AM15020026-1 | | 3 | 20 | 80 | 42 | 74 | 1 | 26.5 |
| | AM15025035-2 | | 8 | 25 | 80 | 50 | 62 | 2 | 35 |
| | AM15032044-2 | | 10 | 32 | 80 | 60 | 92 | 2 | 44 |
| BT40 | AM15020026-1 | | 3 | 20 | 80 | 42 | 79 | 1 | 26.5 |
| | AM15025035-2 | | 8 | 25 | 80 | 50 | 87 | 2 | 35 |
| | AM15032044-2 | | 10 | 32 | 80 | 60 | 97 | 2 | 44 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Vite | Chiave | | Dia. fresa applicabile |
|---|---|---|---|---|
| |  |  |  | |
| Tipo 1000 | FTKA01842 | - | TW06S-A | Ø10~Ø63 |
| Tipo 1500 | FTKA02555S | TW08S | - | Ø10~Ø14 |
| | FTKA02565S | | | Ø16~Ø100 |

## Prestare attenzione quando gli inserti sono avvitati




## Inserti disponibili

APMT-MM



| Tipo | Articolo | Rivestito | | | | | | | | | | Cermet | | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| 1000 | APMT 060202PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | E05 |
| | 0602PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 060208PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 060212R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 060216R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| 1500 | APMT 0903PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | E05 |
| | 090308PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 090312R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 090316R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 090320R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |

• Inserti disponibili, vedere pag. : E05

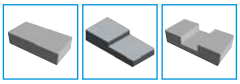
● : Disponibile ○ : A richiesta

# BT30/40/50 AM2000

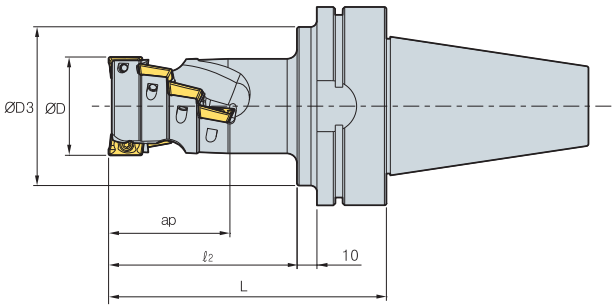
New

AA 90°

• AR : -9°
• RR : -13°~-8°








(mm)

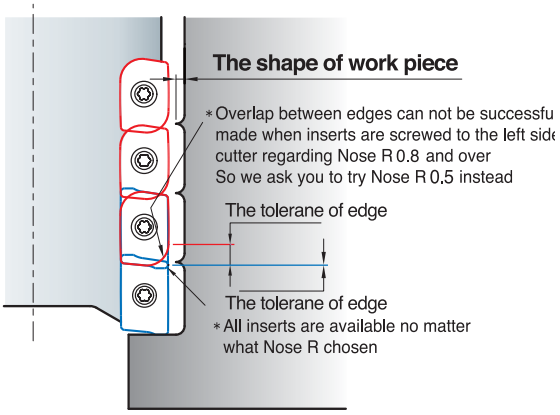
| | Articolo | Stock | | ØD | ØD3 | ℓ2 | L | N. eliche | ap |
|---|---|---|---|---|---|---|---|---|---|
| BT30 | AM2020029-1 | | 3 | 20 | 80 | 45 | 77 | 1 | 29.4 |
| | AM2025038-2 | | 8 | 25 | 80 | 55 | 87 | 2 | 38.9 |
| | AM2032048-2 | | 10 | 32 | 80 | 65 | 97 | 2 | 48.5 |
| | AM2040058-2 | | 14 | 40 | 80 | 75 | 107 | 2 | 58 |
| | AM2050039-4 | | 16 | 50 | 80 | 58 | 90 | 4 | 39 |
| | AM2063039-4 | | 16 | 63 | 80 | 58 | 90 | 4 | 39 |
| | AM2080039-5 | | 20 | 80 | 80 | 63 | 95 | 5 | 39 |
| | AM2100039-6 | | 24 | 100 | 80 | 63 | 95 | 6 | 39 |
| BT40 | AM2020029-1 | | 3 | 20 | 80 | 45 | 82 | 1 | 29.4 |
| | AM2025038-2 | | 8 | 25 | 80 | 55 | 92 | 2 | 38.9 |
| | AM2032048-2 | | 10 | 32 | 80 | 65 | 102 | 2 | 48.5 |
| | AM2040058-2 | | 14 | 40 | 80 | 75 | 112 | 2 | 58 |
| | AM2050039-4 | | 16 | 50 | 80 | 58 | 95 | 4 | 39 |
| | AM2063039-4 | | 16 | 63 | 80 | 58 | 95 | 4 | 39 |
| | AM2080039-5 | | 20 | 80 | 80 | 63 | 100 | 5 | 39 |
| | AM2100039-6 | | 24 | 100 | 80 | 63 | 100 | 6 | 39 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Vite | Chiave | | Dia. fresa applicabile |
|---|---|---|---|
|  |  |  | |
| FTKA02550S | TW08S | - | Ø10~Ø14 |
| FTKA02565S | | | Ø16~Ø100 |

## Prestare attenzione quando gli inserti sono avvitati




## Inserti disponibili

APMT-MM APMT-MF





| Articolo | | Rivestito | | | | | | | | | | Cermet | | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| APMT | 11T3PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | E05 |
| | 11T3PDSR-MF | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 11T308PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 11T312PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 11T316R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 11T318R-MM | | | | | | | | | | | | | | | | | | |
| | 11T324R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |

• Inserti disponibili, vedere pag. : E05

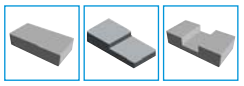
● : Disponibile ○ : A richiesta

# BT30/40/50 AM3000/4000

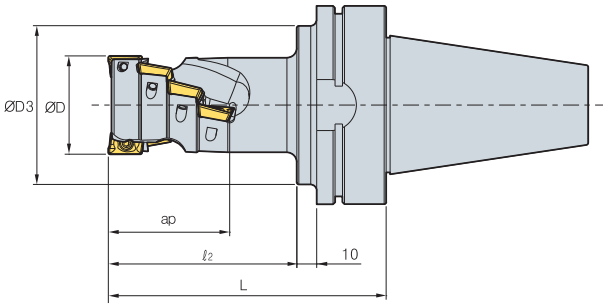
New

AA 90°

• AR : 13°~15°
• RR : -11°~-4°








(mm)

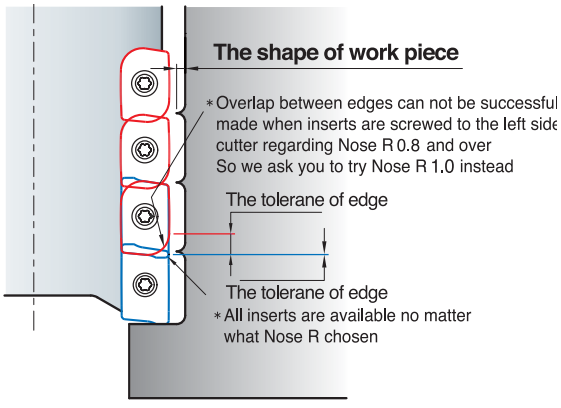
| Articolo | | Stock | | øD | øD3 | ℓ2 | L | N. eliche | ap |
|---|---|---|---|---|---|---|---|---|---|
| BT50 | AM3050043-2 | | 6 | 50 | 80 | 72 | 120 | 2 | 43 |
| | AM3063057-4 | | 16 | 63 | 80 | 86 | 134 | 4 | 57 |
| | AM3080071-4 | | 20 | 80 | 80 | 100 | 148 | 4 | 71 |
| | AM3100071-6 | | 30 | 100 | 80 | 100 | 148 | 6 | 71 |
| BT50 | AM4040046-2 | | 6 | 40 | 80 | 75 | 123 | 2 | 46 |
| | AM4050061-2 | | 8 | 50 | 80 | 95 | 143 | 2 | 61 |
| | AM4063061-4 | | 16 | 63 | 80 | 90 | 138 | 4 | 61 |
| | AM4080076-4 | | 20 | 80 | 80 | 105 | 153 | 4 | 76 |
| | AM4100076-6 | | 30 | 100 | 80 | 105 | 153 | 6 | 76 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

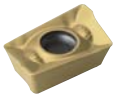
| | Vite | Chiave | | Dia. fresa applicabile |
|---|---|---|---|---|
| Tipo 3000 | FTKA0408 | TW15S | - | Ø25 |
| | FTKA0410 | | | Ø32~Ø100 |
| Tipo 4000 | FTKA0408 | TW15S | - | Ø20~Ø25 |
| | FTKA0410 | | | Ø32~Ø200 |

## Prestare attenzione quando gli inserti sono avvitati




## Inserti disponibili

APMT-MM APMT-MM





| Tipo | Articolo | Rivestito | | | | | | | | | | Cermet | | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| 3000 | APMT 1604PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | E05 |
| | 1604PDSR-MF | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 160410PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 160416PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 160424R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 160430R-MM | | | | | | | | | | | | | | | | | | |
| | 160432R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| 4000 | APMT 180604PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | E05 E06 |
| | 180604PDSR-MF | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 1806PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 1806PDSR-MF | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 1806PDSR-ML | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180612PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180616PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180620PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180624PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180630R-MM | | | | | | | | | | | | | | | | | | |
| | 180632R-MM | | | | | | | | | | | | | | | | | | |

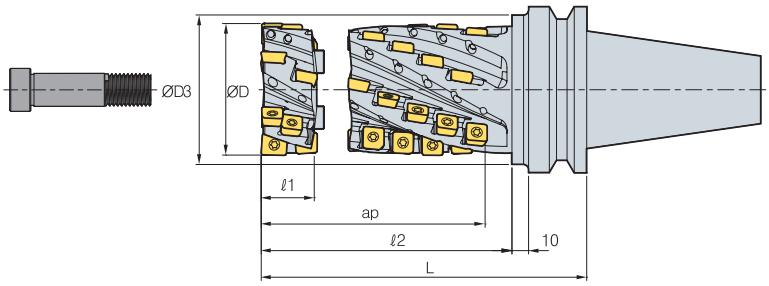
● : Disponibile ○ : A richiesta

• Inserti disponibili, vedere pag. : E05, E06

# BT50 HAT4000

New






(mm)

| Articolo | | Stock | SPMT | ZPMT | ØD | ℓ1 | ℓ2 | L | N. eliche | ap | Applicazione |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BT50- (Corpo base) | HAT4050094-2F | | 10 | 1 | 50 | 32 | 119 | 160 | 2 | 94 | HAT4050032-2F |
| | HAT4050104-2F | | 11 | 1 | 50 | 32 | 129 | 170 | 2 | 104 | |
| | HAT4050114-2F | | 12 | 1 | 50 | 32 | 139 | 180 | 2 | 114 | |
| | HAT4063094-4F | | 20 | 2 | 63 | 32 | 119 | 160 | 4 | 94 | HAT4063032-4F |
| | HAT4063104-4F | | 22 | 2 | 63 | 32 | 129 | 170 | 4 | 104 | |
| | HAT4063114-4F | | 24 | 2 | 63 | 32 | 139 | 180 | 4 | 114 | |
| | HAT4080094-4F | | 20 | 2 | 80 | 33 | 119 | 160 | 4 | 94 | HAT4080033-4F |
| | HAT4080104-4F | | 22 | 2 | 80 | 33 | 129 | 170 | 4 | 104 | |
| | HAT4080114-4F | | 24 | 2 | 80 | 33 | 139 | 180 | 4 | 114 | |
| (Parte frontale) | HAT4050032-2F | | 3 | 1 | 50 | 32 | - | - | 2 | - | - |
| | HAT4063032-4F | | 6 | 2 | 63 | 32 | - | - | 4 | - | |
| | HAT4080033-4F | | 6 | 2 | 80 | 33 | - | - | 4 | - | |

● : Disponibile ○ : A richiesta

## Parti di ricambio

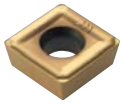
| Vite | Chiave | Dia. fresa |
|---|---|---|
|  |  | |
| ETNA0511 | TW20 | |

## Articolo corpo base

| Articolo set | Articolo | Parte frontale | Vite di staffaggio |
|---|---|---|---|
| HAT4050094-2F | HAT4050062-2F | HAT4050032-2F | HSB1255 |
| HAT4050104-2F | HAT4050072-2F | | |
| HAT4050114-2F | HAT4050082-2F | | |
| HAT4063094-4F | HAT4063062-4F | HAT4063032-4F | HSB1670 |
| HAT4063104-4F | HAT4063072-4F | | |
| HAT4063114-4F | HAT4063082-4F | | |
| HAT4080094-4F | HAT4080061-4F | HAT4080033-4F | HSB1682 |
| HAT4080104-4F | HAT4080071-4F | | |
| HAT4080114-4F | HAT4080081-4F | | |

## Inserti disponibili

SPMT-MM ZPMT-MM





| Articolo | Rivestito | | | | | | | | | | Cermet | | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| SPMT 120508-MMN | | | | | | | | | | | | | | | | | | E18 |
| ZPMT 1505PPSR-MMN | | | | | | | | | | | | | | | | | | E21 |

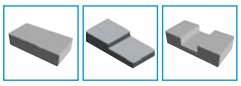
● : Disponibile ○ : A richiesta

• Inserti disponibili, vedere pag. : E18, E21

# HSK63A AM1000/1500/2000

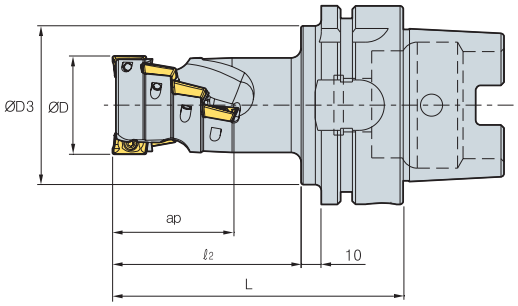
AA 90°

• AR : −12.5°~13°
• RR : −17°~−6°



New






(mm)

| Articolo | | Stock | | øD | øD3 | ℓ2 | L | N. eliche | ap |
|---|---|---|---|---|---|---|---|---|---|
| HSK63A | AM1016015-2 | | 6 | 16 | 80 | 30 | 66 | 2 | 15.5 |
| | AM1020020-3 | | 12 | 20 | 80 | 32 | 68 | 3 | 20.5 |
| | AM1025025-4 | | 20 | 25 | 80 | 39 | 75 | 4 | 25.5 |
| HSK63A | AM15020026-1 | | 3 | 20 | 80 | 42 | 78 | 1 | 26.5 |
| | AM15025035-2 | | 8 | 25 | 80 | 50 | 86 | 2 | 35 |
| | AM15032044-2 | | 10 | 32 | 80 | 60 | 96 | 2 | 44 |
| HSK63A | AM2020029-1 | | 3 | 20 | 80 | 45 | 81 | 1 | 29.4 |
| | AM2025038-2 | | 8 | 25 | 80 | 55 | 91 | 2 | 38.9 |
| | AM2032048-2 | | 10 | 32 | 80 | 65 | 101 | 2 | 48.5 |
| | AM2040058-2 | | 14 | 40 | 80 | 75 | 111 | 2 | 58 |
| | AM2050039-4 | | 16 | 50 | 80 | 58 | 94 | 4 | 39 |
| | AM2063039-4 | | 16 | 63 | 80 | 58 | 94 | 4 | 39 |
| | AM2080039-5 | | 20 | 80 | 80 | 63 | 99 | 5 | 39 |
| | AM2100039-6 | | 24 | 100 | 80 | 63 | 99 | 6 | 39 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Vite | Chiave | | Dia. fresa applicabile |
|---|---|---|---|---|
| |  |  |  | |
| Tipo 1000 | FTKA01842 | - | TW06S-A | Ø10~Ø63 |
| Tipo 1500 | FTKA02555S | TW08S | - | Ø10~Ø14 |
| | FTKA02565S | | | Ø16~Ø100 |
| Tipo 2000 | FTKA02550S | TW08S | - | Ø10~Ø14 |
| | FTKA02565S | | | Ø16~Ø100 |

## Inserti disponibili

APMT-MM APMT-MF



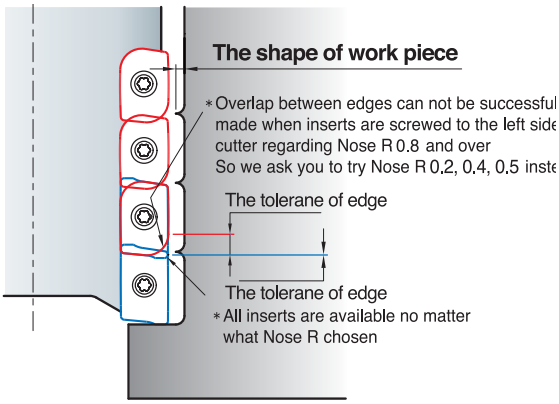


| Tipo | Articolo | Rivestito | | | | | | | | | | Cermet | | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| 1000 | APMT 060202PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | E05 |
| | 0602PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 060208PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 060212R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 060216R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| 1500 | APMT 0903PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | E05 |
| | 090308PDSR-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 090312R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 090316R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 090320R-MM | | | ● | ● | ● | ● | | | | | | | | | | | | |
| 2000 | APMT 11T3PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | E05 |
| | 11T3PDSR-MF | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 11T308PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 11T312PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 11T316R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 11T318R-MM | | | | | | | | | | | | | | | | | | |
| | 11T324R-MM | ● | | ● | ● | | ● | | | | | | | | | | | | |

• Inserti disponibili, vedere pag. : E05

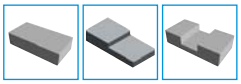
● : Disponibile ○ : A richiesta

## Prestare attenzione quando gli inserti sono avvitati



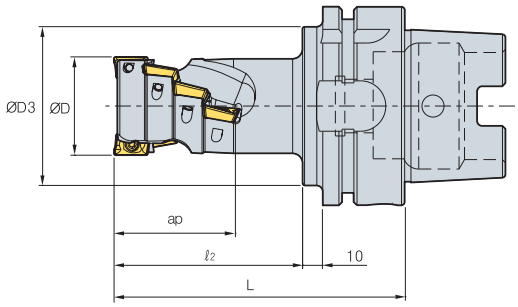
# HSK100A AM3000/4000

AA 90° | • AR : 13°~15° • RR : -11°~-4°



New






(mm)

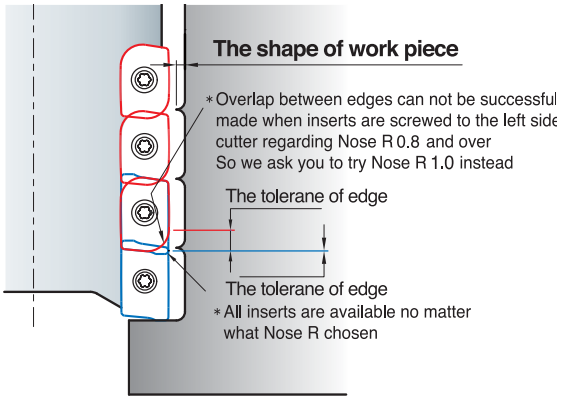
| Articolo | Stock | | ØD | ØD3 | ℓ2 | L | N. eliche | ap |
|---|---|---|---|---|---|---|---|---|
| **HSK100A AM3050043-2** | | 6 | 50 | 80 | 72 | 111 | 2 | 43 |
| **AM3063057-4** | | 16 | 63 | 80 | 86 | 125 | 4 | 57 |
| **AM3080071-4** | | 20 | 80 | 80 | 100 | 139 | 4 | 71 |
| **AM3100071-6** | | 30 | 100 | 80 | 100 | 139 | 6 | 71 |
| **HSK100A AM4040046-2** | | 6 | 40 | 80 | 75 | 114 | 2 | 46 |
| **AM4050061-2** | | 8 | 50 | 80 | 95 | 134 | 2 | 61 |
| **AM4063061-4** | | 16 | 63 | 80 | 90 | 129 | 4 | 61 |
| **AM4080076-4** | | 20 | 80 | 80 | 105 | 144 | 4 | 76 |
| **AM4100076-6** | | 30 | 100 | 80 | 105 | 144 | 6 | 76 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

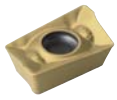
| | Vite | Chiave | | Dia. fresa applicabile |
|---|---|---|---|---|
| |  |  |  | |
| Tipo 3000 | FTKA0408 | TW15S | - | Ø25 |
| | FTKA0410 | | | Ø32~Ø100 |
| Tipo 4000 | FTKA0408 | TW15S | - | Ø20~Ø25 |
| | FTKA0410 | | | Ø32~Ø200 |

## Prestare attenzione quando gli inserti sono avvitati




## Inserti disponibili

APMT-MM APMT-MM





| Tipo | Articolo | Rivestito | | | | | | | | | | Cermet | | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| 3000 | APMT 1604PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | E05 |
| | 1604PDSR-MF | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 160410PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 160416PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 160424R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 160430R-MM | | | | | | | | | | | | | | | | | | |
| | 160432R-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| 4000 | APMT 180604PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | E05 E06 |
| | 180604PDSR-MF | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 1806PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 1806PDSR-MF | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 1806PDSR-ML | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180612PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180616PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180620PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180624PDSR-MM | ● | | ● | ● | ● | ● | | | | | | | | | | | | |
| | 180630R-MM | | | | | | | | | | | | | | | | | | |
| | 180632R-MM | | | | | | | | | | | | | | | | | | |

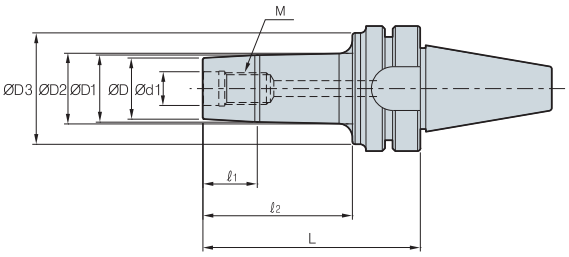
● : Disponibile ○ : A richiesta

• Inserti disponibili, vedere pag. : E05, E06

# BT30/BT40/BT50

New






(mm)

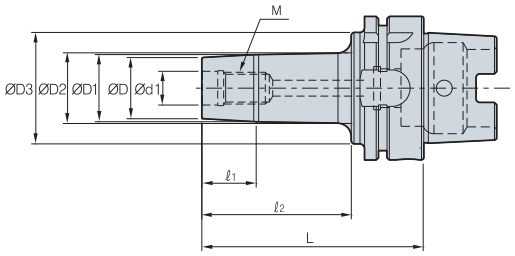
| Articolo | | Stock | øD | øD1 | øD2 | øD3 | ød1 | ℓ1 | ℓ2 | L | M |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BT30 | MAT-M06-053 | | 11 | 11.7 | 13 | 30 | 6.5 | 5 | 21 | 53 | 06×1.0 |
| | MAT-M08-057 | | 14.5 | 15.7 | 17.5 | 35 | 8.5 | 7 | 25 | 57 | 08×1.25 |
| | MAT-M10-062 | | 18 | 19.7 | 24 | 38 | 10.5 | 7 | 30 | 62 | 10×1.5 |
| | MAT-M12-067 | | 23 | 24.7 | 27.5 | 41 | 12.5 | 10 | 35 | 67 | 12×1.75 |
| | MAT-M16-067 | | 29 | 31.7 | 33.5 | 41 | 17 | 10 | 35 | 67 | 16×2.0 |
| BT40 | MAT-M06-062 | | 11 | 11.7 | 14 | 40 | 6.5 | 5 | 25 | 62 | 08×1.0 |
| | MAT-M06-077 | | 11 | 11.7 | 14 | 40 | 6.5 | 5 | 40 | 77 | 06×1.0 |
| | MAT-M06-092 | | 11 | 11.7 | 14 | 40 | 6.5 | 5 | 55 | 92 | 06×1.0 |
| | MAT-M08-067 | | 14.5 | 15.7 | 19 | 44 | 8.5 | 7 | 30 | 67 | 08×1.25 |
| | MAT-M08-082 | | 14.5 | 15.7 | 19 | 44 | 8.5 | 7 | 45 | 82 | 08×1.25 |
| | MAT-M08-097 | | 14.5 | 15.7 | 19 | 44 | 8.5 | 7 | 60 | 97 | 08×1.25 |
| | MAT-M10-072 | | 18 | 19.7 | 23 | 50 | 10.5 | 10 | 35 | 72 | 10×1.5 |
| | MAT-M10-087 | | 18 | 19.7 | 23 | 50 | 10.5 | 10 | 50 | 87 | 10×1.5 |
| | MAT-M10-102 | | 18 | 19.7 | 23 | 50 | 10.5 | 10 | 65 | 102 | 10×1.5 |
| | MAT-M12-077 | | 23 | 24.7 | 30 | 55 | 12.5 | 10 | 40 | 77 | 12×1.75 |
| | MAT-M12-092 | | 23 | 24.7 | 30 | 55 | 12.5 | 13 | 55 | 92 | 12×1.75 |
| | MAT-M12-107 | | 23 | 24.7 | 30 | 55 | 12.5 | 13 | 70 | 107 | 12×1.75 |
| | MAT-M16-077 | | 29 | 31.7 | 37 | 55 | 17 | 13 | 40 | 77 | 16×2.0 |
| | MAT-M16-092 | | 29 | 31.7 | 37 | 55 | 17 | 13 | 55 | 92 | 16×2.0 |
| | MAT-M16-107 | | 29 | 31.7 | 37 | 55 | 17 | 13 | 70 | 107 | 16×2.0 |
| BT50 | MAT-M06-083 | | 11 | 11.7 | 15 | 40 | 6.5 | 5 | 35 | 83 | 06×1.0 |
| | MAT-M06-098 | | 11 | 11.7 | 15 | 40 | 6.5 | 5 | 50 | 98 | 06×1.0 |
| | MAT-M06-113 | | 11 | 11.7 | 15 | 40 | 6.5 | 5 | 65 | 113 | 06×1.0 |
| | MAT-M08-088 | | 14.5 | 15.7 | 20 | 45 | 8.5 | 7 | 40 | 88 | 08×1.25 |
| | MAT-M08-103 | | 14.5 | 15.7 | 20 | 45 | 8.5 | 7 | 55 | 103 | 08×1.25 |
| | MAT-M08-118 | | 14.5 | 15.7 | 20 | 45 | 8.5 | 7 | 70 | 118 | 08×1.25 |
| | MAT-M10-093 | | 18 | 19.7 | 25 | 55 | 10.5 | 10 | 45 | 93 | 10×1.5 |
| | MAT-M10-113 | | 18 | 19.7 | 25 | 55 | 10.5 | 10 | 65 | 113 | 10×1.5 |
| | MAT-M10-128 | | 18 | 19.7 | 25 | 55 | 10.5 | 10 | 80 | 128 | 10×1.5 |
| | MAT-M12-103 | | 23 | 24.7 | 33 | 65 | 12.5 | 10 | 55 | 103 | 12×1.75 |
| | MAT-M12-118 | | 23 | 24.7 | 33 | 65 | 12.5 | 13 | 70 | 118 | 12×1.75 |
| | MAT-M12-133 | | 23 | 24.7 | 33 | 65 | 12.5 | 13 | 85 | 133 | 12×1.75 |
| | MAT-M16-103 | | 29 | 31.7 | 41 | 85 | 17 | 13 | 55 | 103 | 16×2.0 |
| | MAT-M16-118 | | 29 | 31.7 | 41 | 85 | 17 | 13 | 70 | 118 | 16×2.0 |
| | MAT-M16-133 | | 29 | 31.7 | 41 | 85 | 17 | 13 | 85 | 133 | 16×2.0 |

• Modulare disponibile : E28

# HSK63A/HSK100A

New






(mm)

| Articolo | | Stock | øD | øD1 | øD2 | øD3 | ød1 | ℓ1 | ℓ2 | L | M |
|---|---|---|---|---|---|---|---|---|---|---|---|
| HSK63A | MAT-M06-061 | | 11 | 11.7 | 27 | 40 | 6.5 | 5 | 25 | 61 | 06×1.0 |
| | MAT-M06-076 | | 11 | 11.7 | 27 | 40 | 6.5 | 5 | 40 | 76 | 06×1.0 |
| | MAT-M06-091 | | 11 | 11.7 | 27 | 40 | 6.5 | 5 | 55 | 91 | 06×1.0 |
| | MAT-M08-066 | | 14.5 | 15.7 | 30.5 | 44 | 8.5 | 7 | 30 | 66 | 08×1.25 |
| | MAT-M08-081 | | 14.5 | 15.7 | 30.5 | 44 | 8.5 | 7 | 45 | 81 | 08×1.25 |
| | MAT-M08-096 | | 14.5 | 15.7 | 30.5 | 44 | 8.5 | 7 | 60 | 96 | 08×1.25 |
| | MAT-M10-071 | | 18 | 19.7 | 34 | 50 | 10.5 | 10 | 35 | 71 | 10×1.5 |
| | MAT-M10-086 | | 18 | 19.7 | 34 | 50 | 10.5 | 10 | 50 | 86 | 10×1.5 |
| | MAT-M10-101 | | 18 | 19.7 | 34 | 50 | 10.5 | 10 | 65 | 101 | 10×1.5 |
| | MAT-M12-076 | | 23 | 24.7 | 36.5 | 55 | 12.5 | 10 | 40 | 76 | 12×1.75 |
| | MAT-M12-091 | | 23 | 24.7 | 36.5 | 55 | 12.5 | 13 | 55 | 91 | 12×1.75 |
| | MAT-M12-106 | | 23 | 24.7 | 36.5 | 55 | 12.5 | 13 | 70 | 106 | 12×1.75 |
| | MAT-M16-076 | | 29 | 31.7 | 38.5 | 55 | 17 | 13 | 40 | 76 | 16×2.0 |
| | MAT-M16-091 | | 29 | 31.7 | 38.5 | 55 | 17 | 13 | 55 | 91 | 16×2.0 |
| | MAT-M16-106 | | 29 | 31.7 | 38.5 | 55 | 17 | 13 | 70 | 106 | 16×2.0 |
| HSK100A | MAT-M06-074 | | 11 | 11.7 | 15 | 40 | 6.5 | 5 | 35 | 74 | 06×1.0 |
| | MAT-M06-089 | | 11 | 11.7 | 15 | 40 | 6.5 | 5 | 50 | 89 | 06×1.0 |
| | MAT-M06-104 | | 11 | 11.7 | 15 | 40 | 6.5 | 5 | 65 | 104 | 06×1.0 |
| | MAT-M08-079 | | 14.5 | 15.7 | 20 | 45 | 8.5 | 7 | 40 | 79 | 08×1.25 |
| | MAT-M08-094 | | 14.5 | 15.7 | 20 | 45 | 8.5 | 7 | 55 | 94 | 08×1.25 |
| | MAT-M08-109 | | 14.5 | 15.7 | 20 | 45 | 8.5 | 7 | 70 | 109 | 08×1.25 |
| | MAT-M10-084 | | 18 | 19.7 | 25 | 55 | 10.5 | 10 | 45 | 84 | 10×1.5 |
| | MAT-M10-104 | | 18 | 19.7 | 25 | 55 | 10.5 | 10 | 65 | 104 | 10×1.5 |
| | MAT-M10-119 | | 18 | 19.7 | 25 | 55 | 10.5 | 10 | 80 | 119 | 10×1.5 |
| | MAT-M12-094 | | 23 | 24.7 | 33 | 65 | 12.5 | 10 | 55 | 94 | 12×1.75 |
| | MAT-M12-109 | | 23 | 24.7 | 33 | 65 | 12.5 | 13 | 70 | 109 | 12×1.75 |
| | MAT-M12-124 | | 23 | 24.7 | 33 | 65 | 12.5 | 13 | 85 | 124 | 12×1.75 |
| | MAT-M16-094 | | 29 | 31.7 | 41 | 85 | 17 | 13 | 55 | 94 | 16×2.0 |
| | MAT-M16-109 | | 29 | 31.7 | 41 | 85 | 17 | 13 | 70 | 109 | 16×2.0 |
| | MAT-M16-124 | | 29 | 31.7 | 41 | 85 | 17 | 13 | 85 | 124 | 16×2.0 |

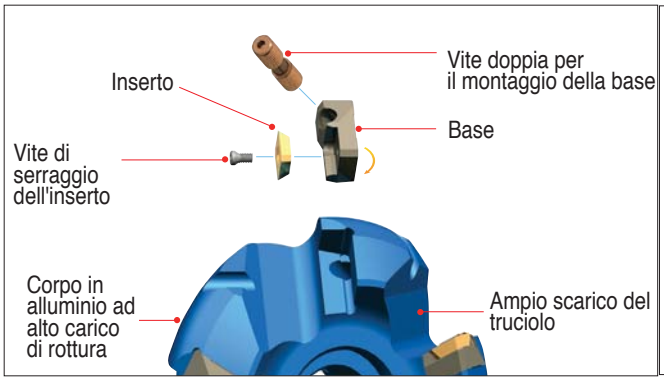
• Modulare disponibile : E28

## Corpo in alluminio - Future Mill

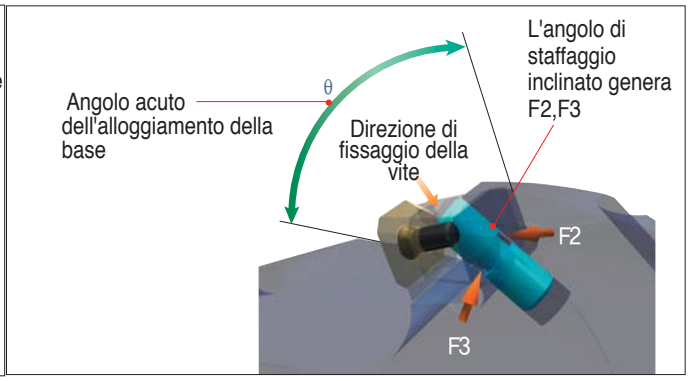
### Caratteristiche

- Corpo fresa in alluminio leggero (50% del corpo in acciaio) indicato per lavorazioni ad alte velocità e su macchinari a bassa potenza
- Facile da maneggiare
- Può essere utilizzato per lavorare alluminio, acciaio e ghisa
- Per il corpo fresa si impiega alluminio ad alta resistenza
- Studiato per durare nel tempo
- Sono disponibili diversi tipi di rompitruciolo
- Grazie all'elevato angolo di spoglia, si ottengono bassi sforzi di taglio e una buona rugosità della superficie

### Fresa



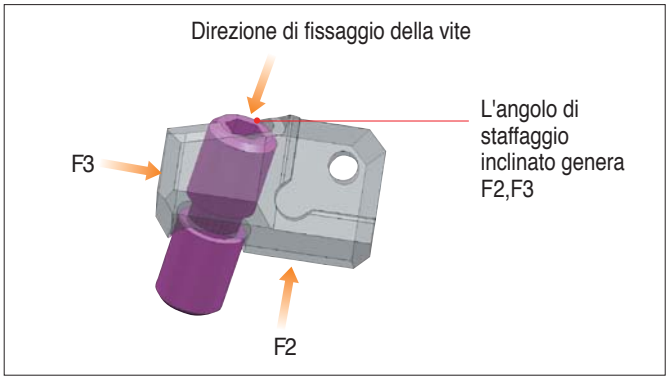

### Base



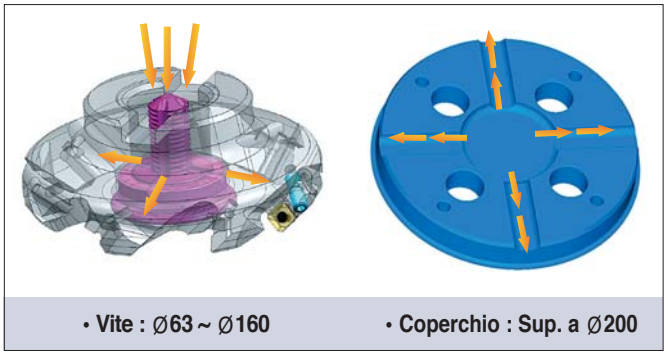

- Staffaggio robusto tra il corpo in alluminio e la base grazie alla vite doppia che garantisce un'elevata efficienza
- L'angolo acuto dell'alloggiamento della base garantisce uno staffaggio robusto
- L'ampio scarico del truciolo ne agevola l'evacuazione
- Corpo in alluminio ad alto carico di rottura

### Sistema di raffreddamento interno

- L'esclusivo design della vite del refrigerante e del coperchio ne garantiscono l'efficacia e agevolano l'evacuazione del truciolo dal centro della fresa verso l'esterno
- Esatto direzionamento del refrigerante sull'area di taglio
- La vite e il coperchio esclusivi sono venduti separatamente Per il sistema di raffreddamento interno si richiede l'utilizzo di un attacco predisposto

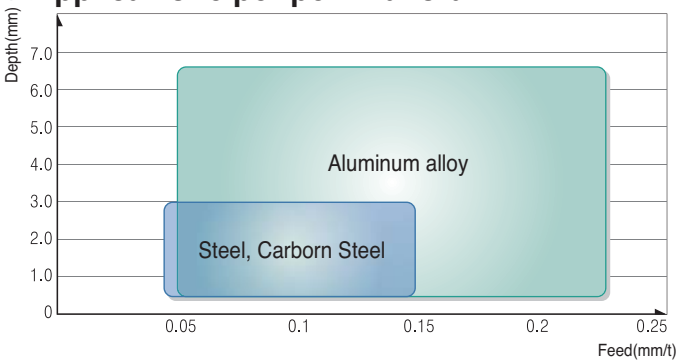



### Vite del refrigerante e vite del coprirefrigerante

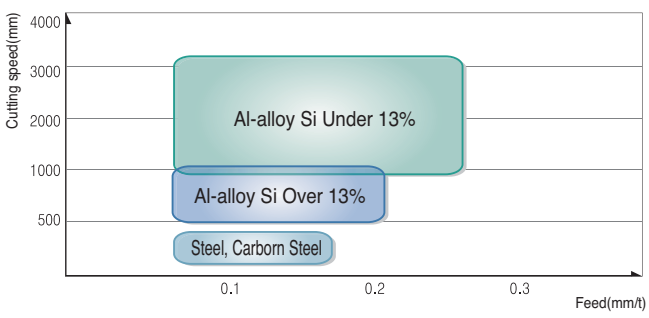


• Vite : Ø63 ~ Ø160 • Coperchio : Sup. a Ø200

### Applicazione per pezzi lavorati




### Velocità di taglio




### Parametri di lavoro massimi

| Diametro fresa | Giri massimi (giri/min) |
|---|---|
| Ø63 | 20,000 |
| Ø80 | 16,000 |
| Ø100 | 13,000 |
| Ø125 | 10,000 |
| Ø160 | 8,000 |
| Ø200 | 6,500 |
| Ø250 | 5,000 |
| Ø315 | 4,000 |

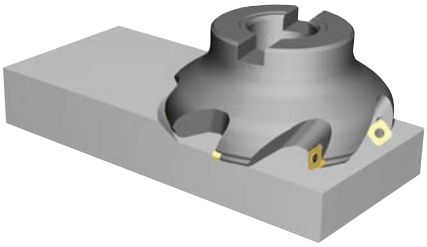
# Future Mill(FMA)

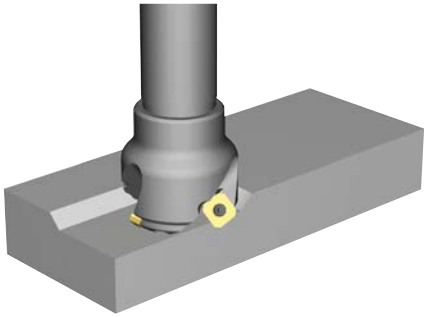
## Caratteristiche

- Fresa generica ad elevata produttività
- Il passo regolabile e i vari rompitrucioli disponibili la rendono indicata per numerose applicazioni
- Il corpo fresa leggero consente alte velocità di taglio e può essere utilizzato su macchinari a bassa potenza
- Taglio dolce e bassi sforzi di taglio grazie all'elevato angolo di spoglia

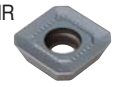


## Esempi di lavorazione





## Rompitruciolo

| | Rompitruciolo | Tagliente | Caratteristiche del rompitruciolo |
|---|---|---|---|
| Medie lavorazioni | Nessun rompitruciolo |  | Migliore rugosità della superficie e finitura grazie all'inserto affilabile |
| | MF  |  | Migliore qualità di taglio nelle medie lavorazioni di materiali pastosi grazie ai bassi sforzi di taglio del rompitruciolo |
| Uso generico | MM  |  | Indicato per varie lavorazioni grazie al design speciale |
| Sgrossatura | MR  |  | Il tagliente robusto garantisce prestazioni stabili nel taglio interrotto |
| Per alluminio | MA  |  | Migliore qualità di taglio nella lavorazione dell'alluminio grazie al tagliente affilato e lappato<br>• SOET-MA: Tagliente affilato grazie all'accurata affilatura<br>• SOXT-MA: Tagliente indicato per sgrossatura |

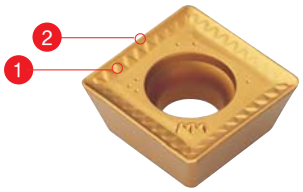
## Condizioni di taglio raccomandate

| ISO | C/B / Grado | MF | | MM | | MR | | MA | |
|---|---|---|---|---|---|---|---|---|---|
| | | vc(m/min) | fz(mm/t) | vc(m/min) | fz(mm/t) | vc(m/min) | fz(mm/t) | vc(m/min) | fz(mm/t) |
| P | NC5330 | 200 ~ 300 | 0.05 ~ 0.2 | 150 ~ 300 | 0.1 ~ 0.3 | 150 ~ 250 | 0.1 ~ 0.3 | - | - |
| | NCM325 | 200 ~ 300 | 0.05 ~ 0.2 | 150 ~ 300 | 0.1 ~ 0.3 | 150 ~ 250 | 0.1 ~ 0.3 | - | - |
| | PC3500 | 200 ~ 300 | 0.05 ~ 0.2 | 150 ~ 300 | 0.1 ~ 0.3 | 100 ~ 250 | 0.1 ~ 0.3 | - | - |
| M | PC5300 | 100 ~ 180 | 0.05 ~ 0.15 | 120 ~ 180 | 0.1 ~ 0.3 | - | - | - | - |
| | NCM335 | 120 ~ 200 | 0.05 ~ 0.15 | 120 ~ 200 | 0.1 ~ 0.3 | - | - | - | - |
| K | PC5300 | 150 ~ 250 | 0.05 ~ 0.2 | 150 ~ 250 | 0.1 ~ 0.3 | - | - | - | - |
| Alluminio | H01 | - | - | - | - | - | - | 350 ~ 1,000 | 0.1 ~ 0.35 |

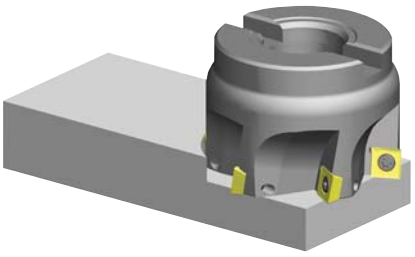
## Future Mill(FMP)

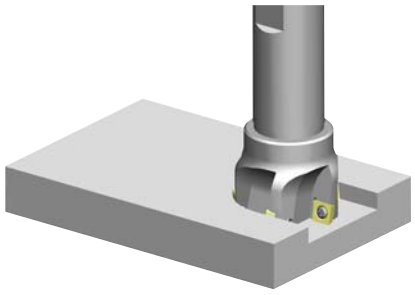
### Caratteristiche dell'inserto FMP

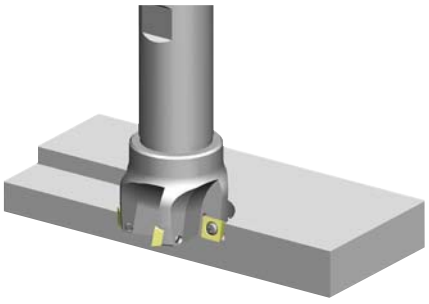
- Eccellente durata garantita in avanzamenti elevati, alte velocità e ampie profondità di taglio con bassi sforzi di taglio e tagliente robusto
- Gradi indicati per lavorazioni molto efficienti
- L'esclusivo rompitruciolo migliora l'evacuazione del truciolo e riduce gli sforzi di taglio (①)
- L'innovativa curvatura del tagliente riduce gli sforzi di taglio e rinforza il tagliente (②)




### Esempi di lavorazione







### Caratteristiche del rompitruciolo

- L'innovativa curvatura del tagliente e lo speciale design del rompitruciolo garantiscono lavorazioni a 90° e bassi sforzi di taglio
- Grazie alle frese multifunzionali si possono svolgere svariate applicazioni (spianatura, scanalatura, spallamento retto)
- Maggiore durata dell'inserto grazie ai gradi speciali rivestiti
- Prestazioni eccellenti con elevate profondità di taglio grazie al tagliente robusto e ai bassi sforzi di taglio

| Rompitruciolo | | Tagliente | Rompitruciolo e grado raccomandati per pezzo lavorato (●:1°) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Acciaio basso ten. carb. Acciaio legato | | Acciaio basso ten. carb. Acciaio legato | | Acciaio inossidabile | | Ghisa | | Lega di alluminio | |
| | | | C/B | Grade | C/B | Grado | C/B | Grado | C/B | Grado | C/B | Grado |
| Bassi sforzi di taglio | MF | | ● | ○ NC5330<br>○ NCM325<br>○ NC5330<br>● NCM335 | | ○ NC5330<br>● NCM325<br>○ NC5330<br>○ NCM335 | ● | ○ NC5330<br>○ NCM325<br>○ NC5330<br>○ NCM335<br>● PC5300 | ● | ● PC6510<br>○ PC5300 | – | – |
| Tagliente rinforzato | MM | | | ○ NCM325<br>○ NC5330<br>● NCM335 | | ● NCM325<br>○ NC5330<br>○ NCM335 | | ○ NCM325<br>○ NC5330<br>○ NCM335<br>● PC5300 | | ● PC6510<br>○ PC5300 | – | – |
| Tagliente affilato | MA | | – | – | – | – | – | – | – | – | ● | ● H01<br>○ G10 |

### Condizioni di taglio raccomandate

| Pezzo lavorato | Avanzam. (mm/t) | Velocità di taglio vc(m/min) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Rivestimento CVD | | | Rivestimento CVD | | | | | Metallo duro |
| | | NC5330 | NCM325 | NCM335 | PC3535 | PC3545 | PC6510 | PC5300 | PC9530 | H01 |
| SM□□C | ~0.3 | 100~250 | 100~250 | 100~220 | 100~250 | 100~220 | - | 100~250 | 100~250 | - |
| SCM | | | | | | | | | | |
| STD | ~0.25 | 100~220 | 100~220 | 100~200 | 100~220 | 100~200 | - | 100~220 | 100~220 | - |
| KP | | | | | | | | | | |
| NAK | ~0.2 | 100~220 | 100~220 | 100~180 | 100~200 | 100~180 | - | 100~200 | 100~200 | - |
| STS | ~0.2 | - | - | - | - | 80~200 | - | 80~200 | 80~200 | - |
| GC/GCD | ~0.25 | - | - | - | - | - | 100~200 | - | - | - |
| Alluminio non ferroso | ~0.4 | - | - | - | - | - | - | - | - | 400~1,000 |

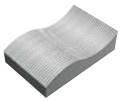
# Future Mill(FMR)

## Caratteristiche

- Ampia gamma di utilizzo dalla media sgrossatura alla finitura di acciai e materiali per stampi.
- La forma a 2 step dell'inserto garantisce uno staffaggio robusto e riduce il numero di componenti necessari per sostituire la sede.
- Da 4 a 8 taglienti per inserto (cerchio inscritto 05, 06, 07, 08, 10, 12, 16, 20).
- Lavorazioni stabili per elevate velocità di taglio.
- L'attenta progettazione della sede dell'inserto ne previene la craterizzazione.
- Il design speciale della parte inferiore dell'inserto previene vibrazioni e craterizzazione dell'inserto.
- Semplice sostituzione del tagliente.



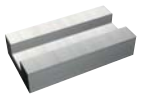
## Esempi di lavorazione



Copiatura



Fresatura elicoidale



Scanalature e lav. laterali

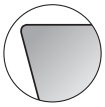
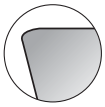


Ramping

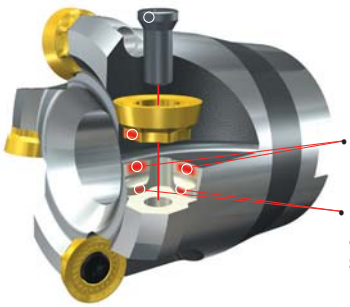
## Rompitrucioli

| Rompitrucioli | | Tagliente | Caratteristiche |
|---|---|---|---|
| **Finitura** | MF  |  | Il design del rompitruciolo consente bassi sforzi di taglio e maggiore durata dell'utensile con ottime prestazioni in finitura di materiali pastosi |
| **Medie lavorazioni** | MM  |  | Indicato per varie lavorazioni grazie al design speciale |
| **Alluminio** | MA  |  | Il tagliente affilato e lappato per la lavorazione dell'alluminio conferisce un'ottima resistenza agli urti ed evacuazione del truciolo |

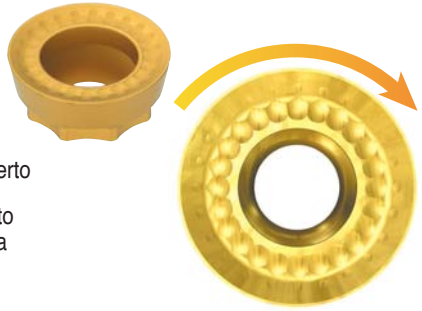
## Forma del tagliente dell'inserto FMR

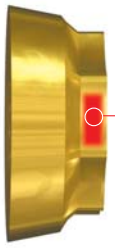
| Forma del tagliente (classe G) |  |  |  |
|---|---|---|---|
| **Articolo** | RDHW□□□□M0F | RDHW□□□□M0E | RDHW□□□□M0S |

## Staffaggio



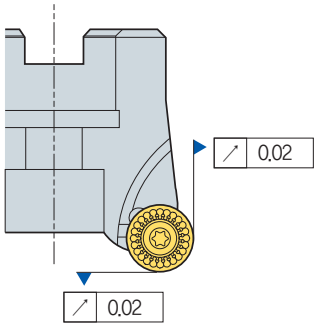
- Parte di supporto dell'inserto
- Design dell'inserto a protezione della sede



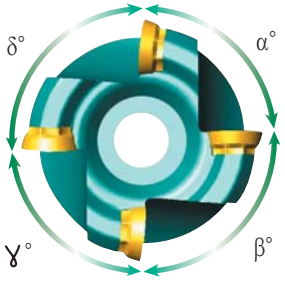


Design dell'inserto a protezione della sede

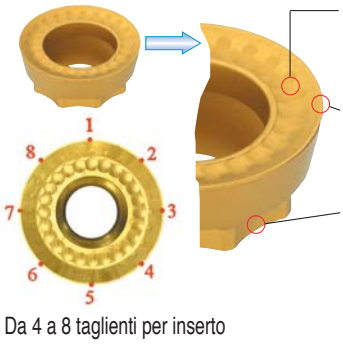
| | | | |
|---|---|---|---|
| FMR□ 3000<br>FMR□ 4000 | FMR□ 5000<br>FMR□ 6000 | RDKT10T3M0–□□<br>RDKT1204M0–□□ | RDKT1605M0–MM<br>RDKT2006M0–MM |




Buona superficie di finitura grazie al design preciso della sede




Lavorazioni stabili per elevate velocità di taglio.




- **Rompitruciolo speciale per bassi sforzi di taglio**
  L'ottima evacuazione del truciolo evita la generazione di calore
- **Tagliente dolce**
  L'inclinazione dell'angolazione consente bassi sforzi di taglio e una migliore rugosità della superficie
- **Contatto frontale grazie al lato curvo**
  Previene la rotazione durante le lavorazioni ad alte velocità. Lo staffaggio robusto dell'inserto rende l'utensile più stabile.

Da 4 a 8 taglienti per inserto

## Future Mill(FMR)

### Materiale asportato (cm³/min)

| Pezzo lavorato | | Gradi | Ø8 | Ø10 | Ø12 | Ø15 | Ø16 | Ø20 | Ø21 | Ø25 | Ø26 | Ø32 | Ø33 | Ø40 | Ø50 | Ø63 | Ø80 | Ø100 | Ø125 | Ø160 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P | Acciaio generico (inf. 200HB) | PC3500 PC3545 PC5300 | 4.97 | 9.94 | 9.94 | 14.92 | 31.83 | 31.83 | 47.74 | 47.74 | 47.74 | 71.61 | 38.19 | 95.49 | 119.36 | 143.23 | 167.11 | 190.98 | 133.69 | 509.29 |
| | Acciaio al carbonio generico (inf. 30 HRC) | | 3.97 | 7.95 | 7.95 | 11.93 | 25.46 | 25.46 | 38.19 | 38.19 | 38.19 | 57.29 | 38.19 | 76.39 | 95.49 | 114.59 | 133.69 | 152.78 | 133.69 | 458.36 |
| | Acciaio a elevato ten. carb., Acciaio legato (30~40 HRC) | | 2.86 | 5.72 | 5.72 | 8.59 | 22.91 | 22.91 | 34.37 | 34.37 | 34.37 | 51.56 | 34.37 | 68.75 | 85.94 | 103.13 | 120.32 | 137.5 | 120.32 | 407.43 |
| | Acciaio a elevato ten. carb., Acciaio legato (40~50 HRC) | | 1.24 | 2.48 | 2.48 | 3.72 | 11.45 | 11.45 | 14.32 | 17.18 | 14.32 | 21.48 | 14.32 | 28.64 | 35.8 | 42.97 | 50.13 | 57.29 | 50.13 | 249.55 |
| | Acciaio legato (sup. 50 HRC) | | 0.95 | 1.9 | 1.9 | 2.86 | 7.63 | 7.63 | 9.54 | 11.45 | 9.54 | 14.32 | 9.54 | 19.09 | 23.87 | 28.64 | 33.42 | 38.19 | 33.42 | 152.78 |
| M | Acciaio inossidabile | PC5300 | 2.06 | 4.13 | 4.13 | 6.2 | 16.55 | 16.55 | 12.41 | 24.82 | 12.41 | 18.62 | 12.41 | 24.82 | 31.03 | 37.24 | 43.44 | 49.65 | 43.44 | 331.04 |
| K | Ghisa | PC5300 | 2.86 | 5.72 | 5.72 | 8.59 | 14.32 | 14.32 | 21.48 | 21.48 | 21.48 | 32.22 | 21.48 | 42.97 | 53.71 | 64.45 | 75.2 | 85.94 | 75.2 | 366.69 |

### Requisiti di potenza ($P_{KW}$ = 0.75 x $P_{HP}$)

• RDKT10□□

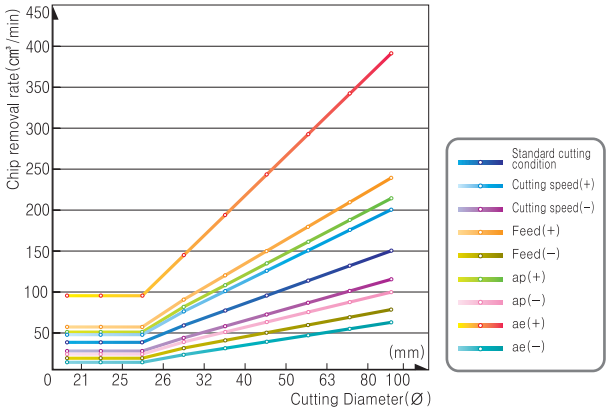
| Pezzo lavorato | | Gradi | Ø21 | Ø25 | Ø26 | Ø32 | Ø40 | Ø50 | Ø63 | Ø80 | Ø100 | Condizioni di taglio | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | vc | fz | ap | ae |
| P | Acciaio generico (inf. 200HB) | PC3500 PC3545 PC5300 | 2.2 | 2.2 | 2.2 | 3.3 | 4.4 | 5.5 | 6.6 | 7.7 | 8.8 | 250 | 0.4 | 1.5 | 0.5D |
| | Acciaio al carbonio generico (inf. 30 HRC) | | 2.1 | 2.1 | 2.1 | 3.1 | 4.1 | 5.2 | 6.2 | 7.3 | 8.3 | 200 | 0.4 | 1.5 | 0.5D |
| | Acciaio a elevato ten. carb., Acciaio legato (30~40 HRC) | | 2.2 | 2.2 | 2.2 | 3.3 | 4.5 | 5.6 | 6.7 | 7.9 | 9 | 180 | 0.4 | 1.5 | 0.5D |
| | Acciaio a elevato ten. carb., Acciaio legato (40~50 HRC) | | 1.1 | 1.1 | 1.1 | 1.6 | 2.1 | 2.6 | 3.2 | 3.7 | 4.2 | 150 | 0.3 | 1.0 | 0.5D |
| | Acciaio legato (sup. 50 HRC) | | 0.7 | 0.7 | 0.7 | 1.1 | 1.4 | 1.7 | 2.1 | 2.4 | 2.8 | 100 | 0.3 | 1.0 | 0.5D |
| M | Acciaio inossidabile | PC5300 | 0.6 | 0.6 | 0.6 | 0.8 | 1.2 | 1.5 | 1.7 | 2 | 2.3 | 130 | 0.2 | 1.5 | 0.5D |
| K | Ghisa | PC5300 | 0.6 | 0.6 | 0.6 | 0.9 | 1.2 | 1.5 | 1.8 | 2.1 | 2.4 | 180 | 0.2 | 1.5 | 0.5D |

• RDKT12□□

| Pezzo lavorato | | Gradi | Ø32 | Ø33 | Ø40 | Ø50 | Ø63 | Ø80 | Ø100 | Ø125 | Condizioni di taglio | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | vc | fz | ap | ae |
| P | Acciaio generico (inf. 200HB) | PC3500 PC3545 PC5300 | 1.7 | 1.7 | 2.6 | 3.5 | 3.5 | 4.4 | | 6.1 | | 0.4 | 1.5 | 0.5D |
| | Acciaio al carbonio generico (inf. 30 HRC) | | 2 | 2 | 3.1 | 4.1 | 2.6 | 5.2 | | 7.2 | | 0.4 | 1.5 | 0.5D |
| | Acciaio a elevato ten. carb., Acciaio legato (30~40 HRC) | | 2.2 | 2.2 | 3.3 | 4.4 | 2.8 | 5.6 | | 7.8 | | 0.4 | 1.5 | 0.5D |
| | Acciaio a elevato ten. carb., Acciaio legato (40~50 HRC) | | 1 | 1 | 1.5 | 1.6 | 2.1 | 2.6 | | 3.6 | | 0.3 | 1.0 | 0.5D |
| | Acciaio legato (sup. 50 HRC) | | 0.7 | 0.7 | 1 | 1.4 | 0.8 | 1.7 | | 2.4 | | 0.3 | 1.0 | 0.5D |
| M | Acciaio inossidabile | PC5300 | 0.5 | 0.5 | 0.8 | 1.1 | 0.7 | 1.4 | | 2 | | 0.2 | 1.5 | 0.5D |
| K | Ghisa | PC5300 | 0.6 | 0.6 | 0.9 | 1.2 | 0.7 | 1.5 | | 2.1 | | 0.2 | 1.5 | 0.5D |

### Materiale asportato e condizioni di taglio

• Inserto utilizzato : RDKT10□




• Variazioni delle condizioni di taglio

| | ISO |
|---|---|
| Standard | vc=200 fz=0.4 ap=1.5 ae=0.5D |
| Velocità (+) | 250 |
| Velocità (-) | 150 |
| Avanzamento(+) | 0.6 |
| Avanzamento(-) | 0.2 |
| ap (+) | 2 |
| ap (-) | 1 |
| ae (+) | D |
| ae (-) | 0.2D |

## Condizioni di taglio raccomandate

• Fresatura laterale, scanalatura, ramping, copiatura

| Pezzo lavorato | | Durezza | Gradi | Velocità di taglio (m/min) | FMR1000 | | FMR1500 | | FMR2000 | | FMR2500 | | FMR3000 | | FMR4000 | | FMR5000 | | FMR6000 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | ap (mm) | fz (mm/t) | ap (mm) | fz (mm/t) | ap (mm) | fz (mm/t) | ap (mm) | fz (mm/t) | ap (mm) | fz (mm/t) | ap (mm) | fz (mm/t) | ap (mm) | fz (mm/t) | ap (mm) | fz (mm/t) |
| P | Acciaio generico | 200HB≤ | PC3500 | 100~250 | ≤1.0 | ≤0.4 | ≤1.2 | ≤0.4 | ≤1.5 | ≤0.4 | ≤1.7 | ≤0.4 | ≤2.0 | ≤0.5 | ≤2.4 | ≤0.6 | ≤3.0 | ≤0.7 | ≤4.0 | ≤0.8 |
| P | Acciaio al carbonio generico | 30HRC≤ | PC5300 | 100~220 | ≤0.7 | ≤0.4 | ≤1.2 | ≤0.4 | ≤1.5 | ≤0.4 | ≤1.7 | ≤0.4 | ≤2.0 | ≤0.5 | ≤2.4 | ≤0.6 | ≤3.0 | ≤0.7 | ≤4.0 | ≤0.8 |
| P | Acciaio el. ten.carb., acciaio legato | 30~40HRC | PC3545 | 100~200 | ≤0.7 | ≤0.2 | ≤0.9 | ≤0.2 | ≤1.2 | ≤0.2 | ≤1.5 | ≤0.2 | ≤1.7 | ≤0.3 | ≤2.0 | ≤0.4 | ≤2.7 | ≤0.5 | ≤3.7 | ≤0.6 |
| P | Acciaio el. ten.carb., acciaio legato | 40~50HRC | PC3545 | 90~150 | ≤0.7 | ≤0.2 | ≤0.9 | ≤0.2 | ≤1.2 | ≤0.2 | ≤1.5 | ≤0.2 | ≤1.7 | ≤0.3 | ≤2.0 | ≤0.4 | ≤2.7 | ≤0.5 | ≤3.7 | ≤0.6 |
| P | Acciaio legato | 50HRC≥ | PC3545 | 90~150 | ≤0.7 | ≤0.2 | ≤0.9 | ≤0.2 | ≤1.2 | ≤0.2 | ≤1.5 | ≤0.2 | ≤1.7 | ≤0.3 | ≤2.0 | ≤0.4 | ≤2.7 | ≤0.5 | ≤3.7 | ≤0.6 |
| M | Acciaio inossidabile | 270HB≤ | PC5300 | 50~200 | ≤0.7 | ≤0.2 | ≤0.9 | ≤0.2 | ≤1.2 | ≤0.2 | ≤1.5 | ≤0.2 | ≤1.7 | ≤0.3 | ≤2.0 | ≤0.4 | ≤2.7 | ≤0.5 | ≤3.7 | ≤0.6 |
| K | Ghisa, ghisa duttile | Carico di rottura 350Mpa | PC5300 | 150~250 | ≤1.0 | ≤0.4 | ≤1.2 | ≤0.4 | ≤1.5 | ≤0.4 | ≤1.7 | ≤0.4 | ≤2.0 | ≤0.5 | ≤2.4 | ≤0.6 | ≤3.0 | ≤0.7 | ≤4.0 | ≤0.8 |

• Fresatura di tasche

| Pezzo lavorato | | Durezza | Gradi | Velocità di taglio (m/min) | FMR1000 | | FMR1500 | | FMR2000 | | FMR2500 | | FMR3000 | | FMR4000 | | FMR5000 | | FMR6000 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | ap (mm) | fz (mm/t) | ap (mm) | fz (mm/t) | ap (mm) | fz (mm/t) | ap (mm) | fz (mm/t) | ap (mm) | fz (mm/t) | ap (mm) | fz (mm/t) | ap (mm) | fz (mm/t) | ap (mm) | fz (mm/t) |
| P | Acciaio generico | 200HB≤ | PC3500 | 100~250 | ≤1.0 | ≤0.3 | ≤1.2 | ≤0.3 | ≤1.5 | ≤0.3 | ≤1.7 | ≤0.3 | ≤2.0 | ≤0.4 | ≤2.4 | ≤0.5 | ≤3.0 | ≤0.6 | ≤4.0 | ≤0.7 |
| P | Acciaio al carbonio generico | 30HRC≤ | PC5300 | 100~220 | ≤0.7 | ≤0.3 | ≤1.2 | ≤0.3 | ≤1.5 | ≤0.3 | ≤1.7 | ≤0.3 | ≤2.0 | ≤0.4 | ≤2.4 | ≤0.5 | ≤3.0 | ≤0.6 | ≤4.0 | ≤0.7 |
| P | Acciaio el. ten.carb., acciaio legato | 30~40HRC | PC3545 | 100~200 | ≤0.7 | ≤0.1 | ≤0.9 | ≤0.1 | ≤1.2 | ≤0.1 | ≤1.5 | ≤0.1 | ≤1.7 | ≤0.2 | ≤2.0 | ≤0.3 | ≤2.7 | ≤0.4 | ≤3.7 | ≤0.5 |
| P | Acciaio el. ten.carb., acciaio legato | 40~50HRC | PC3545 | 90~150 | ≤0.7 | ≤0.1 | ≤0.9 | ≤0.1 | ≤1.2 | ≤0.1 | ≤1.5 | ≤0.1 | ≤1.7 | ≤0.2 | ≤2.0 | ≤0.3 | ≤2.7 | ≤0.4 | ≤3.7 | ≤0.5 |
| P | Acciaio legato | 50HRC≥ | PC3545 | 90~150 | ≤0.7 | ≤0.1 | ≤0.9 | ≤0.1 | ≤1.2 | ≤0.1 | ≤1.5 | ≤0.1 | ≤1.7 | ≤0.2 | ≤2.0 | ≤0.3 | ≤2.7 | ≤0.4 | ≤3.7 | ≤0.5 |
| M | Acciaio inossidabile | 270HB≤ | PC5300 | 50~200 | ≤0.7 | ≤0.1 | ≤0.9 | ≤0.1 | ≤1.2 | ≤0.1 | ≤1.5 | ≤0.1 | ≤1.7 | ≤0.2 | ≤2.0 | ≤0.3 | ≤2.7 | ≤0.4 | ≤3.7 | ≤0.5 |
| K | Ghisa, ghisa duttile | Carico di rottura 350Mpa | PC5300 | 150~250 | ≤1.0 | ≤0.3 | ≤1.2 | ≤0.3 | ≤1.5 | ≤0.3 | ≤1.7 | ≤0.3 | ≤2.0 | ≤0.4 | ≤2.4 | ≤0.5 | ≤3.0 | ≤0.6 | ≤4.0 | ≤0.7 |

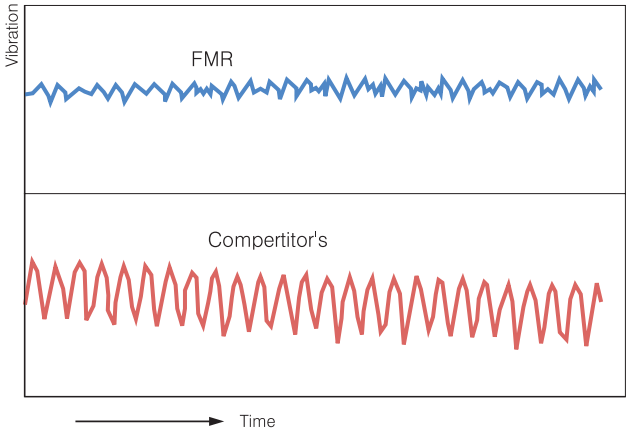
• Fresatura a tuffo

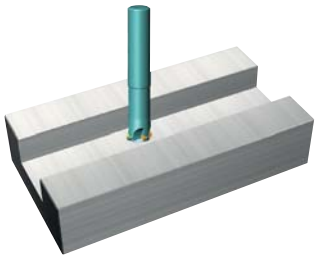
| Pezzo lavorato | | Durezza | Gradi | Velocità di taglio (m/min) | FMR1000 | | FMR1500 | | FMR2000 | | FMR2500 | | FMR3000 | | FMR4000 | | FMR5000 | | FMR6000 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | ae (mm) | fz (mm/t) | ae (mm) | fz (mm/t) | ae (mm) | fz (mm/t) | ae (mm) | fz (mm/t) | ae (mm) | fz (mm/t) | ae (mm) | fz (mm/t) | ae (mm) | fz (mm/t) | ae (mm) | fz (mm/t) |
| P | Acciaio generico | 200HB≤ | PC3500 | 100~250 | ≤2.5 | ≤0.2 | ≤3.0 | ≤0.2 | ≤3.5 | ≤0.2 | ≤4.0 | ≤0.2 | ≤5.0 | ≤0.3 | ≤6.0 | ≤0.4 | ≤8.0 | ≤0.5 | ≤10.0 | ≤0.6 |
| P | Acciaio al carbonio generico | 30HRC≤ | PC5300 | 100~220 | ≤2.5 | ≤0.2 | ≤3.0 | ≤0.2 | ≤3.5 | ≤0.2 | ≤4.0 | ≤0.2 | ≤5.0 | ≤0.3 | ≤6.0 | ≤0.4 | ≤8.0 | ≤0.5 | ≤10.0 | ≤0.6 |
| P | Acciaio el. ten.carb., acciaio legato | 30~40HRC | PC3545 | 100~200 | ≤2.5 | ≤0.1 | ≤3.0 | ≤0.1 | ≤3.5 | ≤0.1 | ≤4.0 | ≤0.1 | ≤5.0 | ≤0.2 | ≤6.0 | ≤0.3 | ≤8.0 | ≤0.4 | ≤10.0 | ≤0.5 |
| P | Acciaio el. ten.carb., acciaio legato | 40~50HRC | PC3545 | 90~150 | ≤2.5 | ≤0.1 | ≤3.0 | ≤0.1 | ≤3.5 | ≤0.1 | ≤4.0 | ≤0.1 | ≤5.0 | ≤0.2 | ≤6.0 | ≤0.3 | ≤8.0 | ≤0.4 | ≤10.0 | ≤0.5 |
| P | Acciaio legato | 50HRC≥ | PC3545 | 90~150 | ≤2.5 | ≤0.1 | ≤3.0 | ≤0.1 | ≤3.5 | ≤0.1 | ≤4.0 | ≤0.1 | ≤5.0 | ≤0.2 | ≤6.0 | ≤0.3 | ≤8.0 | ≤0.4 | ≤10.0 | ≤0.5 |
| M | Acciaio inossidabile | 270HB≤ | PC5300 | 50~200 | ≤2.5 | ≤0.1 | ≤3.0 | ≤0.1 | ≤3.5 | ≤0.1 | ≤4.0 | ≤0.1 | ≤5.0 | ≤0.2 | ≤6.0 | ≤0.3 | ≤8.0 | ≤0.4 | ≤10.0 | ≤0.5 |
| K | Ghisa, ghisa duttile | Carico di rottura 350Mpa | PC5300 | 150~250 | ≤2.5 | ≤0.2 | ≤3.0 | ≤0.2 | ≤3.5 | ≤0.2 | ≤4.0 | ≤0.2 | ≤5.0 | ≤0.3 | ≤6.0 | ≤0.4 | ≤8.0 | ≤0.5 | ≤10.0 | ≤0.6 |

• Fresatura elicoidale

| Pezzo lavorato | | Durezza | Gradi | Velocità di taglio (m/min) | FMR1000 | | FMR1500 | | FMR2000 | | FMR2500 | | FMR3000 | | FMR4000 | | FMR5000 | | FMR6000 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | ap (mm) | fz (mm/t) | ap (mm) | fz (mm/t) | ap (mm) | fz (mm/t) | ap (mm) | fz (mm/t) | ap (mm) | fz (mm/t) | ap (mm) | fz (mm/t) | ap (mm) | fz (mm/t) | ap (mm) | fz (mm/t) |
| P | Acciaio generico | 200HB≤ | PC3500 | 100~250 | ≤1.0 | ≤0.2 | ≤1.0 | ≤0.2 | ≤1.0 | ≤0.2 | ≤1.0 | ≤0.2 | ≤2.0 | ≤0.3 | ≤2.0 | ≤0.4 | ≤4.0 | ≤0.5 | ≤4.0 | ≤0.6 |
| P | Acciaio al carbonio generico | 30HRC≤ | PC5300 | 100~220 | ≤0.7 | ≤0.2 | ≤0.7 | ≤0.2 | ≤0.7 | ≤0.2 | ≤0.7 | ≤0.2 | ≤2.0 | ≤0.3 | ≤2.0 | ≤0.4 | ≤4.0 | ≤0.5 | ≤4.0 | ≤0.6 |
| P | Acciaio el. ten.carb., acciaio legato | 30~40HRC | PC3545 | 100~200 | ≤0.7 | ≤0.1 | ≤0.7 | ≤0.1 | ≤0.7 | ≤0.1 | ≤0.7 | ≤0.1 | ≤1.7 | ≤0.2 | ≤1.7 | ≤0.3 | ≤3.7 | ≤0.4 | ≤3.7 | ≤0.5 |
| P | Acciaio el. ten.carb., acciaio legato | 40~50HRC | PC3545 | 90~150 | ≤0.7 | ≤0.1 | ≤0.7 | ≤0.1 | ≤0.7 | ≤0.1 | ≤0.7 | ≤0.1 | ≤1.7 | ≤0.2 | ≤1.7 | ≤0.3 | ≤3.7 | ≤0.4 | ≤3.7 | ≤0.5 |
| P | Acciaio legato | 50HRC≥ | PC3545 | 90~150 | ≤0.7 | ≤0.1 | ≤0.7 | ≤0.1 | ≤0.7 | ≤0.1 | ≤0.7 | ≤0.1 | ≤1.7 | ≤0.2 | ≤1.7 | ≤0.3 | ≤3.7 | ≤0.4 | ≤3.7 | ≤0.5 |
| M | Acciaio inossidabile | 270HB≤ | PC5300 | 50~200 | ≤0.7 | ≤0.1 | ≤0.7 | ≤0.1 | ≤0.7 | ≤0.1 | ≤0.7 | ≤0.1 | ≤1.7 | ≤0.2 | ≤1.7 | ≤0.3 | ≤3.7 | ≤0.4 | ≤3.7 | ≤0.5 |
| K | Ghisa, ghisa duttile | Carico di rottura 350Mpa | PC5300 | 150~250 | ≤1.0 | ≤0.2 | ≤1.0 | ≤0.2 | ≤1.0 | ≤0.2 | ≤1.0 | ≤0.2 | ≤2.0 | ≤0.3 | ≤2.0 | ≤0.4 | ≤4.0 | ≤0.5 | ≤4.0 | ≤0.6 |

## Test delle vibrazioni FMR



● Esempio di lavorazione
- Campione : FMRS3032RD-S / RDKT10T3M0-MM (PC3535)
- Pezzo lavorato : STD11
- Condizioni di taglio : vc = 200m/min fz = 0.40mm/t
  ap = 2.0mm ae = 4.0mm

## Condizioni di taglio per fresatura

• Velocità di taglio

$$vc = \frac{\pi \times D \times n}{1000} \text{ (m/min)}$$

• RPM

$$n = \frac{vc \times 1000}{\pi \times D} \text{ (min}^{-1}\text{)}$$

• Avanzamento (per dente)

$$fz = \frac{vf}{n \times z} \text{ (mm/t)}$$

Avanzamento (al minuto)

$$vf = fz \times n \times z \text{ (mm/min)}$$

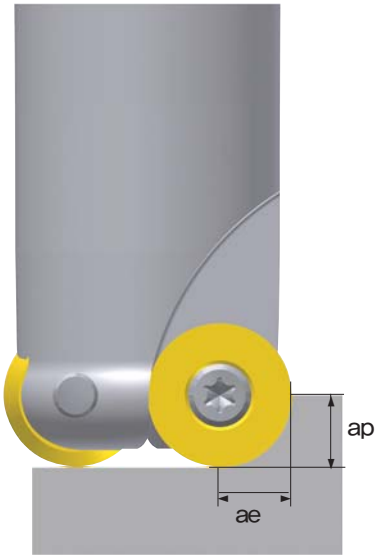
Materiale asportato

$$Q = \frac{ap \times ae \times vf}{1000} \text{ (cm}^3\text{/min)}$$

• Potenza richiesta

$$Pkw = \frac{Q \times kc}{60 \times 102 \times \eta} \text{ (kW)}$$

$$Php = \frac{Pkw}{0.75} \text{ (hp)}$$

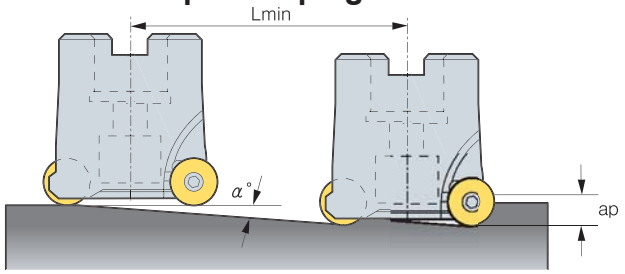



| | | |
|---|---|---|
| vc | = | Velocità di taglio m/min) |
| n | = | Giri al minuto (min$^{-1}$) |
| D | = | Diametro di taglio (mm) |
| vf | = | Avanzamento al minuto (mm/min) |
| fz | = | Avanzamento per dente (mm/t) |
| z | = | Numero denti |
| Pc | = | Potenza richiesta (kW) |
| H | = | Cavalli (Hp) |
| Q | = | Materiale asportato (cm$^3$/min) |
| ap | = | Profondità di taglio (mm) |
| ae | = | Passo (mm) |
| Kc | = | Resistenza al taglio specifica (MPa) |
| η | = | Efficienza meccanica (%) |

## Avanzamento e profondità di taglio

| Articolo | Rompi-truciolo | Profondità di taglio (mm) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.2~0.5 | 0.5~1.0 | 2.0 | 3.0 | 4.0 | 5.0 | 6.0 | 7.0 | 8.0 |
| RDHW0501M0 | - | 0.25 | 0.15 | - | - | - | - | - | - | - |
| RDHW06T1M0 | - | 0.30 | 0.20 | 0.10 | - | - | - | - | - | - |
| RDHW0702M0 | - | 0.35 | 0.25 | 0.10 | 0.07 | - | - | - | - | - |
| RDHW0803M0 | - | 0.40 | 0.30 | 0.15 | 0.01 | - | - | - | - | - |
| RDKT10T3M0 - | MF/MM | - | 0.40 | 0.35 | 0.30 | 0.20 | - | - | - | - |
| RDKT1204M0 - | MF/MM | - | 0.50 | 0.45 | 0.30 | 0.25 | 0.22 | - | - | - |
| RDHW1605M0 | - | - | 0.60 | 0.50 | 0.45 | 0.35 | 0.30 | 0.20 | 0.10 | - |
| RDHW2006M0 | - | - | - | 0.60 | 0.50 | 0.40 | 0.30 | 0.25 | 0.15 | 0.10 |
| RDKT1605M0 - | MM | - | 0.60 | 0.50 | 0.45 | 0.35 | 0.30 | 0.20 | 0.10 | - |
| RDKT2006M0 - | MM | - | - | 0.60 | 0.50 | 0.40 | 0.30 | 0.25 | 0.15 | 0.10 |

## Dati tecnici per ramping

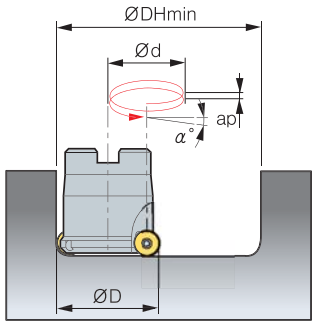



$$L_{min} = \frac{ap}{\tan \alpha^{\circ}} \text{ (mm)}$$

※ Lmin : Inclinazione min. lunghezza di taglio
α° : Angolazione ramping max.
ap : Profondità di taglio

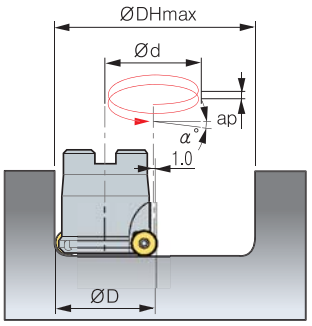
| Sezione | Diametro utensile (Ø) | Angolazione ramping α (Max) | Profondità di taglio L(mm) per angolazione ramping | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ap=1mm | ap=2mm | ap=2,5mm | ap=3mm | ap=3,5mm | ap=4mm | ap=5mm | ap=6mm | ap=8mm | ap=10mm |
| FMR1000 | 08 | 18.14 | 3 | 6 | 8 | - | - | - | - | - | - | - |
| | 10 | 11.7 | 5 | 10 | 12 | - | - | - | - | - | - | - |
| | 12 | 8.43 | 7 | 13 | 17 | - | - | - | - | - | - | |
| | 15 | 5.93 | 10 | 19 | 24 | - | - | - | - | - | - | - |
| FMR1500 | 10 | 20.67 | 21 | 5 | 7 | 8 | - | - | - | - | - | - |
| | 12 | 10.05 | 10 | 11 | 14 | 17 | - | - | - | - | - | - |
| | 16 | 6.12 | 6 | 19 | 23 | 28 | - | - | - | - | - | - |
| | 20 | 4.36 | 4 | 26 | 33 | 39 | - | - | - | - | - | - |
| FMR2000 | 15 | 9.42 | 6 | 12 | 15 | 18 | 21 | - | - | - | - | - |
| | 20 | 5.85 | 10 | 20 | 24 | 29 | 34 | - | - | - | - | - |
| FMR2500 | 16 | 13.7 | 4 | 8 | 10 | 12 | 14 | 16 | - | - | - | - |
| | 20 | 9.29 | 6 | 12 | 15 | 18 | 21 | 24 | - | - | - | - |
| | 25 | 6.56 | 9 | 17 | 22 | 26 | 30 | 35 | - | - | - | - |
| FMR3000 | 25 | 21.8 | 3 | 5 | 6 | 8 | 9 | 10 | 13 | - | - | - |
| | 32 | 13.24 | 4 | 9 | 11 | 13 | 15 | 17 | 21 | - | - | - |
| | 40 | 9.09 | 6 | 13 | 16 | 19 | 22 | 25 | 31 | - | - | - |
| | 50 | 6.52 | 9 | 17 | 22 | 26 | 31 | 35 | 44 | - | - | - |
| | 63 | 4.76 | 12 | 24 | 30 | 36 | 42 | 48 | 60 | - | - | - |
| | 80 | 3.52 | 16 | 33 | 41 | 49 | 57 | 65 | 81 | - | - | - |
| | 100 | 2.69 | 21 | 43 | 53 | 64 | 74 | 85 | 106 | - | - | - |
| FMR4000 | 32 | 15.95 | 3 | 7 | 9 | 10 | 12 | 14 | 17 | 21 | - | - |
| | 40 | 10.3 | 6 | 11 | 14 | 17 | 19 | 22 | 28 | 33 | - | - |
| | 50 | 7.13 | 8 | 16 | 20 | 24 | 28 | 32 | 40 | 48 | - | - |
| | 63 | 5.08 | 11 | 22 | 28 | 34 | 39 | 45 | 56 | 67 | - | - |
| | 80 | 3.69 | 16 | 31 | 39 | 47 | 54 | 62 | 78 | 93 | - | - |
| | 100 | 2.79 | 21 | 41 | 51 | 62 | 72 | 82 | 103 | 123 | - | - |
| | 125 | 2.14 | 27 | 54 | 67 | 80 | 94 | 107 | 134 | 161 | - | - |
| FMR5000 | 40 | 7.4 | 8 | 15 | 19 | 23 | 27 | 31 | 38 | 46 | 62 | - |
| | 50 | 5.22 | 11 | 22 | 27 | 33 | 38 | 44 | 55 | 66 | 88 | - |
| | 63 | 3.79 | 15 | 30 | 38 | 45 | 53 | 60 | 75 | 91 | 121 | - |
| | 80 | 2.97 | 19 | 39 | 48 | 58 | 67 | 77 | 96 | 116 | 154 | - |
| | 100 | 2.09 | 27 | 55 | 69 | 82 | 96 | 110 | 137 | 164 | 219 | - |
| | 125 | 1.63 | 35 | 70 | 88 | 105 | 123 | 141 | 176 | 211 | 281 | - |
| FMR6000 | 40 | 7.44 | 8 | 15 | 19 | 23 | 27 | 31 | 38 | 46 | 61 | 77 |
| | 50 | 4.97 | 11 | 23 | 29 | 34 | 40 | 46 | 57 | 69 | 92 | 46 |
| | 63 | 3.69 | 16 | 31 | 39 | 47 | 54 | 62 | 78 | 93 | 124 | 62 |
| | 80 | 2.72 | 21 | 42 | 53 | 63 | 74 | 84 | 105 | 126 | 168 | 84 |
| | 100 | 2.12 | 27 | 54 | 68 | 81 | 95 | 108 | 135 | 162 | 216 | 108 |
| | 125 | 1.57 | 36 | 73 | 91 | 109 | 128 | 146 | 182 | 219 | 292 | 146 |

## Fresatura elicoidale - ØDHmin




| Sezione | Inserto | Dia. utensile(Ø) | Ø DHmix | Ød | Angolazione ramping(α°) ap 1 | 2 | 2,5 | 3 | 3,5 | 4 | 5 | 6 | 8 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FMR 1000 | 5 | 08 | 11 | 3 | 6.11 | 12.35 | 15.57 | - | - | - | - | - | - | - |
| | 5 | 10 | 15 | 5 | 3.65 | 7.34 | 7.34 | - | - | - | - | - | - | - |
| | 5 | 12 | 19 | 7 | 2.61 | 5.23 | 5.23 | - | - | - | - | - | - | - |
| | 5 | 15 | 25 | 10 | 1.83 | 3.65 | 3.65 | - | - | - | - | - | - | - |
| FMR 1500 | 6 | 10 | 14 | 4 | 4.57 | 9.20 | 9.20 | 13.95 | - | - | - | - | - | - |
| | 6 | 12 | 18 | 6 | 3.04 | 6.11 | 6.11 | 9.20 | - | - | - | - | - | - |
| | 6 | 16 | 26 | 10 | 1.83 | 3.65 | 3.65 | 5.49 | - | - | - | - | - | - |
| | 6 | 20 | 34 | 14 | 1.30 | 2.61 | 2.61 | 3.92 | - | - | - | - | - | - |
| FMR 2000 | 7 | 15 | 23 | 8 | 2.28 | 4.57 | 4.57 | 6.88 | 8.04 | - | - | - | - | - |
| | 7 | 20 | 33 | 13 | 1.40 | 2.81 | 2.81 | 4.22 | 4.92 | - | - | - | - | - |
| FMR 2500 | 8 | 16 | 24 | 8 | 2.28 | 4.57 | 4.57 | 6.88 | 8.04 | 9.20 | - | - | - | - |
| | 8 | 20 | 32 | 12 | 1.52 | 3.04 | 3.04 | 4.57 | 5.34 | 6.11 | - | - | - | - |
| | 8 | 25 | 42 | 17 | 1.07 | 2.15 | 2.15 | 3.22 | 3.76 | 4.30 | - | - | - | - |
| FMR 3000 | 10 | 25 | 40 | 15 | 1.22 | 2.43 | 2.43 | 3.65 | 4.27 | 4.88 | 6.11 | - | - | - |
| | 10 | 32 | 54 | 22 | 0.83 | 1.66 | 1.66 | 2.49 | 2.91 | 3.32 | 4.15 | - | - | - |
| | 10 | 40 | 70 | 30 | 0.61 | 1.22 | 1.22 | 1.83 | 2.13 | 2.43 | 3.04 | - | - | - |
| | 10 | 50 | 90 | 40 | 0.46 | 0.91 | 0.91 | 1.37 | 1.60 | 1.83 | 2.28 | - | - | - |
| | 10 | 63 | 116 | 53 | 0.34 | 0.69 | 0.69 | 1.03 | 1.21 | 1.38 | 1.72 | - | - | - |
| | 10 | 80 | 150 | 70 | 0.26 | 0.52 | 0.52 | 0.78 | 0.91 | 1.04 | 1.30 | - | - | - |
| | 10 | 100 | 190 | 90 | 0.20 | 0.41 | 0.41 | 0.61 | 0.71 | 0.81 | 1.01 | - | - | - |
| FMR 4000 | 12 | 32 | 52 | 20 | 0.91 | 1.83 | 1.83 | 2.74 | 3.20 | 3.65 | 4.57 | 5.49 | - | - |
| | 12 | 40 | 68 | 28 | 0.65 | 1.30 | 1.30 | 1.96 | 2.28 | 2.61 | 3.26 | 3.92 | - | - |
| | 12 | 50 | 88 | 38 | 0.48 | 0.96 | 0.96 | 1.44 | 1.68 | 1.92 | 2.40 | 2.88 | - | - |
| | 12 | 63 | 114 | 51 | 0.36 | 0.72 | 0.72 | 1.07 | 1.25 | 1.43 | 1.79 | 2.15 | - | - |
| | 12 | 80 | 148 | 68 | 0.27 | 0.54 | 0.54 | 0.81 | 0.94 | 1.07 | 1.34 | 1.61 | - | - |
| | 12 | 100 | 188 | 88 | 0.21 | 0.41 | 0.41 | 0.62 | 0.73 | 0.83 | 1.04 | 1.24 | - | - |
| | 12 | 125 | 238 | 113 | 0.16 | 0.32 | 0.32 | 0.48 | 0.57 | 0.65 | 0.81 | 0.97 | - | - |
| FMR 5000 | 16 | 40 | 64 | 24 | 0.76 | 1.52 | 1.52 | 2.28 | 2.66 | 3.04 | 3.81 | 4.57 | 6.11 | - |
| | 16 | 50 | 84 | 34 | 0.54 | 1.07 | 1.07 | 1.61 | 1.88 | 2.15 | 2.69 | 3.22 | 4.30 | - |
| | 16 | 63 | 110 | 47 | 0.39 | 0.78 | 0.78 | 1.16 | 1.36 | 1.55 | 1.94 | 2.33 | 3.11 | - |
| | 16 | 80 | 144 | 64 | 0.29 | 0.57 | 0.57 | 0.86 | 1.00 | 1.14 | 1.43 | 1.71 | 2.28 | - |
| | 16 | 100 | 184 | 84 | 0.22 | 0.43 | 0.43 | 0.65 | 0.76 | 0.87 | 1.09 | 1.30 | 1.74 | - |
| | 16 | 125 | 234 | 109 | 0.17 | 0.33 | 0.33 | 0.50 | 0.59 | 0.67 | 0.84 | 1.00 | 1.34 | - |
| FMR 6000 | 20 | 50 | 80 | 30 | 0.61 | 1.22 | 1.22 | 1.83 | 2.13 | 2.43 | 3.04 | 3.65 | 4.88 | 6.11 |
| | 20 | 63 | 106 | 43 | 0.42 | 0.85 | 0.85 | 1.27 | 1.49 | 1.70 | 2.12 | 2.55 | 3.40 | 4.25 |
| | 20 | 80 | 140 | 60 | 0.30 | 0.61 | 0.61 | 0.91 | 1.06 | 1.22 | 1.52 | 1.83 | 2.43 | 3.04 |
| | 20 | 100 | 180 | 80 | 0.23 | 0.46 | 0.46 | 0.68 | 0.80 | 0.91 | 1.14 | 1.37 | 1.83 | 2.28 |
| | 20 | 125 | 230 | 105 | 0.17 | 0.35 | 0.35 | 0.52 | 0.61 | 0.70 | 0.87 | 1.04 | 1.39 | 1.74 |
| | 20 | 160 | 300 | 140 | 0.13 | 0.26 | 0.26 | 0.39 | 0.46 | 0.52 | 0.65 | 0.78 | 1.04 | 1.30 |

## Fresatura elicoidale - ØDHmax




| Sezione | Inserto | Dia. utensile(Ø) | Ø DHmax | Ød | Angolazione ramping(α°) ap 1 | 2 | 2,5 | 3 | 3,5 | 4 | 5 | 6 | 8 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FMR 1000 | 5 | 08 | 14 | 6 | 3.04 | 6.11 | 7.65 | - | - | - | - | - | - | - |
| | 5 | 10 | 18 | 8 | 2.28 | 4.57 | 5.72 | - | - | - | - | - | - | - |
| | 5 | 12 | 22 | 10 | 1.83 | 3.65 | 4.57 | - | - | - | - | - | - | - |
| | 5 | 15 | 28 | 13 | 1.40 | 2.81 | 3.51 | - | - | - | - | - | - | - |
| FMR 1500 | 6 | 10 | 18 | 8 | 2.28 | 4.57 | 5.72 | 6.88 | - | - | - | - | - | - |
| | 6 | 12 | 22 | 10 | 1.83 | 3.65 | 4.57 | 5.49 | - | - | - | - | - | - |
| | 6 | 16 | 30 | 14 | 1.30 | 2.61 | 3.26 | 3.92 | - | - | - | - | - | - |
| | 6 | 20 | 38 | 18 | 1.01 | 2.03 | 2.54 | 3.04 | - | - | - | - | - | - |
| FMR 2000 | 7 | 15 | 28 | 13 | 1.40 | 2.81 | 3.51 | 4.22 | 4.92 | - | - | - | - | - |
| | 7 | 20 | 38 | 18 | 1.01 | 2.03 | 2.54 | 3.04 | 3.55 | - | - | - | - | - |
| FMR 2500 | 8 | 16 | 30 | 14 | 1.30 | 2.61 | 3.26 | 3.92 | 4.57 | 5.23 | - | - | - | - |
| | 8 | 20 | 38 | 18 | 1.01 | 2.03 | 2.54 | 3.04 | 3.55 | 4.06 | - | - | - | - |
| | 8 | 25 | 48 | 23 | 0.79 | 1.59 | 1.98 | 2.38 | 2.78 | 3.18 | - | - | - | - |
| FMR 3000 | 10 | 25 | 48 | 23 | 0.79 | 1.59 | 1.98 | 2.38 | 2.78 | 3.18 | 3.97 | - | - | - |
| | 10 | 32 | 62 | 30 | 0.61 | 1.22 | 1.52 | 1.83 | 2.13 | 2.43 | 3.04 | - | - | - |
| | 10 | 40 | 78 | 38 | 0.48 | 0.96 | 1.20 | 1.44 | 1.68 | 1.92 | 2.40 | - | - | - |
| | 10 | 50 | 98 | 48 | 0.38 | 0.76 | 0.95 | 1.14 | 1.33 | 1.52 | 1.90 | - | - | - |
| | 10 | 63 | 124 | 61 | 0.30 | 0.60 | 0.75 | 0.90 | 1.05 | 1.20 | 1.50 | - | - | - |
| | 10 | 80 | 158 | 78 | 0.23 | 0.47 | 0.58 | 0.70 | 0.82 | 0.94 | 1.17 | - | - | - |
| | 10 | 100 | 198 | 98 | 0.19 | 0.37 | 0.47 | 0.56 | 0.65 | 0.74 | 0.93 | - | - | - |
| FMR 4000 | 12 | 32 | 62 | 30 | 0.61 | 1.22 | 1.52 | 1.83 | 2.13 | 2.43 | 3.04 | 3.65 | - | - |
| | 12 | 40 | 78 | 38 | 0.48 | 0.96 | 1.20 | 1.44 | 1.68 | 1.92 | 2.40 | 2.88 | - | - |
| | 12 | 50 | 98 | 48 | 0.38 | 0.76 | 0.95 | 1.14 | 1.33 | 1.52 | 1.90 | 2.28 | - | - |
| | 12 | 63 | 124 | 61 | 0.30 | 0.60 | 0.75 | 0.90 | 1.05 | 1.20 | 1.50 | 1.80 | - | - |
| | 12 | 80 | 158 | 78 | 0.23 | 0.47 | 0.58 | 0.70 | 0.82 | 0.94 | 1.17 | 1.40 | - | - |
| | 12 | 100 | 198 | 98 | 0.19 | 0.37 | 0.47 | 0.56 | 0.65 | 0.74 | 0.93 | 1.12 | - | - |
| | 12 | 125 | 248 | 123 | 0.15 | 0.30 | 0.37 | 0.45 | 0.52 | 0.59 | 0.74 | 0.89 | - | - |
| FMR 5000 | 16 | 40 | 78 | 38 | 0.48 | 0.96 | 1.20 | 1.44 | 1.68 | 1.92 | 2.40 | 2.88 | 3.85 | - |
| | 16 | 50 | 98 | 48 | 0.38 | 0.76 | 0.95 | 1.14 | 1.33 | 1.52 | 1.90 | 2.28 | 3.04 | - |
| | 16 | 63 | 124 | 61 | 0.30 | 0.60 | 0.75 | 0.90 | 1.05 | 1.20 | 1.50 | 1.80 | 2.39 | - |
| | 16 | 80 | 158 | 78 | 0.23 | 0.47 | 0.58 | 0.70 | 0.82 | 0.94 | 1.17 | 1.40 | 1.87 | - |
| | 16 | 100 | 198 | 98 | 0.19 | 0.37 | 0.47 | 0.56 | 0.65 | 0.74 | 0.93 | 1.12 | 1.49 | - |
| | 16 | 125 | 248 | 123 | 0.15 | 0.30 | 0.37 | 0.45 | 0.52 | 0.59 | 0.74 | 0.89 | 1.19 | - |
| FMR 6000 | 20 | 50 | 98 | 48 | 0.38 | 0.76 | 0.95 | 1.14 | 1.33 | 1.52 | 1.90 | 2.28 | 3.04 | 3.81 |
| | 20 | 63 | 124 | 61 | 0.30 | 0.60 | 0.75 | 0.90 | 1.05 | 1.20 | 1.50 | 1.80 | 2.39 | 2.99 |
| | 20 | 80 | 158 | 78 | 0.23 | 0.47 | 0.58 | 0.70 | 0.82 | 0.94 | 1.17 | 1.40 | 1.87 | 2.34 |
| | 20 | 100 | 198 | 98 | 0.19 | 0.37 | 0.47 | 0.56 | 0.65 | 0.74 | 0.93 | 1.12 | 1.49 | 1.86 |
| | 20 | 125 | 248 | 123 | 0.15 | 0.30 | 0.37 | 0.45 | 0.52 | 0.59 | 0.74 | 0.89 | 1.19 | 1.48 |
| | 20 | 160 | 318 | 158 | 0.12 | 0.23 | 0.29 | 0.35 | 0.40 | 0.46 | 0.58 | 0.69 | 0.92 | 1.16 |

- ØD = Diametro utensile (mm), ØDHmin, max = Diametro min., max. (mm)
- Ød = Percorso utensile (mm)
- ØDHmin(diametro min.) = ØD × 2 - Dimensione inserto, ØDHmax(Max diameter) = ØD × 2 - 2
- Ød(percorso utensile) = ØDHmin, max - ØD

# FMAC(M)3000/4000

AA 45°

• AR : 21°
• RR : −17°~−12°



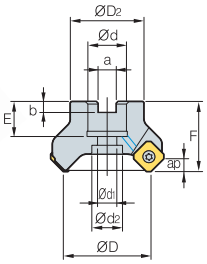



Fig. 1

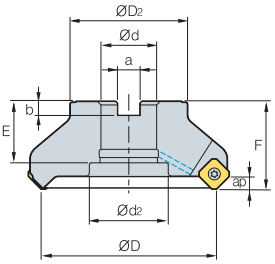



Fig. 2

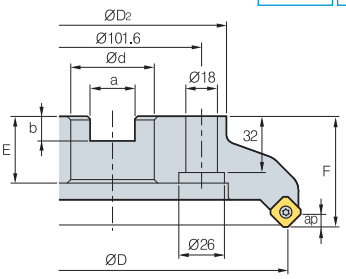



Fig. 3

(mm)

| Articolo | | Stock R | Stock L | ⌀ | øD | øD2 | ød | a | b | E | F | ød1 | ød2 | ap | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FMAC(M) | 3050HR | (●) | | 4 | 50 | 42 | 22 | 10.4 | 6.3 | 20 | 40 | 11 | 17.5 | 4.0 | 0.4 | 1 |
| | 3050HR-H | ●(●) | | 6 | 50 | 42 | 22 | 10.4 | 6.3 | 20 | 40 | 11 | 17.5 | 4.0 | 0.4 | 1 |
| | 3063HR | ●(●) | | 5 | 63 | 49 | 22 | 10.4 | 6.3 | 20 | 40 | 11 | 17.5 | 4.0 | 0.5 | 1 |
| | 3063HR-H | ●(●) | | 8 | 63 | 49 | 22 | 10.4 | 6.3 | 20 | 40 | 11 | 17.5 | 4.0 | 0.6 | 1 |
| | 3080HR | ●(●) | | 6 | 80 | 57 | 25.4(27) | 9.5(12.4) | 6(7) | 25(23) | 50 | 14 | 20 | 4.0 | 1.1 | 1 |
| | 3080HR-H | ●(●) | | 10 | 80 | 57 | 25.4(27) | 9.5(12.4) | 6(7) | 25(23) | 50 | 14 | 20 | 4.0 | 1.2 | 1 |
| | 3100HR | ●(●) | | 7 | 100 | 67 | 31.75(32) | 12.7(14.4) | 8(8) | 25(25.5) | 50 | (18) | 45(26) | 4.0 | 1.7 | 2(1) |
| | 3100HR-H | | | 12 | 100 | 67 | 31.75(32) | 12.7(14.4) | 8(8) | 25(25.5) | 50 | (18) | 45(26) | 4.0 | 1.7 | 2(1) |
| | 3125HR | | | 8 | 125 | 87 | 38.1(40) | 15.9(16.4) | 10(9) | 42(29) | 63 | (22) | 55(32) | 4.0 | 3.3(3.5) | 2(1) |
| | 3125HR-H | | | 14 | 125 | 87 | 38.1(40) | 15.9(16.4) | 10(9) | 42(29) | 63 | (22) | 55(32) | 4.0 | 3.3(3.5) | 2(1) |
| FMAC(M) | 4050HR | ●(●) | | 3 | 50 | 49 | 22 | 10.4 | 6.3 | 20 | 40 | 11 | 18 | 6.5 | 0.4 | 1 |
| | 4063HR | ●(●) | | 4 | 63 | 49 | 22 | 10.4 | 6.3 | 20 | 40 | 11 | 18 | 6.5 | 0.6 | 1 |
| | 4063HR-M | (●) | | 5 | 63 | 49 | 22 | 10.4 | 6.3 | 20 | 40 | 11 | 18 | 6.5 | 0.6 | 1 |
| | 4063HR-H | | | 6 | 63 | 49 | 22 | 10.4 | 6.3 | 20 | 40 | 11 | 18 | 6.5 | 0.6 | 1 |
| | 4080HR | ●(●) | | 5 | 80 | 57 | 25.4(27) | 9.5(12.4) | 6(7) | 25(23) | 50 | 14 | 20 | 6.5 | 1.1 | 1 |
| | 4080HR-M | ●(●) | | 6 | 80 | 57 | 25.4(27) | 9.5(12.4) | 6(7) | 25(23) | 50 | 14 | 20 | 6.5 | 1.1 | 1 |
| | 4080HR-H | ●(●) | | 8 | 80 | 57 | 25.4(27) | 9.5(12.4) | 6(7) | 25(23) | 50 | 18 | 20 | 6.5 | 1.1 | 1 |
| | 4100HR | ●(●) | | 5 | 100 | 67 | 31.75(32) | 12.7(14.4) | 8(8) | 33(25) | 63(50) | 18 | 26 | 6.5 | 2(1.6) | 1 |
| | 4100HR-M | ●(●) | | 7 | 100 | 67 | 31.75(32) | 12.7(14.4) | 8(8) | 33(25) | 63(50) | 18 | 26 | 6.5 | 2(1.6) | 1 |
| | 4100HR-H | (●) | | 10 | 100 | 67 | 31.75(32) | 12.7(14.4) | 8(8) | 33(25) | 63(50) | 18 | 26 | 6.5 | 2(1.6) | 1 |
| | 4125HR | ●(●) | | 6 | 125 | 87 | 38.1(40) | 15.9(16.4) | 10(9) | 35(29) | 63 | 22 | 32 | 6.5 | 3.1 | 1 |
| | 4125HR-M | ●(●) | | 8 | 125 | 87 | 38.1(40) | 15.9(16.4) | 10(9) | 35(29) | 63 | 22 | 32 | 6.5 | 3.1 | 1 |
| | 4125HR-H | ● | | 12 | 125 | 87 | 38.1(40) | 15.9(16.4) | 10(9) | 35(29) | 63 | 22 | 32 | 6.5 | 3.1 | 1 |
| | 4160R | ●(●) | | 7 | 160 | 107 | 50.8(40) | 19.0(16.4) | 11(9) | 38(35) | 63 | - | - | 6.5 | 4.8 | 3 |
| | 4160R-M | ●(●) | | 10 | 160 | 107 | 50.8(40) | 19.0(16.4) | 11(9) | 38(35) | 63 | - | - | 6.5 | 4.8 | 3 |
| | 4160R-H | ●(●) | | 16 | 160 | 107 | 50.8(40) | 19.0(16.4) | 11(9) | 38(35) | 63 | - | - | 6.5 | 4.8 | 3 |
| | 4200R | ●(●) | | 8 | 200 | 130 | 47.625(60) | 25.4(25.7) | 14 | 38(32) | 63 | - | - | 6.5 | 6.1 | 4 |
| | 4200R-M | ●(●) | | 12 | 200 | 130 | 47.625(60) | 25.4(25.7) | 14 | 38(32) | 63 | - | - | 6.5 | 6.1 | 4 |
| | 4200R-H | ●(●) | | 18 | 200 | 130 | 47.625(60) | 25.4(25.7) | 14 | 38(32) | 63 | - | - | 6.5 | 6.1 | 4 |

• ( )Sistema metrico ● : Disponibile ○ : A richiesta

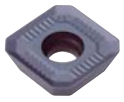
## Parti di ricambio

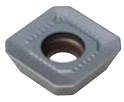
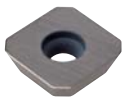
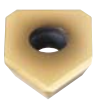
| | Vite | Chiave inserto | Chiave sede | Vite sede | Sede |
|---|---|---|---|---|---|
| Tipo 3000 | FTKA0307 | - | - | - | - |
| Tipo 4000 | FTGA03512 | TW15S | HW35L | SHXN0509F | SS42SAF |

## Mandrini disponibili

| Articolo | | Ød | Attacchi NC |
|---|---|---|---|
| FMAC(M) | 3050HR-□<br>3063HR-□ | 22 | BT□□-FMC22-□□ |
| | 3080HR-□ | 25.4<br>27 | BT□□-FMA25.4-□□<br>BT□□-FMC27-□□ |
| | 3100HR-□ | 31.75<br>32 | BT□□-FMA31.75-□□<br>BT□□-FMC32-□□ |
| | 3125HR-□ | 38.1<br>40 | BT□□-FMA38.1-□□<br>BT□□-FMB40-□□ |
| FMAC(M) | 4050HR-□<br>4063HR-□ | 22 | BT□□-FMC22-□□ |
| | 4080HR-□ | 25.4<br>27 | BT□□-FMA25.4-□□<br>BT□□-FMC27-□□ |
| | 4100HR-□ | 31.75<br>32 | BT□□-FMA31.75-□□<br>BT□□-FMC32-□□ |
| | 4125HR-□ | 38.1<br>40 | BT□□-FMA38.1-□□<br>BT□□-FMB40-□□ |
| | 4160R-□ | 50.8<br>40 | BT□□-FMA50.8-□□<br>BT□□-FMB40-□□ |
| | 4200R-□ | 47.625<br>60 | BT□□-FMA47.625-□□<br>BT□□-FMB60-□□ |

## Inserti disponibili

| SEET-MF | SEET-MM | SEET-MA | SEXT-MF |
|---|---|---|---|
|  |  |  |  |

| SEXT-MM | SEXT-MR | SEEW | SEEW-W |
|---|---|---|---|
|  |  |  |  |

| Tipo | Articolo | | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3000 | SEET | 0903AGFN-MA | | | | | | | | | | ● | | | | ● | | | | E14 E15 |
| | | 0903AGSN-MF | ● | | ● | | ● | | ● | | | | | | | | | | | |
| | | 0903AGSN-MM | ● | | ● | | ● | | ● | | | | | | | | | | | |
| | SEXT | 0903AGSN-MF | | | ● | ● | ● | | | | ● | | | | | | | | | |
| | | 0903AGSN-MM | | | ● | ● | ● | | | ● | ● | | | | | | | | | |
| | | 0903AGSN-MR | | | | ○ | | | | | | | | | | | | | | |
| | SEEW | 0903AGTN | | | | | | | | | | | | | ● | | | | | |
| 4000 | SEET | 14M4AGFN-MA | | | | | | | | | | ● | | | | ● | | | | E14 E15 |
| | | 14M4AGSN-MF | ● | ● | | | ● | | ● | ● | | | | | | | | | | |
| | | 14M4AGSN-MM | ● | ● | ● | | ● | | ● | ● | | | | | | | | | | |
| | SEXT | 14M4AGSN-MF | ● | | ● | ● | ● | | | | ● | | | | | | | | | |
| | | 14M4AGSN-MM | ● | ● | ● | ● | ● | | ● | ● | ● | | | | | | | | | |
| | | 14M4AGSN-MR | ● | | ● | ● | ● | | ● | | | | | | | | | | | |
| | SEEW | 14M4AGTN | | | | | | | | | | | | | ● | | | | | |
| | | 14M4AGFN-W | | | | | | | | | | | | | | | | | | |
| | | 14M4AGSN-W | | | | | | | | | | | | | | | | | | |
| | | 14M4AGTN-W | | | | ● | ○ | | | ● | | | | | | | | | | |

● : Disponibile ○ : A richiesta

• Inserti disponibili, vedere pag. : E14, E15 • Attacchi e viti disponibili : E215~E217

# FMAC(M)3000-A/4000-A (Corpo in alluminio)

AA 45° • AR : 21° • RR : −16°~−12°



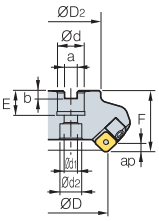


Fig. 1

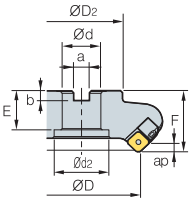


Fig. 2

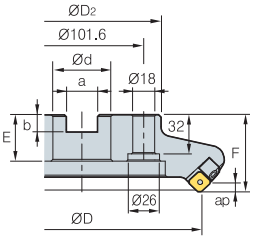


Fig. 3

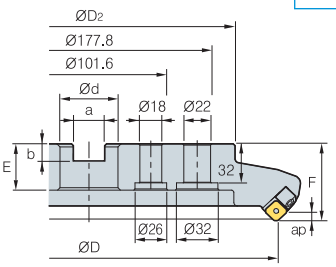


Fig. 4

(mm)

| Articolo | | Stock R | Stock L | ⬡ | ØD | ØD2 | Ød | a | b | E | F | Ød1 | Ød2 | ap | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FMAC(M) | 3063R-A | (●) | | 3 | 63 | 49 | 22 | 10.4 | 6.3 | 20 | 40 | 11 | 18 | 4 | 0.5 | 1 |
| | 3080R-A | ●(●) | | 4 | 80 | 57 | 25.4(27) | 9.5(12.4) | 6(7) | 25 | 50 | 13.5 | 20 | 4 | 0.6 | 1 |
| | 3100R-A | ●(●) | | 5 | 100 | 67 | 31.75(32) | 12.7(14.4) | 8(8) | 32 | 50 | - | 45 | 4 | 0.8 | 2 |
| | 3100R-25.4-A | ● | | 5 | 100 | 67 | 25.4 | 9.5 | 6 | 25 | 50 | - | 38 | 4 | 0.9 | 2 |
| | 3125R-A | ●(●) | | 6 | 125 | 87 | 38.1(40) | 15.9(16.4) | 10(9) | 38 | 63 | - | 56 | 4 | 1.6 | 2 |
| | 3125R-25.4-A | ● | | 6 | 125 | 70 | 25.4 | 9.5 | 6 | 25 | 63 | - | 38 | 4 | 1.7 | 2 |
| FMAC(M) | 4063R-A | (●) | | 3 | 63 | 49 | 22 | 10.4 | 6.3 | 20) | 50 | 11 | 18 | 6.5 | 0.6 | 1 |
| | 4080R-A | ●(●) | | 4 | 80 | 67 | 25.4(27) | 9.5(12.4) | 6(7) | 25(22) | 50 | 13.5 | 20 | 6.5 | 0.8 | 1 |
| | 4100R-A | ●(●) | | 5 | 100 | 67 | 31.75(32) | 12.7(14.4) | 8(8) | 32 | 50 | - | 45 | 6.5 | 1.1 | 2 |
| | 4100R-25.4-A | ● | | 5 | 100 | 67 | 25.4 | 9.5 | 6 | 25 | 50 | - | 38 | 6.5 | 1.2 | 2 |
| | 4125R-A | ●(●) | | 6 | 125 | 87 | 38.1(40) | 15.9(16.4) | 10(9) | 38(35) | 63 | - | 56 | 6.5 | 1.7 | 2 |
| | 4125R-25.4-A | ● | | 6 | 125 | 70 | 25.4 | 9.5 | 6 | 25 | 63 | - | 38 | 6.5 | 1.8 | 2 |
| | 4160R-A | ●(●) | | 7 | 160 | 107 | 50.8(40) | 19.0(16.4) | 11(9) | 38(35) | 63 | - | 75 | 6.5 | 2.5 | 2 |
| | 4200R-A | ●(●) | | 8 | 200 | 130 | 47.625(60) | 25.4(25.7) | 14(14) | 38(32) | 63 | - | - | 6.5 | 3.2 | 3 |
| | 4250R-A | | | 10 | 250 | 180 | 47.625(60) | 25.4(25.7) | 14(14) | 38 | 63 | - | - | 6.5 | 4.1 | 3 |
| | 4315R-A | | | 12 | 315 | 240 | 47.625(60) | 25.4(25.7) | 14(14) | 38 | 63 | - | - | 6.5 | 6.7 | 4 |

Nota) Con raffreddamento interno Ø50~Ø125 • ( )Sistema metrico ● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Vite | Chiave inserto | Chiave base | Base | Vite della base |
|---|---|---|---|---|---|
| |  |  |  |  |  |
| Tipo 3000 | FTKA0307 | TW09S | HW30L | LFMA3R-A | DHA620 |
| Tipo 4000 | FTGA03512 | TW15S | HW40L | LFMA4R-A | DHA0830 |

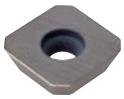
## Mandrini disponibili

| Articolo | | Ød | Attacchi NC |
|---|---|---|---|
| FMAC(M) | 3063R-□ | 22 | BT□□-FMC22-□□ |
| | 4063R-□ | | |
| | 3080R-□ | 25.4 | BT□□-FMA25.4-□□ |
| | 4080R-□ | 27 | BT□□-FMC27-□□ |
| | 3100R-□ | 31.75 | BT□□-FMA31.75-□□ |
| | 4100R-□ | 32 | BT□□-FMC32-□□ |
| | 3125R-□ | 38.1 | BT□□-FMA38.1-□□ |
| | 4125R-□ | 40 | BT□□-FMB40-□□ |
| | 4160R-□ | 50.8 | BT□□-FMA50.8-□□ |
| | | 40 | BT□□-FMB40-□□ |
| | 4200R-□ | 47.625 | BT□□-FMA47.625-□□ |
| | 4250R-□ | 60 | BT□□-FMB60-□□ |
| | 4315R-□ | – | – |

• Inserti disponibili, vedere pag. : E14, E15
• Attacchi e viti disponibili : E215~E217

## Inserti disponibili

| SEET-MF | SEET-MM | SEET-MA | SEXT-MF |
|---|---|---|---|
|  |  |  |  |

| SEXT-MM | SEXT-MR | SEEW | SEEW-W |
|---|---|---|---|
|  |  |  |  |

| Tipo | Articolo | | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3000 | SEET | 0903AGFN-MA | | | | | | | | | | ● | | | | ● | | | | E14 E15 |
| | | 0903AGSN-MF | ● | | ● | | ● | | ● | | | | | | | | | | | |
| | | 0903AGSN-MM | ● | | ● | | ● | | ● | | | | | | | | | | | |
| | SEXT | 0903AGSN-MF | | | ● | ● | ● | | | | ● | | | | | | | | | |
| | | 0903AGSN-MM | | | ● | ● | ● | | | ● | ● | | | | | | | | | |
| | | 0903AGSN-MR | | | | ○ | | | | | | | | | | | | | | |
| | SEEW | 0903AGTN | | | | | | | | | | | | | ● | | | | | |
| 4000 | SEET | 14M4AGFN-MA | | | | | | | | | | ● | | | | ● | | | | E14 E15 |
| | | 14M4AGSN-MF | ● | ● | | | ● | | ● | ● | | | | | | | | | | |
| | | 14M4AGSN-MM | ● | ● | ● | | ● | | ● | ● | | | | | | | | | | |
| | SEXT | 14M4AGSN-MF | ● | | ● | ● | ● | | | | ● | | | | | | | | | |
| | | 14M4AGSN-MM | ● | ● | ● | ● | ● | | ● | ● | ● | | | | | | | | | |
| | | 14M4AGSN-MR | ● | | ● | ● | ● | | ● | | | | | | | | | | | |
| | SEEW | 14M4AGTN | | | | | | | | | | | | | ● | | | | | |
| | | 14M4AGFN-W | | | | | | | | | | | | | | | | | | |
| | | 14M4AGSN-W | | | | | | | | | | | | | | | | | | |
| | | 14M4AGTN-W | | | | ● | ○ | | | ● | | | | | | | | | | |

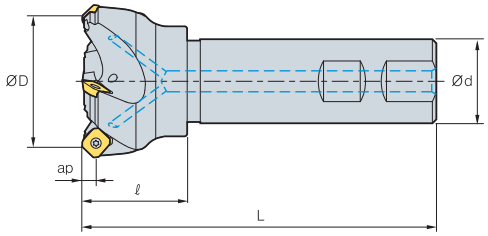
● : Disponibile ○ : A richiesta

# FMAS3000/4000

AA 45°

• AR : 23°
• RR : −17°~−13°






(mm)

| Articolo | | Stock | ⊚ | øD | ød | ℓ | L | ap | kg |
|---|---|---|---|---|---|---|---|---|---|
| FMAS | 3025HR | | 2 | 25 | 25 | 35 | 115 | 4 | 0.4 |
| | 3032HR | ○ | 3 | 32 | 25 | 40 | 125 | 4 | 0.5 |
| New | 3032HR-S32 | | 3 | 32 | 32 | 40 | 130 | 4 | 0.8 |
| | 3040HR | ● | 3 | 40 | 32 | 40 | 130 | 4 | 0.9 |
| New | 3040HR-S40 | | 3 | 40 | 40 | 40 | 140 | 4 | 1.3 |
| New | 3040HR-S42 | | 3 | 40 | 42 | 40 | 140 | 4 | 1.4 |
| | 3050HR | ○ | 4 | 50 | 32 | 40 | 135 | 4 | 1 |
| New | 3050HR-S40 | | 4 | 50 | 40 | 40 | 140 | 4 | 1.3 |
| New | 3050HR-S42 | | 4 | 50 | 42 | 40 | 140 | 4 | 1.5 |
| | 3063HR | ● | 5 | 63 | 32 | 45 | 135 | 4 | 1.2 |
| New | 3063HR-S40 | | 5 | 63 | 40 | 45 | 145 | 4 | 1.6 |
| New | 3063HR-S42 | | 5 | 63 | 42 | 45 | 145 | 4 | 1.7 |
| FMAS | 4050HR | ○ | 3 | 50 | 32 | 45 | 135 | 6.5 | 1.5 |
| New | 4050HR-S40 | | 3 | 50 | 40 | 45 | 135 | 6.5 | 2.1 |
| New | 4050HR-S42 | | 3 | 50 | 42 | 45 | 135 | 6.5 | 2.7 |
| | 4063HR | ○ | 4 | 63 | 32 | 45 | 135 | 6.5 | 2 |
| New | 4063HR-S40 | | 4 | 63 | 40 | 45 | 135 | 6.5 | 2.6 |
| New | 4063HR-S42 | | 4 | 63 | 42 | 45 | 135 | 6.5 | 3.2 |

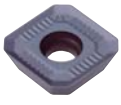
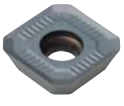
Nota) Con raffreddamento interno Ø25~Ø63

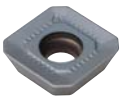
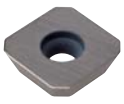
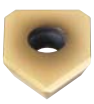
● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Vite | Chiave inserto | Chiave sede | Vite sede | Sede |
|---|---|---|---|---|---|
| Tipo 3000 | FTKA0307 | TW09S | - | - | - |
| Tipo 4000 | FGKA03512 | TW15S | HW35L | SHXN0509F | SS42SAF |

## Inserti disponibili

| SEET-MF | SEET-MM | SEET-MA | SEXT-MF |
|---|---|---|---|
|  |  |  |  |

| SEXT-MM | SEXT-MR | SEEW | SEEW-W |
|---|---|---|---|
|  |  |  |  |

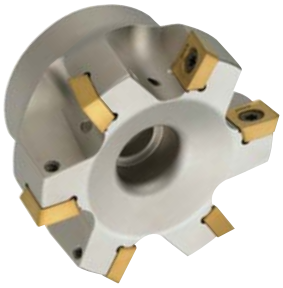
• Inserti disponibili, vedere pag. : E14, E15

| Tipo | Articolo | Rivestito | | | | | | | | | Cermet | | | Non rivestito | | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| 3000 | SEET 0903AGFN-MA | | | | | | | | | | ● | | | | ● | | | | E14 E15 |
| | 0903AGSN-MF | ● | | ● | | ● | | ● | | | | | | | | | | | |
| | 0903AGSN-MM | ● | | ● | | ● | | ● | | | | | | | | | | | |
| | SEXT 0903AGSN-MF | | | ● | ● | ● | | | | ● | | | | | | | | | |
| | 0903AGSN-MM | | | ● | ● | ● | | | ● | ● | | | | | | | | | |
| | 0903AGSN-MR | | | | ○ | | | | | | | | | | | | | | |
| | SEEW 0903AGTN | | | | | | | | | | | | | ● | | | | | |
| 4000 | SEET 14M4AGFN-MA | | | | | | | | | | ● | | | | ● | | | | E14 E15 |
| | 14M4AGSN-MF | ● | ● | | | ● | | ● | ● | | | | | | | | | | |
| | 14M4AGSN-MM | ● | ● | ● | | ● | | ● | ● | | | | | | | | | | |
| | SEXT 14M4AGSN-MF | ● | | ● | ● | ● | | | | ● | | | | | | | | | |
| | 14M4AGSN-MM | ● | ● | ● | ● | ● | | ● | ● | ● | | | | | | | | | |
| | 14M4AGSN-MR | ● | | ● | ● | ● | | ● | | | | | | | | | | | |
| | SEEW 14M4AGTN | | | | | | | | | | | | | ● | | | | | |
| | 14M4AGFN-W | | | | | | | | | | | | | | | | | | |
| | 14M4AGSN-W | | | | | | | | | | | | | | | | | | |
| | 14M4AGTN-W | | | | ● | ○ | | | ● | | | | | | | | | | |

● : Stock item ○ : A richiesta

# FMPC(M)3000/4000

AA 90°
• AR : 10°
• RR : −9°~−8°



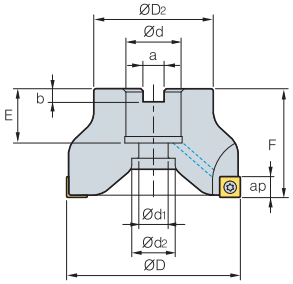


Fig. 1

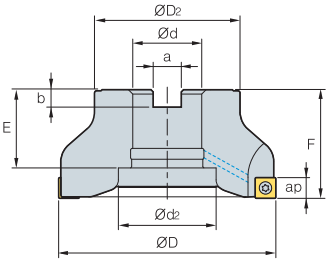


Fig. 2

(mm)

| Articolo | | Stock | ⌀ | øD | øD2 | ød | a | b | E | F | ød1 | ød2 | ap | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FMPC(M) | 3050HS | (●) | 5 | 50 | 40 | 22 | 10.4 | 6.3 | 20 | 40 | 11 | 18 | 7 | 0.3 | 1 |
| | 3063HS | (○) | 6 | 63 | 40 | 22 | 10.4 | 6.3 | 20 | 40 | 11 | 18 | 7 | 0.5 | 1 |
| | 3080HS | ●(●) | 7 | 80 | 55 | 25.4(27) | 9.5(12.4) | 6(7) | 25(22) | 50 | 14 | 20 | 7 | 1.0 | 1 |
| | 3100HS | ○(●) | 8 | 100 | 67 | 31.75(32) | 12.7(14.4) | 8(8) | 36(26) | 50 | 18 | 45(26) | 7 | 1.5 | 2(1) |
| FMPC(M) | 4063HS | (●) | 5 | 63 | 49 | 22 | 10.4 | 6.3 | 20(20) | 50(50) | 11 | 18 | 11 | 0.4 | 1 |
| | 4080HS | ●(●) | 6 | 80 | 57 | 25.4(27) | 9.5(12.4) | 6(7) | 25(23) | 50(50) | 14 | 20 | 11 | 0.9 | 1 |
| | 4100HS | ○(●) | 7 | 100 | 67 | 31.75(32) | 12.7(14.4) | 8(8) | 33(25) | 63(50) | 18 | 26 | 11 | 1.9(1.5) | 1 |
| | 4125HS | ●(●) | 8 | 125 | 87 | 38.1(40) | 15.9(16.4) | 10(9) | 35(29) | 63 | 22 | 32 | 11 | 3.1 | 1 |

Nota) Con raffreddamento interno Ø50~Ø125 • ( )Sistema metrico ● : Disponibile ○ : A richiesta

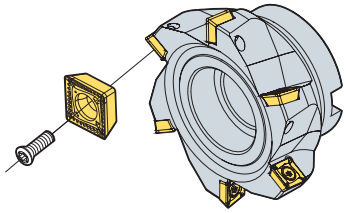
## Parti di ricambio

| | Vite | Chiave |
|---|---|---|
| |  |  |
| Tipo 3000 | FTGA03508 | TW15S |
| Tipo 4000 | FTNC04511 | TW20S |

## Mandrini disponibili

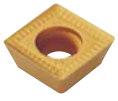
| Articolo | Ød | Attacchi NC |
|---|---|---|
| FMPC(FMPCM) 3050HS<br>3063HS<br>4063HS | 22 | BT□□-FMC22-□□ |
| 3080HS | 25.4 | BT□□-FMA25.4-□□ |
| 4080HS | 27 | BT□□-FMC27-□□ |
| 3100HS | 31.75 | BT□□-FMA31.75-□□ |
| 4100HS | 32 | BT□□-FMC32-□□ |
| 4125HS | 38.1 | BT□□-FMA38.1-□□ |
| | 40 | BT□□-FMB40-□□ |

Montaggio



• Inserti disponibili, vedere pag. : E12, E13
• Attacchi e viti disponibili : E215~E217

## Inserti disponibili

| SDET-MF | SDET-MM | SDET-MA |
|---|---|---|
|  |  |  |
| **SDXT-MF** | **SDXT-MM** | **SDXT-MA** |
|  |  |  |

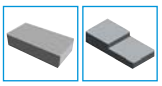
| Tipo | Articolo | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3000 | SDET 09M402R-MA | | | | | | | | | | ● | | | | ● | | | | E12 E13 |
| | 09M405R-MF | | | | | | | | | | | | | | | | | | |
| | 09M405R-MM | | | | | | | | | | | | | | | | | | |
| | SDXT 09M405R-MF | ● | ● | ● | | ● | | ● | | | | | | | | | | | |
| | 09M405L-MF | | | | | | | | | | | | | | | | | | |
| | 09M405R-MM | ● | ● | ● | ● | ● | | ● | ● | | | | | | | | | | |
| | 09M405L-MM | | | | | | | | | | | | | | | | | | |
| | 09M405R-MA | | | | | | | | | | | | | | ● | | | | |
| 4000 | SDET 130504R-MA | | | | | | | | | | ● | | | | ● | | | | E12 E13 |
| | 130508R-MF | | | | | | | | | | | | | | | | | | |
| | 130508R-MM | | | | | | | | | | | | | | | | | | |
| | SDXT 130508R-MF | ● | ● | ● | | ● | | ● | | | | | | | | | | | |
| | 130508R-MM | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | | | | |
| | 130538-MM | | | | | | | | | | | | | | | | | | |
| | 130508R-MA | | | | | | | | | | | | | | ● | | | | |

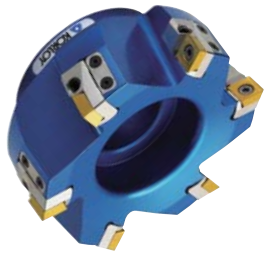
● : Disponibile ○ : A richiesta

# FMPC(M)3000-A/4000-A (Corpo in alluminio)

AA 90°

• AR : 10°
• RR : -9°~-7.3°





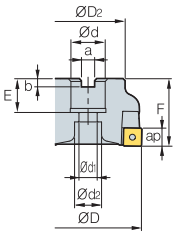



Fig. 1

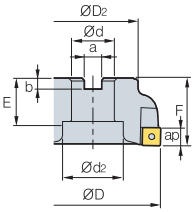



Fig. 2

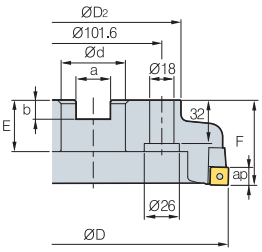



Fig. 3

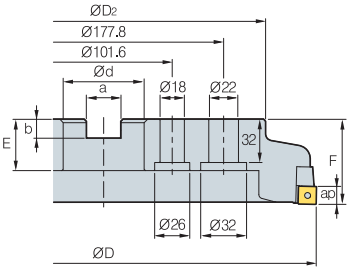



Fig. 4

(mm)

| Articolo | Stock R | Stock L | ⊙ | øD | øD2 | ød | a | b | E | F | ød1 | ød2 | ap | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FMPC(M) 3063S-A | (●) | | 3 | 63 | 40 | 22 | 10.4 | 6.3 | 20 | 40 | 11.0 | 18 | 4 | 0.2 | 1 |
| 3080S-A | ●(●) | | 4 | 80 | 55 | 25.4(27) | 9.5(12.4) | 6(7) | 25(22) | 50 | 13.5 | 20 | 4 | 0.4 | 1 |
| 3100S-A | ●(●) | | 5 | 100 | 67 | 31.75(32) | 12.7(14.4) | 8(8) | 32 | 50 | - | 45 | 4 | 0.6 | 2 |
| 3100S-25.4-A | ● | | 5 | 100 | 67 | 25.4 | 9.5 | 6 | 25 | 50 | - | 38 | 4 | 0.7 | 2 |
| FMPC(M) 4063S-A | (●) | | 3 | 63 | 40 | 22 | 10.4 | 6.3 | 20 | 40 | 11.0 | 18 | 6.5 | 0.2 | 1 |
| 4080S-A | ●(●) | | 4 | 80 | 55 | 25.4(27) | 9.5(12.4) | 6(7) | 25(22) | 50 | 13.5 | 20 | 6.5 | 0.5 | 1 |
| 4100S-A | ●(●) | | 5 | 100 | 67 | 31.75(32) | 12.7(14.4) | 8(8) | 32 | 50 | - | 45 | 6.5 | 0.7 | 2 |
| 4100S-25.4-A | ● | | 5 | 100 | 67 | 25.4 | 9.5 | 6 | 25 | 50 | - | 38 | 6.5 | 0.8 | 2 |
| 4125S-A | ●(●) | | 6 | 125 | 80 | 38.1(40) | 16.15(16.4) | 10(9) | 38(30) | 63 | - | 56 | 6.5 | 1.3 | 2 |
| 4125S-25.4-A | ● | | 6 | 125 | 80 | 25.4 | 9.5 | 6 | 25 | 63 | - | 38 | 6.5 | 1.4 | 2 |
| 4160S-A | | | 8 | 160 | 107 | 50.8(40) | 19.0(16.4) | 11(9) | 38(30) | 63 | - | 70 | 6.5 | 2 | 2 |
| 4200S-A | | | 10 | 200 | 130 | 47.625(60) | 25.7(25.7) | 14(14) | 38 | 63 | - | - | 6.5 | 3.2 | 3 |
| 4250S-A | | | 12 | 250 | 180 | 47.625(60) | 25.7(25.7) | 14(14) | 38 | 63 | - | - | 6.5 | 5.2 | 3 |
| 4315S-A | | | 15 | 315 | 240 | 47.625(60) | 25.7(25.7) | 14(14) | 38 | 63 | - | - | 6.5 | 8.4 | 4 |

• ( )Sistema metrico

● : Disponibile ○ : A richiesta

## Parti di ricambio

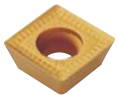
| | Vite | Chiave inserto | Chiave base | Base | Copritruciolo | Vite copritruciolo | Vite della base |
|---|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |  |
| 3063S-A | FTGA03508 | TW15S | HW30L | LFMP3R-A | CFMP3R14R1-A | PXMA0306 | DHA0624 |
| 3080S-A ~3100S-A | FTGA03508 | TW15S | HW30L | LFMP3R-A | CFMP3R-A | PXMA0306 | DHA0624 |
| 4063S-A ~4080S-A | FTNC04509 | TW20S | HW40L | LFMP4R1-A | CFMP3R14R1-A | PXMA0306 | DHA0825 |
| 4100S-A ~4315S-A | FTNC04509 | TW20S | HW40L | LFMP4R-A | CFMP3R-A | PXMA0306 | DHA0830 |

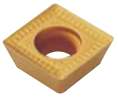
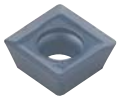
## Mandrini disponibili

| Articolo | | Ød | Attacchi NC |
|---|---|---|---|
| FMPC(M) | 3063S-□<br>4063S-□ | 22 | BT□□-FMC22-□□ |
| | 3080S-□ | 25.4 | BT□□-FMA25.4-□□ |
| | 4080S-□ | 27 | BT□□-FMC27-□□ |
| | 3100S-□ | 31.75 | BT□□-FMA31.75-□□ |
| | 4100S-□ | 32 | BT□□-FMC32-□□ |
| | 3125S-□ | 38.1 | BT□□-FMA38.1-□□ |
| | 4125S-□ | 40 | BT□□-FMB40-□□ |
| | 4160S-□ | 50.8<br>40 | BT□□-FMA50.8-□□<br>BT□□-FMB40-□□ |
| | 4200S-□ | 47.625 | BT□□-FMA47.625-□□ |
| | 4250S-□ | 60 | BT□□-FMB60-□□ |
| | 4315S-□ | – | – |

• Inserti disponibili, vedere pag. : E12, E13
• Attacchi e viti disponibili : E215~E217

## Inserti disponibili

| SDET-MF | SDET-MM | SDET-MA |
|---|---|---|
|  |  |  |

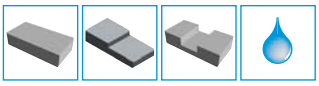
| SDXT-MF | SDXT-MM | SDXT-MA |
|---|---|---|
|  |  |  |

| Tipo | Articolo | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3000 | SDET 09M402R-MA | | | | | | | | | | ● | | | | ● | | | | E12 E13 |
| | 09M405R-MF | | | | | | | | | | | | | | | | | | |
| | 09M405R-MM | | | | | | | | | | | | | | | | | | |
| | SDXT 09M405R-MF | ● | ● | ● | | ● | | ● | | | | | | | | | | | |
| | 09M405L-MF | | | | | | | | | | | | | | | | | | |
| | 09M405R-MM | ● | ● | ● | ● | ● | | ● | ● | | | | | | | | | | |
| | 09M405L-MM | | | | | | | | | | | | | | | | | | |
| | 09M405R-MA | | | | | | | | | | | | | | ● | | | | |
| 4000 | SDET 130504R-MA | | | | | | | | | | ● | | | | ● | | | | E12 E13 |
| | 130508R-MF | | | | | | | | | | | | | | | | | | |
| | 130508R-MM | | | | | | | | | | | | | | | | | | |
| | SDXT 130508R-MF | ● | ● | ● | | ● | | ● | | | | | | | | | | | |
| | 130508R-MM | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | | | | |
| | 130538-MM | | | | | | | | | | | | | | | | | | |
| | 130508R-MA | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | ● | | | | |

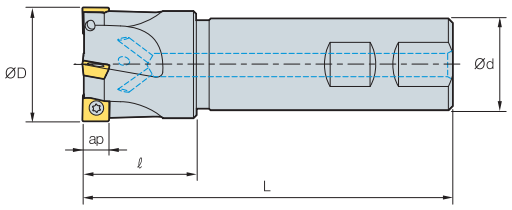
● : Disponibile ○ : A richiesta

# FMPS3000/4000

AA 90° | • AR : 10° • RR : -9°~-8°








(mm)

| Articolo | | Stock R | Stock L | ⌀ | øD | ød | ℓ | L | ap | kg |
|---|---|---|---|---|---|---|---|---|---|---|
| FMPS | 3025HS | ● | | 2 | 25 | 25 | 35 | 115 | 7 | 0.4 |
| | 3032HS | | | 3 | 32 | 25 | 40 | 125 | 7 | 0.5 |
| | 3040HS | ○ | | 4 | 40 | 32 | 40 | 130 | 7 | 0.8 |
| New | 3040HS-S40 | | | 4 | 40 | 40 | 45 | 140 | 7 | 1.2 |
| New | 3040HS-S42 | | | 4 | 40 | 42 | 45 | 140 | 7 | 1.3 |
| | 3050HS | ● | | 5 | 50 | 32 | 40 | 135 | 7 | 1 |
| New | 3050HS-S40 | | | 5 | 50 | 40 | 40 | 140 | 7 | 1.3 |
| New | 3050HS-S42 | | | 5 | 50 | 42 | 40 | 140 | 7 | 1.4 |
| | 3063HS | ● | | 6 | 63 | 32 | 45 | 135 | 7 | 1.2 |
| New | 3063HS-S40 | | | 6 | 63 | 40 | 45 | 145 | 7 | 1.6 |
| New | 3063HS-S42 | | | 6 | 63 | 42 | 45 | 145 | 7 | 1.7 |
| FMPS | 4040HS | ● | | 3 | 40 | 32 | 40 | 130 | 11 | 1 |
| New | 4040HS-S40 | | | 3 | 40 | 40 | 40 | 140 | 11 | 1.3 |
| New | 4040HS-S42 | | | 3 | 40 | 42 | 40 | 140 | 11 | 1.4 |
| | 4050HS | ● | | 4 | 50 | 32 | 45 | 135 | 11 | 1.5 |
| New | 4050HS-S40 | | | 4 | 50 | 40 | 45 | 145 | 11 | 1.7 |
| New | 4050HS-S42 | | | 4 | 50 | 42 | 45 | 145 | 11 | 1.6 |
| | 4063HS | ○ | | 5 | 63 | 32 | 45 | 135 | 11 | 2.1 |
| New | 4063HS-S40 | | | 5 | 63 | 40 | 45 | 145 | 11 | 2.4 |
| New | 4063HS-S42 | | | 5 | 63 | 42 | 45 | 145 | 11 | 2.6 |

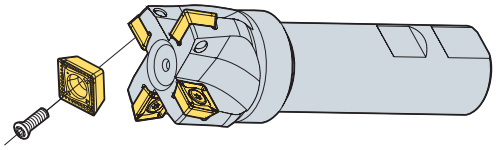
Nota) Con raffreddamento interno Ø25~Ø63

● : Disponibile ○ : A richiesta

## Parti di ricambio

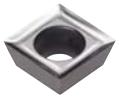
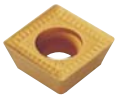
| | Vite | Chiave |
|---|---|---|
| |  |  |
| Tipo 3000 | FTGA03508 | TW15S |
| Tipo 4000 | FTNC04511 | TW20S |

Montaggio



• Inserti disponibili, vedere pag. : E12, E13

## Inserti disponibili

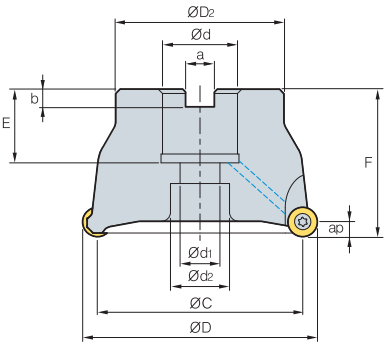
| SDET-MF | SDET-MM | SDET-MA |
|---|---|---|
|  |  |  |
| **SDXT-MF** | **SDXT-MM** | **SDXT-MA** |
|  |  |  |

| Tipo | Articolo | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC8510 | PC215K | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3000 | SDET 09M402R-MA | | | | | | | | | | ● | | | | ● | | | | E12 E13 |
| | 09M405R-MF | | | | | | | | | | | | | | | | | | |
| | 09M405R-MM | | | | | | | | | | | | | | | | | | |
| | SDXT 09M405R-MF | ● | ● | ● | | ● | | ● | | | | | | | | | | | |
| | 09M405L-MF | | | | | | | | | | | | | | | | | | |
| | 09M405R-MM | ● | ● | ● | ● | ● | | ● | ● | | | | | | | | | | |
| | 09M405L-MM | | | | | | | | | | | | | | | | | | |
| | 09M405R-MA | | | | | | | | | | | | | | ● | | | | |
| 4000 | SDET 130504R-MA | | | | | | | | | | ● | | | | ● | | | | E12 E13 |
| | 130508R-MF | | | | | | | | | | | | | | | | | | |
| | 130508R-MM | | | | | | | | | | | | | | | | | | |
| | SDXT 130508R-MF | ● | ● | ● | | ● | | ● | | | | | | | | | | | |
| | 130508R-MM | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | | | | |
| | 130538-MM | | | | | | | | | | | | | | | | | | |
| | 130508R-MA | | | | | | | | | | | | | | ● | | | | |

● : Disponibile ○ : A richiesta

# FMRC(M)3000/4000








(mm)

| Articolo | Stock R | Stock L | | øD | øC | øD2 | Ød | a | b | E | F | Ød1 | Ød2 | ap | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FMRC(M) 3040HRD | ● | | 3 | 40 | 30 | 36 | 16 | 8.4 | 5.6 | 18 | 40 | 9 | 14 | 5.0 | 0.2 |
| 3040HRD-H | | | 4 | 40 | 30 | 36 | 16 | 8.4 | 5.6 | 18 | 40 | 9 | 14 | 5.0 | 0.2 |
| 3050HRD | ○ | | 4 | 50 | 40 | 42 | 22 | 10.4 | 6.3 | 20 | 40 | 11 | 16.5 | 5.0 | 0.3 |
| 3050HRD-H | | | 5 | 50 | 40 | 42 | 22 | 10.4 | 6.3 | 20 | 40 | 11 | 16.5 | 5.0 | 0.3 |
| 3063HRD | | | 5 | 63 | 53 | 49 | 22 | 10.4 | 6.3 | 20 | 50 | 11 | 16.5 | 5.0 | 0.64 |
| 3063HRD-H | | | 6 | 63 | 53 | 49 | 22 | 10.4 | 6.3 | 20 | 50 | 11 | 16.5 | 5.0 | 0.64 |
| 3080HRD | | | 6 | 80 | 70 | 57 | 25.4(27) | 9.5(12.4) | 6(7.0) | 25(22) | 50(50) | 14 | 19 | 5.0 | 1.1 |
| 3080HRD-H | | | 7 | 80 | 70 | 57 | 25.4(27) | 9.5(12.4) | 6(7.0) | 25(22) | 50(50) | 14 | 19 | 5.0 | 1.1 |
| 3100HRD | ○ | | 7 | 100 | 90 | 67 | 31.75(32) | 12.7(14.4) | 8(8.0) | 32(28) | 63(63) | 18 | 26 | 5.0 | 2.1 |
| 3100HRD-H | | | 8 | 100 | 90 | 67 | 31.75(32) | 12.7(14.4) | 8(8.0) | 32(28) | 63(63) | 18 | 26 | 5.0 | 2.1 |
| FMRC(M) 4050HRD | (●) | | 4 | 50 | 38 | 42 | 22 | 10.4 | 6.3 | 20 | 50 | 11 | 18 | 6.0 | 0.4 |
| 4063HRD | ○(●) | | 4 | 63 | 51 | 49 | 22 | 10.4 | 6.3 | 20 | 50 | 11 | 18 | 6.0 | 0.6 |
| 4063HRD-M | ● | | 5 | 63 | 51 | 49 | 22 | 10.4 | 6.3 | 20 | 50 | 11 | 18 | 6.0 | 0.6 |
| 4080HRD | | | 5 | 80 | 68 | 57 | 25.4(27) | 9.5(12.4) | 6(7.0) | 25(23) | 50(50) | 14 | 20 | 6.0 | 1.0 |
| 4080HRD-M | (●) | | 6 | 80 | 68 | 57 | 25.4(27) | 9.5(12.4) | 6(7.0) | 25(23) | 50(50) | 14 | 20 | 6.0 | 1.0 |
| 4100HRD | | | 6 | 100 | 88 | 67 | 31.75(32) | 12.7(14.4) | 8(8.0) | 33(25) | 63(50) | 18 | 26 | 6.0 | 1.9(1.5) |
| 4100HRD-M | | | 7 | 100 | 88 | 67 | 31.75(32) | 12.7(14.4) | 8(8.0) | 33(25) | 63(50) | 18 | 26 | 6.0 | 1.9(1.5) |
| 4125HRD | ○ | | 7 | 125 | 113 | 87 | 38.1(40) | 15.9(16.4) | 10(9.0) | 35(29) | 63(63) | 22 | 32 | 6.0 | 3.0 |
| 4125HRD-M | | | 8 | 125 | 113 | 87 | 38.1(40) | 15.9(16.4) | 10(9.0) | 35(29) | 63(63) | 22 | 32 | 6.0 | 3.0 |

• ( )Sistema metrico ● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Vite | Chiave |
|---|---|---|
| |  |  |
| Tipo 3000 | FTGA03508(Ø21=FTGA03507) | TW15S |
| Tipo 4000 | FTKA04510 | TW15S |

## Mandrini disponibili

| Articolo | Attacchi disponibili |
|---|---|
| FMRC(M) 3040HRD<br>3040HRD-H | BT-□□-FMC16-□□ |
| 3050HRD<br>3050HRD-H<br>3063HRD<br>3063HRD-H | BT-□□-FMC22-□□ |
| 3080HRD | BT□□-FMA / FMB25.4-□□ |
| 3080HRD-H | BT□□-FMB / FMC27-□□ |
| 3100HRD | BT□□-FMA31.75-□□ |
| 3100HRD-H | BT□□-FMC32-□□ |
| FMRC(M) 4050HRD<br>4063HRD<br>4063HRD-M | BT□□-FMC22-□□ |
| 4080HRD | BT□□-FMA / FMB25.4-□□ |
| 4080HRD-M | BT□□-FMB / FMC27-□□ |
| 4100HRD | BT□□-FMA31.75-□□ |
| 4100HRD-M | BT□□-FMC32-□□ |
| 4125HRD | BT□□-FMA / FMB38.1-□□ |
| 4125HRD-M | BT□□-FMB / FMC40-□□ |

• Inserti disponibili, vedere pag. : E11
• Attacchi e viti disponibili : E215~E217

## Inserti disponibili

| RDKT-MF | RDKT-MM | RDCT-MA |
|---|---|---|
|  |  |  |

| Tipo | Articolo | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3000 | RDCT_10T3M0-MA | | | | | | | | | | | | | | ● | | | | E11 |
| | RDKT_10T3M0-MF | | | | ● | ● | ● | ● | | | | | | | | | | | |
| | 10T3M0-MM | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | | | | |
| 4000 | RDCT_1204M0-MA | | | | | | | | | | | | | | ● | | | | E11 |
| | RDKT_1204M0-MF | | | | ● | ● | ● | ● | | | | | | | | | | | |
| | 1204M0-MM | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | | | | |

● : Disponibile ○ : A richiesta

# FMRC(M)5000/6000

• AR : 5°
• RR : –5°



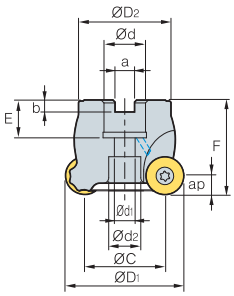


Fig. 1

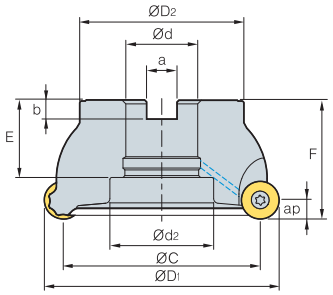


Fig. 2

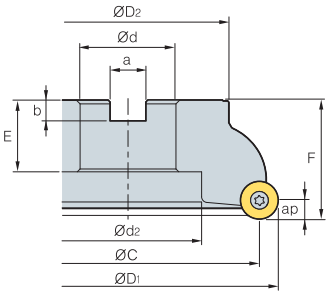


Fig. 3

(mm)

| Articolo | Stock | | øD | øC | øD2 | ød | a | b | E | F | ød1 | ød2 | ap | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FMRC(M) 5050HRD | | 3 | 50 | 34 | 42 | 22 | 10.4 | 6.3 | 20 | 50 | 11 | 16.5 | 8.0 | 0.4 | 1 |
| 5063HRD | | 4 | 63 | 47 | 49 | 22 | 10.4 | 6.3 | 20 | 50 | 11 | 18 | 8.0 | 0.6 | 1 |
| 5063HRD-H | | 5 | 63 | 47 | 49 | 22 | 10.4 | 6.3) | 20 | 50 | 11 | 18 | 8.0 | 0.6 | 1 |
| 5080HRD | ●(●) | 5 | 80 | 64 | 57 | 25.4(27) | 9.5(12.4) | 6(7.0) | 25(23) | 50(50) | 14 | 20 | 8.0 | 0.9 | 1 |
| 5080HRD-H | | 6 | 80 | 64 | 57 | 25.4(27) | 9.5(12.4) | 6(7.0) | 25(23) | 50(50) | 14 | 20 | 8.0 | 0.9 | 1 |
| 5100HRD | (●) | 6 | 100 | 84 | 67 | 31.75(32) | 12.7(14.4) | 8(8) | 33(25) | 63(50) | 18 | 26 | 8.0 | 1.9(1.4) | 1 |
| 5100HRD-H | | 7 | 100 | 84 | 67 | 31.75(32) | 12.7(14.4) | 8(8) | 33(25) | 63(50) | 18 | 26 | 8.0 | 1.9(1.4) | 1 |
| 5125HRD | (●) | 7 | 125 | 109 | 87 | 38.1(40) | 15.9(16.4) | 10(9) | 35(29) | 63(63) | 22 | 32 | 8.0 | 3 | 1 |
| 5125HRD-H | | 8 | 125 | 109 | 87 | 38.1(40) | 15.9(16.4) | 10(9) | 35(29) | 63(63) | 22 | 32 | 8.0 | 3 | 1 |
| FMRC(M) 6063HRD | | 3 | 63 | 43 | 49 | 22 | 10.4 | 6.3 | 20 | 50 | 11 | 17 | 10.0 | 0.5 | 1 |
| 6063HRD-M | | 4 | 63 | 43 | 49 | 22 | 10.4 | 6.3 | 20 | 50 | 11 | 17 | 10.0 | 0.5 | 1 |
| 6080HRD | (●) | 4 | 80 | 60 | 57 | 25.4(27) | 9.5(12.4) | 6(7.0) | 25(22) | 50 | 14 | 20 | 10.0 | 0.8 | 1 |
| 6080HRD-M | | 5 | 80 | 60 | 57 | 25.4(27) | 9.5(12.4) | 6(7.0) | 25(22) | 50 | 14 | 20 | 10.0 | 0.8 | 1 |
| 6100HRD | ●(●) | 5 | 100 | 80 | 67 | 31.75(32) | 12.7(14.4) | 8(8) | 32(28) | 63 | 18 | 26 | 10.0 | 1.6 | 1 |
| 6100HRD-M | | 6 | 100 | 80 | 67 | 31.75(32) | 12.7(14.4) | 8(8) | 32(28) | 63 | 18 | 26 | 10.0 | 1.6 | 1 |
| 6125HRD | (●) | 6 | 125 | 105 | 87 | 38.1(40) | 15.9(16.4) | 10(9) | 41(29) | 63 | - (22) | 55(32) | 10.0 | 2.7(2.9) | 2(1) |
| 6125HRD-M | | 7 | 125 | 105 | 87 | 38.1(40) | 15.9(16.4) | 10(9) | 41(29) | 63 | - (22) | 55(32) | 10.0 | 2.7(2.9) | 2(1) |
| 6160RD | (●) | 7 | 160 | 140 | 107 | 50.8(40) | 19(16.4) | 11(9) | 38(35) | 63 | - | 78 | 10.0 | 4.4 | 3 |
| 6160RD-M | | 8 | 160 | 140 | 107 | 50.8(40) | 19(16.4) | 11(9) | 38(35) | 63 | - | 78 | 10.0 | 4.4 | 3 |

Nota) Ø160 non dispone di raffreddamento interno

• ( )Sistema metrico

● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Vite | Chiave |
|---|---|---|
| |  |  |
| Tipo 5000 | FTGA0513-P | TW20S |
| Tipo 6000 | FTGA0515-P | TW20S |

## Mandrini disponibili

| Articolo | Attacchi disponibili |
|---|---|
| FMRC(M) 5050HRD<br>5063HRD<br>5063HRD-H | BT□□-FMC22-□□ |
| 5080HRD | BT□□-FMA / FMB25.4-□□ |
| 5080HRD-H | BT□□-FMB / FMC27-□□ |
| 5100HRD | BT□□-FMA31.75-□□ |
| 5100HRD-H | BT□□-FMC32-□□ |
| 5125HRD | BT□□-FMA / FMB38.1-□□ |
| 5125HRD-H | BT□□-FMB / FMC40-□□ |
| FMRC(M) 6063HRD<br>6063HRD-M | BT□□-FMC22-□□ |
| 6080HRD | BT□□-FMC / FMB25.4-□□ |
| 6080HRD-M | BT□□-FMB / FMC27-□□ |
| 6100HRD | BT□□-FMA31.75-□□ |
| 6100HRD-M | BT□□-FMC32-□□ |
| 6125HRD | BT□□-FMA / FMB38.1-□□ |
| 6125HRD-M | BT□□-FMB / FMC40-□□ |
| 6160RD | BT□□-FMA50.8-□□ |
| 6160RD-M | BT□□-FMB / FMC40-□□ |

• Inserti disponibili, vedere pag. : E11
• Attacchi e viti disponibili : E215~E217

## Inserti disponibili

RDHW-E,F,S RDKT-MM




| Tipo | Articolo | Rivestito | | | | | | | | | | Cermet | | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| 5000 | RDHW 1605M0E | | | | | | | | | | | | | | | | | | E11 |
| | 1605M0F | | | | | | | | | | | | | | | | | | |
| | 1605M0S | | | | | | | | | | | | | | | | | | |
| | RDKT 1605M0-MM | | | | ● | | ● | | | | | | | | | | | | |
| | 1605M0-ML | | | | | | | | | | | | | | | | | | |
| 6000 | RDHW 2006M0E | | | | | | | | | | | | | | | | | | E11 |
| | 2006M0F | | | | | | | | | | | | | | | | | | |
| | 2006M0S | | | | | | | | | | | | | | | | | | |
| | RDKT 2006M0-MM | | | | ● | ○ | ● | | | | | | | | | | | | |

● : Disponibile ○ : A richiesta

# FMRS1000/1500/2000/2500

• AR : 5°
• RR : -5°~-1°





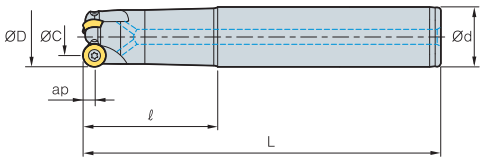



Fig. 1

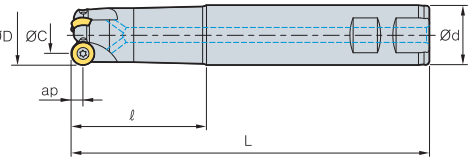



Fig. 2

(mm)

| Articolo | | Stock | | øD | øC | ød | ℓ | L | ap | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FMRS | 1008HRD-M | | 1 | 8 | 5.5 | 10 | 30 | 80 | 2.5 | 0.2 | 1 |
| | 1008HRD-L | | 1 | 8 | 5.5 | 10 | 50 | 100 | 2.5 | 0.2 | 1 |
| | 1010HRD-M | | 2 | 10 | 5 | 12 | 44 | 100 | 2.5 | 0.2 | 1 |
| | 1010HRD-L | | 2 | 10 | 5 | 12 | 64 | 120 | 2.5 | 0.2 | 1 |
| | 1012HRD-M | ● | 2 | 12 | 7 | 12 | 44 | 100 | 2.5 | 0.3 | 1 |
| | 1012HRD-L | | 2 | 12 | 7 | 16 | 80 | 160 | 2.5 | 0.3 | 1 |
| | 1015HRD-M | | 3 | 15 | 10 | 16 | 80 | 160 | 2.5 | 0.3 | 1 |
| | 1015HRD-L | | 3 | 15 | 10 | 16 | 100 | 200 | 2.5 | 0.4 | 1 |
| FMRS | 1510HRD-M | | 1 | 10 | 6 | 12 | 44 | 100 | 3.0 | 0.2 | 1 |
| | 1510HRD-L | | 1 | 10 | 6 | 12 | 64 | 120 | 3.0 | 0.2 | 1 |
| | 1512HRD-M | | 2 | 12 | 6 | 12 | 54 | 110 | 3.0 | 0.3 | 1 |
| | 1512HRD-L | ● | 2 | 12 | 6 | 16 | 80 | 160 | 3.0 | 0.3 | 1 |
| | 1516HRD-M | | 3 | 16 | 10 | 16 | 60 | 130 | 3.0 | 0.3 | 1 |
| | 1516HRD-L | | 3 | 16 | 10 | 20 | 90 | 180 | 3.0 | 0.4 | 1 |
| | 1520HRD-M | | 3 | 20 | 14 | 20 | 80 | 150 | 3.0 | 0.4 | 1 |
| | 1520HRD-L | | 3 | 20 | 14 | 20 | 90 | 200 | 3.0 | 0.5 | 1 |
| FMRS | 2015HRD-S | | 2 | 15 | 8 | 16 | 55 | 115 | 3.5 | 0.3 | 2 |
| | 2015HRD-M | ● | 2 | 15 | 8 | 20 | 80 | 150 | 3.5 | 0.4 | 2 |
| | 2015HRD-L | | 2 | 15 | 8 | 20 | 90 | 200 | 3.5 | 0.5 | 2 |
| | 2020HRD-S | | 3 | 20 | 14 | 20 | 65 | 125 | 3.5 | 0.3 | 2 |
| | 2020HRD-M | | 3 | 20 | 14 | 20 | 80 | 150 | 3.5 | 0.4 | 2 |
| | 2020HRD-L | | 3 | 20 | 14 | 25 | 90 | 200 | 3.5 | 0.5 | 2 |
| FMRS | 2516HRD-S | | 2 | 16 | 8 | 16 | 65 | 125 | 4.0 | 0.3 | 2 |
| | 2516HRD-M | ● | 2 | 16 | 8 | 16 | 80 | 150 | 4.0 | 0.4 | 2 |
| | 2516HRD-L | ● | 2 | 16 | 8 | 20 | 90 | 200 | 4.0 | 0.5 | 2 |
| | 2520HRD-S | | 2 | 20 | 12 | 20 | 65 | 125 | 4.0 | 0.4 | 2 |
| | 2520HRD-M | | 2 | 20 | 12 | 20 | 80 | 150 | 4.0 | 0.5 | 2 |
| | 2520HRD-L | | 2 | 20 | 12 | 25 | 90 | 200 | 4.0 | 0.6 | 2 |
| | 2525HRD-S | | 3 | 25 | 17 | 25 | 55 | 125 | 4.0 | 0.5 | 2 |
| | 2525HRD-M | | 3 | 25 | 17 | 25 | 90 | 200 | 4.0 | 0.6 | 2 |
| | 2525HRD-L | | 3 | 25 | 17 | 32 | 110 | 250 | 4.0 | 0.7 | 2 |

Nota) raffreddamento interno : Ø8~Ø25

● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Vite | Chiave | |
|---|---|---|---|
| |  |  |  |
| Tipo 1000 | FTNA0203 | TW06P | - |
| Tipo 1500 | FTNA02205 | TW06P | - |
| Tipo 2000 | FTNA02555 | - | TW07S |
| Tipo 2500 | FTNA0305, FTNA0306 ( ø 20 Over) | - | TW09S |

## Inserti disponibili

| RDHW-E,F,S | RDKW |
|---|---|
|  |  |

• Inserti disponibili, vedere pag. : E11, E12

| Tipo | Articolo | Rivestito | | | | | | | | | | Cermet | | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| 1000 | RDHW 0501M0E | | | | | ○ | | ● | | | | | | | | | | | E11 E12 |
| | 0501M0F | | | | | | | | | | | | | | | | | | |
| | 0501M0S | | | | | | | | | | | | | | | | | | |
| | RDKW 0501M0E | | | | ● | | | | | | | | | | | | | | |
| 1500 | RDHW 06T1M0E | | | | | ○ | | ● | | | | | | | | | | | E11 E12 |
| | 06T1M0F | | | | | | | | | | | | | | | | | | |
| | 06T1M0S | | | | | | | | | | | | | | | | | | |
| | RDKW 06T1M0E | | | | ● | ○ | | | | | | | | | | | | | |
| 2000 | RDHW 0702M0E | | | | | ○ | | ● | | | | | | | | | | | E11 E12 |
| | 0702M0F | | | | | | | | | | | | | | | | | | |
| | 0702M0S | | | | | | | | | | | | | | | | | | |
| | RDKW 0702M0E | | | | ● | ○ | | | | | | | | | | | | | |
| 2500 | RDHW 0803M0E | | | | | ○ | | ● | | | | | | | | | | | E11 E12 |
| | 0803M0F | | | | | | | | | | | | | | | | | | |
| | 0803M0S | | | | | | | | | | | | | | | | | | |
| | RDKW 0803M0E | | | | ● | ○ | | | | | | | | | | | | | |

● : Disponibile ○ : A richiesta

# FMRS3000/4000

• AR : 5°
• RR : -8~-5°



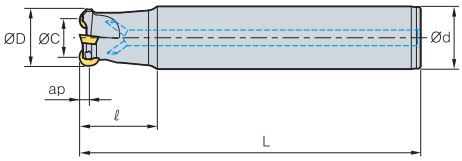



Fig. 1

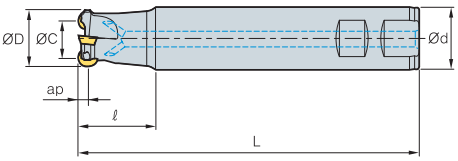



Fig. 2

(mm)

| Articolo | | Stock | | øD | øC | ød | ℓ | L | ap | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FMRS | 3021HRD-M | | 1 | 21 | 11 | 20 | 40 | 150 | 5 | 0.4 | 1 |
| | 3021HRD-M2 | | 2 | 21 | 11 | 20 | 40 | 150 | 5 | 0.4 | 1 |
| | 3021HRD-L | | 1 | 21 | 11 | 20 | 50 | 200 | 5 | 0.6 | 1 |
| | 3021HRD-L2 | ● | 2 | 21 | 11 | 20 | 50 | 200 | 5 | 0.6 | 1 |
| | 3025HRD-S | ● | 2 | 25 | 15 | 25 | 35 | 115 | 5 | 0.5 | 2 |
| | 3025HRD-M | ○ | 2 | 25 | 15 | 25 | 70 | 200 | 5 | 0.7 | 1 |
| | 3025HRD-L | ● | 2 | 25 | 15 | 25 | 100 | 250 | 5 | 1 | 1 |
| | 3026HRD-M | ● | 2 | 26 | 16 | 25 | 70 | 200 | 5 | 0.65 | 1 |
| | 3026HRD-L | | 2 | 26 | 16 | 25 | 100 | 250 | 5 | 0.7 | 1 |
| | 3032HRD-S | ● | 3 | 32 | 22 | 32 | 40 | 125 | 5 | 1 | 2 |
| | 3032HRD-M | ● | 3 | 32 | 22 | 32 | 70 | 200 | 5 | 1.3 | 1 |
| | 3032HRD-L | | 3 | 32 | 22 | 32 | 150 | 300 | 5 | 1.6 | 1 |
| | 3040HRD-S | | 4 | 40 | 30 | 32 | 40 | 125 | 5 | 1.3 | 2 |
| | 3040HRD-M | ● | 4 | 40 | 30 | 32 | 70 | 200 | 5 | 1.5 | 1 |
| | 3040HRD-L | | 4 | 40 | 30 | 32 | 150 | 300 | 5 | 1.8 | 1 |
| FMRS | 4032HRD-S | ● | 2 | 32 | 20 | 32 | 40 | 125 | 6 | 0.8 | 2 |
| | 4032HRD-M | ● | 2 | 32 | 20 | 32 | 70 | 200 | 6 | 1.1 | 1 |
| | 4032HRD-L | | 2 | 32 | 20 | 32 | 150 | 300 | 6 | 1.6 | 1 |
| | 4033HRD-S | | 2 | 33 | 21 | 32 | 40 | 125 | 6 | 0.9 | 2 |
| | 4033HRD-M | ● | 2 | 33 | 21 | 32 | 70 | 200 | 6 | 1.1 | 1 |
| | 4033HRD-L | | 2 | 33 | 21 | 32 | 150 | 300 | 6 | 1.7 | 1 |
| | 4040HRD-S | ● | 3 | 40 | 28 | 32 | 40 | 125 | 6 | 1 | 2 |
| | 4040HRD-M | ● | 3 | 40 | 28 | 32 | 70 | 200 | 6 | 1.6 | 1 |
| | 4040HRD-L | ● | 3 | 40 | 28 | 32 | 150 | 300 | 6 | 1.8 | 1 |
| New | 4040HRD-S40 | | 3 | 40 | 28 | 40 | 40 | 125 | 6 | 1.3 | 2 |
| New | 4040HRD-M40 | | 3 | 40 | 28 | 40 | 70 | 200 | 6 | 2 | 1 |
| New | 4040HRD-L40 | | 3 | 40 | 28 | 40 | 150 | 300 | 6 | 2.4 | 1 |
| New | 4040HRD-S42 | | 3 | 40 | 28 | 42 | 40 | 125 | 6 | 1.6 | 2 |
| New | 4040HRD-M42 | | 3 | 40 | 28 | 42 | 70 | 200 | 6 | 2.4 | 1 |
| New | 4040HRD-L42 | | 3 | 40 | 28 | 42 | 150 | 300 | 6 | 2.8 | 1 |
| | 4050HRD-S | ● | 4 | 50 | 38 | 42 | 50 | 125 | 6 | 1.5 | 2 |
| | 4050HRD-M | ● | 4 | 50 | 38 | 42 | 50 | 250 | 6 | 2.1 | 1 |
| | 4050HRD-L | | 4 | 50 | 38 | 42 | 50 | 300 | 6 | 2.7 | 1 |
| New | 4050HRD-S40 | | 4 | 50 | 38 | 40 | 50 | 150 | 6 | 2 | 2 |
| New | 4050HRD-M40 | | 4 | 50 | 38 | 40 | 50 | 250 | 6 | 2.6 | 1 |
| New | 4050HRD-L40 | | 4 | 50 | 38 | 40 | 50 | 300 | 6 | 3.2 | 1 |
| FMRS | 3021HRD-L-30 | | | | | | | | | | |
| | 3026HRD-L-30 | | | | | | | | | | |
| | 4033HRD-L-40 | | | | | | | | | | |

Nota) raffreddamento interno : Ø21~Ø50

● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Vite | Chiave |
|---|---|---|
| |  |  |
| Tipo 3000 | FTGA03508(07) | TW15S |
| Tipo 4000 | FTKA0410 | TW15S |

• Inserti disponibili, vedere pag. : E11

## Inserti disponibili

| RDKT-MF | RDKT-MM | RDCT-MA |
|---|---|---|
|  |  |  |

| Tipo | Articolo | Rivestito | | | | | | | | | Cermet | | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| 3000 | RDCT 10T3M0-MA | | | | | | | | | | | | | | ● | | | | E11 |
| | RDKT 10T3M0-MF | | | | ● | ● | ● | ● | | | | | | | | | | | |
| | 10T3M0-MM | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | | | | |
| 4000 | RDCT 1204M0-MA | | | | | | | | | | | | | | ● | | | | E11 |
| | RDKT 1204M0-MF | | | | ● | ● | ● | ● | | | | | | | | | | | |
| | 1204M0-MM | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | | | | |

● : Disponibile ○ : A richiesta

# FMRS5000/6000

New

• AR : 5°
• RR : -5°



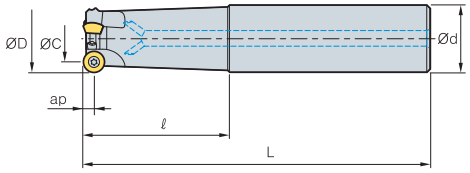



Fig. 1

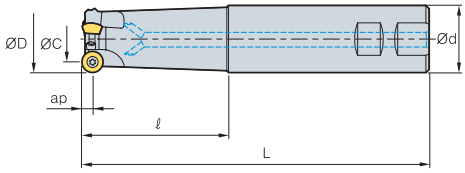



Fig. 2

(mm)

| Articolo | | Stock | ⊚ | ØD | ØC | Ød | ℓ | L | ap | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FMRS | 5040HRD-S | | 2 | 40 | 24 | 32 | 40 | 125 | 8 | 1.4 | 2 |
| | 5040HRD-M | | 2 | 40 | 24 | 32 | 70 | 200 | 8 | 1.8 | 1 |
| | 5040HRD-L | | 2 | 40 | 24 | 32 | 150 | 300 | 8 | 2.0 | 1 |
| New | 5040HRD-S40 | | 2 | 40 | 24 | 40 | 40 | 125 | 8 | 1.6 | 2 |
| New | 5040HRD-M40 | | 2 | 40 | 24 | 40 | 70 | 200 | 8 | 2.0 | 1 |
| New | 5040HRD-L40 | | 2 | 40 | 24 | 40 | 150 | 300 | 8 | 2.4 | 1 |
| New | 5040HRD-S42 | | 2 | 40 | 24 | 42 | 40 | 125 | 8 | 2.0 | 2 |
| New | 5040HRD-M42 | | 2 | 40 | 24 | 42 | 70 | 200 | 8 | 2.4 | 1 |
| New | 5040HRD-L42 | | 2 | 40 | 24 | 42 | 150 | 300 | 8 | 2.8 | 1 |
| New | 5050HRD-S40 | | 3 | 50 | 34 | 40 | 50 | 150 | 8 | 2.0 | 2 |
| New | 5050HRD-M40 | | 3 | 50 | 34 | 40 | 50 | 250 | 8 | 2.4 | 1 |
| New | 5050HRD-L40 | | 3 | 50 | 34 | 40 | 50 | 300 | 8 | 2.6 | 1 |
| | 5050HRD-S | | 3 | 50 | 34 | 42 | 50 | 150 | 8 | 1.5 | 2 |
| | 5050HRD-M | | 3 | 50 | 34 | 42 | 50 | 250 | 8 | 1.8 | 1 |
| | 5050HRD-L | | 3 | 50 | 34 | 42 | 50 | 300 | 8 | 2.0 | 1 |
| New | 5063HRD-S40 | | 4 | 63 | 47 | 40 | 50 | 150 | 8 | 1.7 | 2 |
| New | 5063HRD-M40 | | 4 | 63 | 47 | 40 | 50 | 250 | 8 | 2.0 | 1 |
| New | 5063HRD-L40 | | 4 | 63 | 47 | 40 | 50 | 300 | 8 | 2.3 | 1 |
| | 5063HRD-S | | 4 | 63 | 47 | 42 | 50 | 150 | 8 | 1.6 | 2 |
| | 5063HRD-M | | 4 | 63 | 47 | 42 | 50 | 250 | 8 | 1.8 | 1 |
| | 5063HRD-L | | 4 | 63 | 47 | 42 | 50 | 300 | 8 | 2.0 | 1 |
| FMRS | 6050HRD-S40 | | 3 | 50 | 31 | 40 | 50 | 150 | 10 | 1.3 | 2 |
| New | 6050HRD-S42 | | 3 | 50 | 31 | 42 | 50 | 150 | 10 | 1.4 | 2 |
| | 6050HRD-M40 | | 3 | 50 | 31 | 40 | 50 | 250 | 10 | 2.2 | 1 |
| | 6050HRD-M42 | | 3 | 50 | 31 | 42 | 50 | 250 | 10 | 2.4 | 1 |
| | 6050HRD-L40 | | 3 | 50 | 31 | 40 | 50 | 300 | 10 | 2.7 | 1 |
| | 6050HRD-L42 | | 3 | 50 | 31 | 42 | 50 | 300 | 10 | 3.0 | 1 |
| | 6063HRD-S40 | | 4 | 63 | 44 | 40 | 50 | 150 | 10 | 1.5 | 2 |
| | 6063HRD-S42 | | 4 | 63 | 44 | 42 | 50 | 150 | 10 | 1.6 | 2 |
| | 6063HRD-M40 | | 4 | 63 | 44 | 40 | 50 | 250 | 10 | 2.5 | 1 |
| | 6063HRD-M42 | | 4 | 63 | 44 | 42 | 50 | 250 | 10 | 2.7 | 1 |
| | 6063HRD-L40 | | 4 | 63 | 44 | 40 | 50 | 300 | 10 | 3.0 | 1 |
| | 6063HRD-L42 | | 4 | 63 | 44 | 42 | 50 | 300 | 10 | 3.2 | 1 |

Nota) Con raffreddamento interno Ø40~Ø63

● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Vite | Chiave |
|---|---|---|
| |  |  |
| Tipo 5000 | FTGA0513-P | TW20S |
| Tipo 6000 | FTGA0515-P | TW20S |

• Inserti disponibili, vedere pag. : E11

## Inserti disponibili

RDHW-E,F,S



RDKT-MM

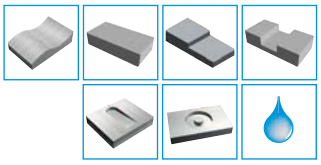


| Tipo | Articolo | Rivestito | | | | | | | | | | Cermet | | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| 5000 | RDHW 1605M0E | | | | | | | | | | | | | | | | | | E11 |
| | 1605M0F | | | | | | | | | | | | | | | | | | |
| | 1605M0S | | | | | | | | | | | | | | | | | | |
| | RDKT 1605M0-MM | | | | ● | | ● | | | | | | | | | | | | |
| | 1605M0-ML | | | | | | | | | | | | | | | | | | |
| 6000 | RDHW 2006M0E | | | | | | | | | | | | | | | | | | E11 |
| | 2006M0F | | | | | | | | | | | | | | | | | | |
| | 2006M0S | | | | | | | | | | | | | | | | | | |
| | RDKT 2006M0-MM | | | | ● | ○ | ● | | | | | | | | | | | | |

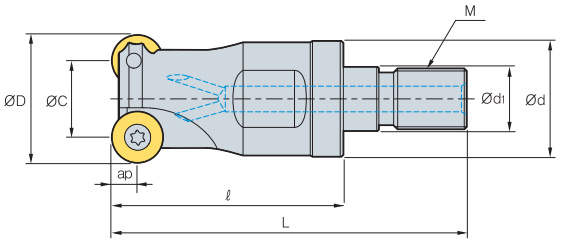
● : Disponibile ○ : A richiesta

# FMRM1000/1500/2000/2500 3000/4000/5000

• AR : 0~5°
• RR : -5°~-5°








(mm)

| | Articolo | Stock | | ØD | ØC | Ød | Ød1 | ℓ | L | M | ap | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FMRM | 1008HRD-M06 | | 1 | 8 | 5.5 | 9.5 | 6.5 | 25 | 40 | M06 | 2.5 | 0.02 |
| | 1010HRD-M06 | | 2 | 10 | 5 | 9.5 | 6.5 | 25 | 40 | M06 | 2.5 | 0.02 |
| | 1012HRD-M06 | ● | 2 | 12 | 7 | 11 | 6.5 | 25 | 40 | M06 | 2.5 | 0.02 |
| | 1015HRD-M08 | | 3 | 15 | 10 | 14.5 | 8.5 | 30 | 47 | M08 | 2.5 | 0.04 |
| FMRM | 1510HRD-M06 | | 1 | 10 | 7 | 9.5 | 6.5 | 25 | 40 | M06 | 3.0 | 0.02 |
| | 1512HRD-M06 | ● | 2 | 12 | 6 | 11 | 6.5 | 25 | 40 | M06 | 3.0 | 0.02 |
| | 1516HRD-M08 | ● | 3 | 16 | 10 | 14.5 | 8.5 | 30 | 47 | M08 | 3.0 | 0.02 |
| | 1520HRD-M10 | | 3 | 20 | 14 | 18 | 10.5 | 35 | 56 | M10 | 3.0 | 0.07 |
| FMRM | 2015HRD-M08 | | 2 | 15 | 8 | 14.5 | 8.5 | 30 | 47 | M08 | 3.5 | 0.04 |
| | 2020HRD-M10 | | 3 | 20 | 13 | 18 | 10.5 | 35 | 56 | M10 | 3.5 | 0.07 |
| FMRM | 2516HRD-M08 | ● | 2 | 16 | 8 | 14.5 | 8.5 | 30 | 47 | M08 | 4.0 | 0.04 |
| | 2520HRD-M10 | ● | 2 | 20 | 12 | 18 | 10.5 | 35 | 56 | M10 | 4.0 | 0.07 |
| | 2525HRD-M12 | | 3 | 25 | 17 | 22.5 | 12.5 | 45 | 69 | M12 | 4.0 | 0.13 |
| FMRM | 3021HRD-M10 | | 2 | 21 | 11 | 18 | 10.5 | 35 | 56 | M10 | 5.0 | 0.1 |
| | 3025HRD-M12 | ● | 2 | 25 | 15 | 22.5 | 12.5 | 45 | 69 | M12 | 5.0 | 0.15 |
| | 3032HRD-M16 | | 3 | 32 | 22 | 29 | 17 | 50 | 77 | M16 | 5.0 | 0.2 |
| | 3042HRD-M16 | | 4 | 42 | 32 | 29 | 17 | 50 | 77 | M16 | 5.0 | 0.24 |
| FMRM | 4025HRD-M12 | | 2 | 25 | 13 | 22.5 | 12.5 | 45 | 69 | M12 | 6.0 | 0.12 |
| | 4032HRD-M16 | ● | 2 | 32 | 20 | 29 | 17 | 50 | 77 | M16 | 6.0 | 0.22 |
| | 4040HRD-M16 | ● | 3 | 40 | 28 | 29 | 17 | 50 | 77 | M16 | 6.0 | 0.23 |
| | 4042HRD-M16 | | 4 | 42 | 28 | 29 | 17 | 50 | 77 | M16 | 6.0 | 0.25 |
| FMRM | 5040HRD-M16 | | 2 | 40 | 24 | 29 | 17 | 50 | 77 | M16 | 8.0 | 0.25 |

Nota) Con raffreddamento interno Ø8~Ø42

● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Vite | Chiave | |
|---|---|---|---|
| |  |  |  |
| Tipo1000 | FTNA0203 | TW06P | – |
| Tipo1500 | FTNA02205 | TW06P | – |
| Tipo 2000 | FTNA02555 | – | TW07S |
| Tipo 2500 | FTNA0305 | – | TW09S |
| Tipo 3000 | FTGA03508(07) | – | TW15S |
| Tipo 4000 | FTKA0410 | – | TW15S |
| Tipo 5000 | FTGA05139 | – | TW20S |

## Adattatori disponibili

| Articolo | Adattatori disponibili | Articolo | Adattatori disponibili |
|---|---|---|---|
| FMRM 1008HRD-M06 | MAT - M06 | FMRM 2520HRD-M10 | MAT - M10 |
| 1010HRD-M06 | MAT - M06 | 2525HRD-M12 | MAT - M12 |
| 1012HRD-M06 | MAT - M06 | 3021HRD-M10 | MAT - M10 |
| 1015HRD-M08 | MAT - M08 | 3025HRD-M12 | MAT - M12 |
| 1510HRD-M06 | MAT - M06 | 3032HRD-M16 | MAT - M16 |
| 1512HRD-M06 | MAT - M06 | 3042HRD-M16 | MAT - M16 |
| 1516HRD-M08 | MAT - M08 | 4025HRD-M12 | MAT - M12 |
| 1520HRD-M10 | MAT - M10 | 4032HRD-M16 | MAT - M16 |
| 2015HRD-M08 | MAT - M08 | 4040HRD-M16 | MAT - M16 |
| 2516HRD-M08 | MAT - M10 | 4042HRD-M16 | MAT - M16 |
| 2020HRD-M10 | MAT - M08 | 5040HRD-M16 | MAT - M16 |

Articolo : FMRM1008HRD-M16
Dimensione filettatura testa modulare (M16)
=
Spec. adattatore: MAT-M06-020-S10S
Dimensione filettatura adattatore (M16)

## Inserti disponibili

RDHW-E,F,S RDKW RDCT-MA RDKT-MF RDKT-MM



| Tipo | Articolo | Rivestito | | | | | | | | | Cermet | | | Non rivestito | | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| 1000 | RDHW 0501M0E,F,S | | | | ○ | | | ● | | | | | | | | | | | E11 |
| | RDKW 0501M0E | | | | ● | | | | | | | | | | | | | | E12 |
| 1500 | RDHW 06T1M0E,F,S | | | | ○ | | | ● | | | | | | | | | | | E11 |
| | RDKW 06T1M0E | | | | ● | ○ | | | | | | | | | | | | | E12 |
| 2000 | RDHW 0702M0E.F.S | | | | ○ | | | ● | | | | | | | | | | | E11 |
| | RDKW 0702M0E | | | | ● | ○ | | | | | | | | | | | | | E12 |
| 2500 | RDHW 0803M0E,F,S | | | | ○ | | | ● | | | | | | | | | | | E11 |
| | RDKW 0803M0E | | | | ● | ○ | | | | | | | | | | | | | E12 |
| 3000 | RDCT 10T3M0-MA | | | | | | | | | | | | | | ● | | | | |
| | RDKT 10T3M0-MF | | | | ● | ● | ● | ● | | | | | | | | | | | E11 |
| | 10T3M0-MM | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | | | | |
| 4000 | RDCT 1204M0-MA | | | | | | | | | | | | | | ● | | | | |
| | RDKT 1204M0-MF | | | | ● | ● | ● | ● | | | | | | | | | | | E11 |
| | 1204M0-MM | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | | | | |
| 5000 | RDHW 1605M0E,F,S | | | | | | | | | | | | | | | | | | |
| | RDKT 1605M0-MM | | | | | | | | | | | | | | | | | | E11 |
| | 1605M0-ML | | | | | | | | | | | | | | | | | | |

RDHW □□□M0E Disponibile

● : Disponibile ○ : A richiesta

• Inserti disponibili, vedere pag. : E11, E12
• Adattatori applicabili, vedere pag. : E133~E134

## Sistema di codifica

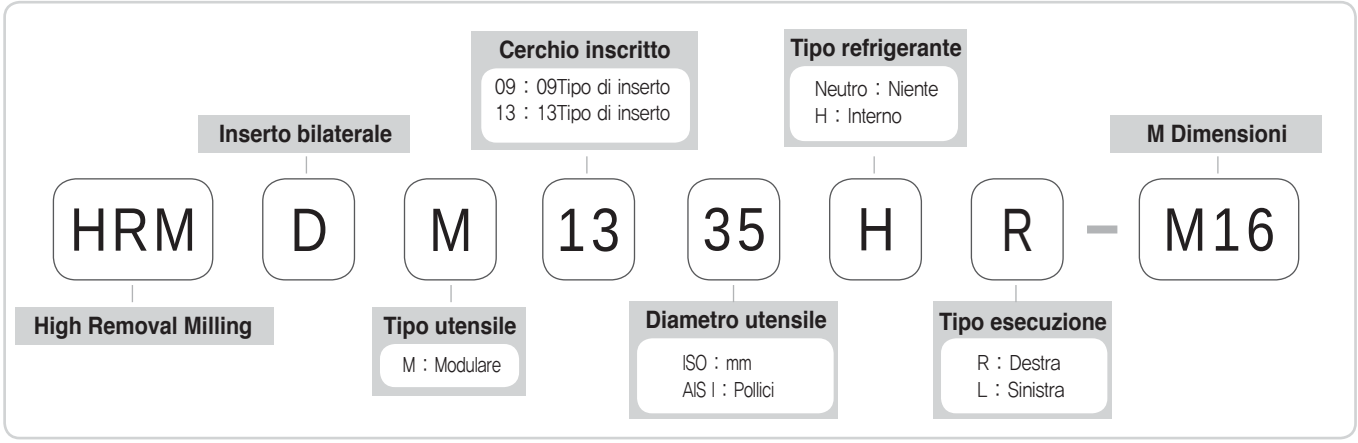
### Tipo di fresa



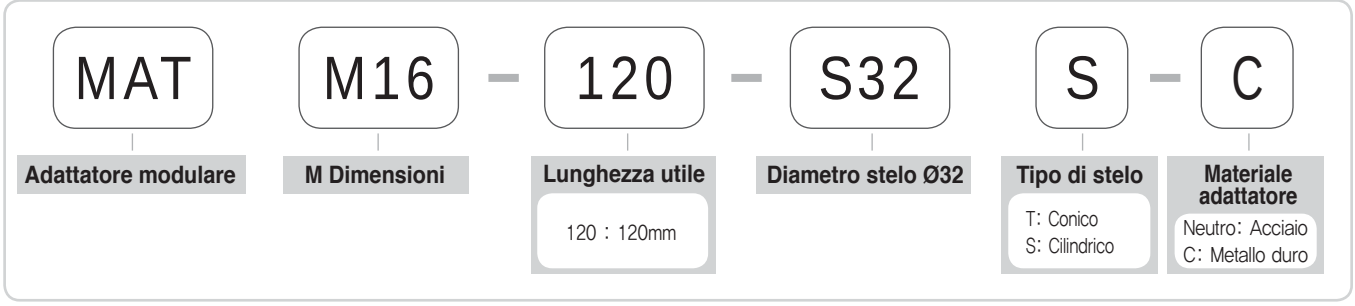

### Tipo di stelo




### Testa modulare




### Adattatore modulare



# Informazioni tecniche per HRMDouble

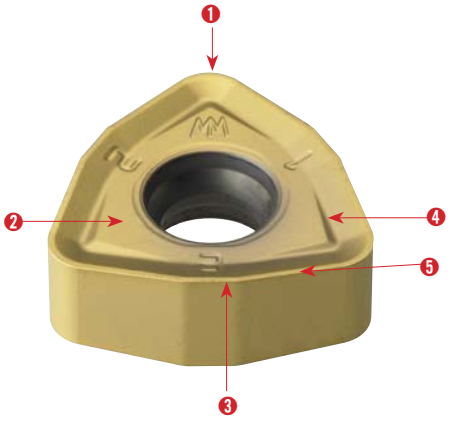


## Caratteristiche

- Sistema di fresatura più economico con doppio staffaggio e 6 taglienti rispetto all'utensile HRM con inserto positivo
- L'elevato angolo di spoglia del tagliente e del rompitruciolo riduce gli sforzi di taglio
- Geometria negativa studiata per una maggiore rigidità del tagliente bilaterale
- Semplice sistema di staffaggio a vite che rende l'utensile molto robusto
- Design esclusivo dell'inserto per elevati avanzamenti e lavorazioni multifunzionali
- L'inserto HRMD con tagliente simmetrico è indicato per lavorazioni R e L



## Caratteristiche dell'inserto




**1 Raggio di punta-R**
- Sicurezza del tagliente rigido in ramping e svuotamento tasche
- Tagliente arrotondato indicato per elevati avanzamenti
- Indicato per lavorazioni R/L

**2 Staffaggio**
- Design speciale per staffaggio stabile
- Evita attriti con il truciolo

**3 Tagliente interno**
- Migliore rugosità della superficie per elevati avanzamenti
- Design speciale per ridurre la spinta
- Inserto simmetrico per lavorazioni R/L

**4 Rompitruciolo**
- Minori sforzi di taglio grazie all'elevato angolo di spoglia
- Migliore evacuazione del truciolo in molteplici applicazioni
- Previene danni durante lo staffaggio dell'inserto

**5 Tagliente principale**
- Inserto simmetrico per lavorazioni R/L
- Prestazioni di taglio superiori grazie all'elevato angolo di spoglia dell'inserto
- Bassi sforzi di taglio con elevati avanzamenti
- Design speciale per ridurre la spinta

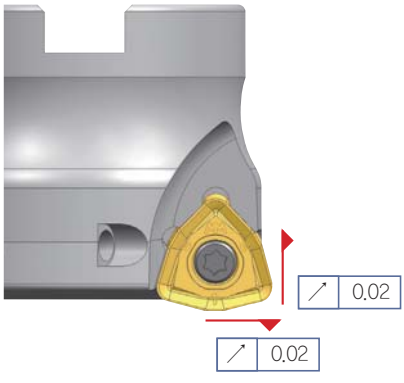
## Caratteristiche del corpo fresa



**Sistema di raffreddamento interno**
- Migliore controllo ed evacuazione del truciolo
- Durata maggiore dell'utensile grazie ai bassi sforzi di taglio

**Semplice sistema di staffaggio a vite**
- Robusto sistema di staffaggio a vite
- Staffaggio economico
- Scarico ampio per una migliore evacuazione del truciolo

**Sistema di triplice ancoraggio**
- Staffaggio robusto
- Staffaggio stabile con vari sforzi di taglio e in svariate lavorazioni

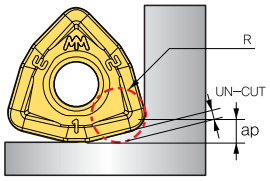



- NOTA : Molte informazioni sono ripetute. Esempio : Il design simmetrico indicato per lavorazioni R/L è ripetuto 4 volte in questa pagina

## Programmazione macchina raggio di punta R

| Articolo | Condizioni di taglio | | Approx. R (mm) | |
|---|---|---|---|---|
| | Max.ap(mm) | Max.fz(mm/t) | Input. R | Uncut |
| WNMX09T316ZNN-MM | 1.5 | 2.0 | 2.5 | 0.6 |
| WNMX130520ZNN-MM | 2.0 | 3.0 | 3.0 | 0.8 |

·Programmazione macchina raggio di punta R

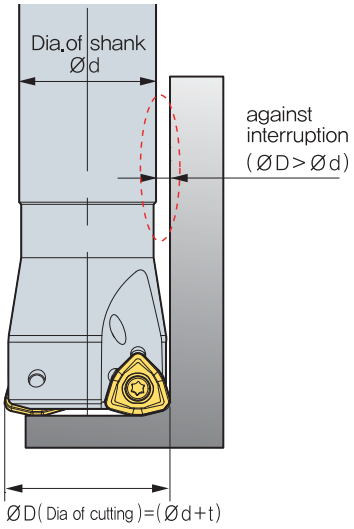



· La parte non cambiata può modificare in caso di condizioni di taglio inadeguate, debole staffaggio del pezzo lavorato ecc.

## Sistema di prevenzione interferenze

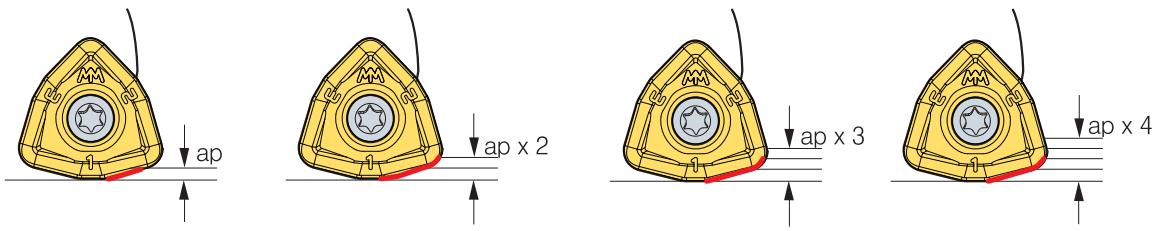
| Articolo | ØD(mm) | Ød(mm) | t(mm) |
|---|---|---|---|
| HRMDS0926HR-2□25 | 26 | 25 | 1 |
| HRMDS0933HR-3□32 | 33 | 32 | 1 |
| HRMDS0935HR-4□32 | 35 | 32 | 3 |
| HRMDS0940HR-4□32 | 40 | 32 | 8 |
| HRMDS0950HR-5□32 | 50 | 32 | 18 |
| HRMDS0950HR-5□40 | 50 | 40 | 10 |
| HRMDS0950HR-5□42 | 50 | 42 | 8 |
| HRMDS1333HR-3□32 | 33 | 32 | 1 |
| HRMDS1335HR-4□32 | 35 | 32 | 3 |
| HRMDS1340HR-4□30 | 40 | 32 | 8 |
| HRMDS1350HR-4□32 | 50 | 32 | 18 |
| HRMDS1350HR-4□40 | 50 | 40 | 10 |
| HRMDS1350HR-4□42 | 50 | 42 | 8 |
| HRMDS1363HR-5□32 | 63 | 32 | 31 |
| HRMDS1363HR-5□40 | 63 | 40 | 23 |
| HRMDS1363HR-5□42 | 63 | 42 | 21 |

• La spoglia laterale previene interferenze tra l'utensile e il pezzo lavorato anche nell'esecuzione di fori profondi



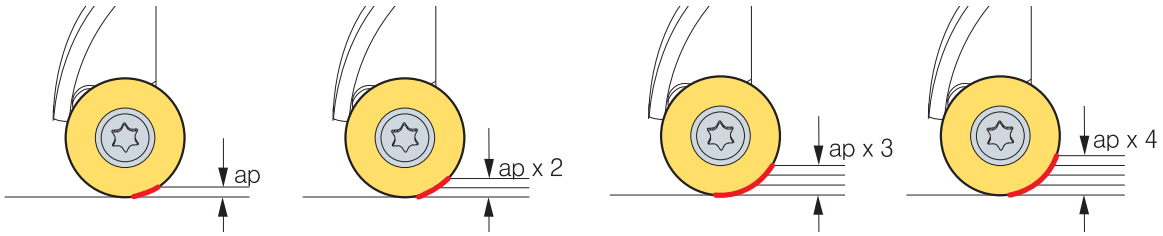

## Confronto tra RMD e FMR

● HRM




Profondità di taglio elevata Sforzo di taglio stabile

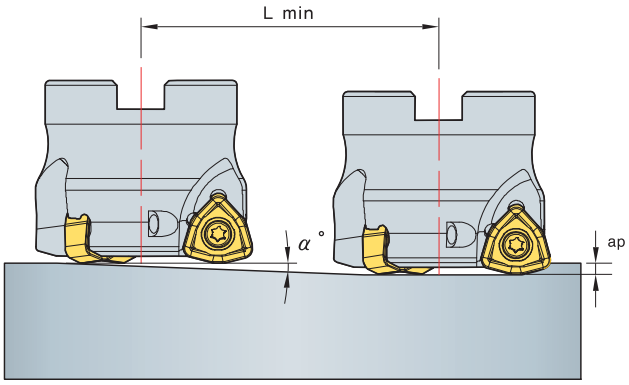
● Inserto rotondo



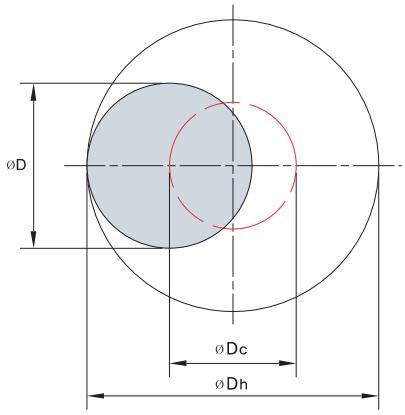

Profondità di taglio elevata Sforzo di taglio in aumento

## Dati tecnici per ramping e fresatura elicoidale

### Ramping




### Fresatura elicoidale




## Passo

$$Lmin = \frac{ap}{\tan \alpha^{\circ}} \ (mm)$$

$$ØDc = ØDh - ØD$$

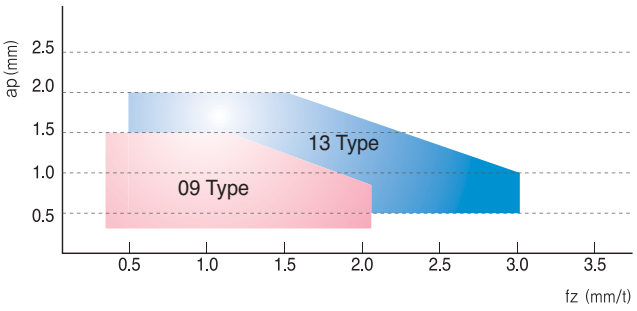
ØDc = Passo
ØDh = Diametro foro sul pezzo lavorato
ØD = Diametro utensile

- Ridurre l'avanzamento del 30% rispetto alle condizioni di taglio raccomandate per lavorazioni ramping e di fresatura elicoidale
- Per le lavorazioni elicoidali, la profondità di taglio massima per 1 giro elicoidale della fresa non deve essere superiore alla profondità di passata massima dell'inserto utilizzato
- Per le lavorazioni ramping, la profondità di passata massima di 1 processo di ramping non deve essere superiore alla profondità massima di taglio dell'inserto utilizzato

| Articolo | | Diametro utensile ØD(mm) | Diametro fresa ØDe(mm) | Ramping | | | Lavorazione elicoidale | |
|---|---|---|---|---|---|---|---|---|
| | | | | Max. ap (mm) | Max. angle α° | Lunghezza di taglio Lmin (mm) | Diametro min. di taglio (mm) | Diametro max. di taglio (mm) |
| HRMDS | 0925HR-2□□□ | 25 | 15.4 | 1.5 | 5.4 | 15.8 | 37.6 | 46.8 |
| | 0926HR-2□□□ | 26 | 16.4 | 1.5 | 5.0 | 17.0 | 39.6 | 48.8 |
| | 0930HR-3□□□ | 30 | 20.4 | 1.5 | 3.9 | 22.0 | 47.6 | 56.8 |
| | 0932HR-3□□□ | 32 | 22.3 | 1.5 | 3.5 | 24.5 | 51.6 | 60.8 |
| | 0933HR-3□□□ | 33 | 23.3 | 1.5 | 3.3 | 25.8 | 53.6 | 62.8 |
| | 0935HR-4□□□ | 35 | 25.4 | 1.5 | 3.0 | 28.3 | 57.6 | 66.8 |
| | 0940HR-4□□□ | 40 | 30.2 | 1.5 | 2.5 | 34.5 | 67.6 | 76.8 |
| | 0950HR-□□□□ | 50 | 40.2 | 1.5 | 1.8 | 47.0 | 87.6 | 96.8 |
| | 1332HR-2□□□ | 32 | 19.3 | 2 | 5.7 | 20.0 | 47 | 60 |
| | 1333HR-2□□□ | 33 | 20.3 | 2 | 5.4 | 21.3 | 49 | 62 |
| | 1335HR-2□□□ | 35 | 22.3 | 2 | 4.8 | 24.0 | 53 | 66 |
| | 1340HR-3□□□ | 40 | 27.2 | 2 | 3.7 | 30.7 | 63 | 76 |
| | 1350HR-□□□□ | 50 | 37 | 2 | 2.6 | 44.0 | 83 | 96 |
| | 1363HR-□□□□ | 63 | 50 | 2 | 1.9 | 61.3 | 109 | 122 |
| HRMDC(M) | 09040HR-□ | 40 | 30.2 | 1.5 | 2.5 | 34.5 | 67.6 | 76.8 |
| | 09050HR-□ | 50 | 40.2 | 1.5 | 1.8 | 47.0 | 87.6 | 96.8 |
| | 09063HR-□ | 63 | 53.1 | 1.5 | 1.4 | 63.3 | 113.6 | 122.8 |
| | 09080HR-□ | 80 | 70.1 | 1.5 | 1.0 | 84.5 | 147.6 | 156.8 |
| | 09100HR-□ | 100 | 90 | 1.5 | 0.8 | 109.5 | 187.6 | 196.8 |
| | 13050HR-□ | 50 | 37 | 2 | 2.6 | 44.0 | 83 | 96 |
| | 13063HR-□ | 63 | 50 | 2 | 1.9 | 61.3 | 109 | 122 |
| | 13080HR-□ | 80 | 66.9 | 2 | 1.4 | 84.0 | 143 | 156 |
| | 13100HR-□ | 100 | 86.9 | 2 | 1.0 | 110.7 | 183 | 196 |
| | 13125HR-□ | 125 | 111.9 | 2 | 0.8 | 144.0 | 233 | 246 |

## Applicazioni




## Condizioni di taglio raccomandate

| | Pezzo lavorato | Durezza | Gradi | vc (m/min) | fz (mm/t) |
|---|---|---|---|---|---|
| P | Acciaio generico, acciaio leggero | Inf. 200HB | PC3500 | 200 (100~230) | 1.0 ~ 2.0 |
| | | | PC3545 | | |
| P | Acciaio al carbonio, acciaio legato | Inf. 30HRC | PC3500 | 180 (100 ~ 220) | 1.0 ~ 1.5 |
| | | | PC3545 | | |
| P | Acciaio a elevato tenore di carbonio, acciaio legato | 30~40 HRC | PC3500 | 160 (100~200) | 0.8 ~ 1.3 |
| | | | PC3545 | | |
| P | Acciaio temprato | 40~50 HRC | PC3500 | 120 (80~180) | 0.6 ~ 1.2 |
| | | | PC5300 | | |
| M | Acciaio inossidabile | Inf. 270HB | PC5300 | 120 (80~150) | 0.8 ~ 1.3 |
| | | | PC3545 | | |
| K | Ghisa | Inf. 350N/mm² | PC3500 | 180(100~220) | 1.2 ~ 1.8 |
| | | | PC5300 | | |

## Esempio di lavorazione - I



### Condizioni di taglio

Pezzo lavorato : SM45C(HRC22)
Velocità di taglio : vc = 283m/min (1,803$^{-1}$)
fz = 1.4mm/dente
vf = 10,097mm/min
ap = 0.8mm
ae = 35mm
Refrigerante : a secco, Lavorazione: Copiatura
Macchina : MCT orizzontale
Tmax : 250mm

Utensile : HRMDCM13050HR-4
WNMX130520ZNN-MM(PC3500)

**Produttività : + 40%**
**Costo utensile : - 80%**

※Risultato test
Nel raffronto di HRMD con la concorrenza, alle stesse condizioni di taglio, la velocità di taglio di HRMD è risultata maggiore con la stessa profondità di taglio (ap×ae), la durata del ciclo si è ridotta del 40% e la durata dell'utensile è aumentata del 60%. Grazie ai suoi 6 taglienti, HRMD è più economica rispetto al tipo EDNW con inserto positivo

## Esempio di lavorazione - II



### Condizioni di taglio

Pezzo lavorato : STS304
Velocità di taglio : vc = 130m/min (414-1)
fz = 1.2mm/dente
vf = 2,981mm/min
ap = 1.0mm
ae = 80mm
Refrigerante : sì, Lavorazione: spianatura e scanalatura
Macchina : MCT verticale
Tmax : 250mm

Utensile : HRMDCM13100HR-6
WNMX130520ZNN-MM(PC3500)

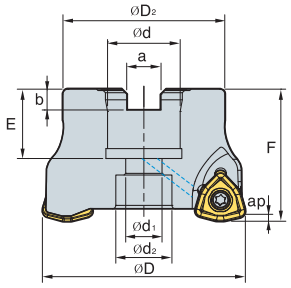
**Produttività : + 80%**
**Costo utensile : - 25%**

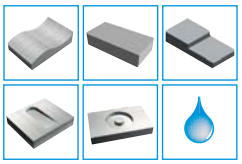
Risultato test
Nel raffronto di HRMD con la concorrenza, alle stesse condizioni di taglio, la velocità di taglio di HRMD è risultata maggiore con la stessa profondità di taglio (ap×ae), la durata del ciclo si è ridotta dell'80% e la durata dell'utensile era la stessa. Grazie ai suoi 6 taglienti, HRMD è più economica rispetto al tipo SDKN con inserto positivo.

# HRMDC(M)09

AA 14°
• AR : −7°
• RR : −12°~−18°





(mm)

| | Articolo | Stock R | Stock L | ⊚ | øD | øD2 | ød | ød1 | ød2 | a | b | E | F | ap | kg | Bullone |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HRMDCM | 09040HR-3 | ● | | 3 | 40 | 34 | 16 | 9 | 14 | 8.4 | 5.6 | 19 | 40 | 1.5 | 0.2 | SB0825 |
| | 09040HR-4 | ● | | 4 | 40 | 34 | 16 | 9 | 14 | 8.4 | 5.6 | 19 | 40 | 1.5 | 0.2 | |
| | 09050HR-4 | ● | | 4 | 50 | 42 | 22 | 11 | 18 | 10.4 | 6.3 | 21 | 40 | 1.5 | 0.3 | SB1025 |
| | 09050HR-5 | ● | | 5 | 50 | 42 | 22 | 11 | 18 | 10.4 | 6.3 | 21 | 40 | 1.5 | 0.3 | |
| | 09063HR-5 | ● | | 5 | 63 | 49 | 22 | 11 | 18 | 10.4 | 6.3 | 21 | 40 | 1.5 | 0.5 | SB1025 |
| | 09063HR-6 | ● | | 6 | 63 | 49 | 22 | 11 | 18 | 10.4 | 6.3 | 21 | 40 | 1.5 | 0.5 | |
| | 09080HR-6 | ● | | 6 | 80 | 57 | 27 | 14 | 20 | 12.4 | 7 | 23 | 50 | 1.5 | 1.1 | SB1230 |
| | 09080HR-7 | ● | | 7 | 80 | 57 | 27 | 14 | 20 | 12.4 | 7 | 23 | 50 | 1.5 | 1.1 | |
| | 09100HR-7 | ● | | 7 | 100 | 67 | 32 | 18 | 26 | 14.4 | 8 | 25 | 50 | 1.5 | 1.7 | SB1630 |
| | 09100HR-8 | ● | | 8 | 100 | 67 | 32 | 18 | 26 | 14.4 | 8 | 25 | 50 | 1.5 | 1.7 | |
| HRMDC | 09080HR-6 | ● | | 6 | 80 | 57 | 25.4 | 14 | 20 | 9.5 | 6 | 24 | 50 | 1.5 | 1.1 | SB1230 |
| | 09080HR-7 | ● | | 7 | 80 | 57 | 25.4 | 14 | 20 | 9.5 | 6 | 24 | 50 | 1.5 | 1.1 | |
| | 09080HR-31.75-6 | ● | | 6 | 80 | 67 | 31.75 | 18 | 26 | 12.7 | 8 | 32 | 63 | 1.5 | 1.5 | SB1630 |
| | 09080HR-31.75-7 | ● | | 7 | 80 | 67 | 31.75 | 18 | 26 | 12.7 | 8 | 32 | 63 | 1.5 | 1.5 | |
| | 09100HR-7 | ● | | 7 | 100 | 67 | 31.75 | 18 | 26 | 12.7 | 8 | 32 | 63 | 1.5 | 2.1 | SB1630 |
| | 09100HR-8 | ● | | 8 | 100 | 67 | 31.75 | 18 | 26 | 12.7 | 8 | 32 | 63 | 1.5 | 2.1 | |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Vite | Chiave |
|---|---|
|  |  |
| FTKA0307 | TW09S |

## Mandrini disponibili

| Articolo | | Attacchi NC |
|---|---|---|
| HRMDCM | 09040HR-□ | BT□□-FMC16-□□<br>SK□□-FMC16-□□ |
| | 09050HR-□<br>09063HR-□ | BT□□-FMC22-□□<br>SK□□-FMC22-□□ |
| | 09080HR-□ | BT□□-FMC27-□□<br>SK□□-FMC27-□□ |
| | 09100HR-□ | BT□□-FMC32-□□<br>SK□□-FMC32-□□ |
| HRMDC | 09080HR-□ | BT□□-FMA25.4-□□<br>SK□□-FMA25.4-□□ |
| | 09080HR-31.75-□<br>09100HR-□ | BT□□-FMA31.75-□□<br>SK□□-FMA31.75-□□ |

• Inserti disponibili, vedere pag. : E20
• Attacchi e viti disponibili : E215~E217

## Inserti disponibili

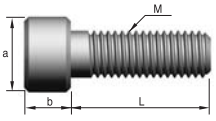
WNMX-MM



| Articolo | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WNMX 09T316ZNN-MM | | | | ● | ● | ● | ● | | | | | | | | | | | E20 |

● : Disponibile ○ : A richiesta

## Bullone

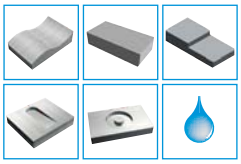



| Articolo | Dimensioni(mm) M | a | b | L | pitch |
|---|---|---|---|---|---|
| SB0825 | M08 | 13 | 8 | 25 | 1.25 |
| SB1025 | M10 | 16 | 10 | 25 | 1.5 |
| SB1230 | M12 | 18 | 12 | 30 | 1.75 |
| SB1630 | M16 | 24 | 16 | 30 | 2.0 |

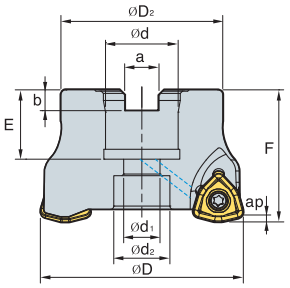
# HRMDC(M)13

AA 14°

• AR : −7°
• RR : −12°~−4°








(mm)

| Articolo | | Stock R | Stock L | | ØD | ØD2 | Ød | Ød1 | Ød2 | a | b | E | F | ap | kg | Bullone |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HRMDCM | 13050HR-3 | ● | | 3 | 50 | 42 | 22 | 11 | 17 | 10.4 | 6.3 | 21 | 40 | 2 | 0.3 | SB1025 |
| | 13050HR-4 | ● | | 4 | 50 | 42 | 22 | 11 | 17 | 10.4 | 6.3 | 21 | 40 | 2 | 0.3 | |
| | 13063HR-4 | ● | | 4 | 63 | 49 | 22 | 11 | 18 | 10.4 | 6.3 | 21 | 40 | 2 | 0.5 | SB1025 |
| | 13063HR-5 | ● | | 5 | 63 | 49 | 22 | 11 | 18 | 10.4 | 6.3 | 21 | 40 | 2 | 0.5 | |
| | 13080HR-5 | ● | | 5 | 80 | 57 | 27 | 14 | 20 | 12.4 | 7 | 23 | 50 | 2 | 1 | SB1230 |
| | 13080HR-6 | ● | | 6 | 80 | 57 | 27 | 14 | 20 | 12.4 | 7 | 23 | 50 | 2 | 1 | |
| | 13100HR-6 | ● | | 6 | 100 | 67 | 32 | 18 | 26 | 14.4 | 8 | 25 | 50 | 2 | 1.6 | SB1630 |
| | 13100HR-7 | ● | | 7 | 100 | 67 | 32 | 18 | 26 | 14.4 | 8 | 25 | 50 | 2 | 1.6 | |
| | 13125HR-7 | ● | | 7 | 125 | 87 | 40 | 22 | 32 | 16.4 | 9 | 29 | 60 | 2 | 3.2 | SB2040 |
| | 13125HR-8 | ● | | 8 | 125 | 87 | 40 | 22 | 32 | 16.4 | 9 | 29 | 60 | 2 | 3.2 | MBA-M20 |
| HRMDC | 13080HR-5 | ● | | 5 | 80 | 57 | 25.4 | 14 | 20 | 9.5 | 6 | 24 | 50 | 2 | 1 | SB1230 |
| | 13080HR-6 | ● | | 6 | 80 | 57 | 25.4 | 14 | 20 | 9.5 | 6 | 24 | 50 | 2 | 1 | |
| | 13080HR-31.75-5 | ● | | 5 | 80 | 67 | 31.75 | 18 | 26 | 12.7 | 8 | 32 | 63 | 2 | 1.4 | SB1630 |
| | 13080HR-31.75-6 | ● | | 6 | 80 | 67 | 31.75 | 18 | 26 | 12.7 | 8 | 32 | 63 | 2 | 1.4 | |
| | 13100HR-6 | ● | | 6 | 100 | 67 | 31.75 | 18 | 26 | 12.7 | 8 | 32 | 63 | 2 | 2.1 | SB1630 |
| | 13100HR-7 | ● | | 7 | 100 | 67 | 31.75 | 18 | 26 | 12.7 | 8 | 32 | 63 | 2 | 2.1 | |
| | 13125HR-7 | ● | | 7 | 125 | 87 | 38.1 | 22 | 32 | 15.9 | 10 | 35 | 63 | 2 | 3.3 | SB2040 |
| | 13125HR-8 | ● | | 8 | 125 | 87 | 38.1 | 22 | 32 | 15.9 | 10 | 35 | 63 | 2 | 3.3 | MBA-M20 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Vite | Chiave |
|---|---|
|  |  |
| FTKA0412B | TW15S |

## Mandrini disponibili

| Articolo | | Attacchi NC |
|---|---|---|
| HRMDCM | 13050HR-□<br>13063HR-□ | BT□□-FMC22-□□<br>SK□□-FMC22-□□ |
| | 13080HR-□ | BT□□-FMC27-□□<br>SK□□-FMC27-□□ |
| | 13100HR-□ | BT□□-FMC32-□□<br>SK□□-FMC32-□□ |
| | 13125HR-□ | BT□□-FMC40-□□<br>SK□□-FMC40-□□ |
| HRMDC | 13080HR-□ | BT□□-FMA25.4-□□<br>SK□□-FMA25.4-□□ |
| | 13080HR-31.75-□<br>13100HR-□ | BT□□-FMA31.75-□□<br>SK□□-FMA31.75-□□ |
| | 13125HR-□ | BT□□-FMA38.1-□□<br>SK□□-FMA38.1-□□ |

• Inserti disponibili, vedere pag. : E20
• Attacchi e viti disponibili : E215~E217

## Inserti disponibili

WNMX-MM



| Articolo | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WNMX 130520ZNN-MM | | | | ● | ● | ● | ● | | | | | | | | | | | E20 |

● : Disponibile ○ : A richiesta

## Bullone

Fig. 1

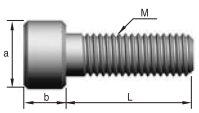
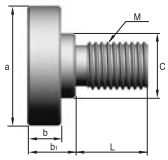


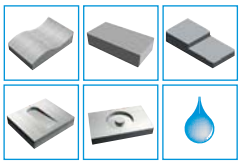

Fig. 2



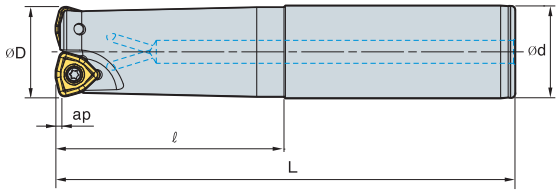

| Articolo | Dimensioni(mm) M | a | b | b1 | C | L | pitch | Fig. |
|---|---|---|---|---|---|---|---|---|
| SB1025 | M10 | 16 | 10 | - | - | 25 | 1.5 | 1 |
| SB1230 | M12 | 18 | 12 | - | - | 30 | 1.75 | 1 |
| SB1630 | M16 | 24 | 16 | - | - | 30 | 2.0 | 1 |
| SB2040 | M20 | 30 | 20 | - | - | 40 | 2.5 | 1 |
| MBA-M20 | M20 | 50 | 14 | 20 | 27 | 30 | 2.5 | 2 |

# HRMDS09

AA 14°
• AR : −7°
• RR : −17°~−25°








(mm)

| | Articolo | Stock R | Stock L | | øD | ød | ℓ | L | ap | kg |
|---|---|---|---|---|---|---|---|---|---|---|
| HRMDS | 0925HR-2S25 | ● | | 2 | 25 | 25 | 60 | 140 | 1.5 | 0.5 |
| | 0925HR-2M25 | ● | | 2 | 25 | 25 | 120 | 200 | 1.5 | 0.6 |
| | 0925HR-2L25 | ● | | 2 | 25 | 25 | 180 | 300 | 1.5 | 1 |
| | 0926HR-2S25 | ● | | 2 | 26 | 25 | 60 | 140 | 1.5 | 0.5 |
| | 0926HR-2M25 | ● | | 2 | 26 | 25 | 60 | 200 | 1.5 | 0.7 |
| | 0926HR-2L25 | ● | | 2 | 26 | 25 | 60 | 300 | 1.5 | 1 |
| | 0930HR-3S32 | ● | | 3 | 30 | 32 | 70 | 150 | 1.5 | 0.8 |
| | 0930HR-3M32 | ● | | 3 | 30 | 32 | 120 | 200 | 1.5 | 1 |
| | 0930HR-3L32 | | | 3 | 30 | 32 | 180 | 300 | 1.5 | 1.5 |
| | 0932HR-3S32 | | | 3 | 32 | 32 | 70 | 150 | 1.5 | 0.8 |
| | 0932HR-3M32 | ● | | 3 | 32 | 32 | 120 | 200 | 1.5 | 1.1 |
| | 0932HR-3L32 | ● | | 3 | 32 | 32 | 180 | 300 | 1.5 | 1.7 |
| | 0933HR-3S32 | ● | | 3 | 33 | 32 | 70 | 150 | 1.5 | 0.8 |
| | 0933HR-3M32 | ● | | 3 | 33 | 32 | 70 | 200 | 1.5 | 1.1 |
| | 0933HR-3L32 | ● | | 3 | 33 | 32 | 70 | 300 | 1.5 | 1.7 |
| | 0935HR-4S32 | ● | | 4 | 35 | 32 | 50 | 150 | 1.5 | 0.9 |
| | 0935HR-4M32 | ● | | 4 | 35 | 32 | 50 | 200 | 1.5 | 1.1 |
| | 0935HR-4L32 | ● | | 4 | 35 | 32 | 50 | 300 | 1.5 | 1.7 |
| | 0940HR-4S32 | ● | | 4 | 40 | 32 | 50 | 150 | 1.5 | 0.9 |
| | 0940HR-4M32 | ● | | 4 | 40 | 32 | 50 | 250 | 1.5 | 1.5 |
| | 0940HR-4L32 | ● | | 4 | 40 | 32 | 50 | 300 | 1.5 | 1.8 |
| | 0940HR-4S40 | | | 4 | 40 | 40 | 60 | 150 | 1.5 | 1.3 |
| | 0940HR-4M40 | | | 4 | 40 | 40 | 130 | 250 | 1.5 | 2.2 |
| | 0940HR-4L40 | | | 4 | 40 | 40 | 180 | 300 | 1.5 | 2.7 |
| | 0940HR-4S42 | ● | | 4 | 40 | 42 | 60 | 150 | 1.5 | 1.4 |
| | 0940HR-4M42 | ● | | 4 | 40 | 42 | 130 | 250 | 1.5 | 2.3 |
| | 0940HR-4L42 | ● | | 4 | 40 | 42 | 180 | 300 | 1.5 | 2.8 |
| | 0950HR-4S32 | | | 4 | 50 | 32 | 40 | 150 | 1.5 | 1.1 |
| | 0950HR-4M32 | | | 4 | 50 | 32 | 40 | 250 | 1.5 | 1.6 |
| | 0950HR-4L32 | | | 4 | 50 | 32 | 40 | 300 | 1.5 | 2 |
| | 0950HR-4S40 | | | 4 | 50 | 40 | 40 | 150 | 1.5 | 1.4 |
| | 0950HR-4M40 | | | 4 | 50 | 40 | 40 | 250 | 1.5 | 2.4 |
| | 0950HR-4L40 | | | 4 | 50 | 40 | 40 | 300 | 1.5 | 2.9 |
| | 0950HR-4S42 | ● | | 4 | 50 | 42 | 40 | 150 | 1.5 | 1.6 |
| | 0950HR-4M42 | ● | | 4 | 50 | 42 | 40 | 250 | 1.5 | 2.6 |
| | 0950HR-4L42 | ● | | 4 | 50 | 42 | 40 | 300 | 1.5 | 3.1 |
| | 0950HR-5S32 | | | 5 | 50 | 32 | 40 | 150 | 1.5 | 1.1 |
| | 0950HR-5M32 | | | 5 | 50 | 32 | 40 | 250 | 1.5 | 1.6 |
| | 0950HR-5L32 | | | 5 | 50 | 32 | 40 | 300 | 1.5 | 2 |
| | 0950HR-5S40 | | | 5 | 50 | 40 | 40 | 150 | 1.5 | 1.4 |
| | 0950HR-5M40 | | | 5 | 50 | 40 | 40 | 250 | 1.5 | 2.4 |
| | 0950HR-5L40 | | | 5 | 50 | 40 | 40 | 300 | 1.5 | 2.9 |
| | 0950HR-5S42 | | | 5 | 50 | 42 | 40 | 150 | 1.5 | 1.6 |
| | 0950HR-5M42 | | | 5 | 50 | 42 | 40 | 250 | 1.5 | 2.6 |
| | 0950HR-5L42 | ● | | 5 | 50 | 42 | 40 | 300 | 1.5 | 3.1 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Vite | Chiave |
|---|---|
|  |  |
| FTKA0307 | TW09S |

## Inserti disponibili

WNMX-MM



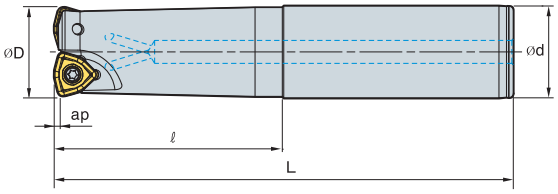
| Articolo | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WNMX 09T316ZNN-MM | | | | ● | ● | ● | ● | | | | | | | | | | | E20 |

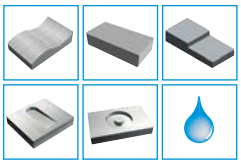
• Inserti disponibili, vedere pag. : E20 ● : Disponibile ○ : A richiesta

# HRMDS13



AA 14° • AR : −7° • RR : −14°~−16°



(mm)

| | Articolo | Stock R | Stock L | ⊚ | øD | ød | ℓ | L | ap | kg |
|---|---|---|---|---|---|---|---|---|---|---|
| HRMDS | 1332HR-2S32 | ● | | 2 | 32 | 32 | 70 | 150 | 2 | 0.8 |
| | 1332HR-2M32 | ● | | 2 | 32 | 32 | 120 | 200 | 2 | 1 |
| | 1332HR-2L32 | ● | | 2 | 32 | 32 | 180 | 300 | 2 | 1.6 |
| | 1333HR-2S32 | ● | | 2 | 33 | 32 | 70 | 150 | 2 | 0.8 |
| | 1333HR-2M32 | ● | | 2 | 33 | 32 | 70 | 200 | 2 | 1.1 |
| | 1333HR-2L32 | ● | | 2 | 33 | 32 | 70 | 300 | 2 | 1.7 |
| | 1335HR-2S32 | | | 2 | 35 | 32 | 50 | 150 | 2 | 0.8 |
| | 1335HR-2M32 | ● | | 2 | 35 | 32 | 50 | 200 | 2 | 1.1 |
| | 1335HR-2L32 | ● | | 2 | 35 | 32 | 50 | 300 | 2 | 1.7 |
| | 1340HR-3S32 | ● | | 3 | 40 | 32 | 50 | 150 | 2 | 0.8 |
| | 1340HR-3M32 | ● | | 3 | 40 | 32 | 50 | 250 | 2 | 1.4 |
| | 1340HR-3L32 | ● | | 3 | 40 | 32 | 50 | 300 | 2 | 1.7 |
| | 1340HR-3S40 | | | 3 | 40 | 40 | 60 | 150 | 2 | 1.2 |
| | 1340HR-3M40 | | | 3 | 40 | 40 | 130 | 250 | 2 | 2.1 |
| | 1340HR-3L40 | | | 3 | 40 | 40 | 180 | 300 | 2 | 2.6 |
| | 1340HR-3S42 | ● | | 3 | 40 | 42 | 60 | 150 | 2 | 1.4 |
| | 1340HR-3M42 | ● | | 3 | 40 | 42 | 130 | 250 | 2 | 2.3 |
| | 1340HR-3L42 | ● | | 3 | 40 | 42 | 180 | 300 | 2 | 2.7 |
| | 1350HR-3S32 | | | 3 | 50 | 32 | 50 | 150 | 2 | 1.1 |
| | 1350HR-3M32 | | | 3 | 50 | 32 | 50 | 250 | 2 | 1.7 |
| | 1350HR-3L32 | | | 3 | 50 | 32 | 50 | 300 | 2 | 2 |
| | 1350HR-3S40 | | | 3 | 50 | 40 | 50 | 150 | 2 | 1.5 |
| | 1350HR-3M40 | | | 3 | 50 | 40 | 50 | 250 | 2 | 2.4 |
| | 1350HR-3L40 | | | 3 | 50 | 40 | 50 | 300 | 2 | 2.9 |
| | 1350HR-3S42 | ● | | 3 | 50 | 42 | 50 | 150 | 2 | 1.6 |
| | 1350HR-3M42 | ● | | 3 | 50 | 42 | 50 | 250 | 2 | 2.6 |
| | 1350HR-3L42 | ● | | 3 | 50 | 42 | 50 | 300 | 2 | 3.1 |
| | 1350HR-4S32 | | | 4 | 50 | 32 | 50 | 150 | 2 | 1.1 |
| | 1350HR-4M32 | | | 4 | 50 | 32 | 50 | 250 | 2 | 1.7 |
| | 1350HR-4L32 | | | 4 | 50 | 32 | 50 | 300 | 2 | 2 |
| | 1350HR-4S40 | | | 4 | 50 | 40 | 50 | 150 | 2 | 1.5 |
| | 1350HR-4M40 | | | 4 | 50 | 40 | 50 | 250 | 2 | 2.4 |
| | 1350HR-4L40 | | | 4 | 50 | 40 | 50 | 300 | 2 | 2.9 |
| | 1350HR-4S42 | ● | | 4 | 50 | 42 | 50 | 150 | 2 | 1.6 |
| | 1350HR-4M42 | ● | | 4 | 50 | 42 | 50 | 250 | 2 | 2.6 |
| | 1350HR-4L42 | ● | | 4 | 50 | 42 | 50 | 300 | 2 | 3.1 |
| | 1363HR-4S32 | | | 4 | 63 | 32 | 50 | 150 | 2 | 1.4 |
| | 1363HR-4M32 | | | 4 | 63 | 32 | 50 | 250 | 2 | 2.1 |
| | 1363HR-4L32 | | | 4 | 63 | 32 | 50 | 300 | 2 | 2.4 |
| | 1363HR-4S40 | | | 4 | 63 | 40 | 50 | 150 | 2 | 1.8 |
| | 1363HR-4M40 | | | 4 | 63 | 40 | 50 | 250 | 2 | 2.8 |
| | 1363HR-4L40 | | | 4 | 63 | 40 | 50 | 300 | 2 | 3.2 |
| | 1363HR-4S42 | ● | | 4 | 63 | 42 | 50 | 150 | 2 | 1.9 |
| | 1363HR-4M42 | ● | | 4 | 63 | 42 | 50 | 250 | 2 | 3 |
| | 1363HR-4L42 | ● | | 4 | 63 | 42 | 50 | 300 | 2 | 3.5 |
| | 1363HR-5S32 | | | 5 | 63 | 32 | 50 | 150 | 2 | 1.5 |
| | 1363HR-5M32 | | | 5 | 63 | 32 | 50 | 250 | 2 | 2 |
| | 1363HR-5L32 | | | 5 | 63 | 32 | 50 | 300 | 2 | 2.3 |
| | 1363HR-5S40 | | | 5 | 63 | 40 | 50 | 150 | 2 | 1.8 |
| | 1363HR-5M40 | | | 5 | 63 | 40 | 50 | 250 | 2 | 2.8 |
| | 1363HR-5L40 | | | 5 | 63 | 40 | 50 | 300 | 2 | 3.2 |
| | 1363HR-5S42 | | | 5 | 63 | 42 | 50 | 150 | 2 | 1.9 |
| | 1363HR-5M42 | ● | | 5 | 63 | 42 | 50 | 250 | 2 | 3 |
| | 1363HR-5L42 | ● | | 5 | 63 | 42 | 50 | 300 | 2 | 3.5 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Vite | Chiave |
|---|---|
|  |  |
| FTKA0412B | TW15S |

## Inserti disponibili

WNMX-MM

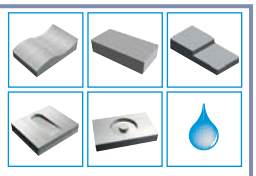


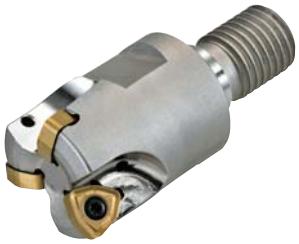
| Articolo | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | Cermet CN2000 | CN20 | CN30 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WNMX 130520ZNN-MM | | | | ● | ● | ● | ● | | | | | | | | | | | E20 |

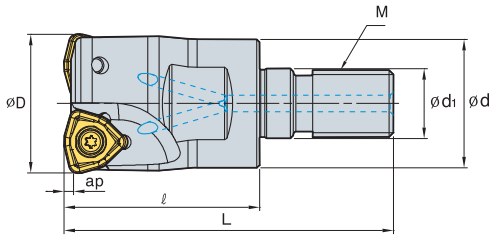
• Inserti disponibili, vedere pag. : E20 ● : Disponibile ○ : A richiesta

# HRMDM 09/13

AA 14°
• AR : −7°
• RR : −18°~−25°








(mm)

| | Articolo | Stock | | øD | ød | ød1 | ℓ | L | M | ap | kg | Inserti disponibili |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HRMDM | 0925HR-M12 | ● | 2 | 25 | 23 | 12.5 | 35 | 59 | M12 | 1.5 | 0.10 | WNMX09T316ZNN-MM |
| | 0926HR-M12 | ● | 2 | 26 | 23 | 12.5 | 35 | 59 | M12 | 1.5 | 0.11 | |
| | 0930HR-M16 | ● | 3 | 30 | 29 | 17 | 40 | 67 | M16 | 1.5 | 0.19 | |
| | 0932HR-M16 | ● | 3 | 32 | 29 | 17 | 40 | 67 | M16 | 1.5 | 0.20 | |
| | 0933HR-M16 | ● | 3 | 33 | 29 | 17 | 40 | 67 | M16 | 1.5 | 0.21 | |
| | 0935HR-M16 | ● | 4 | 35 | 29 | 17 | 40 | 67 | M16 | 1.5 | 0.22 | |
| | 0940HR-M16 | ● | 4 | 40 | 29 | 17 | 40 | 67 | M16 | 1.5 | 0.25 | |
| | 1332HR-M16 | ● | 2 | 32 | 29 | 17 | 40 | 67 | M16 | 2 | 0.20 | WNMX130520ZNN-MM |
| | 1333HR-M16 | ● | 2 | 33 | 29 | 17 | 40 | 67 | M16 | 2 | 0.20 | |
| | 1335HR-M16 | ● | 2 | 35 | 29 | 17 | 40 | 67 | M16 | 2 | 0.22 | |
| | 1340HR-M16 | ● | 3 | 40 | 29 | 17 | 45 | 72 | M16 | 2 | 0.26 | |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Vite | Chiave |
|---|---|---|
| |  |  |
| Tipo 09 | FTKA0307 | TW09S |
| Tipo 13 | FTKA0412B | TW15S |

## Mandrini disponibili

| Articolo | | Modulare disponibile |
|---|---|---|
| HRMDM | 0925HR-M12 | MAT- M12 |
| | 0926HR-M12 | MAT- M12 |
| | 0930HR-M16 | MAT- M16 |
| | 0932HR-M16 | MAT- M16 |
| | 0933HR-M16 | MAT- M16 |
| | 0935HR-M16 | MAT- M16 |
| | 0940HR-M16 | MAT- M16 |
| | 1332HR-M16 | MAT- M16 |
| | 1333HR-M16 | MAT- M16 |
| | 1335HR-M16 | MAT- M16 |
| | 1340HR-M16 | MAT- M16 |

• Inserti disponibili, vedere pag. : E20
• Attacchi e viti disponibili : E215~E217

Articolo : HRMDM0932HR-M16
Dimensione filettatura testa modulare (M16)
=
Spec. adattatore : MAT-M16-035-S32S
Dimensione filettatura adattatore (M16)

## Inserti disponibili

WNMX-MM



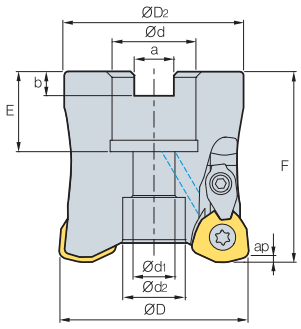
| Tipo | Articolo | Rivestito | | | | | | | | | | Cermet | | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| 09 | WNMX09T316ZNN-MM | | | | ● | ● | ● | ● | | | | | | | | | | | E20 |
| 13 | WNMX130520ZNN-MM | | | | ● | ● | ● | ● | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |

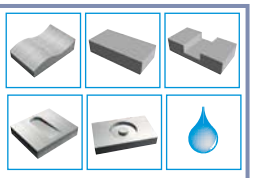
● : Disponibile ○ : A richiesta

# HRMC(M)13/15

AA 15° • AR : 7° • RR : -15°~-5°





(mm)

| Articolo | Stock | ⚙ | øD | øD2 | ød | ød1 | ød2 | a | b | E | F | ap | kg | Bullone |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HRMC(M) 13050HR-3 | ●(●) | 3 | 50 | 47 | 22.225(22) | 11 | 16.4 | 8.0(10.4) | 5(6.3) | 20(21) | 50 | 2.0 | 0.4 | SB1035 |
| 13050HR-4 | ●(●) | 4 | 50 | 47 | 22.225(22) | 11 | 16.4 | 8.0(10.4) | 5(6.3) | 20(21) | 50 | 2.0 | 0.4 | SB1035 |
| 13063HR-4 | ●(●) | 4 | 63 | 60 | 22.225(22) | 11 | 17 | 8.0(10.4) | 5(6.3) | 20(21) | 50 | 2.0 | 0.7 | SB1035 |
| 13080HR-5 | ●(●) | 5 | 80 | 76 | 31.75(27) | 18(13) | 26(20) | 12.7(12.4) | 8(7) | 32(23) | 70 | 2.0 | 1.6 | SB16(12)45 |
| HRMC(M) 15063HR-3 | ●(●) | 3 | 63 | 60 | 22.225(22) | 11 | 17 | 8.0(10.4) | 5(6.3) | 20(21) | 50 | 2.5 | 0.7 | SB1035 |
| 15080HR-4 | ●(●) | 4 | 80 | 76 | 31.75(27) | 18(13) | 26(20) | 12.7(12.4) | 8(7) | 32(23) | 70 | 2.5 | 1.7 | SB16(12)45 |
| 15100HR-5 | ●(●) | 5 | 100 | 96 | 31.75(32) | 18 | 26 | 12.7(14.4) | 8(8) | 32(26) | 70 | 2.5 | 2.8 | SB1645 |
| 15100HR-6 | ●(●) | 6 | 100 | 96 | 31.75(32) | 18 | 26 | 12.7(14.4) | 8(8) | 32(26) | 70 | 2.5 | 3.2 | SB1645 |
| 15125HR-6 | ● | 6 | 125 | 98 | 38.1(40) | 22 | 32 | 15.9(16.4) | 10(9) | 35(29) | 63 | 2.5 | 3.3 | SB2040 |
| 15160R-7 | ● | 7 | 160 | 100 | 50.8(40) | - | 72 | 19.0(16.4) | 11(9) | 38(35) | 63 | 2.5 | 4.3 | MBA-M24(M20) |

Nota) Con raffreddamento interno Ø50~Ø125 • ( )Sistema metrico ● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Vite | Staffa | Vite di staffaggio | C-Ring | Chiave |
|---|---|---|---|---|---|
| |  |  |  |  |  |
| Tipo 13 (Ø50,63,80) | FTGA0513-P | CHH4.5R1 | CTX04513H | CR03 | TW20-100 |
| Tipo 15 (Ø63,80,100, 125, 160) | FTGA0513-P | CHH5.5R1 | CTX0515 | CR04 | TW20-100 |

## Inserti disponibili

WDKT-MH



| Tipo | Articolo | Rivestito | | | | | | | | | | Cermet | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| 13 | WDKT130520ZDSR-MH | | | | ● | ● | ● | ● | ● | | | | | | | | | | E20 |
| 15 | WDKT150625ZDSR-MH | | | | ● | ● | ● | ● | ● | | | | | | | | | | |

● : Disponibile ○ : A richiesta

## Mandrini disponibili

| Articolo | Attacchi disponibili | |
|---|---|---|
| | HRMC | HRMCM |
| HRMC(M) 13050HR-3<br>13050HR-4<br>13063HR-4 | BT□□ -FMA22.225-□□ | BT□□ - FMC22-□□<br>SK□□ -FMC22-□□ |
| 13080HR-5 | BT□□ -FMA31.75-□□<br>SK□□ -FMA31.75-□□ | BT□□ - FMC27-□□<br>SK□□ -FMC27-□□ |
| HRMC(M) 15063HR-3 | BT□□ -FMA22.225-□□ | BT□□ - FMC22-□□<br>SK□□ -FMC22-□□ |
| 15080HR-4 | BT□□ -FMA31.75-□□<br>SK□□ -FMA31.75-□□ | BT□□ - FMC27-□□<br>SK□□ -FMC27-□□ |
| 15100HR-5<br>15100HR-6 | | BT□□ - FMC32-□□<br>SK□□ -FMC32-□□ |
| 15125HR-6 | BT□□ -FMA38.1-□□<br>SK□□ -FMA38.1-□□ | SK□□ -FMC40-□□ |
| 15160R-7 | BT□□ -FMA50.8-□□ | |

• Inserti disponibili, vedere pag. : E20
• Attacchi e viti disponibili : E215~E217

## Bullone

Fig..1

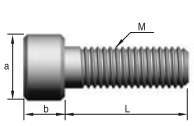
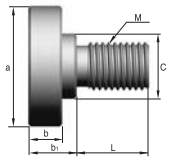



Fig..2



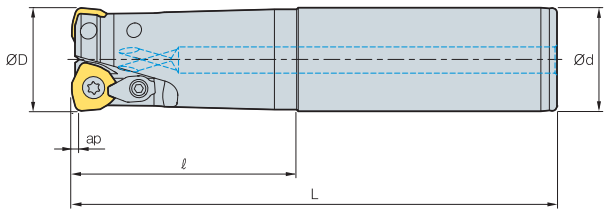

| Articolo | Dimensioni(mm) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | M | a | b | b1 | c | L | Passo | Fig. |
| SB1035 | M10 | 16 | 10 | - | - | 35 | 1.5 | 1 |
| SB1245 | M12 | 18 | 12 | - | - | 45 | 1.75 | 1 |
| SB1645 | M16 | 24 | 16 | - | - | 45 | 2.0 | 1 |
| SB2040 | M20 | 30 | 20 | - | - | 40 | 2.5 | 1 |
| MBA-M20 | M20 | 50 | 14 | 20 | 27 | 30 | 2.5 | 2 |
| MBA-M24 | M24 | 65 | 14 | 24 | 37 | 36 | 3.0 | 2 |

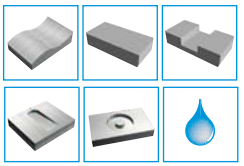
# HRMS08/10/13

AA 15°

• AR : 7°
• RR : −11°~−5°





(mm)

| | Articolo | Stock | ⌀ | ØD | Ød | ℓ | L | ap | kg |
|---|---|---|---|---|---|---|---|---|---|
| HRMS | 0820HR-2S20 | ● | 2 | 20 | 20 | 50 | 130 | 1.0 | 0.3 |
| | 0820HR-2M20 | ● | 2 | 20 | 20 | 100 | 180 | 1.0 | 0.4 |
| | 0820HR-2L20 | ● | 2 | 20 | 20 | 130 | 250 | 1.0 | 0.5 |
| | 0821HR-2S20 | ● | 2 | 21 | 20 | 50 | 130 | 1.0 | 0.3 |
| | 0821HR-2M20 | ● | 2 | 21 | 20 | 50 | 180 | 1.0 | 0.4 |
| | 0821HR-2L20 | ● | 2 | 21 | 20 | 50 | 250 | 1.0 | 0.5 |
| HRMS | 1025HR-2S25 | ● | 2 | 25 | 25 | 60 | 140 | 1.5 | 0.4 |
| | 1025HR-2M25 | ● | 2 | 25 | 25 | 120 | 200 | 1.5 | 0.6 |
| | 1025HR-2L25 | ● | 2 | 25 | 25 | 180 | 300 | 1.5 | 0.9 |
| | 1026HR-2S25 | ● | 2 | 26 | 25 | 60 | 140 | 1.5 | 0.4 |
| | 1026HR-2M25 | ● | 2 | 26 | 25 | 60 | 200 | 1.5 | 0.6 |
| | 1026HR-2L25 | ● | 2 | 26 | 25 | 60 | 300 | 1.5 | 1.0 |
| | 1030HR-2S32 | ● | 2 | 30 | 32 | 70 | 150 | 1.5 | 0.8 |
| | 1030HR-2M32 | ● | 2 | 30 | 32 | 120 | 200 | 1.5 | 1.0 |
| | 1030HR-2L32 | ● | 2 | 30 | 32 | 180 | 300 | 1.5 | 1.5 |
| HRMS | 1332HR-2S32 | ● | 2 | 32 | 32 | 70 | 150 | 2.0 | 0.8 |
| | 1332HR-2M32 | ● | 2 | 32 | 32 | 120 | 200 | 2.0 | 1.0 |
| | 1332HR-2L32 | ● | 2 | 32 | 32 | 180 | 300 | 2.0 | 1.6 |
| | 1333HR-2S32 | ● | 2 | 33 | 32 | 70 | 150 | 2.0 | 0.8 |
| | 1333HR-2M32 | ● | 2 | 33 | 32 | 70 | 200 | 2.0 | 1.1 |
| | 1333HR-2L32 | ● | 2 | 33 | 32 | 70 | 300 | 2.0 | 1.7 |
| | 1335HR-2S32 | ● | 2 | 35 | 32 | 50 | 150 | 2.0 | 0.8 |
| | 1335HR-2M32 | ● | 2 | 35 | 32 | 50 | 200 | 2.0 | 1.1 |
| | 1335HR-2L32 | ● | 2 | 35 | 32 | 50 | 300 | 2.0 | 1.7 |
| | 1340HR-3S32 | ● | 3 | 40 | 32 | 50 | 150 | 2.0 | 0.8 |
| | 1340HR-3M32 | ● | 3 | 40 | 32 | 50 | 250 | 2.0 | 1.4 |
| | 1340HR-3L32 | ● | 3 | 40 | 32 | 50 | 300 | 2.0 | 1.7 |
| New | 1340HR-3S40 | ● | 3 | 40 | 40 | 60 | 150 | 2.0 | 1.2 |
| New | 1340HR-3M40 | ● | 3 | 40 | 40 | 130 | 250 | 2.0 | 2.1 |
| New | 1340HR-3L40 | ● | 3 | 40 | 40 | 180 | 300 | 2.0 | 2.6 |
| | 1340HR-3S42 | ● | 3 | 40 | 42 | 60 | 150 | 2.0 | 1.4 |
| | 1340HR-3M42 | ● | 3 | 40 | 42 | 130 | 250 | 2.0 | 2.3 |
| | 1340HR-3L42 | ● | 3 | 40 | 42 | 180 | 300 | 2.0 | 2.7 |

Nota) Con raffreddamento interno Ø20~Ø40

● : Disponibile ○ : A richiesta

## Parti di ricambio

| | | Vite | Staffa | Vite di staffaggio | C-Ring | Chiave |
|---|---|---|---|---|---|---|
| | |  |  |  |  |  |
| Tipo 08 | | FTNA0306 | - | - | - | TW09P |
| Tipo 10 | | FTKA0408 | CHH3.5R1 | CTX03510 | CR03 | TW15S |
| 13 | Ø32,33,35 | FTGA0510-P | CHH4.5R1 | CTX04513H | CR03 | TW20 |
| | Ø40 | FTGA0512-P | CHH4.5R1 | CTX04513H | CR03 | TW20 |

• Inserti disponibili, vedere pag. : E20

## Inserti disponibili

WDKT-MH



| Tipo | Articolo | Rivestito | | | | | | | | | | Cermet | | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| 08 | WDKT080316ZDSR-MH | | | | ● | ● | ● | ● | | | | | | | | | | | E20 |
| 10 | WDKT10T320ZDSR-MH | | | | ● | ● | ● | ● | | | | | | | | | | | |
| 13 | WDKT130520ZDSR-MH | | | | ● | ● | ● | ● | ● | | | | | | | | | | |

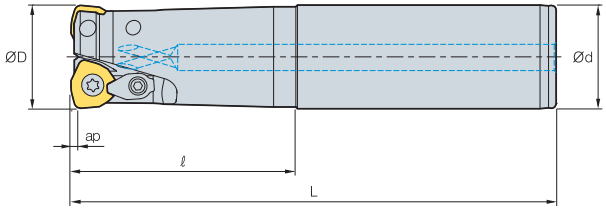
● : Disponibile ○ : A richiesta

# HRMS15

AA 15°

• AR : 7°
• RR : -8°~-6°






(mm)

| Articolo | | Stock | ⊙ | øD | ød | ℓ | L | ap | kg |
|---|---|---|---|---|---|---|---|---|---|
| HRMS | 1550HR-3S32 New | | 3 | 50 | 32 | 50 | 150 | 2.5 | 1.0 |
| New | 1550HR-3M32 | | 3 | 50 | 32 | 50 | 250 | 2.5 | 1.6 |
| New | 1550HR-3L32 | | 3 | 50 | 32 | 50 | 300 | 2.5 | 1.9 |
| New | 1550HR-3S40 | | 3 | 50 | 40 | 50 | 150 | 2.5 | 1.4 |
| New | 1550HR-3M40 | | 3 | 50 | 40 | 50 | 250 | 2.5 | 2.3 |
| New | 1550HR-3L40 | | 3 | 50 | 40 | 50 | 300 | 2.5 | 2.8 |
| | 1550HR-3S42 | ● | 3 | 50 | 42 | 50 | 150 | 2.5 | 1.5 |
| | 1550HR-3M42 | | 3 | 50 | 42 | 50 | 250 | 2.5 | 2.5 |
| | 1550HR-3L42 | ● | 3 | 50 | 42 | 50 | 300 | 2.5 | 3.0 |
| New | 1563HR-4S32 | | 4 | 63 | 32 | 50 | 150 | 2.5 | 1.3 |
| New | 1563HR-4M32 | | 4 | 63 | 32 | 50 | 250 | 2.5 | 1.9 |
| New | 1563HR-4L32 | | 4 | 63 | 32 | 50 | 300 | 2.5 | 2.2 |
| New | 1563HR-4S40 | | 4 | 63 | 40 | 50 | 150 | 2.5 | 1.7 |
| New | 1563HR-4M40 | | 4 | 63 | 40 | 50 | 250 | 2.5 | 2.6 |
| New | 1563HR-4L40 | | 4 | 63 | 40 | 50 | 300 | 2.5 | 3.1 |
| | 1563HR-4S42 | | 4 | 63 | 42 | 50 | 150 | 2.5 | 1.8 |
| | 1563HR-4M42 | ● | 4 | 63 | 42 | 50 | 250 | 2.5 | 2.8 |
| | 1563HR-4L42 | | 4 | 63 | 42 | 50 | 300 | 2.5 | 3.3 |

Nota) Con raffreddamento interno Ø50~Ø63

● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Vite | Staffa | Vite di staffaggio | C-Ring | Chiave |
|---|---|---|---|---|---|
| |  |  |  |  |  |
| Ø50,63 | FTGA0513-P | CHH5.5R1 | CTX0515 | CR04 | TW20 |

• Inserti disponibili, vedere pag. : E20

## Inserti disponibili

WDKT-MH



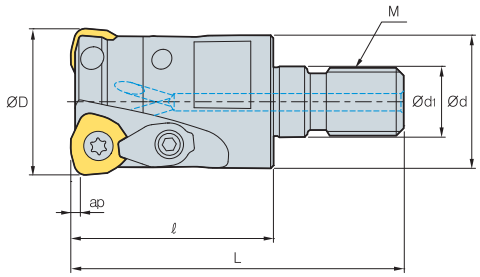
| Articolo | Rivestito | | | | | | | | | | Cermet | | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| WDKT 150625ZDSR-MH | | | | ● | ● | ● | ● | ● | | | | | | | | | | E20 |

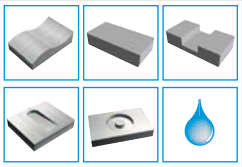
# HRMM08/10/13 New

AA 15°

• AR : 7°
• RR : −11°~−5°





(mm)

| Articolo | | Stock | | øD | ød | ød1 | ℓ | L | M | ap | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| HRMM | 0820HR-M10 | ● | 2 | 20 | 18 | 10.5 | 30 | 51 | M10 | 1 | 0.06 |
| | 0821HR-M10 | ● | 2 | 21 | 18 | 10.5 | 30 | 51 | M10 | 1 | 0.06 |
| | 0825HR-M12 | ● | 3 | 25 | 23 | 12.5 | 35 | 59 | M12 | 1 | 0.11 |
| | 0826HR-M12 | ● | 3 | 26 | 23 | 12.5 | 35 | 59 | M12 | 1 | 0.11 |
| | 0828HR-M12 | ● | 3 | 28 | 23 | 12.5 | 35 | 59 | M12 | 1 | 0.12 |
| | 0832HR-M16 | ● | 4 | 32 | 29 | 17 | 40 | 67 | M16 | 1 | 0.21 |
| | 0833HR-M16 | ● | 4 | 33 | 29 | 17 | 40 | 67 | M16 | 1 | 0.21 |
| | 0835HR-M16 | ● | 4 | 35 | 29 | 17 | 40 | 67 | M16 | 1 | 0.23 |
| | 0840HR-M16 | ● | 5 | 40 | 29 | 17 | 40 | 67 | M16 | 1 | 0.25 |
| HRMM | 1025HR-M12 | ● | 2 | 25 | 23 | 12.5 | 35 | 59 | M12 | 1.5 | 0.1 |
| | 1026HR-M12 | ● | 2 | 26 | 23 | 12.5 | 35 | 59 | M12 | 1.5 | 0.1 |
| | 1030HR-M16 | ● | 2 | 30 | 29 | 17 | 40 | 67 | M16 | 1.5 | 0.2 |
| | 1032HR-M16 | ● | 3 | 32 | 29 | 17 | 45 | 72 | M16 | 1.5 | 0.26 |
| | 1035HR-M16 | ● | 3 | 35 | 29 | 17 | 45 | 72 | M16 | 1.5 | 0.23 |
| | 1040HR-M16 | ● | 4 | 40 | 29 | 17 | 45 | 72 | M16 | 1.5 | 0.27 |
| HRMM | 1332HR-M16 | ● | 2 | 32 | 29 | 17 | 40 | 67 | M16 | 2 | 0.17 |
| | 1333HR-M16 | ● | 2 | 33 | 29 | 17 | 40 | 67 | M16 | 2 | 0.17 |
| | 1335HR-M16 | ● | 2 | 35 | 29 | 17 | 40 | 67 | M16 | 2 | 0.19 |
| | 1340HR-M16 | ● | 3 | 40 | 29 | 17 | 45 | 72 | M16 | 2 | 0.24 |

Nota) Con raffreddamento interno Ø20~Ø40

● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Vite | Staffa | Vite di staffaggio | C–Ring | Chiave | |
|---|---|---|---|---|---|---|
| Tipo 08 | FTNA0306 | - | - | - | - | - |
| Tipo 10 | FTKA0408 | CHH3.5R1 | CTX03510 | CR03 | TW15S | - |
| Tipo 13 (Ø32,33,35) | FTGA0510-P | CHH4.5R1 | CTX04513H | CR03 | - | TW20 |
| Tipo 13 (Ø40) | FTGA0512-P | CHH4.5R1 | CTX04513H | CR03 | - | TW20 |

## Inserti disponibili

WDKT-MH



| Tipo | Articolo | Rivestito | | | | | | | | | | Cermet | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| 08 | WDKT080316ZDSR-MH | | | | ● | ● | ● | ● | | | | | | | | | | | E20 |
| 10 | WDKT10T320ZDSR-MH | | | | ● | ● | ● | ● | | | | | | | | | | | |
| 13 | WDKT130520ZDSR-MH | | | | ● | ● | ● | ● | ● | | | | | | | | | | |

● : Disponibile ○ : A richiesta

## Applicable adaptor

| Articolo | | Adattatori disponibili | Articolo | | Adattatori disponibili |
|---|---|---|---|---|---|
| HRMM | 0820HR-M10 | MAT - M10 | HRMM | 1025HR-M12 | MAT - M12 |
| | 0821HR-M10 | MAT - M10 | | 1026HR-M12 | MAT - M12 |
| | 0825HR-M12 | MAT - M12 | | 1030HR-M16 | MAT - M16 |
| | 0826HR-M12 | MAT - M12 | | 1032HR-M16 | MAT - M16 |
| | 0828HR-M12 | MAT - M12 | | 1035HR-M16 | MAT - M16 |
| | 0832HR-M16 | MAT - M16 | | 1040HR-M16 | MAT - M16 |
| | 0833HR-M16 | MAT - M16 | | 1332HR-M16 | MAT - M16 |
| | 0835HR-M16 | MAT - M16 | | 1333HR-M16 | MAT - M16 |
| | 0840HR-M16 | MAT - M16 | | 1335HR-M16 | MAT - M16 |
| | | | | 1340HR-M16 | MAT - M16 |

Articolo : HRMM0820HR-M10
Dimensione filettatura testa modulare (M16)

=

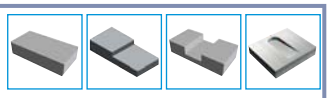
Spec. adattatore : MAT-M10-030-S20S
Dimensione filettatura adattatore (M16)

• Inserti disponibili, vedere pag. : E20
• Adattatori applicabili, vedere pag.: E133~E134

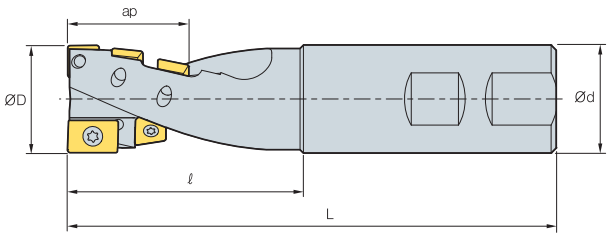
# THE

AA 90°

• AR : 5°, 10°
• RR : -5°








(mm)

| Articolo | | Stock R | Stock L | øD | ød | ℓ | L | Inserti disponibili: Tagliente inferiore | Inserti disponibili: Tagliente esterno | ap | N. Scan. | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| THE | 25R | ● | | 25 | 25 | 55 | 120 | APLT070304R 1z | SPMT060304 4z | 25 | 2 | 0.4 |
| | 32R | ● | | 32 | 32 | 70 | 145 | ADLT150308R 1z | SDMT090308-MM 5z | 40 | 2 | 0.5 |
| | 40R | ● | | 40 | 42 | 88 | 175 | ZPMT1504PPSR-MM 1z | SPMT120408-MM 5z | 54 | 2 | 1.3 |
| | 50R | ● | | 50 | 42 | 85 | 175 | ZPMT1504PPSR-MM 2z | SPMT120408-MM 10z | 54 | 4 | 1.4 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Vite | Chiave | |
|---|---|---|---|
| THE 25R | ETNA02506 | TW07P | - |
| 32R | ETNA0408 | - | TW15S |
| 40R | ETNA0511 | - | TW20S |
| 50R | ETNA0511 | - | TW20S |

## Condizioni di taglio raccomandate

• Scanalatura

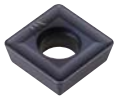
| Pezzo lavorato | Condizioni di taglio vc(m/min) | Condizioni di taglio fz(mm/t) | Gradi |
|---|---|---|---|
| P | 60~120 | 0.06~0.2 | NCM325 |
| M | 50 ~ 120 | 0.06~0.15 | NCM325 |
| K | 60~120 | 0.1~0.2 | NCM325 |

• Lavorazione laterale

| Pezzo lavorato | Condizioni di taglio vc(m/min) | Condizioni di taglio fz(mm/t) | Gradi |
|---|---|---|---|
| P | 100 ~180 | 0.1 ~ 0.35 | NCM325 |
| M | 80 ~ 180 | 0.1 ~ 0.3 | NCM325 |
| K | 80 ~150 | 0.15~ 0.35 | NCM325 |

• Inserti disponibili, vedere pag. : E04, E05, E13, E18, E24

## Inserti disponibili

| ADLT | APLT | SPMT-MM |
|---|---|---|
|  |  |  |
| **SPMT** | **SDMT-MM** | **ZPMT-MM** |
|  |  |  |

| Articolo | Rivestito: NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | Cermet: CN2000 | CN20 | CN30 | Non rivestito: H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SPMT060304 | ● | | | ● | | | | | | | | | | | | | | E04 |
| SDMT090308-MM | | | | ○ | ○ | | | | | | | | | | | | | E05 |
| SPMT120408-MM | | | | ● | | | | | | | | | | | | | | E13 |
| APLT070304R | ● | | | | | | | | | | | | | | | | | E18 |
| ADLT150308R | ● | | | | | | | | | | | | | | | | | E24 |
| ZPMT1504PPSR-MM | | | | ● | | | | | | | | | | | | | | |

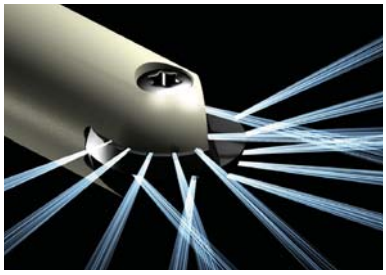
● : Disponibile ○ : A richiesta

## Laser Mill

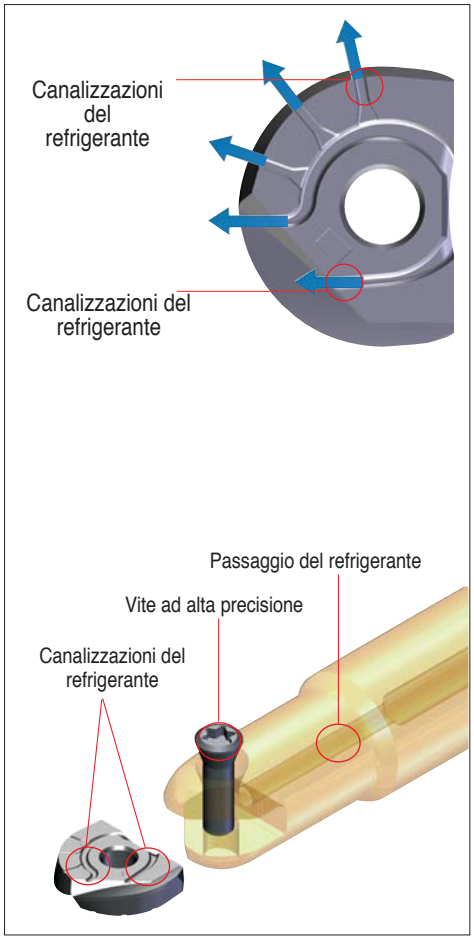
### Caratteristiche

- Lunga durata dell'utensile grazie alle eccellenti prestazioni del grado
- Ottima lavorazione di stampi grazie al sistema MQL
- Semplice staffaggio grazie al sistema a vite
- Vari portainserti disponibili: stelo in acciaio, in metallo duro, modulare
- Frese integrali in metallo duro altamente accurate per la finitura di stampi

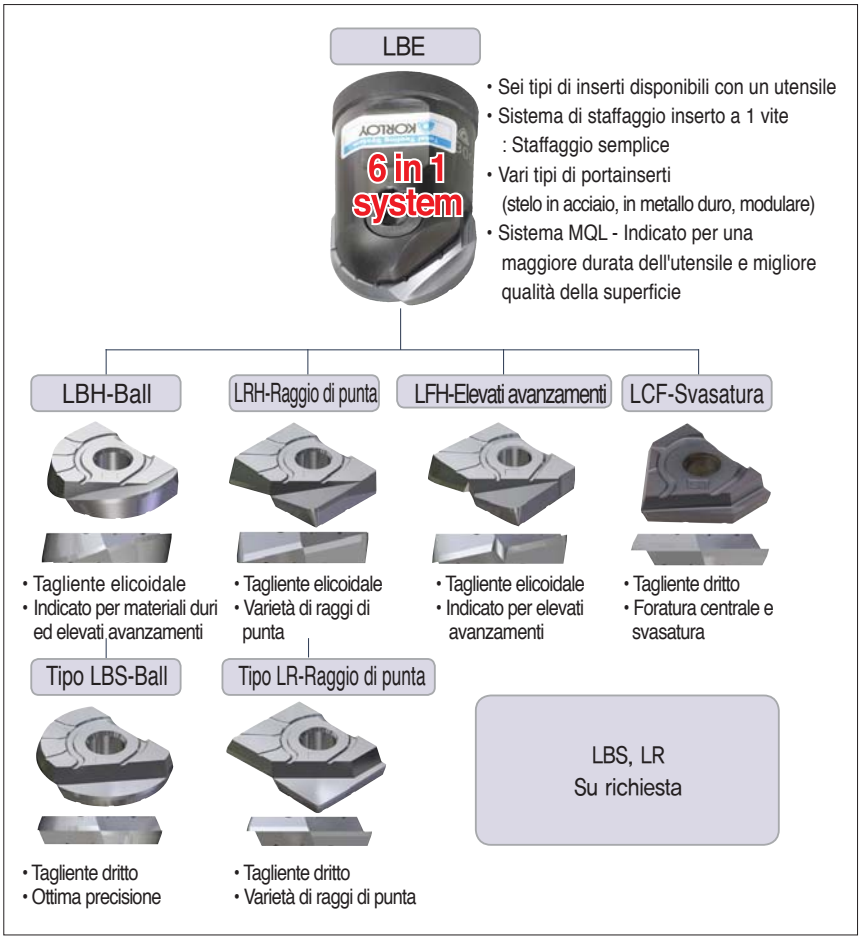
• Sistema ecocompatibile
• Costi inferiori di lubrificazione
• Lubrificazione del tagliente
• Migliore controllo del truciolo
• Maggiore durata dell'utensile e migliore qualità della superficie



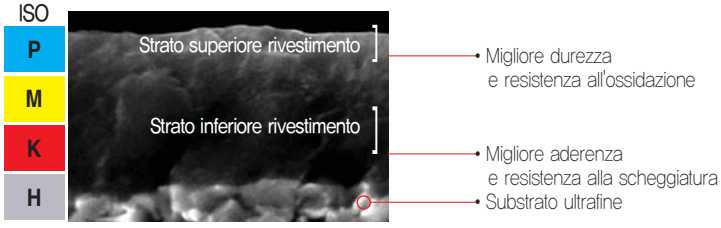
### Caratteristiche



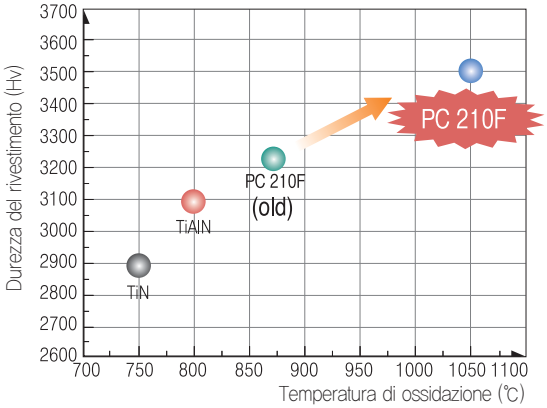

### Caratteristiche




### Caratteristiche del nuovo PC210F




- Maggiore tenacità del tagliente grazie al metallo duro ultrafine
- Rivestimento speciale per lavorazioni ad alte velocità e di materiali temprati
- Eccellente qualità della superficie lavorata grazie alla buona proprietà lubrificante del rivestimento



## Condizioni di taglio per fresatura

• Velocità di taglio

$$vc = \frac{\pi \times De \times n}{1000} \text{ (m/min)}$$

• RPM

$$n = \frac{vce \times 1000}{\pi \times De} \text{ (rev/min)}$$

• Avanzamento

$$fz = \frac{vf}{n \times z} \text{ (mm/t)}$$

• Avanzamento al minuto

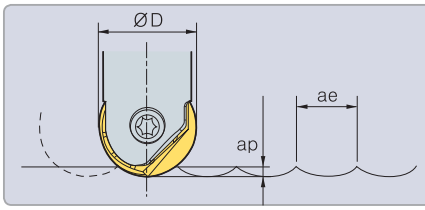
$$vf = fz \times n \times z \text{ (mm/min)}$$

• Materiale asportato

$$Q = \frac{ap \times ae \times vf}{1000} \text{ (cm}^3\text{/min)}$$

• Potenza richiesta

$$Pc = \frac{Q \times kc}{60 \times 1000 \times \eta} \text{ (kW)} \quad H = \frac{Pc}{0.75} \text{ (kW)}$$




vc = Velocità di taglio (m/min)
n = Giri al minuto (min$^{-1}$)
Dc = Lavoro effettivo (mm)
vf = Avanzamento al minuto (mm/min)
fz = Avanzamento per dente (mm/t)
z = Numero denti
Pkw= Potenza richiesta (kW)

Php = Cavalli (hp)
Q = Materiale asportato (cm3/min)
ap = Profondità di taglio (mm)
ae = Passo (mm)
kc = Sforzo di taglio specifico (kg/mm$^2$)
η = Efficienza meccanica (%)

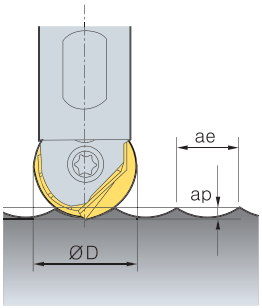
## Condizioni di taglio raccomandate

| Pezzo lavorato | Grado raccomandato | Durezza | vc (m/min) | fz (mm/t) | ap | ae |
|---|---|---|---|---|---|---|
| | | | | | ap(mm) | ae(mm) |
| Acc. al cabonio, acc. legato | **PC210F** | Fino a HRC30 | 100 ~ 250 | 0.2 ~ 0.3 | 0.07D | 0.07D |
| Acc. al cabonio, acc. legato | **PC210F** | HRC30 ~ 40 | 80 ~ 150 | 0.1 ~ 0.3 | 0.07D | 0.07D |
| Acciaio pressofuso | **PC210F** | HRC30 ~ 40 | 80 ~ 150 | 0.1 ~ 0.2 | 0.05D | 0.05D |
| Ghisa | **PC210F** | – | 100 ~ 200 | 0.3 ~ 0.35 | 0.07D | 0.07D |
| Acciaio temprato | **PC210F** | HRC50 ~ 60 | 100 ~ 150 | 0.1 ~ 0.3 | 0.03D | 0.03D |
| Acciaio inossidabile | **PC210F** | – | 80 ~ 150 | 0.1 ~ 0.3 | 0.05D | 0.05D |
| Lega di alluminio | **PC210F** | – | 200 ~ 300 | 0.15 ~ 0.4 | 0.15D | 0.15D |

## Formula per il calcolo della velocità di taglio

| R(mm) \ ae(mm) | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1.0 |
|---|---|---|---|---|---|---|---|---|---|---|
| | h(finitura) (μm) | | | | | | | | | |
| 5 | 0.3 | 1.0 | 2.3 | 4.0 | 6.3 | 9.0 | 12.3 | 16.0 | 20.3 | 25.0 |
| 6 | 0.2 | 0.8 | 1.9 | 3.3 | 5.2 | 7.5 | 10.2 | 13.3 | 16.9 | 20.8 |
| 8 | 0.2 | 0.6 | 1.4 | 2.5 | 3.9 | 5.6 | 7.7 | 10.0 | 12.7 | 15.6 |
| 10 | 0.1 | 0.5 | 1.1 | 2.0 | 3.1 | 4.5 | 6.1 | 8.0 | 10.1 | 12.5 |
| 12.5 | 0.1 | 0.4 | 0.9 | 1.6 | 2.5 | 3.6 | 4.9 | 6.4 | 8.1 | 10.0 |
| 15 | 0.1 | 0.3 | 0.8 | 1.3 | 2.1 | 3.0 | 4.1 | 5.3 | 6.8 | 8.3 |
| 16 | 0.1 | 0.3 | 0.7 | 1.3 | 2.0 | 2.8 | 3.8 | 5.0 | 6.3 | 7.8 |

• Formula di sgrossatura: $h(\text{sup. di initura}) = \frac{(ae)^2}{8R} \times 1000(\mu m)$




## Dati del diametro effettivo

| ap \ ØD | Ø08 | Ø10 | Ø12 | Ø16 | Ø20 | Ø25 | Ø30 | Ø32 |
|---|---|---|---|---|---|---|---|---|
| 0.1 | 1.8 | 2.0 | 2.2 | 2.5 | 2.8 | 3.2 | 3.5 | 3.6 |
| 0.2 | 2.5 | 2.8 | 3.1 | 3.6 | 4.0 | 4.5 | 4.9 | 5.0 |
| 0.3 | 3.0 | 3.4 | 3.7 | 4.3 | 4.9 | 5.4 | 6.0 | 6.2 |
| 0.5 | 3.9 | 4.4 | 4.8 | 5.6 | 6.2 | 7.0 | 7.7 | 7.9 |
| 1.0 | 5.3 | 6.0 | 6.6 | 7.7 | 8.7 | 9.8 | 10.8 | 11.1 |
| 1.5 | 6.2 | 7.1 | 7.9 | 9.3 | 10.5 | 11.9 | 13.1 | 13.5 |
| 2.0 | 6.9 | 8.0 | 8.9 | 10.6 | 12.0 | 13.6 | 15.0 | 15.5 |
| 2.5 | 7.4 | 8.7 | 9.7 | 11.6 | 13.2 | 15.0 | 16.6 | 17.2 |
| 3.0 | 7.7 | 9.2 | 10.4 | 12.5 | 14.3 | 16.2 | 18.0 | 18.7 |
| 3.5 | 7.9 | 9.5 | 10.9 | 13.2 | 15.2 | 17.3 | 19.3 | 20.0 |
| 4.0 | 8.0 | 9.8 | 11.3 | 13.9 | 16.0 | 18.3 | 20.4 | 21.2 |
| 5.0 | | | 11.8 | 14.8 | 17.3 | 20.0 | 22.4 | 23.2 |
| 6.0 | | | 12.0 | 15.5 | 18.3 | 21.4 | 24.0 | 25.0 |
| 7.0 | | | | 15.9 | 19.1 | 22.4 | 25.4 | 26.5 |
| 8.0 | | | | 16.0 | 19.6 | 23.3 | 26.5 | 27.7 |
| 10.0 | | | | | 20.0 | 24.5 | 28.3 | 29.7 |

## Formula per il calcolo della velocità di taglio

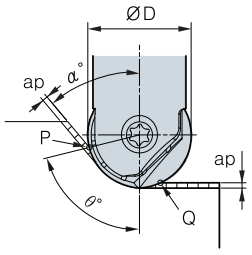
1. Velocità di taglio al punto P (velocità di taglio in rapporto alla modalità di passata sul ramping)
• Formula: Velocità di taglio

$$vc = \frac{\pi \times Desin\theta \times n}{1000} \text{ (m/min)}$$

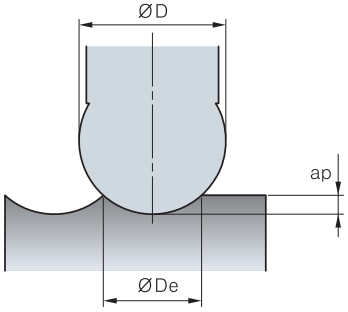
$$\theta = \cos{-1}\left(\frac{De - 2ap}{De}\right) + 90 - \alpha^\circ$$

2. Velocità di taglio al punto Q
• Formula: Velocità di taglio

$$vce = \frac{2\pi n \sqrt{ap(De - ap)}}{1000}$$



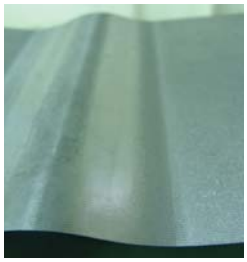
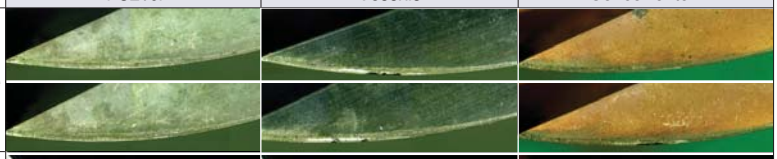
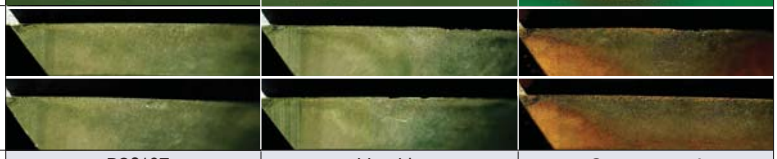
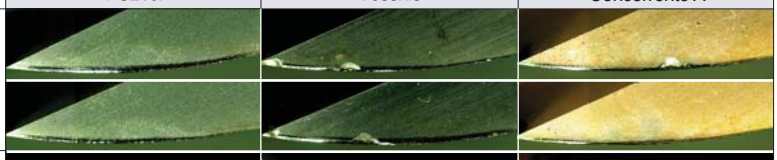
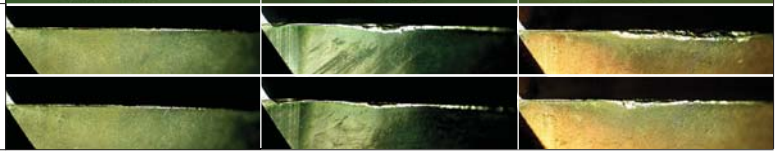

3. Formula del diametro effettivo




• Formula del diametro

$$De = 2\sqrt{ap(D-ap)}$$

## Test di resistenza all'usura

| Condizioni di taglio | | | | | |
|---|---|---|---|---|---|
|  Durata: 15 ore | NAK80(HRC30), Air<br>vc(m/min) = 376<br>fz(mm/t) = 0.33<br>ap(mm) = 0.5<br>ae(mm) = 0.5<br>vf(mm/min) = 4,000<br>n(min$^{-1}$) = 6,000 | | PC210F | Vecchio | Concorrente A |
| | | Vista anteriore e posteriore |  | | |
| | | Vista superiore |  | | |
|  Durata: 8 ore | STD11(HRC50~65), Air<br>vc(m/min) = 251<br>fz(mm/t) = 0.38<br>ap(mm) = 0.5<br>ae(mm) = 0.3<br>vf(m/min) = 3,000<br>n(min$^{-1}$) = 4,000 | | PC210F | Vecchio | Concorrente A |
| | | Vista anteriore e posteriore |  | | |
| | | Vista superiore |  | | |

## Esempio di lavorazione

• Albero a gomiti

| Classe | Specifiche | Pezzo lavorato |
|---|---|---|
| Pezzo lavorato | SCM440 (HRC 40) |  |
| Condizioni di taglio | vc(m/min) = 376 / fz(mm/t) = 0.25 / ap(mm) = 0.5<br>ae(mm) = 0.2 / n(min$^{-1}$) = 6000 / vf(mm/min) = 3000 / MQL | |
| Utensili | Portainserti LBE200115T-S25<br>Inserto LBH200 (PC210F) | |

• Giunto CV

| Classe | Specifiche | Pezzo lavorato |
|---|---|---|
| Pezzo lavorato | S53C (HRC 35) |  |
| Condizioni di taglio | vc(m/min) = 200 / fz(mm/t) = 0.25 / ap(mm) = 0.5~2.0<br>ae(mm) = 0.5~1.0 / n(min$^{-1}$) = 3000 / vf(mm/min) = 1500 / Air | |
| Utensili | Portainserti LBE230-HSKC63<br>Inserto LBH230 (PC210F) | |

• Car Bumper Mold

| Classe | Specifiche | Pezzo lavorato |
|---|---|---|
| Pezzo lavorato | KP4MA (HRC30~35) |  |
| Condizioni di taglio | vc(m/min) = 700 / fz(mm/t) = 0.25 / ap(mm) = 0.5<br>ae(mm) = 0.2 / n(min$^{-1}$) = 9000 / vf(mm/min) = 4500 / Air | |
| Utensili | Portainserti LBE250170S-S25C<br>Inserto LBH250 (PC210F) | |

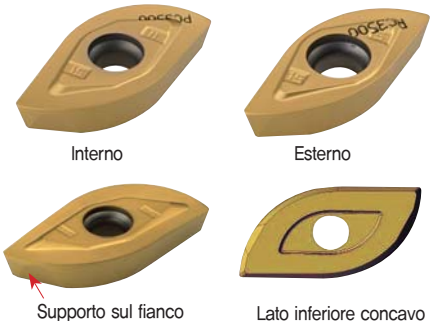
## GBE

### Sistema di codifica portainserti

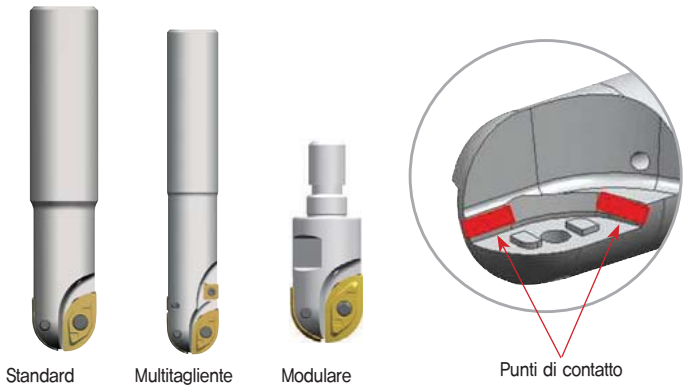
| GBE | 300 | - | S | 32 |
|---|---|---|---|---|
| Nome prodotto | Dia. di lavorazione | | Tipo | Dia. stelo |
| **G**eneral Indexable **B**all **E**ndmill | Ø16, Ø20, Ø25 Ø30, Ø32, Ø40, Ø50 | | S : Stelo standard L : Stelo lungo | |

### Caratteristiche

- Fresa integrale a testa sferica per stampi e medie lavorazioni o di sgrossatura
- Lunga durata dell'utensile grazie al grado più duro
- Tagliente elicoidale estremamente accurato
- Il sistema di raffreddamento interno rende ottimale la lavorazione di stampi
- Indicata per medie lavorazioni e sgrossature medie e pesanti nella lavorazione di stampi
- Vari tipi di frese, lunghezza standard e serie lunga



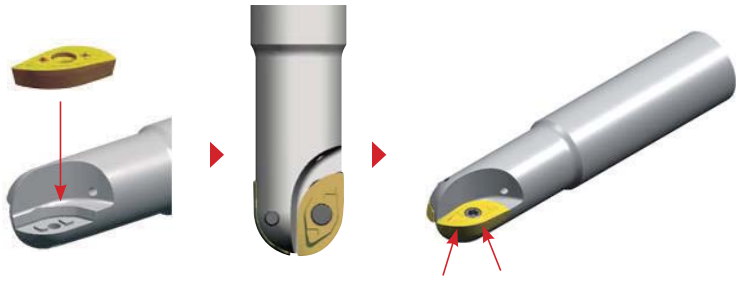

- Indicata per lavorazioni accurate e ampie profondità di taglio.
  - Corsa massima : entro 0.05mm
  - Precisione R : entro 0.05mm
- Vari diametri (Ø16,20,25,30,32,40,50)
- Grazie al tagliente elicoidale si ha un basso sforzo di taglio
- Grazie al lato inferiore concavo e alla stabilità del supporto sul fianco si evitano movimenti dell'inserto durante la lavorazione
- Lunga durata dell'utensile e lavorazione migliore grazie agli inserti bilaterali
- Maggiore durata dell'utensile grazie al nuovo grado




- Vari diametri (Ø16,20,25,30,32,40,50)
- Migliore evacuazione del truciolo si ha con il sistema di raffreddamento interno
- Lunga durata dell'utensile e lavorazione migliore
- Facile montaggio dell'inserto che previene le vibrazioni durante la lavorazione

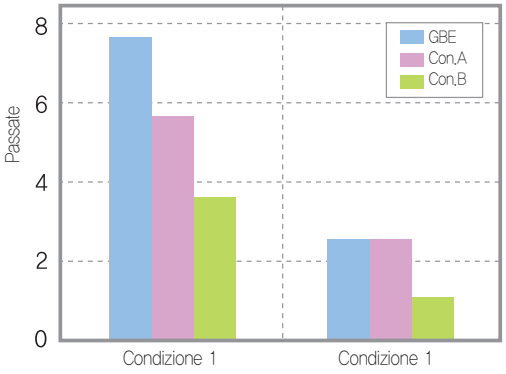
# E Informazioni tecniche per Laser Mill / GBE / BRE

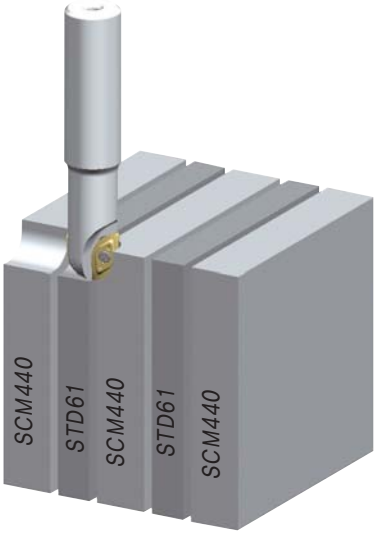
## Come montare l'inserto



1. Inserire l'inserto nell'alloggiamento
2. Premere l'inserto in direzione della freccia rossa e avvitarlo con la chiave

## Test della prestazione di taglio




## Condizioni di taglio

| Class. | Velocità di taglio(vc) | Avanzamento(fz) | Profondità di taglio(ap) | Profondità di taglio(ae) | Pezzo lavorato | Ecc. |
|---|---|---|---|---|---|---|
| Condizione 1 | 150m/min | 0.15mm/t | 5mm | 8mm | STD61(HRC50) + SCM440(HRC20) | A secco |
| Condizione 1 | 100m/min | 0.1mm/t | 8mm | 8mm | | |

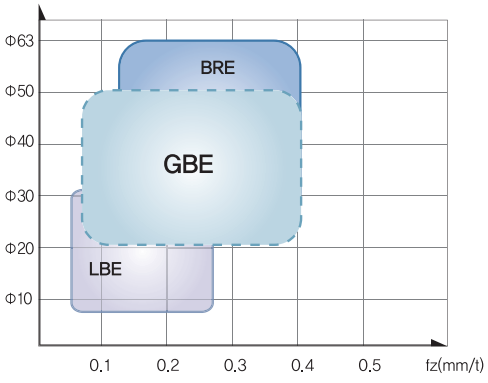
## Inserti / Parti di ricambio

| Inserto | | | | Parti di ricambio | | | |
|---|---|---|---|---|---|---|---|
| Tipo |  |  |  |  | |  |  |
| Dia. | Inserto interno | Inserto esterno | Inserto esterno per fresa multitagliente | Vite | | Chiave | |
| | | | | Per ZPET | Per SPMT | Per ZPET | Per SPMT |
| **Ø16** | ZPET080M-MM | ZPET080S-MM | - | FTKA02555S | - | TW08S | - |
| **Ø20** | ZPET100M-MM | ZPET100S-MM | SPMT060304 | FTKA0307 | ETNA02506 | TW09S | TW07P |
| **Ø25** | ZPET125M-MM | ZPET125S-MM | SPMT060304 | FTKA0409 | ETNA02506 | TW15S | TW07P |
| **Ø30** | ZPET150M-MM | ZPET150S-MM | SDMT090308-MM | FTGA0511-P | ETNA0408 | TW20S | TW15S |
| **Ø32** | ZPET160M-MM | ZPET160S-MM | SDMT090308-MM | FTGA0511-P | ETNA0408 | TW20S | TW15S |
| **Ø40** | ZPET200M-MM | ZPET200S-MM | SDMT120408-MM | FTGA0614 | ETNA0511 | TW20S | TW25S |
| **Ø50** | ZPET250M-MM | ZPET250S-MM | SDMT120408-MM | FTGA0818 | ETNA0511 | TW25S | TW25S |

## Condizioni di taglio raccomandate

| Pezzo lavorato | Tipo di lavorazione | Durezza (HRC) | vc(m/min) | fz(mm/t) | ap(mm) | ae(mm) |
|---|---|---|---|---|---|---|
| Acciaio al carbonio, acciaio legato | Lavorazione sul fianco<br>Scanalatura<br>Lavorazione profonda sul fianco | Fino a 25 | 160~250<br>120~200<br>160~250 | 0.1~0.5<br>0.1~0.5<br>0.1~0.5 | 0.3~0.5D<br>0.3~0.5D<br>1.0~1.5D | 0.2~0.3D<br>-<br>0.1~0.2D |
| Acciaio al carbonio, acciaio legato | Lavorazione sul fianco<br>Scanalatura<br>Lavorazione profonda sul fianco | Fino a 45 | 120~200<br>120~160<br>120~200 | 0.1~0.5<br>0.1~0.5<br>0.1~0.5 | 0.3~0.5D<br>0.3~0.5D<br>1.0~1.5D | 0.2~0.3D<br>-<br>0.1~0.2D |
| Acciaio legato per stampi | Lavorazione sul fianco<br>Scanalatura<br>Lavorazione profonda sul fianco | 30~40 | 120~200<br>120~160<br>120~200 | 0.1~0.3<br>0.1~0.3<br>0.1~0.3 | 0.3~0.5D<br>0.3~0.5D<br>1.0~1.5D | 0.2~0.3D<br>-<br>0.1~0.2D |
| Ghisa (GCGCC) | Lavorazione sul fianco<br>Scanalatura<br>Lavorazione profonda sul fianco | 20~30 | 150~300<br>150~300<br>150~300 | 0.2~0.7<br>0.2~0.7<br>0.2~0.7 | 0.3~0.5D<br>0.3~0.5D<br>1.0~1.5D | 0.2~0.3D<br>-<br>0.1~0.2D |
| Acciaio resistente al calore | Lavorazione sul fianco<br>Scanalatura<br>Lavorazione profonda sul fianco | 50~60 | 40~100<br>40~100<br>40~100 | 0.1~0.3<br>0.1~0.3<br>0.1~0.3 | 0.3~0.5D<br>0.3~0.5D<br>1.0~1.5D | 0.2~0.3D<br>-<br>0.1~0.2D |

## Linea delle frese integrali a testa sferica




| Tipo | Applicazione | | | | |
|---|---|---|---|---|---|
| | Machining Dignity | Machining Efficiency | Machining Dia. equivalence | Economical | Flank Machining with LongEdge |
| Laser Mill | ● | ○ | ◐ | ○ | ○ |
| GBE | ◐ | ● | ◐ | ◐ | ● |
| BRE | ○ | ● | ● | ● | ● |

● : Ottimo ◐ : Buono ○ : Normale

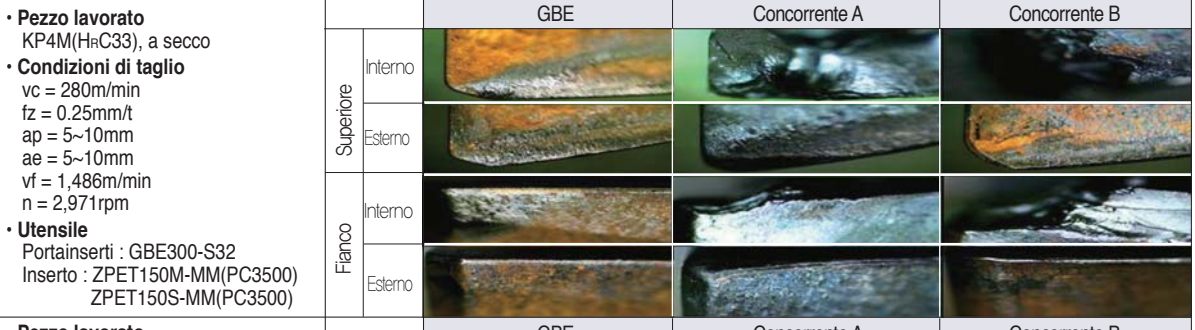
## Risultato del test di resistenza all'usura

| Condizioni di taglio | Immagini di resistenza all'usura |
|---|---|



Durata : 4 passate

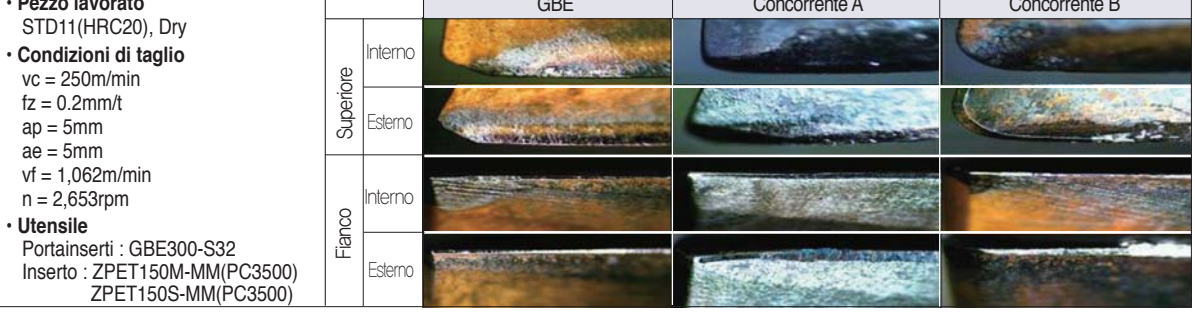
- **Pezzo lavorato**
  KP4M(HRC33), a secco
- **Condizioni di taglio**
  vc = 280m/min
  fz = 0.25mm/t
  ap = 5~10mm
  ae = 5~10mm
  vf = 1,486m/min
  n = 2,971rpm
- **Utensile**
  Portainserti : GBE300-S32
  Inserto : ZPET150M-MM(PC3500)
  ZPET150S-MM(PC3500)






Durata : 4 passate

- **Pezzo lavorato**
  STD11(HRC20), Dry
- **Condizioni di taglio**
  vc = 250m/min
  fz = 0.2mm/t
  ap = 5mm
  ae = 5mm
  vf = 1,062m/min
  n = 2,653rpm
- **Utensile**
  Portainserti : GBE300-S32
  Inserto : ZPET150M-MM(PC3500)
  ZPET150S-MM(PC3500)



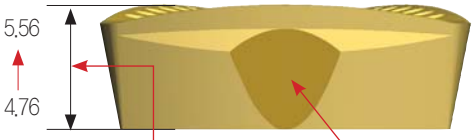
## BRE

### Caratteristiche

- Prestazioni di taglio : Buon controllo del truciolo e prestazioni migliori grazie al tagliente ottimale
- Corpo estremamente rigido : Maggiore durata dell'utensile e resistenza alla rottura grazie allo speciale trattamento in superficie sul portainserti
  Facile da montare e di lunga durata grazie alla vite TCRX
  Buon controllo del truciolo
- Inserto : Indicato per le lavorazioni ad alte velocità ed elevati avanzamenti grazie allo speciale grado resistente all'usura e alla rottura
  Lavorazione stabile grazie all'elevata tenacità del tagliente e all'elevato angolo di spoglia del rompitruciolo

Portainserti multitagliente ISO







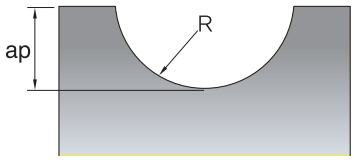

• Buona evacuazione del truciolo
• Buona emissione di calore

• Maggiore resistenza del tagliente grazie all'aumento di spessore

• Maggiore forza di serraggio

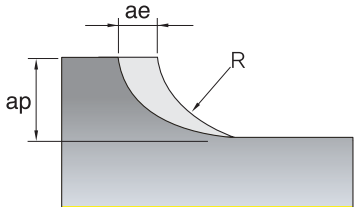
### Lavorazioni BRE per sgrossatura e condizioni di taglio raccomandate

• Tipo di lavorazione



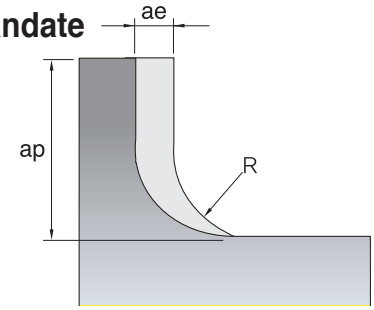

ap=0,3D–0,5D

Tipo di lavorazione 1




ae=0,2D–0,3D
ap=0,3D–0,5D

Tipo di lavorazione 2




ae=0,1D–0,5D
ap=1,2D–1,5D

Tipo di lavorazione 3

| Pezzo lavorato | Tipo di lavorazione | Velocità (m/min) | Avanzamento (mm/t) | Grado |
|---|---|---|---|---|
| Acciaio al carbonio / Acciaio legato | 1 | 120~220 | 0.1~0.4 | NCM325 |
| | 2 | 120~220 | 0.2~0.4 | NCM325 |
| | 3 | 100~180 | 0.1~0.3 | NCM325 |
| Acciaio legato | 1 | 100~200 | 0.1~0.4 | NCM325 |
| | 2 | 100~200 | 0.2~0.4 | NCM325 |
| | 3 | 80~160 | 0.1~0.3 | NCM325 |
| Acciaio per utensili | 1 | 80~150 | 0.1~0.3 | NCM325 |
| | 2 | 80~150 | 0.15~0.35 | NCM325 |
| | 3 | 60~120 | 0.1~0.3 | NCM325 |
| Materiale molto duro ($H_R$35-45) | 1 | 60~120 | 0.1~0.3 | NCM325 |
| | 2 | 60~120 | 0.1~0.3 | NCM325 |
| | 3 | 50~80 | 0.1~0.2 | NCM325 |
| Ghisa | 1 | 100~180 | 0.2~0.5 | NCM320K |
| | 2 | 100~180 | 0.2~0.5 | NCM320K |
| | 3 | 80~160 | 0.15~0.4 | NCM320K |

# Fresa sferica con stelo in metallo duro
# LBE08/10/12/16/20/25/30/32 (Cilindrica)



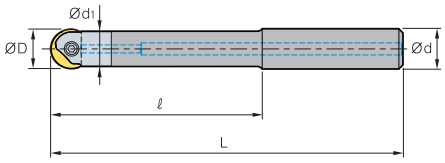



Fig. 1

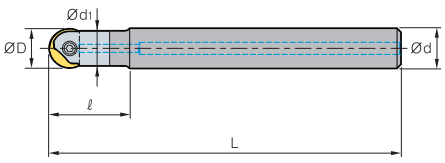



Fig. 2

(mm)

| Articolo | | Stock | øD | ød | ød1 | ℓ | L | Parti di ricambio | | Inserti disponibili (Ø) | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Vite di staffaggio | Chiave | | |
| LBE | 080080S-S08C | ● | 8, 9 | 8 | 7.5 | 80 | 136 | ETND02506F | TWP07S | 8,9 | 1 |
| | 080100S-S08C | ● | 8, 9 | 8 | 7.5 | 100 | 156 | | | | 1 |
| | 080020S-S08C-130 | ● | 8, 9 | 8 | 7.5 | 20 | 130 | ETND02506F | TWP07S | 8,9 | 2 |
| | 080020S-S08C-150 | ● | 8, 9 | 8 | 7.5 | 20 | 150 | | | | 2 |
| | 100080S-S10C | ● | 10, 11 | 10 | 9.5 | 80 | 136 | ETND0307F | TWP08S | 10, 11 | 1 |
| | 100120S-S10C | ● | 10, 11 | 10 | 9.5 | 120 | 176 | | | | 1 |
| | 100023S-S10C-130 | ● | 10, 11 | 10 | 9.5 | 23 | 130 | ETND0307F | TWP08S | 10, 11 | 2 |
| | 100023S-S10C-170 | ● | 10, 11 | 10 | 9.5 | 23 | 170 | | | | 2 |
| | 120100S-S12C | ● | 12, 13 | 12 | 11.5 | 100 | 156 | ETND03509 | TWP10S | 12,13 | 1 |
| | 120150S-S12C | ● | 12, 13 | 12 | 11.5 | 150 | 206 | | | | 1 |
| | 120025S-S12C-150 | ● | 12, 13 | 12 | 11.5 | 25 | 150 | ETND03509 | TWP10S | 12,13 | 2 |
| | 120025S-S12C-200 | ● | 12, 13 | 12 | 11.5 | 25 | 200 | | | | 2 |
| | 160100S-S16C | ● | 16, 17 | 16 | 15.5 | 100 | 160 | ETND0413 | TWP15S | 16,17 | 1 |
| | 160150S-S16C | ● | 16, 17 | 16 | 15.5 | 150 | 210 | | | | 1 |
| | 160030S-S16C-160 | ● | 16, 17 | 16 | 15.5 | 30 | 160 | ETND0413 | TWP15S | 16,17 | 2 |
| | 160030S-S16C-210 | ● | 16, 17 | 16 | 15.5 | 30 | 210 | | | | 2 |
| | 200120S-S20C | ● | 20, 21 | 20 | 19.5 | 120 | 190 | ETKD0516 | TWP20 | 20,21 | 1 |
| | 200170S-S20C | ● | 20, 21 | 20 | 19.5 | 170 | 240 | | | | 1 |
| | 200035S-S20C-190 | ● | 20, 21 | 20 | 19.5 | 35 | 190 | ETKD0516 | TWP20 | 20,21 | 2 |
| | 200035S-S20C-240 | ● | 20, 21 | 20 | 19.5 | 35 | 240 | | | | 2 |
| | 250140S-S25C | | 25, 26 | 25 | 24.5 | 140 | 220 | ETKD0620 | TWP25 | 25,26 | 1 |
| | 250170S-S25C | | 25, 26 | 25 | 24.5 | 170 | 250 | | | | 1 |
| | 250040S-S25C-220 | ● | 25, 26 | 25 | 24.5 | 40 | 220 | ETKD0620 | TWP25 | 25,26 | 2 |
| | 250040S-S25C-250 | ● | 25, 26 | 25 | 24.5 | 40 | 250 | | | | 2 |
| | 300140S-S32C | ● | 30, 31 | 32 | 29.5 | 140 | 230 | ETGD0825 | TWP40 | 30,31 | 1 |
| | 300170S-S32C | ● | 30, 31 | 32 | 29.5 | 170 | 260 | | | | 1 |
| | 300050S-S32C-230 | ● | 30, 31 | 32 | 29.5 | 50 | 230 | ETGD0825 | TWP40 | 30,31 | 2 |
| | 300050S-S32C-260 | ● | 30, 31 | 32 | 29.5 | 50 | 260 | | | | 2 |
| | 320140S-S32C | ● | 32 | 32 | 31.5 | 140 | 230 | ETGD0825 | TWP40 | 32 | 1 |
| | 320170S-S32C | ● | 32 | 32 | 31.5 | 170 | 260 | | | | 1 |
| | 320050S-S32C-230 | ● | 32 | 32 | 31.5 | 50 | 230 | ETGD0825 | TWP40 | 32 | 2 |
| | 320050S-S32C-260 | ● | 32 | 32 | 31.5 | 50 | 260 | | | | 2 |

• Inserti applicabili, vedere pag. E08

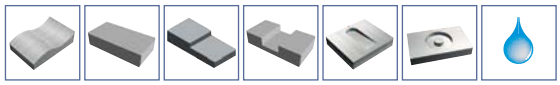
● : Disponibile ○ : A richiesta

## Inserti disponibili

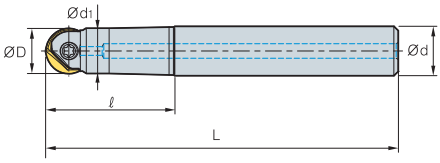
| Portainserti applicabili | LBH (Testa sferica) | LRH (Raggio di punta) | LFH (Alto avanzamento) | LCF (Svasatura) | LBS (Testa sferica) | LR (Raggio di punta) |
|---|---|---|---|---|---|---|
| | Precisione R ±0.005 | Raggio R ±0.015 | | | Precisione R ±0.005 | Raggio R ±0.015 |
| Nuovo LBE080 | LBH080<br>LBH090 | | | | LBS080<br>LBS090 | |
| Nuovo LBE100<br>LRE100 | LBH100<br>LBH110 | LRH100-R05 LRH100-R20<br>LRH100-R10 LRH110-R05 | LFH100 | | LBS100<br>LBS110 | LR100-R05 LR100-R20<br>LR100-R10 LR110-R05 |
| Nuovo LBE120<br>LRE120 | LBH120<br>LBH130 | LRH120-R05 LRH120-R20<br>LRH120-R10 LRH130-R05 | LFH120 | | LBS120<br>LBS130 | LR120-R05 LR120-R20<br>LR120-R10 LR130-R05 |
| Nuovo LBE160<br>LRE160 | LBH160<br>LBH170 | LRH160-R05 LRH160-R30<br>LRH160-R10 LRH170-R05<br>LRH160-R20 | LFH160 | | LBS160<br>LBS170 | LR160-R05 LR160-R30<br>LR160-R10 LR170-R05<br>LR160-R20 |
| Nuovo LBE200<br>LRE200 | LBH200<br>LBH210 | LRH200-R05 LRH200-R30<br>LRH200-R10 LRH210-R05<br>LRH200-R20 | LFH200 | LCF160-D90 | LBS200<br>LBS210 | LR200-R05 LR200-R30<br>LR200-R10 LR210-R05<br>LR200-R20 |
| Nuovo LBE250<br>LRE250 | LBH250<br>LBH260 | LRH250-R05 LRH250-R30<br>LRH250-R10 LRH260-R05<br>LRH250-R20 | LFH250 | LCF200-D90 | LBS250<br>LBS260 | LR250-R05 LR250-R30<br>LR250-R10 LR260-R05<br>LR250-R20 |
| Nuovo LBE300<br>LRE300 | LBH300<br>LBH310 | LRH300-R10 LRH300-R30<br>LRH300-R20 LRH310-R05 | LFH300 | LCF250-D90 | LBS300<br>LBS310 | LR300-R10 LR300-R30<br>LR300-R20 LR310-R05 |
| LBE320<br>LRE320 | LBH320 | LRH320-R10 LRH320-R30<br>LRH320-R20 | LFH320 | | LBS320 | LR320-R10 LR320-R30<br>LR320-R20 |

• Prodotto applicabile: E157, E158, E159, E160

# Fresa sferica con stelo in acciaio LBE08/10/12/16/20/25/30/32 (Conica)








(mm)

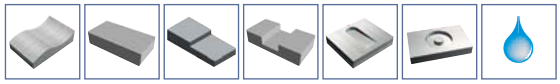
| Articolo | | Stock R | Stock L | ØD | Ød | Ød1 | ℓ | L | Parti di ricambio: Vite di staffaggio | Parti di ricambio: Chiave | Inserti disponibili (Ø) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LBE | 080035T-S12 | ● | | 8, 9 | 12 | 7.5 | 35 | 91 | ETND02506F | TWP07S | 8, 9 |
| | 080055T-S12 | ● | | 8, 9 | 12 | 7.5 | 55 | 111 | | | |
| | 080075T-S12 | ● | | 8, 9 | 12 | 7.5 | 75 | 131 | | | |
| | 100035T-S12 | ● | | 10, 11 | 12 | 9.5 | 35 | 91 | ETND0307F | TWP08S | 10, 11 |
| | 100055T-S12 | ● | | 10, 11 | 12 | 9.5 | 55 | 111 | | | |
| | 100075T-S12 | ● | | 10, 11 | 12 | 9.5 | 75 | 131 | | | |
| | 120055T-S12 | ● | | 12, 13 | 12 | 10.4 | 55 | 111 | ETND03509 | TWP10S | 12, 13 |
| | 120085T-S16 | ● | | 12, 13 | 16 | 11.5 | 85 | 145 | | | |
| | 160065T-S16 | ● | | 16, 17 | 16 | 14 | 65 | 125 | ETND0413 | TWP15S | 16, 17 |
| | 160100T-S20 | ● | | 16, 17 | 20 | 15.5 | 100 | 170 | | | |
| | 200075T-S20 | ● | | 20, 21 | 20 | 17.5 | 75 | 145 | ETKD0516 | TWP20 | 20, 21 |
| | 200115T-S25 | ● | | 20, 21 | 25 | 19.5 | 115 | 195 | | | |
| | 250090T-S25 | ● | | 25, 26 | 25 | 22 | 90 | 170 | ETKD0620 | TWP25 | 25, 26 |
| | 250135T-S32 | ● | | 25, 26 | 32 | 24.5 | 135 | 225 | | | |
| | 300105T-S32 | ● | | 30, 31 | 32 | 29.5 | 105 | 195 | ETGD0825 | TWP40 | 30, 31 |
| | 300160T-S32 | ● | | 30, 31 | 32 | 29.5 | 160 | 250 | | | |
| | 320105T-S32 | ● | | 32 | 32 | 29 | 105 | 195 | ETGD0825 | TWP40 | 32 |
| | 320160T-S32 | ● | | 32 | 32 | 29 | 160 | 250 | | | |

• Inserti applicabili, vedere pag. E07, E08

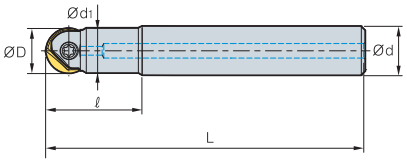
• T indica il tipo conico, S indica il tipo cilindrico

● : Disponibile ○ : A richiesta

# Testa sferica in acciaio LBE12/16/20/25/30/32 (Cilindrica)








(mm)

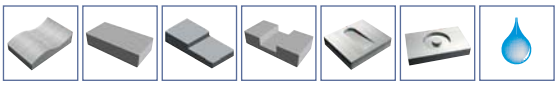
| Articolo | | Stock R | Stock L | ØD | Ød | Ød1 | ℓ | L | Parti di ricambio: Vite di staffaggio | Parti di ricambio: Chiave | Inserti disponibili (Ø) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LBE | 120035S-S12 | ● | | 12, 13 | 12 | 11.5 | 35 | 91 | ETND03509 | TWP10S | 12,13 |
| | 160035S-S16 | ● | | 16, 17 | 16 | 15.5 | 35 | 95 | ETND0413 | TWP15S | 16,17 |
| | 200040S-S20 | ● | | 22, 21 | 20 | 19.5 | 40 | 110 | ETKD0516 | TWP20 | 20,21 |
| | 250045S-S25 | ● | | 25, 26 | 25 | 24.5 | 40 | 125 | ETKD0620 | TWP25 | 25,26 |
| | 300055S-S32 | ● | | 30, 31 | 32 | 29.5 | 55 | 145 | ETGD0825 | TWP40 | 30,31 |
| | 320055S-S32 | ● | | 32 | 32 | 31.5 | 55 | 145 | ETGD0825 | TWP40 | 32 |

• Inserti applicabili, vedere pag. E07, E08

• T indica il tipo conico, S indica il tipo cilindrico

● : Disponibile ○ : A richiesta

# Fresa torica con stelo in metallo duro LRE10/12/16/20/25/30/32 (Cilindrica)





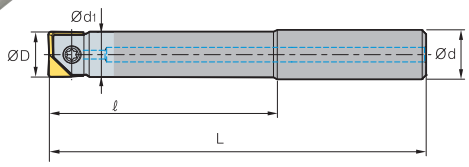


Fig. 1

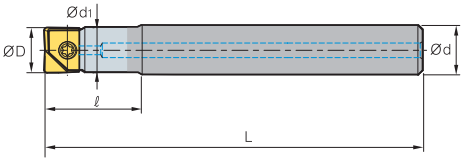


Fig. 2

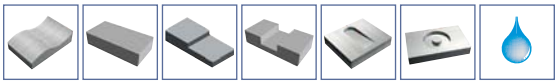
(mm)

| Articolo | | Stock | øD | ød | ød1 | ℓ | L | Parti di ricambio | | Inserti disponibili (ø) | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Vite di staffaggio | Chiave | | |
| LRE | 100080S-S10C | | 10, 11 | 10 | 9.5 | 80 | 136 | ETND0307F | TWP08S | 10, 11 | 1 |
| | 100120S-S10C | | 10, 11 | 10 | 9.5 | 120 | 176 | | | | 1 |
| | 100023S-S10C-130 | | 10, 11 | 10 | 9.5 | 23 | 130 | ETND0307F | TWP08S | 10, 11 | 2 |
| | 100023S-S10C-170 | | 10, 11 | 10 | 9.5 | 23 | 170 | | | | 2 |
| | 120100S-S12C | | 12, 13 | 12 | 11.5 | 100 | 156 | ETND03509 | TWP10S | 12,13 | 1 |
| | 120150S-S12C | | 12, 13 | 12 | 11.5 | 150 | 206 | | | | 1 |
| | 120025S-S12C-150 | | 12, 13 | 12 | 11.5 | 25 | 150 | ETND03509 | TWP10S | 12,13 | 2 |
| | 120025S-S12C-200 | | 12, 13 | 12 | 11.5 | 25 | 200 | | | | 2 |
| | 160100S-S16C | | 16, 17 | 16 | 15.5 | 100 | 160 | ETND0413 | TWP15S | 16,17 | 1 |
| | 160150S-S16C | | 16, 17 | 16 | 15.5 | 150 | 210 | | | | 1 |
| | 160030S-S16C-160 | | 16, 17 | 16 | 15.5 | 30 | 160 | ETND0413 | TWP15S | 16,17 | 2 |
| | 160030S-S16C-210 | | 16, 17 | 16 | 15.5 | 30 | 210 | | | | 2 |
| | 200120S-S20C | | 20, 21 | 20 | 19.5 | 120 | 190 | ETKD0516 | TWP20 | 20,21 | 1 |
| | 200170S-S20C | | 20, 21 | 20 | 19.5 | 170 | 240 | | | | 1 |
| | 200035S-S20C-190 | | 20, 21 | 20 | 19.5 | 35 | 190 | ETKD0516 | TWP20 | 20,21 | 2 |
| | 200035S-S20C-240 | | 20, 21 | 20 | 19.5 | 35 | 240 | | | | 2 |
| | 250140S-S25C | | 25, 26 | 25 | 24.5 | 140 | 220 | ETKD0620 | TWP25 | 25,26 | 1 |
| | 250170S-S25C | | 25, 26 | 25 | 24.5 | 170 | 250 | | | | 1 |
| | 250040S-S25C-220 | | 25, 26 | 25 | 24.5 | 40 | 220 | ETKD0620 | TWP25 | 25,26 | 2 |
| | 250040S-S25C-250 | | 25, 26 | 25 | 24.5 | 40 | 250 | | | | 2 |
| | 300140S-S32C | | 30, 31 | 32 | 29.5 | 140 | 230 | ETGD0825 | TWP40 | 30,31 | 1 |
| | 300170S-S32C | | 30, 31 | 32 | 29.5 | 170 | 260 | | | | 1 |
| | 300050S-S32C-230 | | 30, 31 | 32 | 29.5 | 50 | 230 | ETGD0825 | TWP40 | 30,31 | 2 |
| | 300050S-S32C-260 | | 30, 31 | 32 | 29..5 | 50 | 260 | | | | 2 |
| | 320140S-S32C | | 32 | 32 | 31.5 | 140 | 230 | ETGD0825 | TWP40 | 32 | 1 |
| | 320170S-S32C | | 32 | 32 | 31.5 | 170 | 260 | | | | 1 |
| | 320050S-S32C-230 | | 32 | 32 | 31.5 | 50 | 230 | ETGD0825 | TWP40 | 32 | 2 |
| | 320050S-S32C-260 | | 32 | 32 | 31.5 | 50 | 260 | | | | 2 |

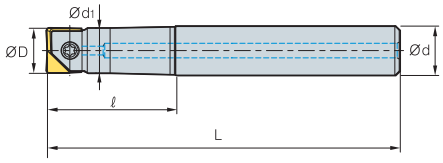
• Inserti applicabili, vedere pag. E07, E08

● : Disponibile ○ : A richiesta

# Fresa torica con stelo in acciaio LRE10/12 (Conica)








(mm)

| Articolo | | Stock | | øD | ød | ød1 | ℓ | L | Parti di ricambio | | Inserti disponibili (ø) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | R | L | | | | | | Vite di staffaggio | Chiave | |
| LRE | 100025T-S12 | | | 10, 11 | 12 | 9.5 | 25 | 111 | ETND0307F | TWP08S | 10,11 |
| | 100050T-S12 | | | 10, 11 | 12 | 9.5 | 50 | 150 | | | |
| | 120060T-S16 | | | 12, 13 | 12 | 11.5 | 60 | 160 | ETND03509 | TWP10S | 12,13 |

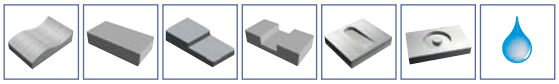
• Inserti applicabili, vedere pag. E07, E08

• T indica il tipo conico, S indica il tipo cilindrico

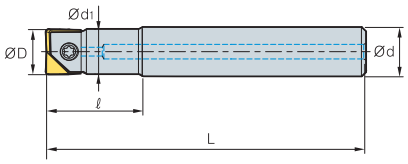
● : Disponibile ○ : A richiesta

# Fresa torica con stelo in acciaio LRE12/16/25/30/32 (Cilindrica)

New





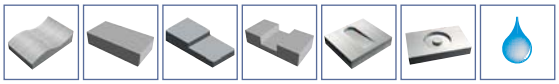



(mm)

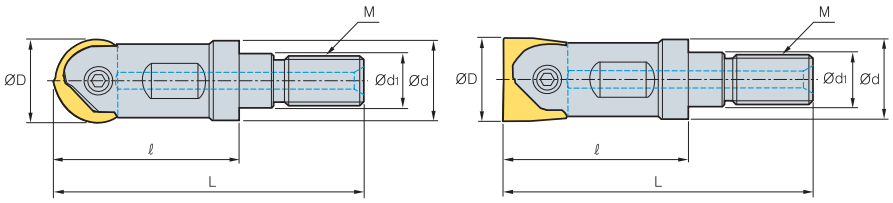
| Articolo | | Stock R | Stock L | øD | ød | ød1 | ℓ | L | Parti di ricambio: Vite di staffaggio | Parti di ricambio: Chiave | Inserti disponibili (Ø) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LRE | 120030S-S12 | | | 12, 13 | 12 | 11.5 | 30 | 111 | ETND03509 | TWP10S | 12, 13 |
| | 160050S-S16 | | | 16, 17 | 16 | 15.5 | 50 | 131 | ETND0413 | TWP15S | 16, 17 |
| | 160060S-S16 | | | 16, 17 | 16 | 15.5 | 60 | 160 | | | |
| | 200060S-S20 | | | 20, 21 | 20 | 19.5 | 60 | 145 | ETKD0516 | TWP20 | 20, 21 |
| | 200080S-S20 | | | 20, 21 | 20 | 19.5 | 80 | 180 | | | |
| | 250070S-S25 | | | 25, 26 | 25 | 24.5 | 70 | 145 | ETKD0620 | TWP25 | 25, 26 |
| | 250100S-S25 | | | 25, 26 | 25 | 24.5 | 100 | 225 | | | |
| | 300070S-S32 | | | 30, 31 | 32 | 29.5 | 70 | 160 | ETGD0825 | TWP40 | 30, 31 |
| | 300100S-S32 | | | 30, 31 | 32 | 29.5 | 100 | 225 | | | |
| | 320080S-S32 | | | 32 | 32 | 31.5 | 80 | 160 | ETGD0825 | TWP40 | 32 |
| | 320100S-S32 | | | 32 | 32 | 31.5 | 100 | 225 | | | |

• Inserti applicabili, vedere pag. E07, E08
• T indica il tipo conico, S indica il tipo cilindrico
● : Disponibile ○ : A richiesta

# LBE-MHD








(mm)

| Articolo | Stock | M | øD | L | ℓ | ød | ød1 | Parti di ricambio: Vite di staffaggio | Parti di ricambio: Chiave | Inserti disponibili (Ø) |
|---|---|---|---|---|---|---|---|---|---|---|
| LBE100-MHD-M06 | ● | M06 | 10, 11 | 40 | 25 | 9.5 | 6.5 | ETND0307F | TWP08S | 10, 11 |
| LBE120-MHD-M06 | ● | M06 | 12, 13 | 40 | 25 | 11 | 6.5 | ETND03509 | TWP10S | 12, 13 |
| LBE160-MHD-M08 | ● | M08 | 16, 17 | 47 | 30 | 14.5 | 8.5 | ETND0413 | TWP15S | 16, 17 |
| LBE200-MHD-M10 | ● | M10 | 20, 21 | 56 | 35 | 18 | 10.5 | ETKD0516 | TWP20 | 20, 21 |
| LBE250-MHD-M12 | ● | M12 | 25, 26 | 69 | 45 | 22.5 | 12.5 | ETKD0620 | TWP25 | 25, 26 |
| LBE300-MHD-M16 | ● | M16 | 30, 31 | 77 | 50 | 28 | 17 | ETGD0825 | TWP40 | 30, 31 |
| LBE320-MHD-M16 | ● | M16 | 32 | 77 | 50 | 29 | 17 | ETGD0825 | TWP40 | 32 |

• Inserti applicabili, vedere pag. E07, E08
• Adattatori disponibili : E133~E134
● : Disponibile ○ : A richiesta

Articolo : LBE320-MHD-M16
Dimensione filettatura testa modulare (M16)
=
Spec. adattatore : MAT-M16-035-S32S
Dimensione filettatura adattatore (M16)

# BFE



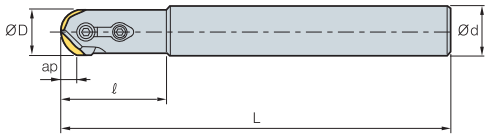



Fig. 1

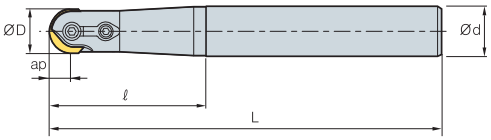



Fig. 2

(mm)

| Articolo | | Stock | ØD | Ød | ℓ | L | ap | kg | Fig. | Inserti disponibili |
|---|---|---|---|---|---|---|---|---|---|---|
| BFE | 16-S | ● | 16 | 16 | 36 | 140 | 8.0 | 0.2 | 1 | RC16 |
| | 16-M | ● | 16 | 20 | 65 | 170 | 8.0 | 0.3 | 2 | |
| | 16-L | ● | 16 | 25 | 65 | 200 | 8.0 | 0.5 | 2 | |
| | 20-S | ● | 20 | 20 | 45 | 160 | 10.0 | 0.4 | 1 | RC20 |
| | 20-M | ● | 20 | 25 | 80 | 200 | 10.0 | 0.6 | 2 | |
| | 20-L | ● | 20 | 25 | 80 | 250 | 10.0 | 0.8 | 2 | |
| | 25-S | ● | 25 | 25 | 45 | 160 | 12.5 | 0.7 | 1 | RC25 |
| | 25-M | ● | 25 | 32 | 90 | 210 | 12.5 | 1.1 | 2 | |
| | 25-L | ● | 25 | 32 | 90 | 300 | 12.5 | 1.7 | 2 | |
| | 30-S | ● | 30 | 32 | 65 | 175 | 15.0 | 0.9 | 2 | RC30 |
| | 30-M | ● | 30 | 32 | 100 | 250 | 15.0 | 1.4 | 2 | |
| | 30-L | ● | 30 | 32 | 100 | 350 | 15.0 | 2.0 | 2 | |
| | 32-S | ● | 32 | 32 | 56 | 175 | 16.0 | 0.9 | 1 | RC32 |
| | 32-M | ● | 32 | 32 | 100 | 250 | 16.0 | 1.4 | 1 | |
| | 32-L | ● | 32 | 32 | 100 | 350 | 16.0 | 2.0 | 1 | |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Vite | Staffa | Vite di staffaggio | Anello di chiusura | Chiave |
|---|---|---|---|---|---|
| |  |  |  |  |  |
| R16 | FTGA0513 | CBH4.5R1 | CTX04513 | ER03 | TW20 |
| R20 | FTGA0517 | CBH4.5R2 | CTX04513 | ER03 | TW20 |
| R25 | FTGA0621 | CBH5R1 | CTX0517 | ER04 | TW20 |
| R30, 32 | FTGA0826 | CBH6R1 | CTX0621 | ER05 | TW25 |

## Condizioni di taglio raccomandate

| Pezzo lavorato | Condizioni di taglio | |
|---|---|---|
| | vc(m/min) | fz(mm/t) |
| Acciaio generico (SS41, SM25C) Sup. HB180 | 150 ~ 250 | 0.1 ~ 0.3 |
| Acciaio legato (SM55C, SCM) Inf. HB300 | 100 ~ 200 | 0.1 ~ 0.2 |
| Ghisa Inf. HB300 | 100 ~ 200 | 0.1 ~ 0.3 |

• Inserti applicabili, vedere pag. E11

## Inserti disponibili

RC

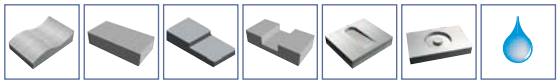


| Articolo | | Rivestito PC210F | Pag. |
|---|---|---|---|
| RC | 16 | ● | E16 |
| | 20 | ● | |
| | 25 | ● | |
| | 30 | ● | |
| | 32 | ● | |

● : Disponibile ○ : A richiesta

# GBE(Un tagliente)

New





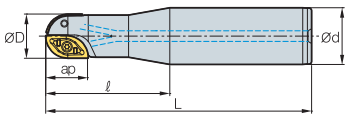



Fig. 1

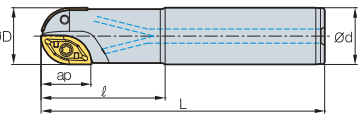



Fig. 2

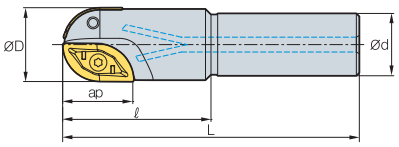



Fig. 3

(mm)

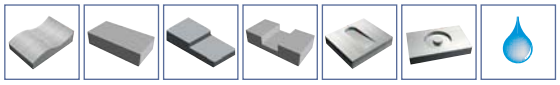
| Articolo | | Stock | Dimensioni | | | | | Inserti disponibili | | | Parti di ricambio | | | | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Vite | | Chiave | | |
| | | | ØD | ød | ℓ | L | ap | Interno | Esterno | Inserto esterno per fresa multitagliente | Int./Est. | Est. per fresa multitagliente | Int./Est. | Est. per fresa multitagliente | |
| GBE | 160-S20 | | 16 | 20 | 50 | 130 | 15 | ZPET080M-MM | ZPET080S-MM | - | FTKA02555S | - | TW08S | - | 1 |
| | 160-L20 | | 16 | 20 | 90 | 200 | 15 | ZPET080M-MM | ZPET080S-MM | - | FTKA02555S | - | TW08S | - | 1 |
| | 200-S25 | ● | 20 | 25 | 60 | 140 | 18 | ZPET100M-MM | ZPET100S-MM | - | FTKA0307 | - | TW09S | - | 1 |
| | 200-L25 | ● | 20 | 25 | 80 | 250 | 18 | ZPET100M-MM | ZPET100S-MM | - | FTKA0307 | - | TW09S | - | 1 |
| | 250-S32 | ● | 25 | 32 | 70 | 150 | 23 | ZPET125M-MM | ZPET125S-MM | - | FTKA0409 | - | TW15S | - | 1 |
| | 250-L32 | ● | 25 | 32 | 100 | 300 | 23 | ZPET125M-MM | ZPET125S-MM | - | FTKA0409 | - | TW15S | - | 1 |
| | 300-S32 | ● | 30 | 32 | 70 | 160 | 27 | ZPET150M-MM | ZPET150S-MM | - | FTGA0511-P | - | TW20S | - | 2 |
| | 300-L32 | ● | 30 | 32 | 120 | 350 | 27 | ZPET150M-MM | ZPET150S-MM | - | FTGA0511-P | - | TW20S | - | 2 |
| | 320-S32 | ● | 32 | 32 | 70 | 160 | 28 | ZPET160M-MM | ZPET160S-MM | - | FTGA0511-P | - | TW20S | - | 2 |
| | 320-L32 | ● | 32 | 32 | 120 | 350 | 28 | ZPET160M-MM | ZPET160S-MM | - | FTGA0511-P | - | TW20S | - | 2 |
| | 400-S42 | ● | 40 | 42 | 100 | 200 | 37 | ZPET200M-MM | ZPET200S-MM | - | FTGA0614 | - | TW20S | - | 2 |
| | 400-L42 | ● | 40 | 42 | 150 | 350 | 37 | ZPET200M-MM | ZPET200S-MM | - | FTGA0614 | - | TW20S | - | 2 |
| | 500-S42 | | 50 | 42 | 100 | 200 | 47 | ZPET250M-MM | ZPET250S-MM | - | FTGA0818 | - | TW25-100 | - | 3 |
| | 500-L42 | | 50 | 42 | 100 | 350 | 47 | ZPET250M-MM | ZPET250S-MM | - | FTGA0818 | - | TW25-100 | - | 3 |

• Inserti applicabili, vedere pag. E21

● : Disponibile ○ : A richiesta

# GBE-M(Multitagliente)

New





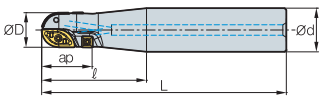



Fig. 4

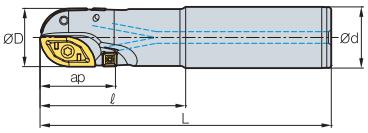



Fig. 5

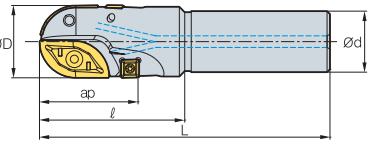



Fig. 6

(mm)

| Articolo | | Stock | Dimensioni | | | | | Inserti disponibili | | | Parti di ricambio | | | | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Vite | | Chiave | | |
| | | | ØD | ød | ℓ | L | ap | Interno | Esterno | Ext. main | Int./Est | Est. per fresa multitagliente | Int./Est | Est. per fresa multitagliente | |
| GBE | 200M-S25 | ● | 20 | 25 | 70 | 150 | 28 | ZPET100M-MM | ZPET100S-MM | SPMT060304 | FTKA0307 | ETNA02506 | TW09S | TW07P | 4 |
| | 200M-L25 | ● | 20 | 25 | 70 | 250 | 28 | ZPET100M-MM | ZPET100S-MM | SPMT060304 | FTKA0307 | ETNA02506 | TW09S | TW07P | 4 |
| | 250M-S32 | ● | 25 | 32 | 80 | 180 | 33 | ZPET125M-MM | ZPET125S-MM | SPMT060304 | FTKA0409 | ETNA02506 | TW15S | TW07P | 4 |
| | 250M-L32 | ● | 25 | 32 | 80 | 300 | 33 | ZPET125M-MM | ZPET125S-MM | SPMT060304 | FTKA0409 | ETNA02506 | TW15S | TW07P | 4 |
| | 300M-S32 | ● | 30 | 32 | 100 | 200 | 41 | ZPET150M-MM | ZPET150S-MM | SDMT090308-MM | FTGA0511-P | ETNA0408 | TW20S | TW15S | 4 |
| | 300M-L32 | ● | 30 | 32 | 100 | 350 | 41 | ZPET150M-MM | ZPET150S-MM | SDMT090308-MM | FTGA0511-P | ETNA0408 | TW20S | TW15S | 4 |
| | 320M-S32 | ● | 32 | 32 | 100 | 200 | 42 | ZPET160M-MM | ZPET160S-MM | SDMT090308-MM | FTGA0511-P | ETNA0408 | TW20S | TW15S | 5 |
| | 320M-L32 | ● | 32 | 32 | 100 | 350 | 42 | ZPET160M-MM | ZPET160S-MM | SDMT090308-MM | FTGA0511-P | ETNA0408 | TW20S | TW15S | 5 |
| | 400M-S42 | | 40 | 42 | 100 | 200 | 56 | ZPET200M-MM | ZPET200S-MM | SPMT120408-MM | FTGA0614 | ETNA0511 | TW20S | TW20S | 5 |
| | 400M-L42 | | 40 | 42 | 100 | 350 | 56 | ZPET200M-MM | ZPET200S-MM | SPMT120408-MM | FTGA0614 | ETNA0511 | TW20S | TW20S | 5 |
| | 500M-S42 | | 50 | 42 | 100 | 200 | 67 | ZPET250M-MM | ZPET250S-MM | SPMT120408-MM | FTGA0818 | ETNA0511 | TW25-100 | TW20S | 6 |
| | 500M-L42 | | 50 | 42 | 100 | 350 | 67 | ZPET250M-MM | ZPET250S-MM | SPMT120408-MM | FTGA0818 | ETNA0511 | TW25-100 | TW20S | 6 |

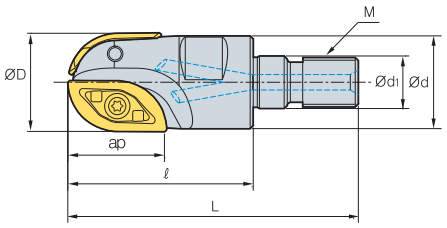
• Inserti applicabili, vedere pag. E21

● : Disponibile ○ : A richiesta

# GBEM

New






(mm)

| Articolo | | Stock | Dimensioni | | | | | | | Inserti disponibili | | Parti di ricambio | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | øD | ød | ød1 | ℓ | L | M | ap | Interno | Interno | Vite | Chiave |
| **GBEM** | **160-M08** | | 16 | 15 | 8.5 | 30 | 47 | M08 | 15 | ZPET080M-MM | ZPET080S-MM | FTKA02555S | TW08S |
| | **200-M10** | | 20 | 18.6 | 10.5 | 35 | 56 | M10 | 18 | ZPET100M-MM | ZPET100S-MM | FTKA0307 | TW09S |
| | **250-M12** | | 25 | 23.2 | 12.5 | 45 | 69 | M12 | 23 | ZPET125M-MM | ZPET125S-MM | FTKA0409 | TW15S |
| | **300-M16** | | 30 | 27.8 | 17 | 45 | 77 | M16 | 27 | ZPET150M-MM | ZPET150S-MM | FTGA0511-P | TW20S |
| | **320-M16** | | 32 | 29.8 | 17 | 50 | 77 | M16 | 28 | ZPET160M-MM | ZPET160S-MM | FTGA0511-P | TW20S |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Vite | | Chiave | | Dia. fresa applicabile |
|---|---|---|---|---|
|  | |  | | |
| Int./Est. | Est. princ.- | Int./Est. | Est. princ.- | |
| FTKA02555 | ETNA02506 | TW08S | TW07P | Ø16 |
| FTKA0307 | ETNA02506 | TW09S | TW07P | Ø20 |
| FTKA0409 | ETNA0408 | TW15S | TW15S | Ø25 |
| FTGA511-P | ETNA0408 | TW20S | TW15S | Ø30 |
| FTGA511-P | ETNA0511 | TW20S | TW20S | Ø32 |
| FTGA0614 | ETNA0511 | TW20S | TW20S | Ø40 |
| FTGA0818 | | TW25-100 | | Ø50 |

Articolo : GBEM320-M16
Dimensione filettatura testa modulare (M16)

=

Spec. adattatore : MAT-M16-035-S32S
Dimensione filettatura adattatore (M16)

## Inserti disponibili (Int./Est.)

ZPET-M(Int.) ZPET-S(Est.) SPMT SPMT-MM




(per fresa multitagliente)

(per fresa multitagliente)

| Articolo | | Rivestito | | | Pag. |
|---|---|---|---|---|---|
| | | PC3500 | PC3545 | PC5300 | |
| **ZPET** | **080M-MM** | | | | **E21** |
| | **100M-MM** | ● | | ○ | |
| | **125M-MM** | ● | | ○ | |
| | **150M-MM** | ● | | ○ | |
| | **160M-MM** | ● | | ○ | |
| | **200M-MM** | ● | | ○ | |
| | **250M-MM** | | | ○ | |
| **ZPET** | **080S-MM** | | | | **E21** |
| | **100S-MM** | ● | | ○ | |
| | **125S-MM** | ● | | ○ | |
| | **150S-MM** | ● | | ○ | |
| | **160S-MM** | ● | | ○ | |
| | **200S-MM** | ● | | ○ | |
| | **250S-MM** | | | | |
| **SPMT** | **060304** | ● | | | **E18** |
| **SDMT** | **090308-MM** | ● | | ○ | **E13** |
| **SPMT** | **120408-MM** | ● | | | **E18** |

• Inserti applicabili, vedere pag. E13, E21

● : Disponibile ○ : A richiesta

# BRE

Neu



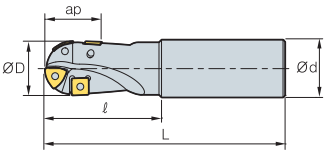


Fig. 1

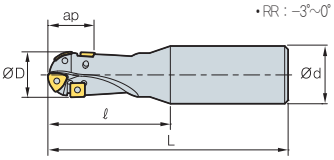


Fig. 2

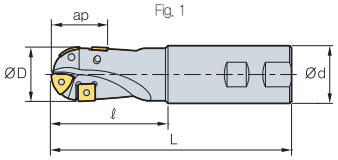


Fig. 3

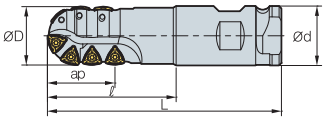
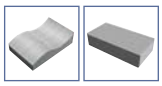


Fig. 4

• AR : 0°~10°
• RR : -3°~0°



(mm)

| Articolo | | Stock | ØD | Ød | ℓ | L | ap | Inserti disponibili | | Parti di ricambio | | Fig. | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Per fresa multitagliente | Est. per fresa multitagliente | Vite | Chiave | | |
| BRE | 20R-S | ● | 20 | 20 | 50 | 125 | 20 | ZDMT080310R-MM | SPMT060304 | ETNA02506 | TW07P | 1 | 0.3 |
| | 20R-M | ● | 20 | 20 | 75 | 150 | 20 | | | | | 1 | 0.3 |
| | 20R-L | ● | 20 | 25 | 100 | 200 | 20 | | | | | 2 | 0.3 |
| | 20R-SL | ● | 20 | 25 | 65 | 125 | 20 | | | | | 3 | 0.3 |
| | 25R-S | ● | 25 | 25 | 70 | 150 | 23 | ZDMT110312.5R-MM | SPMT060304 | ETNA02506 | TW07P | 1 | 0.5 |
| | 25R-M | ● | 25 | 25 | 95 | 175 | 23 | | | | | 1 | 0.5 |
| | 25R-L | ● | 25 | 32 | 100 | 200 | 23 | | | | | 2 | 0.4 |
| | 25R-SL | ● | 25 | 25 | 75 | 135 | 23 | | | | | 3 | 0.4 |
| | 32R-S | ● | 32 | 32 | 85 | 175 | 31 | ZDMT130416R-MM | SDMT090308-MM | ETNA0408 | TW15S | 1 | 0.9 |
| | 32R-M | ● | 32 | 32 | 100 | 200 | 31 | | | | | 1 | 0.9 |
| | 32R-L | ● | 32 | 32 | 150 | 250 | 31 | | | | | 1 | 0.7 |
| | 32R-SL | ● | 32 | 32 | 75 | 150 | 31 | | | | | 3 | 0.7 |
| | 40R-S | ● | 40 | 42 | 85 | 175 | 41 | ZPMT160520R-MM | SPMT120408-MM SPMT120508-MMN | ETNA0511 | TW20S | 1 | 1.3 |
| | 40R-M | ● | 40 | 42 | 100 | 200 | 41 | | | | | 1 | 1.3 |
| | 40R-L | ● | 40 | 42 | 150 | 250 | 41 | | | | | 1 | 1.3 |
| | 40R-SL | ● | 40 | 42 | 80 | 160 | 41 | | | | | 3 | 1.3 |
| | 50R-S | ● | 50 | 42 | 100 | 200 | 45 | ZPMT160525R-MM | SPMT120408-MM SPMT120508-MMN | ETNA0511 | TW20S | 1 | 2.6 |
| | 50R-L | ● | 50 | 42 | 100 | 300 | 45 | | | | | 1 | 2.6 |
| | 50R-SL | ● | 50 | 42 | 100 | 250 | 45 | | | | | 3 | 2.6 |
| | 63R-S | ● | 63 | 42 | 100 | 200 | 52 | ZPMT160531.5R-MM | SPMT120408-MM SPMT120508-MMN | ETNA0511 | TW20S | 1 | 3.0 |
| | 63R-L | ● | 63 | 42 | 100 | 300 | 52 | | | | | 1 | 3.0 |
| | 63R-SL | ● | 63 | 42 | 100 | 250 | 52 | | | | | 3 | 3.0 |
| | 40XR-SC40 | ● | 40 | 40 | 110 | 200 | 54 | ZPMT160520R-MM | | ETNA0511 | TW20S | 4 | 1.4 |
| | 40XR-LC40 | | 40 | 40 | 150 | 250 | 54 | | | | | 4 | 1.9 |
| | 50XR-SC50.8 | ● | 50 | 50.8 | 110 | 200 | 57 | ZPMT160525R-MM ZPMT160525R-MR | | ETNA0511 | TW20S | 4 | 2.3 |
| | 50XR-LC50.8 | ● | 50 | 50.8 | 150 | 250 | 57 | | | | | 4 | 3.0 |

● : Disponibile ○ : A richiesta

## Condizioni di taglio raccomandate

Lavorazione • Scanalatura-A • Spallamento (tagliente generico)-B • Spallamento (tagliente lungo)-C

| Pezzo lavorato | | Durezza | Condizioni di taglio vc(m/min) | Condizioni di taglio fz(mm/t) | Lavorazione |
|---|---|---|---|---|---|
| P | Acciaio al carbonio, Acciaio legato (S50, SCM440) | 180 ~ 280HB | 260(180 ~ 310) | 0.125(0.1 ~ 0.15) | A |
| | | | | 0.15(0.1 ~ 0.2) | B |
| | | | 240(160 ~ 290) | 0.1(0.05 ~ 0.15) | C |
| | | 280 ~ 380HB | 190(130 ~ 230) | 0.1(0.05 ~ 0.15) | A |
| | | | | 0.15(0.1 ~ 0.2) | B |
| | | | 170(120 ~ 200) | 0.1(0.05 ~ 0.15) | C |
| | Pre-temprato (NAK55) | 35 ~ 45HRC | 170(110 ~ 190) | 0.1(0.05 ~ 0.15) | A |
| | | | | 0.15(0.1 ~ 0.2) | B |
| | | | 160(110 ~ 180) | 0.1(0.05 ~ 0.15) | C |
| | Acciaio altamente legato (STD, STT) | ≤300HB | 190(130 ~ 230) | 0.1(0.05 ~ 0.15) | A |
| | | | | 0.15(0.1 ~ 0.2) | B |
| | | | 170(120 ~ 200) | 0.1(0.05 ~ 0.15) | C |
| M | Acciaio inossidabile (STS4202J) | ≤260HB | 260(180 ~ 310) | 0.1(0.05 ~ 0.15) | A |
| | | | | 0.15(0.1 ~ 0.2) | B |
| | | | 240(160 ~ 290) | 0.1(0.05 ~ 0.15) | C |
| K | Ghisa generica (GC250) | Carico di rottura ≤350MPa | 260(180 ~ 310) | 0.15(0.1 ~ 0.2) | A |
| | | | | 0.15(0.1 ~ 0.2) | B |
| | | | 240(160 ~ 290) | 0.1(0.05 ~ 0.15) | C |
| | Ghisa duttile (GCD450) | Carico di rottura 360~500MPa | 200(140 ~ 240) | 0.1(0.05 ~ 0.15) | A |
| | | | | 0.15(0.1 ~ 0.2) | B |
| | | | 190(130 ~ 230) | 0.1(0.05 ~ 0.15) | C |
| | Ghisa duttile (GCD450) | Carico di rottura 500~800MPa | 170(100 ~ 200) | 0.1(0.05 ~ 0.15) | A |
| | | | | 0.15(0.1 ~ 0.2) | B |
| | | | 150(110 ~ 180) | 0.1(0.05 ~ 0.15) | C |
| H | Materiali temprati (STD, STT) | 45 ~ 60HRC | 110(70 ~ 130) | 0.15(0.1 ~ 0.2) | A |
| | | | | 0.15(0.1 ~ 0.2) | B |
| | | | 100(60 ~ 120) | 0.1(0.05 ~ 0.15) | C |

• Inserti applicabili, vedere pag. E13, E18, E20, E21

## Inserti disponibili

SDMT-MM SPMT SPMT-MM ZDMT-R-MM ZPMT-R-MM



| Articolo | | Rivestito NCM325 | PC3500 | PC3525 | PC3545 | PC6510 | Pag. |
|---|---|---|---|---|---|---|---|
| SDMT | 090308-MM | | ● | | | | E13 |
| SPMT | 060304 | ● | ● | | | | E18 |
| | 120408-MM | | ● | | | | |
| | 120508-MMN | | | | | | |
| ZDMT | 080310R-MM | | ● | | | | E20 |
| | 110312.5R-MM | | ● | | | | |
| | 130416R-MM | | ● | | | | |
| ZPMT | 160520R-MM | | ● | | | | E21 |
| | 160525R-MM | | ● | | | | |
| | 160531.5R-MM | | ● | | | | |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Vite | Chiave | |
|---|---|---|
|  |  |  |
| ETNA02506*, ETNA0408**, ETNA0511 | TW15S**, TW20S | TW07P* |

*BRE 20, BRE 25 **BRE 32

## Utensile di svasatura

### Utensile di svasatura

| Fresa integrale di svasatura | Angolo di svasatura (45) | Inserti disponibili | Dia. di taglio min. | Tipo di esecuzione | Lunghezza dente | Diametro attacco (Ø20) |
|---|---|---|---|---|---|---|
| CE | 45 | 11 : SPMT110408-KC<br>12 : SPMN120308<br>31 : XCET310404ER-KC | Ø25 | R: Destra<br>L: Sinistra | S : Standard<br>M : Media<br>L : Lunga | 20 |

CE 45 - 11 25 R - S 20

### Caratteristiche

- Tutte le applicazioni di svasatura
- Angolo di svasatura 15°, 30°, 45°, 60° per varie esigenze di lavorazione
- Il tagliente lungo offre un ampio angolo di svasatura



Utensili di svasatura anteriore e posteriore

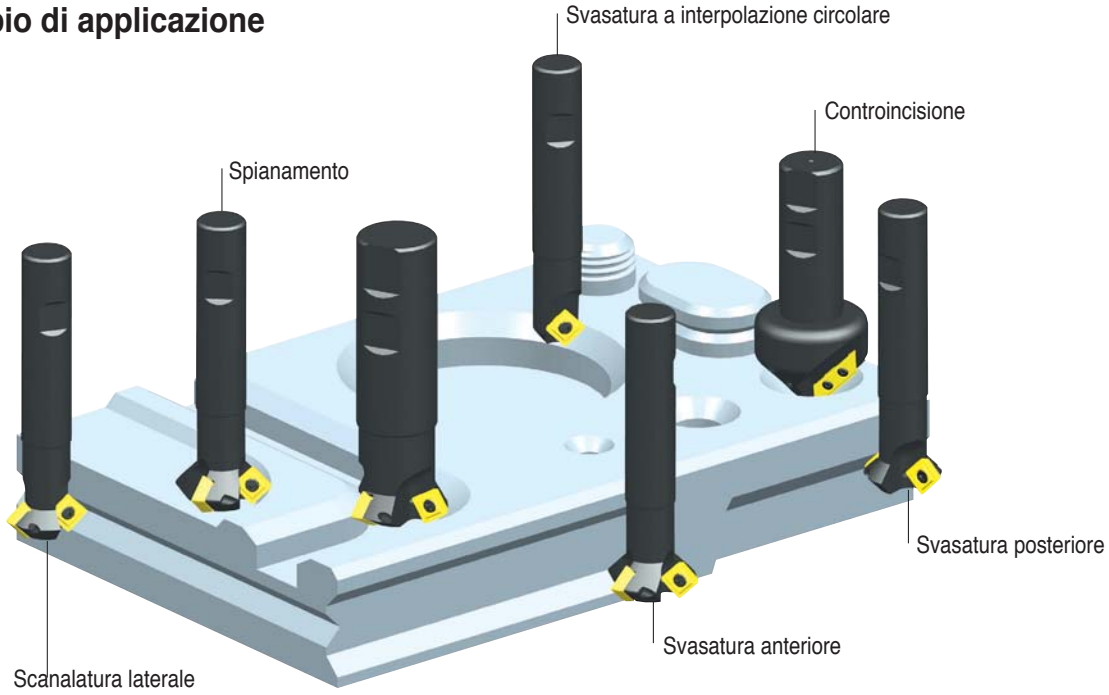


Utensili di svasatura lunghi

### Condizioni di taglio raccomandate

| Pezzo lavorato | Gradi | ØD(Ø5 ~Ø20) | | ØD(Ø25 ~Ø35) | |
|---|---|---|---|---|---|
| | | vc (m/min) | fz (mm/t) | vc (m/min) | fz (mm/t) |
| P | PC3500<br>PC5300<br>ST30A | 100~160 | 0.05~0.25 | 100~160 | 0.05~0.25 |
| M | PC5300<br>PC3545 | 90~120 | 0.05~0.2 | 90~120 | 0.1~0.3 |
| K | PC5300<br>G10 | 100~160 | 0.1~0.3 | 100~160 | 0.3~0.5 |

### Esempio di applicazione

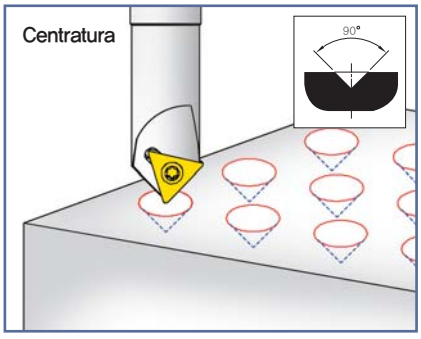


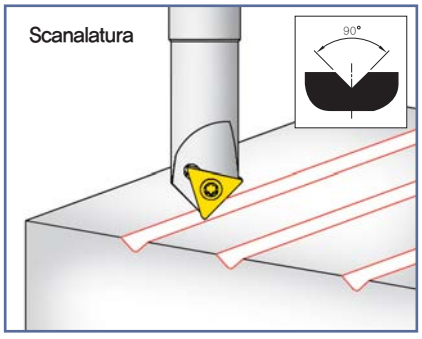
## Informazioni tecniche per utensili di svasatura

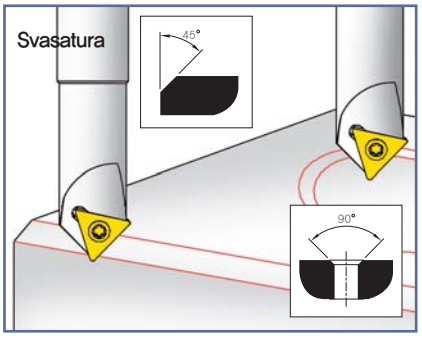
### Sistema di codifica

| Fresa integrale di svasatura | Angolo di svasatura (45°) | | Cerchio inscritto dell'inserto | Dia. di taglio min. | Tipo di esecuzione | | Lunghezza dente | Diametro attacco |
|---|---|---|---|---|---|---|---|---|
| | | | 16 : TWX16R-KC<br>22 : TWX22R-KC | Ø0 | R: Right<br>L: Left | | S = 90,110<br>L = 200 | Ø12<br>Ø20<br>Ø25 |
| CE | 45 | - | 16 | 00 | R | - | S | 20 |

### Applicazione e condizioni di taglio raccomandate




| Pezzo lavorato | Durezza (HRC) | Centratura, scanalatura | | Svasatura | |
|---|---|---|---|---|---|
| | | vc(m/min) | fz(mm/t) | vc(m/min) | fz(mm/t) |
| Acciaio leggero, acciaio al carbonio, acciaio legato | Fino a HRC 30 | 80 ~ 200 | 0.01 ~ 0.04 | 100 ~ 250 | 0.04 ~ 0.06 |
| Acciaio a elevato tenore di carbonio, acciaio legato | HRC 30~40 | 150 ~ 250 | 0.02 ~ 0.06 | 150 ~ 300 | 0.05 ~ 0.10 |
| Alluminio, rame | – | 150 ~ 300 | 0.04 ~ 0.08 | 150 ~ 350 | 0.05 ~ 0.10 |
| Ghisa | – | 80 ~ 150 | 0.02 ~ 0.06 | 100 ~ 250 | 0.05 ~ 0.10 |
| Acciaio inossidabile | – | 60 ~ 120 | 0.01 ~ 0.03 | 60 ~ 150 | 0.03 ~ 0.06 |
| HRSA | | 60 ~ 80 | 0.01 ~ 0.03 | 60 ~ 100 | 0.03 ~ 0.06 |

Nota) Si prega di rispettare fz. In caso di fz errato, si possono verificare scheggiature.

### Esempi di lavorazione









# CE (Posteriore e anteriore) New



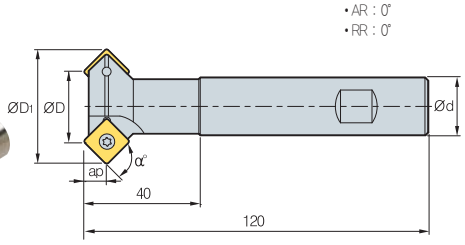



Fig. 1

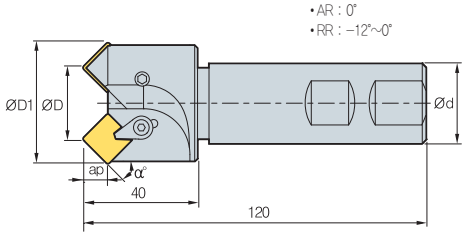



Fig. 2

(mm)

| | Articolo | Stock | | øD | øD1 | ød | ap | Fig. | Inserti disponibili | α°(angolo di svasatura) Ant. | α°(angolo di svasatura) Back | Gamma disponibile (Min~Max) | Impiego |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CE | 15-1125R-S20 | ● | 2 | 25 | 30.5 | 20 | 9.5 | 1 | SPMT110408 - KC | 15° | - | Ø25~Ø30 | Svasatura anteriore |
| | 30-1125R-S20 | ● | 2 | 25 | 35.5 | 20 | 8.5 | 1 | | 30° | 60° | Ø25~Ø35 | Svasatura ant./post. |
| | 45-1107R-S20 | ● | 1 | 7 | 21.9 | 20 | 7.0 | 1 | | 45° | - | Ø7~Ø21 | Svasatura anteriore |
| | 45-1119R-S20 | ● | 2 | 19 | 33.9 | 20 | 7.0 | 1 | | 45° | 45° | Ø19~Ø33 | Svasatura ant./post. |
| | 45-1125R-S20 | ● | 3 | 25 | 39.9 | 20 | 7.0 | 1 | | 45° | 45° | Ø25~Ø39 | Svasatura ant./post. |
| | 60-1125R-S32 | ● | 3 | 25 | 43.3 | 32 | 5.0 | 2 | | 60° | 30° | Ø25~Ø42 | Svasatura ant./post. |
| CE | 45-1207R-S32 | ● | 1 | 7 | 23.3 | 32 | 7.8 | 2 | SPMN120308 | 45° | - | Ø7~Ø22 | Svasatura anteriore |
| | 45-1220R-S32 | ● | 2 | 20 | 37.3 | 32 | 7.8 | 2 | | 45° | - | Ø21~Ø36 | Svasatura anteriore |
| | 45-1225R-S32 | ○ | 2 | 25 | 42.3 | 32 | 7.8 | 2 | | 45° | - | Ø26~Ø41 | Svasatura anteriore |
| | 45-1235R-S32 | ● | 2 | 35 | 52.3 | 32 | 7.8 | 2 | | 45° | - | Ø36~Ø51 | Svasatura anteriore |

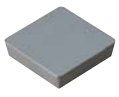
● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Vite | Staffa | C–Ring | Chiave | |
|---|---|---|---|---|---|
| |  |  |  |  |  |
| CE□□-11□□R-S | FTKA0408 | - | - | TW15S | - |
| CE□□-12□□R-S | CHX0617L | CH6R2 | CR05 | - | HW30L |

• Inserti applicabili, vedere pag. E18

## Inserti disponibili

| SPMT-KC | SPMN |
|---|---|
|  |  |

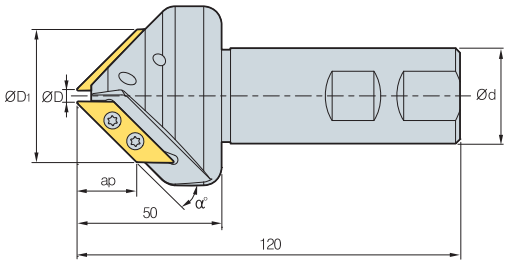
| Articolo | Rivestito | Non rivestito | | Pag. |
|---|---|---|---|---|
| | PC3500 | ST30A | G10 | |
| SPMT 110408-KC | ● | ● | ● | E18 |
| SPMN 120308 | | ● | | E18 |

● : Disponibile ○ : A richiesta

# CE (Per svasature lunghe)

• AR : −5°~1°
• RR : 0°






(mm)

| | Articolo | Stock | ⊙ | øD | øD1 | ød | ap | α°(angolo di svasatura) | Gamma disponibile (Min~Max) | Impiego |
|---|---|---|---|---|---|---|---|---|---|---|
| CE | 30-3105R-S32 | ● | 1 | 5 | 35 | 32 | 26 | 30° | Ø5~Ø35 | Svasatura ant. |
| | 45-3105R-S32 | ● | 2 | 5 | 48 | 32 | 21 | 45° | Ø5~Ø48 | Svasatura ant. |
| | 60-3105R-S32 | ● | 2 | 5 | 57 | 32 | 15 | 60° | Ø5~Ø57 | Svasatura ant. |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Vite | Chiave |
|---|---|---|
| |  |  |
| CE□□-31□□R-S | FTKA03510 | TW15S |

• Inserti applicabili, vedere pag. E20

## Inserti disponibili

XCET-KC



| Articolo | Rivestito | Non rivestito | | Pag. |
|---|---|---|---|---|
| | NC5330 | ST30A | G10 | |
| XCET 310404ER-KC | ● | ● | ● | E20 |

● : Disponibile ○ : A richiesta

# CE(Multifunzione)



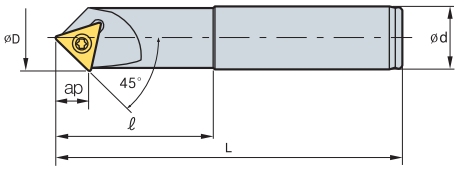



Fig. 1

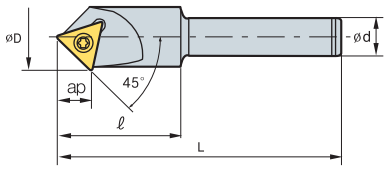



Fig. 2

(mm)

| | Articolo | Stock | øD | ød | ℓ | L | ap | Fig. | Inserti disponibili | Gamma disponibiile (Min~Max) | Impieghi |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CE | **45-1600R-S12** | ● | 22 | 12 | 40 | 90 | 10 | 2 | TWX16R-KC | Ø0 ~ Ø20 | Centratura |
| | **45-1600R-S20** | ● | 22 | 20 | 50 | 110 | 10 | 1 | TWX16R-KC | Ø0 ~ Ø20 | Scanalatura |
| | **45-1600R-L20** | ● | 22 | 20 | 60 | 200 | 10 | 1 | TWX16R-KC | Ø0 ~ Ø20 | Svasatura |
| | **45-2200R-S12** | ● | 29 | 12 | 40 | 90 | 14 | 2 | TWX22R-KC | Ø0 ~ Ø27 | |
| | **45-2200R-S25** | ● | 29 | 25 | 50 | 110 | 14 | 1 | TWX22R-KC | Ø0 ~ Ø27 | |
| | **45-2200R-L25** | ● | 29 | 25 | 60 | 200 | 14 | 1 | TWX22R-KC | Ø0 ~ Ø27 | |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Vite | Chiave |
|---|---|
|  |  |
| FTNA0408 | TW15L |

• Inserti applicabili, vedere pag. E20

## Inserti disponibili

TWX–KC



| Articolo | Rivestito | | Pag. |
|---|---|---|---|
| | PC3500 | PC5300 | |
| **TWX 16R-KC** | ● | ○ | E20 |
| **TWX 22R-KC** | ● | ○ | |

● : Disponibile ○ : A richiesta

# Utensile di centratura



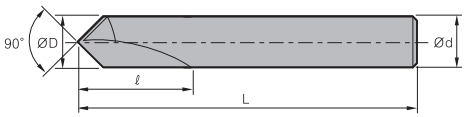



Fig. 1

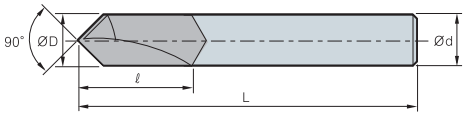



Fig. 2

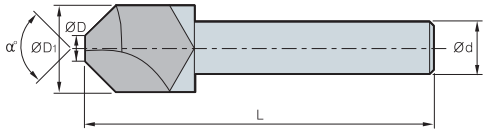
(mm)

| | Articolo | øD | ød | ℓ | L | Fig. |
|---|---|---|---|---|---|---|
| CT | **060S** | 6 | 6 | 13 | 60 | 1 |
| | **080S** | 8 | 8 | 23 | 80 | 1 |
| | **100S** | 10 | 10 | 24 | 100 | 1 |
| | **120B** | 12 | 12 | 28 | 120 | 2 |
| | **160B** | 16 | 16 | 32 | 160 | 2 |
| | **200B** | 20 | 20 | 35 | 200 | 2 |

• Utensile di centratura : CT(D/d– ℓ/L)
• A richiesta rivestimento, refrigerante, diametri speciali.

# Controincisione






(mm)

| | Articolo | ⊚ | øD | øD1 | ød | α° | L |
|---|---|---|---|---|---|---|---|
| CS | 100-90 | 3 | 4 | 10 | 10 | 90° | 70 |
| | 200-90 | 4 | 8 | 20 | 12 | 90° | 85 |
| | 300-90 | 4 | 16 | 30 | 16 | 90° | 120 |
| | 100-60 | 3 | 4 | 10 | 10 | 60° | 70 |
| | 200-60 | 4 | 8 | 20 | 12 | 60° | 85 |
| | 300-60 | 4 | 16 | 30 | 16 | 60° | 120 |

• Utensile di centratura : CT(D/d– ℓ/L)
• A richiesta rivestimento, refrigerante, diametri speciali.

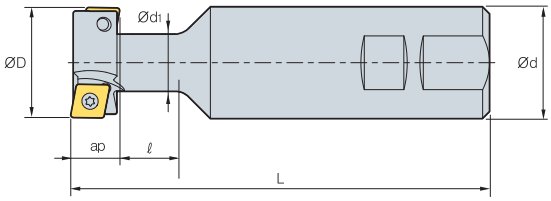
# TFE

New

AA 90°

• AR : 5°
• RR : -5°






(mm)

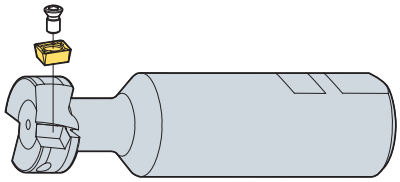
| Articolo | | Stock R | Stock L | ⊚ | øD | ød | ød1 | ℓ | L | ap | Inserti disponibili |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TFE | 2125R/L | ● | | 2 | 21 | 25 | 10.5 | 20 | 109 | 9 | CPMT06 |
| | 2525R/L | ● | | 2 | 25 | 25 | 12.5 | 21 | 112 | 11 | CPMT08 |
| | 3232R/L | ● | | 2 | 32 | 32 | 16.5 | 26 | 120 | 14 | CPMT09 |
| | 4032R/L | ● | | 2 | 40 | 32 | 20.5 | 32 | 130 | 18 | CPMH12 |
| | 5032R/L | ● | | 4 | 50 | 32 | 26.5 | 38 | 140 | 22 | CPMH12 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

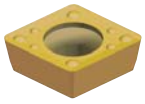
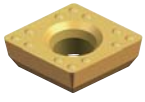
| | Vite | Chiave |
|---|---|---|
| |  |  |
| 2125R/L | FTNA02555 | TW08S |
| 2525R/L | FTNA0306 | TW09S |
| 3232R/L | FTNA0407 | TW15S |
| 4032R/L | PTMA0511A | TW15S |
| 5032R/L | PTMA0511A | TW15S |

Montaggio



• Inserti applicabili, vedere pag. E07
• Attacchi e viti disponibili : E215~E217

## Inserti disponibili

| | CPMT | CPMH |
|---|---|---|
| |  |  |

| Articolo | Rivestito PC3500 | Pag. |
|---|---|---|
| CPMT 060204-MM | ● | |
| 080308-MM | ● | E07 |
| 09T308-MM | ● | |
| CPMH 120408-MM | ● | E07 |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

● : Disponibile ○ : A richiesta

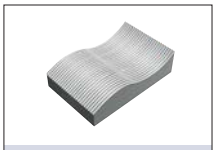
## Pro-A Mill

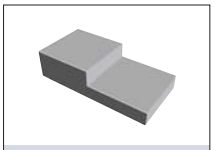
### Caratteristiche

- La lappatura superficiale dell'inserto migliora l'evacuazione del truciolo e riduce il tagliente di riporto
- Sistema modulare per la lavorazione dell'alluminio
- Vari articoli disponibili per la lavorazione dell'alluminio
- Spallamento retto, fresatura di superfici curve e ramping
- Elevato angolo di spoglia per un taglio dolce
- Miglior controllo del truciolo e ottimale sistema di refrigerazione interna adatto alla lavorazione di cave






Copiatura


Spallamento


Ramping


Sistema di lubrificazione

### Serie Pro-A mill

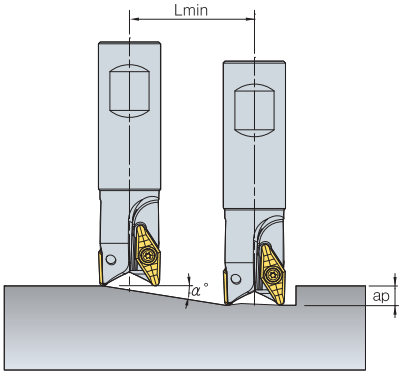
| Serie | Pro-A mill | | Sistema di lubrificazione |
|---|---|---|---|
| Pro-A 2000 |  | • Modulare : Ø12~Ø42<br>• Attacco : Ø12~Ø42<br>• Inserto : VDKT11T210N-MA<br>VDKT11T220N-MA | O |
| Pro-A 4000 |  | • Corpo fresa : Ø40~Ø100<br>• Attacco : Ø32~Ø40<br>• Inserto : VCKT220530N-MA | O |

### Condizioni di taglio raccomandate

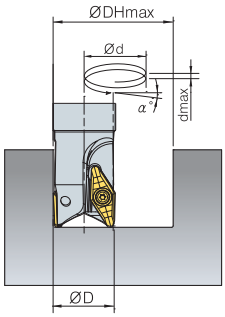
| Pezzo lavorato | | Velocità di taglio vc(m/min) |
|---|---|---|
| Lega di alluminio | Rm 〈 280 MPa<br>Rm 〉 280 MPa | 1000<br>800 |
| Lega di rame | Long chip | 250 |
| Termoplastica | - | 300 |
| Lega di alluminio | Si 〈 12% | 800 |
| Lega di rame | Short chip | 400 |
| Lega di magnesio | - | 400 |
| Duroplastic | - | 150 |

## Dati tecnici per fresatura elicoidale e ramping con Pro-A Mill

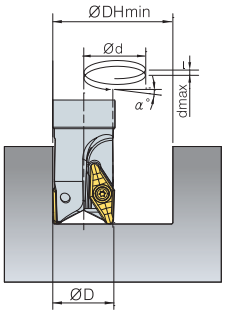
1. Ramping




2. Fresatura elicoidale per esecuzione di un foro cieco




3. Fresatura elicoidale per esecuzione di un foro passante




| Articolo | ØD(mm) | Ramping | | Foro cieco | | | | Foro passante | |
|---|---|---|---|---|---|---|---|---|---|
| | | α°(max) | Lmin(mm) | ØDHmax(mm) | dmax(mm) | ØDHmin(mm) | dmax(mm) | ØDHmin(mm) | dmax(mm) |
| **PAS2012HS** | 12 | 11.9 | 38 | 23 | 4.8 | 21 | 4.4 | 19 | 4.0 |
| **PAS2016HS** | 16 | 12.5 | 36 | 31 | 6.9 | 29 | 6.4 | 27 | 6.0 |
| **PAS2020HS** | 20 | 9.7 | 47 | 39 | 6.7 | 37 | 6.3 | 35 | 6.0 |
| **PAS2025HS** | 25 | 7.6 | 60 | 49 | 6.5 | 47 | 6.3 | 45 | 6.0 |
| **PAS2032HS** | 32 | 5.8 | 79 | 63 | 6.4 | 61 | 6.2 | 59 | 6.0 |
| **PAS2042HS** | 42 | 4.3 | 105 | 83 | 6.3 | 81 | 6.2 | 79 | 6.0 |
| **PAS4032HS** | 32 | 24.4 | 22 | 59 | 26.8 | 54 | 24.5 | 40 | 18.2 |
| **PAS4040HS** | 40 | 18.4 | 30 | 75 | 25.0 | 70 | 23.3 | 56 | 18.7 |
| **PAS4050HS** | 50 | 14.0 | 40 | 95 | 23.8 | 90 | 22.5 | 76 | 19.0 |
| **PAS4063HS** | 63 | 10.7 | 53 | 121 | 22.8 | 116 | 21.9 | 102 | 19.2 |
| **PAC(M)4080HS** | 80 | 8.1 | 70 | 155 | 22.1 | 150 | 21.4 | 136 | 19.4 |
| **PAC(M)4100HS** | 100 | 6.3 | 90 | 195 | 21.7 | 190 | 21.1 | 176 | 19.6 |

- Lmin : se ap=8mm
- Lmin : Lunghezza min. inclinazione taglio
  α° : Ang. rampig max.
  ap : Prof. di taglio

$$Lmin = \frac{ap}{\tan \alpha^{\circ}} \ (mm)$$

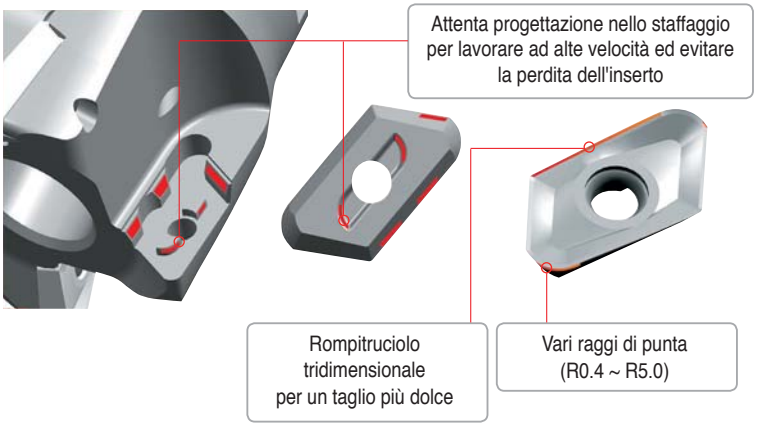
## Pro-X Mill

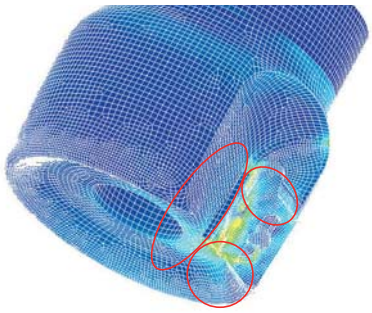
### Caratteristiche

- Staffaggio robusto grazie alle cave sottostanti l'inserto
- Eccellente evacuazione del truciolo e assenza di tagliente di riporto grazie alla lappatura della superficie dell'inserto
- Buona superficie di finitura e bassi sforzi di taglio grazie all'elevato angolo di spoglia
- Studiato per lavorazioni ad alte velocità dell'alluminio
- Indicato per lavorazioni di spallamento retto e copiatura



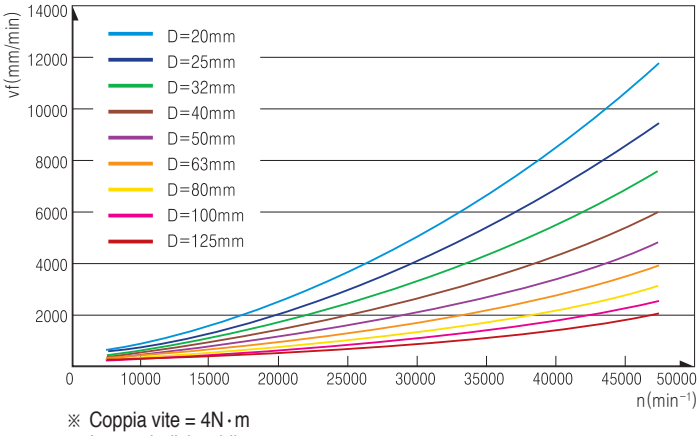
### Staffaggio per alte velocità



- Calcolo della distribuzione delle forze tramite FEM (metodo ad elementi finiti) nella progettazione dello staffaggio
- Staffaggio robuto dell'inserto

### Forze centrifughe




※ Coppia vite = 4N·m
※ Inserto indicizzabile : 6.8g

Marcatura [ • Articolo • Max. RPM ]




### Max. RPM e diametro di taglio

| Diametro di taglio ØD(mm) | | Max. RPM | |
|---|---|---|---|
| 5000 | 6000 | n(min⁻¹) | vc(m/min) |
| 20 | – | 15,000 | 940 |
| 25 | 25 | 32,600 | 2,559 |
| 32 | 32 | 28,800 | 2,894 |
| 40 | 40 | 25,800 | 3,240 |
| 50 | 50 | 23,000 | 3,611 |
| 63 | 63 | 20,500 | 4,055 |
| 80 | 80 | 18,200 | 4,572 |
| 100 | 100 | 16,300 | 5,118 |
| 125 | 125 | 14,600 | 5,731 |

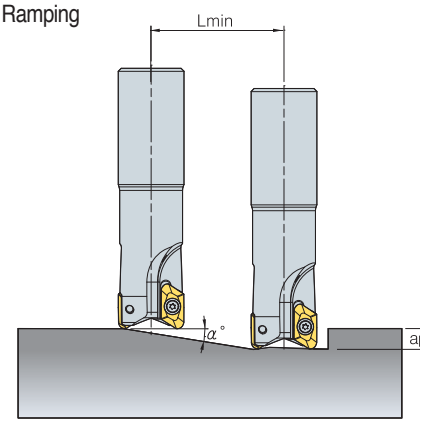
※In caso di rottura accidentale dell'inserto utilizzare un numero di giri inferiore, si raccomanda l'utilizzo di protezioni adeguate nelle lavorazioni ad alta velocità

### Condizioni di taglio raccomandate

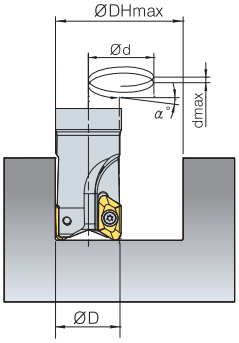
| Pezzo lavorato | | Velocità di taglio vc(m/min) | Avanzamento fz(mm/t) |
|---|---|---|---|
| Lega di alluminio | Rm280 MPa | 1200 | 0.3 |
| | Rm280 MPa | 1000 | 0.25 |
| Lega di rame | Trucioli lunghi | 400 | 0.2 |
| Termoplastic | - | 350 | 0.15 |
| Lega di alluminio | Si 12% | 1000 | 0.25 |
| | Si ≥12% | - | - |
| Lega di rame | Trucioli corti | 500 | 0.2 |
| Lega di magnesio | - | 450 | 0.2 |
| Duroplastic | - | 200 | 0.15 |

## Dati tecnici per fresatura elicoidale e ramping con Pro-X Mill

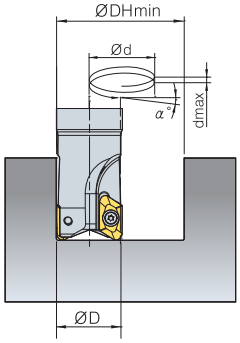
1. Ramping




2. Fresatura elicoidale per esecuzione di un foro cieco




3. Fresatura elicoidale per esecuzione di un foro passante

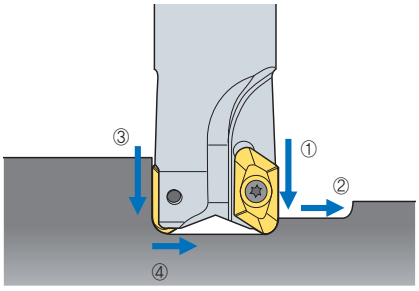



| Articolo | ØD(mm) | Ramping | | Foro cieco | | | | Foro passante | |
|---|---|---|---|---|---|---|---|---|---|
| | | α°(max) | Lmin(mm) | ØDHmax(mm) | dmax(mm) | ØDHmin(mm) | dmax(mm) | ØDHmin(mm) | dmax(mm) |
| **PAXS5020HS** | 20 | 8.4 | 68 | 34 | 5.0 | 32 | 4.7 | 27 | 4.0 |
| **PAXS5025HS** | 25 | 13.2 | 43 | 44 | 10.4 | 42 | 9.9 | 34 | 8.0 |
| **PAXS5032HS** | 32 | 9.5 | 60 | 58 | 9.7 | 56 | 9.3 | 48 | 8.0 |
| **PAXS5040HS** | 40 | 7.1 | 80 | 74 | 9.3 | 72 | 9.0 | 64 | 8.0 |
| **PAXCM5050HS** | 50 | 5.4 | 105 | 94 | 9.0 | 92 | 8.8 | 84 | 8.0 |
| **PAXCM5063HS** | 63 | 4.2 | 138 | 120 | 8.7 | 118 | 8.6 | 110 | 8.0 |
| **PAXC(M)5080HS** | 80 | 3.2 | 180 | 154 | 8.6 | 152 | 8.4 | 144 | 8.0 |
| **PAXC(M)5100HS** | 100 | 2.5 | 230 | 194 | 8.4 | 192 | 8.3 | 184 | 8.0 |
| **PAXC(M)5125HS** | 125 | 2.0 | 293 | 244 | 8.3 | 242 | 8.3 | 234 | 8.0 |
| **PAXS6025HS** | 25 | 9.0 | 63 | 44 | 6.9 | 42 | 6.6 | 38 | 6.0 |
| **PAXS6032HS** | 32 | 6.6 | 87 | 58 | 6.7 | 56 | 6.5 | 52 | 6.0 |
| **PAXS6040HS** | 40 | 12.1 | 47 | 74 | 15.9 | 72 | 15.4 | 56 | 12.0 |
| **PAXCM6060HS** | 50 | 9.0 | 63 | 94 | 14.8 | 92 | 14.5 | 76 | 12.0 |
| **PAXCM6063HS** | 63 | 6.7 | 85 | 120 | 14.1 | 118 | 13.9 | 102 | 12.0 |
| **PAXC(M)6080HS** | 80 | 5.0 | 113 | 154 | 13.6 | 152 | 13.4 | 136 | 12.0 |
| **PAXC(M)6100HS** | 100 | 3.9 | 147 | 194 | 13.2 | 192 | 13.1 | 176 | 12.0 |
| **PAXC(M)6125HS** | 125 | 3.0 | 188 | 244 | 13.0 | 242 | 12.8 | 226 | 12.0 |

- Lmin : se ap=10mm
- Lmin : Lunghezza min. inclinazione taglio
  α° : Ang. rampig max.
  ap : Prof. di taglio

$$Lmin = \frac{ap}{\tan \alpha^\circ} \ (mm)$$

## Dati tecnici per lavorazione a tuffo, fresatura di tasche, foratura




1. In caso di foratura e scanalatura la sequenza è ①→②→③→④
2. In caso di foratura e scanalatura diminuire l'avanzamento del 30%-50% rispetto ai parametri consigliati

- Condizioni di taglio per foratura

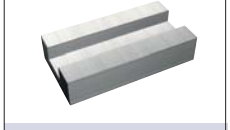
| Utensile | ap(mm) | |
|---|---|---|
| | 5000 | 6000 |
| Ø20 | 8 | - |
| Ø25 | 4 | 11 |
| Ø32 | 4 | 6 |
| Ø40~125 | 4 | 6 |

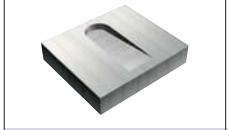
| Inserto | ap(mm) |
|---|---|
| XETK19 | 4 |
| XETK25 | 6 |

## Lavorazioni


Copiatura


Fresatura elicoidale


Scanalatura e spallamento

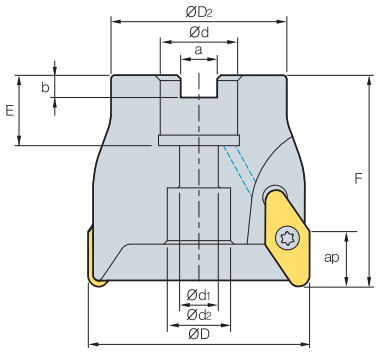

Ramping

# PAC(M)4000

AA 90°

• AR : 0°
• RR : -3°








(mm)

| Articolo | | Stock R | Stock L | ⊚ | øD | øD2 | ød | ød1 | ød2 | a | b | E | F | ap | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PAC(M) | 4040HR | ● | | 3 | 40 | 32 | 16 | 9 | 11.5 | 8.4 | 5.6 | 20 | 55 | 15 | 0.2 |
| | 4050HR | ● | | 3 | 50 | 40 | 22 | 11 | 18 | 10.4 | 6.3 | 20 | 55 | 15 | 0.3 |
| | 4063HR | ● | | 4 | 63 | 50 | 22 | 11 | 18 | 10.4 | 6.3 | 20 | 60 | 15 | 0.6 |
| | 4080HR | ● | | 4 | 80 | 60 | 25.4(27) | 14 | 20 | 9.5(12.4) | 6.0(7.0) | 25(25) | 60 | 15 | 1.0 |
| | 4100HR | ● | | 5 | 100 | 80 | 31.75(32) | - (18) | 44(26) | 12.7(14.4) | 8.0 | 37(26) | 60 | 15 | 1.6 |

Nota) Con raffreddamento interno Ø40~Ø100 • ( )Sistema metrico ● : Disponibile ○ : A richiesta

## Parti di ricambio

| Vite | Chiave |
|---|---|
|  |  |
| PTNC04511 | TW 20S |

## Attacchi disponibili

| Articolo | | Ød | Attacchi disponibili |
|---|---|---|---|
| PAC(M) | 4040HS | 16 | BT□□-FMC16-□□ |
| | 4050HS | 22 | BT□□-FMC22-□□ |
| | 4063HS | 22 | BT□□-FMC22-□□ |
| | 4080HS | 25.4 | BT□□-FMA25.4-□□ |
| | | 27 | BT□□-FMC27-□□ |
| | 4100HS | 31.75 | BT□□-FMA31.75-□□ |
| | | 32 | BT□□-FMC32-□□ |

• Inserti applicabili, vedere pag. E20
• Attacchi e viti disponibili : E172~E174

## Inserti disponibili

VCKT-MA



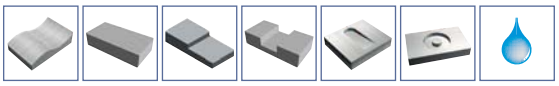
| Articolo | Non rivestito H01 | Pag. |
|---|---|---|
| VCKT 220530N-MA | ● | E20 |

● : Disponibile ○ : A richiesta

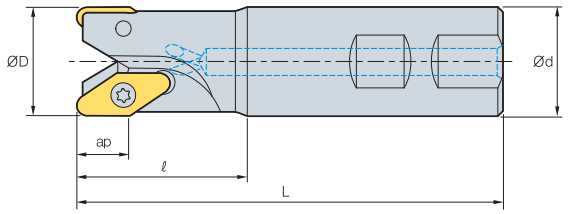
# PAS2000/4000

AA 90°

• AR : 0°~7°
• RR : -21°~-3°








(mm)

| Articolo | | Stock R | Stock L | ⊙ | ØD | Ød | ℓ | L | ap | kg |
|---|---|---|---|---|---|---|---|---|---|---|
| PAS | 2012HR | ● | | 1 | 12 | 16 | 25 | 85 | 8 | 0.1 |
| | 2016HR | ● | | 2 | 16 | 16 | 25 | 90 | 8 | 0.11 |
| | 2020HR | ● | | 2 | 20 | 20 | 30 | 100 | 8 | 0.2 |
| | 2025HR | ● | | 3 | 25 | 25 | 35 | 115 | 8 | 0.36 |
| | 2032HR | | | 4 | 32 | 32 | 40 | 125 | 8 | 0.66 |
| | 2042HR | | | 5 | 42 | 32 | 42 | 130 | 8 | 0.84 |
| PAS | 4032HR | ● | | 2 | 32 | 32 | 50 | 125 | 15 | 0.6 |
| | 4040HR | ● | | 3 | 40 | 32 | 50 | 140 | 15 | 0.8 |
| | 4040HR-S40 | | | 3 | 40 | 40 | 60 | 150 | 15 | 1.2 |
| | 4040HR-S42 | | | 3 | 40 | 42 | 60 | 150 | 15 | 1.2 |

Nota) Con raffreddamento interno Ø12~Ø40

● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Vite | Chiave |
|---|---|---|
| |  |  |
| 2000 | ETNA02505, ETNA02506 | TW 07S |
| 4000 | FTNC04509 | TW 20S |

• Inserti applicabili, vedere pag. E20

## Inserti disponibili

| | VDKT-MA | VCKT-MA |
|---|---|---|
| |  |  |

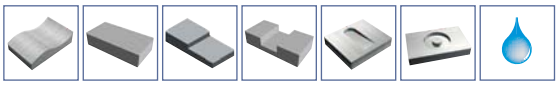
| Tipo | Articolo | Non rivestito H01 | Pag. |
|---|---|---|---|
| 2000 | VDKT 11T210N-MA | ● | E20 |
| 4000 | VCKT 220530N-MA | ● | E20 |

● : Disponibile ○ : A richiesta

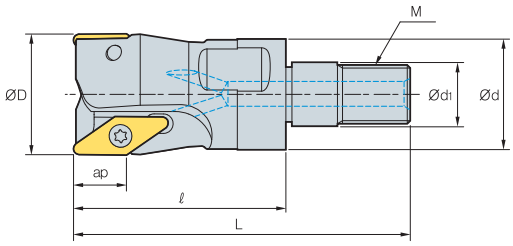
# PAM2000

AA 90°

• AR : 7°~10°
• RR : –21°~–9°








(mm)

| Articolo | | Stock | ⊚ | ØD | Ød | Ød1 | ℓ | L | M | ap | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **PAM** | **2012HR-M06** | ○ | 1 | 12 | 11.0 | 6.5 | 33 | 48 | M06 | 8 | 0.02 |
| | **2016HR-M08** | ● | 2 | 16 | 14.5 | 8.5 | 36 | 53 | M08 | 8 | 0.04 |
| | **2020HR-M10** | ● | 2 | 20 | 18.0 | 10.5 | 36 | 57 | M10 | 8 | 0.06 |
| | **2025HR-M12** | ● | 3 | 25 | 22.5 | 12.5 | 41 | 65 | M12 | 8 | 0.1 |
| | **2032HR-M16** | ○ | 4 | 32 | 28.5 | 17.0 | 45 | 72 | M16 | 8 | 0.18 |
| | **2042HR-M16** | ○ | 5 | 42 | 28.5 | 17.0 | 45 | 72 | M16 | 8 | 0.27 |

Nota) Con raffreddamento interno Ø12~Ø42

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Vite | Chiave |
|---|---|
|  |  |
| ETNA02505*, ETNA02506 | TW 07S |

*PAM2012 · 2016

## Adattatori disponibili

| Articolo | | Adattatori disponibili |
|---|---|---|
| PAM | 2012HR-M06 | MAT - M06 |
| | 2016HR-M08 | MAT - M08 |
| | 2020HR-M10 | MAT - M10 |
| | 2025HR-M12 | MAT - M12 |
| | 2032HR-M16 | MAT - M16 |
| | 2042HR-M16 | MAT - M16 |

Articolo : PAM2012HR-M12
Dimensione filettatura testa modulare (M16)

=

Spec. adattatore : MAT-M12-030-S20S
Dimensione filettatura adattatore (M16)

• Inserti applicabili, vedere pag. E20
• Adattatori disponibili : E133~E134

## Inserti disponibili

VDKT-MA



| Articolo | Non rivestito | Pag. |
|---|---|---|
| | H01 | |
| **VDKT 11T210N-MA** | ● | E20 |

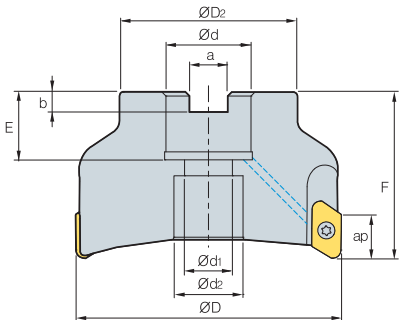
● : Disponibile ○ : A richiesta

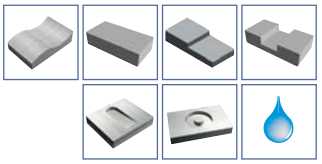
# PAXC(M)5000/6000

AA 90°

• AR : 8°~17.5°
• RR : -9.5°~-5°





(mm)

| Articolo | | Stock A | Stock B | ⚙ | øD | øD2 | ød | ød1 | ød2 | a | b | E | F | Max rpm | ap | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PAXC(M) | 5040HR-A,B | (●) | (●) | 3 | 40 | 34 | 16 | 9 | 14 | 8.4 | 5.6 | 19 | 40 | 25,800 | 17 | 0.15 |
| | 5050HR-A,B | (●) | (●) | 4 | 50 | 42 | 22 | 11 | 18 | 10.4 | 6.3 | 21 | 50 | 23,000 | 17 | 0.3 |
| | 5063HR-A,B | (●) | (●) | 5(4) | 63 | 49 | 22 | 11 | 18 | 10.4 | 6.3 | 21 | 50 | 20,500 | 17 | 0.56 |
| | 5080HR-A,B | ●(●) | ●(●) | 5 | 80 | 57 | 25.4(27) | 14 | 20 | 9.5(12.4) | 6(7) | 24(23) | 50 | 18,200 | 17 | 1.0 |
| | 5100HR-A,B | ●(●) | ●(●) | 6 | 100 | 67 | 31.75(32) | 18 | 26 | 12.7(14.4) | 8(8) | 32(26) | 63 | 16,300 | 17 | 2.3 |
| | 5125HR-A,B | ●(●) | (●) | 7 | 125 | 87 | 38.1(40) | 22 | 32 | 15.9(16.4) | 10(9) | 35(29) | 63 | 14,600 | 17 | 3.2 |
| PAXC(M) | 6050HR-A,B | (●) | | 2 | 50 | 42 | 16 | 9 | 14 | 8.4 | 5.6 | 18 | 50 | 23,000 | 23 | 0.32 |
| New | 6063HR-A,B | (● | | 3 | 63 | 49 | 22 | 11 | 18 | 10.4 | 6.3 | 21 | 50 | 20,500 | 23 | 0.53 |
| | 6080HR-A,B | ●(● | (●) | 4 | 80 | 57 | 25.4(27) | 14 | 20 | 9.5(12.4) | 6(7) | 25(23) | 50 | 18,200 | 23 | 0.73 |
| | 6100HR-A,B | ●(●) | (●) | 5 | 100 | 67 | 31.75(32) | 18 | 26 | 12.7(14.4) | 8(8) | 32.5(26) | 63 | 16,300 | 23 | 1.7 |
| | 6125HR-A,B | (●) | (●) | 6 | 125 | 87 | 38.1(40) | 22 | 32 | 15.9(16.4) | 10(9) | 35(29) | 63 | 14,600 | 23 | 3.06 |

• Tipo A: Raggio di punta inserto 0.4~3.2, Tipo B: Raggio di punta inserto 4.0~5.0 • ( )Sistema metrico
Nota) Con raffreddamento interno Ø40~Ø125

● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Vite | Chiave |
|---|---|---|
| |  |  |
| 5000 | PTKA0408 | TW 15S |
| 6000 | FTGA0513 | TW 20S |

## Attacchi disponibili

| Articolo | | Ød | 적용 아버 |
|---|---|---|---|
| PAXC(M) | 5040HR-A,B | 16 | BT□□-FMC16-□□ |
| | 5050HR-A,B | 22 | BT□□-FMC22-□□ |
| | 5063HR-A,B | 22 | BT□□-FMC22-□□ |
| | 5080HR-A,B | 25.4 | BT□□-FMA25.4-□□ |
| | | 27 | BT□□-FMC27-□□ |
| | 5100HR-A,B | 31.75 | BT□□-FMA31.75-□□ |
| | | 32 | BT□□-FMC32-□□ |
| | 5125HR-A,B | 38.1 | BT□□-FMA38.1-□□ |
| | | 40 | BT□□-FMC40-□□ |
| PAXC(M) | 6050HR-A,B | 16 | BT□□-FMC16-□□ |
| | 6063HR-A,B | 22 | BT□□-FMC22-□□ |
| | 6080HR-A,B | 25.4 | BT□□-FMA25.4-□□ |
| | | 27 | BT□□-FMC27-□□ |
| | 6100HR-A,B | 31.75 | BT□□-FMA31.75-□□ |
| | | 32 | BT□□-FMC32-□□ |
| | 6125HR-A,B | 38.1 | BT□□-FMA38.1-□□ |
| | | 40 | BT□□-FMC40-□□ |

• Inserti applicabili, vedere pag. E20
• Attacchi e viti disponibili : E215~E217

## Inserti disponibili

XEKT-MA



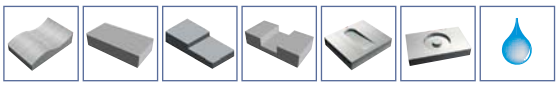
| Tipo | Articolo | | Rivestito PD2000 | Non rivestito H01 | Pag. |
|---|---|---|---|---|---|
| 5000 | XEKT | 19M504FR-MA | ● | ● | E20 |
| | | 19M508FR-MA | ● | ● | |
| | | 19M512FR-MA | ● | ● | |
| | | 19M516FR-MA | ● | ● | |
| | | 19M518FR-MA | ● | ● | |
| | | 19M520FR-MA | ● | ● | |
| | | 19M530FR-MA | ● | ● | |
| | | 19M532FR-MA | ● | ● | |
| | | 19M540FR-MA | ● | ● | |
| | | 19M550FR-MA | ● | ● | |
| 6000 | XEKT | 250604FR-MA | | ● | E20 |
| | New | 250608FR-MA | | ● | |
| | | 250612FR-MA | | ● | |
| | | 250616FR-MA | | ● | |
| | | 250620FR-MA | | ● | |
| | | 250630FR-MA | | ● | |
| | | 250632FR-MA | | ● | |
| | | 250640FR-MA | | ● | |
| | | 250650FR-MA | | ● | |

● : Disponibile ○ : A richiesta

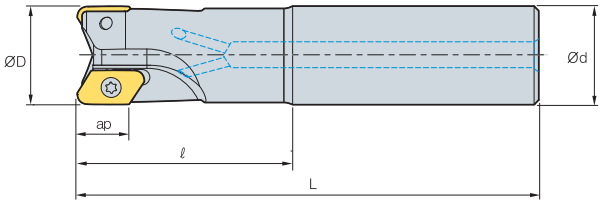
# PAXS5000/6000

AA 90°

- AR : 5°~10°
- RR : −14°~−5°








(mm)

| Articolo | | Stock A | Stock B | ⊚ | ØD | Ød | ℓ | L | Max rpm | ap | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PAXS | 5020HR-A,B | ● | ● | 1 | 20 | 20 | 60 | 130 | 15,000 | 17 | 0.24 |
| | 5025HR-A,B | ● | ● | 2 | 25 | 25 | 60 | 140 | 32,600 | 17 | 0.4 |
| | 5025HR-A,B-L200 | | | 2 | 25 | 25 | 60 | 200 | 32,600 | 17 | 0.63 |
| | 5032HR-A,B | ● | ● | 2 | 32 | 32 | 70 | 150 | 28,800 | 17 | 0.74 |
| | 5032HR-A,B-L220 | | | 2 | 32 | 32 | 70 | 220 | 28,800 | 17 | 1.2 |
| Neu | 5040HR-A,B-S32 | | | 3 | 40 | 32 | 70 | 160 | 25,800 | 17 | 1.0 |
| Neu | 5040HR-A,B-L220 | | | 3 | 40 | 40 | 70 | 220 | 25,800 | 17 | 1.4 |
| Neu | 5040HR-A,B-S40 | | | 3 | 40 | 40 | 70 | 160 | 25,800 | 17 | 1.3 |
| | 5040HR-A,B-S42 | | | 3 | 40 | 42 | 70 | 160 | 25,800 | 17 | 1.4 |
| PAXS | 6025HR-A,B | ● | | 1 | 25 | 25 | 60 | 140 | 32,600 | 23 | 0.42 |
| Neu | 6025HR-A,B-L200 | ● | | 1 | 25 | 25 | 60 | 200 | 32,600 | 23 | 0.63 |
| | 6032HR-A,B | ● | | 1 | 32 | 32 | 70 | 150 | 28,800 | 23 | 0.72 |
| | 6032HR-A,B-L220 | | | 1 | 32 | 32 | 70 | 220 | 28,800 | 23 | 1.14 |
| | 6040HR-A,B-S32 | ● | | 2 | 40 | 32 | 70 | 160 | 25,800 | 23 | 0.88 |
| | 6040HR-A,B-L220 | ● | | 2 | 40 | 32 | 70 | 220 | 25,800 | 23 | 1.23 |
| | 6040HR-A,B-S40 | | | 2 | 40 | 40 | 70 | 160 | 25,800 | 23 | 1.2 |
| | 6040HR-A,B-S42 | | | 2 | 40 | 42 | 70 | 160 | 25,800 | 23 | 1.3 |

• Tipo A: Raggio di punta inserto 0.4~3.2, Tipo B: Raggio di punta inserto 4.0~5.0
Nota) Con raffreddamento interno Ø20~Ø40

● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Vite | Chiave |
|---|---|---|
| |  |  |
| 5000 | PTKA0408 | TW 15S |
| 6000 | FTGA0513 | TW 20S |

• Inserti applicabili, vedere pag. E20

## Inserti disponibili

XEKT-MA



| Tipo | Articolo | | Rivestito PD2000 | Non rivestito H01 | Pag. |
|---|---|---|---|---|---|
| 5000 | XEKT | 19M504FR-MA | ● | ● | E20 |
| | | 19M508FR-MA | ● | ● | |
| | | 19M512FR-MA | ● | ● | |
| | | 19M516FR-MA | ● | ● | |
| | | 19M518FR-MA | ● | ● | |
| | | 19M520FR-MA | ● | ● | |
| | | 19M530FR-MA | ● | ● | |
| | | 19M532FR-MA | ● | ● | |
| | | 19M540FR-MA | ● | ● | |
| | | 19M550FR-MA | ● | ● | |
| 6000 | XEKT | 250604FR-MA | | ● | E20 |
| | Neu | 250608FR-MA | | ● | |
| | | 250612FR-MA | | ● | |
| | | 250616FR-MA | | ● | |
| | | 250620FR-MA | | ● | |
| | | 250630FR-MA | | ● | |
| | | 250632FR-MA | | ● | |
| | | 250640FR-MA | | ● | |
| | | 250650FR-MA | | ● | |

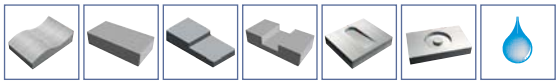
● : Disponibile ○ : A richiesta

# PAXM5000

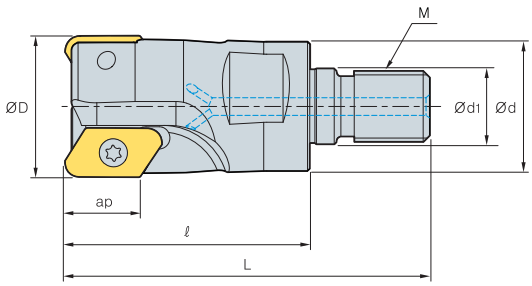
New

AA 90°

• AR : 6°~8°
• RR : -7°~-5°








(mm)

| Articolo | | Stock A | Stock B | ⌀ | øD | ød | ød1 | ℓ | L | M | ap | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PAXM | 5025HR-A,B-M12 | ○ | | 2 | 25 | 23 | 12.5 | 55 | 79 | M12 | 17 | 0.12 |
| | 5032HR-A,B-M16 | ○ | | 2 | 32 | 29 | 17.0 | 55 | 82 | M16 | 17 | 0.2 |
| | 5040HR-A,B-M16 | ○ | | 3 | 40 | 29 | 17.0 | 55 | 82 | M16 | 17 | 0.4 |

Nota) Con raffreddamento interno Ø25~Ø40

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Vite | Chiave |
|---|---|
|  |  |
| PTKA0407/PTKA0408 | TW 15S |

• For PAXM5025

## Adattatori disponibili

| Articolo | | Adattatori disponibili |
|---|---|---|
| PAXM | 5025HR-A,B-M12 | MAT - M12 |
| | 5032HR-A,B-M16 | MAT - M16 |
| | 5040HR-A,B-M16 | MAT - M16 |

Articolo : PAXM5025HR-M12
Dimensione filettatura testa modulare (M16)

=

Spec. adattatore: MAT-M12-030-S25S
Dimensione filettatura adattatore (M16)

• Inserti applicabili, vedere pag. E20
• Adattatori disponibili : E133~E134

## Inserti disponibili

XEKT-MA



| Articolo | | Rivestito PD2000 | Non rivestito H01 | Pag. |
|---|---|---|---|---|
| XEKT | 19M504FR-MA | ● | ● | E20 |
| | 19M508FR-MA | ● | ● | |
| | 19M512FR-MA | ● | ● | |
| | 19M516FR-MA | ● | ● | |
| | 19M518FR-MA | ● | ● | |
| | 19M520FR-MA | ● | ● | |
| | 19M530FR-MA | ● | ● | |
| | 19M532FR-MA | ● | ● | |
| | 19M540FR-MA | ● | ● | |
| | 19M550FR-MA | ● | ● | |

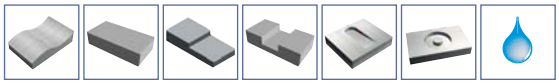
● : Disponibile ○ : A richiesta

# HSK63A/100A PAX5000

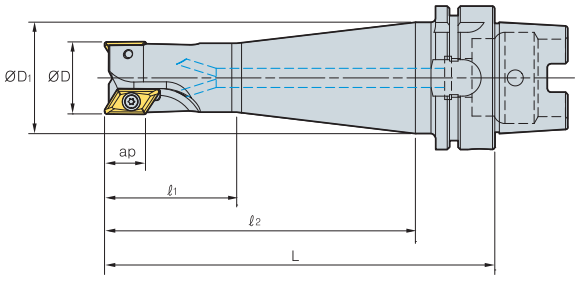
New

AA 90°

• AR : 5°~17.5°
• RR : −14°~−5°








(mm)

| Articolo | | Stock A | Stock B | ⊙ | øD | øD1 | ℓ1 | ℓ2 | L | ap | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| HSK63T | PAX5032HR-A, B | | | 2 | 32 | 53 | 58 | 137 | 163 | 17 | 1.14 |
| HSK100T | PAXCM5080HR-A, B | | | 5 | 80 | - | - | 66 | 95 | 17 | 4 |
| | PAXCM5100HR-A, B | | | 6 | 100 | - | - | 66 | 95 | 17 | 4.6 |

• Tipo A: Raggio di punta inserto 0.4~3.2, Tipo B: Raggio di punta inserto 4.0~5.0
• Fare riferimento a E124~E125 per angolo di spoglia max. e rpm max
Nota) Con raffreddamento interno Ø32, 80, 100

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Vite | Chiave |
|---|---|
|  |  |
| PTKA0407/PTKA0408 | TW 15S |

• Inserti applicabili, vedere pag. E20

## Inserti disponibili

XEKT-MA



| Articolo | | Rivestito PD2000 | Non rivestito H01 | Pag. |
|---|---|---|---|---|
| XEKT | 19M504FR-MA | ● | ● | E20 |
| | 19M508FR-MA | ● | ● | |
| | 19M512FR-MA | ● | ● | |
| | 19M516FR-MA | ● | ● | |
| | 19M518FR-MA | ● | ● | |
| | 19M520FR-MA | ● | ● | |
| | 19M530FR-MA | ● | ● | |
| | 19M532FR-MA | ● | ● | |
| | 19M540FR-MA | ● | ● | |
| | 19M550FR-MA | ● | ● | |

● : Disponibile ○ : A richiesta

# MAT(Stelo in acciaio)



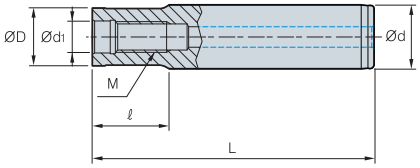



Fig. 1

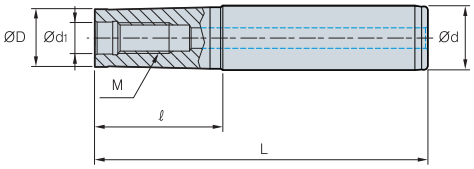



Fig. 2

(mm)

| Articolo | | Stock | ØD | Ød | Ød1 | ℓ | L | M | Fig. |
|---|---|---|---|---|---|---|---|---|---|
| MAT | M06-020-S10S | ● | 9.5 | 10 | 6.5 | 20 | 70 | M06 | 1 |
| | M6B-020-S12S | ● | 11.0 | 12 | 6.5 | 20 | 76 | M06 | 1 |
| | M6B-040-S12S | ● | 11.0 | 12 | 6.5 | 40 | 96 | M06 | 1 |
| | M08-020-S16S | ● | 14.5 | 16 | 8.5 | 20 | 80 | M08 | 1 |
| | M10-030-S20S | ● | 18.0 | 20 | 10.5 | 30 | 100 | M10 | 1 |
| | M12-030-S25S | ● | 22.5 | 25 | 12.5 | 29 | 110 | M12 | 1 |
| | M16-035-S32S | ● | 28.5 | 32 | 17.0 | 35 | 125 | M16 | 1 |
| | M06-040-S12T | ● | 9.5 | 12 | 6.5 | 40 | 96 | M06 | 2 |
| | M06-065-S16T | ● | 9.5 | 16 | 6.5 | 65 | 125 | M06 | 2 |
| | M6B-065-S16T | ● | 11.0 | 16 | 6.5 | 65 | 125 | M06 | 2 |
| | M6B-080-S16T | ● | 11.0 | 16 | 6.5 | 80 | 140 | M06 | 2 |
| | M08-040-S16T | ● | 14.5 | 16 | 8.5 | 40 | 100 | M08 | 2 |
| | M08-065-S16T | ● | 14.5 | 16 | 8.5 | 65 | 125 | M08 | 2 |
| | M08-080-S20T | ● | 14.5 | 20 | 8.5 | 80 | 150 | M08 | 2 |
| | M08-110-S25T | ● | 14.5 | 25 | 8.5 | 110 | 190 | M08 | 2 |
| | M10-050-S20T | ● | 18.0 | 20 | 10.5 | 50 | 120 | M10 | 2 |
| | M10-070-S20T | ● | 18.0 | 20 | 10.5 | 70 | 140 | M10 | 2 |
| | M10-090-S25T | ● | 18.0 | 25 | 10.5 | 90 | 170 | M10 | 2 |
| | M10-110-S25T | ● | 18.0 | 25 | 10.5 | 110 | 190 | M10 | 2 |
| | M10-130-S32T | ● | 18.0 | 32 | 10.5 | 130 | 220 | M10 | 2 |
| | M12-050-S25T | ● | 22.5 | 25 | 12.5 | 50 | 130 | M12 | 2 |
| | M12-070-S25T | ● | 22.5 | 25 | 12.5 | 70 | 150 | M12 | 2 |
| | M12-090-S25T | ● | 22.5 | 25 | 12.5 | 90 | 170 | M12 | 2 |
| | M12-110-S32T | ● | 22.5 | 32 | 12.5 | 110 | 200 | M12 | 2 |
| | M12-175-S40T | ● | 22.5 | 40 | 12.5 | 175 | 300 | M12 | 2 |
| | M16-055-S32T | ● | 28.5 | 32 | 17.0 | 55 | 145 | M16 | 2 |
| | M16-080-S32T | ● | 28.5 | 32 | 17.0 | 80 | 170 | M16 | 2 |
| | M16-120-S32T | ● | 28.5 | 32 | 17.0 | 120 | 210 | M16 | 2 |
| | M16-175-S40T | ● | 28.5 | 40 | 17.0 | 175 | 300 | M16 | 2 |

• Adattatori modulari, vedere pag.: E28(FMRM, LBE, PAM, AMM, RM4PM, HRMM, PAXM)

• S : Adattatore con stelo cilindrico
• T : Adattatore con stelo conico

● : Disponibile ○ : A richiesta

## MAT-C(Stelo in acciaio duro)



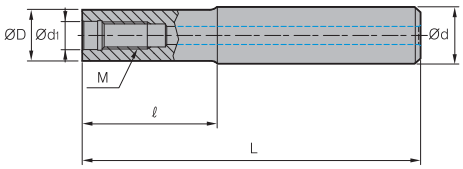



Fig. 1

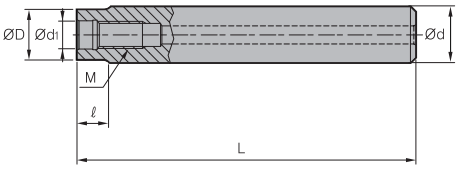



Fig. 2

(mm)

| Articolo | | Stock | øD | ød | ød1 | ℓ | L | M | Fig. |
|---|---|---|---|---|---|---|---|---|---|
| MAT | M08-080-S16S-C | ● | 14.5 | 16 | 8.5 | 80 | 150 | M08 | 1 |
| | M08-110-S16S-C | ● | 14.5 | 16 | 8.5 | 110 | 180 | M08 | 1 |
| | M08-150-S16S-C | ● | 14.5 | 16 | 8.5 | 150 | 250 | M08 | 1 |
| New | M08-010-S16S-C-150 | ● | 14.5 | 16 | 8.5 | 10 | 150 | M08 | 2 |
| New | M08-010-S16S-C-180 | ● | 14.5 | 16 | 8.5 | 10 | 180 | M08 | 2 |
| New | M08-010-S16S-C-250 | ● | 14.5 | 16 | 8.5 | 10 | 250 | M08 | 2 |
| | M10-090-S20S-C | ● | 18.0 | 20 | 10.5 | 90 | 170 | M10 | 1 |
| | M10-110-S20S-C | ● | 18.0 | 20 | 10.5 | 110 | 200 | M10 | 1 |
| | M10-175-S20S-C | ● | 18.0 | 20 | 10.5 | 175 | 300 | M10 | 1 |
| New | M10-010-S20S-C-170 | ● | 18.0 | 20 | 10.5 | 10 | 170 | M10 | 2 |
| New | M10-010-S20S-C-200 | ● | 18.0 | 20 | 10.5 | 10 | 200 | M10 | 2 |
| New | M10-010-S20S-C-300 | ● | 18.0 | 20 | 10.5 | 10 | 300 | M10 | 2 |
| | M12-090-S25S-C | ● | 22.5 | 25 | 12.5 | 90 | 170 | M12 | 1 |
| | M12-110-S25S-C | ● | 22.5 | 25 | 12.5 | 110 | 200 | M12 | 1 |
| | M12-175-S25S-C | ● | 22.5 | 25 | 12.5 | 175 | 300 | M12 | 1 |
| New | M12-015-S25S-C-170 | ● | 22.5 | 25 | 12.5 | 15 | 170 | M12 | 2 |
| New | M12-015-S25S-C-200 | ● | 22.5 | 25 | 12.5 | 15 | 200 | M12 | 2 |
| New | M12-015-S25S-C-300 | ● | 22.5 | 25 | 12.5 | 15 | 300 | M12 | 2 |
| | M16-090-S32S-C | ● | 28.5 | 32 | 17.0 | 90 | 180 | M16 | 1 |
| | M16-120-S32S-C | ● | 28.5 | 32 | 17.0 | 120 | 210 | M16 | 1 |
| | M16-175-S32S-C | ● | 28.5 | 32 | 17.0 | 175 | 300 | M16 | 1 |
| New | M16-020-S32S-C-180 | ● | 28.5 | 32 | 17.0 | 20 | 180 | M16 | 2 |
| New | M16-020-S32S-C-210 | ● | 28.5 | 32 | 17.0 | 20 | 210 | M16 | 2 |
| New | M16-020-S32S-C-300 | ● | 28.5 | 32 | 17.0 | 20 | 300 | M16 | 2 |

• Adattatori modulari, vedere pag.: E28(FMRM, LBE, PAM, AMM, RM4PM, HRMM, PAXM)

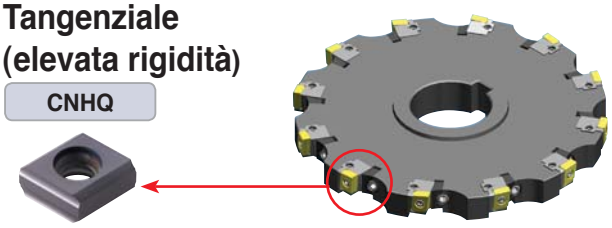
● : Disponibile ○ : A richiesta

## Frese a disco regolabili

### Sistema di codifica Korloy (mm)

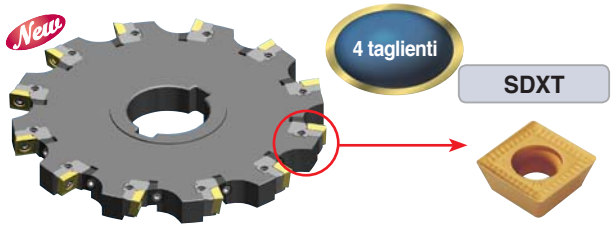



### Tangenziale (elevata rigidità)




- Medie lavorazioni/Sgrossatura
- Ottime prestazioni nelle medie lavorazioni e di sgrossatura (14~30mm) grazie all'elevata rigidità della fresa
- Buone prestazioni nel taglio interrotto pesante e nelle applicazioni con elevate profondità di taglio

### Radiale (bassi sforzi di taglio)

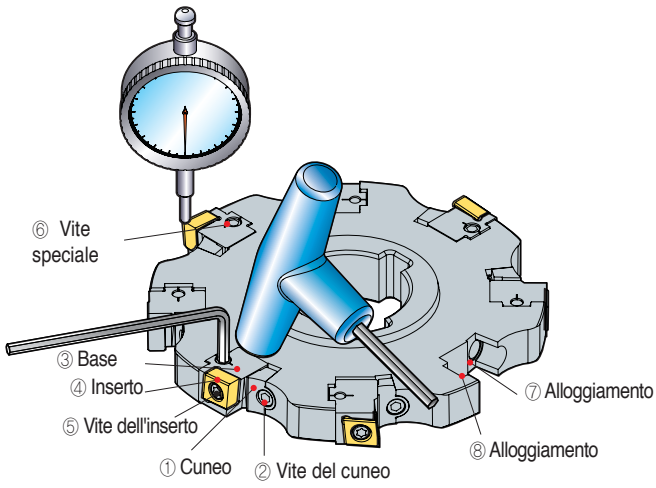



- Medie lavorazioni/Finitura
- Indicata per operazioni di piccoli spessori di taglio (12~24mm)
- Design tridimensionale del rompitruciolo per un taglio dolce
- Sono disponibili svariati rompitrucioli per numerose applicazioni (MF, MM, FA)
- Inserto economico a 4 taglienti

### Caratteristiche inserto

- Con le frese a disco regolabili è possibile controllare lo spessore della fresa con incrementi di 5㎛
- Poiché lo spessore della fresa è regolabile fino a ±1.5mm, ogni singola fresa può coprire svariate lavorazioni
- Lo speciale design del sistema di staffaggio della sede assicura un'ottima rigidità
- Il sistema di staffaggio tangenziale dell'inserto assicura un'adeguata robustezza anche per le operazioni con elevate profondità di taglio
- Il design tridimensionale del rompitruciolo garantisce un taglio dolce con bassi sforzi di taglio nelle medie lavorazioni e di finitura

### Regolazione manuale




Come montare la fresa a disco regolabile
1. Serrare ① leggermente il cuneo nella ⑦ tasca per base-cuneo usando ②la vite del cuneo
2. Inserire ③la base nella ⑦ tasca per base-cuneo insieme all'⑧attacco
3. Serrare leggermente la ⑥ vite conica per regolare correttamente la posizione della base
4. Serrare leggermente la ② vite del cuneo usando la coppia 70~80N.m
5. Quindi, inserire ④ l'inserto nella tasca per inserto della ③ base e fissarlo con ⑤ la vite dell'inserto utilizzando la coppia 40~50N.m

Come regolare la corsa massima e la profondità di taglio
1. Dopo la pulizia, preparare la fresa per le misurazioni
2. Innanzitutto svitare la ② vite del cuneo, quindi serrare leggermente ① il cuneo utilizzando la coppia 8N.m
3. Regolare l'altezza del tagliente con il calibro per impostare lo spessore della fresa
4. Serrare leggermente la ② vite del cuneo usando la coppia 70~80N.m
5. In conclusione, serrare la ⑥ vite conica per un serraggio più robusto

## Tangenziale

### Profondità di taglio per inserto e tipo di fresa


CNHQ

| Articolo | Rivestito | | Profondità di taglio per le frese a disco (ap) | Profondità di taglio per le frese a disco (ap) | L | d | t |
|---|---|---|---|---|---|---|---|
| | NCM325 | PC6510 | | | | | |
| CNHQ1005-C0.5 | ○ | ○ | 9.0 | 14~18 | 10 | 10 | 5.4 |
| -R0.5 | | | | | | | |
| -C1.0 | | | 8.5 | 14~17 | | | |
| -R1.0 | | | | | | | |
| CNHQ1305-C0.5 | ○ | ○ | 12 | 18~21 / 21~24 | 12.7 | 10 | 5.4 |
| -R0.5 | | | | | | | |
| -C1.0 | ○ | ○ | 11.5 | 18~21 / 21~23 | | | |
| -R1.0 | | | | | | | |
| -C1.5 | | | 11 | 18~21 / 21~22 | | | |
| -R1.5 | | | | | | | |
| CNHQ1606-C0.5 | ○ | ○ | 15 | 24~27 / 27~30 | 16 | 12 | 6.4 |
| -R0.5 | | | | | | | |
| -C1.0 | ○ | ○ | 14.5 | 24~27 / 27~29 | | | |
| -R1.0 | ○ | ○ | | | | | |
| -C1.5 | | | 14 | 24~27 / 27~28 | | | |
| -R1.5 | | | | | | | |
| -C2.0 | | | 13.5 | 24~27 | | | |
| -R2.0 | | | | | | | |

● : Disponibile ○ : A richiesta

• Portainserti applicabile: E187, E188 • Attacchi e viti disponibili: E215~E217

### Condizioni di taglio raccomandate

| ISO | Gradi | vc(m/min) | fz(mm/t) |
|---|---|---|---|
| P | NCM325 | 150~300 | 0.1~0.3 |
| | PC3535 | 100~300 | |
| M | PC9530 | 100~180 | 0.1~0.3 |
| | NCM335 | 120~200 | |
| K | PC215K | 150~250 | 0.1~0.3 |
| | PC6510 | 150~300 | |

## Radiale

### Profondità di taglio per inserto e tipo di fresa


MA MF MM

| Articolo | Rivestito | | | | | | | Non rivestito | Profondità di taglio per le frese a disco (ap) | Profondità di taglio per le frese a disco (ap) | d | t |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NCM325 | NCM335 | PC3535 | PC3545 | PC9530 | PC6510 | PC8520 | H01 | | | | |
| SDXT09M405R-MA | | | | | | | | ● | 8 | 12~14<br>14~16 | 9.525 | 4 |
| SDXT09M405L-MA | | | | | | | | | | | | |
| SDXT09M405R-MF | ● | ● | ○ | | ● | ○ | ● | | | | | |
| SDXT09M405L-MF | | | | | | | | | | | | |
| SDXT09M405R-MM | ● | ● | ● | | ● | ● | ● | | | | | |
| SDXT09M405L-MM | ○ | | | | | ○ | | | | | | |
| SDXT130508R-MA | | | | | | | | ● | 10.5 | 16~18<br>18~20<br>20~22<br>22~24 | 13.5 | 5.56 |
| SDXT130508L-MA | | | | | | | | | | | | |
| SDXT130508R-MF | ● | ● | ○ | | ● | ○ | ● | | | | | |
| SDXT130508L-MF | | | | | | | | | | | | |
| SDXT130508R-MM | ● | ● | ● | ● | ● | ● | ● | | | | | |
| SDXT130508L-MM | ○ | | | | | | ○ | | | | | |

● : Disponibile ○ : A richiesta

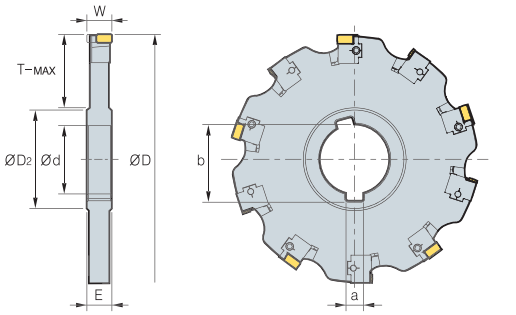
• Portainserti applicabile: E187, E188 • Attacchi e viti disponibili: E215~E217

### Condizioni di taglio raccomandate

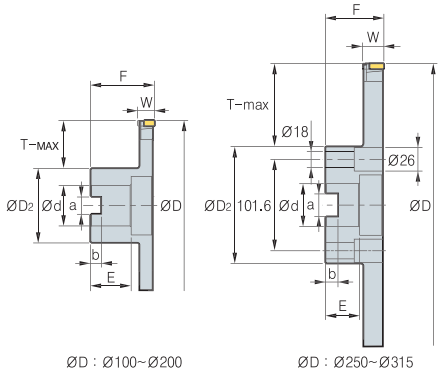
| ISO | Gradi | vc(m/min) | fz(mm/t) |
|---|---|---|---|
| P | NCM325 | 120~250 | 0.08~0.3 |
| | NCM335 | 120~220 | 0.08~0.25 |
| | PC3535 | 100~220 | 0.1~0.25 |
| M | PC9530 | 80~180 | 0.1~0.25 |
| | NCM335 | | |
| K | PC8520 | 150~230 | 0.1~0.25 |
| | PC6510 | 180~250 | |

# Tangenziale (Fresa a disco)

New




• TAFCP




• TAFCB

| Articolo | | ød | E | øD2 | a | b | T-MAX |
|---|---|---|---|---|---|---|---|
| TAFCP | 1001418 | 31.75 | 14 | 48 | 7.92 | 35.2 | 24 |
| | 1251418 | 38.1 | 14 | 56 | 9.52 | 42.3 | 32 |
| | 1601418 | 38.1 | 14 | 56 | 9.52 | 42.3 | 50 |
| | 2001418 | 50.8 | 14 | 72 | 12.7 | 55.8 | 61 |
| | 2501418 | 50.8 | 14 | 72 | 12.7 | 55.8 | 86 |
| | 3151418 | 50.8 | 14 | 72 | 12.7 | 55.8 | 118 |
| TAFCP | 1001821 | 31.75 | 18 | 48 | 7.92 | 35.2 | 24 |
| | 1251821 | 38.1 | 18 | 56 | 9.52 | 42.3 | 32 |
| | 1601821 | 38.1 | 18 | 56 | 9.52 | 42.3 | 50 |
| | 2001821 | 50.8 | 18 | 72 | 12.7 | 55.8 | 61 |
| | 1501821 | 50.8 | 18 | 72 | 12.7 | 55.8 | 86 |
| | 3151821 | 50.8 | 18 | 72 | 12.7 | 55.8 | 118 |
| TAFCP | 1002124 | 31.75 | 21 | 48 | 7.92 | 35.2 | 24 |
| | 1252124 | 38.1 | 21 | 56 | 9.52 | 42.3 | 32 |
| | 1602124 | 38.1 | 21 | 56 | 9.52 | 42.3 | 50 |
| | 2002124 | 50.8 | 21 | 72 | 12.7 | 55.8 | 61 |
| | 2502124 | 50.8 | 21 | 72 | 12.7 | 55.8 | 86 |
| | 3152124 | 50.8 | 21 | 72 | 12.7 | 55.8 | 118 |
| TAFCP | 1252427 | 38.1 | 24 | 56 | 9.52 | 42.3 | 32 |
| | 1602427 | 38.1 | 24 | 56 | 9.52 | 42.3 | 50 |
| | 2002427 | 50.8 | 24 | 72 | 12.7 | 55.8 | 61 |
| | 2502427 | 50.8 | 24 | 72 | 12.7 | 55.8 | 86 |
| | 3152427 | 50.8 | 24 | 72 | 12.7 | 55.8 | 118 |
| TAFCP | 1252730 | 38.1 | 27 | 56 | 9.52 | 42.3 | 32 |
| | 1602730 | 38.1 | 27 | 56 | 9.52 | 42.3 | 50 |
| | 2002730 | 50.8 | 27 | 72 | 12.7 | 55.8 | 61 |
| | 2502730 | 50.8 | 27 | 72 | 12.7 | 55.8 | 86 |
| | 3152730 | 50.8 | 27 | 72 | 12.7 | 55.8 | 118 |

| Articolo | | ød | F | øD2 | a | b | E | T-MAX | Dimensioni ØD | Dimensioni W | Dimensioni N. denti |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TAFCB | 1001418R/L | 31.75 | 50 | 54 | 12.7 | 8 | 28 | 21 | 100 | 14-18 | 6 |
| | 1251418R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 25 | 125 | 14-18 | 8 |
| | 1601418R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 43 | 160 | 14-18 | 10 |
| | 2001418R/L | 50.8 | 65 | 90 | 19.0 | 11 | 30 | 53 | 200 | 14-18 | 12 |
| | 2501418R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 58 | 250 | 14-18 | 16 |
| | 3151418R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 90 | 315 | 14-18 | 20 |
| TAFCB | 1001821R/L | 31.75 | 50 | 50 | 12.7 | 8 | 28 | 21 | 100 | 18-21 | 6 |
| | 1251821R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 25 | 125 | 18-21 | 8 |
| | 1601821R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 43 | 160 | 18-21 | 10 |
| | 2001821R/L | 50.8 | 65 | 90 | 19.0 | 11 | 30 | 53 | 200 | 18-21 | 12 |
| | 2501821R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 58 | 250 | 18-21 | 16 |
| | 3151821R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 90 | 315 | 18-21 | 20 |
| TAFCB | 1002124R/L | 31.75 | 50 | 54 | 12.7 | 8 | 28 | 21 | 100 | 21-24 | 6 |
| | 1252124R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 25 | 125 | 21-24 | 8 |
| | 1602124R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 43 | 160 | 21-24 | 10 |
| | 2002124R/L | 50.8 | 65 | 90 | 19.0 | 11 | 30 | 53 | 200 | 21-24 | 12 |
| | 2502124R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 58 | 250 | 21-24 | 16 |
| | 3152124R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 90 | 315 | 21-24 | 20 |
| TAFCB | 1252427R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 25 | 125 | 24-27 | 8 |
| | 1602427R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 43 | 160 | 24-27 | 10 |
| | 2002427R/L | 50.8 | 65 | 90 | 19.0 | 11 | 30 | 53 | 200 | 24-27 | 12 |
| | 2502427R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 58 | 250 | 24-27 | 16 |
| | 3152427R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 90 | 315 | 24-27 | 20 |
| TAFCB | 1252730R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 25 | 125 | 27-30 | 8 |
| | 1602730R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 43 | 160 | 27-30 | 10 |
| | 2002730R/L | 50.8 | 65 | 90 | 19.0 | 11 | 30 | 53 | 200 | 27-30 | 12 |
| | 2502730R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 58 | 250 | 27-30 | 16 |
| | 3152730R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 90 | 315 | 27-30 | 20 |

• La dimensione di ap (spessore max. della fresa) sopra riportata si riferisce all'uso dell'inserto con tagliente C0.5 o R0.5

• Consultare la pag. E186 per gli inserti applicabili e le condizioni di taglio raccomandate
• Articolo su richiesta

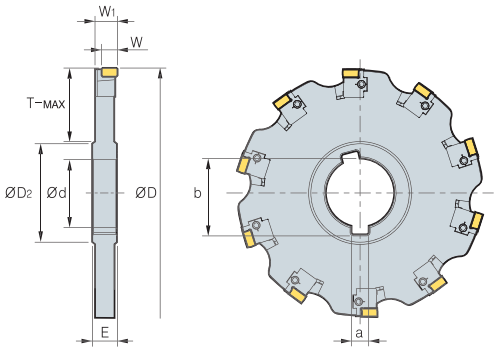
## Inserti e parti disponibili

| Spessore tagliente (TAFCPM) (TAFCBM) | Inserto | Base | Cuneo | Vite (Inserto) | Vite (Cuneo) | Vite (Base) | Chiave (Inserto) | Chiave (Cuneo) | Chiave (Base) |
|---|---|---|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |  |  |  |
| □□□1418R/L | CNHQ1005-□□□ | LSA-CH10R/L | WSA10N | FTKA0410 | DHA0617 | SHGA0411 | TW15S | HW30 | - |
| □□□1821R/L | CNHQ1305-□□□ | LSA-CH13R/L | WSA13N | FTKA0410 | DHA0821F | SHGA0411 | TW15S | HW40 | HW30L |
| □□□2124R/L | CNHQ1305-□□□ | LSA-CH13R/L | WSA13N | FTKA0410 | DHA0821F | SHGA0411 | TW15S | HW40 | HW30L |
| □□□2427R/L | CNHQ1606-□□□ | LSA-CH16R/L | WSA13N | FTGA0513-P | DHA0821F | SHGA0411 | TW20S | HW40 | HW30L |
| □□□2730R/L | CNHQ1606-□□□ | LSA-CH16R/L | WSA13N | FTGA0513-P | DHA0821F | SHGA0411 | TW20S | HW40 | HW30L |

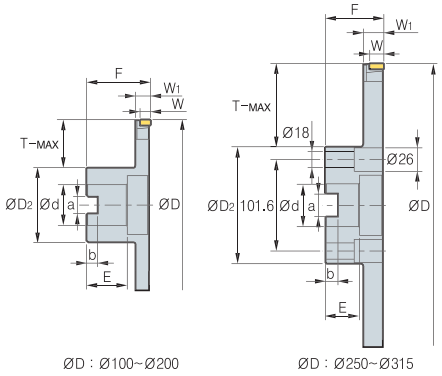
• Note) Nota) La vide del cuneo per le frese 1001821, 1002124 è DHA0818F

# Tangenziale (Fresa a disco)

New




• TAHCP




ØD : Ø100~Ø200

ØD : Ø250~Ø315

• TAHCB

| Articolo | | ød | E | øD2 | a | b | T-MAX |
|---|---|---|---|---|---|---|---|
| TAHCP | 10014R/L | 31.75 | 14 | 48 | 7.92 | 35.2 | 24 |
| | 12514R/L | 38.1 | 14 | 56 | 9.52 | 42.3 | 32 |
| | 16014R/L | 38.1 | 14 | 56 | 9.52 | 42.3 | 50 |
| | 20014R/L | 50.8 | 14 | 72 | 12.7 | 55.8 | 61 |
| | 25014R/L | 50.8 | 14 | 72 | 12.7 | 55.8 | 86 |
| | 31514R/L | 50.8 | 14 | 72 | 12.7 | 55.8 | 118 |
| TAHCP | 10018R/L | 31.75 | 18 | 48 | 7.92 | 35.2 | 24 |
| | 12518R/L | 38.1 | 18 | 56 | 9.52 | 42.3 | 32 |
| | 16018R/L | 38.1 | 18 | 56 | 9.52 | 42.3 | 50 |
| | 20018R/L | 50.8 | 18 | 72 | 12.7 | 55.8 | 61 |
| | 25018R/L | 50.8 | 18 | 72 | 12.7 | 55.8 | 86 |
| | 31518R/L | 50.8 | 18 | 72 | 12.7 | 55.8 | 118 |
| TAHCP | 10021R/L | 31.75 | 21 | 48 | 7.92 | 35.2 | 24 |
| | 12521R/L | 38.1 | 21 | 56 | 9.52 | 42.3 | 32 |
| | 16021R/L | 38.1 | 21 | 56 | 9.52 | 42.3 | 50 |
| | 20021R/L | 50.8 | 21 | 72 | 12.7 | 55.8 | 61 |
| | 25021R/L | 50.8 | 21 | 72 | 12.7 | 55.8 | 86 |
| | 31521R/L | 50.8 | 21 | 72 | 12.7 | 55.8 | 118 |
| TAHCP | 12524R/L | 38.1 | 24 | 56 | 9.52 | 42.3 | 32 |
| | 16024R/L | 38.1 | 24 | 56 | 9.52 | 42.3 | 50 |
| | 20024R/L | 50.8 | 24 | 72 | 12.7 | 55.8 | 61 |
| | 25024R/L | 50.8 | 24 | 72 | 12.7 | 55.8 | 86 |
| | 31524R/L | 50.8 | 24 | 72 | 12.7 | 55.8 | 118 |
| TAHCP | 12527R/L | 38.1 | 27 | 56 | 9.52 | 42.3 | 32 |
| | 16027R/L | 38.1 | 27 | 56 | 9.52 | 42.3 | 50 |
| | 20027R/L | 50.8 | 27 | 72 | 12.7 | 55.8 | 61 |
| | 25027R/L | 50.8 | 27 | 72 | 12.7 | 55.8 | 86 |
| | 31527R/L | 50.8 | 27 | 72 | 12.7 | 55.8 | 118 |

| Articolo | | ød | F | øD2 | a | b | E | T-MAX | Dimensioni øD | W | W1 | N. denti |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TAHCB | 10014R/L | 31.75 | 50 | 54 | 12.7 | 8 | 28 | 21 | 100 | 9 | 13.25 | 6 |
| | 12514R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 25 | 125 | 9 | 13.25 | 8 |
| | 16014R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 43 | 160 | 9 | 13.25 | 10 |
| | 20014R/L | 50.8 | 65 | 90 | 19.0 | 11 | 30 | 53 | 200 | 9 | 13.25 | 12 |
| | 25014R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 58 | 250 | 9 | 13.25 | 16 |
| | 31514R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 90 | 315 | 9 | 13.25 | 20 |
| TAHCB | 10018R/L | 31.75 | 50 | 50 | 12.7 | 8 | 28 | 21 | 100 | 12 | 16.75 | 6 |
| | 12518R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 25 | 125 | 12 | 16.75 | 8 |
| | 16018R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 43 | 160 | 12 | 16.75 | 10 |
| | 20018R/L | 50.8 | 65 | 90 | 19.0 | 11 | 30 | 53 | 200 | 12 | 16.75 | 12 |
| | 25018R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 58 | 250 | 12 | 16.75 | 16 |
| | 31518R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 90 | 315 | 12 | 16.75 | 20 |
| TAHCB | 10021R/L | 31.75 | 50 | 54 | 12.7 | 8 | 28 | 21 | 100 | 12 | 19.75 | 6 |
| | 12521R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 25 | 125 | 12 | 19.75 | 8 |
| | 16021R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 43 | 160 | 12 | 19.75 | 10 |
| | 20021R/L | 50.8 | 65 | 90 | 19.0 | 11 | 30 | 53 | 200 | 12 | 19.75 | 12 |
| | 25021R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 58 | 250 | 12 | 19.75 | 16 |
| | 31521R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 90 | 315 | 12 | 19.75 | 20 |
| TAHCB | 12524R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 25 | 125 | 15 | 22.75 | 8 |
| | 16024R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 43 | 160 | 15 | 22.75 | 10 |
| | 20024R/L | 50.8 | 65 | 90 | 19.0 | 11 | 30 | 53 | 200 | 15 | 22.75 | 12 |
| | 25024R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 58 | 250 | 15 | 22.75 | 16 |
| | 31524R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 90 | 315 | 15 | 22.75 | 20 |
| TAHCB | 12527R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 25 | 125 | 15 | 25.75 | 8 |
| | 16027R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 43 | 160 | 15 | 25.75 | 10 |
| | 20027R/L | 50.8 | 65 | 90 | 19.0 | 11 | 30 | 53 | 200 | 15 | 25.75 | 12 |
| | 25027R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 58 | 250 | 15 | 25.75 | 16 |
| | 31527R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 90 | 315 | 15 | 25.75 | 20 |

• La dimensione di ap (spessore max. della fresa) sopra riportata si riferisce all'uso dell'inserto con tagliente C0.5 o R0.5

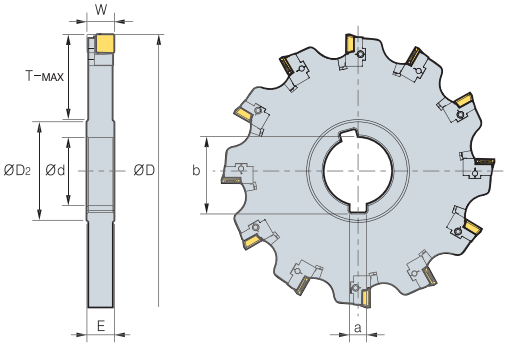
• Consultare la pag. E186 per gli inserti applicabili e le condizioni di taglio raccomandate
• Articolo su richiesta

## Inserti e parti disponibili

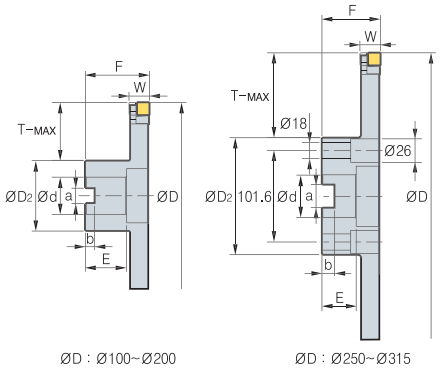
| Spessore tagliente (TAHCPM) (TAHCBM) | Inserto | Base | Cuneo | Vite (Inserto) | Vite (Cuneo) | Vite (Base) | Chiave (Inserto) | Chiave (Cuneo) | Chiave (Base) |
|---|---|---|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |  |  |  |
| □□□14R/L | CNHQ1005-□□□ | LSA-CH10R/L | WSA10N | FTKA0410 | DHA0617 | SHGA0411 | TW15S | HW30 | - |
| □□□18R/L | CNHQ1305-□□□ | LSA-CH13R/L | WSA13N | FTKA0410 | DHA0821F | SHGA0411 | TW15S | HW40 | HW30L |
| □□□21R/L | CNHQ1305-□□□ | LSA-CH13R/L | WSA13N | FTKA0410 | DHA0821F | SHGA0411 | TW15S | HW40 | HW30L |
| □□□24R/L | CNHQ1606-□□□ | LSA-CH16R/L | WSA13N | FTGA0513-P | DHA0821F | SHGA0411 | TW20S | HW40 | HW30L |
| □□□27R/L | CNHQ1606-□□□ | LSA-CH16R/L | WSA13N | FTGA0513-P | DHA0821F | SHGA0411 | TW20S | HW40 | HW30L |

# Radiale (Fresa a disco)

New




• RAFCP




• RAFCB

| Articolo | | Ød | E | ØD2 | a | b | T-MAX |
|---|---|---|---|---|---|---|---|
| RAFCP | 1001214 | 31.75 | 12 | 48 | 7.92 | 35.2 | 24 |
| | 1251214 | 38.1 | 12 | 56 | 9.52 | 42.3 | 32 |
| | 1601214 | 38.1 | 12 | 56 | 9.52 | 42.3 | 50 |
| | 2001214 | 50.8 | 12 | 72 | 12.7 | 55.8 | 61 |
| | 2501214 | 50.8 | 12 | 72 | 12.7 | 55.8 | 86 |
| | 3151214 | 50.8 | 12 | 72 | 12.7 | 55.8 | 118 |
| RAFCP | 1001416 | 31.75 | 14 | 48 | 7.92 | 35.2 | 24 |
| | 1251416 | 38.1 | 14 | 56 | 9.52 | 42.3 | 32 |
| | 1601416 | 38.1 | 14 | 56 | 9.52 | 42.3 | 50 |
| | 2001416 | 50.8 | 14 | 72 | 12.7 | 55.8 | 61 |
| | 2501416 | 50.8 | 14 | 72 | 12.7 | 55.8 | 86 |
| | 3151416 | 50.8 | 14 | 72 | 12.7 | 55.8 | 118 |
| RAFCP | 1251618 | 38.1 | 16 | 56 | 9.52 | 42.3 | 32 |
| | 1601618 | 38.1 | 16 | 56 | 9.52 | 42.3 | 50 |
| | 2001618 | 50.8 | 16 | 72 | 12.7 | 55.8 | 61 |
| | 2501618 | 50.8 | 16 | 72 | 12.7 | 55.8 | 86 |
| | 3151618 | 50.8 | 16 | 72 | 12.7 | 55.8 | 118 |
| RAFCP | 1251820 | 38.1 | 18 | 56 | 9.52 | 42.3 | 32 |
| | 1601820 | 38.1 | 18 | 56 | 9.52 | 42.3 | 50 |
| | 2001820 | 50.8 | 18 | 72 | 12.7 | 55.8 | 61 |
| | 2501820 | 50.8 | 18 | 72 | 12.7 | 55.8 | 86 |
| | 3151820 | 50.8 | 18 | 72 | 12.7 | 55.8 | 118 |
| RAFCP | 1252022 | 38.1 | 20 | 56 | 9.52 | 42.3 | 32 |
| | 1602022 | 38.1 | 20 | 56 | 9.52 | 42.3 | 50 |
| | 2002022 | 50.8 | 20 | 72 | 12.7 | 55.8 | 61 |
| | 2502022 | 50.8 | 20 | 72 | 12.7 | 55.8 | 86 |
| | 3152022 | 50.8 | 20 | 72 | 12.7 | 55.8 | 118 |
| RAFCP | 1252224 | 38.1 | 22 | 56 | 9.52 | 42.3 | 32 |
| | 1602224 | 38.1 | 22 | 56 | 9.52 | 42.3 | 50 |
| | 2002224 | 50.8 | 22 | 72 | 12.7 | 55.8 | 61 |
| | 2502224 | 50.8 | 22 | 72 | 12.7 | 55.8 | 86 |
| | 3152224 | 50.8 | 22 | 72 | 12.7 | 55.8 | 118 |

| Articolo | | Ød | F | ØD2 | a | b | E | T-MAX | Dimensioni ØD | Dimensioni W | Dimensioni N. denti |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RAFCB | 1001214R/L | 31.75 | 50 | 54 | 12.7 | 8 | 28 | 21 | 100 | 12-14 | 6 |
| | 1251214R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 25 | 125 | 12-14 | 8 |
| | 1601214R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 43 | 160 | 12-14 | 10 |
| | 2001214R/L | 50.8 | 65 | 90 | 19.0 | 11 | 30 | 53 | 200 | 12-14 | 12 |
| | 2501214R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 58 | 250 | 12-14 | 16 |
| | 3151214R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 90 | 315 | 12-14 | 20 |
| RAFCB | 1001416R/L | 31.75 | 50 | 50 | 12.7 | 8 | 28 | 21 | 100 | 14-16 | 6 |
| | 1251416R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 25 | 125 | 14-16 | 8 |
| | 1601416R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 43 | 160 | 14-16 | 10 |
| | 2001416R/L | 50.8 | 65 | 90 | 19.0 | 11 | 30 | 53 | 200 | 14-16 | 12 |
| | 2501416R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 58 | 250 | 14-16 | 16 |
| | 3151416R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 90 | 315 | 14-16 | 20 |
| RAFCB | 1251618R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 25 | 125 | 16-18 | 8 |
| | 1601618R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 43 | 160 | 16-18 | 10 |
| | 2001618R/L | 50.8 | 65 | 90 | 19.0 | 11 | 30 | 53 | 200 | 16-18 | 12 |
| | 2501618R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 58 | 250 | 16-18 | 16 |
| | 3151618R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 90 | 315 | 16-18 | 20 |
| RAFCB | 1251820R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 25 | 125 | 18-20 | 8 |
| | 1601820R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 43 | 160 | 18-20 | 10 |
| | 2001820R/L | 50.8 | 65 | 90 | 19.0 | 11 | 30 | 53 | 200 | 18-20 | 12 |
| | 2501820R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 58 | 250 | 18-20 | 16 |
| | 3151820R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 90 | 315 | 18-20 | 20 |
| RAFCB | 1252022R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 25 | 125 | 20-22 | 8 |
| | 1602022R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 43 | 160 | 20-22 | 10 |
| | 2002022R/L | 50.8 | 65 | 90 | 19.0 | 11 | 30 | 53 | 200 | 20-22 | 12 |
| | 2502022R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 58 | 250 | 20-22 | 16 |
| | 3152022R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 90 | 315 | 20-22 | 20 |
| RAFCB | 1252224R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 25 | 125 | 22-24 | 8 |
| | 1602224R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 43 | 160 | 22-24 | 10 |
| | 2002224R/L | 50.8 | 65 | 90 | 19.0 | 11 | 30 | 53 | 200 | 22-24 | 12 |
| | 2502224R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 58 | 250 | 22-24 | 16 |
| | 3152224R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 90 | 315 | 22-24 | 20 |

• La dimensione di ap (spessore max. della fresa) sopra riportata si riferisce all'uso dell'inserto con tagliente C0.5 o R0.5

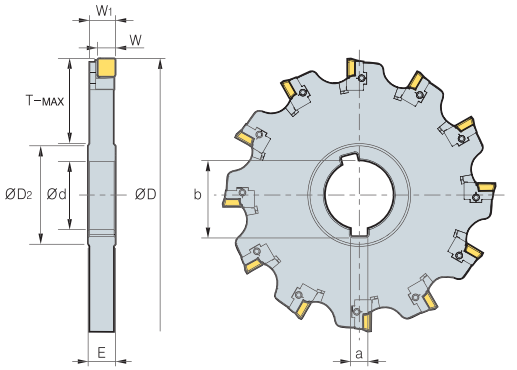
• Consultare la pag. E186 per gli inserti applicabili e le condizioni di taglio raccomandate
• Articolo su richiesta

## Inserti e parti disponibili

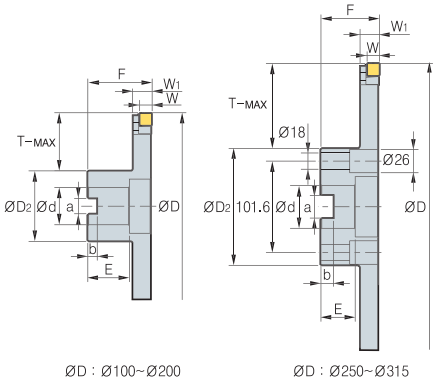
| Spessore tagliente (RAFCPM) (RAFCBM) | Inserto | Base | Cuneo WSD09N | Cuneo WSA10N | Vite (Inserto) | Vite (Cuneo) | Vite (Base) | Chiave (Inserto) | Chiave (Base, Cuneo) |
|---|---|---|---|---|---|---|---|---|---|
| □□□1214R/L | SDXT09M40□R/L | LSD09R/L | WSD09N | | FTGA03508 | DHA0617 | SHGA0409 | TW15S | HW30 |
| □□□1416R/L | SDXT09M40□R/L | LSD09R/L | WSD09N | | FTGA03508 | DHA0617 | SHGA0409 | TW15S | HW30 |
| □□□1618R/L | SDXT13050□R/L | LSD13R/L | | WSA10N | FTNC04509 | DHA0617 | SHGA0411 | TW20S | HW30 |
| □□□1820R/L | SDXT13050□R/L | LSD13R/L | | WSA10N | FTNC04509 | DHA0617 | SHGA0411 | TW20S | HW30 |
| □□□2022R/L | SDXT13050□R/L | LSD13R/L | | WSA10N | FTNC04509 | DHA0617 | SHGA0411 | TW20S | HW30 |
| □□□2224R/L | SDXT13050□R/L | LSD13R/L | | WSA10N | FTNC04509 | DHA0617 | SHGA0411 | TW20S | HW30 |

# Radiale (Fresa a disco)

New




• RAHCP




ØD : Ø100~Ø200　　ØD : Ø250~Ø315

• RAHCB

| Articolo | | ød | E | øD2 | a | b | T-MAX |
|---|---|---|---|---|---|---|---|
| RAHCP | 10012R/L | 31.75 | 12 | 48 | 7.92 | 35.2 | 24 |
| | 12512R/L | 38.1 | 12 | 56 | 9.52 | 42.3 | 32 |
| | 16012R/L | 38.1 | 12 | 56 | 9.52 | 42.3 | 50 |
| | 20012R/L | 50.8 | 12 | 72 | 12.7 | 55.8 | 61 |
| | 25012R/L | 50.8 | 12 | 72 | 12.7 | 55.8 | 86 |
| | 31512R/L | 50.8 | 12 | 72 | 12.7 | 55.8 | 118 |
| RAHCP | 10014R/L | 31.75 | 14 | 48 | 7.92 | 35.2 | 24 |
| | 12514R/L | 38.1 | 14 | 56 | 9.52 | 42.3 | 32 |
| | 16014R/L | 38.1 | 14 | 56 | 9.52 | 42.3 | 50 |
| | 20014R/L | 50.8 | 14 | 72 | 12.7 | 55.8 | 61 |
| | 25014R/L | 50.8 | 14 | 72 | 12.7 | 55.8 | 86 |
| | 31514R/L | 50.8 | 14 | 72 | 12.7 | 55.8 | 118 |
| RAHCP | 12516R/L | 38.1 | 16 | 56 | 9.52 | 42.3 | 32 |
| | 16016R/L | 38.1 | 16 | 56 | 9.52 | 42.3 | 50 |
| | 20016R/L | 50.8 | 16 | 72 | 12.7 | 55.8 | 61 |
| | 25016R/L | 50.8 | 16 | 72 | 12.7 | 55.8 | 86 |
| | 31516R/L | 50.8 | 16 | 72 | 12.7 | 55.8 | 118 |
| RAHCP | 12518R/L | 38.1 | 18 | 56 | 9.52 | 42.3 | 32 |
| | 16018R/L | 38.1 | 18 | 56 | 9.52 | 42.3 | 50 |
| | 20018R/L | 50.8 | 18 | 72 | 12.7 | 55.8 | 61 |
| | 25018R/L | 50.8 | 18 | 72 | 12.7 | 55.8 | 86 |
| | 31518R/L | 50.8 | 18 | 72 | 12.7 | 55.8 | 118 |
| RAHCP | 12520R/L | 38.1 | 20 | 56 | 9.52 | 42.3 | 32 |
| | 16020R/L | 38.1 | 20 | 56 | 9.52 | 42.3 | 50 |
| | 20020R/L | 50.8 | 20 | 72 | 12.7 | 55.8 | 61 |
| | 25020R/L | 50.8 | 20 | 72 | 12.7 | 55.8 | 86 |
| | 31520R/L | 50.8 | 20 | 72 | 12.7 | 55.8 | 118 |
| RAHCP | 12522R/L | 38.1 | 22 | 56 | 9.52 | 42.3 | 32 |
| | 16022R/L | 38.1 | 22 | 56 | 9.52 | 42.3 | 50 |
| | 20022R/L | 50.8 | 22 | 72 | 12.7 | 55.8 | 61 |
| | 25022R/L | 50.8 | 22 | 72 | 12.7 | 55.8 | 86 |
| | 31522R/L | 50.8 | 22 | 72 | 12.7 | 55.8 | 118 |

| Articolo | | ød | F | øD2 | a | b | E | T-MAX | Dimensioni øD | W | W1 | N. denti |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RAHCB | 10012R/L | 31.75 | 50 | 54 | 12.7 | 8 | 28 | 21 | 100 | 8 | 11.1 | 6 |
| | 12512R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 25 | 125 | 8 | 11.1 | 8 |
| | 16012R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 43 | 160 | 8 | 11.1 | 10 |
| | 20012R/L | 50.8 | 65 | 90 | 19.0 | 11 | 30 | 53 | 200 | 8 | 11.1 | 12 |
| | 25012R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 58 | 250 | 8 | 11.1 | 16 |
| | 31512R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 90 | 315 | 8 | 11.1 | 20 |
| RAHCB | 10014R/L | 31.75 | 50 | 50 | 12.7 | 8 | 28 | 21 | 100 | 8 | 13.1 | 6 |
| | 12514R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 25 | 125 | 8 | 13.1 | 8 |
| | 16014R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 43 | 160 | 8 | 13.1 | 10 |
| | 20014R/L | 50.8 | 65 | 90 | 19.0 | 11 | 30 | 53 | 200 | 8 | 13.1 | 12 |
| | 25014R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 58 | 250 | 8 | 13.1 | 16 |
| | 31514R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 90 | 315 | 8 | 13.1 | 20 |
| RAHCB | 12516R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 25 | 125 | 10.5 | 15 | 8 |
| | 16016R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 43 | 160 | 10.5 | 15 | 10 |
| | 20016R/L | 50.8 | 65 | 90 | 19.0 | 11 | 30 | 53 | 200 | 10.5 | 15 | 12 |
| | 25016R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 58 | 250 | 10.5 | 15 | 16 |
| | 31516R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 90 | 315 | 10.5 | 15 | 20 |
| RAHCB | 12518R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 25 | 125 | 10.5 | 17 | 8 |
| | 16018R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 43 | 160 | 10.5 | 17 | 10 |
| | 20018R/L | 50.8 | 65 | 90 | 19.0 | 11 | 30 | 53 | 200 | 10.5 | 17 | 12 |
| | 25018R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 58 | 250 | 10.5 | 17 | 16 |
| | 31518R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 90 | 315 | 10.5 | 17 | 20 |
| RAHCB | 12520R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 25 | 125 | 10.5 | 19 | 8 |
| | 16020R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 43 | 160 | 10.5 | 19 | 10 |
| | 20020R/L | 50.8 | 65 | 90 | 19.0 | 11 | 30 | 53 | 200 | 10.5 | 19 | 12 |
| | 25020R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 58 | 250 | 10.5 | 19 | 16 |
| | 31520R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 90 | 315 | 10.5 | 19 | 20 |
| RAHCB | 12522R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 25 | 125 | 10.5 | 21 | 8 |
| | 16022R/L | 38.1 | 60 | 70 | 15.9 | 10 | 30 | 43 | 160 | 10.5 | 21 | 10 |
| | 20022R/L | 50.8 | 65 | 90 | 19.0 | 11 | 30 | 53 | 200 | 10.5 | 21 | 12 |
| | 25022R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 58 | 250 | 10.5 | 21 | 16 |
| | 31522R/L | 47.625 | 65 | 130 | 25.4 | 14 | 38 | 90 | 315 | 10.5 | 21 | 20 |

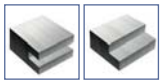
• La dimensione di ap (spessore max. della fresa) sopra riportata si riferisce all'uso dell'inserto con tagliente R0.5.  ap varia in funzione della dimensione del tagliente dell'inserto
• La dimensione di ap (spessore max. della fresa) sopra riportata si riferisce all'uso di SDXT09M405R-MM. ap varia in funzione della dimensione del tagliente dell'inserto
• Consultare la pag. E186 per gli inserti applicabili e le condizioni di taglio raccomandate
• Articolo su richiesta

## Parti di ricambio

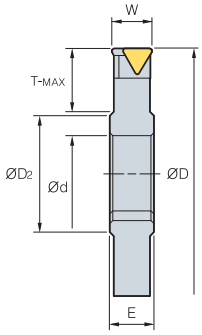
| Spessore tagliente (RAHCPM) (RAHCBM) | Inserto | Base | Cuneo | | Vite (Inserto) | Vite (Cuneo) | Vite (Base) | Chiave (Inserto) | Chiave (Base, Cuneo) |
|---|---|---|---|---|---|---|---|---|---|
| | | | WSD09N | WSA10N | | | | | |
| |  |  |  | |  |  |  |  |  |
| □□□12R/L | SDXT09M40□R/L | LSD09R/L | WSD09N | | FTGA03508 | DHA0617 | SHGA0409 | TW15S | HW30 |
| □□□14R/L | SDXT09M40□R/L | LSD09R/L | WSD09N | | FTGA03508 | DHA0617 | SHGA0409 | TW15S | HW30 |
| □□□16R/L | SDXT13050□R/L | LSD13R/L | | WSA10N | FTNC04509 | DHA0617 | SHGA0411 | TW20S | HW30 |
| □□□18R/L | SDXT13050□R/L | LSD13R/L | | WSA10N | FTNC04509 | DHA0617 | SHGA0411 | TW20S | HW30 |
| □□□20R/L | SDXT13050□R/L | LSD13R/L | | WSA10N | FTNC04509 | DHA0617 | SHGA0411 | TW20S | HW30 |
| □□□22R/L | SDXT13050□R/L | LSD13R/L | | WSA10N | FTNC04509 | DHA0617 | SHGA0411 | TW20S | HW30 |

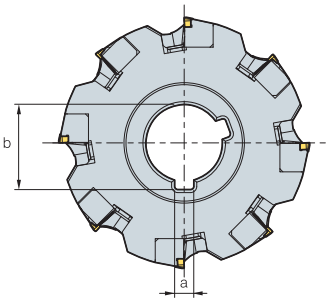
# FC (Fresa a disco)

AA °
• AR : 5°
• RR : 0°








(mm)

| Articolo | | ⊚ | øD | W | T-MAX | ød | E | a | b | øD2 | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FC | 08010 | 6 | 80 | 10 | 17.0 | 25.4 | 12 | 6.35 | 28 | 41.5 | TPCN1103PPN |
| | 10012 | 8 | 100 | 12 | 24.0 | 31.75 | 14 | 7.92 | 35.2 | 48 | TPCN1103PPN |
| | 12512 | 10 | 125 | 12 | 31.5 | 38.1 | 14 | 9.52 | 42.3 | 58 | TPCN1103PPN |
| | 12520 | 8 | 125 | 20 | 31.5 | 38.1 | 22 | 9.52 | 42.3 | 58 | TPCN1603PPN |
| | 16012 | 12 | 160 | 12 | 49.0 | 38.1 | 14 | 9.52 | 42.3 | 58 | TPCN1103PPN |
| | 16016 | 12 | 160 | 16 | 49.0 | 38.1 | 18 | 9.52 | 42.3 | 58 | TPCN1103PPN |
| | 16018 | 10 | 10 | 18 | 49.0 | 38.1 | 20 | 9.52 | 42.3 | 58 | TPCN1603PPN |
| | 16020 | 10 | 10 | 20 | 49.0 | 38.1 | 22 | 9.52 | 42.3 | 58 | TPCN1603PPN |
| | 20022 | 12 | 200 | 22 | 61.0 | 50.8 | 24 | 12.7 | 55.8 | 72 | TPCN1603PPN |
| | 25024 | 16 | 250 | 24 | 81.0 | 50.8 | 26 | 12.7 | 55.8 | 84 | TPCN1603PPN |
| | 31524 | 16 | 315 | 24 | 113.5 | 50.8 | 26 | 12.7 | 55.8 | 84 | TPCN1603PPN |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Base | Cuneo | Vite | Vite della base | Chiave |
|---|---|---|---|---|
|  |  |  |  |  |
| LFC2R/L · LFC3R/L<br>LFC2R/L-1* | WFC2N · WFC3N<br>WFC2N-1* | DHA0617<br>DHA0815 | MHB0310<br>MHB0410 | HW30L<br>HW40L |

* FC08010

## Attacchi disponibili

| Articolo | | Attacchi | |
|---|---|---|---|
| FC | 08010 | BT40-SCA27-75/120 | BT50-SCA27-90/135 |
| | 10012 | BT40-SCA32-105 | BT50-SCA32-90/135 |
| | 12512 | - | BT50-SCA40-90/135 |
| | 12520 | - | BT50-SCA40-90/135 |
| | 16012 | - | BT50-SCA40-90/135 |
| | 16018 | - | BT50-SCA40-90/135 |
| | 16020 | - | BT50-SCA40-90/135 |
| | 20022 | - | - |
| | 25024 | - | - |
| | 31524 | - | - |

## Condizioni di taglio raccomandate

| Pezzo lavorato | Condizioni di taglio | | Gradi |
|---|---|---|---|
| | vc(m/min) | fz(mm/t) | |
| P | 150 ~ 250<br>120 ~ 200<br>100 ~ 150 | 0.10 ~ 0.25<br>0.10 ~ 0.30<br>0.10 ~ 0.30 | **NCM325**<br>**PC3500**<br>**ST30A** |
| M | 80 ~ 180<br>80 ~ 150 | 0.10 ~ 0.25<br>0.10 ~ 0.30 | **PC9530**<br>**ST30A** |
| K | 130 ~ 200<br>100 ~ 150 | 0.10 ~ 0.35<br>0.10 ~ 0.40 | **PC6510**<br>**G10** |

## Inserti disponibili

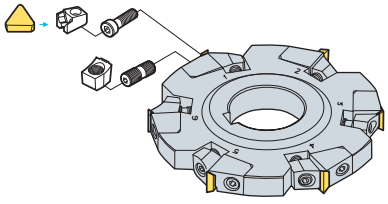
TPCN



| Articolo | | Rivestito | | | | | | | | Cetmet | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| TPCN | 1103PPN | | | | | | | | | | | | | ● | | ● | ● | ● | E19 |
| | 1603PPN | ● | | | | | | | ● | | | | | ● | | ● | | | |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |

● : Disponibile ○ : A richiesta

Montaggio

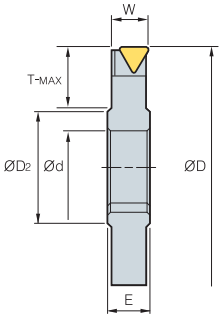


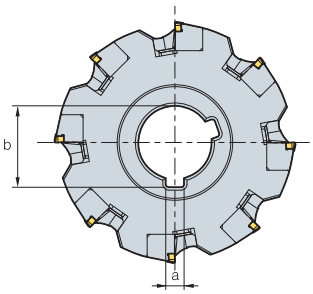
• Inserti applicabili, vedere pag. E19
• Attacchi e viti disponibili : E215~E217

# HC (Fresa a disco)

AA °
• AR : 5°
• RR : 0°






(mm)

| Articolo | | ⊚ | øD | T-MAX | ød | a | b | E | W | øD2 | Inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|
| HC | 10024R/L | 6 | 100 | 24.0 | 31.75 | 7.92 | 35.2 | 27 | 24 | 48 | TPCN1603PPN |
| | 12524R/L | 8 | 125 | 31.5 | 38.1 | 9.52 | 42.3 | 27 | 24 | 58 | TPCN1603PPN |
| | 16024R/L | 10 | 160 | 49.0 | 38.1 | 9.52 | 42.3 | 27 | 24 | 58 | TPCN1603PPN |
| | 20024R/L | 12 | 200 | 62.0 | 50.8 | 12.7 | 55.8 | 27 | 24 | 72 | TPCN1603PPN |
| | 25024R/L | 16 | 250 | 81.0 | 50.8 | 12.7 | 55.8 | 27 | 24 | 84 | TPCN1603PPN |
| | 31524R/L | 20 | 315 | 113.5 | 50.8 | 12.7 | 55.8 | 27 | 24 | 84 | TPCN1603PPN |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Base | Cuneo | Vite | Vite della base | Chiave |
|---|---|---|---|---|
|  |  |  |  |  |
| LFC3R/L | WFC3N | DHA0815 | MHB0410 | HW40L |

## Attacchi disponibili

| Articolo | Attacchi | |
|---|---|---|
| HC 10024R/L | BT40-SCA31.75-105 | BT50-SCA31.75-90/135 |
| 12524R/L | - | BT50-SCA38.1-90/135 |
| 16024R/L | - | BT50-SCA38.1-90/135 |
| 20024R/L | - | - |
| 25024R/L | - | - |
| 31524R/L | - | - |

## Inserti disponibili

TPCN



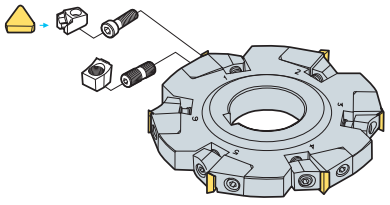
| Articolo | Rivestito | | | | | | | | | Cetmet | | Non rivestito | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | CN2000 | CN20 | CN30 | H01 | G10 | ST30A | ST20 | |
| TPCN 1603PPN | ● | | | | | | ● | | | | | ● | | ● | | | | E19 |

● : Disponibile ○ : A richiesta

## Condizioni di taglio raccomandate

| Pezzo lavorato | Condizioni di taglio | | Gradi |
|---|---|---|---|
| | vc(m/min) | fz(mm/t) | |
| P | 150 ~ 250<br>120 ~ 200<br>100 ~ 150 | 0.10 ~ 0.25<br>0.10 ~ 0.30<br>0.10 ~ 0.30 | **NCM325**<br>**PC3500**<br>**ST30A** |
| M | 80 ~ 180<br>80 ~ 150 | 0.10 ~ 0.25<br>0.10 ~ 0.30 | **PC9530**<br>**ST30A** |
| K | 130 ~ 200<br>100 ~ 150 | 0.10 ~ 0.35<br>0.10 ~ 0.40 | **PC6510**<br>**G10** |

Montaggio

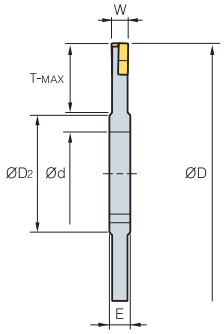


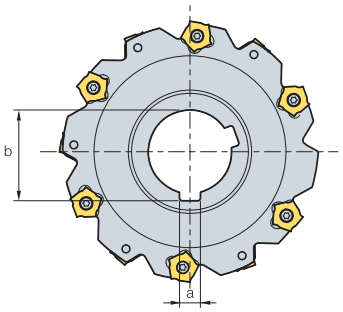
• Inserti applicabili, vedere pag. E19
• Attacchi e viti disponibili: E215~E217

# SPP(M)

AA °
• AR : -2°
• RR : -28°






(mm)

| Articolo | | ⊚ | ØD | W | T-MAX | Ød | a | b | E | ØD2 | Inserto | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SPP(M) | 080-04 | 8 | 80 | 4 | 20 | 25.4(27) | 6.35(7) | 28.04(29.8) | 8 | 40 | PNEJ1223N | PTMA0403F | TW15S |
| | 080-05 | 8 | 80 | 5 | 20 | 25.4(27) | 6.35(7) | 28.04(29.8) | 8 | 40 | PNEJ1230N | PTMA0404F | TW15S |
| | 080-06 | 8 | 80 | 6 | 20 | 25.4(27) | 6.35(7) | 28.04(29.8) | 8 | 40 | PNEJ1235N | PTMA0405F | TW15S |
| | 100-04 | 10 | 100 | 4 | 24 | 31.75(32) | 7.94(8) | 35.18(34.8) | 8 | 47 | PNEJ1223N | PTMA0403F | TW15S |
| | 100-05 | 10 | 100 | 5 | 24 | 31.75(32) | 7.94(8) | 35.18(34.8) | 8 | 47 | PNEJ1230N | PTMA0404F | TW15S |
| | 100-06 | 10 | 100 | 6 | 25 | 31.75(32) | 7.94(8) | 35.18(34.8) | 8 | 47 | PNEJ1235N | PTMA0405F | TW15S |
| | 100-07 | 10 | 100 | 7 | 25 | 31.75(32) | 7.94(8) | 35.18(34.8) | 10 | 47 | PNEJ1240N | PTMA0406F | TW15S |
| | 100-08 | 10 | 100 | 8 | 25 | 31.75(32) | 7.94(8) | 35.18(34.8) | 10 | 47 | PNEJ1245N | PTKA0407F | TW15S |
| | 100-09 | 10 | 100 | 9 | 25 | 31.75(32) | 7.94(8) | 35.18(34.8) | 12 | 47 | PNEJ1250N | PTKA0408F | TW15S |
| | 100-10 | 10 | 100 | 10 | 25 | 31.75(32) | 7.94(8) | 35.18(34.8) | 12 | 47 | PNEJ1255N | PTKA0409F | TW15S |
| | 125-04 | 12 | 125 | 4 | 30 | 38.1(40) | 9.53(10) | 42.32(43.5) | 8 | 56 | PNEJ1223N | PTMA0403F | TW15S |
| | 125-05 | 12 | 125 | 5 | 32 | 38.1(40) | 9.53(10) | 42.32(43.5) | 8 | 56 | PNEJ1230N | PTMA0404F | TW15S |
| | 125-06 | 12 | 125 | 6 | 32 | 38.1(40) | 9.53(10) | 42.32(43.5) | 8 | 56 | PNEJ1235N | PTMA0405F | TW15S |
| | 125-07 | 12 | 125 | 7 | 32 | 38.1(40) | 9.53(10) | 42.32(43.5) | 10 | 56 | PNEJ1240N | PTMA0406F | TW15S |
| | 125-08 | 12 | 125 | 8 | 32 | 38.1(40) | 9.53(10) | 42.32(43.5) | 10 | 56 | PNEJ1245N | PTKA0407F | TW15S |
| | 125-09 | 12 | 125 | 9 | 32 | 38.1(40) | 9.53(10) | 42.32(43.5) | 12 | 56 | PNEJ1250N | PTKA0408F | TW15S |
| | 125-10 | 12 | 125 | 10 | 32 | 38.1(40) | 9.53(10) | 42.32(43.5) | 12 | 56 | PNEJ1255N | PTKA0409F | TW15S |
| | 160-04 | 16 | 160 | 4 | 45 | 38.1(40) | 9.53(10) | 42.32(43.5) | 8 | 66 | PNEJ1223N | PTMA0403F | TW15S |
| | 160-05 | 16 | 160 | 5 | 45 | 38.1(40) | 9.53(10) | 42.32(43.5) | 8 | 66 | PNEJ1230N | PTMA0404F | TW15S |
| | 160-06 | 16 | 160 | 6 | 45 | 38.1(40) | 9.53(10) | 42.32(43.5) | 8 | 66 | PNEJ1235N | PTMA0405F | TW15S |
| | 160-07 | 16 | 160 | 7 | 45 | 38.1(40) | 9.53(10) | 42.32(43.5) | 10 | 66 | PNEJ1240N | PTMA0406F | TW15S |
| | 160-08 | 16 | 160 | 8 | 45 | 38.1(40) | 9.53(10) | 42.32(43.5) | 10 | 66 | PNEJ1245N | PTKA0407F | TW15S |
| | 160-09 | 16 | 160 | 9 | 45 | 38.1(40) | 9.53(10) | 42.32(43.5) | 12 | 66 | PNEJ1250N | PTKA0408F | TW15S |
| | 160-10 | 16 | 160 | 10 | 45 | 38.1(40) | 9.53(10) | 42.32(43.5) | 12 | 66 | PNEJ1255N | PTKA0409F | TW15S |
| | 160-11 | 16 | 160 | 11 | 45 | 38.1(40) | 9.53(10) | 42.32(43.5) | 14 | 66 | PNEJ1260N | PTKA0410F | TW15S |
| | 160-12 | 16 | 160 | 12 | 45 | 38.1(40) | 9.53(10) | 42.32(43.5) | 14 | 66 | PNEJ1265N | PTKA0411F | TW15S |
| | 160-13 | 16 | 160 | 13 | 45 | 38.1(40) | 9.53(10) | 42.32(43.5) | 16 | 66 | PNEJ1270N | PTKA0412F | TW15S |
| | 160-14 | 16 | 160 | 14 | 45 | 38.1(40) | 9.53(10) | 42.32(43.5) | 16 | 66 | PNEJ1275N | PTKA0413F | TW15S |
| | 200-06 | 18 | 200 | 6 | 60 | 50.8(50) | 12.7(12) | 55.83(53.5) | 8 | 70 | PNEJ1235N | PTMA0405F | TW15S |
| | 200-07 | 18 | 200 | 7 | 60 | 50.8(50) | 12.7(12) | 55.83(53.5) | 10 | 70 | PNEJ1240N | PTMA0406F | TW15S |
| | 200-08 | 18 | 200 | 8 | 60 | 50.8(50) | 12.7(12) | 55.83(53.5) | 10 | 70 | PNEJ1245N | PTKA0407F | TW15S |
| | 200-09 | 18 | 200 | 9 | 60 | 50.8(50) | 12.7(12) | 55.83(53.5) | 12 | 70 | PNEJ1250N | PTKA0408F | TW15S |
| | 200-10 | 18 | 200 | 10 | 60 | 50.8(50) | 12.7(12) | 55.83(53.5) | 12 | 70 | PNEJ1255N | PTKA0409F | TW15S |
| | 200-11 | 18 | 200 | 11 | 60 | 50.8(50) | 12.7(12) | 55.83(53.5) | 14 | 70 | PNEJ1260N | PTKA0410F | TW15S |
| | 200-12 | 18 | 200 | 12 | 60 | 50.8(50) | 12.7(12) | 55.83(53.5) | 14 | 70 | PNEJ1265N | PTKA0411F | TW15S |
| | 200-13 | 18 | 200 | 13 | 60 | 50.8(50) | 12.7(12) | 55.83(53.5) | 16 | 70 | PNEJ1270N | PTKA0412F | TW15S |
| | 200-14 | 18 | 200 | 14 | 60 | 50.8(50) | 12.7(12) | 55.83(53.5) | 16 | 70 | PNEJ1275N | PTKA0413F | TW15S |

## Condizioni di taglio raccomandate

| Pezzo lavorato | Condizioni di taglio | | Gradi |
|---|---|---|---|
| | vc(m/min) | fz(mm/t) | |
| P | 150 ~ 250 | 0.10 ~ 0.25 | NCM325 |
| | 120 ~ 200 | 0.10 ~ 0.30 | PC3500 |
| | 100 ~ 150 | 0.10 ~ 0.30 | ST30A |
| M | 80 ~ 180 | 0.10 ~ 0.25 | PC9530 |
| | 80 ~ 150 | 0.10 ~ 0.30 | ST30A |
| K | 130 ~ 200 | 0.10 ~ 0.35 | PC6510 |
| | 100 ~ 150 | 0.10 ~ 0.40 | G10 |

## Attacchi disponibiili

| Articolo | | Attacchi | | |
|---|---|---|---|---|
| | | BT30 | BT40 | BT50 |
| SPP | 080-04~06 | BT30-SCA25.4-60 | BT40-SCA25.4-75/120 | BT50-SCA25.4-90/135 |
| | 100-04~10 | - | BT40-SCA31.75-105 | BT50-SCA31.75-90/135 |
| | 125-04~09 | - | - | BT50-SCA38.1-90/135 |
| | 160-04~14 | - | - | BT50-SCA38.1-90/135 |
| | 200-06~14 | - | - | - |
| SPPM | 080-04~06 | - | BT40-SCA27-75/120 | BT50-SCA27-90/135 |
| | 100-04~10 | - | BT40-SCA32-105 | BT50-SCA32-90/135 |
| | 125-04~09 | - | - | BT50-SCA40-90/135 |
| | 160-04~14 | - | - | BT50-SCA40-90/135 |
| | 200-06~14 | - | - | - |

• Inserti applicabili, vedere pag. E11
• Attacchi e viti disponibili : E215~E217

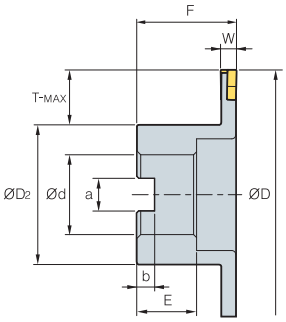
## Sistema di codifica: S P P M 160 - 06 R

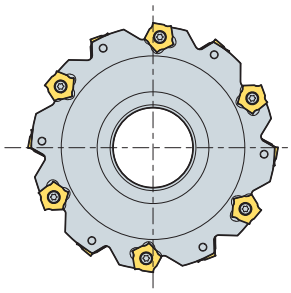
- R → Tipo di esecuzione (R/L)
- 06 → Larghezza di taglio (W)
- 160 → Diametro fresa (ØD)
- M → Tipo di stelo
- P → Tipo di fresa (P ⇒ Tipo piano, B ⇒ Tipo a mozzo)
- P → Forma dell'inserto (P ⇒ Inserto pentagonale)
- S → Tipo di fresa (S ⇒ Side cutter)

# SPB(M)

AA °
• AR : −10°
• RR : −0°





(mm)

| Articolo | | ⚙ | ØD | W | T-MAX | ØD2 | Ød | a | b | F | E | Inserto | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SPB(M)** | **080-04R/L** | 8 | 80 | 4 | 18 | 40 | 25.4(27) | 9.5(12.4) | 6(7) | 50 | 25(22) | PNEJ1223N | PTMA0403F | TW15S |
| | **080-05R/L** | 8 | 80 | 5 | 18 | 40 | 25.4(27) | 9.5(12.4) | 6(7) | 50 | 25(22) | PNEJ1230N | PTMA0404F | TW15S |
| | **080-06R/L** | 8 | 80 | 6 | 18 | 40 | 25.4(27) | 9.5(12.4) | 6(7) | 50 | 25(22) | PNEJ1235N | PTMA0405F | TW15S |
| | **100-04R/L** | 10 | 100 | 4 | 21 | 54 | 31.75(32) | 12.7(14.4) | 8(8) | 50 | 32(28) | PNEJ1223N | PTMA0403F | TW15S |
| | **100-05R/L** | 10 | 100 | 5 | 21 | 54 | 31.75(32) | 12.7(14.4) | 8(8) | 50 | 32(28) | PNEJ1230N | PTMA0404F | TW15S |
| | **100-06R/L** | 10 | 100 | 6 | 21 | 54 | 31.75(32) | 12.7(14.4) | 8(8) | 50 | 32(28) | PNEJ1235N | PTMA0405F | TW15S |
| | **100-07R/L** | 10 | 100 | 7 | 21 | 54 | 31.75(32) | 12.7(14.4) | 8(8) | 50 | 32(28) | PNEJ1240N | PTMA0406F | TW15S |
| | **100-08R/L** | 10 | 100 | 8 | 21 | 54 | 31.75(32) | 12.7(14.4) | 8(8) | 50 | 32(28) | PNEJ1245N | PTMA0407F | TW15S |
| | **100-09R/L** | 10 | 100 | 9 | 21 | 54 | 31.75(32) | 12.7(14.4) | 8(8) | 50 | 32(28) | PNEJ1250N | PTMA0408F | TW15S |
| | **100-10R/L** | 10 | 100 | 10 | 21 | 54 | 31.75(32) | 12.7(14.4) | 8(8) | 50 | 32(28) | PNEJ1255N | PTMA0409F | TW15S |
| | **125-04R/L** | 12 | 125 | 4 | 25 | 70 | 38.1(40) | 15.9(16.4) | 10(9) | 60(50) | 38(30) | PNEJ1223N | PTMA0403F | TW15S |
| | **125-05R/L** | 12 | 125 | 5 | 25 | 70 | 38.1(40) | 15.9(16.4) | 10(9) | 60(50) | 38(30) | PNEJ1230N | PTMA0404F | TW15S |
| | **125-06R/L** | 12 | 125 | 6 | 25 | 70 | 38.1(40) | 15.9(16.4) | 10(9) | 60(50) | 38(30) | PNEJ1235N | PTMA0405F | TW15S |
| | **125-07R/L** | 12 | 125 | 7 | 25 | 70 | 38.1(40) | 15.9(16.4) | 10(9) | 60(50) | 38(30) | PNEJ1240N | PTMA0406F | TW15S |
| | **125-08R/L** | 12 | 125 | 8 | 25 | 70 | 38.1(40) | 15.9(16.4) | 10(9) | 60(50) | 38(30) | PNEJ1245N | PTKA0407F | TW15S |
| | **125-09R/L** | 12 | 125 | 9 | 25 | 70 | 38. (40) | 15.9(16.4) | 10(9) | 60(50) | 38(30) | PNEJ1250N | PTKA0408F | TW15S |
| | **125-10R/L** | 12 | 125 | 10 | 25 | 70 | 38.1(40) | 15.9(16.4) | 10(9) | 60(50) | 38(30) | PNEJ1255N | PTKA0409F | TW15S |
| | **160-04R/L** | 16 | 160 | 4 | 43 | 70 | 38.1(40) | 15.9(16.4) | 10(9) | 60(50) | 38(30) | PNEJ1223N | PTMA0403F | TW15S |
| | **160-05R/L** | 16 | 160 | 5 | 43 | 70 | 38.1(40) | 15.9(16.4) | 10(9) | 60(50) | 38(30) | PNEJ1230N | PTMA0404F | TW15S |
| | **160-06R/L** | 16 | 160 | 6 | 43 | 70 | 38.1(40) | 15.9(16.4) | 10(9) | 60(50) | 38(30) | PNEJ1235N | PTMA0405F | TW15S |
| | **160-07R/L** | 16 | 160 | 7 | 43 | 70 | 38.1(40) | 15.9(16.4) | 10(9) | 60(50) | 38(30) | PNEJ1240N | PTMA0406F | TW15S |
| | **160-08R/L** | 16 | 160 | 8 | 43 | 70 | 38.1(40) | 15.9(16.4) | 10(9) | 60(50) | 38(30) | PNEJ1245N | PTKA0407F | TW15S |
| | **160-09R/L** | 16 | 160 | 9 | 43 | 70 | 38.1(40) | 15.9(16.4) | 10(9) | 60(50) | 38(30) | PNEJ1250N | PTKA0408F | TW15S |
| | **160-10R/L** | 16 | 160 | 10 | 43 | 70 | 50.8(40) | 15.9(16.4) | 10(9) | 60(50) | 38(30) | PNEJ1255N | PTKA0409F | TW15S |
| | **160-11R/L** | 16 | 160 | 11 | 43 | 70 | 50.8(40) | 15.9(16.4) | 10(9) | 60(50) | 38(30) | PNEJ1260N | PTKA0410F | TW15S |
| | **160-12R/L** | 16 | 160 | 12 | 43 | 70 | 50.8(40) | 15.9(16.4) | 10(9) | 60(50) | 38(30) | PNEJ1265N | PTKA0411F | TW15S |
| | **160-13R/L** | 16 | 160 | 13 | 43 | 70 | 50.8(40) | 15.9(16.4) | 10(9) | 60(50) | 38(30) | PNEJ1270N | PTKA0412F | TW15S |
| | **160-14R/L** | 16 | 160 | 14 | 43 | 70 | 50.8(40) | 15.9(16.4) | 10(9) | 60(50) | 38(30) | PNEJ1275N | PTKA0413F | TW15S |
| | **200-06R/L** | 18 | 200 | 6 | 53 | 90 | 50.8(40) | 19(16.4) | 11(9) | 65 | 38(30) | PNEJ1235N | PTMA0405F | TW15S |
| | **200-07R/L** | 18 | 200 | 7 | 53 | 90 | 50.8(40) | 19(16.4) | 11(9) | 65 | 38(30) | PNEJ1240N | PTMA0406F | TW15S |
| | **200-08R/L** | 18 | 200 | 8 | 53 | 90 | 50.8(40) | 19(16.4) | 11(9) | 65 | 38(30) | PNEJ1245N | PTKA0407F | TW15S |
| | **200-09R/L** | 18 | 200 | 9 | 53 | 90 | 50.8(40) | 19(16.4) | 11(9) | 65 | 38(30) | PNEJ1250N | PTKA0408F | TW15S |
| | **200-10R/L** | 18 | 200 | 10 | 53 | 90 | 50.8(40) | 19(16.4) | 11(9) | 65 | 38(30) | PNEJ1255N | PTKA0409F | TW15S |
| | **200-11R/L** | 18 | 200 | 11 | 53 | 90 | 50.8(40) | 19(16.4) | 11(9) | 65 | 38(30) | PNEJ1260N | PTKA0410F | TW15S |
| | **200-12R/L** | 18 | 200 | 12 | 53 | 90 | 50.8(40) | 19(16.4) | 11(9) | 65 | 38(30) | PNEJ1265N | PTKA0411F | TW15S |
| | **200-13R/L** | 18 | 200 | 13 | 53 | 90 | 50.8(40) | 19(16.4) | 11(9) | 65 | 38(30) | PNEJ1270N | PTKA0412F | TW15S |
| | **200-14R/L** | 18 | 200 | 14 | 53 | 90 | 50.8(40) | 19(16.4) | 11(9) | 65 | 38(30) | PNEJ1275N | PTKA0413F | TW15S |

## Condizioni di taglio raccomandate

| Pezzo lavorato | Condizioni di taglio | | Gradi |
|---|---|---|---|
| | vc(m/min) | fz(mm/t) | |
| **P** | 150 ~ 250<br>120 ~ 200<br>100 ~ 150 | 0.10 ~ 0.25<br>0.10 ~ 0.30<br>0.10 ~ 0.30 | **NCM325**<br>**PC3500**<br>**ST30A** |
| **M** | 80 ~ 180<br>80 ~ 150 | 0.10 ~ 0.25<br>0.10 ~ 0.30 | **PC9530**<br>**ST30A** |
| **K** | 130 ~ 200<br>100 ~ 150 | 0.10 ~ 0.35<br>0.10 ~ 0.40 | **PC6510**<br>**G10** |

• Inserti applicabili, vedere pag. E11
• Attacchi e viti disponibili : E215~E217

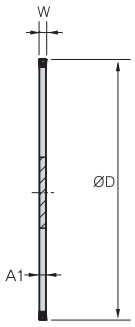
## Avviso (quando si montano gli inserti)

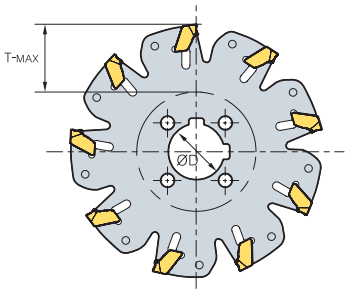
- Il rompitruciolo deve essere rivolto verso l'altro
- Serrare la vite dopo aver inserito correttamente l'inserto nell'alloggiamento
- Un eventuale spazio tra l'inserto e l'alloggiamento può provocare problemi

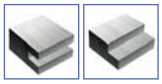
# SPS

New



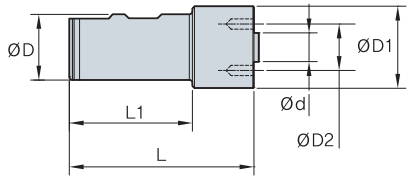



(mm)

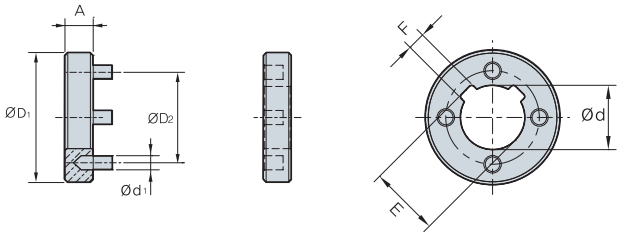
| Articolo | | ⦾ | øD | W | T-MAX | ød | A1 | Insert | Adattatore WS | Adattatore DF |
|---|---|---|---|---|---|---|---|---|---|---|
| SPS | 050-0204-08R | 4 | 50 | 2.2 | 11 | 8 | 1.8 | SPFN | WS2528-M4 | - |
| | 063-0205-10R | 5 | 63 | 2.2 | 15.5 | 10 | 1.8 | 200 | WS2532-M5 | - |
| | 080-0207-22R/F | 7 | 80 | 2.2 | 20(17) | 22 | 1.8 | - | WS3240-M5 | DF22-46 |
| | 100-0209-22R/F | 9 | 100 | 2.2 | 30(27) | 22 | 1.8 | ( ) | WS3240-M5 | DF22-46 |
| | 125-0211-32F | 11 | 125 | 2.2 | 35 | 32 | 1.8 | | - | DF32-55 |
| | 160-0214-32F | 14 | 160 | 2.2 | 52.5 | 32 | 1.8 | | - | DF32-55 |
| | 063-0305-10R | 5 | 63 | 3 | 15.5 | 10 | 2.55 | SPFN | WS2532-M5 | - |
| | 080-0307-22R/F | 7 | 80 | 3 | 20(17) | 22 | 2.55 | 300 | WS3240-M5 | DF22-46 |
| | 100-0309-22R/F | 9 | 100 | 3 | 30(27) | 22 | 2.55 | - | WS3240-M5 | DF22-46 |
| | 125-0311-32F | 11 | 125 | 3 | 35 | 32 | 2.55 | ( ) | - | DF32-55 |
| | 160-0314-32F | 14 | 160 | 3 | 52.5 | 32 | 2.55 | | - | DF32-55 |
| | 200-0318-40F | 18 | 200 | 3 | 60 | 40 | 2.55 | | - | DF40-80 |
| | 080-0406-22R/F | 6 | 80 | 4 | 20(17) | 22 | 3.4 | SPFN | WS3240-M5 | DF22-46 |
| | 100-0408-22R/F | 8 | 100 | 4 | 30(27) | 22 | 3.4 | 400 | WS3240-M5 | DF22-46 |
| | 125-0410-32F | 10 | 125 | 4 | 35 | 32 | 3.4 | - | - | DF32-55 |
| | 160-0413-32F | 13 | 160 | 4 | 52.5 | 32 | 3.4 | ( ) | - | DF32-55 |
| | 200-0417-40F | 17 | 200 | 4 | 60 | 40 | 3.4 | | - | DF40-80 |

## WS( )-( ) (Attacco Weldon)




| Articolo | Stock | L | L1 | D | D1 | D2 | d | Vite |
|---|---|---|---|---|---|---|---|---|
| WS2528-M4 | | 110 | 85 | 25 | 28 | 18 | 8 | PTKA0408 |
| WS2532-M5 | | 110 | 85 | 25 | 32 | 22 | 10 | PTKA0515 |
| WS3240-M5 | | 120 | 90 | 32 | 40 | 32 | 22 | PTKA0515 |

## DF( )-( ) (Flangia di trascinamento)




| Articolo | Stock | D1 | D2 | d | d1 | A | E | F |
|---|---|---|---|---|---|---|---|---|
| DF22-46 | | 46 | 32 | 22 | 5 | 10 | 24.1 | 6 |
| DF32-55 | | 55 | 45 | 32 | 6 | 10 | 34.8 | 8 |
| DF40-80 | | 80 | 63 | 40 | 11 | 12 | 43.5 | 10 |
| DF50-110 | | 110 | 80 | 50 | 14 | 14 | 53.6 | 12 |

● : Disponibile ○ : A richiesta

## Condizioni di taglio raccomandate

| Pezzo lavorato | Condizioni di taglio vc(m/min) | Condizioni di taglio fz(mm/t) | Gradi |
|---|---|---|---|
| P | 150(100~200)<br>120(80~170) | 0.13~0.25<br>0.10~0.17 | **PC3500**<br>**PC3545** |
| M | 160(120~200) | 0.10~0.22 | **PC5300** |
| K | 110(70~150) | 0.10~0.25 | **PC215K** |

• Inserti applicabili, vedere pag. E17

# Fresa ad alto avanzamento

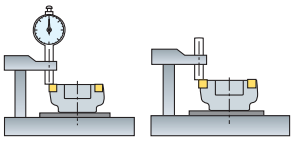
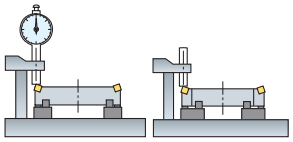
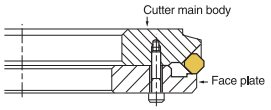
## Caratteristiche



- Le frese ad alto avanzamento impiegano un passo extra fine per la lavorazione di ghisa e acciaio legato
- Rapida sostituzione della fresa
- Eccellente rigidità
- Rapida sostituzione della fresa con diametro inferiore a ø160; 2 pezzi per le frese di diametro superiore a ø200

## Guida al montaggio dell'inserto

- Per ottenere con precisione la corsa massima utilizzando una fresa ad alto avanzamento, si richiede l'uso di attrezzature speciali.

| Tipo | Tipo con adattatore | Tipo con rullo | Tipo piano |
|---|---|---|---|
| Forma |  |  |  |
| Caratteristiche | - Per diametri inferiori a ø160 si usa principalmente il tipo a 1 pezzo<br>- Indicato per frese di dimensioni fisse; smontaggio e controllo possono essere eseguiti contemporaneamente | - Per diametri superiori a ø200 si usa principalmente il tipo a 2 pezzi<br>- Grazie ai 3 rulli guida regolabili, è possibile montare frese di svariate dimensioni | - Indicato per frese di piccolo diametro grazie alla sua struttura semplice<br>- Non occorre smontare la fresa dalla macchina; è impossibile riassemblare la fresa in quanto è montata sulla macchina |

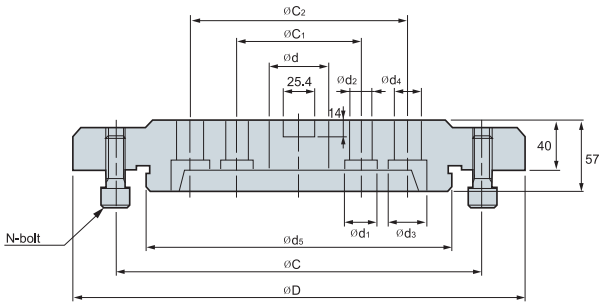
**• Guida al montaggio dell'inserto nel tipo con adattatore/rullo**

① Pulire la fresa e la macchina
② Il puntatore deve essere montato alla stessa altezza della fresa
③ Spostare ogni inserto nell'alloggiamento della punta verso la fine del puntatore e serrare il cuneo (coppia 2N.m).
④ Girare la fresa per regolare l'inserto successivo.
⑤ Misurare la corsa massima totale
⑥ Se un inserto supera la corsa massima, allentare il cuneo e regolare la corsa massima. (Per sgrossatura 10~20μ, per finitura 5~10μ)
⑦ Serrare il cuneo (coppia 7-8N.m) ⑧ Misurare la corsa massima finale con il comparatore

**• Avviso**

- Se il cuneo viene serrato eccessivamente, la corsa massima può provocare la distorsione della misura della fresa.
- Quando si monta il cuneo, utilizzare una chiave dinamometrica per ottenere una maggiore precisione.

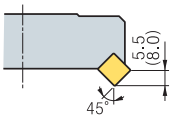
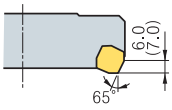
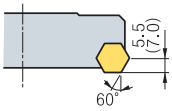
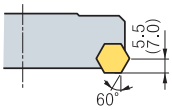
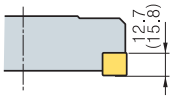
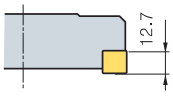
## Adattatore (Ø200-Ø450)




| Articolo | | Stock R | Stock L | øD | ød | ød1 | ød2 | ød3 | ød4 | ød5 | øC | øC1 | øC2 | N | Fresa |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| APR | 200 | | | 180 | 47.625 | 26 | 18 | - | - | 80 | 120 | 101.6 | - | 4 | ø200 |
| | 250 | | | 230 | 47.625 | 26 | 18 | - | - | 120 | 170 | 101.6 | - | 4 | ø250 |
| | 315 | | | 295 | 47.625 | 26 | 18 | 32 | 22 | 180 | 230 | 101.6 | 177.8 | 6 | ø315 |
| | 355 | | | 335 | 63.50 | 26 | 18 | 32 | 22 | 220 | 270 | 101.6 | 177.8 | 6 | ø355 |
| | 400 | | | 370 | 63.50 | 26 | 18 | 32 | 22 | 250 | 300 | 101.6 | 177.8 | 8 | ø400 |
| | 450 | | | 420 | 63.50 | 26 | 18 | 32 | 22 | 300 | 350 | 101.6 | 177.8 | 8 | ø450 |

● : Disponibile ○ : A richiesta

## Caratteristiche delle frese ad alto avanzamento

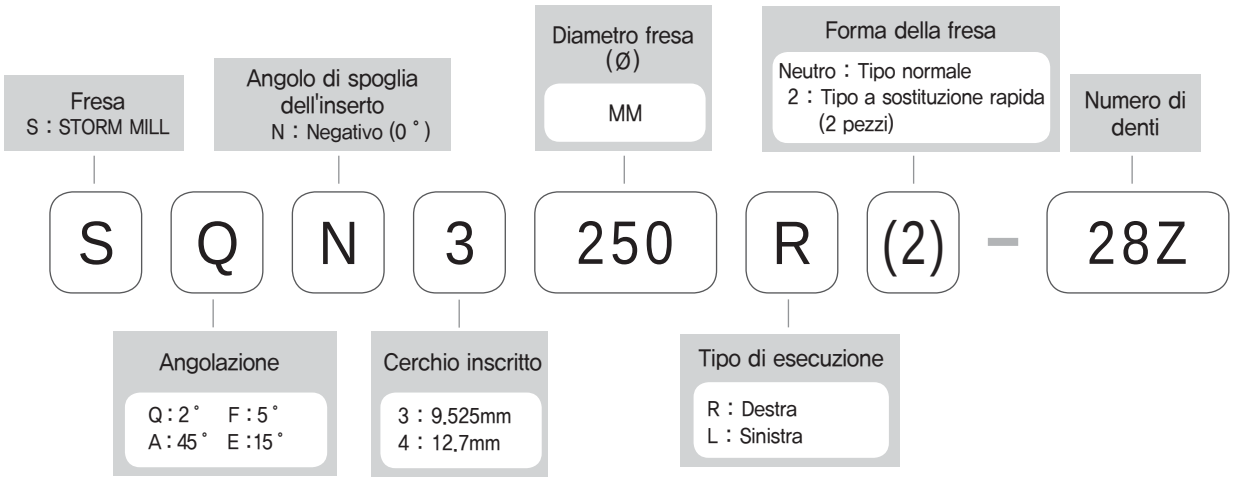
| Articolo | Diametro fresa | Pezzo lavorato, Applicazioni | Rugosità minima della superficie | Angolazione e max. profondità di taglio per il tipo 5000 | Angolo dell'elica assiale | Angolo dell'elica radiale | Inserti disponibili |
|---|---|---|---|---|---|---|---|
| **ANH4000 ANH5000** | Ø100~Ø450 | Ghisa Sgrossatura | 25Z |  | –5 ° | –6 ° | SNCN1204ENN SNCN1504ENN |
| **CDH4000 CDH5000** | Ø100~Ø450 | Ghisa Sgrossatura Finitura | 18Z |  | +10 ° | +5 ° | SDCN42R SDCN53R |
| **DEH5000** | Ø100~Ø450 | Lega di alluminio Sgrossatura | 20Z |  | +14 ° | +6 ° | HECN090408FN |
| **DPH5000** | Ø100~Ø450 | Ghisa Sgrossatura Finitura | 12Z |  | +5 ° | –3 ° | HPEN090408 HPEN090408-WC |
| **PNH4000 PNH5000** | Ø125~Ø450 | Ghisa Finitura | 12Z |  | –5 ° | –6 ° | SNEF435 SNEF535 |
| **PPH4000** | Ø125~Ø450 | Ghisa Finitura | 12Z |  | +5 ° | –5 ° | SPEN120416-WC |

## Condizioni di taglio raccomandate

| Pezzo lavorato | Condizioni di taglio | | Gradi | Nota |
|---|---|---|---|---|
| | vc(m/min) | fz(mm/t) | | |
| **Cast iron** | 100~230 | 0.05~0.2 | **PC6510** | Rivestimento PVD |
| | 80~150 | 0.05~0.2 | **H01,G10** | Non rivestito |
| **Al alloy** | 400 | 0.1~0.3 | **PC6510** | Rivestimento PVD |
| | 400 | 0.05~0.2 | **H01,G10** | Non rivestito |

## Storm Mill

### Sistema di codifica

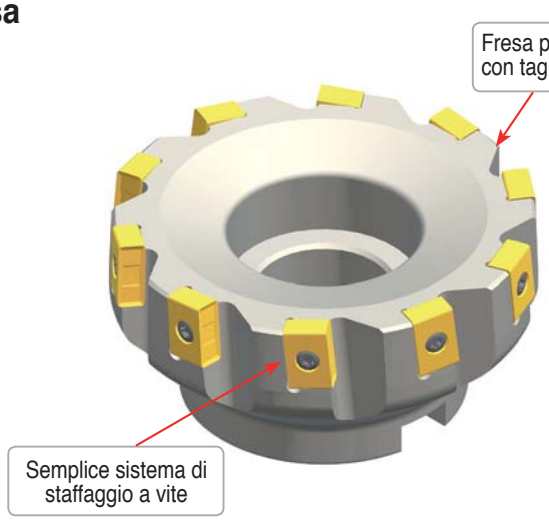



### Caratteristiche

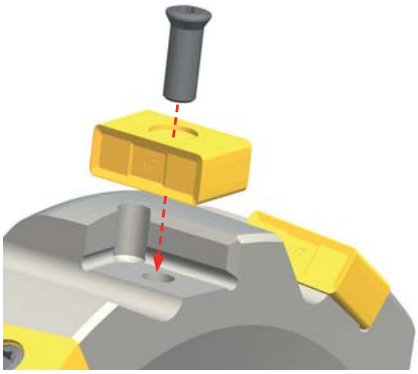
- Fresa convenzionale per un'ampia gamma di lavorazioni
- 4 taglienti disponibili (max. 8 taglienti disponibili con la fresa di tipo R/L)
- Indicata per applicazioni con elevate profondità di taglio grazie al tagliente lungo
- Ottima durata dell'utensile garantita da un'ampia varietà di gradi adatti a svariate condizioni di taglio
- 2 diversi tipi di inserti (svasato / raggio di punta) disponibili per un tipo di fresa



### Fresa




### Staffaggio dell'inserto



### Condizioni di taglio raccomandate

| Articolo / Gradi | Ghisa grigia | | Ghisa duttile | |
|---|---|---|---|---|
| | GC | | GCD | |
| | vc(m/min) | fz(mm/t) | vc(m/min) | fz(mm/t) |
| **PC3500** | 150~250 | 0.08~0.28 | 100~180 | 0.08~0.28 |
| **PC6510** | 150~300 | 0.1~0.28 | 100~200 | 0.1~0.28 |
| **PC3545** | 150~250 | 0.08~0.22 | 100~180 | 0.08~0.22 |
| **H01** | 100~200 | 0.08~0.22 | 70~140 | 0.08~0.22 |
| **G10** | 90~120 | 0.08~0.28 | 60~130 | 0.08~0.28 |

## Shave Mill Ultra

### Sistema di codifica

| Shave Mill Ultra | | Cerchio inscritto 6 : 19.05mm | | | | Dente (Z) | |
|---|---|---|---|---|---|---|---|
| SVU | M | 6 | 250 | R | – | Z6 | B |
| | Sistema metrico<br>M : Metric<br>A : Inch | | Dia. fresa (Ø)<br>Ø250 | Tipo di esecuzione<br>R : Destra<br>L : Sinistra | | | Tipo di fresa<br>Neutro: Normale<br>B: Regolabile |

### Sistema di codifica inserti

| L N C S 1 9 0 7 | - | R3.0 | - | W C |
|---|---|---|---|---|
| Shave Mill Ultra | | Tipo di tagliente<br>C : Svasato<br>R : Rotondo | | Wiper Crown |

### Caratteristiche

- Rugosità della superficie migliore grazie a questa fresa di finitura se impiegata con materiale molto duro
- Facile da maneggiare, molto rigida e con semplice sistema di staffaggio a vite
- Ottima rugosità della superficie grazie al tagliente wiper
- Maggiore durata dell'utensile grazie al grado speciale tenace e resistente all'usura
- Sono disponibili due tipi diversi: tipo normale economico e tipo 'B' con corsa massima regolabile

Tipo normale



Buona rigidità e riduzione dei costi grazie al semplice sistema di staffaggio a vite

Migliore rugosità della superficie quando si utilizza 1 inserto e regolando 'ap' al di sotto di 0,03mm

### Caratteristiche dell'inserto




Tagliente regolabile (Tipo B)



Vite di regolazione

### Range di regolazione

Range : 1.0mm

Tolleranza : entro 2μ

### Condizioni di taglio raccomandate

| Pezzo lavorato | Condizioni di taglio | | ap(mm) | Tagliente | Grado |
|---|---|---|---|---|---|
| | vc(m/min) | fz(mm/t) | | | |
| P | 150~250<br>150~250 | 0.05~0.2<br>2~5 | ~0.5<br>~0.03 | Pieno utilizzo<br>1 utilizzo | PC3500 |
| K | 150~300<br>150~300 | 0.05~0.2<br>2~5 | ~0.5<br>~0.03 | Pieno utilizzo<br>1 utilizzo | PC6510 |

## Cube Mill

### Sistema di codifica

| Fresa | Cerchio inscritto | | Forma della fresa | | Numero di denti (Z) |
|---|---|---|---|---|---|
| CBM : CUBE MILL | 3 : 9.525mm<br>4 : 12.7mm | | Neutro : Tipo normale<br>2 : Tipo a sostituzione rapida (2 pezzi) | | |
| CBM | E | 3 | 250 | R | (2) | - | 28Z |
| | Angolazione<br>Q : 2˚ C : 25˚<br>F : 5˚ A : 45˚<br>E : 15˚ | | Diametro fresa (Ø)<br>Ø250 | Tipo di esecuzione<br>R : Destra<br>L : Sinistsra | | | |

### Caratteristiche

- Fresa speciale Korloy per la sgrossatura della ghisa
- Inserto a 8 taglienti (max. 16 taglienti disponibili con 2 frese / fresa R/L)
- Ottime prestazioni di taglio grazie all'angolo di spoglia positivizzato del rompitruciolo tridimensionale
- Lunga durata dell'utensile grazie alla varietà di gradi e rompitrucioli disponibili per varie condizioni di taglio
- 2 diversi tipi di inserti (svasato / raggio di punta) disponibili per un tipo di fresa



Sgrossatura di ghisa

### Inserto (tipo R/L)




<Tipo svasato>



<Tipo raggio di punta>

### Corpo fresa

| | Generica | Sostituzione rapida |
|---|---|---|
| Diametro fresa (Ø) | Ø80~315 mm | Ø200~450 mm |
| | 3 1/4~12 1/2 pollici | 8~18 pollici |

**Angolazione : 2˚, 5˚, 15˚, 25˚, 45˚**

### Staffaggio dell'inserto




### Corpo fresa




### Parti di ricambio

| | Vite | Chiave |
|---|---|---|
|  |  |  |
| Cube mill 3000 | FTGA0417CBM | TW15 – 100 |
| | ETGA0520CBM | TW20 – 100 |

## Couple Mill

### Sistema di codifica CUBE-COUPLE

| Fresa | Cerchio inscritto | Angolazione | Diametro fresa (Ø) | Tipo di esecuzione | N. denti (Z) | Couple Mill |
|---|---|---|---|---|---|---|
| CBM : CUBE MILL | 3 : 9.525mm<br>4 : 12.7mm | Q : 2° C : 25°<br>F : 5° A : 45°<br>E : 15° | Ø355 | R : Destra<br>L : Sinistra | 28 | |
| CBM | E | 3 | 355 | R | 28Z | – CP |

### Sistema di codifica STORM-COUPLE

| Fresa | Angolo di spoglia dell'inserto | Diametro fresa (Ø) | Numero di denti (Z) | Couple Mill | Angolazione | Cerchio inscritto | Tipo di esecuzione |
|---|---|---|---|---|---|---|---|
| S : STORM MILL | N : Negativo (0°) | Ø355 | 28 | | Q : 2° E : 15°<br>F : 5° A : 45° | 3 : 9.525mm<br>4 : 12.7mm | R : Destra<br>L : Sinistra |
| S | Q | N | 3 | 355 | R | 28Z | – CP |

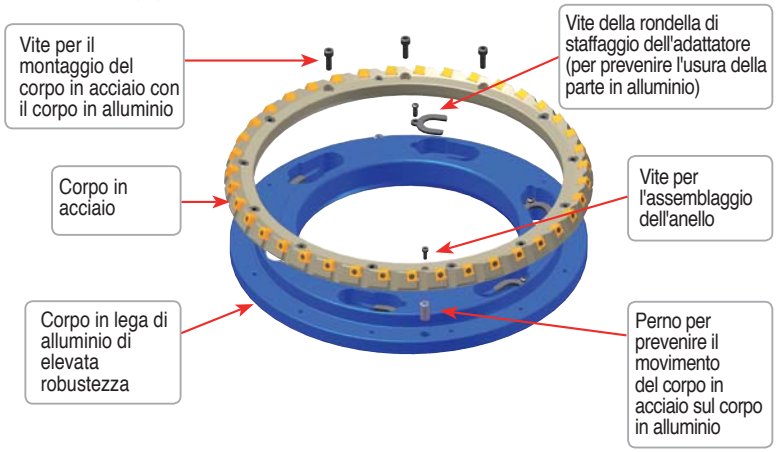
### Caratteristiche di CUBE-COUPLE

- Combinazione ottimale di corpo in alluminio e fresa ad alto avanzamento in ghisa
- Il peso della fresa è stato ridotto del 50% rispetto a una fresa in acciaio, pertanto è molto facile da maneggiare e ideale nel prevenire incidenti sul campo
- Applicazione per Cube mill, Storm mill

### Corpo fresa

| | | Sostituzione rapida |
|---|---|---|
| Diametro fresa (Ø) | Metrico | Ø355~450mm |
| | Pollici | 14 1/4~18 pollici |

### Montaggio

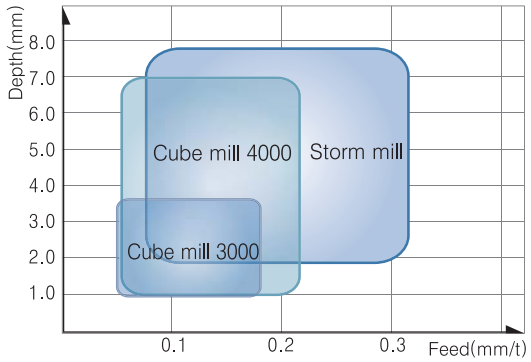



### Parti di ricambio

| | Vite | Chiave | | Vite per il corpo | Vite per l'attacco | Perno |
|---|---|---|---|---|---|---|
| CUBE-COUPLE Tipo 3000<br>Tipo 4000 | FTGA0417CBM<br>ETGA0520CBM | TW15–100<br>TW20–100 | – | BHA0616<br>BHA0620 | MHBO410 | PN1019–DRV |
| STORM-COUPLE Tipo 3000 | FTNA0513 | – | TW15S | – | – | – |

# E Informazioni tecniche per Couple Mill

## Applicazioni delle frese ad alto avanzamento per la ghisa






## Condizioni di taglio raccomandate

| CUBE MILL | | Ghisa grigia | | Ghisa duttile | |
|---|---|---|---|---|---|
| | | vc(m/min) | fz(mm/t) | vc(m/min) | fz(mm/t) |
| PVD | PC6510 | 150 ~ 300 | 0.08 ~ 0.18 | 100 ~ 200 | 0.08 ~ 0.18 |
| | PC215K | 120 ~ 210 | 0.05 ~ 0.18 | 80 ~ 150 | 0.05 ~ 0.18 |
| Non rivestito | G10 | 90 ~ 120 | 0.05 ~ 0.18 | 60 ~ 130 | 0.05 ~ 0.18 |

## Attacchi e adattatori disponibili

| Articolo | | | Attacchi e adattatori disponibili | | |
|---|---|---|---|---|---|
| | | | Attacchi | Attacco generico | Adattatore |
| CBMQ | 3080R/L | -00Z | BT□□-FMA25.4-□□ | NT*□□(M/U)-FMA25.4-25 | |
| (CBMF) | 3100R/L | -00Z | BT□□-FMA31.75-□□ | NT*□□(M/U)-FMA31.75-□□ | |
| (CBME) | 3125R/L | -00Z | BT□□-FMA38.1-□□ | NT*□□(M/U)-FMA38.1-□□ | |
| (CBMC) | 3160R/L | -00Z | BT□□-FMA50.8-□□ | NT*□□(M/U)-FMA50.8-□□ | |
| (CBMA) | 3200R/L | -00Z | BT□□-FMA47.625-□□ | NT*□□(M/U)-FMA47.625-25, KCP-8*** | |
| | 3250R/L | -00Z | BT□□-FMA47.625-□□ | KNT*□□(M/U)-FMA47.625-25, KCP-8*** | |
| | 3315R/L | -00Z | | KCP-8***(Centering Plug) | |
| | 3200R/L2 | -00Z | | | APR200 |
| | 3250R/L2 | -00Z | | | APR250 |
| | 3315R/L2 | -00Z | | | APR315 |
| | 3355R/L2 | -00Z | | | APR355 |
| | 3400R/L2 | -00Z | | | APR400 |
| | 3450R/L2 | -00Z | | | APR450 |
| SQN | 3080R/L | -00Z | BT□□-FMA25.4-□□ | NT*□□(M/U)-FMA25.4-25 | |
| (SFN) | 3100R/L | -00Z | BT□□-FMA31.75-□□ | NT*□□(M/U)-FMA31.75-□□ | |
| (SEN) | 3125R/L | -00Z | BT□□-FMA38.1-□□ | NT*□□(M/U)-FMA38.1-□□ | |
| (SAN) | 3160R/L | -00Z | BT□□-FMA50.8-□□ | NT*□□(M/U)-FMA50.8-□□ | |
| | 3200R/L | -00Z | BT□□-FMA47.625-□□ | NT*□□(M/U)-FMA47.625-25, KCP-8*** | |
| | 3250R/L | -00Z | BT□□-FMA47.625-□□ | NT*□□(M/U)-FMA47.625-25, KCP-8*** | |
| | 3315R/L | -00Z | | KCP-8***(Centering Plug) | |
| | 3200R/L2 | -00Z | | | APR200 |
| | 3250R/L2 | -00Z | | | APR250 |
| | 3315R/L2 | -00Z | | | APR315 |
| | 3355R/L2 | -00Z | | | APR355 |
| | 3400R/L2 | -00Z | | | APR400 |
| | 3450R/L2 | -00Z | | | APR450 |

# ANH4000/5000

AA 45° | • AR : -5° • RR : -6°



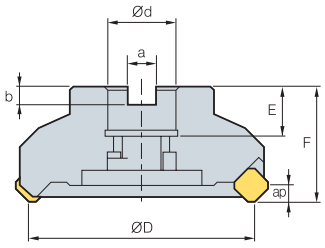



Fig. 1

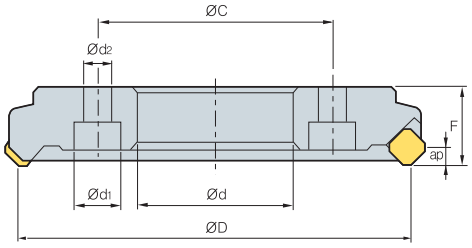



Fig. 2

(mm)

| Articolo | | | øD | ød | ød1 | ød2 | a | b | E | F | øC | ap | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ANH | 4100R/L | 8 | 100 | 31.75 | - | - | 12.7 | 8 | 22 | 50 | - | 5.5 | 2.5 | 1 |
| | 4125R/L | 10 | 125 | 38.1 | - | - | 15.9 | 10 | 27 | 63 | - | 5.5 | 4.7 | 1 |
| | 4160R/L | 14 | 160 | 50.8 | - | - | 19.0 | 11 | 27 | 63 | - | 5.5 | 7.3 | 1 |
| | 4200R/L | 18 | 200 | 80 | 24 | 14 | - | - | - | 40 | 120 | 5.5 | 7 | 2 |
| | 4250R/L | 24 | 250 | 120 | 30 | 18 | - | - | - | 40 | 170 | 5.5 | 9.6 | 2 |
| | 4315R/L | 30 | 315 | 180 | 30 | 18 | - | - | - | 40 | 230 | 5.5 | 12.9 | 2 |
| | 4355R/L | 34 | 355 | 220 | 30 | 18 | - | - | - | 40 | 270 | 5.5 | 15.5 | 2 |
| | 4400R/L | 38 | 400 | 250 | 30 | 18 | - | - | - | 40 | 300 | 5.5 | 18.8 | 2 |
| | 4450R/L | 44 | 450 | 300 | 30 | 18 | - | - | - | 40 | 350 | 5.5 | 22.2 | 2 |
| ANH | 5100R/L | 8 | 100 | 31.75 | - | - | 12.7 | 8 | 22 | 50 | - | 8 | 2.6 | 1 |
| | 5125R/L | 10 | 125 | 38.1 | - | - | 15.9 | 10 | 27 | 63 | - | 8 | 5 | 1 |
| | 5160R/L | 14 | 160 | 50.8 | - | - | 19.0 | 11 | 27 | 63 | - | 8 | 7.5 | 1 |
| | 5200R/L | 18 | 200 | 80 | 24 | 14 | - | - | - | 40 | 120 | 8 | 7 | 2 |
| | 5250R/L | 24 | 250 | 120 | 30 | 18 | - | - | - | 40 | 170 | 8 | 9.6 | 2 |
| | 5315R/L | 30 | 315 | 180 | 30 | 18 | - | - | - | 40 | 230 | 8 | 12.9 | 2 |
| | 5355R/L | 34 | 355 | 220 | 30 | 18 | - | - | - | 40 | 270 | 8 | 15.5 | 2 |
| | 5400R/L | 38 | 400 | 250 | 30 | 18 | - | - | - | 40 | 300 | 8 | 18.8 | 2 |
| | 5450R/L | 44 | 450 | 300 | 30 | 18 | - | - | - | 40 | 350 | 8 | 22.2 | 2 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Cuneo | Vite del cuneo | Chiave |
|---|---|---|---|
| |  |  |  |
| Tipo 4000 | WANH4N | DHA0821F | HW40 |
| Tipo 5000 | WANH5N | DHA0821F | HW40 |

## Attacchi disponibili

| Articolo | | Attacco generico | Adattatore |
|---|---|---|---|
| ANH | 100R/L | NT*□□(M/U)-FMA31.75-□□ | - |
| | 125R/L | NT*□□(M/U)-FMA38.1-□□ | - |
| | 160R/L | NT*□□(M/U)-FMA50.8-□□ | - |
| | 200R/L | - | APR200 |
| | 250R/L | - | APR250 |
| | 315R/L | - | APR315 |
| | 355R/L | - | APR355 |
| | 400R/L | - | APR400 |
| | 450R/L | - | APR450 |

## Condizioni di taglio raccomandate

| Pezzo lavorato | Condizioni di taglio | | Gradi |
|---|---|---|---|
| | vc(m/min) | fz(mm/t) | |
| K | 100 ~ 200 | 0.05 ~ 0.30 | PC6510 |
| | 80 ~ 150 | 0.10 ~ 0.30 | H01,G10 |

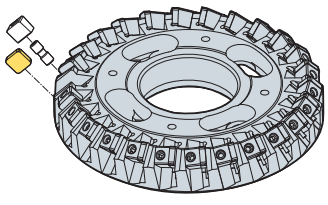
## Inserti disponibili

| | SNCN | SNKN |
|---|---|---|
| |  |  |

| Tipo | Articolo | Rivestito | | Non rivestito | | | Pag. |
|---|---|---|---|---|---|---|---|
| | | NCM325 | PC6510 | ST30A | H01 | G10 | |
| Tipo 4000 | SNCN 1204ENN | ● | | ● | ● | ● | E16 |
| | SNKN 1204ENN | | ● | | | | |
| Tipo 5000 | SNCN 1504ENN | | | ● | | | E16 |
| | SNKN 1504ENN | ● | | | | | |

● : Disponibile ○ : A richiesta

Montaggio



• Inserti applicabili, vedere pag. E16
• Attacchi e viti disponibili : E215~E217

# CDH4000/5000

AA 65° • AR : 10° • RR : 5°



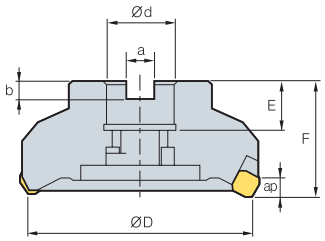



Fig. 1

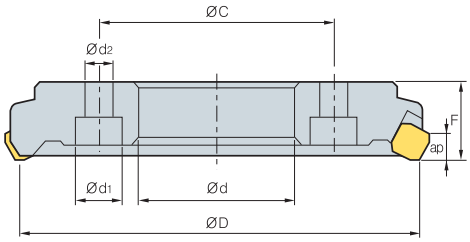



Fig. 2

(mm)

| Articolo | | | øD | ød | ød1 | ød2 | a | b | E | F | øC | ap | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CDH | 4100R/L | 8 | 100 | 31.75 | - | - | 12.7 | 8 | 22 | 50 | - | 6 | 2.3 | 1 |
| | 4125R/L | 10 | 125 | 38.1 | - | - | 15.9 | 10 | 27 | 63 | - | 6 | 4.4 | 1 |
| | 4160R/L | 14 | 160 | 50.8 | - | - | 19.0 | 11 | 27 | 63 | - | 6 | 6.8 | 1 |
| | 4200R/L | 18 | 200 | 80 | 24 | 14 | - | - | - | 40 | 120 | 6 | 6.7 | 2 |
| | 4250R/L | 24 | 250 | 120 | 30 | 18 | - | - | - | 40 | 170 | 6 | 9.1 | 2 |
| | 4315R/L | 30 | 315 | 180 | 30 | 18 | - | - | - | 40 | 230 | 6 | 12.3 | 2 |
| | 4355R/L | 34 | 355 | 220 | 30 | 18 | - | - | - | 40 | 270 | 6 | 14.8 | 2 |
| | 4400R/L | 38 | 400 | 250 | 30 | 18 | - | - | - | 40 | 300 | 6 | 18.1 | 2 |
| | 4450R/L | 44 | 450 | 300 | 30 | 18 | - | - | - | 40 | 350 | 6 | 21.3 | 2 |
| CDH | 5100R/L | 08 | 100 | 31.75 | - | - | 12.7 | 8 | 22 | 50 | - | 7 | 2.3 | 1 |
| | 5125R/L | 10 | 125 | 38.1 | - | - | 15.9 | 10 | 27 | 63 | - | 7 | 4.4 | 1 |
| | 5160R/L | 14 | 160 | 50.8 | - | - | 19.0 | 11 | 27 | 63 | - | 7 | 6.8 | 1 |
| | 5200R/L | 18 | 200 | 80 | 24 | 14 | - | - | - | 40 | 120 | 7 | 6.6 | 2 |
| | 5250R/L | 24 | 250 | 120 | 30 | 18 | - | - | - | 40 | 170 | 7 | 9.1 | 2 |
| | 5315R/L | 30 | 315 | 180 | 30 | 18 | - | - | - | 40 | 230 | 7 | 12.2 | 2 |
| | 5355R/L | 34 | 355 | 220 | 30 | 18 | - | - | - | 40 | 270 | 7 | 14.7 | 2 |
| | 5400R/L | 38 | 400 | 250 | 30 | 18 | - | - | - | 40 | 300 | 7 | 18 | 2 |
| | 5450R/L | 44 | 450 | 300 | 30 | 18 | - | - | - | 40 | 350 | 7 | 21.2 | 2 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Cuneo | Vite del cuneo | Chiave |
|---|---|---|---|
| |  |  |  |
| Tipo 4000 | WCDH4R1/L1(Ø100-Ø160)<br>WCDH4R/L(Ø200-Ø450) | DHA0821F | HW40 |
| Tipo 5000 | WCDH5R1/L1(Ø100-Ø160)<br>WCDH5R/L(Ø200-Ø450) | DHA0821F | HW40 |

## Attacchi disponibili

| Articolo | | Attacco generico | Adattatore |
|---|---|---|---|
| CDH | 100R/L | NT* (M/U)-FMA31.75-□□ | - |
| | 125R/L | NT*□□(M/U)-FMA38.1-□□ | - |
| | 160R/L | NT*□□(M/U)-FMA50.8-□□ | - |
| | 200R/L | - | APR200 |
| | 250R/L | - | APR250 |
| | 315R/L | - | APR315 |
| | 355R/L | - | APR355 |
| | 400R/L | - | APR400 |
| | 450R/L | - | APR450 |

## Condizioni di taglio raccomandate

| Pezzo lavorato | Condizioni di taglio | | Gradi |
|---|---|---|---|
| | vc(m/min) | fz(mm/t) | |
| K | 100 ~ 200<br>80 ~ 150 | 0.05 ~ 0.30<br>0.10 ~ 0.30 | **PC6510**<br>**H01,G10** |

## Inserti disponibili

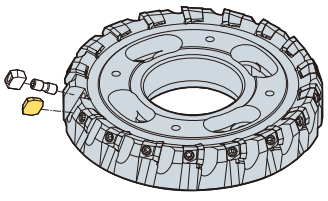
SDCN



| Tipo | Articolo | Rivestito | | Non rivestito | | | Pag. |
|---|---|---|---|---|---|---|---|
| | | NCM325 | PC6510 | ST30A | H01 | G10 | |
| Tipo 4000 | SDCN 42R | | | | | | E12 |
| | 42L | | | | ● | | |
| Tipo 5000 | SDCN 53R | | | | | | E12 |
| | 53L | | | | | | |

● : Disponibile ○ : A richiesta

Montaggio



• Inserti applicabili, vedere pag. E12
• Attacchi e viti disponibili : E215~E217

# DEH5000

AA 60° | • AR : 14° • RR : 6°



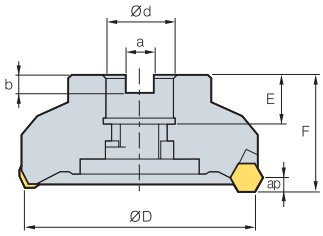



Fig. 1

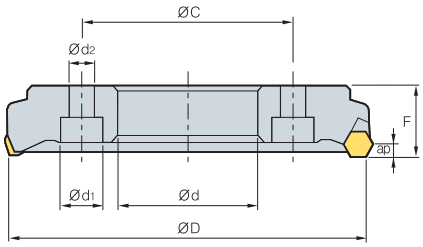



Fig. 2

(mm)

| Articolo | | ⚙ | øD | ød | ød1 | ød2 | a | b | E | F | øC | ap | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PNH | 4125R/L | 10 | 125 | 38.1 | - | - | 15.9 | 10 | 27 | 63 | - | 12.7 | 3.4 | 1 |
| | 4160R/L | 14 | 160 | 50.8 | - | - | 19.0 | 11 | 27 | 63 | - | 12.7 | 5.5 | 1 |
| | 4200R/L | 18 | 200 | 80 | 24 | 14 | - | - | - | 40 | 120 | 12.7 | 5.5 | 2 |
| | 4250R/L | 24 | 250 | 120 | 30 | 18 | - | - | - | 40 | 170 | 12.7 | 7.7 | 2 |
| | 4315R/L | 30 | 315 | 180 | 30 | 18 | - | - | - | 40 | 230 | 12.7 | 10.5 | 2 |
| | 4355R/L | 34 | 355 | 220 | 30 | 18 | - | - | - | 40 | 270 | 12.7 | 12.9 | 2 |
| | 4400R/L | 38 | 400 | 250 | 30 | 18 | - | - | - | 40 | 300 | 12.7 | 16.1 | 2 |
| | 4450R/L | 44 | 450 | 300 | 30 | 18 | - | - | - | 40 | 350 | 12.7 | 19.1 | 2 |
| PNH | 5125R/L | 10 | 125 | 38.1 | - | - | 15.9 | 10 | 27 | 63 | - | 15.8 | 3.4 | 1 |
| | 5160R/L | 14 | 160 | 50.8 | - | - | 19.0 | 11 | 27 | 63 | - | 15.8 | 5.3 | 1 |
| | 5200R/L | 18 | 200 | 80 | 24 | 14 | - | - | - | 40 | 120 | 15.8 | 5.4 | 2 |
| | 5250R/L | 24 | 250 | 120 | 30 | 18 | - | - | - | 40 | 170 | 15.8 | 7.6 | 2 |
| | 5315R/L | 30 | 315 | 180 | 30 | 18 | - | - | - | 40 | 230 | 15.8 | 10.4 | 2 |
| | 5355R/L | 34 | 355 | 220 | 30 | 18 | - | - | - | 40 | 270 | 15.8 | 12.8 | 2 |
| | 5400R/L | 38 | 400 | 250 | 30 | 18 | - | - | - | 40 | 300 | 15.8 | 15.9 | 2 |
| | 5450R/L | 44 | 450 | 300 | 30 | 18 | - | - | - | 40 | 350 | 15.8 | 18.9 | 2 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Cuneo | Vite del cuneo | Chiave |
|---|---|---|
|  |  |  |
| WDEHR-1/L-1(Ø100 - Ø200)<br>WDEHR/L(Ø250 - Ø450) | DHA0821F | HW40 |

## Attacchi disponibili

| Articolo | Attacco generico | Adattatore |
|---|---|---|
| DEH 5100R/L | NT*□□(M/U)-FMA31.75-□□ | - |
| 5125R/L | NT*□□(M/U)-FMA38.1-□□ | - |
| 5160R/L | NT*□□(M/U)-FMA50.8-□□ | - |
| 5200R/L | - | APR200 |
| 5250R/L | - | APR250 |
| 5315R/L | - | APR315 |
| 5355R/L | - | APR355 |
| 5400R/L | - | APR400 |
| 5450R/L | - | APR450 |

## Condizioni di taglio raccomandate

| Pezzo lavorato | Condizioni di taglio | | Gradi |
|---|---|---|---|
| | vc(m/min) | fz(mm/t) | |
| K | 100 ~ 200<br>80 ~ 150 | 0.05 ~ 0.30<br>0.10 ~ 0.30 | **PC6510**<br>**H01,G10** |

## Inserti disponibili

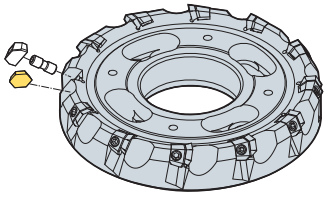
HECN



| Articolo | Rivestito | | Non rivestito | | | Pag. |
|---|---|---|---|---|---|---|
| | NCM325 | PC6510 | ST30A | H10 | G10 | |
| HECN 090408FN | | | | | | E16 |
| 090408SN | | | | | | |
| 090408TN | | | | | | |
| | | | | | | |
| | | | | | | |

● : Disponibile ○ : A richiesta

Montaggio



• Inserti applicabili, vedere pag. E16
• Attacchi e viti disponibili : E215~E217

# DPH5000

AA 60° | • AR : 5° • RR : –3°



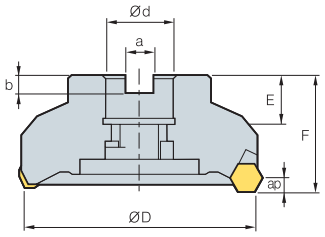



Fig. 1

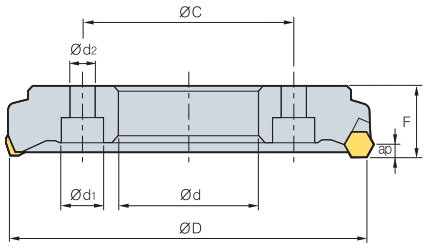



Fig. 2

(mm)

| Articolo | | ⚙ | øD | ød | ød1 | ød2 | a | b | E | F | øC | ap | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DPH | 5100R/L | 8 | 100 | 31.75 | - | - | 12.7 | 8 | 22 | 50 | - | 7 | 2.3 | 1 |
| | 5125R/L | 10 | 125 | 38.1 | - | - | 15.9 | 10 | 27 | 63 | - | 7 | 4.4 | 1 |
| | 5160R/L | 14 | 160 | 50.8 | - | - | 19.0 | 11 | 27 | 63 | - | 7 | 6.7 | 1 |
| | 5200R/L | 18 | 200 | 80 | 24 | 14 | - | - | - | 40 | 120 | 7 | 6.5 | 2 |
| | 5250R/L | 24 | 250 | 120 | 30 | 18 | - | - | - | 40 | 170 | 7 | 9 | 2 |
| | 5315R/L | 30 | 315 | 180 | 30 | 18 | - | - | - | 40 | 230 | 7 | 12 | 2 |
| | 5355R/L | 34 | 355 | 220 | 30 | 18 | - | - | - | 40 | 270 | 7 | 14.5 | 2 |
| | 5400R/L | 38 | 400 | 250 | 30 | 18 | - | - | - | 40 | 300 | 7 | 17.7 | 2 |
| | 5450R/L | 44 | 450 | 300 | 30 | 18 | - | - | - | 40 | 350 | 7 | 21 | 2 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Cuneo | Vite del cuneo | Chiave |
|---|---|---|
|  |  |  |
| WDPH5R/L | DHA0821F | HW40 |

## Attacchi disponibili

| Articolo | | General Arbor | Adattatore |
|---|---|---|---|
| DPH | 5100R/L | NT*□□(M/U)-FMA31.75-□□ | - |
| | 5125R/L | NT*□□(M/U)-FMA38.1-□□ | - |
| | 5160R/L | NT*□□(M/U)-FMA50.8-□□ | - |
| | 5200R/L | - | APR200 |
| | 5250R/L | - | APR250 |
| | 5315R/L | - | APR315 |
| | 5355R/L | - | APR355 |
| | 5400R/L | - | APR400 |
| | 5450R/L | - | APR450 |

## Condizioni di taglio raccomandate

| Pezzo lavorato | Condizioni di taglio | | Gradi |
|---|---|---|---|
| | vc(m/min) | fz(mm/t) | |
| K | 100 ~ 200<br>80 ~ 150 | 0.05 ~ 0.30<br>0.10 ~ 0.30 | **PC6510**<br>**H01,G10** |

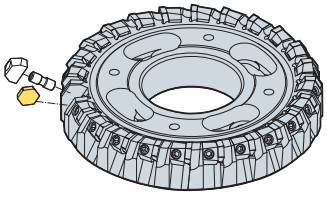
## Inserti disponibili

| HPEN | HPEN-WC |
|---|---|
|  |  |

| Articolo | | Rivestito | | Non rivestito | | | Pag. |
|---|---|---|---|---|---|---|---|
| | | NCM325 | PC6510 | ST30A | H10 | G10 | |
| HPEN | 090408FN | | | | | | E07 |
| | 090408SN | | | | | | |
| | 090408EN | | | | | | |
| | 090408-WC | | | | | | |
| | | | | | | | |

● : Disponibile ○ : A richiesta

Montaggio



• Inserti applicabili, vedere pag. E07
• Attacchi e viti disponibili : E215~E217

# PNH4000/5000

AA 90° | • AR : –5° • RR : –6°



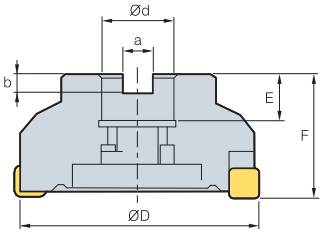



Fig. 1

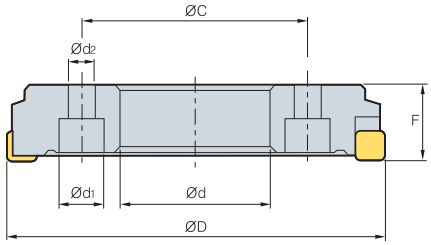



Fig. 2

(mm)

| Articolo | | | øD | ød | ød1 | ød2 | a | b | E | F | øC | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PNH | 4125R/L | 10 | 125 | 38.1 | - | - | 15.9 | 10 | 27 | 63 | - | 3.4 | 1 |
| | 4160R/L | 14 | 160 | 50.8 | - | - | 19.0 | 11 | 27 | 63 | - | 5.5 | 1 |
| | 4200R/L | 18 | 200 | 80 | 24 | 14 | - | - | - | 40 | 120 | 5.5 | 2 |
| | 4250R/L | 24 | 250 | 120 | 30 | 18 | - | - | - | 40 | 170 | 7.7 | 2 |
| | 4315R/L | 30 | 315 | 180 | 30 | 18 | - | - | - | 40 | 230 | 10.5 | 2 |
| | 4355R/L | 34 | 355 | 220 | 30 | 18 | - | - | - | 40 | 270 | 12.9 | 2 |
| | 4400R/L | 38 | 400 | 250 | 30 | 18 | - | - | - | 40 | 300 | 16.1 | 2 |
| | 4450R/L | 44 | 450 | 300 | 30 | 18 | - | - | - | 40 | 350 | 19.1 | 2 |
| PNH | 5125R/L | 10 | 125 | 38.1 | - | - | 15.9 | 10 | 27 | 63 | - | 3.4 | 1 |
| | 5160R/L | 14 | 160 | 50.8 | - | - | 19.0 | 11 | 27 | 63 | - | 5.3 | 1 |
| | 5200R/L | 18 | 200 | 80 | 24 | 14 | - | - | - | 40 | 120 | 5.4 | 2 |
| | 5250R/L | 24 | 250 | 120 | 30 | 18 | - | - | - | 40 | 170 | 7.6 | 2 |
| | 5315R/L | 30 | 315 | 180 | 30 | 18 | - | - | - | 40 | 230 | 10.4 | 2 |
| | 5355R/L | 34 | 355 | 220 | 30 | 18 | - | - | - | 40 | 270 | 12.8 | 2 |
| | 5400R/L | 38 | 400 | 250 | 30 | 18 | - | - | - | 40 | 300 | 15.9 | 2 |
| | 5450R/L | 44 | 450 | 300 | 30 | 18 | - | - | - | 40 | 350 | 18.9 | 2 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Cuneo | Vite del cuneo | Chiave |
|---|---|---|---|
| |  |  |  |
| Tipo 4000 | WPNH4N | DHA0821F | HW40 |
| Tipo 5000 | WPNH5N | DHA0821F | HW40 |

## Available Arbors

| Articolo | | Attacco generico | Adattatore |
|---|---|---|---|
| PNH | 125R/L | NT*□□(M/U)-FMA38.1-□□ | - |
| | 160R/L | NT*□□(M/U)-FMA50.8-□□ | - |
| | 200R/L | - | APR200 |
| | 250R/L | - | APR250 |
| | 315R/L | - | APR315 |
| | 355R/L | - | APR355 |
| | 400R/L | - | APR400 |
| | 450R/L | - | APR450 |

## Condizioni di taglio raccomandate

| Pezzo lavorato | Condizioni di taglio | | Gradi |
|---|---|---|---|
| | vc(m/min) | fz(mm/t) | |
| K | 100 ~ 200<br>80 ~ 150 | 0.05 ~ 0.30<br>0.10 ~ 0.30 | **PC6510**<br>**H01,G10** |

## Inserti disponibili

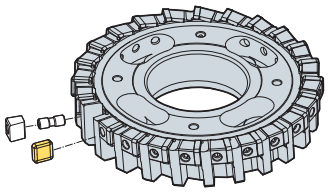
SNEF



| Tipo | Articolo | Rivestito | | Non rivestito | | | Pag. |
|---|---|---|---|---|---|---|---|
| | | NCM325 | PC6510 | ST30A | H01 | G10 | |
| 4000 | **SNEF 435** | | ● | | | | **E**07 |
| 5000 | **SNEF 535** | | | | | | **E**07 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

● : Disponibile ○ : A richiesta

Assembling



• Inserti applicabili, vedere pag. E07
• Attacchi e viti disponibili : E215~E217

# PPH4000

AA 90° | • AR : 5° • RR : –5°



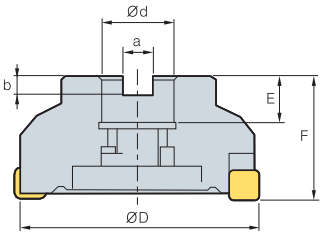



Fig. 1

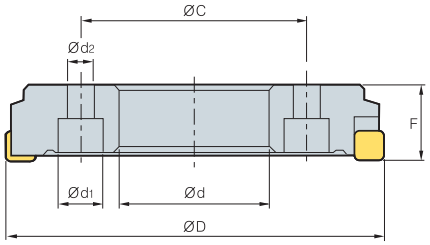



Fig. 2

(mm)

| Articolo | | ⚙ | ØD | Ød | Ød1 | Ød2 | a | b | E | F | ØC | ap | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PPH | 4125R/L | 10 | 125 | 38.1 | - | - | 15.9 | 10 | 27 | 63 | - | 12.7 | 3.4 | 1 |
| | 4160R/L | 14 | 160 | 50.8 | - | - | 19.0 | 11 | 27 | 63 | - | 12.7 | 5.3 | 1 |
| | 4200R/L | 18 | 200 | 80 | 24 | 14 | - | - | - | 40 | 120 | 12.7 | 5.5 | 2 |
| | 4250R/L | 24 | 250 | 120 | 24 | 14 | - | - | - | 40 | 170 | 12.7 | 7.7 | 2 |
| | 4315R/L | 30 | 315 | 180 | 30 | 18 | - | - | - | 40 | 230 | 12.7 | 10.5 | 2 |
| | 4355R/L | 34 | 355 | 220 | 30 | 18 | - | - | - | 40 | 270 | 12.7 | 13 | 2 |
| | 4400R/L | 38 | 400 | 250 | 30 | 18 | - | - | - | 40 | 300 | 12.7 | 16 | 2 |
| | 4450R/L | 44 | 450 | 300 | 30 | 18 | - | - | - | 40 | 350 | 12.7 | 19 | 2 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Cuneo | Vite del cuneo | Chiave |
|---|---|---|
|  |  |  |
| WPPH4R/L | DHA0821F | HW40 |

## Attacchi disponibili

| Articolo | | General Arbor | Adaptor |
|---|---|---|---|
| PPH | 4125R/L | NT*□□(M/U)-FMA38.1-□□ | - |
| | 4160R/L | NT*□□(M/U)-FMA50.8-□□ | - |
| | 4200R/L | - | APR200 |
| | 4250R/L | - | APR250 |
| | 4315R/L | - | APR315 |
| | 4355R/L | - | APR355 |
| | 4400R/L | - | APR400 |
| | 4450R/L | - | APR450 |

## Condizioni di taglio raccomandate

| Pezzo lavorato | Condizioni di taglio | | Gradi |
|---|---|---|---|
| | vc(m/min) | fz(mm/t) | |
| K | 100 ~ 200 | 0.05 ~ 0.30 | **PC6510** |
| | 80 ~ 150 | 0.10 ~ 0.30 | **H01,G10** |

## Inserti disponibili

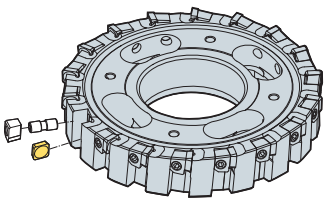
SPEN-WC



| Articolo | Rivestito | | Non rivestito | | | Pag. |
|---|---|---|---|---|---|---|
| | NCM325 | PC6510 | ST30A | H10 | G10 | |
| **SPEN 120416-WC** | | | | | | E17 |

● : Disponibile ○ : A richiesta

Assembling



• Inserti applicabili, vedere pag. E17
• Attacchi e viti disponibili : E215~E217

# SQN3000

New



AA 88° | • AR : −6° • RR : −6°~−11°



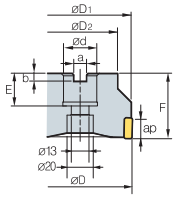



Fig. 1

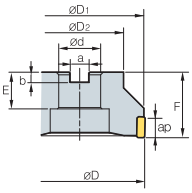



Fig. 2

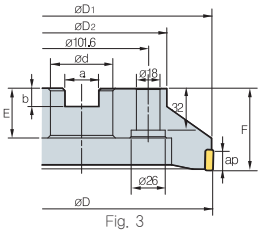



Fig. 3

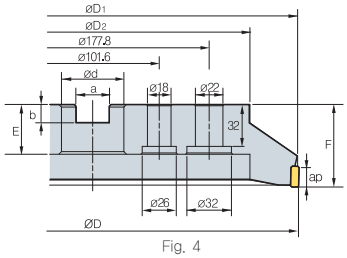



Fig. 4

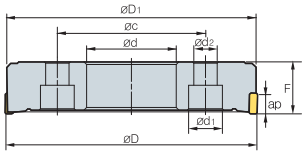



Fig. 5

## Tipo normale

(mm)

| | Articolo | Stock R | Stock L | øD | øD1 | øD2 | ød | a | b | E | F | ap | kg | Standard | MAX | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SQN | 3080R/L-8Z | | | 80 | 82 | 57 | 25.4(27) | 9.5(12.4) | 6(7) | 25 | 50 | 14 | 1.3 | 8 | 12 | 1 |
| (SQNM) | 3100R/L-10Z | | | 100 | 102 | 67 | 31.75(32) | 12.7(14.4) | 8(8) | 32 | 50 | 14 | 1.8 | 10 | 16 | 2 |
| | 3125R/L-14Z | | | 125 | 127 | 87 | 38.1(40) | 15.9(16.4) | 10(9) | 38 | 63 | 14 | 3.6 | 14 | 20 | 2 |
| | 3160R/L-18Z | | | 160 | 162 | 107 | 50.8(40) | 19.0(16.4) | 11(9) | 38 | 63 | 14 | 5.1 | 18 | 24 | 2 |
| | 3200R/L-24Z | | | 200 | 202 | 130 | 47.625(60) | 25.4(25.7) | 14(14) | 38 | 63 | 14 | 7.1 | 24 | 32 | 3 |
| | 3250R/L-30Z | | | 250 | 252 | 180 | 47.625(60) | 25.4(25.7) | 14(14) | 38 | 63 | 14 | 11.9 | 30 | 40 | 3 |
| | 3315R/L-36Z | | | 315 | 317 | 240 | 47.625(60) | 25.4(25.7) | 14(14) | 38 | 63 | 14 | 19 | 36 | 48 | 4 |

● : Disponibile ○ : A richiesta

## QC(Quick Change – Sostituzione rapida)

(mm)

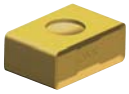
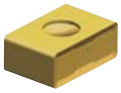
| | Articolo | Stock R | Stock L | øD | øD1 | ød | ød1 | ød2 | øC | F | ap | kg | Standard | MAX | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SQN | 3200R/L2-24Z | | | 200 | 202 | 80 | 24 | 14 | 120 | 40 | 14 | 5.9 | 24 | 32 | 5 |
| | 3250R/L2-30Z | | | 250 | 252 | 120 | 30 | 18 | 170 | 40 | 14 | 8.1 | 30 | 40 | 5 |
| | 3315R/L2-36Z | | | 315 | 317 | 180 | 30 | 18 | 230 | 40 | 14 | 11.2 | 36 | 48 | 5 |
| | 3355R/L2-42Z | | | 355 | 357 | 220 | 30 | 18 | 270 | 40 | 14 | 14.4 | 42 | 56 | 5 |
| | 3400R/L2-48Z | | | 400 | 402 | 250 | 30 | 18 | 300 | 40 | 14 | 16 | 48 | 64 | 5 |
| | 3450R/L2-54Z | | | 450 | 452 | 300 | 30 | 18 | 350 | 40 | 14 | 20.1 | 54 | 72 | 5 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Vite | Chiave |
|---|---|
|  |  |
| FTNA0411 | TW15S |

## Inserti disponibili

| KEL | KEL-QNN |
|---|---|
|  |  |

| | Articolo | Rivestito NCM325 | Rivestito PC6510 | Non rivestito ST30A | Non rivestito H10 | Non rivestito G10 | Pag. |
|---|---|---|---|---|---|---|---|
| KEL | 150608-MF | | | | | | E09 |
| | 150608-ML | | | | | | |
| | 15060QNN-MF | | | | | | |
| | 15060QNN-ML | | | | | | |

● : Disponibile ○ : A richiesta

• Inserti applicabili, vedere pag. E09

# SFN3000

New



AA 85° | • AR : -6° • RR : -6°~-11°



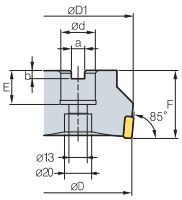


Fig. 1

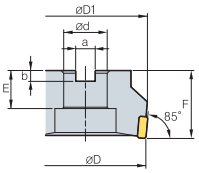


Fig. 2

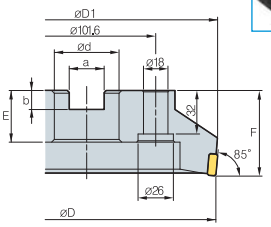


Fig. 3

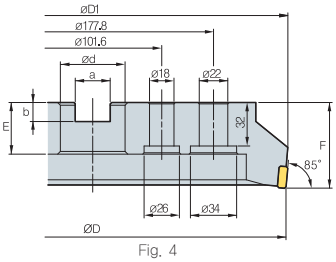


Fig. 4

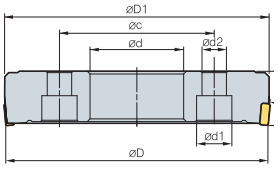


Fig. 5

## Tipo normale

(mm)

| | Articolo | Stock R | Stock L | ØD | ØD1 | ØD2 | Ød | a | b | E | F | ap | kg | Standard | MAX | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SFN (SFNM) | 3080R/L-8Z | | | 80 | 83 | 57 | 25.4(27) | 9.5(12.4) | 6(7) | 25 | 50 | 13.5 | 1.3 | 8 | 12 | 1 |
| | 3100R/L-10Z | | | 100 | 103 | 67 | 31.75(32) | 12.7(14.4) | 8(8) | 32 | 50 | 13.5 | 1.8 | 10 | 16 | 2 |
| | 3125R/L-14Z | | | 125 | 128 | 87 | 38.1(40) | 15.9(16.4) | 10(9) | 38 | 63 | 13.5 | 3.7 | 14 | 20 | 2 |
| | 3160R/L-18Z | | | 160 | 163 | 107 | 50.8(40) | 19.0(16.4) | 11(9) | 38 | 63 | 13.5 | 5.3 | 18 | 24 | 2 |
| | 3200R/L-24Z | | | 200 | 203 | 130 | 47.625(60) | 25.4(25.7) | 14(14) | 38 | 63 | 13.5 | 7.5 | 24 | 32 | 3 |
| | 3250R/L-30Z | | | 250 | 253 | 180 | 47.625(60) | 25.4(25.7) | 14(14) | 38 | 63 | 13.5 | 12.1 | 30 | 40 | 3 |
| | 3315R/L-36Z | | | 315 | 318 | 240 | 47.625(60) | 25.4(25.7) | 14(14) | 38 | 63 | 13.5 | 19.6 | 36 | 48 | 4 |

● : Disponibile ○ : A richiesta

## QC(Quick Change – Sostituzione rapida)

(mm)

| | Articolo | Stock R | Stock L | ØD | ØD1 | Ød | Ød1 | Ød2 | ØC | F | ap | kg | Standard | MAX | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SFN | 3200R/L2-24Z | | | 200 | 203 | 80 | 24 | 14 | 120 | 40 | 13.5 | 6.2 | 24 | 32 | 5 |
| | 3250R/L2-30Z | | | 250 | 253 | 120 | 30 | 18 | 170 | 40 | 13.5 | 8.2 | 30 | 40 | 5 |
| | 3315R/L2-36Z | | | 315 | 318 | 180 | 30 | 18 | 230 | 40 | 13.5 | 11.5 | 36 | 48 | 5 |
| | 3355R/L2-42Z | | | 355 | 358 | 220 | 30 | 18 | 270 | 40 | 13.5 | 14.3 | 42 | 56 | 5 |
| | 3400R/L2-48Z | | | 400 | 403 | 250 | 30 | 18 | 300 | 40 | 13.5 | 16.1 | 48 | 64 | 5 |
| | 3450R/L2-54Z | | | 450 | 453 | 300 | 30 | 18 | 350 | 40 | 13.5 | 20.2 | 54 | 72 | 5 |

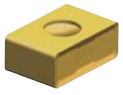
● : Disponibile ○ : A richiesta

## Parti di ricambio

| Vite | Chiave |
|---|---|
|  |  |
| FTNA0411 | TW15S |

## Inserti disponibili

KEL



| | Articolo | Rivestito NCM325 | Rivestito PC6510 | Non rivestito ST30A | Non rivestito H10 | Non rivestito G10 | Pag. |
|---|---|---|---|---|---|---|---|
| KEL | 150608-MF | | | | | | E09 |
| | 150608-ML | | | | | | |

• Inserti applicabili, vedere pag. E09

# SEN3000

New

AA 75°

• AR : -6°
• RR : -6°~-8°



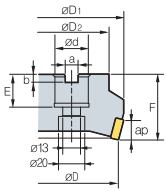


Fig. 1

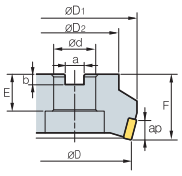


Fig. 2

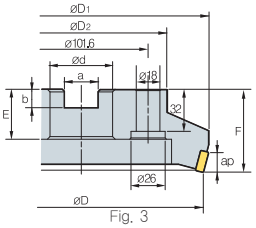


Fig. 3

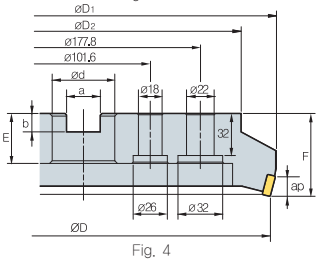


Fig. 4

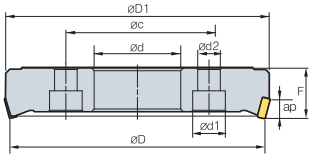


Fig. 5

## Tipo normale

(mm)

| | Articolo | Stock R | Stock L | øD | øD1 | øD2 | ød | a | b | E | F | ap | kg | Standard | MAX | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SEN | 3080R/L-8Z | | | 80 | 88 | 57 | 25.4(27) | 9.5(12.4) | 6(7) | 25 | 50 | 13 | 1.5 | 8 | 12 | 1 |
| (SENM) | 3100R/L-10Z | | | 100 | 108 | 67 | 31.75(32) | 12.7(14.4) | 8(8) | 32 | 50 | 13 | 2 | 10 | 16 | 2 |
| | 3125R/L-14Z | | | 125 | 133 | 87 | 38.1(40) | 15.9(16.4) | 10(9) | 38 | 63 | 13 | 3.6 | 14 | 20 | 2 |
| | 3160R/L-18Z | | | 160 | 168 | 107 | 50.8(40) | 19.0(16.4) | 11(9) | 38 | 63 | 13 | 5.7 | 18 | 24 | 2 |
| | 3200R/L-24Z | | | 200 | 208 | 130 | 47.625(60) | 25.4(25.7) | 14(14) | 38 | 63 | 13 | 7.7 | 24 | 32 | 3 |
| | 3250R/L-30Z | | | 250 | 258 | 180 | 47.625(60) | 25.4(25.7) | 14(14) | 38 | 63 | 13 | 12.6 | 30 | 40 | 3 |
| | 3315R/L-36Z | | | 315 | 323 | 240 | 47.625(60) | 25.4(25.7) | 14(14) | 38 | 63 | 13 | 19.9 | 36 | 48 | 4 |

● : Disponibile ○ : A richiesta

## QC(Quick Change – Sostituzione rapida)

(mm)

| | Articolo | Stock R | Stock L | øD | øD1 | ød | ød1 | ød2 | øC | F | ap | kg | Standard | MAX | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SEN | 3200R/L2-24Z | | | 200 | 208 | 80 | 24 | 14 | 120 | 40 | 13 | 6.3 | 24 | 32 | 5 |
| | 3250R/L2-30Z | | | 250 | 258 | 120 | 30 | 18 | 170 | 40 | 13 | 8.4 | 30 | 40 | 5 |
| | 3315R/L2-36Z | | | 315 | 323 | 180 | 30 | 18 | 230 | 40 | 13 | 11.7 | 36 | 48 | 5 |
| | 3355R/L2-42Z | | | 355 | 363 | 220 | 30 | 18 | 270 | 40 | 13 | 14.4 | 42 | 56 | 5 |
| | 3400R/L2-48Z | | | 400 | 408 | 250 | 30 | 18 | 300 | 40 | 13 | 17.3 | 48 | 64 | 5 |
| | 3450R/L2-54Z | | | 450 | 458 | 300 | 30 | 18 | 350 | 40 | 13 | 21 | 54 | 72 | 5 |

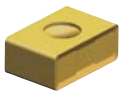
● : Disponibile ○ : A richiesta

## Parti di ricambio

| Vite | Chiave |
|---|---|
|  |  |
| FTNA0411 | TW15S |

## Inserti disponibili

KEL



| | Articolo | Rivestito NCM325 | Rivestito PC6510 | Non rivestito ST30A | Non rivestito H10 | Non rivestito G10 | Pag. |
|---|---|---|---|---|---|---|---|
| KEL | 150608-MF | | | | | | E09 |
| | 150608-ML | | | | | | |

● : Disponibile ○ : A richiesta

• Inserti applicabili, vedere pag. E09

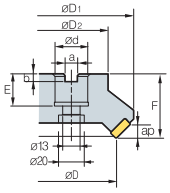
# SAN3000

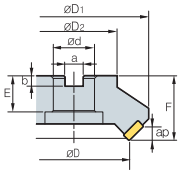
New

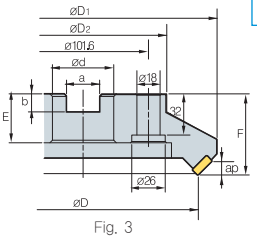
AA 45° | • AR : –8° • RR : –2°

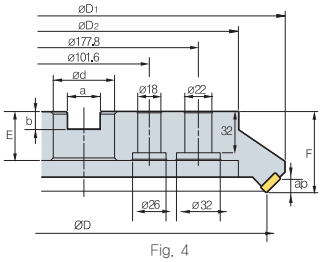


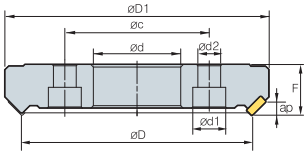



Fig. 1


Fig. 2


Fig. 3


Fig. 4


Fig. 5

## Tipo normale

(mm)

| | Articolo | Stock R | Stock L | øD | øD1 | øD2 | ød | a | b | E | F | ap | kg | Standard | MAX | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAN | 3080R/L-8Z | | | 80 | 107 | 57 | 25.4(27) | 9.5(12.4) | 6(7) | 25 | 50 | 8.5 | 1.8 | 8 | 12 | 1 |
| (SANM) | 3100R/L-10Z | | | 100 | 127 | 67 | 31.75(32) | 12.7(14.4) | 8(8) | 32 | 50 | 8.5 | 2.4 | 10 | 16 | 2 |
| | 3125R/L-14Z | | | 125 | 152 | 87 | 38.1(40) | 15.9(16.4) | 10(9) | 38 | 63 | 8.5 | 4.2 | 14 | 20 | 2 |
| | 3160R/L-18Z | | | 160 | 187 | 107 | 50.8(40) | 19.0(16.4) | 11(9) | 38 | 63 | 8.5 | 6.1 | 18 | 24 | 2 |
| | 3200R/L-24Z | | | 200 | 227 | 130 | 47.625(60) | 25.4(25.7) | 14(14) | 38 | 63 | 8.5 | 8.2 | 24 | 32 | 3 |
| | 3250R/L-30Z | | | 250 | 277 | 180 | 47.625(60) | 25.4(25.7) | 14(14) | 38 | 63 | 8.5 | 13.1 | 30 | 40 | 3 |
| | 3315R/L-36Z | | | 315 | 342 | 240 | 47.625(60) | 25.4(25.7) | 14(14) | 38 | 63 | 8.5 | 20.7 | 36 | 48 | 4 |

● : Disponibile ○ : A richiesta

## QC(Quick Change – Sostituzione rapida)

(mm)

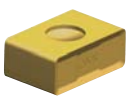
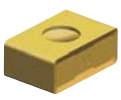
| | Articolo | Stock R | Stock L | øD | øD1 | ød | ød1 | ød2 | øC | F | ap | kg | Standard | MAX | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAN | 3200R/L2-24Z | | | 200 | 227 | 80 | 24 | 14 | 120 | 40 | 8.5 | 6.7 | 24 | 32 | 5 |
| | 3250R/L2-30Z | | | 250 | 277 | 120 | 30 | 18 | 170 | 40 | 8.5 | 8.7 | 30 | 40 | 5 |
| | 3315R/L2-36Z | | | 315 | 342 | 180 | 30 | 18 | 230 | 40 | 8.5 | 13.1 | 36 | 48 | 5 |
| | 3355R/L2-42Z | | | 355 | 382 | 220 | 30 | 18 | 270 | 40 | 8.5 | 16.4 | 42 | 56 | 5 |
| | 3400R/L2-48Z | | | 400 | 427 | 250 | 30 | 18 | 300 | 40 | 8.5 | 19.6 | 48 | 64 | 5 |
| | 3450R/L2-54Z | | | 450 | 477 | 300 | 30 | 18 | 350 | 40 | 8.5 | 23.5 | 54 | 72 | 5 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Vite | Chiave |
|---|---|
|  |  |
| FTNA0411 | TW15S |

## Inserti disponibili

| | KEL | KEL-ANN |
|---|---|---|
| |  |  |

| | Articolo | Rivestito NCM325 | Rivestito PC6510 | Non rivestito ST30A | Non rivestito H10 | Non rivestito G10 | Pag. |
|---|---|---|---|---|---|---|---|
| KEL | 150608-MF | | | | | | E09 |
| | 150608-ML | | | | | | |
| | 15060ANN-MF | | | | | | |
| | 15060ANN-ML | | | | | | |

● : Disponibile ○ : A richiesta

• Inserti applicabili, vedere pag. E09

# SVUM6000

New



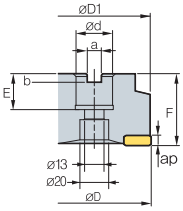



Fig. 1

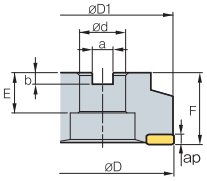



Fig. 2

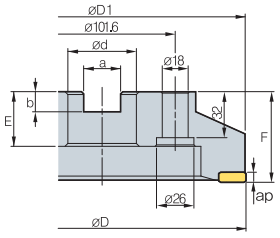



Fig. 3

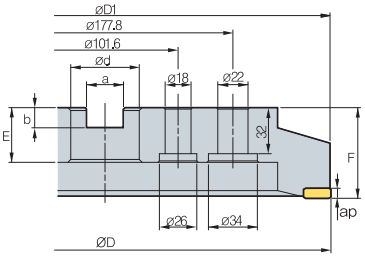



Fig. 4

(mm)

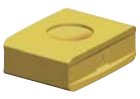
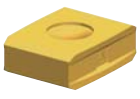
| Articolo | | Stock R | Stock L | | øD | øD1 | øD2 | ød | a | b | E | F | ap | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SVUM | 6080R/L-Z4 | | | 4 | 80 | 79 | 57 | 27 | 12.4 | 7 | 22 | 50 | 0.5 | 1.2 | 1 |
| | 6100R/L-Z4 | | | 4 | 100 | 100 | 67 | 32 | 14.4 | 8 | 28 | 63 | 0.5 | 2.3 | 1 |
| | 6125R/L-Z4 | | | 4 | 125 | 125 | 87 | 40 | 16.4 | 9 | 30 | 63 | 0.5 | 3.5 | 2 |
| | 6160R/L-Z4 | | | 4 | 160 | 160 | 107 | 40 | 16.4 | 9 | 30 | 63 | 0.5 | 5 | 3 |
| | 6200R/L-Z6 | | | 6 | 200 | 200 | 130 | 60 | 25.7 | 14 | 38 | 63 | 0.5 | 7.2 | 3 |
| | 6250R/L-Z6 | | | 6 | 250 | 250 | 180 | 60 | 25.7 | 14 | 38 | 63 | 0.5 | 12 | 3 |
| | 6315R/L-Z8 | | | 8 | 315 | 315 | 240 | 60 | 25.7 | 14 | 38 | 63 | 0.5 | 19.5 | 4 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Vite | Chiave |
|---|---|
|  |  |
| FTNA0513 | TW20-100 |

## Inserti disponibili

| LNCS(R3.0) | LNCS(C1.5) |
|---|---|
|  |  |

| Articolo | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | cBN DBN700 | DBN920 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LNCS 1907-R3.0-WC | | | | | | | | | | | | | | | | | E08 |
| 1907-C1.5-WC | | | | | | | | | | | | | | | | | |

● : Disponibile ○ : A richiesta

# SVUM6000-B

New



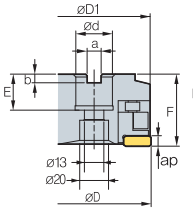



Fig. 1

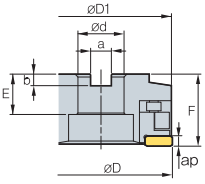



Fig. 2

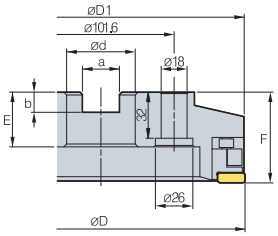



Fig. 3

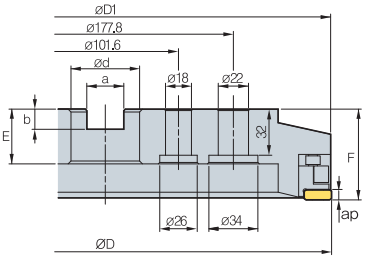



Fig. 4

(mm)

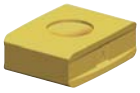
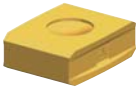
| Articolo | | Stock R | Stock L | ⊚ | øD | øD1 | øD2 | ød | a | b | E | F | ap | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SVUM | 6080R/L-Z4-B | | | 4 | 80 | 79 | 57 | 27 | 12.4 | 7 | 22 | 50 | 0.5 | 1.2 | 1 |
| | 6100R/L-Z4-B | | | 4 | 100 | 99 | 67 | 32 | 14.4 | 8 | 28 | 63 | 0.5 | 2.3 | 1 |
| | 6125R/L-Z4-B | | | 4 | 125 | 124 | 87 | 40 | 16.4 | 9 | 30 | 63 | 0.5 | 3.5 | 2 |
| | 6160R/L-Z4-B | | | 4 | 160 | 160 | 107 | 40 | 16.4 | 9 | 30 | 63 | 0.5 | 5 | 3 |
| | 6200R/L-Z6-B | | | 6 | 200 | 200 | 130 | 60 | 25.7 | 14 | 38 | 63 | 0.5 | 7.2 | 3 |
| | 6250R/L-Z6-B | | | 6 | 250 | 250 | 180 | 60 | 25.7 | 14 | 38 | 63 | 0.5 | 12 | 3 |
| | 6315R/L-Z8-B | | | 8 | 315 | 315 | 240 | 60 | 25.7 | 14 | 38 | 63 | 0.5 | 19.5 | 4 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Base | Cuneo | Vite del cuneo | Vite regolabile | Vite di serraggio | Chiave |
|---|---|---|---|---|---|
|  |  |  |  |  |  |
| LSH4R | WSH4 | DHA0724F | DHA0724F | FTNA0512 | TW20-100 |

## Inserti disponibili

| LNCS(R3.0) | LNCS(C1.5) |
|---|---|
|  |  |

| Articolo | Rivestito NCM325 | NCM335 | NC5330 | PC3500 | PC5300 | PC3545 | PC9530 | PC6510 | PC215K | PD2000 | cBN DBN700 | DBN920 | Non rivestito H01 | G10 | ST30A | ST20 | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LNCS 1907-R3.0-WC | | | | | | | | | | | | | | | | | E08 |
| 1907-C1.5-WC | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

● : Disponibile ○ : A richiesta

**Pollici**

## Schemi di frese

Fig. 1

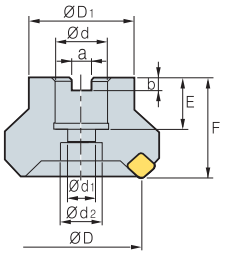



Fig. 2

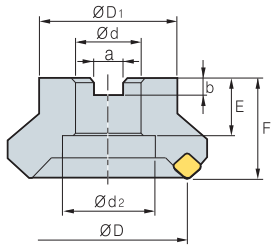



Fig. 3

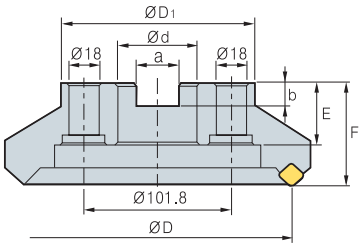
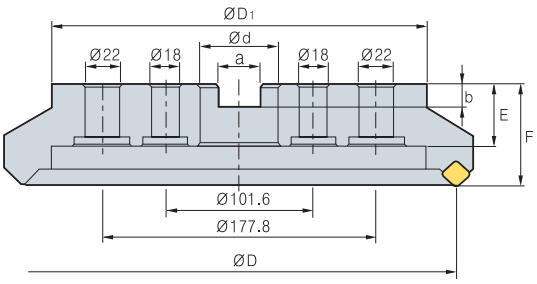


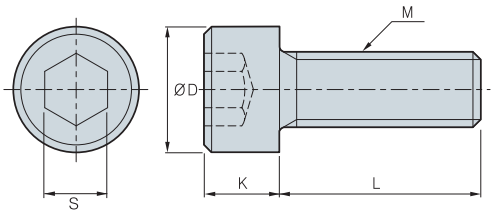

Fig. 4




## Pollici

| Dimensioni (pollici) | | | | | | | | | Fig. | Attacchi disponibili |
|---|---|---|---|---|---|---|---|---|---|---|
| ØD | Ød | a | b | E | F | ØD1 | Ød1 | Ød2 | | |
| 40 | 16 | 8.4 | 5.6 | 18 | 40 | 34 | 9 | 14 | 1 | FMC16, SMA16 |
| 50 | 22 | 10.4 | 6.3 | 20 | 40 | 42 | 11 | 18 | 1 | FMC22 |
| 63 | 22 | 10.4 | 6.3 | 20 | 40 | 49 | 11 | 18 | 1 | FMC22 |
| 80 | 25.4 | 9.5 | 6 | 25 | 50 | 57 | 14 | 20 | 1 | FMA25.4 |
| 100 | 31.75 | 12.7 | 8 | 32 | 50 | 67 | – | 45 | 2 | FMA31.75 , SMB31.75 |
| 125 | 38.1 | 15.9 | 10 | 38 | 63 | 87 | – | 56 | 2 | FMA38.1 |
| 160 | 50.8 | 19 | 11 | 38 | 63 | 107 | – | – | 2 | FMA50.8 |
| 200 | 47.625 | 25.4 | 14 | 38 | 63 | 130 | – | – | 3 | FMA47.625 |
| 250 | 47.625 | 25.4 | 14 | 38 | 63 | 180 | – | – | 3 | FMA47.625 |
| 315 | 47.625 | 25.4 | 14 | 38 | 63 | 240 | – | – | 4 | – |

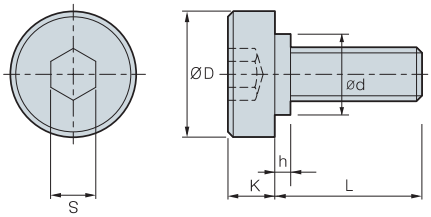
## Vite della chiave




| Articolo | ØD | S | K | L | M | Diametro fresa |
|---|---|---|---|---|---|---|
| SB0825 | 13 | 6 | 8 | 25 | M08 × 1.25 | Ø40 |
| SB1025 | 16 | 8 | 10 | 25 | M10 × 1.50 | Ø50, Ø63 |
| SB1035 | 16 | 8 | 10 | 35 | M10 × 1.50 | Ø50,Ø63(HRM) |
| SB1230 | 18 | 10 | 12 | 30 | M12 × 1.75 | Ø80 |
| SB1630 | 24 | 14 | 16 | 30 | M16 × 2.0 | Ø100 |
| SB1645 | 24 | 14 | 16 | 45 | M16 × 2.0 | Ø80, Ø100(HRM) |
| SB2040 | 30 | 17 | 20 | 40 | M20 × 2.5 | Ø125 |

• Per le specifiche di HRM : vedere pag. E107

## Vite di staffaggio




| Specifiche | Dimensioni (pollici) | | | | | | Diametro fresa |
|---|---|---|---|---|---|---|---|
| | D | L | K | S | h | d | |
| M8 X 1.25 | 20 | 20 | 7 | 6 | – | – | Ø40 |
| M10 X 1.5 | 28 | 24 | 9 | 8 | – | – | Ø50 , Ø63 |
| M12 X1.75 | 33 | 28 | 10 | 10 | 2 | 23 | Ø80 |
| M16 X 2 | 40 | 32 | 10 | 14 | 5 | 23 | Ø100 |
| M20 X 2.5 | 50 | 40 | 14 | 17 | 5 | 27 | Ø125 |
| M24 X 3 | 64 | 46 | 14 | 19 | 9 | 37 | Ø160 |

## Sistema meetrico

### Staffaggio della fresa

Fig. 1

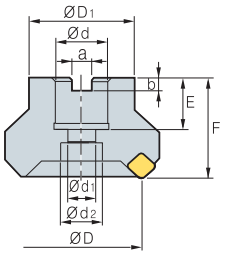



Fig. 2

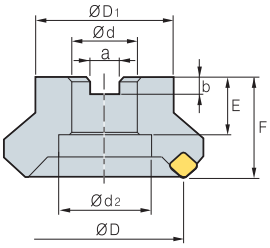



Fig. 3

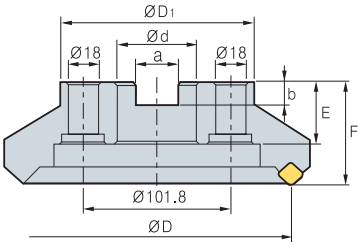
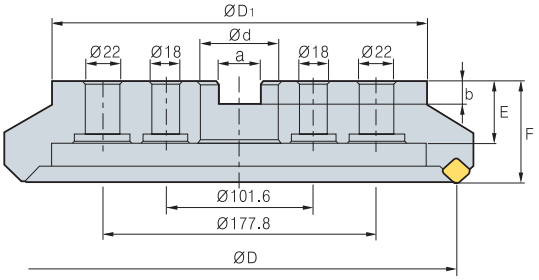


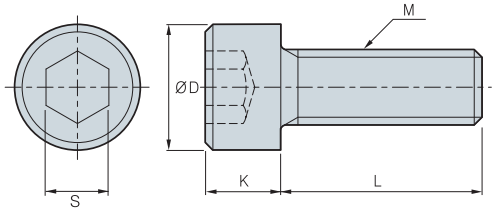

Fig. 4




### Sistema metrico (mm)

| Dimensioni (mm) | | | | | | | | | Fig. | Attacchi disponibili |
|---|---|---|---|---|---|---|---|---|---|---|
| ØD | Ød | a | b | E | F | ØD1 | Ød1 | Ød2 | | |
| 40 | 16 | 8.4 | 5.6 | 18 | 40 | 34 | 9 | 14 | 1 | FMC16, SMA16 |
| 50 | 22 | 10.4 | 6.3 | 20 | 40 | 42 | 11 | 18 | 1 | FMC22 |
| 63 | 22 | 10.4 | 6.3 | 20 | 40 | 49 | 11 | 18 | 1 | FMC22 |
| 80 | 27 | 12.4 | 7 | 22 | 50 | 57 | 14 | 20 | 1 | FMC27 |
| 100 | 32 | 14.4 | 8 | 28 | 50 | 67 | – | 45 | 2 | FMC32 |
| 125 | 40 | 16.4 | 9 | 32 | 63 | 87 | – | 56 | 2 | FMB40 |
| 160 | 40 | 16.4 | 9 | 32 | 63 | 107 | – | – | 2 | FMB40 |
| 200 | 60 | 25.7 | 14 | 38 | 63 | 130 | – | – | 3 | FMB60 |
| 250 | 60 | 25.7 | 14 | 38 | 63 | 180 | – | – | 3 | FMB60 |
| 315 | 60 | 25.7 | 14 | 38 | 63 | 240 | – | – | 4 | – |

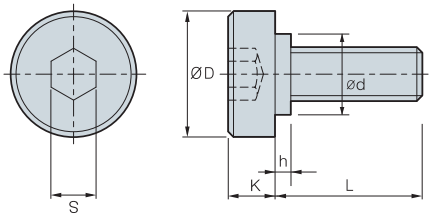
### Vite della chiave




| Articolo | D | S | K | L | M | Diametro fresa |
|---|---|---|---|---|---|---|
| SB0825 | 13 | 6 | 8 | 25 | M08 × 1.25 | Ø40 |
| SB1025 | 16 | 8 | 10 | 25 | M10 × 1.50 | Ø50, Ø63 |
| SB1035 | 16 | 8 | 10 | 35 | M10 × 1.50 | Ø50, Ø63(HRM) |
| SB1230 | 18 | 10 | 12 | 30 | M12 × 1.75 | Ø80 |
| SB1245 | 18 | 10 | 12 | 45 | M12 × 1.75 | Ø80(HRM) |
| SB1630 | 24 | 14 | 16 | 30 | M16 × 2.0 | Ø100 |
| SB1645 | 24 | 14 | 16 | 45 | M16 × 2.0 | Ø100(HRM) |
| SB2040 | 30 | 17 | 20 | 40 | M20 × 2.5 | Ø125 |

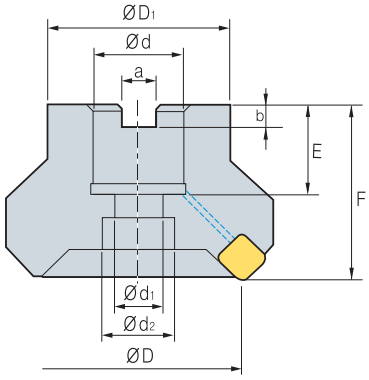
• Per le specifiche di HRM : vedere pag. E107

### Vite di staffaggio




| Specifiche | Dimensioni (mm) | | | | | | Diametro fresa |
|---|---|---|---|---|---|---|---|
| | D | L | K | S | h | d | |
| M12 X1.75 | 33 | 28 | 10 | 10 | 2 | 23 | Ø80 |
| M16 X 2 | 40 | 32 | 10 | 14 | 5 | 23 | Ø100 |
| M20 X2.5 | 50 | 40 | 14 | 17 | 5 | 27 | Ø125 , Ø160 |

## Staffaggio della fresa (foro lubrificante)



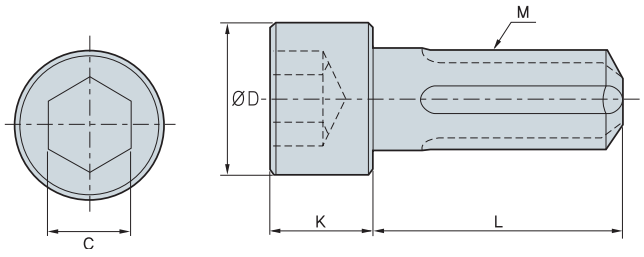

### Pollici

| Dimensioni (inch) | | | | | | | | | Attacchi disponibili |
|---|---|---|---|---|---|---|---|---|---|
| ØD | Ød | a | b | E | F | ØD1 | Ød1 | Ød2 | |
| 40 | 16 | 8.4 | 5.6 | 19 | 40 | 34 | 9 | 14 | FMC16,SMA16 |
| 50 | 22 | 10.4 | 6.3 | 21 | 40 | 42 | 11 | 18 | FMC22 |
| 63 | 22 | 10.4 | 6.3 | 21 | 40 | 49 | 11 | 18 | FMC22 |
| 80 | 25.4 | 9.5 | 6 | 24 | 50 | 57 | 14 | 20 | FMA25.4,FMB25.4 |
| 100 | 31.75 | 12.7 | 8 | 32 | 63 | 67 | 18 | 26 | FMA31.75, SMB31.75 |
| 125 | 38.1 | 15.9 | 10 | 35 | 63 | 87 | 22 | 32 | FMA38.1,FMB38.1,FMC38.1 |

### Sistema metrico

| Dimensioni (mm) | | | | | | | | | Attacchi disponibili |
|---|---|---|---|---|---|---|---|---|---|
| ØD | Ød | a | b | E | F | ØD1 | Ød1 | Ød2 | |
| 40 | 16 | 8.4 | 5.6 | 19 | 40 | 34 | 9 | 14 | FMC16,SMA16 |
| 50 | 22 | 10.4 | 6.3 | 21 | 40 | 42 | 11 | 18 | FMC22 |
| 63 | 22 | 10.4 | 6.3 | 21 | 40 | 49 | 11 | 18 | FMC22 |
| 80 | 27 | 12.4 | 7.0 | 23 | 50 | 57 | 14 | 20 | FMC27 |
| 100 | 32 | 14.4 | 8.0 | 25 | 50 | 67 | 18 | 26 | FMC32 |
| 125 | 40 | 16.4 | 9.0 | 29 | 63 | 87 | 22 | 32 | FMB40 |

### Vite della chiave




| Articolo | D | S | K | L | M | Diametro fresa |
|---|---|---|---|---|---|---|
| CB0825 | 13 | 6 | 8 | 25 | M08×1.25 | Ø40 |
| CB1025 | 16 | 8 | 10 | 25 | M10×1.50 | Ø50, Ø63 |
| CB1035 | 16 | 8 | 10 | 35 | M10×1.50 | Ø50, Ø63(HRM) |
| CB1230 | 18 | 10 | 12 | 30 | M12×1.75 | Ø80 |
| CB1245 | 18 | 10 | 12 | 45 | M12×1.75 | Ø80(HRM) |
| CB1630 | 24 | 14 | 16 | 30 | M16×2.0 | Ø100 |
| CB1645 | 24 | 14 | 16 | 45 | M16×2.0 | Ø100(HRM) |
| CB2040 | 30 | 17 | 20 | 40 | M20×2.5 | Ø125 |

• Per le specifiche di HRM : vedere pag. E107

## Esempi di applicazioni

### Esempio di applicazione - Ingranaggio esterno



■ Finitura : M20

•Diametro fresa : Ø400
•N. denti : 20 denti
•Ingranaggio esterno: Fresa indicata per la lavorazione degli ingranaggi con livello di accuratezza approssimabile a KS 4
•Con questa fresa è possibile eseguire contemporaneamente svasatura e fresatura.

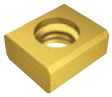




■ Semifinitura

•Diametro fresa : Ø280
•N. denti : 48 denti
•Studiata per la lavorazione della curva involuta degli ingranaggi esterni
•È possibile lavorare la parte di ingranaggio R con l'appropriato inserto R

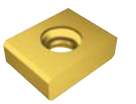






■ Sgrossatura

•Diametro fresa : Ø300
•N. denti : 60 denti
•Avanzamenti rapidi con bassi sforzi di taglio grazie al design dell'inserto a forma V





### Esempio di applicazione - Ingranaggio interno



■ Finitura : M16

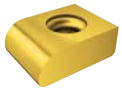
•Diametro fresa : Ø400
•N. denti : 20 denti
•Ingranaggio esterno: Fresa indicata per la lavorazione degli ingranaggi con livello di accuratezza approssimabile a KS 4
•Con questa fresa è possibile eseguire contemporaneamente svasatura e fresatura.





■ Semifinitura

•Diametro fresa : Ø280
•N. denti : 48 denti
•Fresa di semifinitura studiata per la lavorazione della curva involuta degli ingranaggi interni.



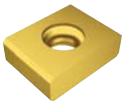




■ Sgrossatura

•Diametro fresa : Ø560
•N. denti : 40 denti
•Indicata per la lavorazione di tutti i tipi di ingranaggi grazie al design dell'inserto





## Esempi di lavorazione



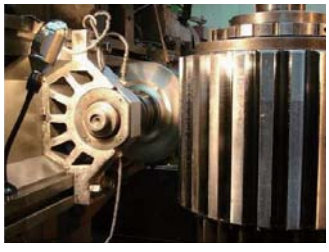
**•Macchina**
Dentatrice con fresa a vite/a creatore
Dentatrice Gleason-PFAUTER CNC
(Potenza : 52kW)

**•Condizioni di taglio**
vc = 119.98 m/min (n=86.8 rpm)
fz = 0.518 mm/t (vf=450 mm/min)
ae = 36mm
a secco

**•Utensili**
M16-PT-RACK-KOR03 (Ø440xW90)

**•Fresa di semifinitura (bassi sforzi di taglio, bassa resistenza)**



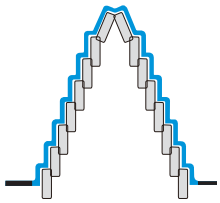
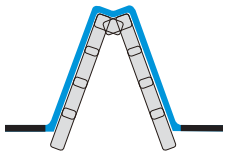
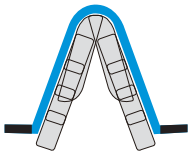
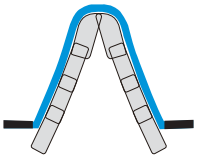
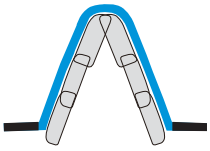
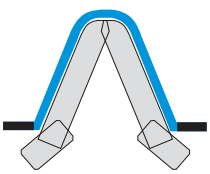
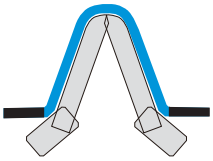


**•Macchina**
KARATS (Potenza : 30kW)

**•Condizioni di taglio**
vc = 150 m/min (n=119rpm)
fz = 0.09mm/t (vf=81.6mm/min)
ae = 45mm
A secco

**•Utensili**
M24 Semifinitura Tipo esterno
Inserto applicabile
M40-ROU(principale) , CPE424-01(fianco)

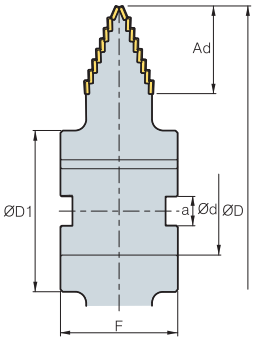
## Tabella frese per ingranaggi

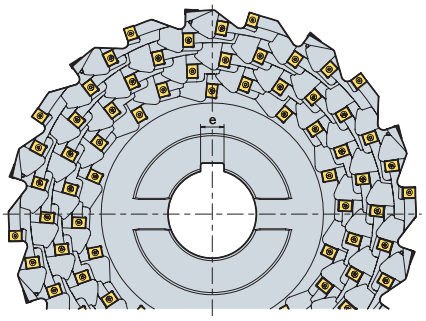
| Tipo | Forma della fresa | Forma del tagliente | Tipo | Figura |
|---|---|---|---|---|
| Sgrossatura |  |  | Tipo a gradini | 1. Per la lavorazione di ingranaggi con denti di grandi dimensioni<br>2. Posizionamento degli inserti a gradini |
| |  |  | Tipo forma a V | 1. Bassi sforzi di taglio grazie all'inserto di tipo forma a V<br>2. Tipo di lavorazione indicata per agevolare le operazioni di finitura |
| Semifinitura |  |  | Bassi sforzi di taglio | 1. Inserto a 4 taglienti sulla parte al vertice<br>2. Forma tridimensionale del rompitruciolo sul fianco<br>3. Tagliente ottimale per i bassi sforzi di taglio |
| |  |  | Ingranaggio esterno ad alta rigidità | 1. Inserto di tipo R ottimale sulla parte al vertice<br>2. Prestazioni di semifinitura superiori con fresa e inserto di elevata rigidità |
| |  |  | Ingranaggio interno ad alta rigidità | 1. Esclusivo inserto di semifinitura per la lavorazione degli ingranaggi interni<br>2. Tagliente ottimale per l'esecuzione di ingranaggi interni |
| Finitura |  |  | Ingranaggio esterno | 1. Tagliente concavo per la lavorazione degli ingranaggi esterni<br>2. Tagliente ottimale per le condizioni di taglio desiderate |
| |  |  | Ingranaggio interno | 1. Inserto bilaterale destro e sinistro e inserto per svasare<br>2. Cartuccia di svasatura regolabile per il controllo della svasatura |

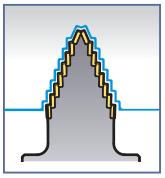
• Tagliente ottimale per le condizioni di taglio desiderate

# Fresa per sgrossatura ingranaggi (Tipo a gradini)





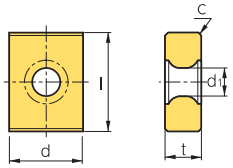
(mm)

| m | ⊚ | øD | Ad | ød | øD1 | a | e | F |
|---|---|---|---|---|---|---|---|---|
| 30 | 96 | 450 | 90 | 100 | 180 | 25 | 14 | 140 |
| | 108 | 500 | 90 | 100 | 180 | 25 | 14 | 140 |
| | 120 | 560 | 90 | 120 | 220 | 40 | 32 | 160 |
| 40 | 112 | 450 | 105 | 100 | 180 | 25 | 14 | 140 |
| | 126 | 500 | 105 | 100 | 180 | 25 | 14 | 140 |
| | 140 | 560 | 105 | 120 | 220 | 40 | 32 | 160 |
| 50 | 160 | 560 | 119 | 120 | 220 | 40 | 32 | 160 |

※Le specifiche sopra riportate possono variare in funzione delle condizioni desiderate dal cliente e dalle condizioni tecniche di Korloy

## Inserti disponibili

(mm)

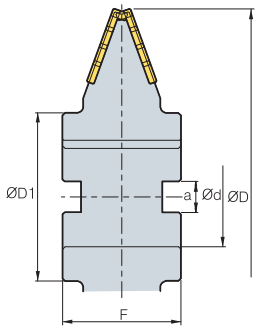
| Inserto | Articolo | Rivestito | | | | Non rivestito | | l | d | t | d1 | c | Disegno |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NC5330 | PC9530 | PC3500 | PC5300 | H01 | G10 | | | | | | |
|  Tagliente rinforzato | **LNE434-02-1** | | | ○ | ◎ | | | 19.05 | 14.29 | 6.35 | 5.4 | 0.6 |   |
|  Bassi sforzi di taglio | **KEL1906-C0.6-MF** | | | ○ | ◎ | | | 19.05 | 14.29 | 6.35 | 5.4 | 0.6 | |
| | **KEL190610-MR** | | | ○ | ◎ | | | 19.05 | 14.29 | 6.35 | 5.4 | - | |

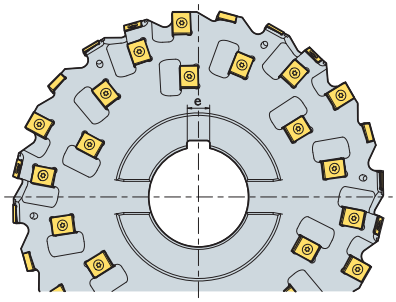
※Le specifiche sopra riportate possono variare in funzione delle condizioni desiderate dal cliente e dalle condizioni tecniche di Korloy

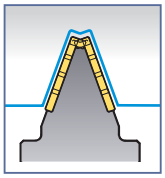
◎ : 1° raccom. ○ : 2° raccom.

# Fresa per sgrossatura ingranaggi (Tipo a forma V)







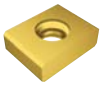
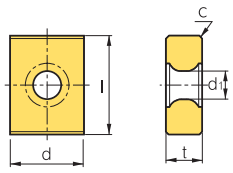
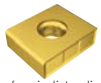
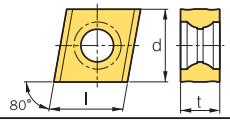
(mm)

| m | TIPO | ⊚ | øD | ød | øD1 | a | e | F |
|---|---|---|---|---|---|---|---|---|
| **20** | cremagliera | 48 | 280 | 80 | 135 | 25 | 18 | 95 |
| **22** | cremagliera | 48 | 280 | 80 | 135 | 25 | 18 | 95 |
| **24** | cremagliera | 48 | 320 | 80 | 145 | 25 | 18 | 105 |
| **26** | cremagliera | 60 | 320 | 80 | 145 | 25 | 18 | 105 |
| **28** | cremagliera | 96 | 400 | 100 | 180 | 25 | 24 | 130 |
| **30** | cremagliera | 96 | 400 | 100 | 180 | 25 | 24 | 130 |
| **32** | cremagliera | 96 | 400 | 100 | 180 | 25 | 24 | 130 |
| **34** | cremagliera | 112 | 400 | 100 | 180 | 25 | 24 | 130 |
| **36** | cremagliera | 112 | 450 | 100 | 180 | 25 | 24 | 130 |
| **38** | cremagliera | 112 | 450 | 100 | 180 | 25 | 24 | 130 |
| **40** | cremagliera | 128 | 450 | 100 | 180 | 25 | 24 | 160 |
| **42** | cremagliera | 128 | 450 | 100 | 180 | 25 | 24 | 160 |
| **44** | cremagliera | 128 | 560 | 120 | 220 | 32 | 32 | 160 |
| **46** | cremagliera | 144 | 560 | 120 | 220 | 32 | 32 | 160 |
| **48** | cremagliera | 144 | 560 | 120 | 220 | 32 | 32 | 160 |
| **50** | cremagliera | 144 | 560 | 120 | 220 | 32 | 32 | 160 |

※Le specifiche sopra riportate possono variare in funzione delle condizioni desiderate dal cliente e dalle condizioni tecniche di Korloy

## Inserti disponibili

(mm)

| Inserto | Articolo | Rivestito | | | | | | Non rivestito | | l | d | t | $d_1$ | c | Disegno |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NC5330 | PC9530 | PC3500 | PC5300 | NCM325 | PC6510 | H01 | G10 | | | | | | |
|  Tagliente rinforzato | **LNE434-02-1** | | | ○ | ◎ | | | | | 19.05 | 14.29 | 6.35 | 5.4 | 0.6 |  |
| | | | | ○ | ◎ | | | | | 19.05 | 14.29 | 6.35 | 5.4 | 0.6 | |
|  Bassi sforzi di taglio | **KEL1906-C0.6-MF** | | | ○ | ◎ | | | | | 19.05 | 14.29 | 6.35 | 5.4 | - | |
| | **KEL190610-MR** | | | ○ | ◎ | | | | | 14.3 | 12.7 | 6.35 | 5.8 | 0.8 | |
|  Tagliente rinforzato | **LNE333-02-1** | | | | | | | | | 10 | 10 | 5.4 | - | - | |
|  | **CNHQ1005-C0.5** | | | | | | | | | | | | | |  |

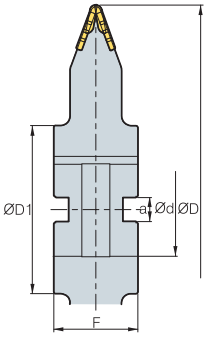
※Le specifiche sopra riportate possono variare in funzione delle condizioni desiderate dal cliente e dalle condizioni tecniche di Korloy

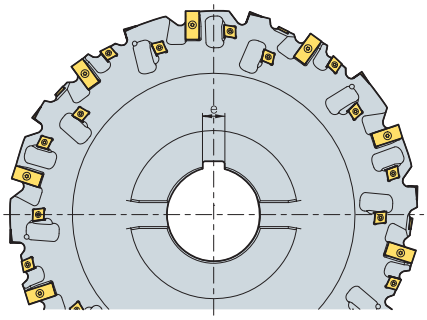
◎ : 1° racc. ○ : 2° racc.

# Fresa per semifinitura ingranaggi (Bassi sforzi di taglio)







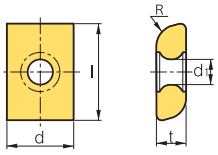
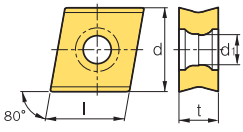
(mm)

| m | N. denti | ⊚ | øD | ød | øD1 | a | e | F |
|---|---|---|---|---|---|---|---|---|
| **6** | 30,60,120 | 18 | 250 | 60 | 100 | 25 | 14 | 70 |
| **8** | 30,60,120 | 18 | 250 | 60 | 100 | 25 | 14 | 80 |
| **10** | 30,60,120 | 24 | 250 | 60 | 100 | 25 | 14 | 80 |
| **12** | 30,60,120 | 24 | 250 | 60 | 100 | 25 | 14 | 90 |
| **14** | 30,60,120 | 24 | 280 | 80 | 135 | 25 | 18 | 95 |
| **16** | 30,60,120 | 32 | 280 | 80 | 135 | 25 | 18 | 100 |
| **18** | 30,60,120 | 32 | 320 | 80 | 145 | 25 | 18 | 105 |
| **20** | 30,60,120 | 64 | 400 | 100 | 180 | 25 | 24 | 110 |
| **22** | 30,60,120 | 64 | 400 | 100 | 180 | 25 | 24 | 110 |
| **24** | 30,60,120 | 64 | 400 | 100 | 180 | 25 | 24 | 120 |

※Le specifiche sopra riportate possono variare in funzione delle condizioni desiderate dal cliente e dalle condizioni tecniche di Korloy

## Inserti disponibili

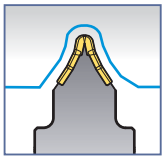
(mm)

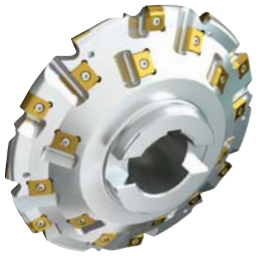
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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NC5330 | PC9530 | PC3500 | PC5300 | H01 | G10 | | | | | | |
|  | **M6-2ST** | | | ○ | ◎ | | | 19.05 | 11.6 | 3.8 | 4.4 | 2.25 |  |
| | **M8-2ST** | | | ○ | ◎ | | | 19.05 | 11.6 | 4 | 4.4 | 3 | |
| | **M10-2ST** | | | ○ | ◎ | | | 19.05 | 11.6 | 4.76 | 4.4 | 3.75 | |
| | **M12-2ST** | | | ○ | ◎ | | | 19.05 | 14.3 | 6.35 | 5.5 | 4.5 | |
| | **M14-2ST** | | | ○ | ◎ | | | 25.4 | 14.3 | 6.35 | 5.5 | 5.25 | |
| | **M16-2ST** | | | ○ | ◎ | | | 31.8 | 14.3 | 7.14 | 5.5 | 6 | |
| | **M18-2ST** | | | ○ | ◎ | | | 31.8 | 14.3 | 7.14 | 5.5 | 6.75 | |
| | **M20-2ST** | | | ○ | ◎ | | | 31.8 | 14.3 | 9.52 | 5.5 | 7.5 | |
| | **M22-2ST** | | | ○ | ◎ | | | 31.8 | 14.3 | 9.52 | 5.5 | 8.25 | |
| | **M24-2ST** | | | ○ | ◎ | | | 31.8 | 14.3 | 9.52 | 5.5 | 9 | |
|  | **KEC120606** | | | ○ | ◎ | | | 12 | 12.7 | 6.35 | 4.5 | - |  |
| | **KEC150708** | | | ○ | ◎ | | | 15.15 | 15 | 7.6 | 5.8 | - | |

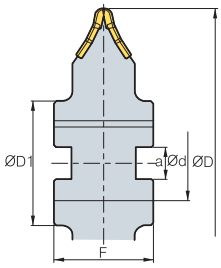
※Le specifiche sopra riportate possono variare in funzione delle condizioni desiderate dal cliente e dalle condizioni tecniche di Korloy

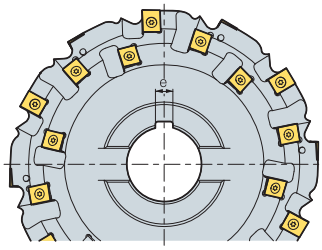
◎ : 1st Rec ○ : 2rd Rec

# Fresa per semifinitura ingranaggi
## (Tagliente ad alta rigidità, ingranaggio esterno)







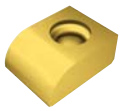
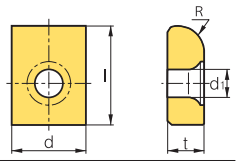
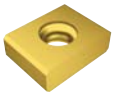
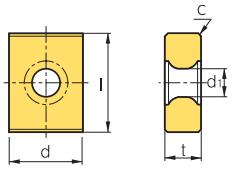
(mm)

| m | N. denti | ◎ | øD | ød | øD1 | a | e | F |
|---|---|---|---|---|---|---|---|---|
| **12** | 30,60,120 | 24 | 250 | 60 | 100 | 25 | 14 | 70 |
| **14** | 30,60,120 | 36 | 250 | 60 | 100 | 25 | 14 | 80 |
| **16** | 30,60,120 | 36 | 250 | 60 | 100 | 25 | 14 | 80 |
| **18** | 30,60,120 | 36 | 250 | 60 | 100 | 25 | 14 | 90 |
| **20** | 30,60,120 | 48 | 280 | 80 | 135 | 25 | 18 | 95 |
| **22** | 30,60,120 | 48 | 280 | 80 | 135 | 25 | 18 | 100 |
| **24** | 30,60,120 | 48 | 320 | 80 | 145 | 25 | 18 | 105 |
| **26** | 30,60,120 | 72 | 400 | 100 | 180 | 25 | 24 | 110 |
| **28** | 30,60,120 | 72 | 400 | 100 | 180 | 25 | 24 | 110 |
| **30** | 30,60,120 | 72 | 400 | 100 | 180 | 25 | 24 | 120 |
| **32** | 30,60,120 | 84 | 400 | 100 | 180 | 25 | 24 | 130 |
| **34** | 30,60,120 | 84 | 400 | 100 | 180 | 25 | 24 | 130 |

※Le specifiche sopra riportate possono variare in funzione delle condizioni desiderate dal cliente e dalle condizioni tecniche di Korloy

## Inserti disponibili

(mm)

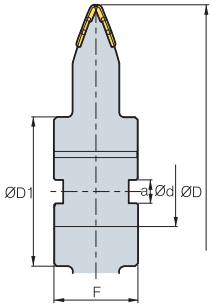
| Inserto | Articolo | Rivestito | | | | Non rivestito | | l | d | t | $d_1$ | R | C | Disegno |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NC5330 | PC9530 | PC3500 | PC5300 | H01 | G10 | | | | | | | |
|  | **M8-ROU** | | | ○ | ◎ | | | 15.875 | 11 | 4.76 | 4.6 | 4.6 | - |  |
| | **M12-M14-ROU** | | | ○ | ◎ | | | 19.05 | 14.29 | 6.35 | 5.4 | 5.4 | - | |
| | **M16-M18-ROU** | | | ○ | ◎ | | | 19.05 | 14.29 | 7 | 5.4 | 5.4 | - | |
| | **M20-M22-ROU** | | | ○ | ◎ | | | 19.05 | 14.29 | 7.94 | 5.4 | 5.4 | - | |
| | **M40-ROU** | | | ○ | ◎ | | | 25.4 | 14.29 | 9.52 | 5.4 | 5.4 | - | |
|  | **LNE434-02-1** | | | ○ | ◎ | | | 19.05 | 14.29 | 6.35 | 5.4 | - | 0.6 |  |
|  | **KEL1906-C0.6-MF** | | | ○ | ◎ | | | 19.05 | 14.29 | 6.35 | 5.4 | - | 0.6 | |
| | **KEL190610-MR** | | | ○ | ◎ | | | 19.05 | 14.29 | 6.35 | 5.4 | - | - | |

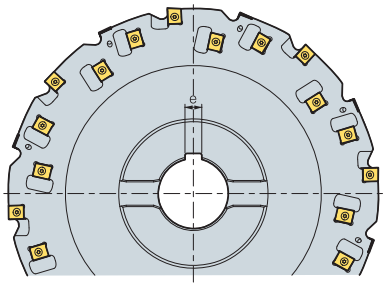
※Le specifiche sopra riportate possono variare in funzione delle condizioni desiderate dal cliente e dalle condizioni tecniche di Korloy

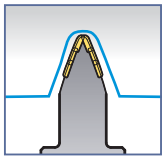
◎ : 1° racc. ○ : 2° racc.

# Fresa per semifinitura ingranaggi (Tagliente ad alta rigidità, ingranaggio esterno)





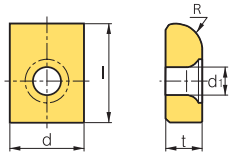
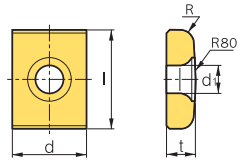
(mm)

| m | N. denti | ◎ | øD | ød | øD1 | a | e | F |
|---|---|---|---|---|---|---|---|---|
| **12** | 30,60,120 | 24 | 250 | 60 | 100 | 25 | 14 | 70 |
| **14** | 30,60,120 | 36 | 250 | 60 | 100 | 25 | 14 | 80 |
| **16** | 30,60,120 | 36 | 250 | 60 | 100 | 25 | 14 | 80 |
| **18** | 30,60,120 | 36 | 250 | 60 | 100 | 25 | 14 | 90 |
| **20** | 30,60,120 | 48 | 280 | 80 | 135 | 25 | 18 | 95 |
| **22** | 30,60,120 | 48 | 280 | 80 | 135 | 25 | 18 | 100 |
| **24** | 30,60,120 | 48 | 320 | 80 | 145 | 25 | 18 | 105 |
| **26** | 30,60,120 | 72 | 400 | 100 | 180 | 25 | 24 | 110 |
| **28** | 30,60,120 | 72 | 400 | 100 | 180 | 25 | 24 | 110 |
| **30** | 30,60,120 | 72 | 400 | 100 | 180 | 25 | 24 | 120 |
| **32** | 30,60,120 | 84 | 400 | 100 | 180 | 25 | 24 | 130 |
| **34** | 30,60,120 | 84 | 400 | 100 | 180 | 25 | 24 | 130 |

※Le specifiche sopra riportate possono variare in funzione delle condizioni desiderate dal cliente e dalle condizioni tecniche di Korloy

## Inserti disponibili

(mm)

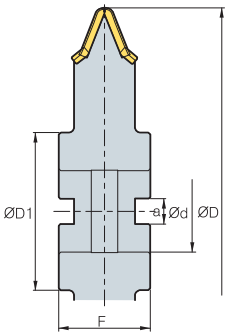
| Inserto | Articolo | Rivestito | | | | Non rivestito | | l | d | t | $d_1$ | R | Disegno |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NC5330 | PC9530 | PC3500 | PC5300 | H01 | G10 | | | | | | |
|  | **M8-ROU** | | | ○ | ◎ | | | 15.875 | 11 | 4.76 | 4.6 | 2 |  |
| | **M12-M14-ROU** | | | ○ | ◎ | | | 19.05 | 14.29 | 6.35 | 5.4 | 3 | |
| | **M16-M18-ROU** | | | ○ | ◎ | | | 19.05 | 14.29 | 7 | 5.4 | 5 | |
| | **M20-M22-ROU** | | | ○ | ◎ | | | 19.05 | 14.29 | 7.94 | 5.4 | 7 | |
| | **M40-ROU** | | | ○ | ◎ | | | 25.4 | 14.29 | 9.52 | 5.4 | 10 | |
|  | **LNE433-R80** | | | ○ | ◎ | | | 19.05 | 14.29 | 5.56 | 5.4 | 2.5 |  |

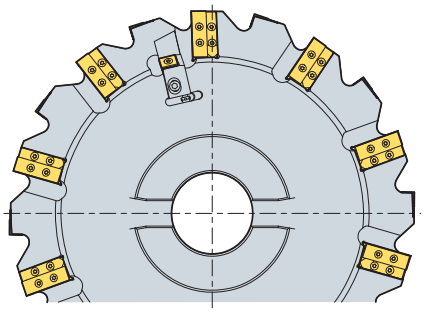
※Le specifiche sopra riportate possono variare in funzione delle condizioni desiderate dal cliente e dalle condizioni tecniche di Korloy

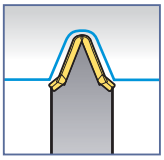
◎ : 1° racc. ○ : 2° racc.

# Fresa per finitura ingranaggi (Tipo a 1 gradino, ingranaggio esterno)







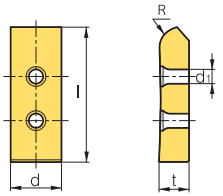
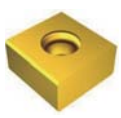
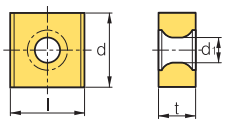
(mm)

| m | ⊚ | øD | ød | øD1 | a | F |
|---|---|---|---|---|---|---|
| **6** | 20 | 400 | 80 | 155 | 25 | 90 |
| **8** | 20 | 400 | 80 | 155 | 25 | 90 |
| **10** | 20 | 400 | 80 | 155 | 25 | 90 |
| **12** | 20 | 400 | 80 | 155 | 25 | 90 |
| **14** | 20 | 400 | 80 | 155 | 25 | 90 |
| **16** | 20 | 400 | 80 | 155 | 25 | 90 |
| **18** | 20 | 400 | 80 | 155 | 25 | 90 |
| **20** | 20 | 400 | 80 | 155 | 25 | 90 |
| **22** | 20 | 400 | 80 | 155 | 25 | 90 |
| **24** | 20 | 400 | 80 | 155 | 25 | 90 |

※Le specifiche sopra riportate possono variare in funzione delle condizioni desiderate dal cliente e dalle condizioni tecniche di Korloy

## Inserti disponibili

(mm)

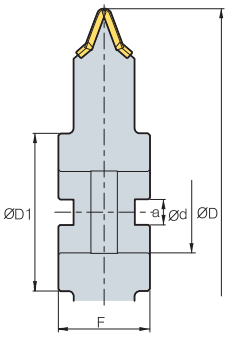
| Insegno | Articolo | Rivestito | | | | Non rivestito | | l | d | t | $d_1$ | R | Disegno |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NC5330 | PC9530 | PC3500 | PC5300 | H01 | G10 | | | | | | |
|  | **M6** | | | ○ | ◎ | | | 19 | 14.3 | 5 | 5.5 | 2.25 |  |
| | **M8** | | | ○ | ◎ | | | 27 | 14.3 | 5.4 | 5.5 | 3 | |
| | **M10** | | | ○ | ◎ | | | 29 | 14.3 | 6.35 | 5.5 | 3.75 | |
| | **M12** | | | ○ | ◎ | | | 33 | 14.3 | 6.35 | 5.5 | 4.5 | |
| | **M14** | | | ○ | ◎ | | | 39 | 14.3 | 6.35 | 5.5 | 5.25 | |
| | **M16** | | | ○ | ◎ | | | 43 | 14.3 | 7.94 | 5.5 | 6 | |
| | **M18** | | | ○ | ◎ | | | 50 | 14.3 | 7.94 | 5.5 | 6.75 | |
| | **M20** | | | ○ | ◎ | | | 54 | 14.3 | 9.53 | 5.5 | 7.5 | |
| | **M22** | | | ○ | ◎ | | | 57 | 14.3 | 9.53 | 5.5 | 8.25 | |
| | **M24** | | | ○ | ◎ | | | 64 | 14.3 | 9.53 | 5.5 | 9 | |
|  | **SNEQ1507-C0.8** | | | ○ | ◎ | | | 15.875 | 15.875 | 7.94 | - | - |  |

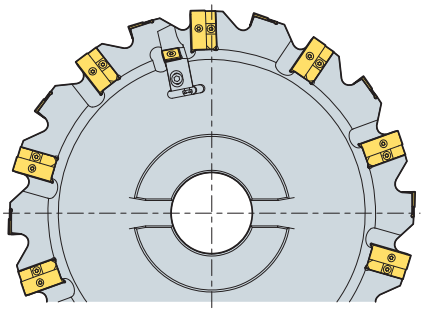
※Le specifiche sopra riportate possono variare in funzione delle condizioni desiderate dal cliente e dalle condizioni tecniche di Korloy

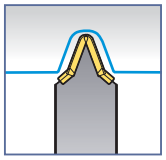
◎ : 1° racc. ○ : 2° racc.

# Fresa per finitura ingranaggi (Tipo a 1 gradino, ingranaggio esterno)







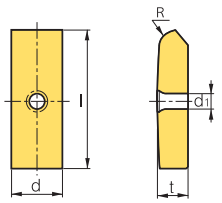
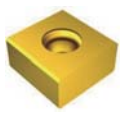
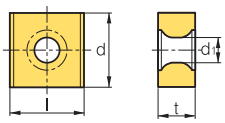
(mm)

| m | ⊙ | øD | ød | øD1 | a | F |
|---|---|---|---|---|---|---|
| **6** | 20 | 400 | 80 | 155 | 25 | 90 |
| **8** | 20 | 400 | 80 | 155 | 25 | 90 |
| **10** | 20 | 400 | 80 | 155 | 25 | 90 |
| **12** | 20 | 400 | 80 | 155 | 25 | 90 |
| **14** | 20 | 400 | 80 | 155 | 25 | 90 |
| **16** | 20 | 400 | 80 | 155 | 25 | 90 |
| **18** | 20 | 400 | 80 | 155 | 25 | 90 |
| **20** | 20 | 400 | 80 | 155 | 25 | 90 |
| **22** | 20 | 400 | 80 | 155 | 25 | 90 |
| **24** | 20 | 400 | 80 | 155 | 25 | 90 |

※Le specifiche sopra riportate possono variare in funzione delle condizioni desiderate dal cliente e dalle condizioni tecniche di Korloy

## Inserti disponibili

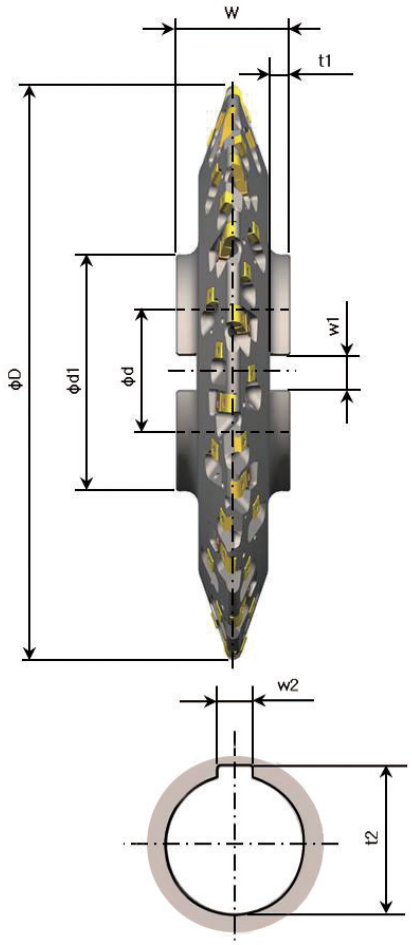
(mm)

| Inserto | Articolo | Rivestito | | | | Non rivestito | | l | d | t | $d_1$ | R | Disegno |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NC5330 | PC9530 | PC3500 | PC5300 | H01 | G10 | | | | | | |
|  | **M6** | | | ○ | ◎ | | | 19 | 14.3 | 5 | 5.5 | 2.25 |  |
| | **M8** | | | ○ | ◎ | | | 27 | 14.3 | 5.4 | 5.5 | 3 | |
| | **M10** | | | ○ | ◎ | | | 29 | 14.3 | 6.35 | 5.5 | 3.75 | |
| | **M12** | | | ○ | ◎ | | | 33 | 14.3 | 6.35 | 5.5 | 4.5 | |
| | **M14** | | | ○ | ◎ | | | 39 | 14.3 | 6.35 | 5.5 | 5.25 | |
| | **M16** | | | ○ | ◎ | | | 43 | 14.3 | 7.94 | 5.5 | 6 | |
| | **M18** | | | ○ | ◎ | | | 50 | 14.3 | 7.94 | 5.5 | 6.75 | |
| | **M20** | | | ○ | ◎ | | | 54 | 14.3 | 9.53 | 5.5 | 7.5 | |
| | **M22** | | | ○ | ◎ | | | 57 | 14.3 | 9.53 | 5.5 | 8.25 | |
| | **M24** | | | ○ | ◎ | | | 64 | 14.3 | 9.53 | 5.5 | 9 | |
|  | **SNEQ1507-C0.8** | | | ○ | ◎ | | | 15.875 | 15.875 | 7.94 | - | - |  |

※Le specifiche sopra riportate possono variare in funzione delle condizioni desiderate dal cliente e dalle condizioni tecniche di Korloy

◎ : 1° racc. ○ : 2° racc.

# Modulo d'ordine delle frese per ingranaggi




## SPECIFICHE FRESA

**Tipo di fresa**

☐ **Sgrossatura** ☐ **Semifinitura** ☐ **Finitura**

☐ A gradini ☐ Bassi sforzi di taglio ☐ 1 gradino

☐ A forma di V ☐ Tagliente ad alta rigidità ☐ 2 gradini

- Per finitura (un lato) (mm) :
- Diametro esterno ∅D(mm) :
- Diametro interno ∅d(mm) :
- Diametro mozzo ∅d1(mm) :
- Spessore fresa W(mm) :
- Attacco radiale w1(mm) :
- Attacco radiale w2(mm) :
- Attacco assiale t2(mm) :

## DATI INGRANAGGIO

☐ **Ingranaggio esterno** ☐ **Ingranaggio interno** ☐ **Ingranaggio cremagliera**

- Modulo M(mm) :
- N. denti Z(mm) :
- Angolo α(°) :
- Angolo dell'elica β(°) :
- Coefficiente di variazione addendum x :
- Diametro punta $d_a$(mm) :
- Diametro radice $d_f$(mm) :
- Raggio radice $\rho_{fp}$(mm)
- Lunghezza tangenziale base $W_k$(mm)
- N. denti di misurazione K :
- Dimensione sfere $M_d$(mm) :
- Diametro sfera $D_M$(mm) :
- Tipo di ingranaggio (DIN, JIS) :



# INDICE

## Frese integrali in metallo duro

F


Sistema di codifica per frese integrali F02
Indice delle frese integrali F04

**Frese integrali in metallo duro**

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H-MAX F33
I-MAX F34
Frese integrali Micro in metallo duro F41
Frese integrali Rib in metallo duro F42
Frese integrali per materiali pastosi F46
Frese integrali per la lavorazione dell'alluminio F47
C-Max F48
D-Max F50
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**Frese integrali brasate**

Informazioni tecniche F53
Frese integrali brasate F54

**Modulo d'ordine per frese integrali speciali**

Modulo d'ordine per frese integrali speciali F56




# F Sistema di codifica

| I | B | E | 2 | 040 | – | 050 | – |
|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | | 6 | |
| Serie | Tipo | Fresa integrale | N. eliche | Diametro di taglio | | Lunghezza complessiva | |

## 1 I B E 2 040 - 050 - R T - V N S

### Serie

I : Frese integrali Max-Infinity

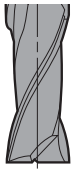
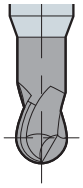
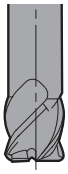
HP : Frese integrali Max ad alte prestazioni

C : Frese integrali Max per rame

D : Frese integrali Max con diametro rivestito

## 2 I B E 2 040 - 050 - R T - V N S

### Tipo

|  |  |  |
|---|---|---|
| Tipo piatto | Tipo a testa sferica | Tipo torica |
| F | B | R |

## 3 I B E 2 040 - 050 - R T - V N S

### Fresa integrale

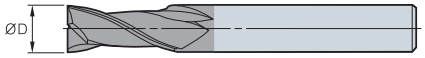
## 4 I B E 2 040 - 050 - R T - V N S

### N. eliche

| 2 eliche  | 3 eliche  |
|---|---|
| 2 | 3 |
| 4 eliche  | 6 eliche  |
| 4 | 6 |

## 5 I B E 2 040 - 050 - R T - V N S

### Diametro di taglio

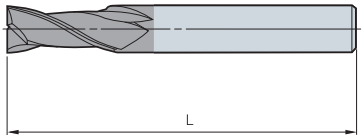



ØD : Diametro di taglio

| Diametro | |
|---|---|
| ØD | Codice |
| Ø4.0 | 040 |
| Ø6.0 | 060 |
| Ø8.0 | 080 |
| Ø10.0 | 100 |

## 6 I B E 2 040 - 050 - R T - V N S

### Lunghezza complessiva




| Lunghezza complessiva | |
|---|---|
| L(mm) | Codice |
| 50 | 050 |
| 80 | 080 |
| 100 | 100 |

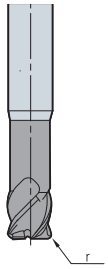
※ Il sistema di codifica sopra riportato non è valido per SSEA e ZSE.

# R02 T000 – V05 N12 S06

| 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|
| Raggio di punta | Inclinazione | Lunghezza utile | Sporgenza | Diametro stelo |

## 7 I B E 2 040 - 050 - R T - V N S

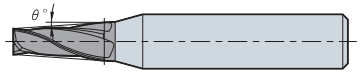
### Raggio di punta



| Raggio di punta | |
|---|---|
| R(mm) | Codice |
| r 0.2 | R02 |
| r 0.5 | R05 |
| r 1.0 | R10 |
| r 1.5 | R15 |

## 8 I B E 2 040 - 050 - R T - V N S

### Inclinazione

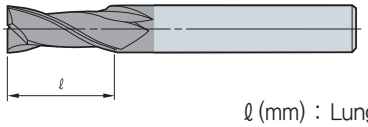


T(θ°) : Inclinazione

| Inclinazione | |
|---|---|
| T(θ°) | Codice |
| 1° | T10 |
| 1.5° | T15 |
| 10° | T20 |

## 9 I B E 2 040 - 050 - R T - V N S

### Lunghezza utile

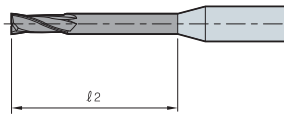


ℓ (mm) : Lunghezza utile

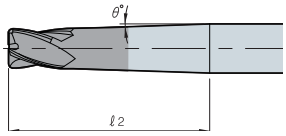
| Lunghezza utile | |
|---|---|
| ℓ (mm) | Codice |
| 5 | V05 |
| 10 | V10 |
| 15 | V15 |

## 10 I B E 2 040 - 050 - R T - V N S

### Sporgenza



Tipo lungo



Tipo rinforzato

ℓ2 (mm) : Sporgenza

T(θ°) : Inclinazione

| Tipo lungo | |
|---|---|
| ℓ2 (mm) | Codice |
| 5 | N05 |
| 8 | N08 |
| 10 | N10 |
| 12 | N12 |

| Tipo rinforzato | |
|---|---|
| ℓ2+T (θ°) | Codice |
| 5+1° | N0510 |
| 8+1.5° | N0815 |
| 10+2° | N1020 |
| 12+2.5° | N1225 |

## 11 I B E 2 040 - 050 - R T - V N S

### Diametro stelo



Ød : Diametro stelo

| Diametro stelo | |
|---|---|
| Ød | Codice |
| Ø6 | S06 |
| Ø8 | S08 |
| Ø10 | S10 |
| Ø12 | S12 |
| Ø16 | S16 |

※ Questo sistema di codifica è valido anche per le frese integrali speciali.

# F INDICE

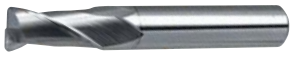
| Tipo | Forma | Articolo | Sub-strato | Figura | Rivestito | Applicazione | N. eliche | Inserto | | Pezzo lavorato | | | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Min | Max | P Acciaio | M Acciaio inossidabile | K Ghisa | N Materiali non ferrosi | S Leghe resistenti al calore, Lega di titanio | H Acciaio temprato | |
| H-Max | Testa sferica | **HPBE2000** | PC203F |  | ○ | Alta velocità Elevata durezza | 2 | 0.6 | 16 | ○ | | | | ○ | ◎ | F33 |
| | | **HPBE2000T** | PC203F |  | ○ | Alta velocità Elevata durezza | 2 | 1 | 12 | ○ | | | | ○ | ◎ | F33 |
| | Torica | **HPRE2000** | PC203F |  | ○ | Alta velocità Elevata durezza | 2 | 2 | 2 | ○ | | | | ○ | ◎ | F33 |
| | | **HPRE4000** | PC203F |  | ○ | Alta velocità Elevata durezza | 4 | 3 | 16 | ○ | | | | ○ | ◎ | F33 |
| | | **HPRE2000T** | PC203F |  | ○ | Alta velocità Elevata durezza | 2 | 2 | 2 | ○ | | | | ○ | ◎ | F33 |
| | | **HPRE4000T** | PC203F |  | ○ | Alta velocità Elevata durezza | 4 | 2 | 16 | ○ | | | | ○ | ◎ | F33 |
| I-Max | Testa sferica | **IBE2000** | PC220 |  | ○ | Uso generico | 2 | 1 | 20 | ◎ | ○ | ◎ | | ○ | | F35 |
| | | **IBE4000** | PC220 |  | ○ | Uso generico | 4 | 3 | 20 | ◎ | ○ | ◎ | | ○ | | F35 |
| | Lunga a testa sferica | **IBE2000** | PC220 |  | ○ | Uso generico | 2 | 3 | 20 | ◎ | ○ | ◎ | | ○ | | F36 |
| | Rinforzata a testa sferica | **IBE2000-T** | PC220 |  | ○ | Uso generico | 2 | 3 | 16 | ◎ | ○ | ◎ | | ○ | | F36 |
| | Piatta | **IFE2000** | PC220 |  | ○ | Uso generico | 2 | 1 | 20 | ◎ | ○ | ◎ | | ○ | | F34 |
| | | **IFE3000** | PC220 |  | ○ | Uso generico | 3 | 2 | 16 | ◎ | ○ | ◎ | | ○ | | F34 |
| | | **IFE4000** | PC220 |  | ○ | Uso generico | 4 | 2.5 | 20 | ◎ | ○ | ◎ | | ○ | | F34 |
| | Tipo lungo piatta | **IFE2000** | PC220 |  | ○ | Uso generico | 2 | 3 | 20 | ◎ | ○ | ◎ | | ○ | | F34 |
| | | **IFE4000** | PC220 |  | ○ | Uso generico | 4 | 3 | 20 | ◎ | ○ | ◎ | | ○ | | F34 |
| | Rinforzata piatta | **IFE2000-T** | PC220 |  | ○ | Uso generico | 2 | 3 | 16 | ◎ | ○ | ◎ | | ○ | | F35 |
| | Torica | **IRE2000** | PC220 |  | ○ | Uso generico | 2 | 3 | 20 | ◎ | ○ | ◎ | | ○ | | F37 |
| | | **IRE4000** | PC220 |  | ○ | Uso generico | 4 | 3 | 20 | ◎ | ○ | ◎ | | ○ | | F37 |
| | Testa sferica | **BE2000** | FA2 |  | — | Alta velocità Elevata durezza | 2 | 1 | 20 | ◎ | ○ | ◎ | ◎ | | | F39 |
| | | **BE4000** | FA2 |  | — | –20 | 4 | 3 | 20 | ◎ | ○ | ◎ | ◎ | | | F39 |

◎ : Ottimo ○ : Buono

| Tipo | Forma | Articolo | Sub-strato | Figura | Rivestito | Applicazione | N. eliche | Inserto | | Pezzo lavorato | | | | | | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Min | Max | P Acciaio | M Acciaio inossidabile | K Ghisa | Materiali non ferrosi | S Leghe resistenti al calore, Lega di titanio | H Acciaio temprato | |
| I-Max | Lunga a testa sferica | **BE2000** | FA2 | | – | Ghisa, Acciaio | 2 | 3 | 20 | ◎ | ○ | ◎ | ◎ | | | F40 |
| | Rinforzata a testa sferica | **BE2000-T** | FA2 | | – | Ghisa, Acciaio | 2 | 3 | 16 | ◎ | ○ | ◎ | ◎ | | | F40 |
| | Piatta | **FE2000** | FA2 | | – | Ghisa, Acciaio | 2 | 1 | 20 | ◎ | ○ | ◎ | ◎ | | | F37 |
| | | **FE3000** | FA2 | | – | Ghisa, Acciaio | 3 | 2 | 16 | ◎ | ○ | ◎ | ◎ | | | F38 |
| | | **FE4000** | FA2 | | – | Ghisa, Acciaio | 4 | 2.5 | 20 | ◎ | ○ | ◎ | ◎ | | | F38 |
| | Tipo lungo piatta | **FE2000** | FA2 | | – | Ghisa, Acciaio | 2 | 3 | 20 | ◎ | ○ | ◎ | ◎ | | | F38 |
| | | **FE4000** | FA2 | | – | Ghisa, Acciaio | 4 | 3 | 20 | ◎ | ○ | ◎ | ◎ | | | F38 |
| | Rinforzata piatta | **FE2000-T** | FA2 | | – | Ghisa, Acciaio | 2 | 3 | 16 | ◎ | ○ | ◎ | ◎ | | | F39 |
| Frese integrali Micro | Piatta | **MSE2000** | PC215F | | ○ | Alta velocità | 2 | 0.2 | 1 | ○ | | ○ | | ◎ | ○ | F41 |
| | Testa sferica | **MSBE2000** | PC215F | | ○ | Alta velocità | 2 | 0.2 | 1 | ○ | | ○ | | ◎ | ○ | F41 |
| Frese integrali Rib in metallo duro | Testa sferica | **DMAH-RB** **DMVH-RB** | PC220G PC203G | | ○ | Alta velocità | 2 | 0.2 | 6 | | | | | ◎ | ○ | F42 |
| | Piatta | **DMAH-RF** **DMVH-RF** | PC220G PC203G | | ○ | Alta velocità | 2 | 0.2 | 6 | | | | | ◎ | ○ | F43 |
| | Torica | **DMAH-RNR** **DMVH-RNR** | PC220G PC203G | | ○ | Alta velocità | 2 | 1 | 4 | | | | | ◎ | ○ | F44 |
| | Testa sferica | **DMAH-TNB** **DMVH-TNB** | PC220G PC203G | | ○ | Alta velocità | 2 | 1 | 12 | | | | | ◎ | ○ | F45 |
| Frese integrali in metallo duro per materiali pastosi | Piatta | **IFSE3000** | PC210 | | ○ | STS | 3 | 3 | 20 | ○ | ◎ | ○ | | ◎ | | F46 |
| Frese integrali in metallo duro per alluminio | Piatta | **SSEA2000** | H01 PD3000 | | –(○) | Alluminio | 2 | 1 | 20 | ○ | | ○ | ◎ | | | F47 |
| | Piatta | **SSEA3000** | H01 PD3000 | | –(○) | Alluminio | 3 | 2 | 16 | ○ | | ○ | ◎ | | | F47 |
| | Testa sferica | **SSBEA2000** | H01 PD3000 | | –(○) | Alluminio | 2 | 1 | 20 | ○ | | ○ | ◎ | | | F47 |
| C-Max Rame | Piatta | **CFE2000** | PC210C | | ○ | Rame, Lega di rame | 2 | 1.0 | 12 | ○ | | ○ | ◎ | | | F48 |
| | Tipo lungo | **CFNE2000** | PC210C | | ○ | Rame, Lega di rame | 2 | 0.5 | 4 | ○ | | ○ | ◎ | | | F48 |

◎ : Ottimo ○ : Buono

# F INDICE

| Tipo | Forma | Articolo | Sub-strato | Figura | Rivestito | Applicazione | N. eliche | Inserto Min | Inserto Max | Pezzo lavorato P Acciaio | Pezzo lavorato M Acciaio inossidabile | Pezzo lavorato K Ghisa | Pezzo lavorato N Materiali non ferrosi | Pezzo lavorato S Leghe resistenti al calore, Lega di titanio | Pezzo lavorato H Acciaio temprato | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-Max Rame | Testa sferica | **CBE2000** | PC210C |  | ○ | Rame, Lega di rame | 2 | 1.0 | 12 | ○ | | ○ | ◎ | | | F48 |
| | Tipo lungo testa sferica | **CBNE2000** | PC210C |  | ○ | Rame, Lega di rame | 2 | 0.5 | 4 | ○ | | ○ | ◎ | | | F48 |
| | Torica | **CRE2000** | PC210C |  | ○ | Rame, Lega di rame | 2 | 2.0 | 12 | ○ | | ○ | ◎ | | | F49 |
| | Tipo lungo torica | **CRNE2000** | PC210C |  | ○ | Rame, Lega di rame | 2 | 1.0 | 4 | ○ | | ○ | ◎ | | | F49 |
| D-Max | Testa sferica | **DBE2000** | ND3000 |  | ○ | Grafite, Alluminio | 2 | 4 | 8 | ○ | | ○ | ◎ | | | F50 |
| | Piatta | **DFE2000** | ND3000 |  | ○ | Grafite, Alluminio | 2 | 3 | 8 | ○ | | ○ | ◎ | | | F50 |
| | Torica | **DRE2000** | ND3000 |  | ○ | Grafite, Alluminio | 2 | 4 | 8 | ○ | | ○ | ◎ | | | F50 |
| Frese integrali cBN | Testa sferica | **CSBE** | cBN |  | – | Alta velocità Elevata durezza | 2 | 0.2 | 4.0 | | | | | ◎ | ◎ | F51 |
| | Torica | **CSRE** | cBN |  | – | Alta velocità Elevata durezza | 2 | 0.2 | 4.0 | | | | | ◎ | ◎ | F51 |
| Frese integrali PCD | Piatta | **PDE1000** | DP200 |  | – | Materiali non ferrosi, Alta velocità | 1 | 4.0 | 6.0 | | | | ◎ | | | F52 |
| | | **PDE2000** | DP200 | | – | Materiali non ferrosi, Alta velocità | 2 | 6.0 | 12.0 | | | | ◎ | | | F52 |
| Frese integrali brasate | Piatta | **ZSE200** | FCC PC221F |  | – | Ghisa, Acciaio | 2 | 14 | 50 | ◎ | ○ | ◎ | | ○ | | F54 |
| | Piatta | **ZSE300** | FCC PC221F |  | – | Ghisa, Acciaio | 3 | 14 | 50 | ◎ | ○ | ◎ | | ○ | | F54 |
| | Piatta | **ZSE400** | FCC PC221F |  | – | Ghisa, Acciaio | 4 | 14 | 50 | ◎ | ○ | ◎ | | ○ | | F54 |
| | Piatta | **ZSE600** | FCC PC221F |  | – | Ghisa, Acciaio | 6 | 34 | 50 | ◎ | ○ | ◎ | | ○ | | F54 |
| | Piatta | **ZSEA200** | FCC |  | – | Alluminio, Rame | 2 | 15 | 50 | | | | ◎ | | | F55 |
| | Tipo lungo piatta | **ZSEL200** | FCC PC221F |  | – | Ghisa, Acciaio | 2 | 14 | 50 | ◎ | ○ | ◎ | | ○ | | F55 |
| | Tipo lungo piatta | **ZSEL400** | FCC PC221F |  | – | Ghisa, Acciaio | 4 | 16 | 40 | ◎ | ○ | ◎ | | ○ | | F55 |
| | Tipo lungo piatta | **ZSEXL200** | FCC PC221F |  | – | Ghisa, Acciaio | 2 | 20 | 25 | ◎ | ○ | ◎ | | ○ | | F55 |
| | Testa sferica | **ZSBE200** | FCC PC221F |  | – | Ghisa, Acciaio | 2 | 13 | 50 | ◎ | ○ | ◎ | | ○ | | F55 |

◎ : Ottimo ○ : Buono

# H-Max

## Caratteristiche

- H-max è indicata per la lavorazione di acciaio pre-temprato e resistente al calore
- H-max garantisce un'elevata accuratezza di lavorazione (diametro e raggio)
- Il nuovo rivestimento PVD è anti-corrosione e resistente all'usura

### HPBE

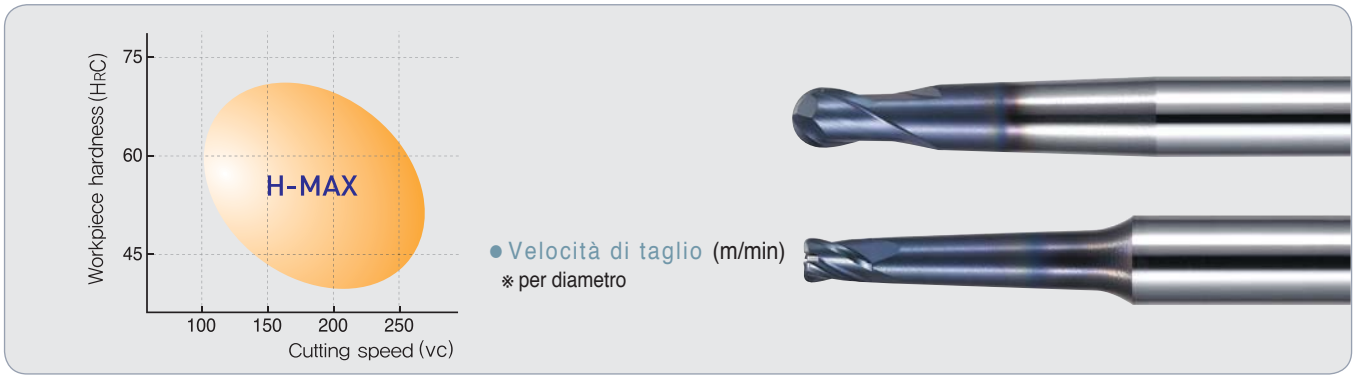



### HPRE




- Grado ultrafine per un tagliente più tenace e minori rischi di scheggiatura
- Il nuovo rivestimento PVD e il substrato indurito anti-usura garantiscono prestazioni eccellenti

## Applicazioni (Tipo a testa sferica torica)



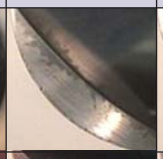
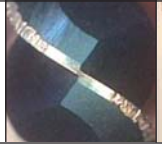
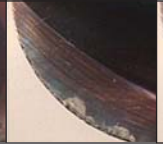
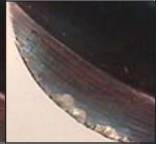

## Esempi di test

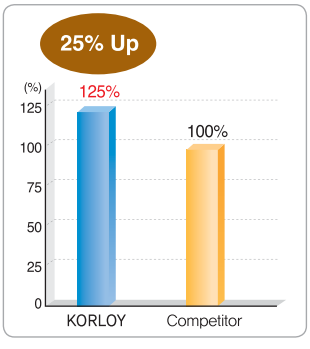


■ Lavorazione di stampo per giunti (STD11 HRC54~59)

- Pezzo lavorato : STD11 HRC54~59
- Condizioni di taglio : vc =170(m/min), vf=800(mm/min)
  ap =0.2 ae=0.5, con lubrificante (nebulizzato), 50mm
- Utensile : HPBE2080 PC203F
- Risultato : Durata di lavorazione 130min (sgrossatura), buona durata dell'utensile, resistenza all'usura, nessuna scheggiatura

## Risultato test

| | Punta | Tagliente | Tagliente |
|---|---|---|---|
| H – Max |  |  |  |
| Concorrente |  |  |  |






## Condizioni di taglio raccomandate (HPBE)

| Pezzo lavorato / Condizione / Diametro(Ø) | NAK80, STD61 (~ HRC 50) | | | STD11, STS420 (HRC 50~60) | | | SKH (HRC 60~65) | | |
|---|---|---|---|---|---|---|---|---|---|
| | R.P.M n(min-1) | Avanzamento vf(mm/min) | Prof. assiale ap(mm) | R.P.M n(min-1) | Avanzamento vf(mm/min) | Prof. assiale ap(mm) | R.P.M n(min-1) | Avanzamento vf(mm/min) | Prof. assiale ap(mm) |
| 1 | 40,000 | 4,800 | 0.06 | 40,000 | 3,360 | 0.05 | 40,000 | 3,160 | 0.04 |
| 2 | 40,000 | 5,760 | 0.11 | 40,000 | 4,800 | 0.10 | 24,000 | 2,280 | 0.07 |
| 3 | 40,000 | 7,200 | 0.13 | 32,000 | 4,620 | 0.12 | 16,000 | 1,020 | 0.09 |
| 4 | 32,000 | 6,528 | 0.15 | 24,000 | 1,920 | 0.13 | 12,000 | 1,440 | 0.10 |
| 6 | 21,000 | 5,040 | 0.20 | 10,000 | 2,000 | 0.20 | 8,000 | 1,020 | 0.11 |
| 8 | 16,000 | 3,840 | 0.30 | 12,000 | 2,160 | 0.20 | 6,000 | 840 | 0.11 |
| 10 | 13,000 | 3,120 | 0.50 | 10,000 | 1,920 | 0.20 | 4,800 | 660 | 0.12 |
| 12 | 9,000 | 2,160 | 0.50 | 7,000 | 1,320 | 0.30 | 3,600 | 516 | 0.12 |
| 16 | 6,000 | 1,440 | 0.50 | 5,000 | 960 | 0.30 | 2,500 | 390 | 0.15 |

## Condizioni di taglio raccomandate (HPRE)

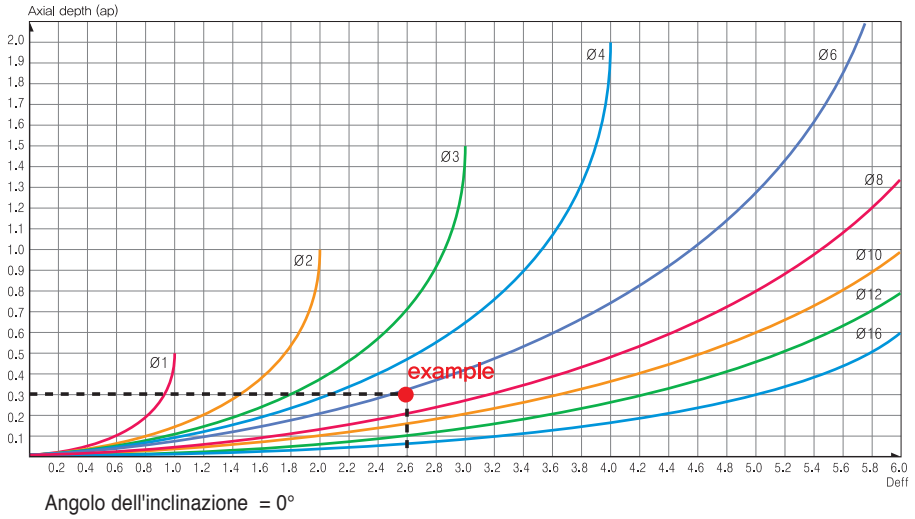
| Pezzo lavorato / Condizione / Diametro(Ø) | NAK80, STD61 (~ HRC 50) | | | STD11, STS420 (HRC 50~60) | | | SKH (HRC 60~65) | | |
|---|---|---|---|---|---|---|---|---|---|
| | R.P.M n(min-1) | Avanzamento vf(mm/min) | Prof. assiale ap(mm) | R.P.M n(min-1) | Avanzamento vf(mm/min) | Prof. assiale ap(mm) | R.P.M n(min-1) | Avanzamento vf(mm/min) | Prof. assiale ap(mm) |
| 1 | 40,000 | 720 | 0.10 | 40,000 | 480 | 0.03 | 32,000 | 300 | 0.02 |
| 2 | 40,000 | 1,200 | 0.10 | 24,000 | 600 | 0.05 | 16,000 | 380 | 0.05 |
| 3 | 32,000 | 2,280 | 0.20 | 16,000 | 1,140 | 0.10 | 11,000 | 720 | 0.05 |
| 4 | 24,000 | 2,640 | 0.30 | 12,000 | 1,320 | 0.10 | 8,000 | 480 | 0.05 |
| 6 | 16,000 | 3,480 | 0.40 | 8,000 | 1,740 | 0.20 | 5,300 | 1,080 | 0.10 |
| 8 | 12,000 | 3,480 | 0.50 | 6,000 | 1,740 | 0.20 | 4,000 | 1,080 | 0.10 |
| 10 | 9,600 | 3,480 | 0.60 | 4,800 | 1,740 | 0.30 | 3,200 | 1,080 | 0.20 |
| 12 | 8,000 | 2,880 | 0.80 | 4,000 | 1,440 | 0.30 | 2,700 | 900 | 0.20 |
| 16 | 6,000 | 2,160 | 1.00 | 3,000 | 1,080 | 0.50 | 2,000 | 680 | 0.30 |
| 20 | 4,800 | 1,740 | 1.00 | 2,400 | 840 | 0.50 | 1,600 | 528 | 0.30 |

## Formule della velocità di taglio (Frese integrali a testa sferica)

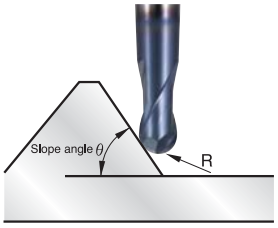
- Velocità di taglio Veff = $\pi$ × Deff × n/1000 (n = $min^{-1}$)
- Formula del diametro Deff : Deff = $(2\sqrt{ap(D-ap)} \times \alpha)$
  D = ø (Diametro utensile), Deff = Diametro efficiente
- Formule della velocità di taglio :
  Quando l'inclinazione ø è 0° Veff = $\pi$ × Deff × n/1000, Deff = Diametro efficiente
  Calcolare Deff come ap con varie frese integrali a testa sferica

α : α = 1 Angolo dell'inclinazione θ = 0°
α = 1.2 Angolo dell'inclinazione θ = 7°
α = 1.5 Angolo dell'inclinazione θ = 15°
α = 1.7 Angolo dell'inclinazione θ = 30°
α = 2.17 Angolo dell'inclinazione θ = 45°
α = 2.3 Angolo dell'inclinazione θ = 60°

## Formule della velocità di taglio (Frese integrali a testa sferica, angolo dell'inclinazione = 0' )




Angolo dell'inclinazione = 0°




Es. Diametro : 6mm, ap=0.3mm, Deff=2.6mm
N=14,000($min^{-1}$)
Angolo dell'inclinazione 0° :
Veff = 113.7(m/min)
Angolo dell'inclinazione 15° :
Veff = 113.7 x 1.5 = 170.6(m/min)

## Dati tecnici

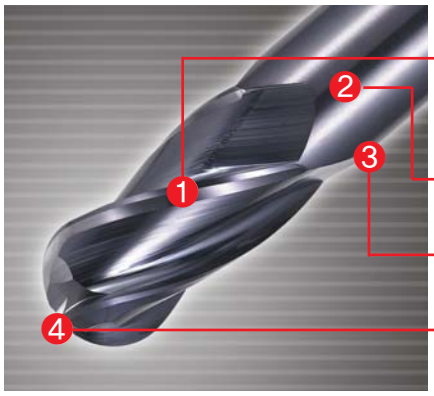
| Dimensioni | | HRC45~55 | vc | Velocità di taglio per profondità (z-step=ap) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Diametro utensile | Raggio sfera | RPM | | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1 | 1.1 | 1.2 | 1.3 | 1.4 | 1.5 |
| 0.6 | 0.3 | 40,000 | 75 | 56 | 71 | 75 | 71 | 56 | | | | | | | | | | |
| 0.8 | 0.4 | 37,000 | 93 | 61 | 80 | 90 | 93 | 90 | 80 | 61 | | | | | | | | |
| 1 | 0.5 | 35,000 | 110 | 66 | 88 | 101 | 108 | 110 | 108 | 101 | 88 | 66 | | | | | | |
| 1.5 | 0.75 | 32,000 | 151 | 75 | 102 | 121 | 133 | 142 | 148 | 150 | 150 | 148 | 142 | 133 | 121 | 102 | 75 | 0 |
| 2 | 1 | 30,000 | 188 | 82 | 113 | 135 | 151 | 163 | 173 | 180 | 185 | 187 | 188 | 187 | 285 | 180 | 173 | 163 |
| 2.5 | 1.25 | 28,000 | 220 | 86 | 119 | 143 | 161 | 176 | 188 | 197 | 205 | 211 | 215 | 218 | 220 | 220 | 218 | 215 |
| 3 | 1.5 | 26,000 | 245 | 88 | 122 | 147 | 167 | 183 | 196 | 207 | 217 | 224 | 231 | 236 | 240 | 243 | 244 | 245 |
| 4 | 2 | 22,000 | 276 | 86 | 120 | 146 | 166 | 183 | 197 | 210 | 221 | 231 | 239 | 247 | 253 | 259 | 264 | 268 |
| 5 | 2.5 | 20,000 | 314 | 88 | 123 | 149 | 170 | 188 | 204 | 218 | 230 | 241 | 251 | 260 | 268 | 275 | 282 | 288 |
| 6 | 3 | 18,000 | 339 | 87 | 122 | 148 | 169 | 187 | 203 | 218 | 231 | 242 | 253 | 262 | 271 | 279 | 287 | 294 |
| 7 | 3.5 | 15,000 | 330 | 78 | 110 | 134 | 153 | 170 | 185 | 198 | 210 | 221 | 231 | 240 | 249 | 256 | 264 | 271 |
| 8 | 4 | 13,500 | 339 | 75 | 106 | 129 | 148 | 164 | 179 | 192 | 203 | 214 | 224 | 234 | 242 | 250 | 258 | 265 |
| 9 | 4.5 | 12,000 | 339 | 71 | 100 | 122 | 140 | 155 | 169 | 182 | 193 | 203 | 213 | 222 | 231 | 238 | 246 | 253 |
| 10 | 5 | 11,000 | 345 | 69 | 97 | 118 | 135 | 151 | 164 | 176 | 187 | 198 | 207 | 216 | 224 | 232 | 240 | 247 |
| 11 | 5.5 | 10,000 | 345 | 66 | 92 | 113 | 129 | 144 | 157 | 169 | 179 | 189 | 199 | 207 | 215 | 223 | 230 | 237 |
| 12 | 6 | 9,200 | 347 | 63 | 89 | 108 | 124 | 139 | 151 | 162 | 173 | 183 | 192 | 200 | 208 | 215 | 223 | 229 |
| 13 | 6.5 | 8,500 | 347 | 61 | 85 | 104 | 120 | 133 | 146 | 157 | 167 | 176 | 185 | 193 | 201 | 208 | 215 | 222 |
| 14 | 7 | 7,900 | 347 | 58 | 82 | 101 | 116 | 129 | 141 | 151 | 161 | 170 | 179 | 187 | 194 | 202 | 208 | 215 |
| 15 | 7.5 | 7,400 | 349 | 57 | 80 | 98 | 112 | 125 | 137 | 147 | 157 | 166 | 174 | 182 | 189 | 196 | 203 | 209 |
| 16 | 8 | 6,900 | 347 | 55 | 77 | 94 | 108 | 121 | 132 | 142 | 151 | 160 | 168 | 175 | 183 | 189 | 196 | 202 |
| 17 | 8.5 | 6,500 | 347 | 53 | 75 | 91 | 105 | 117 | 128 | 138 | 147 | 155 | 163 | 171 | 178 | 184 | 191 | 197 |
| 18 | 9 | 6,100 | 345 | 51 | 72 | 88 | 102 | 113 | 124 | 133 | 142 | 150 | 158 | 165 | 172 | 178 | 185 | 191 |
| 19 | 9.5 | 5,800 | 346 | 50 | 71 | 86 | 99 | 111 | 121 | 130 | 139 | 147 | 155 | 162 | 168 | 175 | 181 | 187 |
| 20 | 10 | 5,500 | 345 | 49 | 69 | 84 | 97 | 108 | 118 | 127 | 135 | 143 | 151 | 157 | 164 | 170 | 176 | 182 |

| Dimensioni | | HRC55~60 | vc | Velocità di taglio per profondità (z-step=ap) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Diametro utensile | Raggio sfera | RPM | | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1 | 1.1 | 1.2 | 1.3 | 1.4 | 1.5 |
| 0.6 | 0.3 | 40,000 | 75 | 56 | 71 | 75 | 71 | 56 | | | | | | | | | | |
| 0.8 | 0.4 | 37,000 | 93 | 61 | 80 | 90 | 93 | 90 | 80 | 61 | | | | | | | | |
| 1 | 0.5 | 35,000 | 110 | 66 | 88 | 101 | 108 | 110 | 108 | 101 | 88 | 66 | | | | | | |
| 1.5 | 0.75 | 28,000 | 132 | 66 | 90 | 106 | 117 | 124 | 129 | 132 | 132 | 129 | 124 | 117 | 106 | 90 | 66 | |
| 2 | 1 | 26,000 | 163 | 71 | 98 | 117 | 131 | 141 | 150 | 156 | 160 | 162 | 163 | 162 | 160 | 156 | 150 | 141 |
| 2.5 | 1.25 | 24,000 | 188 | 74 | 102 | 122 | 138 | 151 | 161 | 169 | 176 | 181 | 185 | 187 | 188 | 188 | 187 | 185 |
| 3 | 1.5 | 22,000 | 207 | 74 | 103 | 124 | 141 | 154 | 166 | 175 | 183 | 190 | 195 | 200 | 203 | 205 | 207 | 207 |
| 4 | 2 | 18,500 | 232 | 73 | 101 | 122 | 139 | 154 | 166 | 177 | 186 | 194 | 201 | 208 | 213 | 218 | 222 | 225 |
| 5 | 2.5 | 16,500 | 259 | 73 | 102 | 123 | 141 | 155 | 168 | 180 | 190 | 199 | 207 | 215 | 221 | 227 | 233 | 237 |
| 6 | 3 | 15,000 | 283 | 72 | 101 | 123 | 141 | 156 | 170 | 181 | 192 | 202 | 211 | 219 | 226 | 233 | 239 | 245 |
| 7 | 3.5 | 15,000 | 330 | 78 | 110 | 134 | 153 | 170 | 185 | 198 | 210 | 221 | 231 | 240 | 249 | 256 | 264 | 271 |
| 8 | 4 | 12,000 | 301 | 67 | 94 | 115 | 131 | 146 | 159 | 170 | 181 | 190 | 199 | 208 | 215 | 222 | 229 | 235 |
| 9 | 4.5 | 10,650 | 301 | 63 | 89 | 108 | 124 | 138 | 150 | 161 | 171 | 181 | 189 | 197 | 205 | 212 | 218 | 224 |
| 10 | 5 | 9,600 | 301 | 30 | 84 | 103 | 118 | 131 | 143 | 154 | 164 | 173 | 181 | 189 | 196 | 203 | 209 | 215 |
| 11 | 5.5 | 8,700 | 300 | 57 | 80 | 98 | 113 | 125 | 136 | 147 | 156 | 165 | 173 | 180 | 187 | 194 | 200 | 206 |
| 12 | 6 | 8,000 | 301 | 55 | 77 | 94 | 108 | 120 | 131 | 141 | 150 | 159 | 167 | 174 | 181 | 187 | 194 | 199 |
| 13 | 6.5 | 7,373 | 301 | 53 | 74 | 90 | 104 | 116 | 126 | 136 | 145 | 153 | 160 | 168 | 174 | 181 | 187 | 192 |
| 14 | 7 | 6,800 | 299 | 50 | 71 | 87 | 110 | 111 | 121 | 130 | 139 | 147 | 154 | 161 | 167 | 174 | 179 | 185 |
| 15 | 7.5 | 6,300 | 297 | 48 | 68 | 83 | 96 | 107 | 116 | 125 | 133 | 141 | 148 | 155 | 161 | 167 | 173 | 178 |
| 16 | 8 | 5,900 | 296 | 47 | 66 | 80 | 93 | 103 | 113 | 121 | 129 | 137 | 144 | 150 | 156 | 162 | 168 | 173 |
| 17 | 8.5 | 5,600 | 299 | 46 | 64 | 79 | 91 | 101 | 110 | 119 | 127 | 134 | 141 | 147 | 153 | 159 | 164 | 170 |
| 18 | 9 | 5,300 | 300 | 45 | 63 | 77 | 88 | 98 | 108 | 116 | 123 | 131 | 137 | 144 | 149 | 155 | 160 | 166 |
| 19 | 9.5 | 5,000 | 298 | 43 | 61 | 74 | 86 | 95 | 104 | 112 | 120 | 127 | 133 | 139 | 145 | 151 | 156 | 161 |
| 20 | 10 | 4,700 | 295 | 42 | 59 | 72 | 83 | 92 | 101 | 108 | 116 | 122 | 129 | 135 | 140 | 146 | 151 | 155 |

## I-Max

### Caratteristiche

- Ottima resistenza all'usura e alla scheggiatura grazie al substrato in grana ultrafine e al rivestimento PVD
- Ampia gamma di applicazioni, dalla sgrossatura alla finitura
- Indicata per vari tipi di materiale (acciaio, acciaio legato, ghisa, acciaio inossidabile e alluminio)
- Lunga durata dell'utensile in condizioni inferiori a 150m/min(vc), con macchina CNC per fresatura
- I-max è ideale per vari tipi di fresature grazie all'ampia gamma disponibile
- Per lavorazioni multifunzionali (spallamento, scanalatura, ramping ecc.)




1 Rivestimento PVD (ottima resistenza all'usura e tenacità)

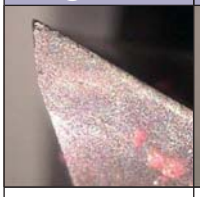
2 Substrato in grana ultra fine

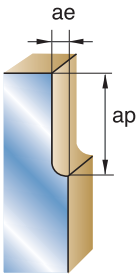
3 Tolleranza (diametro) : 0~0.008

4 Tolleranza (Raggio) : ±0.01

### Raffronto

- Pezzo lavorato : NAK80(HRC40) Hexahedron, Climb milling–Air
- Condizioni di taglio : vc=70m/min, fz=0.04mm/t, n= 3,700min$^{-1}$, vf=590mm/min, ap=10mm, ae=1.0mm
- Utensile : IFE4060–050

| MAX | Concorrente A | Concorrente A | Concorrente A |
|---|---|---|---|
|  |  |  |  |
| Lavorazione 30m Tagliente è in buone condizioni | Lavorazione 30m Scheggiatura | Lavorazione 24m Rotto | Lavorazione 28m Rotto |

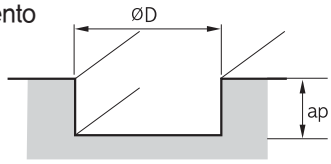





## Condizioni di taglio raccomandate (IFE2000, scanalatura)

| Pezzo lavorato / Condizione / Diametro(Ø) | Acciaio, Acciaio legato (~ HRC20) | | Acciaio, Acciaio legato (HRC30~40) | | Acciaio, Acciaio legato (HRC40◁) | | Ghisa Ghisa a grafite | | Acciaio inossidabile Lega di titanio | |
|---|---|---|---|---|---|---|---|---|---|---|
| | R.P.M n(min⁻¹) | Avanzamento vf(mm/min) | R.P.M n(min⁻¹) | Avanzamento vf(mm/min) | R.P.M n(min⁻¹) | Avanzamento vf(mm/min) | R.P.M n(min⁻¹) | Avanzamento vf(mm/min) | R.P.M n(min⁻¹) | Avanzamento vf(mm/min) |
| 1 | 37,500 | 185 | 25,400 | 130 | 19,500 | 80 | 39,700 | 370 | 16,000 | 45 |
| 2 | 18,800 | 190 | 12,700 | 180 | 9,700 | 80 | 19,800 | 450 | 8,000 | 65 |
| 3 | 12,600 | 310 | 8,200 | 190 | 6,400 | 80 | 12,900 | 450 | 5,300 | 65 |
| 4 | 9,500 | 310 | 6,400 | 190 | 4,800 | 80 | 9,800 | 450 | 4,000 | 65 |
| 5 | 7,500 | 310 | 5,400 | 190 | 3,900 | 80 | 7,600 | 450 | 3,200 | 65 |
| 6 | 6,500 | 310 | 4,100 | 190 | 3,000 | 80 | 7,800 | 660 | 2,600 | 65 |
| 8 | 4,800 | 310 | 3,200 | 190 | 2,500 | 80 | 6,000 | 710 | 2,000 | 65 |
| 10 | 3,700 | 310 | 2,600 | 190 | 1,900 | 80 | 4,800 | 740 | 1,600 | 65 |
| 12 | 3,100 | 310 | 2,100 | 190 | 1,600 | 80 | 3,700 | 780 | 1,300 | 65 |
| 14 | 2,700 | 310 | 1,800 | 190 | 1,400 | 80 | 3,400 | 820 | 1,100 | 65 |
| 16 | 2,400 | 340 | 1,500 | 240 | 1,200 | 90 | 3,000 | 830 | 1,000 | 75 |
| 18 | 2,000 | 340 | 1,400 | 240 | 1,000 | 100 | 2,600 | 890 | 880 | 80 |
| 20 | 1,900 | 340 | 1,300 | 240 | 900 | 100 | 2,400 | 890 | 800 | 80 |

● Suggerimento



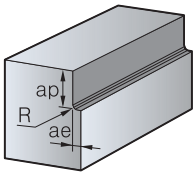

■ Profondità di scanalatura (ap)
• ap≤1.5D

1. Lo staffaggio del pezzo lavorato deve essere robusto.
   In caso di vibrazioni, ridurre i giri al minuto e l'avanzamento in uguali proporzioni.

## Condizioni di taglio raccomandate (IFE4000, spallamento)

| Pezzo lavorato / Condizione / Diametro(Ø) | Acciaio, Acciaio legato (~ HRC20) | | Acciaio, Acciaio legato (HRC30~40) | | Acciaio, Acciaio legato (HRC40◁) | | Ghisa Ghisa a grafite | | Acciaio inossidabile Lega di titanio | |
|---|---|---|---|---|---|---|---|---|---|---|
| | R.P.M n(min⁻¹) | Avanzamento vf(mm/min) | R.P.M n(min⁻¹) | Avanzamento vf(mm/min) | R.P.M n(min⁻¹) | Avanzamento vf(mm/min) | R.P.M n(min⁻¹) | Avanzamento vf(mm/min) | R.P.M n(min⁻¹) | Avanzamento vf(mm/min) |
| 3 | 12,600 | 920 | 8,200 | 580 | 6,400 | 220 | 12,900 | 1,370 | 5,300 | 200 |
| 4 | 9,500 | 920 | 6,400 | 580 | 4,800 | 220 | 9,800 | 1,370 | 4,000 | 200 |
| 5 | 7,500 | 920 | 5,400 | 580 | 3,900 | 220 | 7,600 | 1,370 | 3,200 | 200 |
| 6 | 6,500 | 920 | 4,100 | 580 | 3,000 | 220 | 7,800 | 2,000 | 2,600 | 200 |
| 8 | 4,800 | 920 | 3,200 | 580 | 2,500 | 220 | 6,000 | 2,120 | 2,000 | 200 |
| 10 | 3,700 | 920 | 2,600 | 580 | 1,900 | 220 | 4,800 | 2,230 | 1,600 | 200 |
| 12 | 3,100 | 920 | 2,100 | 580 | 1,600 | 220 | 3,700 | 2,340 | 1,300 | 200 |
| 14 | 2,700 | 920 | 1,800 | 580 | 1,400 | 220 | 3,400 | 2,450 | 1,100 | 200 |
| 16 | 2,400 | 1020 | 1,500 | 690 | 1,200 | 270 | 3,000 | 2,520 | 1,000 | 225 |
| 18 | 2,000 | 1020 | 1,400 | 690 | 1,000 | 340 | 2,600 | 2,680 | 880 | 240 |
| 20 | 1,900 | 1020 | 1,300 | 690 | 900 | 340 | 2,400 | 2,680 | 800 | 240 |

● Suggerimento



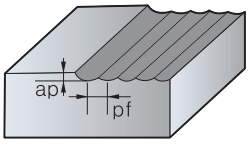

■ Profondità di spallamento (ap) e profondità radiale (ae)
• ap=1.5D
• ae=0.1D

1. Lo staffaggio del pezzo lavorato deve essere robusto.
   In caso di vibrazioni, ridurre i giri al minuto e l'avanzamento in uguali proporzioni.

## Condizioni di taglio raccomandate (IBE2000, Testa sferica)

| Pezzo lavorato / Condizione / Diametro(Ø) | Acciaio, Acciaio legato (~ HRC30) | | Acciaio, Acciaio legato (HRC30 ~) | |
|---|---|---|---|---|
| | R.P.M n(min$^{-1}$) | Avanzamento vf(mm/min) | R.P.M n(min$^{-1}$) | Avanzamento vf(mm/min) |
| 1 | 15,760 | 250 | 5,800 | 90 |
| 2 | 14,400 | 750 | 4,680 | 150 |
| 3 | 13,100 | 680 | 4,520 | 150 |
| 4 | 10,500 | 740 | 4,200 | 180 |
| 5 | 9,140 | 820 | 3,680 | 180 |
| 6 | 7,780 | 840 | 3,160 | 190 |
| 8 | 5,260 | 950 | 2,100 | 190 |
| 10 | 4,620 | 1,020 | 1,780 | 190 |
| 12 | 3,780 | 900 | 1,360 | 190 |
| 16 | 2,740 | 920 | 1,160 | 190 |
| 20 | 2,100 | 840 | 840 | 190 |

● Suggerimento



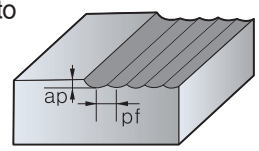

• ap=0.3D •pf=0.7D

1. Lo staffaggio del pezzo lavorato deve essere robusto.
   In caso di vibrazioni, ridurre i giri al minuto e l'avanzamento in uguali proporzioni.

## Condizioni di taglio raccomandate (IBE4000, Testa sferica)

| Pezzo lavorato / Condizione / Diametro(Ø) | Acciaio, Acciaio legato (~ HRC30) | | Acciaio, Acciaio legato (HRC30 ~) | |
|---|---|---|---|---|
| | R.P.M n(min$^{-1}$) | Avanzamento vf(mm/min) | R.P.M n(min$^{-1}$) | Avanzamento vf(mm/min) |
| 1 | 15,760 | 380 | 5,800 | 130 |
| 2 | 15,760 | 800 | 4,840 | 160 |
| 3 | 13,100 | 1,020 | 4,520 | 220 |
| 4 | 10,500 | 1,110 | 4,200 | 270 |
| 5 | 9,140 | 1,230 | 3,680 | 270 |
| 6 | 7,780 | 1,260 | 3,160 | 280 |
| 8 | 5,260 | 1,430 | 2,100 | 280 |
| 10 | 4,620 | 1,530 | 1,780 | 280 |
| 12 | 3,780 | 1,350 | 1,360 | 280 |
| 16 | 2,740 | 1,380 | 1,160 | 280 |
| 20 | 2,100 | 1,260 | 840 | 280 |

● Suggerimento



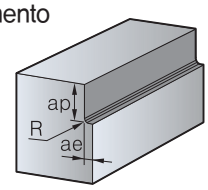

• ap=0.3D •pf=0.7D

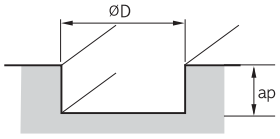
1. Lo staffaggio del pezzo lavorato deve essere robusto.
   In caso di vibrazioni, ridurre i giri al minuto e l'avanzamento in uguali proporzioni.

## Condizioni di taglio raccomandate (IRE2000, torica)

| Pezzo lavorato / Condizione / Diametro(Ø) | Acciaio, Acciaio legato (~ HRC30) | | Acciaio, Acciaio legato (HRC30 ~) | |
|---|---|---|---|---|
| | R.P.M n(min$^{-1}$) | Avanzamento vf(mm/min) | R.P.M n(min$^{-1}$) | Avanzamento vf(mm/min) |
| 3 | 4,410 | 70 | 2,200 | 30 |
| 4 | 3,570 | 85 | 1,790 | 35 |
| 5 | 3,050 | 105 | 1,580 | 40 |
| 6 | 2,630 | 125 | 1,370 | 50 |
| 8 | 2,000 | 135 | 1,050 | 50 |
| 10 | 1,680 | 135 | 840 | 50 |
| 12 | 1,370 | 105 | 700 | 40 |
| 16 | 1,160 | 95 | 560 | 35 |
| 20 | 840 | 70 | 420 | 25 |

● Suggerimento




■ Profondità di spallamento (ap) e profondità radiale (ae)
• ap=1.5D •ae=0.1D

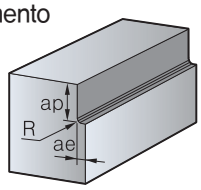
■ Profondità di scanalatura (ap)
• ap≤1.5D

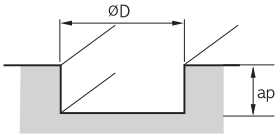
1. Lo staffaggio del pezzo lavorato deve essere robusto.
   In caso di vibrazioni, ridurre i giri al minuto e l'avanzamento in uguali proporzioni.

## Condizioni di taglio raccomandate (IRE4000, torica)

| Pezzo lavorato / Condizione / Diametro(Ø) | Acciaio, Acciaio legato (~ HRC30) | | Acciaio, Acciaio legato (HRC30 ~) | |
|---|---|---|---|---|
| | R.P.M n(min$^{-1}$) | Avanzamento vf(mm/min) | R.P.M n(min$^{-1}$) | Avanzamento vf(mm/min) |
| 3 | 4,410 | 115 | 2,200 | 55 |
| 4 | 3,570 | 140 | 1,790 | 60 |
| 5 | 3,050 | 180 | 1,580 | 70 |
| 6 | 2,630 | 215 | 1,370 | 85 |
| 8 | 2,000 | 230 | 1,050 | 85 |
| 10 | 1,680 | 230 | 840 | 85 |
| 12 | 1,370 | 180 | 700 | 70 |
| 16 | 1,160 | 160 | 560 | 60 |
| 20 | 840 | 115 | 420 | 45 |

● Suggerimento




■ Profondità di spallamento (ap) e profondità radiale (ae)
• ap=1.5D • ae=0.1D

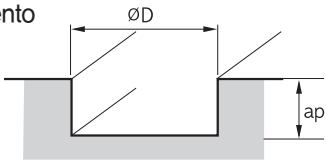
■ Profondità di scanalatura (ap)
• ap≤1.5D

1. Lo staffaggio del pezzo lavorato deve essere robusto.
   In caso di vibrazioni, ridurre i giri al minuto e l'avanzamento in uguali proporzioni.

## Condizioni di taglio raccomandate (FE2000, Slotting)

| Pezzo lavorato / Condizione / Diametro(Ø) | Acciaio, Acciaio legato (~HRC20) | | Acciaio, Acciaio legato (HRC30~40) | | Acciaio inossidabile Lega di titanio | | Ghisa Ghisa a grafite | | Lega di alluminio | | Rame Materiali non ferrosi | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R.P.M n(min⁻¹) | Avanzamento vf(mm/min) | R.P.M n(min⁻¹) | Avanzamento vf(mm/min) | R.P.M n(min⁻¹) | Avanzamento vf(mm/min) | R.P.M n(min⁻¹) | Avanzamento vf(mm/min) | R.P.M n(min⁻¹) | Avanzamento vf(mm/min) | R.P.M n(min⁻¹) | Avanzamento vf(mm/min) |
| 1 | 11,000 | 55 | 8,000 | 40 | 16,000 | 45 | 13,000 | 120 | 32,000 | 300 | 24,000 | 240 |
| 2 | 5,500 | 80 | 4,000 | 55 | 8,000 | 65 | 6,500 | 150 | 16,000 | 320 | 12,000 | 240 |
| 3 | 3,700 | 90 | 2,600 | 60 | 5,300 | 65 | 4,200 | 150 | 11,000 | 320 | 8,000 | 240 |
| 4 | 2,800 | 90 | 2,000 | 60 | 4,000 | 65 | 3,200 | 150 | 8,000 | 320 | 6,000 | 240 |
| 5 | 2,200 | 90 | 1,600 | 60 | 3,200 | 65 | 2,500 | 150 | 6,400 | 320 | 4,800 | 240 |
| 6 | 1,800 | 90 | 1,000 | 60 | 2,600 | 65 | 2,100 | 180 | 5,300 | 340 | 4,000 | 260 |
| 8 | 1,400 | 90 | 1,000 | 60 | 1,300 | 65 | 1,600 | 190 | 4,000 | 340 | 3,000 | 260 |
| 10 | 1,100 | 90 | 800 | 60 | 2,000 | 65 | 1,300 | 200 | 3,200 | 340 | 2,400 | 260 |
| 12 | 900 | 90 | 660 | 60 | 1,600 | 65 | 1,000 | 210 | 2,600 | 340 | 2,000 | 260 |
| 14 | 800 | 90 | 570 | 60 | 1,100 | 65 | 900 | 220 | 2,300 | 340 | 1,700 | 260 |
| 16 | 700 | 100 | 500 | 75 | 1,000 | 75 | 800 | 225 | 2,000 | 340 | 1,500 | 260 |
| 18 | 600 | 100 | 440 | 75 | 880 | 80 | 700 | 240 | 1,800 | 340 | 1,300 | 260 |
| 20 | 550 | 100 | 400 | 75 | 800 | 80 | 640 | 240 | 1,600 | 340 | 1,200 | 260 |

● Suggerimento




■ Profondità di spallamento (ap) e profondità radiale (ae)

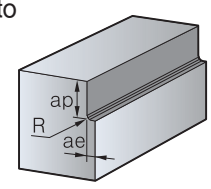
- ap≤0.5D(D □Ø3)
- ap≤1.0D(D ‹Ø3)

1. Lo staffaggio del pezzo lavorato deve essere robusto.
   In caso di vibrazioni, ridurre i giri al minuto e l'avanzamento in uguali proporzioni.

## Condizioni di taglio raccomandate (FE4000, Shouldering)

| Pezzo lavorato / Condizione / Diametro(Ø) | Acciaio, Acciaio legato (~HRC20) | | Acciaio, Acciaio legato (HRC30~40) | | Acciaio inossidabile Lega di titanio | | Ghisa Ghisa a grafite | | Lega di alluminio | | Rame Materiali non ferrosi | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R.P.M n(min⁻¹) | Avanzamento vf(mm/min) | R.P.M n(min⁻¹) | Avanzamento vf(mm/min) | R.P.M n(min⁻¹) | Avanzamento vf(mm/min) | R.P.M n(min⁻¹) | Avanzamento vf(mm/min) | R.P.M n(min⁻¹) | Avanzamento vf(mm/min) | R.P.M n(min⁻¹) | Avanzamento vf(mm/min) |
| 3 | 3,700 | 270 | 2,600 | 180 | 5,300 | 200 | 4,200 | 450 | 11,000 | 960 | 8,000 | 720 |
| 4 | 2,800 | 270 | 2,000 | 180 | 4,000 | 200 | 3,200 | 450 | 8,000 | 960 | 6,000 | 720 |
| 5 | 2,200 | 270 | 1,600 | 180 | 3,200 | 200 | 2,500 | 450 | 6,400 | 960 | 4,800 | 720 |
| 6 | 1,800 | 270 | 1,000 | 180 | 2,600 | 200 | 2,100 | 540 | 5,300 | 1,020 | 4,000 | 780 |
| 8 | 1,400 | 270 | 1,000 | 180 | 1,300 | 200 | 1,600 | 570 | 4,000 | 1,020 | 3,000 | 780 |
| 10 | 1,100 | 270 | 800 | 180 | 2,000 | 200 | 1,300 | 600 | 3,200 | 1,020 | 2,400 | 780 |
| 12 | 900 | 270 | 660 | 180 | 1,600 | 200 | 1,000 | 630 | 2,600 | 1,020 | 2,000 | 780 |
| 14 | 800 | 270 | 570 | 180 | 1,100 | 200 | 900 | 660 | 2,300 | 1,020 | 1,700 | 780 |
| 16 | 700 | 300 | 500 | 220 | 1,000 | 225 | 800 | 680 | 2,000 | 1,020 | 1,500 | 780 |
| 18 | 600 | 300 | 440 | 220 | 880 | 240 | 700 | 720 | 1,800 | 1,020 | 1,300 | 780 |
| 20 | 550 | 300 | 400 | 220 | 800 | 240 | 640 | 720 | 1,600 | 1,020 | 1,200 | 780 |

● Suggerimento




■ Profondità di spallamento (ap) e profondità radiale (ae)

- ap=1.5D
- ae=0.1D

1. Lo staffaggio del pezzo lavorato deve essere robusto.
   In caso di vibrazioni, ridurre i giri al minuto e l'avanzamento in uguali proporzioni.

## Frese integrali Micro

### Sistema di codifica delle frese integrali Micro

| MS | E | 2 | 004 | - | S |
|---|---|---|---|---|---|
| **Frese integrali in metallo duro**<br>Micro Solid | **Tipo**<br>E : Piatta<br>BE : Testa sferica | **N. taglienti**<br>2 taglienti | **Diametro**<br>Ø0.4 | | **Diametro stelo**<br>S : Ø3.0mm<br>Nessun dato :<br>Ø4.0mm (Diametro Ø2, Ø3)<br>Ø6.0mm (Altri) |

### Caratteristiche

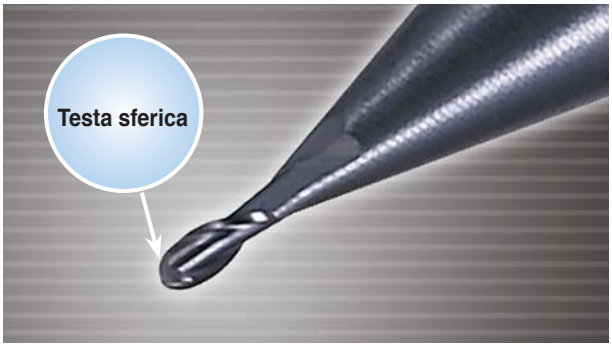
- La maggiore rigidità della sporgenza previene la rottura dell'utensile
- Ideale per lavorazioni di elevata precisione
- Scanalatura, formazione stampi, profilatura, miniatura, finitura
- Macchine fotografiche, orologi, stampi di precisione

※ Avviso
Manovrare la macchina in condizioni di elevata precisione e staffare l'utensile in modo estremamente accurato e stabile.
Per una lavorazione stabile si richiede un sistema anti-vibrazioni. Controllare l'evacuazione del truciolo.

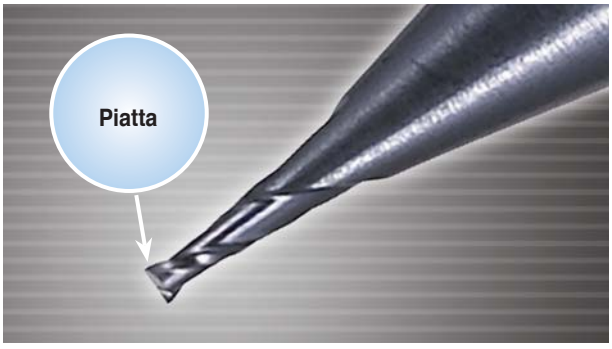


### Forma del prodotto

#### MSBE



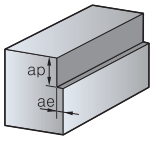

#### MSE

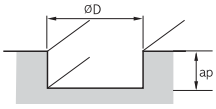



### Condizioni di taglio raccomandate - MSE2000

| Pezzo lavorato / Condizione / Diametro(Ø) | Acciaio al carbonio, acciaio legato, ghisa HRC45 ~ SM50C,SCM,STD | | | Acciaio legato, acciaio ad alte velocit□ HRC45~55 STD61,STAVAX | | |
|---|---|---|---|---|---|---|
| | R.P.M n(min⁻¹) | Avanzamento vf(mm/min) | Prof. radiale ae(mm) | R.P.M n(min⁻¹) | Avanzamento vf(mm/min) | Prof. radiale ae(mm) |
| 0.4 | 40,000 | 640 | 0.01 | 40,000 | 640 | 0.01 |
| 0.5 | 40,000 | 800 | 0.015 | 40,000 | 800 | 0.02 |
| 0.6 | 40,000 | 960 | 0.02 | 40,000 | 960 | 0.02 |
| 0.7 | 40,000 | 1,120 | 0.02 | 40,000 | 1,120 | 0.02 |
| 0.8 | 40,000 | 1,280 | 0.03 | 40,000 | 1,280 | 0.03 |
| 0.9 | 40,000 | 1,440 | 0.04 | 40,000 | 1,280 | 0.04 |
| 1 | 40,000 | 1,600 | 0.06 | 40,000 | 1,280 | 0.06 |

● Suggerimento




• D≥3 : aumentare RPM 50~70%
ridurre l'avanzamento 40~60%
• Scanalatura : ap≤ae

1. Lo staffaggio del pezzo lavorato deve essere robusto. In caso di vibrazioni, ridurre i giri al minuto e l'avanzamento in uguali proporzioni.
2. Nello spallamento, ridurre l'avanzamento di 1/3.

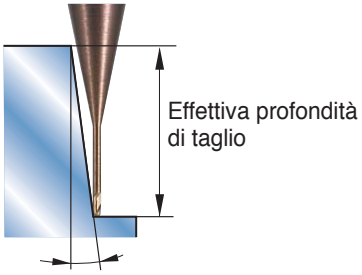
## Frese integrali Rib

### Sistema di codifica delle frese integrali Rib

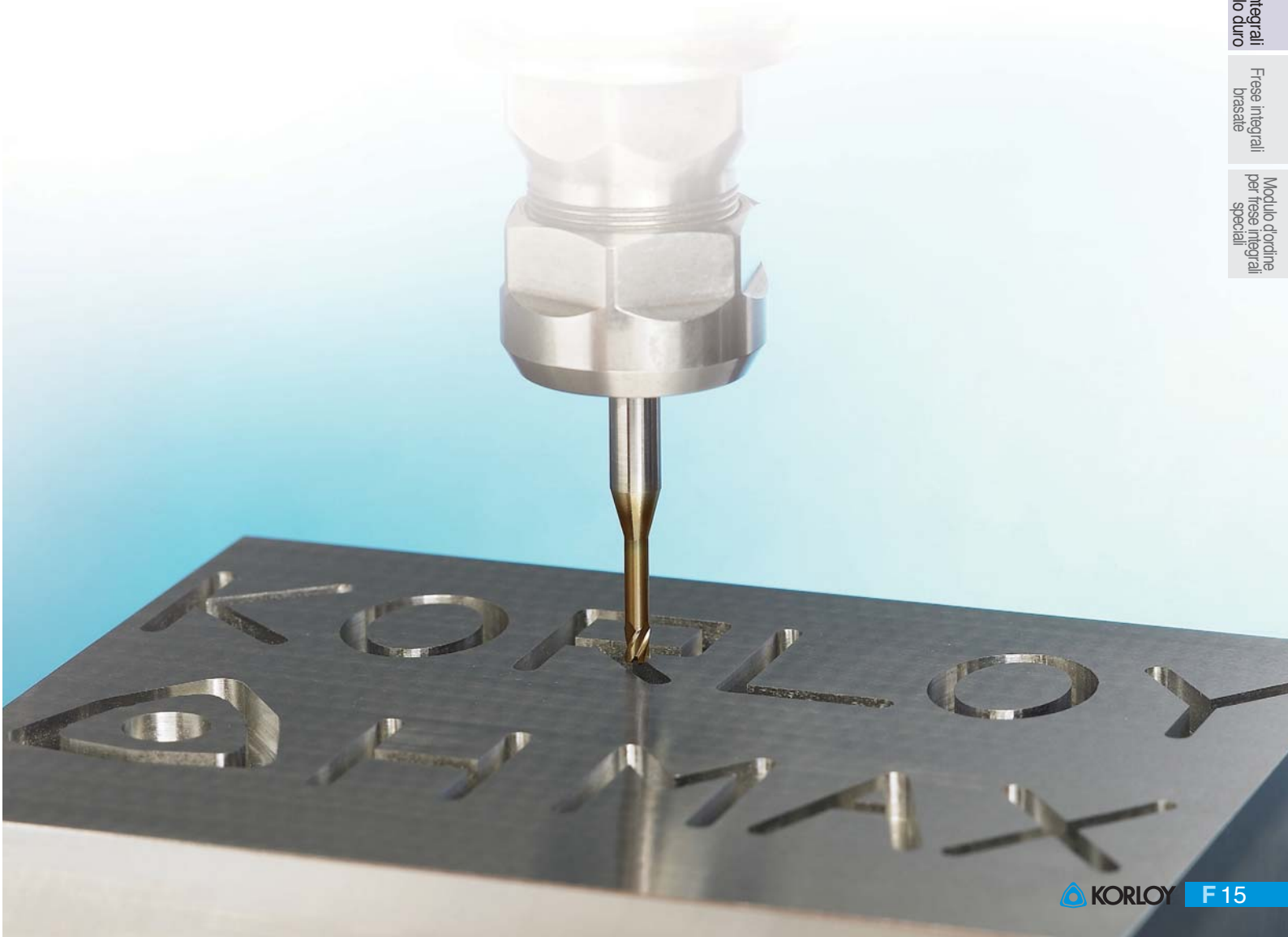
| DMAH | 004 | L01 | R02 | RB |
|---|---|---|---|---|
| **Tipo** | **Diametro** | **Sporgenza Inclinazione** | **Raggio di punta** | **Tipo di tagliente** |
| DMAH : Acciaio generico(HRC~55)<br>DMVH : Acciaio temprato(HRC~65) | Ø0.4 | L04 : 4.0<br>T130 : 1° 30′ | R0.2 | RB : Testa sferica<br>RF : Piatta<br>RNR : Torica<br>TNB : Rinforzata a testa sferica |

### Caratteristiche

- Frese integrali Rib a 2 taglienti per materiali temprati (HRC65) indicate per le lavorazioni ad alta velocità
- Per la lavorazione di stampi di parti di automobili, telefoni cellulari, componenti elettrici e semiconduttori
- Ideale per svuotamento tasche profonde e micro operazioni
- Speciale design del tagliente anti-scheggiatura




Ideali per lo svuotamento di tasche profonde e per micro operazioni.



## Condizioni di taglio raccomandate (DMAH/ DMVH-RB)

Fresatura ad alta velocità

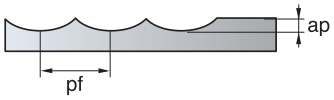
| Pezzo lavorato / Condizione | | | ~ 45HRC (SCM, STD61, NAK) | | | ~ 55HRC (STAVAX, STD11) | | | ~ 65HRC (STD11, SKH) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ØD | R | ℓ2 | R.P.M n(min$^{-1}$) | Avanzamento vf(mm/min) | Prof. assiale | R.P.M n(min$^{-1}$) | Avanzamento vf(mm/min) | Prof. assiale | R.P.M n(min$^{-1}$) | Avanzamento vf(mm/min) | Prof. assiale |
| 0.1 | 0.05 | 1 | 50,000 | 270 | 0.002 | 48,000 | 220 | 0.002 | 45,000 | 170 | 0.002 |
| | | 2 | 50,000 | 220 | 0.001 | 48,000 | 180 | 0.001 | 45,000 | 140 | 0.001 |
| 0.2 | 0.1 | 1 | 40,000 | 360 | 0.003 | 40,000 | 300 | 0.003 | 40,000 | 300 | 0.002 |
| | | 2 | 40,000 | 360 | 0.002 | 40,000 | 300 | 0.002 | 40,000 | 200 | 0.001 |
| 0.3 | 0.15 | 1 | 40,000 | 600 | 0.007 | 40,000 | 500 | 0.007 | 40,000 | 500 | 0.005 |
| | | 2 | 40,000 | 600 | 0.003 | 40,000 | 500 | 0.003 | 40,000 | 500 | 0.002 |
| | | 3 | 40,000 | 480 | 0.002 | 40,000 | 400 | 0.002 | 40,000 | 400 | 0.001 |
| 0.4 | 0.2 | 1 | 40,000 | 1,700 | 0.015 | 40,000 | 1,400 | 0.015 | 40,000 | 1,400 | 0.010 |
| | | 2 | 40,000 | 1,200 | 0.010 | 40,000 | 1,000 | 0.010 | 40,000 | 1,000 | 0.006 |
| | | 3 | 40,000 | 840 | 0.005 | 40,000 | 700 | 0.005 | 40,000 | 700 | 0.003 |
| | | 4 | 40,000 | 720 | 0.003 | 40,000 | 600 | 0.003 | 40,000 | 600 | 0.002 |
| | | 5 | 40,000 | 480 | 0.002 | 40,000 | 400 | 0.002 | 40,000 | 400 | 0.001 |
| 0.5 | 0.25 | 2 | 40,000 | 2,400 | 0.020 | 40,000 | 2,000 | 0.020 | 40,000 | 2,000 | 0.015 |
| | | 3 | 40,000 | 1,400 | 0.015 | 40,000 | 1,200 | 0.015 | 40,000 | 1,200 | 0.010 |
| | | 4 | 40,000 | 1,200 | 0.010 | 36,000 | 900 | 0.010 | 36,000 | 900 | 0.007 |
| | | 5 | 40,000 | 930 | 0.007 | 36,000 | 700 | 0.007 | 36,000 | 700 | 0.005 |
| | | 6 | 40,000 | 900 | 0.005 | 32,000 | 600 | 0.005 | 32,000 | 600 | 0.003 |
| | | 8 | 40,000 | 600 | 0.003 | 32,000 | 400 | 0.003 | 32,000 | 400 | 0.002 |
| | | 10 | 40,000 | 450 | 0.002 | 32,000 | 300 | 0.002 | 32,000 | 300 | 0.001 |
| 0.6 | 0.3 | 2 | 40,000 | 3,300 | 0.030 | 40,000 | 2,800 | 0.030 | 40,000 | 2,800 | 0.020 |
| | | 4 | 40,000 | 2,600 | 0.020 | 36,000 | 2,000 | 0.020 | 36,000 | 2,000 | 0.015 |
| | | 6 | 39,000 | 1,200 | 0.008 | 30,000 | 800 | 0.008 | 30,000 | 800 | 0.005 |
| | | 8 | 39,000 | 900 | 0.006 | 30,000 | 600 | 0.006 | 30,000 | 600 | 0.005 |
| | | 10 | 39,000 | 600 | 0.004 | 30,000 | 400 | 0.004 | 30,000 | 400 | 0.003 |
| 0.8 | 0.4 | 2 | 40,000 | 4,200 | 0.040 | 40,000 | 3,200 | 0.040 | 40,000 | 3,200 | 0.030 |
| | | 4 | 40,000 | 3,600 | 0.020 | 40,000 | 3,000 | 0.020 | 40,000 | 3,000 | 0.015 |
| | | 6 | 39,000 | 2,500 | 0.020 | 30,000 | 1,600 | 0.020 | 30,000 | 1,600 | 0.010 |
| | | 8 | 33,000 | 1,600 | 0.010 | 25,000 | 1,000 | 0.010 | 25,000 | 1,000 | 0.007 |
| | | 10 | 33,000 | 1,300 | 0.008 | 25,000 | 800 | 0.008 | 25,000 | 800 | 0.005 |
| 1.0 | 0.5 | 4 | 40,000 | 4,800 | 0.050 | 40,000 | 3,500 | 0.050 | 40,000 | 3,500 | 0.045 |
| | | 6 | 40,000 | 2,800 | 0.040 | 35,000 | 2,000 | 0.040 | 35,000 | 2,000 | 0.035 |
| | | 8 | 39,000 | 2,500 | 0.035 | 30,000 | 1,600 | 0.035 | 30,000 | 1,600 | 0.030 |
| | | 10 | 33,000 | 1,900 | 0.030 | 25,000 | 1,200 | 0.030 | 25,000 | 1,200 | 0.025 |
| | | 12 | 33,000 | 1,600 | 0.025 | 25,000 | 1,000 | 0.025 | 25,000 | 1,000 | 0.020 |
| | | 16 | 26,000 | 1,000 | 0.025 | 20,000 | 700 | 0.025 | 20,000 | 600 | 0.020 |
| | | 20 | 26,000 | 1,000 | 0.020 | 20,000 | 700 | 0.020 | 20,000 | 600 | 0.015 |
| 1.2 | 0.6 | 6 | 40,000 | 4,800 | 0.050 | 40,000 | 3,500 | 0.050 | 40,000 | 3,500 | 0.040 |
| | | 8 | 40,000 | 3,600 | 0.050 | 40,000 | 3,000 | 0.050 | 27,000 | 2,000 | 0.040 |
| | | 10 | 35,000 | 3,000 | 0.030 | 27,000 | 1,900 | 0.030 | 24,000 | 1,700 | 0.020 |
| | | 12 | 25,000 | 1,800 | 0.030 | 16,000 | 1,000 | 0.030 | 16,000 | 1,000 | 0.020 |
| | | 16 | 25,000 | 1,700 | 0.025 | 16,000 | 900 | 0.025 | 16,000 | 900 | 0.015 |
| 1.5 | 0.75 | 6 | 40,000 | 5,000 | 0.070 | 40,000 | 4,000 | 0.070 | 32,000 | 2,880 | 0.060 |
| | | 8 | 40,000 | 5,000 | 0.070 | 40,000 | 3,500 | 0.070 | 28,000 | 2,200 | 0.060 |
| | | 10 | 40,000 | 4,500 | 0.060 | 40,000 | 2,400 | 0.060 | 21,000 | 1,130 | 0.040 |
| | | 12 | 36,000 | 3,400 | 0.040 | 32,000 | 2,000 | 0.040 | 19,000 | 1,050 | 0.035 |
| | | 16 | 20,000 | 1,500 | 0.030 | 16,000 | 1,300 | 0.030 | 14,000 | 1,000 | 0.030 |
| | | 20 | 20,000 | 1,300 | 0.020 | 16,000 | 1,000 | 0.020 | 14,000 | 790 | 0.025 |
| 2.0 | 1.0 | 6 | 40,000 | 6,000 | 0.100 | 40,000 | 3,400 | 0.100 | 24,000 | 1,840 | 0.100 |
| | | 8 | 40,000 | 5,000 | 0.100 | 40,000 | 3,000 | 0.100 | 24,000 | 1,620 | 0.100 |
| | | 10 | 40,000 | 5,000 | 0.080 | 40,000 | 3,000 | 0.080 | 24,000 | 1,620 | 0.070 |
| | | 12 | 40,000 | 5,000 | 0.080 | 40,000 | 2,600 | 0.080 | 24,000 | 1,400 | 0.050 |
| | | 16 | 36,000 | 3,500 | 0.050 | 32,000 | 1,700 | 0.050 | 16,000 | 770 | 0.040 |
| | | 20 | 22,000 | 1,600 | 0.040 | 16,000 | 1,200 | 0.040 | 12,000 | 810 | 0.030 |
| | | 25 | 20,000 | 1,000 | 0.035 | 12,000 | 900 | 0.035 | 10,000 | 770 | 0.025 |
| | | 30 | 20,000 | 700 | 0.030 | 10,000 | 700 | 0.030 | 10,000 | 630 | 0.020 |

## Condizioni di taglio raccomandate (DMAH/ DMVH-RB)

Fresatura ad alta velocità

| Pezzo lavorato / Condizione | | | ~ 45HRC (SCM, STD61, NAK) | | | ~ 55HRC (STAVAX, STD11) | | | ~ 65HRC (STD11, SKH) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ØD | R | ℓ2 | R.P.M n(min$^{-1}$) | Avanzamento vf(mm/min) | Prof. assiale | R.P.M n(min$^{-1}$) | Avanzamento vf(mm/min) | Prof. assiale | R.P.M n(min$^{-1}$) | Avanzamento vf(mm/min) | Prof. assiale |
| 3.0 | 1.5 | 8 | 40,000 | 6,400 | 0.150 | 32,000 | 3,000 | 0.150 | 16,000 | 1,350 | 0.150 |
| | | 10 | 35,000 | 5,100 | 0.150 | 32,000 | 2,200 | 0.150 | 16,000 | 990 | 0.150 |
| | | 12 | 35,000 | 5,100 | 0.130 | 32,000 | 2,200 | 0.130 | 16,000 | 990 | 0.130 |
| | | 16 | 35,000 | 4,500 | 0.100 | 32,000 | 1,600 | 0.100 | 14,000 | 630 | 0.100 |
| | | 20 | 30,000 | 3,800 | 0.100 | 27,000 | 1,600 | 0.100 | 14,000 | 750 | 0.060 |
| | | 25 | 28,000 | 2,700 | 0.080 | 21,000 | 1,200 | 0.080 | 11,000 | 570 | 0.060 |
| | | 30 | 20,000 | 1,600 | 0.070 | 14,000 | 1,100 | 0.070 | 10,000 | 710 | 0.050 |
| | | 35 | 16,000 | 1,400 | 0.060 | 12,000 | 800 | 0.060 | 8,000 | 480 | 0.040 |
| 4.0 | 2.0 | 10 | 32,000 | 4,800 | 0.200 | 24,000 | 2,200 | 0.200 | 12,000 | 990 | 0.200 |
| | | 12 | 32,000 | 4,800 | 0.200 | 24,000 | 2,200 | 0.200 | 12,000 | 990 | 0.200 |
| | | 16 | 32,000 | 3,800 | 0.150 | 24,000 | 1,500 | 0.150 | 12,000 | 680 | 0.150 |
| | | 20 | 32,000 | 3,800 | 0.150 | 24,000 | 1,500 | 0.150 | 12,000 | 680 | 0.150 |
| | | 25 | 32,000 | 3,800 | 0.150 | 24,000 | 900 | 0.150 | 8,000 | 270 | 0.100 |
| | | 30 | 26,000 | 3,000 | 0.100 | 20,000 | 800 | 0.100 | 7,000 | 250 | 0.100 |
| | | 35 | 16,000 | 1,700 | 0.100 | 12,000 | 700 | 0.100 | 6,000 | 320 | 0.080 |
| | | 40 | 16,000 | 1,700 | 0.085 | 12,000 | 600 | 0.085 | 6,000 | 270 | 0.070 |
| | | 45 | 14,000 | 1,500 | 0.070 | 11,000 | 500 | 0.070 | 6,000 | 250 | 0.055 |
| | | 50 | 14,000 | 1,300 | 0.050 | 11,000 | 400 | 0.050 | 6,000 | 200 | 0.040 |
| 5.0 | 2.5 | 20 | 25,000 | 5,300 | 0.200 | 19,000 | 3,400 | 0.200 | 10,000 | 1,400 | 0.200 |
| | | 25 | 25,000 | 5,300 | 0.200 | 19,000 | 3,400 | 0.200 | 10,000 | 1,400 | 0.200 |
| | | 30 | 25,000 | 5,000 | 0.150 | 19,000 | 3,200 | 0.150 | 8,000 | 1,000 | 0.150 |
| | | 35 | 21,000 | 4,200 | 0.100 | 16,000 | 2,700 | 0.100 | 6,000 | 700 | 0.100 |
| | | 40 | 21,000 | 3,700 | 0.080 | 16,000 | 2,400 | 0.080 | 6,000 | 600 | 0.070 |
| 6.0 | 3.0 | 30 | 21,000 | 5,500 | 0.200 | 16,000 | 3,500 | 0.200 | 8,000 | 1,000 | 0.200 |
| | | 40 | 21,000 | 4,200 | 0.100 | 16,000 | 2,700 | 0.100 | 6,000 | 700 | 0.100 |
| | | 50 | 21,000 | 3,700 | 0.100 | 16,000 | 2,400 | 0.100 | 6,000 | 600 | 0.080 |

● Suggerimento




pf = ap×2

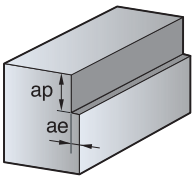
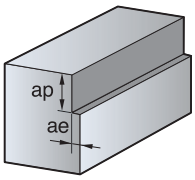
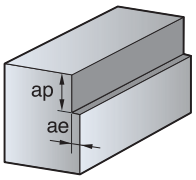
## Condizioni di taglio raccomandate (DMAH/ DMVH-RF/ Spallamento)

Fresatura ad alta velocità (laterale)

| Pezzo lavorato / Condizione | | ~ 45HRC (SCM, STD61, NAK) | | | ~ 55HRC (STAVAX, STD11) | | | ~ 65HRC (STD11, SKH) | | |
|---|---|---|---|---|---|---|---|---|---|---|
| ØD | ℓ2 | R.P.M n(min$^{-1}$) | Avanzamento vf(mm/min) | Prof. assiale | R.P.M n(min$^{-1}$) | Avanzamento vf(mm/min) | Prof. assiale | R.P.M n(min$^{-1}$) | Avanzamento vf(mm/min) | Prof. assiale |
| 0.1 | 1 | 38,000 | 290 | 0.008 | 32,000 | 170 | 0.005 | 23,000 | 90 | 0.003 |
| | 2 | 38,000 | 250 | 0.005 | 32,000 | 150 | 0.004 | 23,000 | 80 | 0.002 |
| 0.2 | 1 | 34,000 | 300 | 0.016 | 30,000 | 180 | 0.010 | 21,000 | 90 | 0.005 |
| | 2 | 34,000 | 260 | 0.010 | 30,000 | 160 | 0.008 | 21,000 | 80 | 0.004 |
| 0.3 | 1 | 34,000 | 340 | 0.027 | 30,000 | 210 | 0.015 | 21,000 | 110 | 0.007 |
| | 2 | 34,000 | 300 | 0.019 | 30,000 | 200 | 0.011 | 21,000 | 100 | 0.005 |
| | 3 | 34,000 | 280 | 0.014 | 28,000 | 180 | 0.008 | 19,000 | 90 | 0.004 |
| 0.4 | 1 | 34,000 | 340 | 0.040 | 30,000 | 240 | 0.022 | 21,000 | 130 | 0.011 |
| | 2 | 34,000 | 300 | 0.032 | 30,000 | 230 | 0.018 | 21,000 | 120 | 0.009 |
| | 3 | 34,000 | 280 | 0.024 | 30,000 | 220 | 0.013 | 21,000 | 110 | 0.007 |
| | 4 | 34,000 | 260 | 0.019 | 27,000 | 190 | 0.011 | 19,000 | 100 | 0.005 |
| | 5 | 34,000 | 240 | 0.014 | 27,000 | 180 | 0.008 | 19,000 | 90 | 0.004 |
| 0.5 | 2 | 34,000 | 680 | 0.045 | 30,000 | 450 | 0.025 | 21,000 | 220 | 0.012 |
| | 3 | 34,000 | 660 | 0.037 | 30,000 | 430 | 0.020 | 21,000 | 210 | 0.010 |
| | 4 | 34,000 | 640 | 0.024 | 30,000 | 420 | 0.013 | 21,000 | 200 | 0.007 |
| | 5 | 34,000 | 620 | 0.024 | 27,000 | 380 | 0.013 | 19,000 | 180 | 0.007 |
| | 6 | 34,000 | 600 | 0.019 | 27,000 | 380 | 0.011 | 19,000 | 170 | 0.005 |
| | 8 | 30,000 | 520 | 0.013 | 24,000 | 340 | 0.007 | 17,000 | 150 | 0.004 |
| | 10 | 30,000 | 500 | 0.008 | 24,000 | 340 | 0.004 | 17,000 | 140 | 0.002 |
| 0.6 | 2 | 32,000 | 980 | 0.054 | 26,000 | 600 | 0.030 | 19,000 | 290 | 0.015 |
| | 4 | 32,000 | 960 | 0.040 | 26,000 | 560 | 0.022 | 19,000 | 280 | 0.011 |
| | 6 | 32,000 | 940 | 0.029 | 26,000 | 540 | 0.016 | 19,000 | 270 | 0.008 |
| | 8 | 30,000 | 880 | 0.019 | 24,000 | 500 | 0.011 | 17,000 | 240 | 0.005 |
| | 10 | 30,000 | 860 | 0.014 | 24,000 | 480 | 0.008 | 17,000 | 230 | 0.004 |
| 0.8 | 2 | 32,000 | 1,600 | 0.064 | 26,000 | 910 | 0.035 | 19,000 | 500 | 0.018 |
| | 4 | 32,000 | 1,560 | 0.052 | 26,000 | 900 | 0.029 | 19,000 | 480 | 0.014 |
| | 6 | 32,000 | 1,520 | 0.038 | 26,000 | 880 | 0.021 | 19,000 | 470 | 0.011 |
| | 8 | 25,000 | 1,150 | 0.031 | 20,000 | 670 | 0.017 | 14,000 | 340 | 0.008 |
| | 10 | 25,000 | 1,100 | 0.023 | 20,000 | 650 | 0.013 | 14,000 | 330 | 0.006 |
| 1.0 | 4 | 32,000 | 2,000 | 0.057 | 26,000 | 1,150 | 0.031 | 19,000 | 600 | 0.016 |
| | 6 | 32,000 | 1,950 | 0.046 | 26,000 | 1,100 | 0.025 | 19,000 | 590 | 0.013 |
| | 8 | 30,000 | 1,800 | 0.037 | 24,000 | 1,000 | 0.020 | 17,000 | 530 | 0.010 |
| | 10 | 30,000 | 1,700 | 0.030 | 24,000 | 950 | 0.016 | 17,000 | 520 | 0.008 |
| | 12 | 25,000 | 1,500 | 0.024 | 20,000 | 800 | 0.013 | 14,000 | 430 | 0.007 |
| | 16 | 25,000 | 1,450 | 0.016 | 20,000 | 780 | 0.009 | 14,000 | 420 | 0.004 |
| | 20 | 25,000 | 1,400 | 0.011 | 20,000 | 760 | 0.006 | 14,000 | 400 | 0.003 |
| 1.2 | 6 | 30,000 | 2,000 | 0.061 | 24,000 | 1,200 | 0.033 | 17,000 | 600 | 0.017 |
| | 8 | 30,000 | 1,900 | 0.050 | 24,000 | 1,100 | 0.027 | 17,000 | 580 | 0.014 |
| | 10 | 26,000 | 1,600 | 0.045 | 20,000 | 900 | 0.025 | 14,000 | 470 | 0.012 |
| | 12 | 26,000 | 1,500 | 0.036 | 20,000 | 880 | 0.020 | 14,000 | 460 | 0.010 |
| | 16 | 19,000 | 1,000 | 0.026 | 16,000 | 700 | 0.014 | 12,000 | 380 | 0.007 |
| 1.5 | 6 | 30,000 | 2,400 | 0.084 | 24,000 | 1,400 | 0.051 | 17,000 | 700 | 0.025 |
| | 8 | 30,000 | 2,350 | 0.077 | 24,000 | 1,350 | 0.046 | 17,000 | 680 | 0.023 |
| | 10 | 30,000 | 2,300 | 0.062 | 24,000 | 1,300 | 0.037 | 17,000 | 670 | 0.018 |
| | 12 | 27,000 | 2,000 | 0.056 | 22,000 | 1,100 | 0.033 | 16,000 | 620 | 0.017 |
| | 16 | 15,000 | 1,100 | 0.041 | 12,000 | 600 | 0.024 | 9,000 | 350 | 0.012 |
| | 20 | 15,000 | 1,050 | 0.033 | 12,000 | 580 | 0.020 | 9,000 | 340 | 0.010 |
| 2.0 | 6 | 28,000 | 2,600 | 0.115 | 22,000 | 1,500 | 0.097 | 16,000 | 770 | 0.055 |
| | 8 | 28,000 | 2,500 | 0.103 | 22,000 | 1,470 | 0.087 | 16,000 | 750 | 0.049 |
| | 10 | 28,000 | 2,400 | 0.093 | 22,000 | 1,400 | 0.079 | 16,000 | 740 | 0.044 |
| | 12 | 28,000 | 2,300 | 0.084 | 22,000 | 1,350 | 0.071 | 16,000 | 720 | 0.040 |
| | 16 | 25,000 | 2,000 | 0.067 | 20,000 | 1,200 | 0.057 | 14,000 | 630 | 0.032 |
| | 20 | 16,000 | 1,500 | 0.055 | 13,000 | 780 | 0.046 | 10,000 | 450 | 0.026 |
| | 25 | 14,000 | 1,300 | 0.040 | 11,000 | 660 | 0.034 | 8,000 | 350 | 0.019 |
| | 30 | 14,000 | 1,200 | 0.033 | 11,000 | 640 | 0.028 | 8,000 | 340 | 0.016 |

## Condizioni di taglio raccomandate (DMAH/ DMVH-RF/ Spallamento)

Fresatura ad alta velocità (laterale)

| Pezzo lavorato / Condizione | | ~ 45HRC (SCM, STD61, NAK) | | | ~ 55HRC (STAVAX, STD11) | | | ~ 65HRC (STD11, SKH) | | |
|---|---|---|---|---|---|---|---|---|---|---|
| ØD | ℓ2 | R.P.M n(min$^{-1}$) | Avanzamento vf(mm/min) | Prof. assiale | R.P.M n(min$^{-1}$) | Avanzamento vf(mm/min) | Prof. assiale | R.P.M n(min$^{-1}$) | Avanzamento vf(mm/min) | Prof. assiale |
| 3.0 | 8 | 26,000 | 3,500 | 0.172 | 20,000 | 1,950 | 0.146 | 14,000 | 860 | 0.082 |
| | 10 | 26,000 | 3,400 | 0.172 | 20,000 | 1,900 | 0.146 | 14,000 | 840 | 0.082 |
| | 12 | 23,000 | 3,000 | 0.155 | 18,000 | 1,700 | 0.131 | 13,000 | 780 | 0.074 |
| | 16 | 23,000 | 2,900 | 0.139 | 18,000 | 1,650 | 0.118 | 13,000 | 770 | 0.066 |
| | 20 | 20,000 | 2,500 | 0.113 | 16,000 | 1,450 | 0.096 | 11,000 | 650 | 0.054 |
| | 25 | 18,000 | 2,200 | 0.102 | 14,000 | 1,250 | 0.087 | 10,000 | 590 | 0.049 |
| | 30 | 13,000 | 1,600 | 0.082 | 10,000 | 860 | 0.070 | 8,000 | 470 | 0.039 |
| | 35 | 12,000 | 1,450 | 0.066 | 9,500 | 800 | 0.056 | 7,000 | 410 | 0.032 |
| 4.0 | 10 | 20,000 | 3,200 | 0.229 | 16,000 | 1,800 | 0.149 | 11,000 | 880 | 0.080 |
| | 12 | 20,000 | 3,200 | 0.229 | 16,000 | 1,800 | 0.149 | 11,000 | 880 | 0.080 |
| | 16 | 20,000 | 3,000 | 0.207 | 16,000 | 1,700 | 0.134 | 11,000 | 870 | 0.073 |
| | 20 | 20,000 | 3,000 | 0.186 | 16,000 | 1,700 | 0.121 | 11,000 | 870 | 0.065 |
| | 25 | 20,000 | 2,800 | 0.167 | 16,000 | 1,600 | 0.109 | 11,000 | 820 | 0.059 |
| | 30 | 17,000 | 2,300 | 0.136 | 14,000 | 1,400 | 0.088 | 10,000 | 740 | 0.048 |
| | 35 | 11,000 | 1,500 | 0.122 | 9,500 | 900 | 0.079 | 7,000 | 510 | 0.043 |
| | 40 | 11,000 | 1,500 | 0.109 | 9,500 | 900 | 0.071 | 7,000 | 510 | 0.038 |
| | 45 | 10,000 | 1,300 | 0.098 | 8,000 | 730 | 0.064 | 6,000 | 430 | 0.034 |
| | 50 | 10,000 | 1,300 | 0.080 | 8,000 | 730 | 0.052 | 6,000 | 430 | 0.028 |
| 5.0 | 20 | 16,000 | 3,200 | 0.258 | 13,000 | 1,900 | 0.186 | 9,000 | 900 | 0.093 |
| | 25 | 16,000 | 3,200 | 0.232 | 13,000 | 1,900 | 0.167 | 9,000 | 900 | 0.084 |
| | 30 | 16,000 | 3,100 | 0.209 | 13,000 | 1,800 | 0.151 | 9,000 | 800 | 0.075 |
| | 35 | 14,000 | 2,700 | 0.188 | 11,000 | 1,500 | 0.136 | 8,000 | 700 | 0.068 |
| | 40 | 14,000 | 2,700 | 0.169 | 11,000 | 1,500 | 0.122 | 8,000 | 700 | 0.061 |
| 6.0 | 30 | 14,000 | 3,200 | 0.278 | 11,000 | 1,800 | 0.200 | 8,000 | 920 | 0.100 |
| | 40 | 14,000 | 2,800 | 0.226 | 11,000 | 1,600 | 0.162 | 8,000 | 880 | 0.081 |
| | 50 | 14,000 | 2,600 | 0.203 | 11,000 | 1,500 | 0.146 | 8,000 | 800 | 0.073 |
| ● Suggerimento | |   ae = 0.03×ØD | | |   ae = 0.02×ØD | | |   ae = 0.01×ØD | | |

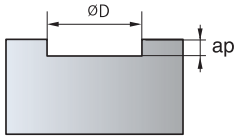
## Condizioni di taglio raccomandate (DMAH/ DMVH-RF/ Scanalatura)

Fresatura ad alta velocità (scanalatura)

| Pezzo lavorato / Condizione | | ~ 45HRC (SCM, STD61, NAK) | | | ~ 55HRC (STAVAX, STD11) | | | ~ 65HRC (STD11, SKH) | | |
|---|---|---|---|---|---|---|---|---|---|---|
| ØD | ℓ2 | R.P.M n(min$^{-1}$) | Avanzamento vf(mm/min) | Prof. assiale | R.P.M n(min$^{-1}$) | Avanzamento vf(mm/min) | Prof. assiale | R.P.M n(min$^{-1}$) | Avanzamento vf(mm/min) | Prof. assiale |
| 0.1 | 1 | 35,000 | 175 | 0.009 | 28,000 | 100 | 0.006 | 23,000 | 80 | 0.003 |
| | 2 | 34,000 | 135 | 0.005 | 27,000 | 80 | 0.004 | 22,000 | 60 | 0.002 |
| 0.2 | 1 | 32,000 | 220 | 0.018 | 26,000 | 130 | 0.011 | 21,000 | 100 | 0.006 |
| | 2 | 30,000 | 180 | 0.011 | 24,000 | 100 | 0.009 | 19,000 | 80 | 0.004 |
| 0.3 | 1 | 32,000 | 330 | 0.030 | 26,000 | 190 | 0.016 | 21,000 | 150 | 0.008 |
| | 2 | 32,000 | 255 | 0.021 | 26,000 | 160 | 0.012 | 21,000 | 130 | 0.006 |
| | 3 | 30,000 | 250 | 0.016 | 24,000 | 140 | 0.009 | 19,000 | 110 | 0.004 |
| 0.4 | 1 | 32,000 | 480 | 0.044 | 26,000 | 270 | 0.024 | 21,000 | 220 | 0.012 |
| | 2 | 32,000 | 330 | 0.035 | 26,000 | 190 | 0.019 | 21,000 | 150 | 0.010 |
| | 3 | 30,000 | 240 | 0.026 | 24,000 | 140 | 0.015 | 19,000 | 110 | 0.007 |
| | 4 | 30,000 | 225 | 0.021 | 24,000 | 130 | 0.012 | 19,000 | 100 | 0.006 |
| | 5 | 28,000 | 165 | 0.016 | 22,000 | 90 | 0.009 | 17,000 | 70 | 0.004 |
| 0.5 | 2 | 30,000 | 310 | 0.049 | 24,000 | 170 | 0.027 | 19,000 | 140 | 0.014 |
| | 3 | 30,000 | 255 | 0.040 | 24,000 | 140 | 0.022 | 19,000 | 113 | 0.011 |
| | 4 | 28,000 | 230 | 0.026 | 23,000 | 130 | 0.015 | 18,000 | 110 | 0.007 |
| | 5 | 28,000 | 220 | 0.026 | 23,000 | 130 | 0.015 | 18,000 | 100 | 0.007 |
| | 6 | 27,000 | 205 | 0.021 | 22,000 | 120 | 0.012 | 17,000 | 90 | 0.006 |
| | 8 | 27,000 | 180 | 0.014 | 22,000 | 100 | 0.008 | 17,000 | 85 | 0.004 |
| | 10 | 27,000 | 170 | 0.009 | 22,000 | 100 | 0.005 | 17,000 | 80 | 0.002 |
| 0.6 | 2 | 30,000 | 330 | 0.060 | 24,000 | 185 | 0.033 | 19,000 | 150 | 0.016 |
| | 4 | 30,000 | 240 | 0.044 | 24,000 | 130 | 0.024 | 19,000 | 110 | 0.012 |
| | 6 | 28,000 | 210 | 0.032 | 23,000 | 120 | 0.017 | 18,000 | 100 | 0.009 |
| | 8 | 27,000 | 200 | 0.021 | 22,000 | 110 | 0.012 | 17,000 | 90 | 0.006 |
| | 10 | 27,000 | 200 | 0.016 | 22,000 | 110 | 0.009 | 17,000 | 90 | 0.004 |
| 0.8 | 2 | 30,000 | 540 | 0.070 | 24,000 | 300 | 0.039 | 19,000 | 240 | 0.019 |
| | 4 | 28,000 | 450 | 0.058 | 23,000 | 260 | 0.032 | 18,000 | 210 | 0.016 |
| | 6 | 27,000 | 380 | 0.042 | 22,000 | 220 | 0.023 | 17,000 | 170 | 0.012 |
| | 8 | 27,000 | 300 | 0.034 | 22,000 | 180 | 0.019 | 17,000 | 150 | 0.009 |
| | 10 | 25,000 | 280 | 0.025 | 20,000 | 160 | 0.014 | 16,000 | 130 | 0.007 |
| 1.0 | 4 | 28,000 | 890 | 0.062 | 23,000 | 510 | 0.034 | 18,000 | 410 | 0.017 |
| | 6 | 27,000 | 810 | 0.050 | 22,000 | 460 | 0.028 | 17,000 | 370 | 0.014 |
| | 8 | 27,000 | 600 | 0.040 | 22,000 | 340 | 0.022 | 17,000 | 270 | 0.011 |
| | 10 | 27,000 | 540 | 0.033 | 22,000 | 310 | 0.018 | 17,000 | 260 | 0.009 |
| | 12 | 22,000 | 420 | 0.026 | 20,000 | 280 | 0.014 | 16,000 | 220 | 0.007 |
| | 16 | 22,000 | 400 | 0.017 | 20,000 | 240 | 0.010 | 16,000 | 190 | 0.005 |
| | 20 | 22,000 | 380 | 0.012 | 20,000 | 210 | 0.007 | 16,000 | 170 | 0.003 |
| 1.2 | 6 | 23,000 | 800 | 0.067 | 18,000 | 440 | 0.037 | 14,000 | 350 | 0.018 |
| | 8 | 21,000 | 600 | 0.055 | 17,000 | 340 | 0.030 | 13,000 | 280 | 0.015 |
| | 10 | 21,000 | 600 | 0.049 | 17,000 | 340 | 0.027 | 13,000 | 270 | 0.014 |
| | 12 | 21,000 | 580 | 0.039 | 17,000 | 330 | 0.022 | 13,000 | 260 | 0.011 |
| | 16 | 17,000 | 400 | 0.028 | 16,000 | 220 | 0.016 | 12,000 | 180 | 0.008 |
| 1.5 | 6 | 16,000 | 680 | 0.093 | 13,000 | 390 | 0.056 | 10,000 | 310 | 0.028 |
| | 8 | 15,000 | 500 | 0.084 | 12,000 | 280 | 0.051 | 9,500 | 220 | 0.025 |
| | 10 | 15,000 | 500 | 0.068 | 12,000 | 280 | 0.041 | 9,500 | 220 | 0.020 |
| | 12 | 15,000 | 500 | 0.061 | 12,000 | 280 | 0.037 | 9,500 | 220 | 0.018 |
| | 16 | 14,000 | 420 | 0.045 | 11,000 | 230 | 0.027 | 8,500 | 190 | 0.013 |
| | 20 | 14,000 | 420 | 0.036 | 11,000 | 230 | 0.022 | 8,500 | 190 | 0.011 |
| 2.0 | 6 | 15,000 | 950 | 0.126 | 12,000 | 530 | 0.107 | 9,500 | 430 | 0.060 |
| | 8 | 15,000 | 950 | 0.113 | 12,000 | 530 | 0.096 | 9,500 | 430 | 0.054 |
| | 10 | 15,000 | 840 | 0.102 | 12,000 | 470 | 0.087 | 9,500 | 380 | 0.049 |
| | 12 | 14,000 | 770 | 0.092 | 11,000 | 420 | 0.078 | 8,500 | 340 | 0.044 |
| | 16 | 14,000 | 770 | 0.074 | 11,000 | 420 | 0.063 | 8,500 | 340 | 0.035 |
| | 20 | 14,000 | 770 | 0.060 | 11,000 | 420 | 0.051 | 8,500 | 340 | 0.029 |
| | 25 | 13,000 | 700 | 0.044 | 10,000 | 380 | 0.037 | 8,000 | 300 | 0.021 |
| | 30 | 13,000 | 700 | 0.036 | 10,000 | 380 | 0.031 | 8,000 | 300 | 0.017 |

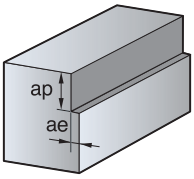
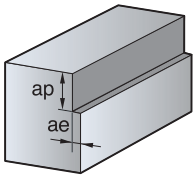
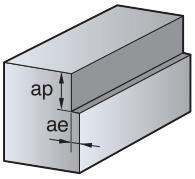
## Condizioni di taglio raccomandate (DMAH/ DMVH-RB/ Scanalatura)

Fresatura ad alta velocità (scanalatura)

| Pezzo lavorato / Condizione | | ~ 45HRC (SCM, STD61, NAK) | | | ~ 55HRC (STAVAX, STD11) | | | ~ 65HRC (STD11, SKH) | | |
|---|---|---|---|---|---|---|---|---|---|---|
| ØD | ℓ2 | R.P.M n(min$^{-1}$) | Avanzamento vf(mm/min) | Prof. assiale | R.P.M n(min$^{-1}$) | Avanzamento vf(mm/min) | Prof. assiale | R.P.M n(min$^{-1}$) | Avanzamento vf(mm/min) | Prof. assiale |
| 3.0 | 8 | 13,000 | 1,140 | 0.189 | 10,000 | 610 | 0.161 | 8,000 | 490 | 0.090 |
| | 10 | 13,000 | 1,140 | 0.189 | 10,000 | 610 | 0.161 | 8,000 | 490 | 0.090 |
| | 12 | 13,000 | 1,140 | 0.170 | 10,000 | 610 | 0.145 | 8,000 | 490 | 0.081 |
| | 16 | 11,000 | 910 | 0.153 | 8,500 | 490 | 0.130 | 6,500 | 390 | 0.073 |
| | 20 | 11,000 | 860 | 0.124 | 8,500 | 470 | 0.106 | 6,500 | 370 | 0.059 |
| | 25 | 11,000 | 860 | 0.112 | 8,500 | 470 | 0.095 | 6,500 | 370 | 0.053 |
| | 30 | 11,000 | 860 | 0.090 | 8,500 | 470 | 0.077 | 6,500 | 370 | 0.043 |
| | 35 | 10,000 | 780 | 0.073 | 8,000 | 440 | 0.062 | 6,000 | 340 | 0.035 |
| 4.0 | 10 | 8,000 | 1,020 | 0.252 | 6,500 | 580 | 0.164 | 5,500 | 460 | 0.089 |
| | 12 | 7,500 | 950 | 0.252 | 6,000 | 530 | 0.164 | 4,500 | 420 | 0.089 |
| | 16 | 7,500 | 950 | 0.227 | 6,000 | 530 | 0.148 | 4,500 | 420 | 0.080 |
| | 20 | 7,500 | 750 | 0.204 | 6,000 | 440 | 0.133 | 4,500 | 340 | 0.072 |
| | 25 | 7,500 | 750 | 0.184 | 6,000 | 420 | 0.120 | 4,500 | 340 | 0.065 |
| | 30 | 7,000 | 700 | 0.149 | 5,500 | 380 | 0.097 | 4,000 | 310 | 0.052 |
| | 35 | 7,000 | 700 | 0.134 | 5,500 | 380 | 0.087 | 4,000 | 310 | 0.047 |
| | 40 | 6,500 | 590 | 0.120 | 5,000 | 320 | 0.078 | 3,500 | 250 | 0.042 |
| | 45 | 6,500 | 590 | 0.108 | 5,000 | 320 | 0.070 | 3,500 | 250 | 0.038 |
| | 50 | 6,500 | 590 | 0.088 | 5,000 | 320 | 0.057 | 3,500 | 250 | 0.031 |
| 5.0 | 20 | 7,500 | 900 | 0.284 | 6,000 | 500 | 0.205 | 4,500 | 400 | 0.102 |
| | 25 | 7,500 | 900 | 0.255 | 6,000 | 500 | 0.184 | 4,500 | 400 | 0.092 |
| | 30 | 7,000 | 840 | 0.230 | 5,500 | 450 | 0.166 | 4,000 | 360 | 0.083 |
| | 35 | 7,000 | 800 | 0.207 | 5,500 | 440 | 0.149 | 4,000 | 350 | 0.075 |
| | 40 | 7,000 | 800 | 0.186 | 5,500 | 440 | 0.134 | 4,000 | 350 | 0.067 |
| 6.0 | 30 | 6,500 | 920 | 0.306 | 5,000 | 500 | 0.221 | 4,000 | 400 | 0.110 |
| | 40 | 6,000 | 820 | 0.248 | 4,500 | 430 | 0.179 | 3,500 | 340 | 0.089 |
| | 50 | 6,000 | 820 | 0.223 | 4,500 | 430 | 0.161 | 3,500 | 340 | 0.080 |
| ● Suggerimento | |   | | | | | | | | |

## Condizioni di taglio raccomandate (DMAH/ DMVH-RNR/ Spallamento)

Fresatura ad alta velocità (laterale)

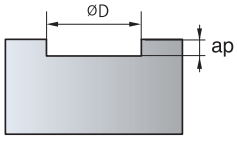
| Pezzo lavorato / Condizione | | ~ 45HRC (SCM, STD61, NAK) | | | ~ 55HRC (STAVAX, STD11) | | | ~ 65HRC (STD11, SKH) | | |
|---|---|---|---|---|---|---|---|---|---|---|
| ØD | ℓ2 | R.P.M n(min$^{-1}$) | Avanzamento vf(mm/min) | Prof. assiale | R.P.M n(min$^{-1}$) | Avanzamento vf(mm/min) | Prof. assiale | R.P.M n(min$^{-1}$) | Avanzamento vf(mm/min) | Prof. assiale |
| 1.0 | 4 | 38,000 | 2,380 | 0.057 | 30,000 | 1,320 | 0.031 | 24,000 | 740 | 0.016 |
| | 6 | 36,000 | 2,260 | 0.046 | 29,000 | 1,270 | 0.025 | 23,000 | 710 | 0.013 |
| | 8 | 36,000 | 2,260 | 0.037 | 29,000 | 1,270 | 0.020 | 23,000 | 710 | 0.010 |
| | 10 | 36,000 | 2,260 | 0.030 | 29,000 | 1,270 | 0.016 | 23,000 | 710 | 0.008 |
| | 12 | 34,000 | 2,130 | 0.024 | 27,000 | 1,180 | 0.013 | 22,000 | 680 | 0.007 |
| | 16 | 34,000 | 2,130 | 0.016 | 27,000 | 1,180 | 0.009 | 22,000 | 680 | 0.004 |
| | 20 | 34,000 | 2,130 | 0.011 | 27,000 | 1,180 | 0.006 | 22,000 | 680 | 0.003 |
| 1.5 | 6 | 32,000 | 2,570 | 0.084 | 26,000 | 1,460 | 0.051 | 21,000 | 830 | 0.025 |
| | 8 | 30,000 | 2,400 | 0.077 | 24,000 | 1,350 | 0.046 | 19,000 | 750 | 0.023 |
| | 10 | 30,000 | 2,400 | 0.062 | 24,000 | 1,350 | 0.037 | 19,000 | 750 | 0.018 |
| | 12 | 30,000 | 2,400 | 0.056 | 24,000 | 1,350 | 0.033 | 19,000 | 750 | 0.017 |
| | 16 | 28,000 | 2,250 | 0.041 | 22,000 | 1,240 | 0.024 | 18,000 | 710 | 0.012 |
| | 20 | 28,000 | 2,250 | 0.033 | 22,000 | 1,240 | 0.020 | 18,000 | 710 | 0.010 |
| 2.0 | 8 | 28,000 | 2,670 | 0.103 | 22,000 | 1,470 | 0.087 | 18,000 | 840 | 0.049 |
| | 10 | 28,000 | 2,670 | 0.093 | 22,000 | 1,470 | 0.079 | 18,000 | 840 | 0.044 |
| | 16 | 26,000 | 2,480 | 0.067 | 21,000 | 1,400 | 0.057 | 17,000 | 790 | 0.032 |
| | 20 | 26,000 | 2,480 | 0.055 | 21,000 | 1,400 | 0.046 | 17,000 | 790 | 0.026 |
| | 30 | 24,000 | 2,290 | 0.033 | 19,000 | 1,270 | 0.028 | 15,000 | 700 | 0.016 |
| 3.0 | 10 | 25,000 | 3,050 | 0.172 | 20,000 | 1,700 | 0.146 | 16,000 | 960 | 0.082 |
| | 12 | 25,000 | 3,050 | 0.155 | 20,000 | 1,700 | 0.131 | 16,000 | 960 | 0.074 |
| | 16 | 23,000 | 2,800 | 0.139 | 18,000 | 1,540 | 0.118 | 14,000 | 840 | 0.066 |
| | 20 | 23,000 | 2,800 | 0.113 | 18,000 | 1,540 | 0.096 | 14,000 | 840 | 0.054 |
| | 30 | 23,000 | 2,800 | 0.082 | 18,000 | 1,540 | 0.070 | 14,000 | 840 | 0.039 |
| | 35 | 21,000 | 2,560 | 0.066 | 17,000 | 1,450 | 0.056 | 13,500 | 810 | 0.032 |
| 4.0 | 10 | 19,000 | 3,050 | 0.229 | 15,000 | 1,680 | 0.149 | 12,000 | 940 | 0.080 |
| | 12 | 18,000 | 2,890 | 0.229 | 14,000 | 1,570 | 0.149 | 11,000 | 870 | 0.080 |
| | 16 | 18,000 | 2,890 | 0.207 | 14,000 | 1,570 | 0.134 | 11,000 | 870 | 0.073 |
| | 20 | 18,000 | 2,890 | 0.186 | 14,000 | 1,570 | 0.121 | 11,000 | 870 | 0.065 |
| 6.0 | 20 | 13,000 | 3,050 | 0.278 | 10,500 | 1,720 | 0.200 | 8,500 | 980 | 0.100 |
| | 30 | 13,000 | 3,050 | 0.278 | 10,500 | 1,720 | 0.200 | 8,500 | 980 | 0.100 |
| ● Suggerimento | |   ae = 0.03× ØD | | |   ae = 0.02× ØD | | |   ae = 0.01× ØD | | |

## Condizioni di taglio raccomandate (DMAH/ DMVH-RNR/Scanalatura)

Fresatura ad alta velocità (scanalatura)

| Pezzo lavorato / Condizione | | ~ 45HRC (SCM, STD61, NAK) | | | ~ 55HRC (STAVAX, STD11) | | | ~ 65HRC (STD11, SKH) | | |
|---|---|---|---|---|---|---|---|---|---|---|
| ØD | ℓ2 | R.P.M n(min$^{-1}$) | Avanzamento vf(mm/min) | Prof. assiale | R.P.M n(min$^{-1}$) | Avanzamento vf(mm/min) | Prof. assiale | R.P.M n(min$^{-1}$) | Avanzamento vf(mm/min) | Prof. assiale |
| 1.0 | 4 | 28,000 | 445 | 0.068 | 23,000 | 255 | 0.037 | 18,500 | 205 | 0.019 |
| | 6 | 27,000 | 405 | 0.055 | 22,000 | 230 | 0.030 | 17,500 | 185 | 0.015 |
| | 8 | 27,000 | 300 | 0.044 | 22,000 | 170 | 0.024 | 17,500 | 135 | 0.012 |
| | 10 | 27,000 | 270 | 0.036 | 22,000 | 155 | 0.020 | 17,500 | 130 | 0.010 |
| | 12 | 25,000 | 250 | 0.029 | 20,000 | 140 | 0.016 | 16,000 | 110 | 0.008 |
| | 16 | 25,000 | 210 | 0.019 | 20,000 | 120 | 0.010 | 16,000 | 95 | 0.005 |
| | 20 | 25,000 | 190 | 0.013 | 20,000 | 105 | 0.007 | 16,000 | 85 | 0.004 |
| 1.5 | 6 | 16,000 | 340 | 0.101 | 13,000 | 195 | 0.061 | 10,500 | 155 | 0.030 |
| | 8 | 15,000 | 250 | 0.092 | 12,000 | 140 | 0.055 | 9,600 | 110 | 0.028 |
| | 10 | 15,000 | 250 | 0.074 | 12,000 | 140 | 0.044 | 9,600 | 110 | 0.022 |
| | 12 | 15,000 | 250 | 0.067 | 12,000 | 140 | 0.040 | 9,600 | 110 | 0.020 |
| | 16 | 14,000 | 210 | 0.049 | 11,000 | 115 | 0.029 | 8,800 | 95 | 0.015 |
| | 20 | 14,000 | 210 | 0.039 | 11,000 | 115 | 0.024 | 8,800 | 95 | 0.012 |
| 2.0 | 8 | 15,000 | 475 | 0.123 | 12,000 | 265 | 0.105 | 9,600 | 215 | 0.059 |
| | 10 | 15,000 | 420 | 0.111 | 12,000 | 235 | 0.095 | 9,600 | 190 | 0.053 |
| | 16 | 14,000 | 385 | 0.081 | 11,000 | 210 | 0.069 | 8,800 | 170 | 0.038 |
| | 20 | 14,000 | 385 | 0.066 | 11,000 | 210 | 0.056 | 8,800 | 170 | 0.031 |
| | 30 | 13,000 | 350 | 0.039 | 10,000 | 190 | 0.033 | 8,000 | 150 | 0.019 |
| 3.0 | 10 | 13,000 | 570 | 0.206 | 10,000 | 305 | 0.175 | 8,000 | 245 | 0.098 |
| | 12 | 13,000 | 570 | 0.186 | 10,000 | 305 | 0.158 | 8,000 | 245 | 0.088 |
| | 16 | 11,000 | 455 | 0.167 | 8,500 | 245 | 0.142 | 6,800 | 195 | 0.080 |
| | 20 | 11,000 | 430 | 0.135 | 8,500 | 235 | 0.115 | 6,800 | 185 | 0.064 |
| | 30 | 11,000 | 430 | 0.098 | 8,500 | 235 | 0.084 | 6,800 | 185 | 0.047 |
| | 35 | 10,000 | 390 | 0.080 | 8,000 | 220 | 0.068 | 6,400 | 170 | 0.038 |
| 4.0 | 10 | 8,000 | 510 | 0.275 | 6,500 | 290 | 0.179 | 5,200 | 230 | 0.097 |
| | 12 | 7,500 | 475 | 0.275 | 6,000 | 265 | 0.179 | 4,800 | 210 | 0.097 |
| | 16 | 7,500 | 475 | 0.248 | 6,000 | 265 | 0.161 | 4,800 | 210 | 0.087 |
| | 20 | 7,500 | 375 | 0.223 | 6,000 | 220 | 0.145 | 4,800 | 170 | 0.078 |
| 6.0 | 20 | 6,500 | 460 | 0.334 | 5,000 | 250 | 0.241 | 4,000 | 200 | 0.120 |
| | 30 | 6,500 | 460 | 0.334 | 5,000 | 250 | 0.241 | 4,000 | 200 | 0.120 |

● Suggerimento

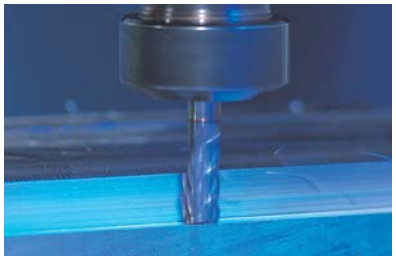


## Frese integrali in metallo duro per materiali pastosi

### Sistema di codifica per frese integrali in metallo duro per materiali pastosi

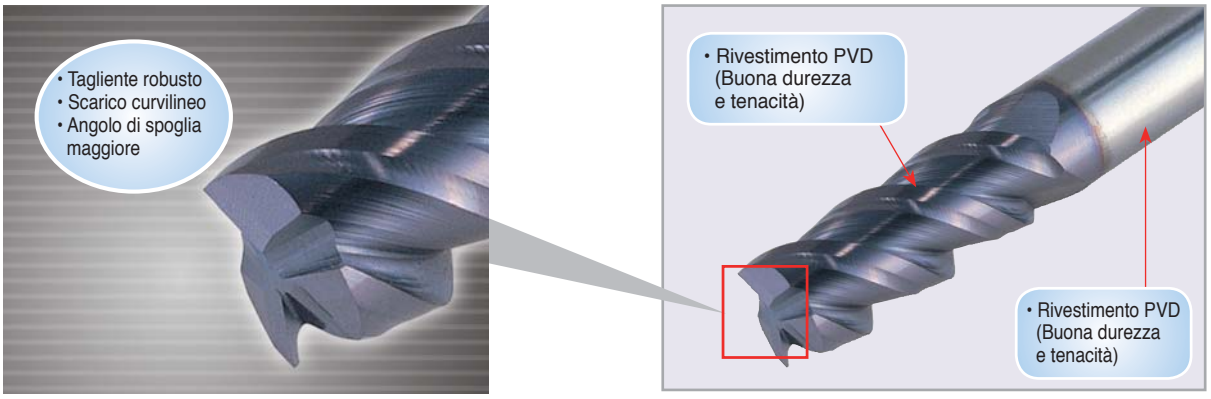
| I | FS | E | 3 | 030 | – | 045 |
|---|---|---|---|---|---|---|
| Rivestimento | Flat solid | Frese integrali | N. di taglienti: 3 taglienti | Diametro: Ø3.0 | | Lunghezza utensile: 45mm |

### Caratteristiche



- Elevato angolo di spoglia e scarico curvilineo per una migliore evacuazione del truciolo.
- Tagliente speciale per materiali auto tempranti.
- Ideale per la lavorazione dell'acciaio inossidabile (acciaio inossidabile, lega di titanio, Inconel, acciaio, acciaio legato).
- Molteplici applicazioni (spallamento, scanalatura, ramping).

### Forma del prodotto




### Soluzione dei problemi durante la lavorazione dell'acciaio inossidabile

**Lavorazione di acciaio inossidabiile e materiali auto tempranti**

- Cattiva superficie di finitura
- Elevate temperature sul tagliente
- Tagliente di riporto
- Sforzo di attrito alle alte temperature
- Formazione e controllo del truciolo difficili

**Soluzione dei problemi durante la lavorazione dell'acciaio inossidabile**

- Basse velocità di taglio
- Tagliente affilato
- Refrigerante per basse temperature
- Sistema di raffreddamento ad aria o con lubrificante per una migliore evacuazione del truciolo
- Maggiore durezza dei substrati e del rivestimento

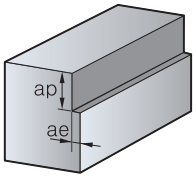
## Confronto tra acciaio inossidabile e acciaio al carbonio

| Classificazione | | Grado KS | Carico di rottura ($kgf/mm^2$) | Coefficiente di dilatazione termica (10-6/°C) | Rapporto di dilatazione termica ($10^{-2}$cal/cm.s.°C) | Magnetico | Ricotto | Durezza (HB) | Capacità macchina (%) |
|---|---|---|---|---|---|---|---|---|---|
| Acciaio al carbonio | | SS34 SS41<br>SM10C<br>SM15C | 38~65 | 11.4 | 11.2 | ○ | ○ | 110~180 | 50~70 |
| Acciaio inossidabile | Martensitico | STS403<br>STS410<br>STS431 | 550이상 | 9.9~11.7 | 5.9 | ○ | ○ | 215 | 50~60 |
| | Ferritico | STS405<br>STS430 | 50~60 | 10.4 | 6.4 | ○ | × | 183 | 50~60 |
| | Austenitico | STS301<br>STS304<br>STS316 | 55~65 | 14.4~16.9 | 3.8 | × | × | 187 | 35~45 |

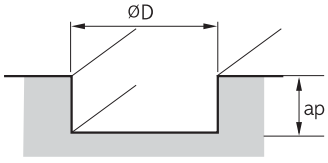
## Condizioni di taglio raccomandate

| Pezzo lavorato / Condizione / Diametro(Ø) | Acciaio inossidabile STS | | Lega di titanio / Inconel | | Acciaio normale (SS, SM) (inf. HRC25) | | Acciaio legato (SCM) (HRC25~35) | | Acciaio temprato (STD) (HRC40~50) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | R.P.M $n(min^{-1})$ | Avanzamento vf(mm/min) | R.P.M $n(min^{-1})$ | Avanzamento vf(mm/min) | R.P.M $n(min^{-1})$ | Avanzamento vf(mm/min) | R.P.M $n(min^{-1})$ | Avanzamento vf(mm/min) | R.P.M $n(min^{-1})$ | Avanzamento vf(mm/min) |
| 2 | 5,500 | 240 | 2,600 | 90 | 9,000 | 540 | 6,000 | 3,200 | 4,000 | 240 |
| 4 | 4,000 | 260 | 2,000 | 90 | 6,600 | 600 | 4,500 | 340 | 3,000 | 280 |
| 6 | 3,000 | 360 | 1,200 | 90 | 4,800 | 720 | 3,000 | 360 | 2,500 | 280 |
| 8 | 2,000 | 390 | 1,000 | 100 | 3,600 | 750 | 2,200 | 460 | 2,000 | 300 |
| 10 | 1,700 | 410 | 800 | 120 | 2,800 | 750 | 1,800 | 460 | 1,500 | 300 |
| 12 | 1,500 | 380 | 700 | 100 | 2,400 | 710 | 1,500 | 410 | 1,200 | 280 |
| 14 | 1,200 | 320 | 600 | 95 | 2,200 | 660 | 1,300 | 370 | 1,000 | 270 |
| 16 | 1,000 | 270 | 500 | 90 | 1,800 | 490 | 1,100 | 320 | 800 | 230 |
| 20 | 750 | 250 | 400 | 85 | 900 | 270 | 900 | 270 | 600 | 200 |

● Suggerimento




■ Profondità di spallamento (ap) e profondità radiale (ae)
- Acciaio normale, acciaio legato
- Lega di titanio, Inconel, acciaio temprato




■ Profondità di scanalatura (ap)
- Acciaio normale, acciaio legato
- Acciaio inossidabile
- Lega di titanio, Inconel, acciaio temprato

## Frese integrali in metallo duro per alluminio

### Sistema di codifica delle frese integrali in metallo duro per alluminio

| SSE | A | 2 | - | 010 |
|---|---|---|---|---|
| **Solid Endmill**<br>Frese integrali piatte in metallo duro | **Uso**<br>Alluminio | **N. di taglienti**<br>2 : 2 taglienti<br>3 : 3 taglienti | | **Diametro**<br>Ø1.0 |

### Caratteristiche

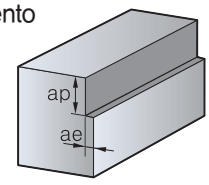
- Sforzi di taglio e riporto sul tagliente minimi
- Buona superficie di finitura
- Rivestimento DLC
  - Maggiore durezza (Hv3000-7000), maggiore durata dell'utensile rispetto alle frese integrali non rivestite
  - Ottima lubrificazione e basso coefficiente di attrito (u<0.1),
  - Buona evacuazione del truciolo
  - Alluminio, lega di alluminio, rame e lega di rame



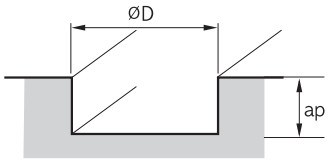
### Condizioni di taglio raccomandate (SSEA2000)

| Pezzo lavorato / Condizione / Diametro(Ø) | Spallamento | | | | Scanalatura | | | |
|---|---|---|---|---|---|---|---|---|
| | Lega di alluminio (A7075) | | Lega di alluminio (fusa) (AC4B) | | Lega di alluminio (A7075) | | Lega di alluminio (fusa) (AC4B) | |
| | R.P.M n(min$^{-1}$) | Avanzamento vf(mm/min) | R.P.M n(min$^{-1}$) | Avanzamento vf(mm/min) | R.P.M n(min$^{-1}$) | Avanzamento vf(mm/min) | R.P.M n(min$^{-1}$) | Avanzamento vf(mm/min) |
| 1 | 40,000 | 480 | 40,000 | 368 | 40,000 | 368 | 40,000 | 280 |
| 2 | 40,000 | 880 | 38,000 | 680 | 38,000 | 680 | 32,000 | 440 |
| 3 | 32,000 | 1,120 | 25,000 | 760 | 25,000 | 760 | 21,000 | 480 |
| 4 | 24,000 | 1,200 | 19,000 | 800 | 19,000 | 800 | 13,000 | 520 |
| 5 | 19,000 | 1,280 | 15,000 | 880 | 15,000 | 800 | 13,000 | 560 |
| 6 | 16,000 | 1,520 | 13,000 | 960 | 13,000 | 880 | 11,000 | 600 |
| 8 | 12,000 | 1,520 | 9,500 | 960 | 9,500 | 960 | 8,000 | 640 |
| 10 | 9,500 | 1,520 | 7,600 | 960 | 7,600 | 960 | 6,400 | 640 |
| 12 | 8,000 | 1,520 | 6,400 | 960 | 6,400 | 960 | 5,300 | 640 |
| 16 | 6,000 | 1,520 | 4,800 | 960 | 4,800 | 800 | 4,000 | 576 |
| 20 | 4,800 | 1,200 | 3,800 | 800 | 3,800 | 776 | 3,200 | 528 |

● Suggerimento




□Profondità di spallamento (ap) e profondità radiale (ae)
- ae≤0.2D(D<3)
- ae≤0.5D(D≥3)




■ Profondità di scanalatura (ap)
- ap≤D(max.12mm)

1. Lo staffaggio del pezzo lavorato deve essere robusto. In caso di vibrazioni, ridurre i giri al minuto e l'avanzamento in uguali proporzioni.

### Lavorazione di rame e alluminio

1. Tagliente di riporto
2. Una bassa resistenza al calore può provocare sforzi inutili o problemi di accuratezza dopo la lavorazione
3. Una bassa durezza può provocare graffiature
4. Scarsa durata dell'utensile a causa dell'usura sul fianco

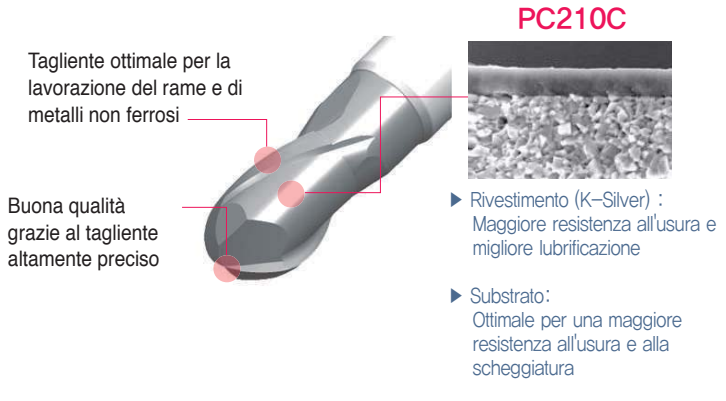
### Soluzione dei problemi nella lavorazione di rame e alluminio

1. Utilizzare angolo di spoglia maggiore, tagliente affilato e lubrificante nebulizzato (MQL) per ridurre gli sforzi di taglio e il riporto sul tagliente
2. Aumentare Vc e ridurre la profondità di taglio per ottenere una superficie di finitura migliore

# Frese integrali C-Max
(Rame)

## Caratteristiche

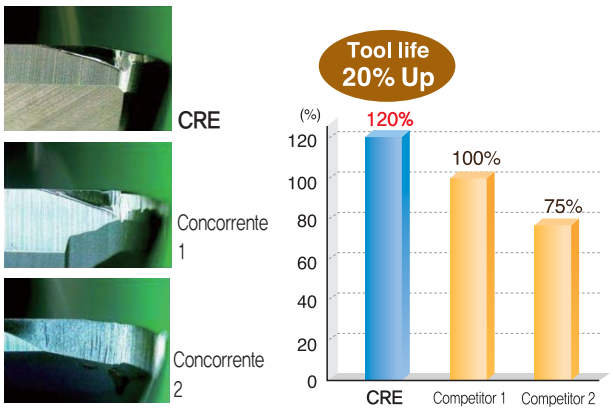
- Maggiore proprietà lubrificante, resistenza all'usura e alla scheggiatura grazie al rivestimento K-Silver e all'ottimo substrato
- Ottima per la lavorazione di rame e metallo non ferroso
- Vasta gamma (testa sferica, piatta, torica e tipo lungo)
- Lunga durata dell'utensile e buona superficie di sgrossatura nella lavorazione di elettrodi




## Esempio di lavorazione

• Lavorazione di elettrodi
Pezzo lavorato : Cu
Condizioni di taglio : vc=70(m/min), fz=0.083(mm/t), ae=3.0, ap=0.6,
Articolo : CRE4100-070-R10

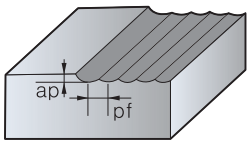
• Risultato test



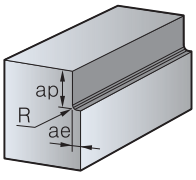

## Condizioni di taglio raccomandate

| | CBE/CBNE | | CFE/CFNE | | CRE/CRNE | |
|---|---|---|---|---|---|---|
| Pezzo lavorato | Leghe di rame | | | | | |
| Condizione / Diametro(Ø) | R.P.M n(min$^{-1}$) | Avanzamento vf(mm/min) | R.P.M n(min$^{-1}$) | Avanzamento vf(mm/min) | R.P.M n(min$^{-1}$) | Avanzamento vf(mm/min) |
| 0.5 | 40,000 | 2,600 | 40,000 | 1,800 | | |
| 1 | 40,000 | 2,800 | 40,000 | 2,000 | 40,000 | 2,000 |
| 1.5 | 40,000 | 3,200 | 40,000 | 2,400 | 30,000 | 2,400 |
| 2 | 40,000 | 3,600 | 30,000 | 1,800 | 30,000 | 1,800 |
| 3 | 40,000 | 4,000 | 23,000 | 1,380 | 20,000 | 1,380 |
| 4 | 32,000 | 3,200 | 15,000 | 900 | 15,000 | 900 |
| 5 | 25,000 | 2,500 | 12,000 | 750 | 12,000 | 750 |
| 6 | 21,000 | 2,100 | 10,000 | 600 | 10,000 | 600 |
| 8 | 16,000 | 1,600 | 8,000 | 480 | 8,000 | 480 |
| 10 | 13,000 | 1,300 | 6,400 | 384 | 6,400 | 384 |
| 12 | 9,000 | 900 | 5,400 | 324 | 5,400 | 324 |

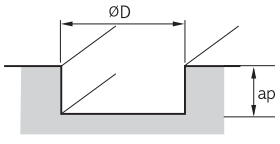
● Suggerimento



• ap=0.1D , pf=0.2D



• ap=1.5D , ae=0.1D



• ap≤1.5D

∗In caso di vibrazioni, ridurre i giri al minuto e l'avanzamento in uguali proporzioni

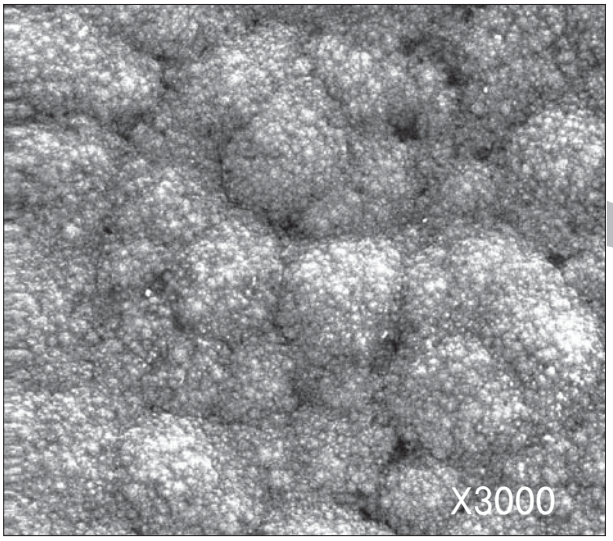
## D-Max



### Caratteristiche

- Esclusivo rivestimento in diamante che si avvale della più moderna tecnologia
- Buona superficie di sgrossatura grazie alla migliore geometria delle frese integrali e al substrato ultrafine
- Ampia gamma di applicazioni, dal taglio interrotto al taglio di elevata precisione
- Durata dell'utensile maggiore di 10~20 volte rispetto alle frese integrali in metallo duro senza rivestimento

### Geometria del rivestimento e della fresa integrale




ND3000 Rivestito

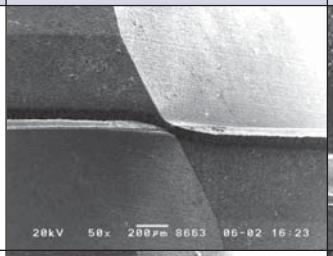
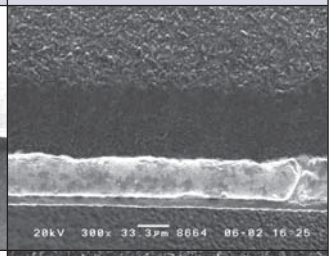
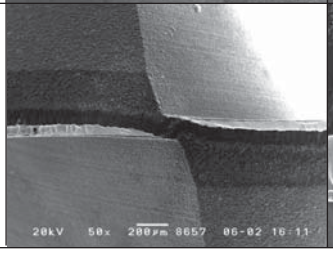
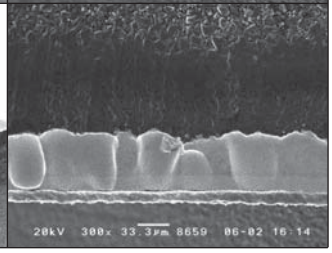


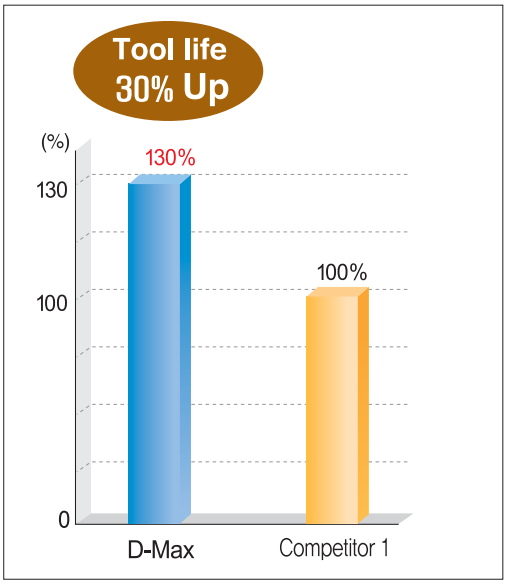

### Esempio di lavorazione

• Risultato test

Pezzo lavorato: Grafite

Condizioni di taglio : n=16,000(mim$^{-1}$) vf=2,6000(mm/min) ap=1.5mm ae=0.6mm

| | Usura | Dettaglio usura |
|---|---|---|
| KORLOY |  |  |
| Concorrente |  |  |



## Condizioni di taglio raccomandate (DFE2000 Tipo piatto)

| Pezzo lavorato / Condizione / Diametro(Ø) | Grafite | | Leghe di alluminio | | Leghe di rame | |
|---|---|---|---|---|---|---|
| | R.P.M n(min⁻¹) | Avanzamento vf(mm/min) | R.P.M n(min⁻¹) | Avanzamento vf(mm/min) | R.P.M n(min⁻¹) | Avanzamento vf(mm/min) |
| 3 | 21,000 | 1,280 | 21,000 | 670 | 21,000 | 640 |
| 4 | 16,000 | 1,180 | 16,000 | 670 | 16,000 | 640 |
| 6 | 10,500 | 1,180 | 10,500 | 670 | 10,500 | 560 |
| 8 | 8,000 | 1,080 | 8,000 | 600 | 8,000 | 540 |

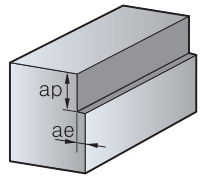
## Condizioni di taglio raccomandate (DBE2000 testa sferica)

| Pezzo lavorato / Condizione / Diametro(Ø) | Grafite | | Leghe di alluminio | | Leghe di rame | |
|---|---|---|---|---|---|---|
| | R.P.M n(min⁻¹) | Avanzamento vf(mm/min) | R.P.M n(min⁻¹) | Avanzamento vf(mm/min) | R.P.M n(min⁻¹) | Avanzamento vf(mm/min) |
| 4 | 15,000 | 1,900 | 15,900 | 1,550 | 11,900 | 1,150 |
| 6 | 15,000 | 1,900 | 10,500 | 1,550 | 7,950 | 1,150 |
| 8 | 13,900 | 1,900 | 7,950 | 1,550 | 5,950 | 1,150 |

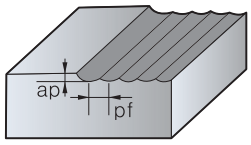
## Condizioni di taglio raccomandate (DRE2000 torica)

| Pezzo lavorato / Condizione / Diametro(Ø) | Grafite | | Leghe di alluminio | | Leghe di rame | |
|---|---|---|---|---|---|---|
| | R.P.M n(min⁻¹) | Avanzamento vf(mm/min) | R.P.M n(min⁻¹) | Avanzamento vf(mm/min) | R.P.M n(min⁻¹) | Avanzamento vf(mm/min) |
| 4 | 13,990 | 1,180 | 15,900 | 670 | 11,990 | 640 |
| 6 | 13,900 | 1,180 | 10,500 | 670 | 7,950 | 560 |
| 8 | 10,000 | 1,080 | 7,950 | 600 | 5,950 | 540 |

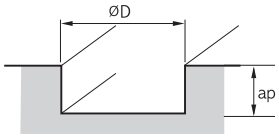
### Suggerimento




- Grafite
  ap=1.5D, ae=0.1D
- Leghe di alluminio
  ap=1.5D, pf=0.1D
- Leghe di rame
  ap=1.5D, pf=0.1D




- Grafite
  ap=0.5D, pf=0.1D
- Leghe di alluminio
  ap=0.5D, pf=0.1D
- Leghe di rame
  ap=0.5D, pf=0.1D




- Grafite
  ap=0.1D
- Leghe di alluminio
  ap=0.1D
- Leghe di rame
  ap=0.1D

## Frese integrali cBN

### Sistema di codifica delle frese integrali cBN

| CSBE | 040 | L06 | R02 |
|---|---|---|---|
| **Tipo di fresa integrale** | **Diametro** | **Sporgenza** | **Raggio di punta** |
| CSBE : Tipo a testa sferica<br>CSRE : Tipo torica | Ø0.4 | 6 | R0.2 |

### Caratteristiche

- Ottime prestazioni di taglio con materiale di elevata durezza
- Maggiore resistenza alla scheggiatura ed elevata precisione di lavorazione
- Ottima resistenza all'usura in condizioni di taglio pesante
- Lunga durata dell'utensile grazie alla buona resistenza all'usura
- Prestazioni di taglio superiori rispetto alle frese integrali rivestite







## Condizioni di taglio raccomandate (CSBE)

| Pezzo lavorato | | | | | STAVAX, STD61 ~ HRC 52 | | | STD11, STS420 HRC 50~62 | | | SKH HRC 60~70 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Articolo | Diametro | Raggio | Lunghez. collo | n(min⁻¹) | vf(mm/min) | ap(mm) | n(min⁻¹) | vf(mm/min) | ap(mm) | n(min⁻¹) | vf(mm/min) | ap(mm) |
| CSBE | 030L008 | 0.3 | 0.15 | 0.8 | 45,000 | 500 | 0.005 | 45,000 | 450 | 0.005 | 40,000 | 340 | 0.005 |
| | 030L01 | 0.3 | 0.2 | 1.0 | 45,000 | 500 | 0.005 | 45,000 | 450 | 0.005 | 40,000 | 340 | 0.005 |
| | 040L01 | 0.4 | 0.2 | 1.0 | 40,000 | 550 | 0.006 | 40,000 | 500 | 0.006 | 35,000 | 380 | 0.006 |
| | 040L02 | 0.4 | 0.2 | 2.0 | 35,000 | 450 | 0.005 | 35,000 | 400 | 0.005 | 30,000 | 300 | 0.005 |
| | 050L02 | 0.5 | 0.25 | 2.0 | 30,000 | 450 | 0.006 | 30,000 | 400 | 0.006 | 28,000 | 320 | 0.006 |
| | 060L02 | 0.6 | 0.3 | 2.0 | 35,000 | 700 | 0.008 | 35,000 | 600 | 0.008 | 32,000 | 470 | 0.008 |
| | 060L04 | 0.6 | 0.3 | 4.0 | 26,000 | 480 | 0.005 | 25,000 | 400 | 0.005 | 24,000 | 330 | 0.005 |
| | 080L02 | 0.8 | 0.4 | 2.0 | 30,000 | 700 | 0.010 | 30,000 | 600 | 0.010 | 28,000 | 480 | 0.010 |
| | 080L04 | 0.8 | 0.4 | 4.0 | 22,000 | 370 | 0.008 | 20,000 | 300 | 0.008 | 18,000 | 230 | 0.008 |
| | 100L03 | 1.0 | 0.5 | 3.0 | 26,000 | 800 | 0.014 | 25,000 | 650 | 0.012 | 22,000 | 500 | 0.012 |
| | 100L06 | 1.0 | 0.5 | 6.0 | 20,000 | 450 | 0.008 | 18,000 | 360 | 0.008 | 15,000 | 270 | 0.008 |
| | 100L10 | 1.0 | 0.5 | 10.0 | Per la lavorazione della grafite | | | | | | | | |
| | 120L06 | 1.2 | 0.6 | 6.0 | 22,000 | 960 | 0.016 | 20,000 | 800 | 0.016 | 18,000 | 620 | 0.016 |
| | 150L04 | 1.5 | 0.75 | 4.0 | 26,000 | 1,600 | 0.025 | 25,000 | 1,300 | 0.025 | 22,000 | 1,000 | 0.020 |
| | 150L06 | 1.5 | 0.75 | 6.0 | 23,000 | 1,100 | 0.020 | 22,000 | 900 | 0.025 | 20,000 | 700 | 0.020 |
| | 150L10 | 1.5 | 0.75 | 10.0 | 19,000 | 770 | 0.015 | 18,000 | 700 | 0.015 | 15,000 | 500 | 0.015 |
| | 200L04 | 2.0 | 1.0 | 4.0 | 25,000 | 1,700 | 0.030 | 23,000 | 1,500 | 0.022 | 20,000 | 1,100 | 0.022 |
| | 200L06 | 2.0 | 1.0 | 6.0 | 22,000 | 1,500 | 0.022 | 20,000 | 1,200 | 0.022 | 18,000 | 900 | 0.022 |
| | 200L10 | 2.0 | 1.0 | 10.0 | 17,000 | 900 | 0.018 | 15,000 | 700 | 0.018 | 13,000 | 520 | 0.018 |
| | 200L15 | 2.0 | 1.0 | 15.0 | 15,000 | 700 | 0.015 | 13,000 | 550 | 0.015 | 11,000 | 400 | 0.015 |
| | 300L06 | 3.0 | 1.5 | 6.0 | 20,000 | 1,600 | 0.033 | 20,000 | 1,400 | 0.033 | 18,000 | 1,080 | 0.033 |
| | 300L08 | 3.0 | 1.5 | 8.0 | 18,000 | 1,250 | 0.030 | 18,000 | 1,100 | 0.030 | 16,000 | 850 | 0.030 |
| | 300L12 | 3.0 | 1.5 | 12.0 | 17,000 | 1,100 | 0.030 | 16,000 | 900 | 0.030 | 14,000 | 680 | 0.030 |
| | 300L16 | 3.0 | 1.5 | 16.0 | 15,000 | 850 | 0.020 | 14,000 | 700 | 0.020 | 12,000 | 520 | 0.020 |
| | 400L20 | 4.0 | 2.0 | 20.0 | 17,000 | 1,470 | 0.040 | 17,000 | 1,300 | 0.040 | 15,000 | 1,000 | 0.040 |

## Condizioni di taglio raccomandate (CSRE)

| Pezzo lavorato | | | | | STAVAX, STD61 ~ HRC 52 | | | STD11, STS420 HRC 50~62 | | | SKH HRC 60~70 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Articolo | Diametro | Raggio | Lunghez. collo | n(min⁻¹) | vf(mm/min) | ap(mm) | n(min⁻¹) | vf(mm/min) | ap(mm) | n(min⁻¹) | vf(mm/min) | ap(mm) |
| CSRE | 040L01R005 | 0.4 | 0.05 | 1.0 | 40,000 | 550 | 0.006 | 40,000 | 500 | 0.006 | 35,000 | 380 | 0.006 |
| | 050L01R005 | 0.5 | 0.05 | 1.0 | 35,000 | 550 | 0.007 | 35,000 | 500 | 0.007 | 30,000 | 370 | 0.007 |
| | 050L01R01 | 0.5 | 0.10 | 1.0 | 35,000 | 550 | 0.007 | 35,000 | 500 | 0.007 | 30,000 | 370 | 0.007 |
| | 060L02R005 | 0.6 | 0.05 | 2.0 | 35,000 | 700 | 0.008 | 35,000 | 600 | 0.008 | 32,000 | 470 | 0.008 |
| | 060L02R01 | 0.6 | 0.10 | 2.0 | 35,000 | 700 | 0.008 | 35,000 | 600 | 0.008 | 32,000 | 470 | 0.008 |
| | 080L02R01 | 0.8 | 0.10 | 2.0 | 30,000 | 700 | 0.010 | 30,000 | 600 | 0.010 | 28,000 | 480 | 0.010 |
| | 080L03R01 | 0.8 | 0.10 | 3.0 | 26,000 | 560 | 0.010 | 25,000 | 440 | 0.010 | 23,000 | 350 | 0.010 |
| | 100L02R01 | 1.0 | 0.10 | 2.0 | 28,000 | 900 | 0.015 | 28,000 | 770 | 0.014 | 25,000 | 600 | 0.014 |
| | 100L04R01 | 1.0 | 0.10 | 4.0 | 24,000 | 700 | 0.012 | 22,000 | 550 | 0.012 | 20,000 | 420 | 0.012 |
| | 100L02R02 | 1.0 | 0.20 | 2.0 | 28,000 | 900 | 0.015 | 28,000 | 770 | 0.014 | 25,000 | 600 | 0.014 |
| | 100L04R02 | 1.0 | 0.20 | 4.0 | 24,000 | 700 | 0.012 | 22,000 | 550 | 0.012 | 20,000 | 420 | 0.012 |
| | 120L02R01 | 1.2 | 0.10 | 2.0 | 32,000 | 1,500 | 0.020 | 30,000 | 1,400 | 0.020 | 28,000 | 1,300 | 0.020 |
| | 120L02R02 | 1.2 | 0.20 | 2.0 | 32,000 | 1,500 | 0.020 | 30,000 | 1,400 | 0.020 | 28,000 | 1,300 | 0.020 |
| | 150L04R01 | 1.5 | 0.10 | 4.0 | 26,000 | 1,600 | 0.025 | 25,000 | 1,300 | 0.025 | 22,000 | 1,000 | 0.020 |
| | 150L06R01 | 1.5 | 0.10 | 6.0 | 23,000 | 1,100 | 0.020 | 22,000 | 900 | 0.025 | 20,000 | 700 | 0.020 |
| | 150L04R02 | 1.5 | 0.20 | 4.0 | 26,000 | 1,600 | 0.025 | 25,000 | 1,300 | 0.025 | 22,000 | 1,000 | 0.020 |
| | 150L06R02 | 1.5 | 0.20 | 6.0 | 23,000 | 1,100 | 0.020 | 22,000 | 900 | 0.025 | 20,000 | 700 | 0.020 |
| | 200L06R01 | 2.0 | 0.10 | 6.0 | 22,000 | 1,500 | 0.022 | 20,000 | 1,200 | 0.022 | 18,000 | 900 | 0.022 |
| | 200L06R02 | 2.0 | 0.20 | 6.0 | 22,000 | 1,500 | 0.022 | 20,000 | 1,200 | 0.022 | 18,000 | 900 | 0.022 |
| | 200L06R03 | 2.0 | 0.30 | 6.0 | 22,000 | 1,500 | 0.022 | 20,000 | 1,200 | 0.022 | 18,000 | 900 | 0.022 |
| | 300L08R01 | 3.0 | 0.10 | 8.0 | 18,000 | 1,250 | 0.030 | 18,000 | 1,100 | 0.030 | 16,000 | 850 | 0.030 |
| | 300L08R02 | 3.0 | 0.20 | 8.0 | 18,000 | 1,250 | 0.030 | 18,000 | 1,100 | 0.030 | 16,000 | 850 | 0.030 |
| | 300L08R03 | 3.0 | 0.30 | 8.0 | 18,000 | 1,250 | 0.030 | 18,000 | 1,100 | 0.030 | 16,000 | 850 | 0.030 |

## Frese integrali PCD

### Sistema di codifica delle frese integrali PCD

| PDE | 2 | 080 |
|---|---|---|
| **Tipo di fresa integrale** | **N. eliche** | **Diametro** |
| PDE : Fresa integrale PCD | 2 eliche | Ø8.0 |

### Caratteristiche

- Maggiore durata dell'utensile grazie alla buona superficie di sgrossatura
- Riduzione delle vibrazioni durante la lavorazione dei metalli non ferrosi
- Serie 1000 : Ultrafinitura di metalli non ferrosi
- Serie 2000 : Ideale per la lavorazione di lega di alluminio, acciaio al carbonio, grafite e plastica rinforzata



### Condizioni di taglio raccomandate

| Pezzo lavorato | vc(m/min) | n($min^{-1}$) | fz(mm/t) |
|---|---|---|---|
| Lega di alluminio, Rame | 30~300 | 2,000~12,000 | 0.02~0.07 |
| Plastica rinforzata | 35~300 | 2,800~16,000 | 0.04~0.12 |
| Acciaio al carbonio, grafite | 10~100 | 5,300~16,000 | 0.04~0.2 |

## Modulo d'ordine per frese integrali speciali



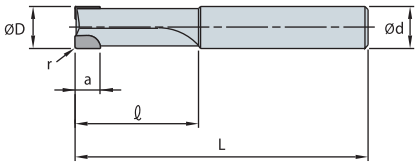


Fig.1

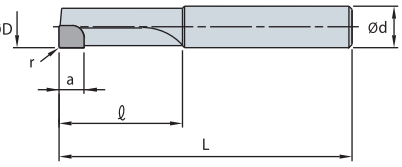
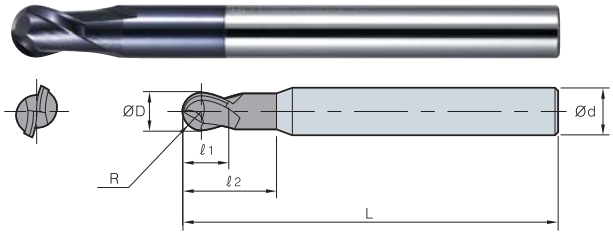


Fig.2

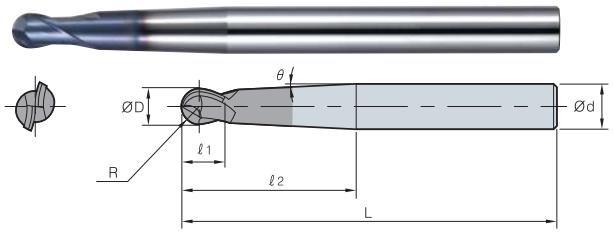
| Articolo | Fig. | N. di eliche | Dimensioni (mm) | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | ØD | Ød | r | a | ℓ | L |
| **PDES** | | | | | | | | |

※ Si possono produrre frese integrali speciali su richiesta del cliente

# HPBE2000(Testa sferica) / 2000L(Lunga a testa sferica)




# HPBE2000T(Rinforzata a testa sferica)




2 | Helix Angle 30° | TiAlN | Substrate PC203F

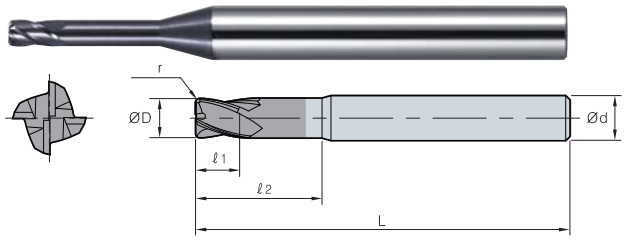
| ØD | Tolleranza | Tolleranza R |
|---|---|---|
| Ø0.6 ~ Ø6 | 0 ~ -0.02 | ±0.005 |
| Ø7 ~ Ø16 | 0 ~ -0.025 | ±0.010 |

(mm)

| | Articolo | stock | R | ØD | Ød | ℓ1 | ℓ2 | L | θ° |
|---|---|---|---|---|---|---|---|---|---|
| HPBE | 2006 | ● | 0.3 | 0.6 | 6 | 1.2 | 4 | 50 | |
| 2 | 2008 | ● | 0.4 | 0.8 | 6 | 1.6 | 4 | 50 | |
| | 2010 | ● | 0.5 | 1 | 6 | 2 | 4 | 50 | |
| | 2020 | ● | 1 | 2 | 6 | 3 | 6 | 50 | |
| | 2030 | ● | 1.5 | 3 | 6 | 4 | 8 | 50 | |
| | 2040 | ● | 2 | 4 | 6 | 5 | 10 | 60 | |
| | 2050 | ● | 2.5 | 5 | 6 | 6 | 12 | 60 | |
| | 2060 | ● | 3 | 6 | 6 | 7 | 14 | 60 | |
| | 2070 | ● | 3.5 | 7 | 8 | 8 | 16 | 80 | |
| | 2080 | ● | 4 | 8 | 8 | 9 | 18 | 80 | |
| | 2090 | ● | 4.5 | 9 | 10 | 10 | 20 | 80 | |
| | 2100 | ● | 5 | 10 | 10 | 11 | 22 | 80 | |
| | 2110 | ● | 5.5 | 11 | 12 | 12 | 24 | 90 | |
| | 2120 | ● | 6 | 12 | 12 | 13 | 26 | 90 | |
| | 2140 | ● | 7 | 14 | 16 | 15 | 30 | 100 | |
| | 2160 | ● | 8 | 16 | 16 | 17 | 34 | 100 | |
| HPBE | 2060L | ● | 3 | 6 | 6 | 7 | 14 | 90 | |
| 2 | 2070L | ● | 3.5 | 7 | 8 | 8 | 16 | 90 | |
| | 2080L | ● | 4 | 8 | 8 | 9 | 18 | 100 | |
| | 2090L | ● | 4.5 | 9 | 10 | 10 | 20 | 100 | |
| | 2100L | ● | 5 | 10 | 10 | 11 | 22 | 100 | |
| HPBE | 2010-T2-26 | ● | 0.5 | 1 | 6 | 2 | 26 | 55 | 1 |
| | 2010-T4-16 | ● | 0.5 | 1 | 6 | 2 | 16 | 50 | 2 |
| 2 | 2020-T2-41 | ● | 1 | 2 | 6 | 3 | 41 | 70 | 1 |
| | 2020-T4-29 | ● | 1 | 2 | 6 | 3 | 29 | 60 | 2 |
| | 2030-T2-51 | ● | 1.5 | 3 | 6 | 4 | 51 | 80 | 1 |
| | 2030-T4-29 | ● | 1.5 | 3 | 6 | 4 | 29 | 60 | 2 |
| | 2040-T2-61 | ● | 2 | 4 | 6 | 5 | 61 | 90 | 1 |
| | 2040-T4-34 | ● | 2 | 4 | 6 | 5 | 34 | 70 | 2 |
| | 2060-T2-63 | ● | 3 | 6 | 6 | 7 | 63 | 90 | 1 |
| | 2060-T4-35 | ● | 3 | 6 | 6 | 7 | 35 | 90 | 2 |
| | 2080-T2-67 | ● | 4 | 8 | 8 | 11 | 67 | 100 | 1 |
| | 2080-T4-39 | ● | 4 | 8 | 8 | 11 | 39 | 100 | 2 |
| | 2100-T2-69 | ● | 5 | 10 | 10 | 13 | 69 | 120 | 1 |
| | 2100-T4-41 | ● | 5 | 10 | 10 | 13 | 41 | 120 | 2 |
| | 2120-T2-71 | | 6 | 12 | 12 | 15 | 71 | 130 | 1 |
| | 2120-T4-43 | | 6. | 12 | 12 | 15 | 43 | 130 | 2 |

● : Disponibile ○ : A richiesta

# HPRE2000/4000 (Torica)




2 | 4 | Helix Angle 30° | TiAlN | Substrate PC203F

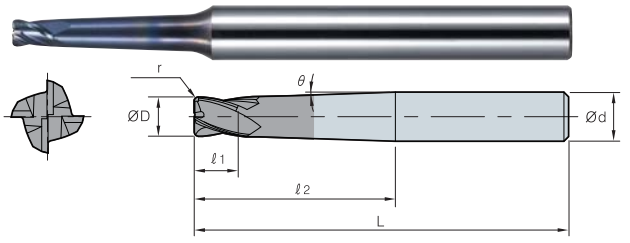
| ØD | Tolleranza | Tolleranza R |
|---|---|---|
| Ø0.6 ~ Ø6 | 0 ~ -0.02 | ±0.005 |
| Ø7 ~ Ø16 | 0 ~ -0.025 | ±0.010 |

(mm)

| | Articolo | stock | ØD | Ød | ℓ1 | ℓ2 | L | r |
|---|---|---|---|---|---|---|---|---|
| HPRE | 2020-R0.5 | ● | 2 | 6 | 3 | 12 | 60 | 0.5 |
| 2 | | | | | | | | |
| | | | | | | | | |
| HPRE | 4030-R0.5 | ● | 3 | 6 | 4 | 16 | 60 | 0.5 |
| 4 | 4040-R0.5 | ● | 4 | 6 | 5 | 20 | 60 | 0.5 |
| | 4060-R1.0 | ● | 6 | 6 | 7 | 28 | 60 | 1 |
| | 4080-R2.0 | ● | 8 | 8 | 9 | 31 | 80 | 2 |
| | 4100-R2.0 | ● | 10 | 10 | 11 | 33 | 90 | 2 |
| | 4120-R2.0 | ● | 12 | 12 | 13 | 39 | 100 | 2 |
| | 4160-R2.0 | ● | 16 | 16 | 17 | 51 | 120 | 2 |

● : Disponibile ○ : A richiesta

# HPRE2000/4000T (Rinforzata torica)




2 | 4 | Helix Angle 30° | TiAlN | Substrate PC203F

| ØD | Tolleranza | Tolleranza R |
|---|---|---|
| Ø0.6 ~ Ø6 | 0 ~ -0.02 | ±0.005 |
| Ø7 ~ Ø16 | 0 ~ -0.025 | ±0.010 |

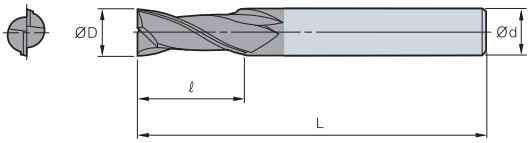
(mm)

| | Articolo | stock | ØD | Ød | ℓ1 | ℓ2 | L | r | θ° |
|---|---|---|---|---|---|---|---|---|---|
| HPRE | 2020-R0.5-T4-13 | | 2 | 6 | 3 | 13 | 70 | 0.3 | 2 |
| | 2020-R0.5-T2-16 | | 2 | 6 | 3 | 18 | 70 | 0.5 | 1 |
| 2 | | | | | | | | | |
| | | | | | | | | | |
| HPRE | 4020-R0.5-T2-23 | ● | 2 | 6 | 3 | 23 | 70 | 0.5 | 1 |
| | 4020-R0.5-T4-18 | ● | 2 | 6 | 3 | 18 | 70 | 0.5 | 2 |
| 4 | 4030-R0.5-T2-24 | ● | 3 | 6 | 4 | 24 | 90 | 0.5 | 1 |
| | 4030-R0.5-T4-19 | ● | 3 | 6 | 4 | 19 | 90 | 0.5 | 2 |
| | 4040-R0.5-T2-61 | ● | 4 | 6 | 5 | 61 | 100 | 0.5 | 1 |
| | 4040-R0.5-T4-34 | ● | 4 | 6 | 5 | 34 | 70 | 0.5 | 2 |
| | 4060-R1.0-T2-63 | ● | 6 | 6 | 7 | 63 | 100 | 1 | 1 |
| | 4060-R1.0-T4-36 | ● | 6 | 6 | 7 | 36 | 70 | 1 | 2 |
| | 4080-R2.0-T2-65 | ● | 8 | 8 | 9 | 65 | 110 | 2 | 1 |
| | 4080-R2.0-T4-37 | ● | 8 | 8 | 9 | 37 | 90 | 2 | 2 |
| | 4100-R2.0-T2-69 | ● | 10 | 10 | 11 | 69 | 110 | 2 | 1 |
| | 4100-R2.0-T4-40 | ● | 10 | 10 | 11 | 40 | 100 | 2 | 2 |
| | 4120-R2.0-T2-71 | | 12 | 12 | 13 | 71 | 110 | 2 | 1 |
| | 4120-R2.0-T4-42 | | 12 | 12 | 13 | 42 | 110 | 2 | 2 |
| | 4160-R2.0-T2-73 | ● | 16 | 16 | 17 | 73 | 130 | 2 | 1 |
| | 4160-R2.0-T4-45 | ● | 16 | 16 | 17 | 45 | 130 | 2 | 2 |

● : Disponibile ○ : A richiesta

## IFE2000/3000/4000 (Piatta)Standard






2 3 4 Helix Angle 30° TiAlN Substrate PC220

| ØD | Tolleranza |
|---|---|
| Ø1.0 ~ Ø8.0 | 0 ~ - 0.020 |
| Ø8.5 ~ Ø11.5 | 0 ~ - 0.025 |
| Ø12.0 ~ Ø20.0 | 0 ~ - 0.030 |

(mm)

| | Articolo | stock | ØD | Ød | ℓ | L |
|---|---|---|---|---|---|---|
| IFE 2 | 2010-040 | ● | 1 | 6 | 2.5 | 40 |
| | 2015-040 | ● | 1.5 | 6 | 4 | 40 |
| | 2020-040 | ● | 2 | 6 | 6 | 40 |
| | 2025-040 | ● | 2.5 | 6 | 8 | 40 |
| | 2030-045 | ● | 3 | 6 | 8 | 45 |
| | 2035-045 | ● | 3.5 | 6 | 10 | 45 |
| | 2040-045 | ● | 4 | 6 | 11 | 45 |
| | 2045-045 | ● | 4.5 | 6 | 11 | 45 |
| | 2050-050 | ● | 5 | 6 | 13 | 50 |
| | 2055-050 | ● | 5.5 | 6 | 13 | 50 |
| | 2060-050 | ● | 6 | 6 | 13 | 50 |
| | 2065-060 | ● | 6.5 | 8 | 16 | 60 |
| | 2070-060 | ● | 7 | 8 | 16 | 60 |
| | 2075-060 | ● | 7.5 | 8 | 16 | 60 |
| | 2080-060 | ● | 8 | 8 | 19 | 60 |
| | 2085-070 | ● | 8.5 | 10 | 19 | 70 |
| | 2090-070 | ● | 9 | 10 | 19 | 70 |
| | 2095-070 | ● | 9.5 | 10 | 19 | 70 |
| | 2100-070 | ● | 10 | 10 | 22 | 70 |
| | 2105-075 | ● | 10.5 | 12 | 22 | 75 |
| | 2110-075 | ● | 11 | 12 | 22 | 75 |
| | 2115-075 | ● | 11.5 | 12 | 22 | 75 |
| | 2120-075 | ● | 12 | 12 | 26 | 75 |
| | 2130-085 | ● | 13 | 16 | 26 | 85 |
| | 2140-085-S14 | | 14 | 14 | 26 | 85 |
| | 2140-085 | ● | 14 | 16 | 26 | 85 |
| | 2150-090 | ● | 15 | 16 | 26 | 90 |
| | 2160-100 | ● | 16 | 16 | 32 | 100 |
| | 2180-100-S18 | | 18 | 18 | 32 | 100 |
| | 2180-100 | ● | 18 | 20 | 32 | 100 |
| | 2200-105 | ● | 20 | 20 | 38 | 105 |
| IFE 3 | 3020-040 | ● | 2 | 6 | 6 | 40 |
| | 3030-045 | ● | 3 | 6 | 8 | 45 |
| | 3040-045 | ● | 4 | 6 | 11 | 45 |
| | 3050-050 | ● | 5 | 6 | 13 | 50 |
| | 3060-050 | ● | 6 | 6 | 13 | 50 |
| | 3070-060 | ● | 7 | 8 | 16 | 60 |
| | 3080-060 | ● | 8 | 8 | 19 | 60 |
| | 3090-070 | ● | 9 | 10 | 19 | 70 |
| | 3100-070 | ● | 10 | 10 | 22 | 70 |
| | 3110-075 | ● | 11 | 12 | 22 | 75 |
| | 3120-075 | ● | 12 | 12 | 26 | 75 |
| | 3130-085 | ● | 13 | 16 | 26 | 85 |
| | 3140-085-S14 | | 14 | 14 | 26 | 85 |
| | 3140-085 | ● | 14 | 16 | 26 | 85 |
| | 3150-090 | ● | 15 | 16 | 26 | 90 |
| | 3160-100 | ● | 16 | 16 | 32 | 100 |
| IFE 4 | 4025-040 | ● | 2.5 | 6 | 8 | 40 |
| | 4030-045 | ● | 3 | 6 | 8 | 45 |
| | 4035-045 | ● | 3.5 | 6 | 10 | 45 |
| | 4040-045 | ● | 4 | 6 | 11 | 45 |
| | 4045-045 | ● | 4.5 | 6 | 11 | 45 |

● : Disponibile ○ : A richiesta

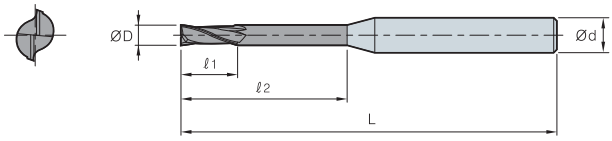
(mm)

| | Articolo | stock | ØD | Ød | ℓ | L |
|---|---|---|---|---|---|---|
| IFE 4 | 4050-050 | ● | 5 | 6 | 13 | 50 |
| | 4055-050 | ● | 5.5 | 6 | 13 | 50 |
| | 4060-050 | ● | 6 | 6 | 13 | 50 |
| | 4065-060 | ● | 6.5 | 8 | 16 | 60 |
| | 4070-060 | ● | 7 | 8 | 16 | 60 |
| | 4075-060 | ● | 7.5 | 8 | 16 | 60 |
| | 4080-060 | ● | 8 | 8 | 19 | 60 |
| | 4085-070 | ● | 8.5 | 10 | 19 | 70 |
| | 4090-070 | ● | 9 | 10 | 19 | 70 |
| | 4095-070 | ● | 9.5 | 10 | 19 | 70 |
| | 4100-070 | ● | 10 | 10 | 22 | 70 |
| | 4105-075 | ● | 10.5 | 12 | 22 | 75 |
| | 4110-075 | ● | 11 | 12 | 22 | 75 |
| | 4115-075 | ● | 11.5 | 12 | 22 | 75 |
| | 4120-075 | ● | 12 | 12 | 26 | 75 |
| | 4130-085 | ● | 13 | 16 | 26 | 85 |
| | 4140-085-S14 | | 14 | 14 | 26 | 85 |
| | 4140-085 | ● | 14 | 16 | 26 | 85 |
| | 4150-090 | ● | 15 | 16 | 26 | 90 |
| | 4160-100 | ● | 16 | 16 | 32 | 100 |
| | 4180-100-S18 | | 18 | 18 | 32 | 100 |
| | 4180-100 | ● | 18 | 20 | 32 | 100 |
| | 4200-105 | ● | 20 | 20 | 38 | 105 |

● : Disponibile ○ : A richiesta

## IFE2000/4000(Tipo lungo piatta)






2 4 Helix Angle 30° TiAlN Substrate PC220

| ØD | Tolleranza |
|---|---|
| Ø1.0 ~ Ø8.0 | 0 ~ - 0.020 |
| Ø8.5 ~ Ø11.5 | 0 ~ - 0.025 |
| Ø12.0 ~ Ø20.0 | 0 ~ - 0.030 |

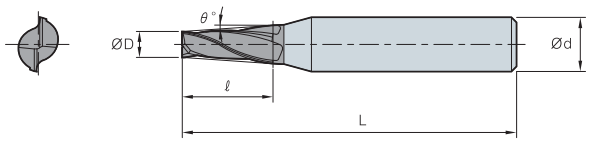
(mm)

| | Articolo | stock | ØD | Ød | ℓ1 | ℓ2 | L |
|---|---|---|---|---|---|---|---|
| IFE 2 | 2030-050 | ● | 3 | 6 | 12 | 15 | 50 |
| | 2040-050 | ● | 4 | 6 | 15 | 20 | 50 |
| | 2050-060 | ● | 5 | 6 | 20 | 25 | 60 |
| | 2060-060 | ● | 6 | 6 | 20 | - | 60 |
| | 2080-070 | ● | 8 | 8 | 25 | - | 70 |
| | 2100-090 | ● | 10 | 10 | 30 | - | 90 |
| | 2120-090 | ● | 12 | 12 | 30 | - | 90 |
| | 2140-110-S14 | | 14 | 14 | 40 | - | 110 |
| | 2140-110 | ● | 14 | 16 | 40 | 45 | 110 |
| | 2160-110 | ● | 16 | 16 | 50 | - | 110 |
| | 2180-110-S18 | | 18 | 18 | 50 | - | 110 |
| | 2180-110 | ● | 18 | 20 | 50 | 55 | 110 |
| | 2200-110 | ● | 20 | 20 | 55 | - | 110 |
| IFE 4 | 4030-050 | ● | 3 | 6 | 12 | 15 | 50 |
| | 4040-050 | ● | 4 | 6 | 15 | 20 | 50 |
| | 4050-060 | ● | 5 | 6 | 20 | 25 | 60 |
| | 4060-060 | ● | 6 | 6 | 20 | - | 60 |
| | 4080-070 | ● | 8 | 8 | 25 | - | 70 |
| | 4100-090 | ● | 10 | 10 | 30 | - | 90 |
| | 4120-090 | ● | 12 | 12 | 30 | - | 90 |
| | 4140-110-S14 | | 14 | 14 | 40 | - | 110 |
| | 4140-110 | ● | 14 | 16 | 40 | 45 | 110 |
| | 4160-110 | ● | 16 | 16 | 50 | - | 110 |
| | 4180-110-S18 | | 18 | 18 | 50 | - | 110 |
| | 4180-110 | ● | 18 | 20 | 50 | 55 | 110 |
| | 4200-110 | ● | 20 | 20 | 55 | - | 110 |

● : Disponibile ○ : A richiesta

# IFE2000-T (Rinforzata piatta)






2 | Helix Angle 30° | TiAlN | Substrate PC220

| ØD | Tolleranza |
|---|---|
| Ø1.0 ~ Ø8.0 | 0 ~ - 0.020 |
| Ø8.5 ~ Ø11.5 | 0 ~ - 0.025 |
| Ø12.0 ~ Ø20.0 | 0 ~ - 0.030 |

(mm)

| | Articolo | stock | ØD | Ød | L | ℓ | θ° |
|---|---|---|---|---|---|---|---|
| IFE 2 | 2030-045-T05 | | 3 | 6 | 45 | 10 | 0.5° |
| | 2030-045-T10 | | 3 | 6 | 45 | 10 | 1° |
| | 2030-045-T15 | | 3 | 6 | 45 | 10 | 1.5° |
| | 2030-045-T20 | | 3 | 6 | 45 | 10 | 2° |
| | 2030-045-T25 | | 3 | 6 | 45 | 10 | 2.5° |
| | 2030-045-T30 | | 3 | 6 | 45 | 10 | 3° |
| | 2040-045-T05 | | 4 | 6 | 45 | 12 | 0.5° |
| | 2040-045-T10 | | 4 | 6 | 45 | 12 | 1° |
| | 2040-045-T15 | | 4 | 6 | 45 | 12 | 1.5° |
| | 2040-045-T20 | | 4 | 6 | 45 | 12 | 2° |
| | 2040-045-T25 | | 4 | 6 | 45 | 12 | 2.5° |
| | 2040-045-T30 | | 4 | 6 | 45 | 12 | 3° |
| | 2050-050-T05 | | 5 | 6 | 50 | 15 | 0.5° |
| | 2050-050-T10 | | 5 | 6 | 50 | 15 | 1° |
| | 2050-050-T15 | | 5 | 6 | 50 | 15 | 1.5° |
| | 2050-050-T20 | | 5 | 6 | 50 | 15 | 2° |
| | 2050-050-T25 | | 5 | 8 | 50 | 15 | 2.5° |
| | 2050-050-T30 | | 5 | 8 | 50 | 15 | 3° |
| | 2060-050-T05 | | 6 | 8 | 50 | 15 | 0.5° |
| | 2060-050-T10 | | 6 | 8 | 50 | 15 | 1 |
| | 2060-050-T15 | | 6 | 8 | 50 | 15 | 1.5° |
| | 2060-050-T20 | | 6 | 8 | 50 | 15 | 2° |
| | 2060-050-T25 | | 6 | 8 | 50 | 15 | 2.5° |
| | 2060-050-T30 | | 6 | 8 | 50 | 15 | 3° |
| | 2080-060-T05 | | 8 | 10 | 60 | 20 | 0.5° |
| | 2080-060-T10 | | 8 | 10 | 60 | 20 | 1° |
| | 2080-060-T15 | | 8 | 10 | 60 | 20 | 1.5° |
| | 2080-060-T20 | | 8 | 10 | 60 | 20 | 2° |
| | 2080-060-T25 | | 8 | 10 | 60 | 20 | 2.5° |
| | 2080-060-T30 | | 8 | 10 | 60 | 20 | 3° |
| | 2100-070-T05 | | 10 | 12 | 70 | 25 | 0.5° |
| | 2100-070-T10 | | 10 | 12 | 70 | 25 | 1° |
| | 2100-070-T15 | | 10 | 12 | 70 | 25 | 1.5° |
| | 2100-070-T20 | | 10 | 12 | 70 | 25 | 2° |
| | 2100-070-T25 | | 10 | 12 | 70 | 25 | 2.5° |
| | 2100-070-T30 | | 10 | 12 | 70 | 25 | 3° |
| | 2110-070-T05 | | 11 | 12 | 70 | 25 | 0.5° |
| | 2110-070-T10 | | 11 | 12 | 70 | 25 | 1° |
| | 2110-070-T15 | | 11 | 14 | 70 | 25 | 1.5° |
| | 2110-070-T20 | | 11 | 14 | 70 | 25 | 2° |
| | 2110-070-T25 | | 11 | 14 | 70 | 25 | 2.5° |
| | 2110-070-T30 | | 11 | 14 | 70 | 25 | 3° |
| | 2120-075-T05 | | 12 | 14 | 75 | 30 | 0.5° |
| | 2120-075-T10 | | 12 | 14 | 75 | 30 | 1° |
| | 2120-075-T15 | | 12 | 14 | 75 | 30 | 1.5° |
| | 2120-075-T20 | | 12 | 14 | 75 | 30 | 2° |
| | 2120-075-T25 | | 12 | 14 | 75 | 30 | 2.5° |
| | 2120-075-T30 | | 12 | 14 | 75 | 30 | 3° |
| | 2130-075-T05 | | 13 | 14 | 75 | 30 | 0.5° |
| | 2130-075-T10 | | 13 | 14 | 75 | 30 | 1° |
| | 2130-075-T15 | | 13 | 16 | 75 | 30 | 1.5° |
| | 2130-075-T20 | | 13 | 16 | 75 | 30 | 2° |

● : Disponibile ○ : A richiesta

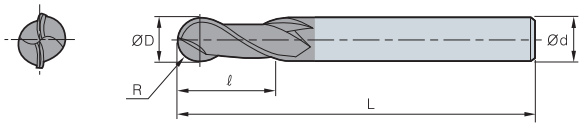
(mm)

| | Articolo | stock | ØD | Ød | ℓ | θ° | L |
|---|---|---|---|---|---|---|---|
| IFE 2 | 2130-075-T25 | | 13 | 16 | 2.5° | 30 | 75 |
| | 2130-075-T30 | | 13 | 16 | 3° | 30 | 75 |
| | 2140-080-T05 | | 14 | 16 | 0.5° | 35 | 80 |
| | 2140-080-T10 | | 14 | 16 | 1° | 35 | 80 |
| | 2140-080-T15 | | 14 | 16 | 1.5° | 35 | 80 |
| | 2140-080-T20 | | 14 | 18 | 2° | 35 | 80 |
| | 2140-080-T25 | | 14 | 18 | 2.5° | 35 | 80 |
| | 2140-080-T30 | | 14 | 18 | 3° | 35 | 80 |
| | 2150-080-T05 | | 15 | 18 | 0.5° | 35 | 80 |
| | 2150-080-T10 | | 15 | 18 | 1° | 35 | 80 |
| | 2150-080-T15 | | 15 | 18 | 1.5° | 35 | 80 |
| | 2150-080-T20 | | 15 | 18 | 2° | 35 | 80 |
| | 2150-080-T25 | | 15 | 20 | 2.5° | 35 | 80 |
| | 2150-080-T30 | | 15 | 20 | 3° | 35 | 80 |
| | 2160-090-T05 | | 16 | 20 | 0.5° | 40 | 90 |
| | 2160-090-T10 | | 16 | 20 | 1° | 40 | 90 |
| | 2160-090-T15 | | 16 | 20 | 1.5° | 40 | 90 |
| | 2160-090-T20 | | 16 | 20 | 2° | 40 | 90 |
| | 2160-090-T25 | | 16 | 20 | 2.5° | 40 | 90 |
| | 2160-090-T30 | | 16 | 20 | 3° | 40 | 90 |

● : Disponibile ○ : A richiesta

# IBE2000/4000 (Testa sferica) Standard






2 4 | Helix Angle 30° | TiAlN | Substrate PC220

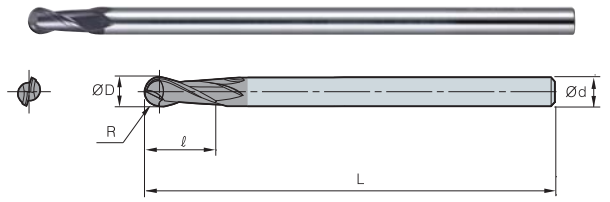
| ØD | Tolleranza | Tolleranza R |
|---|---|---|
| Ø1.0 ~ Ø8.0 | 0 ~ - 0.020 | ±0.01 |
| Ø9.0 ~ Ø10.0 | 0 ~ - 0.025 | ±0.01 |
| Ø12.0 ~ Ø20.0 | 0 ~ - 0.030 | ±0.01 |

(mm)

| | Articolo | stock | R | ØD | Ød | ℓ | L |
|---|---|---|---|---|---|---|---|
| IBE 2 | 2010-050 | ● | 0.5 | 1 | 6 | 2.5 | 50 |
| | 2015-050 | ● | 0.75 | 1.5 | 6 | 4 | 50 |
| | 2020-050 | ● | 1 | 2 | 6 | 5 | 50 |
| | 2025-060 | ● | 1.25 | 2.5 | 6 | 6 | 60 |
| | 2030-060 | ● | 1.5 | 3 | 6 | 8 | 60 |
| | 2035-070 | ● | 1.75 | 3.5 | 6 | 8 | 70 |
| | 2040-070 | ● | 2 | 4 | 6 | 8 | 70 |
| | 2050-080 | ● | 2.5 | 5 | 6 | 10 | 80 |
| | 2060-090 | ● | 3 | 6 | 6 | 12 | 90 |
| | 2070-090 | ● | 3.5 | 7 | 8 | 14 | 90 |
| | 2080-100 | ● | 4 | 8 | 8 | 14 | 100 |
| | 2090-100 | ● | 4.5 | 9 | 10 | 18 | 100 |
| | 2100-100 | ● | 5 | 10 | 10 | 18 | 100 |
| | 2120-110 | ● | 6 | 12 | 12 | 22 | 110 |
| | 2140-110-S14 | ● | 7 | 14 | 14 | 26 | 110 |
| | 2140-110 | ● | 7 | 14 | 16 | 26 | 110 |
| | 2160-140 | ● | 8 | 16 | 16 | 30 | 140 |
| | 2180-140-S18 | ● | 9 | 18 | 18 | 34 | 140 |
| | 2180-140 | ● | 9 | 18 | 20 | 34 | 140 |
| | 2200-160 | ● | 10 | 20 | 20 | 38 | 160 |
| IBE 4 | 4030-060 | ● | 1.5 | 3 | 6 | 8 | 60 |
| | 4040-070 | ● | 2 | 4 | 6 | 8 | 70 |
| | 4050-080 | ● | 2.5 | 5 | 6 | 10 | 80 |
| | 4060-090 | ● | 3 | 6 | 6 | 12 | 90 |
| | 4070-090 | ● | 3.5 | 7 | 8 | 14 | 90 |
| | 4080-100 | ● | 4 | 8 | 8 | 14 | 100 |
| | 4100-100 | ● | 5 | 10 | 10 | 18 | 100 |
| | 4120-110 | ● | 6 | 12 | 12 | 22 | 110 |
| | 4160-140 | ● | 8 | 16 | 16 | 30 | 140 |
| | 4200-160 | ● | 10 | 20 | 20 | 160 | 20 |

● : Disponibile ○ : A richiesta

## IBE2000 (Lunga a testa sferica)




2 | Helix Angle 30° | TiAlN | Substrate PC220

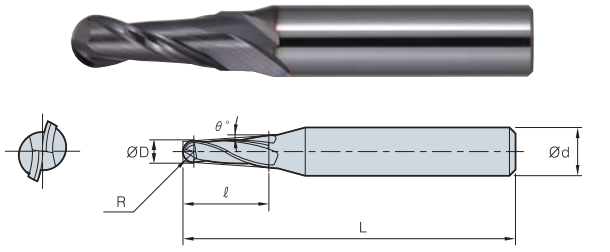
| ØD | Tolleranza | Tolleranza R |
|---|---|---|
| 1.0 ~ 8.0 | 0 ~ - 0.020 | ±0.01 |
| 9.0 ~ 10.0 | 0 ~ - 0.025 | ±0.01 |
| 12.0 ~ 20.0 | 0 ~ - 0.030 | ±0.01 |

(mm)

| | Articolo | stock | R | ØD | Ød | ℓ | L |
|---|---|---|---|---|---|---|---|
| IBE 2 | 2030-100 | ● | 1.5 | 3 | 3 | 7 | 100 |
| | 2040-100 | ● | 2 | 4 | 4 | 9 | 100 |
| | 2060-115 | ● | 3 | 6 | 6 | 12 | 115 |
| | 2080-140 | ● | 4 | 8 | 8 | 16 | 140 |
| | 2100-180 | ● | 5 | 10 | 10 | 20 | 180 |
| | 2120-200 | ● | 6 | 12 | 12 | 23 | 200 |
| | 2160-250 | ● | 8 | 16 | 16 | 30 | 250 |
| | 2200-250 | ● | 10 | 20 | 20 | 38 | 250 |

● : Disponibile ○ : A richiesta

## IBE2000-T (Rinforzata a testa sferica)




2 | Helix Angle 30° | TiAlN | Substrate PC220

| ØD | Tolleranza | Tolleranza R |
|---|---|---|
| Ø1.0 ~ Ø8.0 | 0 ~ - 0.020 | ±0.01 |
| Ø9.0 ~ Ø10.0 | 0 ~ - 0.025 | ±0.01 |
| Ø12.0 ~ Ø20.0 | 0 ~ - 0.030 | ±0.01 |

(mm)

| | Articolo | stock | R | ØD | Ød | ℓ | L | θ° |
|---|---|---|---|---|---|---|---|---|
| IBE 2 | 2030-045-T05 | | 1.5 | 3 | 6 | 10 | 45 | 0.5° |
| | 2030-045-T10 | | 1.5 | 3 | 6 | 10 | 45 | 1° |
| | 2030-045-T15 | | 1.5 | 3 | 6 | 10 | 45 | 1.5° |
| | 2030-045-T20 | | 1.5 | 3 | 6 | 10 | 45 | 2° |
| | 2030-045-T25 | | 1.5 | 3 | 6 | 10 | 45 | 2.5° |
| | 2030-045-T30 | | 1.5 | 3 | 6 | 10 | 45 | 3° |
| | 2040-045-T05 | | 2 | 4 | 6 | 12 | 45 | 0.5° |
| | 2040-045-T10 | | 2 | 4 | 6 | 12 | 45 | 1° |
| | 2040-045-T15 | | 2 | 4 | 6 | 12 | 45 | 1.5° |
| | 2040-045-T20 | | 2 | 4 | 6 | 12 | 45 | 2° |
| | 2040-045-T25 | | 2 | 4 | 6 | 12 | 45 | 2.5° |
| | 2040-045-T30 | | 2 | 4 | 6 | 12 | 45 | 3° |
| | 2050-050-T05 | | 2.5 | 5 | 6 | 15 | 50 | 0.5° |
| | 2050-050-T10 | | 2.5 | 5 | 6 | 15 | 50 | 1° |
| | 2050-050-T15 | | 2.5 | 5 | 6 | 15 | 50 | 1.5° |
| | 2050-050-T20 | | 2.5 | 5 | 6 | 15 | 50 | 2° |
| | 2050-050-T25 | | 2.5 | 5 | 8 | 15 | 50 | 2.5° |
| | 2050-050-T30 | | 2.5 | 5 | 8 | 15 | 50 | 3° |
| | 2060-050-T05 | | 3 | 6 | 8 | 15 | 50 | 0.5° |
| | 2060-050-T10 | | 3 | 6 | 8 | 15 | 50 | 1° |
| | 2060-050-T15 | | 3 | 6 | 8 | 15 | 50 | 1.5° |
| | 2060-050-T20 | | 3 | 6 | 8 | 15 | 50 | 2° |

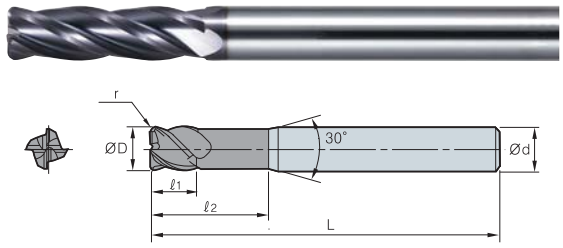
● : Disponibile ○ : A richiesta

(mm)

| | Articolo | stock | R | ØD | Ød | ℓ | L | θ° |
|---|---|---|---|---|---|---|---|---|
| IBE 2 | 2060-050-T25 | | 3 | 6 | 8 | 15 | 50 | 2.5° |
| | 2060-050-T30 | | 3 | 6 | 8 | 15 | 50 | 3° |
| | 2080-060-T05 | | 4 | 8 | 10 | 20 | 60 | 0.5° |
| | 2080-060-T10 | | 4 | 8 | 10 | 20 | 60 | 1° |
| | 2080-060-T15 | | 4 | 8 | 10 | 20 | 60 | 1.5° |
| | 2080-060-T20 | | 4 | 8 | 10 | 20 | 60 | 2° |
| | 2080-060-T25 | | 4 | 8 | 10 | 20 | 60 | 2.5° |
| | 2080-060-T30 | | 4 | 8 | 10 | 20 | 60 | 3° |
| | 2100-070-T05 | | 5 | 10 | 12 | 25 | 70 | 0.5° |
| | 2100-070-T10 | | 5 | 10 | 12 | 25 | 70 | 1° |
| | 2100-070-T15 | | 5 | 10 | 12 | 25 | 70 | 1.5° |
| | 2100-070-T20 | | 5 | 10 | 12 | 25 | 70 | 2° |
| | 2100-070-T25 | | 5 | 10 | 12 | 25 | 70 | 2.5° |
| | 2100-070-T30 | | 5 | 10 | 12 | 25 | 70 | 3° |
| | 2110-070-T05 | | 5.5 | 11 | 12 | 25 | 70 | 0.5° |
| | 2110-070-T10 | | 5.5 | 11 | 12 | 25 | 70 | 1° |
| | 2110-070-T15 | | 5.5 | 11 | 14 | 25 | 70 | 1.5° |
| | 2110-070-T20 | | 5.5 | 11 | 14 | 25 | 70 | 2° |
| | 2110-070-T25 | | 5.5 | 11 | 14 | 25 | 70 | 2.5° |
| | 2110-070-T30 | | 5.5 | 11 | 14 | 25 | 70 | 3° |
| | 2120-075-T05 | | 6 | 12 | 14 | 30 | 75 | 0.5° |
| | 2120-075-T10 | | 6 | 12 | 14 | 30 | 75 | 1° |
| | 2120-075-T15 | | 6 | 12 | 14 | 30 | 75 | 1.5° |
| | 2120-075-T20 | | 6 | 12 | 14 | 30 | 75 | 2° |
| | 2120-075-T25 | | 6 | 12 | 14 | 30 | 75 | 2.5° |
| | 2120-075-T30 | | 6 | 12 | 14 | 30 | 75 | 3° |
| | 2130-075-T05 | | 6.5 | 13 | 14 | 30 | 75 | 0.5° |
| | 2130-075-T10 | | 6.5 | 13 | 14 | 30 | 75 | 1° |
| | 2130-075-T15 | | 6.5 | 13 | 16 | 30 | 75 | 1.5° |
| | 2130-075-T20 | | 6.5 | 13 | 16 | 30 | 75 | 2° |
| | 2130-075-T25 | | 6.5 | 13 | 16 | 30 | 75 | 2.5° |
| | 2130-075-T30 | | 6.5 | 13 | 16 | 30 | 75 | 3° |
| | 2140-080-T05 | | 7 | 14 | 16 | 35 | 80 | 0.5° |
| | 2140-080-T10 | | 7 | 14 | 16 | 35 | 80 | 1° |
| | 2140-080-T15 | | 7 | 14 | 16 | 35 | 80 | 1.5° |
| | 2140-080-T20 | | 7 | 14 | 18 | 35 | 80 | 2° |
| | 2140-080-T25 | | 7 | 14 | 18 | 35 | 80 | 2.5° |
| | 2140-080-T30 | | 7 | 14 | 18 | 35 | 80 | 3° |
| | 2150-080-T05 | | 7.5 | 15 | 18 | 35 | 80 | 0.5° |
| | 2150-080-T10 | | 7.5 | 15 | 18 | 35 | 80 | 1° |
| | 2150-080-T15 | | 7.5 | 15 | 18 | 35 | 80 | 1.5° |
| | 2150-080-T20 | | 7.5 | 15 | 18 | 35 | 80 | 2° |
| | 2150-080-T25 | | 7.5 | 15 | 20 | 35 | 80 | 2.5° |
| | 2150-080-T30 | | 7.5 | 15 | 20 | 35 | 80 | 3° |
| | 2160-090-T05 | | 8 | 16 | 20 | 40 | 90 | 0.5° |
| | 2160-090-T10 | | 8 | 16 | 20 | 40 | 90 | 1° |
| | 2160-090-T15 | | 8 | 16 | 20 | 40 | 90 | 1.5° |
| | 2160-090-T20 | | 8 | 16 | 20 | 40 | 90 | 2° |
| | 2160-090-T25 | | 8 | 16 | 20 | 40 | 90 | 2.5° |
| | 2160-090-T30 | | 8 | 16 | 20 | 40 | 90 | 3° |

● : Disponibile ○ : A richiesta

# IRE2000/4000 (Torica)






2 4 Helix Angle 30° TiAlN Substrate PC220

| ØD | Tolleranza |
|---|---|
| Ø1.0 ~ Ø8.0 | 0 ~ - 0.020 |
| Ø0.5 ~ Ø10.5 | 0 ~ - 0.025 |
| Ø12.0 ~ Ø20.0 | 0 ~ - 0.030 |

(mm)

| | Articolo | stock | ØD | Ød | ℓ | ℓ1 | L | r |
|---|---|---|---|---|---|---|---|---|
| IRE 2 | 2030-050-R03 | ● | 3 | 6 | 12 | 14 | 50 | 0.3 |
| | 2040-050-R03 | ● | 4 | 6 | 15 | 16 | 50 | 0.3 |
| | 2040-050-R05 | ● | 4 | 6 | 15 | 16 | 50 | 0.5 |
| | 2050-060-R03 | ● | 5 | 6 | 15 | 16 | 60 | 0.3 |
| | 2050-060-R05 | ● | 5 | 6 | 15 | 16 | 60 | 0.5 |
| | 2060-060-R03 | ● | 6 | 6 | 20 | - | 60 | 0.3 |
| | 2060-060-R05 | ● | 6 | 6 | 20 | - | 60 | 0.5 |
| | 2060-060-R10 | ● | 6 | 6 | 20 | - | 60 | 1 |
| | 2080-070-R03 | ● | 8 | 8 | 25 | - | 70 | 0.3 |
| | 2080-070-R05 | ● | 8 | 8 | 25 | - | 70 | 0.5 |
| | 2080-070-R10 | ● | 8 | 8 | 25 | - | 70 | 1 |
| | 2080-070-R15 | ● | 8 | 8 | 25 | - | 70 | 1.5 |
| | 2080-070-R20 | ● | 8 | 8 | 25 | - | 70 | 2 |
| | 2100-090-R03 | ● | 10 | 10 | 30 | - | 90 | 0.3 |
| | 2100-090-R05 | ● | 10 | 10 | 30 | - | 90 | 0.5 |
| | 2100-090-R10 | ● | 10 | 10 | 30 | - | 90 | 1 |
| | 2100-090-R15 | ● | 10 | 10 | 30 | - | 90 | 1.5 |
| | 2100-090-R20 | ● | 10 | 10 | 30 | - | 90 | 2 |
| | 2120-090-R05 | ● | 12 | 12 | 30 | - | 90 | 0.5 |
| | 2120-090-R10 | ● | 12 | 12 | 30 | - | 90 | 1 |
| | 2120-090-R15 | ● | 12 | 12 | 30 | - | 90 | 1.5 |
| | 2120-090-R20 | ● | 12 | 12 | 30 | - | 90 | 2 |
| | 2160-110-R05 | ● | 16 | 16 | 50 | - | 110 | 0.5 |
| | 2160-110-R10 | ● | 16 | 16 | 50 | - | 110 | 1 |
| | 2160-110-R15 | ● | 16 | 16 | 50 | - | 110 | 1.5 |
| | 2160-110-R20 | ● | 16 | 16 | 50 | - | 110 | 2 |
| | 2200-110-R05 | ● | 20 | 20 | 55 | - | 110 | 0.5 |
| | 2200-110-R10 | ● | 20 | 20 | 55 | - | 110 | 1 |
| | 2200-110-R15 | ● | 20 | 20 | 55 | - | 110 | 1.5 |
| | 2200-110-R20 | ● | 20 | 20 | 55 | - | 110 | 2 |
| IRE 4 | 4030-050-R03 | ● | 3 | 6 | 12 | 14 | 50 | 0.3 |
| | 4040-050-R03 | ● | 4 | 6 | 15 | 16 | 50 | 0.3 |
| | 4040-050-R05 | ● | 4 | 6 | 15 | 16 | 50 | 0.5 |
| | 4050-060-R03 | ● | 5 | 6 | 15 | 16 | 60 | 0.3 |
| | 4050-060-R05 | ● | 5 | 6 | 15 | 16 | 60 | 0.5 |
| | 4060-060-R03 | ● | 6 | 6 | 20 | - | 60 | 0.3 |
| | 4060-060-R05 | ● | 6 | 6 | 20 | - | 60 | 0.5 |
| | 4060-060-R10 | ● | 6 | 6 | 20 | - | 60 | 1 |
| | 4080-070-R03 | ● | 8 | 8 | 25 | - | 70 | 0.3 |
| | 4080-070-R05 | ● | 8 | 8 | 25 | - | 70 | 0.5 |
| | 4080-070-R10 | ● | 8 | 8 | 25 | - | 70 | 1 |
| | 4080-070-R15 | ● | 8 | 8 | 25 | - | 70 | 1.5 |
| | 4080-070-R20 | ● | 8 | 8 | 25 | - | 70 | 2 |
| | 4100-090-R03 | ● | 10 | 10 | 30 | - | 90 | 0.3 |
| | 4100-090-R05 | ● | 10 | 10 | 30 | - | 90 | 0.5 |
| | 4100-090-R10 | ● | 10 | 10 | 30 | - | 90 | 1 |
| | 4100-090-R15 | ● | 10 | 10 | 30 | - | 90 | 1.5 |
| | 4100-090-R20 | ● | 10 | 10 | 30 | - | 90 | 2 |
| | 4120-090-R05 | ● | 12 | 12 | 30 | - | 90 | 0.5 |
| | 4120-090-R10 | ● | 12 | 12 | 30 | - | 90 | 1 |
| | 4120-090-R15 | ● | 12 | 12 | 30 | - | 90 | 1.5 |
| | 4120-090-R20 | ● | 12 | 12 | 30 | - | 90 | 2 |

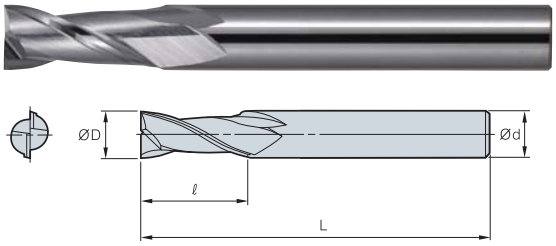
● : Disponibile ○ : A richiesta

(mm)

| | Articolo | stock | ØD | Ød | ℓ1 | ℓ2 | L | r |
|---|---|---|---|---|---|---|---|---|
| IRE 4 | 4160-110-R05 | ● | 16 | 16 | 50 | - | 110 | 0.5 |
| | 4160-110-R10 | ● | 16 | 16 | 50 | - | 110 | 1 |
| | 4160-110-R15 | ● | 16 | 16 | 50 | - | 110 | 1.5 |
| | 4160-110-R20 | ● | 16 | 16 | 50 | - | 110 | 2 |
| | 4200-110-R05 | ● | 20 | 20 | 55 | - | 110 | 0.5 |
| | 4200-110-R10 | ● | 20 | 20 | 55 | - | 110 | 1 |
| | 4200-110-R15 | ● | 20 | 20 | 55 | - | 110 | 1.5 |
| | 4200-110-R20 | ● | 20 | 20 | 55 | - | 110 | 2 |

● : Disponibile ○ : A richiesta

# FE2000/3000/4000 (Piatta)Standard






2 3 4 Helix Angle 30° Carbide Substrate FA2

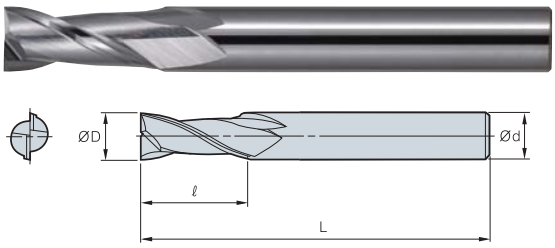
| ØD | Tolleranza |
|---|---|
| Ø1.0 ~ Ø8.0 | 0 ~ - 0.020 |
| Ø8.5 ~ Ø11.5 | 0 ~ - 0.025 |
| Ø12.0 ~ Ø20.0 | 0 ~ - 0.030 |

(mm)

| | Articolo | stock | ØD | Ød | ℓ | L |
|---|---|---|---|---|---|---|
| FE 2 | 2010-040 | ● | 1 | 6 | 2.5 | 40 |
| | 2015-040 | ● | 1.5 | 6 | 4 | 40 |
| | 2020-040 | ● | 2 | 6 | 6 | 40 |
| | 2025-040 | ● | 2.5 | 6 | 8 | 40 |
| | 2030-045 | ● | 3 | 6 | 8 | 45 |
| | 2035-045 | ● | 3.5 | 6 | 10 | 45 |
| | 2040-045 | ● | 4 | 6 | 11 | 45 |
| | 2045-045 | ● | 4.5 | 6 | 11 | 45 |
| | 2050-050 | ● | 5 | 6 | 13 | 50 |
| | 2055-050 | ● | 5.5 | 6 | 13 | 50 |
| | 2060-050 | ● | 6 | 6 | 13 | 50 |
| | 2065-060 | ● | 6.5 | 8 | 16 | 60 |
| | 2070-060 | ● | 7 | 8 | 16 | 60 |
| | 2075-060 | ● | 7.5 | 8 | 16 | 60 |
| | 2080-060 | ● | 8 | 8 | 19 | 60 |
| | 2085-070 | ● | 8.5 | 10 | 19 | 70 |
| | 2090-070 | ● | 9 | 10 | 19 | 70 |
| | 2095-070 | ● | 9.5 | 10 | 19 | 70 |
| | 2100-070 | ● | 10 | 10 | 22 | 70 |
| | 2105-075 | ● | 10.5 | 12 | 22 | 75 |
| | 2110-075 | ● | 11 | 12 | 22 | 75 |
| | 2115-075 | ● | 11.5 | 12 | 22 | 75 |
| | 2120-075 | ● | 12 | 12 | 26 | 75 |
| | 2130-085 | ● | 13 | 16 | 26 | 85 |
| | 2140-085-S14 | | 14 | 14 | 26 | 85 |
| | 2140-085 | ● | 14 | 16 | 26 | 85 |
| | 2150-090 | ● | 15 | 16 | 26 | 90 |
| | 2160-100 | ● | 16 | 16 | 32 | 100 |
| | 2180-100-S18 | | 18 | 18 | 32 | 100 |
| | 2180-100 | ● | 18 | 20 | 32 | 100 |
| | 2200-105 | ● | 20 | 20 | 38 | 105 |
| FE 3 | 3020-040 | | 2 | 6 | 6 | 40 |
| | 3030-045 | | 3 | 6 | 8 | 45 |
| | 3040-045 | | 4 | 6 | 11 | 45 |
| | 3050-050 | | 5 | 6 | 13 | 50 |
| | 3060-050 | | 6 | 6 | 13 | 50 |
| | 3070-060 | | 7 | 8 | 16 | 60 |
| | 3080-060 | | 8 | 8 | 19 | 60 |
| | 3090-070 | | 9 | 10 | 19 | 70 |

● : Disponibile ○ : A richiesta

## FE2000/3000/4000 (Piatta)Standard




2 3 4 | Helix Angle 30° | Carbide | Substrate FA2

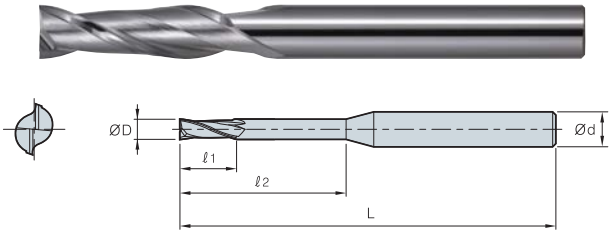
| ØD | Tolleranza |
|---|---|
| Ø1.0 ~ Ø8.0 | 0 ~ -0.020 |
| Ø8.5 ~ Ø11.5 | 0 ~ -0.025 |
| Ø12.0 ~ Ø20.0 | 0 ~ -0.030 |

(mm)

| | Articolo | stock | ØD | Ød | ℓ | L |
|---|---|---|---|---|---|---|
| FE 3 | 3100-070 | | 10 | 10 | 22 | 70 |
| | 3110-075 | | 11 | 12 | 22 | 75 |
| | 3120-075 | | 12 | 12 | 26 | 75 |
| | 3130-085 | | 13 | 16 | 26 | 85 |
| | 3140-085-S14 | | 14 | 14 | 26 | 85 |
| | 3140-085 | | 14 | 16 | 26 | 85 |
| | 3150-090 | | 15 | 16 | 26 | 90 |
| | 3160-100 | | 16 | 16 | 32 | 100 |
| FE 4 | 4025-040 | ● | 2.5 | 6 | 8 | 40 |
| | 4030-045 | ● | 3 | 6 | 8 | 45 |
| | 4035-045 | ● | 3.5 | 6 | 10 | 45 |
| | 4040-045 | ● | 4 | 6 | 11 | 45 |
| | 4045-045 | ● | 4.5 | 6 | 11 | 45 |
| | 4050-050 | ● | 5 | 6 | 13 | 50 |
| | 4055-050 | ● | 5.5 | 6 | 13 | 50 |
| | 4060-050 | ● | 6 | 6 | 13 | 50 |
| | 4065-060 | ● | 6.5 | 8 | 16 | 60 |
| | 4070-060 | ● | 7 | 8 | 16 | 60 |
| | 4075-060 | ● | 7.5 | 8 | 16 | 60 |
| | 4080-060 | ● | 8 | 8 | 19 | 60 |
| | 4085-070 | ● | 8.5 | 10 | 19 | 70 |
| | 4090-070 | ● | 9 | 10 | 19 | 70 |
| | 4095-070 | ● | 9.5 | 10 | 19 | 70 |
| | 4100-070 | ● | 10 | 10 | 22 | 70 |
| | 4105-075 | ● | 10.5 | 12 | 22 | 75 |
| | 4110-075 | ● | 11 | 12 | 22 | 75 |
| | 4115-075 | ● | 11.5 | 12 | 22 | 75 |
| | 4120-075 | ● | 12 | 12 | 26 | 75 |
| | 4130-085 | ● | 13 | 16 | 26 | 85 |
| | 4140-085-S14 | | 14 | 14 | 26 | 85 |
| | 4140-085 | ● | 14 | 16 | 26 | 85 |
| | 4150-090 | ● | 15 | 16 | 26 | 90 |
| | 4160-100 | ● | 16 | 16 | 32 | 100 |
| | 4180-100-S18 | | 18 | 18 | 32 | 100 |
| | 4180-100 | ● | 18 | 20 | 32 | 100 |
| | 4200-105 | ● | 20 | 20 | 38 | 105 |

● : Disponibile ○ : A richiesta

## FE2000/4000 (Tipo lungo piatta)




2 4 | Helix Angle 30° | Carbide | Substrate FA2

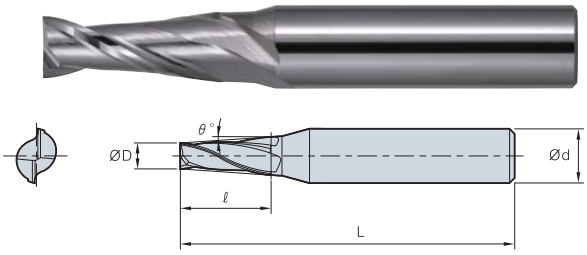
| ØD | Tolleranza |
|---|---|
| Ø1.0 ~ Ø8.0 | 0 ~ -0.020 |
| Ø8.5 ~ Ø11.5 | 0 ~ -0.025 |
| Ø12.0 ~ Ø20.0 | 0 ~ -0.030 |

(mm)

| | Articolo | stock | ØD | Ød | ℓ1 | ℓ2 | L |
|---|---|---|---|---|---|---|---|
| FE 2 | 2030-050 | ● | 3 | 6 | 12 | 15 | 50 |
| | 2040-050 | ● | 4 | 6 | 15 | 20 | 50 |
| | 2050-060 | ● | 5 | 6 | 20 | 25 | 60 |
| | 2060-060 | ● | 6 | 6 | 20 | - | 60 |
| | 2080-070 | ● | 8 | 8 | 25 | - | 70 |
| | 2100-090 | ● | 10 | 10 | 30 | - | 90 |
| | 2120-090 | ● | 12 | 12 | 30 | - | 90 |
| | 2140-110-S14 | ● | 14 | 14 | 40 | - | 110 |
| | 2140-110 | ● | 14 | 16 | 40 | 45 | 110 |
| | 2160-110 | ● | 16 | 16 | 50 | - | 110 |
| | 2180-110-S18 | | 18 | 18 | 50 | - | 110 |
| | 2180-110 | ● | 18 | 20 | 50 | 55 | 110 |
| | 2200-110 | ● | 20 | 20 | 55 | - | 110 |
| FE 4 | 4030-050 | ● | 3 | 6 | 12 | 15 | 50 |
| | 4040-050 | ● | 4 | 6 | 15 | 20 | 50 |
| | 4050-060 | ● | 5 | 6 | 20 | 25 | 60 |
| | 4060-060 | ● | 6 | 6 | 20 | - | 60 |
| | 4080-070 | ● | 8 | 8 | 25 | - | 70 |
| | 4100-090 | ● | 10 | 10 | 30 | - | 90 |
| | 4120-090 | ● | 12 | 12 | 30 | - | 90 |
| | 4140-110-S14 | | 14 | 14 | 40 | - | 110 |
| | 4140-110 | ● | 14 | 16 | 40 | 45 | 110 |
| | 4160-110 | ● | 16 | 16 | 50 | - | 110 |
| | 4180-110-S18 | | 18 | 18 | 50 | - | 110 |
| | 4180-110 | ● | 18 | 20 | 50 | 55 | 110 |
| | 4200-110 | ● | 20 | 20 | 55 | - | 110 |

● : Disponibile ○ : A richiesta

# FE2000-T (Rinforzata piatta)




2 | Helix Angle 30° | Carbide | Substrate FA2

| ØD | Tolleranza |
|---|---|
| Ø1.0 ~ Ø8.0 | 0 ~ - 0.020 |
| Ø8.5 ~ Ø11.5 | 0 ~ - 0.025 |
| Ø12.0 ~ Ø20.0 | 0 ~ - 0.030 |

(mm)

| | Articolo | stock | ØD | Ød | ℓ | L | θ° |
|---|---|---|---|---|---|---|---|
| FE 2 | 2030-045-T05 | | 3 | 6 | 10 | 45 | 0.5° |
| | 2030-045-T10 | | 3 | 6 | 10 | 45 | 1° |
| | 2030-045-T15 | | 3 | 6 | 10 | 45 | 1.5° |
| | 2030-045-T20 | | 3 | 6 | 10 | 45 | 2° |
| | 2030-045-T25 | | 3 | 6 | 10 | 45 | 2.5° |
| | 2030-045-T30 | | 3 | 6 | 10 | 45 | 3° |
| | 2040-045-T05 | | 4 | 6 | 12 | 45 | 0.5° |
| | 2040-045-T10 | | 4 | 6 | 12 | 45 | 1° |
| | 2040-045-T15 | | 4 | 6 | 12 | 45 | 1.5° |
| | 2040-045-T20 | | 4 | 6 | 12 | 45 | 2° |
| | 2040-045-T25 | | 4 | 6 | 12 | 45 | 2.5° |
| | 2040-045-T30 | | 4 | 6 | 12 | 45 | 3° |
| | 2050-050-T05 | | 5 | 6 | 15 | 50 | 0.5° |
| | 2050-050-T10 | | 5 | 6 | 15 | 50 | 1° |
| | 2050-050-T15 | | 5 | 6 | 15 | 50 | 1.5° |
| | 2050-050-T20 | | 5 | 6 | 15 | 50 | 2° |
| | 2050-050-T25 | | 5 | 8 | 15 | 50 | 2.5° |
| | 2050-050-T30 | | 5 | 8 | 15 | 50 | 3° |
| | 2060-050-T05 | | 6 | 8 | 15 | 50 | 0.5° |
| | 2060-050-T10 | | 6 | 8 | 15 | 50 | 1° |
| | 2060-050-T15 | | 6 | 8 | 15 | 50 | 1.5° |
| | 2060-050-T20 | | 6 | 8 | 15 | 50 | 2° |
| | 2060-050-T25 | | 6 | 8 | 15 | 50 | 2.5° |
| | 2060-050-T30 | | 6 | 8 | 15 | 50 | 3° |
| | 2080-060-T05 | | 8 | 10 | 20 | 60 | 0.5° |
| | 2080-060-T10 | | 8 | 10 | 20 | 60 | 1° |
| | 2080-060-T15 | | 8 | 10 | 20 | 60 | 1.5° |
| | 2080-060-T20 | | 8 | 10 | 20 | 60 | 2° |
| | 2080-060-T25 | | 8 | 10 | 20 | 60 | 2.5° |
| | 2080-060-T30 | | 8 | 10 | 20 | 60 | 3° |
| | 2100-070-T05 | | 10 | 12 | 25 | 70 | 0.5° |
| | 2100-070-T10 | | 10 | 12 | 25 | 70 | 1° |
| | 2100-070-T15 | | 10 | 12 | 25 | 70 | 1.5° |
| | 2100-070-T20 | | 10 | 12 | 25 | 70 | 2° |
| | 2100-070-T25 | | 10 | 12 | 25 | 70 | 2.5° |
| | 2100-070-T30 | | 10 | 12 | 25 | 70 | 3° |
| | 2110-070-T05 | | 11 | 12 | 25 | 70 | 0.5° |
| | 2110-070-T10 | | 11 | 12 | 25 | 70 | 1° |
| | 2110-070-T15 | | 11 | 14 | 25 | 70 | 1.5° |
| | 2110-070-T20 | | 11 | 14 | 25 | 70 | 2° |
| | 2110-070-T25 | | 11 | 14 | 25 | 70 | 2.5° |
| | 2110-070-T30 | | 11 | 14 | 25 | 70 | 3° |
| | 2120-075-T05 | | 12 | 14 | 30 | 75 | 0.5° |
| | 2120-075-T10 | | 12 | 14 | 30 | 75 | 1° |
| | 2120-075-T15 | | 12 | 14 | 30 | 75 | 1.5° |
| | 2120-075-T20 | | 12 | 14 | 30 | 75 | 2° |
| | 2120-075-T25 | | 12 | 14 | 30 | 75 | 2.5° |
| | 2120-075-T30 | | 12 | 14 | 30 | 75 | 3° |
| | 2130-075-T05 | | 13 | 14 | 30 | 75 | 0.5° |
| | 2130-075-T10 | | 13 | 14 | 30 | 75 | 1° |
| | 2130-075-T15 | | 13 | 16 | 30 | 75 | 1.5° |
| | 2130-075-T20 | | 13 | 16 | 30 | 75 | 2° |

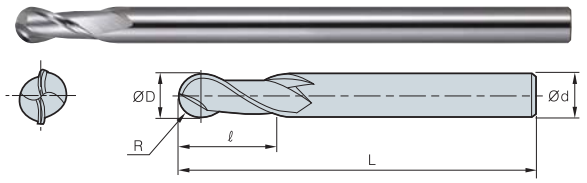
● : Disponibile ○ : A richiesta

(mm)

| | Articolo | stock | ØD | Ød | θ° | ℓ | L |
|---|---|---|---|---|---|---|---|
| FE 2 | 2130-075-T25 | | 13 | 16 | 2.5° | 30 | 75 |
| | 2130-075-T30 | | 13 | 16 | 3° | 30 | 75 |
| | 2140-080-T05 | | 14 | 16 | 0.5° | 35 | 80 |
| | 2140-080-T10 | | 14 | 16 | 1° | 35 | 80 |
| | 2140-080-T15 | | 14 | 16 | 1.5° | 35 | 80 |
| | 2140-080-T20 | | 14 | 18 | 2° | 35 | 80 |
| | 2140-080-T25 | | 14 | 18 | 2.5° | 35 | 80 |
| | 2140-080-T30 | | 14 | 18 | 3° | 35 | 80 |
| | 2150-080-T05 | | 15 | 18 | 0.5° | 35 | 80 |
| | 2150-080-T10 | | 15 | 18 | 1° | 35 | 80 |
| | 2150-080-T15 | | 15 | 18 | 1.5° | 35 | 80 |
| | 2150-080-T20 | | 15 | 18 | 2° | 35 | 80 |
| | 2150-080-T25 | | 15 | 20 | 2.5° | 35 | 80 |
| | 2150-080-T30 | | 15 | 20 | 3° | 35 | 80 |
| | 2160-090-T05 | | 16 | 20 | 0.5° | 40 | 90 |
| | 2160-090-T10 | | 16 | 20 | 1° | 40 | 90 |
| | 2160-090-T15 | | 16 | 20 | 1.5° | 40 | 90 |
| | 2160-090-T20 | | 16 | 20 | 2° | 40 | 90 |
| | 2160-090-T25 | | 16 | 20 | 2.5° | 40 | 90 |
| | 2160-090-T30 | | 16 | 20 | 3° | 40 | 90 |

● : Disponibile ○ : A richiesta

# BE2000/4000 (Testa sferica)




2 4 | Helix Angle 30° | Carbide | Substrate FA2

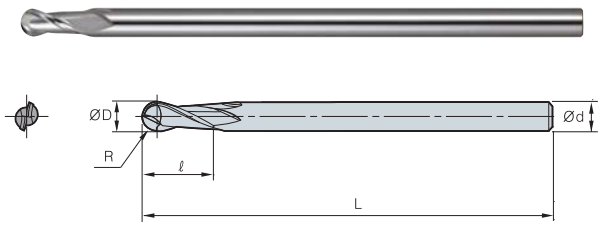
| ØD | Tolleranza | Tolleranza R |
|---|---|---|
| Ø1.0 ~ Ø8.0 | 0 ~ - 0.020 | ±0.01 |
| Ø9.0 ~ Ø10.0 | 0 ~ - 0.025 | ±0.01 |
| Ø12.0 ~ Ø20.0 | 0 ~ - 0.030 | ±0.01 |

(mm)

| | Articolo | stock | R | ØD | Ød | ℓ | L |
|---|---|---|---|---|---|---|---|
| BE 2 | 2010-050 | ● | 0.5 | 1 | 6 | 2.5 | 50 |
| | 2015-050 | ● | 0.75 | 1.5 | 6 | 4 | 50 |
| | 2020-050 | ● | 1 | 2 | 6 | 5 | 50 |
| | 2025-060 | ● | 1.25 | 2.5 | 6 | 6 | 60 |
| | 2030-060 | ● | 1.5 | 3 | 6 | 8 | 60 |
| | 2035-070 | ● | 1.75 | 3.5 | 6 | 8 | 70 |
| | 2040-070 | ● | 2 | 4 | 6 | 8 | 70 |
| | 2050-080 | ● | 2.5 | 5 | 6 | 10 | 80 |
| | 2060-090 | ● | 3 | 6 | 6 | 12 | 90 |
| | 2070-090 | ● | 3.5 | 7 | 8 | 14 | 90 |
| | 2080-100 | ● | 4 | 8 | 8 | 14 | 100 |
| | 2090-100 | ● | 4.5 | 9 | 10 | 18 | 100 |
| | 2100-100 | ● | 5 | 10 | 10 | 18 | 100 |
| | 2120-110 | ● | 6 | 12 | 12 | 22 | 110 |
| | 2140-110-S14 | | 7 | 14 | 14 | 26 | 110 |
| | 2140-110 | ● | 7 | 14 | 16 | 26 | 110 |
| | 2160-140 | ● | 8 | 16 | 16 | 30 | 140 |
| | 2180-140-S18 | | 9 | 18 | 18 | 34 | 140 |
| | 2180-140 | ● | 9 | 18 | 20 | 34 | 140 |
| | 2200-160 | ● | 10 | 20 | 20 | 38 | 160 |
| BE 4 | 4030-060 | ● | 1.5 | 3 | 6 | 8 | 60 |
| | 4040-070 | ● | 2 | 4 | 6 | 8 | 70 |
| | 4050-080 | ● | 2.5 | 5 | 6 | 10 | 80 |
| | 4060-090 | | 3 | 6 | 6 | 12 | 90 |
| | 4070-090 | ● | 3.5 | 7 | 8 | 14 | 90 |
| | 4080-100 | ● | 4 | 8 | 8 | 14 | 100 |
| | 4100-100 | ● | 5 | 10 | 10 | 18 | 100 |
| | 4120-110 | ● | 6 | 12 | 12 | 22 | 110 |
| | 4160-140 | ● | 8 | 16 | 16 | 30 | 140 |
| | 4200-160 | ● | 10 | 20 | 20 | 38 | 160 |

● : Disponibile ○ : A richiesta

## BE2000 (Lunga testa sferica)




2 | Helix Angle 30° | Carbide | Substrate FA2

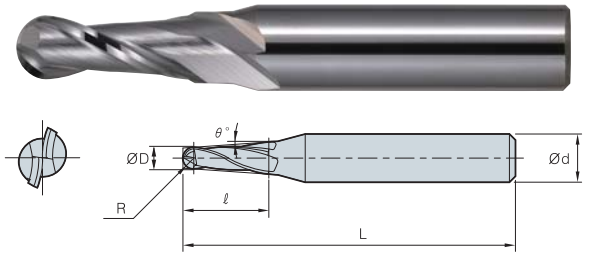
| ØD | Tolleranza | Tolleranza R |
|---|---|---|
| Ø1.0 ~ Ø8.0 | 0 ~ -0.020 | ±0.01 |
| Ø9.0 ~ Ø10.0 | 0 ~ -0.025 | ±0.01 |
| Ø12.0 ~ Ø20.0 | 0 ~ -0.030 | ±0.01 |

(mm)

| | Articolo | stock | R | ØD | Ød | ℓ | L |
|---|---|---|---|---|---|---|---|
| BE 2 | 2030-100 | ● | 1.5 | 3 | 3 | 7 | 100 |
| | 2040-100 | ● | 2 | 4 | 4 | 9 | 100 |
| | 2060-115 | ● | 3 | 6 | 6 | 12 | 115 |
| | 2080-140 | ● | 4 | 8 | 8 | 16 | 140 |
| | 2100-180 | ● | 5 | 10 | 10 | 20 | 180 |
| | 2120-200 | ● | 6 | 12 | 12 | 23 | 200 |
| | 2160-250 | ● | 8 | 16 | 16 | 30 | 250 |
| | 2200-250 | ● | 10 | 20 | 20 | 38 | 250 |

● : Disponibile ○ : A richiesta

## BE2000-T (Rinforzata a testa sferica)




2 | Helix Angle 30° | Carbide | Substrate FA2

| ØD | Tolleranza | Tolleranza R |
|---|---|---|
| Ø1.0 ~ Ø8.0 | 0 ~ -0.020 | ±0.01 |
| Ø9.0 ~ Ø10.0 | 0 ~ -0.025 | ±0.01 |
| Ø12.0 ~ Ø20.0 | 0 ~ -0.030 | ±0.01 |

(mm)

| | Articolo | stock | R | ØD | Ød | ℓ | L | θ° |
|---|---|---|---|---|---|---|---|---|
| BE 2 | 2030-045-T05 | | 1.5 | 3 | 6 | 10 | 45 | 0.5° |
| | 2030-045-T10 | | 1.5 | 3 | 6 | 10 | 45 | 1° |
| | 2030-045-T15 | | 1.5 | 3 | 6 | 10 | 45 | 1.5° |
| | 2030-045-T20 | | 1.5 | 3 | 6 | 10 | 45 | 2° |
| | 2030-045-T25 | | 1.5 | 3 | 6 | 10 | 45 | 2.5° |
| | 2030-045-T30 | | 1.5 | 3 | 6 | 10 | 45 | 3° |
| | 2040-045-T05 | | 2 | 4 | 6 | 12 | 45 | 0.5° |
| | 2040-045-T10 | | 2 | 4 | 6 | 12 | 45 | 1° |
| | 2040-045-T15 | | 2 | 4 | 6 | 12 | 45 | 1.5° |
| | 2040-045-T20 | | 2 | 4 | 6 | 12 | 45 | 2° |
| | 2040-045-T25 | | 2 | 4 | 6 | 12 | 45 | 2.5° |
| | 2040-045-T30 | | 2 | 4 | 6 | 12 | 45 | 3° |
| | 2050-050-T05 | | 2.5 | 5 | 6 | 15 | 50 | 0.5° |
| | 2050-050-T10 | | 2.5 | 5 | 6 | 15 | 50 | 1° |
| | 2050-050-T15 | | 2.5 | 5 | 6 | 15 | 50 | 1.5° |
| | 2050-050-T20 | | 2.5 | 5 | 6 | 15 | 50 | 2° |
| | 2050-050-T25 | | 2.5 | 5 | 8 | 15 | 50 | 2.5° |
| | 2050-050-T30 | | 2.5 | 5 | 8 | 15 | 50 | 3° |

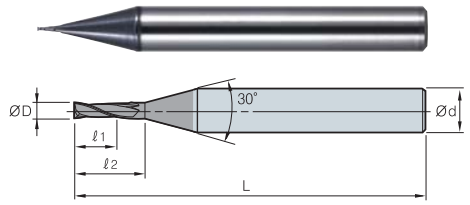
● : Disponibile ○ : A richiesta

(mm)

| | Articolo | stock | R | ØD | Ød | ℓ | L | θ° |
|---|---|---|---|---|---|---|---|---|
| BE 2 | 2060-050-T05 | | 3 | 6 | 8 | 15 | 50 | 0.5° |
| | 2060-050-T10 | | 3 | 6 | 8 | 15 | 50 | 1° |
| | 2060-050-T15 | | 3 | 6 | 8 | 15 | 50 | 1.5° |
| | 2060-050-T20 | | 3 | 6 | 8 | 15 | 50 | 2° |
| | 2060-050-T25 | | 3 | 6 | 8 | 15 | 50 | 2.5° |
| | 2060-050-T30 | | 3 | 6 | 8 | 15 | 50 | 3° |
| | 2080-060-T05 | | 4 | 8 | 10 | 20 | 60 | 0.5° |
| | 2080-060-T10 | | 4 | 8 | 10 | 20 | 60 | 1° |
| | 2080-060-T15 | | 4 | 8 | 10 | 20 | 60 | 1.5° |
| | 2080-060-T20 | | 4 | 8 | 10 | 20 | 60 | 2° |
| | 2080-060-T25 | | 4 | 8 | 10 | 20 | 60 | 2.5° |
| | 2080-060-T30 | | 4 | 8 | 10 | 20 | 60 | 3° |
| | 2100-070-T05 | | 5 | 10 | 12 | 25 | 70 | 0.5° |
| | 2100-070-T10 | | 5 | 10 | 12 | 25 | 70 | 1° |
| | 2100-070-T15 | | 5 | 10 | 12 | 25 | 70 | 1.5° |
| | 2100-070-T20 | | 5 | 10 | 12 | 25 | 70 | 2° |
| | 2100-070-T25 | | 5 | 10 | 12 | 25 | 70 | 2.5° |
| | 2100-070-T30 | | 5 | 10 | 12 | 25 | 70 | 3° |
| | 2110-070-T05 | | 5.5 | 11 | 12 | 25 | 70 | 0.5° |
| | 2110-070-T10 | | 5.5 | 11 | 12 | 25 | 70 | 1° |
| | 2110-070-T15 | | 5.5 | 11 | 14 | 25 | 70 | 1.5° |
| | 2110-070-T20 | | 5.5 | 11 | 14 | 25 | 70 | 2° |
| | 2110-070-T25 | | 5.5 | 11 | 14 | 25 | 70 | 2.5° |
| | 2110-070-T30 | | 5.5 | 11 | 14 | 25 | 70 | 3° |
| | 2120-075-T05 | | 6 | 12 | 14 | 30 | 75 | 0.5° |
| | 2120-075-T10 | | 6 | 12 | 14 | 30 | 75 | 1° |
| | 2120-075-T15 | | 6 | 12 | 14 | 30 | 75 | 1.5° |
| | 2120-075-T20 | | 6 | 12 | 14 | 30 | 75 | 2° |
| | 2120-075-T25 | | 6 | 12 | 14 | 30 | 75 | 2.5° |
| | 2120-075-T30 | | 6 | 12 | 14 | 30 | 75 | 3° |
| | 2130-075-T05 | | 6.5 | 13 | 14 | 30 | 75 | 0.5° |
| | 2130-075-T10 | | 6.5 | 13 | 14 | 30 | 75 | 1° |
| | 2130-075-T15 | | 6.5 | 13 | 16 | 30 | 75 | 1.5° |
| | 2130-075-T20 | | 6.5 | 13 | 16 | 30 | 75 | 2° |
| | 2130-075-T25 | | 6.5 | 13 | 16 | 30 | 75 | 2.5° |
| | 2130-075-T30 | | 6.5 | 13 | 16 | 30 | 75 | 3° |
| | 2140-080-T05 | | 7 | 14 | 16 | 35 | 80 | 0.5° |
| | 2140-080-T10 | | 7 | 14 | 16 | 35 | 80 | 1° |
| | 2140-080-T15 | | 7 | 14 | 16 | 35 | 80 | 1.5° |
| | 2140-080-T20 | | 7 | 14 | 18 | 35 | 80 | 2° |
| | 2140-080-T25 | | 7 | 14 | 18 | 35 | 80 | 2.5° |
| | 2140-080-T30 | | 7 | 14 | 18 | 35 | 80 | 3° |
| | 2150-080-T05 | | 7.5 | 15 | 18 | 35 | 80 | 0.5° |
| | 2150-080-T10 | | 7.5 | 15 | 18 | 35 | 80 | 1° |
| | 2150-080-T15 | | 7.5 | 15 | 18 | 35 | 80 | 1.5° |
| | 2150-080-T20 | | 7.5 | 15 | 18 | 35 | 80 | 2° |
| | 2150-080-T25 | | 7.5 | 15 | 20 | 35 | 80 | 2.5° |
| | 2150-080-T30 | | 7.5 | 15 | 20 | 35 | 80 | 3° |
| | 2160-090-T05 | | 8 | 16 | 20 | 40 | 90 | 0.5° |
| | 2160-090-T10 | | 8 | 16 | 20 | 40 | 90 | 1° |
| | 2160-090-T15 | | 8 | 16 | 20 | 40 | 90 | 1.5° |
| | 2160-090-T20 | | 8 | 16 | 20 | 40 | 90 | 2° |
| | 2160-090-T25 | | 8 | 16 | 20 | 40 | 90 | 2.5° |
| | 2160-090-T30 | | 8 | 16 | 20 | 40 | 90 | 3° |

● : Disponibile ○ : A richiesta

## MSE2000(Piatta)




2 | Helix Angle 30° | TiAlN | Substrate PC215F

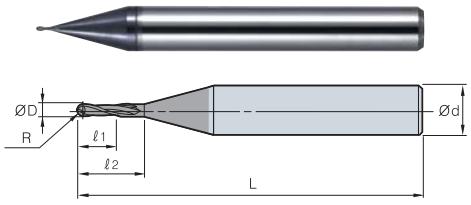
| ØD | Tolleranza |
|---|---|
| Ø0.2~Ø1.0 | 0 ~ - 0.02 |

(mm)

| Articolo | | stock | ØD | Ød | ℓ1 | ℓ2 | L |
|---|---|---|---|---|---|---|---|
| MSE 2 | 2002 | | 0.2 | 4 | 0.4 | 0.6 | 40 |
| | 2003 | | 0.3 | 4 | 0.6 | 0.9 | 40 |
| | 2004 | ● | 0.4 | 6 | 0.8 | 1.2 | 50 |
| | 2004-S | ● | 0.4 | 3 | 0.8 | 1.2 | 45 |
| | 2005 | ● | 0.5 | 6 | 1 | 1.5 | 50 |
| | 2005-S | ● | 0.5 | 3 | 1 | 1.5 | 45 |
| | 2006 | | 0.6 | 6 | 1.2 | 1.8 | 50 |
| | 2006-S | ● | 0.6 | 3 | 1.2 | 1.8 | 45 |
| | 2007 | | 0.7 | 6 | 14 | 2.1 | 50 |
| | 2007-S | ● | 0.7 | 3 | 1.4 | 2.1 | 45 |
| | 2008 | ● | 0.8 | 6 | 1.6 | 2.4 | 50 |
| | 2008-S | ● | 0.8 | 3 | 1.6 | 2.4 | 45 |
| | 2009 | | 0.9 | 6 | 1.8 | 2.7 | 50 |
| | 2009-S | ● | 0.9 | 3 | 1.8 | 2.7 | 45 |
| | 2010 | ● | 1 | 6 | 2 | 3 | 50 |
| | 2010-S | | 1 | 3 | 2 | 3 | 45 |

● : Disponibile ○ : A richiesta

## MSBE2000(Testa sferica)




2 | Helix Angle 30° | TiAlN | Substrate PC215F

| ØD | Tolleranza |
|---|---|
| Ø0.2~Ø1.0 | 0 ~ - 0.02 |

(mm)

| Articolo | | stock | R | ØD | Ød | ℓ1 | ℓ2 | L |
|---|---|---|---|---|---|---|---|---|
| MSBE 2 | 2002 | | 0.1 | 0.2 | 4 | 0.2 | 0.4 | 40 |
| | 2003 | | 0.15 | 0.3 | 4 | 0.3 | 0.6 | 40 |
| | 2004 | | 0.2 | 0.4 | 6 | 0.8 | 1.2 | 50 |
| | 2004-S | | 0.2 | 0.4 | 3 | 0.8 | 1.2 | 45 |
| | 2005 | ● | 0.25 | 0.5 | 6 | 1 | 1.5 | 50 |
| | 2005-S | ● | 0.25 | 0.5 | 3 | 1 | 1.5 | 45 |
| | 2006 | | 0.3 | 0.6 | 6 | 1.2 | 1.8 | 50 |
| | 2006-S | | 0.3 | 0.6 | 3 | 1.2 | 1.8 | 45 |
| | 2007 | | 0.35 | 0.7 | 6 | 1.4 | 2.1 | 50 |
| | 2007-S | ● | 0.35 | 0.7 | 3 | 1.4 | 2.1 | 45 |
| | 2008 | | 0.4 | 0.8 | 6 | 1.6 | 2.4 | 50 |
| | 2008-S | ● | 0.4 | 0.8 | 3 | 1.6 | 2.4 | 45 |
| | 2009 | | 0.45 | 0.9 | 6 | 1.8 | 2.7 | 50 |
| | 2009-S | | 0.45 | 0.9 | 3 | 1.8 | 2.7 | 45 |
| | 2010 | | 0.5 | 1 | 6 | 2 | 3 | 50 |
| | 2010-S | | 0.5 | 1 | 3 | 2 | 3 | 45 |

● : Disponibile ○ : A richiesta

Modulo d'ordine per frese integrali speciali

MSE : MSE20◎◎l–L / MSBE : MSBE20◎◎l–L

Es.1) Diametro : 0.45, l : 1.2, L : 50 MSE20045 1.2–55L

Es.2) Testa sferica R0.225(Φ0.45), l : 1.2, L : 55 MSBE0045 1.2–55L

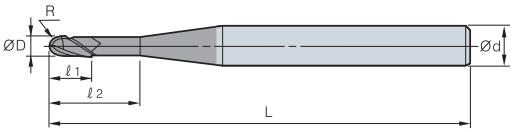
Il diametro deve essere inferiore a Ø1.0 per MSE, MSBE. Se, come sopra Ø1.0, fare riferimento a SSE–Q e SSBE–Q.

# RB(Rib testa sferica)

2 | Helix Angle 30° | Substrate PC220G PC203G

| R | ØD | Ød |
|---|---|---|
| 0<br>-0.005 | 0<br>-0.008 | -0.004<br>-0.008 |






(mm)

| Articolo | | Stock PC220G | Articolo | | Stock PC203G | Vecchio articolo | | R | ØD | Ød | ℓ1 | ℓ2 | L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DMAH | 002L01 RB | | DMVH | 002L01 RB | | HRB | 002L01 | 0.1 | 0.2 | 4 | 0.25 | 1 | 50 |
| 2 | 003L01 RB | | | 003L01 RB | | | 003L01 | 0.15 | 0.3 | 4 | 0.4 | 1 | 50 |
| | 003L02 RB | | | 003L02 RB | | | 003L02 | 0.15 | 0.3 | 4 | 0.4 | 2 | 50 |
| | 004L02 RB | | | 004L02 RB | | | 004L02 | 0.2 | 0.4 | 4 | 0.5 | 2 | 50 |
| | 004L04 RB | | | 004L04 RB | | | 004L04 | 0.2 | 0.4 | 4 | 0.5 | 4 | 50 |
| | 005L02 RB | | | 005L02 RB | | | 005L02 | 0.25 | 0.5 | 4 | 0.6 | 2 | 50 |
| | 005L03 RB | | | 005L03 RB | | | 005L03 | 0.25 | 0.5 | 4 | 0.6 | 3 | 50 |
| | 005L04 RB | | | 005L04 RB | | | 005L04 | 0.25 | 0.5 | 4 | 0.6 | 4 | 50 |
| | 006L02 RB | | | 006L02 RB | | | 006L02 | 0.3 | 0.6 | 4 | 0.7 | 2 | 50 |
| | 006L04 RB | | | 006L04 RB | | | 006L04 | 0.3 | 0.6 | 4 | 0.7 | 4 | 50 |
| | 006L06 RB | | | 006L06 RB | | | 006L06 | 0.3 | 0.6 | 4 | 0.7 | 6 | 50 |
| | 007L04 RB | | | 007L04 RB | | | 007L04 | 0.35 | 0.7 | 4 | 0.8 | 4 | 50 |
| | 008L02 RB | | | 008L02 RB | | | 008L02 | 0.4 | 0.8 | 4 | 0.9 | 2 | 50 |
| | 008L04 RB | | | 008L04 RB | | | 008L04 | 0.4 | 0.8 | 4 | 0.9 | 4 | 50 |
| | 008L06 RB | | | 008L06 RB | | | 008L06 | 0.4 | 0.8 | 4 | 0.9 | 6 | 50 |
| | 010L02 RB | | | 010L02 RB | | | 010L02 | 0.5 | 1 | 4 | 1.2 | 2 | 50 |
| | 010L03 RB | | | 010L03 RB | | | 010L03 | 0.5 | 1 | 4 | 1.2 | 3 | 50 |
| | 010L04 RB | | | 010L04 RB | | | 010L04 | 0.5 | 1 | 4 | 1.2 | 4 | 50 |
| | 010L06 RB | | | 010L06 RB | | | 010L06 | 0.5 | 1 | 4 | 1.2 | 6 | 50 |
| | 010L08 RB | | | 010L08 RB | | | 010L08 | 0.5 | 1 | 4 | 1.2 | 8 | 50 |
| | 010L10 RB | | | 010L10 RB | | | 010L10 | 0.5 | 1 | 4 | 1.2 | 10 | 50 |
| | 010L12 RB | | | 010L12 RB | | | 010L12 | 0.5 | 1 | 4 | 1.2 | 12 | 50 |
| | 010L16 RB | | | 010L16 RB | | | 010L16 | 0.5 | 1 | 4 | 1.2 | 16 | 60 |
| | 010L20 RB | | | 010L20 RB | | | 010L20 | 0.5 | 1 | 4 | 1.2 | 20 | 60 |
| | 012L10 RB | | | 012L10 RB | | | 012L10 | 0.6 | 1.2 | 4 | 1.4 | 10 | 50 |
| | 014L04 RB | | | 014L04 RB | | | 014L04 | 0.7 | 1.4 | 4 | 1.7 | 4 | 50 |
| | 015L04 RB | | | 015L04 RB | | | 015L04 | 0.75 | 1.5 | 4 | 1.8 | 4 | 50 |
| | 015L06 RB | | | 015L06 RB | | | 015L06 | 0.75 | 1.5 | 4 | 1.8 | 6 | 50 |
| | 015L08 RB | | | 015L08 RB | | | 015L08 | 0.75 | 1.5 | 4 | 1.8 | 8 | 50 |
| | 015L10 RB | | | 015L10 RB | | | 015L10 | 0.75 | 1.5 | 4 | 1.8 | 10 | 50 |
| | 015L12 RB | | | 015L12 RB | | | 015L12 | 0.75 | 1.5 | 4 | 1.8 | 12 | 50 |
| | 015L16 RB | | | 015L16 RB | | | 015L16 | 0.75 | 1.5 | 4 | 1.8 | 16 | 60 |
| | 020L06 RB | | | 020L06 RB | | | 020L06 | 1 | 2 | 4 | 2.2 | 6 | 60 |
| | 020L08 RB | | | 020L08 RB | | | 020L08 | 1 | 2 | 4 | 2.2 | 8 | 60 |
| | 020L10 RB | | | 020L10 RB | | | 020L10 | 1 | 2 | 4 | 2.2 | 10 | 60 |
| | 020L12 RB | | | 020L12 RB | | | 020L12 | 1 | 2 | 4 | 2.2 | 12 | 60 |
| | 020L16 RB | | | 020L16 RB | | | 020L16 | 1 | 2 | 4 | 2.2 | 16 | 60 |
| | 020L20 RB | | | 020L20 RB | | | 020L20 | 1 | 2 | 4 | 2.2 | 20 | 60 |
| | 020L30 RB | | | 020L30 RB | | | 020L30 | 1 | 2 | 4 | 2.2 | 30 | 70 |
| | 025L12 RB | | | 025L12 RB | | | 025L12 | 1.25 | 2.5 | 6 | 3 | 12 | 50 |
| | 030L10 RB | | | 030L10 RB | | | 030L10 | 1.5 | 3 | 6 | 3.6 | 10 | 50 |
| | 030L12 RB | | | 030L12 RB | | | 030L12 | 1.5 | 3 | 6 | 3.6 | 12 | 50 |
| | 030L16 RB | | | 030L16 RB | | | 030L16 | 1.5 | 3 | 6 | 3.6 | 16 | 60 |
| | 030L20 RB | | | 030L20 RB | | | 030L20 | 1.5 | 3 | 6 | 5 | 20 | 60 |
| | 040L10 RB | | | 040L10 RB | | | 040L10 | 2 | 4 | 6 | 5 | 10 | 50 |
| | 040L12 RB | | | 040L12 RB | | | 040L12 | 2 | 4 | 6 | 5 | 12 | 50 |
| | 040L16 RB | | | 040L16 RB | | | 040L16 | 2 | 4 | 6 | 5 | 16 | 60 |
| | 040L20 RB | | | 040L20 RB | | | 040L20 | 2 | 4 | 6 | 5 | 20 | 60 |
| | 040L30 RB | | | 040L30 RB | | | 040L30 | 2 | 4 | 6 | 5 | 30 | 70 |
| | 060L20 RB | | | 060L20 RB | | | 060L20 | 3 | 6 | 6 | 7 | 20 | 60 |

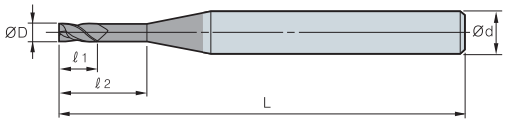
● : Disponibile ○ : A richiesta

# RF(Rib piatta)

2 | Helix Angle 30° | Substrate PC220G PC203G

| ØD | Ød |
|---|---|
| 0<br>-0.008 | -0.004<br>-0.008 |






(mm)

| Articolo | | Stock PC220G | Articolo | | Stock PC203G | Vecchio articolo | | ØD | Ød | ℓ1 | ℓ2 | L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DMAH | 002L01 RF | | DMVH | 002L01 RF | | HRF | 002L01 | 0.2 | 4 | 0.3 | 1 | 50 |
| 2 | 003L01 RF | | | 003L01 RF | | | 003L01 | 0.3 | 4 | 0.4 | 1 | 50 |
| | 003L02 RF | | | 003L02 RF | | | 003L02 | 0.3 | 4 | 0.4 | 2 | 50 |
| | 003L03 RF | | | 003L03 RF | | | 003L03 | 0.3 | 4 | 0.4 | 3 | 50 |
| | 004L02 RF | | | 004L02 RF | | | 004L02 | 0.4 | 4 | 0.6 | 2 | 50 |
| | 004L04 RF | | | 004L04 RF | | | 004L04 | 0.4 | 4 | 0.6 | 4 | 50 |
| | 005L02 RF | | | 005L02 RF | | | 005L02 | 0.5 | 4 | 0.8 | 2 | 50 |
| | 005L04 RF | | | 005L04 RF | | | 005L04 | 0.5 | 4 | 0.8 | 4 | 50 |
| | 006L02 RF | | | 006L02 RF | | | 006L02 | 0.6 | 4 | 0.9 | 2 | 50 |
| | 006L04 RF | | | 006L04 RF | | | 006L04 | 0.6 | 4 | 0.9 | 4 | 50 |
| | 006L06 RF | | | 006L06 RF | | | 006L06 | 0.6 | 4 | 0.9 | 6 | 50 |
| | 008L02 RF | | | 008L02 RF | | | 008L02 | 0.8 | 4 | 1.2 | 2 | 50 |
| | 008L03 RF | | | 008L03 RF | | | 008L03 | 0.8 | 4 | 1.2 | 3 | 50 |
| | 008L04 RF | | | 008L04 RF | | | 008L04 | 0.8 | 4 | 1.2 | 4 | 50 |
| | 008L06 RF | | | 008L06 RF | | | 008L06 | 0.8 | 4 | 1.2 | 6 | 50 |
| | 009L04 RF | | | 009L04 RF | | | 009L04 | 0.9 | 4 | 1.4 | 4 | 50 |
| | 010L02 RF | | | 010L02 RF | | | 010L02 | 1 | 4 | 1.5 | 2 | 50 |
| | 010L04 RF | | | 010L04 RF | | | 010L04 | 1 | 4 | 1.5 | 4 | 50 |
| | 010L05 RF | | | 010L05 RF | | | 010L05 | 1 | 4 | 1.5 | 5 | 50 |
| | 010L06 RF | | | 010L06 RF | | | 010L06 | 1 | 4 | 1.5 | 6 | 50 |
| | 010L10 RF | | | 010L10 RF | | | 010L10 | 1 | 4 | 1.5 | 10 | 50 |
| | 012L04 RF | | | 012L04 RF | | | 012L04 | 1.2 | 4 | 1.8 | 4 | 50 |
| | 012L08 RF | | | 012L08 RF | | | 012L08 | 1.2 | 4 | 1.8 | 8 | 50 |
| | 012L10 RF | | | 012L10 RF | | | 012L10 | 1.2 | 4 | 1.8 | 10 | 50 |
| | 015L04 RF | | | 015L04 RF | | | 015L04 | 1.5 | 4 | 2.2 | 4 | 50 |
| | 015L05 RF | | | 015L05 RF | | | 015L05 | 1.5 | 4 | 2.2 | 5 | 50 |
| | 015L06 RF | | | 015L06 RF | | | 015L06 | 1.5 | 4 | 2.2 | 6 | 50 |
| | 015L08 RF | | | 015L08 RF | | | 015L08 | 1.5 | 4 | 2.2 | 8 | 50 |
| | 015L10 RF | | | 015L10 RF | | | 015L10 | 1.5 | 4 | 2.2 | 10 | 50 |
| | 020L04 RF | | | 020L04 RF | | | 020L04 | 2 | 4 | 3 | 4 | 50 |
| | 020L06 RF | | | 020L06 RF | | | 020L06 | 2 | 4 | 3 | 6 | 50 |
| | 020L10 RF | | | 020L10 RF | | | 020L10 | 2 | 4 | 3 | 10 | 50 |
| | 020L12 RF | | | 020L12 RF | | | 020L12 | 2 | 4 | 3 | 12 | 50 |
| | 020L16 RF | | | 020L16 RF | | | 020L16 | 2 | 4 | 3 | 16 | 60 |
| | 020L20 RF | | | 020L20 RF | | | 020L20 | 2 | 4 | 3 | 20 | 60 |
| | 025L16 RF | | | 025L16 RF | | | 025L16 | 2.5 | 4 | 3.5 | 16 | 60 |
| | 030L10 RF | | | 030L10 RF | | | 030L10 | 3 | 6 | 4 | 10 | 50 |
| | 030L12 RF | | | 030L12 RF | | | 030L12 | 3 | 6 | 4 | 12 | 50 |
| | 030L16 RF | | | 030L16 RF | | | 030L16 | 3 | 6 | 4 | 16 | 60 |
| | 030L20 RF | | | 030L20 RF | | | 030L20 | 3 | 6 | 4 | 20 | 60 |
| | 030L25 RF | | | 030L25 RF | | | 030L25 | 3 | 6 | 4 | 25 | 70 |
| | 030L30 RF | | | 030L30 RF | | | 030L30 | 3 | 6 | 4 | 30 | 70 |
| | 040L12 RF | | | 040L12 RF | | | 040L12 | 4 | 6 | 6 | 12 | 50 |
| | 040L16 RF | | | 040L16 RF | | | 040L16 | 4 | 6 | 6 | 16 | 60 |
| | 040L18 RF | | | 040L18 RF | | | 040L18 | 4 | 6 | 6 | 18 | 60 |
| | 040L20 RF | | | 040L20 RF | | | 040L20 | 4 | 6 | 6 | 20 | 60 |
| | 040L30 RF | | | 040L30 RF | | | 040L30 | 4 | 6 | 6 | 30 | 70 |
| | 060L20 RF | | | 060L20 RF | | | 060L20 | 6 | 6 | 8 | 20 | 60 |
| | 060L30 RF | | | 060L30 RF | | | 060L30 | 6 | 6 | 8 | 30 | 80 |
| | 060L40 RF | | | 060L40 RF | | | 060L40 | 6 | 6 | 8 | 40 | 90 |

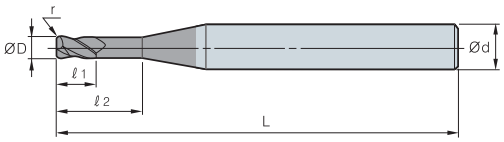
● : Disponibile ○ : A richiesta

# RNR(Rib torica)

2 Helix Angle 30° Substrate PC220G PC203G

| r | ØD | Ød |
|---|---|---|
| 0 -0.005 | 0 -0.008 | -0.004 -0.008 |






(mm)

| | Articolo | Stock PC220G | Articolo | Stock PC203G | Vecchio articolo | r | ØD | Ød | ℓ1 | ℓ2 | L |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DMAH | 010L04R02 RNR | | DMVH 010L04R02 RNR | | HRNR 010L04R02 | 0.2 | 1 | 4 | 1.5 | 4 | 50 |
| 2 | 015L06R02 RNR | | 015L06R02 RNR | | 015L06R02 | 0.2 | 1.5 | 4 | 2.2 | 6 | 50 |
| | 015L08R02 RNR | | 015L08R02 RNR | | 015L08R02 | 0.2 | 1.5 | 4 | 2.2 | 8 | 50 |
| | 015L10R02 RNR | | 015L10R02 RNR | | 015L10R02 | 0.2 | 1.5 | 4 | 2.2 | 10 | 50 |
| | 015L12R02 RNR | | 015L12R02 RNR | | 015L12R02 | 0.2 | 1.5 | 4 | 2.2 | 12 | 50 |
| | 020L06R02 RNR | | 020L06R02 RNR | | 020L06R02 | 0.2 | 2 | 4 | 3 | 6 | 50 |
| | 020L10R02 RNR | | 020L10R02 RNR | | 020L10R02 | 0.2 | 2 | 4 | 3 | 10 | 50 |
| | 020L12R02 RNR | | 020L12R02 RNR | | 020L12R02 | 0.2 | 2 | 4 | 3 | 12 | 50 |
| | 020L10R03 RNR | | 020L10R03 RNR | | 020L10R03 | 0.3 | 2 | 4 | 3 | 10 | 50 |
| | 020L06R05 RNR | | 020L06R05 RNR | | 020L06R05 | 0.5 | 2 | 4 | 3 | 6 | 50 |
| | 020L10R05 RNR | | 020L10R05 RNR | | 020L10R05 | 0.5 | 2 | 4 | 3 | 10 | 50 |
| | 020L12R05 RNR | | 020L12R05 RNR | | 020L12R05 | 0.5 | 2 | 4 | 3 | 12 | 50 |
| | 030L10R02 RNR | | 030L10R02 RNR | | 030L10R02 | 0.2 | 3 | 6 | 4 | 10 | 60 |
| | 030L12R02 RNR | | 030L12R02 RNR | | 030L12R02 | 0.2 | 3 | 6 | 4 | 12 | 60 |
| | 030L10R03 RNR | | 030L10R03 RNR | | 030L10R03 | 0.3 | 3 | 6 | 4 | 10 | 60 |
| | 030L12R03 RNR | | 030L12R03 RNR | | 030L12R03 | 0.3 | 3 | 6 | 4 | 12 | 60 |
| | 030L12R05 RNR | | 030L12R05 RNR | | 030L12R05 | 0.5 | 3 | 6 | 4 | 12 | 60 |
| | 030L16R05 RNR | | 030L16R05 RNR | | 030L16R05 | 0.5 | 3 | 6 | 4 | 16 | 60 |
| | 030L20R05 RNR | | 030L20R05 RNR | | 030L20R05 | 0.5 | 3 | 6 | 4 | 20 | 60 |
| | 040L12R02 RNR | | 040L12R02 RNR | | 040L12R02 | 0.2 | 4 | 6 | 6 | 12 | 60 |
| | 040L16R02 RNR | | 040L16R02 RNR | | 040L16R02 | 0.2 | 4 | 6 | 6 | 16 | 60 |
| | 040L20R03 RNR | | 040L20R03 RNR | | 040L20R03 | 0.3 | 4 | 6 | 6 | 20 | 60 |
| | 040L12R05 RNR | | 040L12R05 RNR | | 040L12R05 | 0.5 | 4 | 6 | 6 | 12 | 60 |
| | 040L16R05 RNR | | 040L16R05 RNR | | 040L16R05 | 0.5 | 4 | 6 | 6 | 16 | 60 |
| | 040L20R05 RNR | | 040L20R05 RNR | | 040L20R05 | 0.5 | 4 | 6 | 6 | 20 | 60 |

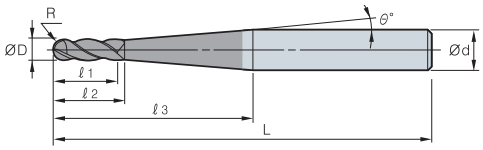
● : Disponibile ○ : A richiesta

# TNB(Rib rinforzata)

2 | Helix Angle 30° | Substrate PC220G PC203G

| R | ØD | Ød |
|---|---|---|
| 0<br>-0.005 | 0<br>-0.008 | -0.004<br>-0.008 |






(mm)

| | Articolo | Stock PC220G | Articolo | Stock PC203G | Vecchio articolo | R | ØD | Ød | ℓ1 | ℓ2 | ℓ3 | θ° | L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DMAH | 010T130 TNB | | DMVH 010T130 TNB | | HRTNB 010T130 | 0.5 | 1 | 6 | 2.3 | 5 | 23 | 1.5° | 60 |
| 2 | 010T300 TNB | | 010T300 TNB | | 010T300 | 0.5 | 1 | 6 | 2.3 | 5 | 40 | 3° | 80 |
| | 010T500 TNB | | 010T500 TNB | | 010T500 | 0.5 | 1 | 6 | 2.3 | 5 | 23 | 5° | 60 |
| | 015T130 TNB | | 015T130 TNB | | 015T130 | 0.8 | 1.5 | 6 | 4 | 7 | 23 | 1.5° | 60 |
| | 015T300 TNB | | 015T300 TNB | | 015T300 | 0.8 | 1.5 | 6 | 4 | 7 | 40 | 3° | 80 |
| | 015T500 TNB | | 015T500 TNB | | 015T500 | 0.8 | 1.5 | 6 | 4 | 7 | 23 | 5° | 60 |
| | 020T130 TNB | | 020T130 TNB | | 020T130 | 1 | 2 | 6 | 5 | 8 | 23 | 1.5° | 60 |
| | 020T300 TNB | | 020T300 TNB | | 020T300 | 1 | 2 | 6 | 5 | 8 | 40 | 3° | 80 |
| | 020T500 TNB | | 020T500 TNB | | 020T500 | 1 | 2 | 6 | 5 | 8 | 25 | 5° | 70 |
| | 030T130 TNB | | 030T130 TNB | | 030T130 | 1.5 | 3 | 6 | 8 | 11 | 50 | 1.5° | 90 |
| | 030T300 TNB | | 030T300 TNB | | 030T300 | 1.5 | 3 | 6 | 8 | 11 | 30 | 3° | 80 |
| | 030T500 TNB | | 030T500 TNB | | 030T500 | 1.5 | 3 | 8 | 8 | 11 | 30 | 5° | 80 |
| | 040T130 TNB | | 040T130 TNB | | 040T130 | 2 | 4 | 6 | 8 | 11 | 52 | 1.5° | 90 |
| | 040T300 TNB | | 040T300 TNB | | 040T300 | 2 | 4 | 6 | 8 | 11 | 28 | 3° | 70 |
| | 040T500 TNB | | 040T500 TNB | | 040T500 | 2 | 4 | 8 | 8 | 11 | 35 | 5° | 90 |
| | 050T130 TNB | | 050T130 TNB | | 050T130 | 2.5 | 5 | 8 | 10 | 14 | 60 | 1.5° | 110 |
| | 050T300 TNB | | 050T300 TNB | | 050T300 | 2.5 | 5 | 8 | 10 | 14 | 40 | 3° | 90 |
| | 060T130 TNB | | 060T130 TNB | | 060T130 | 3 | 6 | 8 | 12 | 16 | 52 | 1.5° | 100 |
| | 060T300 TNB | | 060T300 TNB | | 060T300 | 3 | 6 | 8 | 12 | 16 | 35 | 3° | 90 |
| | 060T500 TNB | | 060T500 TNB | | 060T500 | 3 | 6 | 10 | 12 | 16 | 40 | 5° | 90 |
| | 080T130 TNB | | 080T130 TNB | | 080T130 | 4 | 8 | 10 | 14 | 19 | 55 | 1.5° | 120 |
| | 080T300 TNB | | 080T300 TNB | | 080T300 | 4 | 8 | 10 | 14 | 19 | 36 | 3° | 100 |
| | 100T130 TNB | | 100T130 TNB | | 100T130 | 5 | 10 | 12 | 18 | 23 | 58 | 1.5° | 120 |
| | 100T300 TNB | | 100T300 TNB | | 100T300 | 5 | 10 | 12 | 18 | 23 | 40 | 3° | 100 |
| | 120T130 TNB | | 120T130 TNB | | 120T130 | 6 | 12 | 16 | 22 | 28 | 85 | 1.5° | 150 |
| | 120T300 TNB | | 120T300 TNB | | 120T300 | 6 | 12 | 16 | 22 | 28 | 65 | 3° | 150 |

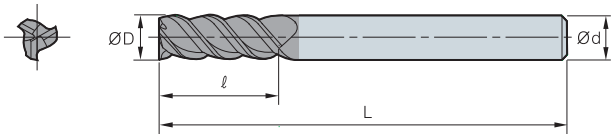
● : Disponibile ○ : A richiesta

# IFSE3000(Piatta)

3 | Helix Angle 55° | TiAlN | Substrate PC210

| ØD | Tolleranza |
|---|---|
| Ø1 ~Ø 6 | -0.01 ~ -0.030 |
| Ø7 ~ Ø10 | -0.015 ~ -0.040 |
| Ø11 ~Ø 20 | -0.020 ~ -0.050 |






(mm)

| Articolo | | Stock | ØD | Ød | ℓ | L |
|---|---|---|---|---|---|---|
| IFSE 3 | 3030-045 | ● | 3 | 6 | 10 | 45 |
| | 3035-045 | ● | 3.5 | 6 | 10 | 45 |
| | 3040-045 | ● | 4 | 6 | 12 | 45 |
| | 3045-045 | ● | 4.5 | 6 | 12 | 45 |
| | 3050-050 | ● | 5 | 6 | 15 | 50 |
| | 3055-050 | ● | 5.5 | 6 | 15 | 50 |
| | 3060-050 | ● | 6 | 6 | 15 | 50 |
| | 3065-060 | ● | 6.5 | 8 | 20 | 60 |
| | 3070-060 | ● | 7 | 8 | 20 | 60 |
| | 3075-060 | ● | 7.5 | 8 | 20 | 60 |
| | 3080-060 | ● | 8 | 8 | 20 | 60 |
| | 3085-070 | ● | 8.5 | 10 | 20 | 70 |
| | 3090-070 | ● | 9 | 10 | 20 | 70 |

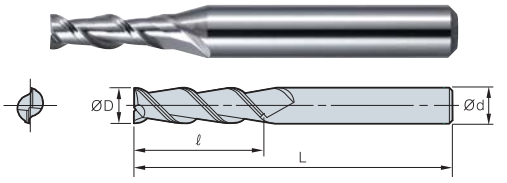
| Articolo | | Stock | ØD | Ød | ℓ | L |
|---|---|---|---|---|---|---|
| IFSE 3 | 3095-070 | ● | 9.5 | 10 | 20 | 70 |
| | 3100-070 | ● | 10 | 10 | 25 | 70 |
| | 3110-075 | ● | 11 | 12 | 25 | 75 |
| | 3120-075 | ● | 12 | 12 | 30 | 75 |
| | 3130-090 | ● | 13 | 16 | 30 | 90 |
| | 3140-090 | ● | 14 | 16 | 35 | 90 |
| | 3150-090 | ● | 15 | 16 | 40 | 90 |
| | 3160-090 | ● | 16 | 16 | 40 | 90 |
| | 3170-100 | ● | 17 | 20 | 40 | 100 |
| | 3180-100 | ● | 18 | 20 | 45 | 100 |
| | 3190-110 | ● | 19 | 20 | 45 | 110 |
| | 3200-110 | ● | 20 | 20 | 45 | 110 |

IFSE3◎◎◎–L–l(V00)

Es.1) 3 eliche, diametro : 6.3, l : 17, L : 60 => IFSE3063–060–V17

● : Disponibile ○ : A richiesta

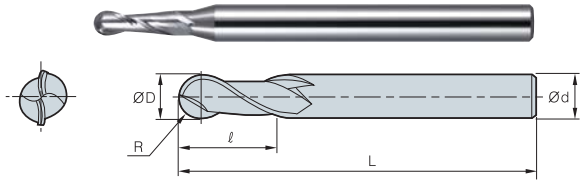
## SSEA2000/3000(Piatta)




2 3 | Helix Angle 45° | Carbide DLC | Substrate H01 PD3000

| ØD | Tolleranza |
|---|---|
| Ø1~ Ø6 | -0.010 ~ -0.030 |
| Ø7 ~Ø10 | -0.015 ~ -0.040 |
| Ø11 ~Ø20 | -0.020 ~ -0.050 |

## SSBEA2000(Testa sferica)




2 | Helix Angle 30° | Carbide DLC | Substrate H01 PD3000

| ø D | Tolleranza |
|---|---|
| All | 0 ~ -0.03 |

(mm)

| Articolo | | stock H01 | stock PD3000 | ØD | Ød | ℓ | L |
|---|---|---|---|---|---|---|---|
| SSEA | 2010 | ● | | 1 | 6 | 3 | 40 |
| 2 | 2015 | | | 1.5 | 6 | 4 | 40 |
| | 2020 | ● | ● | 2 | 6 | 6 | 40 |
| | 2025 | | ● | 2.5 | 6 | 7 | 40 |
| | 2030 | ● | ● | 3 | 6 | 10 | 45 |
| | 2035 | ● | ● | 3.5 | 6 | 10 | 45 |
| | 2040 | ● | | 4 | 6 | 12 | 45 |
| | 2050 | ● | ● | 5 | 6 | 15 | 50 |
| | 2060 | ● | | 6 | 6 | 15 | 50 |
| | 2070 | ● | ● | 7 | 8 | 20 | 60 |
| | 2080 | ● | ● | 8 | 8 | 20 | 60 |
| | 2090 | ● | ● | 9 | 10 | 20 | 70 |
| | 2100 | ● | | 10 | 10 | 25 | 70 |
| | 2110 | ● | ● | 11 | 12 | 25 | 75 |
| | 2120 | ● | ● | 12 | 12 | 30 | 75 |
| | 2130 | ● | | 13 | 16 | 30 | 90 |
| | 2140 | ● | | 14 | 16 | 35 | 90 |
| | 2150 | ● | | 15 | 16 | 40 | 90 |
| | 2160 | ● | | 16 | 16 | 40 | 90 |
| | 2180 | | | 18 | 18 | 45 | 100 |
| | 2200 | | | 20 | 20 | 45 | 100 |
| SSEA | 3020 | | | 2 | 6 | 6 | 40 |
| 3 | 3030 | ● | | 3 | 6 | 10 | 45 |
| | 3035 | ● | | 3.5 | 6 | 10 | 45 |
| | 3040 | ● | | 4 | 6 | 12 | 45 |
| | 3050 | ● | | 5 | 6 | 15 | 50 |
| | 3060 | ● | | 6 | 6 | 15 | 50 |
| | 3070 | ● | | 7 | 8 | 20 | 60 |
| | 3080 | ● | | 8 | 8 | 20 | 60 |
| | 3090 | ● | | 9 | 10 | 20 | 70 |
| | 3100 | ● | | 10 | 10 | 25 | 70 |
| | 3110 | ● | | 11 | 12 | 25 | 75 |
| | 3120 | ● | | 12 | 12 | 30 | 75 |
| | 3130 | ● | | 13 | 16 | 30 | 90 |
| | 3140 | ● | | 14 | 16 | 35 | 90 |
| | 3150 | | | 15 | 16 | 40 | 90 |
| | 3160 | ● | | 16 | 16 | 40 | 90 |

● : Disponibile ○ : A richiesta

Modulo d'ordine per frese integrali speciali : SSEA◎◎◎◎I–L
Es.1) 3 eliche, diametro : 6.3,I :17, L : 60 SSEA3063 17–60L
Es.2) 3 eliche, diametro : 6.3,tipo standard SSEA3063

(mm)

| Articolo | | stock H01 | stock PD3000 | R | ØD | Ød | ℓ | L |
|---|---|---|---|---|---|---|---|---|
| SSBEA | 2010 | ● | | 0.5 | 1 | 6 | 3 | 70 |
| 2 | 2015 | ● | | 0.75 | 1.5 | 6 | 4 | 70 |
| | 2020 | ● | | 1 | 2 | 6 | 6 | 70 |
| | 2025 | | | 1.25 | 2.5 | 6 | 8 | 70 |
| | 2030 | ● | | 1.5 | 3 | 6 | 10 | 70 |
| | 2035 | | | 1.75 | 3.5 | 6 | 10 | 70 |
| | 2040 | ● | | 2 | 4 | 6 | 12 | 70 |
| | 2045 | | | 2.25 | 4.5 | 6 | 15 | 80 |
| | 2050 | ● | | 2.5 | 5 | 6 | 15 | 80 |
| | 2055 | | | 2.75 | 5.5 | 6 | 15 | 80 |
| | 2060 | ● | | 3 | 6 | 6 | 15 | 80 |
| | 2065 | | | 3.25 | 6.5 | 8 | 20 | 90 |
| | 2070 | | | 3.5 | 7 | 8 | 20 | 90 |
| | 2075 | | | 3.75 | 7.5 | 8 | 20 | 90 |
| | 2080 | | ● | 4 | 8 | 8 | 20 | 90 |
| | 2085 | | | 4.25 | 8.5 | 10 | 25 | 100 |
| | 2090 | | | 4.5 | 9 | 10 | 25 | 100 |
| | 2100 | | | 5 | 10 | 10 | 25 | 100 |
| | 2110 | | | 5.5 | 11 | 12 | 30 | 110 |
| | 2120 | | | 6 | 12 | 12 | 30 | 110 |
| | 2130 | | | 6.5 | 13 | 16 | 35 | 120 |
| | 2140 | | | 7 | 14 | 16 | 35 | 120 |
| | 2150 | | | 7.5 | 15 | 16 | 40 | 120 |
| | 2160 | | ● | 8 | 16 | 16 | 40 | 120 |
| | 2170 | | | 8.5 | 17 | 20 | 40 | 130 |
| | 2180 | | | 9 | 18 | 20 | 45 | 130 |
| | 2190 | | | 9.5 | 19 | 20 | 45 | 130 |
| | 2200 | | | 10 | 20 | 20 | 45 | 130 |

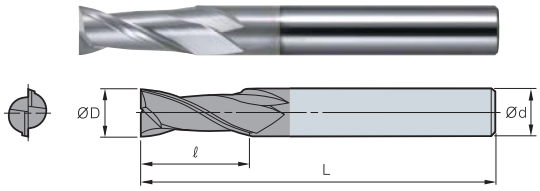
● : Disponibile ○ : A richiesta

Modulo d'ordine per frese integrali speciali : SSBEA2◎◎◎I–L
Es.1) 2 eliche, diametro : 6.3,I :17, L : 60 SSBEA3063 17–60L
Es.2) 2 eliche, diametro : 6.3,tipo standard SSBEA3063

● Tecnica di lavorazione Rame/Alluminio

1. Grazie all'elevato angolo di spoglia, all'utensile affilato e al lubrificante nebulizzato, è in grado di ridurre al minimo gli sforzi di taglio e il riporto sul tagliente 2. Applicando alte velocità di taglio e basse profondità di passata, è in grado di migliorare la superficie di finitura e la produttività

## CFE2000(Piatta)




2 | Helix Angle 30° | CrN | Substrate PC210C

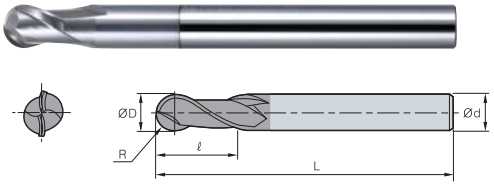
| ø D | Tolleranza | Tolleranza R |
|---|---|---|
| Ø0.5 ~ Ø6 | 0 ~ 0.01 | ±0.005 |
| Ø8 ~ Ø12 | 0 ~ 0.02 | ±0.005 |

(mm)

| | Articolo | stock | ØD | Ød | ℓ | L |
|---|---|---|---|---|---|---|
| CFE | 2010-040 | | 1 | 4 | 2.5 | 40 |
| 2 | 2015-040 | | 1.5 | 4 | 4 | 40 |
| | 2020-045 | | 2 | 4 | 5 | 45 |
| | 2030-045 | | 3 | 6 | 8 | 45 |
| | 2040-050 | | 4 | 6 | 11 | 50 |
| | 2050-060 | | 5 | 6 | 13 | 60 |
| | 2060-060 | | 6 | 6 | 13 | 60 |
| | 2080-060 | | 8 | 8 | 19 | 60 |
| | 2100-070 | | 10 | 10 | 22 | 70 |
| | 2120-075 | | 12 | 12 | 26 | 75 |

● : Disponibile ○ : A richiesta

## CBE2000(Testa sferica)




2 | Helix Angle 30° | CrN | Substrate PC210C

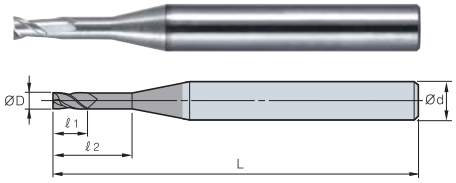
| ø D | Tolleranza | Tolleranza R |
|---|---|---|
| Ø0.5 ~ Ø6 | 0 ~ 0.01 | ±0.005 |
| Ø8 ~ Ø12 | 0 ~ 0.02 | ±0.005 |

(mm)

| | Articolo | stock | R | ØD | Ød | ℓ | L |
|---|---|---|---|---|---|---|---|
| CBE | 2010-050 | | 0.5 | 1 | 1 | 4 | 50 |
| 2 | 2015-050 | | 0.75 | 1.5 | 1.5 | 4 | 50 |
| | 2020-050 | | 1 | 2 | 2 | 4 | 50 |
| | 2030-060 | | 1.2 | 3 | 3 | 6 | 60 |
| | 2040-070 | | 2 | 4 | 4 | 6 | 70 |
| | 2050-080 | | 2.5 | 5 | 5 | 6 | 80 |
| | 2060-080 | | 3 | 6 | 6 | 6 | 80 |
| | 2080-090 | | 4 | 8 | 8 | 8 | 90 |
| | 2100-100 | | 5 | 10 | 10 | 10 | 100 |
| | 2120-110 | | 6 | 12 | 12 | 12 | 110 |

● : Disponibile ○ : A richiesta

## CFNE2000(Tipo lungo piatta)




2 | Helix Angle 30° | CrN | Substrate PC210C

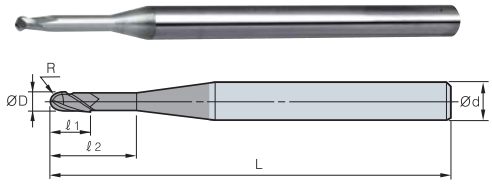
| ø D | Tolleranza | Tolleranza R |
|---|---|---|
| Ø0,5~Ø6 | 0 ~ 0.01 | ±0.005 |
| Ø8 ~ Ø12 | 0 ~ 0.02 | ±0.005 |

(mm)

| | Articolo | stock | ØD | Ød | ℓ1 | ℓ2 | L |
|---|---|---|---|---|---|---|---|
| CFNE | 2005-045-N2 | | 0.5 | 4 | 0.8 | 2 | 45 |
| 2 | 2005-045-N4 | | 0.5 | 4 | 0.8 | 4 | 45 |
| | 2005-045-N6 | | 0.5 | 4 | 0.8 | 6 | 45 |
| | 2005-050-N8 | | 0.5 | 4 | 0.8 | 8 | 50 |
| | 2010-045-N4 | | 1 | 4 | 1.5 | 4 | 45 |
| | 2010-045-N6 | | 1 | 4 | 1.5 | 6 | 45 |
| | 2010-050-N8 | | 1 | 4 | 1.5 | 8 | 50 |
| | 2010-050-N10 | | 1 | 4 | 1.5 | 10 | 50 |
| | 2015-045-N6 | | 1.5 | 4 | 2.3 | 6 | 45 |
| | 2015-050-N8 | | 1.5 | 4 | 2.3 | 8 | 50 |
| | 2015-050-N10 | | 1.5 | 4 | 2.3 | 10 | 50 |
| | 2015-050-N12 | | 1.5 | 4 | 2.3 | 12 | 50 |
| | 2020-045-N6 | | 2 | 4 | 3 | 6 | 45 |
| | 2020-050-N8 | | 2 | 4 | 3 | 8 | 50 |
| | 2020-050-N10 | | 2 | 4 | 3 | 10 | 50 |
| | 2020-055-N12 | | 2 | 4 | 3 | 12 | 50 |
| | 2030-050-N10 | | 3 | 4 | 4.5 | 10 | 50 |
| | 2030-050-N12 | | 3 | 4 | 4.5 | 12 | 50 |
| | 2030-060-N14 | | 3 | 4 | 4.5 | 14 | 60 |
| | 2030-060-N16 | | 3 | 4 | 4.5 | 16 | 60 |
| | 2040-050-N12 | | 4 | 6 | 6 | 12 | 50 |
| | 2040-050-N16 | | 4 | 6 | 6 | 16 | 50 |
| | 2040-060-N20 | | 4 | 6 | 6 | 20 | 60 |

● : Disponibile ○ : A richiesta

## CBNE2000(Tiipo lungo testa sferica)




2 | Helix Angle 30° | CrN | Substrate PC210C

| ø D | Tolleranza | Tolleranza R |
|---|---|---|
| Ø0,5~Ø6 | 0 ~ 0.01 | ±0.005 |
| Ø8 ~ Ø12 | 0 ~ 0.02 | ±0.005 |

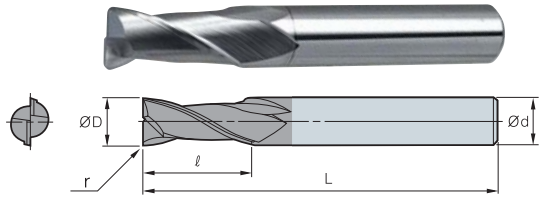
(mm)

| | Articolo | stock | R | ØD | Ød | ℓ1 | ℓ2 | L |
|---|---|---|---|---|---|---|---|---|
| CBNE | 2005-045-N2 | | 0.25 | 0.5 | 4 | 0.5 | 2 | 45 |
| 2 | 2005-045-N4 | | 0.25 | 0.5 | 4 | 0.5 | 4 | 45 |
| | 2005-045-N6 | | 0.25 | 0.5 | 4 | 0.5 | 6 | 45 |
| | 2005-050-N8 | | 0.25 | 0.5 | 4 | 0.5 | 8 | 50 |
| | 2010-045-N4 | | 0.5 | 1 | 4 | 1 | 4 | 45 |
| | 2010-045-N6 | | 0.5 | 1 | 4 | 1 | 6 | 45 |
| | 2010-050-N8 | | 0.5 | 1 | 4 | 1 | 8 | 50 |
| | 2010-050-N10 | | 0.5 | 1 | 4 | 1 | 10 | 50 |
| | 2015-050-N8 | | 0.75 | 1.5 | 4 | 1.5 | 8 | 50 |
| | 2015-050-N10 | | 0.75 | 1.5 | 4 | 1.5 | 10 | 50 |
| | 2015-050-N12 | | 0.75 | 1.5 | 4 | 1.5 | 12 | 50 |
| | 2015-055-N14 | | 0.75 | 1.5 | 4 | 1.5 | 14 | 55 |
| | 2020-050-N8 | | 1 | 2 | 4 | 2 | 8 | 50 |
| | 2020-050-N10 | | 1 | 2 | 4 | 2 | 10 | 50 |
| | 2020-050-N12 | | 1 | 2 | 4 | 2 | 12 | 50 |
| | 2020-055-N14 | | 1 | 2 | 4 | 2 | 14 | 55 |
| | 2030-050-N10 | | 1.5 | 3 | 4 | 3 | 10 | 50 |
| | 2030-050-N12 | | 1.5 | 3 | 4 | 3 | 12 | 50 |
| | 2030-055-N14 | | 1.5 | 3 | 4 | 3 | 14 | 55 |
| | 2030-055-N16 | | 1.5 | 3 | 4 | 3 | 16 | 60 |
| | 2040-060-N16 | | 2 | 4 | 6 | 4 | 16 | 60 |
| | 2040-060-N20 | | 2 | 4 | 6 | 4 | 20 | 60 |
| | 2040-070-N25 | | 2 | 4 | 6 | 4 | 25 | 70 |
| | 2040-070-N30 | | 2 | 4 | 6 | 4 | 30 | 70 |

● : Disponibile ○ : A richiesta

## CRE2000(Torica)

New




2 | Helix Angle 30° | CrN | Substrate PC210C

| ø D | Tolleranza | Tolleranza R |
|---|---|---|
| Ø0.5 ~ Ø6 | 0 ~ 0.01 | ±0.005 |
| Ø8 ~ Ø12 | 0 ~ 0.02 | ±0.005 |

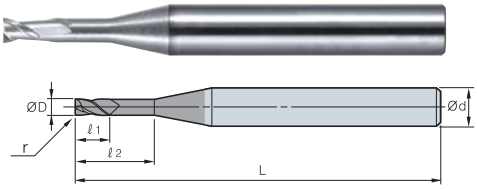
(mm)

| | Articolo | stock | r | ØD | Ød | ℓ | L |
|---|---|---|---|---|---|---|---|
| CRE | 2020-045-R05 | | 0.5 | 2 | 4 | 5 | 45 |
| 2 | 2030-045-R05 | | 0.5 | 3 | 6 | 8 | 45 |
| | 2040-050-R05 | | 0.5 | 4 | 6 | 11 | 50 |
| | 2050-060-R05 | | 0.5 | 5 | 6 | 13 | 60 |
| | 2060-060-R05 | | 0.5 | 6 | 6 | 13 | 60 |
| | 2080-060-R10 | | 1 | 8 | 8 | 19 | 60 |
| | 2100-070-R10 | | 1 | 10 | 10 | 22 | 70 |
| | 2120-075-R10 | | 1 | 12 | 12 | 26 | 75 |

● : Disponibile ○ : A richiesta

## CRNE2000(Tipo lungo torica)

New




2 | Helix Angle 30° | CrN | Substrate PC210C

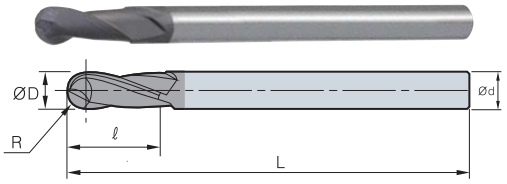
| ø D | Tolleranza | Tolleranza R |
|---|---|---|
| Ø0.5 ~ Ø6 | 0 ~ 0.01 | ±0.005 |
| Ø8 ~ Ø12 | 0 ~ 0.02 | ±0.005 |

(mm)

| | Articolo | stock | r | ØD | Ød | ℓ1 | ℓ2 | L |
|---|---|---|---|---|---|---|---|---|
| CRNE | 2010-045-R02N4 | | 0.2 | 1 | 4 | 1.5 | 4 | 45 |
| 2 | 2010-045-R02N6 | | 0.2 | 1 | 4 | 1.5 | 6 | 45 |
| | 2010-050-R02N8 | | 0.2 | 1 | 4 | 1.5 | 8 | 50 |
| | 2010-050-R02N10 | | 0.2 | 1 | 4 | 1.5 | 10 | 50 |
| | 2015-045-R02N6 | | 0.2 | 1.5 | 4 | 2.3 | 6 | 45 |
| | 2015-050-R02N8 | | 0.2 | 1.5 | 4 | 2.3 | 8 | 50 |
| | 2015-050-R02N10 | | 0.2 | 1.5 | 4 | 2.3 | 10 | 50 |
| | 2015-050-R02N12 | | 0.2 | 1.5 | 4 | 2.3 | 12 | 50 |
| | 2020-045-R05N6 | | 0.5 | 2 | 4 | 3 | 6 | 45 |
| | 2020-050-R05N8 | | 0.5 | 2 | 4 | 3 | 8 | 50 |
| | 2020-050-R05N10 | | 0.5 | 2 | 4 | 3 | 10 | 50 |
| | 2020-055-R05N12 | | 0.5 | 2 | 4 | 3 | 12 | 50 |
| | 2030-050-R05N10 | | 0.5 | 3 | 4 | 4.5 | 10 | 50 |
| | 2030-050-R05N12 | | 0.5 | 3 | 4 | 4.5 | 12 | 50 |
| | 2030-060-R05N14 | | 0.5 | 3 | 4 | 4.5 | 14 | 60 |
| | 2030-060-R05N16 | | 0.5 | 3 | 4 | 4.5 | 16 | 60 |
| | 2040-050-R05N12 | | 0.5 | 4 | 6 | 6 | 12 | 50 |
| | 2040-050-R05N16 | | 0.5 | 4 | 6 | 6 | 16 | 50 |
| | 2040-060-R05N20 | | 0.5 | 4 | 6 | 6 | 20 | 60 |

● : Disponibile ○ : A richiesta

## DBE2000(Testa sferica)



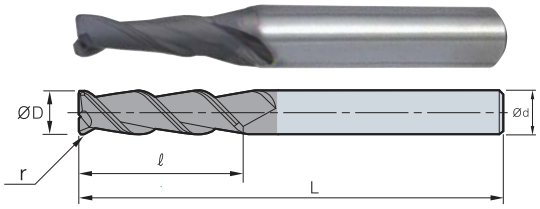

2 | Helix Angle 30° | Dia | Substrate ND3000

(mm)

| | Articolo | stock | R | ØD | Ød | ℓ | L |
|---|---|---|---|---|---|---|---|
| DBE | 2040-070 | ● | 2 | 4 | 6 | 12 | 70 |
| 2 | 2060-080 | ● | 3 | 6 | 6 | 15 | 80 |
| | 2080-090 | ● | 4 | 8 | 8 | 20 | 90 |

● : Disponibile ○ : A richiesta

## DRE2000(Torica)



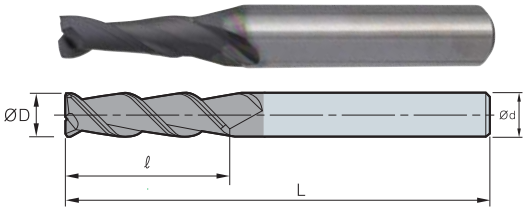

2 | Helix Angle 30° | Dia | Substrate ND3000

(mm)

| | Articolo | stock | r | ØD | Ød | ℓ | L |
|---|---|---|---|---|---|---|---|
| DRE | 2040-045-R05 | ● | 0.5 | 4 | 6 | 5 | 45 |
| 2 | 2060-050-R05 | ● | 0.5 | 6 | 6 | 7 | 50 |
| | 2080-060-R10 | ● | 1 | 8 | 8 | 9 | 60 |

● : Disponibile ○ : A richiesta

## DFE2000(Piatta)



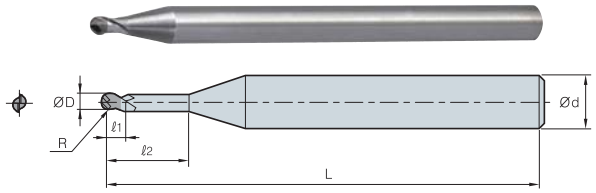

2 | Helix Angle 30° | Dia | Substrate ND3000

(mm)

| | Articolo | stock | ØD | Ød | ℓ | L |
|---|---|---|---|---|---|---|
| DFE | 2030-045 | ● | 3 | 6 | 10 | 45 |
| 2 | 2040-045 | ● | 4 | 6 | 12 | 45 |
| | 2060-050 | ● | 6 | 6 | 15 | 50 |
| | 2080-060 | ● | 8 | 8 | 20 | 60 |

● : Disponibile ○ : A richiesta

## CSBE (Testa sferica)




2 | Helix Angle 30° | CBN

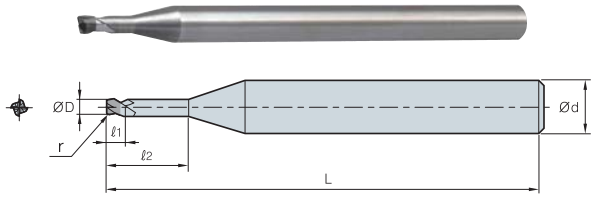
| ØD | Tolleranza |
|---|---|
| Ø0.2~Ø4.0 | 0 ~ - 0.005 |

(mm)

| | Articolo | stock | R | ØD | Ød | ℓ1 | ℓ2 | L |
|---|---|---|---|---|---|---|---|---|
| CSBE | 020L003 | ● | 0.1 | 0.2 | 4 | 0.3 | 0.3 | 54 |
| 2 | 030L008 | | 0.15 | 0.3 | 4 | 0.3 | 0.8 | 54 |
| | 030L01 | ● | 0.15 | 0.3 | 4 | 0.3 | 1 | 54 |
| | 040L01 | | 0.2 | 0.4 | 4 | 0.4 | 1 | 54 |
| | 040L02 | | 0.2 | 0.4 | 4 | 0.4 | 2 | 54 |
| | 050L01 | ● | 0.25 | 0.5 | 4 | 0.5 | 1 | 54 |
| | 050L02 | ● | 0.25 | 0.5 | 4 | 0.5 | 2 | 54 |
| | 060L02 | | 0.3 | 0.6 | 4 | 0.6 | 2 | 54 |
| | 060L04 | ● | 0.3 | 0.6 | 4 | 0.6 | 4 | 54 |
| | 080L02 | | 0.4 | 0.8 | 4 | 0.7 | 2 | 54 |
| | 080L04 | | 0.4 | 0.8 | 4 | 0.7 | 4 | 54 |
| | 080L10 | ● | 0.4 | 0.8 | 4 | 0.7 | 10 | 54 |
| | 100L03 | | 0.5 | 1.0 | 4 | 0.8 | 3 | 54 |
| | 100L04 | | 0.5 | 1.0 | 4 | 0.8 | 4 | 54 |
| | 100L06 | | 0.5 | 1.0 | 4 | 0.8 | 6 | 54 |
| | 100L08 | | 0.5 | 1.0 | 4 | 0.8 | 8 | 54 |
| | 100L10 | | 0.5 | 1.0 | 4 | 0.8 | 10 | 54 |
| | 100L15 | | 0.5 | 1.0 | 4 | 0.8 | 15 | 54 |
| | 120L03 | | 0.6 | 1.2 | 4 | 1.0 | 3 | 54 |
| | 120L04 | | 0.6 | 1.2 | 4 | 1.0 | 4 | 54 |
| | 120L05 | ● | 0.6 | 1.2 | 4 | 1.0 | 5 | 54 |
| | 120L06 | ● | 0.6 | 1.2 | 4 | 1.0 | 6 | 54 |
| | 150L04 | | 0.75 | 1.5 | 4 | 1.4 | 4 | 54 |
| | 150L06 | | 0.75 | 1.5 | 4 | 1.4 | 6 | 54 |
| | 150L08 | | 0.75 | 1.5 | 4 | 1.4 | 8 | 54 |
| | 150L10 | | 0.75 | 1.5 | 4 | 1.4 | 10 | 54 |
| | 150L15 | ● | 0.75 | 1.5 | 4 | 1.4 | 15 | 54 |
| | 200L04 | | 1.0 | 2.0 | 4 | 1.7 | 4 | 54 |
| | 200L06 | | 1.0 | 2.0 | 4 | 1.7 | 6 | 54 |
| | 200L08 | | 1.0 | 2.0 | 4 | 1.7 | 8 | 54 |
| | 200L10 | | 1.0 | 2.0 | 4 | 1.7 | 10 | 54 |
| | 200L15 | | 1.0 | 2.0 | 4 | 1.7 | 15 | 54 |
| | 200L20 | ● | 1.0 | 2.0 | 4 | 1.7 | 20 | 63 |
| | 300L06 | | 1.5 | 3.0 | 4 | 2.3 | 6 | 54 |
| | 300L08 | | 1.5 | 3.0 | 4 | 2.3 | 8 | 54 |
| | 300L12 | | 1.5 | 3.0 | 4 | 2.3 | 12 | 54 |
| | 300L16 | | 1.5 | 3.0 | 4 | 2.3 | 16 | 54 |
| | 300L20 | ● | 1.5 | 3.0 | 4 | 2.3 | 20 | 63 |
| | 400L20 | | 2.0 | 4.0 | 4 | 3.0 | 20 | 60 |
| | 400L30 | | 2.0 | 4.0 | 4 | 3.0 | 30 | 80 |

● : Disponibile ○ : A richiesta

## CSRE (Torica)




2 | Helix Angle 30° | CBN

| ØD | Tolleranza |
|---|---|
| Ø0.2~Ø4.0 | 0 ~ - 0.005 |

(mm)

| | Articolo | stock | r | ØD | Ød | ℓ1 | ℓ2 | L |
|---|---|---|---|---|---|---|---|---|
| CSRE | 020L003R003 | ● | 0.03 | 0.2 | 4 | 0.3 | 0.3 | 54 |
| 2 | 030L003R005 | | 0.05 | 0.3 | 4 | 0.4 | 0.3 | 54 |
| | 030L008R005 | | 0.05 | 0.3 | 4 | 0.4 | 0.8 | 54 |
| | 040L01R005 | | 0.05 | 0.4 | 4 | 0.4 | 1 | 54 |
| | 040L01R01 | | 0.1 | 0.4 | 4 | 0.4 | 1 | 54 |
| | 050L01R005 | ● | 0.05 | 0.5 | 4 | 0.5 | 1 | 54 |
| | 050L01R01 | | 0.1 | 0.5 | 4 | 0.5 | 1 | 54 |
| | 060L02R005 | ● | 0.05 | 0.6 | 4 | 0.6 | 2 | 54 |
| | 060L02R01 | ● | 0.1 | 0.6 | 4 | 0.6 | 2 | 54 |
| | 080L02R01 | | 0.1 | 0.8 | 4 | 0.8 | 2 | 54 |
| | 080L03R01 | | 0.1 | 0.8 | 4 | 0.8 | 3 | 54 |
| | 100L02R01 | | 0.1 | 1.0 | 4 | 0.9 | 2 | 54 |
| | 100L04R01 | | 0.1 | 1.0 | 4 | 0.9 | 4 | 54 |
| | 100L06R01 | ● | 0.1 | 1.0 | 4 | 0.9 | 6 | 54 |
| | 100L02R02 | | 0.2 | 1.0 | 4 | 0.9 | 2 | 54 |
| | 100L04R02 | | 0.2 | 1.0 | 4 | 0.9 | 4 | 54 |
| | 120L02R01 | | 0.1 | 1.2 | 4 | 1.0 | 2 | 54 |
| | 120L04R01 | | 0.1 | 1.2 | 4 | 1.0 | 4 | 54 |
| | 120L02R02 | | 0.2 | 1.2 | 4 | 1.0 | 2 | 54 |
| | 120L04R02 | ● | 0.2 | 1.2 | 4 | 1.0 | 4 | 54 |
| | 150L04R01 | | 0.1 | 1.5 | 4 | 1.4 | 4 | 54 |
| | 150L06R01 | | 0.1 | 1.5 | 4 | 1.4 | 6 | 54 |
| | 150L04R02 | | 0.2 | 1.5 | 4 | 1.4 | 4 | 54 |
| | 150L06R02 | ● | 0.2 | 1.5 | 4 | 1.4 | 6 | 54 |
| | 150L04R03 | | 0.3 | 1.5 | 4 | 1.4 | 4 | 54 |
| | 150L06R03 | | 0.3 | 1.5 | 4 | 1.4 | 6 | 54 |
| | 200L06R01 | | 0.1 | 2.0 | 4 | 1.5 | 6 | 54 |
| | 200L10R01 | ● | 0.1 | 2.0 | 4 | 1.5 | 10 | 54 |
| | 200L06R02 | | 0.2 | 2.0 | 4 | 1.5 | 6 | 54 |
| | 200L10R02 | ● | 0.2 | 2.0 | 4 | 1.5 | 10 | 54 |
| | 200L06R03 | | 0.3 | 2.0 | 4 | 1.5 | 6 | 54 |
| | 200L10R03 | | 0.3 | 2.0 | 4 | 1.5 | 10 | 54 |
| | 300L08R01 | | 0.1 | 3.0 | 4 | 2.3 | 8 | 54 |
| | 300L08R02 | | 0.2 | 3.0 | 4 | 2.3 | 8 | 54 |
| | 300L08R03 | | 0.3 | 3.0 | 4 | 2.3 | 8 | 54 |
| | 400L30R01 | | 0.1 | 4.0 | 6 | 3.0 | 30 | 80 |
| | 400L30R02 | | 0.2 | 4.0 | 6 | 3.0 | 30 | 80 |
| | 400L30R03 | | 0.3 | 4.0 | 6 | 3.0 | 30 | 80 |
| | 400L40R05 | | 0.5 | 4.0 | 6 | 3.0 | 40 | 100 |
| | 400L40R10 | | 1.0 | 4.0 | 6 | 3.0 | 40 | 100 |

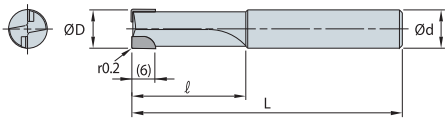
● : Disponibile ○ : A richiesta

# PDE1000/2000 (Piatta)

New

1 2 Helix Angle 0° PCD Substrate DP200






(mm)

| Articolo | | Stock | ØD | Ød | ℓ | L |
|---|---|---|---|---|---|---|
| PDE | 1040 | ○ | 4 | 6 | 15 | 45 |
| 1 | 1050 | | 5 | 6 | 15 | 50 |
| | 1060 | ○ | 6 | 6 | 20 | 60 |
| 2 | 2060 | ● | 6 | 8 | 20 | 60 |
| | 2070 | | 7 | 8 | 20 | 60 |
| | 2080 | ● | 8 | 8 | 20 | 60 |
| | 2090 | | 9 | 10 | 25 | 70 |
| | 2100 | ● | 10 | 10 | 25 | 70 |
| | 2120 | ○ | 12 | 12 | 25 | 75 |

● : Disponibile ○ : A richiesta

## Frese integrali brasate

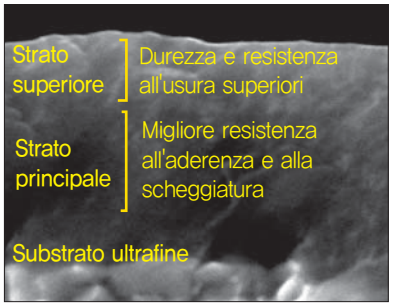
### Sistema di codifica delle frese integrali brasate

| Z | S | E | 2 | 14 | - | S |
|---|---|---|---|---|---|---|
| Brasata | Spirale | Fresa integrale | N. eliche | Diametro | | Diametro stelo |
| | | E : Piatta (Acciaio)<br>EA : Piatta (Alluminio, Rame)<br>EL : Tipo lungo piatta (Acciaio)<br>EXL : Tipo lungo piatta (Acciaio)<br>BE : Testa sferica (Acciaio) | 2 : 2 eliche<br>3 : 3 eliche | Ø00 | | S : Ø42.0<br>Q : Rivestito<br>SQ : Ø42.0 Rivestito<br>Diametro stelo standard : neutro |

### Caratteristiche delle frese integrali brasate

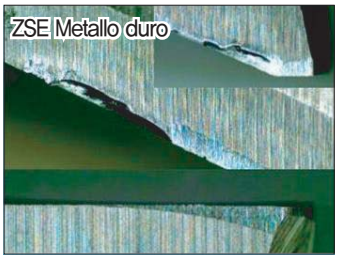
- Consente di eseguire lavorazioni di alta precisione grazie all'elevata rigidità
- Consente lavorazioni ad alte velocità aumentando la resistenza all'usura e riducendo l'attrito grazie al rivestimento PVD e al substrato
- Lunga durata dell'utensile grazie al corpo brasato che assorbe l'impatto durante le lavorazioni con taglio pesante interrotto
- Acciaio generico, acciaio legato, acciaio leggero, acciaio per stampi, acciaio inossidabile, ghisa, ghisa duttile
- ZSEA: Alluminio, lega di alluminio, rame, lega di rame, materiali non ferrosi
- Frese integrali brasate rivestite (speciali)
  Lunga durata dell'utensile grazie alla durezza di nuova tecnologia e al rivestimento resistente all'ossidazione

### Rivestimento PC221F

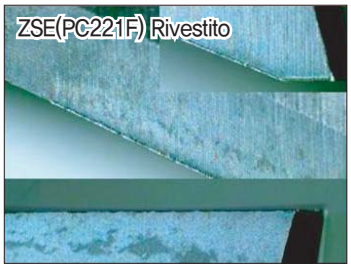



Nuovi rivestimenti PVD
Nuovo rivestimento duro e resistente all'ossidazione

### Test di resistenza all'usura (W.P:STD61)




Doppia durata dell'utensile



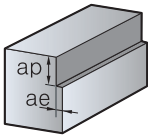

### Condizioni di taglio raccomandate (ZSE200 Piatta)

| Pezzo lavorato / Condizione / Diametro(Ø) | SM50C,SCM,GC (~ HRC30) | | STD61,STD11 (HRC30~45) | | STD61 (HRC45~55) | |
|---|---|---|---|---|---|---|
| | R.P.M n(min⁻¹) | Avanzamento vf(mm/min) | R.P.M n(min⁻¹) | Avanzamento vf(mm/min) | R.P.M n(min⁻¹) | Avanzamento vf(mm/min) |
| 20 | 1,600 | 152 | 950 | 88 | 560 | 44 |
| 25 | 1,300 | 136 | 750 | 72 | 450 | 36 |
| 30 | 1,100 | 120 | 650 | 64 | 370 | 32 |
| 40 | 800 | 96 | 500 | 56 | 280 | 24 |
| 50 | 650 | 88 | 400 | 48 | 220 | 20 |

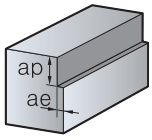
### Condizioni di taglio raccomandate (ZSE400 Piatta)

| Pezzo lavorato / Condizione / Diametro(Ø) | SM50C,SCM,GC (~ HRC30) | | STD61,STD11 (HRC30~45) | | STD61 (HRC45~55) | |
|---|---|---|---|---|---|---|
| | R.P.M n(min⁻¹) | Avanzamento vf(mm/min) | R.P.M n(min⁻¹) | Avanzamento vf(mm/min) | R.P.M n(min⁻¹) | Avanzamento vf(mm/min) |
| 20 | 1,600 | 230 | 950 | 133 | 560 | 66 |
| 25 | 1,300 | 205 | 750 | 109 | 450 | 54 |
| 30 | 1,100 | 180 | 650 | 96 | 370 | 48 |
| 40 | 800 | 145 | 500 | 85 | 280 | 36 |
| 50 | 650 | 135 | 400 | 72 | 220 | 30 |

● Suggerimento




■ Fresatura laterale (inf. HRC45)
· ap≤1.5D · ae≤0.1D




■ Fresatura laterale (sup. HRC45)
· ap≤1D(max. : 1mm)

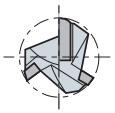
1. La tabella sopra riportata si riferisce a lavorazioni di fresatura laterale; in direzione ae, applicare condizioni di taglio ridotte
2. Durante le lavorazioni di finitura, in direzione ae, aumentare la velocità e l'avanzamento indicati in tabella

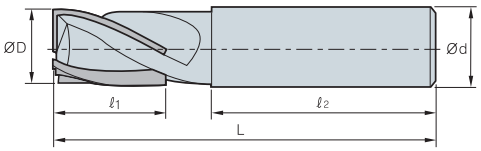
# ZSE200/300/400/600(Piatta)

2 3 4 6 | Carbide TiAlN | Helix Angle 24°~26° | Substrate FCC PC221F

| ø D | Tolleranza |
|---|---|
| All | 0 ~ -0,050 |








(mm)

| Articolo | | stock FCC | stock PC221F | øD | ød | ℓ1 | ℓ2 | L |
|---|---|---|---|---|---|---|---|---|
| ZSE 2 | 214 | ● | | 14 | 16 | 28 | 57 | 95 |
| | 215 | ● | | 15 | 16 | 28 | 57 | 95 |
| | 216(Q) | ● | ● | 16 | 16 | 28 | 55 | 95 |
| | 217 | ● | | 17 | 20 | 30 | 70 | 115 |
| | 218 | ● | | 18 | 20 | 30 | 70 | 115 |
| | 219 | ● | | 19 | 20 | 30 | 70 | 115 |
| | 220(Q) | ● | ● | 20 | 20 | 30 | 70 | 115 |
| | 221 | ● | | 21 | 20 | 35 | 65 | 115 |
| | 222 | ● | | 22 | 20 | 35 | 65 | 115 |
| | 223 | ● | | 23 | 25 | 35 | 75 | 125 |
| | 224 | ● | | 24 | 25 | 35 | 75 | 125 |
| | 225 | ● | | 25 | 25 | 35 | 75 | 125 |
| | 226(Q) | ● | ● | 26 | 25 | 35 | 75 | 125 |
| | 227 | ● | | 27 | 25 | 35 | 75 | 125 |
| | 228 | ● | | 28 | 25 | 35 | 75 | 125 |
| | 229 | ● | | 29 | 32 | 40 | 95 | 150 |
| | 230(Q) | ● | ● | 30 | 32 | 40 | 95 | 150 |
| | 231 | ● | | 31 | 32 | 40 | 95 | 150 |
| | 232 | ● | | 32 | 32 | 45 | 90 | 150 |
| | 233 | ● | | 33 | 32 | 45 | 90 | 150 |
| | 234 | ● | | 34 | 32 | 50 | 85 | 150 |
| | 235 | ● | | 35 | 32 | 50 | 85 | 150 |
| | 236 | ● | | 36 | 32 | 50 | 85 | 150 |
| | 237 | ● | | 37 | 32 | 55 | 80 | 150 |
| | 238 | ● | | 38 | 32 | 55 | 80 | 150 |
| | 238S | | | 38 | 42 | 55 | 80 | 150 |
| | 240(Q) | ● | ● | 40 | 32 | 60 | 75 | 150 |
| | 240S | | | 40 | 42 | 60 | 75 | 150 |
| | 242 | ● | | 42 | 32 | 60 | 75 | 150 |
| | 244 | | | 44 | 32 | 65 | 80 | 160 |
| | 245 | ● | | 45 | 32 | 65 | 80 | 160 |
| | 245S | | | 45 | 42 | 65 | 80 | 160 |
| | 247 | | | 47 | 32 | 65 | 80 | 160 |
| | 248 | ● | | 48 | 32 | 65 | 80 | 160 |
| | 248S | | | 48 | 42 | 65 | 80 | 160 |
| | 250 | ● | | 50 | 32 | 65 | 80 | 160 |
| | 250S | | | 50 | 42 | 65 | 80 | 160 |
| ZSE 3 | 314 | ● | | 14 | 16 | 28 | 57 | 95 |
| | 315 | ● | | 15 | 16 | 28 | 57 | 95 |
| | 316 | ● | | 16 | 16 | 28 | 55 | 95 |
| | 317 | ● | | 17 | 20 | 30 | 70 | 115 |
| | 318 | ● | | 18 | 20 | 30 | 70 | 115 |
| | 319 | ● | | 19 | 20 | 30 | 70 | 115 |
| | 320 | ● | | 20 | 20 | 30 | 70 | 115 |
| | 322 | ● | | 22 | 20 | 35 | 65 | 115 |
| | 325 | ● | | 25 | 25 | 35 | 75 | 125 |
| | 326 | | | 26 | 25 | 35 | 75 | 125 |
| | 328 | ● | | 28 | 25 | 35 | 75 | 125 |
| | 330 | ● | | 30 | 32 | 40 | 95 | 150 |
| | 331 | ● | | 31 | 32 | 40 | 95 | 150 |

● : Disponibile ○ : A richiesta

(mm)

| Articolo | | stock FCC | stock PC221F | øD | ød | ℓ1 | ℓ2 | L |
|---|---|---|---|---|---|---|---|---|
| ZSE 3 | 332 | ● | | 32 | 32 | 45 | 90 | 150 |
| | 333 | ● | | 33 | 32 | 45 | 90 | 150 |
| | 334 | | | 34 | 32 | 50 | 85 | 150 |
| | 335 | ● | | 35 | 32 | 50 | 85 | 150 |
| | 338 | ● | | 38 | 32 | 55 | 80 | 150 |
| | 338S | ● | | 38 | 42 | 55 | 80 | 150 |
| | 340 | ● | | 40 | 32 | 60 | 75 | 150 |
| | 340S | ● | | 40 | 42 | 60 | 75 | 150 |
| | 342 | ● | | 42 | 32 | 60 | 75 | 150 |
| | 345 | ● | | 45 | 32 | 65 | 80 | 160 |
| | 345S | | | 45 | 42 | 65 | 80 | 160 |
| | 350 | ● | | 50 | 32 | 65 | 80 | 160 |
| | 350S | | | 50 | 42 | 65 | 80 | 160 |
| ZSE 4 | 414 | ● | | 14 | 16 | 28 | 57 | 95 |
| | 415 | ● | | 15 | 16 | 28 | 57 | 95 |
| | 416(Q) | ● | ● | 16 | 16 | 28 | 55 | 95 |
| | 417 | ● | | 17 | 20 | 30 | 70 | 115 |
| | 418 | ● | | 18 | 20 | 30 | 70 | 115 |
| | 419 | ● | | 19 | 20 | 30 | 70 | 115 |
| | 420(Q) | ● | ● | 20 | 20 | 30 | 70 | 115 |
| | 421 | ● | | 21 | 20 | 35 | 65 | 115 |
| | 422 | ● | | 22 | 20 | 35 | 65 | 115 |
| | 423 | ● | | 23 | 25 | 35 | 75 | 125 |
| | 424 | ● | | 24 | 25 | 35 | 75 | 125 |
| | 425(Q) | ● | ● | 25 | 25 | 35 | 75 | 125 |
| | 426 | ● | | 26 | 25 | 35 | 75 | 125 |
| | 427 | ● | | 27 | 25 | 35 | 75 | 125 |
| | 428 | ● | | 28 | 25 | 35 | 75 | 125 |
| | 429 | ● | | 29 | 32 | 40 | 95 | 150 |
| | 430 | ● | | 30 | 32 | 40 | 95 | 150 |
| | 432(Q) | ● | ● | 32 | 32 | 45 | 90 | 150 |
| | 435 | ● | | 35 | 32 | 50 | 80 | 150 |
| | 438 | ● | | 38 | 32 | 55 | 85 | 150 |
| | 438S | | | 38 | 42 | 55 | 85 | 150 |
| | 440(Q) | ● | ● | 40 | 32 | 60 | 75 | 150 |
| | 440S | | | 40 | 42 | 60 | 75 | 150 |
| | 445 | ● | | 45 | 32 | 65 | 80 | 160 |
| | 445S | | | 45 | 42 | 65 | 80 | 160 |
| | 450 | ● | | 50 | 32 | 65 | 80 | 160 |
| | 450S | | | 50 | 42 | 65 | 80 | 160 |
| ZSE 6 | 634 | | | 34 | 32 | 50 | 85 | 150 |
| | 635 | ● | | 35 | 32 | 50 | 85 | 150 |
| | 638 | | | 38 | 32 | 55 | 80 | 150 |
| | 638S | | | 38 | 42 | 55 | 80 | 150 |
| | 640 | ● | | 40 | 32 | 60 | 75 | 150 |
| | 640S | ● | | 40 | 42 | 60 | 75 | 150 |
| | 645 | ● | | 45 | 32 | 65 | 80 | 160 |
| | 645S | | | 45 | 42 | 65 | 80 | 160 |
| | 650 | ● | | 50 | 32 | 65 | 80 | 160 |
| | 650S | ● | | 50 | 42 | 65 | 80 | 160 |

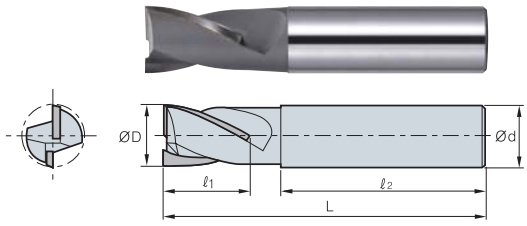
● : Disponibile ○ : A richiesta

**Modulo d'ordine per frese integrali speciali : ZSE©©©©I–L**

Es.1) 2 eliche, diametro : 6.3, I: 10, L: 60 ZSBE2063 10–60L

Es.2) 2 eliche, diametro : 6.3, tipo standard ZSE2063

# ZSEA200(Piatta)




2 | Helix Angle 24°~26° | Carbide | Substrate FCC

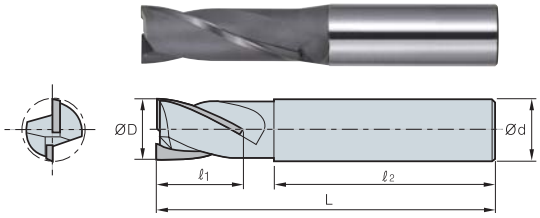
| ø D | Tolleranza |
|---|---|
| All | 0 ~ −0.050 |

(mm)

| Articolo | | stock | øD | ød | ℓ1 | ℓ2 | L |
|---|---|---|---|---|---|---|---|
| ZSEA 2 | 215 | ● | 15 | 16 | 28 | 57 | 95 |
| | 216 | ● | 16 | 16 | 28 | 55 | 95 |
| | 218 | ● | 18 | 20 | 30 | 70 | 115 |
| | 219 | ● | 19 | 20 | 30 | 70 | 115 |
| | 220 | ● | 20 | 20 | 30 | 70 | 115 |
| | 221 | ● | 21 | 20 | 35 | 65 | 115 |
| | 222 | ● | 22 | 20 | 35 | 65 | 115 |
| | 223 | ● | 23 | 25 | 35 | 75 | 125 |
| | 224 | ● | 24 | 25 | 35 | 75 | 125 |
| | 225 | ● | 25 | 25 | 35 | 75 | 125 |
| | 228 | | 28 | 25 | 35 | 75 | 125 |
| | 230 | | 30 | 32 | 40 | 95 | 150 |
| | 232 | | 32 | 32 | 45 | 90 | 150 |
| | 238 | | 38 | 32 | 55 | 80 | 150 |
| | 240 | | 40 | 32 | 60 | 75 | 150 |
| | 250 | | 50 | 32 | 65 | 80 | 160 |

● : Disponibile ○ : A richiesta

# ZSEL, ZSEXL(Piatta)




2 4 | Helix Angle 24°~26° | Carbide TiAlN | Substrate FCC PC221F

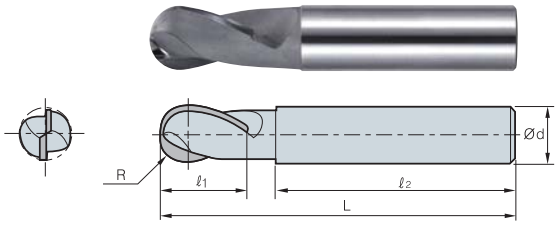
| ø D | Tolleranza |
|---|---|
| All | 0.000 ~ −0.050 |

(mm)

| Articolo | | stock FCC | stock PC221F | øD | ød | ℓ1 | ℓ2 | L |
|---|---|---|---|---|---|---|---|---|
| ZSEL 2 | 214 | ● | | 14 | 16 | 50 | 55 | 120 |
| | 216 | ● | | 16 | 16 | 50 | 55 | 120 |
| | 218 | ● | | 18 | 20 | 60 | 65 | 140 |
| | 220 | ● | | 20 | 20 | 60 | 65 | 140 |
| | 222 | ● | | 22 | 20 | 60 | 65 | 140 |
| | 225 | ● | | 25 | 25 | 70 | 65 | 150 |
| | 230 | ● | | 30 | 32 | 80 | 85 | 180 |
| | 232 | ● | | 32 | 32 | 90 | 85 | 190 |
| | 235 | ● | | 35 | 32 | 100 | 85 | 200 |
| | 240 | ● | | 40 | 42 | 100 | 105 | 220 |
| | 245 | ● | | 45 | 42 | 120 | 95 | 230 |
| | 250 | | | 50 | 42 | 120 | 95 | 230 |
| ZSEL 4 | 416 | ● | | 16 | 16 | 50 | 55 | 120 |
| | 420 | ● | | 20 | 20 | 60 | 65 | 140 |
| | 425 | ● | | 25 | 25 | 70 | 65 | 150 |
| | 430 | ● | | 30 | 32 | 80 | 85 | 180 |
| | 435 | ● | | 35 | 32 | 100 | 85 | 200 |
| | 440 | ● | | 40 | 42 | 100 | 105 | 220 |
| ZSEXL 2 | 220 | | | 20 | 20 | 120 | 65 | 200 |
| | 222 | | | 22 | 20 | 120 | 65 | 200 |
| | 225 | | | 25 | 25 | 140 | 65 | 220 |

● : Disponibile ○ : A richiesta

# ZSBE200(Testa sferica)




2 | Helix Angle 24°~26° | Carbide TiAlN | Substrate FCC PC221F

| ø D | Tolleranza |
|---|---|
| All | 0 ~ −0.050 |

(mm)

| Articolo | | stock FCC | stock PC221F | R | øD | ød | ℓ1 | ℓ2 | L |
|---|---|---|---|---|---|---|---|---|---|
| ZSBE 2 | 213 | | | 6.5 | 13 | 16 | 30 | 60 | 100 |
| | 214 | ● | | 7 | 14 | 16 | 30 | 65 | 100 |
| | 215 | ● | | 7.5 | 15 | 16 | 35 | 55 | 100 |
| | 216Q | ● | ● | 8 | 16 | 16 | 35 | 55 | 100 |
| | 217 | | | 8.5 | 17 | 20 | 35 | 65 | 110 |
| | 218 | ● | | 9 | 18 | 20 | 35 | 65 | 110 |
| | 219 | | | 9.5 | 19 | 20 | 35 | 65 | 110 |
| | 220Q | ● | ● | 10 | 20 | 20 | 35 | 65 | 110 |
| | 221 | | | 10.5 | 21 | 20 | 35 | 65 | 110 |
| | 222 | ● | | 11 | 22 | 20 | 35 | 65 | 110 |
| | 223 | | | 11.5 | 23 | 25 | 40 | 65 | 120 |
| | 224 | ● | | 12 | 24 | 25 | 40 | 70 | 120 |
| | 225 | ● | | 12.5 | 25 | 25 | 40 | 70 | 120 |
| | 230 | ● | | 15 | 30 | 32 | 40 | 70 | 130 |
| | 231 | | | 15.5 | 31 | 32 | 40 | 80 | 130 |
| | 232 | ● | | 16 | 32 | 32 | 50 | 75 | 140 |
| | 233 | | | 16.5 | 33 | 32 | 50 | 75 | 140 |
| | 234 | | | 17 | 34 | 32 | 50 | 85 | 150 |
| | 235 | ● | | 17.5 | 35 | 32 | 50 | 85 | 150 |
| | 235S | | | 17.5 | 35 | 42 | 50 | 85 | 150 |
| | 236 | | | 18 | 36 | 32 | 50 | 85 | 150 |
| | 236S | | | 18 | 36 | 42 | 50 | 85 | 150 |
| | 237 | | | 18.5 | 37 | 32 | 50 | 95 | 160 |
| | 237S | | | 18.5 | 37 | 42 | 50 | 95 | 160 |
| | 238 | | | 19 | 38 | 32 | 50 | 95 | 160 |
| | 238S | | | 19 | 38 | 42 | 50 | 95 | 160 |
| | 239 | | | 19.5 | 39 | 32 | 50 | 95 | 160 |
| | 239S | | | 19.5 | 39 | 42 | 50 | 95 | 160 |
| | 240 | ● | | 20 | 40 | 32 | 50 | 95 | 160 |
| | 240S | | | 20 | 40 | 42 | 50 | 95 | 160 |
| | 245 | | | 22.5 | 45 | 32 | 50 | 105 | 170 |
| | 245S | | | 22.5 | 45 | 42 | 50 | 105 | 170 |
| | 250 | ● | | 25 | 50 | 32 | 50 | 105 | 170 |
| | 250S | | | 25 | 50 | 42 | 50 | 105 | 170 |

● : Disponibile ○ : A richiesta

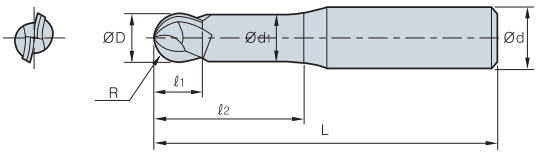
- ZSBE200
  Modulo d'ordine per frese integrali speciali: ZSBE2◎◎I–L
  Es 1) 2 eliche, diametro: 6 3 I: 10 L: 60 ZSBE 206310–60L
  Es.2) 2 eliche, diametro: 6.3, tipo standard ZSBE2063

- ZSEA200
  Modulo d'ordine per frese integrali speciali: ZSEA2◎◎I–L
  Es.1) 2 eliche, diametro: 16.3, I:28, L:95 ZSEA2163 28–95L
  Es.2) 2 eliche, diametro: 17.0, tipo standard ZSEA2170

- ZSEL200/400, ZSEXL200
  Modulo d'ordine per frese integrali speciali: ZSEL◎◎◎I–L

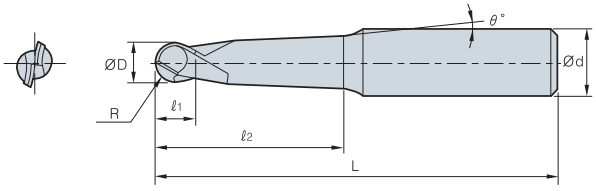
# F Modulo d'ordine per frese integrali speciali





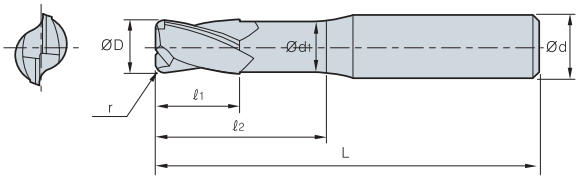

| Articolo | Eliche | R | øD | ød | ød1 | ℓ1 | ℓ2 | L |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| | | | | | | | | |





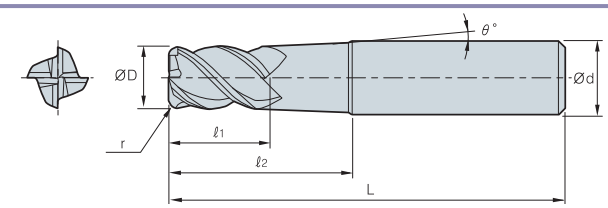

| Articolo | Eliche | R | øD | ød | ℓ1 | ℓ2 | L | θ° |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| | | | | | | | | |





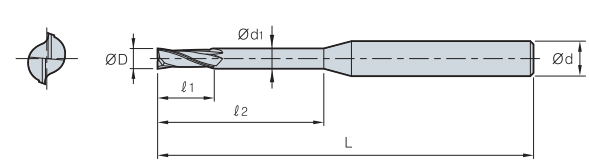

| Articolo | Eliche | øD | ød | ød1 | r | ℓ1 | ℓ2 | L |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| | | | | | | | | |






| Articolo | Eliche | øD | r | ød | ℓ1 | ℓ2 | L | θ° |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| | | | | | | | | |






| Articolo | Eliche | øD | ød | ød1 | ℓ1 | ℓ2 | L |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| | | | | | | | |

I N D I C E

# Foratura

G


Indice punte G02

## Punte a inserti

Informazioni tecniche per le punte G04
Modulo d'ordine per punte a inserti speciali G09
Inserti disponibil G10
Punte a inserti G11
Punte NPD per foratura G19
Informazioni tecniche per le punte a inserti e a punte pilota G21
Punte a inserti e punte pilota G24
Punte pilota G26
Punte di lucidatura G26
Punte integrali G27
Punte PCD G28
TPD G29

## Punte in metallo duro

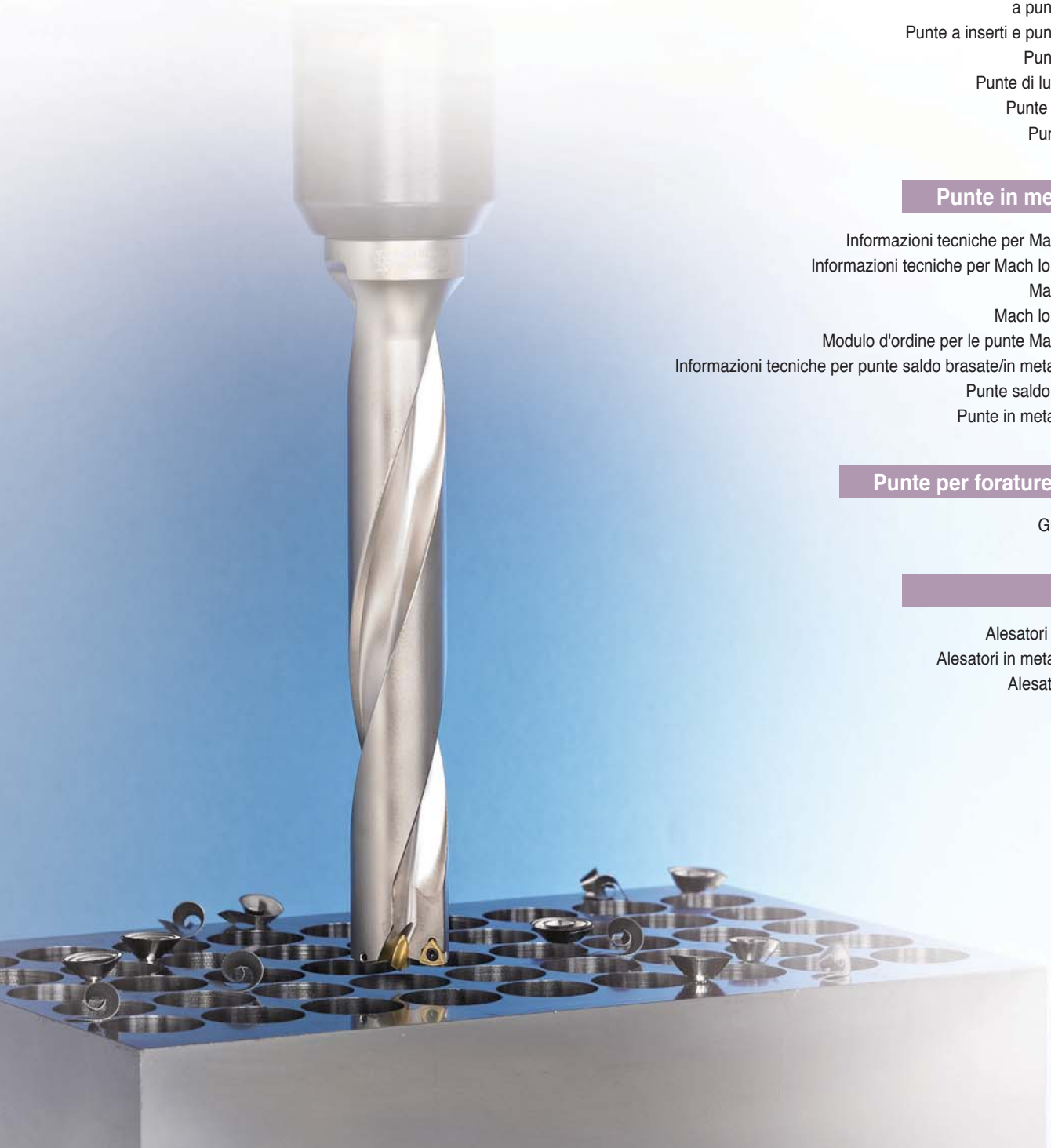
Informazioni tecniche per Mach Drills G33
Informazioni tecniche per Mach long Drills G35
Mach Drills G37
Mach long Drills G41
Modulo d'ordine per le punte Mach Drills G41
Informazioni tecniche per punte saldo brasate/in metallo duro G42
Punte saldo brasate G43
Punte in metallo duro G44

## Punte per forature profonde

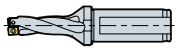
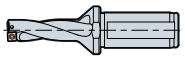
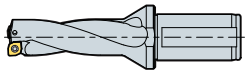
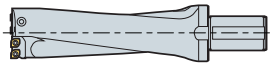
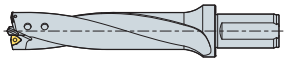
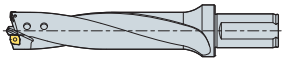
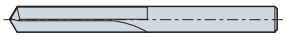
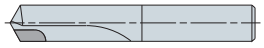
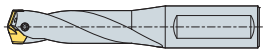
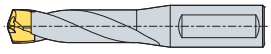
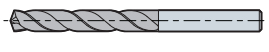
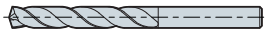
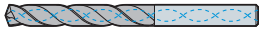
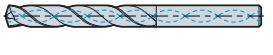
Gun Drills G45

## Alesatori

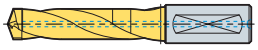
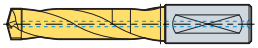
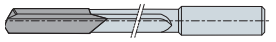
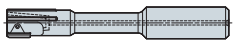
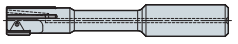
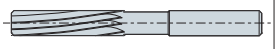
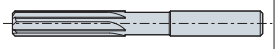
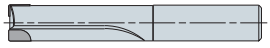
Alesatori a inserti G48
Alesatori in metallo duro G50
Alesatori PCD G51

# G Indice punte

| TIPO | Articolo | Foro lubrificante | Forma | Rivestimento | Diametro foratura | Lunghezza di lavoro | Pezzo lavorato P Acciaio | M Acciaio inossidabile | K Ghisa | N Materiali non ferrosi | S HSRA | H Acciaio temprato | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Punte a inserti | LPD | Passante |  | – | Ø12~Ø13,5 | 2D 3D 4D | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | G11, G13 G15 |
| | SPD | Passante |  | – | Ø13~Ø22 | 2D 3D 4D 5D | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | G11, G13 G15 |
| | NPD | Passante |  | – | Ø23~Ø60 | 2D 3D 4D 5D | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | G11~G18 |
| | NPD con cartuccia | Passante |  | – | Ø61~Ø100 | 3D 4D | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | G20 |
| | WPDC | Passante |  | – | Ø25~Ø80 | 5D 6.5D 8D | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | G24 |
| | NPDC | Passante |  | – | Ø26~Ø40 | 5D 6.5D 8D | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | G25 |
| Punte di lucidatura | BD | Esterno |  | – | Ø3,0~Ø16,0 | 3D~8D | | | ◎ | ◎ | | | G26 |
| Punte integrali | TSDM | Esterno |  | – | Ø8,0~Ø25,0 | 5D~8D | | | ◎ | ◎ | | | G27 |
| Punte PCD | PDD | Esterno |  | – | Ø5,0~Ø12,0 | 5D | | | | ◎ | | | G28 |
| Punte TPD | TPD Lama | Passante |  | – | Ø12~Ø32 | 3D 5D | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | G31 |
| | TPD Cuspide | Passante |  | – | Ø12~Ø32 | 3D 5D 7D | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | G32 |
| Mach Drills | MSD P | Esterno |  | ⊙ | Ø2,5~Ø20,0 | 3D 5D 7D | ◎ | △ | ○ | | ○ | ○ | G37, G38 |
| | MSD M | Esterno | | ⊙ | | | ○ | ◎ | ○ | | | | G37, G38 |
| | MSD K | Esterno | | ⊙ | | | ○ | △ | ◎ | | | | G37, G38 |
| | MSD N | Esterno |  | – | Ø2,5~Ø20,0 | 3D 5D 7D | | | | ◎ | | | G37, G38 |
| | MSDH P | Passante |  | ⊙ | Ø2,5~Ø20,0 | 3D 5D 7D | ◎ | ○ | ○ | | ○ | ○ | G39, G40 |
| | MSDH M | Passante | | ⊙ | | | ○ | ◎ | ○ | | | | G39, G40 |
| | MSDH K | Passante | | ⊙ | | | ○ | ○ | ◎ | | | | G39, G40 |
| | MSDH N | Passante |  | – | Ø2,5~Ø20,0 | 3D 5D 7D | | | | ◎ | | | G39, G40 |
| | MSDH ND | Passante |  | ⊙ | Ø2,5~Ø20,0 | 3D 5D 7D | | | | ◎ | | | G39, G40 |

◎ : Ottimo ○ : Buono △ : Generico

| TIPO | Articolo | Foro lubrificante | Forma | Rivestimento | Diametro foratura | Lunghezza di lavoro | Pezzo lavorato P Acciaio | Pezzo lavorato M Acciaio inossidabile | Pezzo lavorato K Ghisa | Pezzo lavorato N Materiali non ferrosi | Pezzo lavorato S HSRA | Pezzo lavorato H Acciaio temprato | Pag. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mach Drills | MLD | Passante |  | ⊙ | Ø2.5~Ø20.0 | 7D~25D | ◎ | ○ | ◎ | ◎ | | | G41 |
| | MLDP | Passante |  | ⊙ | Ø2.5~Ø20.0 | – | ◎ | ○ | ◎ | ◎ | | | G41 |
| Punte saldo brasate | VZD A | Passante |  | ⊙ | Ø12.6~Ø40.5 | 2.5D 5D | ◎ | ○ | ◎ | | ○ | ○ | G43 |
| | VZD BA | Passante |  | ⊙ | Ø12.6~Ø40.5 | 2.5D 5D | ◎ | | ○ | | | | G43 |
| Punte in metallo duro | SSD | Esterno |  | – | Ø1.0~Ø15.0 | – | ○ | | ◎ | ◎ | | | G44 |
| Gun Drills | KGDS | Passante |  | – | Ø2.0~Ø33.0 | 50~100D | ◎ | ◎ | ◎ | ◎ | △ | △ | G46 |
| | KGDT | Passante |  | – | Ø6.0~Ø26.5 | 50~100D | ◎ | ◎ | ◎ | ◎ | △ | △ | G46 |
| Alesatori a inserti | IRT | Passante |  | – | Ø10.0~Ø31.0 | 3D~5D | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | G49 |
| | IRB | Passante |  | – | Ø10.0~Ø31.0 | 3D~5D | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | G49 |
| Alesatori in metallo duro | HRE | Esterno |  | – | Ø3.0~Ø16.0 | 3D~5D | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | G50 |
| | RE | Esterno |  | – | Ø3.0~Ø16.0 | 3D~5D | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | G50 |
| Alesatori PCD | PDR | Esterno |  | – | Ø5.0~Ø20.0 | 3D~5D | | | | ◎ | | | G51 |

◎ : Ottimo ○ : Buono △ : Generico

# Punte a inserti

## Sistema di codifica di LPD/SPD/NPD

| SPD | 170 | - | 25 | - | 3 |
|---|---|---|---|---|---|
| Articolo | Diametro Foratura : Ø17.0 | | Diametro attacco: Ø25 | | Lunghezza del foro ( 2, 3, 4, 5 ) |

### Elevata rigidità delle punte

- L'attacco robusto e il design eccellente ottimizzano le prestazioni di foratura
- Grazie allo speciale trattamento in superficie, è stata ridotta la resistenza all'usura per attrito dell'attacco
- Grazie al corpo più robusto della punta è possibile ottenere risultati ottimali anche in condizioni di taglio difficili

### Speciale design dello scarico

- Eccellente evacuazione del truciolo grazie allo speciale design dello scarico che garantisce lunga durata dell'utensile

### Rompitruciolo e grado raccomandati per pezzo lavorato

| Pezzo lavorato | Inserto | Grado |
|---|---|---|
| Acciaio legato, acciaio al carbonio | DM,DF | PC3500 / PC5300 |
| Ghisa | DM | PC6510 |
| Acciaio inossidabile | DS,DF | PC5300 |
| Alluminio | DA | H01 |
| Acciaio leggero | DR | PC3500 |

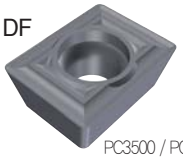
## Caratteristiche

### LPD-Least Piercing Drill



Diametro disponibile : Ø12~Ø13.5

#### Inserti LPD




PC3500 / PC5300

2 taglienti

- Per forature di piccoli diametri
- LPD : Ø12mm ~Ø13.5mm

Metodo di staffaggio di LPD






### SPD-Superior Piercing Drill



Diametro disponibile : Ø13~Ø22

#### Inserti SPD




4 taglienti

- I rompitrucioli disponibili nella gamma degli inserti per le punte SPD garantiscono un eccelente controllo del truciolo
- Semplice e rapida sostituzione del tagliente senza inconvenienti

Utilizzo dello stesso inserto SPD






- Economicità di esercizio grazie all'uso di un solo tipo di inserto
- SPD : Ø13mm~Ø22mm.
- Le punte SPD producono trucioli piccoli, quindi sono indicate per le forature di piccole dimensioni

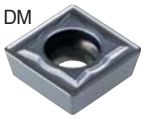
Rompitruciolo e grado raccomandati per pezzo lavorato

DF



PC3500 (Acciaio) / PC5300 (Acciaio inossidabile)

DM



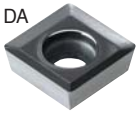
PC3500, PC5300 (Acciaio) / PC6510 (Ghisa)

DS



PC5300 (Acciaio inossidabile)

DA



H01 (Alluminio)

### NPD-New Piercing Drill



Diametro disponibile : Ø23~Ø60

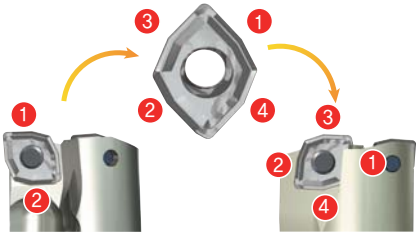
#### Inserti NPD




4 taglienti

- Il tagliente per NPD è molto robusto, quindi indicato per forature di grossi diametri
- NPD : Ø23mm~Ø60mm

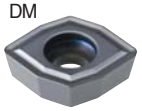
Come utilizzare gli inserti NPD a 4 taglienti




- Innanzitutto, utilizzare i taglienti N. ①,② nella posizione esterna della sede dell'inserto, quindi portare l'inserto nella posizione interna della punta per utilizzare i taglienti N. ③,④

Rompitruciolo e grado raccomandati per pezzo lavorato

DM



PC3500, PC5300 (Acciaio) / PC6510 <Ghisa>

DS



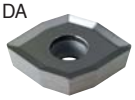
PC5300 (Acciaio inossidabile)

DR



PC3500 (Acciaio leggero) / PC5300

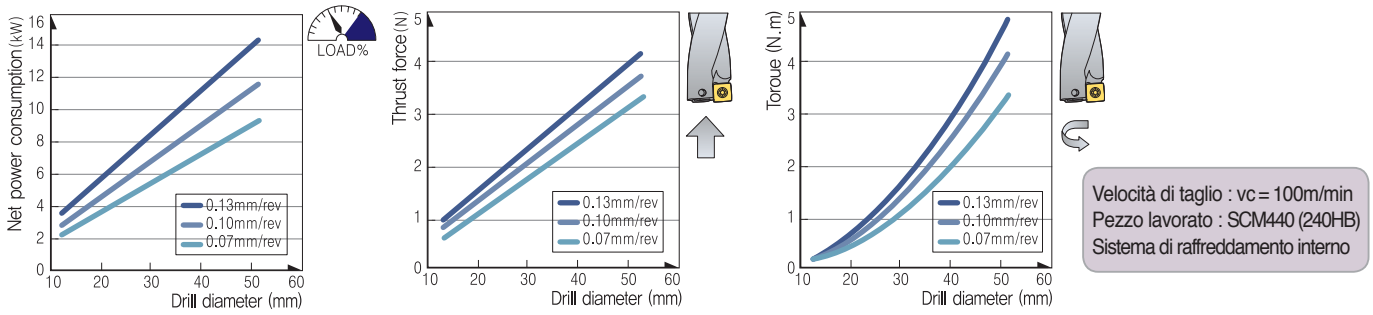
DA



H01 (Alluminio)

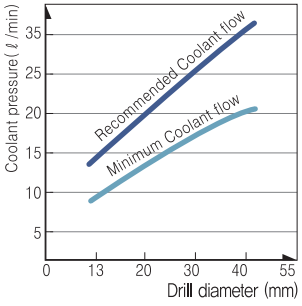
## Potenza richiesta

Il grafico seguente illustra lo sforzo di taglio necessario per la foratura. Per risultati ottimali quando si utilizzano le punte NPD e SPD, si raccomandano le condizioni di taglio riportate di seguito con potenza e rigidità adeguate.




Velocità di taglio : vc = 100m/min
Pezzo lavorato : SCM440 (240HB)
Sistema di raffreddamento interno

## Pressione refrigerante



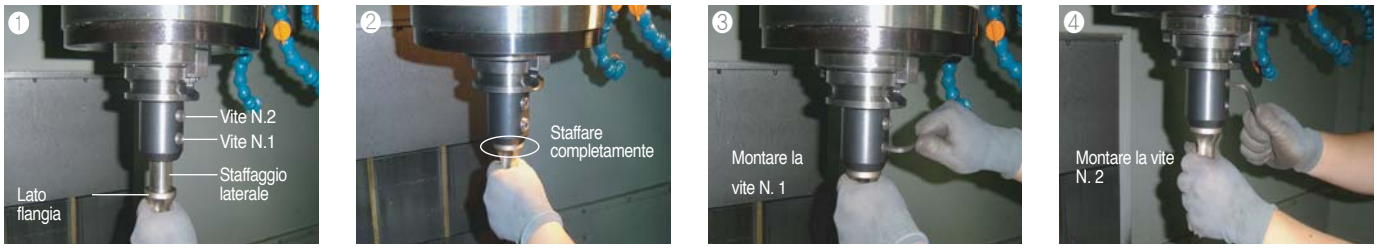

- La pressione appropriata per le punte NPD e SPD è superiore a 5kg/㎠
- Le informazioni sopra riportate riportano dati base per foratura normale; è necessario apportare le dovute modifiche in funzione del pezzo lavorato e delle condizioni di taglio

· vc = 100m/min
· Pezzo lavorato : SCM440(240HB)
· Sistema di raffreddamento interno

## Tolleranza foro per D.O.C

| D.O.C | Tolleranza foro | Condizioni di taglio del test |
|---|---|---|
| 2 X D | D $^{+0,2}_{-0,1}$ | • SCM440, con refrigerante, 5kg/㎠<br>• vc = 130 ~200 m/min<br>• fn = 0.04 ~ 0.15 mm/giro |
| 3 X D | D $^{+0,3}_{-0,1}$ | |
| 4 X D | D $^{+0,4}_{-0,1}$ | • vc = 130~200 m/min<br>• fn = 0.04 ~ 0.12 mm/giro |
| 5 X D | D $^{+0,4}_{-0,1}$ | • vc = 130~200 m/min<br>• fn = 0.04 ~ 0.10 mm/giro |

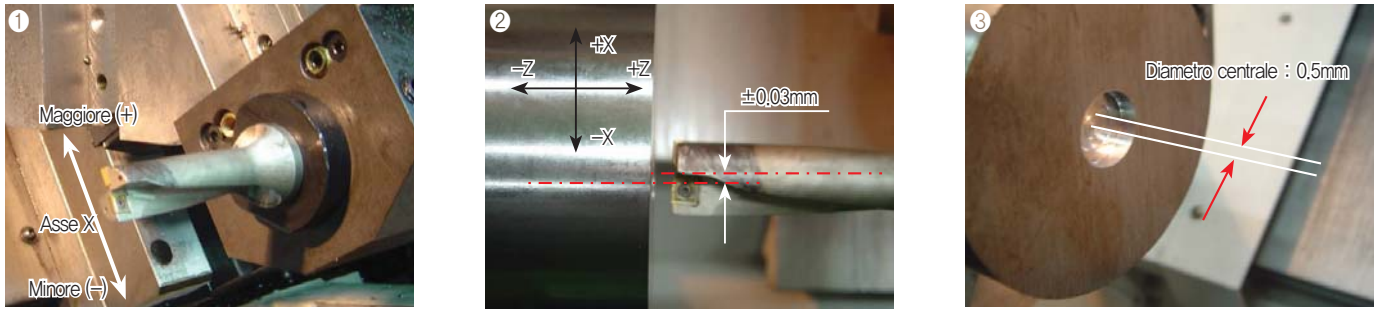
## Come montare la punta sull'attacco a serraggio laterale




**• Staffaggio stabile per foratura ottimale**

① Inserire nella stessa direzione della vite dell'attacco e dello staffaggio laterale della punta
② Ridurre al minimo la distanza tra il lato di staffaggio della punta e l'attacco
③ Dapprima, serrare la vite N. 1
④ Quindi, serrare la vite N. 2

## Inserimento della punta nel tornio




① Il tagliente dell'inserto deve essere parallelo all'asse X per rendere possibile una lavorazione disassata.
La parte piatta dell'attacco dove si trova lo staffaggio laterale è parallela alla linea del tagliente dell'inserto; l'operatore può dunque montare la punta in funzione della parte piatta dell'attacco.
② Collocare l'inserto esterno in direzione (+) dell'asse X per consentire una lavorazione disassata, mentre l'inserto interno deve essere rivolto verso l'operatore.
③ Per controllare il montaggio della punta prima dell'uso, eseguite una foratura di prova di circa 5mm di profondità e verificate che il diametro centrale sia di circa 0,5mm
※ Controllare la posizione dello staffaggio laterale durante il montaggio

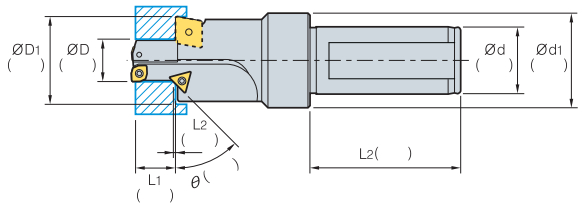
## Condizioni di taglio raccomandate (LPD, NPD, SPD)

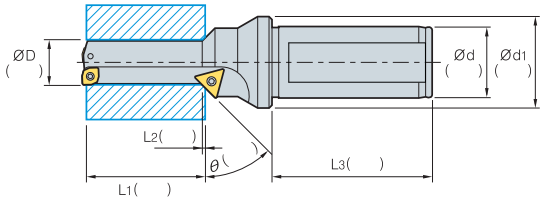
| Rompitruciolo e grado raccomandati per pezzo lavorato | | | | | | | Velocità di taglio | Avanzamento (Lunghezza del foro = 2D,3D) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pezzo lavorato | | | | Rompitruciolo e gradi | | | | Avanzamento (mm/giro) per diametro di foratura | | | | |
| ISO | KS | Pezzo lavorato | Durezza(HB) | Raccom. | C/B | Grado | m/min | ~Ø15 | Ø16~Ø24 | Ø25~Ø32 | Ø33~Ø40 | sup. Ø41 |
| P Acciaio al carbonio | SM15C SM25C SM35C | Acciaio a basso tenore di carbonio | 80~180 | 1st | DM | PC3500 | 190(130~250) | 0.04~0.08 | 0.04~0.08 | 0.04~0.08 | 0.05~0.10 | 0.06~0.12 |
| | | | | 2nd | DS | PC5300 | 170(110~230) | 0.04~0.08 | 0.04~0.08 | 0.04~0.08 | 0.05~0.10 | 0.08~0.12 |
| | SM45C SM58C SCMn1 SMn438(H) SUM22 SNC236 | Acciaio a elevato tenore di carbonio | 180~280 | 1st | DM | PC3500 | 140(80~200) | 0.04~0.10 | 0.04~0.12 | 0.05~0.16 | 0.08~0.18 | 0.10~0.22 |
| P Acciaio legato | SCM4105 SCM440 SCMnH1 | Acciaio poco legato | 140~260 | 1st | DM | PC3500 | 130(70~200) | 0.04~0.10 | 0.06~0.12 | 0.08~0.16 | 0.08~0.20 | 0.08~0.24 |
| | | | | 2nd | DS | PC5300 | 120(50~180) | 0.04~0.10 | 0.06~0.12 | 0.08~0.16 | 0.08~0.20 | 0.08~0.24 |
| | SCr440 SNCM220 SNCM240 | Acciaio poco legato resistente al calore | 200~400 | 1st | DM | PC3500 | 100(50~150) | 0.04~0.10 | 0.04~0.12 | 0.08~0.16 | 0.08~0.20 | 0.08~0.24 |
| | | | | 2nd | DR | PC3500 | 90(50~140) | 0.04~0.10 | 0.04~0.12 | 0.08~0.16 | 0.08~0.20 | 0.08~0.22 |
| | STD11 STD61 STS43 SKH55 SKH3 SKH51 SKH51 | Acciaio molto legato | 50~260 | 1st | DM | PC3500 | 100(50~160) | 0.04~0.08 | 0.04~0.12 | 0.06~0.16 | 0.08~0.18 | 0.08~0.22 |
| | | | | 2nd | DS | PC5300 | 90(50~150) | 0.04~0.08 | 0.04~0.12 | 0.06~0.16 | 0.08~0.18 | 0.08~0.22 |
| | | Acciaio molto legato resistente al calore | 220~420 | 1st | DM | PC3500 | 70(30~120) | 0.04~0.08 | 0.04~0.12 | 0.06~0.14 | 0.08~0.17 | 0.08~0.20 |
| | | | | 2nd | DR | PC3500 | 60(30~110) | 0.04~0.08 | 0.04~0.12 | 0.06~0.14 | 0.08~0.17 | 0.08~0.20 |
| M Acciaio inossidabile | STS304 STR31 STR316 | Austenitico | 135~275 Ni>8% | 1st | DS | PC5300 | 100(50~150) | 0.04~0.10 | 0.04~0.12 | 0.06~0.14 | 0.06~0.16 | 0.06~0.20 |
| | | | | 2nd | DM | PC5300 | 90(40~150) | 0.04~0.10 | 0.04~0.12 | 0.06~0.14 | 0.06~0.16 | 0.06~0.20 |
| | STS316 B11SSC16 STS321 STS12 STS403 STS410 | Austenitico (Acciaio fuso) | 150~250 | 1st | DS | PC5300 | 80(40~130) | 0.04~0.08 | 0.04~0.12 | 0.06~0.14 | 0.06~0.16 | 0.06~0.20 |
| | | | | 2nd | DM | PC5300 | 80(40~120) | 0.04~0.08 | 0.04~0.12 | 0.06~0.14 | 0.06~0.16 | 0.06~0.20 |
| | STS420 STS430 STR446 STR36 STR446 | Ferritico Martensitico | 135~275 | 1st | DS | PC3500 | 120(60~170) | 0.04~0.10 | 0.04~0.12 | 0.06~0.14 | 0.06~0.16 | 0.06~0.20 |
| | | | | 2nd | DM | PC5300 | 110(60~160) | 0.04~0.10 | 0.04~0.12 | 0.06~0.14 | 0.06~0.16 | 0.06~0.20 |
| K Ghisa | GC100 GC150 | Ghisa grigia | 150~220 | 1st | DM | PC6510 | 190(150~250) | 0.04~0.10 | 0.05~0.14 | 0.06~0.16 | 0.08~0.20 | 0.10~0.22 |
| | GC200 GC250 GC350 GC400 GCD500 GCD600 GCD700 | Ghisa duttile | 130~240 | 1st | DM | PC6510 | 150(100~200) | 0.04~0.12 | 0.06~0.16 | 0.08~0.18 | 0.10~0.22 | 0.10~0.26 |
| | | | | 2nd | DR | PC6510 | 130(60~180) | 0.04~0.10 | 0.05~0.14 | 0.06~0.16 | 0.08~0.20 | 0.10~0.22 |
| | GTS-35 GTS-45 GTS-55 | Grafite Ghisa duttile | 200~300 | 1st | DM | PC3500 | 130(70~170) | 0.04~0.10 | 0.05~0.12 | 0.06~0.16 | 0.08~0.18 | 0.10~0.20 |
| | | | | 2nd | DR | PC6510 | 110(70~150) | 0.04~0.10 | 0.05~0.12 | 0.06~0.16 | 0.08~0.18 | 0.10~0.20 |
| N Leghe di alluminio | Leghe di alluminio | | 30~150 | 1st | DA | H01 | 300(200~400) | 0.04~0.12 | 0.06~0.16 | 0.08~0.18 | 0.10~0.22 | 0.10~0.24 |
| | | | | 2nd | DM | H01 | 280(200~350) | 0.04~0.12 | 0.06~0.16 | 0.08~0.18 | 0.10~0.22 | 0.10~0.24 |
| N Leghe di rame | Leghe di rame | | 150~160 | 1st | DA | H01 | 280(200~350) | 0.04~0.12 | 0.06~0.16 | 0.08~0.18 | 0.10~0.22 | 0.10~0.24 |
| | | | | 2nd | DM | H01 | 250(200~300) | 0.04~0.12 | 0.06~0.16 | 0.08~0.18 | 0.10~0.22 | 0.10~0.24 |
| S HSRA | HRSC15 STR330 NiCu30Al CoCr22W 14Ni | Ni HSRA | 130~400 | 1st | DS | PC5300 | 50(30~100) | 0.04~0.06 | 0.04~0.08 | 0.06~0.10 | 0.06~0.12 | 0.06~0.12 |
| | | | | 2nd | DM | PC5300 | 40(30~90) | 0.04~0.06 | 0.04~0.08 | 0.06~0.10 | 0.06~0.12 | 0.06~0.12 |
| | TiAl5Sn2.5 | Ti HSRA | 130~400 | 1st | DR | PC3500 | 50(30~90) | 0.04~0.08 | 0.04~0.10 | 0.06~0.12 | 0.08~0.14 | 0.08~0.16 |
| | | Acciaio temprato | 400~ | 1st | DR | PC3500 | 40(20~80) | 0.04~0.08 | 0.04~0.10 | 0.06~0.12 | 0.08~0.14 | 0.08~0.16 |

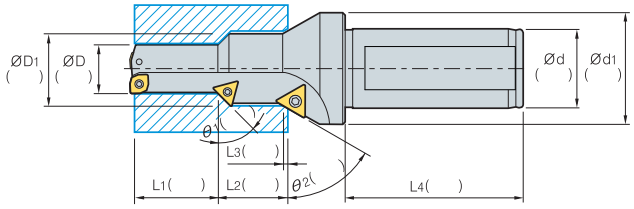
| | Avanzamento (Lunghezza del foro = 4D) | | | | | Avanzamento (Lunghezza del foro = 5D) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Avanzamento (mm/giro) per diametro di foratura | | | | | Avanzamento (mm/giro) per diametro di foratura | | | | |
| | ~Ø15 | Ø16~Ø24 | Ø25~Ø32 | Ø33~Ø40 | sup. Ø41 | ~Ø15 | Ø16~Ø24 | Ø25~Ø32 | Ø33~Ø40 | sup. Ø41 |
| | 0.04~0.08 | 0.04~0.08 | 0.04~0.08 | 0.05~0.10 | 0.08~0.12 | 0.04~0.05 | 0.04~0.05 | 0.04~0.05 | 0.05~0.07 | 0.08~0.09 |
| | 0.04~0.08 | 0.04~0.08 | 0.04~0.08 | 0.05~0.10 | 0.08~0.12 | 0.04~0.05 | 0.04~0.05 | 0.04~0.05 | 0.05~0.07 | 0.08~0.09 |
| | 0.04~0.10 | 0.04~0.12 | 0.05~0.16 | 0.08~0.16 | 0.10~0.18 | 0.04~0.07 | 0.04~0.09 | 0.05~0.12 | 0.08~0.14 | 0.10~0.14 |
| | 0.04~0.10 | 0.06~0.12 | 0.08~0.14 | 0.08~0.18 | 0.08~0.20 | 0.04~0.07 | 0.06~0.09 | 0.08~0.11 | 0.08~0.13 | 0.08~0.15 |
| | 0.04~0.10 | 0.06~0.12 | 0.08~0.14 | 0.08~0.18 | 0.08~0.20 | 0.04~0.07 | 0.06~0.09 | 0.08~0.11 | 0.08~0.13 | 0.08~0.15 |
| | 0.04~0.10 | 0.06~0.12 | 0.08~0.14 | 0.08~0.18 | 0.08~0.20 | 0.04~0.07 | 0.06~0.09 | 0.08~0.11 | 0.08~0.13 | 0.08~0.15 |
| | 0.04~0.10 | 0.06~0.12 | 0.08~0.14 | 0.08~0.16 | 0.08~0.18 | 0.04~0.07 | 0.06~0.09 | 0.08~0.11 | 0.08~0.13 | 0.08~0.15 |
| | 0.04~0.08 | 0.04~0.12 | 0.06~0.16 | 0.08~0.18 | 0.08~0.22 | 0.04~0.06 | 0.04~0.09 | 0.06~0.11 | 0.08~0.13 | 0.08~0.15 |
| | 0.04~0.08 | 0.04~0.12 | 0.06~0.16 | 0.08~0.18 | 0.08~0.22 | 0.04~0.06 | 0.04~0.09 | 0.06~0.11 | 0.08~0.13 | 0.08~0.15 |
| | 0.04~0.08 | 0.04~0.12 | 0.06~0.14 | 0.08~0.17 | 0.08~0.20 | 0.04~0.06 | 0.04~0.09 | 0.06~0.10 | 0.08~0.12 | 0.08~0.14 |
| | 0.04~0.08 | 0.04~0.12 | 0.06~0.14 | 0.08~0.17 | 0.08~0.20 | 0.04~0.06 | 0.04~0.09 | 0.06~0.10 | 0.08~0.12 | 0.08~0.14 |
| | 0.04~0.10 | 0.04~0.12 | 0.06~0.12 | 0.06~0.14 | 0.06~0.16 | 0.04~0.06 | 0.04~0.08 | 0.06~0.10 | 0.06~0.12 | 0.06~0.12 |
| | 0.04~0.10 | 0.04~0.12 | 0.06~0.12 | 0.06~0.14 | 0.06~0.16 | 0.04~0.06 | 0.04~0.08 | 0.06~0.10 | 0.06~0.12 | 0.06~0.12 |
| | 0.04~0.08 | 0.04~0.12 | 0.06~0.12 | 0.06~0.14 | 0.06~0.15 | 0.04~0.06 | 0.04~0.08 | 0.06~0.10 | 0.06~0.12 | 0.06~0.12 |
| | 0.04~0.08 | 0.04~0.12 | 0.06~0.12 | 0.06~0.14 | 0.06~0.15 | 0.04~0.06 | 0.04~0.08 | 0.06~0.10 | 0.06~0.12 | 0.06~0.12 |
| | 0.04~0.10 | 0.04~0.12 | 0.06~0.12 | 0.06~0.14 | 0.06~0.16 | 0.04~0.06 | 0.04~0.08 | 0.06~0.10 | 0.06~0.12 | 0.06~0.12 |
| | 0.04~0.10 | 0.04~0.12 | 0.06~0.12 | 0.06~0.14 | 0.06~0.16 | 0.04~0.06 | 0.04~0.08 | 0.06~0.10 | 0.06~0.12 | 0.06~0.12 |
| | 0.04~0.11 | 0.06~0.14 | 0.08~0.16 | 0.10~0.20 | 0.12~0.22 | 0.04~0.10 | 0.06~0.12 | 0.08~0.12 | 0.10~0.14 | 0.12~0.16 |
| | 0.04~0.09 | 0.05~0.12 | 0.06~0.15 | 0.08~0.18 | 0.10~0.20 | 0.04~0.07 | 0.05~0.09 | 0.06~0.09 | 0.08~0.12 | 0.10~0.14 |
| | 0.04~0.09 | 0.05~0.12 | 0.06~0.15 | 0.08~0.18 | 0.10~0.20 | 0.04~0.07 | 0.05~0.09 | 0.06~0.09 | 0.08~0.12 | 0.10~0.14 |
| | 0.04~0.09 | 0.06~0.15 | 0.06~0.15 | 0.08~0.18 | 0.10~0.20 | 0.04~0.07 | 0.05~0.09 | 0.06~0.09 | 0.08~0.12 | 0.10~0.14 |
| | 0.04~0.09 | 0.06~0.15 | 0.06~0.15 | 0.08~0.18 | 0.10~0.20 | 0.04~0.07 | 0.05~0.09 | 0.06~0.09 | 0.08~0.12 | 0.10~0.14 |
| | 0.04~0.10 | 0.08~0.16 | 0.08~0.16 | 0.10~0.20 | 0.10~0.20 | 0.04~0.09 | 0.06~0.11 | 0.08~0.12 | 0.10~0.14 | 0.10~0.16 |
| | 0.04~0.10 | 0.08~0.16 | 0.08~0.16 | 0.10~0.20 | 0.10~0.20 | 0.04~0.09 | 0.06~0.11 | 0.08~0.12 | 0.10~0.14 | 0.10~0.16 |
| | 0.04~0.10 | 0.08~0.16 | 0.08~0.16 | 0.10~0.20 | 0.10~0.20 | 0.04~0.09 | 0.06~0.11 | 0.08~0.12 | 0.10~0.14 | 0.10~0.16 |
| | 0.04~0.10 | 0.08~0.16 | 0.08~0.16 | 0.10~0.20 | 0.10~0.20 | 0.04~0.09 | 0.06~0.11 | 0.08~0.12 | 0.10~0.14 | 0.10~0.16 |
| | 0.04~0.06 | 0.04~0.08 | 0.06~0.10 | 0.06~0.10 | 0.06~0.10 | 0.04~0.06 | 0.04~0.06 | 0.06~0.08 | 0.06~0.08 | 0.06~0.08 |
| | 0.04~0.06 | 0.04~0.08 | 0.06~0.10 | 0.06~0.10 | 0.06~0.10 | 0.04~0.06 | 0.04~0.06 | 0.06~0.08 | 0.06~0.08 | 0.06~0.08 |
| | 0.04~0.07 | 0.04~0.08 | 0.06~0.11 | 0.08~0.14 | 0.08~0.16 | 0.04~0.06 | 0.04~0.09 | 0.06~0.09 | 0.08~0.11 | 0.08~0.11 |
| | 0.04~0.07 | 0.04~0.08 | 0.06~0.11 | 0.08~0.14 | 0.08~0.16 | 0.04~0.06 | 0.04~0.09 | 0.06~0.09 | 0.08~0.11 | 0.08~0.11 |

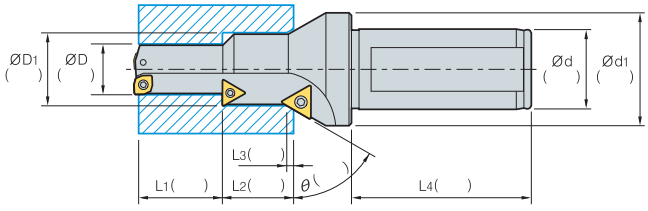
## Condizioni di taglio raccomandate (WPDC, NPDC )

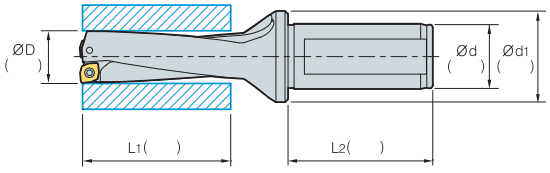
| Pezzo lavorato | | | Rompitrucioli | | Grado | Velocità di taglio | Avanzamento (Lunghezza del foro = 5D,6.5D,8D) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Avanzamento (mm/giro) per diametro di foratura | | | | | |
| ISO | Pezzo lavorato | Durezza(HB) | WC□T | NP□T | | m/min | ~ø30 | ø31~ø40 | ø41~ø50 | ø51~ø59 | ø60~ø75 | ø75~φ80 |
| P Acciaio al carbonio | Acciaio a basso tenore di carbonio (~0.25%) | 80~180 | C21 | DM | | 190(160~220) | 0.07~0.11 | 0.08~0.12 | 0.10~0.14 | 0.12~0.16 | 0.12~0.16 | 0.12~0.16 |
| | Acciaio a elevato tenore di carbonio (0.25%~) | 180~280 | C21 | DM | | 140(110~170) | 0.07~0.11 | 0.08~0.12 | 0.10~0.14 | 0.12~0.16 | 0.12~0.16 | 0.12~0.18 |
| P Acciaio legato | Acciaio poco legato | 140~260 | C21 | DM | | 130(100~160) | 0.08~0.12 | 0.08~0.12 | 0.10~0.14 | 0.12~0.18 | 0.12~0.18 | 0.12~0.18 |
| | Acciaio molto legato | 50~260 | C21 | DM | | 100(70~130) | 0.06~0.10 | 0.08~0.12 | 0.08~0.12 | 0.10~0.16 | 0.10~0.16 | 0.12~0.16 |
| M Acciaio inossidabile | Acciaio inossidabile | 135~275 | C21 | DS | | 100(70~130) | 0.06~0.10 | 0.08~0.12 | 0.10~0.12 | 0.12~0.14 | 0.12~0.14 | 0.12~0.16 |
| K Ghisa | Ghisa grigia | 150~220 | C21 | DM | | 160(130~190) | 0.09~0.15 | 0.10~0.16 | 0.12~0.2 | 0.14~0.22 | 0.14~0.22 | 0.14~0.22 |
| | Ghisa duttile | 200~300 | C21 | DM | | 140(170~110) | 0.09~0.15 | 0.10~0.16 | 0.12~0.2 | 0.14~0.22 | 0.14~0.22 | 0.14~0.22 |
| | Ghisa malleabile | 130~230 | C21 | DM | | 150(180~120) | 0.09~0.15 | 0.10~0.16 | 0.12~0.2 | 0.14~0.22 | 0.14~0.22 | 0.14~0.22 |
| N Alluminio | Alluminio | 30~150 | C21 | DA | | 300(250~350) | 0.08~0.12 | 0.10~0.14 | 0.12~0.16 | 0.14~0.18 | 0.14~0.18 | 0.14~0.18 |
| N Leghe di rame | Leghe di rame | 150~160 | C21 | DA | | 250(200~300) | 0.08~0.12 | 0.10~0.14 | 0.12~0.16 | 0.14~0.18 | 0.14~0.18 | 0.14~0.18 |
| S HSRA | HSRA | 130~400 | C21 | DS | | 50(70~30) | 0.05~0.08 | 0.05~0.08 | 0.06~0.10 | 0.06~0.10 | 0.06~0.10 | 0.06~0.10 |

☐ 


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※ Si prega di compilare i campi relativi alla tolleranza per ØD, ØD1

## ■ Refrigerante

- ☐ Refrigerante interno
- ☐ Refrigerante esterno (no foro lubrificante)
- ☐ Refrigerante laterale (CNC)

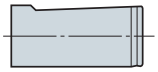
## ■ Tipo di lavorazione

☐ Foro cieco ☐ Foro passante

## ■ Tipo di attacco

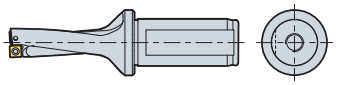
☐  F : Tipo piatto

☐  W : Tipo Weldon

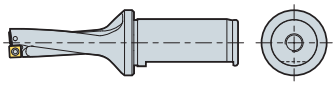
☐  T : Tipo Whistle Notch

## ■ Posizione del serraggio laterale

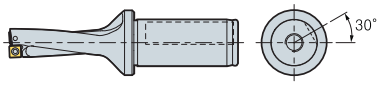
☐ Generale - Parallelo con la linea del tagliente esterno



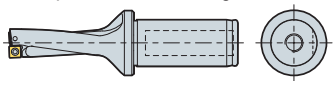
☐ 90° rispetto alla linea del tagliente esterno



☐ 150° rispetto alla linea del tagliente esterno



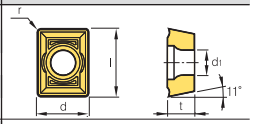
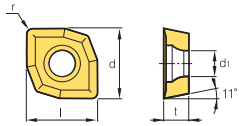
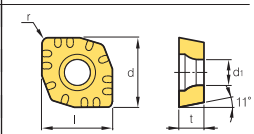
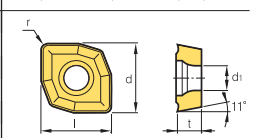
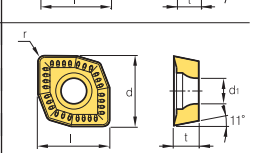
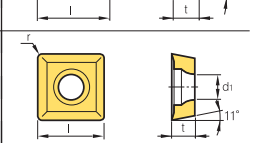
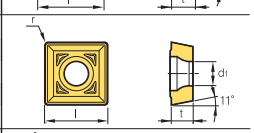
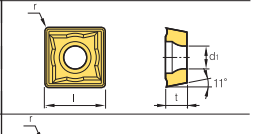
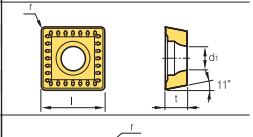
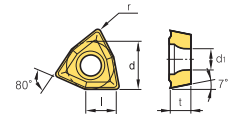
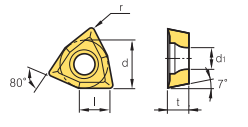
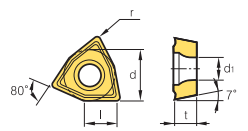
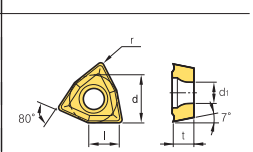
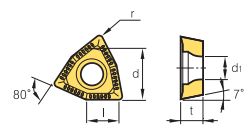

☐ 180° rispetto alla linea del tagliente esterno



## ■ Nota

- ☐ Utensile corrente
- ☐ Condizioni di taglio
  - n(rpm) vc(m/min) :
  - vf(mm/min) fn(mm/giro) :
  - Profondità(mm) :
- ☐ Durata utensile
- ☐ Macchinari
  - - Centro di lavoro
  - - Tornio generico
  - - Tornio CNC

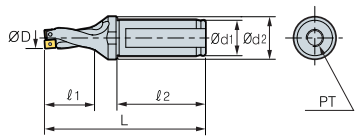
## Inserti disponibili

| Inserto | Articolo | Rivestito | | | | | | | | | | | Non rivestito | | Dimensioni (mm) | | | | | Articolo |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NC3120 | NC3030 | NC5330 | PC5300 | PC3530 | PC3535 | PC3500 | NCM325 | PC9530 | NCM335 | PC6510 | H01 | G10 | l | d | t | r | $d_1$ | |
| LPMT-DF | LPMT 040203-DF | | | | ○ | | | ● | | | | | | | 6.2 | 4.7 | 2.4 | 0.3 | 2.3 |  |
| NPET-DA | NPET 222408-DA | | | | | | | | | | | | ● | | 8.3 | 8.2 | 2.5 | 0.8 | 2.8 |  |
| | 252808-DA | | | | | | | | | | | | ● | | 9.3 | 9.2 | 3.3 | 0.8 | 3.4 | |
| | 293208-DA | | | | | | | | | | | | ● | | 10.3 | 10.2 | 3.3 | 0.8 | 3.4 | |
| | 334008-DA | | | | | | | | | | | | ● | | 13 | 12.9 | 3.97 | 0.8 | 4.0 | |
| | 415008-DA | | | | | | | | | | | | ● | | 15.3 | 15.2 | 4.76 | 0.8 | 4.5 | |
| | 516012-DA | | | | | | | | | | | | ● | | 18.3 | 18.2 | 5.18 | 1.2 | 5.5 | |
| NPET-DR | NPET 222408-DR | | | | | | | ● | | | | | | | 8.3 | 8.2 | 2.5 | 0.8 | 2.8 |  |
| | 252808-DR | | | | | | | ● | | | | | | | 9.3 | 9.2 | 3.3 | 0.8 | 3.4 | |
| | 293208-DR | | | | | | | ● | | | | | | | 10.3 | 10.2 | 3.3 | 0.8 | 3.4 | |
| | 334008-DR | | | | | | | ● | | | | | | | 13 | 12.9 | 3.97 | 0.8 | 4.0 | |
| | 415008-DR | | | | | | | ● | | | | | | | 15.3 | 15.2 | 4.76 | 0.8 | 4.5 | |
| | 516012-DR | | | | | | | ● | | | | | | | 18.3 | 18.2 | 5.18 | 1.2 | 5.5 | |
| NPMT-DM | NPMT 222408-DM | | | | ○ | | | ● | | | | ● | | | 8.3 | 8.2 | 2.5 | 0.8 | 2.8 |  |
| | 252808-DM | | | | ○ | | | ● | | | | ● | | | 9.3 | 9.2 | 3.3 | 0.8 | 3.4 | |
| | 293208-DM | | | | ○ | | | ● | | | | ● | | | 10.3 | 10.2 | 3.3 | 0.8 | 3.4 | |
| | 334008-DM | | | | ○ | | | ● | | | | ● | | | 13 | 12.9 | 3.97 | 0.8 | 4.0 | |
| | 415008-DM | | | | ○ | | | ● | | | | ● | | | 15.3 | 15.2 | 4.76 | 0.8 | 4.5 | |
| | 516012-DM | | | | ○ | | | ● | | | | ● | | | 18.3 | 18.2 | 5.18 | 1.2 | 5.5 | |
| NPMT-DS | NPMT 222408-DS | | | | ○ | | | | | ● | | | | | 8.3 | 8.2 | 2.5 | 0.8 | 2.8 |  |
| | 252808-DS | | | | ○ | | | | | ● | | | | | 9.3 | 9.2 | 3.3 | 0.8 | 3.4 | |
| | 293208-DS | | | | ○ | | | | | ● | | | | | 10.3 | 10.2 | 3.3 | 0.8 | 3.4 | |
| | 334008-DS | | | | ○ | | | | | ● | | | | | 13 | 12.9 | 3.97 | 0.8 | 4.0 | |
| | 415008-DS | | | | ○ | | | | | ● | | | | | 15.3 | 15.2 | 4.76 | 0.8 | 4.5 | |
| | 516012-DS | | | | ○ | | | | | ● | | | | | 18.3 | 18.2 | 5.18 | 1.2 | 5.5 | |
| SPET-DA | SPET 050203-DA | | | | | | | | | | | | ● | | 5.3 | - | 2.4 | 0.3 | 2.3 |  |
| | 060204-DA | | | | | | | | | | | | ● | | 6.2 | - | 2.5 | 0.4 | 2.5 | |
| | 070204-DA | | | | | | | | | | | | ● | | 7.2 | - | 2.5 | 0.4 | 2.8 | |
| SPMT-DF | SPMT 050203-DF | | | | ○ | | | | | ● | | | | | 5.3 | - | 2.4 | 0.3 | 2.3 |  |
| | 060204-DF | | | | ○ | | | | | ● | | | | | 6.2 | - | 2.5 | 0.4 | 2.5 | |
| | 070204-DF | | | | ○ | | | | | ● | | | | | 7.2 | - | 2.5 | 0.4 | 2.8 | |
| SPMT-DM | SPMT 050203-DM | | | | ○ | | | ● | | ● | | ● | | | 5.3 | - | 2.4 | 0.3 | 2.3 |  |
| | 060204-DM | | | | ○ | | | ● | | ● | | ● | | | 6.2 | - | 2.5 | 0.4 | 2.5 | |
| | 070204-DM | | | | ○ | | | ● | | ● | | ● | | | 7.2 | - | 2.5 | 0.4 | 2.8 | |
| SPMT-DS | SPMT 050203-DS | | | | ○ | | | | | ● | | | | | 5.3 | - | 2.4 | 0.3 | 2.3 |  |
| | 060204-DS | | | | ○ | | | | | ● | | | | | 6.2 | - | 2.5 | 0.4 | 2.5 | |
| | 070204-DS | | | | ○ | | | | | ● | | | | | 7.2 | - | 2.5 | 0.4 | 2.8 | |
| WCKT-C21 | WCKT 030204-C21 | | | | ○ | | | | | | | | | | 3.8 | 5.56 | 2.38 | 0.4 | 2.5 |  |
| | 040204-C21 | | | | ○ | | | | | | | | | | 4.3 | 6.35 | 2.38 | 0.4 | 2.8 | |
| | 050308-C21 | | | | ○ | | | | | | | | | | 5.4 | 7.94 | 3.18 | 0.8 | 3.4 | |
| | 06T308-C21 | | | | ○ | | | | | | | | | | 6.5 | 9.525 | 3.97 | 0.8 | 4.4 | |
| | 080408-C21 | | | | ○ | | | | | | | | | | 8.7 | 12.7 | 4.76 | 0.8 | 5.5 | |
| WCKT-DA | WCKT 030208-DA | | | | | | | | | | | | ● | | 3.8 | 5.56 | 2.38 | 0.8 | 2.8 |  |
| | 040208-DA | | | | | | | | | | | | ● | | 4.3 | 6.35 | 2.38 | 0.8 | 3.0 | |
| | 050308-DA | | | | | | | | | | | | ● | | 5.4 | 7.94 | 3.18 | 0.8 | 3.4 | |
| | 06T308-DA | | | | | | | | | | | | ● | | 6.5 | 9.525 | 3.97 | 0.8 | 4.0 | |
| | 080408-DA | | | | | | | | | | | | ● | | 8.7 | 12.7 | 4.76 | 0.8 | 4.3 | |
| WCMT-C20 | WCMT 030208-C20 | | | | | | | | ● | | | | | | 3.8 | 5.56 | 2.38 | 0.8 | 2.8 |  |
| | 040208-C20 | | ● | ○ | ○ | | | | ● | | | | | | 4.3 | 6.35 | 2.38 | 0.8 | 3.0 | |
| | 050308-C20 | | | ○ | ○ | | | ● | ● | | ● | | | | 5.4 | 7.94 | 3.18 | 0.8 | 3.4 | |
| | 06T308-C20 | ● | | ○ | ○ | | | ● | ● | | ● | | | | 6.5 | 9.525 | 3.97 | 0.8 | 4.0 | |
| | 080408-C20 | ● | | ○ | ○ | | | ● | ● | | | | | | 8.7 | 12.7 | 4.76 | 0.8 | 4.3 | |
| | 080412-C20 | | | | | | | | ● | | | | | | 8.7 | 12.7 | 4.76 | 1.2 | 4.3 | |
| WCMT-C21 | WCMT 030204-C21 | | | | ○ | | | ● | ● | | | | | | 3.8 | 5.56 | 2.38 | 0.4 | 2.5 |  |
| | 040204-C21 | | | | ○ | | | ● | ● | | | | | | 4.3 | 6.35 | 2.38 | 0.4 | 2.8 | |
| | 040208-C21 | | | | | | | ● | | | | | | | 4.3 | 6.35 | 2.38 | 0.8 | 2.8 | |
| | 050308-C21 | | | | | | | | | | | | | | 5.4 | 7.94 | 3.18 | 0.8 | 3.4 | |
| | 06T308-C21 | | | | | | | | | | | | | | 6.5 | 9.525 | 3.97 | 0.8 | 4.4 | |
| | 080408-C21 | | | | ○ | | | ● | ● | | | | | | 8.7 | 12.7 | 4.76 | 0.8 | 5.5 | |
| WCMT-DS(P) | WCMT 030204-DSP | | | | | | | | | | | | | | 3.8 | 5.56 | 2.38 | 0.4 | 2.5 |  |
| | 040204-DSP | | | | | | | | | | | | | | 4.3 | 6.35 | 2.38 | 0.4 | 2.8 | |
| | 050308-DS | | | | | | | | | | | | | | 5.4 | 7.94 | 3.18 | 0.8 | 3.4 | |
| | 06T308-DS | | | | | | | | | | | | | | 6.5 | 9.525 | 3.97 | 0.8 | 4.0 | |
| | 080408-DS | | | | | | | | | | | | | | 8.7 | 12.7 | 4.76 | 0.8 | 4.3 | |
| | 080412-DS | | | | ○ | | | | | | | | | | 8.7 | 12.7 | 4.76 | 1.2 | 4.3 | |

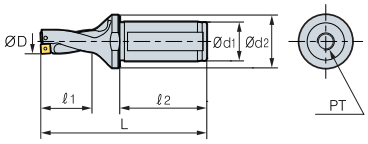
Neu

● : Disponibile ○ : A richiesta

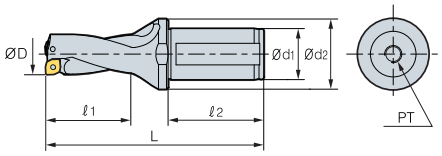
# LPD, SPD, NPD - 2D




LPD




SPD




NPD

(mm)

| Articolo | | Stock | øD | ød1 | ød2 | ℓ1 | ℓ2 | L | PT | Parti di ricambio Inserto | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **LPD** | **120-20-2** | | 12 | 20 | 24 | 24 | 50 | 91 | PT1/8 | LPMT040203-DF | FTNA0204 | TW06P |
| | **125-20-2** | | 12.5 | 20 | 24 | 25 | 50 | 91 | PT1/8 | | | |
| | **130-20-2** | | 13 | 20 | 24 | 26 | 50 | 93 | PT1/8 | | | |
| | **135-20-2** | | 13.5 | 20 | 24 | 27 | 50 | 93 | PT1/8 | | | |
| **SPD** | **130-20-2** | ● | 13 | 20 | 24 | 26 | 50 | 93 | PT1/8 | SPM(E)T 050203-□□ | FTNA0204 | TW06P |
| | **135-20-2** | ● | 13.5 | 20 | 24 | 27 | 50 | 93 | PT1/8 | | | |
| | **140-20-2** | ● | 14 | 20 | 24 | 28 | 50 | 96 | PT1/8 | | | |
| | **145-20-2** | ● | 14.5 | 20 | 24 | 29 | 50 | 96 | PT1/8 | | | |
| | **150-20-2** | ● | 15 | 20 | 24 | 30 | 50 | 99 | PT1/8 | | | |
| | **155-20-2** | | 15.5 | 20 | 24 | 31 | 50 | 99 | PT1/8 | | | |
| | **160-25-2** | ● | 16 | 25 | 34 | 32 | 56 | 107 | PT1/8 | SPM(E)T 060204-□□ | FTKA02206S | TW07S |
| | **165-25-2** | | 16.5 | 25 | 34 | 33 | 56 | 107 | PT1/8 | | | |
| | **170-25-2** | ● | 17 | 25 | 34 | 34 | 56 | 109 | PT1/8 | | | |
| | **175-25-2** | | 17.5 | 25 | 34 | 35 | 56 | 109 | PT1/8 | | | |
| | **180-25-2** | ● | 18 | 25 | 34 | 36 | 56 | 112 | PT1/8 | | | |
| | **185-25-2** | | 18.5 | 25 | 34 | 37 | 56 | 112 | PT1/8 | | | |
| | **190-25-2** | ● | 19 | 25 | 34 | 38 | 56 | 114 | PT1/8 | | | |
| | **195-25-2** | | 19.5 | 25 | 34 | 39 | 56 | 114 | PT1/8 | | | |
| | **200-25-2** | ● | 20 | 25 | 34 | 40 | 56 | 118 | PT1/8 | SPM(E)T 070204-□□ | FTKA02565 | TW07S |
| | **205-25-2** | | 20.5 | 25 | 34 | 41 | 56 | 118 | PT1/8 | | | |
| | **210-25-2** | ● | 21 | 25 | 34 | 42 | 56 | 120 | PT1/8 | | | |
| | **215-25-2** | | 21.5 | 25 | 34 | 43 | 56 | 120 | PT1/8 | | | |
| | **220-25-2** | ● | 22 | 25 | 34 | 44 | 56 | 122 | PT1/8 | | | |
| | **225-25-2** | | 22.5 | 25 | 34 | 45 | 56 | 122 | PT1/8 | | | |
| **NPD** | **230-32-2** | ● | 23 | 32 | 44 | 46 | 60 | 130 | PT1/4 | NPM(E)T 222408-□□ | FTKA02565 | TW07S |
| | **235-32-2** | | 23.5 | 32 | 44 | 47 | 60 | 130 | PT1/4 | | | |
| | **240-32-2** | ● | 24 | 32 | 44 | 48 | 60 | 132 | PT1/4 | | | |
| | **245-32-2** | | 24.5 | 32 | 44 | 49 | 60 | 132 | PT1/4 | | | |
| | **250-32-2** | ● | 25 | 32 | 44 | 50 | 60 | 135 | PT1/4 | NPM(E)T 252808-□□ | FTKA0307 | TW09S |
| | **255-32-2** | | 25.5 | 32 | 44 | 51 | 60 | 135 | PT1/4 | | | |
| | **260-32-2** | ● | 26 | 32 | 44 | 52 | 60 | 137 | PT1/4 | | | |
| | **265-32-2** | | 26.5 | 32 | 44 | 53 | 60 | 137 | PT1/4 | | | |
| | **270-32-2** | ● | 27 | 32 | 44 | 54 | 60 | 140 | PT1/4 | | | |
| | **275-32-2** | | 27.5 | 32 | 44 | 55 | 60 | 140 | PT1/4 | | | |
| | **280-32-2** | ● | 28 | 32 | 44 | 56 | 60 | 143 | PT1/4 | | | |
| | **285-32-2** | | 28.5 | 32 | 44 | 57 | 60 | 143 | PT1/4 | | | |
| | **290-32-2** | ● | 29 | 32 | 44 | 58 | 60 | 145 | PT1/4 | NPM(E)T 293208-□□ | FTKA0307 | TW09S |
| | **295-32-2** | | 29.5 | 32 | 44 | 59 | 60 | 145 | PT1/4 | | | |
| | **300-32-2** | ● | 30 | 32 | 44 | 60 | 60 | 149 | PT1/4 | | | |
| | **305-32-2** | | 30.5 | 32 | 44 | 61 | 60 | 149 | PT1/4 | | | |
| | **310-32-2** | ● | 31 | 32 | 44 | 62 | 60 | 151 | PT1/4 | | | |
| | **315-32-2** | | 31.5 | 32 | 44 | 63 | 60 | 151 | PT1/4 | | | |
| | **320-32-2** | ● | 32 | 32 | 44 | 64 | 60 | 153 | PT1/4 | | | |
| | **325-32-2** | | 32.5 | 32 | 44 | 65 | 60 | 153 | PT1/4 | | | |

• Inserti applicabili, vedere pag. G10

● : Disponibile ○ : A richiesta

## Come calcolare la potenza richiesta per la foratura : P(kW)

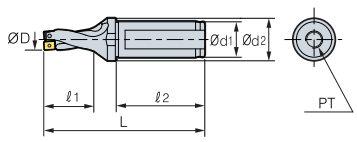
$$Pc(kW) = 425 \times kc \times vc \times fn \times D / 10^7$$

- Sforzo di taglio specifico : kc(MPa) - vedere catalogo KORLOY
- Velocità di taglio : vc(m/min)
- Avanzamento : fn(mm/giro)
- Diametro punta : D(mm)

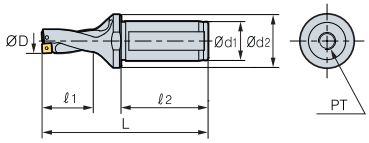
Esempio

- Pezzo lavorato = SCM440
- kc = 254MPa
- vc = 100m/min
- fn = 0.1mm/giro
- D = 20mm
- Pc(kW) = 425×254×100×0.1×20/10,000,000 = 2.159kW

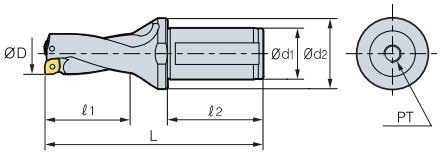
# LPD, SPD, NPD - 2D




LPD




SPD




NPD

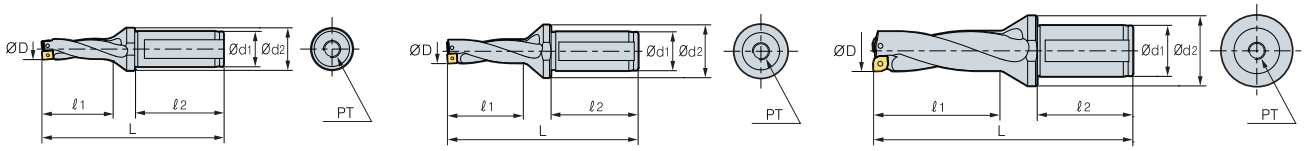
(mm)

| Articolo | | Stock | øD | ød1 | ød2 | ℓ1 | ℓ2 | L | PT | Parti di ricambio: Inserto | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **NPD** | **330-40-2** | ● | 33 | 40 | 48 | 66 | 70 | 168 | PT3/8 | NPM(E)T 334008-□□ | FTKA03508 | TW15S |
| | **335-40-2** | | 33.5 | 40 | 48 | 67 | 70 | 168 | PT3/8 | | | |
| | **340-40-2** | ● | 34 | 40 | 48 | 68 | 70 | 170 | PT3/8 | | | |
| | **345-40-2** | | 34.5 | 40 | 48 | 69 | 70 | 170 | PT3/8 | | | |
| | **350-40-2** | ● | 35 | 40 | 48 | 70 | 70 | 172 | PT3/8 | | | |
| | **355-40-2** | | 35.5 | 40 | 48 | 71 | 70 | 172 | PT3/8 | | | |
| | **360-40-2** | ● | 36 | 40 | 48 | 72 | 70 | 175 | PT3/8 | | | |
| | **365-40-2** | | 36.5 | 40 | 48 | 73 | 70 | 175 | PT3/8 | | | |
| | **370-40-2** | | 37 | 40 | 48 | 74 | 70 | 177 | PT3/8 | | | |
| | **375-40-2** | | 37.5 | 40 | 48 | 75 | 70 | 177 | PT3/8 | | | |
| | **380-40-2** | | 38 | 40 | 48 | 76 | 70 | 180 | PT3/8 | | | |
| | **385-40-2** | | 38.5 | 40 | 48 | 77 | 70 | 180 | PT3/8 | | | |
| | **390-40-2** | | 39 | 40 | 48 | 78 | 70 | 182 | PT3/8 | | | |
| | **395-40-2** | | 39.5 | 40 | 48 | 79 | 70 | 182 | PT3/8 | | | |
| | **400-40-2** | ● | 40 | 40 | 48 | 80 | 70 | 185 | PT3/8 | | | |
| | **405-40-2** | | 40.5 | 40 | 48 | 81 | 70 | 185 | PT3/8 | | | |
| | **410-40-2** | | 41 | 40 | 58 | 82 | 70 | 189 | PT3/8 | NPM(E)T 415008-□□ | FTKA0410 | TW15S |
| | **415-40-2** | | 41.5 | 40 | 58 | 83 | 70 | 189 | PT3/8 | | | |
| | **420-40-2** | | 42 | 40 | 58 | 84 | 70 | 192 | PT3/8 | | | |
| | **425-40-2** | | 42.5 | 40 | 58 | 85 | 70 | 192 | PT3/8 | | | |
| | **430-40-2** | | 43 | 40 | 58 | 86 | 70 | 194 | PT3/8 | | | |
| | **435-40-2** | | 43.5 | 40 | 58 | 87 | 70 | 194 | PT3/8 | | | |
| | **440-40-2** | | 44 | 40 | 58 | 88 | 70 | 196 | PT3/8 | | | |
| | **445-40-2** | | 44.5 | 40 | 58 | 89 | 70 | 196 | PT3/8 | | | |
| | **450-40-2** | ● | 45 | 40 | 58 | 90 | 70 | 199 | PT3/8 | | | |
| | **455-40-2** | | 45.5 | 40 | 58 | 91 | 70 | 199 | PT3/8 | | | |
| | **460-40-2** | | 46 | 40 | 58 | 92 | 70 | 201 | PT3/8 | | | |
| | **465-40-2** | | 46.5 | 40 | 58 | 93 | 70 | 201 | PT3/8 | | | |
| | **470-40-2** | ● | 47 | 40 | 58 | 94 | 70 | 204 | PT3/8 | | | |
| | **475-40-2** | | 47.5 | 40 | 58 | 95 | 70 | 204 | PT3/8 | | | |
| | **480-40-2** | | 48 | 40 | 58 | 96 | 70 | 208 | PT3/8 | | | |
| | **485-40-2** | | 48.5 | 40 | 58 | 97 | 70 | 208 | PT3/8 | | | |
| | **490-40-2** | | 49 | 40 | 58 | 98 | 70 | 210 | PT3/8 | | | |
| | **495-40-2** | | 49.5 | 40 | 58 | 99 | 70 | 210 | PT3/8 | | | |
| | **500-40-2** | ● | 50 | 40 | 58 | 100 | 70 | 212 | PT3/8 | | | |
| | **505-40-2** | | 50.5 | 40 | 58 | 101 | 70 | 212 | PT3/8 | | | |
| | **510-40-2** | | 51 | 40 | 68 | 102 | 70 | 218 | PT3/8 | NPM(E)T 516012-□□ | FTNC04511 | TW20S |
| | **515-40-2** | | 51.5 | 40 | 68 | 103 | 70 | 218 | PT3/8 | | | |
| | **520-40-2** | | 52 | 40 | 68 | 104 | 70 | 220 | PT3/8 | | | |
| | **525-40-2** | | 52.5 | 40 | 68 | 105 | 70 | 220 | PT3/8 | | | |
| | **530-40-2** | | 53 | 40 | 68 | 106 | 70 | 222 | PT3/8 | | | |
| | **535-40-2** | | 53.5 | 40 | 68 | 107 | 70 | 222 | PT3/8 | | | |
| | **540-40-2** | | 54 | 40 | 68 | 108 | 70 | 224 | PT3/8 | | | |
| | **545-40-2** | | 54.5 | 40 | 68 | 109 | 70 | 224 | PT3/8 | | | |
| | **550-40-2** | ● | 55 | 40 | 68 | 110 | 70 | 226 | PT3/8 | | | |
| | **555-40-2** | | 55.5 | 40 | 68 | 111 | 70 | 226 | PT3/8 | | | |
| | **560-40-2** | | 56 | 40 | 68 | 112 | 70 | 230 | PT3/8 | | | |
| | **565-40-2** | | 56.5 | 40 | 68 | 113 | 70 | 230 | PT3/8 | | | |
| | **570-40-2** | | 57 | 40 | 68 | 114 | 70 | 233 | PT3/8 | | | |
| | **575-40-2** | | 57.5 | 40 | 68 | 115 | 70 | 233 | PT3/8 | | | |
| | **580-40-2** | | 58 | 40 | 68 | 116 | 70 | 236 | PT3/8 | | | |
| | **585-40-2** | | 58.5 | 40 | 68 | 117 | 70 | 236 | PT3/8 | | | |
| | **590-40-2** | | 59 | 40 | 68 | 118 | 70 | 239 | PT3/8 | | | |
| | **595-40-2** | | 59.5 | 40 | 68 | 119 | 70 | 239 | PT3/8 | | | |
| | **600-40-2** | ● | 60 | 40 | 68 | 120 | 70 | 242 | PT3/8 | | | |
| | **605-40-2** | | 60.5 | 40 | 68 | 121 | 70 | 242 | PT3/8 | | | |

• Inserti applicabili, vedere pag. G10

● : Disponibile ○ : A richiesta

# LPD, SPD, NPD - 3D




LPD SPD NPD

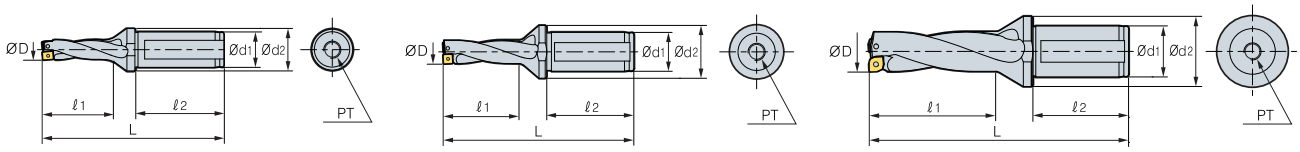
(mm)

| | Articolo | Stock | øD | ød1 | ød2 | ℓ1 | ℓ2 | L | PT | Parti di ricambio: Inserto | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **LPD** | **120-20-3** | ● | 12 | 20 | 24 | 36 | 50 | 103 | PT1/8 | LPMT040203-DF | FTNA0204 | TW06P |
| | **125-20-3** | ● | 12.5 | 20 | 24 | 38 | 50 | 103 | PT1/8 | | | |
| | **130-20-3** | ● | 13 | 20 | 24 | 39 | 50 | 106 | PT1/8 | | | |
| | **135-20-3** | ● | 13.5 | 20 | 24 | 41 | 50 | 106 | PT1/8 | | | |
| **SPD** | **130-20-3** | ● | 13 | 20 | 24 | 39 | 50 | 106 | PT1/8 | SPM(E)T 050203-□□ | FTNA0204 | TW06P |
| | **135-20-3** | ● | 13.5 | 20 | 24 | 41 | 50 | 106 | PT1/8 | | | |
| | **140-20-3** | ● | 14 | 20 | 24 | 42 | 50 | 110 | PT1/8 | | | |
| | **145-20-3** | ● | 14.5 | 20 | 24 | 44 | 50 | 110 | PT1/8 | | | |
| | **150-20-3** | ● | 15 | 20 | 24 | 45 | 50 | 114 | PT1/8 | | | |
| | **155-20-3** | ● | 15.5 | 20 | 24 | 47 | 50 | 114 | PT1/8 | | | |
| | **160-25-3** | ● | 16 | 25 | 34 | 48 | 56 | 123 | PT1/8 | SPM(E)T 060204-□□ | FTKA02206S | TW07S |
| | **165-25-3** | ● | 16.5 | 25 | 34 | 50 | 56 | 123 | PT1/8 | | | |
| | **170-25-3** | ● | 17 | 25 | 34 | 51 | 56 | 126 | PT1/8 | | | |
| | **175-25-3** | ● | 17.5 | 25 | 34 | 53 | 56 | 126 | PT1/8 | | | |
| | **180-25-3** | ● | 18 | 25 | 34 | 54 | 56 | 130 | PT1/8 | | | |
| | **185-25-3** | ● | 18.5 | 25 | 34 | 56 | 56 | 130 | PT1/8 | | | |
| | **190-25-3** | ● | 19 | 25 | 34 | 57 | 56 | 133 | PT1/8 | | | |
| | **195-25-3** | ● | 19.5 | 25 | 34 | 59 | 56 | 133 | PT1/8 | | | |
| | **200-25-3** | ● | 20 | 25 | 34 | 60 | 56 | 138 | PT1/8 | SPM(E)T 070204-□□ | FTKA02565 | TW07S |
| | **205-25-3** | ● | 20.5 | 25 | 34 | 62 | 56 | 138 | PT1/8 | | | |
| | **210-25-3** | ● | 21 | 25 | 34 | 63 | 56 | 141 | PT1/8 | | | |
| | **215-25-3** | ● | 21.5 | 25 | 34 | 65 | 56 | 141 | PT1/8 | | | |
| | **220-25-3** | ● | 22 | 25 | 34 | 66 | 56 | 144 | PT1/8 | | | |
| | **225-25-3** | ● | 22.5 | 25 | 34 | 68 | 56 | 144 | PT1/8 | | | |
| **NPD** | **230-32-3** | ● | 23 | 32 | 44 | 69 | 60 | 153 | PT1/4 | NPM(E)T 222408-□□ | FTKA02565 | TW07S |
| | **235-32-3** | ● | 23.5 | 32 | 44 | 71 | 60 | 153 | PT1/4 | | | |
| | **240-32-3** | ● | 24 | 32 | 44 | 72 | 60 | 156 | PT1/4 | | | |
| | **245-32-3** | ● | 24.5 | 32 | 44 | 74 | 60 | 156 | PT1/4 | | | |
| | **250-32-3** | ● | 25 | 32 | 44 | 75 | 60 | 160 | PT1/4 | NPM(E)T 252808- □□ | FTKA0307 | TW09S |
| | **255-32-3** | ● | 25.5 | 32 | 44 | 77 | 60 | 160 | PT1/4 | | | |
| | **260-32-3** | ● | 26 | 32 | 44 | 78 | 60 | 163 | PT1/4 | | | |
| | **265-32-3** | ● | 26.5 | 32 | 44 | 80 | 60 | 163 | PT1/4 | | | |
| | **270-32-3** | ● | 27 | 32 | 44 | 81 | 60 | 167 | PT1/4 | | | |
| | **275-32-3** | ● | 27.5 | 32 | 44 | 83 | 60 | 167 | PT1/4 | | | |
| | **280-32-3** | ● | 28 | 32 | 44 | 84 | 60 | 171 | PT1/4 | | | |
| | **285-32-3** | ● | 28.5 | 32 | 44 | 86 | 60 | 171 | PT1/4 | | | |
| | **290-32-3** | ● | 29 | 32 | 44 | 87 | 60 | 174 | PT1/4 | NPM(E)T 293208-□□ | FTKA0307 | TW09S |
| | **295-32-3** | ● | 29.5 | 32 | 44 | 89 | 60 | 174 | PT1/4 | | | |
| | **300-32-3** | ● | 30 | 32 | 44 | 90 | 60 | 179 | PT1/4 | | | |
| | **305-32-3** | ● | 30.5 | 32 | 44 | 82 | 60 | 179 | PT1/4 | | | |
| | **310-32-3** | ● | 31 | 32 | 44 | 93 | 60 | 182 | PT1/4 | | | |
| | **315-32-3** | ● | 31.5 | 32 | 44 | 95 | 60 | 182 | PT1/4 | | | |
| | **320-32-3** | ● | 32 | 32 | 44 | 96 | 60 | 185 | PT1/4 | | | |
| | **325-32-3** | ● | 32.5 | 32 | 44 | 98 | 60 | 185 | PT1/4 | | | |
| | **330-32-3** | ● | 33 | 32 | 48 | 99 | 60 | 191 | PT1/4 | NPM(E)T 334008- □□ | FTKA03508 | TW15S |
| | **335-32-3** | | 33.5 | 32 | 48 | 101 | 60 | 191 | PT1/4 | | | |
| | **340-32-3** | ● | 34 | 32 | 48 | 102 | 60 | 194 | PT1/4 | | | |
| | **345-32-3** | | 34.5 | 32 | 48 | 104 | 60 | 194 | PT1/4 | | | |
| | **350-32-3** | ● | 35 | 32 | 48 | 105 | 60 | 197 | PT1/4 | | | |
| | **355-32-3** | | 35.5 | 32 | 48 | 107 | 60 | 197 | PT1/4 | | | |
| | **360-32-3** | ● | 36 | 32 | 48 | 108 | 60 | 201 | PT1/4 | | | |
| | **365-32-3** | | 36.5 | 32 | 48 | 110 | 60 | 201 | PT1/4 | | | |
| | **370-32-3** | ● | 37 | 32 | 48 | 111 | 60 | 204 | PT1/4 | | | |
| | **375-32-3** | | 37.5 | 32 | 48 | 113 | 60 | 204 | PT1/4 | | | |
| | **380-32-3** | ● | 38 | 32 | 48 | 114 | 60 | 208 | PT1/4 | | | |
| | **385-32-3** | | 38.5 | 32 | 48 | 116 | 60 | 208 | PT1/4 | | | |
| | **390-32-3** | ● | 39 | 32 | 48 | 117 | 60 | 211 | PT1/4 | | | |
| | **395-32-3** | | 39.5 | 32 | 48 | 119 | 60 | 211 | PT1/4 | | | |
| | **400-32-3** | ● | 40 | 32 | 48 | 120 | 60 | 215 | PT1/4 | | | |
| | **405-32-3** | | 40.5 | 32 | 48 | 122 | 60 | 215 | PT1/4 | | | |
| | **330-40-3** | ● | 33 | 40 | 48 | 99 | 70 | 201 | PT3/8 | NPM(E)T 334008-□□ | FTKA03508 | TW15S |
| | **335-40-3** | | 33.5 | 40 | 48 | 101 | 70 | 201 | PT3/8 | | | |
| | **340-40-3** | ● | 34 | 40 | 48 | 102 | 70 | 204 | PT3/8 | | | |
| | **345-40-3** | | 34.5 | 40 | 48 | 104 | 70 | 204 | PT3/8 | | | |
| | **350-40-3** | ● | 35 | 40 | 48 | 105 | 70 | 207 | PT3/8 | | | |
| | **355-40-3** | | 35.5 | 40 | 48 | 107 | 70 | 207 | PT3/8 | | | |
| | **360-40-3** | ● | 36 | 40 | 48 | 108 | 70 | 211 | PT3/8 | | | |
| | **365-40-3** | | 36.5 | 40 | 48 | 110 | 70 | 211 | PT3/8 | | | |
| | **370-40-3** | ● | 37 | 40 | 48 | 111 | 70 | 214 | PT3/8 | | | |
| | **375-40-3** | | 37.5 | 40 | 48 | 113 | 70 | 214 | PT3/8 | | | |

• Inserti applicabili, vedere pag. G10

● : Disponibile ○ : A richiesta

# LPD, SPD, NPD - 3D




LPD SPD NPD

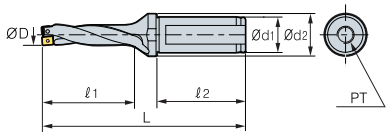
(mm)

| | Articolo | Stock | øD | ød1 | ød2 | ℓ1 | ℓ2 | L | PT | Parti di ricambio: Inserto | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **NPD** | **380-40-3** | ● | 38 | 40 | 48 | 114 | 70 | 218 | PT3/8 | NPM(E)T 334008-□□ | FTKA03508 | TW15S |
| | **385-40-3** | | 38.5 | 40 | 48 | 116 | 70 | 218 | PT3/8 | | | |
| | **390-40-3** | ● | 39 | 40 | 48 | 117 | 70 | 221 | PT3/8 | | | |
| | **395-40-3** | | 39.5 | 40 | 48 | 119 | 70 | 221 | PT3/8 | | | |
| | **400-40-3** | ● | 40 | 40 | 48 | 120 | 70 | 225 | PT3/8 | | | |
| | **405-40-3** | | 40.5 | 40 | 48 | 122 | 70 | 225 | PT3/8 | | | |
| | **410-40-3** | ● | 41 | 40 | 58 | 123 | 70 | 230 | PT3/8 | NPM(E)T 415008-□□ | FTKA0410 | TW15S |
| | **415-40-3** | | 41.5 | 40 | 58 | 125 | 70 | 230 | PT3/8 | | | |
| | **420-40-3** | ● | 42 | 40 | 58 | 126 | 70 | 234 | PT3/8 | | | |
| | **425-40-3** | | 42.5 | 40 | 58 | 128 | 70 | 234 | PT3/8 | | | |
| | **430-40-3** | ● | 43 | 40 | 58 | 129 | 70 | 237 | PT3/8 | | | |
| | **435-40-3** | | 43.5 | 40 | 58 | 131 | 70 | 237 | PT3/8 | | | |
| | **440-40-3** | ● | 44 | 40 | 58 | 132 | 70 | 240 | PT3/8 | | | |
| | **445-40-3** | | 44.5 | 40 | 58 | 134 | 70 | 240 | PT3/8 | | | |
| | **450-40-3** | ● | 45 | 40 | 58 | 135 | 70 | 244 | PT3/8 | | | |
| | **455-40-3** | | 45.5 | 40 | 58 | 137 | 70 | 244 | PT3/8 | | | |
| | **460-40-3** | ● | 46 | 40 | 58 | 138 | 70 | 247 | PT3/8 | | | |
| | **465-40-3** | | 46.5 | 40 | 58 | 140 | 70 | 247 | PT3/8 | | | |
| | **470-40-3** | ● | 47 | 40 | 58 | 141 | 70 | 251 | PT3/8 | | | |
| | **475-40-3** | | 47.5 | 40 | 58 | 143 | 70 | 251 | PT3/8 | | | |
| | **480-40-3** | ● | 48 | 40 | 58 | 144 | 70 | 256 | PT3/8 | | | |
| | **485-40-3** | | 48.5 | 40 | 58 | 146 | 70 | 256 | PT3/8 | | | |
| | **490-40-3** | ● | 49 | 40 | 58 | 147 | 70 | 259 | PT3/8 | | | |
| | **495-40-3** | | 49.5 | 40 | 58 | 149 | 70 | 259 | PT3/8 | | | |
| | **500-40-3** | ● | 50 | 40 | 58 | 150 | 70 | 262 | PT3/8 | | | |
| | **505-40-3** | | 50.5 | 40 | 58 | 152 | 70 | 262 | PT3/8 | | | |
| | **410-42-3** | | 41 | 42 | 58 | 123 | 70 | 230 | PT3/8 | NPM(E)T 415008-□□ | FTKA0410 | TW15S |
| | **415-42-3** | | 41.5 | 42 | 58 | 125 | 70 | 230 | PT3/8 | | | |
| | **420-42-3** | | 42 | 42 | 58 | 126 | 70 | 234 | PT3/8 | | | |
| | **425-42-3** | | 42.5 | 42 | 58 | 128 | 70 | 234 | PT3/8 | | | |
| | **430-42-3** | | 43 | 42 | 58 | 129 | 70 | 237 | PT3/8 | | | |
| | **435-42-3** | | 43.5 | 42 | 58 | 131 | 70 | 237 | PT3/8 | | | |
| | **440-42-3** | | 44 | 42 | 58 | 132 | 70 | 240 | PT3/8 | | | |
| | **445-42-3** | | 44.5 | 42 | 58 | 134 | 70 | 240 | PT3/8 | | | |
| | **450-42-3** | ● | 45 | 42 | 58 | 135 | 70 | 244 | PT3/8 | | | |
| | **455-42-3** | | 45.5 | 42 | 58 | 137 | 70 | 244 | PT3/8 | | | |
| | **460-42-3** | | 46 | 42 | 58 | 138 | 70 | 247 | PT3/8 | | | |
| | **465-42-3** | | 46.5 | 42 | 58 | 140 | 70 | 247 | PT3/8 | | | |
| | **470-42-3** | | 47 | 42 | 58 | 141 | 70 | 251 | PT3/8 | | | |
| | **475-42-3** | | 47.5 | 42 | 58 | 143 | 70 | 251 | PT3/8 | | | |
| | **480-42-3** | | 48 | 42 | 58 | 144 | 70 | 256 | PT3/8 | | | |
| | **485-42-3** | | 48.5 | 42 | 58 | 146 | 70 | 256 | PT3/8 | | | |
| | **490-42-3** | | 49 | 42 | 58 | 147 | 70 | 259 | PT3/8 | | | |
| | **495-42-3** | | 49.5 | 42 | 58 | 149 | 70 | 259 | PT3/8 | | | |
| | **500-42-3** | ● | 50 | 42 | 58 | 150 | 70 | 262 | PT3/8 | | | |
| | **505-42-3** | | 50.5 | 42 | 58 | 152 | 70 | 262 | PT3/8 | | | |
| | **510-40-3** | | 51 | 40 | 68 | 153 | 70 | 269 | PT3/8 | NPM(E)T 516012-□□ | FTNC04511 | TW20S |
| | **515-40-3** | | 51.5 | 40 | 68 | 155 | 70 | 269 | PT3/8 | | | |
| | **520-40-3** | | 52 | 40 | 68 | 156 | 70 | 272 | PT3/8 | | | |
| | **525-40-3** | | 52.5 | 40 | 68 | 158 | 70 | 272 | PT3/8 | | | |
| | **530-40-3** | | 53 | 40 | 68 | 159 | 70 | 275 | PT3/8 | | | |
| | **535-40-3** | | 53.5 | 40 | 68 | 161 | 70 | 275 | PT3/8 | | | |
| | **540-40-3** | ● | 54 | 40 | 68 | 162 | 70 | 278 | PT3/8 | | | |
| | **545-40-3** | | 54.5 | 40 | 68 | 164 | 70 | 278 | PT3/8 | | | |
| | **550-40-3** | ● | 55 | 40 | 68 | 165 | 70 | 281 | PT3/8 | | | |
| | **555-40-3** | | 55.5 | 40 | 68 | 167 | 70 | 281 | PT3/8 | | | |
| | **560-40-3** | | 56 | 40 | 68 | 168 | 70 | 286 | PT3/8 | | | |
| | **565-40-3** | | 56.5 | 40 | 68 | 169 | 70 | 286 | PT3/8 | | | |
| | **570-40-3** | | 57 | 40 | 68 | 171 | 70 | 290 | PT3/8 | | | |
| | **575-40-3** | | 57.5 | 40 | 68 | 173 | 70 | 290 | PT3/8 | | | |
| | **580-40-3** | | 58 | 40 | 68 | 174 | 70 | 294 | PT3/8 | | | |
| | **585-40-3** | | 58.5 | 40 | 68 | 176 | 70 | 294 | PT3/8 | | | |
| | **590-40-3** | | 59 | 40 | 68 | 177 | 70 | 298 | PT3/8 | | | |
| | **595-40-3** | | 59.5 | 40 | 68 | 179 | 70 | 298 | PT3/8 | | | |
| | **600-40-3** | ● | 60 | 40 | 68 | 180 | 70 | 302 | PT3/8 | | | |
| | **605-40-3** | | 60.5 | 40 | 68 | 182 | 70 | 302 | PT3/8 | | | |

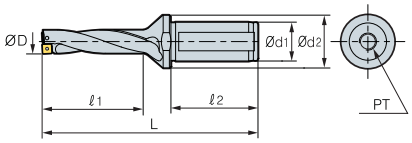
• Inserti applicabili, vedere pag. G10

● : Disponibile ○ : A richiesta

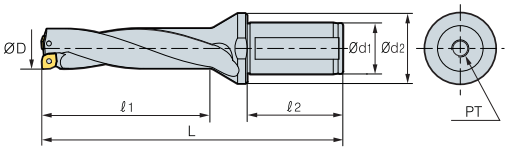
# LPD, SPD, NPD - 4D



LPD



SPD



NPD

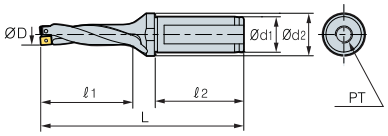
(mm)

| Articolo | | Stock | øD | ød1 | ød2 | ℓ1 | ℓ2 | L | PT | Parti di ricambio: Inserto | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **LPD** | **120-20-4** | ● | 12 | 20 | 24 | 48 | 50 | 115 | PT1/8 | LPMT040203-DF | FTNA0204 | TW06P |
| | **125-20-4** | ● | 12.5 | 20 | 24 | 50 | 50 | 115 | PT1/8 | | | |
| | **130-20-4** | ● | 13 | 20 | 24 | 52 | 50 | 119 | PT1/8 | | | |
| | **135-20-4** | ● | 13.5 | 20 | 24 | 54 | 50 | 119 | PT1/8 | | | |
| **SPD** | **130-20-4** | ● | 13 | 20 | 24 | 52 | 50 | 119 | PT1/8 | SPM(E)T 050203-□□ | FTNA0204 | TW06P |
| | **135-20-4** | | 13.5 | 20 | 24 | 54 | 50 | 119 | PT1/8 | | | |
| | **140-20-4** | ● | 14 | 20 | 24 | 56 | 50 | 124 | PT1/8 | | | |
| | **145-20-4** | | 14.5 | 20 | 24 | 58 | 50 | 124 | PT1/8 | | | |
| | **150-20-4** | ● | 15 | 20 | 24 | 60 | 50 | 129 | PT1/8 | | | |
| | **155-20-4** | | 15.5 | 20 | 24 | 62 | 50 | 129 | PT1/8 | | | |
| | **160-25-4** | ● | 16 | 25 | 34 | 64 | 56 | 139 | PT1/8 | SPM(E)T 060204-□□ | FTKA02206S | TW07S |
| | **165-25-4** | | 16.5 | 25 | 34 | 66 | 56 | 139 | PT1/8 | | | |
| | **170-25-4** | ● | 17 | 25 | 34 | 68 | 56 | 143 | PT1/8 | | | |
| | **175-25-4** | | 17.5 | 25 | 34 | 70 | 56 | 143 | PT1/8 | | | |
| | **180-25-4** | ● | 18 | 25 | 34 | 72 | 56 | 148 | PT1/8 | | | |
| | **185-25-4** | | 18.5 | 25 | 34 | 74 | 56 | 148 | PT1/8 | | | |
| | **190-25-4** | ● | 19 | 25 | 34 | 76 | 56 | 152 | PT1/8 | | | |
| | **195-25-4** | | 19.5 | 25 | 34 | 78 | 56 | 152 | PT1/8 | | | |
| | **200-25-4** | ● | 20 | 25 | 34 | 80 | 56 | 158 | PT1/8 | SPM(E)T 070204-□□ | FTKA02565 | TW07S |
| | **205-25-4** | | 20.5 | 25 | 34 | 82 | 56 | 158 | PT1/8 | | | |
| | **210-25-4** | ● | 21 | 25 | 34 | 84 | 56 | 162 | PT1/8 | | | |
| | **215-25-4** | | 21.5 | 25 | 34 | 86 | 56 | 162 | PT1/8 | | | |
| | **220-25-4** | ● | 22 | 25 | 34 | 88 | 56 | 166 | PT1/8 | | | |
| | **225-25-4** | | 22.5 | 25 | 34 | 90 | 56 | 166 | PT1/8 | | | |
| **NPD** | **230-32-4** | ● | 23 | 32 | 44 | 92 | 60 | 176 | PT1/4 | NPM(E)T 222408-□□ | FTKA02565 | TW07S |
| | **235-32-4** | | 23.5 | 32 | 44 | 94 | 60 | 176 | PT1/4 | | | |
| | **240-32-4** | ● | 24 | 32 | 44 | 96 | 60 | 180 | PT1/4 | | | |
| | **245-32-4** | | 24.5 | 32 | 44 | 98 | 60 | 180 | PT1/4 | | | |
| | **250-32-4** | ● | 25 | 32 | 44 | 100 | 60 | 185 | PT1/4 | NPM(E)T 252808-□□ | FTKA0307 | TW09S |
| | **255-32-4** | | 25.5 | 32 | 44 | 102 | 60 | 185 | PT1/4 | | | |
| | **260-32-4** | ● | 26 | 32 | 44 | 104 | 60 | 189 | PT1/4 | | | |
| | **265-32-4** | | 26.5 | 32 | 44 | 106 | 60 | 189 | PT1/4 | | | |
| | **270-32-4** | ● | 27 | 32 | 44 | 108 | 60 | 194 | PT1/4 | | | |
| | **275-32-4** | | 27.5 | 32 | 44 | 110 | 60 | 194 | PT1/4 | | | |
| | **280-32-4** | ● | 28 | 32 | 44 | 112 | 60 | 199 | PT1/4 | | | |
| | **285-32-4** | | 28.5 | 32 | 44 | 114 | 60 | 199 | PT1/4 | | | |
| | **290-32-4** | ● | 29 | 32 | 44 | 116 | 60 | 203 | PT1/4 | NPM(E)T 293208-□□ | FTKA0307 | TW09S |
| | **295-32-4** | | 29.5 | 32 | 44 | 118 | 60 | 203 | PT1/4 | | | |
| | **300-32-4** | ● | 30 | 32 | 44 | 120 | 60 | 209 | PT1/4 | | | |
| | **305-32-4** | | 30.5 | 32 | 44 | 122 | 60 | 209 | PT1/4 | | | |
| | **310-32-4** | ● | 31 | 32 | 44 | 124 | 60 | 213 | PT1/4 | | | |
| | **315-32-4** | | 31.5 | 32 | 44 | 126 | 60 | 213 | PT1/4 | | | |
| | **320-32-4** | ● | 32 | 32 | 44 | 128 | 60 | 217 | PT1/4 | | | |
| | **325-32-4** | | 32.5 | 32 | 44 | 130 | 60 | 217 | PT1/4 | | | |
| | **330-40-4** | ● | 33 | 40 | 48 | 132 | 70 | 234 | PT3/8 | NPM(E)T 334008-□□ | FTKA03508 | TW15S |
| | **335-40-4** | | 33.5 | 40 | 48 | 134 | 70 | 234 | PT3/8 | | | |
| | **340-40-4** | ● | 34 | 40 | 48 | 136 | 70 | 238 | PT3/8 | | | |
| | **345-40-4** | | 34.5 | 40 | 48 | 138 | 70 | 238 | PT3/8 | | | |
| | **350-40-4** | ● | 35 | 40 | 48 | 140 | 70 | 242 | PT3/8 | | | |
| | **355-40-4** | | 35.5 | 40 | 48 | 142 | 70 | 242 | PT3/8 | | | |
| | **360-40-4** | ● | 36 | 40 | 48 | 144 | 70 | 247 | PT3/8 | | | |
| | **365-40-4** | | 36.5 | 40 | 48 | 146 | 70 | 247 | PT3/8 | | | |
| | **370-40-4** | | 37 | 40 | 48 | 148 | 70 | 251 | PT3/8 | | | |
| | **375-40-4** | | 37.5 | 40 | 48 | 150 | 70 | 251 | PT3/8 | | | |
| | **380-40-4** | | 38 | 40 | 48 | 152 | 70 | 256 | PT3/8 | | | |
| | **385-40-4** | | 38.5 | 40 | 48 | 154 | 70 | 256 | PT3/8 | | | |
| | **390-40-4** | | 39 | 40 | 48 | 156 | 70 | 260 | PT3/8 | | | |
| | **395-40-4** | | 39.5 | 40 | 48 | 158 | 70 | 260 | PT3/8 | | | |
| | **400-40-4** | ● | 40 | 40 | 48 | 160 | 70 | 265 | PT3/8 | | | |
| | **405-40-4** | | 40.5 | 40 | 48 | 162 | 70 | 265 | PT3/8 | | | |

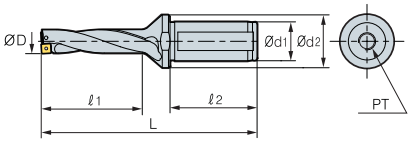
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● : Disponibile ○ : A richiesta

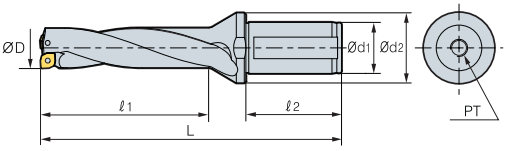
# LPD, SPD, NPD - 4D




LPD




SPD




NPD

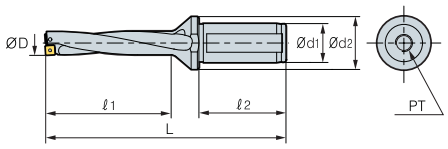
(mm)

| Articolo | | Stock | øD | ød1 | ød2 | ℓ1 | ℓ2 | L | PT | Parti di ricambio / Inserto | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NPD | 410-40-4 | ● | 41 | 40 | 58 | 164 | 70 | 271 | PT3/8 | | | |
| | 415-40-4 | | 41.5 | 40 | 58 | 166 | 70 | 271 | PT3/8 | | | |
| | 420-40-4 | ● | 42 | 40 | 58 | 168 | 70 | 276 | PT3/8 | | | |
| | 425-40-4 | | 42.5 | 40 | 58 | 170 | 70 | 276 | PT3/8 | | | |
| | 430-40-4 | ● | 43 | 40 | 58 | 172 | 70 | 280 | PT3/8 | | | |
| | 435-40-4 | | 43.5 | 40 | 58 | 174 | 70 | 280 | PT3/8 | | | |
| | 440-40-4 | ● | 44 | 40 | 58 | 176 | 70 | 284 | PT3/8 | | | |
| | 445-40-4 | | 44.5 | 40 | 58 | 178 | 70 | 284 | PT3/8 | | | |
| | 450-40-4 | ● | 45 | 40 | 58 | 180 | 70 | 289 | PT3/8 | | | |
| | 455-40-4 | | 45.5 | 40 | 58 | 182 | 70 | 289 | PT3/8 | NPM(E)T 415008-□□ | FTKA0410 | TW15S |
| | 460-40-4 | | 46 | 40 | 58 | 84 | 70 | 293 | PT3/8 | | | |
| | 465-40-4 | | 46.5 | 40 | 58 | 186 | 70 | 293 | PT3/8 | | | |
| | 470-40-4 | | 47 | 40 | 58 | 188 | 70 | 298 | PT3/8 | | | |
| | 475-40-4 | | 47.5 | 40 | 58 | 190 | 70 | 298 | PT3/8 | | | |
| | 480-40-4 | | 48 | 40 | 58 | 192 | 70 | 304 | PT3/8 | | | |
| | 485-40-4 | | 48.5 | 40 | 58 | 194 | 70 | 304 | PT3/8 | | | |
| | 490-40-4 | ● | 49 | 40 | 58 | 196 | 70 | 308 | PT3/8 | | | |
| | 495-40-4 | | 49.5 | 40 | 58 | 198 | 70 | 308 | PT3/8 | | | |
| | 500-40-4 | ● | 50 | 40 | 58 | 200 | 70 | 312 | PT3/8 | | | |
| | 505-40-4 | | 50.5 | 40 | 58 | 202 | 70 | 312 | PT3/8 | | | |
| | 510-40-4 | | 51 | 40 | 68 | 204 | 70 | 320 | PT3/8 | | | |
| | 515-40-4 | | 51.5 | 40 | 68 | 206 | 70 | 320 | PT3/8 | | | |
| | 520-40-4 | | 52 | 40 | 68 | 208 | 70 | 324 | PT3/8 | | | |
| | 525-40-4 | | 52.5 | 40 | 68 | 210 | 70 | 324 | PT3/8 | | | |
| | 530-40-4 | | 53 | 40 | 68 | 212 | 70 | 328 | PT3/8 | | | |
| | 535-40-4 | | 53.5 | 40 | 68 | 214 | 70 | 328 | PT3/8 | | | |
| | 540-40-4 | | 54 | 40 | 68 | 216 | 70 | 332 | PT3/8 | | | |
| | 545-40-4 | | 54.5 | 40 | 68 | 218 | 70 | 332 | PT3/8 | | | |
| | 550-40-4 | ● | 55 | 40 | 68 | 220 | 70 | 336 | PT3/8 | | | |
| | 555-40-4 | | 55.5 | 40 | 68 | 222 | 70 | 336 | PT3/8 | NPM(E)T 516012-□□ | FTNC04511 | TW20S |
| | 560-40-4 | | 56 | 40 | 68 | 224 | 70 | 342 | PT3/8 | | | |
| | 565-40-4 | | 56.5 | 40 | 68 | 226 | 70 | 342 | PT3/8 | | | |
| | 570-40-4 | | 57 | 40 | 68 | 228 | 70 | 347 | PT3/8 | | | |
| | 575-40-4 | | 57.5 | 40 | 68 | 230 | 70 | 347 | PT3/8 | | | |
| | 580-40-4 | | 58 | 40 | 68 | 232 | 70 | 352 | PT3/8 | | | |
| | 585-40-4 | | 58.5 | 40 | 68 | 234 | 70 | 352 | PT3/8 | | | |
| | 590-40-4 | | 59 | 40 | 68 | 236 | 70 | 358 | PT3/8 | | | |
| | 595-40-4 | | 59.5 | 40 | 68 | 238 | 70 | 358 | PT3/8 | | | |
| | 600-40-4 | ● | 60 | 40 | 68 | 240 | 70 | 362 | PT3/8 | | | |
| | 605-40-4 | | 60.5 | 40 | 68 | 242 | 70 | 362 | PT3/8 | | | |

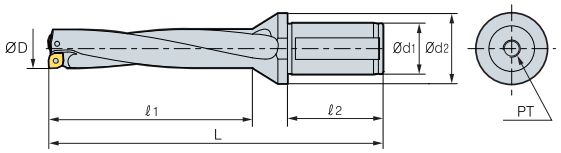
• Inserti applicabili, vedere pag. G10

● : Disponibile ○ : A richiesta

# SPD, NPD - 5D




SPD




NPD

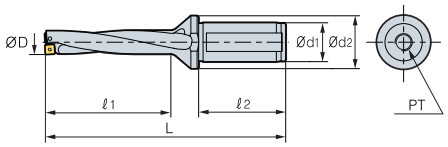
(mm)

| | Articolo | Stock | øD | ød1 | ød2 | ℓ1 | ℓ2 | L | PT | Parti di ricambio: Inserto | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SPD** | **160-25-5** | | 16 | 25 | 34 | 80 | 56 | 155 | PT1/8 | | | |
| | **165-25-5** | | 16. 5 | 25 | 34 | 83 | 56 | 155 | PT1/8 | | | |
| | **170-25-5** | ● | 17 | 25 | 34 | 85 | 56 | 160 | PT1/8 | | | |
| | **175-25-5** | | 17.5 | 25 | 34 | 88 | 56 | 160 | PT1/8 | | | |
| | **180-25-5** | ● | 18 | 25 | 34 | 90 | 56 | 166 | PT1/8 | SPM(E)T 060204-□□ | FTKA02206S | TW07S |
| | **185-25-5** | | 18.5 | 25 | 34 | 93 | 56 | 166 | PT1/8 | | | |
| | **190-25-5** | ● | 19 | 25 | 34 | 95 | 56 | 171 | PT1/8 | | | |
| | **195-25-5** | | 19.5 | 25 | 34 | 98 | 56 | 171 | PT1/8 | | | |
| | **200-25-5** | | 20 | 25 | 34 | 100 | 56 | 178 | PT1/8 | | | |
| | **205-25-5** | | 20.5 | 25 | 34 | 103 | 56 | 178 | PT1/8 | | | |
| | **210-25-5** | | 21 | 25 | 34 | 105 | 56 | 183 | PT1/8 | | | |
| | **215-25-5** | | 21.5 | 25 | 34 | 108 | 56 | 183 | PT1/8 | SPM(E)T 070204-□□ | FTKA02565 | TW07S |
| | **220-25-5** | ● | 22 | 25 | 34 | 110 | 56 | 188 | PT1/8 | | | |
| | **225-25-5** | | 22.5 | 25 | 34 | 113 | 56 | 188 | PT1/8 | | | |
| **NPD** | **230-32-5** | ● | 23 | 32 | 44 | 115 | 60 | 199 | PT1/4 | | | |
| | **235-32-5** | | 23.5 | 32 | 44 | 118 | 60 | 199 | PT1/4 | NPM(E)T 222408-□□ | FTKA02206S | TW07S |
| | **240-32-5** | ● | 24 | 32 | 44 | 120 | 60 | 204 | PT1/4 | | | |
| | **245-32-5** | | 24.5 | 32 | 44 | 123 | 60 | 204 | PT1/4 | | | |
| | **250-32-5** | ● | 25 | 32 | 44 | 125 | 60 | 210 | PT1/4 | | | |
| | **255-32-5** | | 25.5 | 32 | 44 | 128 | 60 | 210 | PT1/4 | | | |
| | **260-32-5** | ● | 26 | 32 | 44 | 130 | 60 | 215 | PT1/4 | | | |
| | **265-32-5** | | 26.5 | 32 | 44 | 133 | 60 | 215 | PT1/4 | NPM(E)T 252808-□□ | FTKA0307 | TW09S |
| | **270-32-5** | ● | 27 | 32 | 44 | 135 | 60 | 221 | PT1/4 | | | |
| | **275-32-5** | | 27.5 | 32 | 44 | 138 | 60 | 221 | PT1/4 | | | |
| | **280-32-5** | ● | 28 | 32 | 44 | 140 | 60 | 227 | PT1/4 | | | |
| | **285-32-5** | | 28.5 | 32 | 44 | 143 | 60 | 227 | PT1/4 | | | |
| | **290-32-5** | ● | 29 | 32 | 44 | 145 | 60 | 232 | PT1/4 | | | |
| | **295-32-5** | | 29.5 | 32 | 44 | 148 | 60 | 232 | PT1/4 | | | |
| | **300-32-5** | ● | 30 | 32 | 44 | 150 | 60 | 239 | PT1/4 | | | |
| | **305-32-5** | | 30.5 | 32 | 44 | 153 | 60 | 239 | PT1/4 | NPM(E)T 293208-□□ | FTKA0307 | TW09S |
| | **310-32-5** | ● | 31 | 32 | 44 | 155 | 60 | 244 | PT1/4 | | | |
| | **315-32-5** | | 31.5 | 32 | 44 | 158 | 60 | 244 | PT1/4 | | | |
| | **320-32-5** | ● | 32 | 32 | 44 | 160 | 60 | 249 | PT1/4 | | | |
| | **325-32-5** | | 32.5 | 32 | 44 | 163 | 60 | 249 | PT1/4 | | | |
| | **330-40-5** | ● | 33 | 40 | 48 | 165 | 70 | 267 | PT3/8 | | | |
| | **335-40-5** | | 33.5 | 40 | 48 | 168 | 70 | 267 | PT3/8 | | | |
| | **340-40-5** | ● | 34 | 40 | 48 | 170 | 70 | 272 | PT3/8 | | | |
| | **345-40-5** | | 34.5 | 40 | 48 | 173 | 70 | 272 | PT3/8 | | | |
| | **350-40-5** | ● | 35 | 40 | 48 | 175 | 70 | 277 | PT3/8 | | | |
| | **355-40-5** | | 35.5 | 40 | 48 | 178 | 70 | 277 | PT3/8 | | | |
| | **360-40-5** | ● | 36 | 40 | 48 | 180 | 70 | 283 | PT3/8 | | | |
| | **365-40-5** | | 36.5 | 40 | 48 | 183 | 70 | 283 | PT3/8 | | | |
| | **370-40-5** | | 37 | 40 | 48 | 185 | 70 | 288 | PT3/8 | NPM(E)T 334008-□□ | FTKA03508 | TW15S |
| | **375-40-5** | | 37.5 | 40 | 48 | 188 | 70 | 288 | PT3/8 | | | |
| | **380-40-5** | | 38 | 40 | 48 | 190 | 70 | 294 | PT3/8 | | | |
| | **385-40-5** | | 38.5 | 40 | 48 | 193 | 70 | 294 | PT3/8 | | | |
| | **390-40-5** | | 39 | 40 | 48 | 195 | 70 | 299 | PT3/8 | | | |
| | **395-40-5** | | 39.5 | 40 | 48 | 198 | 70 | 299 | PT3/8 | | | |
| | **400-40-5** | ● | 40 | 40 | 48 | 200 | 70 | 305 | PT3/8 | | | |
| | **405-40-5** | | 40.5 | 40 | 48 | 203 | 70 | 305 | PT3/8 | | | |
| | **410-40-5** | | 41 | 40 | 58 | 205 | 70 | 312 | PT3/8 | | | |
| | **415-40-5** | | 41.5 | 40 | 58 | 208 | 70 | 312 | PT3/8 | | | |
| | **420-40-5** | | 42 | 40 | 58 | 210 | 70 | 318 | PT3/8 | | | |
| | **425-40-5** | | 42.5 | 40 | 58 | 213 | 70 | 318 | PT3/8 | | | |
| | **430-40-5** | | 43 | 40 | 58 | 215 | 70 | 323 | PT3/8 | | | |
| | **435-40-5** | | 43.5 | 40 | 58 | 216 | 70 | 323 | PT3/8 | NPM(E)T 415008-□□ | FTKA0410 | TW15S |
| | **440-40-5** | | 44 | 40 | 58 | 220 | 70 | 328 | PT3/8 | | | |
| | **445-40-5** | | 44.5 | 40 | 58 | 223 | 70 | 328 | PT3/8 | | | |
| | **450-40-5** | ● | 45 | 40 | 58 | 225 | 70 | 334 | PT3/8 | | | |
| | **455-40-5** | | 45.5 | 40 | 58 | 228 | 70 | 334 | PT3/8 | | | |

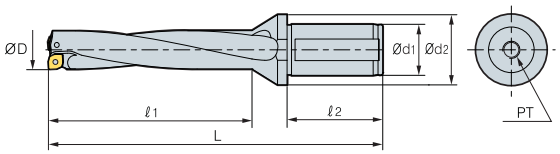
• Inserti applicabili, vedere pag. G10

● : Disponibile ○ : A richiesta

# SPD, NPD - 5D




SPD




NPD

(mm)

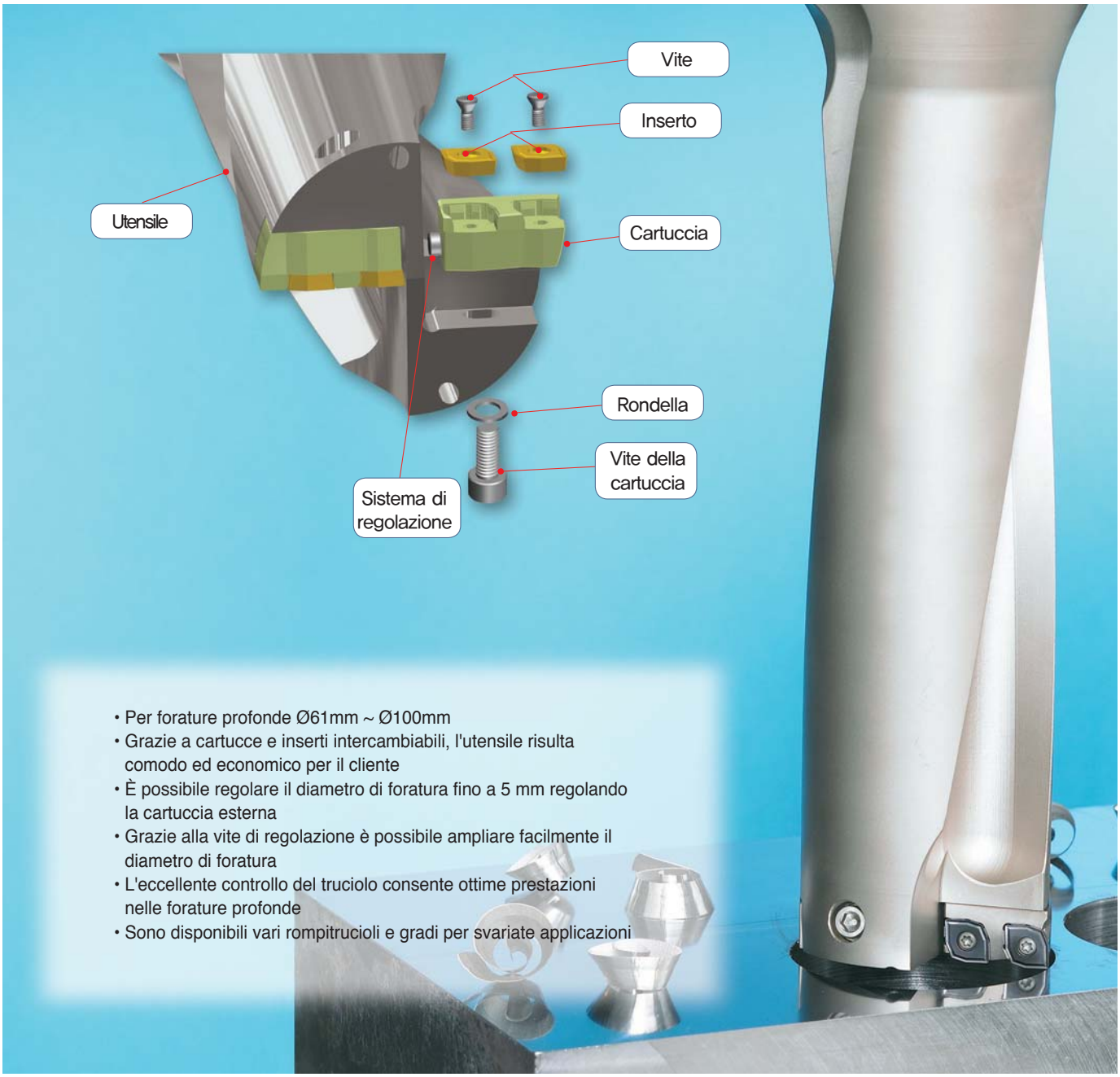
| Articolo | | Stock | øD | ød1 | ød2 | ℓ1 | ℓ2 | L | PT | Parti di ricambio / Inserto | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **NPD** | **460-40-5** | | 46 | 40 | 58 | 230 | 70 | 339 | PT3/8 | NPM(E)T 415008-□□ | FTKA0410 | TW15S |
| | **465-40-5** | | 46.5 | 40 | 58 | 233 | 70 | 339 | PT3/8 | | | |
| | **470-40-5** | | 47 | 40 | 58 | 235 | 70 | 345 | PT3/8 | | | |
| | **475-40-5** | | 47.5 | 40 | 58 | 238 | 70 | 345 | PT3/8 | | | |
| | **480-40-5** | | 48 | 40 | 58 | 240 | 70 | 352 | PT3/8 | | | |
| | **485-40-5** | | 48.5 | 40 | 58 | 243 | 70 | 352 | PT3/8 | | | |
| | **490-40-5** | | 49 | 40 | 58 | 245 | 70 | 357 | PT3/8 | | | |
| | **495-40-5** | | 49.5 | 40 | 58 | 248 | 70 | 357 | PT3/8 | | | |
| | **500-40-5** | | 50 | 40 | 58 | 250 | 70 | 362 | PT3/8 | | | |
| | **505-40-5** | | 50.5 | 40 | 58 | 253 | 70 | 362 | PT3/8 | | | |
| | **510-40-5** | | 51 | 40 | 68 | 255 | 70 | 371 | PT3/8 | NPM(E)T 516012-□□ | FTNC04511 | TW20S |
| | **515-40-5** | | 51.5 | 40 | 68 | 258 | 70 | 371 | PT3/8 | | | |
| | **520-40-5** | | 52 | 40 | 68 | 260 | 70 | 376 | PT3/8 | | | |
| | **525-40-5** | | 52.5 | 40 | 68 | 263 | 70 | 376 | PT3/8 | | | |
| | **530-40-5** | | 53 | 40 | 68 | 265 | 70 | 381 | PT3/8 | | | |
| | **535-40-5** | | 53.5 | 40 | 68 | 266 | 70 | 381 | PT3/8 | | | |
| | **540-40-5** | | 54 | 40 | 68 | 270 | 70 | 386 | PT3/8 | | | |
| | **545-40-5** | | 54.5 | 40 | 68 | 273 | 70 | 386 | PT3/8 | | | |
| | **550-40-5** | | 55 | 40 | 68 | 275 | 70 | 391 | PT3/8 | | | |
| | **555-40-5** | | 55.5 | 40 | 68 | 278 | 70 | 391 | PT3/8 | | | |
| | **560-40-5** | | 56 | 40 | 68 | 280 | 70 | 398 | PT3/8 | | | |
| | **565-40-5** | | 56.5 | 40 | 68 | 283 | 70 | 398 | PT3/8 | | | |
| | **570-40-5** | | 57 | 40 | 68 | 285 | 70 | 404 | PT3/8 | | | |
| | **575-40-5** | | 57.5 | 40 | 68 | 288 | 70 | 404 | PT3/8 | | | |
| | **580-40-5** | | 58 | 40 | 68 | 290 | 70 | 410 | PT3/8 | | | |
| | **585-40-5** | | 58.5 | 40 | 68 | 293 | 70 | 410 | PT3/8 | | | |
| | **590-40-5** | | 59 | 40 | 68 | 295 | 70 | 416 | PT3/8 | | | |
| | **595-40-5** | | 59.5 | 40 | 68 | 298 | 70 | 416 | PT3/8 | | | |
| | **600-40-5** | ● | 60 | 40 | 68 | 300 | 70 | 422 | PT3/8 | | | |
| | **605-40-5** | | 60.5 | 40 | 68 | 303 | 70 | 422 | PT3/8 | | | |

• Inserti applicabili, vedere pag. G10

● : Disponibile ○ : A richiesta

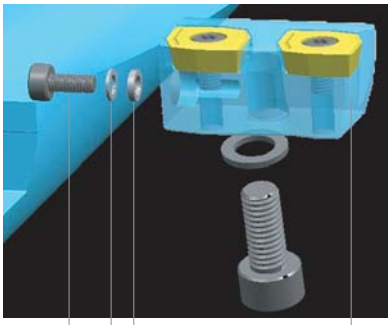
## Sistema a cartucce NPD

### Caratteristiche




- Per forature profonde Ø61mm ~ Ø100mm
- Grazie a cartucce e inserti intercambiabili, l'utensile risulta comodo ed economico per il cliente
- È possibile regolare il diametro di foratura fino a 5 mm regolando la cartuccia esterna
- Grazie alla vite di regolazione è possibile ampliare facilmente il diametro di foratura
- L'eccellente controllo del truciolo consente ottime prestazioni nelle forature profonde
- Sono disponibili vari rompitrucioli e gradi per svariate applicazioni

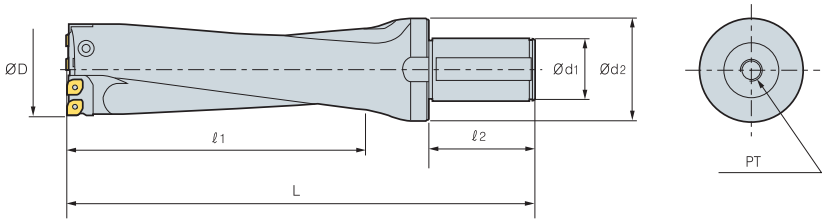
### Regolazione del diametro di foratura




| Ampliamento del diametro di foratura (mm) | Rondella | |
|---|---|---|
| | Articolo | Spessore (mm) |
| 1 | WA0305 | 0.5 |
| 2 | WA0310 | 1.0 |
| 3 | WA0305 + WA0310 | 1.5 |
| 4 | WA0310 × 2 | 2.0 |
| 5 | WA0305 + WA0310 × 2 | 2.5 |

※ È possibile ampliare il diametro di furatura fino a 5 mm regolando la rondella

# NPD con cartucce




(mm)

| Articolo | | Stock | øD | ød1 | ød2 | ℓ1 | ℓ2 | L | PT | Cartuccia | | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Interna | Esterna | | |
| NPD | 6165-50-3 | | 61~65 | 50 | 80 | 195 | 85 | 325 | PT3/8 | NPC6165C | NPC6165P | FTKA0307 | TW09S |
| | 6570-50-3 | | 65~70 | 50 | 88 | 210 | 85 | 340 | | NPC6570C | NPC6570P | FTKA03508 | TW15S |
| | 7075-50-3 | | 70~75 | 50 | 88 | 225 | 85 | 355 | | NPC7075C | NPC7075P | FTKA03508 | TW15S |
| | 7580-50-3 | | 75~80 | 50 | 88 | 240 | 85 | 370 | | NPC7580C | NPC7580P | FTKA03508 | TW15S |
| | 8085-50-3 | | 80~85 | 50 | 88 | 255 | 85 | 385 | | NPC8085C | NPC8085P | FTKA0410 | TW15S |
| | 8590-50-3 | | 85~90 | 50 | 95 | 270 | 85 | 400 | | NPC8590C | NPC8590P | FTKA0410 | TW15S |
| | 9095-50-3 | | 90~95 | 50 | 95 | 285 | 85 | 415 | | NPC9095C | NPC9095P | FTKA0410 | TW15S |
| | 95100-50-3 | | 95~100 | 50 | 95 | 300 | 85 | 430 | | NPC95100C | NPC95100P | FTNC04511 | TW20S |
| | 6165-50-4 | | 61~65 | 50 | 80 | 260 | 85 | 390 | PT3/8 | NPC6165C | NPC6165P | FTKA0307 | TW09S |
| | 6570-50-4 | | 65~70 | 50 | 88 | 280 | 85 | 410 | | NPC6570C | NPC6570P | FTKA03508 | TW15S |
| | 7075-50-4 | | 70~75 | 50 | 88 | 300 | 85 | 430 | | NPC7075C | NPC7075P | FTKA03508 | TW15S |
| | 7580-50-4 | | 75~80 | 50 | 88 | 320 | 85 | 450 | | NPC7580C | NPC7580P | FTKA03508 | TW15S |
| | 8085-50-4 | | 80~85 | 50 | 88 | 340 | 85 | 470 | | NPC8085C | NPC8085P | FTKA0410 | TW15S |
| | 8590-50-4 | | 85~90 | 50 | 95 | 360 | 85 | 490 | | NPC8590C | NPC8590P | FTKA0410 | TW15S |
| | 9095-50-4 | | 90~95 | 50 | 95 | 380 | 85 | 510 | | NPC9095C | NPC9095P | FTKA0410 | TW15S |
| | 95100-50-4 | | 95~100 | 50 | 95 | 400 | 85 | 530 | | NPC95100C | NPC95100P | FTNC04511 | TW20S |

● : Disponibile ○ : A richiesta

| Cartuccia | | Diametro punta (øD) | Inserto | N. denti | Vite | Chiave |
|---|---|---|---|---|---|---|
| Interna | Esterna | | | | | |
| NPC6165C | NPC6165P | 61~65 | NPM(E)T 293208-□□ | 2 | FTKA0307 | TW09S |
| NPC6570C | NPC6570P | 65~70 | NPM(E)T 334008-□□ | 2 | FTKA03508 | TW15S |
| NPC7075C | NPC7075P | 70~75 | NPM(E)T 334008-□□ | 2 | FTKA03508 | TW15S |
| NPC7580C | NPC7580P | 75~80 | NPM(E)T 334008-□□ | 2 | FTKA03508 | TW15S |
| NPC8085C | NPC8085P | 80~85 | NPM(E)T 415008-□□ | 2 | FTKA0410 | TW15S |
| NPC8590C | NPC8590P | 85~90 | NPM(E)T 415008-□□ | 2 | FTKA0410 | TW15S |
| NPC9095C | NPC9095P | 90~95 | NPM(E)T 415008-□□ | 2 | FTKA0410 | TW15S |
| NPC95100C | NPC95100P | 95~100 | NPM(E)T 516012-□□ | 2 | FTNC04511 | TW20S |

• Inserti applicabili, vedere pag. G10

## Punte a inserti con punta pilota

### Sistema di codifica

| WPDC | 410 | – | 40 | – | 8 |
|---|---|---|---|---|---|
| **Tipo**<br>WPDC : Con punta pilota e inserti WCMT<br>NPDC : Con punta pilota e inserti NPMT | **Diametro punta**<br>410 : Ø41.0<br>6570 : Ø65~70 | | **Diametro stelo**<br>32 : Ø32<br>40 : Ø40 | | **Lunghezza del foro**<br>5 : 5D<br>6.5 : 6.5D<br>8 : 8D |

### Sistema di codifica cartucce

| CWP | 4145 | C |
|---|---|---|
| **Tipo**<br>CWP : Cartuccia–WPDC<br>CNP : Cartuccia–NPDC | **Diametro punta**<br>4145 : Ø41~45<br>450 : Ø45.0 | **Simbolo di classificazione ISO**<br>C : Centrale<br>P : Periferico |

### Sistema di codifica punte pilota

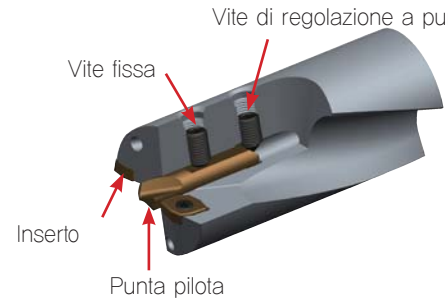
| CD | H | 1035 |
|---|---|---|
| **Nome prodotto**<br>Punta pilota | **Refrigerante**<br>H : Refrigerante<br>Neutro : Nessuno | **Diametro e lunghezza utensile**<br>0630 : Ø6X30<br>0835 : Ø8X35<br>1035 : Ø10X35<br>1238 : Ø12X38<br>1645 : Ø16X45 |

### Grado della punta pilota

| PC | 40H |
|---|---|
| **Nome prodotto**<br>Rivestimento PVD | **Rivestito**<br>40H : Rivestimento PVD |

## Staffaggio della punta pilota (WPDC, NPDC)

### Caratteristiche del sistema con punta pilota




(1) Comodo e veloce per la regolazione delle altezze dopo aver inserito la punta pilota
(2) Se la punta pilota si rompe durante la lavorazione, è semplice sostituirla con la vite di regolazione a punta conica
(3) Sicuro e robusto, la punta resta saldamente fissata grazie alla vite di regolazione a punta conica

### Montaggio

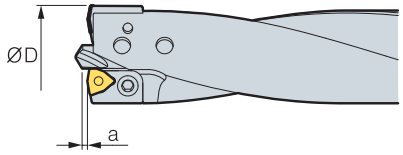


❶ Inserire la punta pilota
❷ Eseguire lo staffaggio (Cartuccia + Inserto)
❸ Regolare la punta pilota con la vite a punta conica
❹ Serrare saldamente la vite fissa per la punta pilota
❺ Serrare saldamente la vite a punta conica

Attenzione (1) Il tagliente è affilato, si consiglia di indossare dei guanti di protezione
(2) Prestare attenzione a DISK quando si eseguono lavorazioni di tornitura

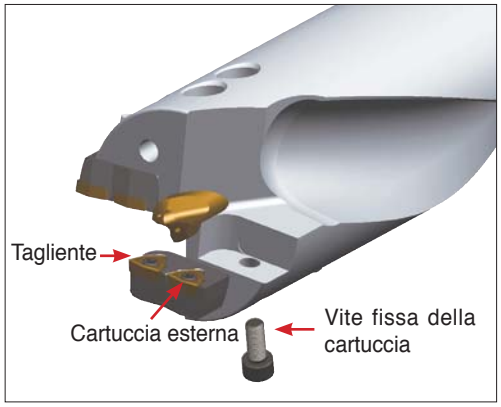
### Lunghezza di staffaggio della punta pilota

Se lo staffaggio della punta pilota è troppo corto, si creano effetti indesiderati sulla superficie di finitura. Se al contrario è troppo lungo, può provocare vibrazioni e ridurre la durata dell'utensile.




| Dimensioni foro (ØD) | Lunghezza di staffaggio della punta pilota | | |
|---|---|---|---|
| | Acciaio generico | Acciaio legato | Materiali non ferrosi |
| 25~30 | 1.2 | 1.0 | 1.5 |
| 31~40 | 1.5 | 1.3 | 1.8 |
| 41~50 | 1.8 | 1.5 | 2.2 |
| 51~59 | 2.2 | 1.8 | 2.5 |
| 60~75 | 2.5 | 2.0 | 2.8 |
| 76~80 | 3.0 | 2.5 | 3.5 |

## Regolazione del diametro di foratura per WPDC e NPDC




1) Smontare il corpo e la cartuccia e svitare la vite fissa sulla cartuccia esterna
2) Predisporre la dimensione (tagliare il lato a cui è collegata) nella cartuccia esterna dopo aver calcolato il foro di lavorazione
3) Spuntare il tagliente affilato della cartuccia esterna
4) Fissare saldamente con la vite fissa

※ Es.) Regolazione per foro di lavorazione di diametro 66 con WPDC6570-40-8
(1) Predisporre la dimensione della cartuccia esterna 70-66=4 ···› 4/2 = 2(Raggio)

• Limite del foro della lavorazione
1. cartuccia singola (Φ41~Φ59) : -1.0mm(raggio: -0.5)
2. cartuccia doppia (Φ60~Φ80) : -5.0mm(raggio: -2.5)
• Questa punta ha eseguito il foro di lavorazione massimo

## Parti della punta a inserti tipo WPDC

| Articolo | Foro di lavorazione | Inserto | | | Punta pilota | | | Cartuccia | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Inserto | Vite | Chiave | Punta pilota | Vite fissa | Vite a punta conica | Interna | Esterna | Vite fissa |
| **WPDC250-32-□** | 25 | WC□T030204-C21 | FTKA02206 | TW06S | CD0630 | KHA0508 | KHC0510 | | | |
| **WPDC260~280-32-□** | 26~28 | WC□T040204-C21 | FTKA02565 | TW07S | | | | | | |
| **WPDC290~300-32-□** | 29~30 | | | | | KHA0510 | | | | |
| **WPDC310~350-32-□** | 31~35 | WC□T050308-C21 | FTKA0307 | TW09S | CD0835 | KHA0610 | KHC0610 | | | |
| **WPDC360~400-32-□** | 36~40 | | | | | KHA0612 | | | | |
| **WPDC410-40-□** | 41 | WC□T06T308-C21 | FTKA03508 | TW15S | CDH1035 | KHA0812 | KHC0812 | CWP4145C | CWP410P | BHA0510 |
| **WPDC420-40-□** | 42 | | | | | | | | CWP420P | |
| **WPDC430-40-□** | 43 | | | | | | | | CWP430P | |
| **WPDC440-40-□** | 44 | | | | | | | | CWP440P | |
| **WPDC450-40-□** | 45 | | | | | | | | CWP450P | |
| **WPDC460-40-□** | 46 | | | | | KHA0815 | | CWP4650C | CWP460P | BHA0512 |
| **WPDC470-40-□** | 47 | | | | | | | | CWP470P | |
| **WPDC480-40-□** | 48 | | | | | | | | CWP480P | |
| **WPDC490-40-□** | 49 | | | | | | | | CWP490P | |
| **WPDC500-40-□** | 50 | | | | | | | | CWP500P | |
| **WPDC510-40-□** | 51 | WC□T080408-C21 | FTKA0411K | TW15S | CDH1238 | KHA1015 | KHC1016 | CWP5155C | CWP510P | BHA0612 |
| **WPDC520-40-□** | 52 | | | | | | | | CWP520P | |
| **WPDC530-40-□** | 53 | | | | | | | | CWP530P | |
| **WPDC540-40-□** | 54 | | | | | | | | CWP540P | |
| **WPDC550-40-□** | 55 | | | | | | | | CWP550P | |
| **WPDC560-40-□** | 56 | | | | | | | CWP5659C | CWP560P | BHA0614 |
| **WPDC570-40-□** | 57 | | | | | | | | CWP570P | |
| **WPDC580-40-□** | 58 | | | | | | | | CWP580P | |
| **WPDC590-40-□** | 59 | | | | | | | | CWP590P | |
| **WPDC6065-40-□** | 60~65 | WC□T050308-C21 | FTKA0307 | TW09S | | KHA1020 | KHC1020 | CWP6065C | CWP6065P | RHA0510 |
| **WPDC6570-40-□** | 65~70 | | | | | | | CWP6570C | CWP6570P | |
| **WPDC7075-40-□** | 70~75 | | | | | | | CWP7075C | CWP7075P | |
| **WPDC7580-40-□** | 75~80 | WC□T06T308-C21 | FTKA03508 | TW15S | CDH1645 | | | CWP7580C | CWP7580T | BHA0612 |

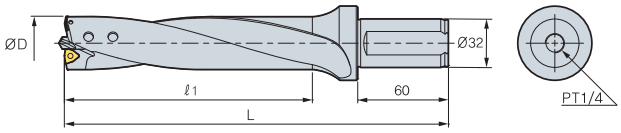
## Parti della punta a inserti tipo NPDC

| Articolo | Foro di lavorazione | Inserto | | | Punta pilota | | |
|---|---|---|---|---|---|---|---|
| | | Inserto | Vite | Punta pilota | Punta pilota | Vite fissa | Vite a punta conica |
| **NPDC260~280-32-□** | 26~28 | NPMT222408 | FTKA02565 | TW07S | CD0630 | KHA0508 | KHC0510 |
| **NPDC290~300-32-□** | 29~30 | | | | | KHA0510 | |
| **NPDC310~350-32-□** | 31~35 | NPMT252808 | FTKA0307 | TW09S | CD0835 | KHA0610 | KHC0610 |
| **NPDC360~400-32-□** | 36~40 | NPMT293208 | | | | KHA0612 | |

# WPDC-5D/6.5D/8D (Standard)

New






(mm)

| Articolo | | ØD | 5D | | | 6.5D | | | 8D | | | Inserto | Punta pilota |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Stock | ℓ1 | L | Stock | ℓ1 | L | Stock | ℓ1 | L | | |
| WPDC | 250-32-□ | 25 | | 150 | 240 | | 185 | 275 | | 220 | 310 | WC□T030204-C21 | CD0630 |
| | 260-32-□ | 26 | | | | | | | | | | WC□T040204-C21 | |
| | 270-32-□ | 27 | | | | | | | | | | | |
| | 280-32-□ | 28 | | | | | | | | | | | |
| | 290-32-□ | 29 | | | | | | | | | | | |
| | 300-32-□ | 30 | | | | | | | | | | | |
| | 310-32-□ | 31 | | 175 | 265 | | 218 | 308 | | 260 | 350 | WC□T050308-C21 | CD0835 |
| | 320-32-□ | 32 | | | | | | | | | | | |
| | 330-32-□ | 33 | | | | | | | | | | | |
| | 340-32-□ | 34 | | | | | | | | | | | |
| | 350-32-□ | 35 | | | | | | | | | | | |
| | 360-32-□ | 36 | | 200 | 290 | | 250 | 340 | | 300 | 390 | | |
| | 370-32-□ | 37 | | | | | | | | | | | |
| | 380-32-□ | 38 | | | | | | | | | | | |
| | 390-32-□ | 39 | | | | | | | | | | | |
| | 400-32-□ | 40 | | | | | | | | | | | |

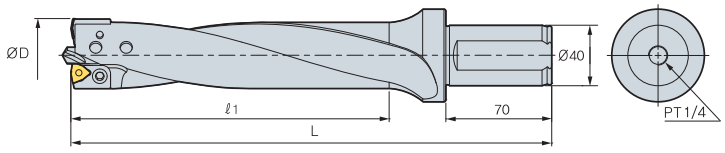
* Si eseguono su richiesta punte con diametri precisi
Es.) foro di lavorazione 32.5mm * 6.5D –〉 WPDC325–32–6.5

● : Disponibile ○ : A richiesta

# WPDC-5D/6.5D/8D (Cartuccia a un inserto)

New






(mm)

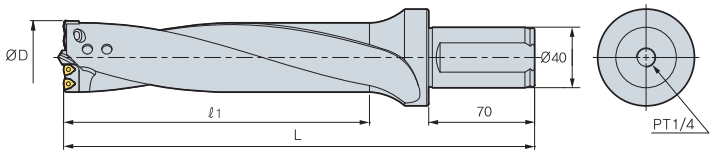
| Articolo | | ØD | 5D | | | 6.5D | | | 8D | | | Inserto | Punta pilota | Cartuccia | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Stock | ℓ1 | L | Stock | ℓ1 | L | Stock | ℓ1 | L | | | Interna | Esterna |
| WPDC | 410-40-□ | 41 | | 225 | 330 | | 283 | 388 | | 340 | 445 | WC□T06T308-C21 | CDH1035 | CWP4145C | CWP410P |
| | 420-40-□ | 42 | | | | | | | | | | | | | CWP420P |
| | 430-40-□ | 43 | | | | | | | | | | | | | CWP430P |
| | 440-40-□ | 44 | | | | | | | | | | | | | CWP440P |
| | 450-40-□ | 45 | | | | | | | | | | | | | CWP450P |
| | 460-40-□ | 46 | | 250 | 355 | | 315 | 420 | | 380 | 485 | | | CWP4650C | CWP460P |
| | 470-40-□ | 47 | | | | | | | | | | | | | CWP470P |
| | 480-40-□ | 48 | | | | | | | | | | | | | CWP480P |
| | 490-40-□ | 49 | | | | | | | | | | | | | CWP490P |
| | 500-40-□ | 50 | | | | | | | | | | | | | CWP500P |
| | 510-40-□ | 51 | | 275 | 380 | | 348 | 453 | | 420 | 525 | WC□T080408-C21 | CDH1238 | CWP5155C | CWP510P |
| | 520-40-□ | 52 | | | | | | | | | | | | | CWP520P |
| | 530-40-□ | 53 | | | | | | | | | | | | | CWP530P |
| | 540-40-□ | 54 | | | | | | | | | | | | | CWP540P |
| | 550-40-□ | 55 | | | | | | | | | | | | | CWP550P |
| | 560-40-□ | 56 | | 300 | 405 | | 380 | 485 | | 460 | 565 | | | CWP5659C | CWP560P |
| | 570-40-□ | 57 | | | | | | | | | | | | | CWP570P |
| | 580-40-□ | 58 | | | | | | | | | | | | | CWP580P |
| | 590-40-□ | 59 | | | | | | | | | | | | | CWP590P |

* Si eseguono su richiesta punte con diametri precisi
Es.) foro di lavorazione 47.5mm * 5D –〉 WPDC475–40–5

● : Disponibile ○ : A richiesta

# WPDC-5D/6.5D/8D (Cartuccia a due inserti)






(mm)

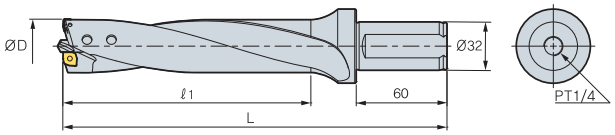
| Articolo | | ØD | 5D | | | 6.5D | | | 8D | | | Inserto | Punta pilota | Cartuccia | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Stock | ℓ1 | L | Stock | ℓ1 | L | Stock | ℓ1 | L | | | Interna | Esterna |
| **WPDC** | **6065-40-□** | 60~65 | | 325 | 430 | | 423 | 528 | | 520 | 625 | | | CNP6065C | CNP6065P |
| | **6570-40-□** | 65~70 | | 350 | 455 | | 455 | 560 | | 560 | 665 | WC□T050308-C21 | CDH1238 | CNP6570C | CNP6570P |
| | **7075-40-□** | 70~75 | | 375 | 480 | | 488 | 593 | | 600 | 705 | | | CNP7075C | CNP7075P |
| | **7580-40-□** | 75~80 | | 400 | 505 | | 520 | 625 | | 640 | 745 | WC□T06T308-C21 | CDH1645 | CNP7580C | CNP7580P |

* Si eseguono su richiesta punte con diametri precisi
Es.) foro di lavorazione 70.5mm * 6.5D –〉 WPDC705–40–6.5

● : Disponibile ○ : A richiesta

# NPDC-5D/6.5D/8D (Standard)






(mm)

| Articolo | | ØD | 5D | | | 6.5D | | | 8D | | | Inserto | Punta pilota |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Stock | ℓ1 | L | Stock | ℓ1 | L | Stock | ℓ1 | L | | |
| **NPDC** | **260-32-5** | 26 | | | | | | | | | | | |
| | **270-32-5** | 27 | | | | | | | | | | | |
| | **280-32-5** | 28 | ● | 150 | 240 | | 185 | 275 | | 220 | 310 | NPMT222408 | CD0630 |
| | **290-32-5** | 29 | ● | | | | | | | | | | |
| | **300-32-5** | 30 | ● | | | | | | | | | | |
| | **310-32-5** | 31 | | | | | | | | | | | |
| | **320-32-5** | 32 | ● | | | | | | | | | | |
| | **330-32-5** | 33 | ● | 175 | 265 | | 218 | 308 | | 260 | 350 | NPMT252808 | |
| | **340-32-5** | 34 | ● | | | | | | | | | | |
| | **350-32-5** | 35 | ● | | | | | | | | | | CD0835 |
| | **360-32-5** | 36 | | | | | | | | | | | |
| | **370-32-5** | 37 | | | | | | | | | | | |
| | **380-32-5** | 38 | ● | 200 | 290 | | 250 | 340 | | 300 | 390 | NPMT293208 | |
| | **390-32-5** | 39 | ● | | | | | | | | | | |
| | **400-32-5** | 40 | ● | | | | | | | | | | |

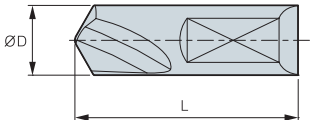
* Si eseguono su richiesta punte con diametri precisi
Es.) foro di lavorazione 32.5mm * 6.5D –〉 WPDC325–32–6.5

● : Disponibile ○ : A richiesta

# Punta pilota

New






(mm)

| Articolo | Stock PC40H | ø D | L | Foro lubrificante |
|---|---|---|---|---|
| **CD 0630** | ● | 6 | 30 | No |
| **CD 0835** | ● | 8 | 35 | No |
| **CDH 1035** | | 10 | 35 | Sì |
| **CDH 1238** | | 12 | 38 | Sì |
| **CDH 1645** | | 16 | 45 | Sì |

* HSS con rivestimento Tin

● : Disponibile ○ : A richiesta

# Punta di lucidatura

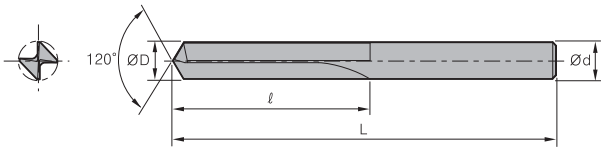



Fig. 1

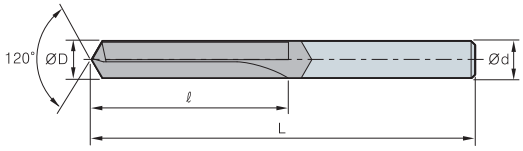


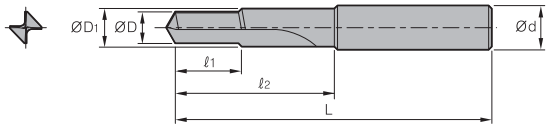

Fig. 2

(mm)

| Articolo | | Stock H01 | øD | ød | ℓ | L | Fig. |
|---|---|---|---|---|---|---|---|
| **BD** | **030S** | | 3.0 | 3.0 | 33 | 60 | 1 |
| | **035S** | | 3.5 | 3.5 | 33 | 60 | 1 |
| | **040S** | | 4.0 | 4.0 | 33 | 60 | 1 |
| | **045S** | | 4.5 | 4.5 | 33 | 60 | 1 |
| | **050S** | | 5.0 | 5.0 | 33 | 70 | 1 |
| | **055S** | | 5.5 | 5.5 | 33 | 70 | 1 |
| | **060S** | | 6.0 | 6.0 | 35 | 75 | 1 |
| | **070S** | | 7.0 | 7.0 | 35 | 75 | 1 |
| | **080S** | | 8.0 | 8.0 | 40 | 80 | 1 |
| | **090S** | | 9.0 | 9.0 | 40 | 80 | 1 |
| | **100S** | | 10.0 | 10.0 | 45 | 100 | 1 |
| | **110S** | | 11.0 | 10.0 | 45 | 100 | 1 |
| | **120B** | | 12.0 | 12.0 | 50 | 120 | 2 |
| | **130B** | | 13.0 | 12.0 | 50 | 120 | 2 |
| | **140B** | | 14.0 | 16.0 | 60 | 130 | 2 |
| | **150B** | | 15.0 | 16.0 | 60 | 130 | 2 |
| | **160B** | | 16.0 | 16.0 | 60 | 130 | 2 |

● : Disponibile ○ : A richiesta

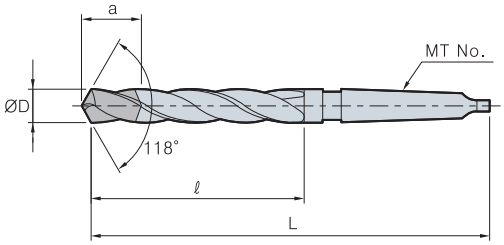
## Punta di lucidatura a gradino




Modulo d'ordine : BD(ΦD/Φd/l1/l2/L)
Rivestimento, foro lubrificante e foro speciale su richiesta

# TSDM New






(mm)

| Articolo | | ø D | L | ℓ | a | MT N. |
|---|---|---|---|---|---|---|
| **TSDM** | **080~085** | 8.0~8.5 | 168 | 85 | 25 | 1 |
| | **086~090** | 8.6~9.0 | 172 | 88 | | |
| | **091~095** | 9.1~9.5 | 175 | 92 | 26 | |
| | **096~100** | 9.6~10.0 | 178 | 95 | | |
| | **101~105** | 10.1~10.5 | 182 | 98 | | |
| | **106~110** | 10.6~11.0 | 185 | 102 | | |
| | **111~115** | 11.1~11.5 | 188 | 105 | | |
| | **116~120** | 11.6~12.0 | 192 | 108 | | |
| | **121~125** | 12.1~12.5 | 195 | 112 | | |
| | **126~130** | 12.6~13.0 | 198 | 115 | | |
| | **131~135** | 13.1~13.5 | 202 | 118 | 27 | 2 |
| | **136~140** | 13.6~14.0 | 205 | 122 | | |
| | **141~145** | 14.1~14.5 | 222 | 122 | | |
| | **146~150** | 14.6~15.0 | 225 | 125 | | |
| | **151~155** | 15.1~15.5 | 228 | 125 | | |
| | **156~160** | 15.6~16.0 | 230 | 130 | | |
| | **161~165** | 16.1~16.5 | 232 | 132 | | |
| | **166~170** | 16.6~17.0 | 234 | 135 | | |
| | **171~180** | 17.1~18.0 | 240 | 140 | | |
| | **181~190** | 18.1~19.0 | 245 | 145 | | |
| | **191~200** | 19.1~20.0 | 250 | 150 | 30 | |
| | **201~210** | 20.1~21.0 | 255 | 155 | | |
| | **216~220** | 21.6~22.0 | 260 | 160 | | |
| | **221~230** | 22.1~23.0 | 265 | 165 | | |
| | **231~250** | 23.1~25.0 | 285 | 165 | 34 | 3 |

* Modulo d'ordine : TSDM125

## Condizioni di taglio raccomandate

| Dia. foro (mm) | Condizioni | Ghisa duttile | Ghisa grigia | Acciaio morbido |
|---|---|---|---|---|
| Ø8 ~ Ø10 | vc(m/min) | 36(20~35) | 40(20~60) | 100(50~150) |
| | fn(mm/giro) | 0.3(0.2~0.4) | 0.3(0.2~0.4) | 0.15(0.1~0.2) |
| Ø10.1 ~ Ø10.5 | vc(m/min) | 50(30~70) | 60(30~80) | 130(70~200) |
| | fn(mm/giro) | 0.35(0.3~0.4) | 0.35(0.3~0.4) | 0.15(0.1~0.2) |
| Ø15.1 ~ Ø25 | vc(m/min) | 60(50~60) | 75(50~100) | 150(100~250) |
| | fn(mm/giro) | 0.35(0.3~0.45) | 0.4(0.3~0.5) | 0.15(0.1~0.2) |

## Punte PCD

### Caratteristiche

- Elevata precisione nella lavorazione di lega di alluminio
- Tolleranza di foratura : IT7~8class
- Raccomandata per lavorazioni di elevata precisione e per mandrini ad alta velocità

### Sistema di codifica

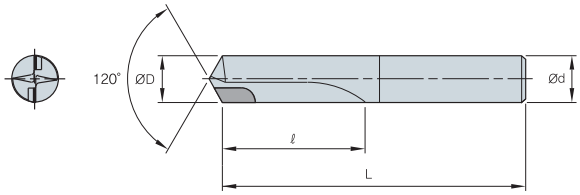
| PDD | 0650 |
|---|---|
| Punte PCD | Foro di lavorazione |

### Condizioni di taglio raccomandate

| Pezzo lavorato | vc(m/min) | fn(mm/giro) |
|---|---|---|
| Lega di alluminio | 50~250 | D≤ø8:0.05~0.2<br>D≥ø8:0.1~0.4 |

### PDD New






(mm)

| Articolo | | Stock DP200 | øD | ød | ℓ | L |
|---|---|---|---|---|---|---|
| PDD | 0500 | | 5.0 | 5.0 | 30 | 80 |
| | 0550 | | 5.5 | 5.5 | 30 | 80 |
| | 0600 | | 6.0 | 6.0 | 30 | 80 |
| | 0650 | | 6.5 | 6.5 | 40 | 95 |
| | 0700 | | 7.0 | 7.0 | 40 | 95 |
| | 0750 | | 7.5 | 7.5 | 45 | 100 |
| | 0800 | | 8.0 | 8.0 | 45 | 100 |
| | 0850 | | 8.5 | 8.5 | 50 | 110 |
| | 0900 | | 9.0 | 9.0 | 50 | 110 |
| | 0950 | | 9.5 | 9.5 | 55 | 115 |
| | 1000 | | 10.0 | 10.0 | 55 | 115 |
| | 1050 | | 10.5 | 10.5 | 60 | 120 |
| | 1100 | | 11.0 | 11.0 | 60 | 120 |
| | 1150 | | 11.5 | 11.5 | 65 | 125 |
| | 1200 | | 12.0 | 12.0 | 65 | 125 |

● : Disponibile ○ : A richiesta

## Sistema di codifica TPD

### Sistema di codifica utensile

| TPD | B | 180 | - | 25 | - | 5 |
|---|---|---|---|---|---|---|
| TPD | Tipo | Foro di lavorazione | | Dia. stelo | | Lunghezza di lavoro |
| Punta TPD | C : Cuspide<br>B : Lama | 180 : Ø18.0 | | 25 : Ø25 | | ISO : 3, 5, 7 |

### Sistema di codifica Inserti

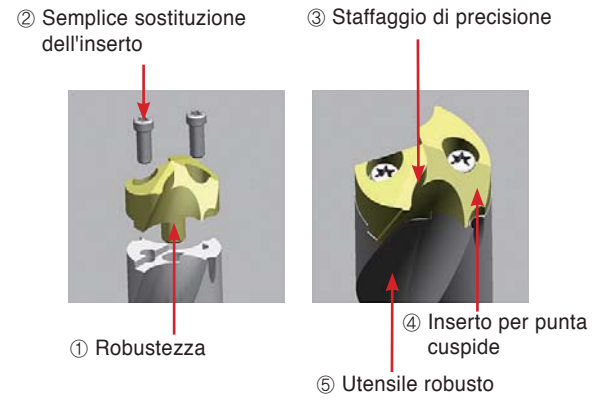
| TPD | 180 | B |
|---|---|---|
| TPD | Foro di lavorazione | Tipo |
| Punta TPD | 180 : Ø18.0 | C : Cuspide<br>B : Lama |

## Caratteristiche

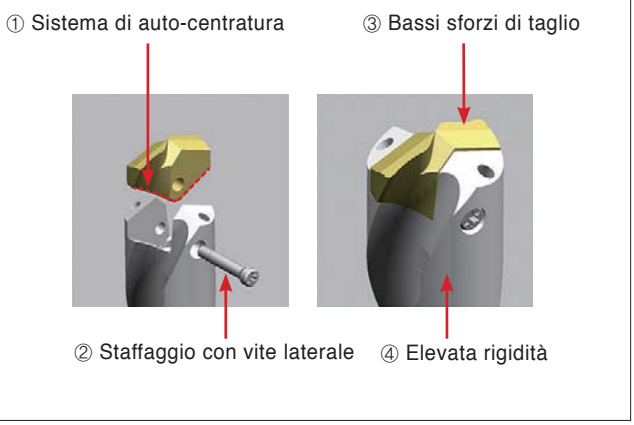
- Lunga durata, minori sforzi di taglio, indicata per la foratura di materiale pulito
- Maggiore durata e buone prestazioni grazie allo staffaggio Korloy, stabile e robusto
- Alta produttività nelle lavorazioni con velocità e avanzamenti veloci
- Diametri disponibili Φ12~Φ32, con una lunghezza di lavoro fino a 7 volte il diametro

### Caratteristiche dell'inserto

● Cuspide



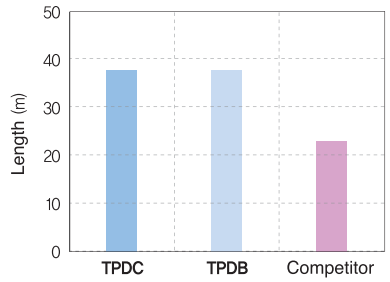

● Lama

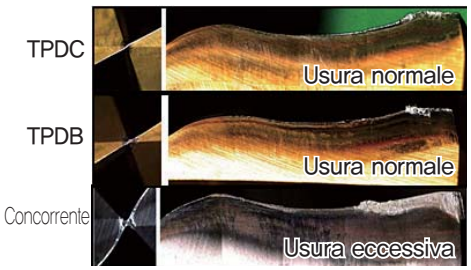



1.Tolleranza e rigidità eccellenti
2.Ideale per lavorazioni ad alte velocità e avanzamenti elevati
3.La perfetta combinazione di geometria per bassi sforzi di taglio e grado dell'inserto speciale la rende indicata per quasi tutti i tipi di materiale
4.Elevata robustezza dell'utensile

## Prestazioni di taglio

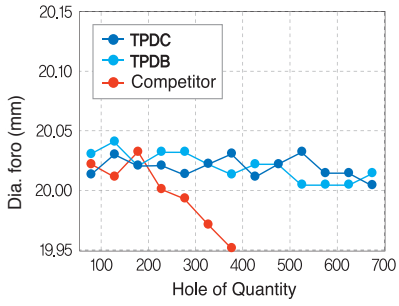
### Durata utensile



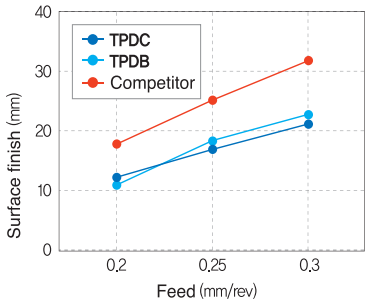

Pezzo lavorato : SCM440(HRC20)
Condizioni di taglio : vc = 120 m/min
fn = 0.25 mm/giro
t = 50mm (foro interno)
Articolo : Ø20(L/D=5)
Risultato : 1,6 volte rispetto ad altro produttore

### Accuratezza della lavorazione



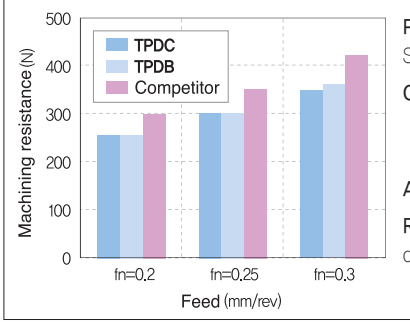

Pezzo lavorato : SCM440(HRC20)
Condizioni di taglio : vc = 100 m/min
fn = 0.25 mm/giro
t = 50mm (foro interno)
Articolo : Ø20(L/D=5)
Risultato : Durata maggiore e migliore precisione del foro rispetto alla concorrenza

### Superficie di finitura



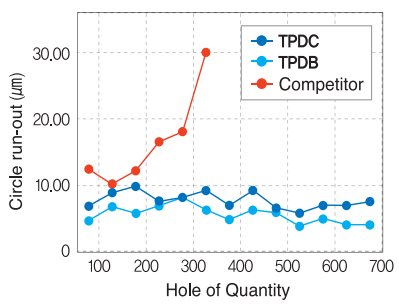

Pezzo lavorato : SCM440(HRC20)
Condizioni di taglio : vc = 100 m/min
t = 50mm (foro interno)
Articolo : Ø20(L/D=5)
Risultato : Migliore superficie di sgrossatura della concorrenza

### Sforzo di taglio




Pezzo lavorato : SCM440(HRC20)
Condizioni di taglio vc = 80 m/min
t = 30mm (foro interno)
Articolo : Ø20(L/D=5)
Risultato : 80% dello sforzo di taglio della concorrenza

### Accuratezza dello staffaggio




Pezzo lavorato : SCM440(HRC20)
Condizioni di taglio : vc = 120 m/min
fn = 0.25 mm/giro
t = 50mm (foro interno)
Articolo : Ø20(L/D=5)
Risultato : Nessuna sostituzione durante la lavorazione

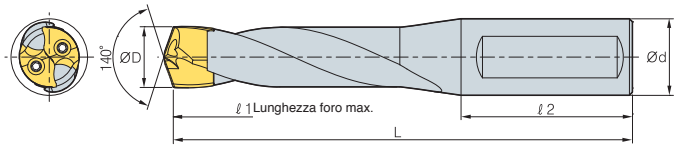
## Condizioni di taglio raccomandate

| Dia. foro (Ø) (mm) | Condizioni | Acciaio leggero (~HB250) | Acciaio generico (HB250~320) | Acciaio temprato (HRC45) | Acciaio inossidabile (~HB200) | Ghisa |
|---|---|---|---|---|---|---|
| ~ Ø16 | vc(m/min) | 80 ~ 120 | 80 ~ 110 | 50 ~ 80 | 50 ~ 80 | 50 ~ 80 |
| | fn(mm/giro) | 0.15 ~ 0.3 | 0.15 ~ 0.3 | 0.1 ~ 0.2 | 0.1 ~ 0.2 | 0.15 ~ 0.3 |
| ~ Ø20 | vc(m/giro) | 80 ~ 120 | 80 ~ 110 | 60 ~ 90 | 60 ~ 90 | 50 ~ 90 |
| | fn(mm/giro) | 0.15 ~ 0.35 | 0.15 ~ 0.35 | 0.15 ~ 0.25 | 0.15 ~ 0.25 | 0.15 ~ 0.35 |
| ~ Ø32 | vc(m/giro) | 80 ~ 130 | 80 ~ 130 | 60 ~ 90 | 60 ~ 90 | 60 ~ 100 |
| | fn(mm/giro) | 0.2 ~ 0.4 | 0.2 ~ 0.35 | 0.15 ~ 0.25 | 0.2 ~ 0.4 | 0.2 ~ 0.4 |

1. Riduzione di velocità e avanzameneto del 15~20% per lavorazioni oltre 5D
2. Riduzione dell'avanzameneto a 0.1 ~ 0.15mm/giro in condizioni di taglio interrotto
3. Riduzione dell'avanzamneto del 15~20% nei tagli inclinati (l'angolazione deve essere entro 8°).
4. Per la lavorazione di pezzi sovrapposti, fissare saldamente i pezzi lavorati eliminando la formazione di spazi vuoti tra di essi

# Cuspide





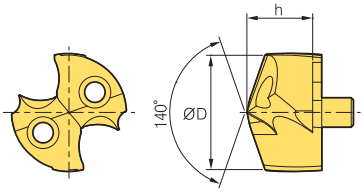

(mm)

| øD | 3D | | | | 5D | | | | 7D | | | | ød | ℓ2 | Inserto | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Articolo | Stock | L | ℓ1 | Articolo | Stock | L | ℓ1 | Articolo | Stock | L | ℓ1 | | | | | |
| Ø12 | **TPDC 120-16-3** | ○ | 102 | 45 | **TPDC 120-16-5** | ○ | 126 | 69 | **TPDC 120-16-7** | ○ | 150 | 93 | 16 | 48 | TPD120C | BTC02208 | TW06S |
| Ø13 | **130-16-3** | ○ | 107 | 50 | **130-16-5** | ○ | 133 | 76 | **130-16-7** | ○ | 159 | 102 | 16 | 48 | TPD130C | BTC02208 | TW06S |
| Ø14 | **140-16-3** | ○ | 111 | 53 | **140-16-5** | ○ | 139 | 81 | **140-16-7** | ○ | 167 | 109 | 16 | 48 | TPD140C | BTC02208 | TW06S |
| Ø15 | **150-20-3** | ○ | 118 | 57 | **150-20-5** | ○ | 148 | 87 | **170-20-7** | ○ | 178 | 117 | 20 | 50 | TPD150C | BTC02208 | TW06S |
| Ø16 | **160-20-3** | ○ | 122 | 61 | **160-20-5** | ○ | 154 | 93 | **160-20-7** | ○ | 186 | 125 | 20 | 50 | TPD160C | BTC02510 | TW07S |
| Ø17 | **170-20-3** | ○ | 127 | 65 | **170-20-5** | ○ | 161 | 99 | **170-20-7** | ○ | 195 | 133 | 20 | 50 | TPD170C | BTC02510 | TW07S |
| Ø18 | **180-25-3** | ○ | 137 | 69 | **180-25-5** | ○ | 173 | 105 | **180-25-7** | ○ | 209 | 141 | 25 | 56 | TPD180C | BTC0311 | TW09S |
| Ø19 | **190-25-3** | ○ | 142 | 72 | **190-25-5** | ○ | 180 | 110 | **190-25-7** | ○ | 218 | 148 | 25 | 56 | TPD190C | BTC0311 | TW09S |
| Ø20 | **200-25-3** | ○ | 146 | 76 | **200-25-5** | ○ | 186 | 116 | **200-25-7** | ○ | 226 | 156 | 25 | 56 | TPD200C | BTC0311 | TW09S |
| Ø21 | **210-25-3** | ○ | 151 | 80 | **210-25-5** | ○ | 193 | 122 | **210-25-7** | ○ | 235 | 164 | 25 | 56 | TPD210C | BTC0311 | TW09S |
| Ø22 | **220-25-3** | ○ | 155 | 84 | **220-25-5** | ○ | 199 | 128 | **220-25-7** | ○ | 243 | 172 | 25 | 56 | TPD220C | BTC03512 | TW15S |
| Ø23 | **230-25-3** | ○ | 160 | 88 | **230-25-5** | ○ | 206 | 134 | **230-25-7** | ○ | 252 | 180 | 25 | 56 | TPD230C | BTC03512 | TW15S |
| Ø24 | **240-32-3** | ○ | 168 | 91 | **240-32-5** | ○ | 216 | 139 | **240-32-7** | ○ | 264 | 187 | 32 | 60 | TPD240C | BTC03512 | TW15S |
| Ø25 | **250-32-3** | ○ | 173 | 95 | **250-32-5** | ○ | 223 | 145 | **270-32-7** | ○ | 273 | 195 | 32 | 60 | TPD250C | BTC03512 | TW15S |
| Ø26 | **260-32-3** | ○ | 177 | 99 | **260-32-5** | ○ | 229 | 151 | **260-32-7** | ○ | 281 | 203 | 32 | 60 | TPD260C | BTC0413 | TW15S |
| Ø27 | **270-32-3** | ○ | 182 | 103 | **270-32-5** | ○ | 236 | 157 | **270-32-7** | ○ | 290 | 211 | 32 | 60 | TPD270C | BTC0413 | TW15S |
| Ø28 | **280-32-3** | ○ | 186 | 107 | **280-32-5** | ○ | 242 | 163 | **280-32-7** | ○ | 298 | 219 | 32 | 60 | TPD280C | BTC0516 | TW20S |
| Ø29 | **290-32-3** | ○ | 191 | 110 | **290-32-5** | ○ | 249 | 168 | **290-32-7** | ○ | 307 | 226 | 32 | 60 | TPD290C | BTC0516 | TW20S |
| Ø30 | **300-32-3** | ○ | 195 | 114 | **300-32-5** | ○ | 255 | 174 | **300-32-7** | ○ | 315 | 234 | 32 | 60 | TPD200C | BTC0516 | TW20S |
| Ø31 | **310-32-3** | ○ | 200 | 118 | **310-32-5** | ○ | 262 | 180 | **310-32-7** | ○ | 324 | 242 | 32 | 60 | TPD310C | BTC0516 | TW20S |
| Ø32 | **320-32-3** | ○ | 204 | 122 | **320-32-5** | ○ | 268 | 186 | **320-32-7** | ○ | 332 | 250 | 32 | 60 | TPD320C | BTC0516 | TW20S |

● : Disponibile ○ : A richiesta

## Inserto per punta conica

(mm)

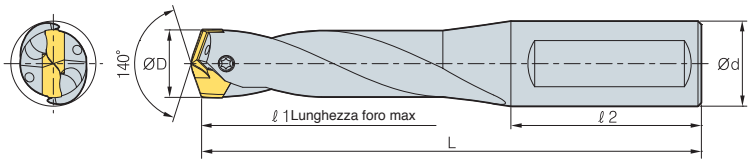
| Forma | Articolo | Stock | ØD | h | Disegno |
|---|---|---|---|---|---|
|  | **TPD120C** | ○ | Ø12 | 8 |  |
| | **TPD130C** | ○ | Ø13 | 8.5 | |
| | **TPD140C** | ○ | Ø14 | 9 | |
| | **TPD150C** | ○ | Ø15 | 9.5 | |
| | **TPD160C** | ○ | Ø16 | 10 | |
| | **TPD170C** | ○ | Ø17 | 10.5 | |
| | **TPD180C** | ○ | Ø18 | 11 | |
| | **TPD190C** | ○ | Ø19 | 11.5 | |
| | **TPD200C** | ○ | Ø20 | 12 | |
| | **TPD210C** | ○ | Ø21 | 12.5 | |
| | **TPD220C** | ○ | Ø22 | 13 | |
| | **TPD230C** | ○ | Ø23 | 13.5 | |
| | **TPD240C** | ○ | Ø24 | 14 | |
| | **TPD250C** | ○ | Ø25 | 14.5 | |
| | **TPD260C** | ○ | Ø26 | 15 | |
| | **TPD270C** | ○ | Ø27 | 15.5 | |
| | **TPD280C** | ○ | Ø28 | 16 | |
| | **TPD290C** | ○ | Ø29 | 16.5 | |
| | **TPD200C** | ○ | Ø30 | 17 | |
| | **TPD310C** | ○ | Ø31 | 17.5 | |
| | **TPD320C** | ○ | Ø32 | 18 | |



● : Disponibile ○ : A richiesta

# Lama





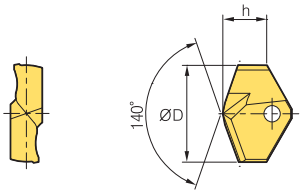

(mm)

| ØD | 3D | | | | 5D | | | | Ød | ℓ 2 | Inserto | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Articolo | Stock | L | ℓ 1 | Articolo | Stock | L | ℓ 1 | | | | | |
| Ø12 | **TPDB 120-16-3** | ○ | 102 | 45 | **TPDB 120-16-5** | ○ | 126 | 69 | 16 | 48 | TPD120B | FTNB02511 | TW07S |
| Ø13 | **130-16-3** | ○ | 107 | 50 | **130-16-5** | ○ | 133 | 76 | 16 | 48 | TPD130B | FTNB02512 | TW07S |
| Ø14 | **140-16-3** | ○ | 111 | 53 | **140-16-5** | ○ | 139 | 81 | 16 | 48 | TPD140B | FTNB02512 | TW07S |
| Ø15 | **150-20-3** | ○ | 118 | 57 | **150-20-5** | ○ | 148 | 87 | 20 | 50 | TPD150B | FTNB02514 | TW07S |
| Ø16 | **160-20-3** | ○ | 122 | 61 | **160-20-5** | ○ | 154 | 93 | 20 | 50 | TPD160B | FTNB02514 | TW07S |
| Ø17 | **170-20-3** | ○ | 127 | 65 | **170-20-5** | ○ | 161 | 99 | 20 | 50 | TPD170B | FTNB02514 | TW07S |
| Ø18 | **180-25-3** | ○ | 137 | 69 | **180-25-5** | ○ | 173 | 105 | 25 | 56 | TPD180B | FTNB0316 | TW09S |
| Ø19 | **190-25-3** | ○ | 142 | 72 | **190-25-5** | ○ | 180 | 110 | 25 | 56 | TPD190B | FTNB0316 | TW09S |
| Ø20 | **200-25-3** | ○ | 146 | 76 | **200-25-5** | ○ | 186 | 116 | 25 | 56 | TPD200B | FTNB0318 | TW09S |
| Ø21 | **210-25-3** | ○ | 151 | 80 | **210-25-5** | ○ | 193 | 122 | 25 | 56 | TPD210B | FTNB0318 | TW09S |
| Ø22 | **220-25-3** | ○ | 155 | 84 | **220-25-5** | ○ | 199 | 128 | 25 | 56 | TPD220B | FTNB0320 | TW09S |
| Ø23 | **230-25-3** | ○ | 160 | 88 | **230-25-5** | ○ | 206 | 134 | 25 | 56 | TPD230B | FTNB0320 | TW09S |
| Ø24 | **240-32-3** | ○ | 168 | 91 | **240-32-5** | ○ | 216 | 139 | 32 | 60 | TPD240B | FTNB03522 | TW15S |
| Ø25 | **250-32-3** | ○ | 173 | 95 | **250-32-5** | ○ | 223 | 145 | 32 | 60 | TPD250B | FTNB03522 | TW15S |
| Ø26 | **260-32-3** | ○ | 177 | 99 | **260-32-5** | ○ | 229 | 151 | 32 | 60 | TPD260B | FTNB03524 | TW15S |
| Ø27 | **270-32-3** | ○ | 182 | 103 | **270-32-5** | ○ | 236 | 157 | 32 | 60 | TPD270B | FTNB03524 | TW15S |
| Ø28 | **280-32-3** | ○ | 186 | 107 | **280-32-5** | ○ | 242 | 163 | 32 | 60 | TPD280B | FTNB0426 | TW15S |
| Ø29 | **290-32-3** | ○ | 191 | 110 | **290-32-5** | ○ | 249 | 168 | 32 | 60 | TPD290B | FTNB0426 | TW15S |
| Ø30 | **300-32-3** | ○ | 195 | 114 | **300-32-5** | ○ | 255 | 174 | 32 | 60 | TPD200B | FTNB0528 | TW20S |
| Ø31 | **310-32-3** | ○ | 200 | 118 | **310-32-5** | ○ | 262 | 180 | 32 | 60 | TPD310B | FTNB0528 | TW20S |
| Ø32 | **320-32-3** | ○ | 204 | 122 | **320-32-5** | ○ | 268 | 186 | 32 | 60 | TPD320B | FTNB0528 | TW20S |

● : Disponibile ○ : A richiesta

## Inserto per punta lama

(mm)

| Forma | Articolo | Stock | ØD | h | Disegno |
|---|---|---|---|---|---|
|  | **TPD120B** | ○ | Ø12 | 8 |  |
| | **TPD130B** | ○ | Ø13 | 8.5 | |
| | **TPD140B** | ○ | Ø14 | 9 | |
| | **TPD150B** | ○ | Ø15 | 9.5 | |
| | **TPD160B** | ○ | Ø16 | 10 | |
| | **TPD170B** | ○ | Ø17 | 10.5 | |
| | **TPD180B** | ○ | Ø18 | 11 | |
| | **TPD190B** | ○ | Ø19 | 11.5 | |
| | **TPD200B** | ○ | Ø20 | 12 | |
| | **TPD210B** | ○ | Ø21 | 12.5 | |
| | **TPD220B** | ○ | Ø22 | 13 | |
| | **TPD230B** | ○ | Ø23 | 13.5 | |
| | **TPD240B** | ○ | Ø24 | 14 | |
| | **TPD250B** | ○ | Ø25 | 14.5 | |
| | **TPD260B** | ○ | Ø26 | 15 | |
| | **TPD270B** | ○ | Ø27 | 15.5 | |
| | **TPD280B** | ○ | Ø28 | 16 | |
| | **TPD290B** | ○ | Ø29 | 16.5 | |
| | **TPD200B** | ○ | Ø30 | 17 | |
| | **TPD310B** | ○ | Ø31 | 17.5 | |
| | **TPD320B** | ○ | Ø32 | 18 | |



● : Disponibile ○ : A richiesta

## Mach Drills

### Caratteristiche I

- **Ottimo design della tasca per lo scarico dei trucioli**
  Lo scarico ampio e profondo migliora il controllo del truciolo e riduce al minimo l'attrito durante la lavorazione.
- **Tagliente curvilineo**
  Il tagliente curvilineo offre un'eccellente resistenza all'usura e agli urti poiché disperde lo sforzo di taglio.
- **Susbtrato in ultra micro grana con nuovo TiAlN**
  La grana in carbonio di tungsteno 0.6㎛ migliora la tenacia e la resistenza all'usura.
  Il nuovo rivestimento K-black garantisce un'ottima resistenza agli urti.
- **Standardizzazione 3D, 5D, 7D**
  Esempio:) diametro ∅10mm profondità 30mm con refrigerante esterno, scegliere MSD100-3P!
- **MSD : Integrale & MSDH : Refrigerante interno**
  Vari modelli di MSD & MSDH consentono qualsiasi tipo di foratura.
- **Tagliente a bassi sforzi di taglio**
  Il tagliente a basso sforzo di taglio di MSD & MSDH garantisce una migliore superficie di sgrossatura e un migliore controllo del trucciolo permettendo alla punta di auto-centrarsi.
- **Collo rigido della punta**
  Il nuovo design di questa punta ha migliorato la rigidità del collo. In questo modo si previene la rottura del collo della punta.

**●Linea in funzione del pezzo lavorato**

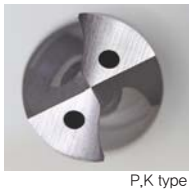
P : Acciaio (Acciaio al carbonio, Acciaio legato)
Generico - Acciaio al carbonio, Acciaio legato, Acciaio inossidabile, Tagliente a basso sforzo di taglio per ghisa, Substrato in micrograna ultrasottile

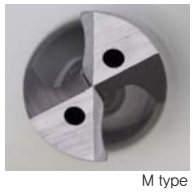
K : Ghisa
Ghisa per stampi, ghisa duttile
Refrigerante : Interno / Esterno (MQL)

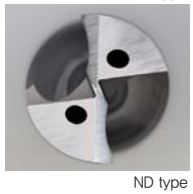
M : Acciaio inossidabile
Minore riporto sul tagliente e sforzi di taglio ridotti
Refrigerante : Interno / Esterno (MQL)

N : Alluminio (Punte in metallo duro)
Prestazioni di taglio a velocità medie e basse
Refrigerante : Interno / Esterno (MQL)

ND : Materiali non ferrosi
Alte velocità, elevate prestazioni
Migliore resistenza alla saldatura grazie al rivestimento DLC
Refrigerante : Interno / Esterno (MQL)


P,K type


M type


ND type

### Specifiche sulla linea

**● Linea in funzione della lunghezza del foro** (L : Lunghezza complessiva, D : Diametro utensile)



MSD□□□–7P
MSD□□□–5P
MSD□□□–3P

· P Indica la lavorazione di acciaio generico

Linea in funzione della lunghezza del foro (Mach Drills : Ø2.5mm~Ø20mm)
Ampia scelta in funzione della lunghezza del foro (3D,5D,7D)
• Esempio) Integrale, ∅10.2mm, 50mm
Foratura = 50÷10.2 ≒ 5 → MSD102-5P

**● Linea in funzione del tipo di refrigerante**


Tipo MSD　Tipo MSDH

Ampia scelta di refrigeranti.
• Esempio) Integrale: MSD, Refrigerante interno : MSDH

**● Linea in funzione del pezzo lavorato**

P : Acciaio generico, Acciaio legato, Acciaio inossidabile, Ghisa
K : Ghisa, Alluminio
M : Acciaio inossidabile
N : Alluminio, Ottone
ND : Materiali non ferrosi

Sistema di codifica per articoli speciali

MSD(H) 101 - K 60 - 100L * 11S
ⓐ ⓑ ⓒ ⓓ ⓔ ⓕ

ⓐ Integrale : MSD, Refrigerante interno : MSDH
ⓑ Diametro utensile : Ø10.1
ⓒ Applicazioni : P(Acciaio), K(Ghisa), M(Acciaio inossidabile), N(Alluminio), ND(Alluminio)
ⓓ Lunghezza scanalatura : 60mm
ⓔ Lunghezza complessiva : 100mm
ⓕ Diametro stelo : Ø11.0

### Caratteristiche II



- **Tagliente a bassi sforzi di taglio**
  Uniformità nel trattamento del tagliente : Consente una qualità costante su qualsiasi pezzo lavorato
  Protezione del pezzo lavorato : Il tagliente a bassi sforzi di taglio è indicato per le medie lavorazioni e di finitura, consentendo di proteggere il pezzo di lavoro e di ottenere una buona superficie di sgrossatura
  Migliore formazione del truciolo : Grazie ai nostri studi sui processi di taglio, le nostre punte garantiscono una migliore formazione del truciolo ad alte e basse velocità
- **Caratteristiche del rivestimento TiAlN**

Buon controllo del truciolo
Migliore durezza e tenacità → Consente lavorazioni con svariate velocità e avanzamenti
Speciale strato di rivestimento sul tagliente più esterno → TiAlN speciale con migliore lubrificazione che garantisce resistenza alla saldatura
Pre-trattamento prima del processo di rivestimento → Migliore aderenza grazie al pretrattamento

## Condizioni di taglio raccomandate

### ● Mach Drill : Integrale [MSD○○○-□P,M,K)

| Pezzo lavorato \ Diametro utensile | | Ø2,5~Ø5,0 | | Ø5,1~Ø8,0 | | Ø8,1~Ø10,0 | | Ø10,1~Ø12,0 | | Ø12,1~Ø14,0 | | Ø14,1~Ø20,0 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | vc(m/min) | fn(mm/giro) | vc(m/min) | fn(mm/giro) | vc(m/min) | fn(mm/giro) | vc(m/min) | fn(mm/giro) | vc(m/min) | fn(mm/giro) | vc(m/min) | fn(mm/giro) |
| Acciaio leggero, Acciaio legato, Acciaio generico (Inf. HRC25) | SCM440 | 40~70 (55) | 0.15 ~0.25 | 50~110 (65) | 0.20 ~0.35 | 50~110 (70) | 0.20 ~0.35 | 50~120 (75) | 0.25 ~0.35 | 50~120 (75) | 0.25 ~0.35 | 60~120 (80) | 0.25 ~0.40 |
| | SM45C | 40~80 (60) | 0.15 ~0.25 | 50~120 (70) | 0.20 ~0.30 | 50~120 (75) | 0.20 ~0.30 | 60~120 (80) | 0.20 ~0.30 | 60~120 (80) | 0.25 ~0.35 | 70~120 (90) | 0.30 ~0.40 |
| Acciaio molto legato, Acciaio a elevato tenore di carbonio (Sup. HRC25) | STD11 | 15~35 (30) | 0.08 ~0.15 | 20~40 (30) | 0.10 ~0.20 | 20~50 (35) | 0.10 ~0.20 | 20~60 (35) | 0.15 ~0.25 | 20~60 (40) | 0.15 ~0.25 | 30~65 (40) | 0.15 ~0.25 |
| Acciaio inossidabile | STS | 15~30 (25) | 0.05 ~0.10 | 15~45 (25) | 0.10 ~0.20 | 15~50 (30) | 0.10 ~0.20 | 20~60 (35) | 0.10 ~0.20 | 20~65 (35) | 0.10 ~0.20 | 20~70 (40) | 0.10 ~0.20 |
| Ghisa | GC | 40~90 (70) | 0.15 ~0.30 | 50~120 (80) | 0.20 ~0.35 | 50~120 (80) | 0.20 ~0.35 | 60~130 (90) | 0.25 ~0.35 | 60~130 (95) | 0.25 ~0.40 | 60~140 (95) | 0.25 ~0.40 |
| | GCD | 40~80 (60) | 0.10 ~0.25 | 50~110 (75) | 0.20 ~0.35 | 50~110 (80) | 0.20 ~0.35 | 50~130 (80) | 0.25 ~0.35 | 50~130 (85) | 0.25 ~0.35 | 60~130 (90) | 0.25 ~0.40 |

### ● Mach Drill : Lubrificante interno [MSDH○○○-□P,M,K)

| Pezzo lavorato \ Diametro utensile | | vc(m/min) | Ø2,5~Ø4,0 | Ø4,1~Ø8,0 | Ø8,1~Ø12,0 | Ø12,1~Ø16,0 | Ø16,1~Ø20,0 |
|---|---|---|---|---|---|---|---|
| | | | fn(mm/giro) | fn(mm/giro) | fn(mm/giro) | fn(mm/giro) | fn(mm/giro) |
| Acciaio leggero, Acciaio legato, Acciaio generico (Inf. HRC25) | SCM440 | 60~140 | 0.15~0.35 | 0.15~0.35 | 0.20~0.35 | 0.25~0.40 | 0.30~0.40 |
| | SM45C | 60~140 | 0.15~0.30 | 0.15~0.30 | 0.20~0.30 | 0.25~0.35 | 0.30~0.40 |
| Acciaio molto legato, Acciaio a elevato tenore di carbonio (Sup. HRC25) | STD11 | 40~80 | 0.08~0.20 | 0.08~0.20 | 0.10~0.25 | 0.15~0.25 | 0.15~0.30 |
| Acciaio inossidabile | STS | 25~80 | 0.05~0.20 | 0.05~0.20 | 0.10~0.25 | 0.10~0.25 | 0.15~0.30 |
| Ghisa | GC | 55~155 | 0.15~0.35 | 0.15~0.35 | 0.20~0.35 | 0.25~0.40 | 0.25~0.40 |
| | GCD | 55~145 | 0.10~0.35 | 0.10~0.35 | 0.20~0.35 | 0.25~0.35 | 0.25~0.40 |

Nota) 1. Ridurre la velocità di taglio del 30%~40% rispetto alle condizioni di taglio raccomandate quando si lavora l'acciaio forgiato
2. Ridurre le condizioni di taglio in funzione di profondità di foratura, rigidità della lavorazione, precisione del mandrino, staffaggio e superficie del pezzo lavorato ecc.
3. Per una maggiore durata dell'utensile, applicare avanzamenti intermedi ogni 1.5D
4. Posizionare lo staffaggio della punta tra la scanalatura del tagliente e lo stelo
5. Pressione del refrigerante se interno = 3~5kg/㎠, volume = 2~5 ℓ /min
6. Formula :

$$vc = \frac{\pi x D x n}{1000}\ (m/min), \quad fn = \frac{vf}{n}\ (mm/giro) \left[ n = \frac{vc x 1000}{\pi x D}\ (min^{-1}),\ vf = fn \times n\ (mm/min) \right]$$

### ● Mach Drills : Refrigerante interno [MSD(H)○○○-□N) metallo duro sinterizzato

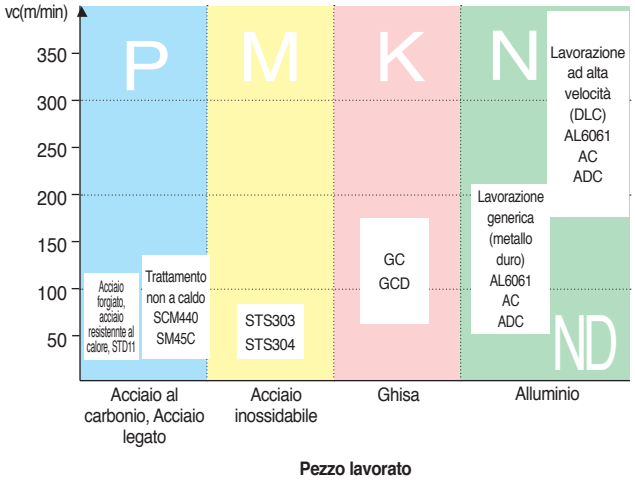
| Pezzo lavorato \ Diametro utensile | | Ø2,5~Ø4,0 | | Ø5,1~Ø10,0 | | Ø10,1~Ø16,0 | | Ø16,1~Ø20,0 | |
|---|---|---|---|---|---|---|---|---|---|
| | | vc(m/min) | fn(mm/giro) | vc(m/min) | fn(mm/giro) | vc(m/min) | fn(mm/giro) | vc(m/min) | fn(mm/giro) |
| Alluminio | Acciaio legato (Al6061) | 60~100 | 0.20~0.35 | 90~100 | 0.30~0.40 | 100~120 | 0.30~0.40 | 100~120 | 0.30~0.45 |
| | Ghisa per stampi(AC,ADC) | 60~100 | 0.20~0.35 | 90~100 | 0.30~0.40 | 100~120 | 0.30~0.40 | 100~120 | 0.30~0.45 |
| Lega di rame (CII00) | | 60~80 | 0.08~0.15 | 60~100 | 0.10~0.20 | 80~100 | 0.10~0.25 | 80~100 | 0.10~0.25 |

### ● Mach Drills : Refrigerante interno [MSDH○○○-□ND) rivestimento DLC

| Pezzo lavorato \ Diametro utensile | | Ø2,5~Ø4,0 | | Ø5,1~Ø10,0 | | Ø10,1~Ø16,0 | | Ø16,1~Ø20,0 | |
|---|---|---|---|---|---|---|---|---|---|
| | | vc(m/min) | fn(mm/giro) | vc(m/min) | fn(mm/giro) | vc(m/min) | fn(mm/giro) | vc(m/min) | fn(mm/giro) |
| Alluminio | Acciaio legato (Al6061) | 80~160 | 0.08~0.30 | 80~180 | 0.12~0.35 | 80~180 | 0.15~0.40 | 80~200 | 0.15~0.45 |
| | Ghisa per stampi(AC,ADC) | 80~180 | 0.08~0.30 | 80~200 | 0.12~0.35 | 80~200 | 0.15~0.40 | 80~200 | 0.15~0.45 |
| Lega di rame (CII00) | | 80~160 | 0.08~0.15 | 80~180 | 0.10~0.20 | 80~180 | 0.10~0.25 | 80~200 | 0.10~0.25 |

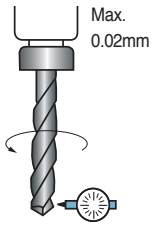
Nota) La velocità di taglio raccomandata è uno dei fattori che garantisce buone prestazioni di lavorazione. Se si aplicano velocità o avanzamenti più elevati di quanto raccomandato per migliorare la produttività, si prega di eseguire dapprima un numero sufficiente di prove in quanto si possono verificare dei problemi quali usura, tagliente di riporto, scheggiatura, rottura ecc.

## Condizioni di taglio raccomandate in funzione della serie

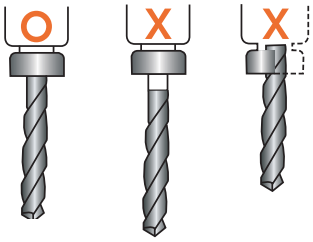



## Montaggio delle punte

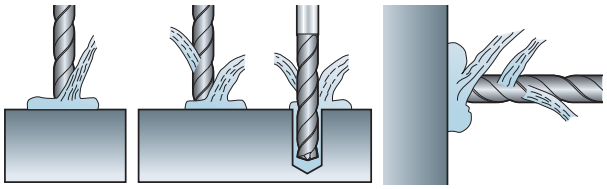
### Tolleranza esterna




### Condizioni di montaggio

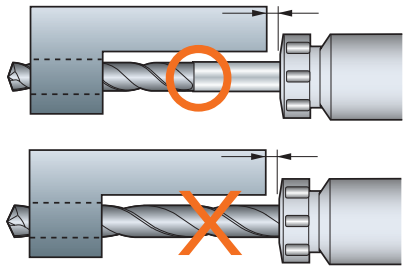



### Refrigerante (esterno)



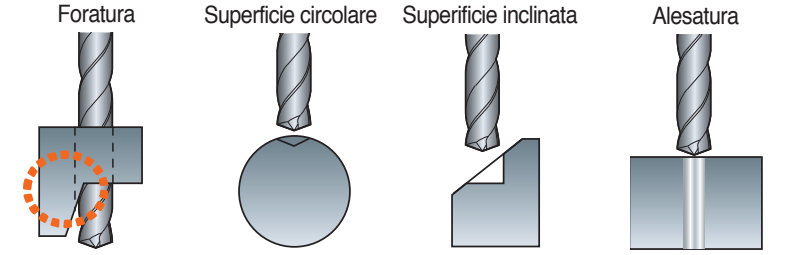
## Per migliorare il metodo di lavorazione

### Forature distanziate



Utilizzare eliche corte

### Miglioramento della foratura



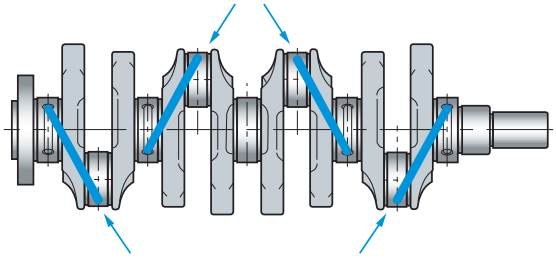

| Foratura | Superficie circolare | Superificie inclinata | Alesatura |
|---|---|---|---|
| Ridurre avanzamento di 1/2 | Innanzitutto, eseguire un foro da centro | Eseguire dapprima la sfacciatura con una fresa | Nessuna raccomandazione |

## Caratteristiche di MLD

- È possibile eseguire forature superiori a 20D senza step
- La foratura è stabile grazie allo speciale design che garantisce bassi sforzi di taglio
- Speciale tasca per lo scarico dei trucioli che consente una migliore evacuazione
- Design studiato per una maggiore rigidità della punta ed evitare la piegatura della punta all'inizio della lavorazione
- La lubrificazione e la resistenza termica del rivestimento sono state migliorare grazie al nuovo rivestimento TiAℓN



## Mach Long Drills - Punte per forature profonde



Esempio di applicazione (foro lubrificante per albero a gomiti, 20D)

### Mach Long Drills sono ideali per .....

- foratura profonda e inclinata di albero a gomiti
- foratura profonda di albero a camme
- foratura profonda di stampi e macchinari

→ Foratura profonda con diametri superiori a 15D

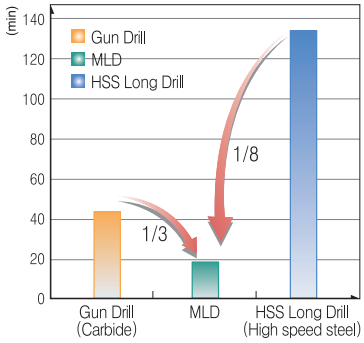
### Vantaggi di MLD

- Riduzione del tempo di lavoro e maggiore produttività
- Non si richiede boccola guida
- Riduzione dei tempi morti grazie alla durata maggiore dell'utensile
- Sistema di raffreddamento ecocompatibile (MQL) per proteggere l'ambiente

## ● Produttività MLD : MLD0680-20A (∅6.8㎜ x 140 x 170L x 7S)

| Utensile | vc(m/min) | fn(mm/giro) | n(min$^{-1}$) | vf(mm/min) | Refrigerante | Operazione intermedia |
|---|---|---|---|---|---|---|
| Gun Drills (metallo duro) | 100 | 0.04 | 4,683 | 187 | Olio di raffreddamento interno | Non richiesta |
| High Speed Steel Long Drills | 15 | 0.10 | 703 | 70 | Olio di raffreddamento esterno | 15mm/9volte |
| Mach Long Drills | 80 | 0.14 | 3,747 | 525 | MQL- Air 0.5MPa, Olio 20cc/h | Non richiesta |

## ● Durata del ciclo produttivo



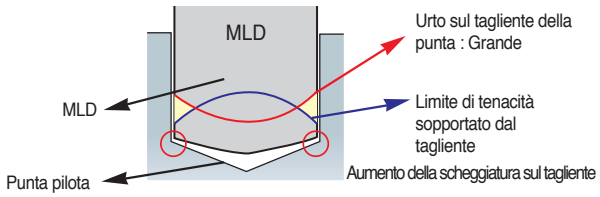

### Vantaggi di MLD rispetto alle punte convenzionali

- Riduzione del ciclo produttivo di 1/3 ~ 1/8
- Maggiore produttività grazie alla riduzione del tempo di lavoro
- Riduzione dei costi di gestione
- Migliori condizioni di lavoro
- Non si richiede boccola guida

# Funzioni di MLD & MLDP

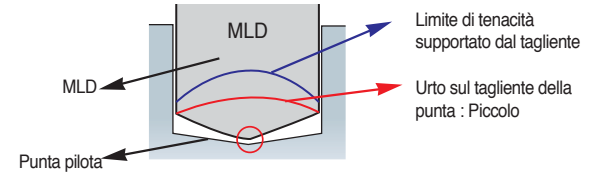
## ● Relazione tra l'angolazione della punta di MLD e di MLDP

**• Condizione instabile**



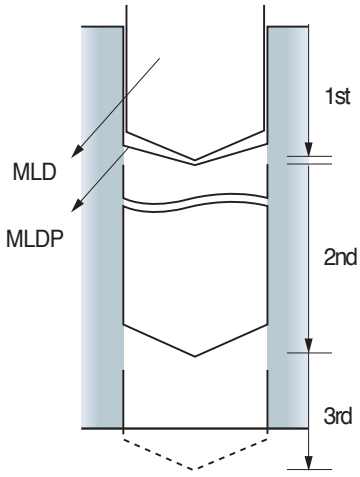

<Piccola angolazione della punta pilota : condizione instabile>

**• Condizione stabile**




<Grande angolazione della punta pilota: condizione stabile>

## ● Ottimizzazione di MLD

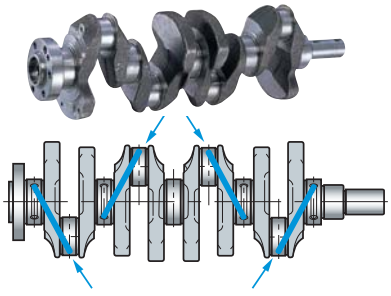



- Punta pilota
  - vc = Normale
  - fn = Normale
- 1° foratura MLD (entrata)
  - vc = 15mm/min
  - fn = 0.5
- 2° foratura MLD (lavorazione)
  - vc = Normale
  - fn = Normale
- 3° foratura MLD (foratura)
  - vc = Normale
  - fn = Avanzamento normale /2

# Esempio di applicazione 1)

**● Pezzo lavorato : Parte di automobile (SCM440, HB255~330)**

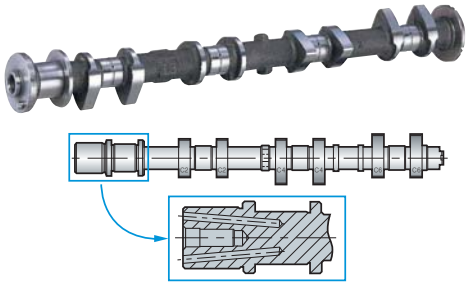
- Macchina : Fresatrice orizzontale
- Refrigerante : MQL (30cc/h) / Air : 0.7MPa
- Articolo : MLD0600-22A (∅6mm, lunghezza del foro 18D)
- Condizioni di taglio vc : 70m/min fn : 0.18mm/giro
- Durata : 1000 fori, 105m



# Esempio di applicazione 2)

**● Pezzo lavorato : Parte di automobile (GC250)**

- Macchina : Fresatrice universale con tavola girevole
- Refrigerante : Olio (3Kg/㎠, 2 ℓ /min)
- Articolo : MLD0400-25A (∅4mm, lunghezza del foro 16D)
- Condizioni di taglio vc : 63m/min fn : 0.1mm/giro
- Durata : 4400 fori, 207m

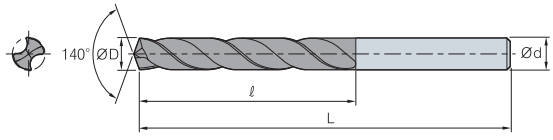


# MSD-P,M,K,N

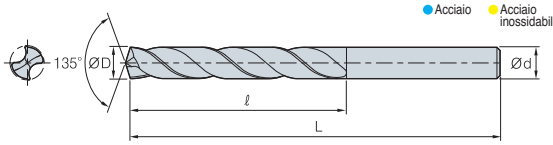
Mach solid drill per foratura

| Definizione | P | M | K | N |
|---|---|---|---|---|
| Rivestimento | TiAlN | | | Metallo duro sinterizzato |
| Angolo di punta | 140° | | | 135° |
| Angolo di torsione | 30° | | | |
| Refrigerante | Esterno | | | |
| Tolleranza (Diametro punta) | h7 | | | |
| Tolleranza (diametro attacco) | h6 | | | |
| Assottigliamento | Tipo X | | | |

● Acciaio ● Acciaio inossidabile ● Ghisa ● Materiali non ferrosi




• MSD - P, M, K (Rivestito)




• MSD - N (Non rivestito)

• MSD- □P,M,K,N(ø2.5 ~ ø6.8mm) (mm)

| Articolo | | øD | ød | 3P,M,K,N | | | 5P,M,K,N | | | 7P,M,K,N | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Stock | ℓ | L | Stock | ℓ | L | Stock | ℓ | L |
| MSD | 025-□P,M,K,N | 2.5 | 3.0 | | 20 | 65 | | 25 | 70 | | 30 | 75 |
| | 026-□P,M,K,N | 2.6 | 3.0 | | 20 | 65 | | 25 | 70 | | 30 | 75 |
| | 027-□P,M,K,N | 2.7 | 3.0 | | 20 | 65 | | 25 | 70 | | 30 | 75 |
| | 028-□P,M,K,N | 2.8 | 3.0 | | 20 | 65 | | 25 | 70 | | 30 | 75 |
| | 029-□P,M,K,N | 2.9 | 3.0 | | 20 | 65 | | 25 | 70 | | 30 | 75 |
| | 030-□P,M,K,N | 3.0 | 3.0 | | 20 | 65 | | 25 | 70 | | 30 | 75 |
| | 031-□P,M,K,N | 3.1 | 4.0 | | 25 | 71 | | 34 | 80 | | 40 | 86 |
| | 032-□P,M,K,N | 3.2 | 4.0 | | 25 | 71 | | 34 | 80 | | 40 | 86 |
| | 033-□P,M,K,N | 3.3 | 4.0 | | 25 | 71 | | 34 | 80 | | 40 | 86 |
| | 034-□P,M,K,N | 3.4 | 4.0 | | 25 | 71 | | 34 | 80 | | 40 | 86 |
| | 035-□P,M,K,N | 3.5 | 4.0 | | 25 | 71 | | 34 | 80 | | 40 | 86 |
| | 036-□P,M,K,N | 3.6 | 4.0 | | 25 | 71 | | 34 | 80 | | 40 | 86 |
| | 037-□P,M,K,N | 3.7 | 4.0 | | 25 | 71 | | 34 | 80 | | 40 | 86 |
| | 038-□P,M,K,N | 3.8 | 4.0 | | 25 | 71 | | 34 | 80 | | 40 | 86 |
| | 039-□P,M,K,N | 3.9 | 4.0 | | 25 | 71 | | 34 | 80 | | 40 | 86 |
| | 040-□P,M,K,N | 4.0 | 4.0 | | 25 | 71 | | 34 | 80 | | 40 | 86 |
| | 041-□P,M,K,N | 4.1 | 5.0 | | 30 | 77 | | 43 | 90 | | 50 | 97 |
| | 042-□P,M,K,N | 4.2 | 5.0 | ● | 30 | 77 | | 43 | 90 | | 50 | 97 |
| | 043-□P,M,K,N | 4.3 | 5.0 | | 30 | 77 | | 43 | 90 | | 50 | 97 |
| | 044-□P,M,K,N | 4.4 | 5.0 | | 30 | 77 | | 43 | 90 | | 50 | 97 |
| | 045-□P,M,K,N | 4.5 | 5.0 | | 30 | 77 | | 43 | 90 | | 50 | 97 |
| | 046-□P,M,K,N | 4.6 | 5.0 | | 30 | 77 | | 43 | 90 | | 50 | 97 |
| | 047-□P,M,K,N | 4.7 | 5.0 | | 30 | 77 | | 43 | 90 | | 50 | 97 |
| | 048-□P,M,K,N | 4.8 | 5.0 | | 30 | 77 | | 43 | 90 | | 50 | 97 |
| | 049-□P,M,K,N | 4.9 | 5.0 | | 30 | 77 | | 43 | 90 | | 50 | 97 |
| | 050-□P,M,K,N | 5.0 | 5.0 | ● | 30 | 77 | | 43 | 90 | | 50 | 97 |
| | 051-□P,M,K,N | 5.1 | 6.0 | ● | 35 | 81 | | 48 | 96 | | 60 | 108 |
| | 052-□P,M,K,N | 5.2 | 6.0 | | 35 | 81 | | 48 | 96 | | 60 | 108 |
| | 053-□P,M,K,N | 5.3 | 6.0 | | 35 | 81 | | 48 | 96 | | 60 | 108 |
| | 054-□P,M,K,N | 5.4 | 6.0 | | 35 | 81 | | 48 | 96 | | 60 | 108 |
| | 055-□P,M,K,N | 5.5 | 6.0 | | 35 | 81 | | 48 | 96 | | 60 | 108 |
| | 056-□P,M,K,N | 5.6 | 6.0 | | 35 | 81 | | 48 | 96 | | 60 | 108 |
| | 057-□P,M,K,N | 5.7 | 6.0 | | 35 | 81 | | 48 | 96 | | 60 | 108 |
| | 058-□P,M,K,N | 5.8 | 6.0 | | 35 | 81 | | 48 | 96 | | 60 | 108 |
| | 059-□P,M,K,N | 5.9 | 6.0 | | 35 | 81 | | 48 | 96 | | 60 | 108 |
| | 060-□P,M,K,N | 6.0 | 6.0 | ● | 35 | 81 | | 48 | 96 | | 60 | 108 |
| | 061-□P,M,K,N | 6.1 | 7.0 | ● | 40 | 84 | | 56 | 105 | | 70 | 120 |
| | 062-□P,M,K,N | 6.2 | 7.0 | ● | 40 | 84 | | 56 | 105 | | 70 | 120 |
| | 063-□P,M,K,N | 6.3 | 7.0 | ● | 40 | 84 | | 56 | 105 | | 70 | 120 |
| | 064-□P,M,K,N | 6.4 | 7.0 | ● | 40 | 84 | | 56 | 105 | | 70 | 120 |
| | 065-□P,M,K,N | 6.5 | 7.0 | ● | 40 | 84 | | 56 | 105 | | 70 | 120 |
| | 066-□P,M,K,N | 6.6 | 7.0 | ● | 40 | 84 | | 56 | 105 | | 70 | 120 |
| | 067-□P,M,K,N | 6.7 | 7.0 | ● | 40 | 84 | | 56 | 105 | | 70 | 120 |
| | 068-□P,M,K,N | 6.8 | 7.0 | ● | 40 | 84 | | 56 | 105 | | 70 | 120 |

● : Disponibile ○ : A richiesta

• MSD- □P,M,K,N(ø6.9 ~ ø11.2mm) (mm)

| Articolo | | øD | ød | 3P,M,K,N | | | 5P,M,K,N | | | 7P,M,K,N | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Stock | ℓ | L | Stock | ℓ | L | Stock | ℓ | L |
| MSD | 069-□P,M,K,N | 6.9 | 7.0 | ● | 40 | 84 | | 56 | 105 | | 70 | 120 |
| | 070-□P,M,K,N | 7.0 | 7.0 | ● | 40 | 84 | | 56 | 105 | | 70 | 120 |
| | 071-□P,M,K,N | 7.1 | 8.0 | ● | 45 | 90 | | 60 | 105 | | 80 | 120 |
| | 072-□P,M,K,N | 7.2 | 8.0 | ● | 45 | 90 | | 60 | 110 | | 80 | 130 |
| | 073-□P,M,K,N | 7.3 | 8.0 | ● | 45 | 90 | | 60 | 110 | | 80 | 130 |
| | 074-□P,M,K,N | 7.4 | 8.0 | ● | 45 | 90 | | 60 | 110 | | 80 | 130 |
| | 075-□P,M,K,N | 7.5 | 8.0 | ● | 45 | 90 | | 60 | 110 | | 80 | 130 |
| | 076-□P,M,K,N | 7.6 | 8.0 | ● | 45 | 90 | | 60 | 110 | | 80 | 130 |
| | 077-□P,M,K,N | 7.7 | 8.0 | ● | 45 | 90 | | 60 | 110 | | 80 | 130 |
| | 078-□P,M,K,N | 7.8 | 8.0 | ● | 45 | 90 | | 60 | 110 | | 80 | 130 |
| | 079-□P,M,K,N | 7.9 | 8.0 | ● | 45 | 90 | | 60 | 110 | | 80 | 130 |
| | 080-□P,M,K,N | 8.0 | 8.0 | ● | 45 | 90 | | 60 | 110 | | 80 | 130 |
| | 081-□P,M,K,N | 8.1 | 9.0 | ● | 48 | 97 | | 72 | 125 | | 90 | 143 |
| | 082-□P,M,K,N | 8.2 | 9.0 | ● | 48 | 97 | | 72 | 125 | | 90 | 143 |
| | 083-□P,M,K,N | 8.3 | 9.0 | ● | 48 | 97 | | 72 | 125 | | 90 | 143 |
| | 084-□P,M,K,N | 8.4 | 9.0 | ● | 48 | 97 | | 72 | 125 | | 90 | 143 |
| | 085-□P,M,K,N | 8.5 | 9.0 | ● | 48 | 97 | | 72 | 125 | | 90 | 143 |
| | 086-□P,M,K,N | 8.6 | 9.0 | ● | 48 | 97 | | 72 | 125 | | 90 | 143 |
| | 087-□P,M,K,N | 8.7 | 9.0 | ● | 48 | 97 | | 72 | 125 | | 90 | 143 |
| | 088-□P,M,K,N | 8.8 | 9.0 | ● | 48 | 97 | | 72 | 125 | | 90 | 143 |
| | 089-□P,M,K,N | 8.9 | 9.0 | ● | 48 | 97 | | 72 | 125 | | 90 | 143 |
| | 090-□P,M,K,N | 9.0 | 9.0 | ● | 48 | 97 | | 72 | 125 | | 90 | 143 |
| | 091-□P,M,K,N | 9.1 | 10.0 | ● | 52 | 106 | | 75 | 129 | | 95 | 150 |
| | 092-□P,M,K,N | 9.2 | 10.0 | ● | 52 | 106 | | 75 | 129 | | 95 | 150 |
| | 093-□P,M,K,N | 9.3 | 10.0 | ● | 52 | 106 | | 75 | 129 | | 95 | 150 |
| | 094-□P,M,K,N | 9.4 | 10.0 | ● | 52 | 106 | | 75 | 129 | | 95 | 150 |
| | 095-□P,M,K,N | 9.5 | 10.0 | ● | 52 | 106 | | 75 | 129 | | 95 | 150 |
| | 096-□P,M,K,N | 9.6 | 10.0 | ● | 52 | 106 | | 75 | 129 | | 95 | 150 |
| | 097-□P,M,K,N | 9.7 | 10.0 | ● | 52 | 106 | | 75 | 129 | | 95 | 150 |
| | 098-□P,M,K,N | 9.8 | 10.0 | ● | 52 | 106 | | 75 | 129 | | 95 | 150 |
| | 099-□P,M,K,N | 9.9 | 10.0 | ● | 52 | 106 | | 75 | 129 | | 95 | 150 |
| | 100-□P,M,K,N | 10.0 | 10.0 | ● | 52 | 106 | | 75 | 129 | | 95 | 150 |
| | 101-□P,M,K,N | 10.1 | 11.0 | ● | 56 | 111 | | 83 | 140 | | 105 | 160 |
| | 102-□P,M,K,N | 10.2 | 11.0 | ● | 56 | 111 | | 83 | 140 | | 105 | 160 |
| | 103-□P,M,K,N | 10.3 | 11.0 | ● | 56 | 111 | | 83 | 140 | | 105 | 160 |
| | 104-□P,M,K,N | 10.4 | 11.0 | ● | 56 | 111 | | 83 | 140 | | 105 | 160 |
| | 105-□P,M,K,N | 10.5 | 11.0 | ● | 56 | 111 | | 83 | 140 | | 105 | 160 |
| | 106-□P,M,K,N | 10.6 | 11.0 | ● | 56 | 111 | | 83 | 140 | | 105 | 160 |
| | 107-□P,M,K,N | 10.7 | 11.0 | ● | 56 | 111 | | 83 | 140 | | 105 | 160 |
| | 108-□P,M,K,N | 10.8 | 11.0 | ● | 56 | 111 | | 83 | 140 | | 105 | 160 |
| | 109-□P,M,K,N | 10.9 | 11.0 | ● | 56 | 111 | | 83 | 140 | | 105 | 160 |
| | 110-□P,M,K,N | 11.0 | 11.0 | ● | 56 | 111 | | 83 | 140 | | 105 | 160 |
| | 111-□P,M,K,N | 11.1 | 12.0 | ● | 60 | 118 | | 90 | 148 | | 114 | 172 |
| | 112-□P,M,K,N | 11.2 | 12.0 | ● | 60 | 118 | | 90 | 148 | | 114 | 172 |

● : Disponibile ○ : A richiesta

▶ Nota) Gli articoli indicati con (P) sono prodotti per la foratura dell'acciaio

Articoli su richiesta : MSD□□□-Materiale (P,M,K,N) Lunghezza stelo-Lunghezza totale Diametro attacco S

Es.1)Pezzo lavorato : SM45C, Diametro lavorazione : ∅10.1mm, Lunghezza stelo: 60mm, Lunghezza totale : 80mm, Diametro attacco : ∅11 → MSD101-P*60-80L*11S

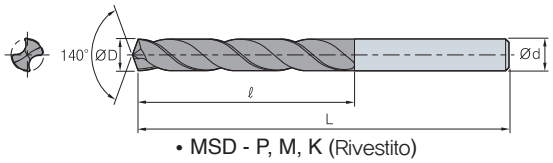
Es.2)Pezzo lavorato : STS303, Diametro lavorazione : ∅10.12mm, Lunghezza stelo: 60mm, Lunghezza totale : 80mm, Diametro attacco : ∅11 → MSD1012-M*60-80L*11S

# MSD-P,M,K,N

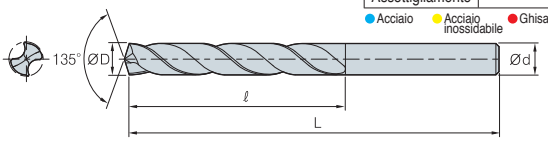
Mach solid drill per foratura

| Definizione | P | M | K | N |
|---|---|---|---|---|
| Rivestimento | TiAlN | | | Metallo duro sinterizzato |
| Angolo di punta | 140° | | | 135° |
| Angolo di torsione | 30° | | | |
| Refrigerante | Esterno | | | |
| Tolleranza (Diametro punta) | h7 | | | |
| Tolleranza (diametro attacco) | h6 | | | |
| Assottigliamento | Tipo X | | | |

● Acciaio ● Acciaio inossidabile ● Ghisa ● Materiali non ferrosi




• MSD - P, M, K (Rivestito)




• MSD - N (Non rivestito)

• MSD - □P,M,K,N(ø11.3 ~ ø15.6mm)

(mm)

| Articolo | | øD | ød | 3P,M,K,N | | | 5P,M,K,N | | | 7P,M,K,N | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Stock | ℓ | L | Stock | ℓ | L | Stock | ℓ | L |
| MSD | 113-□P,M,K,N | 11.3 | 12.0 | ● | 60 | 118 | | 90 | 148 | | 114 | 172 |
| | 114-□P,M,K,N | 11.4 | 12.0 | ● | 60 | 118 | | 90 | 148 | | 114 | 172 |
| | 115-□P,M,K,N | 11.5 | 12.0 | ● | 60 | 118 | | 90 | 148 | | 114 | 172 |
| | 116-□P,M,K,N | 11.6 | 12.0 | ● | 60 | 118 | | 90 | 148 | | 114 | 172 |
| | 117-□P,M,K,N | 11.7 | 12.0 | ● | 60 | 118 | | 90 | 148 | | 114 | 172 |
| | 118-□P,M,K,N | 11.8 | 12.0 | ● | 60 | 118 | | 90 | 148 | | 114 | 172 |
| | 119-□P,M,K,N | 11.9 | 12.0 | ● | 60 | 118 | | 90 | 148 | | 114 | 172 |
| | 120-□P,M,K,N | 12.0 | 12.0 | ● | 60 | 118 | | 90 | 148 | | 114 | 172 |
| | 121-□P,M,K,N | 12.1 | 13.0 | ● | 65 | 125 | | 98 | 158 | | 124 | 184 |
| | 122-□P,M,K,N | 12.2 | 13.0 | ● | 65 | 125 | | 98 | 158 | | 124 | 184 |
| | 123-□P,M,K,N | 12.3 | 13.0 | ● | 65 | 125 | | 98 | 158 | | 124 | 184 |
| | 124-□P,M,K,N | 12.4 | 13.0 | ● | 65 | 125 | | 98 | 158 | | 124 | 184 |
| | 125-□P,M,K,N | 12.5 | 13.0 | ● | 65 | 125 | | 98 | 158 | | 124 | 184 |
| | 126-□P,M,K,N | 12.6 | 13.0 | ● | 65 | 125 | | 98 | 158 | | 124 | 184 |
| | 127-□P,M,K,N | 12.7 | 13.0 | ● | 65 | 125 | | 98 | 158 | | 124 | 184 |
| | 128-□P,M,K,N | 12.8 | 13.0 | ● | 65 | 125 | | 98 | 158 | | 124 | 184 |
| | 129-□P,M,K,N | 12.9 | 13.0 | ● | 65 | 125 | | 98 | 158 | | 124 | 184 |
| | 130-□P,M,K,N | 13.0 | 13.0 | ● | 65 | 125 | | 98 | 158 | | 124 | 184 |
| | 131-□P,M,K,N | 13.1 | 14.0 | | 70 | 132 | | 105 | 167 | | 133 | 195 |
| | 132-□P,M,K,N | 13.2 | 14.0 | | 70 | 132 | | 105 | 167 | | 133 | 195 |
| | 133-□P,M,K,N | 13.3 | 14.0 | | 70 | 132 | | 105 | 167 | | 133 | 195 |
| | 134-□P,M,K,N | 13.4 | 14.0 | | 70 | 132 | | 105 | 167 | | 133 | 195 |
| | 135-□P,M,K,N | 13.5 | 14.0 | ● | 70 | 132 | | 105 | 167 | | 133 | 195 |
| | 136-□P,M,K,N | 13.6 | 14.0 | | 70 | 132 | | 105 | 167 | | 133 | 195 |
| | 137-□P,M,K,N | 13.7 | 14.0 | | 70 | 132 | | 105 | 167 | | 133 | 195 |
| | 138-□P,M,K,N | 13.8 | 14.0 | | 70 | 132 | | 105 | 167 | | 133 | 195 |
| | 139-□P,M,K,N | 13.9 | 14.0 | | 70 | 132 | | 105 | 167 | | 133 | 195 |
| | 140-□P,M,K,N | 14.0 | 14.0 | ● | 70 | 132 | | 105 | 167 | | 133 | 195 |
| | 141-□P,M,K,N | 14.1 | 15.0 | | 75 | 139 | | 108 | 172 | | 138 | 202 |
| | 142-□P,M,K,N | 14.2 | 15.0 | | 75 | 139 | | 108 | 172 | | 138 | 202 |
| | 143-□P,M,K,N | 14.3 | 15.0 | | 75 | 139 | | 108 | 172 | | 138 | 202 |
| | 144-□P,M,K,N | 14.4 | 15.0 | | 75 | 139 | | 108 | 172 | | 138 | 202 |
| | 145-□P,M,K,N | 14.5 | 15.0 | ● | 75 | 139 | | 108 | 172 | | 138 | 202 |
| | 146-□P,M,K,N | 14.6 | 15.0 | | 75 | 139 | | 108 | 172 | | 138 | 202 |
| | 147-□P,M,K,N | 14.7 | 15.0 | | 75 | 139 | | 108 | 172 | | 138 | 202 |
| | 148-□P,M,K,N | 14.8 | 15.0 | | 75 | 139 | | 108 | 172 | | 138 | 202 |
| | 149-□P,M,K,N | 14.9 | 15.0 | | 75 | 139 | | 108 | 172 | | 138 | 202 |
| | 150-□P,M,K,N | 15.0 | 15.0 | ● | 75 | 139 | | 108 | 172 | | 138 | 202 |
| | 151-□P,M,K,N | 15.1 | 16.0 | | 80 | 146 | | 112 | 178 | | 144 | 210 |
| | 152-□P,M,K,N | 15.2 | 16.0 | | 80 | 146 | | 112 | 178 | | 144 | 210 |
| | 153-□P,M,K,N | 15.3 | 16.0 | | 80 | 146 | | 112 | 178 | | 144 | 210 |
| | 154-□P,M,K,N | 15.4 | 16.0 | | 80 | 146 | | 112 | 178 | | 144 | 210 |
| | 155-□P,M,K,N | 15.5 | 16.0 | ● | 80 | 146 | | 112 | 178 | | 144 | 210 |
| | 156-□P,M,K,N | 15.6 | 16.0 | | 80 | 146 | | 112 | 178 | | 144 | 210 |

● : Disponibile ○ : A richiesta

• MSD - □P,M,K,N(ø15.7 ~ ø20.0mm)

(mm)

| Articolo | | øD | ød | 3P,M,K,N | | | 5P,M,K,N | | | 7P,M,K,N | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Stock | ℓ | L | Stock | ℓ | L | Stock | ℓ | L |
| MSD | 157- P,M,K,N | 15.7 | 16.0 | | 80 | 146 | | 112 | 178 | | 144 | 210 |
| | 158- P,M,K,N | 15.8 | 16.0 | | 80 | 146 | | 112 | 178 | | 144 | 210 |
| | 159- P,M,K,N | 15.9 | 16.0 | | 80 | 146 | | 112 | 178 | | 144 | 210 |
| | 160- P,M,K,N | 16.0 | 16.0 | ● | 80 | 146 | | 112 | 178 | | 144 | 210 |
| | 161- P,M,K,N | 16.1 | 17.0 | | 85 | 151 | | 120 | 186 | | 153 | 220 |
| | 162- P,M,K,N | 16.2 | 17.0 | | 85 | 151 | | 120 | 186 | | 153 | 220 |
| | 163- P,M,K,N | 16.3 | 17.0 | | 85 | 151 | | 120 | 186 | | 153 | 220 |
| | 164- P,M,K,N | 16.4 | 17.0 | | 85 | 151 | | 120 | 186 | | 153 | 220 |
| | 165- P,M,K,N | 16.5 | 17.0 | ● | 85 | 151 | | 120 | 186 | | 153 | 220 |
| | 166- P,M,K,N | 16.6 | 17.0 | | 85 | 151 | | 120 | 186 | | 153 | 220 |
| | 167- P,M,K,N | 16.7 | 17.0 | | 85 | 151 | | 120 | 186 | | 153 | 220 |
| | 168- P,M,K,N | 16.8 | 17.0 | | 85 | 151 | | 120 | 186 | | 153 | 220 |
| | 169- P,M,K,N | 16.9 | 17.0 | | 85 | 151 | | 120 | 186 | | 153 | 220 |
| | 170- P,M,K,N | 17.0 | 17.0 | ● | 85 | 151 | | 120 | 186 | | 153 | 220 |
| | 171- P,M,K,N | 17.1 | 18.0 | | 85 | 153 | | 120 | 188 | | 162 | 230 |
| | 172- P,M,K,N | 17.2 | 18.0 | | 85 | 153 | | 120 | 188 | | 162 | 230 |
| | 173- P,M,K,N | 17.3 | 18.0 | | 85 | 153 | | 120 | 188 | | 162 | 230 |
| | 174- P,M,K,N | 17.4 | 18.0 | | 85 | 153 | | 120 | 188 | | 162 | 230 |
| | 175- P,M,K,N | 17.5 | 18.0 | ● | 85 | 153 | | 120 | 188 | | 162 | 230 |
| | 176- P,M,K,N | 17.6 | 18.0 | | 85 | 153 | | 120 | 188 | | 162 | 230 |
| | 177- P,M,K,N | 17.7 | 18.0 | | 85 | 153 | | 120 | 188 | | 162 | 230 |
| | 178- P,M,K,N | 17.8 | 18.0 | | 85 | 153 | | 120 | 188 | | 162 | 230 |
| | 179- P,M,K,N | 17.9 | 18.0 | | 85 | 153 | | 120 | 188 | | 162 | 230 |
| | 180- P,M,K,N | 18.0 | 18.0 | ● | 85 | 153 | | 120 | 188 | | 162 | 230 |
| | 181- P,M,K,N | 18.1 | 19.0 | | 88 | 157 | | 124 | 193 | | 171 | 240 |
| | 182- P,M,K,N | 18.2 | 19.0 | | 88 | 157 | | 124 | 193 | | 171 | 240 |
| | 183- P,M,K,N | 18.3 | 19.0 | | 88 | 157 | | 124 | 193 | | 171 | 240 |
| | 184- P,M,K,N | 18.4 | 19.0 | | 88 | 157 | | 124 | 193 | | 171 | 240 |
| | 185- P,M,K,N | 18.5 | 19.0 | ● | 88 | 157 | | 124 | 193 | | 171 | 240 |
| | 186- P,M,K,N | 18.6 | 19.0 | | 88 | 157 | | 124 | 193 | | 171 | 240 |
| | 187- P,M,K,N | 18.7 | 19.0 | | 88 | 157 | | 124 | 193 | | 171 | 240 |
| | 188- P,M,K,N | 18.8 | 19.0 | | 88 | 157 | | 124 | 193 | | 171 | 240 |
| | 189- P,M,K,N | 18.9 | 19.0 | | 88 | 157 | | 124 | 193 | | 171 | 240 |
| | 190- P,M,K,N | 19.0 | 19.0 | ● | 88 | 157 | | 124 | 193 | | 171 | 240 |
| | 191- P,M,K,N | 19.1 | 20.0 | | 90 | 160 | | 130 | 200 | | 180 | 250 |
| | 192- P,M,K,N | 19.2 | 20.0 | | 90 | 160 | | 130 | 200 | | 180 | 250 |
| | 193- P,M,K,N | 19.3 | 20.0 | | 90 | 160 | | 130 | 200 | | 180 | 250 |
| | 194- P,M,K,N | 19.4 | 20.0 | | 90 | 160 | | 130 | 200 | | 180 | 250 |
| | 195- P,M,K,N | 19.5 | 20.0 | | 90 | 160 | | 130 | 200 | | 180 | 250 |
| | 196- P,M,K,N | 19.6 | 20.0 | | 90 | 160 | | 130 | 200 | | 180 | 250 |
| | 197- P,M,K,N | 19.7 | 20.0 | | 90 | 160 | | 130 | 200 | | 180 | 250 |
| | 198- P,M,K,N | 19.8 | 20.0 | | 90 | 160 | | 130 | 200 | | 180 | 250 |
| | 199- P,M,K,N | 19.9 | 20.0 | | 90 | 160 | | 130 | 200 | | 180 | 250 |
| | 200- P,M,K,N | 20.0 | 20.0 | ○ | 90 | 160 | | 130 | 200 | | 180 | 250 |

● : Disponibile ○ : A richiesta

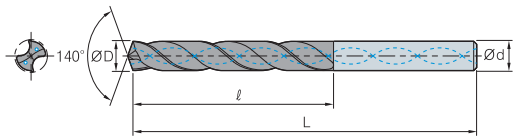
▶ Nota) Gli articoli indicati con (P) sono prodotti per la foratura dell'acciaio

# MSDH-P,M,K,N,ND

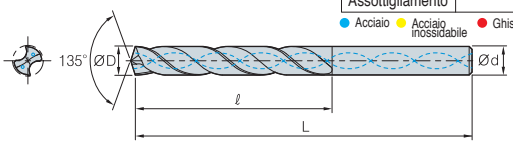
Mach solid drills con foro per lubrificante

| Definizione | P M K | N | ND |
|---|---|---|---|
| Rivestimento | TiAlN | Metallo duro sinterizzato | DLC |
| Angolo di punta | 140° | 135° | 140° |
| Angolo di torsione | 30° | | |
| Refrigerante | Interno | | |
| Tolleranza (Diametro punta) | h7 | | |
| Tolleranza (diametro attacco) | h6 | | |
| Assottigliamento | Tipo X | | Tipo N |

● Acciaio ● Acciaio inossidabile ● Ghisa ● Materiali non ferrosi ● Lega di alluminio




• MSDH - P, M, K, ND (Rivestito)




• MSDH - N (Non rivestito)

• MSDH - □P,M,K,N,ND(ø2.5 ~ ø6.8mm) (mm)

| Articolo | øD | ød | 3P,M,K,N,ND | | | 5P,M,K,N,ND | | | 7P,M,K,N,ND | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Stock | ℓ | L | Stock | ℓ | L | Stock | ℓ | L |
| MSDH 025-□P,M,K,N,ND | 2.5 | 3.0 | | 20 | 65 | | 25 | 70 | | 30 | 75 |
| 026-□P,M,K,N,ND | 2.6 | 3.0 | | 20 | 65 | | 25 | 70 | | 30 | 75 |
| 027-□P,M,K,N,ND | 2.7 | 3.0 | | 20 | 65 | | 25 | 70 | | 30 | 75 |
| 028-□P,M,K,N,ND | 2.8 | 3.0 | | 20 | 65 | | 25 | 70 | | 30 | 75 |
| 029-□P,M,K,N,ND | 2.9 | 3.0 | | 20 | 65 | | 25 | 70 | | 30 | 75 |
| 030-□P,M,K,N,ND | 3.0 | 3.0 | | 20 | 65 | | 25 | 70 | | 30 | 75 |
| 031-□P,M,K,N,ND | 3.1 | 4.0 | | 25 | 71 | | 34 | 80 | | 40 | 86 |
| 032-□P,M,K,N,ND | 3.2 | 4.0 | | 25 | 71 | | 34 | 80 | | 40 | 86 |
| 033-□P,M,K,N,ND | 3.3 | 4.0 | | 25 | 71 | | 34 | 80 | | 40 | 86 |
| 034-□P,M,K,N,ND | 3.4 | 4.0 | | 25 | 71 | | 34 | 80 | | 40 | 86 |
| 035-□P,M,K,N,ND | 3.5 | 4.0 | | 25 | 71 | | 34 | 80 | | 40 | 86 |
| 036-□P,M,K,N,ND | 3.6 | 4.0 | | 25 | 71 | | 34 | 80 | | 40 | 86 |
| 037-□P,M,K,N,ND | 3.7 | 4.0 | | 25 | 71 | | 34 | 80 | | 40 | 86 |
| 038-□P,M,K,N,ND | 3.8 | 4.0 | | 25 | 71 | | 34 | 80 | | 40 | 86 |
| 039-□P,M,K,N,ND | 3.9 | 4.0 | | 25 | 71 | | 34 | 80 | | 40 | 86 |
| 040-□P,M,K,N,ND | 4.0 | 4.0 | | 25 | 71 | | 34 | 80 | | 40 | 86 |
| 041-□P,M,K,N,ND | 4.1 | 5.0 | | 30 | 77 | | 43 | 90 | | 50 | 97 |
| 042-□P,M,K,N,ND | 4.2 | 5.0 | | 30 | 77 | | 43 | 90 | | 50 | 97 |
| 043-□P,M,K,N,ND | 4.3 | 5.0 | | 30 | 77 | | 43 | 90 | | 50 | 97 |
| 044-□P,M,K,N,ND | 4.4 | 5.0 | | 30 | 77 | | 43 | 90 | | 50 | 97 |
| 045-□P,M,K,N,ND | 4.5 | 5.0 | | 30 | 77 | | 43 | 90 | | 50 | 97 |
| 046-□P,M,K,N,ND | 4.6 | 5.0 | | 30 | 77 | | 43 | 90 | | 50 | 97 |
| 047-□P,M,K,N,ND | 4.7 | 5.0 | | 30 | 77 | | 43 | 90 | | 50 | 97 |
| 048-□P,M,K,N,ND | 4.8 | 5.0 | | 30 | 77 | | 43 | 90 | | 50 | 97 |
| 049-□P,M,K,N,ND | 4.9 | 5.0 | | 30 | 77 | | 43 | 90 | | 50 | 97 |
| 050-□P,M,K,N,ND | 5.0 | 5.0 | | 30 | 77 | | 43 | 90 | | 50 | 97 |
| 051-□P,M,K,N,ND | 5.1 | 6.0 | | 35 | 81 | | 48 | 96 | | 60 | 108 |
| 052-□P,M,K,N,ND | 5.2 | 6.0 | | 35 | 81 | | 48 | 96 | | 60 | 108 |
| 053-□P,M,K,N,ND | 5.3 | 6.0 | | 35 | 81 | | 48 | 96 | | 60 | 108 |
| 054-□P,M,K,N,ND | 5.4 | 6.0 | | 35 | 81 | | 48 | 96 | | 60 | 108 |
| 055-□P,M,K,N,ND | 5.5 | 6.0 | | 35 | 81 | | 48 | 96 | | 60 | 108 |
| 056-□P,M,K,N,ND | 5.6 | 6.0 | | 35 | 81 | | 48 | 96 | | 60 | 108 |
| 057-□P,M,K,N,ND | 5.7 | 6.0 | | 35 | 81 | | 48 | 96 | | 60 | 108 |
| 058-□P,M,K,N,ND | 5.8 | 6.0 | | 35 | 81 | | 48 | 96 | | 60 | 108 |
| 059-□P,M,K,N,ND | 5.9 | 6.0 | | 35 | 81 | | 48 | 96 | | 60 | 108 |
| 060-□P,M,K,N,ND | 6.0 | 6.0 | | 35 | 81 | | 48 | 96 | | 60 | 108 |
| 061-□P,M,K,N,ND | 6.1 | 7.0 | | 40 | 84 | ● | 56 | 105 | | 70 | 120 |
| 062-□P,M,K,N,ND | 6.2 | 7.0 | | 40 | 84 | ● | 56 | 105 | | 70 | 120 |
| 063-□P,M,K,N,ND | 6.3 | 7.0 | | 40 | 84 | ● | 56 | 105 | | 70 | 120 |
| 064-□P,M,K,N,ND | 6.4 | 7.0 | | 40 | 84 | ● | 56 | 105 | | 70 | 120 |
| 065-□P,M,K,N,ND | 6.5 | 7.0 | | 40 | 84 | ● | 56 | 105 | | 70 | 120 |
| 066-□P,M,K,N,ND | 6.6 | 7.0 | | 40 | 84 | ● | 56 | 105 | | 70 | 120 |
| 067-□P,M,K,N,ND | 6.7 | 7.0 | | 40 | 84 | ● | 56 | 105 | | 70 | 120 |
| 068-□P,M,K,N,ND | 6.8 | 7.0 | | 40 | 84 | ● | 56 | 105 | | 70 | 120 |

● : Disponibile ○ : A richiesta

• MSDH - □P,M,K,N,ND(ø6.9 ~ ø11.2mm) (mm)

| Articolo | øD | ød | 3P,M,K,N,ND | | | 5P,M,K,N,ND | | | 7P,M,K,N,ND | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Stock | ℓ | L | Stock | ℓ | L | Stock | ℓ | L |
| MSDH 069-□P,M,K,N,ND | 6.9 | 7.0 | | 40 | 84 | ● | 56 | 105 | | 70 | 120 |
| 070-□P,M,K,N,ND | 7.0 | 7.0 | | 40 | 84 | ● | 56 | 105 | | 70 | 120 |
| 071-□P,M,K,N,ND | 7.1 | 8.0 | | 45 | 90 | ● | 60 | 105 | | 80 | 120 |
| 072-□P,M,K,N,ND | 7.2 | 8.0 | | 45 | 90 | ● | 60 | 110 | | 80 | 130 |
| 073-□P,M,K,N,ND | 7.3 | 8.0 | | 45 | 90 | ● | 60 | 110 | | 80 | 130 |
| 074-□P,M,K,N,ND | 7.4 | 8.0 | | 45 | 90 | ● | 60 | 110 | | 80 | 130 |
| 075-□P,M,K,N,ND | 7.5 | 8.0 | | 45 | 90 | ● | 60 | 110 | | 80 | 130 |
| 076-□P,M,K,N,ND | 7.6 | 8.0 | | 45 | 90 | ● | 60 | 110 | | 80 | 130 |
| 077-□P,M,K,N,ND | 7.7 | 8.0 | | 45 | 90 | ● | 60 | 110 | | 80 | 130 |
| 078-□P,M,K,N,ND | 7.8 | 8.0 | | 45 | 90 | ● | 60 | 110 | | 80 | 130 |
| 079-□P,M,K,N,ND | 7.9 | 8.0 | | 45 | 90 | ● | 60 | 110 | | 80 | 130 |
| 080-□P,M,K,N,ND | 8.0 | 8.0 | | 45 | 90 | ● | 60 | 110 | | 80 | 130 |
| 081-□P,M,K,N,ND | 8.1 | 9.0 | | 48 | 97 | ● | 72 | 125 | | 90 | 143 |
| 082-□P,M,K,N,ND | 8.2 | 9.0 | | 48 | 97 | ● | 72 | 125 | | 90 | 143 |
| 083-□P,M,K,N,ND | 8.3 | 9.0 | | 48 | 97 | ● | 72 | 125 | | 90 | 143 |
| 084-□P,M,K,N,ND | 8.4 | 9.0 | | 48 | 97 | ● | 72 | 125 | | 90 | 143 |
| 085-□P,M,K,N,ND | 8.5 | 9.0 | | 48 | 97 | ● | 72 | 125 | | 90 | 143 |
| 086-□P,M,K,N,ND | 8.6 | 9.0 | | 48 | 97 | ● | 72 | 125 | | 90 | 143 |
| 087-□P,M,K,N,ND | 8.7 | 9.0 | | 48 | 97 | ● | 72 | 125 | | 90 | 143 |
| 088-□P,M,K,N,ND | 8.8 | 9.0 | | 48 | 97 | ● | 72 | 125 | | 90 | 143 |
| 089-□P,M,K,N,ND | 8.9 | 9.0 | | 48 | 97 | ● | 72 | 125 | | 90 | 143 |
| 090-□P,M,K,N,ND | 9.0 | 9.0 | | 48 | 97 | ● | 72 | 125 | | 90 | 143 |
| 091-□P,M,K,N,ND | 9.1 | 10.0 | | 52 | 106 | ● | 75 | 129 | | 95 | 150 |
| 092-□P,M,K,N,ND | 9.2 | 10.0 | | 52 | 106 | ● | 75 | 129 | | 95 | 150 |
| 093-□P,M,K,N,ND | 9.3 | 10.0 | | 52 | 106 | ● | 75 | 129 | | 95 | 150 |
| 094-□P,M,K,N,ND | 9.4 | 10.0 | | 52 | 106 | ● | 75 | 129 | | 95 | 150 |
| 095-□P,M,K,N,ND | 9.5 | 10.0 | | 52 | 106 | ● | 75 | 129 | | 95 | 150 |
| 096-□P,M,K,N,ND | 9.6 | 10.0 | | 52 | 106 | ● | 75 | 129 | | 95 | 150 |
| 097-□P,M,K,N,ND | 9.7 | 10.0 | | 52 | 106 | ● | 75 | 129 | | 95 | 150 |
| 098-□P,M,K,N,ND | 9.8 | 10.0 | | 52 | 106 | ● | 75 | 129 | | 95 | 150 |
| 099-□P,M,K,N,ND | 9.9 | 10.0 | | 52 | 106 | ● | 75 | 129 | | 95 | 150 |
| 100-□P,M,K,N,ND | 10.0 | 10.0 | | 52 | 106 | ● | 75 | 129 | | 95 | 150 |
| 101-□P,M,K,N,ND | 10.1 | 11.0 | | 56 | 111 | ● | 83 | 140 | | 105 | 160 |
| 102-□P,M,K,N,ND | 10.2 | 11.0 | | 56 | 111 | ● | 83 | 140 | | 105 | 160 |
| 103-□P,M,K,N,ND | 10.3 | 11.0 | | 56 | 111 | ● | 83 | 140 | | 105 | 160 |
| 104-□P,M,K,N,ND | 10.4 | 11.0 | | 56 | 111 | ● | 83 | 140 | | 105 | 160 |
| 105-□P,M,K,N,ND | 10.5 | 11.0 | | 56 | 111 | ● | 83 | 140 | | 105 | 160 |
| 106-□P,M,K,N,ND | 10.6 | 11.0 | | 56 | 111 | ● | 83 | 140 | | 105 | 160 |
| 107-□P,M,K,N,ND | 10.7 | 11.0 | | 56 | 111 | ● | 83 | 140 | | 105 | 160 |
| 108-□P,M,K,N,ND | 10.8 | 11.0 | | 56 | 111 | ● | 83 | 140 | | 105 | 160 |
| 109-□P,M,K,N,ND | 10.9 | 11.0 | | 56 | 111 | ● | 83 | 140 | | 105 | 160 |
| 110-□P,M,K,N,ND | 11.0 | 11.0 | | 56 | 111 | ● | 83 | 140 | | 105 | 160 |
| 111-□P,M,K,N,ND | 11.1 | 12.0 | | 60 | 118 | ● | 90 | 148 | | 114 | 172 |
| 112-□P,M,K,N,ND | 11.2 | 12.0 | | 60 | 118 | ● | 90 | 148 | | 114 | 172 |

● : Disponibile ○ : A richiesta

▶ Nota) Gli articoli indicati con (P) sono prodotti per la foratura dell'acciaio

Articoli su richiesta : MSDH□□□-Materiale (P,M,K,N,ND) Lunghezza stelo-Lunghezza totale L Diametro attacco S

Ex.1)Pezzo lavorato : SM45C, Diametro lavorazione : ∅10.1mm, Lunghezza stelo : 60mm, Total length : 80mm, Diametro attacco : ∅11 → MSDH101-P•60-80L•11S

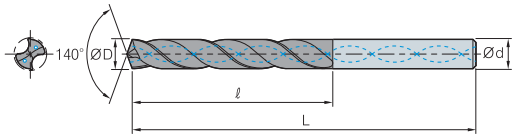
Ex.2)Pezzo lavorato : STS303, Diametro lavorazione : ∅10.12mm, Lunghezza stelo : 60mm, Total length : 80mm, Diametro attacco : ∅11 → MSDH1012-M•60-80L•11S

# MSDH-P,M,K,N,ND

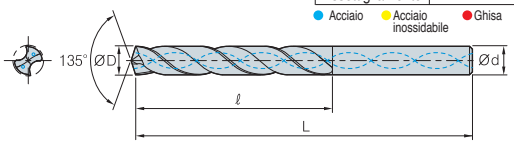
Mach solid drills con foro per lubrificante

| Definizione | P | M | K | N | ND |
|---|---|---|---|---|---|
| Rivestimento | TiAlN | | | Metallo duro sinterizzato | DLC |
| Angolo di punta | 140° | | | 135° | 140° |
| Angolo di torsione | 30° | | | | |
| Refrigerante | Interno | | | | |
| Tolleranza (Diametro punta) | h7 | | | | |
| Tolleranza (diametro attacco) | h6 | | | | |
| Assottigliamento | Tipo X | | | | Tipo N |

● Acciaio ● Acciaio inossidabile ● Ghisa ● Materiali non ferrosi ● Lega di alluminio




• MSDH - P, M, K, ND (Rivestito)




• MSDH - N (Non rivestito)

• MSDH-□P,M,K,N,ND(ø11.3 ~ ø15.6mm)

(mm)

| Articolo | øD | ød | 3P,M,K,N,ND | | | 5P,M,K,N,ND | | | 7P,M,K,N,ND | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Stock | ℓ | L | Stock | ℓ | L | Stock | ℓ | L |
| MSDH 113-□P,M,K,N,ND | 11.3 | 12.0 | | 60 | 118 | ● | 90 | 148 | | 114 | 172 |
| 114-□P,M,K,N,ND | 11.4 | 12.0 | | 60 | 118 | ● | 90 | 148 | | 114 | 172 |
| 115-□P,M,K,N,ND | 11.5 | 12.0 | | 60 | 118 | ● | 90 | 148 | | 114 | 172 |
| 116-□P,M,K,N,ND | 11.6 | 12.0 | | 60 | 118 | ● | 90 | 148 | | 114 | 172 |
| 117-□P,M,K,N,ND | 11.7 | 12.0 | | 60 | 118 | ● | 90 | 148 | | 114 | 172 |
| 118-□P,M,K,N,ND | 11.8 | 12.0 | | 60 | 118 | ● | 90 | 148 | | 114 | 172 |
| 119-□P,M,K,N,ND | 11.9 | 12.0 | | 60 | 118 | ● | 90 | 148 | | 114 | 172 |
| 120-□P,M,K,N,ND | 12.0 | 12.0 | | 60 | 118 | ● | 90 | 148 | | 114 | 172 |
| 121-□P,M,K,N,ND | 12.1 | 13.0 | | 65 | 125 | ● | 98 | 158 | | 124 | 184 |
| 122-□P,M,K,N,ND | 12.2 | 13.0 | | 65 | 125 | ● | 98 | 158 | | 124 | 184 |
| 123-□P,M,K,N,ND | 12.3 | 13.0 | | 65 | 125 | ● | 98 | 158 | | 124 | 184 |
| 124-□P,M,K,N,ND | 12.4 | 13.0 | | 65 | 125 | ● | 98 | 158 | | 124 | 184 |
| 125-□P,M,K,N,ND | 12.5 | 13.0 | | 65 | 125 | ● | 98 | 158 | | 124 | 184 |
| 126-□P,M,K,N,ND | 12.6 | 13.0 | | 65 | 125 | ● | 98 | 158 | | 124 | 184 |
| 127-□P,M,K,N,ND | 12.7 | 13.0 | | 65 | 125 | ● | 98 | 158 | | 124 | 184 |
| 128-□P,M,K,N,ND | 12.8 | 13.0 | | 65 | 125 | ● | 98 | 158 | | 124 | 184 |
| 129-□P,M,K,N,ND | 12.9 | 13.0 | | 65 | 125 | ● | 98 | 158 | | 124 | 184 |
| 130-□P,M,K,N,ND | 13.0 | 13.0 | | 65 | 125 | ● | 98 | 158 | | 124 | 184 |
| 131-□P,M,K,N,ND | 13.1 | 14.0 | | 70 | 132 | | 105 | 167 | | 133 | 195 |
| 132-□P,M,K,N,ND | 13.2 | 14.0 | | 70 | 132 | | 105 | 167 | | 133 | 195 |
| 133-□P,M,K,N,ND | 13.3 | 14.0 | | 70 | 132 | | 105 | 167 | | 133 | 195 |
| 134-□P,M,K,N,ND | 13.4 | 14.0 | | 70 | 132 | | 105 | 167 | | 133 | 195 |
| 135-□P,M,K,N,ND | 13.5 | 14.0 | | 70 | 132 | | 105 | 167 | | 133 | 195 |
| 136-□P,M,K,N,ND | 13.6 | 14.0 | | 70 | 132 | | 105 | 167 | | 133 | 195 |
| 137-□P,M,K,N,ND | 13.7 | 14.0 | | 70 | 132 | | 105 | 167 | | 133 | 195 |
| 138-□P,M,K,N,ND | 13.8 | 14.0 | | 70 | 132 | | 105 | 167 | | 133 | 195 |
| 139-□P,M,K,N,ND | 13.9 | 14.0 | | 70 | 132 | | 105 | 167 | | 133 | 195 |
| 140-□P,M,K,N,ND | 14.0 | 14.0 | | 70 | 132 | | 105 | 167 | | 133 | 195 |
| 141-□P,M,K,N,ND | 14.1 | 15.0 | | 75 | 139 | | 108 | 172 | | 138 | 202 |
| 142-□P,M,K,N,ND | 14.2 | 15.0 | | 75 | 139 | | 108 | 172 | | 138 | 202 |
| 143-□P,M,K,N,ND | 14.3 | 15.0 | | 75 | 139 | | 108 | 172 | | 138 | 202 |
| 144-□P,M,K,N,ND | 14.4 | 15.0 | | 75 | 139 | | 108 | 172 | | 138 | 202 |
| 145-□P,M,K,N,ND | 14.5 | 15.0 | | 75 | 139 | | 108 | 172 | | 138 | 202 |
| 146-□P,M,K,N,ND | 14.6 | 15.0 | | 75 | 139 | | 108 | 172 | | 138 | 202 |
| 147-□P,M,K,N,ND | 14.7 | 15.0 | | 75 | 139 | | 108 | 172 | | 138 | 202 |
| 148-□P,M,K,N,ND | 14.8 | 15.0 | | 75 | 139 | | 108 | 172 | | 138 | 202 |
| 149-□P,M,K,N,ND | 14.9 | 15.0 | | 75 | 139 | | 108 | 172 | | 138 | 202 |
| 150-□P,M,K,N,ND | 15.0 | 15.0 | | 75 | 139 | | 108 | 172 | | 138 | 202 |
| 151-□P,M,K,N,ND | 15.1 | 16.0 | | 80 | 146 | | 112 | 178 | | 144 | 210 |
| 152-□P,M,K,N,ND | 15.2 | 16.0 | | 80 | 146 | | 112 | 178 | | 144 | 210 |
| 153-□P,M,K,N,ND | 15.3 | 16.0 | | 80 | 146 | | 112 | 178 | | 144 | 210 |
| 154-□P,M,K,N,ND | 15.4 | 16.0 | | 80 | 146 | | 112 | 178 | | 144 | 210 |
| 155-□P,M,K,N,ND | 15.5 | 16.0 | | 80 | 146 | | 112 | 178 | | 144 | 210 |
| 156-□P,M,K,N,ND | 15.6 | 16.0 | | 80 | 146 | | 112 | 178 | | 144 | 210 |

● : Disponibile ○ : A richiesta

• MSDH-□P,M,K,N,ND(ø15.7 ~ ø20.0mm)

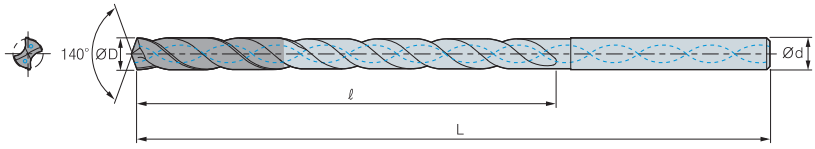
(mm)

| Articolo | øD | ød | 3P,M,K,N,ND | | | 5P,M,K,N,ND | | | 7P,M,K,N,ND | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Stock | ℓ | L | Stock | ℓ | L | Stock | ℓ | L |
| MSDH 157-□P,M,K,N,ND | 15.7 | 16.0 | | 80 | 146 | | 112 | 178 | | 144 | 210 |
| 158-□P,M,K,N,ND | 15.8 | 16.0 | | 80 | 146 | | 112 | 178 | | 144 | 210 |
| 159-□P,M,K,N,ND | 15.9 | 16.0 | | 80 | 146 | | 112 | 178 | | 144 | 210 |
| 160-□P,M,K,N,ND | 16.0 | 16.0 | | 80 | 146 | | 112 | 178 | | 144 | 210 |
| 161-□P,M,K,N,ND | 16.1 | 17.0 | | 85 | 151 | | 120 | 186 | | 153 | 220 |
| 162-□P,M,K,N,ND | 16.2 | 17.0 | | 85 | 151 | | 120 | 186 | | 153 | 220 |
| 163-□P,M,K,N,ND | 16.3 | 17.0 | | 85 | 151 | | 120 | 186 | | 153 | 220 |
| 164-□P,M,K,N,ND | 16.4 | 17.0 | | 85 | 151 | | 120 | 186 | | 153 | 220 |
| 165-□P,M,K,N,ND | 16.5 | 17.0 | | 85 | 151 | | 120 | 186 | | 153 | 220 |
| 166-□P,M,K,N,ND | 16.6 | 17.0 | | 85 | 151 | | 120 | 186 | | 153 | 220 |
| 167-□P,M,K,N,ND | 16.7 | 17.0 | | 85 | 151 | | 120 | 186 | | 153 | 220 |
| 168-□P,M,K,N,ND | 16.8 | 17.0 | | 85 | 151 | | 120 | 186 | | 153 | 220 |
| 169-□P,M,K,N,ND | 16.9 | 17.0 | | 85 | 151 | | 120 | 186 | | 153 | 220 |
| 170-□P,M,K,N,ND | 17.0 | 17.0 | | 85 | 151 | | 120 | 186 | | 153 | 220 |
| 171-□P,M,K,N,ND | 17.1 | 18.0 | | 85 | 153 | | 120 | 188 | | 162 | 230 |
| 172-□P,M,K,N,ND | 17.2 | 18.0 | | 85 | 153 | | 120 | 188 | | 162 | 230 |
| 173-□P,M,K,N,ND | 17.3 | 18.0 | | 85 | 153 | | 120 | 188 | | 162 | 230 |
| 174-□P,M,K,N,ND | 17.4 | 18.0 | | 85 | 153 | | 120 | 188 | | 162 | 230 |
| 175-□P,M,K,N,ND | 17.5 | 18.0 | | 85 | 153 | | 120 | 188 | | 162 | 230 |
| 176-□P,M,K,N,ND | 17.6 | 18.0 | | 85 | 153 | | 120 | 188 | | 162 | 230 |
| 177-□P,M,K,N,ND | 17.7 | 18.0 | | 85 | 153 | | 120 | 188 | | 162 | 230 |
| 178-□P,M,K,N,ND | 17.8 | 18.0 | | 85 | 153 | | 120 | 188 | | 162 | 230 |
| 179-□P,M,K,N,ND | 17.9 | 18.0 | | 85 | 153 | | 120 | 188 | | 162 | 230 |
| 180-□P,M,K,N,ND | 18.0 | 18.0 | | 85 | 153 | | 120 | 188 | | 162 | 230 |
| 181-□P,M,K,N,ND | 18.1 | 19.0 | | 88 | 157 | | 124 | 193 | | 171 | 240 |
| 182-□P,M,K,N,ND | 18.2 | 19.0 | | 88 | 157 | | 124 | 193 | | 171 | 240 |
| 183-□P,M,K,N,ND | 18.3 | 19.0 | | 88 | 157 | | 124 | 193 | | 171 | 240 |
| 184-□P,M,K,N,ND | 18.4 | 19.0 | | 88 | 157 | | 124 | 193 | | 171 | 240 |
| 185-□P,M,K,N,ND | 18.5 | 19.0 | | 88 | 157 | | 124 | 193 | | 171 | 240 |
| 186-□P,M,K,N,ND | 18.6 | 19.0 | | 88 | 157 | | 124 | 193 | | 171 | 240 |
| 187-□P,M,K,N,ND | 18.7 | 19.0 | | 88 | 157 | | 124 | 193 | | 171 | 240 |
| 188-□P,M,K,N,ND | 18.8 | 19.0 | | 88 | 157 | | 124 | 193 | | 171 | 240 |
| 189-□P,M,K,N,ND | 18.9 | 19.0 | | 88 | 157 | | 124 | 193 | | 171 | 240 |
| 190-□P,M,K,N,ND | 19.0 | 19.0 | | 88 | 157 | | 124 | 193 | | 171 | 240 |
| 191-□P,M,K,N,ND | 19.1 | 20.0 | | 90 | 160 | | 130 | 200 | | 180 | 250 |
| 192-□P,M,K,N,ND | 19.2 | 20.0 | | 90 | 160 | | 130 | 200 | | 180 | 250 |
| 193-□P,M,K,N,ND | 19.3 | 20.0 | | 90 | 160 | | 130 | 200 | | 180 | 250 |
| 194-□P,M,K,N,ND | 19.4 | 20.0 | | 90 | 160 | | 130 | 200 | | 180 | 250 |
| 195-□P,M,K,N,ND | 19.5 | 20.0 | | 90 | 160 | | 130 | 200 | | 180 | 250 |
| 196-□P,M,K,N,ND | 19.6 | 20.0 | | 90 | 160 | | 130 | 200 | | 180 | 250 |
| 197-□P,M,K,N,ND | 19.7 | 20.0 | | 90 | 160 | | 130 | 200 | | 180 | 250 |
| 198-□P,M,K,N,ND | 19.8 | 20.0 | | 90 | 160 | | 130 | 200 | | 180 | 250 |
| 199-□P,M,K,N,ND | 19.9 | 20.0 | | 90 | 160 | | 130 | 200 | | 180 | 250 |
| 200-□P,M,K,N,ND | 20.0 | 20.0 | | 90 | 160 | | 130 | 200 | | 180 | 250 |

● : Disponibile ○ : A richiesta

# MLD(Mach long Drills)

Mach long drills con foro per lubrificante per forature profonde




| Rivestimento | TiAlN |
|---|---|
| Tolleranza (Diametro punta) | h7 |
| Angolo di torsione | 30° |
| Tolleranza | h6 |
| Angolo di punta | 140° |
| Assottigliamento | Tipo X |
| Refrigerante | Interno |

(mm)

| Articolo | | øD | ød | 20(ℓ/øD=20) | | | 25(ℓ/øD=25) | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Stock | ℓ | L | Stock | ℓ | L |
| MLD | 0300-□ | 3.0 | 3.0 | ○ | 60 | 110 | ○ | 75 | 120 |
| | 0400-□ | 4.0 | 4.0 | ○ | 80 | 130 | ○ | 100 | 150 |
| | 0500-□ | 5.0 | 5.0 | ○ | 100 | 150 | ○ | 125 | 175 |
| | 0600-□ | 6.0 | 6.0 | ○ | 120 | 170 | ○ | 150 | 200 |
| | 0700-□ | 7.0 | 7.0 | ○ | 140 | 190 | ○ | 175 | 225 |
| | 0800-□ | 8.0 | 8.0 | ○ | 160 | 210 | ○ | 200 | 250 |
| | 0900-□ | 9.0 | 9.0 | ○ | 180 | 230 | | - | - |
| | 1000-□ | 10.0 | 10.0 | ○ | 200 | 250 | | - | - |

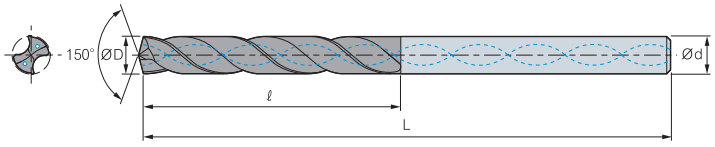
Articoli su richiesta : MLD□□□□-Lunghezza foro

● : Disponibile ○ : A richiesta

Es.1) Diametro di lavorazione : Ø5.3mm, Lunghezza stelo : 120mm, Lunghezza totale : 180mm MLD0530-22(Lunghezza foro)

# MLDP

Punte pilota con foro lubrificante per MLD




| Rivestimento | TiAlN |
|---|---|
| Tolleranza(Diametro punta) | ×6 |
| Angolo di torsione | 30° |
| Tolleranza | h6 |
| Angolo di punta | 150° |
| Assottigliamento | Tipo X |
| Refrigerante | Interno |

(mm)

| Articolo | | øD | ød | 5(ℓ/øD=5) | | | 7(ℓ/øD=7) | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Stock | ℓ | L | Stock | ℓ | L |
| MLDP | 0300-□ | 3.0 | 3.0 | ○ | 25 | 70 | ○ | 30 | 75 |
| | 0400-□ | 4.0 | 4.0 | ○ | 34 | 80 | ○ | 40 | 86 |
| | 0500-□ | 5.0 | 5.0 | ○ | 43 | 90 | ○ | 50 | 97 |
| | 0600-□ | 6.0 | 6.0 | ○ | 48 | 96 | ○ | 60 | 108 |
| | 0700-□ | 7.0 | 7.0 | ○ | 56 | 105 | ○ | 70 | 120 |
| | 0800-□ | 8.0 | 8.0 | ○ | 60 | 110 | ○ | 80 | 130 |
| | 0900-□ | 9.0 | 9.0 | ○ | 72 | 125 | ○ | 90 | 143 |
| | 1000-□ | 10.0 | 10.0 | ○ | 75 | 129 | ○ | 95 | 150 |

Articoli su richiesta : MLDP□□□□ ※ Lunghezza stelo-Lunghezza totale L × Diametro attacco Sx

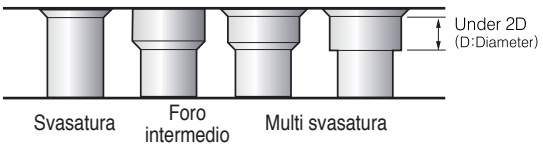
● : Disponibile ○ : A richiesta

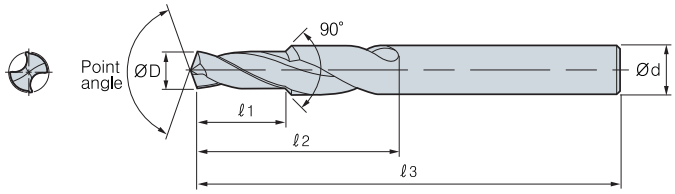
Es.1) Diametro di lavorazione : Ø5.8mm, Lunghezza stelo : 50mm, Lunghezza totale : 100mm,
MLDP0580 × 50-100L × 6S

## ■ Codice tolleranza

| Diametro punta (ØD) | | h6 | h7 | x6 |
|---|---|---|---|---|
| Sup. | Inf. | | | |
| – | 3 | 0 ~ –0.006 | 0 ~ –0.010 | +0.020 ~ +0.026 |
| 3 | 6 | 0 ~ –0.008 | 0 ~ –0.012 | +0.028 ~ +0.036 |
| 6 | 10 | 0 ~ –0.009 | 0 ~ –0.015 | +0.034 ~ +0.043 |
| 10 | 14 | 0 ~ –0.011 | 0 ~ –0.018 | +0.040 ~ +0.051 |
| 14 | 18 | 0 ~ –0.011 | 0 ~ –0.018 | +0.045 ~ +0.056 |
| 18 | 24 | 0 ~ –0.013 | 0 ~ –0.021 | +0.054 ~ +0.067 |

## Sistema di codifica per le punte a gradino




| MSD(H)S | Diametro utensile | Lunghezza utile elica | Lunghezza stelo | Lunghezza totale (L) | Diametro attacco (S) |
|---|---|---|---|---|---|
| – Integrale : MSDS | (ØD) | (ℓ1) | (ℓ2) | (ℓ3)L | (Ød)S |
| – Foro lubrificante : MSDHS | | | | | |

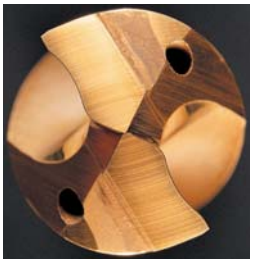
# Informazioni tecniche per Vulcan Drills

## Caratteristiche di Vulcan Drills



- Indicate per avanzamenti e lavorazioni veloci grazie al loro speciale design
- Vulcan drills garantiscono una maggiore durata dell'utensile durante le lavorazioni ad alta velocità grazie alla loro maggiore resistenza termica e all'usura. Grazie al rivestimento PVD dotato di un esclusivo substrato, sono anche in grado di ridurre la resistenza all'attrito.
- Grazie all'eccellente design dell'angolo di spoglia, gli sforzi di taglio sono bassi ed è possibile aumentare l'avanzamento
- La migliore formazione del truciolo ne consente un più agevole controllo
- Rmax: 6~25s, Tolleranza foro: IT8 ~ 10
- L'ottima resistenza all'usura garantisce una maggiore durata dell'utensile anche in condizioni di pesante taglio interrotto

## Applicazione di Vulcan Drills



**Pezzo lavorato**

- Acciaio generico, acciaio legato, acciaio leggero, acciaio per stampi, acciaio inossidabile, ghisa, ghisa duttile, materiali non ferrosi ecc.

**Forature speciali**

- Evitare per quanto possibile qualsiasi irregolarità o inclinazione quando si inserisce la punta e si inizia a forare
- Ridurre l'avanzamento di 0.1 ~ 0.15mm/giro quando si fora in condizioni di irregolarità o inclinazione.

**Staffaggio del pezzo lavorato**

- In caso di pannello piatto ampio o di rotazione di componente orizzontale, eseguire lo staffaggio per evitare di piegare la parte centrale del pezzo e assicurare una maggiore efficienza

## Condizioni di taglio raccomandate [VZD]

| Modulo | Pezzo lavorato | Durezza | ~ø15 | | ~ø20 | | ~ø40 | |
|---|---|---|---|---|---|---|---|---|
| | | | vc(m/min) | fn(mm/giro) | vc(m/min) | fn(mm/giro) | vc(m/min) | fn(mm/giro) |
| MA LA | Acciaio leggero, Acciaio generico, Acciaio legato | Inf. HB250 | 40~90 (65) | 0.15~0.30 (0.20) | 40~90 (65) | 0.20~0.40 (0.30) | 40~90 (70) | 0.20~0.45 (0.35) |
| | Acciaio generico, Acciaio legato | Inf. HB320 | 40~90 (60) | 0.10~0.25 (0.20) | 40~90 (60) | 0.15~0.35 (0.25) | 40~90 (65) | 0.20~0.40 (0.30) |
| | Acciaio per stampi | HB250 | 40~70 (50) | 0.10~0.25 (0.20) | 40~70 (50) | 0.15~0.30 (0.25) | 40~70 (50) | 0.20~0.35 (0.30) |
| | Acciaio inossidabile | HB250 | 30~50 (45) | 0.10~0.20 (0.15) | 30~50 (45) | 0.15~0.25 (0.20) | 30~50 (45) | 0.20~0.30 (0.25) |
| | Ghisa duttile | - | 50~100 (70) | 0.20~0.35 (0.30) | 50~100 (70) | 0.20~0.40 (0.35) | 50~100 (70) | 0.25~0.50 (0.40) |
| MBA LBA | Acciaio leggero, Acciaio generico, Acciaio legato | Inf. HB250 | 40~90 (75) | 0.20~0.40 (0.30) | 40~90 (75) | 0.20~0.40 (0.30) | 40~90 (80) | 0.20~0.45 (0.35) |
| | Acciaio generico, Acciaio legato | inf. HB320 | 35~80 (55) | 0.15~0.30 (0.25) | 35~80 (55) | 0.15~0.30 (0.25) | 40~80 (60) | 0.15~0.40 (0.30) |

# Informazioni tecniche per le punte in acciaio duro sinterizzato

## Punte in acciaio duro sinterizzato

Uno degli aspetti più importanti in foratura è la precisione del foro e la durata della punta. Le punte in acciaio duro sono prodotte da Korloy con un substrato ultrafine grazie a macchinari accurati che ne consentono la produzione di massa. Korloy può vantare la capacità di produrre utensili in grado di rispondere ai requisiti di resistenza allo sforzo, alla durezza e alla deformazione plastica richiesti dalle lavorazioni attuali.

- Lunga durata dell'utensile grazie a una maggiore resistenza all'usura e una maggiore tenacia per la foratura di piccoli fori (Ø1mm~ Ø4mm)
- Incremento della produttività grazie ad avanzamenti più elevati resi possibili dallo speciale design del tagliente che produce minori sforzi di taglio.(Ø4~ Ø15)
- Indicate per vari tipi di materiale come ghisa, materiali non ferrosi ecc.
- Garantiscono un'evacuazione del truciolo e una superficie di sgrossatura eccellenti grazie allo speciale design dello stelo e all'elevata rigidità della punta

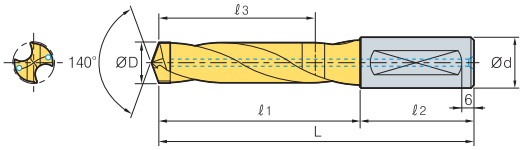
## Condizioni di taglio raccomandate [SSD]

| Pezzo lavorato | Durezza | Giri per diametro di foratura ($min^{-1}$) | | | | | | | Avanzamento per dia. foratura (mm/giro) | | Refrigerante |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ø5 | ø10 | ø15 | ø20 | ø25 | ø30 | ø40 | ø5~ø12 | ø15~ø40 | |
| SM10C~SM45C | 50 | 2900 | 1600 | 1100 | 1000 | 800 | 700 | 600 | 0.03~0.06 | 0.03~0.06 | Olio lubrificante |
| SM55C | 70 | 2300 | 1530 | 1050 | 920 | 765 | 640 | 560 | 0.03~0.06 | 0.06~0.12 | Olio lubrificante |
| SM55C·Acciaio pre-temprato | 100 | 2200 | 1500 | 1000 | 900 | 750 | 650 | 550 | 0.03 | 0.06 | Olio lubrificante |
| Acciaio pre-temprato | 150~180 | 700 | 340 | 250 | 190 | 160 | 140 | 120 | 0.02 | 0.04 | Olio lubrificante |
| Acciaio al nichel-cromo | 100 | 2200 | 1200 | 800 | 652 | 550 | 460 | 380 | 0.03 | 0.06 | Olio lubrificante |
| Acciaio al manganese | 40~110 | 700 | 340 | 260 | 190 | 170 | 150 | 120 | 0.04 | 0.08 | A secco |
| Acciaio fuso | 200~300 | 2000 | 1500 | 800 | 600 | 450 | 400 | 350 | 0.03 | 0.06 | A secco |
| Acciaio malleabile | 200 | 2400 | 1500 | 900 | 650 | 500 | 420 | 380 | 0.03 | 0.06 | A secco |
| Acciaio temprato | 65Hs | 350 | 200 | 150 | 100 | 80 | 70 | 55 | 0.01 | 0.02 | A secco |
| Rame | 60~80 | 6000 | 4000 | 2500 | 2000 | 1400 | 1000 | 800 | 0.06 | 0.12 | A secco |
| Ottone | 80~120 | 5000 | 3500 | 2000 | 1500 | 1400 | 1200 | 1000 | 0.05 | 0.10 | A secco |
| Bronzo per fusione | 60~120 | 3500 | 2500 | 1800 | 1500 | 1200 | 1000 | 900 | 0.04 | 0.08 | A secco |
| Alluminio | 60~120 | 16000 | 8500 | 5700 | 4500 | 3700 | 3100 | 2800 | 0.1 | 0.2 | A secco |
| Lega di alluminio (Si13%) | 40 | 8000 | 4500 | 2800 | 2100 | 1750 | 1050 | 700 | 0.05 | 0.15 | A secco |
| Resina sintetica | 90~120 | 8000 | 5400 | 2800 | 2100 | 1750 | 1050 | 200 | 0.05 | 0.15 | A secco |

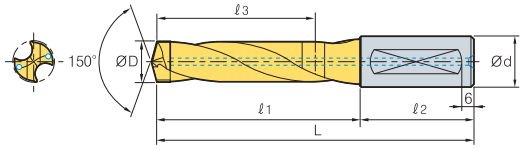
# VZD (MA,MBA)

## Punte saldo brasate

· Tipo MA




· Tipo MBA




| | VZD(MA) | VZD(MBA) | | VZD(MA) | VZD(MBA) |
|---|---|---|---|---|---|
| Rivestimento | TiN | TiN | Tolleranza | h7 | h7 |
| Tolleranza (Diametro punta) | h7 | h7 | Angolo di punta | 140° | 150° |
| | | | Assottigliamento | Tipo X | Tipo X |
| Angolo di torsione | 25° | 20° | Refrigerante | Interno | Interno |

(mm)

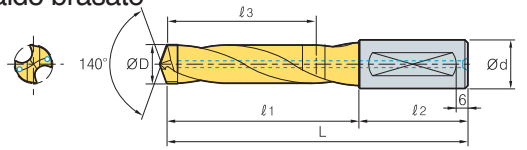
| Articolo | øD | ød | L | ℓ1 | ℓ2 | ℓ3 |
|---|---|---|---|---|---|---|
| **VZD126~135MA, MBA** | 12.6~13.5 | 16 | 110 | 62 | 48 | 44 |
| **VZD136~145MA, MBA** | 13.6~14.5 | 16 | 115 | 67 | 48 | 48 |
| **VZD146~155MA, MBA** | 14.6~15.5 | 20 | 125 | 75 | 50 | 55 |
| **VZD156~165MA, MBA** | 15.6~16.5 | 20 | 130 | 80 | 50 | 59 |
| **VZD166~175MA, MBA** | 16.6~17.5 | 20 | 135 | 85 | 50 | 63 |
| **VZD176~185MA, MBA** | 17.6~18.5 | 20 | 140 | 90 | 50 | 66 |
| **VZD186~195MA, MBA** | 18.6~19.5 | 25 | 155 | 99 | 56 | 74 |
| **VZD196~205MA, MBA** | 19.6~20.5 | 25 | 155 | 99 | 56 | 73 |
| **VZD206~215MA, MBA** | 20.6~21.5 | 25 | 155 | 99 | 56 | 72 |
| **VZD216~225MA, MBA** | 21.6~22.5 | 25 | 160 | 104 | 56 | 76 |
| **VZD226~235MA, MBA** | 22.6~23.5 | 25 | 160 | 104 | 56 | 74 |
| **VZD236~245MA, MBA** | 23.6~24.5 | 32 | 170 | 110 | 60 | 79 |
| **VZD246~255MA, MBA** | 24.6~25.5 | 32 | 170 | 110 | 60 | 78 |
| **VZD256~265MA, MBA** | 25.6~26.5 | 32 | 175 | 115 | 60 | 82 |
| **VZD266~275MA, MBA** | 26.6~27.5 | 32 | 175 | 115 | 60 | 80 |
| **VZD276~285MA, MBA** | 27.6~28.5 | 32 | 180 | 120 | 60 | 84 |
| **VZD286~295MA, MBA** | 28.6~29.5 | 32 | 185 | 125 | 60 | 88 |
| **VZD296~305MA, MBA** | 29.6~30.5 | 32 | 185 | 125 | 60 | 87 |
| **VZD306~315MA, MBA** | 30.6~31.5 | 40 | 205 | 135 | 70 | 95 |
| **VZD316~325MA, MBA** | 31.6~32.5 | 40 | 210 | 140 | 70 | 98 |
| **VZD326~335MA, MBA** | 32.6~33.5 | 40 | 215 | 145 | 70 | 101 |
| **VZD336~345MA, MBA** | 33.6~34.5 | 40 | 220 | 150 | 70 | 104 |
| **VZD346~355MA, MBA** | 34.6~35.5 | 40 | 225 | 155 | 70 | 107 |
| **VZD356~365MA, MBA** | 35.6~36.5 | 40 | 225 | 155 | 70 | 110 |
| **VZD366~375MA, MBA** | 36.6~37.5 | 40 | 230 | 160 | 70 | 113 |
| **VZD376~385MA, MBA** | 37.6~38.5 | 40 | 235 | 165 | 70 | 116 |
| **VZD386~395MA, MBA** | 38.6~39.5 | 40 | 240 | 170 | 70 | 119 |
| **VZD396~405MA, MBA** | 39.6~40.5 | 40 | 245 | 175 | 70 | 122 |

VZD□□□MA : Per acciaio generico, ghisa
MBA : Per acciaio leggero, acciaio a basso tenore di carbonio
Articoli su richiesta : VZD□□□M◎ Lunghezza stelo-Lunghezza totale L
Es.1) Tipo MA, Diametro di lavorazione : Ø18.6mm, Lunghezza stelo : 110mm, Lunghezza totale: 200mm ···› VZD186MA*110-200L
Es.2) Tipo MA, Diametro di lavorazione : Ø18.63, Lunghezza stelo : 110mm, Lunghezza totale: 200mm ···› VZD1863MA*110-200L
Es.3) Tipo MA, Diametro di lavorazione : Ø18.6, Standard ···› VZD186MA

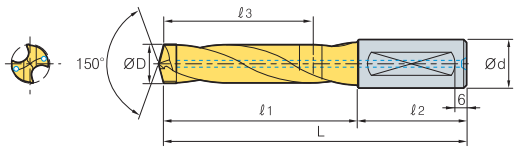
# VZD (LA,LBA)

## Punte saldo brasate

· Tipo LA




· Tipo LBA




| | VZD(LA) | VZD(LBA) | | VZD(LA) | VZD(LBA) |
|---|---|---|---|---|---|
| Rivestimento | TiN | TiN | Tolleranza | h7 | h7 |
| Tolleranza (Diametro punta) | h7 | h7 | Angolo di punta | 140° | 150° |
| | | | Assottigliamento | Tipo X | Tipo X |
| Angolo di torsione | 25° | 20° | Refrigerante | Interno | Interno |

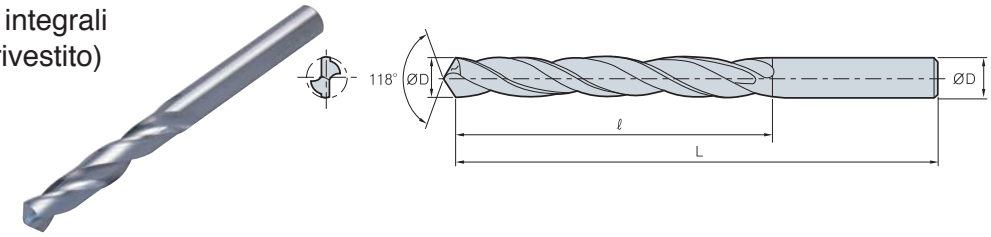
(mm)

| Articolo | øD | ød | L | ℓ1 | ℓ2 | ℓ3 |
|---|---|---|---|---|---|---|
| **VZD126~135LA, LBA** | 12.6~13.5 | 16 | 140 | 92 | 48 | 74 |
| **VZD136~145LA, LBA** | 13.6~14.5 | 16 | 145 | 97 | 48 | 78 |
| **VZD146~155LA, LBA** | 14.6~15.5 | 20 | 155 | 105 | 50 | 85 |
| **VZD156~165LA, LBA** | 15.6~16.5 | 20 | 165 | 115 | 50 | 94 |
| **VZD166~175LA, LBA** | 16.6~17.5 | 20 | 170 | 120 | 50 | 98 |
| **VZD176~185LA, LBA** | 17.6~18.5 | 20 | 175 | 125 | 50 | 101 |
| **VZD186~195LA, LBA** | 18.6~19.5 | 25 | 190 | 134 | 56 | 109 |
| **VZD196~205LA, LBA** | 19.6~20.5 | 25 | 195 | 139 | 56 | 113 |
| **VZD206~215LA, LBA** | 20.6~21.5 | 25 | 195 | 139 | 56 | 112 |
| **VZD216~225LA, LBA** | 21.6~22.5 | 25 | 200 | 144 | 56 | 116 |
| **VZD226~235LA, LBA** | 22.6~23.5 | 25 | 210 | 154 | 56 | 124 |
| **VZD236~245LA, LBA** | 23.6~24.5 | 32 | 220 | 160 | 60 | 129 |
| **VZD246~255LA, LBA** | 24.6~25.5 | 32 | 225 | 165 | 60 | 133 |
| **VZD256~265LA, LBA** | 25.6~26.5 | 32 | 230 | 170 | 60 | 137 |
| **VZD266~275LA, LBA** | 26.6~27.5 | 32 | 235 | 175 | 60 | 141 |
| **VZD276~285LA, LBA** | 27.6~28.5 | 32 | 240 | 180 | 60 | 144 |
| **VZD286~295LA, LBA** | 28.6~29.5 | 32 | 245 | 185 | 60 | 148 |
| **VZD296~305LA, LBA** | 29.6~30.5 | 32 | 255 | 195 | 60 | 157 |
| **VZD306~315LA, LBA** | 30.6~31.5 | 40 | 275 | 205 | 70 | 166 |
| **VZD316~325LA, LBA** | 31.6~32.5 | 40 | 280 | 210 | 70 | 172 |
| **VZD326~335LA, LBA** | 32.6~33.5 | 40 | 280 | 215 | 70 | 173 |
| **VZD336~345LA, LBA** | 33.6~34.5 | 40 | 290 | 220 | 70 | 177 |
| **VZD346~355LA, LBA** | 34.6~35.5 | 40 | 295 | 225 | 70 | 181 |
| **VZD356~365LA, LBA** | 35.6~36.5 | 40 | 300 | 230 | 70 | 183 |
| **VZD366~375LA, LBA** | 36.6~37.5 | 40 | 305 | 235 | 70 | 188 |
| **VZD376~385LA, LBA** | 37.6~38.5 | 40 | 315 | 245 | 70 | 193 |
| **VZD386~395LA, LBA** | 38.6~39.5 | 40 | 320 | 250 | 70 | 198 |
| **VZD396~405LA, LBA** | 39.6~40.5 | 40 | 325 | 255 | 70 | 203 |

VZD□□□LA : Per acciaio generico, ghisa
LBA : Per acciaio leggero, acciaio a basso tenore di carbonio
Articoli su richiesta : VZD□□□M◎ Lunghezza stelo-Lunghezza totale L
Es.1) Tipo LA, Diametro di lavorazione : Ø18.6mm, Lunghezza stelo : 110mm, Lunghezza totale: 200mm ···› VZD186LA*110-200L
Es.2) Tipo LA, Diametro di lavorazione : Ø18.63, Lunghezza stelo : 110mm, Lunghezza totale: 200mm ···› VZD1863LA*110-200L
Es.3) Tipo LA, Diametro di lavorazione : Ø18.6, Standard ···› VZD186LA

# SSD

Punte integrali
(Non rivestito)




| | |
|---|---|
| Angolo di torsione | 30° |
| Tolleranza | h7 |
| Angolo di punta | 118° |
| Assottigliamento | S type |
| Refrigerante | Esterno |

| ØD | Tolleranza (Diametro punta) |
|---|---|
| 1<ØD≤6 | -0.010 ~ -0.030 |
| 6<ØD≤10 | -0.015 ~ -0.040 |
| 10<ØD≤20 | -0.020 ~ -0.050 |

(mm)

| Articolo | | Stock FG2 | Stock FA1 | øD | ℓ | L |
|---|---|---|---|---|---|---|
| SSD | 010 | ● | | 1.0 | 10 | 32 |
| | 011 | ● | | 1.1 | 10 | 32 |
| | 012 | ● | | 1.2 | 10 | 32 |
| | 013 | ● | | 1.3 | 10 | 32 |
| | 014 | ● | | 1.4 | 10 | 32 |
| | 015 | ● | | 1.5 | 13 | 35 |
| | 016 | ● | | 1.6 | 13 | 35 |
| | 017 | ● | | 1.7 | 13 | 35 |
| | 018 | ● | | 1.8 | 13 | 35 |
| | 019 | ● | | 1.9 | 13 | 35 |
| | 020 | ● | | 2.0 | 18 | 40 |
| | 021 | ● | | 2.1 | 18 | 40 |
| | 022 | ● | | 2.2 | 18 | 40 |
| | 023 | ● | | 2.3 | 18 | 40 |
| | 024 | ● | | 2.4 | 18 | 40 |
| | 025 | ● | | 2.3 | 22 | 45 |
| | 026 | ● | | 2.6 | 22 | 45 |
| | 027 | ● | | 2.7 | 22 | 45 |
| | 028 | ● | | 2.8 | 22 | 45 |
| | 029 | ● | | 2.9 | 22 | 45 |
| | 030 | ● | | 3.0 | 25 | 50 |
| | 031 | ● | | 3.1 | 25 | 50 |
| | 032 | ● | | 3.2 | 25 | 50 |
| | 033 | ● | | 3.3 | 25 | 50 |
| | 034 | ● | | 3.4 | 25 | 50 |
| | 035 | ● | | 3.5 | 25 | 50 |
| | 036 | ● | | 3.6 | 30 | 55 |
| | 037 | ● | | 3.7 | 30 | 55 |
| | 038 | ● | | 3.8 | 30 | 55 |
| | 039 | ● | | 3.9 | 30 | 55 |
| | 040 | ● | | 4.0 | 30 | 55 |
| | 041 | | ● | 4.1 | 34 | 60 |
| | 042 | | ● | 4.2 | 34 | 60 |
| | 043 | | ● | 4.3 | 34 | 60 |
| | 044 | | ● | 4.4 | 34 | 60 |
| | 045 | | ● | 4.5 | 34 | 60 |
| | 046 | | ● | 4.6 | 38 | 65 |
| | 047 | | ● | 4.7 | 38 | 65 |
| | 048 | | ● | 4.8 | 38 | 65 |
| | 049 | | ● | 4.9 | 38 | 65 |
| | 050 | | ● | 5.0 | 38 | 65 |
| | 051 | | ● | 5.1 | 38 | 65 |
| | 052 | | ● | 5.2 | 38 | 65 |
| | 053 | | ● | 5.3 | 38 | 65 |
| | 054 | | ● | 5.4 | 38 | 65 |
| | 055 | | ● | 5.5 | 38 | 65 |
| | 056 | | ● | 5.6 | 40 | 75 |
| | 057 | | ● | 5.7 | 40 | 75 |
| | 058 | | ● | 5.8 | 40 | 75 |

(mm)

| Articolo | | Stock FG2 | Stock FA1 | øD | ℓ | L |
|---|---|---|---|---|---|---|
| SSD | 059 | | ● | 5.9 | 40 | 75 |
| | 060 | | ● | 6.0 | 40 | 75 |
| | 061 | | ● | 6.1 | 40 | 75 |
| | 062 | | ● | 6.2 | 40 | 75 |
| | 063 | | ● | 6.3 | 40 | 75 |
| | 064 | | ● | 6.4 | 40 | 75 |
| | 065 | | ● | 6.5 | 40 | 75 |
| | 066 | | ● | 6.6 | 46 | 80 |
| | 067 | | ● | 6.7 | 46 | 80 |
| | 068 | | ● | 6.8 | 46 | 80 |
| | 069 | | ● | 6.9 | 46 | 80 |
| | 070 | | ● | 7.0 | 46 | 80 |
| | 071 | | ● | 7.1 | 46 | 80 |
| | 072 | | ● | 7.2 | 46 | 80 |
| | 073 | | ● | 7.3 | 46 | 80 |
| | 074 | | ● | 7.4 | 46 | 80 |
| | 075 | | ● | 7.5 | 46 | 80 |
| | 076 | | ● | 7.6 | 46 | 80 |
| | 077 | | ● | 7.7 | 46 | 80 |
| | 078 | | ● | 7.8 | 46 | 80 |
| | 079 | | ● | 7.9 | 46 | 80 |
| | 080 | | ● | 8.0 | 50 | 85 |
| | 081 | | ● | 8.1 | 50 | 85 |
| | 082 | | ● | 8.2 | 50 | 85 |
| | 083 | | ● | 8.3 | 50 | 85 |
| | 084 | | ● | 8.4 | 50 | 85 |
| | 085 | | ● | 8.5 | 50 | 85 |
| | 086 | | ● | 8.6 | 50 | 95 |
| | 087 | | ● | 8.7 | 50 | 95 |
| | 088 | | ● | 8.8 | 50 | 95 |
| | 089 | | ● | 8.9 | 50 | 95 |
| | 090 | | ● | 9.0 | 50 | 95 |
| | 091 | | ● | 9.1 | 50 | 95 |
| | 092 | | ● | 9.2 | 50 | 95 |
| | 093 | | ● | 9.3 | 50 | 95 |
| | 094 | | ● | 9.4 | 50 | 95 |
| | 095 | | ● | 9.5 | 50 | 95 |
| | 096 | | ● | 9.6 | 50 | 100 |
| | 097 | | ● | 9.7 | 50 | 100 |
| | 098 | | ● | 9.8 | 50 | 100 |
| | 099 | | ● | 9.9 | 50 | 100 |
| | 100 | | ● | 10.0 | 50 | 100 |
| | 105 | | ● | 10.5 | 60 | 120 |
| | 110 | | ● | 11.0 | 60 | 120 |
| | 115 | | ● | 11.5 | 65 | 125 |
| | 120 | | ● | 12.0 | 65 | 125 |
| | 125 | | ● | 12.5 | 65 | 125 |
| | 130 | | ● | 13.0 | 65 | 125 |
| | 150 | | | 15.0 | 70 | 130 |

● : Disponibile ○ : A richiesta

Diametro punta : Disponibile da ∅0.6
Articoli su richiesta : SSD□□□ Lunghezza stelo - Lunghezza totale L
Es.1) Tipo generico, Diametro di lavorazione : ∅8.2mm, Lunghezza stelo : 60mm, Lunghezza totale : 90mm SSD082 60-90L
Es.2) Tipo generico, Diametro di lavorazione : ∅8.2mm SSD082

## Sistema di codifica

| KGD | S | 12.05 | – | 1500 | / | D30 |
|---|---|---|---|---|---|---|
| Gun Drill KORLOY | Tipo<br>S : Singolo<br>T : Doppio | Diametro della punta<br>Ø12.05 | | Lunghezza della punta<br>1500mm | | Drive No<br>D30 |

## Caratteristiche

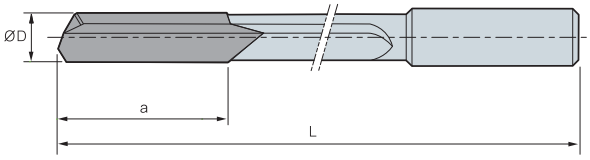
- Molto efficaci nella foratura profonda
- Elevata precisione (tolleranza foro: H7, Rmax : 7s)
- Qualità stabile grazie al tagliente unico e alla guida riaffilabili
- Le punte usate possono essere riciclate per la produzione di parti in metallo duro
- Su richiesta, è possibile modificare la geometria del tagliente e le specifiche
- Per gli ordini, controllare la lunghezza della punta

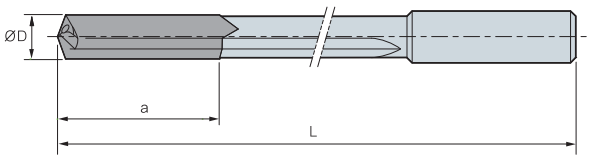
## Condizioni di taglio raccomandate

| Pezzo lavorato | Durezza (HB) | Velocità di taglio vc(m/min) | Avanzamento, fn(mm/giro) | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | ~Ø4 | ~Ø6 | ~Ø10 | ~Ø14 | ~Ø24 | Ø25~ |
| Acciaio al carbonio<br>Acciaio legato | ~150 | 100~150 | 0.005~0.015 | 0.010~0.025 | 0.015~0.035 | 0.020~0.050 | 0.030~0.070 | 0.040~0.080 |
| | 150~250 | 80~120 | 0.005~0.010 | 0.010~0.020 | 0.015~0.030 | 0.020~0.040 | 0.030~0.060 | 0.030~0.060 |
| | 250~350 | 50~100 | 0.005~0.010 | 0.005~0.010 | 0.010~0.020 | 0.015~0.030 | 0.020~0.040 | 0.020~0.040 |
| | 350~ | ~30 | - | 0.005~0.010 | 0.005~0.010 | 0.010~0.020 | 0.020~0.035 | 0.020~0.035 |
| Acciaio inossidabile | ~250 | 50~80 | 0.005~0.015 | 0.010~0.020 | 0.010~0.020 | 0.010~0.030 | 0.020~0.035 | 0.020~0.040 |
| | 250~350 | 40~50 | - | 0.005~0.015 | 0.010~0.015 | 0.010~0.020 | 0.010~0.020 | 0.010~0.020 |
| Ghisa | ~220 | 80~100 | 0.010~0.0120 | 0.020~0.040 | 0.030~0.050 | 0.040~0.080 | 0.080~0.120 | 0.100~0.150 |
| | 220~ | 40~80 | 0.005~0.010 | 0.005~0.015 | 0.010~0.020 | 0.015~0.030 | 0.020~0.050 | 0.025~0.070 |
| Lega di alluminio | - | 180~250 | 0.010~0.020 | 0.020~0.040 | 0.030~0.060 | 0.040~0.080 | 0.100~0.180 | 0.150~0.200 |
| Lega leggera | - | 120~200 | 0.005~0.010 | 0.010~0.020 | 0.020~0.025 | 0.020~0.030 | 0.030~0.040 | 0.040~0.060 |

# KGDS/KGDT New

| Descrizione articolo | |
|---|---|
| **.** | Diametro |
| #### | Lunghezza |
| D$$ | Parte tagliente |



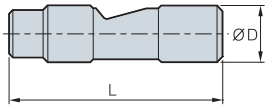
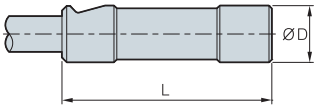
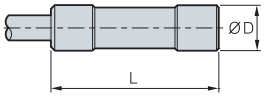
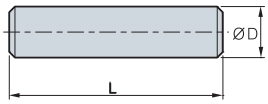
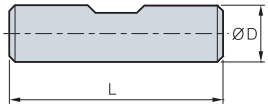
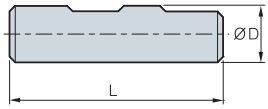
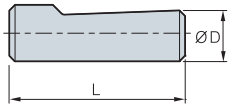
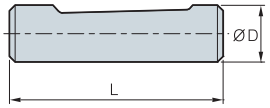

## Tipo singolo

| Articolo | | Foro di lavorazione (øD) | a |
|---|---|---|---|
| KGDS | **.**-####/D$$ | 2.00~2.49 | 18 |
| | **.**-####/D$$ | 2.50~2.99 | 18 |
| | **.**-####/D$$ | 3.00~3.49 | 19 |
| | **.**-####/D$$ | 3.50~3.99 | 19 |
| | **.**-####/D$$ | 4.00~4.49 | 23 |
| | **.**-####/D$$ | 4.50~4.99 | 23 |
| | **.**-####/D$$ | 5.00~5.49 | 24 |
| | **.**-####/D$$ | 5.50~5.99 | 26 |
| | **.**-####/D$$ | 6.00~6.49 | 27 |
| | **.**-####/D$$ | 6.50~6.99 | 28 |
| | **.**-####/D$$ | 7.00~7.49 | 29 |
| | **.**-####/D$$ | 7.50~7.99 | 30 |
| | **.**-####/D$$ | 8.00~8.49 | 31 |
| | **.**-####/D$$ | 8.50~8.99 | 31 |
| | **.**-####/D$$ | 9.00~8.49 | 31 |
| | **.**-####/D$$ | 9.50~9.99 | 31 |
| | **.**-####/D$$ | 10.00~10.49 | 31 |
| | **.**-####/D$$ | 10.50~10.99 | 32 |
| | **.**-####/D$$ | 11.00~11.49 | 35 |
| | **.**-####/D$$ | 11.50~11.99 | 35 |
| | **.**-####/D$$ | 12.00~12.49 | 38 |
| | **.**-####/D$$ | 12.50~12.99 | 38 |
| | **.**-####/D$$ | 13.00~13.99 | 38 |
| | **.**-####/D$$ | 14.00~14.99 | 38 |
| | **.**-####/D$$ | 15.00~15.99 | 39 |
| | **.**-####/D$$ | 16.00~16.99 | 39 |
| | **.**-####/D$$ | 17.00~17.99 | 40 |
| | **.**-####/D$$ | 18.00~18.99 | 41 |
| | **.**-####/D$$ | 19.00~19.99 | 41 |
| | **.**-####/D$$ | 20.00~20.99 | 44 |
| | **.**-####/D$$ | 21.00~21.99 | 46 |
| | **.**-####/D$$ | 22.00~22.99 | 49 |
| | **.**-####/D$$ | 23.00~23.99 | 51 |
| | **.**-####/D$$ | 24.00~24.99 | 52 |
| | **.**-####/D$$ | 25.00~25.99 | 54 |
| | **.**-####/D$$ | 26.00~26.99 | 54 |
| | **.**-####/D$$ | 27.00~27.99 | 54 |
| | **.**-####/D$$ | 28.00~28.99 | 54 |
| | **.**-####/D$$ | 29.00~29.99 | 56 |
| | **.**-####/D$$ | 30.00~30.99 | 59 |
| | **.**-####/D$$ | 31.00~31.99 | 61 |
| | **.**-####/D$$ | 32.00~32.99 | 61 |

## Tipo doppio

| Articolo | | Foro di lavorazione (øD) | a |
|---|---|---|---|
| KGDT | **.**-####/D$$ | 6.00~6.49 | 35 |
| | **.**-####/D$$ | 6.50~6.99 | 35 |
| | **.**-####/D$$ | 7.00~7.49 | 38 |
| | **.**-####/D$$ | 7.50~7.99 | 38 |
| | **.**-####/D$$ | 8.00~8.49 | 38 |
| | **.**-####/D$$ | 8.50~8.99 | 38 |
| | **.**-####/D$$ | 9.00~8.49 | 40 |
| | **.**-####/D$$ | 9.50~9.99 | 40 |
| | **.**-####/D$$ | 10.00~10.49 | 40 |
| | **.**-####/D$$ | 10.50~10.99 | 40 |
| | **.**-####/D$$ | 11.00~11.49 | 45 |
| | **.**-####/D$$ | 11.50~11.99 | 45 |
| | **.**-####/D$$ | 12.00~12.49 | 45 |
| | **.**-####/D$$ | 12.50~12.99 | 48 |
| | **.**-####/D$$ | 13.00~13.99 | 48 |
| | **.**-####/D$$ | 14.00~14.99 | 48 |
| | **.**-####/D$$ | 15.00~15.99 | 48 |
| | **.**-####/D$$ | 16.00~16.99 | 50 |
| | **.**-#### /D$$ | 17.00~17.99 | 50 |
| | **.**-####/D$$ | 18.00~18.99 | 50 |
| | **.**-####/D$$ | 19.00~19.99 | 50 |
| | **.**-####/D$$ | 20.00~20.99 | 55 |
| | **.**-####/D$$ | 21.00~21.99 | 55 |
| | **.**-####/D$$ | 22.00~22.99 | 55 |
| | **.**-####/D$$ | 23.00~23.99 | 60 |
| | **.**-####/D$$ | 24.00~24.99 | 60 |
| | **.**-####/D$$ | 25.00~25.99 | 65 |
| | **.**-####/D$$ | 26.00~26.50 | 65 |

## driver standard

| Tipo | Forma | N. | ØD×L | | Metallo duro | |
|---|---|---|---|---|---|---|
| | | | ØD×L | Filettata | A punta riportata | Integrale |
| **Superficie di staffaggio centrale 15°** |  | D01 | 10*40 | | ● | ● |
| | | D02 | 16*45 | | ● | |
| | | D03 | 19.05*69.8 | | ● | |
| | | D04 | 25*70 | | ● | |
| | | D05 | 25.4*69.8 | | ● | |
| **Superficie di staffaggio frontale 15°** |  | D06 | 16*50 | | ● | |
| **Staffaggio centrale conico** |  | D07 | 12.7*38.1 | | ● | ● |
| | | D08 | 16*70 | | | |
| | | D09 | 19.05*69.8 | | ● | |
| | | D10 | 20*70 | | | |
| **Cilindrico DIN1835A DIN6535HA** |  | D11 | 4*28 | | ● | ● |
| | | D12 | 6*36 | | ● | ● |
| | | D13 | 10*40 | | ● | ● |
| | | D14 | 16*48 | | ● | ● |
| | | D15 | 20*50 | | ● | |
| | | D16 | 25*56 | | ● | |
| **Weldon DIN1835B** |  | D17 | 10*40 | | ● | ● |
| | | D18 | 12*45 | | ● | ● |
| | | D19 | 16*48 | | ● | ● |
| | | D20 | 20*50 | | ● | ● |
| **Weldon DIN6535HB** |  | D21 | 25*56 | | ● | |
| | | D22 | 32*60 | | ● | |
| | | D23 | 40*70 | | | |
| **Whistle Notch DIN1835E** |  | D24 | 10*40 | | ● | ● |
| | | D25 | 12*45 | | ● | ● |
| | | D26 | 16*48 | | ● | ● |
| | | D27 | 20*50 | | ● | ● |
| | | D28 | 25*56 | | ● | |
| | | D29 | 32*60 | | ● | |
| **Whistle Notch DIN6535HE** |  | D30 | 10*40 | | ● | ● |
| | | D31 | 12*45 | | ● | ● |
| | | D32 | 16*48 | | ● | ● |
| | | D33 | 20*50 | | ● | ● |

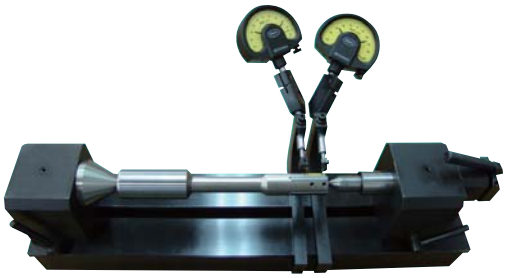
* Ordine speciale. Fornire informazioni su dimensioni e forma.

## Alesatore a inserti

### Caratteristiche

- Indicato per la produzione di massa e per prestazioni elevate
- Uso di inserti PCD o rivestiti per lavorazioni ad alte velocità
- Eccellente precisione e regolazione del foro
- Uso di mandrini di precisione (idraulici, a rotazione)
- Uso di refrigerante interno per l'evacuazione dei trucioli
- Uso di portainserti e inserti adeguati
- Uso dell'attrezzatura KIRSD-210 per il montaggio degli inserti

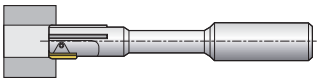
### Montaggio inserto (KIRSD-210)



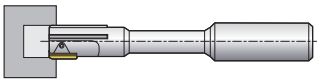
Non in stock

### Metodo di applicazione

• Alesatura passante (IRT)



• Alesatura cieca (IRB)



### Sistema di codifica

| Nome alesatore | | Foro di lavorazione | | Diametro attacco | Lunghezza | | Dimensione inserto |
|---|---|---|---|---|---|---|---|
| IR | T | 12.000 | – | 16 | 135 | – | 16 |

**Metodo di applicazione**
T : Alesatura passante
B : Alesatura cieca

**Dimensione inserto**
15 : 15.0×3.0
16 : 16.0×3.5
17 : 17.0×4.5
22 : 22.0×6.5

### Sistema di codifica inserti

| Inserto alesatore | | | Inserto | | Angolazione rompitruciolo |
|---|---|---|---|---|---|
| RI | 15 | – | B | | 06 |

**Dimensione inserto**
15 : 15.0×3.0
16 : 16.0×3.5
17 : 17.0×4.5
22 : 22.0×6.5

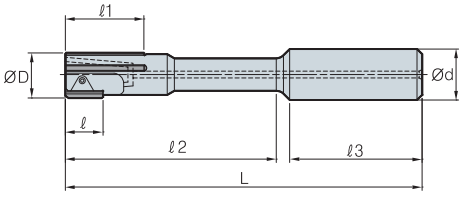
**Inserto**
A : Eccellente superficie di finitura, condizioni di taglio ridotte
B : Superficie di finitura generica, condizioni di taglio elevate
C : Alluminio, lega di ottone
D : Foro parziale, avanzamento ridotto

**Angolazione rompitruciolo**
00 : 0˚, Ghisa
06 : 6˚, Acciaio generico
12 : 12˚, Acciaio inox, Al

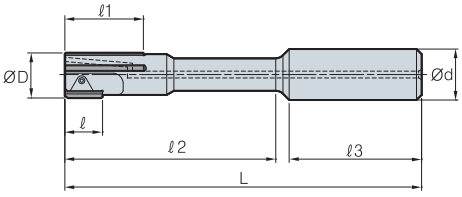
# IRT(Alesatura passante/) / IRB(Alesatura cieca)

New






IRT



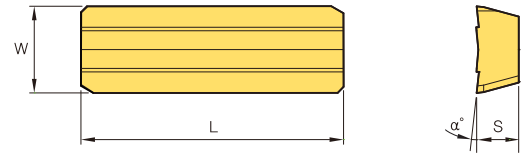

IRB

(mm)

| Articolo | | øD | ℓ | ℓ1 | ℓ2 | ℓ3 | L | ød | Parti di ricambio / Inserto | Staffa | Cuneo di regolazione | Vite di staffaggio | Vite del cuneo (NYLOK) | Cuneo di staffaggio | Chiave del cuneo |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IRT (IRB) | 10.000-16125-15 | 10 | 15 | 30 | 75 | 45 | 125 | 16 | RI 15 | CV 15 | AW2430 | DHA0308 | HSO306 | HW15L | HW15L |
| | 11.000-16125-15 | 11 | | | | | | | | | | | | | |
| | 12.000-16135-16 | 12 | 16 | 30 | 85 | 45 | 135 | 16 | RI 16 | CV 16 | AW2435 | | | | |
| | 13.000-16135-16 | 13 | | | | | | | | | | | | | |
| | 14.000-16135-16 | 14 | | | | | | | | | | | | | |
| | 15.000-16135-16 | 15 | | | | | | | | | | | | | |
| | 16.000-20155-16 | 16 | | 30 | 100 | 50 | 155 | 20 | | | | | | | |
| | 17.000-20155-16 | 17 | | | | | | | | | | | | | |
| | 18.000-20155-17 | 18 | 17 | 30 | 100 | 50 | 155 | 20 | RI 17 | CV 17 | AW3240 | DHA0409 | HS0406 | HW20L | HW20L |
| | 19.000-20155-17 | 19 | | | | | | | | | | | | | |
| | 20.000-25165-17 | 20 | | 30 | 110 | 56 | 165 | 25 | | | | | | | |
| | 21.000-25165-17 | 21 | | | | | | | | | | | | | |
| | 22.000-25165-17 | 22 | | | | | | | | | | | | | |
| | 23.000-25165-17 | 23 | | | | | | | | | | | | | |
| | 24.000-25165-17 | 24 | | | | | | | | | | | | | |
| | 25.000-25165-17 | 25 | | | | | | | | | | | | | |
| | 26.000-25165-17 | 26 | | | | | | | | | | | | | |
| | 27.000-25165-17 | 27 | | | | | | | | | | | | | |
| | 28.000-32165-22 | 28 | 22 | 30 | 110 | 56 | 165 | 32 | RI 22 | CV 22 | AW3260 | | | | |
| | 29.000-32165-22 | 29 | | | | | | | | | | | | | |
| | 30.000-32165-22 | 30 | | | | | | | | | | | | | |
| | 31.000-32165-22 | 31 | | | | | | | | | | | | | |

## I-Inserto alesatore

New

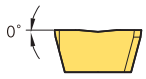
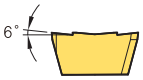
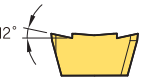



| Articolo | Grado | | | Figura | | | Reed type | Angolo elica (α°) |
|---|---|---|---|---|---|---|---|---|
| | K10 (Metallo duro) | BPK210 (TiAlN) | BPK110 (TiN) | L | W | S | | |
| RI 15-A06 | | | ○ | 15 | 3.0 | 1.5 | A | 6° |
| RI 15-A12 | ○ | | | | | | | 12° |
| RI 15-B06 | | ○ | ○ | | | | B | 6° |
| RI 15-B12 | | ○ | | | | | | 12° |
| RI 16-A06 | | | ○ | 16 | 3.5 | 1.5 | A | 6° |
| RI 16-A12 | ○ | | | | | | | 12° |
| RI 16-B06 | | ○ | ○ | | | | B | 6° |
| RI 16-B12 | | ○ | | | | | | 12° |
| RI 17-A06 | | | ○ | 17 | 4.5 | 2.0 | A | 6° |
| RI 17-A12 | ○ | | | | | | | 12° |
| RI 17-B06 | | ○ | ○ | | | | B | 6° |
| RI 17-B12 | | ○ | | | | | | 12° |
| RI 22-A06 | | | ○ | 22 | 6.5 | 3.0 | A | 6° |
| RI 22-A12 | ○ | | | | | | | 12° |
| RI 22-B06 | | ○ | ○ | | | | B | 6° |
| RI 22-B12 | | ○ | | | | | | 12° |

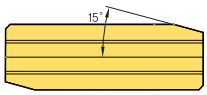
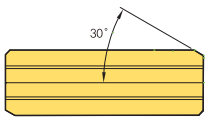
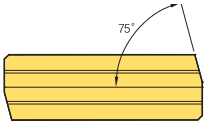
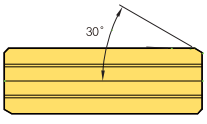
* ○Grado raccomandato per tipo di inserto

● : Disponibile ○ : A richiesta

## Angolazione rompitruciolo dell'inserto

| Contenuto | 00 | 06 | 12 |
|---|---|---|---|
| Forma |   |   |   |
| Pezzo lavorato | Ghisa | Acciaio generico | Acciaio inossidabile e alluminio |

## Inserto

| Tipo | Forma | Condizioni di taglio |
|---|---|---|
| A |   | Eccellente superficie di finitura, condizioni di taglio ridotte |
| B |   | Uso generico, condizioni di taglio elevate |
| C |   | Lavorazione di alluminio e lega di ottone |
| D |   | Foro parziale, avanzamento ridotto |

## Alesatore(Elicoidale)

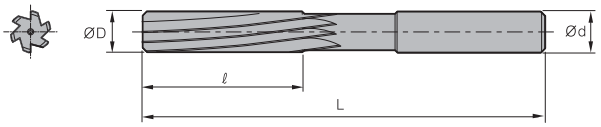



Fig.1

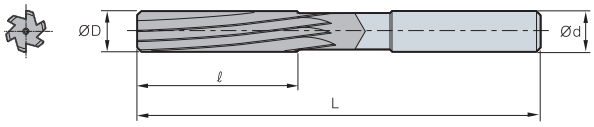



Fig.2

(mm)

| | Articolo | Stock H01 | N. scanalature | øD | ød | ℓ | L | Fig. |
|---|---|---|---|---|---|---|---|---|
| HRE | 030S | | 4 | 3.0 | 3.0 | 20 | 60 | 1 |
| | 035S | | 4 | 3.5 | 3.5 | 20 | 60 | 1 |
| | 040S | | 4 | 4.0 | 4.0 | 20 | 70 | 1 |
| | 045S | | 4 | 4.5 | 4.5 | 20 | 70 | 1 |
| | 050S | | 4 | 5.0 | 5.0 | 23 | 80 | 1 |
| | 055S | | 4 | 5.5 | 5.5 | 23 | 80 | 1 |
| | 060S | | 4 | 6.0 | 6.0 | 26 | 90 | 1 |
| | 070S | | 6 | 7.0 | 7.0 | 31 | 100 | 1 |
| | 080S | | 6 | 8.0 | 8.0 | 33 | 110 | 1 |
| | 090S | | 6 | 9.0 | 9.0 | 36 | 120 | 1 |
| | 100B | | 6 | 10.0 | 10.0 | 38 | 130 | 2 |
| | 110B | | 6 | 11.0 | 10.0 | 41 | 140 | 2 |
| | 120B | | 6 | 12.0 | 12.0 | 44 | 150 | 2 |
| | 130B | | 6 | 13.0 | 12.0 | 44 | 150 | 2 |
| | 140B | | 8 | 14.0 | 16.0 | 47 | 160 | 2 |
| | 150B | | 8 | 15.0 | 16.0 | 50 | 160 | 2 |
| | 160B | | 8 | 16.0 | 16.0 | 52 | 170 | 2 |

Disponibile per richieste su misura

● : Disponibile ○ : A richiesta

## Alesatore (Diritto)

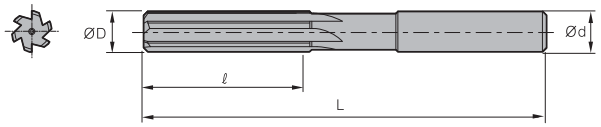



Fig.1

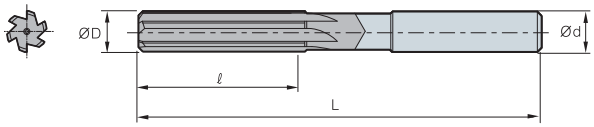



Fig.2

(mm)

| | Articolo | Stock H01 | N. scanalature | øD | ød | ℓ | L | Fig. |
|---|---|---|---|---|---|---|---|---|
| RE | 030S | | 4 | 3.0 | 3.0 | 20 | 60 | 1 |
| | 035S | | 4 | 3.5 | 3.5 | 20 | 60 | 1 |
| | 040S | | 4 | 4.0 | 4.0 | 20 | 70 | 1 |
| | 045S | | 4 | 4.5 | 4.5 | 20 | 70 | 1 |
| | 050S | | 4 | 5.0 | 5.0 | 23 | 80 | 1 |
| | 055S | | 4 | 5.5 | 5.5 | 23 | 80 | 1 |
| | 060S | | 4 | 6.0 | 6.0 | 26 | 90 | 1 |
| | 070S | | 6 | 7.0 | 7.0 | 31 | 100 | 1 |
| | 080S | | 6 | 8.0 | 8.0 | 33 | 110 | 1 |
| | 090S | | 6 | 9.0 | 9.0 | 36 | 120 | 1 |
| | 100B | | 6 | 10.0 | 10.0 | 38 | 130 | 2 |
| | 110B | | 6 | 11.0 | 10.0 | 41 | 140 | 2 |
| | 120B | | 6 | 12.0 | 12.0 | 44 | 150 | 2 |
| | 130B | | 6 | 13.0 | 12.0 | 44 | 150 | 2 |
| | 140B | | 8 | 14.0 | 16.0 | 47 | 160 | 2 |
| | 150B | | 8 | 15.0 | 16.0 | 50 | 160 | 2 |
| | 160B | | 8 | 16.0 | 16.0 | 52 | 170 | 2 |

Disponibile per richieste su misura

● : Disponibile ○ : A richiesta

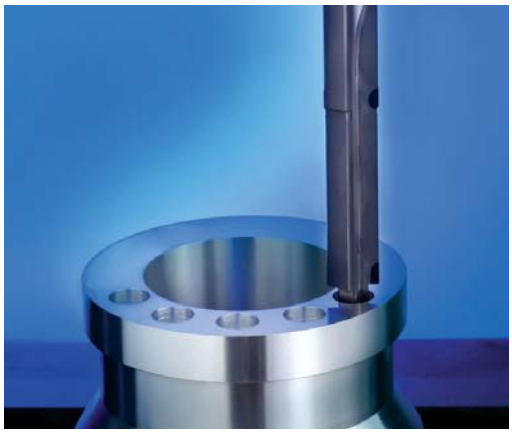
## Informazioni tecniche per alesatori PCD

### Sistema di codifica

| PDR | 2 | 070 |
|---|---|---|
| Alesatori PCD | N. scanalature | Dimensioni del foro di lavorazione |

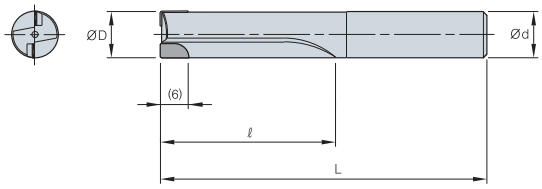
### Condizioni di taglio raccomandate

| Pezzo lavorato | vc(m/min) | fz(mm/t) |
|---|---|---|
| Lega di alluminio | 50~250 | 0.05~0.2 |



## Alesatori PCD






(mm)

| Articolo | | Stock DP200 | N. scanalature | øD | ød | ℓ | L |
|---|---|---|---|---|---|---|---|
| PDR | 2050 | | 2 | 5.0 | 6.0 | 30 | 65 |
| | 2060 | | 2 | 6.0 | 6.0 | 40 | 75 |
| | 2070 | | 2 | 7.0 | 8.0 | 40 | 75 |
| | 2080 | | 2 | 8.0 | 8.0 | 40 | 75 |
| | 2090 | | 2 | 9.0 | 10.0 | 40 | 85 |
| | 2100 | | 2 | 10.0 | 10.0 | 40 | 85 |
| | 2120 | | 2 | 12.0 | 12.0 | 50 | 95 |
| | 2140 | | 2 | 14.0 | 16.0 | 50 | 95 |
| | 2150 | | 2 | 15.0 | 16.0 | 50 | 100 |
| | 4160 | | 4 | 16.0 | 16.0 | 50 | 100 |
| | 4180 | | 4 | 18.0 | 20.0 | 60 | 110 |
| | 4200 | | 4 | 20.0 | 20.0 | 60 | 110 |

∗ Alta velocità, lavorazioni di precisione

● : Disponibile ○ : A richiesta



# INDICE

## Utensili brasati

H


Grado ultrafine KORLOY: Serie F H02
Grado anti corrosione e magnetismo: Serie N H02

### Utensili per uso generico

Neutro metallo duro sinterizzato, cermet H03
Neutro quadrato H04
Neutro rotondo H05
Neutro anello H05
Neutro spirale H05
Punta quadrata H06
Punta Auto Tool H07

### Utensili per miniere ed edilizia

Neutro in metallo duro sinterizzato per punta H08
Punta conica H08
Neutro corona di alesatura H08
Punta per edilizia H08

### Utensili brasati rotanti

Utensili brasati rotanti H09
Modulo d'ordine per utensili brasati rotanti H10

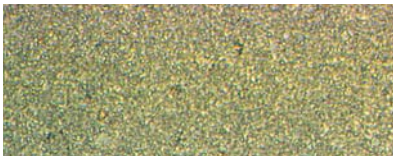
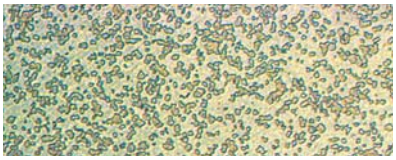
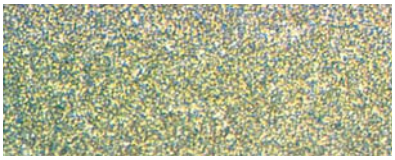



## Grado ultrafine KORLOY "Serie F"

### Caratteristiche

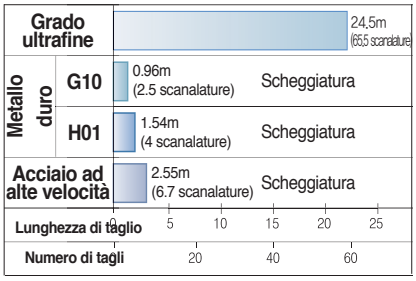
In genere, se si raffronta il metallo duro sinterizzato con l'acciaio ad alta velocità, si constata che il metallo duro sinterizzato ha una maggiore durezza ma è più fragile dell'acciaio ad alta velocità. Per eliminare questa differenza, KORLOY ha sviluppato un grado ultrafine per il nostro metallo duro sinterizzato, la "Serie F"±(WC inferiore a 0.5□). Rispetto al metallo duro sinterizzato è migliore in termini di tenacità e resistenza alla deformazione, in quanto la grana è più grossa. L'applicazione principale del metallo duro sinterizzato a grana ultrafine è la fresatura di materiali difficili da lavorare come le leghe altamente temprate.

• Microstruttura della "**Serie F**"

| FA1 | FCC | FS1 |
|---|---|---|
|  |  |  |
| Questo grado si concentra principalmente sulla tenacità, pertanto è indicato per la produzione di frese integrali, frese a disco, gun drill, alesatori ecc. È caratterizzato da una maggior tenacità e dalle sue proprietà che evitano la formazione di riporto sul tagliente. | È stato modificato a partire da FA1 per aumentare la resistenza agli schock termici; infatti le proprietà di FCC sono più indicate per la lavorazione dell'acciaio inossidabile e di materiali pastosi a medie e alte velocità di fresatura. | Questo grado ultrafine di elevata durezza e maggiore tenacità al tempo stesso è il primo grado raccomandato da KORLOY per lavorazioni di precisione e di materiali difficili da lavorare. |

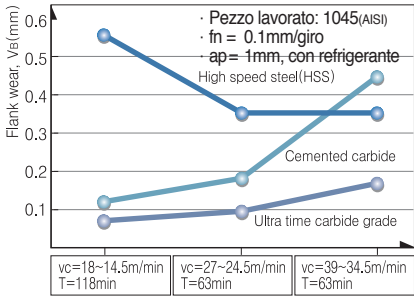
### Prestazioni di taglio

• **Resistenza alla scheggiatura**




· Pezzo lavaorato: 4140(AISI)
· Utensile: Fresa integrale in metallo duro (Ø8mm, 2 eliche)
· vc = 26.5m/min, fz = 0.0285mm/t, vf = 60mm/min, con refrigerante

• **Resistenza all'usura**



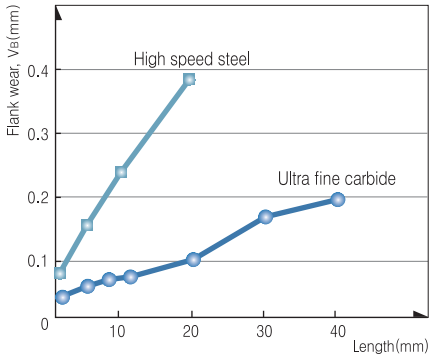

AISI: American Iron and Steel Institute

### Guida per la scelta del grado

| Pezzo lavorato | 1° grado raccomandato | Utensile |
|---|---|---|
| Materiali non ferrosi<br>Acciaio, Ghisa | FS1, FG2<br>FCC, FA1 | Punta, Fresa integrale |

• **Condizioni di taglio**

- Pezzo lavorato: SM55C(HRC20)
- Utensile : Ø10mm, 2 elilche (SSE2100)
- Velocità di taglio = 35m/mim
- Avanzamento = 0.1mm/t
- Taglio verso il basso, senza refrigerante
- Angolo dell'elica : 30°
- RPM = 1,100min$^{-1}$
- Profondità assiale = 12mm
- Profondità radiale = 1mm




• Caratteristiche speciali

| Grado | Caratteristiche | | | Classificazione ISO | Resistenza all'usura | Tenacità |
|---|---|---|---|---|---|---|
| | Gravità specifica | Durezza (HRA) | TRS (kgf/mm$^2$) | | | |
| FS1 | 14.4 | 92.4 | 250 | Z10 | ⦿ | ○ |
| FCC | 12.6 | 91.5 | 250 | Z10 | ⦿ | ○ |
| FA1 | 14.1 | 91.2 | 300 | Z20 | ○ | ⦿ |
| FG2 | 14.3 | 92.7 | 350 | Z10 | ⦿ | ○ |

## Gradi anti corrosione e magnetismo KORLOY, "Serie IN"

### Caratteristiche

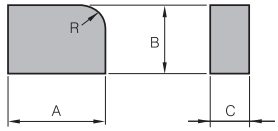
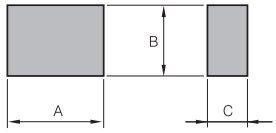
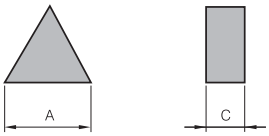
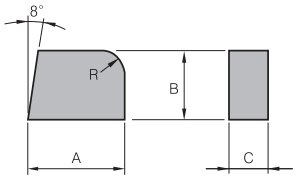
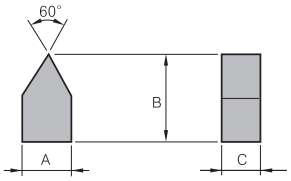
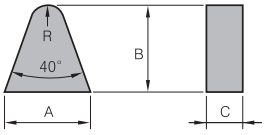
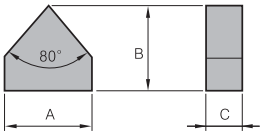
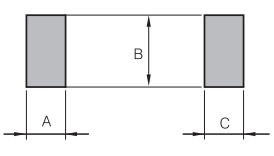
- Eccezionale resistenza alla corrosione: prestazioni cento volte migliori del grado generico (le prove sono state eseguite al 30% NHO3, raffrontando KORLOY G5 e Serie IN).
- Durezza e tenacità eccellenti: durezza sup. a (HRA) 85, tenacità sup. a (TRS) 200
- Vari gradi disponibili: 3 diversi tipi di grado per applicazioni specifiche

| Grado | Gravità specifica (g/cm$^3$) | Durezza (HRA) | TRS(kgf/mm$^2$) | Saturazione magnetica (Gauss · cm$^3$/g) | Usi |
|---|---|---|---|---|---|
| **IN10** | 14.4 | 91.5 | 230 | 0 | Lega anti corrosione per tenute meccaniche, cesoie per taglio a strisce. Lega anti magnetismo |
| **IN20** | 14.5 | 91.0 | 250 | 90 | Lega anti corrosione per tenute meccaniche, cesoie per taglio a strisce |
| **IN40** | 13.5 | 85.5 | 280 | 0 | Stampo per polvere magnetica<br>Lega anti corrosione/anti magnetismo |



• **Usi**

| Anti corrosione | Anti magnetismo |
|---|---|
| • Parti di impianti ad alta pressione/corrosione • Parti di pompe per acqua marina<br>• Stampi ad alte temperature • Tenuta meccanica | • Cesoie a nastro • Stampi per polvere magnetica<br>• Parti per VTR |

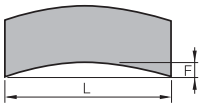
| Inserti | Articolo | A | B | C | R | Non rivestito | | | | | | | | Cermet | | Neutro disponibile |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | ST10 | ST20 | U40 | GR35 | U20 | H02 | H01 | G10 | CT10 | CN20 | |
|  | 01- 0 | 10 | 6 | 3 | 4 | | | | | | | | | | | Tipo 31<br>Tipo 32<br>Tipo 45<br>Tipo 46 |
| | 1 | 13 | 9 | 3 | 5 | | | | | | | | | | | |
| | 2 | 16 | 11 | 4 | 5 | | ● | | | | | | | | | |
| | 3 | 19 | 13 | 5 | 5 | | ● | | | | | | | | | |
| | 4 | 22 | 15 | 6 | 8 | | | | | | | | | | | |
| | 5 | 25 | 17 | 7 | 8 | | | | | | | | | | | |
| | 6 | 30 | 20 | 8 | 8 | | | | | | | | | | | |
|  | 02- 0 | 10 | 6 | 3 | - | ● | ● | | | ● | | ● | ● | | | Tipo 41<br>Tipo 42 |
| | 1 | 13 | 9 | 3 | - | | ● | | | ● | | ● | ● | | | |
| | 2 | 16 | 11 | 4 | - | | ● | | | ● | | ● | ● | | | |
| | 3 | 19 | 13 | 5 | - | ● | ● | | | ● | | ● | ● | | | |
| | 4 | 22 | 15 | 6 | - | | ● | | | ● | | ● | ● | | | |
| | 5 | 25 | 17 | 7 | - | | ● | | | | | ● | ● | | | |
| | 6 | 30 | 20 | 8 | - | | ● | | | | | | | | | |
|  | 03- 0 | 10 | - | 3 | - | | | | | | | | | | | Tipo 37<br>Tipo 38<br>Tipo 47<br>Tipo 48 |
| | 1 | 12 | - | 3 | - | | | | | | | | | | | |
| | 2 | 15 | - | 4 | - | | | | | | | | | | | |
| | 3 | 18 | - | 5 | - | | | | | | | | | | | |
| | 4 | 24 | - | 6 | - | | | | | | | | | | | |
| | 5 | 24 | - | 7 | - | | | | | | | | | | | |
| | 6 | 28 | - | 8 | - | | | | | | | | | | | |
|  | 04- 0 | 10 | 6 | 3 | 4 | | | | | | | | | | | Tipo 33<br>Tipo 34 |
| | 1 | 13 | 9 | 3 | 5 | | ● | | | | | | | | | |
| | 2 | 16 | 11 | 4 | 5 | | | | | | | | | | | |
| | 3 | 19 | 13 | 5 | 5 | | ● | | | | | | | | | |
| | 4 | 22 | 15 | 6 | 8 | | | | | | | | | | | |
| | 5 | 25 | 17 | 7 | 8 | | | | | | | | | | | |
| | 6 | 30 | 20 | 8 | 8 | | | | | | | | | | | |
|  | 05- 1 | 5 | 8 | 3 | - | | ● | | | ● | | | | | | Tipo 49<br>Tipo 50<br>Tipo 51<br>Tipo 52 |
| | 2 | 6 | 10 | 4 | - | | ● | | | ● | | | | | | |
| | 3 | 7 | 12 | 5 | - | | ● | | | ● | | | | | | |
| | 4 | 9 | 16 | 6 | - | | ● | | | | | | | | | |
| | 5 | 10 | 18 | 7 | - | | | | | | | | | | | |
| | 6 | 11 | 20 | 8 | - | | | | | | | | | | | |
|  | 06- 0 | 10 | 10 | 3 | 2 | | ● | | | ● | | ● | ● | | | Tipo 36<br>Tipo 39<br>Tipo 40 |
| | 1 | 13 | 13 | 3 | 2.5 | | ● | | | ● | | ● | ● | | | |
| | 2 | 16 | 16 | 4 | 3 | ● | ● | | | ● | ● | ● | ● | | | |
| | 3 | 19 | 19 | 5 | 4 | | ● | | ● | ● | ● | ● | ● | | | |
| | 4 | 22 | 22 | 6 | 4 | ● | ● | | | ● | | ● | ● | | | |
| | 5 | 25 | 25 | 7 | 5 | | ● | | | ● | | ● | ● | | | |
| | 6 | 30 | 30 | 8 | 6 | | | | | | | | | | | |
|  | 07- 0 | 10 | 10 | 3 | - | | | | | | | | | | | Tipo 35 |
| | 1 | 13 | 13 | 3 | - | | | | | | | | | | | |
| | 2 | 16 | 16 | 4 | - | | | | | | | | | | | |
| | 3 | 19 | 19 | 5 | - | | | | | | | | | | | |
| | 4 | 25 | 20 | 6 | - | | | | | | | | | | | |
| | 5 | 25 | 22 | 7 | - | | | | | | | | | | | |
| | 6 | 30 | 25 | 8 | - | | | | | | | | | | | |
|  | 08- 1 | 3 | 8 | 3 | - | | ● | | | ● | | | | | | Tipo 43 |
| | 3 | 4 | 13 | 4 | - | ● | ● | | | ● | | ● | ● | | | |
| | 4 | 5 | 15 | 5 | - | ● | ● | | | ● | | ● | ● | | | |
| | 5 | 6 | 17 | 6 | - | ● | ● | | | ● | | | ● | | | |
| | 6 | 8 | 20 | 8 | - | | ● | | | | | | | | | |

# H Neutro quadrato

## RB




▪ Tolleranza di curvatura




| L | | F–max |
|---|---|---|
| Standard | Tolleranza | |
| ~30 | +1.0 – 0 | 0.15 |
| 31~50 | +1.5 – 0 | 0.25 |
| 51~100 | +3.0 – 0 | 0.30 |

※ Sistema di codifica RB 15 04 □
Lunghezza Larghezza Spessore

(mm)

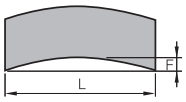
| Articolo | L | W | T = □ | | | | | | | | Gradi | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | G10 | G10 |
| RB 303□ | 3 | 3 | | | | | | | | | | |
| 304□ | 3 | 4 | | | | | | | | | | |
| 305□ | 3 | 5 | | | | | | | | | | |
| 306□ | 3 | 6 | | | | | | | | | | |
| 307□ | 3 | 7 | | | | | | | | | | |
| 308□ | 3 | 8 | | | | | | | | | | |
| 309□ | 3 | 9 | | | | | | | | | | |
| 310□ | 3 | 10 | | | | | | | | | | |
| RB 403□ | 4 | 3 | | | | | | | | | | |
| 404□ | 4 | 4 | | | | | | | | | | |
| 405□ | 4 | 5 | | | | | | | | | | |
| 406□ | 4 | 6 | | | | | | | | | | |
| 407□ | 4 | 7 | | | | | | | | | | |
| 408□ | 4 | 8 | | | | | | | | | | |
| 409□ | 4 | 9 | | | | | | | | | | |
| 410□ | 4 | 10 | | | | | | | | | | |
| RB 503□ | 5 | 3 | | | | | | | | | | |
| 504□ | 5 | 4 | | | | | | | | | | |
| 505□ | 5 | 5 | | | | | | | | | | |
| 506□ | 5 | 6 | | | | | | | | | | |
| 507□ | 5 | 7 | | | | | | | | | | |
| 508□ | 5 | 8 | | | | | | | | | | |
| 509□ | 5 | 9 | | | | | | | | | | |
| 510□ | 5 | 10 | | | | | | | | | | |
| RB 603□ | 6 | 3 | | | | | | | | | | |
| 604□ | 6 | 4 | | | | | | | | | | |
| 605□ | 6 | 5 | | | | | | | | | | |
| 606□ | 6 | 6 | | | | | | | | | | |
| 607□ | 6 | 7 | | | | | | | | | | |
| 608□ | 6 | 8 | | | | | | | | | | |
| 609□ | 6 | 9 | | | | | | | | | | |
| 610□ | 6 | 10 | | | | | | | | | | |
| RB 703□ | 7 | 3 | | | | | | | | | | |
| 704□ | 7 | 4 | | | | | | | | | | |
| 705□ | 7 | 5 | | | | | | | | | | |
| 706□ | 7 | 6 | | | | | | | | | | |
| 707□ | 7 | 7 | | | | | | | | | | |
| 708□ | 7 | 8 | | | | | | | | | | |
| 709□ | 7 | 9 | | | | | | | | | | |
| 710□ | 7 | 10 | | | | | | | | | | |
| RB 803□ | 8 | 3 | | | | | | | | | | |
| 804□ | 8 | 4 | | | | | | | | | | |
| 805□ | 8 | 5 | | | | | | | | | | |
| 806□ | 8 | 6 | | | | | | | | | | |
| 807□ | 8 | 7 | | | | | | | | | | |
| 808□ | 8 | 8 | | | | | | | | | | |
| 809□ | 8 | 9 | | | | | | | | | | |
| 810□ | 8 | 10 | | | | | | | | | | |
| RB 903□ | 9 | 3 | | | | | | | | | | |
| 904□ | 9 | 4 | | | | | | | | | | |
| 905□ | 9 | 5 | | | | | | | | | | |
| 906□ | 9 | 6 | | | | | | | | | | |
| 907□ | 9 | 7 | | | | | | | | | | |
| 908□ | 9 | 8 | | | | | | | | | | |
| 909□ | 9 | 9 | | | | | | | | | | |
| 910□ | 9 | 10 | | | | | | | | | | |
| RB 1003□ | 10 | 3 | | | | | | | | | | |
| 1004□ | 10 | 4 | | | | | | | | | | |
| 1005□ | 10 | 5 | | | | | | | | | | |
| 1006□ | 10 | 6 | | | | | | | | | | |
| 1007□ | 10 | 7 | | | | | | | | | | |
| 1008□ | 10 | 8 | | | | | | | | | | |
| 1009□ | 10 | 9 | | | | | | | | | | |
| 1010□ | 10 | 10 | | | | | | | | | | |
| RB 1504□ | 15 | 4 | | | | | | | | | | |
| 1505□ | 15 | 5 | | | | | | | | | | |
| RB 2003□ | 20 | 3 | | | | | | | | | | |
| 2004□ | 20 | 4 | | | | | | | | | | |
| 2005□ | 20 | 5 | | | | | | | | | | |

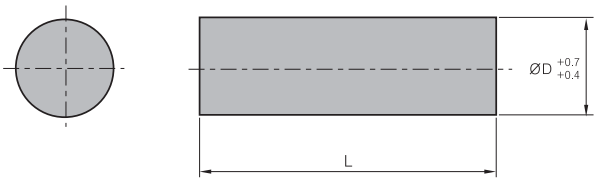
(mm)

| Articolo | L | W | T = □ | | | | | | | | Gradi | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | G10 | G10 |
| RB 2006□ | 20 | 6 | | | | | | | | | | |
| 2007□ | 20 | 7 | | | | | | | | | | |
| 2008□ | 20 | 8 | | | | | | | | | | |
| 2009□ | 20 | 9 | | | | | | | | | | |
| 2010□ | 20 | 10 | | | | | | | | | | |
| RB 3003□ | 30 | 3 | | | | | | | | | | |
| 3004□ | 30 | 4 | | | | | | | | | | |
| 3005□ | 30 | 5 | | | | | | | | | | |
| 3006□ | 30 | 6 | | | | | | | | | | |
| 3007□ | 30 | 7 | | | | | | | | | | |
| 3008□ | 30 | 8 | | | | | | | | | | |
| 3009□ | 30 | 9 | | | | | | | | | | |
| 3010□ | 30 | 10 | | | | | | | | | | |
| RB 4003□ | 40 | 3 | | | | | | | | | | |
| 4004□ | 40 | 4 | | | | | | | | | | |
| 4005□ | 40 | 5 | | | | | | | | | | |
| 4006□ | 40 | 6 | | | | | | | | | | |
| 4007□ | 40 | 7 | | | | | | | | | | |
| 4008□ | 40 | 8 | | | | | | | | | | |
| 4009□ | 40 | 9 | | | | | | | | | | |
| 4010□ | 40 | 10 | | | | | | | | | | |
| RB 5003□ | 50 | 3 | | | | | | | | | | |
| 5004□ | 50 | 4 | | | | | | | | | | |
| 5005□ | 50 | 5 | | | | | | | | | | |
| 5006□ | 50 | 6 | | | | | | | | | | |
| 5007□ | 50 | 7 | | | | | | | | | | |
| 5008□ | 50 | 8 | | | | | | | | | | |
| 5009□ | 50 | 9 | | | | | | | | | | |
| 5010□ | 50 | 10 | | | | | | | | | | |
| RB 6003□ | 60 | 3 | | | | | | | | | | |
| 6004□ | 60 | 4 | | | | | | | | | | |
| 6005□ | 60 | 5 | | | | | | | | | | |
| 6006□ | 60 | 6 | | | | | | | | | | |
| 6007□ | 60 | 7 | | | | | | | | | | |
| 6008□ | 60 | 8 | | | | | | | | | | |
| 6009□ | 60 | 9 | | | | | | | | | | |
| 6010□ | 60 | 10 | | | | | | | | | | |
| RB 7003□ | 70 | 3 | | | | | | | | | | |
| 7004□ | 70 | 4 | | | | | | | | | | |
| 7005□ | 70 | 5 | | | | | | | | | | |
| 7006□ | 70 | 6 | | | | | | | | | | |
| 7007□ | 70 | 7 | | | | | | | | | | |
| 7008□ | 70 | 8 | | | | | | | | | | |
| 7009□ | 70 | 9 | | | | | | | | | | |
| 7010□ | 70 | 10 | | | | | | | | | | |
| RB 8003□ | 80 | 3 | | | | | | | | | | |
| 8004□ | 80 | 4 | | | | | | | | | | |
| 8005□ | 80 | 5 | | | | | | | | | | |
| 8006□ | 80 | 6 | | | | | | | | | | |
| 8007□ | 80 | 7 | | | | | | | | | | |
| 8008□ | 80 | 8 | | | | | | | | | | |
| 8009□ | 80 | 9 | | | | | | | | | | |
| 8010□ | 80 | 10 | | | | | | | | | | |
| RB 9003□ | 90 | 3 | | | | | | | | | | |
| 9004□ | 90 | 4 | | | | | | | | | | |
| 9005□ | 90 | 5 | | | | | | | | | | |
| 9006□ | 90 | 6 | | | | | | | | | | |
| 9007□ | 90 | 7 | | | | | | | | | | |
| 9008□ | 90 | 8 | | | | | | | | | | |
| 9009□ | 90 | 9 | | | | | | | | | | |
| 9010□ | 90 | 10 | | | | | | | | | | |
| RB 10003□ | 100 | 3 | | | | | | | | | | |
| 10004□ | 100 | 4 | | | | | | | | | | |
| 10005□ | 100 | 5 | | | | | | | | | | |
| 10006□ | 100 | 6 | | | | | | | | | | |
| 10007□ | 100 | 7 | | | | | | | | | | |
| 10008□ | 100 | 8 | | | | | | | | | | |
| 10009□ | 100 | 9 | | | | | | | | | | |
| 10010□ | 100 | 10 | | | | | | | | | | |

## SR (Neutro rotondo)

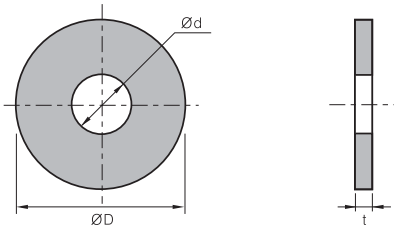
▪ Tolleranza di curvatura




| L | | F-max |
|---|---|---|
| Standard | Tolleranza | |
| ~30 | +1.5 – 0 | 0.10 |
| 31~40 | +1.5 – 0 | 0.15 |
| 41~50 | +1.5 – 0 | 0.20 |
| 51~100 | +2.5 – 0 | 0.25 |

## RT (Neturo anello)




※ Sistema di codifica SR 03 □
03: Diametro, □: Lunghezza

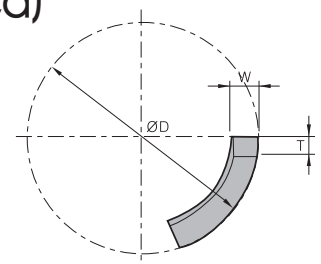
(mm)

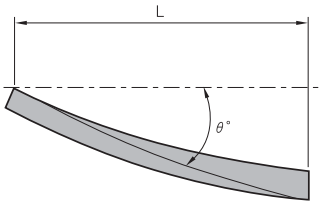
| Articolo | | øD | L = □ | | | | | | | | Gradi | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | ST20 | G10 |
| SR | 03 □ | 3 | | | | | | | | | | |
| | 04 □ | 4 | | | | | | | | | | |
| | 05 □ | 5 | | | | | | | | | | |
| | 06 □ | 6 | | | | | | | | | | |
| | 07 □ | 7 | | | | | | | | | | |
| | 08 □ | 8 | | | | | | | | | | |
| | 09 □ | 9 | | | | | | | | | | |
| | 10 □ | 10 | | | | | | | | | | |
| | 11 □ | 11 | | | | | | | | | | |
| | 12 □ | 12 | | | | | | | | | | |

(mm)

| Articolo | øD | Ød | t |
|---|---|---|---|
| ØD × Ød × t | ø7.2~ø200 | ø2.7~ø150 | 0.8 ~10 |

## ST (Neutro a elica)

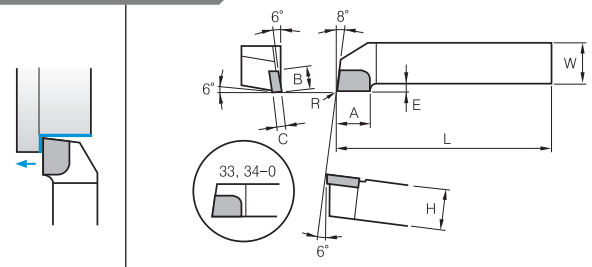
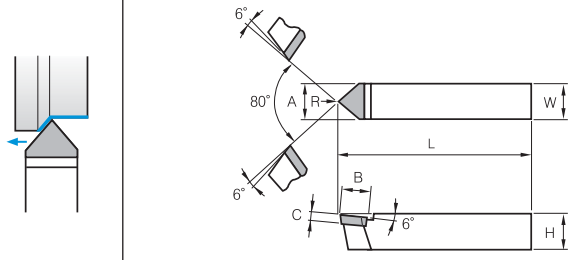
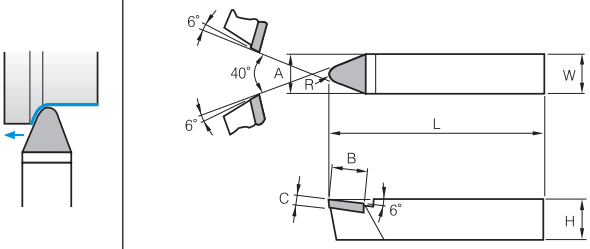
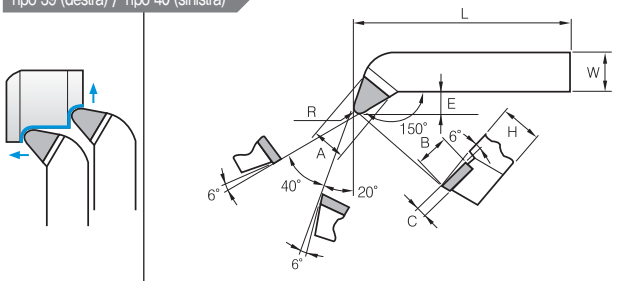
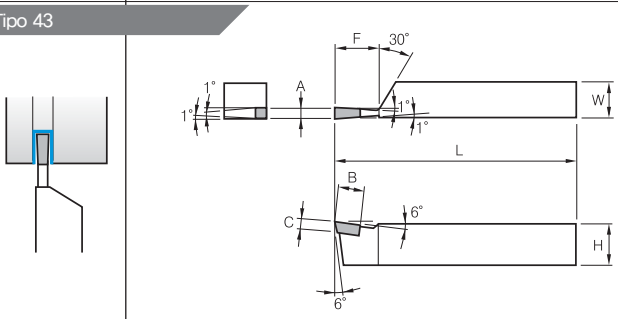
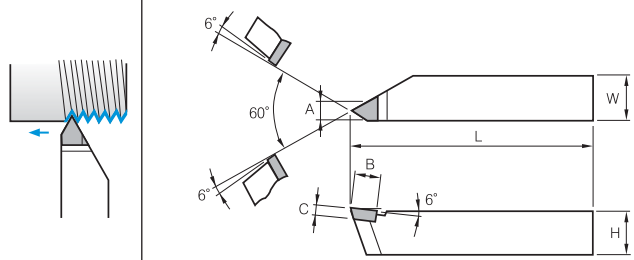


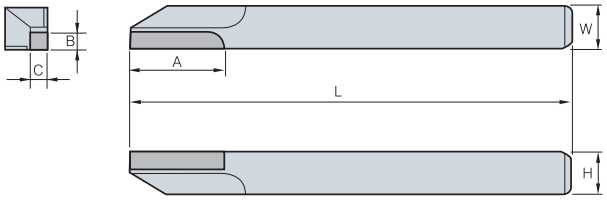

(mm)

| Articolo | | Fresa integrale disponibile (ØD) | L | T | W | θ° |
|---|---|---|---|---|---|---|
| ST | 14 | ø13, 14 | 30 | 2.3 | 4.0 | 23° 44′ |
| | 15 | ø15 | 30 | 2.3 | 4.0 | 25° 13′ |
| | 18 | ø18 | 32 | 2.3 | 4.5 | 25° 13′ |
| | 20 | ø20 | 32 | 2.8 | 5.5 | 24° 09′ |
| | 24 | ø23, 24 | 37 | 2.8 | 5.5 | 25° 13′ |
| | 26 | ø26, 27 | 37 | 3.3 | 6.5 | 24° 24′ |
| | 30 | ø29, 30, 31 | 42 | 3.8 | 7.0 | 25° 13′ |
| | 32 | ø32, 33 | 47 | 3.8 | 7.0 | 26° 41′ |
| | 35 | ø34, 35, 36 | 52 | 3.8 | 7.0 | 24° 36′ |
| | 38 | ø37, 38 | 57 | 3.8 | 7.0 | 23° 51′ |
| | 40 | ø39, 40, 41, 42 | 62 | 4.3 | 7.5 | 24° 57′ |
| | 45 | ø43, 44, 45, 46, 47 | 67 | 4.3 | 7.5 | 25° 13′ |
| | 50 | ø48, 49, 50 | 67 | 4.3 | 7.5 | 24° 09′ |

# H Punte quadrate

| Lavorazione | Figura | Articolo | Gradi ST20 | A | B | C | (R) | W | H | L | E | F | Neutro disponibile |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tipo 33 (destra) / Tipo 34 (sinistra) |  | 33, 34 - 0 | | 10 | 6 | 3 | 0.3 | 10 | 10 | 80 | 0 | | 04-0 |
| | | 1 | ● | 13 | 9 | 3 | 0.5 | 13 | 13 | 100 | 4 | | 04-1 |
| | | 2 | ● | 16 | 11 | 4 | 0.5 | 16 | 16 | 120 | 4 | | 04-2 |
| | | 3 | ● | 19 | 13 | 5 | 0.5 | 19 | 19 | 140 | 5 | | 04-3 |
| | | 4 | | 22 | 15 | 6 | 1 | 25 | 25 | 160 | 5 | | 04-4 |
| | | 5 | | 25 | 17 | 7 | 1 | 25 | 30 | 180 | 5 | | 04-5 |
| | | 6 | | 30 | 20 | 8 | 1 | 35 | 35 | 200 | 6 | | 04-6 |
| Tipo 35 |  | 35 - 0 | | 10 | 10 | 3 | 0.3 | 10 | 10 | 80 | | | 07-0 |
| | | 1 | | 13 | 13 | 3 | 0.5 | 13 | 13 | 100 | | | 07-1 |
| | | 2 | | 16 | 16 | 4 | 0.5 | 16 | 16 | 120 | | | 07-2 |
| | | 3 | ● | 18 | 19 | 5 | 0.5 | 19 | 19 | 140 | | | 07-3 |
| | | 4 | | 25 | 20 | 6 | 1 | 25 | 25 | 160 | | | 07-4 |
| | | 5 | | 25 | 22 | 7 | 1 | 25 | 30 | 180 | | | 07-5 |
| | | 6 | | 30 | 25 | 8 | 1 | 30 | 35 | 200 | | | 07-6 |
| Tipo 36 |  | 36 - 0 | | 10 | 10 | 3 | 2 | 10 | 10 | 80 | | | 06-0 |
| | | 1 | ● | 13 | 13 | 3 | 2.5 | 13 | 13 | 100 | | | 06-1 |
| | | 2 | ● | 16 | 16 | 4 | 3 | 16 | 16 | 120 | | | 06-2 |
| | | 3 | ● | 18 | 18 | 5 | 4 | 19 | 19 | 140 | | | 06-3 |
| | | 4 | | 22 | 22 | 6 | 4 | 25 | 25 | 160 | | | 06-4 |
| | | 5 | | 25 | 25 | 7 | 5 | 25 | 30 | 180 | | | 06-5 |
| | | 6 | | 30 | 30 | 8 | 6 | 30 | 35 | 200 | | | 06-6 |
| Tipo 39 (destra) / Tipo 40 (sinistra) |  | 39, 40 - 0 | | 10 | 10 | 3 | 2 | 10 | 10 | 80 | 5 | | 06-0 |
| | | 1 | | 13 | 13 | 3 | 2.5 | 13 | 13 | 100 | 7 | | 06-1 |
| | | 2 | | 16 | 16 | 4 | 3 | 16 | 16 | 120 | 10 | | 06-2 |
| | | 3 | | 19 | 19 | 5 | 4 | 19 | 19 | 140 | 12 | | 06-3 |
| | | 4 | | 22 | 22 | 6 | 4 | 25 | 25 | 160 | 13 | | 06-4 |
| | | 5 | | 25 | 25 | 7 | 5 | 25 | 30 | 180 | 15 | | 06-5 |
| | | 6 | | 30 | 30 | 8 | 6 | 30 | 35 | 200 | 16 | | 06-6 |
| Tipo 43 |  | 43 - 1 | | 3 | 8 | 3 | | 10 | 16 | 100 | | 13 | 08-1 |
| | | 2 | ● | 3 | 8 | 3 | | 13 | 19 | 120 | | 16 | 08-1 |
| | | 3 | ● | 4 | 13 | 4 | | 16 | 22 | 140 | | 20 | 08-3 |
| | | 4 | | 5 | 15 | 5 | | 18 | 25 | 160 | | 25 | 08-4 |
| | | 5 | | 6 | 17 | 6 | | 22 | 32 | 180 | | 30 | 08-5 |
| | | 6 | | 8 | 20 | 8 | | 25 | 38 | 200 | | 40 | 08-6 |
| Tipo 49 (destra) / Tipo 50 (sinistra) |  | 49, 50 - 1 | | 5 | 8 | 3 | | 13 | 13 | 100 | | | 05-1 |
| | | 2 | | 6 | 10 | 4 | | 16 | 16 | 120 | | | 05-2 |
| | | 3 | | 7 | 12 | 5 | | 19 | 19 | 140 | | | 05-3 |
| | | 4 | | 9 | 16 | 6 | | 25 | 25 | 160 | | | 05-4 |

# PBX100



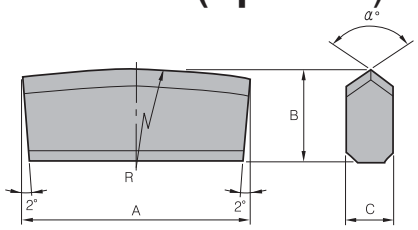

(mm)

| Articolo | Gradi | | | A | B | C | W | H | L |
|---|---|---|---|---|---|---|---|---|---|
| | FA1 | H02 | U20 | | | | | | |
| PBX - 105 | | | | 20 | 2.0 | 2.0 | 5 | 5 | 125 |
| 106 | | | | 20 | 2.5 | 2.5 | 6 | 6 | 140 |
| 107 | | | | 20 | 3.0 | 3.0 | 7 | 7 | 150 |
| 108 | ● | ● | ● | 20 | 3.0 | 3.0 | 8 | 8 | 150 |
| 109 | | | | 20 | 3.5 | 3.5 | 9 | 9 | 150 |
| 110 | ● | ● | ● | 20 | 4.0 | 4.0 | 10 | 10 | 150 |
| 112 | ● | ● | ● | 20 | 4.0 | 4.0 | 12 | 12 | 150 |
| 116 | ● | | | 20 | 4.0 | 4.0 | 16 | 16 | 150 |

● : Disponibile ○ : A richiesta

# H Neutro in metallo duro sinterizzato per punte

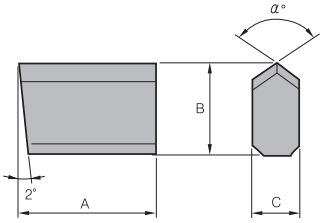
## Punte coniche (Tipo 1000)




(mm)

| Articolo | A | B | C | α° | R |
|---|---|---|---|---|---|
| 1000 - 124 | 24 | 10 | 6 | 100 | 80 |
| 126 | 26 | 10 | 6 | 100 | 80 |
| 128 | 28 | 10 | 6 | 100 | 80 |
| 130 | 30 | 10 | 6 | 100 | 80 |
| 132 | 32 | 10 | 6 | 100 | 80 |
| 232 | 32 | 10 | 6 | 100 | 80 |
| 234 | 34 | 12 | 8 | 110 | 120 |
| 236 | 36 | 12 | 8 | 110 | 120 |
| 238 | 38 | 12 | 8 | 110 | 120 |
| 240 | 40 | 12 | 8 | 110 | 120 |
| 242 | 42 | 12 | 8 | 110 | 120 |
| 332 | 32 | 14 | 8 | 110 | 120 |
| 334 | 34 | 14 | 8 | 110 | 120 |
| 336 | 36 | 14 | 8 | 110 | 120 |
| 338 | 38 | 14 | 8 | 110 | 120 |
| 340 | 40 | 14 | 8 | 110 | 120 |
| 342 | 42 | 14 | 8 | 110 | 120 |
| 434 | 34 | 15 | 10 | 110 | 120 |
| 436 | 36 | 15 | 10 | 110 | 120 |
| 438 | 38 | 15 | 10 | 110 | 120 |
| 440 | 40 | 15 | 10 | 110 | 120 |
| 442 | 42 | 15 | 10 | 110 | 120 |
| 444 | 44 | 15 | 10 | 110 | 120 |
| 446 | 46 | 15 | 10 | 110 | 120 |
| 534 | 34 | 18 | 10 | 110 | 120 |
| 536 | 36 | 18 | 10 | 110 | 120 |
| 538 | 38 | 18 | 10 | 110 | 120 |
| 540 | 40 | 18 | 10 | 110 | 120 |
| 542 | 42 | 18 | 10 | 110 | 120 |
| 544 | 44 | 18 | 10 | 110 | 120 |
| 546 | 46 | 18 | 10 | 110 | 120 |

## Punte a croce (Tipo 2000)

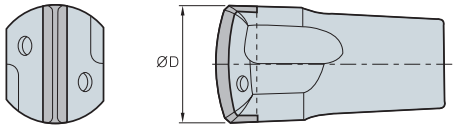



(mm)

| Articolo | A | B | C | α° | R |
|---|---|---|---|---|---|
| 2000 - 110 | 10 | 10 | 6 | 100 | |
| 111 | 11 | 10 | 6 | 100 | |
| 112 | 12 | 10 | 6 | 100 | |
| 113 | 13 | 10 | 6 | 100 | |
| 114 | 14 | 10 | 6 | 100 | |
| 115 | 15 | 12 | 6 | 100 | |
| 210 | 10 | 12 | 6 | 100 | |
| 211 | 11 | 12 | 6 | 100 | |
| 212 | 12 | 12 | 6 | 100 | |
| 213 | 13 | 12 | 6 | 100 | |
| 214 | 14 | 12 | 6 | 100 | |
| 215 | 15 | 14 | 8 | 100 | |
| 312 | 12 | 14 | 8 | 100 | |
| 313 | 13 | 14 | 8 | 100 | |
| 314 | 14 | 14 | 8 | 100 | |
| 315 | 15 | 14 | 8 | 100 | |
| 316 | 16 | 14 | 8 | 100 | |
| 317 | 17 | 14 | 8 | 100 | |
| 318 | 18 | 14 | 8 | 100 | |

Per ordini di articoli speciali, indicare articolo, gradi, quantità
Disponibile per richieste su misura

## TB (per punte coniche)

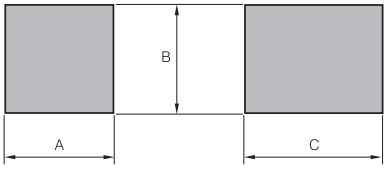



(mm)

| Articolo | | ØD | Stock GR40 |
|---|---|---|---|
| TB | 20 | 20 | |
| | 32 | 32 | ● |
| | 34 | 34 | ● |
| | 36 | 36 | ● |
| | 38 | 38 | ● |
| | 39 | 39 | |
| | 40 | 40 | ● |

## Neutro corona di alesatura

## BT

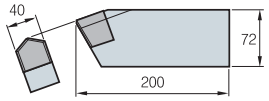
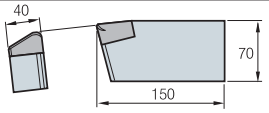
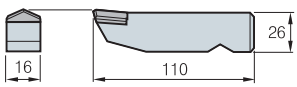



(mm)

| Articolo | | A | B | C | Stock E1 | Stock E2 | Stock G2 |
|---|---|---|---|---|---|---|---|
| BT | 1 | 5 | 5 | 8 | | | |
| | 2 | 6 | 6 | 9 | | | |
| | 3 | 8 | 8 | 10 | | | |
| | 4 | 7 | 10 | 15 | | | |

## Punte per edilizia

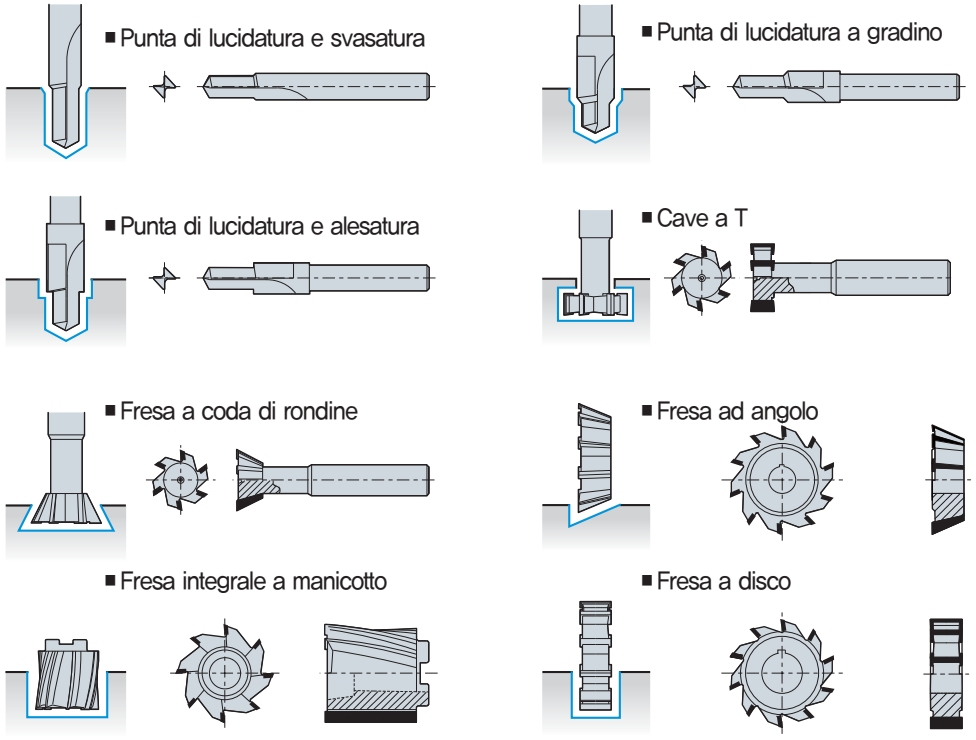
(mm)

| Disegno | Dimensioni |
|---|---|
| Earth Auger Bits |   |
| Casing Bits |   |
| Rod Bits |   |

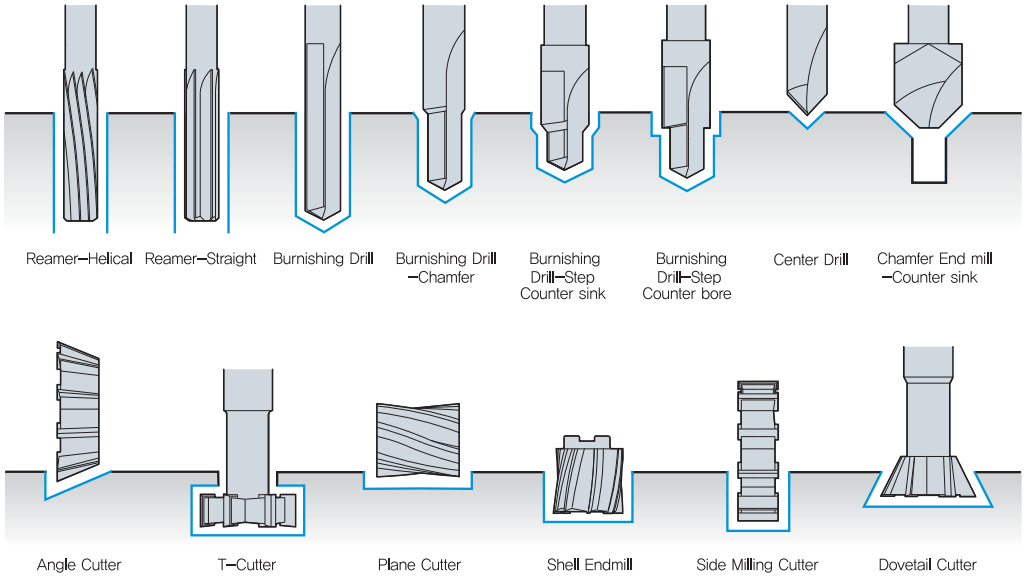
## Neutro in metallo duro sinterizzato per punte

- Varie applicazioni.
- Grande precisione. Semplice ordinare modelli speciali.
- Indicato per utensili di piccole dimensioni. Consegna in tempi rapidi.
- Costi ragionevoli. Riutilizzabile dopo riaffilatura.

## Tipo di lavorazione

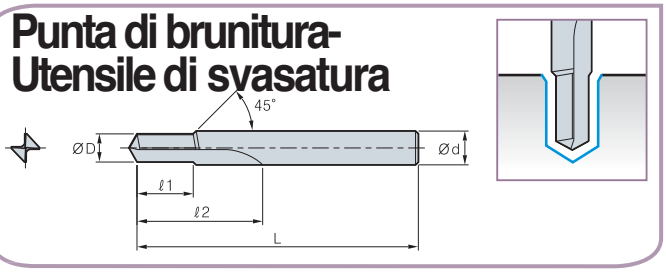



## Processi di lavorazione



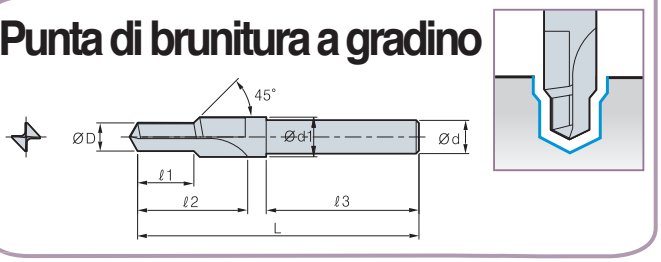
# Modulo d'ordine per utensili brasati rotanti

## Punta di brunitura-Utensile di svasatura



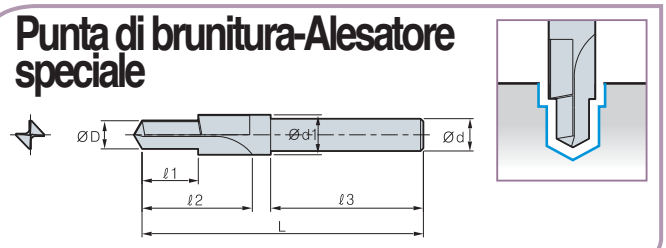

| Spec. | øD | ℓ1 | ℓ2 | L | ød |
|---|---|---|---|---|---|
| BDC | | | | | |

## Punta di brunitura a gradino



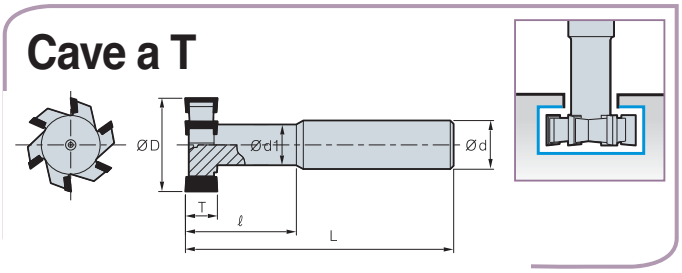

| Spec. | øD | ød1 | ℓ1 | ℓ2 | ℓ3 | L | ød |
|---|---|---|---|---|---|---|---|
| BDS | | | | | | | |

## Punta di brunitura-Alesatore speciale



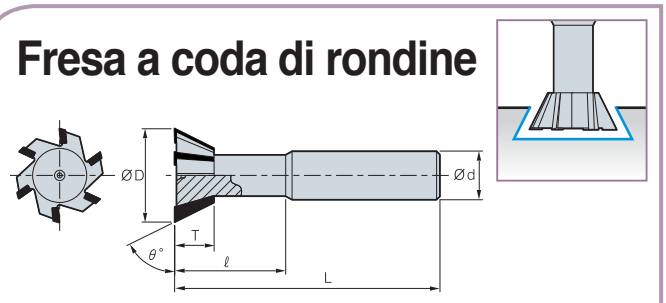

| Spec. | øD | ød2 | ℓ1 | ℓ2 | ℓ3 | L | ød |
|---|---|---|---|---|---|---|---|
| BDCB | | | | | | | |

## Cave a T



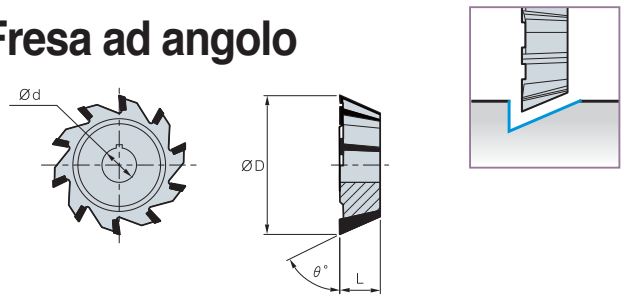

| Spec. | øD | ød1 | T | ℓ | L | ød | N. scanalature |
|---|---|---|---|---|---|---|---|
| TC | | | | | | | |

## Fresa a coda di rondine



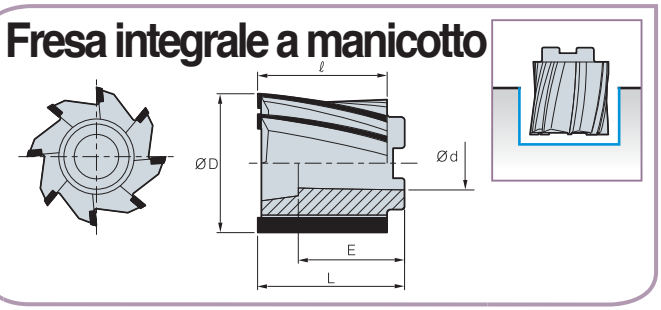

| Spec. | øD | ℓ | θ° | ℓ1 | L | ød | N. scanalature |
|---|---|---|---|---|---|---|---|
| DC | | | | | | | |

## Fresa ad angolo



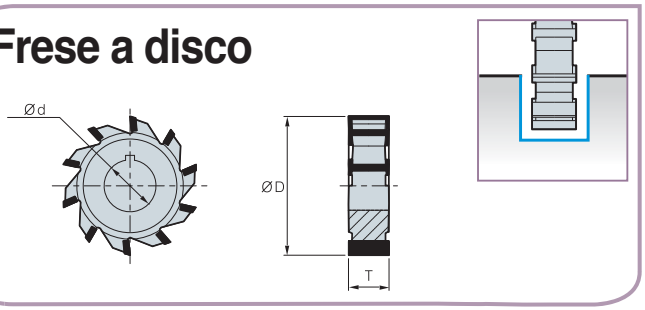

| Spec. | øD | θ° | ød | L | N. scanalature |
|---|---|---|---|---|---|
| AC | | | | | |

## Fresa integrale a manicotto




| Spec. | øD | ød | ℓ | E | L | N. scanalature |
|---|---|---|---|---|---|---|
| SEM | | | | | | |

## Frese a disco




| Spec. | øD | ød | T | N. scanalature | |
|---|---|---|---|---|---|
| SMC | | | | | |

# INDICE

## Sistemi di utensili

I



### Sistemi di utensili


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Sistema di lavorazione HSK I 04
Portainserti M/C I 05
Serie DHE I 06
NPM I 07
HPM I 09
Bussola I 11
Informazioni tecniche per DSC I 13
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## Mandrino BT a doppio ancoraggio

### Sistema di codifica

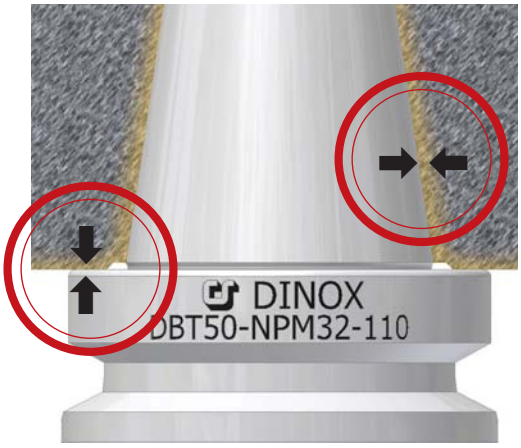
| DBT40 | – | NPM | 32 | – | 110 |
|---|---|---|---|---|---|
| Mandrino | | New Power Milling Chuck | Diametro max. di lavorazione | | Lunghezza |

### Caratteristiche

- Max. 40.000rpm
- Lavorazione stabile anche ad alte velocità
- Maggiore durata del mandrino e dell'utensile
- Previene la corrosione della parte conica del mandrino e del portainserti provocata dalle vibrazioni nelle lavorazioni pesanti
- Garantisce prestazioni elevate e precisione nella lavorazione
- Eccellente superficie di sgrossatura

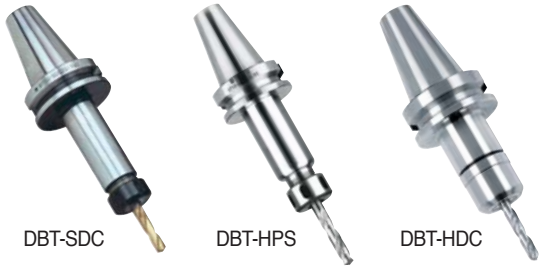


**Doppio ancoraggio**

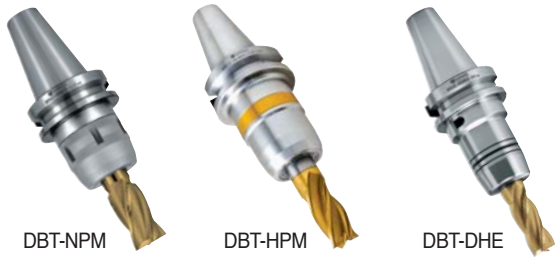



### Vari modelli

**Foratura/Fresatura integrale**




**Fresatura**




**Spianatura**




**Testa angolare**

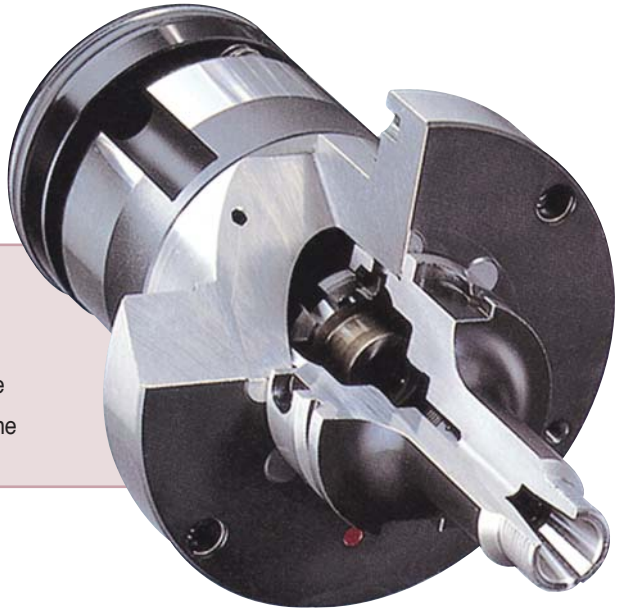



**Barra**

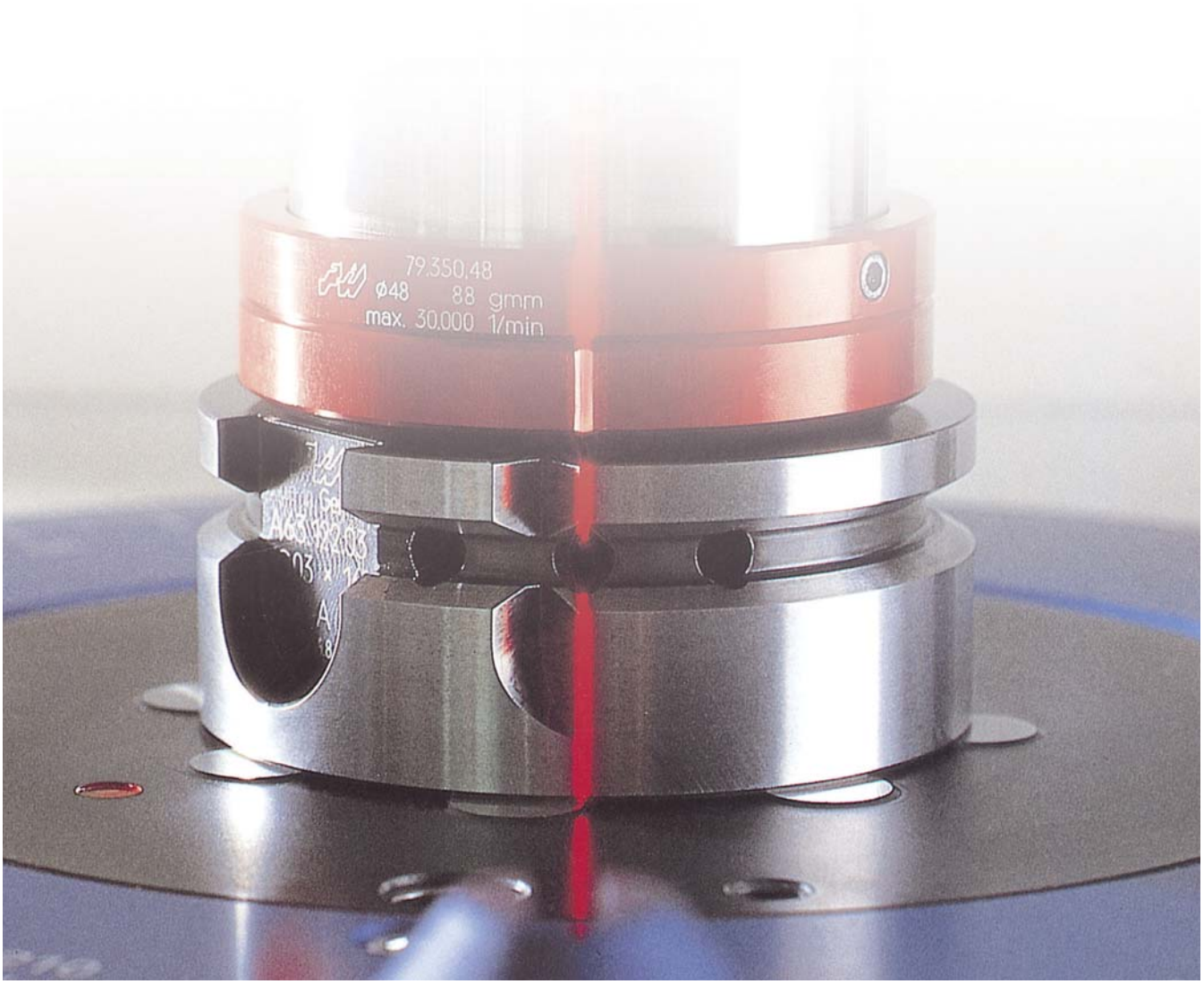


## • Massima precisione ad alte velocità

1. Nessuna curvatura o rotazione a causa di sbilanciamento
   Precisione e rigidità elevate.
2. Eccellente bilanciamento (≤G1,0 o 0,5 g·mm/kg)
3. È possibile ottenere una maggiore durata dell'utensile, buona finitura di superficie, precisione e produttività ad alte velocità.
4. È possibile ordinare articoli speciali

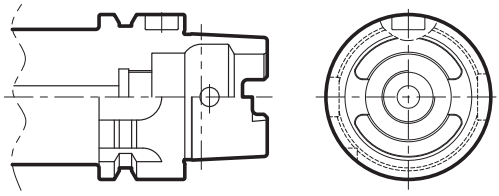


| **Attacco BT, SK** | **Attacco HSK** |
|---|---|
| Bilanciato con foro | Bilanciato con foro |
| Bilanciato rettificato | Bilanciato interamente riaffilabile |
| Bilanciabile con viti di regolazione | Bilanciabile con viti di regolazione |



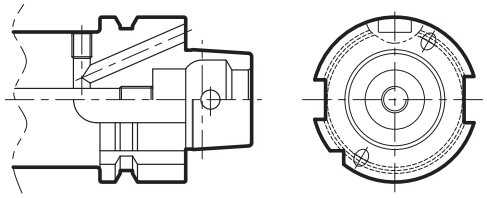
# I Sistema di lavorazione HSK

## Sistema di lavorazione HSK Tipo A



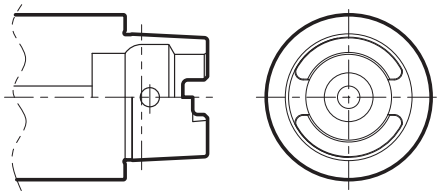
- Applicazione: per centri di lavoro
- Trasmissione coppia con chiavi di azionamento sul cono
- Scanalature 2U per ATC, tacca di posizionamento

## Sistema di lavorazione HSK Tipo B



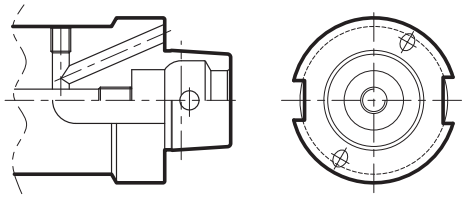
- Applicazione: per centri di lavoro, fresatrici e torni
- Flangia con lubrificante interno o con tubo per lubrificante
- Trasmissione coppia mediante scanalatura a U sulla flangia
- Tacca di posizionamento

## Sistema di lavorazione HSK Tipo C



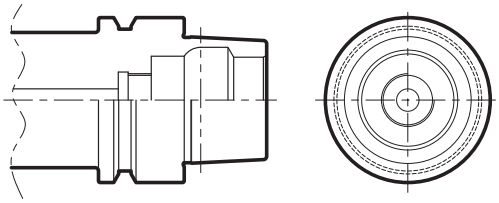
- Applicazione: linee di trasferimento e macchinari speciali senza ATC
- Trasmissione coppia con chiavi di azionamento sul cono

## Sistema di lavorazione HSK Tipo D



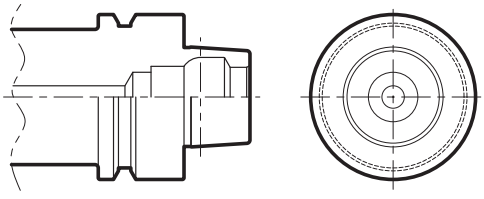
- Applicazione: linee di trasferimento e macchinari speciali senza ATC
- Flangia di diametro grande • Flangia con lubrificante interno
- Trasmissione coppia mediante scanalatura a U sulla flangia

## Sistema di lavorazione HSK Tipo E



- Applicazione: centri di lavoro ad alta velocità e fresatrici per legno
- Trasmissione coppia mediante attrito
- Forma completamente simmetrica senza chiavi di azionamento

## Sistema di lavorazione HSK Tipo F



- Applicazione: centri di lavoro ad alta velocità e fresatrici per legno
- Flangia di diametro grande

| | | | |
|---|---|---|---|
|  |  |  |  |
| **DHE** | **NPM** | **HPM** | **DSC** |
| I 7 | I 10 | I 12 | I 15 |
|  |  |  |  |
| **SDC,SDC/S** | **HPS** | **HDC** | **DSK** |
| I 19, I 23 | I 26 | I 28 | I 32 |
|  |  |  |  |
| **NPU** | **MTA,MTB** | **SLA,SLW** | **DTN** |
| I 34 | I 35, I 36 | I 37, I 39 | I 43 |
|  |  |  |  |
| **SDT** | **FMA,FMB,FMC** | **SCA** | **DBC** |
| I 45 | I 48. I 49, I 50 | I 52 | I 54 |
|  |  |  |  |
| **TBC** | **SMH, SMB** | **KMB** | **FBH** |
| I 58 | I 60, I 61 | I 62 | I 65 |
|  |  |  | |
| **FBC** | **OHDC,OHSL** | **Testa angolare** | |
| I 70 | I 73 | I 76 | |

## Serie DHE Mandrini a espansione idraulica

### Sistema di codifica

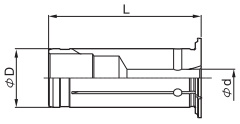
| BT40 | – | DHE | 20 | – | 140 |
|---|---|---|---|---|---|
| Mandrino | | Mandrino a espansione idraulica | Dia. max. di lavorazione | | Lunghezza |

### Caratteristiche

- Varie applicazioni per la produzione di stampi, parti di automobili e componenti di precisione
- Grazie alla loro durata, precisione e forza di serraggio, non occorre sostituirli per lungo tempo
- Il serraggio robusto garantisce lavorazioni stabili senza fluttuazioni nella forza di serraggio



**Bussola di elevata precisione** Tolleranza precisione entro 5μm




Precisione e rigidità elevate | Lunga durata | Comodo sistema di fissaggio/defissaggio | Bussola di elevata precisione | Dia. max. di lavorazione 32mm

### Bussola di elevata precisione

(mm)

| Articolo | Stock | øD | ød | L |
|---|---|---|---|---|
| DHC12 - 3 | ● | 12 | 3 | 47 |
| 4 | ● | 12 | 4 | 47 |
| 5 | ● | 12 | 5 | 47 |
| 6 | ● | 12 | 6 | 47 |
| 8 | ● | 12 | 8 | 47 |
| DHC20 - 3 | ● | 20 | 3 | 52 |
| 4 | ● | 20 | 4 | 52 |
| 5 | ● | 20 | 5 | 52 |
| 6 | ● | 20 | 6 | 52 |
| 8 | ● | 20 | 8 | 52 |
| 10 | ● | 20 | 10 | 52 |
| 12 | ● | 20 | 12 | 52 |
| 16 | ● | 20 | 16 | 52 |
| DHC32 - 6 | ● | 32 | 6 | 64 |
| 8 | ● | 32 | 8 | 64 |
| 10 | ● | 32 | 10 | 64 |
| 12 | ● | 32 | 12 | 64 |
| 16 | ● | 32 | 16 | 64 |
| 20 | ● | 32 | 20 | 64 |
| 25 | ● | 32 | 25 | 64 |

● : Disponibile ○ : A richiesta





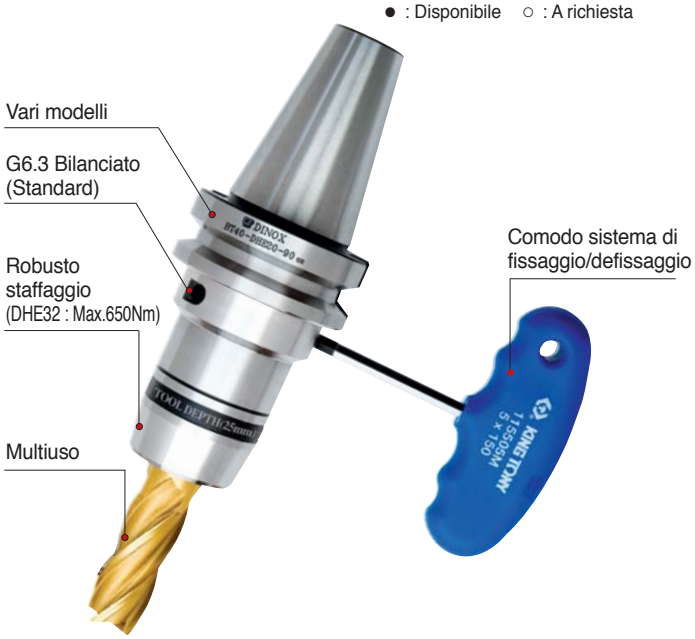
Tipo HSK



Tipo BT

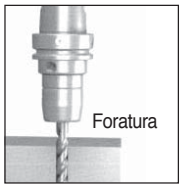


Tipo SK









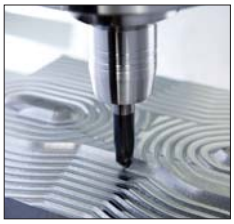




### Esempio di applicazioni







# HSK-DHE

DIN69893-1, ISO 12164-1:2001



Fig. 1

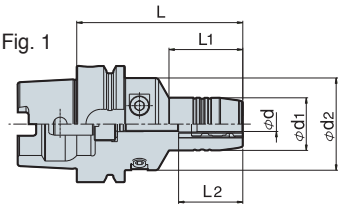
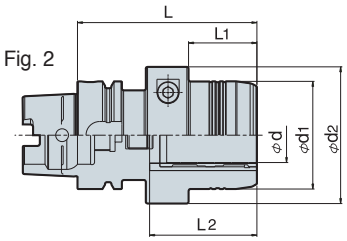



Fig. 2




(mm)

| Articolo | Stock | ød | L | ød1 | ød2 | L1 | L2 | Vite | Fig. |
|---|---|---|---|---|---|---|---|---|---|
| HSK50A - DHE 6 - 70 | | 6 | 70 | 26.5 | 40 | 28 | 25~35 | M5 | 1 |
| DHE 8 - 70 | | 8 | 70 | 28.5 | 40 | 28 | 25~35 | M5 | 1 |
| DHE10 - 80 | | 10 | 80 | 30 | 40 | 40 | 30~40 | M5 | 1 |
| DHE12 - 90 | | 12 | 90 | 32.5 | 40 | 45 | 36~46 | M10 | 1 |
| DHE16 - 95 | | 16 | 95 | 38 | 53 | 33 | 41~51 | M10 | 2 |
| DHE20 -100 | | 20 | 100 | 42 | 60 | 38 | 44~54 | M10 | 2 |
| HSK63A - DHE 6 - 75 | ● | 6 | 75 | 26.5 | 50 | 34 | 25~35 | M5 | 1 |
| 150 | | 6 | 150 | 26.5 | 50 | 34 | 25~35 | M5 | 1 |
| DHE 8 - 75 | ● | 8 | 75 | 28.5 | 50 | 34 | 25~35 | M5 | 1 |
| 150 | | 8 | 150 | 28.5 | 50 | 34 | 25~35 | M5 | 1 |
| DHE10 - 85 | ● | 10 | 85 | 30 | 50 | 34 | 30~40 | M5 | 1 |
| 150 | | 10 | 150 | 30 | 50 | 34 | 30~40 | M5 | 1 |
| DHE12 - 90 | ● | 12 | 90 | 32.5 | 50 | 40 | 36~46 | M10 | 1 |
| 150 | | 12 | 150 | 32.5 | 50 | 40 | 36~46 | M10 | 1 |
| DHE16 - 95 | ● | 16 | 95 | 38 | 50 | 45 | 41~51 | M10 | 1 |
| 150 | | 16 | 150 | 38 | 50 | 45 | 41~51 | M10 | 1 |
| DHE20 -100 | ● | 20 | 100 | 42 | 50 | 50 | 44~54 | M10 | 1 |
| 150 | | 20 | 150 | 42 | 50 | 50 | 44~54 | M10 | 1 |
| DHE25 -110 | ● | 25 | 110 | 50 | 70 | 48 | 53~63 | M16 | 2 |
| DHE32 -110 | ● | 32 | 110 | 63 | 80 | 48 | 53~63 | M16 | 2 |
| HSK100A-DHE 6 - 80 | ● | 6 | 80 | 26.5 | 50 | 34 | 25~35 | M5 | 1 |
| 150 | | 6 | 150 | 26.5 | 50 | 34 | 25~35 | M5 | 1 |
| DHE 8 - 80 | ● | 8 | 80 | 28.5 | 50 | 34 | 25~35 | M5 | 1 |
| 150 | | 8 | 150 | 28.5 | 50 | 34 | 25~35 | M5 | 1 |
| DHE10 - 90 | ● | 10 | 90 | 30 | 50 | 40 | 30~40 | M5 | 1 |
| 150 | | 10 | 150 | 30 | 50 | 40 | 30~40 | M5 | 1 |
| DHE12 - 95 | ● | 12 | 95 | 32.5 | 50 | 40 | 36~46 | M10 | 1 |
| 150 | | 12 | 150 | 32.5 | 50 | 40 | 36~46 | M10 | 1 |
| DHE16 -100 | ● | 16 | 100 | 38 | 50 | 45 | 41~51 | M10 | 1 |
| 150 | | 16 | 150 | 38 | 50 | 45 | 41~51 | M10 | 1 |
| DHE20 -105 | ● | 20 | 105 | 42 | 50 | 50 | 44~54 | M10 | 1 |
| 150 | | 20 | 150 | 42 | 50 | 50 | 44~54 | M10 | 1 |
| DHE25 -115 | ● | 25 | 115 | 57 | 63 | 62 | 53~63 | M16 | 1 |
| DHE32 -115 | ● | 32 | 115 | 64 | 72 | 62 | 53~63 | M16 | 1 |

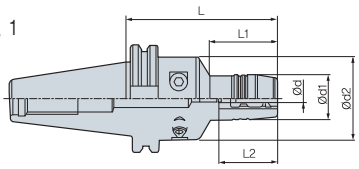
● : Disponibile ○ : A richiesta

- Varie applicazioni per la produzione di stampi, parti di automobili e componenti di precisione
- Grazie alla loro lunga durata, precisione e forza di serraggio, non occorre sostituirli per lungo tempo
- Il serraggio robusto garantisce lavorazioni stabili senza fluttuazioni nella forza di serraggio

# BT-DHE



Fig. 1




MAS403-BT

Fig. 2

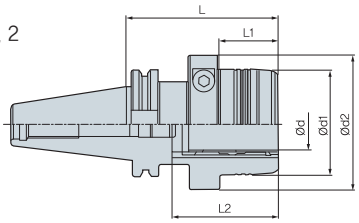
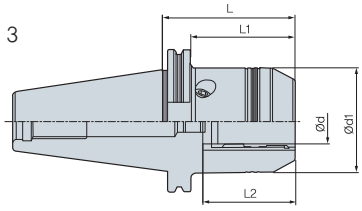



Fig. 3




(mm)

| Articolo | | Stock | ød | L | ød1 | ød2 | L1 | L2 | Vite | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|
| BT30- | DHE 6 - 65 | ● | 6 | 65 | 26.5 | 46 | 33 | 25~35 | M5 | 1 |
| | DHE 8 - 65 | ● | 8 | 65 | 28.5 | 46 | 33 | 25~35 | M5 | 1 |
| | DHE10 - 65 | ● | 10 | 65 | 30 | 46 | 34 | 30~40 | M5 | 1 |
| | DHE12 - 65 | ● | 12 | 65 | 32.5 | 46 | 34 | 36~46 | M10 | 1 |
| | DHE16 - 90 | ● | 16 | 90 | 38 | 46 | 45 | 41~51 | M10 | 1 |
| | DHE20 - 90 | ● | 20 | 90 | 42 | 46 | 45 | 44~54 | M10 | 1 |
| BT40- | DHE 6 - 90 | ● | 6 | 90 | 26.5 | 50 | 40 | 25~35 | M5 | 1 |
| | 140 | ● | 6 | 140 | 26.5 | 50 | 40 | 25~35 | M5 | 1 |
| | DHE 8 - 90 | ● | 8 | 90 | 28.5 | 50 | 40 | 25~35 | M5 | 1 |
| | 140 | ● | 8 | 140 | 28.5 | 50 | 40 | 25~35 | M5 | 1 |
| | DHE10 - 90 | ● | 10 | 90 | 30 | 50 | 40 | 30~40 | M5 | 1 |
| | 140 | ● | 10 | 140 | 30 | 50 | 40 | 30~40 | M5 | 1 |
| | DHE12 - 90 | ● | 12 | 90 | 32.5 | 50 | 40 | 36~46 | M10 | 1 |
| | 140 | ● | 12 | 140 | 32.5 | 50 | 40 | 36~46 | M10 | 1 |
| | DHE16 - 90 | ● | 16 | 90 | 38 | 50 | 45 | 41~51 | M10 | 1 |
| | 140 | ● | 16 | 140 | 38 | 50 | 45 | 41~51 | M10 | 1 |
| | DHE20 - 90 | ● | 20 | 90 | 42 | 50 | 47 | 44~54 | M10 | 1 |
| | 140 | ● | 20 | 140 | 42 | 50 | 47 | 44~54 | M10 | 1 |
| | DHE25 - 90 | ● | 25 | 90 | 50 | 70 | 35 | 53~63 | M16 | 2 |
| | DHE32 - 90 | ● | 32 | 90 | 63 | 80 | 35 | 53~63 | M16 | 2 |
| BT50- | DHE 6 - 90 | ● | 6 | 90 | 26.5 | 50 | 34 | 25~35 | M5 | 1 |
| | 140 | ● | 6 | 140 | 26.5 | 50 | 34 | 25~35 | M5 | 1 |
| | DHE 8 - 90 | ● | 8 | 90 | 28.5 | 50 | 34 | 25~35 | M5 | 1 |
| | 140 | ● | 8 | 140 | 28.5 | 50 | 34 | 25~35 | M5 | 1 |
| | DHE10 - 90 | ● | 10 | 90 | 30 | 50 | 34 | 30~40 | M5 | 1 |
| | 140 | ● | 10 | 140 | 30 | 50 | 34 | 30~40 | M5 | 1 |
| | DHE12 - 90 | ● | 12 | 90 | 32.5 | 50 | 34 | 36~46 | M10 | 1 |
| | 140 | ● | 12 | 140 | 32.5 | 50 | 34 | 36~46 | M10 | 1 |
| | DHE16 - 90 | ● | 16 | 90 | 38 | 50 | 34 | 41~51 | M10 | 1 |
| | 140 | ● | 16 | 140 | 38 | 50 | 34 | 41~51 | M10 | 1 |
| | DHE20 - 90 | ● | 20 | 90 | 42 | 50 | 33 | 44~54 | M10 | 1 |
| | 140 | ● | 20 | 140 | 42 | 50 | 33 | 44~54 | M10 | 1 |
| | DHE25 - 90 | ● | 25 | 90 | 66 | - | 52 | 53~63 | M16 | 3 |
| | DHE32 - 90 | ● | 32 | 90 | 72 | - | 52 | 53~63 | M16 | 3 |

● : Disponibile ○ : A richiesta

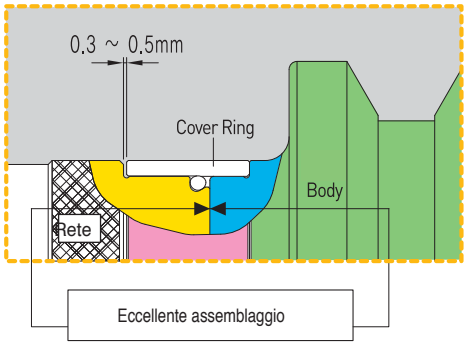
- Varie applicazioni per la produzione di stampi, parti di automobili e componenti di precisione.
- Grazie alla loro lunga durata, precisione e forza di serraggio, non occorre sostituirli per lungo tempo
- Il serraggio robusto garantisce lavorazioni stabili senza fluttuazioni nella forza di serraggio

## Informazioni tecniche per i mandrini NPM

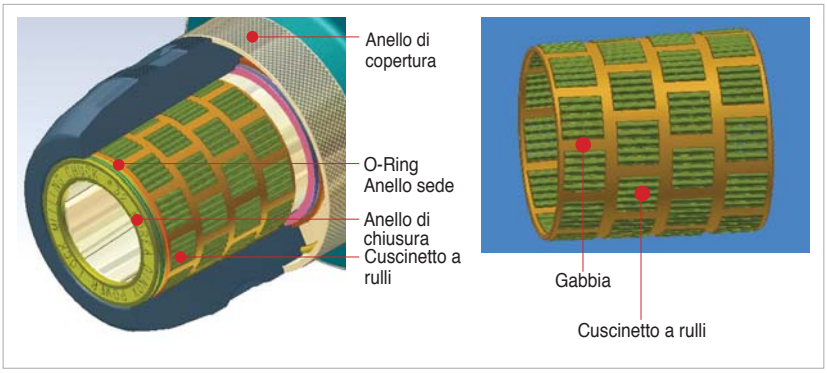


### Caratteristiche

- Il robusto staffaggio consente ai mandrini NPM di ottenere un'elevata precisione anche in condizioni di taglio pesante
- Maggiore forza di serraggio grazie al sistema di assorbimento delle vibrazioni
- Riducendo la formazione di pulviscolo e scheggiature, aumenta la durata del mandrino
- Agevole sistema di fissaggio/defissaggio




Riducendo la formazione di pulviscolo e scheggiature, aumenta la durata del mandrino.




La perfetta superficie di contatto e il robusto staffaggio rafforzano lo sforzo di taglio e l'assorbimento delle vibrazioni




**Sistema di raffreddamento interno**



- **Staffaggio robusto**
  - NPM32 : Max. 350kgf·m / NPM42 : Max. 500kgf·m
- **Agevole sistema di fissaggio/defissaggio**
- **Staffaggio robusto anche a 3mm(I.D) dal naso del mandrino**
- **Precisione elevata**
  - Tolleranza precisione entro 15㎛ sul naso (3D)
- **Precisione di staffaggio I.D entro 5㎛**
- **Tipo**
  - Tipo HSK : HSK50A, HSK63A, HSK100A
  - Tipo BT : BT30, BT40, BT50
  - Tipo SK : SK40, SK50
  - Tipo NT : NT40, NT50
  - Set HSK/BT/SK/NT
- **Con sistema di raffreddamento interno su richiesta**

  Esempio di ordine) BT50-NPM32-110C

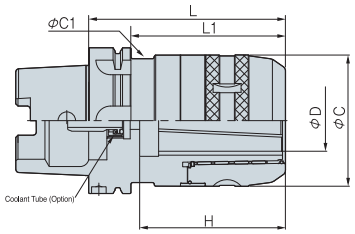
  Con sistema di raffreddamento interno



# Mandrini NPM (New Power Milling Chuck)

## HSK-NPM






DIN69893-1, ISO 12164-1 : 2001

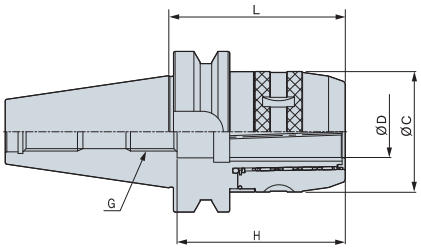
(mm)

| Articolo | Stock | øD | øC | øC1 | L | L1 | H | Bussola | kg |
|---|---|---|---|---|---|---|---|---|---|
| HSK 50A - NPM20-100 | | 20 | 54 | 55 | 100 | 74 | 75 | CS20, C20 | 0.5 |
| HSK 63A - NPM20-100 | | 20 | 54 | 55 | 100 | 64 | 75 | CS20, C20 | 1.7 |
| NPM32-120 | ● | 32 | 75 | 75 | 120 | 94 | 90 | CS32, C32 | 2.5 |
| HSK100A - NPM20-110 | | 20 | 54 | 55 | 110 | 81 | 75 | CS20, C20 | 1.6 |
| NPM32-130 | ● | 32 | 75 | 75 | 130 | 106 | 90 | CS32, C32 | 3.6 |
| NPM42-135 | | 42 | 90 | 90 | 135 | 106 | 100 | CS42, C42 | 5.0 |

● : Disponibile ○ : A richiesta

## BT-NPM






MAS403-BT

(mm)

| Articolo | Stock | øD | L | øC | H | G | Bussola | kg |
|---|---|---|---|---|---|---|---|---|
| BT30 - NPM20 - 85 | ● | 20 | 85 | 54 | 85 | M12 | CS20, C20 | 0.8 |
| BT40 - NPM20 - 85 | ● | 20 | 85 | 54 | 85 | M16 | CS20, C20 | 1.5 |
| 100 | ● | 20 | 100 | 54 | 85 | M16 | CS20, C20 | 1.9 |
| 135 | ● | 20 | 135 | 54 | 85 | M16 | CS20, C20 | 2.3 |
| NPM32 - 110 | ● | 32 | 110 | 75 | 95 | M16 | CS32, C32 | 2.5 |
| 120 | ● | 32 | 120 | 75 | 95 | M16 | CS32, C32 | 3.1 |
| 135 | ● | 32 | 135 | 75 | 95 | M16 | CS32, C32 | 3.3 |
| BT50 - NPM20 - 95 | ● | 20 | 95 | 54 | 85 | M16 | CS20, C20 | 1.7 |
| 125 | ● | 20 | 125 | 54 | 85 | M16 | CS20, C20 | 2.0 |
| 165 | ● | 20 | 165 | 54 | 85 | M16 | CS20, C20 | 2.4 |
| NPM32 - 110 | ● | 32 | 110 | 75 | 105 | M24 | CS32, C32 | 4.8 |
| 135 | ● | 32 | 135 | 75 | 105 | M24 | CS32, C32 | 5.3 |
| 165 | ● | 32 | 165 | 75 | 105 | M24 | CS32, C32 | 6.3 |
| NPM42 - 110 | ● | 42 | 110 | 90 | 125 | M24 | CS42, C42 | 5.4 |
| 135 | ● | 42 | 135 | 90 | 125 | M24 | CS42, C42 | 6.0 |
| 165 | ● | 42 | 165 | 90 | 125 | M24 | CS42, C42 | 7.3 |

● : Disponibile ○ : A richiesta

### Parti di ricambio

| Parti di ricambio | | | |
|---|---|---|---|
| Applicazione | Opzionale | | |
| | Bussola | Chiave | Sistema di raffreddamento interno |
| Tipo |  |  |  |
| NPM20 | CS20, C20 | 57-60 | CTC20 |
| NPM32 | CS32, C32 | 75-79 | CTC32 |
| NPM42 | CS42, C42 | 92-96 | CTC42 |

## Sistema di codifica

| BT40 | – | HPM | 32 | – | 110 |
|---|---|---|---|---|---|
| Mandrino | | Mandrino ad alta velocità | Dia. max. di lavorazione | | Lunghezza |








### Chiave

Chiave a rulli



Tipo : HS20
HS32
HS42

### Bussola



Bussola CS :
CS20, CS32, CS42

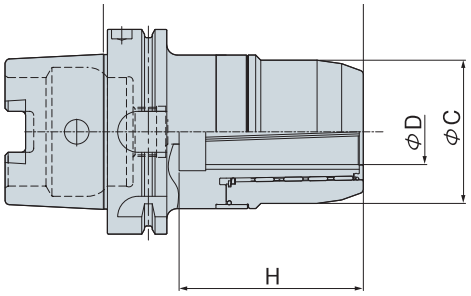


Bussola C :
C20, C32, C42

# HSK-NPM

DIN69893-1, ISO 12164-1 : 2001






(mm)

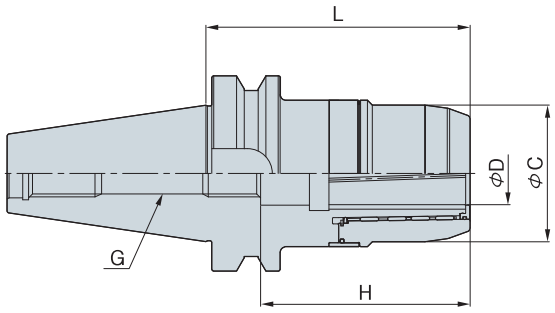
| Articolo | | Stock | øD | øC | øC1 | L | L1 | H | Bussola | kg | Max.rpm |
|---|---|---|---|---|---|---|---|---|---|---|---|
| HSK50A - | HPM20 - 100 | | 20 | 54 | 55 | 100 | 74 | 75 | CS20,C20 | 0.5 | 25,000 |
| HSK63A - | HPM20 - 100 | | 20 | 54 | 55 | 100 | 64 | 75 | CS20,C20 | 1.4 | 25,000 |
| | HPM32 - 120 | ● | 32 | 75 | 75 | 120 | 94 | 90 | CS32,C32 | 2.1 | 20,000 |
| HSK100A- | HPM20 - 110 | | 20 | 54 | 55 | 110 | 81 | 75 | CS20,C20 | 1.3 | 15,000 |
| | HPM32 - 130 | ● | 32 | 75 | 75 | 130 | 106 | 90 | CS32,C32 | 3.0 | 15,000 |
| | HPM42 - 135 | | 42 | 90 | 90 | 135 | 106 | 100 | CS42,C42 | 4.8 | 15,000 |

● : Disponibile ○ : A richiesta

# BT-HPM

DIN69893-1, ISO 12164-1 : 2001






(mm)

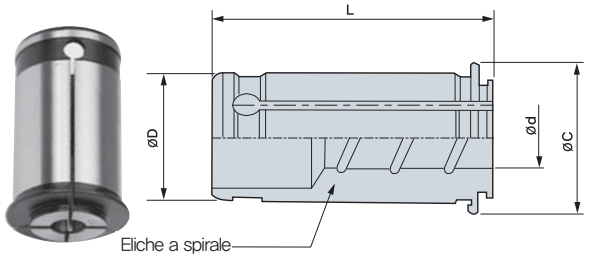
| Articolo | | Stock | øD | øC | L | G | H | Bussola | kg | Max.rpm |
|---|---|---|---|---|---|---|---|---|---|---|
| BT30 - | HPM20 - 85 | ● | 20 | 54 | 85 | M12 | 85 | CS20,C20 | 0.7 | 25,000 |
| BT40 - | HPM20 - 85 | ● | 20 | 54 | 85 | M12 | 85 | CS20,C20 | 1.3 | 20,000 |
| | 100 | | 20 | 54 | 100 | M12 | 85 | CS20,C20 | 1.6 | 20,000 |
| | 135 | ● | 20 | 54 | 135 | M12 | 85 | CS20,C20 | 2.0 | 20,000 |
| | HPM32 - 110 | ● | 32 | 75 | 110 | M16 | 95 | CS32,C32 | 2.3 | 20,000 |
| | 120 | | 32 | 75 | 120 | M16 | 95 | CS32,C32 | 2.8 | 20,000 |
| | 135 | ● | 32 | 75 | 135 | M16 | 95 | CS32,C32 | 3.1 | 20,000 |
| BT50 - | HPM20 - 95 | ● | 20 | 54 | 95 | M12 | 85 | CS20,C20 | 1.7 | 15,000 |
| | 125 | | 20 | 54 | 125 | M12 | 85 | CS20,C20 | 2.0 | 15,000 |
| | 165 | ● | 20 | 54 | 165 | M12 | 85 | CS20,C20 | 2.3 | 15,000 |
| | HPM32 - 110 | ● | 32 | 75 | 110 | M16 | 105 | CS32,C32 | 4.1 | 15,000 |
| | 135 | | 32 | 75 | 135 | M16 | 105 | CS32,C32 | 5.1 | 15,000 |
| | 165 | ● | 32 | 75 | 165 | M16 | 105 | CS32,C32 | 5.5 | 15,000 |
| | HPM42 - 110 | ● | 42 | 90 | 110 | M24 | 125 | CS42,C42 | 5.2 | 15,000 |
| | 135 | | 42 | 90 | 135 | M24 | 125 | CS42,C42 | 5.9 | 15,000 |
| | 165 | ● | 42 | 90 | 165 | M24 | 125 | CS42,C42 | 6.8 | 15,000 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Parti di ricambio | | | |
|---|---|---|---|
| Applicazione | Standard | Opzionale | |
| | Sistema di raffreddamento interno | Bussola | Chiave |
| Tipo |  |  |  |
| HPM20 | CTC20 | CS20, C20 | HS20 |
| HPM32 | CTC32 | CS32, C32 | HS32 |
| HPM42 | CTC42 | CS42, C42 | HS42 |

# Bussola cilindrica C




(mm)

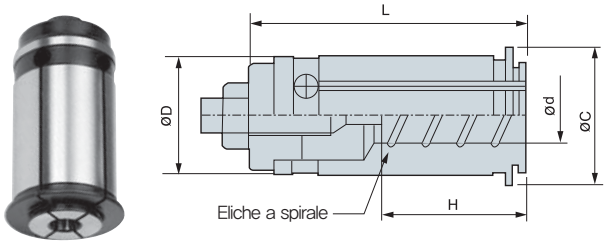
| Articolo | Stock | øD | ød | øC | L |
|---|---|---|---|---|---|
| C20 - 6 (1/4") | ● | 20 | 6(1/4") | 26 | 55 |
| - 8 (5/16") | ● | 20 | 8(5/16") | 26 | 55 |
| - 10 (3/8") | ● | 20 | 10(3/8") | 26 | 55 |
| - 12(1/2") | ● | 20 | 12(1/2") | 26 | 55 |
| - 14 | ● | 20 | 14 | 26 | 55 |
| - 16 (5/8") | ● | 20 | 16(5/8") | 26 | 55 |
| C 32 - 6 (1/4") | ● | 32 | 6(1/4") | 38 | 70 |
| - 8 (5/16") | ● | 32 | 8(5/16") | 38 | 70 |
| - 10 (3/8") | ● | 32 | 10(3/8") | 38 | 70 |
| - 12 (1/2") | ● | 32 | 12(1/2") | 38 | 70 |
| - 14 | ● | 32 | 14 | 38 | 70 |
| - 16 (5/8") | ● | 32 | 16(5/8") | 38 | 70 |
| - 19 (3/4") | ● | 32 | 19(3/4") | 38 | 70 |
| - 20 | ● | 32 | 20 | 38 | 70 |
| - 25 (1") | ● | 32 | 25(1") | 38 | 70 |
| C 42 - 6 (1/4") | ● | 42 | 6(1/4") | 48 | 75 |
| - 8 (5/16") | ● | 42 | 8(5/16") | 48 | 75 |
| - 10 (3/8") | ● | 42 | 10(3/8") | 48 | 75 |
| - 12 (1/2") | ● | 42 | 12(1/2") | 48 | 75 |
| - 14 | | 42 | 14 | 48 | 75 |
| - 16 (5/8") | ● | 42 | 16(5/8") | 48 | 75 |
| - 19 (3/4") | | 42 | 19(3/4") | 48 | 75 |
| - 20 | ● | 42 | 20 | 48 | 75 |
| - 25 (1") | ● | 42 | 25(1") | 48 | 75 |
| - 32(1 1/4") | ● | 42 | 32(1 1/4") | 48 | 75 |

• È possibile regolare la lunghezza con la vite regolabile

• È possibile ordinare gli articoli con dimensioni in pollici

● : Disponibile ○ : A richiesta

# Bussola cilindrica CS




(mm)

| Articolo | Stock | øD | ød | øC | L | H min | H max | kg |
|---|---|---|---|---|---|---|---|---|
| CS20 - 6 | ● | 20 | 6 | 26 | 60 | 26 | 50 | 0.2 |
| 8 | ● | 20 | 8 | 26 | 60 | 26 | 50 | 0.2 |
| 10 | ● | 20 | 10 | 26 | 60 | 26 | 50 | 0.2 |
| 12 | ● | 20 | 12 | 26 | 60 | 26 | 50 | 0.2 |
| 16 | ● | 20 | 16 | 26 | 60 | 26 | 50 | 0.2 |
| CS32 - 6 | ● | 32 | 6 | 38 | 77 | 38 | 63 | 0.4 |
| 8 | ● | 32 | 8 | 38 | 77 | 38 | 63 | 0.4 |
| 10 | ● | 32 | 10 | 38 | 77 | 38 | 63 | 0.4 |
| 12 | ● | 32 | 12 | 38 | 77 | 38 | 63 | 0.4 |
| 14 | ● | 32 | 14 | 38 | 77 | 38 | 63 | 0.4 |
| 16 | ● | 32 | 16 | 38 | 77 | 38 | 63 | 0.4 |
| 19 | ● | 32 | 19 | 38 | 77 | 38 | 63 | 0.4 |
| 20 | ● | 32 | 20 | 38 | 77 | 38 | 63 | 0.4 |
| 25 | ● | 32 | 25 | 38 | 77 | 38 | 63 | 0.4 |
| CS42 - 6 | ● | 42 | 6 | 48 | 82 | 48 | 67 | 0.7 |
| 8 | ● | 42 | 8 | 48 | 82 | 48 | 67 | 0.7 |
| 10 | ● | 42 | 10 | 48 | 82 | 48 | 67 | 0.7 |
| 12 | ● | 42 | 12 | 48 | 82 | 48 | 67 | 0.7 |
| 16 | ● | 42 | 16 | 48 | 82 | 48 | 67 | 0.7 |
| 20 | ● | 42 | 20 | 48 | 82 | 48 | 67 | 0.7 |
| 25 | ● | 42 | 25 | 48 | 82 | 48 | 67 | 0.7 |
| 32 | ● | 42 | 32 | 48 | 82 | 48 | 67 | 0.7 |

● : Disponibile ○ : A richiesta

## Informazioni tecniche per DSC

### Caratteristiche

- Elevata rigidità
- Design compatto
- G2,5 Bilanciato
- Lo speciale trattamento a caldo assicura la massima durata
- Minima penetrazione della fresa nel mandrino
- Vari modelli
  - Tipo HSK, Tipo BT, Tipo SK
- Dia. di lavorazione: Φ6~Φ32mm
- Elevata precisione: tolleranza entro 3㎛







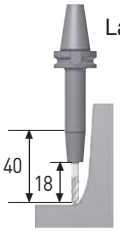




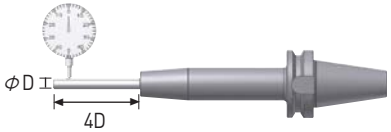




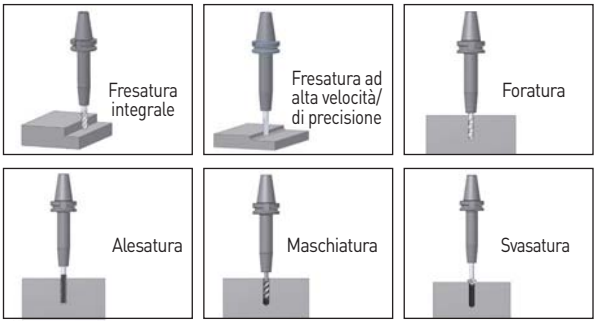

Lavorazione profonda




Elevata precisione: tolleranza entro 3㎛



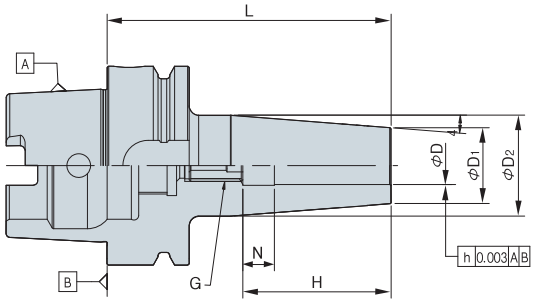

### Esempio di applicazioni



# HSK-DSC

DIN69893-1, ISO 12164-1 : 2001






(mm)

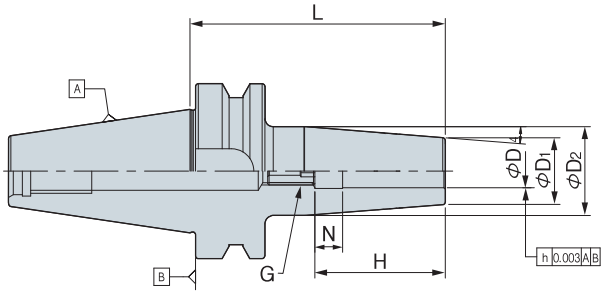
| Articolo | Stock | øD | L | øD1 | øD2 | H | G | N | kg |
|---|---|---|---|---|---|---|---|---|---|
| HSK50A- DSC6 - 80 | ○ | 6 | 80 | 21 | 27 | 36 | M5 | 10 | 0.6 |
| - 120 | | 6 | 120 | 21 | 27 | 36 | M5 | 10 | 0.7 |
| DSC8 - 80 | ○ | 8 | 80 | 21 | 27 | 36 | M6 | 10 | 0.6 |
| - 120 | | 8 | 120 | 21 | 27 | 36 | M6 | 10 | 0.7 |
| DSC10 - 85 | ○ | 10 | 85 | 24 | 32 | 42 | M8 | 10 | 0.6 |
| - 120 | | 10 | 120 | 24 | 32 | 42 | M8 | 10 | 0.7 |
| DSC12 - 90 | ○ | 12 | 90 | 24 | 32 | 47 | M10 | 10 | 0.6 |
| - 120 | | 12 | 120 | 24 | 32 | 47 | M10 | 10 | 0.7 |
| DSC14 - 90 | ○ | 14 | 90 | 27 | 34 | 47 | M10 | 10 | 0.6 |
| - 120 | | 14 | 120 | 27 | 34 | 47 | M10 | 10 | 0.8 |
| DSC16 - 95 | ○ | 16 | 95 | 27 | 34 | 50 | M12 | 10 | 0.6 |
| - 120 | | 16 | 120 | 27 | 34 | 50 | M12 | 10 | 0.8 |
| HSK63A- DSC6 - 80 | ○ | 6 | 80 | 21 | 27 | 36 | M5 | 10 | 0.7 |
| - 120 | | 6 | 120 | 21 | 27 | 36 | M5 | 10 | 1 |
| - 160 | ○ | 6 | 160 | 21 | 32 | 36 | M5 | 10 | 0.9 |
| DSC8 - 80 | ○ | 8 | 80 | 21 | 27 | 36 | M6 | 10 | 0.9 |
| - 120 | | 8 | 120 | 21 | 27 | 36 | M6 | 10 | 0.9 |
| - 160 | ○ | 8 | 160 | 21 | 32 | 36 | M6 | 10 | 0.8 |
| DSC10 - 85 | ○ | 10 | 85 | 24 | 32 | 42 | M8 | 10 | 1.2 |
| - 120 | | 10 | 120 | 24 | 32 | 42 | M8 | 10 | 1.1 |
| - 160 | ○ | 10 | 160 | 24 | 34 | 42 | M8 | 10 | 0.8 |
| DSC12 - 90 | ○ | 12 | 90 | 24 | 32 | 47 | M10 | 10 | 1.2 |
| - 120 | | 12 | 120 | 24 | 32 | 47 | M10 | 10 | 1.1 |
| - 160 | ○ | 12 | 160 | 24 | 34 | 47 | M10 | 10 | 0.9 |
| DSC14 - 90 | ○ | 14 | 90 | 27 | 34 | 47 | M10 | 10 | 1.4 |
| - 120 | | 14 | 120 | 27 | 34 | 47 | M10 | 10 | 1.2 |
| - 160 | ○ | 14 | 160 | 27 | 42 | 47 | M10 | 10 | 0.9 |
| DSC16 - 95 | ○ | 16 | 95 | 27 | 34 | 50 | M12 | 10 | 1.4 |
| - 120 | | 16 | 120 | 27 | 34 | 50 | M12 | 10 | 1.2 |
| - 160 | ○ | 16 | 160 | 27 | 42 | 50 | M12 | 10 | 1.0 |
| DSC18 - 95 | ○ | 18 | 95 | 33 | 42 | 50 | M12 | 10 | 1.5 |
| - 120 | | 18 | 120 | 33 | 42 | 50 | M12 | 10 | 1.4 |
| - 160 | ○ | 18 | 160 | 33 | 51 | 50 | M12 | 10 | 1.0 |
| DSC20 - 100 | ○ | 20 | 100 | 33 | 42 | 52 | M16 | 10 | 1.5 |
| - 120 | | 20 | 120 | 33 | 42 | 52 | M16 | 10 | 1.4 |
| - 160 | ○ | 20 | 160 | 33 | 51 | 52 | M16 | 10 | 1.2 |
| DSC25 - 115 | ○ | 25 | 115 | 44 | 52.5 | 58 | M16 | 10 | 1.9 |
| - 120 | | 25 | 120 | 44 | 52.5 | 58 | M16 | 10 | 1.8 |
| - 160 | ○ | 25 | 160 | 44 | 52.5 | 58 | M16 | 10 | 1.2 |
| DSC32 - 120 | | 32 | 120 | 44 | 52.5 | 62 | M16 | 10 | 1.8 |
| - 160 | | 32 | 160 | 44 | 52.5 | 62 | M16 | 10 | 1.2 |
| HSK100A- DSC6 - 85 | ○ | 6 | 85 | 21 | 27 | 36 | M5 | 10 | 1.9 |
| - 120 | | 6 | 120 | 21 | 27 | 36 | M5 | 10 | 2.4 |
| - 160 | ○ | 6 | 160 | 21 | 32 | 36 | M5 | 10 | 1.3 |
| DSC8 - 85 | ○ | 8 | 85 | 21 | 27 | 36 | M6 | 10 | 2.3 |
| - 120 | | 8 | 120 | 21 | 27 | 36 | M6 | 10 | 2.4 |
| - 160 | ○ | 8 | 160 | 21 | 32 | 36 | M6 | 10 | 2.2 |
| DSC10 - 90 | ○ | 10 | 90 | 24 | 32 | 42 | M8 | 10 | 2.5 |
| - 120 | | 10 | 120 | 24 | 32 | 42 | M8 | 10 | 2.5 |
| - 160 | ○ | 10 | 160 | 24 | 34 | 42 | M8 | 10 | 2.2 |
| DSC12 - 95 | ○ | 12 | 95 | 24 | 32 | 47 | M10 | 10 | 2.5 |
| - 120 | | 12 | 120 | 24 | 32 | 47 | M10 | 10 | 2.4 |
| - 160 | ○ | 12 | 160 | 24 | 34 | 47 | M10 | 10 | 2.2 |
| DSC14 - 95 | ○ | 14 | 95 | 27 | 34 | 47 | M10 | 10 | 2.4 |
| - 120 | | 14 | 120 | 27 | 34 | 47 | M10 | 10 | 2.6 |
| - 160 | ○ | 14 | 160 | 27 | 42 | 47 | M10 | 10 | 2.8 |
| DSC16 - 100 | ○ | 16 | 100 | 27 | 34 | 50 | M12 | 10 | 2.4 |
| - 120 | | 16 | 120 | 27 | 34 | 50 | M12 | 10 | 2.6 |
| - 160 | ○ | 16 | 160 | 27 | 42 | 50 | M12 | 10 | 2.8 |
| DSC18 - 100 | ○ | 18 | 100 | 33 | 42 | 50 | M12 | 10 | 2.5 |
| - 120 | | 18 | 120 | 33 | 42 | 50 | M12 | 10 | 2.8 |
| - 160 | ○ | 18 | 160 | 33 | 51 | 50 | M12 | 10 | 3.2 |
| DSC20 - 105 | ○ | 20 | 105 | 33 | 42 | 52 | M16 | 10 | 2.5 |
| - 120 | | 20 | 120 | 33 | 42 | 52 | M16 | 10 | 2.7 |
| - 160 | ○ | 20 | 160 | 33 | 51 | 52 | M16 | 10 | 3.1 |
| DSC25 - 115 | | 25 | 115 | 44 | 53 | 58 | M16 | 10 | 3.8 |
| - 120 | | 25 | 120 | 44 | 53 | 58 | M16 | 10 | 3.1 |
| - 160 | | 25 | 160 | 44 | 60 | 58 | M16 | 10 | 3.8 |
| DSC32 - 120 | | 32 | 120 | 44 | 53 | 62 | M16 | 10 | 3.1 |
| - 160 | | 32 | 160 | 44 | 60 | 62 | M16 | 10 | 3.8 |

● : Disponibile ○ : A richiesta

# BT-DSC

MAS403-BT






(mm)

| Articolo | | Stock | øD | L | øD1 | øD2 | H | G | N | kg |
|---|---|---|---|---|---|---|---|---|---|---|
| BT30 - | DSC6 - 80 | ○ | 6 | 80 | 21 | 27 | 36 | M5 | 10 | 0.6 |
| | - 120 | | 6 | 120 | 21 | 27 | 36 | M6 | 10 | 0.6 |
| | DSC8 - 80 | ○ | 8 | 80 | 21 | 27 | 36 | M6 | 10 | 0.6 |
| | - 120 | | 8 | 120 | 21 | 27 | 36 | M6 | 10 | 1.6 |
| | DSC10 - 80 | ○ | 10 | 80 | 24 | 32 | 42 | M8 | 10 | 0.7 |
| | - 120 | | 10 | 120 | 24 | 32 | 42 | M8 | 10 | 1.7 |
| | DSC12 - 80 | ○ | 12 | 80 | 24 | 32 | 47 | M10 | 10 | 0.6 |
| | - 120 | | 12 | 120 | 24 | 32 | 47 | M10 | 10 | 1.6 |
| | DSC14 - 80 | ○ | 14 | 80 | 27 | 34 | 47 | M10 | 10 | 0.7 |
| | - 120 | | 14 | 120 | 27 | 34 | 47 | M10 | 10 | 1.7 |
| | DSC16 - 80 | ○ | 16 | 80 | 27 | 34 | 50 | M12 | 10 | 0.7 |
| | - 120 | | 16 | 120 | 27 | 34 | 50 | M12 | 10 | 0.7 |
| BT40 - | DSC6 - 90 | ○ | 6 | 90 | 21 | 27 | 36 | M5 | 10 | 1.2 |
| | - 120 | | 6 | 120 | 21 | 27 | 36 | M5 | 10 | 1.2 |
| | - 160 | ○ | 6 | 160 | 21 | 27 | 36 | M5 | 10 | 1.4 |
| | DSC8 - 90 | ○ | 8 | 90 | 21 | 27 | 36 | M6 | 10 | 1.2 |
| | - 120 | | 8 | 120 | 21 | 27 | 36 | M6 | 10 | 1.2 |
| | - 160 | ○ | 8 | 160 | 21 | 27 | 36 | M6 | 10 | 1.4 |
| | DSC10 - 90 | ○ | 10 | 90 | 24 | 32 | 42 | M8 | 10 | 1.2 |
| | - 120 | | 10 | 120 | 24 | 32 | 42 | M8 | 10 | 1.2 |
| | - 160 | ○ | 10 | 160 | 24 | 32 | 42 | M8 | 10 | 1.6 |
| | DSC12 - 90 | ○ | 12 | 90 | 24 | 32 | 47 | M10 | 10 | 1.2 |
| | - 120 | | 12 | 120 | 24 | 32 | 47 | M10 | 10 | 1.2 |
| | - 160 | ○ | 12 | 160 | 24 | 32 | 47 | M10 | 10 | 1.6 |
| | DSC14 - 90 | ○ | 14 | 90 | 27 | 34 | 47 | M10 | 10 | 1.2 |
| | - 120 | | 14 | 120 | 27 | 34 | 47 | M10 | 10 | 1.2 |
| | - 160 | ○ | 14 | 160 | 27 | 34 | 47 | M10 | 10 | 1.7 |
| | DSC16 - 90 | ○ | 16 | 90 | 27 | 34 | 50 | M12 | 10 | 1.2 |
| | - 120 | | 16 | 120 | 27 | 34 | 50 | M12 | 10 | 1.3 |
| | - 160 | ○ | 16 | 160 | 27 | 34 | 50 | M12 | 10 | 1.7 |
| | DSC18 - 90 | ○ | 18 | 90 | 33 | 42 | 50 | M12 | 10 | 1.3 |
| | - 120 | | 18 | 120 | 33 | 42 | 50 | M12 | 10 | 1.5 |
| | - 160 | ○ | 18 | 160 | 33 | 42 | 50 | M12 | 10 | 1.8 |
| | DSC20 - 90 | ○ | 20 | 90 | 33 | 42 | 52 | M16 | 10 | 1.3 |
| | - 120 | | 20 | 120 | 33 | 42 | 52 | M16 | 10 | 1.5 |
| | - 160 | ○ | 20 | 160 | 33 | 42 | 52 | M16 | 10 | 2.1 |
| | DSC25 - 100 | ○ | 25 | 100 | 44 | 53 | 58 | M16 | 10 | 1.7 |
| | - 120 | | 25 | 120 | 44 | 53 | 58 | M16 | 10 | 1.8 |
| | - 160 | ○ | 25 | 160 | 44 | 53 | 58 | M16 | 10 | 2.4 |
| BT50 - | DSC6 - 100 | ○ | 6 | 100 | 21 | 27 | 36 | M5 | 10 | 3.7 |
| | - 120 | | 6 | 120 | 21 | 27 | 36 | M5 | 10 | 3.8 |
| | - 160 | ○ | 6 | 160 | 21 | 32 | 36 | M5 | 10 | 3.9 |
| | DSC8 - 100 | ○ | 8 | 100 | 21 | 27 | 36 | M6 | 10 | 3.7 |
| | - 120 | | 8 | 120 | 21 | 27 | 36 | M6 | 10 | 3.8 |
| | - 160 | ○ | 8 | 160 | 21 | 32 | 36 | M6 | 10 | 3.9 |
| | DSC10 - 100 | ○ | 10 | 100 | 24 | 32 | 42 | M8 | 10 | 3.8 |
| | - 120 | | 10 | 120 | 24 | 32 | 42 | M8 | 10 | 3.9 |
| | - 160 | ○ | 10 | 160 | 24 | 34 | 42 | M8 | 10 | 4.1 |
| | DSC12 - 100 | ○ | 12 | 100 | 24 | 32 | 47 | M10 | 10 | 3.8 |
| | - 120 | | 12 | 120 | 24 | 32 | 47 | M10 | 10 | 3.9 |
| | - 160 | ○ | 12 | 160 | 24 | 34 | 47 | M10 | 10 | 4.1 |
| | DSC14 - 100 | ○ | 14 | 100 | 27 | 34 | 47 | M10 | 10 | 3.8 |
| | - 120 | | 14 | 120 | 27 | 34 | 47 | M10 | 10 | 3.9 |
| | - 160 | ○ | 14 | 160 | 27 | 42 | 47 | M10 | 10 | 4.1 |
| | DSC16 - 100 | ○ | 16 | 100 | 27 | 34 | 50 | M12 | 10 | 3.8 |
| | - 120 | | 16 | 120 | 27 | 34 | 50 | M12 | 10 | 3.9 |
| | - 160 | ○ | 16 | 160 | 27 | 42 | 50 | M12 | 10 | 4.1 |
| | DSC18 - 100 | ○ | 18 | 100 | 33 | 42 | 50 | M12 | 10 | 4.1 |
| | - 120 | | 18 | 120 | 33 | 42 | 50 | M12 | 10 | 3.9 |
| | - 160 | ○ | 18 | 160 | 33 | 51 | 50 | M12 | 10 | 4.5 |
| | DSC20 - 100 | ○ | 20 | 100 | 33 | 42 | 52 | M16 | 10 | 3.9 |
| | - 120 | | 20 | 120 | 33 | 42 | 52 | M16 | 10 | 4.2 |
| | - 160 | ○ | 20 | 160 | 33 | 51 | 52 | M16 | 10 | 4.4 |
| | DSC25 - 110 | ○ | 25 | 110 | 44 | 53 | 58 | M16 | 10 | 4.4 |
| | - 120 | | 25 | 120 | 44 | 53 | 58 | M16 | 10 | 4.8 |
| | - 160 | ○ | 25 | 160 | 44 | 60 | 58 | M16 | 10 | 5.2 |
| | DSC32 - 110 | ○ | 32 | 110 | 44 | 53 | 62 | M16 | 10 | 4.2 |
| | - 120 | | 32 | 120 | 44 | 53 | 62 | M16 | 10 | 4.6 |
| | - 160 | ○ | 32 | 160 | 44 | 60 | 62 | M16 | 10 | 5.1 |

● : Disponibile ○ : A richiesta

## Caratteristiche

- Unità di calettamento a caldo: 8kw~10kw
- Serraggio - metallo duro: Φ3~Φ32mm, HSS : Φ6~Φ32mm
- Tempo di calettamento: 3~5sec
- Ampia gamma di lunghezze disponibili: Max. 450mm
- Con ritorno automatico della bobina
  al punto iniziale al termine del processo di riscaldamento

| | ISG2200 | ISG2200WK | ISG3200 | ISG3200WK |
|---|---|---|---|---|
| Corpo |  |  |  |  |
| Serraggio | Ø3-20mm(Metallo duro)<br>- | Ø3-20mm(Metallo duro)<br>- | Ø3-32mm(Metallo duro)<br>Ø6-32mm(H.S.S) | Ø3-32mm(Metallo duro)<br>Ø6-32mm(H.S.S) |
| Lung. max. utensile | 290mm | 265mm | 470mm | 450mm |
| Durata max. | entro 5s | entro 5s | entro 5s | entro 5s |
| Tempo di raffreddam. | entro 30s | entro 5~10s | entro 30s | entro 5~10s |
| Metodo di raffreddam. | Aria | Emulsione | Aria | Emulsione |
| Potenza | 8 KW | 8 KW | 10KW | 10KW |
| Alimentazione aria | 6bar/90psi | 6bar/90psi | 6bar/90psi | 6bar/90psi |
| Aliment. elettrica | 3 * 400v/16A | 3 * 400v/16A | 3 * 400v/16A | 3 * 400v/16A |
| Dimensioni | 310(W)x390(L)x640(H) | 700(W)x550(L)x1540(H) | 592(W)x584(L)x1030(H) | 700(W)x620(L)x1700(H) |
| Peso | 25kg | 100kg | 43kg | 120kg |
| **OPZIONALE** | | | | |
| Portainserti | BT30/BT40/BT50, SK30/SK40/SK50, CAT30/CAT40/CAT50, HSK32/HSK40/HSK50/HSK63/HSK80/HSK100 | | | |
| Bobina di induzione | - | - | Ø32 ~ 50mm | Ø32 ~ 50mm |
| Adattatore di raffred. (120, 200mm) | Ø3 ~ 5.9 / Ø6 ~ 9 / Ø9.1 ~ 12/ Ø12.1 ~ 16 / Ø16.1 ~ 22 | - | Ø3 ~ 5.9 / Ø6 ~ 9 / Ø9.1 ~ 12/ Ø12.1 ~ 16 / Ø16.1 ~ 22 | - |
| Dischi intercambiabili | Ø3.0 ~ 5.9mm / Ø6.0 ~ 12.0mm / Ø12.1 ~ 22.00mm / Ø22.1~ 32.0mm | | | |
| Lastra di raffreddam. | T3-Z/WZ | | | |
| Emulsione refrigerante | - | Zetasol 120/5 | - | Zetasol 120/5 |
| Protezione | ISG2200-SH | | ISG3200-SH | |

- Bobina di induzione Φ32~50mm: Opzionale
- Adattatore di misurazione per regolare la lunghezza: Opzionale
- Dischi slim intercambiabili, un pezzo: Opzionali
- Dispositivo di espulsione utensili rotti: Opzionale

## Parti di ricambio

| Applicazione | Vite di regolazione |
|---|---|
| Tipo |  |
| DSC6 | BFS0516 |
| | BFS0520 |
| DSC8 | BFS0616 |
| | BFS0620 |
| DSC10 | BFS0812 |
| | BFS0818 |
| DSC12/DSC14 | BFS1017 |
| | BFS1020 |
| DSC16/DSC18 | BFS1214 |
| | BFS1220 |
| DSC20/DSC25 | BFS1620 |
| | BFS1625 |
| DSC32 | BFS2020 |
| | BFS2025 |

# I Serie mandrini a pinza

## Caratteristiche

| | | | |
|---|---|---|---|
| Elevata precisione<br>Staffaggio robusto | Pratica sostituzione dell'utensile | Vari modelli | Diametro di lavorazione<br>Φ0.5 ~Φ34.0mm |

## Serie mandrini a pinza

### Mandrino a pinza



**SDC**

- Dia. max. di lavorazione: Φ34.0mm
- Per foratura, alesatura, fresatura integrale, maschiatura ecc.

### Mandrino a pinza slim



**SDC/S**

- Dia. max. di lavorazione: Φ16.0mm
- Per foratura, alesatura, fresatura integrale in profondità e in spazi ristretti

### Mandrino a pinza ad alta velocità



**HPS**

- Dia. max. di lavorazione: Φ20.0mm
- G6,3 Bilanciato
- Max. giri : 15.000rpm

### Mandino a pinza altissima velocità



**HDC**

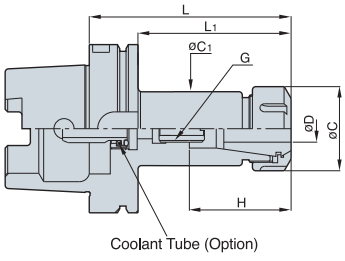
- Dia. max. di lavorazione: Φ13.0mm
- G2,5 Bilanciato
- Max. giri: 30.000rpm

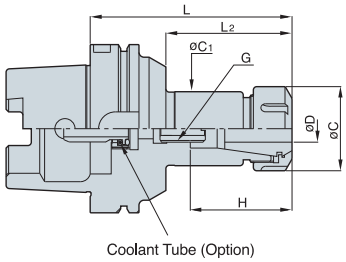


# HSK-SDC

DIN69893-1, ISO 12164-1 : 2001






(mm)

| Articolo | | Stock | øD | øC | øC1 | L | L1 | L2 | H | G | Bussola | Gamma | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HSK 50A - | SDC 7- 75 | | 1.0~ 7.0 | 19 | 19 | 75 | 49 | 33 | 34 | M7 | GER11 | 0.5 | 0.3 |
| | SDC10- 90 | | 1.0~10.0 | 28 | 28 | 90 | 64 | 48 | 45 | M10 | GER16 | 1.0 | 0.4 |
| | SDC13- 95 | | 1.0~13.0 | 35 | 35 | 95 | 69 | 53 | 49 | M13 | GER20 | 1.0 | 0.8 |
| | SDC16-100 | | 1.0~16.0 | 42 | 42 | 100 | 74 | 58 | 50 | M18 | GER25 | 1.0 | 0.9 |
| | SDC20-105 | | 2.0~20.0 | 50 | 44 | 105 | 79 | 63 | 60 | M22 | GER32 | 1.0 | 1.2 |
| HSK 63A - | SDC 7- 75 | | 1.0~ 7.0 | 19 | 19 | 75 | 49 | 33 | 34 | M7 | GER11 | 0.5 | 0.8 |
| | SDC10- 95 | | 1.0~10.0 | 28 | 28 | 95 | 69 | 53 | 45 | M10 | GER16 | 1.0 | 1.0 |
| | SDC13- 95 | | 1.0~13.0 | 35 | 35 | 95 | 69 | 53 | 49 | M13 | GER20 | 1.0 | 1.2 |
| | SDC16-100 | | 1.0~16.0 | 42 | 42 | 100 | 74 | 58 | 50 | M18 | GER25 | 1.0 | 1.3 |
| | SDC20-110 | ● | 2.0~20.0 | 50 | 44 | 110 | 74 | 68 | 60 | M22 | GER32 | 1.0 | 1.4 |
| | SDC26-125 | | 3.0~26.0 | 63 | 63 | 125 | 99 | 83 | 71 | M28 | GER40 | 1.0 | 1.8 |
| HSK100A - | SDC 7- 85 | | 1.0~ 7.0 | 19 | 19 | 85 | 56 | 40 | 34 | M7 | GER11 | 0.5 | 2.4 |
| | SDC10- 95 | | 1.0~10.0 | 28 | 28 | 95 | 66 | 50 | 45 | M10 | GER16 | 1.0 | 2.7 |
| | SDC13-100 | | 1.0~13.0 | 35 | 35 | 100 | 71 | 55 | 49 | M13 | GER20 | 1.0 | 3.0 |
| | SDC16-110 | | 1.0~16.0 | 42 | 42 | 110 | 76 | 65 | 50 | M18 | GER25 | 1.0 | 3.2 |
| | SDC20-120 | ● | 2.0~20.0 | 50 | 44 | 120 | 91 | 75 | 60 | M22 | GER32 | 1.0 | 3.4 |
| | SDC26-130 | | 3.0~26.0 | 63 | 63 | 130 | 101 | 85 | 71 | M28 | GER40 | 1.0 | 3.6 |

**Portainserti standard per centri di lavoro ad alta velocità**
- Staffaggio robusto
- Pratica sostituzione dell'utensile (Fissaggio/Defissaggio)
- È possibile ordinare il tipo bilanciato e il tipo bilanciabile
- Bussola: vedere a pagina I 29
- La chiave è opzionale.

**Esempio d'ordine)**
- Tipo standard: HSK63A-SDC7-75
- Tipo bilanciabile: HSK63A-SDC7-75B
- Tipo bilanciato: HSK63A-SDC7-75BS

● : Disponibile ○ : A richiesta

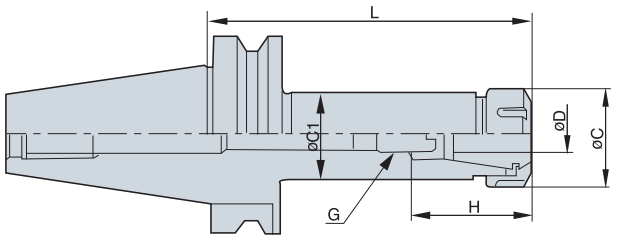
## Parti di ricambio

| Applicazione | Parti di ricambio | | | |
|---|---|---|---|---|
| | Standard | | Opzionale | |
| | Dado | Vite di regolazione | Chiave | Bussola GER |
| Tipo |  |  |  |  |
| SDC7 | R11 | BN0716F | S-17 | GER 11-ΦD |
| SDC10 | R16 | BN1025F | S-25 | GER 16-ΦD |
| SDC13 | RU20 | BN1325F | 35-38 | GER 20-ΦD |
| SDC16 | RU25 | BN1830F | 42-46 | GER 25-ΦD |
| SDC20 | RU32 | BN2230F | 48-52 | GER 32-ΦD |
| SDC26 | RU40 | BN2838F | 62-65 | GER 40-ΦD |

# BT-SDC

MAS403-BT






(mm)

| Articolo | Stock | øD | øC | øC1 | L | H | Bussola | Gamma | G | kg |
|---|---|---|---|---|---|---|---|---|---|---|
| BT30 - SDC 7 - 50 | ● | 1.0 ~ 7.0 | 19 | 19 | 50 | 35 | GER11 | 0.5 | M7 | 0.5 |
| 75 | ● | 1.0 ~ 7.0 | 19 | 19 | 75 | 35 | GER11 | 0.5 | M7 | 0.5 |
| 105 | ● | 1.0 ~ 7.0 | 19 | 19 | 105 | 35 | GER11 | 0.5 | M7 | 0.6 |
| SDC10 - 50 | ● | 1.0 ~ 10.0 | 28 | 28 | 50 | 45 | GER16 | 1.0 | M10 | 0.5 |
| 75 | ● | 1.0 ~ 10.0 | 28 | 28 | 75 | 45 | GER16 | 1.0 | M10 | 0.5 |
| 105 | ● | 1.0 ~ 10.0 | 28 | 28 | 105 | 45 | GER16 | 1.0 | M10 | 0.6 |
| SDC13 - 50 | ● | 1.0 ~ 13.0 | 35 | 35 | 50 | 49 | GER20 | 1.0 | M13 | 0.5 |
| 75 | ● | 1.0 ~ 13.0 | 35 | 35 | 75 | 49 | GER20 | 1.0 | M13 | 0.6 |
| 105 | ● | 1.0 ~ 13.0 | 35 | 35 | 105 | 49 | GER20 | 1.0 | M13 | 0.7 |
| SDC16 - 50 | ● | 1.0 ~ 16.0 | 42 | 42 | 50 | 50 | GER25 | 1.0 | M18 | 0.6 |
| 75 | ● | 1.0 ~ 16.0 | 42 | 42 | 75 | 50 | GER25 | 1.0 | M18 | 0.7 |
| 105 | | 1.0 ~ 16.0 | 42 | 42 | 105 | 50 | GER25 | 1.0 | M18 | 0.8 |
| SDC20 - 60 | ● | 2.0 ~ 20.0 | 50 | 44 | 60 | 60 | GER32 | 1.0 | M22 | 0.5 |
| 90 | ● | 2.0 ~ 20.0 | 50 | 44 | 90 | 60 | GER32 | 1.0 | M22 | 0.8 |
| 120 | ● | 2.0 ~ 20.0 | 50 | 44 | 120 | 60 | GER32 | 1.0 | M22 | 1.0 |
| BT40 - SDC 7 - 60 | ● | 1.0 ~ 7.0 | 19 | 19 | 60 | 35 | GER11 | 0.5 | M7 | 1.0 |
| 90 | ● | 1.0 ~ 7.0 | 19 | 19 | 90 | 35 | GER11 | 0.5 | M7 | 1.1 |
| 135 | ● | 1.0 ~ 7.0 | 19 | 19 | 135 | 35 | GER11 | 0.5 | M7 | 1.2 |
| SDC10 - 60 | ● | 1.0 ~ 10.0 | 28 | 28 | 60 | 45 | GER16 | 1.0 | M10 | 1.1 |
| 90 | ● | 1.0 ~ 10.0 | 28 | 28 | 90 | 45 | GER16 | 1.0 | M10 | 1.2 |
| 135 | ● | 1.0 ~ 10.0 | 28 | 28 | 135 | 45 | GER16 | 1.0 | M10 | 1.4 |
| SDC13 - 60 | ● | 1.0 ~ 13.0 | 35 | 35 | 60 | 49 | GER20 | 1.0 | M13 | 1.1 |
| 90 | ● | 1.0 ~ 13.0 | 35 | 35 | 90 | 49 | GER20 | 1.0 | M13 | 1.3 |
| 120 | ● | 1.0 ~ 13.0 | 35 | 35 | 120 | 49 | GER20 | 1.0 | M13 | 1.5 |
| 150 | ● | 1.0 ~ 13.0 | 35 | 35 | 150 | 49 | GER20 | 1.0 | M13 | 1.8 |
| 180 | ● | 1.0 ~ 13.0 | 35 | 35 | 180 | 49 | GER20 | 1.0 | M13 | 2.0 |
| SDC16 - 60 | ● | 1.0 ~ 16.0 | 42 | 42 | 60 | 50 | GER25 | 1.0 | M18 | 1.2 |
| 90 | ● | 1.0 ~ 16.0 | 42 | 42 | 90 | 50 | GER25 | 1.0 | M18 | 1.4 |
| 120 | ● | 1.0 ~ 16.0 | 42 | 42 | 120 | 50 | GER25 | 1.0 | M18 | 1.6 |
| 150 | | 1.0 ~ 16.0 | 42 | 42 | 150 | 50 | GER25 | 1.0 | M18 | 1.8 |
| SDC20 - 60 | ● | 2.0 ~ 20.0 | 50 | 44 | 60 | 60 | GER32 | 1.0 | M22 | 1.1 |
| 90 | ● | 2.0 ~ 20.0 | 50 | 44 | 90 | 60 | GER32 | 1.0 | M22 | 1.4 |
| 120 | ● | 2.0 ~ 20.0 | 50 | 44 | 120 | 60 | GER32 | 1.0 | M22 | 1.7 |
| 150 | | 2.0 ~ 20.0 | 50 | 44 | 150 | 60 | GER32 | 1.0 | M22 | 2.1 |
| 180 | ● | 2.0 ~ 20.0 | 50 | 44 | 180 | 60 | GER32 | 1.0 | M22 | 2.5 |
| SDC26 - 90 | ● | 3.0 ~ 26.0 | 63 | 54 | 90 | 70 | GER40 | 1.0 | M28 | 2.4 |
| 120 | | 3.0 ~ 26.0 | 63 | 54 | 120 | 70 | GER40 | 1.0 | M28 | 2.8 |
| SDC34 -105 | | 6.0 ~ 34.0 | 78 | 68 | 105 | 90 | GER50 | 2.0 | M36 | 3.2 |
| 135 | | 6.0 ~ 34.0 | 78 | 68 | 135 | 90 | GER50 | 2.0 | M36 | 3.7 |

**Portainserti standard per centri di lavoro**

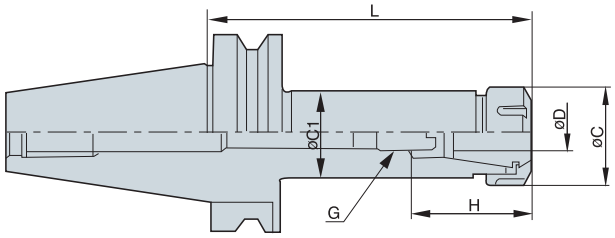
● : Disponibile ○ : A richiesta

- Staffaggio robusto
- Pratica sostituzione dell'utensile (Fissaggio/Defissaggio)
- È possibile ordinare il tipo bilanciato e il tipo bilanciabile
- Bussola: vedere a pagina I 29
- La chiave è opzionale

# BT-SDC

MAS403-BT






(mm)

| Articolo | Stock | øD | øC | øC1 | L | H | Bussola | Range | G | kg |
|---|---|---|---|---|---|---|---|---|---|---|
| BT50 - SDC 7 - 90 | | 1.0~7.0 | 19 | 19 | 90 | 35 | GER11 | 0.5 | M7 | 3.8 |
| 120 | | 1.0~7.0 | 19 | 19 | 120 | 35 | GER11 | 0.5 | M7 | 3.9 |
| 165 | | 1.0~7.0 | 19 | 19 | 165 | 35 | GER11 | 0.5 | M7 | 4.0 |
| SDC10 - 90 | ● | 1.0~10.0 | 28 | 28 | 90 | 45 | GER16 | 1.0 | M10 | 3.8 |
| 120 | ● | 1.0~10.0 | 28 | 28 | 120 | 45 | GER16 | 1.0 | M10 | 4.0 |
| 165 | ● | 1.0~10.0 | 28 | 28 | 165 | 45 | GER16 | 1.0 | M10 | 4.2 |
| SDC13 - 75 | ● | 1.0~13.0 | 35 | 35 | 75 | 49 | GER20 | 1.0 | M13 | 3.8 |
| 105 | ● | 1.0~13.0 | 35 | 35 | 105 | 49 | GER20 | 1.0 | M13 | 3.9 |
| 135 | ● | 1.0~13.0 | 35 | 35 | 135 | 49 | GER20 | 1.0 | M13 | 4.1 |
| 165 | ● | 1.0~13.0 | 35 | 35 | 165 | 49 | GER20 | 1.0 | M13 | 4.5 |
| 180 | ● | 1.0~13.0 | 35 | 35 | 180 | 49 | GER20 | 1.0 | M13 | 4.6 |
| SDC16- 75 | | 1.0~16.0 | 42 | 42 | 75 | 50 | GER25 | 1.0 | M18 | 3.9 |
| 105 | ● | 1.0~16.0 | 42 | 42 | 105 | 50 | GER25 | 1.0 | M18 | 4.1 |
| 165 | | 1.0~16.0 | 42 | 42 | 165 | 50 | GER25 | 1.0 | M18 | 4.4 |
| SDC20 - 75 | ● | 2.0~20.0 | 50 | 44 | 75 | 60 | GER32 | 1.0 | M22 | 4.0 |
| 105 | ● | 2.0~20.0 | 50 | 44 | 105 | 60 | GER32 | 1.0 | M22 | 4.3 |
| 135 | ● | 2.0~20.0 | 50 | 44 | 135 | 60 | GER32 | 1.0 | M22 | 4.9 |
| 165 | ● | 2.0~20.0 | 50 | 44 | 165 | 60 | GER32 | 1.0 | M22 | 5.0 |
| 180 | ● | 2.0~20.0 | 50 | 44 | 180 | 60 | GER32 | 1.0 | M22 | 5.0 |
| SDC26 - 75 | ● | 3.0~26.0 | 63 | 54 | 75 | 70 | GER40 | 1.0 | M28 | 3.9 |
| 105 | ● | 3.0~26.0 | 63 | 54 | 105 | 70 | GER40 | 1.0 | M28 | 4.6 |
| 165 | ● | 3.0~26.0 | 63 | 54 | 165 | 70 | GER40 | 1.0 | M28 | 6.0 |
| SDC34 -105 | | 6.0~34.0 | 78 | 66 | 105 | 70 | GER50 | 2.0 | M36 | 5.4 |
| 165 | | 6.0~34.0 | 78 | 66 | 165 | 70 | GER50 | 2.0 | M36 | 7.2 |

**Portainserti standard per centri di lavoro**

● : Disponibile ○ : A richiesta

- Staffaggio robusto
- Pratica sostituzione dell'utensile (Fissaggio/Defissaggio)
- È possibile ordinare il tipo bilanciato e il tipo bilanciabile
- Bussola: vedere a pagina I 29
- La chiave è opzionale

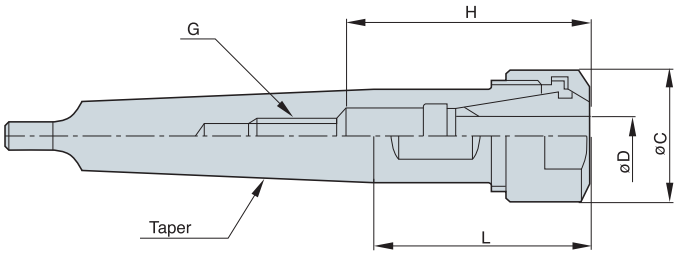
## Parti di ricambio

| Applicazione | Parti di ricambio | | | |
|---|---|---|---|---|
| | Standard | | Opzionale | |
| | Dado | Vite di regolazione | Chiave | Bussola GER |
| Tipo |  |  |  |  |
| SDC7 | R11 | BN0716F | S-17 | GER 11-ΦD |
| SDC10 | R16 | BN1025F | S-25 | GER 16-ΦD |
| SDC13 | RU20 | BN1325F | 35-38 | GER 20-ΦD |
| SDC16 | RU25 | BN1830F | 42-46 | GER 25-ΦD |
| SDC20 | RU32 | BN2230F | 48-52 | GER 32-ΦD |
| SDC26 | RU40 | BN2838F | 62-65 | GER 40-ΦD |
| SDC34 | RU50 | BN3638F | 75-79 | GER 50-ΦD |

- Il dado di regolazione BN2230F è per BT30-SDC20-60 & BT40-SPC20-60
- Applicare la bussola per il tipo con refrigerante
- Es. ordine) Φ6 punta con refrigerante, Bussola: ER20-6C

# MT-SDC






(mm)

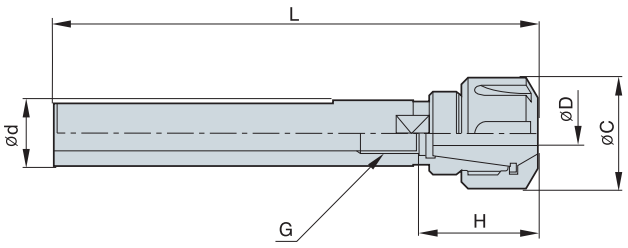
| Articolo | Stock | øD | Cono | øC | L | H | Bussola | Range | G |
|---|---|---|---|---|---|---|---|---|---|
| MT2-SDC10-45 | | 1.0 ~ 10.0 | MT2 | 27 | 45 | 55 | GER16 | 1.0 | M10 |
| MT4-SDC13-45 | | 1.0 ~ 13.0 | MT4 | 35 | 45 | 60 | GER20 | 1.0 | M13 |
| MT4-SDC20-60 | ● | 2.0 ~ 20.0 | MT4 | 50 | 60 | 60 | GER32 | 1.0 | M22 |
| MT5-SDC20-60 | ● | 2.0 ~ 20.0 | MT5 | 50 | 60 | 60 | GER32 | 1.0 | M22 |
| MT5-SDC26-60 | | 3.0 ~ 26.0 | MT5 | 63 | 60 | 70 | GER40 | 1.0 | M22 |
| MT6-SDC20-60 | | 2.0 ~ 20.0 | MT6 | 50 | 60 | 60 | GER32 | 1.0 | M22 |
| MT6-SDC26-60 | | 3.0 ~ 26.0 | MT6 | 63 | 60 | 70 | GER40 | 1.0 | M28 |

• Bussola: vedere a pagina I 29

● : Disponibile ○ : A richiesta

# S-SDC






(mm)

| Articolo | Stock | øD | ød | øC | L | H | Bussola | Gamma | G | kg |
|---|---|---|---|---|---|---|---|---|---|---|
| S16-SDC 7-120M(T) | | 1.0 ~ 7.0 | 16 | 19 | 120 | 35 | GER11 | 0.5 | M7 | 0.2 |
| 10-150M(T) | | 1.0~10.0 | 16 | 28 | 150 | 35 | GER16 | 1.0 | M10 | 0.2 |
| S20-SDC 10-150M(T) | | 1.0~10.0 | 20 | 28 | 150 | 45 | GER16 | 1.0 | M10 | 0.2 |
| 13-150M(T) | | 1.0~13.0 | 20 | 35 | 150 | 49 | GER20 | 1.0 | M13 | 0.2 |
| S25-SDC 10-150M(T) | | 1.0~10.0 | 25 | 28 | 150 | 45 | GER16 | 1.0 | M10 | 0.2 |
| 13-150M(T) | | 1.0~13.0 | 25 | 35 | 150 | 49 | GER20 | 1.0 | M13 | 0.2 |
| S32-SDC 13-150M(T) | | 1.0~13.0 | 32 | 35 | 150 | 49 | GER20 | 1.0 | M13 | 0.4 |
| 20-165M(T) | | 2.0~20.0 | 32 | 50 | 165 | 60 | GER32 | 1.0 | M22 | 0.4 |

• Il mandrino piccolo richiede un portainserti (punta, fresa integrale, maschio, piccolo bareno e alesatore) per il tornio NC e per i torni piccoli CNC. Se utilizzato per il manicotto del bareno interno (bussola), è ideale per aumentare la produttività in quanto assorbe le vibrazioni.

● : Disponibile ○ : A richiesta

• Il tipo con nome che inizia per 'M' è utilizzato per le lavorazioni di fresatura, pertanto non ha la sezione piana.

• Bussola: vedere a pagina I 29 • La chiave è opzionale • Usare DPS o NPM come portainserti standard

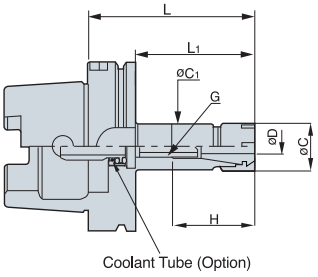
## Parti di ricambio

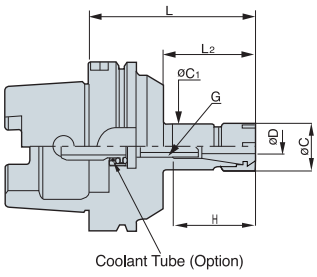
| Applicazione | Parti di ricambio | | | |
|---|---|---|---|---|
| | Standard | | Opzionale | |
| | Dado | Vite di regolazione | Chiave | Bussola GER |
| Tipo |  |  |  |  |
| SDC10 | R16 | BN1025F | S-25 | GER 16-ΦD |
| SDC13 | RU20 | BN1325F | 35-38 | GER 20-ΦD |
| SDC20 | RU32 | BN2230F | 48-52 | GER 32-ΦD |
| SDC26 | RU40 | BN2838F | 62-65 | GER 40-ΦD |

# HSK-SDC/S

DIN69893-1, ISO 12164-1 : 2001






(mm)

| Articolo | | Stock | øD | øC | øC1 | L | L1 | L2 | H | G | Bussola | Gamma | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HSK 50A - | SDC 7S - 75 | | 1.0~ 7.0 | 16 | 16 | 75 | 49 | 33 | 34 | M7 | GER11 | 0.5 | 0.3 |
| | SDC10S - 85 | | 1.0~10.0 | 22 | 22 | 85 | 59 | 43 | 45 | M10 | GER16 | 1.0 | 0.4 |
| | SDC13S - 90 | | 1.0~13.0 | 28 | 28 | 90 | 64 | 48 | 49 | M13 | GER20 | 1.0 | 0.8 |
| | SDC16S -105 | | 1.0~16.0 | 35 | 35 | 105 | 96 | 63 | 54 | M18 | GER25 | 1.0 | 1.2 |
| HSK 63A - | SDC 7S - 75 | | 1.0~ 7.0 | 16 | 16 | 75 | 49 | 33 | 34 | M7 | GER11 | 0.5 | 0.8 |
| | SDC10S - 85 | | 1.0~10.0 | 22 | 22 | 85 | 59 | 43 | 45 | M10 | GER16 | 1.0 | 1.0 |
| | SDC13S - 95 | | 1.0~13.0 | 28 | 28 | 95 | 69 | 53 | 49 | M13 | GER20 | 1.0 | 1.2 |
| | SDC16S -105 | | 1.0~16.0 | 35 | 35 | 105 | 79 | 63 | 54 | M18 | GER25 | 1.0 | 1.4 |
| HSK100A - | SDC 7S - 85 | | 1.0~ 7.0 | 16 | 16 | 85 | 56 | 40 | 34 | M7 | GER11 | 0.5 | 2.4 |
| | SDC10S - 95 | | 1.0~10.0 | 22 | 22 | 95 | 66 | 50 | 45 | M10 | GER16 | 1.0 | 2.7 |
| | SDC13S -100 | | 1.0~13.0 | 28 | 28 | 100 | 71 | 55 | 49 | M13 | GER20 | 1.0 | 3.0 |
| | SDC16S -120 | | 1.0~16.0 | 35 | 35 | 120 | 91 | 75 | 54 | M18 | GER25 | 1.0 | 3.2 |

**Serie mandrini slim a pinza ad alta velocità**
- Foratura e fresatura integrale in profondità e in spazi ristretti
- È possibile ordinare il tipo bilanciato e il tipo bilanciabile
- Bussola: vedere a pagina 62
- La chiave è opzionale

**Esempio d'ordine)**
- Tipo standard: HSK63A-SDC7S-75
- Tipo bilanciabile: HSK63A-SDC7S -75B
- Tipo bilanciato: HSK63A-SDC7S-75BS

● : Disponibile ○ : A richiesta

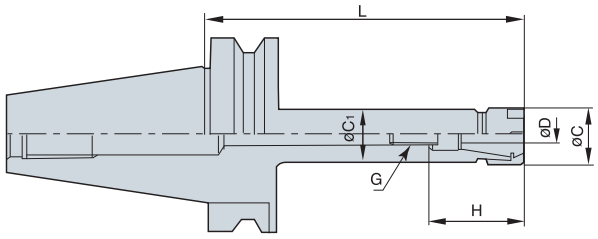
## Parti di ricambio

| Applicazione | Parti di ricambio | | | |
|---|---|---|---|---|
| | Standard | | Opzionale | |
| | Dado | Vite di regolazione | Chiave | Bussola GER |
| Tipo |  |  |  |  |
| SDC7S | R11M | BN0716F | M11M | GER 11-ΦD |
| SDC10S | R16M | BN1025F | M16M | GER 16-ΦD |
| SDC13S | R20M | BN1325F | M20M | GER 20-ΦD |
| SDC16S | R25M | BN1830F | M25M | GER 25-ΦD |

# BT-SDC/S

MAS403-BT





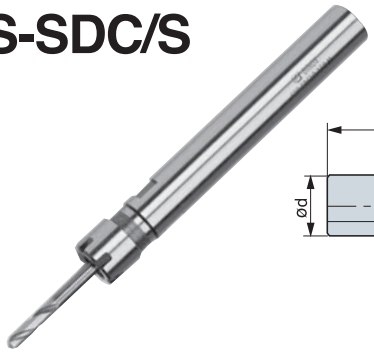

(mm)

| Articolo | Stock | øD | øC | øC1 | L | H | Bussola | Gamma | G | kg |
|---|---|---|---|---|---|---|---|---|---|---|
| BT30 - SDC7S - 50 | | 1.0~7.0 | 16 | 16 | 50 | 35 | GER11 | 0.5 | M7 | 0.5 |
| 75 | | 1.0~7.0 | 16 | 16 | 75 | 35 | GER11 | 0.5 | M7 | 0.5 |
| 105 | | 1.0~7.0 | 16 | 16 | 105 | 35 | GER11 | 0.5 | M7 | 0.6 |
| SDC10S - 50 | | 1.0~10.0 | 22 | 22 | 50 | 45 | GER16 | 1.0 | M10 | 0.5 |
| 75 | | 1.0~10.0 | 22 | 22 | 75 | 45 | GER16 | 1.0 | M10 | 0.5 |
| 105 | | 1.0~10.0 | 22 | 22 | 105 | 45 | GER16 | 1.0 | M10 | 0.6 |
| SDC13S - 50 | | 1.0~13.0 | 28 | 28 | 50 | 49 | GER20 | 1.0 | M13 | 0.5 |
| 75 | | 1.0~13.0 | 28 | 28 | 75 | 49 | GER20 | 1.0 | M13 | 0.6 |
| 105 | | 1.0~13.0 | 28 | 28 | 105 | 49 | GER20 | 1.0 | M13 | 0.7 |
| SDC16S - 50 | | 1.0~16.0 | 35 | 35 | 50 | 50 | GER25 | 1.0 | M18 | 0.6 |
| 75 | | 1.0~16.0 | 35 | 35 | 75 | 50 | GER25 | 1.0 | M18 | 0.7 |
| 105 | | 1.0~16.0 | 35 | 35 | 105 | 50 | GER25 | 1.0 | M18 | 0.8 |
| BT40 - SDC7S - 60 | | 1.0~7.0 | 16 | 16 | 60 | 35 | GER11 | 0.5 | M7 | 1.0 |
| 90 | | 1.0~7.0 | 16 | 16 | 90 | 35 | GER11 | 0.5 | M7 | 1.1 |
| 135 | | 1.0~7.0 | 16 | 16 | 135 | 35 | GER11 | 0.5 | M7 | 1.2 |
| SDC10S - 60 | | 1.0~10.0 | 22 | 22 | 60 | 45 | GER16 | 1.0 | M10 | 1.1 |
| 90 | | 1.0~10.0 | 22 | 22 | 90 | 45 | GER16 | 1.0 | M10 | 1.2 |
| 135 | | 1.0~10.0 | 22 | 22 | 135 | 45 | GER16 | 1.0 | M10 | 1.4 |
| SDC13S - 60 | | 1.0~13.0 | 28 | 28 | 60 | 49 | GER20 | 1.0 | M13 | 1.1 |
| 90 | | 1.0~13.0 | 28 | 28 | 90 | 49 | GER20 | 1.0 | M13 | 1.5 |
| 150 | | 1.0~13.0 | 28 | 28 | 150 | 49 | GER20 | 1.0 | M13 | 1.8 |
| SDC16S - 60 | | 1.0~16.0 | 35 | 35 | 60 | 50 | GER25 | 1.0 | M18 | 1.2 |
| 90 | | 1.0~16.0 | 35 | 35 | 90 | 50 | GER25 | 1.0 | M18 | 1.4 |
| 150 | | 1.0~16.0 | 35 | 35 | 150 | 50 | GER25 | 1.0 | M18 | 1.8 |
| BT50 - SDC7S - 90 | | 1.0~7.0 | 16 | 16 | 90 | 35 | GER11 | 0.5 | M7 | 3.8 |
| 120 | | 1.0~7.0 | 16 | 16 | 120 | 35 | GER11 | 0.5 | M7 | 3.9 |
| 165 | | 1.0~7.0 | 16 | 16 | 165 | 35 | GER11 | 0.5 | M7 | 4.0 |
| SDC10S - 90 | | 1.0~10.0 | 22 | 22 | 90 | 45 | GER16 | 1.0 | M10 | 3.8 |
| 120 | | 1.0~10.0 | 22 | 22 | 120 | 45 | GER16 | 1.0 | M10 | 4.0 |
| 165 | | 1.0~10.0 | 22 | 22 | 165 | 45 | GER16 | 1.0 | M10 | 4.2 |
| SDC13S - 75 | | 1.0~13.0 | 28 | 28 | 75 | 49 | GER20 | 1.0 | M13 | 3.8 |
| 105 | | 1.0~13.0 | 28 | 28 | 105 | 49 | GER20 | 1.0 | M13 | 3.9 |
| 165 | | 1.0~13.0 | 28 | 28 | 165 | 49 | GER20 | 1.0 | M13 | 4.5 |
| SDC16S - 75 | | 1.0~16.0 | 35 | 35 | 75 | 50 | GER25 | 1.0 | M18 | 3.9 |
| 105 | | 1.0~16.0 | 35 | 35 | 105 | 50 | GER25 | 1.0 | M18 | 4.1 |
| 165 | | 1.0~16.0 | 35 | 35 | 165 | 50 | GER25 | 1.0 | M18 | 4.4 |

● : Disponibile ○ : A richiesta

- È disponibile il mandrino a pinza tipo slim
- Foratura e fresatura integrale in profondità e in spazi ristretti
- Con bussola: vedere a pagina I 29
- La chiave è opzionale
- Parti di ricambio: vedere a pagina I 23

# S-SDC/S



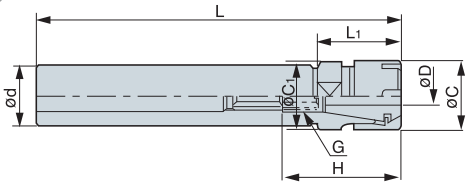



Fig. 1

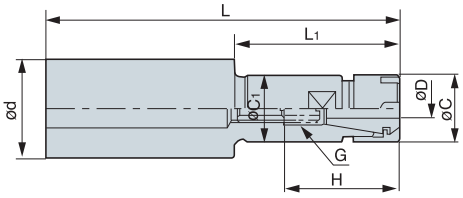



Fig. 2

(mm)

| Articolo | Stock | øD | ød | øC | øC1 | L | L1 | H | G | Bussola | Gamma | Fig. | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S16 - SDC 7S - 100M | ● | 1.0 ~ 7.0 | 16 | 16 | - | 100 | - | 35 | M7 | GER11 | 0.5 | 1 | 0.2 |
| 150M | ● | 1.0 ~ 7.0 | 16 | 16 | - | 150 | - | 35 | M7 | GER11 | 0.5 | 1 | 0.2 |
| SDC10S - 100M | ● | 1.0~10.0 | 16 | 22 | 19 | 100 | 50 | 45 | M10 | GER16 | 1.0 | 1 | 0.3 |
| 150M | ● | 1.0~10.0 | 16 | 22 | 19 | 150 | 50 | 45 | M10 | GER16 | 1.0 | 1 | 0.3 |
| S20 - SDC 7S - 100M | ● | 1.0 ~ 7.0 | 20 | 16 | 16 | 100 | 30 | 35 | M7 | GER11 | 0.5 | 2 | 0.3 |
| 150M | ● | 1.0 ~ 7.0 | 20 | 16 | 16 | 150 | 80 | 35 | M7 | GER11 | 0.5 | 2 | 0.3 |
| SDC 10S - 100M | ● | 1.0~10.0 | 20 | 22 | - | 100 | - | 45 | M10 | GER16 | 1.0 | 1 | 0.4 |
| 150M | ● | 1.0~10.0 | 20 | 22 | - | 150 | - | 45 | M10 | GER16 | 1.0 | 1 | 0.4 |
| SDC 13S - 100M | ● | 1.0~13.0 | 20 | 28 | 24 | 100 | 50 | 49 | M13 | GER20 | 1.0 | 1 | 0.3 |
| 150M | ● | 1.0~13.0 | 20 | 28 | 24 | 150 | 50 | 49 | M13 | GER20 | 1.0 | 1 | 0.3 |
| S25 - SDC 7S - 100M | ● | 1.0 ~ 7.0 | 25 | 16 | 16 | 100 | 30 | 35 | M7 | GER11 | 0.5 | 2 | 0.4 |
| 150M | ● | 1.0 ~ 7.0 | 25 | 16 | 16 | 150 | 80 | 35 | M7 | GER11 | 0.5 | 2 | 0.4 |
| SDC 10S - 100M | ● | 1.0~10.0 | 25 | 22 | 22 | 100 | 30 | 45 | M10 | GER16 | 1.0 | 2 | 0.4 |
| 150M | ● | 1.0~10.0 | 25 | 22 | 22 | 150 | 80 | 45 | M10 | GER16 | 1.0 | 2 | 0.4 |
| SDC 13S - 100M | ● | 1.0~13.0 | 25 | 28 | - | 100 | - | 49 | M13 | GER20 | 1.0 | 1 | 0.5 |
| 150M | ● | 1.0~13.0 | 25 | 28 | - | 150 | - | 49 | M13 | GER20 | 1.0 | 1 | 0.5 |
| 200M | | 1.0~13.0 | 25 | 28 | - | 200 | - | 49 | M13 | GER20 | 1.0 | 1 | 0.7 |
| SDC 16S - 100M | ● | 1.0~16.0 | 25 | 35 | 35 | 100 | 50 | 50 | M18 | GER25 | 1.0 | 1 | 0.5 |
| 150M | ● | 1.0~16.0 | 25 | 35 | 35 | 150 | 50 | 50 | M18 | GER25 | 1.0 | 1 | 0.5 |
| 200M | ● | 1.0~16.0 | 25 | 35 | 35 | 200 | 50 | 50 | M18 | GER25 | 1.0 | 1 | 0.7 |
| S3 2- SDC 7S - 120M | | 1.0 ~ 7.0 | 32 | 16 | 16 | 120 | 30 | 35 | M7 | GER11 | 0.5 | 2 | 0.8 |
| 150M | | 1.0 ~ 7.0 | 32 | 16 | 16 | 150 | 60 | 35 | M7 | GER11 | 0.5 | 2 | 0.8 |
| SDC 10S - 120M | | 1.0~10.0 | 32 | 22 | 22 | 120 | 30 | 45 | M10 | GER16 | 1.0 | 2 | 0.8 |
| 150M | | 1.0~10.0 | 32 | 22 | 22 | 150 | 60 | 45 | M10 | GER16 | 1.0 | 2 | 0.8 |
| 200M | | 1.0~10.0 | 32 | 22 | 22 | 200 | 110 | 45 | M10 | GER16 | 1.0 | 2 | 1.0 |
| SDC 13S - 120M | | 1.0~13.0 | 32 | 28 | 28 | 120 | 30 | 49 | M13 | GER20 | 1.0 | 2 | 0.8 |
| 150M | | 1.0~13.0 | 32 | 28 | 28 | 150 | 60 | 49 | M13 | GER20 | 1.0 | 2 | 0.8 |
| 200M | | 1.0~13.0 | 32 | 28 | 28 | 200 | 110 | 49 | M13 | GER20 | 1.0 | 2 | 1.0 |
| SDC 16S - 120M | ● | 1.0~16.0 | 32 | 35 | - | 120 | - | 50 | M18 | GER25 | 1.0 | 1 | 1.0 |
| 150M | ● | 1.0~16.0 | 32 | 35 | - | 150 | - | 50 | M18 | GER25 | 1.0 | 1 | 1.0 |
| 200M | | 1.0~16.0 | 32 | 35 | - | 200 | - | 50 | M18 | GER25 | 1.0 | 1 | 1.2 |

**Mandrino a pinza tipo slim con attacco cilindrico**

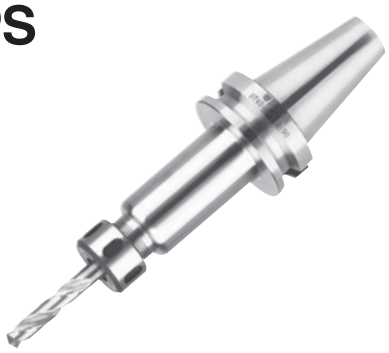
● : Disponibile ○ : A richiesta

- Usare DPS o NPM come portainserti standard
- Bussola: vedere a pagina I 29
- La chiave è opzionale

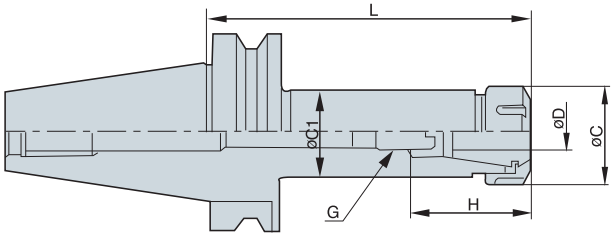
## Parti di ricambio

| Applicazione | Parti di ricambio | | | |
|---|---|---|---|---|
| | Standard | | Opzionale | |
| | Dado | Vite di regolazione | Chiave | Bussola GER |
| Tipo |  |  |  |  |
| SDC7S | R11M | BN0716F | M11M | GER 11-ΦD |
| SDC10S | R16M | BN1025F | M16M | GER 16-ΦD |
| SDC13S | R20M | BN1325F | M20M | GER 20-ΦD |
| SDC16S | R25M | BN1830F | M25M | GER 25-ΦD |

# HPS



**G6,3 Bilanciato**, Max. 15.000rpm
MAS403-BT




(mm)

| Articolo | Stock | øD | øC | øC1 | L | H | Bussola | Gamma | G | kg | Max.rpm |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BT30 - HPS 7 - 50 | | 1.0~7.0 | 19 | 19 | 50 | 35 | GER11 | 0.5 | M7 | 0.5 | 15,000 |
| 75 | | 1.0~7.0 | 19 | 19 | 75 | 35 | GER11 | 0.5 | M7 | 0.5 | 15,000 |
| 105 | | 1.0~7.0 | 19 | 19 | 105 | 35 | GER11 | 0.5 | M7 | 0.5 | 15,000 |
| HPS10 - 50 | ● | 1.0~10.0 | 32 | 31 | 50 | 45 | GER16 | 1.0 | M10 | 0.5 | 15,000 |
| 75 | ● | 1.0~10.0 | 32 | 31 | 75 | 45 | GER16 | 1.0 | M10 | 0.5 | 15,000 |
| 105 | | 1.0~10.0 | 32 | 31 | 105 | 45 | GER16 | 1.0 | M10 | 0.5 | 15,000 |
| HPS13 - 50 | ● | 1.0~13.0 | 35 | 35 | 50 | 49 | GER20 | 1.0 | M13 | 0.5 | 15,000 |
| 75 | ● | 1.0~13.0 | 35 | 35 | 75 | 49 | GER20 | 1.0 | M13 | 0.6 | 15,000 |
| 105 | | 1.0~13.0 | 35 | 35 | 105 | 49 | GER20 | 1.0 | M13 | 0.6 | 15,000 |
| HPS16 - 50 | | 1.0~16.0 | 42 | 42 | 50 | 50 | GER25 | 1.0 | M18 | 0.6 | 15,000 |
| 75 | | 1.0~16.0 | 42 | 42 | 75 | 50 | GER25 | 1.0 | M18 | 0.7 | 15,000 |
| 105 | | 1.0~16.0 | 42 | 42 | 105 | 50 | GER25 | 1.0 | M18 | 0.7 | 15,000 |
| HPS20 - 60 | | 2.0~20.0 | 50 | 44 | 60 | 60 | GER32 | 1.0 | M22 | 0.5 | 15,000 |
| 90 | | 2.0~20.0 | 50 | 44 | 90 | 60 | GER32 | 1.0 | M22 | 0.8 | 15,000 |
| 120 | | 2.0~20.0 | 50 | 44 | 120 | 60 | GER32 | 1.0 | M22 | 0.8 | 15,000 |
| BT40 - HPS 7 - 60 | | 1.0~7.0 | 19 | 19 | 60 | 35 | GER11 | 0.5 | M7 | 1.0 | 10,000 |
| 90 | | 1.0~7.0 | 19 | 19 | 90 | 35 | GER11 | 0.5 | M7 | 1.1 | 10,000 |
| 135 | | 1.0~7.0 | 19 | 19 | 135 | 35 | GER11 | 0.5 | M7 | 1.2 | 10,000 |
| HPS10 - 60 | ● | 1.0~10.0 | 32 | 31 | 60 | 45 | GER16 | 1.0 | M10 | 1.1 | 10,000 |
| 90 | ● | 1.0~10.0 | 32 | 31 | 90 | 45 | GER16 | 1.0 | M10 | 1.2 | 10,000 |
| 135 | | 1.0~10.0 | 32 | 31 | 135 | 45 | GER16 | 1.0 | M10 | 1.3 | 10,000 |
| HPS13 - 60 | ● | 1.0~13.0 | 35 | 35 | 60 | 49 | GER20 | 1.0 | M13 | 1.1 | 10,000 |
| 90 | ● | 1.0~13.0 | 35 | 35 | 90 | 49 | GER20 | 1.0 | M13 | 1.5 | 10,000 |
| 135 | | 1.0~13.0 | 35 | 35 | 135 | 49 | GER20 | 1.0 | M13 | 1.6 | 10,000 |
| HPS16 - 60 | ● | 1.0~16.0 | 42 | 42 | 60 | 50 | GER25 | 1.0 | M18 | 1.2 | 10,000 |
| 90 | ● | 1.0~16.0 | 42 | 42 | 90 | 50 | GER25 | 1.0 | M18 | 1.4 | 10,000 |
| 135 | | 1.0~16.0 | 42 | 42 | 135 | 50 | GER25 | 1.0 | M18 | 1.6 | 10,000 |
| HPS20 - 60 | ● | 2.0~20.0 | 50 | 44 | 60 | 60 | GER32 | 1.0 | M22 | 1.1 | 10,000 |
| 90 | ● | 2.0~20.0 | 50 | 44 | 90 | 60 | GER32 | 1.0 | M22 | 1.4 | 10,000 |
| 135 | | 2.0~20.0 | 50 | 44 | 135 | 60 | GER32 | 1.0 | M22 | 1.4 | 10,000 |
| BT50 - HPS 7 - 90 | | 1.0~7.0 | 19 | 19 | 90 | 35 | GER11 | 0.5 | M7 | 3.8 | 8,000 |
| 120 | | 1.0~7.0 | 19 | 19 | 120 | 35 | GER11 | 0.5 | M7 | 3.9 | 8,000 |
| 165 | | 1.0~7.0 | 19 | 19 | 165 | 35 | GER11 | 0.5 | M7 | 4.0 | 8,000 |
| HPS10 - 90 | | 1.0~10.0 | 32 | 31 | 90 | 45 | GER16 | 1.0 | M10 | 3.8 | 8,000 |
| 120 | | 1.0~10.0 | 32 | 31 | 120 | 45 | GER16 | 1.0 | M10 | 4.0 | 8,000 |
| 165 | | 1.0~10.0 | 32 | 31 | 165 | 45 | GER16 | 1.0 | M10 | 4.2 | 8,000 |
| HPS13 - 75 | | 1.0~13.0 | 35 | 35 | 75 | 49 | GER20 | 1.0 | M13 | 3.8 | 8,000 |
| 105 | | 1.0~13.0 | 35 | 35 | 105 | 49 | GER20 | 1.0 | M13 | 3.9 | 8,000 |
| 165 | | 1.0~13.0 | 35 | 35 | 165 | 49 | GER20 | 1.0 | M13 | 4.2 | 8,000 |
| HPS16 - 75 | | 1.0~16.0 | 42 | 42 | 75 | 50 | GER25 | 1.0 | M18 | 3.9 | 8,000 |
| 105 | | 1.0~16.0 | 42 | 42 | 105 | 50 | GER25 | 1.0 | M18 | 4.1 | 8,000 |
| 165 | | 1.0~16.0 | 42 | 42 | 165 | 50 | GER25 | 1.0 | M18 | 4.2 | 8,000 |
| BT50 - HPS20 - 75 | | 2.0~20.0 | 50 | 44 | 75 | 60 | GER32 | 1.0 | M22 | 4.0 | 8,000 |
| 105 | | 2.0~20.0 | 50 | 44 | 105 | 60 | GER32 | 1.0 | M22 | 4.4 | 8,000 |
| 165 | | 2.0~20.0 | 50 | 44 | 165 | 60 | GER32 | 1.0 | M22 | 4.8 | 8,000 |

• Con bussola: vedere a pagina I 29 • La chiave è opzionale

● : Disponibile ○ : A richiesta

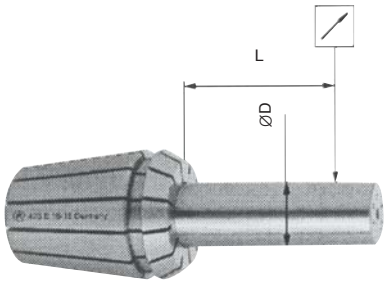
## Parti di ricambio

| Applicazione | Parti di ricambio | | | |
|---|---|---|---|---|
| | Standard | | Opzionale | |
| | Dado | Vite di regolazione | Chiave | Bussola GER |
| Tipo |  |  |  |  |
| HPS7 | RN11 | BN0716F | 20-22 | GER 11-ΦD |
| HPS10 | RN16 | BN1025F | 32-35 | GER 16-ΦD |
| HPS13 | RN20 | BN1325F | 35-38 | GER 20-ΦD |
| HPS16 | RN25 | BN1830F | 42-46 | GER 25-ΦD |
| HPS20 | RN32 | BN2230F | 48-52 | GER 32-ΦD |

# Serie mandrini slim a pinza ad altissima velocità

## Caratteristiche

- Il mandrino interamente rettificato e la boccola dal rivestimento speciale aumentano la forza di serraggio del 50%, rispetto a un mandrino a pinza tradizionale
- Garantiscono elevata precisione ad alte velocità grazie alla regolazione della boccola del manicotto (Tipo PRG)
- Con bussola: Tipo ad alta precisione (GER-HP: 2㎛)
- Tolleranza precisione entro 2㎛ sul naso (4D, max. 50mm) del mandrino



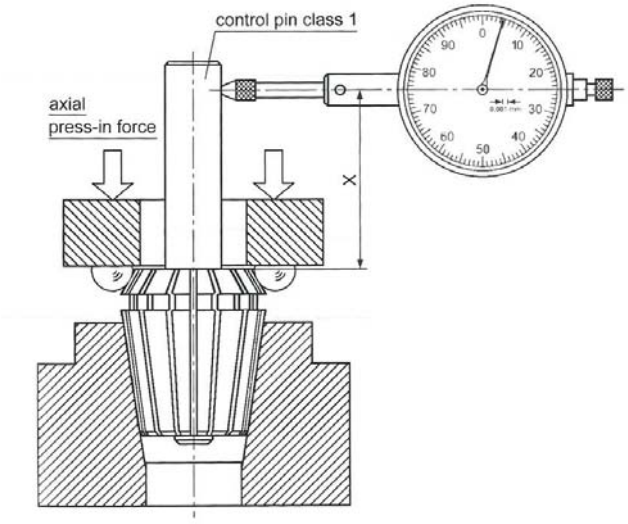

## Tolleranza bussola

| Serraggio | L | (GER-HP) |
|---|---|---|
| Max.10.0 | 25.0 | 2㎛ |
| Max.13.0 | 40.0 | 2㎛ |

## Boccola tipo PRG



- La boccola di serraggio del cuscinetto del manicotto permette di aumentare la forza di serraggio
- L'attrito che si crea durante il serraggio non viene trasferito al mandrino a pinza ma assorbito dal cuscinetto del manicotto. Applicando la stessa coppia, la coppia di serraggio degli utensili è maggiore rispetto a quella dei dadi senza cuscinetto del manicotto

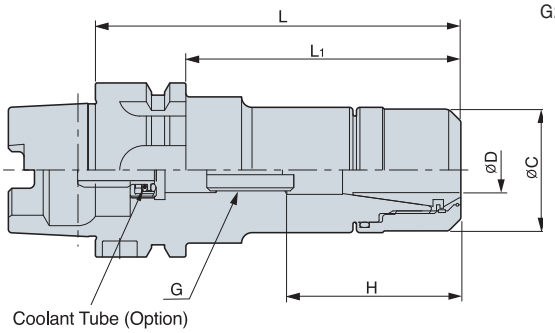





# HSK-HDC



G2,5 Bilanciato Max. 30,000rpm




(mm)

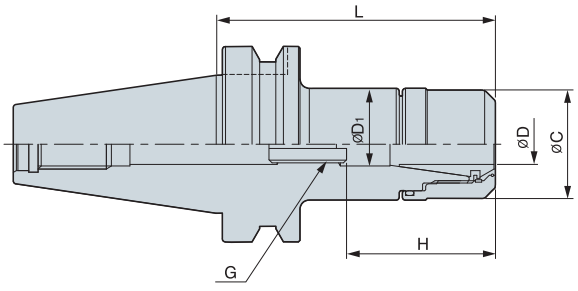
| Articolo | Stock | øD | øC | øC1 | L | L1 | H | G | Bussola | Max.rpm | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| HSK40A-HDC10- 60 | | 1.0~10.0 | 30 | 31 | 60 | 40 | 34 | M10 | GER16HP | 30,000 | 0.2 |
| HDC10- 90 | | 1.0~10.0 | 30 | 31 | 90 | 70 | 45 | M10 | GER16HP | 30,000 | 0.2 |
| HDC13- 75 | | 1.0~13.0 | 35 | 35 | 75 | 55 | 49 | M13 | GER20HP | 30,000 | 0.2 |
| HDC13-105 | | 1.0~13.0 | 35 | 35 | 105 | 90 | 54 | M13 | GER20HP | 30,000 | 0.2 |
| HSK50A-HDC10- 60 | | 1.0~10.0 | 30 | 31 | 60 | 34 | 34 | M10 | GER16HP | 30,000 | 0.3 |
| HDC10- 90 | | 1.0~10.0 | 30 | 31 | 90 | 64 | 45 | M10 | GER16HP | 30,000 | 0.4 |
| HDC13- 75 | | 1.0~13.0 | 35 | 35 | 75 | 49 | 49 | M13 | GER20HP | 25,000 | 0.8 |
| HDC13-105 | | 1.0~13.0 | 35 | 35 | 105 | 79 | 54 | M13 | GER20HP | 25,000 | 1.2 |
| HSK63A-HDC10- 60 | | 1.0~10.0 | 30 | 31 | 60 | 34 | 34 | M10 | GER16HP | 25,000 | 0.8 |
| HDC10- 90 | ● | 1.0~10.0 | 30 | 31 | 90 | 64 | 45 | M10 | GER16HP | 25,000 | 1.0 |
| HDC13- 75 | | 1.0~13.0 | 35 | 35 | 75 | 49 | 49 | M13 | GER20HP | 20,000 | 1.2 |
| HDC13-105 | ● | 1.0~13.0 | 35 | 35 | 105 | 79 | 54 | M13 | GER20HP | 20,000 | 1.4 |
| HSK100A-HDC10- 90 | | 1.0~10.0 | 30 | 31 | 90 | 61 | 34 | M10 | GER16HP | 15,000 | 2.4 |
| HDC10-120 | | 1.0~10.0 | 30 | 31 | 120 | 91 | 45 | M10 | GER16HP | 15,000 | 2.7 |
| HDC13- 90 | | 1.0~13.0 | 35 | 35 | 90 | 61 | 49 | M13 | GER20HP | 15,000 | 3.0 |
| HDC13-120 | | 1.0~13.0 | 35 | 35 | 120 | 91 | 54 | M13 | GER20HP | 15,000 | 3.2 |

● : Disponibile ○ : A richiesta

# BT-HDC



G2,5 Bilanciato Max. 30.000rpm
MAS403-BT




(mm)

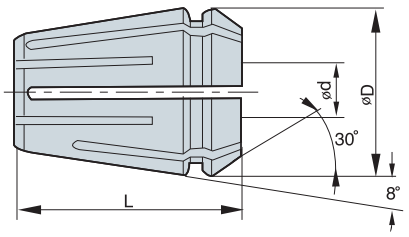
| Articolo | Stock | øD | øC | øC1 | L | H | G | Bussola | Max.rpm | kg |
|---|---|---|---|---|---|---|---|---|---|---|
| BT30-HDC10-55 | | 1.0~10.0 | 30 | 31 | 55 | 45 | M10 | GER16HP | 30,000 | 0.5 |
| HDC10-75 | ● | 1.0~10.0 | 30 | 31 | 75 | 45 | M10 | GER16HP | 30,000 | 0.5 |
| HDC13-55 | | 1.0~13.0 | 35 | 35 | 55 | 49 | M13 | GER20HP | 25,000 | 0.5 |
| HDC13-75 | ● | 1.0~13.0 | 35 | 35 | 75 | 49 | M13 | GER20HP | 25,000 | 0.6 |
| BT40-HDC10-60 | ● | 1.0~10.0 | 30 | 31 | 60 | 45 | M10 | GER16HP | 25,000 | 1.1 |
| HDC10-90 | ● | 1.0~10.0 | 30 | 31 | 90 | 45 | M10 | GER16HP | 25,000 | 1.2 |
| HDC13-60 | ● | 1.0~13.0 | 35 | 35 | 60 | 49 | M13 | GER20HP | 20,000 | 1.1 |
| HDC13-90 | ● | 1.0~13.0 | 35 | 35 | 90 | 49 | M13 | GER20HP | 20,000 | 1.5 |

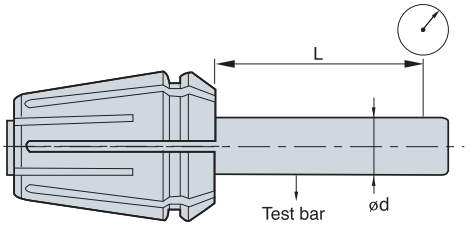
● : Disponibile ○ : A richiesta

## Parti di ricambio

| | Parti di ricambio | | | |
|---|---|---|---|---|
| | Standard | | Opzionale | |
| | Boccola a cuscinetto | Vite di regolazione | Chiave | Bussola GER-HP |
| Tipo |  |  |  |  |
| HDC10 | PRG16 | BN1025F | NSW30 | GER 16-ΦDHP |
| HDC13 | PRG20 | BN1325F | NSW35 | GER 20-ΦDHP |

# Bussola GER




## Dimensioni

(mm)

| Articolo | Bussola | øD | L | ød (Max.) | Gamma (mm) |
|---|---|---|---|---|---|
| GER11-ød | 11 | 11.5 | 18.0 | 7.0 | 0.5 |
| GER16-ød | 16 | 17.0 | 27.5 | 10.0 | 1.0 |
| GER20-ød | 20 | 21.0 | 31.5 | 13.0 | 1.0 |
| GER25-ød | 25 | 26.0 | 34.0 | 16.0 | 1.0 |
| GER32-ød | 32 | 33.0 | 40.0 | 20.0 | 1.0 |
| GER40-ød | 40 | 41.0 | 46.0 | 26.0 | 1.0 |
| GER50-ød | 50 | 52.0 | 60.0 | 34.0 | 1.0 |

## Precisione

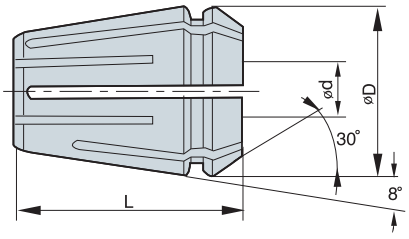
(mm)

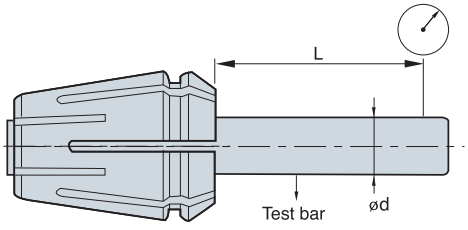
| Serraggio | L | Tolleranza | | |
|---|---|---|---|---|
| | | ER | GER | GER-HP |
| 0.5 ~ 1.6 | 6.0 | 10µm | 5µm | 2µm |
| 1.6 ~ 3.0 | 10.0 | 10µm | 5µm | 2µm |
| 3.0 ~ 6.0 | 16.0 | 10µm | 5µm | 2µm |
| 6.0 ~ 10.0 | 25.0 | 10µm | 5µm | 2µm |
| 10.0 ~ 18.0 | 40.0 | 10µm | 5µm | 2µm |
| 18.0 ~ 26.0 | 50.0 | 10µm | 5µm | 2µm |
| 26.0 ~ 34.0 | 60.0 | 15µm | 5µm | - |

**Es. ordine)** Bussola
• Precisione : 03,00 RD GER32-B
• Precisione elevata : 03,00 RD GER32-HP

• Precisione elevata e varie specifiche

# Bussola ER/C (Refrigerante interno)




## Dimensioni

(mm)

| Articolo | Bussola | øD | L | ød (Max.) | Gamma (mm) |
|---|---|---|---|---|---|
| ER16-ødC | 16 | 17.0 | 27.5 | 10.0 | 1.0 |
| ER20-ødC | 20 | 21.0 | 31.5 | 13.0 | 1.0 |
| ER25-ødC | 25 | 26.0 | 34.0 | 16.0 | 1.0 |
| ER32-ødC | 32 | 33.0 | 40.0 | 20.0 | 1.0 |
| ER40-ødC | 40 | 41.0 | 46.0 | 26.0 | 1.0 |
| ER50-ødC | 50 | 52.0 | 60.0 | 34.0 | 1.0 |

## Precisione

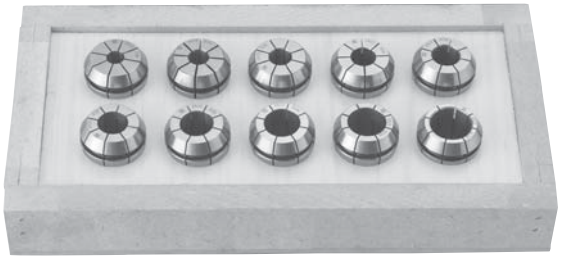
(mm)

| Serraggio | L | Tolleranza | |
|---|---|---|---|
| | | ER | GER-HP |
| ø4.0~ø6.0 | 16.0 | 10µm | 5µm |
| ø6.0~ ø10.0 | 25.0 | 10µm | 5µm |
| ø10.0 ~ø18.0 | 40.0 | 10µm | 5µm |
| ø18.0 ~ø26.0 | 50.0 | 10µm | 5µm |
| ø26.0 ~ø34.0 | 60.0 | 15µm | 10µm |

**Es. ordine)** Bussola
• Standard : ER16-4C
• Precisione elevata : ER16-4CA

# Set bussole





## Dimensioni

(mm)

| Articolo | Gamma (mm) | Set | | Bussola |
|---|---|---|---|---|
| | | (ER) | (GER) | |
| (G)ER11 -ø1.0 ~ø1.5 | 0.5 | - | 13pz. | SDC7 |
| (G)ER11 -ø1.5 ~ø7.0 | 0.5 | 12pz. | 13pz. | SDC7 |
| (G)ER16 -ø1.0 ~ø10.0 | 1.0 | 10pz. | 10pz. | SDC10 |
| (G)ER20 -ø2.0 ~ø13.0 | 1.0 | 12pz. | 12pz. | SDC13 |
| (G)ER25 -ø2.0 ~ø16.0 | 1.0 | 15pz. | 15pz. | SDC16 |
| (G)ER32 -ø3.0 ~ø20.0 | 1.0 | 18pz. | 18pz. | SDC20 |
| (G)ER40 -ø4.0 ~ø6.0 | 1.0 | - | 23pz. | SDC26 |
| (G)ER40 -ø6.0 ~ø26.0 | 1.0 | 21pz. | 23pz. | SDC26 |
| (G)ER50 -ø10.0 ~ø34.0 | 2.0 | 12pz. | - | SDC34 |

## Precisione

(mm)

| Serraggio | Gamma (mm) | Set | Mandrino a pinza |
|---|---|---|---|
| ER16 -ø4C~ø10C | 16.0 | 7pz. | SDC10 |
| ER20 -ø6C~ø13C | 25.0 | 8pz. | SDC13 |
| ER25 -ø6C~ø16C | 40.0 | 11pz. | SDC16 |
| ER32 -ø8C ~ø20C | 50.0 | 13pz. | SDC20 |
| ER40 -ø10C~ø26C | 60.0 | 17pz. | SDC26 |
| ER50 -ø12C ~ø34C | 60.0 | 12pz. | SDC34 |

• Set ER/C: Classe generica

Standard



Con sistema di raffreddamento interno



- **Set bussole**
- Standard : ER32SET
- Precisione : GER32-B Φ3,0-20,0
- Precisione elevata : GER32-B Φ3,0-20,0
- Con sistema di raffreddamento interno : Set ER32 - C



# Serie mandrini slim a pinza ad alta velocità

## Sistema di codifica

| BT40 | – | DSK | 10 | – | 90 |
|---|---|---|---|---|---|
| Mandrino | | Mandrino slim a pinza ad alta velocità | Dia. max. di lavorazione | | Lunghezza |

## Caratteristiche

| | | | |
|---|---|---|---|
| Staffaggio robusto | Lavorazioni ad alte velocità e di precisione | Molteplici applicazioni | Dia. di lavorazione Φ1,0 ~ Φ25mm |

- Dia. di lavorazione Φ2.75~Φ25mm
- Bussola a forte serraggio
- Precisione bussola: Generico 5㎛
  Precisione 3㎛
- Il serraggio robusto garantisce lavorazioni stabili senza fluttuazioni nella forza di serraggio
- Molteplici applicazioni di foratura, fresatura integrale, alesatura, maschiatura ecc.
- È possibile ordinare il tipo bilanciato e il tipo bilanciabile



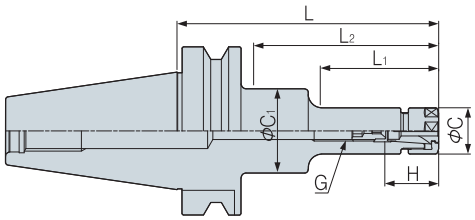







# BT-DSK





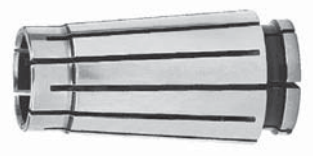

(mm)

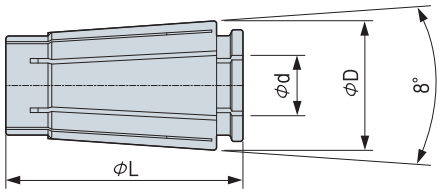
| Articolo | Stock | øD | øC | øC1 | L | L1 | L2 | H | G | Bussola | Gamma | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BT30 - DSK 6 - 60 | ● | 2.75~6.0 | 19.5 | 19.5 | 60 | 33 | 33 | 35 | M8 | HC6 | 0.5 | 0.7 |
| - 90 | ● | 2.75~6.0 | 19.5 | 32 | 90 | 56 | 65 | 35 | M8 | HC6 | 0.5 | 0.8 |
| DSK10 - 60 | ● | 2.75~10.0 | 27.5 | 27.5 | 60 | 35 | 35 | 50 | M12 | HC10 | 0.5 | 0.9 |
| - 90 | ● | 2.75~10.0 | 27.5 | 27.5 | 90 | 65 | 65 | 50 | M12 | HC10 | 0.5 | 1.0 |
| - 120 | | 2.75~10.0 | 27.5 | 27.5 | 120 | 95 | 95 | 50 | M12 | HC10 | 0.5 | 1.1 |
| DSK16 - 60 | ● | 2.75~16.0 | 40 | 40 | 60 | 37 | 37 | 60 | M12 | HC16 | 0.5 | 1.1 |
| - 90 | ● | 2.75~16.0 | 40 | 40 | 90 | 67 | 67 | 60 | M18 | HC16 | 0.5 | 1.2 |
| - 120 | | 2.75~16.0 | 40 | 40 | 120 | 97 | 97 | 60 | M18 | HC16 | 0.5 | 1.3 |
| DSK20 - 75 | ● | 3.5~20.0 | 48 | 48 | 75 | 52 | 52 | 70 | M12 | HC20 | 0.5 | 1.1 |
| - 90 | ● | 3.5~20.0 | 48 | 48 | 90 | 67 | 67 | 70 | M18 | HC20 | 0.5 | 1.2 |
| BT40 - DSK 6 - 60 | ● | 2.75~6.0 | 19.5 | 19.5 | 60 | 30 | 30 | 35 | M8 | HC6 | 0.5 | 1.0 |
| - 90 | ● | 2.75~6.0 | 19.5 | 32 | 90 | 51 | 60 | 35 | M8 | HC6 | 0.5 | 1.1 |
| - 120 | | 2.75~6.0 | 19.5 | 32 | 120 | 60 | 90 | 35 | M8 | HC6 | 0.5 | 1.4 |
| - 150 | ● | 2.75~6.0 | 19.5 | 25 | 150 | 60 | 120 | 35 | M8 | HC6 | 0.5 | 1.5 |
| DSK10 - 60 | ● | 2.75~10.0 | 27.5 | 27.5 | 60 | 32 | 32 | 50 | M12 | HC10 | 0.5 | 1.1 |
| - 90 | ● | 2.75~10.0 | 27.5 | 40 | 90 | 48 | 60 | 50 | M12 | HC10 | 0.5 | 1.2 |
| - 120 | ● | 2.75~10.0 | 27.5 | 40 | 120 | 73 | 90 | 50 | M12 | HC10 | 0.5 | 1.4 |
| - 150 | ● | 2.75~10.0 | 27.5 | 34.5 | 150 | 73 | 118 | 50 | M12 | HC10 | 0.5 | 1.6 |
| - 180 | | 2.75~10.0 | 27.5 | 39 | 180 | 73 | 148 | 50 | M12 | HC10 | 0.5 | 1.6 |
| DSK16 - 60 | ● | 2.75~16.0 | 40 | 40 | 60 | 32 | 32 | 60 | M12 | HC16 | 0.5 | 1.3 |
| - 90 | ● | 2.75~16.0 | 40 | 40 | 90 | 58 | 58 | 60 | M18 | HC16 | 0.5 | 1.5 |
| - 120 | ● | 2.75~16.0 | 40 | 40 | 120 | 88 | 88 | 60 | M18 | HC16 | 0.5 | 1.7 |
| - 150 | ● | 2.75~16.0 | 40 | 40 | 150 | 118 | 118 | 60 | M18 | HC16 | 0.5 | 1.9 |
| - 180 | | 2.75~16.0 | 40 | 40 | 180 | 148 | 148 | 60 | M18 | HC16 | 0.5 | 2.0 |
| DSK20 - 60 | ● | 3.5~20.0 | 48 | 48 | 60 | 32 | 32 | 60 | M12 | HC20 | 0.5 | 1.3 |
| - 90 | ● | 3.5~20.0 | 48 | 48 | 90 | 60 | 60 | 70 | M22 | HC20 | 0.5 | 1.6 |
| - 120 | ● | 3.5~20.0 | 48 | 48 | 120 | 90 | 90 | 70 | M22 | HC20 | 0.5 | 2.0 |
| DSK25 - 90 | | 15.5~25.0 | 55 | 55 | 90 | 61 | 61 | 75 | M28 | HC25 | 0.5 | 1.8 |
| - 120 | | 15.5~25.0 | 55 | 55 | 120 | 91 | 91 | 85 | M28 | HC25 | 0.5 | 2.0 |
| BT50- DSK6 - 105 | ● | 2.75~6.0 | 19.5 | 32 | 105 | 55 | 64 | 35 | M8 | HC6 | 0.5 | 3.8 |
| - 135 | ● | 2.75~6.0 | 19.5 | 32 | 135 | 60 | 92 | 35 | M8 | HC6 | 0.5 | 3.9 |
| - 165 | | 2.75~6.0 | 19.5 | 32 | 165 | 60 | 114 | 35 | M8 | HC6 | 0.5 | 4.0 |
| DSK10 - 105 | ● | 2.75~10.0 | 27.5 | 27.5 | 105 | 57 | 57 | 50 | M12 | HC10 | 0.5 | 4.2 |
| - 135 | ● | 2.75~10.0 | 27.5 | 32 | 135 | 70 | 92 | 50 | M12 | HC10 | 0.5 | 4.4 |
| - 165 | ● | 2.75~10.0 | 27.5 | 32 | 165 | 75 | 114 | 50 | M12 | HC10 | 0.5 | 4.6 |
| - 195 | | 2.75~10.0 | 27.5 | 36 | 195 | 75 | 146 | 50 | M12 | HC10 | 0.5 | 4.8 |
| DSK16 - 105 | ● | 2.75~16.0 | 40 | 40 | 110 | 62 | 62 | 60 | M18 | HC16 | 0.5 | 4.7 |
| - 135 | ● | 2.75~16.0 | 40 | 40 | 135 | 92 | 92 | 60 | M18 | HC16 | 0.5 | 4.9 |
| - 165 | ● | 2.75~16.0 | 40 | 50 | 165 | 90 | 122 | 60 | M18 | HC16 | 0.5 | 5.1 |
| - 195 | | 2.75~16.0 | 40 | 52 | 195 | 90 | 152 | 60 | M18 | HC16 | 0.5 | 5.5 |
| DSK20 - 105 | ● | 3.5~20.0 | 48 | 48 | 105 | 62 | 62 | 70 | M22 | HC20 | 0.5 | 4.3 |
| - 135 | | 3.5~20.0 | 48 | 48 | 135 | 92 | 92 | 70 | M22 | HC20 | 0.5 | 4.6 |
| - 165 | ● | 3.5~20.0 | 48 | 48 | 165 | 122 | 122 | 70 | M22 | HC20 | 0.5 | 5.0 |
| DSK25 - 105 | | 15.5~25.0 | 55 | 55 | 105 | 62 | 62 | 85 | M28 | HC25 | 0.5 | 5.2 |
| - 135 | | 15.5~25.0 | 55 | 55 | 135 | 92 | 92 | 85 | M28 | HC25 | 0.5 | 5.4 |
| - 165 | | 15.5~25.0 | 55 | 55 | 165 | 122 | 122 | 85 | M28 | HC25 | 0.5 | 5.6 |

● : Disponibile ○ : A richiesta

- Molteplici applicazioni di foratura, fresatura integrale, alesatura, maschiatura ecc.
- Il serraggio robusto garantisce lavorazioni stabili senza fluttuazioni nella forza di serraggio
- È possibile ordinare il tipo bilanciato e il tipo bilanciabile
- Parti di ricambio : vedere a pagina I 33

## HC (Tipo generico e di precisione)





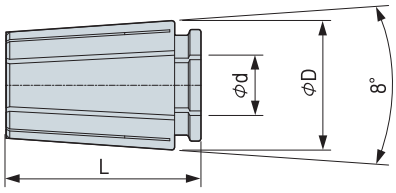

(mm)

| Articolo | Staffaggio | øD | L | ød (Max.) | Gamma (mm) | Tolleranza |
|---|---|---|---|---|---|---|
| **HC6 -Φd** | 2.75 ~ 6.0 | 10.5 | 25 | 6.0 | 0.5 | Generico 5㎛ |
| **HC10-Φd** | 2.75 ~ 10.0 | 15.5 | 30.5 | 10.0 | 0.5 | |
| **HC16-Φd** | 2.75 ~ 16.0 | 24.6 | 45 | 16.0 | 0.5 | |
| **HC20-Φd** | 3.5 ~ 20.0 | 29.1 | 54.2 | 20.0 | 0.5 | Precisione 3㎛ |
| **HC25-Φd** | 15.5 ~ 25.0 | 35.6 | 57 | 25.0 | 0.5 | |

**※ Esempio d'ordine**
- Generico : HC16-Φ8
- Precisione : HC16-Φ8P

## HC (Refrigerante interno)






(mm)

| Articolo | Staffaggio | øD | L | ød (Max.) | Gamma (mm) | Tolleranza |
|---|---|---|---|---|---|---|
| **HC10-Φd** | 4.0 ~ 10.0 | 15.5 | 24.5 | 10.0 | 1.0 | Generico 5㎛ |
| **HC16-Φd** | 10.0 ~ 16.0 | 24.6 | 36 | 16.0 | 1.0 | |
| **HC20-Φd** | 12.0 ~ 20.0 | 29.1 | 45.2 | 20.0 | 1.0 | |
| **HC25-Φd** | 16.0 ~ 25.0 | 35.6 | 47.5 | 25.0 | 1.0 | |

**※ Esempio d'ordine**
- Con sistema di raffreddamento interno : HC16-Φ10C

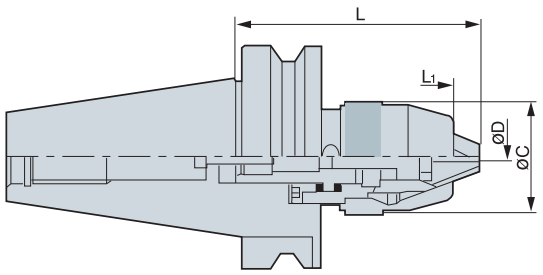
## Parti di ricambio

| Mandrino | Parti di ricambio | | |
|---|---|---|---|
| | Opzionale | | |
| | Dado | Vite di regolazione | Chiave |
| Tipo |  |  |  |
| DSK6 | DN6 | BN0825F | S-18 |
| DSK10 | DN10 | BN1225F | S-25.4 |
| DSK16 | DN16 | BN1830F | 39-42 |
| DSK20 | DN20 | BN2230F | 48-52 |
| DSK25 | DN25 | BN2838F | 53-56 |

# BT-NPU

MAS403-BT






(mm)

| Articolo | Stock | Staffaggio øD | øC | L | L1 |
|---|---|---|---|---|---|
| BT30 - NPU 8 - 97 | ● | 0 ~ 8 | 38 | 97 | 8.5 |
| NPU13 - 125 | ● | 1 ~ 13 | 50 | 125 | 12.5 |
| BT40 - NPU 8 - 87 | ● | 0 ~ 8 | 38 | 87 | 8.5 |
| - 120 | ● | 0 ~ 8 | 38 | 120 | 8.5 |
| - 155 | | 0 ~ 8 | 38 | 155 | 8.5 |
| NPU13 - 105 | ● | 1 ~ 13 | 50 | 105 | 12.5 |
| - 130 | ● | 1 ~ 13 | 50 | 130 | 12.5 |
| - 175 | | 1 ~ 13 | 50 | 175 | 12.5 |
| BT50 - NPU 8 - 97 | | 0 ~ 8 | 38 | 97 | 8.5 |
| - 110 | | 0 ~ 8 | 38 | 110 | 8.5 |
| - 170 | | 0 ~ 8 | 38 | 170 | 8.5 |
| NPU13 - 115 | ● | 1 ~ 13 | 50 | 115 | 12.5 |
| - 130 | ● | 1 ~ 13 | 50 | 130 | 12.5 |
| - 190 | ● | 1 ~ 13 | 50 | 190 | 12.5 |

- L'unico corpo di mandrino e attacco consente di ridurre la lunghezza dell'utensile
- Maggiore precisione e durata durante la lavorazione
- Con meccanismo anti cedimento e di serraggio incrementale automatico
- Il mandrino non si stacca all'arresto improvviso dell'albero principale
- La chiave è opzionale

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Parti di ricambio | | |
|---|---|---|
| Applicazione | Standard | Opzionale |
| | Mandrino | Chiave |
| Tipo |  |  |
| NPU08 | NPU08 | NPU0836 |
| NPU13 | NPU13 | NPU1348 |

# BT-MTA

MAS403-BT



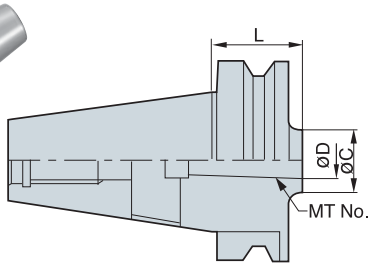



Fig. 1

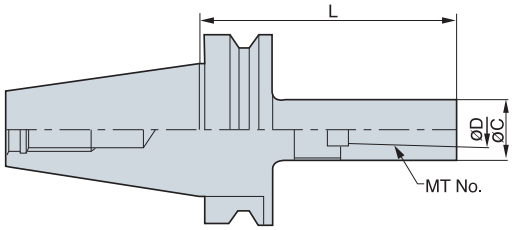



Fig. 2

(mm)

| Articolo | Stock | MT No. | L | øD | øC | kg | Fig. |
|---|---|---|---|---|---|---|---|
| BT30 - MTA1 - 45 | ● | 1 | 45 | 12.065 | 25 | 0.6 | 1 |
| MTA2 - 60 | ● | 2 | 60 | 17.780 | 32 | 0.6 | 1 |
| MTA3 - 80 | | 3 | 80 | 23.825 | 40 | 0.6 | 1 |
| BT40 - MTA1 - 45 | ● | 1 | 45 | 12.065 | 25 | 1.1 | 1 |
| 120 | ● | 1 | 120 | 12.065 | 25 | 1.2 | 2 |
| MTA2 - 60 | ● | 2 | 60 | 17.780 | 32 | 1.1 | 1 |
| 120 | ● | 2 | 120 | 17.780 | 32 | 1.6 | 2 |
| MTA3 - 75 | ● | 3 | 75 | 23.825 | 40 | 1.2 | 1 |
| 135 | ● | 3 | 135 | 23.825 | 40 | 1.7 | 2 |
| MTA4 - 95 | ● | 4 | 95 | 31.267 | 50 | 1.3 | 1 |
| 165 | | 4 | 165 | 31.267 | 50 | 3.0 | 2 |
| BT50 - MTA1 - 45 | ● | 1 | 45 | 12.065 | 25 | 3.9 | 1 |
| 120 | ● | 1 | 120 | 12.065 | 25 | 4.2 | 2 |
| 180 | ● | 1 | 180 | 12.065 | 25 | 4.3 | 2 |
| MTA2 - 45 | ● | 2 | 45 | 17.780 | 32 | 3.9 | 1 |
| 135 | ● | 2 | 135 | 17.780 | 32 | 4.3 | 2 |
| 180 | ● | 2 | 180 | 17.780 | 32 | 4.6 | 2 |
| MTA3 - 45 | ● | 3 | 45 | 23.825 | 40 | 3.8 | 1 |
| 150 | ● | 3 | 150 | 23.825 | 40 | 4.6 | 2 |
| 180 | ● | 3 | 180 | 23.825 | 40 | 4.9 | 2 |
| MTA4 - 75 | ● | 4 | 75 | 31.267 | 50 | 3.9 | 1 |
| 180 | ● | 4 | 180 | 31.267 | 50 | 5.4 | 2 |
| MTA5- 105 | ● | 5 | 105 | 44.399 | 65 | 4.5 | 1 |
| 210 | | 5 | 210 | 44.399 | 65 | 7.2 | 2 |

• Utensile per attacco cono morse (punta, alesatore ecc.)

● : Disponibile ○ : A richiesta

# MTB

MAS403-BT



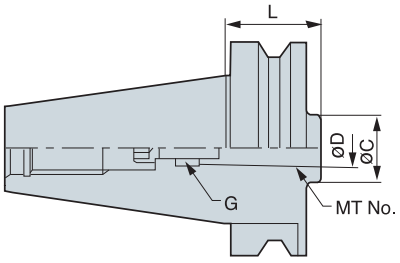



Fig. 1

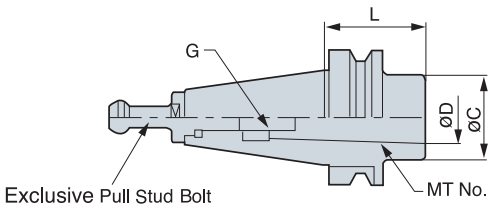



Fig. 2

(mm)

| Articolo | Stock | MT No. | L | øD | øC | G | kg | Fig. |
|---|---|---|---|---|---|---|---|---|
| **BT30 - MTB1- 45** | | 1 | 45 | 12.065 | 25 | M6 | 0.8 | 1 |
| **MTB2- 60** | | 2 | 60 | 17.780 | 32 | M10 | 0.8 | 2 |
| **BT40 - MTB1- 45** | | 1 | 45 | 12.065 | 25 | M6 | 1.0 | 1 |
| **MTB2- 45** | | 2 | 45 | 17.780 | 32 | M10 | 1.0 | 1 |
| **MTB3- 45** | | 3 | 45 | 23.825 | 40 | M12 | 1.2 | 2 |
| **MTB4- 85** | | 4 | 85 | 31.267 | 50 | M16 | 1.4 | 2 |
| **BT50 - MTB1- 45** | | 1 | 45 | 12.065 | 25 | M6 | 4.0 | 1 |
| **MTB2- 45** | | 2 | 45 | 17.780 | 32 | M10 | 4.0 | 1 |
| **MTB3- 60** | | 3 | 60 | 23.825 | 40 | M12 | 4.0 | 1 |
| **MTB4- 75** | | 4 | 75 | 31.267 | 50 | M16 | 4.1 | 1 |

• Fig. 2, necessario per la regolazione della vite Pull Stud per uso esclusivo
• Vite Pull Stud venduta separatamente

● : Disponibile ○ : A richiesta



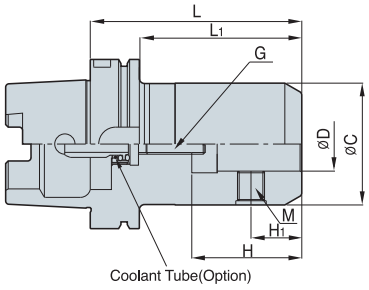
## Parti di ricambio

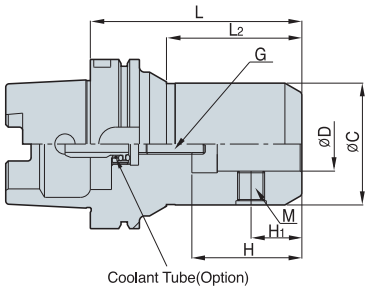
| Parti di ricambio | | | |
|---|---|---|---|
| **Applicazione** | **Vite di staffaggio** | | |
| **Tipo** |  | | |
| | BT30 | BT40 | BT50 |
| MTB1 | BX0620S | BX0625 | BX0630 |
| MTB2 | BX1025S | BX1030 | BX1035 |
| MTB3 | - | Vite Pull Stud | BX1235 |
| MTB4 | - | Vite Pull Stud | BX1640 |

# HSK-SLA (Tipo piatto)

DIN69893-1, ISO 12164-1 : 2001






(mm)

| Articolo | Stock | øD | øC | L | L1 | L2 | H | H1 | M | G | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| HSK 40A-SLA 6 -70 | | 6 | 25 | 70 | 57 | 35 | 37 | 15 | M6 | M5 | 0.3 |
| SLA 8 -70 | | 8 | 28 | 70 | 57 | 35 | 37 | 15 | M8 | M6 | 0.3 |
| SLA10 -75 | | 10 | 35 | 75 | 62 | 40 | 43 | 17 | M10 | M8 | 0.3 |
| SLA12 -80 | | 12 | 42 | 80 | 67 | 45 | 49 | 20 | M12 | M8 | 0.4 |
| SLA14 -85 | | 14 | 44 | 85 | 72 | 50 | 49 | 20 | M12 | M8 | 0.6 |
| SLA16 -85 | | 16 | 48 | 85 | 72 | 50 | 55 | 22 | M14 | M8 | 0.6 |
| HSK 50A-SLA 6 -80 | | 6 | 25 | 80 | 54 | 38 | 37 | 15 | M6 | M5 | 0.8 |
| SLA 8 -80 | | 8 | 28 | 80 | 54 | 38 | 37 | 15 | M8 | M6 | 0.8 |
| SLA10 -85 | | 10 | 35 | 85 | 59 | 43 | 43 | 17 | M10 | M8 | 0.9 |
| SLA12 -90 | | 12 | 42 | 90 | 64 | 48 | 49 | 20 | M12 | M10 | 1.2 |
| SLA14 -90 | | 14 | 44 | 90 | 64 | 48 | 49 | 20 | M12 | M12 | 1.3 |
| SLA16 -95 | | 16 | 48 | 95 | 69 | 53 | 55 | 22 | M14 | M12 | 1.4 |
| SLA18 -95 | | 18 | 50 | 95 | 69 | 53 | 55 | 22 | M14 | M12 | 1.5 |
| SLA20-100 | | 20 | 52 | 100 | 74 | 58 | 68 | 25 | M16 | M12 | 1.6 |
| HSK 63A-SLA 6 -80 | | 6 | 25 | 80 | 54 | 38 | 37 | 15 | M6 | M5 | 1.0 |
| SLA 8 -80 | | 8 | 28 | 80 | 54 | 38 | 37 | 15 | M8 | M6 | 1.1 |
| SLA10 -85 | | 10 | 35 | 85 | 59 | 43 | 43 | 17 | M10 | M8 | 1.1 |
| SLA12 -90 | | 12 | 42 | 90 | 64 | 48 | 49 | 20 | M12 | M10 | 1.7 |
| SLA14 -90 | | 14 | 44 | 90 | 64 | 48 | 49 | 20 | M12 | M12 | 1.7 |
| SLA16 -95 | | 16 | 48 | 95 | 69 | 53 | 55 | 22 | M14 | M12 | 1.7 |
| SLA18 -95 | | 18 | 50 | 95 | 69 | 53 | 55 | 22 | M14 | M12 | 1.9 |
| SLA20-100 | ● | 20 | 52 | 100 | 75 | 58 | 68 | 25 | M16 | M12 | 2.0 |
| SLA25-105 | | 25 | 65 | 105 | 79 | 63 | 68 | 25 | M18 | M12 | 2.7 |
| SLA32-105 | ● | 32 | 72 | 105 | 79 | 63 | 72 | 30 | M20 | M12 | 2.9 |
| HSK100A-SLA 6 -90 | | 6 | 25 | 90 | 61 | 45 | 37 | 15 | M6 | M5 | 3.1 |
| SLA 8 -90 | | 8 | 28 | 90 | 61 | 45 | 37 | 15 | M8 | M6 | 3.3 |
| SLA10 -90 | | 10 | 35 | 90 | 61 | 45 | 43 | 17 | M10 | M8 | 3.5 |
| SLA12 -95 | | 12 | 42 | 95 | 66 | 50 | 49 | 20 | M12 | M10 | 3.5 |
| SLA14 -95 | | 14 | 44 | 95 | 66 | 50 | 49 | 20 | M12 | M12 | 3.6 |
| SLA16-100 | | 16 | 48 | 100 | 71 | 55 | 55 | 22 | M14 | M12 | 3.8 |
| SLA18-100 | | 18 | 50 | 100 | 71 | 55 | 55 | 22 | M14 | M12 | 3.8 |
| SLA20-105 | ● | 20 | 52 | 105 | 76 | 60 | 68 | 25 | M16 | M12 | 3.9 |
| SLA25-110 | ● | 25 | 65 | 110 | 81 | 65 | 68 | 25 | M18 | M12 | 4.0 |
| SLA32-125 | ● | 32 | 72 | 125 | 96 | 80 | 72 | 30 | M20 | M12 | 4.3 |
| SLA40-135 | | 40 | 80 | 135 | 106 | 90 | 78 | 32 | M20 | M12 | 4.4 |
| SLA42-135 | | 42 | 80 | 135 | 106 | 90 | 78 | 32 | M20 | M12 | 4.7 |

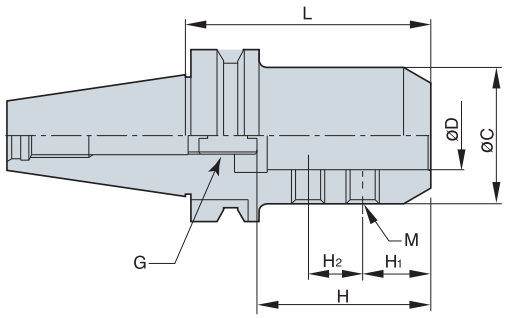
• Per foratura, fresatura integrale ecc.
• È possibile ordinare il tipo bilanciato e il tipo bilanciabile
• Parti di ricambio: vedere a pagina I 38

● : Disponibile ○ : A richiesta

# BT-SLA (Tipo piatto)

MAS403-BT






(mm)

| Articolo | Stock | øD | øC | L | H | | H1 | H2 | M | G | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | min | max | | | | | |
| BT30- SLA 6- 60 | | 6 | 60 | 25 | 20 | 35 | 18 | - | M5 | M5 | 0.7 |
| SLA 8- 60 | | 8 | 60 | 28 | 20 | 35 | 18 | - | M6 | M6 | 0.8 |
| SLA10- 60 | | 10 | 60 | 35 | 35 | 50 | 14 | 13 | M8 | M8 | 0.9 |
| SLA12- 60 | | 12 | 60 | 40 | 35 | 50 | 14 | 13 | M8 | M8 | 1.1 |
| SLA14- 60 | | 14 | 60 | 40 | 35 | 50 | 14 | 13 | M8 | M8 | 1.2 |
| SLA16- 90 | | 16 | 90 | 40 | 55 | 70 | 25 | 20 | M10 | M12 | 1.3 |
| SLA19- 90 | | 19 | 90 | 50 | 55 | 70 | 25 | 20 | M12 | M12 | 1.4 |
| SLA20- 90 | ● | 20 | 90 | 50 | 55 | 70 | 25 | 20 | M12 | M12 | 1.4 |
| SLA25- 90 | | 25 | 90 | 50 | 55 | 70 | 25 | 20 | M12 | M12 | 1.5 |
| BT40- SLA 6- 60 | | 6 | 60 | 25 | 20 | 35 | 18 | - | M5 | M5 | 1.1 |
| SLA 8- 60 | | 8 | 60 | 28 | 20 | 35 | 18 | - | M6 | M6 | 1.1 |
| SLA10- 60 | | 10 | 60 | 35 | 35 | 50 | 14 | 13 | M8 | M8 | 1.2 |
| SLA12- 60 | ● | 12 | 60 | 40 | 35 | 50 | 14 | 13 | M8 | M8 | 1.4 |
| SLA14- 60 | | 14 | 60 | 40 | 35 | 50 | 14 | 13 | M8 | M8 | 1.4 |
| SLA16- 90 | ● | 16 | 90 | 40 | 55 | 70 | 25 | 20 | M10 | M12 | 1.5 |
| SLA19- 90 | | 19 | 90 | 50 | 55 | 70 | 25 | 20 | M12 | M12 | 1.7 |
| SLA20- 90 | ● | 20 | 90 | 50 | 55 | 70 | 25 | 20 | M12 | M12 | 1.8 |
| SLA25- 90 | ● | 25 | 90 | 50 | 55 | 70 | 25 | 20 | M12 | M12 | 1.7 |
| SLA32- 90 | ● | 32 | 90 | 60 | 55 | 70 | 25 | 20 | M14 | M14 | 1.9 |
| SLA32-105 | ● | 32 | 105 | 60 | 65 | 80 | 25 | 25 | M14 | M12 | 1.9 |
| SLA40-105 | | 40 | 105 | 80 | 65 | 80 | 25 | 25 | M16 | M12 | 1.8 |
| BT50- SLA 6- 90 | | 6 | 90 | 25 | 20 | 35 | 18 | - | M5 | M5 | 3.7 |
| SLA 8- 90 | | 8 | 90 | 28 | 20 | 35 | 18 | - | M6 | M6 | 3.9 |
| SLA10- 90 | | 10 | 90 | 35 | 35 | 50 | 14 | 13 | M8 | M8 | 4.1 |
| SLA12- 90 | | 12 | 90 | 40 | 35 | 50 | 14 | 13 | M8 | M8 | 4.3 |
| SLA14- 90 | | 14 | 90 | 40 | 35 | 50 | 14 | 13 | M8 | M8 | 4.3 |
| SLA16- 90 | ● | 16 | 90 | 40 | 55 | 70 | 25 | 20 | M10 | M12 | 4.4 |
| SLA19- 90 | | 19 | 90 | 50 | 55 | 70 | 25 | 20 | M12 | M12 | 4.6 |
| SLA20-105 | ● | 20 | 105 | 50 | 55 | 70 | 25 | 20 | M12 | M12 | 4.8 |
| SLA25-105 | ● | 25 | 105 | 50 | 55 | 70 | 25 | 20 | M12 | M12 | 4.7 |
| SLA32-105 | ● | 32 | 105 | 60 | 65 | 80 | 25 | 25 | M14 | M12 | 4.0 |
| SLA40-105 | ● | 40 | 105 | 90 | 65 | 80 | 25 | 25 | M16 | M12 | 4.5 |
| SLA42-105 | ● | 42 | 105 | 90 | 65 | 80 | 25 | 25 | M16 | M12 | 4.7 |

● : Disponibile ○ : A richiesta

• L'attacco a serraggio laterale può essere utilizzato come portainserti (punta, fresa integrale ecc.)
• È possibile ordinare il tipo bilanciato e il tipo bilanciabile

• Si possono utilizzare i seguenti utensili
1. Mandrino a pinza con attacco cilindrico (tipo S-SDC): vedere a pagina I 25
2. Bareno con attacco cilindrico (S-FBH) : vedere a pagina I 68

## Parti di ricambio

| Attacco | Parti di ricambio | | |
|---|---|---|---|
| | Standard | | Opzionale |
| | Vite per il set | Vite di regolazione | Chiave |
| Tipo |  |  |  |
| SLA 6 | BTF0606 | BN0520C | LW-3 |
| SLA 8 | BTF0808 | BN0620C | LW-4 |
| SLA10 | BTF1010 | BN0820C | LW-5 |
| SLA12 | BTF1212 | BN1020C | LW-6 |
| SLA16 | BTF1414 | BN1230C | LW-6 |
| SLA20 | BTF1616 | BN1630C | LW-8 |
| SLA25 | BTF1818 | BN2030C | LW-8 |
| SLA32 | BTF2020 | BN2030C | LW-10 |
| SLA40 | BTF2020 | BN2030C | LW-10 |
| SLA42 | BTF2020 | BN2030C | LW-10 |

# HSK-SLW (Tipo Whistle Notch)

DIN69893-1, ISO 12164-1 : 2001

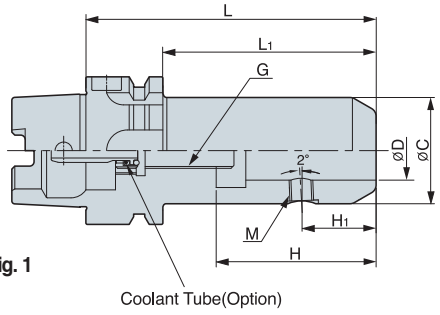



Fig. 1

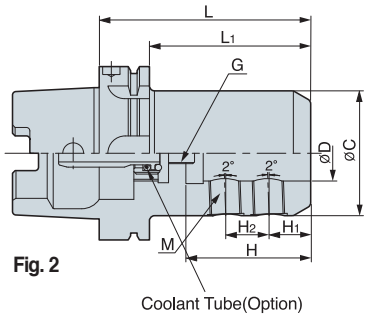



Fig. 2

(mm)

| Articolo | Stock | øD | øC | L | L1 | H | H1 | H2 | M | G | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HSK40A-SLW 6- 70 | | 6 | 25 | 70 | 35 | 36 | 18 | - | M6 | M5 | 0.3 | 1 |
| SLW 8- 70 | | 8 | 28 | 70 | 35 | 36 | 18 | - | M8 | M6 | 0.3 | 1 |
| SLW10- 75 | | 10 | 35 | 75 | 40 | 40 | 20 | - | M10 | M8 | 0.3 | 1 |
| SLW12- 80 | | 12 | 42 | 80 | 45 | 45 | 22.5 | - | M12 | M10 | 0.4 | 1 |
| SLW16- 85 | | 16 | 48 | 85 | 50 | 48 | 24 | - | M14 | M12 | 0.6 | 1 |
| HSK50A-SLW 6- 80 | | 6 | 25 | 80 | 38 | 36 | 18 | - | M6 | M5 | 0.8 | 1 |
| SLW 8- 80 | | 8 | 28 | 80 | 38 | 36 | 18 | - | M8 | M6 | 0.8 | 1 |
| SLW10- 85 | | 10 | 35 | 85 | 43 | 40 | 20 | - | M10 | M8 | 0.9 | 1 |
| SLW12- 90 | | 12 | 42 | 90 | 48 | 45 | 22.5 | - | M12 | M10 | 1.2 | 1 |
| SLW16- 95 | | 16 | 48 | 95 | 53 | 48 | 24 | - | M14 | M12 | 1.3 | 1 |
| SLW20-100 | | 20 | 52 | 100 | 58 | 50 | 25 | - | M16 | M16 | 1.4 | 1 |
| HSK63A-SLW 6- 80 | | 6 | 25 | 80 | 38 | 36 | 18 | - | M6 | M5 | 1.0 | 1 |
| SLW 8- 80 | | 8 | 28 | 80 | 38 | 36 | 18 | - | M8 | M6 | 1.1 | 1 |
| SLW10- 85 | | 10 | 35 | 85 | 43 | 40 | 20 | - | M10 | M8 | 1.1 | 1 |
| SLW12- 90 | | 12 | 42 | 90 | 48 | 45 | 22.5 | - | M12 | M10 | 1.7 | 1 |
| SLW16- 95 | | 16 | 48 | 95 | 53 | 48 | 24 | - | M14 | M12 | 1.7 | 1 |
| SLW20-100 | | 20 | 52 | 100 | 63 | 50 | 25 | - | M16 | M16 | 2.0 | 1 |
| HSK100A-SLW 6- 90 | | 6 | 25 | 90 | 45 | 36 | 18 | - | M6 | M5 | 3.1 | 1 |
| SLW 8- 90 | | 8 | 28 | 90 | 45 | 36 | 18 | - | M8 | M6 | 3.3 | 1 |
| SLW10- 90 | | 10 | 35 | 90 | 45 | 40 | 20 | - | M10 | M8 | 3.5 | 1 |
| SLW12- 95 | | 12 | 42 | 95 | 50 | 45 | 22.5 | - | M12 | M10 | 3.5 | 1 |
| SLW16-100 | | 16 | 48 | 100 | 55 | 48 | 24 | - | M14 | M12 | 3.8 | 1 |
| SLW20-105 | | 20 | 52 | 105 | 60 | 50 | 25 | - | M16 | M16 | 3.9 | 1 |
| SLW25-110 | | 25 | 65 | 110 | 65 | 56 | 24 | 22 | M18 | M20 | 4.0 | 2 |
| SLW32-125 | | 32 | 72 | 125 | 80 | 60 | 24 | 24 | M20 | M20 | 4.3 | 2 |

• È possibile ordinare il tipo bilanciato e il tipo bilanciabile

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Attacco | Parti di ricambio | | |
|---|---|---|---|
| | Standard | | Opzionale |
| | Vite per il kit | Vite di regolazione | Chiave |
| Tipo |  |  |  |
| SLW 6 | BTF0606 | BN0520C | LW-3 |
| SLW 8 | BTF0808 | BN0620C | LW-4 |
| SLW10 | BTF1010 | BN0820C | LW-5 |
| SLW12 | BTF1212 | BN1020C | LW-6 |
| SLW16 | BTF1414 | BN1230C | LW-6 |
| SLW20 | BTF1616 | BN1630C | LW-8 |
| SLW25 | BTF1818 | BN2030C | LW-8 |
| SLW32 | BTF2020 | BN2030C | LW-10 |

# BT-SLW (Tipo Whistle Notch)

MAS403-BT

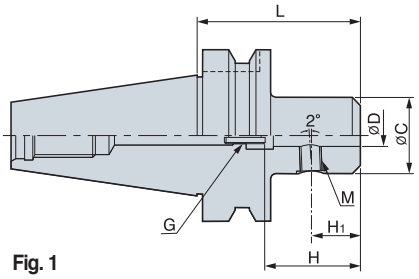



Fig. 1

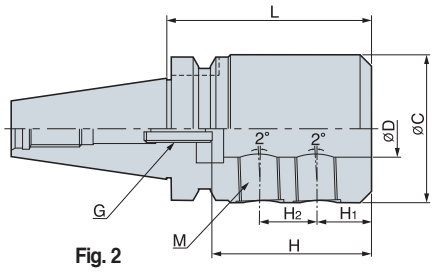



Fig. 2

(mm)

| Articolo | Stock | øD | øC | L | H | H1 | H2 | M | G | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BT30-SLW 6- 60 | | 6 | 25 | 60 | 36 | 18 | - | M6 | M5 | 0.7 | 1 |
| SLW 8- 60 | | 8 | 28 | 60 | 36 | 18 | - | M8 | M6 | 0.8 | 1 |
| SLW10- 60 | | 10 | 35 | 60 | 40 | 20 | - | M10 | M8 | 0.9 | 1 |
| SLW12- 60 | | 12 | 42 | 60 | 45 | 22.5 | - | M12 | M10 | 1.1 | 1 |
| SLW16- 90 | | 16 | 48 | 90 | 48 | 24 | - | M14 | M12 | 1.2 | 1 |
| SLW20- 90 | | 20 | 52 | 90 | 50 | 25 | - | M16 | M16 | 1.4 | 1 |
| BT40-SLW 6- 60 | | 6 | 25 | 60 | 36 | 18 | - | M6 | M5 | 1.1 | 1 |
| SLW 8- 60 | | 8 | 28 | 60 | 36 | 18 | - | M8 | M6 | 1.1 | 1 |
| SLW10- 60 | | 10 | 35 | 60 | 40 | 20 | - | M10 | M8 | 1.2 | 1 |
| SLW12- 60 | | 12 | 42 | 60 | 45 | 22.5 | - | M12 | M10 | 1.4 | 1 |
| SLW16- 90 | | 16 | 48 | 90 | 48 | 24 | - | M14 | M12 | 1.6 | 1 |
| SLW20- 90 | | 20 | 52 | 90 | 50 | 25 | - | M16 | M16 | 1.8 | 1 |
| SLW25- 90 | | 25 | 65 | 90 | 56 | 24 | 22 | M18 | M20 | 2.0 | 2 |
| SLW32-105 | | 32 | 72 | 105 | 60 | 24 | 24 | M20 | M20 | 2.2 | 2 |
| BT50-SLW 6- 90 | | 6 | 25 | 90 | 36 | 18 | - | M6 | M5 | 3.7 | 1 |
| SLW 8- 90 | | 8 | 28 | 90 | 36 | 18 | - | M8 | M6 | 3.9 | 1 |
| SLW10- 90 | | 10 | 35 | 90 | 40 | 20 | - | M10 | M8 | 4.0 | 1 |
| SLW12- 90 | | 12 | 42 | 90 | 45 | 22.5 | - | M12 | M10 | 4.2 | 1 |
| SLW16- 90 | | 16 | 48 | 90 | 48 | 24 | - | M14 | M12 | 4.3 | 1 |
| SLW20-105 | | 20 | 52 | 105 | 50 | 25 | - | M16 | M16 | 4.5 | 1 |
| SLW25-105 | | 25 | 65 | 105 | 56 | 24 | 22 | M18 | M20 | 4.8 | 2 |
| SLW32-105 | | 32 | 72 | 105 | 60 | 24 | 24 | M20 | M20 | 4.9 | 2 |
| SLW40-120 | | 40 | 90 | 120 | 73 | 25 | 25 | M20 | M20 | 5.1 | 2 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Attacco | Parti di ricambio | | |
|---|---|---|---|
| | Standard | | Opzionale |
| | Vite per il kit | Vite di regolazione | Chiave |
| Tipo |  |  |  |
| SLW 6 | BTF0606 | BN0520C | LW-3 |
| SLW 8 | BTF0808 | BN0620C | LW-4 |
| SLW10 | BTF1010 | BN0820C | LW-5 |
| SLW12 | BTF1212 | BN1020C | LW-6 |
| SLW16 | BTF1414 | BN1230C | LW-6 |
| SLW20 | BTF1616 | BN1630C | LW-8 |
| SLW25 | BTF1818 | BN2030C | LW-8 |
| SLW32 | BTF2020 | BN2030C | LW-10 |
| SLW40 | BTF2020 | BN2030C | LW-10 |

# SK-SLW (Tipo Whistle Notch)

DIN 69871-1 A/B, ISO 7388/1 : 1983(E)

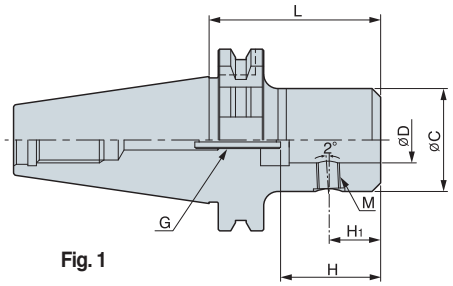



Fig. 1

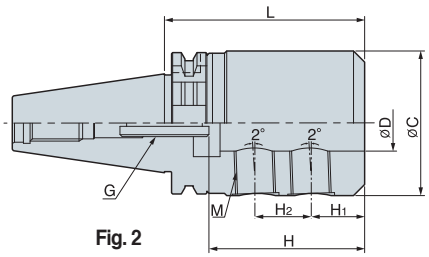



Fig. 2

(mm)

| Articolo | Stock | øD | øC | L | H | H1 | H2 | M | G | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SK40-SLW16- 90 | | 16 | 48 | 90 | 48 | 24 | - | M14 | M12 | 1.6 | 1 |
| 20- 90 | ● | 20 | 52 | 90 | 50 | 25 | - | M16 | M12 | 1.8 | 1 |
| 25-100 | ● | 25 | 65 | 100 | 56 | 24 | 22 | M18 | M12 | 2.0 | 2 |
| 32-105 | | 32 | 72 | 105 | 60 | 24 | 24 | M20 | M12 | 2.2 | 2 |
| SK50-SLW16- 90 | ● | 16 | 48 | 90 | 48 | 24 | - | M14 | M12 | 4.3 | 1 |
| 20-105 | ● | 20 | 52 | 105 | 50 | 25 | - | M16 | M12 | 4.5 | 1 |
| 25-105 | ● | 25 | 65 | 105 | 56 | 24 | 22 | M18 | M12 | 4.8 | 2 |
| 32-105 | ● | 32 | 72 | 105 | 60 | 24 | 24 | M20 | M12 | 4.9 | 2 |
| 40-120 | | 40 | 90 | 120 | 73 | 25 | 25 | M20 | M12 | 5.1 | 2 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Attacco | Parti di ricambio | | |
|---|---|---|---|
| | Standard | | Opzionale |
| | Vite per il kit | Vite di regolazione | Chiave |
| Tipo |  |  |  |
| SLW16 | BTF1414 | BN1230C | LW-6 |
| SLW20 | BTF1616 | BN1230C | LW-8 |
| SLW25 | BTF1818 | BN2030C | LW-8 |
| SLW32 | BTF2020 | BN2030C | LW-10 |
| SLW40 | BTF2020 | BN2030C | LW-10 |

## Nuovo portainserti per maschiatura

### Sistema di codifica

| BT40 | – | DTN | 12 | – | 120 |
|---|---|---|---|---|---|
| Mandrino | | Nuovo portainserti per maschiatura | Max. dia. di maschiatura | | Lunghezza |

### Caratteristiche

- Design compatto
- Maggiore stabilità in maschiatura
- Maschiatura M3 ~ M38

- Grazie al dispositivo di sicurezza della coppia è possibile evitare la rottura dell'utensile
- Semplice e rapida sostituzione dell'utensile
- Agevole sostituzione dell'adattatore per maschiatura
- Portainserti per maschiatura dotato di frizione

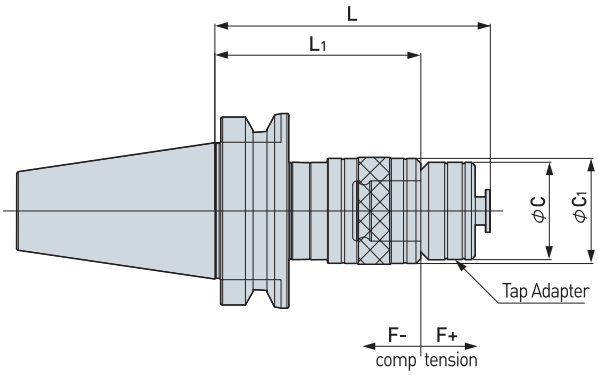




# BT-DTN



MAS403-BT




(mm)

| Articolo | Stock | Maschiatura | L | L1 | øC | øC1 | Float | | Adattatore per maschiatura | kg |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | F- | F+ | | |
| BT30 - DTN12 - 85 | ● | M3 ~ M12 | 85 | 60 | 32 | 36 | 4 | 10 | TCA1 - M | 0.7 |
| BT40 - DTN12 - 90 | ● | M3 ~ M12 | 90 | 65 | 32 | 36 | 4 | 10 | TCA1 - M | 1.2 |
| 120 | ● | M3 ~ M12 | 120 | 95 | 32 | 36 | 4 | 10 | TCA1 - M | 1.4 |
| DTN22 -130 | ● | M8 ~ M22 | 130 | 96 | 50 | 53 | 12.5 | 12.5 | TCA2 - M | 1.7 |
| 160 | ● | M8 ~ M22 | 160 | 126 | 50 | 53 | 12.5 | 12.5 | TCA2 - M | 2.1 |
| BT50 - DTN12 - 100 | ● | M3 ~ M12 | 100 | 75 | 32 | 36 | 4 | 10 | TCA1 - M | 3.7 |
| 130 | ● | M3 ~ M12 | 130 | 105 | 32 | 36 | 4 | 10 | TCA1 - M | 3.9 |
| DTN22 -140 | ● | M8 ~ M22 | 140 | 104 | 50 | 53 | 12.5 | 12.5 | TCA2 - M | 4.2 |
| 170 | ● | M8 ~ M22 | 170 | 134 | 50 | 53 | 12.5 | 12.5 | TCA2 - M | 4.7 |
| DTN38 -185 | ● | M16 ~ M38 | 185 | 140 | 72 | 78 | 20 | 20 | TCA3 - M | 5.7 |
| 215 | ● | M16 ~ M38 | 215 | 170 | 72 | 78 | 20 | 20 | TCA3 - M | 6.6 |

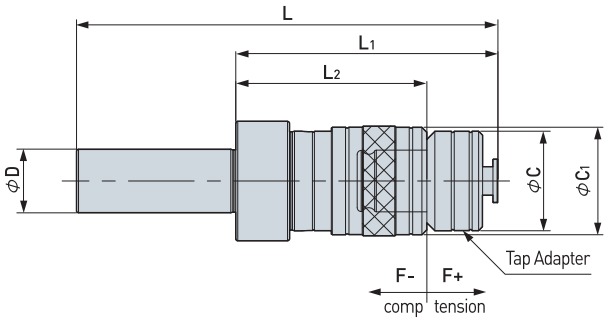
- Grazie alla frizione è possibile evitare la rottura dell'utensile
- Maschiatrice dotata di frizione
- Semplice e rapida sostituzione dell'utensile
- Agevole sostituzione dell'adattatore per maschiatura
- Adattatore per maschiatura (Tipo TCA): vedere a pagina I 44

● : Disponibile ○ : A richiesta

# S-DTN



MAS403-BT



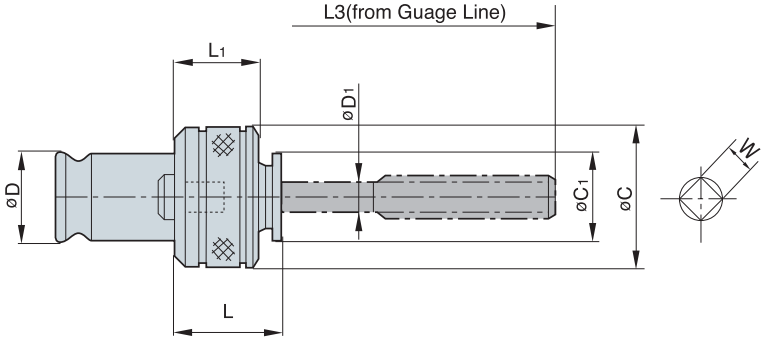

(mm)

| Articolo | Maschiatura | ØD | L | L1 | L2 | øC | øC1 | Float | | Adattatore per maschiatura |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | F- | F+ | |
| S32-DTN12- 90 | M3 ~ M12 | 32 | 170 | 90 | 65 | 32 | 36 | 4 | 10 | TCA1 - M |
| DTN22- 130 | M8 ~ M22 | 32 | 210 | 130 | 96 | 50 | 53 | 12.5 | 12.5 | TCA2 - M |
| S40-DTN12- 90 | M3 ~ M12 | 40 | 170 | 90 | 65 | 32 | 36 | 4 | 10 | TCA1 - M |
| DTN22- 130 | M8 ~ M22 | 40 | 210 | 130 | 96 | 50 | 53 | 12.5 | 12.5 | TCA2 - M |
| S42-DTN12- 90 | M3 ~ M12 | 42 | 170 | 90 | 65 | 32 | 36 | 4 | 10 | TCA1 - M |
| DTN22- 130 | M8 ~ M22 | 42 | 210 | 130 | 96 | 50 | 53 | 12.5 | 12.5 | TCA2 - M |
| DTN38- 185 | M16 ~ M38 | 42 | 265 | 185 | 140 | 72 | 78 | 20 | 20 | TCA3 - M |

# I Adattatore per maschiatura

## TCA






(mm)

| Articolo | øD | Maschiatura | | | øD1 | øC | øC1 | L | L1 |
|---|---|---|---|---|---|---|---|---|---|
| | | M | U(W) | P | | | | | |
| TCA 1 - M | 19 | 3 ~12 | 1/4~9/16 | 1/8~1/4 | 5 ~10.5 | 32 | 19 | 24~28 | 22 |
| 2 - M | 31 | 8 ~22 | 3/8~7/8 | 1/8~1/2 | 6.2~17 | 50 | 30 | 38~46 | 28 |
| 3 - M | 48 | 16~36 | 5/8~1⅜ | 1/4~1⅜ | 12 ~28 | 72 | 47 | 35~68 | 37 |

(JIS STANDARD)

(mm)

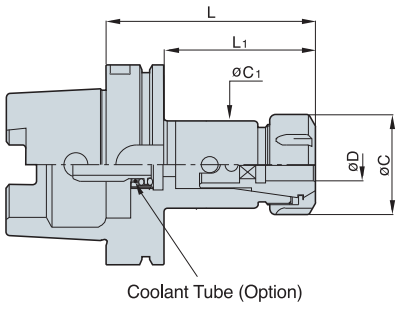
| | | M (Filettatura metrica) | | | | | | | | | U.W (Filettatura Unify, Whitworth) | | | | | | | | PT, PF (Vite passo gas) | | | | | | | | W |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | D | øD1 | L | | | L3 | | | | D | øD1 | L | | | L3 | | | D | | øD1 | L | | | L3 | | | |
| | | | | TCA1 | TCA2 | TCA3 | TCA1 | TCA2 | TCA3 | | | | TCA1 | TCA2 | TCA3 | TCA1 | TCA2 | TCA3 | | | | TCA1 | TCA2 | TCA3 | TCA1 | TCA2 | TCA3 | |
| TCA 1 | | M3 | 4 | 24 | | | 163 | | | | | | | | | | | | | | | | | | | | 3.2 |
| | | M4 | 5 | 24 | | | 163 | | | | | - | - | | | - | - | | | | | | | | | | 4 |
| | | M4.5 | 5 | 24 | | | 166 | | | | | - | - | | | - | - | | | | | | | | | | 4 |
| | | M5 | 5.5 | 24 | | | 171 | | | | | - | - | | | - | - | | | | | | | | | | 4.5 |
| | | M6 | 6 | 24 | | | 177 | | | | 1/4U | 6 | 24 | | | 173 | - | | | | | | | | | | 4.5 |
| | | - | - | - | | | - | | | | 5/16U | 6.1 | | | | 180 | - | | | | | | | | | | 5 |
| | | M7 | 6.2 | 25 | | | 175 | 192 | | | - | - | 25 | - | | - | - | - | | | | | | | | | 5 |
| | | M8 | 6.2 | 25 | 38 | | 180 | 197 | | | - | - | 25 | - | | - | - | - | | | | | | | | | 5 |
| | | M9 | 7 | 25 | 38 | | 182 | 199 | | | 3/8U | 7 | 25 | 38 | | 185 | 202 | - | | | | | | | | | 5.5 |
| | | M10 | 7 | 25 | 38 | - | 185 | 202 | - | - | - | - | - | - | | - | - | - | | | | | | | | | 5.5 |
| | | M11 | 8 | 26 | 39 | | 189 | 206 | | | 7/16U | 8 | 26 | 39 | | 189 | 206 | - | PT1/8 | PF1/8 | 8 | 26 | 28 | | 164 | 192 | | 6 |
| | | M12 | 8.5 | 26 | 39 | | 191 | 208 | | | - | - | - | - | | | | - | | | | | | | | | | 6.5 |
| | | - | - | - | - | | - | - | | | 1/2U | 9 | 27 | 40 | | 193 | 210 | - | - | - | - | - | | - | - | | | 7 |
| | | M14 | 10.5 | 28 | 41 | | 195 | 212 | | | 9/16U | 10.5 | 28 | 41 | | 197 | 214 | - | | | | | | | | | 8 |
| | | - | - | - | - | | - | - | | | - | - | - | - | | - | - | | PT1/4 | PF1/4 | 11 | 29 | 31 | 34 | 168 | 196 | 238 | 9 |
| | | | | | | | | | | | 5/8U | 12 | | 42 | 34 | | 218 | 271 | - | | - | | - | - | | - | - | 9 |
| | TCA 3 | M16 | 12.5 | | 43 | 35 | | | 217 | 270 | - | - | | - | - | | - | - | - | | - | | - | - | | - | - | 10 |
| | | M18 | 14 | | 44 | 36 | | | 211 | 274 | 3/4U | 14 | | 44 | 36 | | 226 | 279 | PT3/8 | PF3/8 | 14 | | 33 | 36 | | - | 239 | 11 |
| | | M20 | 15 | | 45 | 37 | | | 225 | 278 | - | - | | - | - | | - | - | - | - | - | | - | - | | 197 | | 12 |
| | | M22 | 17 | | 46 | 38 | | | 234 | 287 | 7/8U | 17 | | 46 | 38 | | 234 | 287 | - | - | - | | - | - | | | | 13 |
| | | | - | | - | - | | | - | - | | | | - | | | - | - | PT1/2 | PF1/2 | 18 | | 36 | 39 | | 209 | 251 | 14 |
| | | M24 | 19 | | | 44 | | | | 290 | | | | | | | | - | - | - | - | | | - | | | | 15 |
| | | M27 | 20 | | | 62 | 40 | | | 278 | 265 | 1U | 20 | | | 62 | | | 273 | - | - | - | | | - | | | | 15 |
| | | - | - | | | - | | | | - | - | 11/8U | 22 | | | 64 | | | 281 | - | - | - | | | - | | | | 17 |
| | | M30 | 23 | | | 62 | 42 | | | 281 | 303 | - | - | | | - | | | - | PT3/4 | PF3/4 | P23 | | | 42 | | | 253 | 17 |
| | | - | - | | | - | - | | | - | - | 11/4U | 24 | | | 66 | | | 289 | | PF7/8 | P24 | | | 44 | | | 256 | 19 |
| | | M33 | 25 | | | 66 | 44 | | | 289 | 311 | - | - | | | - | | | - | | | - | | | - | | | - | 19 |
| | | - | - | | | - | - | | | - | - | 13/8U | 26 | | | 68 | | | 297 | PT1 | PF1 | 26 | | | 46 | | | 259 | 21 |
| | | M36 | 28 | | | 68 | 46 | | | 297 | 319 | | - | | | | | | | - | PF11/8 | 28 | | | 46 | | | 264 | 21 |

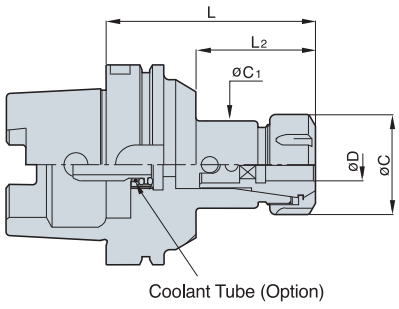
• Portainserti per maschiatura (Tipo KTN, DTN), attacco cilindrico

# HSK-SDT

DIN69893-1, ISO 12164-1 : 2001






(mm)

| Articolo | Stock | Maschiatura øD | øC | øC1 | L | L1 | L2 | Bussola | kg |
|---|---|---|---|---|---|---|---|---|---|
| HSK 50A - SDT10 - 80 | | M2.5~M10 | 28 | 28 | 80 | 54 | 38 | KT10 | 0.3 |
| SDT13 - 85 | | M4.0~M12 | 35 | 35 | 85 | 59 | 43 | KT13 | 0.3 |
| SDT20 -100 | | M6.0~M22 | 50 | 44 | 100 | 74 | 58 | KT20 | 0.4 |
| HSK 63A - SDT10 - 80 | | M2.5~M10 | 28 | 28 | 80 | 54 | 38 | KT10 | 0.9 |
| SDT13 - 85 | | M4.0~M12 | 35 | 35 | 85 | 59 | 43 | KT13 | 0.9 |
| SDT20 -100 | ● | M6.0~M22 | 50 | 44 | 100 | 74 | 58 | KT20 | 1.1 |
| SDT26 -100 | | M12.0~M33 | 63 | 63 | 100 | 74 | 58 | KT26 | 1.3 |
| HSK100A - SDT10 - 85 | | M2.5~M10 | 28 | 28 | 85 | 56 | 40 | KT10 | 2.7 |
| SDT13 - 90 | | M4.0~M12 | 35 | 35 | 90 | 61 | 45 | KT13 | 2.7 |
| SDT20 -105 | ● | M6.0~M22 | 50 | 44 | 105 | 76 | 60 | KT20 | 3.0 |
| SDT26 -125 | | M12.0~M33 | 63 | 63 | 125 | 96 | 80 | KT26 | 3.4 |

• La funzione sincrona assicura precisione nella rotazione e nell'avanzamento del mandrino per lavorazioni con centri di lavoro dotati di portainserti standard (maschiatura rigida, maschiatura diretta ecc.)
• Con la bussola GER montata sul mandrino SDT, è possibile eseguire foratura, alesatura e fresatura senza dove montare la bussola KT sul mandrino SDT
• Bussola per mandrino per maschiatura (Tipo KT): vedere a pagina I 47
• Bussola GER: vedere a pagina I 29

**Esempio d'ordine)**
• Tipo standard : HSK63A-SDT13-85
• Tipo bilanciabile : HSK63A-SDT13-85B
• Tipo bilanciato : HSK63A-SDT13-85BS

● : Disponibile ○ : A richiesta

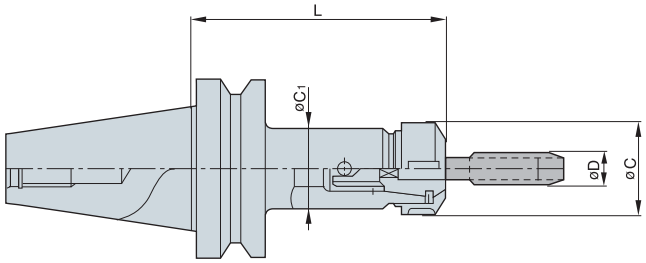
## Parti di ricambio

| | Parti di ricambio | | |
|---|---|---|---|
| | Standard | Opzionale | |
| | Dado | Bussola KT | Chiave |
| Tipo |  |  |  |
| SDT10 | R16 | KT10 | S-25 |
| SDT13 | RU20 | KT13 | 35-38 |
| SDT20 | RU32 | KT20 | 48-52 |
| SDT26 | RU40 | KT26 | 62-65 |

# BT-SDT

MAS403-BT






(mm)

| Articolo | Stock | Maschiatura øD | L | øC | øC1 | Bussola | kg |
|---|---|---|---|---|---|---|---|
| BT30 - SDT10 - 75 | ● | M2.5 ~ M10 | 75 | 28 | 28 | KT10 | 0.5 |
| SDT13 - 75 | ● | M4 ~ M12 | 75 | 33 | 35 | KT13 | 0.6 |
| SDT20 - 90 | ● | M6 ~ M22 | 90 | 50 | 44 | KT20 | 0.9 |
| BT40 - SDT10 - 75 | ● | M2.5 ~ M10 | 75 | 28 | 28 | KT10 | 1.2 |
| 105 | ● | M2.5 ~ M10 | 105 | 28 | 28 | KT10 | 1.4 |
| 150 | | M2.5 ~ M10 | 150 | 28 | 28 | KT10 | 1.4 |
| SDT13 - 75 | ● | M4 ~ M12 | 75 | 35 | 35 | KT13 | 1.2 |
| 105 | ● | M4 ~ M12 | 105 | 35 | 35 | KT13 | 1.4 |
| 150 | | M4 ~ M12 | 150 | 35 | 35 | KT13 | 1.4 |
| SDT20 - 90 | ● | M6 ~ M22 | 90 | 50 | 44 | KT20 | 1.4 |
| 120 | ● | M6 ~ M22 | 120 | 50 | 44 | KT20 | 1.8 |
| 180 | | M6 ~ M22 | 180 | 50 | 44 | KT20 | 2.0 |
| BT50 - SDT10 - 90 | | M2.5 ~ M10 | 90 | 28 | 28 | KT10 | 3.8 |
| 135 | ● | M2.5 ~ M10 | 135 | 28 | 28 | KT10 | 4.0 |
| 165 | | M2.5 ~ M10 | 165 | 28 | 28 | KT10 | 4.2 |
| SDT13 - 90 | | M4 ~ M12 | 90 | 35 | 35 | KT13 | 3.8 |
| 135 | ● | M4 ~ M12 | 135 | 35 | 35 | KT13 | 4.0 |
| 165 | ● | M4 ~ M12 | 165 | 35 | 35 | KT13 | 4.1 |
| 200 | | M4 ~ M12 | 200 | 35 | 35 | KT20 | 4.2 |
| SDT20 -105 | ● | M6 ~ M22 | 105 | 50 | 44 | KT20 | 4.0 |
| 135 | | M6 ~ M22 | 135 | 50 | 44 | KT20 | 4.3 |
| 165 | ● | M6 ~ M22 | 165 | 50 | 44 | KT20 | 4.6 |
| 200 | | M6 ~ M22 | 200 | 50 | 44 | KT20 | 4.8 |
| SDT26 -105 | | M12 ~ M33 | 105 | 63 | 63 | KT26 | 4.4 |
| 165 | | M12 ~ M33 | 165 | 63 | 63 | KT26 | 5.7 |

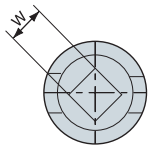
● : Disponibile ○ : A richiesta

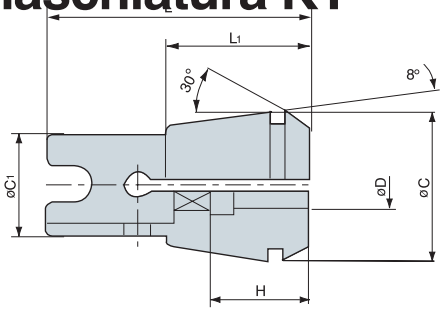
- La funzione sincrona assicura precisione nella rotazione e nell'avanzamento del mandrino per lavorazioni con centri di lavoro dotati di portainserti standard (maschiatura rigida, maschiatura diretta ecc.)
- Con la bussola GER montata sul mandrino SDT, è possibile eseguire foratura, alesatura e fresatura senza dover montare la bussola KT sul mandrino SDT
- Bussola per mandrino per maschiatura (Tipo KT): vedere a pagina I 47
- Bussola GER: vedere a pagina I 29

# Bussola per mandrino per maschiatura KT

MAS403-BT




(JIS STANDARD) (mm)

| Articolo | Stock | Maschiatura | øC | øD | øC1 | L | L1 | H | W |
|---|---|---|---|---|---|---|---|---|---|
| KT10 - M2.5 | ● | M2.5 < | 17 | 3.0 | 13 | 36 | 18 | 15 | 2.5 |
| M 3 | ● | M3.0 | 17 | 4.0 | 13 | 36 | 18 | 15 | 3.2 |
| M 4 | ● | M4.0-4.5 | 17 | 5.0 | 13 | 36 | 18 | 15 | 4.0 |
| M 5 | ● | MA5.0 | 17 | 5.5 | 13 | 36 | 18 | 15 | 4.5 |
| M 6 | ● | M6.0, U1/4” | 17 | 6.0 | 13 | 36 | 18 | 15 | 4.5 |
| M 8 | ● | M7.0-8.0 | 17 | 6.2 | 13 | 36 | 18 | 17 | 5.0 |
| M 10 | ● | M9.0-10, U3/8” | 17 | 7.0 | 13 | 36 | 18 | 17 | 5.5 |
| U5/16 | ● | U5/16” | 17 | 6.1 | 13 | 36 | 18 | 17 | 5.0 |
| KT13 - M 4 | ● | M4.0~4.5 | 21 | 5.0 | 15.1 | 42 | 22 | 15 | 4.0 |
| M 5 | ● | M5.0 | 21 | 5.5 | 15.1 | 42 | 22 | 15 | 4.5 |
| M 6 | ● | M6.0, U1/4” | 21 | 6.0 | 15.1 | 42 | 22 | 15 | 4.5 |
| M 8 | ● | M7.0~8.0 | 21 | 6.2 | 15.1 | 42 | 22 | 18 | 5.0 |
| M10 | ● | M9.0~10, U3/8” | 21 | 7.0 | 15.1 | 42 | 22 | 18 | 5.5 |
| M11 | ● | M11, U7/16”, P1/8” | 21 | 8.0 | 15.1 | 42 | 22 | 18 | 6.0 |
| M12 | ● | M12 | 21 | 8.5 | 15.1 | 42 | 22 | 20 | 6.5 |
| U5/16 | ● | U5/16” | 21 | 6.1 | 15.1 | 42 | 22 | 18 | 5.0 |
| U 1/2 | ● | U1/2”, W1/2” | 21 | 9.0 | 15.1 | 42 | 22 | 20 | 7.0 |
| KT20 - M 6 | ● | M6.0, U1/4” | 33 | 6.0 | 23 | 58 | 32 | 23 | 4.5 |
| M 8 | ● | M7.0-8.0 | 33 | 6.2 | 23 | 58 | 32 | 23 | 5.0 |
| M10 | ● | M9.0-10, U3/8” | 33 | 7.0 | 23 | 58 | 32 | 22 | 5.5 |
| M11 | ● | M11, U7/16”, P1/8” | 33 | 8.0 | 23 | 58 | 32 | 22 | 6.0 |
| M12 | ● | M12 | 33 | 8.5 | 23 | 58 | 32 | 22 | 6.5 |
| M14 | ● | M14, U9/16” | 33 | 10.5 | 23 | 58 | 32 | 22 | 8 |
| M16 | ● | M16 | 33 | 12.5 | 23 | 58 | 32 | 22 | 10 |
| M18 | ● | M18, U3/4” | 33 | 14 | 23 | 58 | 32 | 22 | 11 |
| M20 | ● | M20 | 33 | 15 | 23 | 58 | 32 | 22 | 12 |
| M22 | ● | M22, U7/8” | 33 | 17 | 23 | 58 | 32 | 22 | 13 |
| U1/2 | ● | U1/2” | 33 | 9 | 23 | 58 | 32 | 22 | 7 |
| U5/8 | ● | U5/8” | 33 | 12 | 23 | 58 | 32 | 22 | 9 |
| P1/8 | ● | P1/8” | 33 | 8 | 23 | 58 | 32 | 22 | 6 |
| P1/4 | ● | P1/4” | 33 | 11 | 23 | 58 | 32 | 22 | 9 |
| P3/8 | | P3/8” | 33 | 14 | 23 | 58 | 32 | 22 | 11 |
| KT26 - M12 | | M12 | 41 | 8.5 | 32 | 76 | 38 | 25 | 6.5 |
| M14 | ● | M14, U9/16” | 41 | 10.5 | 32 | 76 | 38 | 25 | 8 |
| M16 | ● | M16 | 41 | 12.5 | 32 | 76 | 38 | 25 | 10 |
| M18 | ● | M18, U3/4” | 41 | 14 | 32 | 76 | 38 | 25 | 11 |
| M20 | | M20 | 41 | 15 | 32 | 76 | 38 | 25 | 12 |
| M22 | | M22, U7/8” | 41 | 17 | 32 | 76 | 38 | 23 | 13 |
| M24 | | M24, P5/8” | 41 | 19 | 32 | 76 | 38 | 23 | 15 |
| M27 | | M27, U1” | 41 | 20 | 32 | 76 | 38 | 23 | 15 |
| M30 | | M30 | 41 | 23 | 32 | 76 | 38 | 30 | 17 |
| M33 | | M33 | 41 | 25 | 32 | 76 | 38 | 30 | 19 |
| U11/8 | | U1⅛” | 41 | 22 | 32 | 76 | 38 | 30 | 17 |
| U11/4 | | U1¼”, P⅞” | 41 | 24 | 32 | 76 | 38 | 23 | 19 |
| P3/8 | | P⅜” | 41 | 14 | 32 | 76 | 38 | 15 | 11 |
| P1/2 | | P½” | 41 | 18 | 32 | 76 | 38 | 18 | 14 |
| P3/4 | | P¾” | 41 | 23 | 32 | 76 | 38 | 23 | 17 |

• Bussola esclusiva per SDT

● : Disponibile ○ : A richiesta

# BT-FMA

MAS403-BT



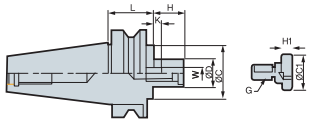


Fig. 1

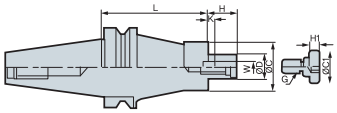


Fig. 2

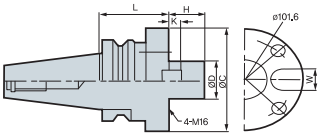


Fig. 3

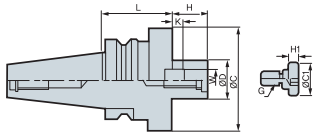


Fig. 4

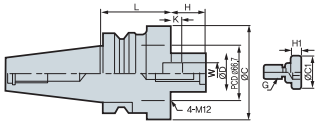


Fig. 5

(mm)

| Articolo | Stock | Dia. fresa | øD | L | øC | H | W | K | G | øC1 | H1 | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BT30- FMA22.225 -30 | | 50 | 22.225 | 30 | 40 | 18 | 8 | 3.5 | M10 | 28 | 9 | 0.6 | 1 |
| FMA25.4 - 45 | ● | 80 | 25.4 | 45 | 50 | 22 | 9.5 | 5 | M12 | 33 | 10 | 0.8 | 4 |
| BT40- FMA25.4 - 45 | ● | 80 | 25.4 | 45 | 50 | 22 | 9.5 | 5 | M12 | 33 | 10 | 1.4 | 1 |
| 90 | ● | 80 | 25.4 | 90 | 50 | 22 | 9.5 | 5 | M12 | 33 | 10 | 3.1 | 1 |
| FMA31.75 - 45 | ● | 100 | 31.75 | 45 | 60 | 30 | 12.7 | 7 | M16 | 40 | 10 | 1.6 | 1 |
| 75 | ● | 100 | 31.75 | 75 | 60 | 30 | 12.7 | 7 | M16 | 40 | 10 | 3.0 | 1 |
| FMA38.1 - 60 | ● | 125 | 38.1 | 60 | 80 | 34 | 15.9 | 9 | M20 | 50 | 14 | 2.9 | 4 |
| BT50- FMA25.4 - 45 | ● | 80 | 25.4 | 45 | 50 | 22 | 9.5 | 5 | M12 | 33 | 10 | 3.8 | 1 |
| 90 | ● | 80 | 25.4 | 90 | 50 | 22 | 9.5 | 5 | M12 | 33 | 10 | 4.5 | 1 |
| 150 | ● | 80 | 25.4 | 150 | 50 | 22 | 9.5 | 5 | M12 | 33 | 10 | 5.5 | 2 |
| FMA31.75 - 45 | ● | 100 | 31.75 | 45 | 60 | 30 | 12.7 | 7 | M16 | 40 | 10 | 4.6 | 1 |
| 75 | ● | 100 | 31.75 | 75 | 60 | 30 | 12.7 | 7 | M16 | 40 | 10 | 5.2 | 1 |
| 105 | ● | 100 | 31.75 | 105 | 60 | 30 | 12.7 | 7 | M16 | 40 | 10 | 6.0 | 2 |
| FMA38.1 - 45 | ● | 125 | 38.1 | 45 | 80 | 34 | 15.9 | 9 | M20 | 50 | 14 | 4.3 | 1 |
| 75 | ● | 125 | 38.1 | 75 | 80 | 34 | 15.9 | 9 | M20 | 50 | 14 | 5.5 | 1 |
| FMA50.8 - 45 | ● | 160 | 50.8 | 45 | 100 | 36 | 19.05 | 10 | M24 | 65 | 14 | 4.8 | 1 |
| 75 | ● | 160 | 50.8 | 75 | 100 | 36 | 19.05 | 10 | M24 | 65 | 14 | 6.8 | 1 |
| FMA47.625 - 75 | ● | 200 | 47.625 | 75 | 128 | 38 | 25.4 | 12.5 | - | - | - | 7.6 | 3 |

● : Disponibile ○ : A richiesta

- Tipo A per spianatura conformemente a JIS B4113
- Tipo B e C per attacco della fresa per spianatura T-MAX e per fresa per spallamento
- Peso, eccetto il peso del corpo fresa
- Key e vite sono compresi
- La chiave è opzionale

## Parti di ricambio

| Attacco | Parti di ricambio | | | | |
|---|---|---|---|---|---|
| | Standard | | | | Opzionale |
| | Key | Vite di staffaggio | Vite della chiave | Vite della chiave | Chiave |
| Tipo |  |  |  |  |  |
| FMA 22.225 | K8.0(A) | MBA-M10 | BX0310 | BX1225 | LW-8 |
| FMA 25.4 | K9.5(B) | MBA-M12 | BX0412 | - | LW-10 |
| FMA 31.75 | K12.7(D) | MBA-M16 | BX0515 | BX2030 | LW-14 |
| FMA 38.1 | K15.87(F) | MBA-M20 | BX0616 | BX1635 | LW-17 |
| FMA 50.8 | K19.05(G) | MBA-M24 | BX0820 | - | LW-19 |
| FMA 47.625 | K25.4(H) | - | BX1020 | BX2035 | - |

# BT-FMB

MAS403-BT

(mm)

| Articolo | Stock | Dia. fresa | ØD | L | ØC | H | W | K | G | ØC1 | H1 | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BT40 - FMB25.4 - 60 | | 80 | 25.4 | 60 | 80 | 26 | 9.5 | 5 | M12 | 33 | 10 | 3.6 | 4 |
| 90 | | 80 | 25.4 | 90 | 80 | 26 | 9.5 | 5 | M12 | 33 | 10 | 4.8 | 4 |
| FMB38.1 - 60 | | 100/125 | 38.1 | 60 | 85 | 26 | 15.9 | 9 | M20 | 50 | 14 | 3.5 | 4 |
| FMB27 - 60 | | 80 | 27 | 60 | 80 | 26 | 12 | 6 | M12 | 33 | 10 | 3.6 | 4 |
| 90 | | 80 | 27 | 90 | 80 | 26 | 12 | 6 | M12 | 33 | 10 | 4.8 | 4 |
| FMB40 - 60 | | 100/125 | 40 | 60 | 85 | 26 | 16 | 8.5 | M20 | 50 | 14 | 3.5 | 4 |
| BT50 - FMB25.4 - 45 | | 80 | 25.4 | 45 | 80 | 26 | 9.5 | 5 | M12 | 33 | 10 | 4.0 | 1 |
| 90 | | 80 | 25.4 | 90 | 80 | 26 | 9.5 | 5 | M12 | 33 | 10 | 5.8 | 1 |
| 150 | | 80 | 25.4 | 150 | 80 | 26 | 9.5 | 5 | M12 | 33 | 10 | 8.2 | 2 |
| FMB38.1 - 45 | | 100/125 | 38.1 | 45 | 85 | 26 | 15.9 | 9 | M20 | 50 | 14 | 4.6 | 1 |
| 75 | | 100/125 | 38.1 | 75 | 85 | 26 | 15.9 | 9 | M20 | 50 | 14 | 6.0 | 1 |
| 105 | | 100/125 | 38.1 | 105 | 85 | 26 | 15.9 | 9 | M20 | 50 | 14 | 8.7 | 2 |
| FMB38.1F - 75 | | 160 | 38.1 | 75 | 110 | 26 | 15.9 | 9 | M20 | 50 | 14 | 6.6 | 5 |
| FMB27 - 45 | | 80 | 27 | 45 | 80 | 26 | 12 | 6 | M12 | 33 | 10 | 4.0 | 1 |
| 90 | | 80 | 27 | 90 | 80 | 26 | 12 | 6 | M12 | 33 | 10 | 5.8 | 1 |
| 150 | | 80 | 27 | 150 | 80 | 26 | 12 | 6 | M12 | 33 | 10 | 8.2 | 2 |
| FMB40 - 45 | | 100/125 | 40 | 45 | 85 | 26 | 16 | 8.5 | M20 | 50 | 14 | 4.6 | 1 |
| 75 | | 100/125 | 40 | 75 | 85 | 26 | 16 | 8.5 | M20 | 50 | 14 | 6.0 | 1 |
| 105 | | 100/125 | 40 | 105 | 85 | 26 | 16 | 8.5 | M20 | 50 | 14 | 8.7 | 2 |
| FMB40F - 75 | | 160 | 40 | 75 | 110 | 26 | 16 | 8.5 | M20 | 50 | 14 | 6.6 | 5 |
| FMB60 - 75 | | 200 | 60 | 75 | 140 | 25 | 25.4 | 12.5 | - | - | - | 7.9 | 3 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Attacco | Parti di ricambio | | | | |
|---|---|---|---|---|---|
| | Standard | | | | Opzionale |
| | Key | Vite di staffaggio | Vite della chiave | Vite della chiave | Chiave |
| Tipo |  |  |  |  |  |
| FMB 25.4 | K9.5 | MBA - M12 | BX0412 | BX1225 | LW-10 |
| FMB 38.1 | K15.87(F) | MBA - M20 | BX0616 | - | LW-17 |
| FMB 38.1F | K15.87(F) | MBA - M20 | BX0616 | BX1230 | LW-17 |
| FMB 27 | K12.0 | MBA - M16 | BX0516 | BX1235 | LW-14 |
| FMB 40 | K15.87(F) | MBA - M20 | BX0616 | - | LW-17 |
| FMB 40F | K15.87(F) | MBA - M20 | BX0616 | BX1235 | LW-17 |
| FMB 60 | K25.4(H) | - | BX1020 | BX1645 | - |

# HSK-FMC

DIN69893-1, ISO 12164-1 : 2001

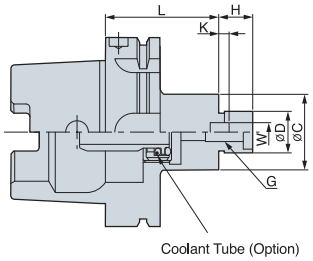



Fig. 1

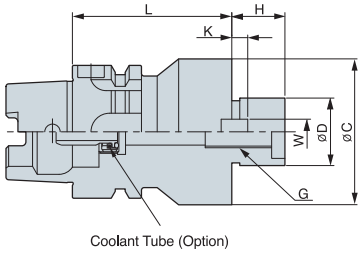



Fig. 2

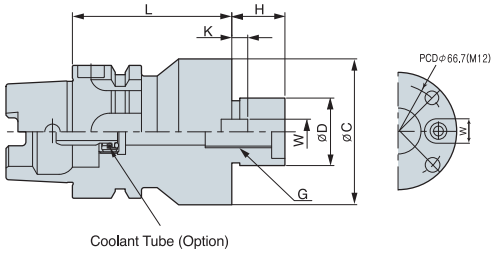



Fig. 3

(mm)

| Articolo | Stock | Cutter Dia. | øD | L | øC | H | W | K | G | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| HSK40A -FMC16 -50 | | 40 | 16 | 50 | 38 | 17 | 8.0 | 5.0 | M8 | 0.7 | 1 |
| FMC22 -45 | | 50/63 | 22 | 45 | 48 | 19 | 10.0 | 5.6 | M10 | 0.9 | 2 |
| FMC25.4-60 | | 80 | 25.4 | 60 | 70 | 20 | 9.5 | 6.0 | M12 | 1.0 | 2 |
| HSK50A -FMC16 -40 | | 40 | 16 | 40 | 38 | 17 | 8.0 | 5.0 | M8 | 0.9 | 1 |
| FMC22 -50 | | 50/63 | 22 | 50 | 48 | 19 | 10.0 | 5.6 | M10 | 1.0 | 1 |
| FMC25.4-60 | | 80 | 25.4 | 60 | 70 | 20 | 9.5 | 6.0 | M12 | 1.2 | 1 |
| HSK63A -FMC16 -50 | | 40 | 16 | 50 | 38 | 17 | 8.0 | 5.0 | M8 | 1.1 | 1 |
| FMC22 -50 | | 50/63 | 22 | 50 | 48 | 19 | 10.0 | 5.6 | M10 | 1.2 | 1 |
| FMC25.4-60 | | 80 | 25.4 | 60 | 70 | 20 | 9.5 | 6.0 | M12 | 1.4 | 1 |
| FMC27 -60 | | 80 | 27 | 60 | 60 | 21 | 12.0 | 6.3 | M12 | 1.4 | 1 |
| FMC32 -60 | | 100 | 32 | 60 | 78 | 24 | 14.0 | 7.0 | M16 | 1.8 | 2 |
| FMC40 -60 | | 125/160 | 40 | 60 | 89 | 27 | 16.0 | 8.0 | M20 | 2.0 | 3 |
| HSK100A-FMC16 -60 | | 40 | 16 | 60 | 38 | 17 | 8.0 | 5.0 | M8 | 2.3 | 1 |
| FMC22 -50 | | 50/63 | 22 | 50 | 48 | 19 | 10.0 | 5.6 | M10 | 2.5 | 1 |
| FMC25.4-60 | | 80 | 25.4 | 60 | 70 | 20 | 9.5 | 6.0 | M12 | 2.6 | 1 |
| FMC27 -50 | | 80 | 27 | 50 | 60 | 21 | 12.0 | 6.3 | M12 | 2.6 | 1 |
| FMC32 -50 | | 100 | 32 | 50 | 78 | 24 | 14.0 | 7.0 | M16 | 2.8 | 2 |
| FMC40 -60 | | 125/160 | 40 | 60 | 89 | 27 | 16.0 | 8.0 | M20 | 3.1 | 3 |

● : Disponibile ○ : A richiesta

• Peso, eccetto il peso del corpo fresa
• La chiave è opzionale

**Esempio d'ordine)**
• Tipo standard : HSK63A-FMC22-50
• Tipo bilanciabile : HSK63A-FMC22-50B
• Tipo bilanciato : HSK63A-FMC22-50BS

## Parti di ricambio

| Attacco | Parti di ricambio | | | | |
|---|---|---|---|---|---|
| | Standard | | | | Opzionale |
| | Key | Vite di staffaggio | Vite della chiave | Vite della chiave | Chiave |
| Tipo |  |  |  |  |  |
| FMC16 | K8.0(A) | - | BX0310 | BX0820 | LW-6 |
| FMC22 | K10.0(C) | - | BX0412 | BX1030 | LW-8 |
| FMC25.4 | K9.5(B) | - | BX0515 | BX1225 | LW-10 |
| FMC27 | K12.0 | MBA-M12 | BX0616 | BX1235 | LW-10 |
| FMC32 | K14.0 | MBA-M16 | BX0820 | BX1335 | LW-14 |
| FMC40 | K15.87(F) | MBA-M20 | BX0616 | - | LW-17 |

∗ In caso di FMC27, ordinare separatamente MBA−M12

# BT-FMC

MAS403-BT

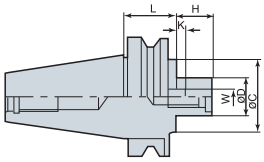



Fig. 1

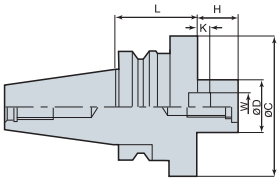



Fig. 2

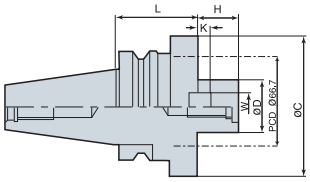
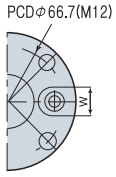



Fig. 3




(mm)

| Articolo | Stock | Dia. fresa | øD | L | øC | H | W | K | G | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BT30 - FMC 16 - 45 | ● | 40 | 16 | 45 | 38 | 17 | 8.0 | 5.0 | M8 | 1.0 | 1 |
| FMC 22 - 45 | ● | 50/63 | 22 | 45 | 48 | 19 | 10.0 | 5.6 | M10 | 1.2 | 2 |
| FMC 27 - 50 | | 80 | 27 | 50 | 60 | 21 | 12.0 | 6.3 | M12 | 1.5 | 2 |
| BT40 - FMC 16 - 60 | ● | 40 | 16 | 60 | 38 | 17 | 8.0 | 5.0 | M8 | 1.4 | 1 |
| FMC 22 - 45 | ● | 50/63 | 22 | 45 | 48 | 19 | 10.0 | 5.6 | M10 | 2.0 | 1 |
| 90 | | 50/63 | 22 | 90 | 48 | 19 | 10.0 | 5.6 | M10 | 2.1 | 1 |
| FMC25.4 - 50 | | 80 | 25.4 | 50 | 70 | 20 | 10.0 | 6.0 | M12 | 2.5 | 2 |
| 90 | | 80 | 25.4 | 90 | 70 | 20 | 10.0 | 6.0 | M12 | 2.7 | 2 |
| FMC 27 - 60 | ● | 80 | 27 | 60 | 60 | 21 | 12.0 | 6.3 | M12 | 2.5 | 2 |
| 90 | | 80 | 27 | 90 | 60 | 21 | 12.0 | 6.3 | M12 | 3.4 | 2 |
| FMC 32 - 60 | ● | 100 | 32 | 60 | 78 | 24 | 14.0 | 7.0 | M16 | 3.4 | 2 |
| 90 | | 100 | 32 | 90 | 78 | 24 | 14.0 | 7.0 | M16 | 3.4 | 2 |
| FMC38.1 - 50 | | 100 | 38.1 | 50 | 85 | 22 | 15.9 | 7.0 | M16 | 4.7 | 2 |
| 90 | | 100 | 38.1 | 90 | 85 | 22 | 15.9 | 7.0 | M16 | 4.8 | 2 |
| FMC 40 - 50 | | 125/160 | 40 | 50 | 89 | 27 | 16.0 | 8.0 | M20 | 5.1 | 3 |
| BT50 - FMC 16 - 60 | ● | 40 | 16 | 60 | 38 | 17 | 8.0 | 5.0 | M8 | 3.5 | 1 |
| FMC 22 - 60 | ● | 50/63 | 22 | 60 | 48 | 19 | 10.0 | 5.6 | M10 | 3.6 | 1 |
| FMC25.4 - 40 | | 80 | 25.4 | 40 | 70 | 20 | 10.0 | 6.0 | M12 | 4.1 | 1 |
| 90 | | 80 | 25.4 | 90 | 70 | 20 | 10.0 | 6.0 | M12 | 5.5 | 1 |
| 150 | | 80 | 25.4 | 150 | 70 | 20 | 10.0 | 6.0 | M12 | 7.3 | 1 |
| FMC 27 - 40 | | 80 | 27 | 40 | 60 | 21 | 12.0 | 6.3 | M12 | 4.1 | 1 |
| 90 | | 80 | 27 | 90 | 60 | 21 | 12.0 | 6.3 | M12 | 5.5 | 1 |
| 150 | | 80 | 27 | 150 | 60 | 21 | 12.0 | 6.3 | M12 | 7.3 | 1 |
| FMC 32 - 45 | | 100 | 32 | 45 | 78 | 24 | 14.0 | 7.0 | M16 | 4.2 | 1 |
| 75 | | 100 | 32 | 75 | 78 | 24 | 14.0 | 7.0 | M16 | 5.5 | 1 |
| 105 | | 100 | 32 | 105 | 78 | 24 | 14.0 | 7.0 | M16 | 6.8 | 1 |
| FMC38.1 - 50 | | 100 | 38.1 | 50 | 85 | 22 | 15.9 | 7.0 | M16 | 5.8 | 1 |
| 75 | | 100 | 38.1 | 75 | 85 | 22 | 15.9 | 7.0 | M16 | 6.0 | 1 |
| 105 | | 100 | 38.1 | 105 | 85 | 22 | 15.9 | 7.0 | M16 | 6.4 | 1 |
| FMC 40 - 50 | | 125/160 | 40 | 50 | 89 | 27 | 16.0 | 8.0 | M20 | 7.6 | 3 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

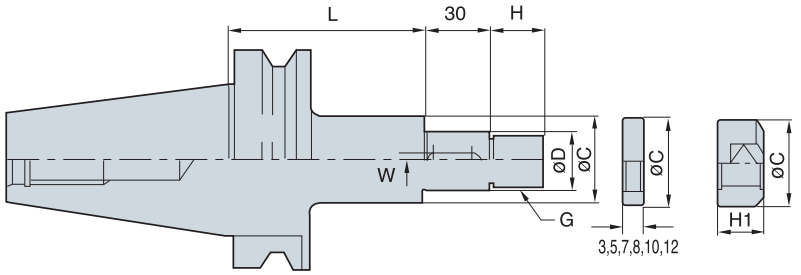
| Attacco | Parti di ricambio | | | | |
|---|---|---|---|---|---|
| | Standard | | | | Opzionale |
| | Key | Vite di staffaggio | Vite della chiave | Vite della chiave | Chiave |
| Tipo |  |  |  |  |  |
| FMC 16 | K8.0(A) | - | BX0310 | BX0820 | LW-6 |
| FMC 22 | K10.0(C) | - | BX0412 | BX1030 | LW-8 |
| FMC 25.4 | K9.5(B) | - | BX0515 | BX1225 | LW-10 |
| FMC 27 | K12.0 | MBA-M12 | BX0616 | BX1235 | LW-10 |
| FMC 32 | K14.0 | MBA-M16 | BX0820 | BX1335 | LW-14 |
| FMC38.1 | K15.87(F) | MBA-M16 | BX0616 | BX1635 | LW-14 |
| FMC40 | K15.87(F) | MBA-M20 | BX0616 | - | LW-17 |

* In caso di FMC27, ordinare separatamente MBA-M12

# BT-SCA

MAS403-BT






(mm)

| Articolo | Stock | Dia. fresa | øD | L | H | W | øC | H1 | G | kg |
|---|---|---|---|---|---|---|---|---|---|---|
| BT30 - SCA12.7 - 60 | | 50 | 12.7 | 60 | 15 | - | 20 | 12 | M12×1.25 | 0.6 |
| SCA15.875 - 60 | | 50·60 | 15.875 | 60 | 16 | 3.18 | 26 | 13 | M14×1.5 | 0.7 |
| SCA22.225 - 60 | | 60·63·75 | 22.225 | 60 | 21 | 3.18 | 34 | 18 | M20×1.5 | 0.8 |
| SCA25.4 - 60 | | 75·80 | 25.4 | 60 | 25 | 6.35 | 40 | 21 | M24×2 | 0.9 |
| BT40 - SCA13 - 75 | | 50 | 13 | 75 | 15 | - | 20 | 12 | M12×1.25 | 1.3 |
| 105 | | 50 | 13 | 105 | 15 | - | 20 | 12 | M12×1.25 | 1.4 |
| SCA16 - 75 | | 50·60 | 16 | 75 | 16 | 4 | 26 | 13 | M14×1.5 | 1.4 |
| 105 | | 50·60 | 16 | 105 | 16 | 4 | 26 | 13 | M14×1.5 | 1.5 |
| SCA22 - 75 | | 60·63·75 | 22 | 75 | 21 | 6 | 34 | 8 | M20×1.5 | 1.6 |
| 105 | | 60·63·75 | 22 | 105 | 21 | 6 | 34 | 8 | M20×1.5 | 1.9 |
| SCA27 - 75 | | 75·80·100·125 | 27 | 75 | 25 | 7 | 40 | 21 | M24×2 | 2.1 |
| 120 | | 75·80·100·125 | 27 | 120 | 25 | 7 | 40 | 21 | M24×2 | 2.5 |
| SCA32 - 105 | | 100·125·150·175 | 32 | 105 | 30 | 8 | 46 | 26 | M30×2 | 2.6 |
| SCA12.7 - 75 | | 50 | 12.7 | 75 | 15 | - | 20 | 12 | M12×1.25 | 1.3 |
| 105 | | 50 | 12.7 | 105 | 15 | - | 20 | 12 | M12×1.25 | 1.4 |
| SCA15.875 - 75 | | 50·60 | 15.875 | 75 | 16 | 3.18 | 26 | 13 | M14×1.5 | 1.4 |
| 105 | | 50·60 | 15.875 | 105 | 16 | 3.18 | 26 | 13 | M14×1.5 | 1.5 |
| SCA22.225 - 75 | | 60·63·75 | 22.225 | 75 | 21 | 3.18 | 34 | 18 | M20×1.5 | 1.6 |
| 120 | | 60·63·75 | 22.225 | 120 | 21 | 3.18 | 34 | 18 | M20×1.5 | 1.9 |
| SCA25.4 - 75 | | 75·80·100·125 | 25.4 | 75 | 25 | 6.35 | 40 | 21 | M24×2 | 2.1 |
| 120 | | 75·80·100·125 | 25.4 | 120 | 25 | 6.35 | 40 | 21 | M24×2 | 2.5 |
| SCA31.75 - 105 | | 100·125·150·175 | 31.75 | 105 | 30 | 7.92 | 46 | 26 | M30×2 | 2.6 |
| BT50 - SCA13 - 75 | | 50 | 13 | 75 | 15 | - | 20 | 12 | M12×1.25 | 3.7 |
| 105 | | 50 | 13 | 105 | 15 | - | 20 | 12 | M12×1.25 | 3.8 |
| SCA16 - 90 | | 50·60 | 16 | 90 | 16 | 4 | 26 | 13 | M14×1.5 | 4.0 |
| 120 | | 50·60 | 16 | 120 | 16 | 4 | 26 | 13 | M14×1.5 | 4.1 |
| SCA22 - 90 | | 60·63·75 | 22 | 90 | 21 | 6 | 34 | 18 | M20×1.5 | 4.3 |
| 135 | | 60·63·75 | 22 | 135 | 21 | 6 | 34 | 18 | M20×1.5 | 4.6 |
| SCA27 - 90 | | 75·80·100·125 | 27 | 90 | 25 | 7 | 40 | 21 | M24×2 | 4.7 |
| 135 | | 75·80·100·125 | 27 | 135 | 25 | 7 | 40 | 21 | M24×2 | 5.1 |
| SCA32 - 90 | | 100·125·175·200 | 32 | 90 | 30 | 8 | 46 | 26 | M30×2 | 5.1 |
| 135 | | 100·125·175·200 | 32 | 135 | 30 | 8 | 46 | 26 | M30×2 | 5.7 |
| SCA40 - 90 | | 150·160·175·200 | 40 | 90 | 36 | 10 | 55 | 31 | M36×2 | 5.8 |
| 135 | | 150·160·175·200 | 40 | 135 | 36 | 10 | 55 | 31 | M36×2 | 6.8 |
| SCA12.7 - 75 | | 50 | 12.7 | 75 | 15 | - | 20 | 12 | M12×1.25 | 3.7 |
| 105 | | 50 | 12.7 | 105 | 15 | - | 20 | 12 | M12×1.25 | 3.8 |
| SCA15.875 - 90 | | 50·60 | 15.875 | 90 | 16 | 3.18 | 26 | 13 | M14×1.5 | 4.0 |
| 120 | | 50·60 | 15.875 | 120 | 16 | 3.18 | 26 | 13 | M14×1.5 | 4.1 |
| SCA22.225 - 90 | | 60·63·75 | 22.225 | 90 | 21 | 3.18 | 34 | 18 | M20×1.5 | 4.3 |
| BT50 - SCA22.225- 135 | | 60·63·75 | 22.225 | 135 | 21 | 3.18 | 34 | 18 | M20×1.5 | 4.6 |
| SCA25.4 - 90 | | 75·80·100·125 | 25.4 | 90 | 25 | 6.35 | 40 | 21 | M24×2 | 4.7 |
| 135 | | 75·80·100·125 | 25.4 | 135 | 25 | 6.35 | 40 | 21 | M24×2 | 5.1 |
| SCA31.75 - 90 | | 100·125·150·175·200 | 31.75 | 90 | 30 | 7.92 | 46 | 26 | M30×2 | 5.1 |
| 135 | | 100·125·150·175·200 | 31.75 | 135 | 30 | 7.92 | 46 | 26 | M30×2 | 5.7 |
| SCA38.1 - 90 | | 150·160·175·200 | 38.1 | 90 | 36 | 9.52 | 55 | 31 | M36×2 | 5.8 |
| 135 | | 150·160·175·200 | 38.1 | 135 | 36 | 9.52 | 55 | 31 | M36×2 | 6.8 |

• JIS B4219, 4109, 4107 per fresa a disco
• Key e collare inclusi

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Attacco | Parti di ricambio | | |
|---|---|---|---|
| | Key parallela | Collare | Dado di serraggio |
| Tipo |  |  |  |
| SCA 13 | - | SCA13-Set | SCA-M12 |
| SCA 16 | 4x4x25 | SCA16-Set | SCA-M14 |
| SCA 22 | 6x6x25 | SCA22-Set | SCA-M20 |
| SCA 27 | 7x7x25 | SCA27-Set | SCA-M24 |
| SCA 32 | 8x7x25 | SCA32-Set | SCA-M30 |
| SCA 40 | 10x8x25 | SCA40-Set | SCA-M36 |
| SCA 12.7 | - | SCA12.7-Set | SCA-M12 |
| SCA 15.875 | 3.18x3.18x25 | SCA15.875-Set | SCA-M14 |
| SCA 22.225 | 3.18x3.18x25 | SCA22.225-Set | SCA-M20 |
| SCA 25.4 | 6.35x6.35x25 | SCA25.4-Set | SCA-M24 |
| SCA 31.75 | 7.92x7x25 | SCA31.75-Set | SCA-M30 |
| SCA 38.1 | 9.52x8x25 | SCA38.1-Set | SCA-M36 |

# BT-DBC(Modulare)

MAS403-BT



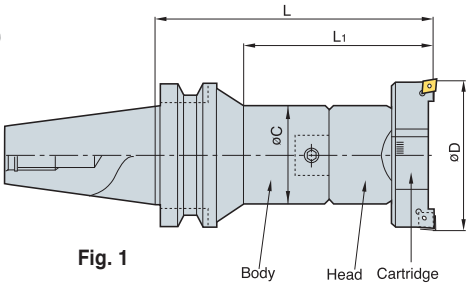



Fig. 1

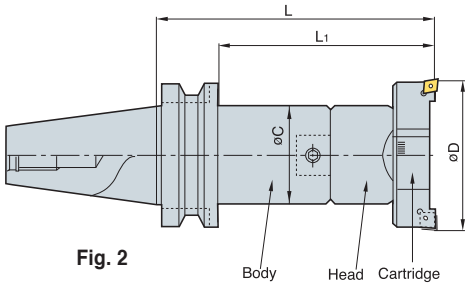



Fig. 2

(mm)

| Articolo | Alesatura øD | | L | Prof. di alesatura | ØC | Corpo (Portainserti standard) | Testina (Testina+Cartuccia) | Inserto | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|---|
| | min | max | | | | | | | | |
| BT40 - DBC28 - 165 | 28 | 35 | 165 | 100 | 25 | BT40 - MD25F - 105R | BCH-28SF | CCMT0602□□ | 1.7 | 1 |
| 35 - 180 | 35 | 46 | 180 | 110 | 32 | - MD32F - 115R | -35S | CCMT0602□□ | 1.9 | 1 |
| 46 - 180 | 46 | 58 | 180 | 130 | 40 | - MD40F - 110R | -46S | CCMT09T3□□ | 2.6 | 1 |
| 58 - 180 | 58 | 74 | 180 | 130 | 50 | - MD50F - 100R | -58S | CCMT09T3□□ | 3.8 | 1 |
| 74 - 180 | 74 | 94 | 180 | 150 | 63 | - MD63F - 90 | -74S | CCMT1204□□ | 5.8 | 2 |
| 94 - 200 | 94 | 120 | 200 | 173 | 80 | - MD80F - 100 | -94S | CCMT1204□□ | 7.5 | 2 |
| BT50 - DBC28 - 180 | 28 | 35 | 180 | 100 | 25 | BT50 - MD25F - 120R | BCH-28SF | CCMT0602□□ | 4.5 | 1 |
| 35 - 180 | 35 | 46 | 180 | 110 | 32 | - MD32F - 115R | -35S | CCMT0602□□ | 4.8 | 1 |
| - 300 | 35 | 46 | 300 | 180 | 32 | - MD32F - 235R | -35S | CCMT0602□□ | 5.4 | 1 |
| 46 - 195 | 46 | 58 | 195 | 130 | 40 | - MD40F - 125R | -46S | CCMT09T3□□ | 5.6 | 1 |
| - 300 | 46 | 58 | 300 | 250 | 40 | MD40F - 230R | -46S | CCMT09T3□□ | 6.7 | 1 |
| 58 - 240 | 58 | 74 | 240 | 140 | 50 | - MD50F - 160R | -58S | CCMT09T3□□ | 7.2 | 1 |
| - 330 | 58 | 74 | 330 | 280 | 50 | - MD50F - 250R | -58S | CCMT09T3□□ | 8.6 | 1 |
| 74 - 230 | 74 | 94 | 230 | 160 | 63 | - MD63F - 140R | -74S | CCMT1204□□ | 8.8 | 1 |
| - 330 | 74 | 94 | 330 | 280 | 63 | - MD63F - 240R | -74S | CCMT1204□□ | 11.0 | 1 |
| 94 - 210 | 94 | 120 | 210 | 170 | 80 | - MD80F - 110 | -94S | CCMT1204□□ | 9.0 | 2 |
| - 275 | 94 | 120 | 275 | 225 | 80 | - MD80F- 175 | -94S | CCMT1204□□ | 11.8 | 2 |

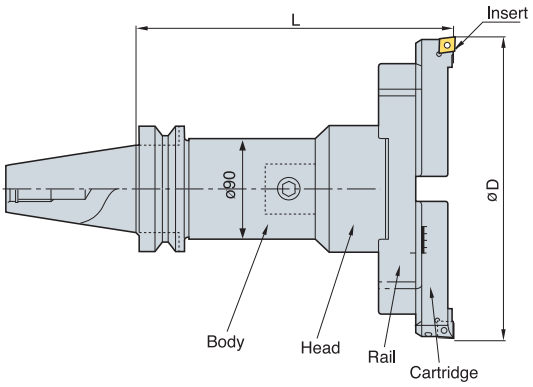
Gestione separata delle disponibilità per corpo e testina

## Parti di ricambio

| Applicazione | Parti di ricambio | | | | | |
|---|---|---|---|---|---|---|
| | Standard | | | | | |
| | Corpo | Vite conica | Testa | Binario | Cartuccia | Chiave |
| Tipo |  |  |  |  |  |  |
| DBC 28 | MD25F | BTT0608F | BCH-28F | - | BCC28 | LW-3 |
| DBC 35 | MD32F | BTT0810F | BCH-35 | - | BCC35 | LW-4 |
| DBC 46 | MD40F | BTT1013F | BCH-46 | - | BCC46 | LW-5 |
| DBC 58 | MD50F | BTT1215F | BCH-58 | - | BCC58 | LW-5 |
| DBC 74 | MD63F | BTT1620F | BCH-74 | - | BCC74 | LW-6 |
| DBC 94 | MD80F | BTT1631F | BCH-94 | - | BCC94 | LW-8 |

# BT-DBC(Modular Type)






MAS403-BT

(mm)

| Articolo | Alesatura øD | | L | Corpo (Portainserti standard) | Testina (Testina+Cartuccia) | Inserto | kg |
|---|---|---|---|---|---|---|---|
| | min | max | | | | | |
| **BT50 - DBC120 -210** | 120 | 175 | 210 | BT50-MD90F- 110 | BCH-120S | CCMT1204□□ | 9.3 |
| **-275** | 120 | 175 | 275 | -MD90F- 175 | -120S | CCMT1204□□ | 12.1 |

Gestione separata delle disponibilità per corpo e testina

• Inserto: vedere a pagina I 56

**Esempio d'ordine)**
• BT50-DBC120-175
• Corpo : BT50-MD90F-75
• Testina : BCH-120S

## Parti di ricambio

| Applicazione | Parti di ricambio | | | | | |
|---|---|---|---|---|---|---|
| | Standard | | | | | |
| | Corpo | Vite conica | Testa | Binario | Cartuccia | Chiave |
| Tipo |  |  |  |  |  |  |
| DBC 120 | MD90F | BTT1631F | BCH-120 | BCR-120 | BCC120 | LW-8 |

# BT-DBC(Modulare)

## Inserto per DBC

| Inserto | Grado | Pezzo lavorato | Lavorazione | Pag. |
|---|---|---|---|---|
| CCMT060200 | Rivestito : NC3020, NC3120 | Acciaio, acciaio legato, ghisa | generirca~ | **B**33, **B**34 |
| | Rivestito : NC6110 | Acciaio, acciaio legato | generirca~ | **B**33, **B**34 |
| | Rivestito : PC8110, PC5300, NC9025 | Acciaio inossidabile | generirca~ | **B**33, **B**34 |
| | Cermet : CN1000, CN2000 | Acciaio, ghisa | finitura~generirca | **B**33, **B**34 |
| CCGT060200 | Rivestito : NC3020, NC3120 | Acciaio, acciaio legato | generirca~ | **B**33 |
| | W.C : H01 | Ghisa | finitura~generirca | **B**33 |
| | Cermet : CN1000, CN2000 | Acciaio inossidabile | finitura~generirca | **B**33 |
| CCMT09T300 | Rivestito : NC3020, NC3120 | Acciaio inossidabile | generirca~ | **B**33, **B**34 |
| | Rivestito : NC6110 | Super lega, acciaio inossidabile | generirca~ | **B**33, **B**34 |
| | Rivestito : PC8110, PC5300, NC9025 | Acciaio, ghisa | generirca~ | **B**33, **B**34 |
| | Cermet : CN1000, CN2000 | Acciaio, acciaio legato | finitura~generirca | **B**33, **B**34 |
| CCGT09T300 | Rivestito : PC8110, PC5300, NC9025 | Alluminio | generirca~ | **B**33 |
| | W.C : H01 | Acciaio, acciaio legato, ghisa | finitura~generirca | **B**33 |
| | Cermet : CN1000, CN2000 | Acciaio, acciaio legato | finitura~generirca | **B**33 |
| CCMT120400 | Rivestito : NC3020, NC3120 | Ghisa | generirca~ | **B**33, **B**34 |
| | Rivestito : NC6110 | Acciaio inossidabile | generirca~ | **B**33, **B**34 |
| | Rivestito : PC8110, PC5300, NC9025 | Acciaio, ghisa | generirca~ | **B**33, **B**34 |
| | Cermet : CN1000, CN2000 | Acciaio, acciaio legato | finitura~generirca | **B**33, **B**34 |
| CCGT120400 | W.C : H01 | Ghisa | finitura~generirca | **B**33 |

• È possibile scegliere il grado dell'inserto e il rompitruciolo in funzione dei vari metodi di lavorazione
• Fare attenzione alla differenza tra la cartuccia per CNMG1204 e per CCMT1204
• Per maggiori informazioni, consultare il SHM e il catalogo KORLOY

## Caratteristiche

Elevata rigidità | Elevata precisione | Agevole regolazione | Alesatura Φ130~Φ540mm

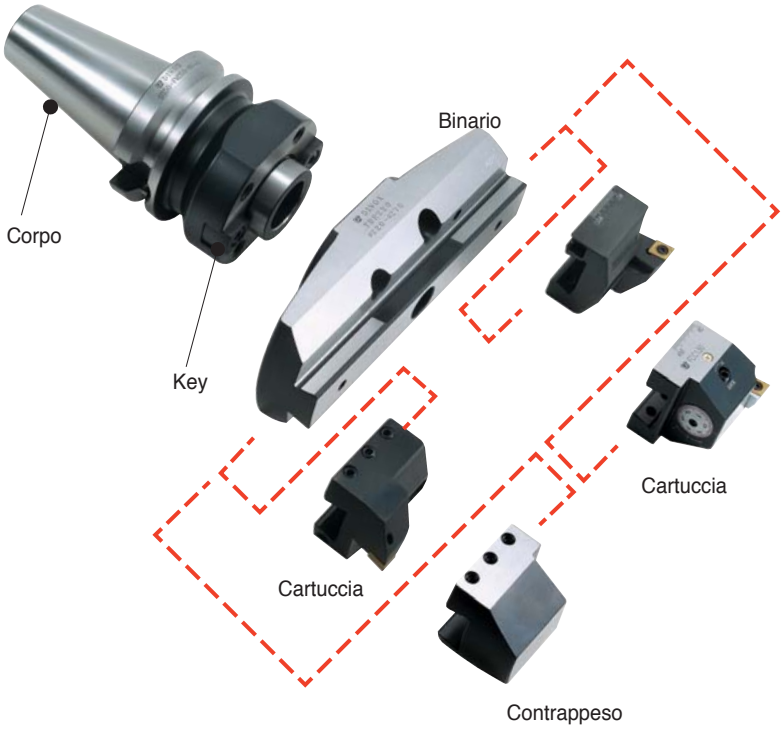
- Ampia gamma di alesatura: Φ130 ~ Φ540mm
- Massima stabilità della struttura in grado di sostenere lavorazioni pesanti. Cambiando la cartuccia si possono eseguire lavorazioni di sgrossatura e di finitura.
- Inserto: per TBC CCMT1204□□, CNMG1204□□
  per FBC CCMT09T3□□, CCGT09T3□□







## Struttura di TBC/FBC





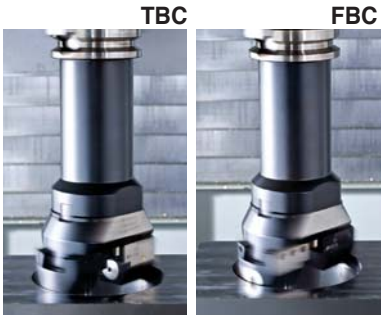










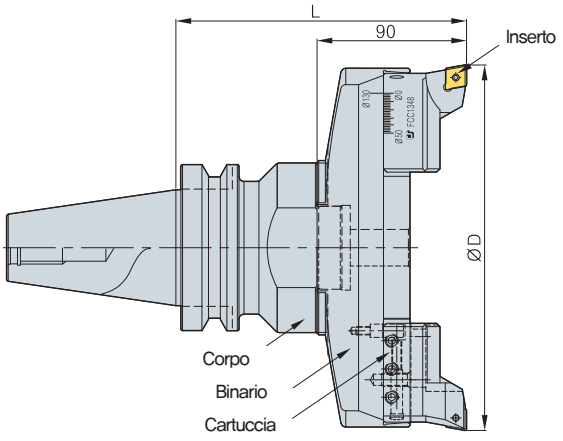



MAS403-BT

## Utensile di bilanciamento per sgrossatura (grandi diametri)

# BT-TBC






(mm)

| Articolo | Alesatura øD | | L | Corpo | Testina (binario + cartuccia) | Inserto | kg |
|---|---|---|---|---|---|---|---|
| | min | max | | | | | |
| BT50 -TBC 130 -175 | 130 | 180 | 175 | BT50 - FMD50 - 85 | TBC - 130S (TBR130 + BCC1348) | CCMT120400 | 9.8 |
| 245 | 130 | 180 | 245 | 155 | | | 11.8 |
| 295 | 130 | 180 | 295 | 205 | | | 13.6 |
| 345 | 130 | 180 | 345 | 255 | | | 14.3 |
| BT50 -TBC 175 -175 | 175 | 225 | 175 | BT50 - FMD50 - 85 | TBC - 175S (TBR175 + BCC1348) | CCMT120400 | 10.8 |
| 245 | 175 | 225 | 245 | 155 | | | 12.8 |
| 295 | 175 | 225 | 295 | 205 | | | 14.6 |
| 345 | 175 | 225 | 345 | 255 | | | 15.3 |
| BT50 -TBC 220 -175 | 220 | 270 | 175 | BT50 - FMD50 - 85 | TBC - 220S (TBR220 + BCC1348) | CCMT120400 | 11.7 |
| 245 | 220 | 270 | 245 | 155 | | | 13.7 |
| 295 | 220 | 270 | 295 | 205 | | | 15.5 |
| 345 | 220 | 270 | 345 | 255 | | | 16.2 |
| BT50 -TBC 265 -175 | 265 | 315 | 175 | BT50 - FMD50 - 85 | TBC - 265S (TBR265 + BCC1348) | CCMT120400 | 13.2 |
| 245 | 265 | 315 | 245 | 155 | | | 15.2 |
| 295 | 265 | 315 | 295 | 205 | | | 17.1 |
| 345 | 265 | 315 | 345 | 255 | | | 17.8 |
| BT50 -TBC 310 -175 | 310 | 390 | 175 | BT50 - FMD50 - 85 | TBC - 310S (TBR310 + BCC1354) | CCMT120400 | 14.5 |
| 245 | 310 | 390 | 245 | 155 | | | 16.5 |
| 295 | 310 | 390 | 295 | 205 | | | 18.4 |
| 345 | 310 | 390 | 345 | 255 | | | 19.1 |
| BT50 -TBC 385 -175 | 385 | 465 | 175 | BT50 - FMD50 - 85 | TBC - 385S (TBR385 + BCC1354) | CCMT120400 | 16.4 |
| 245 | 385 | 465 | 245 | 155 | | | 18.4 |
| 295 | 385 | 465 | 295 | 205 | | | 20.3 |
| 345 | 385 | 465 | 345 | 255 | | | 21.0 |
| BT50 -TBC 460 -175 | 460 | 540 | 175 | BT50 - FMD50 - 85 | TBC - 460S (TBR460 + BCC1354) | CCMT120400 | 18.9 |
| 245 | 460 | 540 | 245 | 155 | | | 20.9 |
| 295 | 460 | 540 | 295 | 205 | | | 22.8 |
| 345 | 460 | 540 | 345 | 255 | | | 23.5 |

• Inserti applicabili, vedere pag. B33, B34

※ È possibile ordinare il set cartuccia per CCMT1204

**※ Esempio d'ordine)**
• BT50-TBC130-245
• Corpo : BT50-FMD50-155
• Testina : TBC-130S

## Caratteristiche

• La serie DINOX Micro Barenatura è estremamente versatile ed è caratterizzata da elevata precisione e rigidità per uguagliare le eccellenti prestazioni di alesatura nonché le svariate aspettative dei clienti

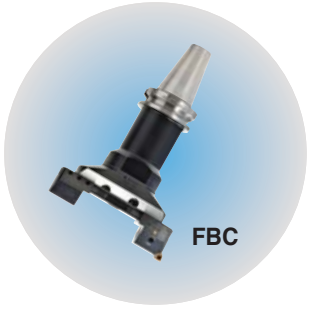






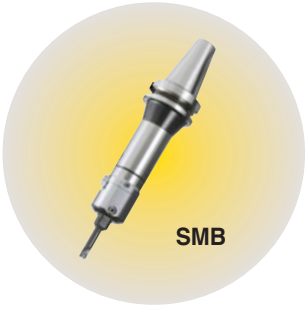


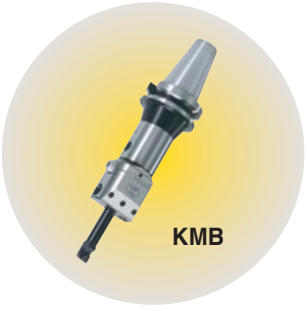








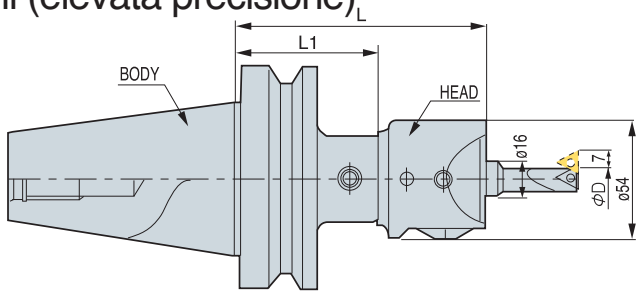



MAS403-BT

## Micro bareni di piccole dimensioni (elevata precisione)

# BT-SMH






1DIV. = ϕ 0.01mm

(mm)

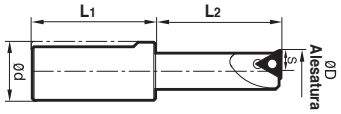
| Articolo | Stock | L | L1 | Corpo | Testa | Cartuccia | kg |
|---|---|---|---|---|---|---|---|
| BT40 - SMH | | 109 | 60 | BT40-MD40F-60 | SMH4022 | BB16-□S | 3.0 |
| BT50 - SMH | | 109 | 60 | BT50-MD40F-60 | SMH4022 | BB16-□S | 6.0 |

● : Disponibile ○ : A richiesta

- I micro bareni di tipo modulare per finitura sono indicati per fori di piccoli diametri
- Alesatura : ø6.0 ~ ø34.0mm
- Lunghezza regolabile : 7mm
- I portainserti standard possono essere: HSK, BT, SK, NT50/40, MT6, attacco cilindrico
- Testina : vedere a pagina I 88
- Corpo (Portainserti standard) : vedere a pagina I 81

## Cartuccia (Tipo BB)

(mm)




| Articolo | Stock | Alesatura øD min | Alesatura øD max | S | ød | L2 | L1 | Inserto | Vite dell'inserto | Chiave |
|---|---|---|---|---|---|---|---|---|---|---|
| BB16-5S | ● | 6 | 20 | 2.75 | 16 | 20 | 34 | WBGT060100L | BFTX0203A | TW06 |
| BB16-7S | ● | 8 | 22 | 3.5 | 16 | 30 | 34 | TBGT060100L | BFTX0204A | TW06 |
| BB16-9S | ● | 10 | 24 | 4.5 | 16 | 40 | 34 | TPGT080200L | BFTX0204A | TW06 |
| BB16-11S | ● | 12 | 26 | 5.5 | 16 | 45 | 34 | TPGT110300L | BFTX0307A | TW10 |
| BB16-15S | ● | 16 | 30 | 7.5 | 16 | 50 | 34 | TPGT110300L | BFTX0307A | TW10 |
| BB16-19S | ● | 20 | 34 | 9.5 | 16 | 60 | 34 | TPGT160400L | BFTX0410A | TW15 |

• Inserti applicabili, vedere pag. B38, B40, B43

● : Disponibile ○ : A richiesta

- È possibile ordinare attacchi in metallo duro e altri formati speciali
- È possibile ordinare inserti cBN e PCD

## Parti di ricambio

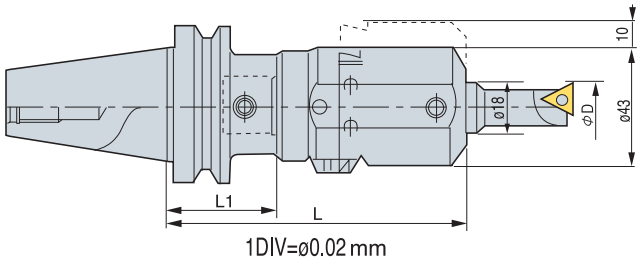
| Articolo | Parti di ricambio | | | | |
|---|---|---|---|---|---|
| | Standard | | | | Opzionale |
| | Corpo | Testina | Vite conica | Chiave | Cartuccia |
| Tipo |  |  |  |  |  |
| SMH | MD40F | SMH4022 | BTT1013F | LW-5 | BB16 |

MAS403-BT

## Micro bareni di piccole dimensioni

# BT-SMB






(mm)

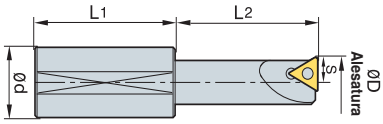
| Articolo | Stock | L | L1 | Corpo (Portainserti standard) | Testa | Cartuccia | kg |
|---|---|---|---|---|---|---|---|
| **BT40-SMB** | | 122.5 | 60 | BT40-MD40F-60 | SMB4022 | BB18-□S | 2.8 |
| **BT50-SMB** | | 122.5 | 60 | BT50-MD40F-60 | SMB4022 | BB18-□S | 5.4 |

• I micro bareni di tipo modulare per finitura sono indicati per fori di piccoli diametri.
• Alesatura : (BB18 Boring Bite): ø8.0 ~ ø38.0mm • Lunghezza regolabile : 10mm
• I portainserti standard possono essere mandrini: HSK, BT, SK, NT50/40, MT6, attacco cilindrico
• Testina : vedere a pagina I 88 • Corpo (Portainserti standard): vedere a pagina I 81

● : Disponibile ○ : A richiesta

## Cartuccia: Tipo BBT (per SMB)

(mm)




| Articolo | Stock | Alesatura øD | | S | ød | L1 | L2 | Inserto | Vite dell'inserto |
|---|---|---|---|---|---|---|---|---|---|
| | | min | max | | | | | | |
| BB18-7S | ● | 8 | 28 | 3.5 | 18 | 30 | 30 | TBGT060100L | BFTX0204A |
| BB18-9S | ● | 10 | 30 | 4.5 | 18 | 30 | 40 | TPGT080200L | BFTX0204A |
| BB18-11S | ● | 12 | 32 | 5.5 | 18 | 30 | 45 | TPGT110300L | BFTX0307A |
| BB18-13S | ● | 14 | 34 | 6.5 | 18 | 40 | 45 | TPGT110300L | BFTX0307A |
| BB18-15S | ● | 16 | 36 | 7.5 | 18 | 40 | 50 | TPGT110300L | BFTX0307A |
| BB18-17S | ● | 18 | 38 | 8.5 | 18 | 40 | 50 | TPGT110300L | BFTX0307A |

• È possibile ordinare attacchi in metallo duro e altri formati speciali
• È possibile ordinare inserti cBN e PCD

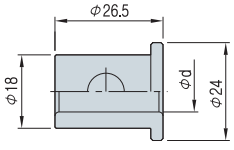
• Inserti applicabili, vedere pag. B38, B40

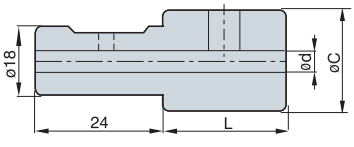
● : Disponibile ○ : A richiesta

## Parti di ricambio

| Applicazione | Parti di ricambio | | | | |
|---|---|---|---|---|---|
| | Standard | | | | Opzionale |
| | Corpo | Testina | Vite conica | Chiave | Cartuccia |
| Tipo |  |  |  |  |  |
| SMB | MD40F | SMH4022 | BTT1013F | LW-5 | BB16 |

## Manicotto di staffaggio




(mm)

| Articolo | Stock | ød |
|---|---|---|
| CSL4 | | 4 |
| CSL 5 | | 5 |
| CSL 6 | | 6 |
| CSL 7 | | 7 |
| CSL 8 | | 8 |
| CSL 10 | | 10 |
| CSL 12 | | 12 |

※ È possibile ordinare formati speciali

● : Disponibile ○ : A richiesta

| Articolo | Stock | ød | øC | L |
|---|---|---|---|---|
| LCSL 5 | | 5 | 18 | 18 |
| LCSL 6 | | 6 | 18 | 18 |
| LCSL 7 | | 7 | 18 | 18 |
| LCSL 8 | | 8 | 22 | 22 |
| LCSL 10 | | 10 | 25 | 25 |
| LCSL 12 | | 12 | 25 | 30 |

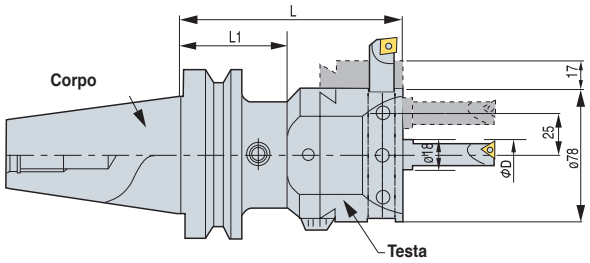
※ È possibile ordinare formati speciali

● : Disponibile ○ : A richiesta

MAS403-BT

## Micro bareno **BT-KMB**






※ 1DIV=ø0.02mm

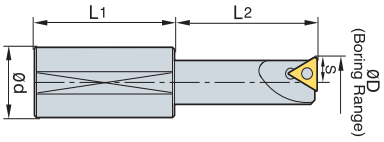
(mm)

| Articolo | Stock | L | L1 | Corpo (Portainserti standard) | Testa | Cartuccia | kg |
|---|---|---|---|---|---|---|---|
| **BT40 - KMB** | | 141 | 64 | BT40-MD63F-64 | KMB6336 | BB18-□S | 7.0 |
| **BT50 - KMB** | | 152 | 75 | BT50-MD63F-75 | KMB6336 | BB18-□S | 5.5 |

• I micro bareni di tipo modulare per finitura sono indicati per fori di piccoli e medi diametri
• Alesatura (Cartuccia BB18) : ø8.0 ~ ø101.0mm • Lunghezza regolabile : 17mm
• I portainserti standard possono essere mandrini: HSK, BT, SK, NT50/40, MT6, attacco cilindrico
• Parti di ricambio: vedere a pagina I 89 • Corpo (Portainserti standard): vedere a pagina I 81

● : Disponibile ○ : A richiesta

## Cartuccia: Tipo BB (per KMB)




(mm)

| Articolo | Stock | Alesatura øD | | | | S | ød | L1 | L2 | Inserto | Vite dell'inserto |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Centrica | | Eccentrica | | | | | | | |
| BB18-7S | ● | 8 | 41 | 43 | 91 | 3.5 | 18 | 30 | 30 | TBGT060100L | BFTX0204A |
| BB18-9S | ● | 10 | 43 | 45 | 93 | 4.5 | 18 | 30 | 40 | TPGT080200L | BFTX0204A |
| BB18-11S | ● | 12 | 45 | 47 | 95 | 5.5 | 18 | 30 | 45 | TPGT110300L | BFTX0307A |
| BB18-13S | ● | 14 | 47 | 49 | 97 | 6.5 | 18 | 40 | 45 | TPGT110300L | BFTX0307A |
| BB18-15S | ● | 16 | 49 | 51 | 99 | 7.5 | 18 | 40 | 50 | TPGT110300L | BFTX0307A |
| BB18-17S | ● | 18 | 51 | 53 | 101 | 8.5 | 18 | 40 | 50 | TPGT110300L | BFTX0307A |

• È possibile ordinare attacchi in metallo duro e altri formati speciali
• È possibile ordinare inserti cBN e PCD

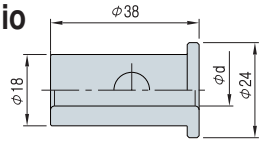
• Inserti applicabili, vedere pag. B38, B40

● : Disponibile ○ : A richiesta

## Parti di ricambio

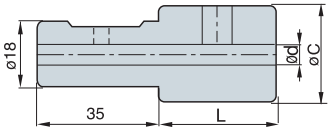
| Applicazione | Parti di ricambio | | | | |
|---|---|---|---|---|---|
| | Standard | | | | Opzionale |
| | Corpo | Testina | Vite conica | Chiave | Cartuccia |
| Tipo |  |  |  |  |  |
| KMB | MD63F | KMB6336 | BTT1620F | LW-8 | BB18 |

## Manicotto di staffaggio




| Articolo | Stock | ød |
|---|---|---|
| CSL 4K | | 4 |
| CSL 5K | | 5 |
| CSL 6K | | 6 |
| CSL 7K | | 7 |
| CSL 8K | | 8 |
| CSL10K | | 10 |
| CSL12K | | 12 |

● : Disponibile ○ : A richiesta




(mm)

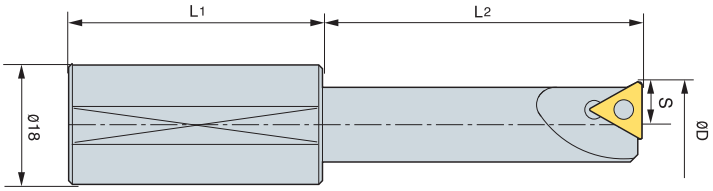
| Articolo | Stock | ød | øC | L |
|---|---|---|---|---|
| LCSL 5K | | 5 | 18 | 18 |
| LCSL 6K | | 6 | 18 | 18 |
| LCSL 7K | | 7 | 18 | 18 |
| LCSL 8K | | 8 | 22 | 22 |
| LCSL10K | | 10 | 25 | 25 |
| LCSL12K | | 12 | 25 | 30 |

※ È possibile ordinare formati speciali

● : Disponibile ○ : A richiesta

# Cartuccia Tipo BB






## Cartuccia: Tipo BB (per SMB, KMB)

(mm)

| Articolo | Stock | Insert | øD min. di barenatura | S | L1 | L2 | Vite | Chiave |
|---|---|---|---|---|---|---|---|---|
| **BB18-7S** | ● | TBGT0601□□L | 8 | 3.5 | 30 | 30 | BFTX0204A | TW06 |
| **BB18-9S** | ● | TPGT0802□□L | 10 | 4.5 | 30 | 40 | BFTX0204A | TW06 |
| **BB18-11S** | ● | TPGT1103□□L | 12 | 5.5 | 30 | 45 | BFTX0307A | TW10 |
| **BB18-13S** | ● | TPGT1103□□L | 14 | 6.5 | 40 | 45 | BFTX0307A | TW10 |
| **BB18-15S** | ● | TPGT1103□□L | 16 | 7.5 | 40 | 50 | BFTX0307A | TW10 |
| **BB18-17S** | ● | TPGT1103□□L | 18 | 8.5 | 40 | 50 | BFTX0307A | TW10 |

● : Disponibile ○ : A richiesta

## Cartuccia standard

| Serie cartuccia interna | Applicazione | Diametro attacco | Inserti applicabili |
|---|---|---|---|
| BBPT(WBPT: Stelo in metallo duro)<br>BBPW(WBPW: Stelo in metallo duro) | Alesatura con refrigerante interno | ø8,10,12,16<br>ø5.5,8,10 | TBGT0601□□L, TPGT0802□□L, TPGT1103□□L<br>WBGT0601□□L, WBMT0601□□L, WBGT0802□□L |
| S-SCLCR<br>(C-SCLCR: Stelo in metallo duro) | Alesatura con stop e con refrigerante interno | ø8,10,12,16 | CCGT0602□□, CCMT0602□□,<br>CCGT09T3□□, CCMT09T3□□ |
| S-SWUBR(E-SWUBR:Stelo in metallo duro) | Alesatura con refrigerante interno | ø5.5,8,10 | TPGT1103□□L |
| S-STUPR | | ø8 | TBGT0601□□L, TPGT0802□□L |
| S-STFPR(C-STFPR:Stelo in metallo duro) | | ø12,16 | WBGT020102L, WBGT S3020□□L |
| S-SCLCR(C-SCLCR:Stelo in metallo duro) | Alesatura con stop e con refrigerante interno | ø10,12,16 | CCMT0602□□,CCGT0602□□,CCMT09T3□□,CCGT09T3□□ |
| S-SCLPR(C-SCLPR:Stelo in metallo duro) | | ø8,10,12,16 | CPGT0802□□,CPGT0903□□ |

• È possibile ordinare cartucce in metallo duro
• Se si utilizza il manicotto di staffaggio, è possibile utilizzare la cartuccia e l'inserto standard
• È possibile ordinare inserti cBN e PCD

## Parti di ricambio

| Applicazione | Parti di ricambio | | |
|---|---|---|---|
| | Standard | | |
| | Vite di staffaggio | Chiave | Chiave |
| Type |  |  |  |
| FF10-30S | BFTX0204A | TW06 | LW-2 |
| FF12-39S | BFTX0204A | TW06 | LW-2.5 |
| FF16-47S | BFTX0204A | TW06 | LW-3 |
| FF20-58S | BFTX0204A | TW06 | LW-3 |
| FF25-79S | BFTX0307A | TW10 | LW-4 |
| FF32-100S | BFTX0307A | TW10 | LW-5 |

# I Micro bareno FBH

## Caratteristiche

**1DIV.=Ø0.01mm**

Alesatura : **Ø15.0mm ~ Ø172.0mm**

- Regolazione fine disponibile con tacche da ø0.01mm
  Grazie al design compatto e alla sua funzionalità è possibile rispettare le tolleranze H6, H7
- Ampia gamma di alesatura: Diametro min. : 15.0mm  Diametro max. : 172.0mm
- Indicato per vari tipi di portainserti standard
- Il refrigerante interno è standard




❶ Micro bareno con attacco in acciaio/metallo duro

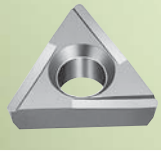
❷ Micro bareno modulare con attacco in acciaio/metallo duro



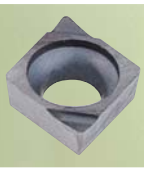




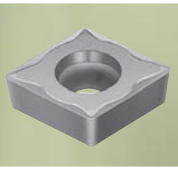

Inserti



TPGT080200L
TPGW080200
TPGT110300L



CCET030100L
CCET040100L



CCGT060200L
CCMT060200
CCMT09T300



Cartuccia
FBB ○○
FBB○○N
FBB ○○N-1



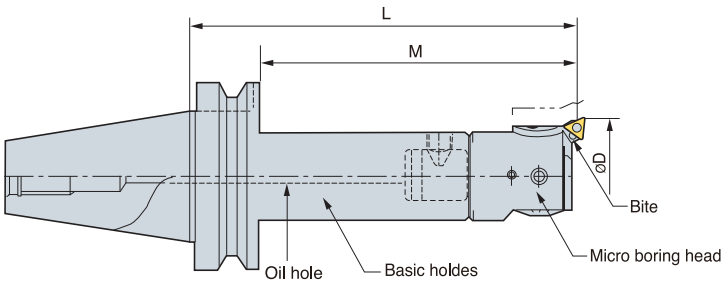
**Testina micro bareno tipo FBH**

## Micro bareni (elevata precisione)

MAS403-BT

# BT-FBH






(mm)

| Articolo | Alesatura øD min | Alesatura øD max | L | Prof. max di alesatura M | Corpo (Portainserti standard) | Testina micro bareno | Cartuccia | kg |
|---|---|---|---|---|---|---|---|---|
| **BT30 -FBH20 -103** | 20 | 26(30) | 103 | 77 | BT30-MD19F- 70 | FBH1920N | FBB20N, FBB20N-C | 0.53 |
| **FBH26 -127** | 26 | 34(40) | 127 | 101 | -MD25F- 90 | FBH2526N | FBB26N, FBB26N-C | 0.7 |
| **FBH33 -121** | 33 | 43(50) | 121 | 95 | -MD32F- 80 | FBH3233N | FBB33N, FBB33N-C | 0.82 |
| **FBH42 -127** | 42 | 54(62) | 127 | 101 | -MD40F- 80 | FBH4042N | FBB42N,FBB42N-C, FBB42N-11 | 1.1 |
| **FBH53 -127** | 53 | 70(82) | 127 | 101 | -MD50F- 70 | FBH5053N | FBB53N,FBB53N-C, FBB53N-11 | 1.7 |
| **BT40 -FBH20 -103** | 20 | 26(30) | 103 | 72 | BT40-MD19F- 70 | FBH1920N | FBB20N, FBB20N-C | 1.9 |
| **FBH26 -133** | 26 | 34(40) | 133 | 100 | -MD25F- 95 | FBH2526N | FBB26N, FBB26N-C | 2.0 |
| **FBH33 -141** | 33 | 43(50) | 141 | 110 | -MD32F-100 | FBH3233N | FBB33N, FBB33N-C | 2.5 |
| **FBH42 -162** | 42 | 54(62) | 162 | 130 | -MD40F-115 | FBH4042N | FBB42N, FBB42N-C, FBB42N-11 | 3.1 |
| **FBH53 -162** | 53 | 70(82) | 162 | 130 | -MD50F-105 | FBH5053N | FBB53N, FBB53N-C, FBB53N-11 | 3.5 |
| **FBH68 -181** | 68 | 100(122) | 181 | 150 | -MD63F-110 | FBH6368N | FBB68N, FBB68N-C, FBB68N-11 | 6.3 |
| **FBH98 -206** | 98 | 150(172) | 206 | 173 | -MD63F-135 | FBH6398N | FBB68N, FBB68N-C, FBB68N-11 | 7.1 |
| **BT50 -FBH20 -118** | 20 | 26(30) | 118 | 76 | BT50-MD19F- 85 | FBH1920N | FBB20N, FBB20N-C | 5.2 |
| **FBH26 -142** | 26 | 34(40) | 142 | 100 | -MD25F-105 | FBH2526N | FBB26N, FBB26N-C | 5.8 |
| **FBH33 -151** | 33 | 43(50) | 151 | 109 | -MD32F-110 | FBH3233N | FBB33N, FBB33N-C | 6.0 |
| **FBH42 -192** | 42 | 54(62) | 192 | 150 | -MD40F-145 | FBH4042N | FBB42N, FBB42N-C, FBB42N-11 | 6.3 |
| **-242** | 42 | 54(62) | 242 | 200 | -MD40F-195 | FBH4042N | FBB42N, FBB42N-C, FBB42N-11 | 6.6 |
| **FBH53 -182** | 53 | 70(82) | 182 | 140 | -MD50F-125 | FBH5053N | FBB53N, FBB53N-C, FBB53N-11 | 6.9 |
| **-282** | 53 | 70(82) | 282 | 240 | -MD50F-225 | FBH5053N | FBB53N, FBB53N-C, FBB53N-11 | 7.2 |
| **FBH68 -201** | 68 | 100(122) | 201 | 159 | -MD63F-130 | FBH6368N | FBB68N, FBB68N-C, FBB68N-11 | 8.1 |
| **-301** | 68 | 100(122) | 301 | 260 | -MD63F-230 | FBH6368N | FBB68N, FBB68N-C, FBB68N-11 | 8.5 |
| **FBH98 -211** | 98 | 150(172) | 211 | 169 | -MD63F-140 | FBH6398N | FBB68N, FBB68N-C, FBB68N-11 | 8.9 |
| **-265** | 98 | 150(172) | 265 | 224 | -MD63F-195 | FBH6398N | FBB68N, FBB68N-C, FBB68N-11 | 9.4 |

Gestione separata delle disponibilità di portainserti standard, testina e cartuccia

( ) : Dia. max di alesatura per tipo maggiorato

● : Disponibile ○ : A richiesta

- Regolazione fine disponibile con tacche da ø0.01mm
  Grazie al design compatto e alla sua funzionalità è possibile rispettare le tolleranze H6, H7
- Ampia gamma di alesatura; Dia. min. : ø20.0mm / Dia. max. :ø172.0mm
- Indicato per vari tipi di portainserti standard (vedere a pagina I 81)
- Il modello con foro di lubrificazione è standard
- Testina micro bareno: vedere a pagina I 66
- Cartuccia: vedere a pagina I 67

**Esempio d'ordine)**
BT30-FBH20-103
Portainserti standard: BT30-MD19F-70
Testina micro bareno : FBH1920N
Cartuccia : FBB20N
* N : Nuovo tipo

## Sistema di codifica

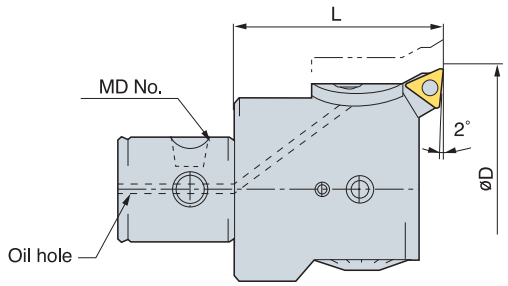
BT50 – FBH 33 – 151

- BT50: Mandrino
- 33: Dia. min. di alesatura
- 151: Lunghezza

## Testina micro bareno **FBH**

MAS403-BT




1DIV=ø0.01mm

**FBH1920N**

Nuovo tipo

(mm)

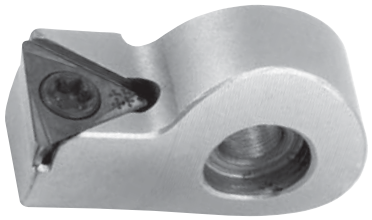
| Articolo | Stock | Alesatura øD | | L | Regolazione/1 tacca | MD No. | kg |
|---|---|---|---|---|---|---|---|
| | | min | max | | | | |
| **FBH1920N** | ● | 20 | 26(30) | 33 | ø0.4mm | MD1911 | 0.06 |
| **FBH2526N** | ● | 26 | 34(40) | 37.5 | ø0.4mm | MD2514 | 0.12 |
| **FBH3233N** | ● | 33 | 43(50) | 41 | ø0.5mm | MD3218 | 0.24 |
| **FBH4042N** | ● | 42 | 54(62) | 47 | ø0.5mm | MD4022 | 0.41 |
| **FBH5053N** | ● | 53 | 70(82) | 57 | ø0.6mm | MD5028 | 0.8 |
| **FBH6368N** | ● | 68 | 100(122) | 71 | ø0.8mm | MD6336 | 1.7 |
| **FBH6398N** | ● | 98 | 150(172) | 71 | ø0.8mm | MD6336 | 2.35 |

Gestione separata delle disponibilità per portainserti standard e cartuccia della testina

( ) : Dia. max di alesatura per tipo a estensione

● : Disponibile ○ : A richiesta

# Cartuccia FBB (Nuovo tipo)



(mm)

| Articolo | Stock | Inserto | Alesatura | Vite di staffaggio | Testina micro bareno |
|---|---|---|---|---|---|
| **FBB20N** | ● | TPGT080200L,TPGW080200 | ø20 ~ ø26mm | BXC0305 | FBH1920N |
| **FBB20N-C** | ● | CCET0401OOL | ø20 ~ ø26mm | BXC0305 | FBH1920N |
| **FBB20N-1** | | TPGT080200L,TPGW080200 | ø24 ~ ø30mm | BXC0305 | FBH1920N |
| **FBB20N-1-C** | | CCET0401OOL | ø24 ~ ø30mm | BXC0305 | FBH1920N |
| **FBB26N** | ● | TPGT080200L,TPGW080200 | ø26 ~ ø34mm | BXC0405 | FBH2526N |
| **FBB26N-C** | ● | CCET0401OOL | ø26 ~ ø34mm | BXC0405 | FBH2526N |
| **FBB26N-1** | | TPGT080200L,TPGW080200 | ø32 ~ ø40mm | BXC0405 | FBH2526N |
| **FBB26N-1-C** | | CCET0401OOL | ø32 ~ ø40mm | BXC0405 | FBH2526N |
| **FBB33N** | ● | TPGT080200L,TPGW080200 | ø33 ~ ø43mm | BXC0506 | FBH3233N |
| **FBB33N-C** | ● | CCMT060200,CCGT060200L | ø33 ~ ø43mm | BXC0506 | FBH3233N |
| **FBB33N-1** | | TPGT080200L,TPGW080200 | ø41~ ø50mm | BXC0506 | FBH3233N |
| **FBB33N-1-C** | | CCMT060200,CCGT060200L | ø41~ ø50mm | BXC0506 | FBH3233N |
| **FBB42N** | ● | TPGT080200L,TPGW080200 | ø42~ ø54mm | BXC0610 | FBH4042N |
| **FBB42N-C** | ● | CCMT060200,CCGT060200L | ø42~ ø54mm | BXC0610 | FBH4042N |
| **FBB42N-11** | ● | TPGT110300L | ø42~ ø54mm | BXC0610 | FBH4042N |
| **FBB42N-1** | | TPGT080200L,TPGW080200 | ø50~ ø62mm | BXC0610 | FBH4042N |
| **FBB42N-1-C** | | CCMT060200,CCGT060200L | ø50~ ø62mm | BXC0610 | FBH4042N |
| **FBB42N-1-T11** | | TPGT110300L | ø50~ ø62mm | BXC0610 | FBH4042N |
| **FBB53N** | ● | TPGT080200L,TPGW080200 | ø53~ ø70mm | BXC0610 | FBH5053N |
| **FBB53N-C** | ● | CCMT060200,CCGT060200L | ø53~ ø70mm | BXC0610 | FBH5053N |
| **FBB53N-C09** | | CCMT09T300,CCGT09T300L | ø53~ ø70mm | BXC0610 | FBH5053N |
| **FBB53N-11** | | TPGT110300L | ø53~ ø70mm | BXC0610 | FBH5053N |
| **FBB53N-1** | | TPGT080200L,TPGW080200 | ø65~ ø82mm | BXC0610 | FBH5053N |
| **FBB53N-1-C** | | CCMT060200,CCGT060200L | ø65~ ø82mm | BXC0610 | FBH5053N |
| **FBB53N-1-C09** | | CCMT09T300,CCGT09T300L | ø65~ ø82mm | BXC0610 | FBH5053N |
| **FBB53N-1-T11** | | TPGT110300L | ø65~ ø82mm | BXC0610 | FBH5053N |
| **FBB68N** | ● | TPGT080200L,TPGW080200 | ø68~ ø100mm, ø98~ ø150mm | BXC0810 | FBH6368N,FBH6398N |
| **FBB68N-C** | ● | CCMT09T300,CCGT09T300L | ø68~ ø100mm, ø98~ ø150mm | BXC0810 | FBH6368N,FBH6398N |
| **FBB68N-11** | ● | TPGT110300L | ø68~ ø100mm, ø98~ ø150mm | BXC0810 | FBH6368N,FBH6398N |
| **FBB68N-1** | | TPGT080200L,TPGW080200 | ø90~ ø122mm, ø120~ ø172mm | BXC0810 | FBH6368N,FBH6398N |
| **FBB68N-1-C09** | | CCMT09T300,CCGT09T300L | ø90~ ø122mm, ø120~ ø172mm | BXC0810 | FBH6368N,FBH6398N |
| **FBB68N-1-T11** | | TPGT110300L | ø90~ ø122mm, ø120~ ø172mm | BXC0810 | FBH6368N,FBH6398N |

• Inserti applicabili, vedere pag. B33~B34, B40

● : Disponibile ○ : A richiesta

## Sistema di codifica

| FBB | 20 | N | – | 1 |
|---|---|---|---|---|
| | Dia. min. di alesatura | Nuovo tipo | | Neutro : tipo generico<br>1 : tipo maggiorato |

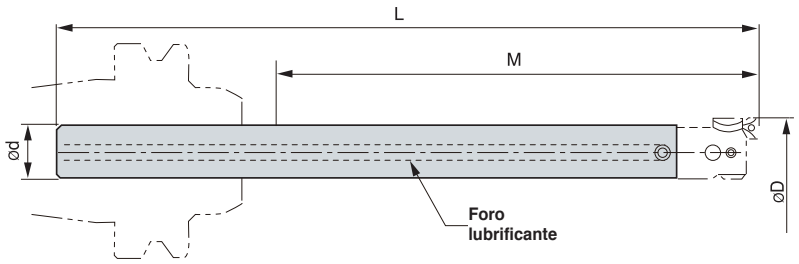
# I Micro bareno FBH

MAS403-BT

## Micro bareno modulare con attacco in acciaio/metallo duro

## S-FBH






(mm)

| Articolo | Stock | Dia. stelo ød | Alesatura øD | | Lung. totale L | Prof. max di alesatura M | Stelo standard | Testina micro bareno | Cartuccia |
|---|---|---|---|---|---|---|---|---|---|
| | | | min | max | | | | | |
| S19W - FBH20 - 120 | ● | 19 | 20 | 26(30) | 190 | 120 | S19W-MD19F - 157 | FBH1920N | FBB20N |
| 140 | ● | 19 | 20 | 26(30) | 210 | 140 | - 177 | FBH1920N | FBB20N |
| 160 | ● | 19 | 20 | 26(30) | 230 | 160 | - 197 | FBH1920N | FBB20N |
| S25W - FBH26 - 150 | ● | 25 | 26 | 34(40) | 235 | 150 | S25W-MD25F - 197.5 | FBH2526N | FBB26N |
| 175 | ● | 25 | 26 | 34(40) | 260 | 175 | - 222.5 | FBH2526N | FBB26N |
| 200 | | 25 | 26 | 34(40) | 285 | 200 | - 247.5 | FBH2526N | FBB26N |
| S32W - FBH33 - 180 | ● | 32 | 33 | 43(50) | 280 | 180 | S32W-MD32F - 239 | FBH3233N | FBB33N |
| 240 | ● | 32 | 33 | 43(50) | 340 | 240 | - 299 | FBH3233N | FBB33N |
| S19 - FBH20 - 40 | ● | 19 | 20 | 26(30) | 110 | 40 | S19-MD19 F- 77 | FBH1920N | FBB20N |
| - 60 | | 19 | 20 | 26(30) | 130 | 60 | - 97 | FBH1920N | FBB20N |
| - 80 | ● | 19 | 20 | 26(30) | 150 | 80 | - 117 | FBH1920N | FBB20N |
| S25 - FBH26 - 50 | ● | 25 | 26 | 34(40) | 135 | 50 | S25-MD25F - 97.5 | FBH2526N | FBB26N |
| - 75 | | 25 | 26 | 34(40) | 160 | 75 | - 122.5 | FBH2526N | FBB26N |
| - 100 | ● | 25 | 26 | 34(40) | 185 | 100 | - 147.5 | FBH2526N | FBB26N |
| S32 - FBH33 - 90 | ● | 32 | 33 | 43(50) | 190 | 90 | S32-MD32F - 149 | FBH3233N | FBB33N |
| - 120 | ● | 32 | 33 | 43(50) | 220 | 120 | - 179 | FBH3233N | FBB33N |

● : Disponibile ○ : A richiesta

- Alesatura: Diametro min. : 20.0mm, Diametro max. : 50.0mm
  È possibile sostituire il micro bareno con un bareno di altro tipo
- Lo stelo in metallo duro può essere usato L/D = 8 volte
- Sono disponibili vari tipi di inserti con vari gradi e rompitruciolo
- Il tipo con foro di lubrificazione è standard
- Testina micro bareno: vedere a pagina I 66
- Cartuccia: vedere a pagina I 67

*N : Nuovo tipo

## Sistema di codifica

| S | 19 | W | – | FBH20 | – | 160 |
|---|---|---|---|---|---|---|
| Attacco cilindrico | Dia. stelo | Neutro : Acciaio<br>W : Metallo duro | | Testina micro bareno | | Prof. max. di alesatura |

## Inserto

| Articolo | Grado | Applicazione | Vite | Chiave |
|---|---|---|---|---|
| CCET040100L | PC9030 | Acciaio inossidabile | FTNA0238 | T1006P |
| | CN1000 | Acciaio | | |
| | H01 | Allumino, lega di rame | | |

• Inserti applicabili, vedere pag. B33

## Micro bareno modulare con attacco in acciaio/metallo duro

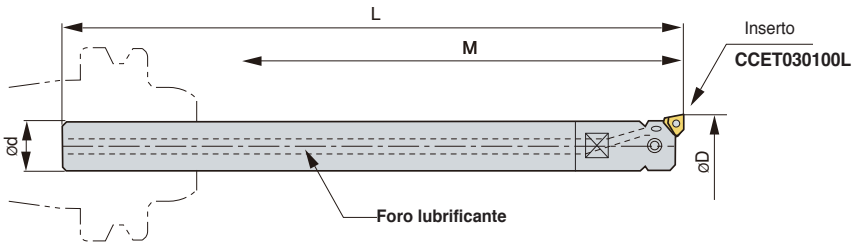
# S-FBH

| Articolo | Grado | Applicazione | Vite | Chiave |
|---|---|---|---|---|
| TPGT080200L<br>TPGW080200 | PCD:DA150 | Alluminio, lega di rame, metallo duro semi sinterizzato, gomma dura | BFTX0204A | TRX06 |
| | Cermet : CN1000 | Acciaio, ghisa | | |
| | cBN:DBN250 | Hardened Steel | | |
| TPGT110300L | Cermet : CN1000 | Acciaio, ghisa | BFTX0306A | TRX10 |
| CCGT060200L | Rivestito : PC5300, PC8110 | Acciaio, ghisa, acciaio inossidabile, leghe ad alte temperature | BFTX02506N | TRX08 |
| | Cermet : CN1000 | Acciaio, ghisa | | |
| CCMT060200 | Rivestito : NC3120, NC3030 | Steel | | |
| | Cermet : CN1000, CC105 | Acciaio, ghisa | | |
| CCMT09T300 | Rivestito : NC3120, Cermet : CN1000 | Acciaio, ghisa | BFTX0409N | TRX15 |

## Micro bareno di piccole dimensioni con attacco in acciaio/metallo duro

MAS403-BT



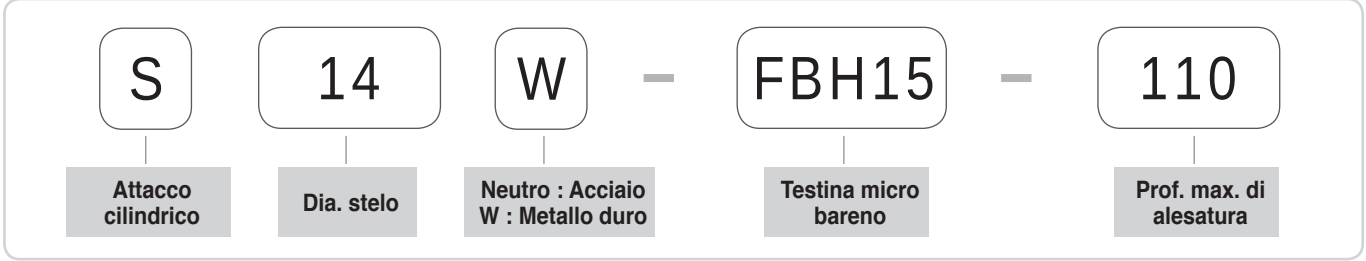



(mm)

| Articolo | Stock | Dia. stelo ød | Alesatura øD | | Lung. totale L | Prof. max di alesatura M | Stelo standard | Testina | Caratuccia |
|---|---|---|---|---|---|---|---|---|---|
| | | | min | max | | | | | |
| S14W - FBH15 - 85 | ● | 14 | 15 | 18 | 155 | 85 | S14W-M6-123 | FBH15 | FBB15-C |
| - 110 | ● | 14 | 15 | 18 | 180 | 110 | -148 | FBH15 | FBB15-C |
| S16W - FBH18 - 95 | ● | 16 | 18 | 22 | 165 | 95 | S16W-M8-128 | FBH18 | FBB15-C |
| - 125 | ● | 16 | 18 | 22 | 195 | 125 | -158 | FBH18 | FBB15-C |
| S14 - FBH15 - 40 | ● | 14 | 15 | 18 | 110 | 40 | S14-M6-78 | FBH15 | FBB15-C |
| - 55 | | 14 | 15 | 18 | 125 | 55 | -93 | FBH15 | FBB15-C |
| S16 - FBH18 - 45 | ● | 16 | 18 | 22 | 115 | 45 | S16-M8-78 | FBH18 | FBB15-C |
| - 60 | | 16 | 18 | 22 | 130 | 60 | -93 | FBH18 | FBB15-C |

● : Disponibile ○ : A richiesta

## Sistema di codifica




## Inserto

| Articolo | Grado | Applicazione | Vite | Chiave |
|---|---|---|---|---|
| CCET030100L | PC9030 | Acciaio inossidabile | FTNA01633 | TW06P |
| | CN1000 | Acciaio | | |
| | H01 | Alluminio, lega di rame | | |

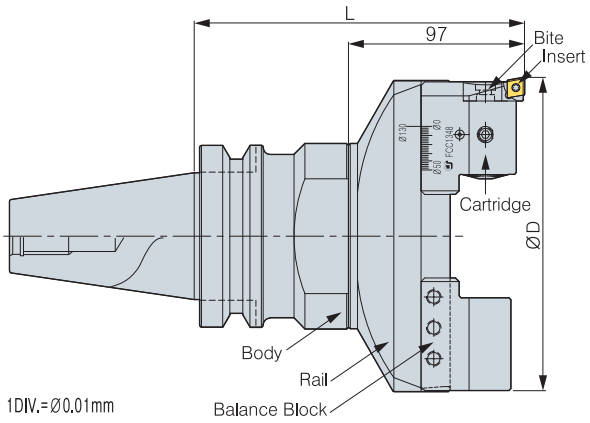
• Inserti applicabili, vedere pag. B33

## Utensile di bilanciamento per finitura (grandi diametri)

MAS403-BT

# BT-FBC






(mm)

| Articolo | Alesatura øD | | L | Corpo | Testina micro bareno | Cartuccia | kg |
|---|---|---|---|---|---|---|---|
| | min | max | | | | | |
| BT50 -FBC 130 -182 | 130 | 180 | 182 | BT50 - FMD50 - 85 | FBC130S (TBR130 + FCC130 + FCB130) | FBB130-C09 (CCMT09T300, CCGT09T300) FBB130-C12 (CCM120400) FBB130-T11 (TPMT110300, TPGT110300L) | 10.4 |
| 252 | 130 | 180 | 252 | 155 | | | 12.4 |
| 302 | 130 | 180 | 302 | 205 | | | 14.2 |
| 352 | 130 | 180 | 352 | 255 | | | 14.9 |
| BT50 -FBC 175 -182 | 175 | 225 | 182 | BT50 - FMD50 - 85 | FBC175S (TBR175 + FCC130 + FCB130) | | 11.4 |
| 252 | 175 | 225 | 252 | 155 | | | 13.4 |
| 302 | 175 | 225 | 302 | 205 | | | 15.2 |
| 352 | 175 | 225 | 352 | 255 | | | 15.9 |
| BT50 -FBC 220 -182 | 220 | 270 | 182 | BT50 - FMD50 - 85 | FBC220S (TBR220 + FCC130 + FCB130) | | 12.3 |
| 252 | 220 | 270 | 252 | 155 | | | 14.3 |
| 302 | 220 | 270 | 302 | 205 | | | 16.1 |
| 352 | 220 | 270 | 352 | 255 | | | 16.8 |
| BT50 -FBC 265 -182 | 265 | 315 | 182 | BT50 - FMD50 - 85 | FBC265S (TBR265 + FCC130 + FCB130) | | 13.8 |
| 252 | 265 | 315 | 252 | 155 | | | 15.8 |
| 302 | 265 | 315 | 302 | 205 | | | 17.6 |
| 352 | 265 | 315 | 352 | 255 | | | 18.3 |
| BT50 -FBC 310 -182 | 310 | 390 | 182 | BT50 - FMD50 - 85 | FBC310S (TBR310 + FCC310 + FCB310) | | 15.0 |
| 252 | 310 | 390 | 252 | 155 | | | 17.0 |
| 302 | 310 | 390 | 302 | 205 | | | 19.0 |
| 352 | 310 | 390 | 352 | 255 | | | 19.7 |
| BT50 -FBC 385 -182 | 385 | 465 | 182 | BT50 - FMD50 - 85 | FBC385S (TBR385 + FCC310 + FCB310) | | 17.0 |
| 252 | 385 | 465 | 252 | 155 | | | 19.0 |
| 302 | 385 | 465 | 302 | 205 | | | 20.8 |
| 352 | 385 | 465 | 352 | 255 | | | 21.5 |
| BT50 -FBC460 -182 | 460 | 540 | 182 | BT50 - FMD50 - 85 | FBC385S (TBR460 + FCC310 + FCB310) | | 19.5 |
| 252 | 460 | 540 | 252 | 155 | | | 21.5 |
| 302 | 460 | 540 | 302 | 205 | | | 23.3 |
| 352 | 460 | 540 | 352 | 255 | | | 24.0 |

※ Quando si utilizza la cartuccia FBB130-C12, aumentare il diametro minimo di alesatura di 6.7mm

※ Esempio d'ordine)
- BT50-FBC130-252
- Corpo : BT50-FMD50-155
- Testina : FBC-130S
- Cartuccia : FBB130-T11

## Corpo (Portainserti standard)

# BT-FMD, SK-FMD



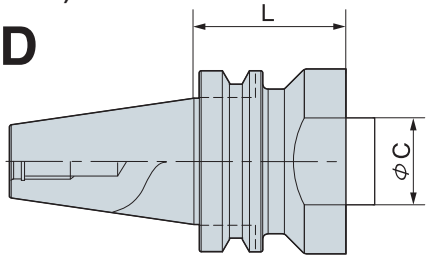



Fig. 1

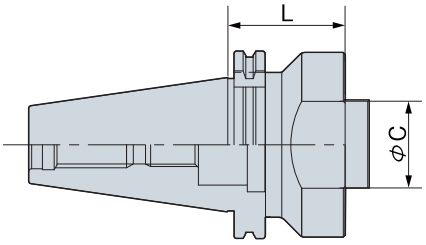



Fig. 2

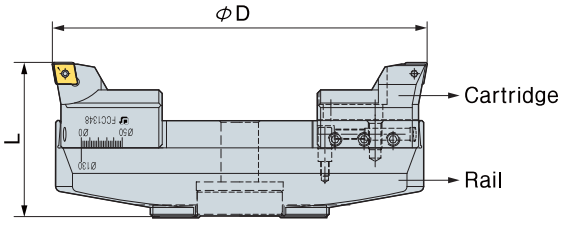
(mm)

| Articolo | Stock | L | øC | kg | Fig. |
|---|---|---|---|---|---|
| BT50 - FMD50- 85 | ● | 85 | 50 | 5.9 | 1 |
| FMD50-155 | ● | 155 | 50 | 7.9 | 1 |
| FMD50-205 | ● | 205 | 50 | 9.7 | 1 |
| FMD50-255 | | 255 | 50 | 10.4 | 1 |
| SK50 - FMD50- 85 | ● | 85 | 50 | 5.9 | 2 |
| FMD50-155 | ● | 155 | 50 | 7.9 | 2 |
| FMD50-205 | ● | 205 | 50 | 9.7 | 2 |
| FMD50-255 | | 255 | 50 | 10.4 | 2 |

● : Disponibile ○ : A richiesta

## Testina TBC





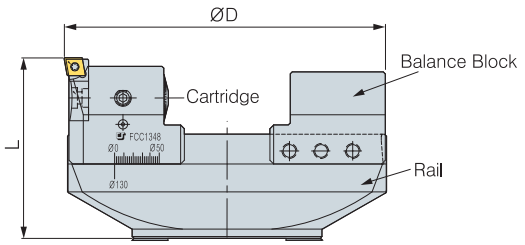

(mm)

| Articolo | Stock | Alesatura (ΦD) | | L | kg | Cartuccia | Inserto |
|---|---|---|---|---|---|---|---|
| | | min | max | | | | |
| TBC-130S | ● | 130 | 180 | 90 | 5.0 | BCC1348<br>BCN1348 | CCMT120400<br>CNMG120400 |
| TBC-175S | ● | 175 | 225 | 90 | 6.0 | BCC1348<br>BCN1348 | CCMT120400<br>CNMG120400 |
| TBC-220S | ● | 220 | 270 | 90 | 6.9 | BCC1348<br>BCN1348 | CCMT120400<br>CNMG120400 |
| TBC-265S | ● | 265 | 315 | 90 | 7.9 | BCC1348<br>BCN1348 | CCMT120400<br>CNMG120400 |
| TBC-310S | ● | 310 | 390 | 90 | 9.3 | BCC1354<br>BCN1354 | CCMT120400<br>CNMG120400 |
| TBC-385S | ● | 385 | 465 | 90 | 11.4 | BCC1354<br>BCN1354 | CCMT120400<br>CNMG120400 |
| TBC-460S | ● | 460 | 540 | 90 | 13.6 | BCC1354<br>BCN1354 | CCMT120400<br>CNMG120400 |

● : Disponibile ○ : A richiesta

## Testina **FBC**






1DIV.=⌀0.01mm

(mm)

| Articolo | Alesatura (øD) | | L | kg | Stock | Cartuccia |
|---|---|---|---|---|---|---|
| | min | max | | | | |
| **FBC-130S** | 130 | 180 | 97 | 4.1 | ● | |
| **FBC-175S** | 175 | 225 | 97 | 5.1 | ● | |
| **FBC-220S** | 220 | 270 | 97 | 6.0 | ● | FBB130-C09 |
| **FBC-265S** | 265 | 315 | 97 | 7.0 | ● | FBB130-C12 |
| **FBC-310S** | 310 | 390 | 97 | 8.0 | ● | FBB130-T11 |
| **FBC-385S** | 385 | 465 | 97 | 10.1 | ● | |
| **FBC-460S** | 460 | 540 | 97 | 12.3 | ● | |

● : Disponibile ○ : A richiesta

## Cartuccia **FBB**



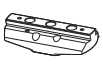
| Articolo | Stock | Inserto |
|---|---|---|
| **FBB130-C09** | ● | CCMT09T300, CCGT09T300 |
| **FBB130-C12** | ● | CCMT120400 |
| **FBB130-T11** | ● | TPMT110300, TPGT110300 |

• Inserti applicabili, vedere pag. B33~B34, B40

● : Disponibile ○ : A richiesta

## Parti di ricambio

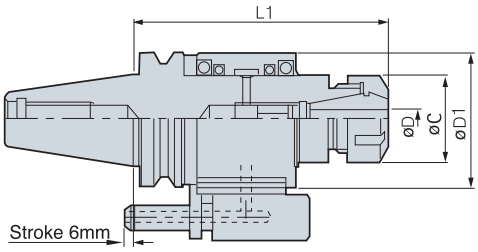
(mm)

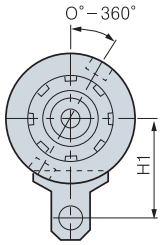
| Applicazione | Parti di ricambio | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Standard | | | | | | | | |
| | Binario | Cartuccia | Cartuccia | Vite di staffaggio | Vite di staffaggio | Contrappeso | Chiave | Vite di staffaggio | Chiave |
| Testina |  |  |  |  |  |  |  |  |  |
| TBC-130S | TBR130 | BCC1348 | - | BX0820 | BT0814 | - | LW-4 | BFTX0511N | TW20 |
| TBC-175S | TBR175 | BCC1348 | - | BX0820 | BT0814 | - | LW-4 | BFTX0511N | TW20 |
| TBC-220S | TBR220 | BCC1348 | - | BX0820 | BT0814 | - | LW-4 | BFTX0511N | TW20 |
| TBC-265S | TBR265 | BCC1348 | - | BX0820 | BT0814 | - | LW-4 | BFTX0511N | TW20 |
| TBC-310S | TBR310 | BCC1354 | - | BX0820 | BT0814 | - | LW-4 | BFTX0511N | TW20 |
| TBC-385S | TBR385 | BCC1354 | - | BX0820 | BT0814 | - | LW-4 | BFTX0511N | TW20 |
| TBC-460S | TBR460 | BCC1354 | - | BX0820 | BT0814 | - | LW-4 | BFTX0511N | TW20 |
| FBC-130S | TBR130 | - | FCC130 | BX0820 | BT0814 | FCB130 | LW-4 | - | - |
| FBC-175S | TBR175 | - | FCC130 | BX0820 | BT0814 | FCB130 | LW-4 | - | - |
| FBC-220S | TBR220 | - | FCC130 | BX0820 | BT0814 | FCB130 | LW-4 | - | - |
| FBC-265S | TBR265 | - | FCC130 | BX0820 | BT0814 | FCB130 | LW-4 | - | - |
| FBC-310S | TBR310 | - | FCC310 | BX0820 | BT0814 | FCB310 | LW-4 | - | - |
| FBC-385S | TBR385 | - | FCC310 | BX0820 | BT0814 | FCB310 | LW-4 | - | - |
| FBC-460S | TBR460 | - | FCC310 | BX0820 | BT0814 | FCB310 | LW-4 | - | - |

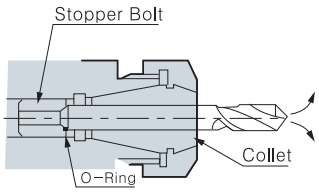
# OHDC

MAS403-BT






Impermeabile

(mm)

| Articolo | Stock | Alesatura (øD) min | Alesatura (øD) max | øC | D1 | L1 | H1 | Bussola | kg |
|---|---|---|---|---|---|---|---|---|---|
| BT40 - OHDC10-165 | | 4.0 | 10.0 | 28 | 90 | 165 | 65 | ER16C | 3.6 |
| OHDC20-165 | | 8.0 | 20.0 | 50 | 90 | 165 | 65 | ER32C | 3.7 |
| OHDC26-170 | | 10.0 | 26.0 | 63 | 90 | 170 | 65 | ER40C | 3.8 |
| BT50 - OHDC10-175 | | 4.0 | 10.0 | 28 | 105 | 175 | 80 | ER16C | 7.3 |
| OHDC20-180 | | 8.0 | 20.0 | 50 | 105 | 180 | 80 | ER32C | 7.5 |
| OHDC26-175 | | 10.0 | 26.0 | 63 | 105 | 175 | 80 | ER40C | 7.7 |

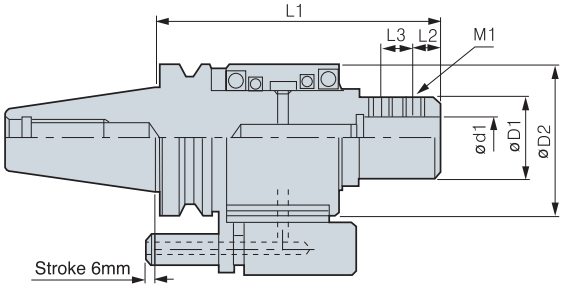
• Bussola : vedere a pagina I 29
• Chiave : Opzionale (vedere a pagina I 21)

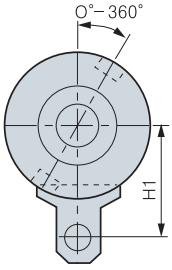
● : Disponibile ○ : A richiesta

# OHSL

MAS403-BT






(mm)

| Articolo | Stock | ød1 | øD1 | øD2 | L1 | H1 | L2 | L3 | M1 | kg |
|---|---|---|---|---|---|---|---|---|---|---|
| BT40-OHSL16-160 | | 16 | 48 | 90 | 160 | 65 | - | 25 | M12 x 1.75 | 3.8 |
| OHSL20-160 | | 20 | 48 | 90 | 160 | 65 | - | 25 | M12 x 1.75 | 3.9 |
| OHSL25-175 | | 25 | 48 | 90 | 175 | 65 | 15 | 20 | M12 x 1.75 | 4.1 |
| OHSL32-175 | | 32 | 50 | 90 | 175 | 65 | 15 | 20 | M10 x 1.5 | 4.7 |
| BT50-OHSL16-170 | | 16 | 48 | 105 | 170 | 80 | - | 25 | M12 x 1.75 | 7.6 |
| OHSL20-170 | | 20 | 48 | 105 | 170 | 80 | - | 25 | M12 x 1.75 | 7.8 |
| OHSL25-180 | | 25 | 55 | 105 | 180 | 80 | 15 | 20 | M12 x 1.75 | 8.0 |
| OHSL32-180 | | 32 | 60 | 105 | 180 | 80 | 15 | 20 | M12 x 1.75 | 8.2 |
| OHSL40-180 | | 40 | 65 | 105 | 180 | 80 | 15 | 20 | M12 x 1.75 | 8.4 |

● : Disponibile ○ : A richiesta

# BT-KSH

DIN 69871-1 A/B, ISO 7388-1 : 1983(E)



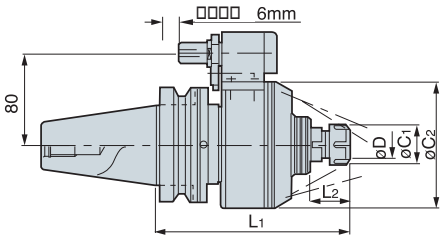



Fig. 1

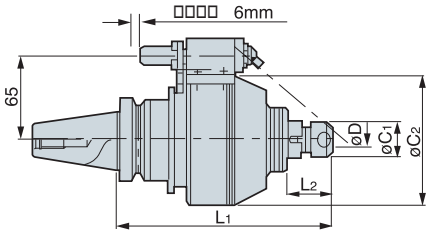



Fig. 2

(mm)

| Articolo | Stock | øD1 | L1 | L2 | øC1 | øC2 | Rapporto | Max.rpm | Bussola | kg |
|---|---|---|---|---|---|---|---|---|---|---|
| BT40- KSH510-165 | | 1.0~10.0 | 165 | 35 | 28 | 100 | 5 | 20,000 | GER16 | 4.6 |
| - KSH513-165 | | 1.0~13.0 | 165 | 35 | 35 | 100 | 5 | 20,000 | GER20 | 4.7 |
| BT50- KSH610-170 | | 1.0~10.0 | 170 | 35 | 28 | 110 | 6 | 24,000 | GER16 | 8.6 |
| - KSH613-170 | | 1.0~13.0 | 170 | 35 | 35 | 110 | 6 | 20,000 | GER20 | 8.7 |
| - KSH416-170 | | 2.0~16.0 | 170 | 35 | 42 | 110 | 4 | 12,000 | GER25 | 8.9 |

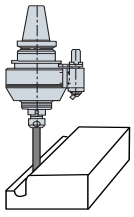
• Aumenta la velocità del mandrino di 4, 5, 6 volte (12,000rpm ~ 24,000rpm)
• Elevate efficienza e rigidità senza vibrazioni né rumorosità
• Bussola : Tipo di precisione, Tipo a elevata precisione (vedere a pagina I 29) • Il blocco di posizionamento è opzionale

● : Disponibile ○ : A richiesta

## Sistema di codifica

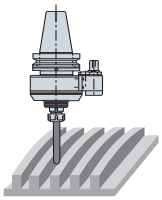
| BT50 | - | KSH | - | 5 | 13 | - | 165 |
|---|---|---|---|---|---|---|---|
| Mandrino | | Simbolo del Regolatore della velocità del mandrino | | Rapporto | Max. dia. di lavorazione | | Lunghezza |

## Esempio di applicazioni



**Base stampo**

• Pezzo lavorato : S55C
• Utensile: Fresa integrale in metallo duro ø8 (4 eliche)
• Condizioni di taglio
- V=250m/min - S=9,950rpm
- f=0.04mm/dente - F=1,592mm/min
- Ad=2mm



**Parte elettronica**

• Pezzo lavorato : Lega di alluminio
• Utensile : Fresa integrale a testa sferica R3 (2 eliche)
• Condizioni di taglio
- V=377m/min - S=20,010rpm
- f=0.18mm/dente - F=7,203mm/min
- Ad=0.6mm

## Parti di ricambio

| Parti di ricambio | | | |
|---|---|---|---|
| Applicazione | Standard | Opzionale | |
| | Dado | Chiave | Bussola GER-HP |
| Tipo |  |  |  |
| KSH510/610 | RT16 | 32-35 | GER 16-ΦDHP |
| KSH513/613 | RT20 | 35-38 | GER 20-ΦDHP |
| KSH416 | RT25 | 42-46 | GER 25-ΦDHP |



## Caratteristiche

1. Alloggiamento guida in acciaio, a elevata rigidità 2. Rivestimento speciale antiruggine 3. Disponibile con foro per lubrificante
4. Garantisce il trasferimento di potenza grazie all'ingranaggio di affilatura a leva 5.Varie testine intercambiabili

## Applicazione

1. Per la lavorazione di pezzi di grandi dimensioni che richiedono un maggior numero di regolazioni
2. Stessa precisione anche nelle lavorazioni multilaterali
3. Per la lavorazione di pezzi inclinati
4. Adatta per le lavorazioni in cui occorre mantenere una certa inclinazione come copiatura e lavorazioni con frese a testa sferica

## Vantaggi

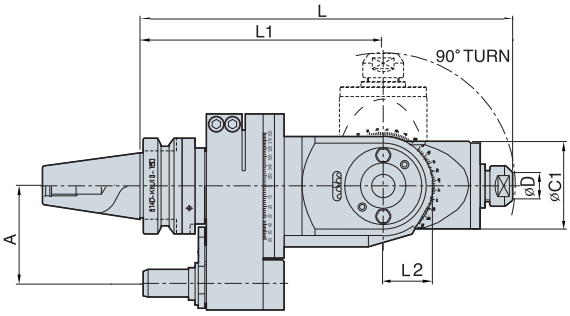
1. Aumento di due volte della produttività 2. Riduzione della rumorosità a 80db grazie all'ingranaggio di elevata precisione
3. Elevata precisione nelle lavorazioni di svasatura. Riduzione delle vibrazioni nell'area vicino alla bussola entro 0,005mm
4. Il design della testina consente molteplici funzioni 5. Grande convenienza 6. Look accattivante

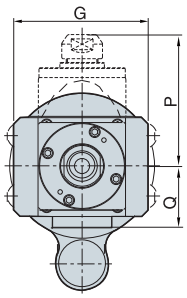
· Controllare limiti di peso e interferenza macchina prima di eseguire l'ordine
· Modelli speciali su richiesta del cliente
· Controllare la direzione di rotazione del mandrino prima di eseguire l'ordine

# BT-KHU

MAS403-BT






(mm)

| Articolo | Stock | L | $L_1$ | $L_2$ | øD | □C1 | G | P | Q | A | Max. rpm | Bussola | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BT40- KHU10-160 | ● | 247 | 160 | 33 | 1.0~10.0 | 58 | 90 | 87 | 87 | 87 | 40 | 6.000rpm | 6.4 |
| BT50- KHU10-180 | ● | 267 | 180 | 33 | 1.0~10.0 | 58 | 90 | 87 | 87 | 87 | 40 | 6,000rpm | 10.5 |
| BT50- KHU20-195 | ● | 315 | 195 | 47 | 2.0~20.0 | 84 | 124 | 120 | 120 | 120 | 63 | 3,000rpm | 15.8 |

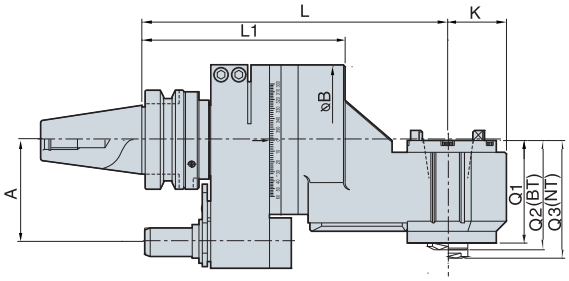
• Posizionamento a raggio libero in 360° e posizionamento assiale in 90°
• Il modello con foro di lubrificazione è opzionale
• Bussola : vedere a pagina I 29
• Chiave : vedere a pagina I 21
• Bussola maschio: Da concordare
• È possibile ordinare il modello HSK

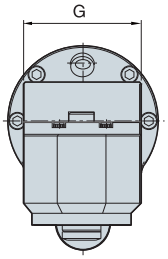
● : Disponibile ○ : A richiesta

# BT-KAG

MAS403-BT






(mm)

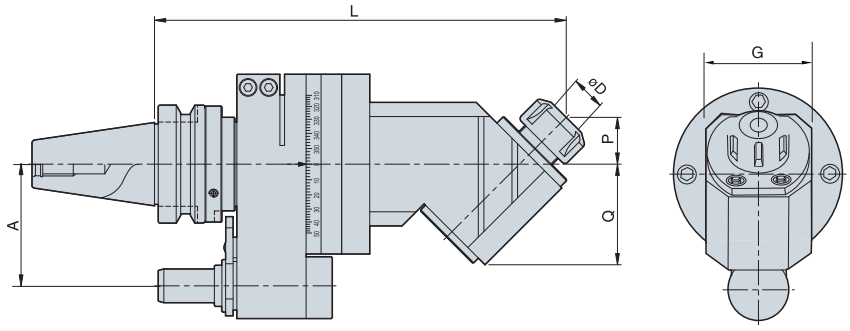
| Articolo | Stock | L | $L_1$ | K | G | Q1 | Q2 | Q3 | A | øB | Max. rpm | Bussola | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BT40-KAG30-195 | ● | 195 | 130 | 37.5 | 75 | 66 | 70 | 76 | 65 | 96 | 4,000rpm | BT30,NT30 | 7.6 |
| BT50-KAG40-230 | ● | 230 | 145 | 46.5 | 93 | 90 | 95 | 102 | 80(110) | 114 | 3,000rpm | BT40,NT40 | 14.8 |

• Posizionamento a raggio libero in 360°
• È possibile utilizzare un utensile versatile (BT40 o BT30)

● : Disponibile ○ : A richiesta

# Serie BT-KA (90°)

MAS403-BT




(mm)

| Articolo | | Stock | L | øD | G | P | Q | A | L1 | Max. rpm | Bussola | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BT40- | KAH07-170 | ● | 170 | 10 ~ 7.0 | 40 | 37 | 24.5 | 65 | 20 | 5,000rpm | GER11 | 4.6 |
| | KAH07-200 | ● | 200 | 1.0 ~ 7.0 | 40 | 37 | 24.5 | 65 | 20 | 5,000rpm | GER11 | 4.9 |
| | KAH10-165 | | 165 | 1.0 ~ 10.0 | 58 | 46 | 32 | 65 | 25 | 5,000rpm | GER16 | 5.6 |
| | KAH10-195 | ● | 195 | 1.0 ~ 10.0 | 58 | 46 | 32 | 65 | 25 | 5,000rpm | GER16 | 5.8 |
| | KAH10-240 | | 240 | 1.0 ~ 10.0 | 58 | 46 | 32 | 65 | 25 | 5,000rpm | GER16 | 6.1 |
| | KAH13-165 | ● | 165 | 1.0 ~ 13.0 | 60 | 53 | 35 | 65 | 28 | 5,000rpm | GER20 | 5.7 |
| | KAH13-195 | | 195 | 1.0 ~ 13.0 | 60 | 53 | 35 | 65 | 28 | 5,000rpm | GER20 | 5.9 |
| | KAH13-240 | | 240 | 1.0 ~ 13.0 | 60 | 53 | 35 | 65 | 28 | 5,000rpm | GER20 | 6.3 |
| | KAH20-180 | | 180 | 2.0 ~ 20.0 | 76 | 71 | 49 | 65 | 38 | 3,500rpm | GER32 | 6.7 |
| | KAH20-220 | | 220 | 2.0 ~ 20.0 | 76 | 71 | 49 | 65 | 38 | 3,500rpm | GER32 | 7.5 |
| BT50- | KAH07-190 | | 190 | 1.0 ~ 7.0 | 40 | 37 | 24.5 | 80(110) | 20 | 5,000rpm | GER11 | 9.5 |
| | KAH07-220 | | 220 | 1.0 ~ 7.0 | 40 | 37 | 24.5 | 80(110) | 20 | 5,000rpm | GER11 | 9.8 |
| | KAH10-185 | | 185 | 1.0 ~ 10.0 | 58 | 46 | 32 | 80(110) | 25 | 5,000rpm | GER16 | 10.5 |
| | KAH10-215 | | 215 | 1.0 ~ 10.0 | 58 | 46 | 32 | 80(110) | 25 | 5,000rpm | GER16 | 10.7 |
| | KAH10-260 | | 260 | 1.0 ~ 10.0 | 58 | 46 | 32 | 80(110) | 25 | 5,000rpm | GER16 | 11.0 |
| | KAH13-185 | | 185 | 1.0 ~ 13.0 | 60 | 53 | 35 | 80(110) | 28 | 5,000rpm | GER20 | 10.6 |
| | KAH13-215 | | 215 | 1.0 ~ 13.0 | 60 | 53 | 35 | 80(110) | 28 | 5,000rpm | GER20 | 10.8 |
| | KAH13-260 | | 260 | 1.0 ~ 13.0 | 60 | 53 | 35 | 80(110) | 28 | 5,000rpm | GER20 | 11.2 |
| | KAH20-200 | | 200 | 2.0 ~ 20.0 | 76 | 71 | 49 | 80(110) | 38 | 3,500rpm | GER32 | 11.6 |
| | KAH20-240 | ● | 240 | 2.0 ~ 20.0 | 76 | 71 | 49 | 80(110) | 38 | 3,500rpm | GER32 | 12.4 |

● : Disponibile ○ : A richiesta

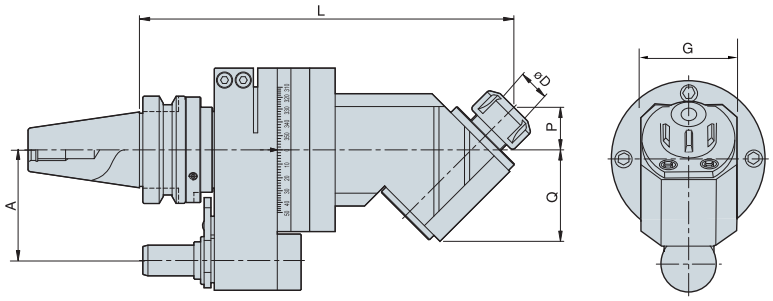
- Posizionamento a raggio libero in 360°
- Bussola : vedere a pagina I 29
- Bussola maschio: Da concordare
- È possibile ordinare il modello HSK

## Parti di ricambio

| Applicazione | Parti di ricambio | | | |
|---|---|---|---|---|
| | Standard | | Opzionale | |
| | Dado | Vite di regolazione | Chiave | Bussola GER |
| Tipo |  |  |  |  |
| KAH07 | R11 | BN0716F | S-17 | GER 11-ΦD |
| KAH10, KAC10 | R16 | BN1025F | S-25 | GER 16-ΦD |
| KAH13, KAC13 | RU20 | BN1325F | 35-38 | GER 20-ΦD |
| KAH20, KAC20 | RU40 | BN2230F | 48-52 | GER 32-ΦD |

# Serie BT-KAC (45°)

MAS403-BT




(mm)

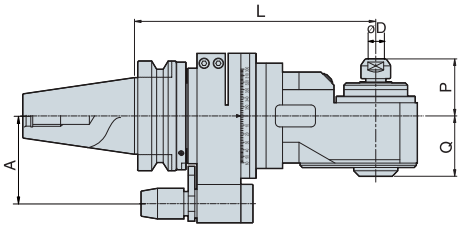
| Articolo | | Stock | L | ØD | G | P | Q | A | Max. rpm | Bussola | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BT40- | KAC10-220 | | 220 | 1.0 ~ 10.0 | 60 | 25 | 54 | 65 | 5,000rpm | GER16 | 5.3 |
| | KAC13-220 | | 220 | 1.0 ~ 13.0 | 60 | 25 | 54 | 65 | 5,000rpm | GER20 | 5.5 |
| | KAC20-230 | | 230 | 2.0 ~ 20.0 | 72 | 30 | 60 | 65 | 3,500rpm | GER32 | 6.8 |
| BT50- | KAC10-240 | | 240 | 1.0 ~ 10.0 | 60 | 25 | 54 | 80(110) | 5,000rpm | GER16 | 10.2 |
| | KAC13-240 | | 240 | 1.0 ~ 13.0 | 60 | 25 | 54 | 80(110) | 5,000rpm | GER20 | 10.4 |
| | KAC20-250 | | 250 | 2.0 ~ 20.0 | 72 | 30 | 60 | 80(110) | 3,500rpm | GER32 | 11.7 |

● : Disponibile ○ : A richiesta

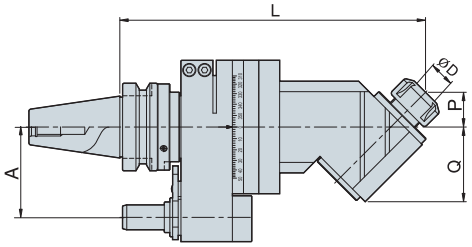
- Posizionamento a raggio libero in 360°
- Bussola : vedere a pagina I 29
- Chiave : vedere a pagina I 21
- Bussola maschio: Da concordare
- È possibile ordinare il modello HSK

# BT-KAHZ(90°), KACX(45°)

MAS403-BT




KAHZ




KACX

(mm)

| Articolo | | Stock | L | øD | P | Q | A | Max. rpm | Bussola | kg |
|---|---|---|---|---|---|---|---|---|---|---|
| BT40- | KAHZ10-200 | | 200 | 1.0~10.0 | 55 | 65 | 65 | 18,000rpm | GER16 | 6.9 |
| | KACX10-220 | | 220 | 1.0~10.0 | 54 | 65 | 65 | 8,000rpm | GER16 | 5.3 |
| BT50- | KAHZ10-220 | | 220 | 1.0~10.0 | 55 | 80(110) | 80(110) | 18,000rpm | GER16 | 11.8 |
| | KACX10-240 | | 240 | 1.0~10.0 | 54 | 80(110) | 80(110) | 8,000rpm | GER16 | 10.2 |

● : Disponibile ○ : A richiesta

- Posizionamento a raggio libero in 360°
- Indicata per la lavorazione di leghe di alluminio e materiale non ferroso, plastica ecc.
- Bussola : vedere a pagina I 29
- Chiave : vedere a pagina I 29
- È possibile ordinare il modello HSK

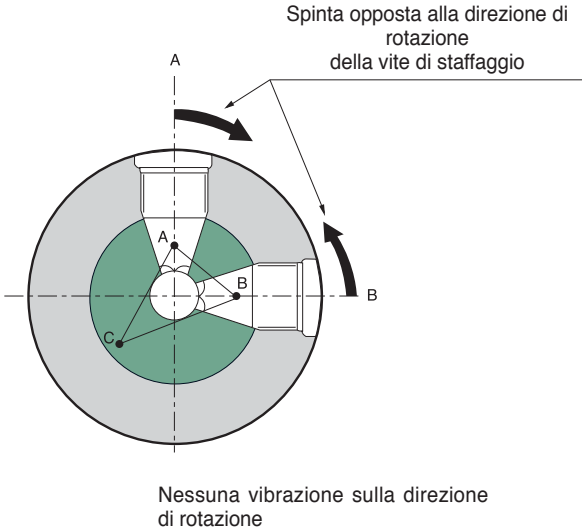
| | | | | |
|---|---|---|---|---|
|  |  |  |  |  |
| **HSK, BT, MT, S-MD** | **EXT** | **RDC** | **HD-SDC** | **HD-MPU** |
| I 80 | I 83 | I 84 | I 85 | I 86 |

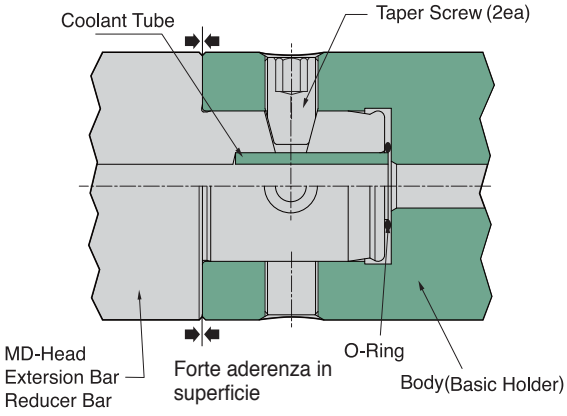
| | | | | |
|---|---|---|---|---|
|  |  |  |  | |
| **MD-SLA** | **MD-SMH** | **MD-SMB** | **MD-KMB** | |
| I 87 | I 88 | I 88 | I 89 | |

## Caratteristiche

- Utensile versatile conforme alle specifiche FMS
- Combinazione flessibile degli utensili in funzione delle condizioni
- Lo speciale design della vite garantisce precisione elevata (margine di errore inferiore a 5㎛) e agevole sostituzione dell'utensile
- Tagliente di alesatura allineato con la scanalatura della chiave di avanzamento
- Stessa precisione e rigidità del modello a corpo intero



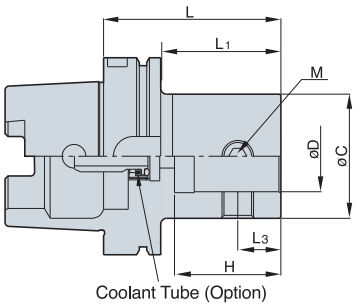


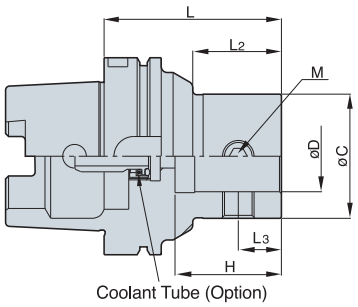



# HSK-MD

DIN 69893-1, ISO 12164-1 : 2001






(mm)

| Articolo | | Stock | øD | øC | L | L1 | L2 | L3 | H | K |
|---|---|---|---|---|---|---|---|---|---|---|
| HSK 50A- | MD19F- 60 | | 11 | 19 | 60 | 36 | 20 | 6.5 | 15 | M5 |
| | MD25F- 60 | | 14 | 25 | 60 | 34 | 18 | 8 | 23 | M6 |
| | MD32F- 70 | | 18 | 32 | 70 | 44 | 28 | 11 | 28 | M8 |
| | MD40F- 75 | | 22 | 40 | 75 | 49 | 33 | 13 | 33 | M10 |
| | MD50F- 95 | | 28 | 50 | 95 | 69 | 53 | 17 | 44 | M12 |
| HSK 63A- | MD19F- 60 | | 11 | 19 | 60 | 36 | 20 | 6.5 | 15 | M5 |
| | MD25F- 60 | | 14 | 25 | 60 | 34 | 18 | 8 | 23 | M6 |
| | MD32F- 65 | | 18 | 32 | 65 | 39 | 23 | 11 | 28 | M8 |
| | MD40F- 70 | | 22 | 40 | 70 | 44 | 28 | 13 | 33 | M10 |
| | MD50F- 85 | | 28 | 50 | 85 | 59 | 43 | 17 | 44 | M12 |
| | MD63F- 95 | | 36 | 63 | 95 | 69 | 53 | 22 | 54 | M16 |
| HSK100A- | MD19F- 60 | | 11 | 19 | 60 | 36 | 20 | 6.5 | 15 | M5 |
| | MD25F- 60 | | 14 | 25 | 60 | 36 | 20 | 8 | 23 | M6 |
| | MD32F- 65 | | 18 | 32 | 65 | 36 | 20 | 11 | 28 | M8 |
| | MD40F- 70 | | 22 | 40 | 70 | 41 | 25 | 13 | 33 | M10 |
| | MD50F- 80 | | 28 | 50 | 80 | 51 | 35 | 17 | 44 | M12 |
| | MD63F- 90 | | 36 | 63 | 90 | 61 | 45 | 22 | 54 | M16 |
| | MD80F- 105 | | 45 | 80 | 105 | 76 | 60 | 27 | 65 | M16 |
| | MD90F- 105 | | 45 | 90 | 105 | 76 | 60 | 27 | 65 | M16 |

● : Disponibile ○ : A richiesta

## Parti di ricambio

| Applicazione | Parti di ricambio | |
|---|---|---|
| | Standard | Opzionale |
| | Vite conica | Chiave |
| Tipo |  |  |
| MD19F | BTT0506F | LW-2.5 |
| MD25F | BTT0608F | LW-3 |
| MD32F | BTT0810F | LW-4 |
| MD40F | BTT1013F | LW-5 |
| MD50F | BTT1215F | LW-6 |
| MD63F | BTT1620F | LW-8 |
| MD80F | BTT1626F | LW-8 |
| MD90F | BTT1631F | LW-8 |

# BT-MD

MAS403-BT



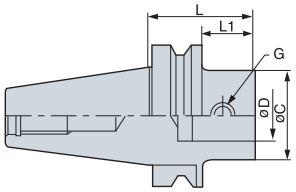



Fig. 1

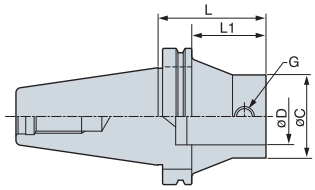



Fig. 2

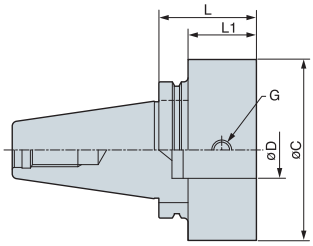



Fig. 3

(mm)

| Articolo | | Stock | øC | øD | L | $L_1$ | G | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|
| BT30- | MD19F - 35 | | 19 | 11 | 35 | 13 | M5 | 0.3 | 1 |
| | - 70 | ● | 19 | 11 | 70 | 48 | M5 | 0.4 | 1 |
| | MD25F - 40 | | 25 | 14 | 40 | 18 | M6 | 0.3 | 1 |
| | - 90 | ● | 25 | 14 | 90 | 68 | M6 | 0.4 | 1 |
| | MD32F - 54 | | 32 | 18 | 54 | 32 | M8 | 0.4 | 1 |
| | - 80 | ● | 32 | 18 | 80 | 58 | M8 | 0.4 | 1 |
| | MD40F - 45 | | 40 | 22 | 45 | 23 | M10 | 0.4 | 1 |
| | - 60 | ● | 40 | 22 | 60 | 38 | M10 | 0.45 | 1 |
| | - 80 | ● | 40 | 22 | 80 | 58 | M10 | 0.5 | 1 |
| | - 110 | | 40 | 22 | 110 | 88 | M10 | 0.8 | 1 |
| | MD50F - 55 | | 50 | 28 | 55 | 33 | M12 | 0.7 | 3 |
| | - 70 | ● | 50 | 28 | 70 | 48 | M12 | 0.8 | 3 |
| BT40- | MD19F - 40 | | 19 | 11 | 40 | 13 | M5 | 1.6 | 1 |
| | - 70 | ● | 19 | 11 | 70 | 43 | M5 | 1.8 | 1 |
| | MD25F - 45 | | 25 | 14 | 45 | 18 | M6 | 1.7 | 1 |
| | - 95 | ● | 25 | 14 | 95 | 68 | M6 | 1.9 | 1 |
| | - 105R | ● | 25 | 14 | 105 | 78 | M6 | 1.9 | 2 |
| | MD32F - 45 | | 32 | 18 | 45 | 18 | M8 | 1.7 | 1 |
| | - 100 | ● | 32 | 18 | 100 | 73 | M8 | 2.3 | 1 |
| | -115R | ● | 32 | 18 | 115 | 88 | M8 | 2.4 | 2 |
| | MD40F - 50 | | 40 | 22 | 50 | 23 | M10 | 2.7 | 1 |
| | - 60 | ● | 40 | 22 | 60 | 33 | M10 | 2.7 | 1 |
| | - 110R | ● | 40 | 22 | 110 | 83 | M10 | 2.7 | 2 |
| | - 115 | ● | 40 | 22 | 115 | 88 | M10 | 2.7 | 1 |
| | MD50F- 60 | | 50 | 28 | 60 | 33 | M12 | 2.3 | 1 |
| | - 100R | ● | 50 | 28 | 100 | 73 | M12 | 2.7 | 2 |
| | - 105 | ● | 50 | 28 | 105 | 78 | M12 | 2.7 | 1 |
| | MD63F - 64 | ● | 63 | 36 | 64 | 37 | M16 | 3.3 | 3 |
| | - 90 | ● | 63 | 36 | 90 | 63 | M16 | 3.6 | 3 |
| | - 110 | ● | 63 | 36 | 110 | 83 | M16 | 4.6 | 3 |
| | - 135 | ● | 63 | 36 | 135 | 108 | M16 | 4.7 | 3 |
| | MD80F - 70 | | 80 | 45 | 70 | 43 | M16 | 4.7 | 3 |
| | - 100 | ● | 80 | 45 | 100 | 73 | M16 | 4.8 | 3 |
| BT50- | MD19F - 50 | | 19 | 11 | 50 | 12 | M5 | 4.0 | 1 |
| | - 85 | ● | 19 | 11 | 85 | 47 | M5 | 4.3 | 1 |
| | - 100 | ● | 19 | 11 | 100 | 62 | M5 | 4.3 | 1 |
| | MD25F - 55 | | 25 | 14 | 55 | 17 | M6 | 4.3 | 1 |
| | - 105 | ● | 25 | 14 | 105 | 67 | M6 | 4.5 | 1 |
| | - 120R | ● | 25 | 14 | 120 | 82 | M6 | 4.7 | 2 |
| | MD32F - 60 | | 32 | 18 | 60 | 22 | M8 | 4.3 | 1 |
| | - 110 | ● | 32 | 18 | 110 | 72 | M8 | 5.1 | 1 |
| | - 115R | ● | 32 | 18 | 115 | 77 | M8 | 5.1 | 2 |
| | - 235R | ● | 32 | 18 | 235 | 148 | M8 | 5.1 | 2 |
| | MD40F - 60 | ● | 40 | 22 | 60 | 22 | M10 | 5.0 | 1 |
| | - 125R | ● | 40 | 22 | 125 | 87 | M10 | 5.1 | 2 |
| | - 145 | ● | 40 | 22 | 145 | 107 | M10 | 5.1 | 1 |

● : Disponibile ○ : A richiesta

# BT-MD

(mm)

| Articolo | | Stock | øC | øD | L | $L_1$ | G | kg | Fig. |
|---|---|---|---|---|---|---|---|---|---|
| BT50- | MD40F - 195 | ● | 40 | 22 | 195 | 157 | M10 | 5.4 | 1 |
| | - 230R | ● | 40 | 22 | 230 | 192 | M10 | 5.6 | 2 |
| | MD50F - 70 | | 50 | 28 | 70 | 22 | M12 | 5.6 | 1 |
| | - 125 | ● | 50 | 28 | 125 | 87 | M12 | 6.0 | 1 |
| | - 160R | ● | 50 | 28 | 160 | 122 | M12 | 6.2 | 2 |
| | - 225 | ● | 50 | 28 | 225 | 187 | M12 | 8.4 | 1 |
| | - 250R | ● | 50 | 28 | 250 | 212 | M12 | 6.5 | 2 |
| | MD63F - 75 | ● | 63 | 36 | 75 | 37 | M12 | 6.8 | 1 |
| | - 130 | ● | 63 | 36 | 130 | 92 | M16 | 6.0 | 1 |
| | - 140 | ● | 63 | 36 | 140 | 92 | M16 | 6.0 | 1 |
| | - 140R | ● | 63 | 36 | 140 | 102 | M16 | 6.0 | 2 |
| | - 195 | ● | 63 | 36 | 195 | 157 | M16 | 8.0 | 1 |
| | - 230 | ● | 63 | 36 | 230 | 192 | M16 | 8.4 | 1 |
| | - 240R | ● | 63 | 36 | 240 | 202 | M16 | 8.4 | 2 |
| | MD80F - 75 | ● | 80 | 45 | 75 | 37 | M16 | 9.1 | 1 |
| | - 110 | ● | 80 | 45 | 110 | 72 | M16 | 9.4 | 1 |
| | - 175 | ● | 80 | 45 | 175 | 137 | M16 | 9.5 | 1 |
| | MD90F - 75 | ● | 90 | 45 | 75 | 37 | M16 | 9.8 | 1 |
| | - 145 | ● | 90 | 45 | 145 | 107 | M16 | 10.2 | 1 |
| | - 195 | | 90 | 45 | 195 | 157 | M16 | 10.4 | 1 |
| MT6- | MD19F - 30 | | 19 | 11 | 30 | | M5 | | |
| | MD25F - 30 | | 25 | 14 | 30 | | M6 | | |
| | MD32F - 35 | | 32 | 18 | 35 | | M8 | | |
| | MD40F - 45 | | 40 | 22 | 45 | | M10 | | |
| | MD50F - 45 | | 50 | 28 | 45 | | M12 | | |
| | MD63F - 45 | | 63 | 36 | 45 | | M16 | | |
| | MD80F - 75 | | 80 | 45 | 75 | | M16 | | |
| | MD90F - 75 | | 90 | 45 | 75 | 22 | M16 | | |
| S32- | MD40F - 22 | | 40 | 22 | 102 | 60 | M10 | | |
| | MD63F - 60 | | 63 | 36 | 140 | 22 | M16 | | |
| S42- | MD40F - 22 | | 40 | 22 | 102 | 60 | M10 | | |
| | MD63F - 60 | | 63 | 36 | 140 | | M16 | | |

● : Disponibile ○ : A richiesta

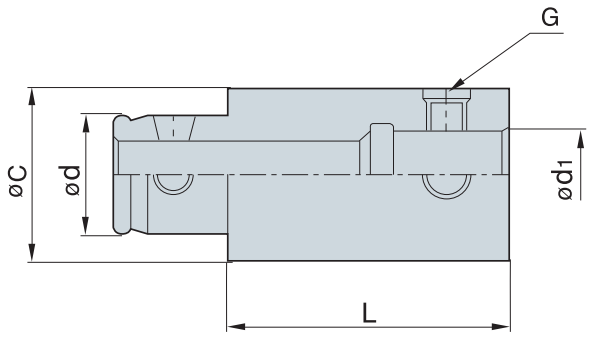
- Oltre ai modelli riportati sopra, è possibile produrre anche portainserti standard su richiesta
- Selezionare il modello in funzione dell'attacco del mandrino

## Parti di ricambio

| Applicazione | Parti di ricambio | |
|---|---|---|
| | Standard | Opzionale |
| | Vite conica | Chiave |
| Tipo |  |  |
| MD19F | BTT0506F | LW-2.5 |
| MD25F | BTT0608F | LW-3 |
| MD32F | BTT0810F | LW-4 |
| MD40F | BTT1013F | LW-5 |
| MD50F | BTT1215F | LW-6 |
| MD63F | BTT1620F | LW-8 |
| MD80F | BTT1626F | LW-8 |
| MD90F | BTT1631F | LW-8 |

# EXT






(mm)

| Articolo | | Stock | øC | ød | L | ød1 | G |
|---|---|---|---|---|---|---|---|
| EXT | 1930F | ● | 19 | 11 | 30 | 11 | M5 |
| | 1950F | ● | 19 | 11 | 50 | 11 | M5 |
| | 2530F | ● | 25 | 14 | 30 | 14 | M6 |
| | 2550F | ● | 25 | 14 | 50 | 14 | M6 |
| | 3235F | ● | 32 | 18 | 35 | 18 | M8 |
| | 3260F | ● | 32 | 18 | 60 | 18 | M8 |
| | 4040F | ● | 40 | 22 | 40 | 22 | M10 |
| | 4090F | ● | 40 | 22 | 90 | 22 | M12 |
| | 5050F | ● | 50 | 28 | 50 | 28 | M12 |
| | 50100F | ● | 50 | 28 | 100 | 28 | M12 |
| | 6360F | ● | 63 | 36 | 60 | 36 | M16 |
| | 63120F | ● | 63 | 36 | 120 | 36 | M16 |
| | 8070F | ● | 80 | 45 | 70 | 45 | M16 |
| | 80120F | ● | 80 | 45 | 120 | 45 | M16 |
| | 9080F | ● | 90 | 45 | 80 | 45 | M16 |
| | 90130F | ● | 90 | 45 | 130 | 45 | M16 |

• Oltre ai modelli riportati sopra, è possibile produrre anche barre di estensione su richiesta

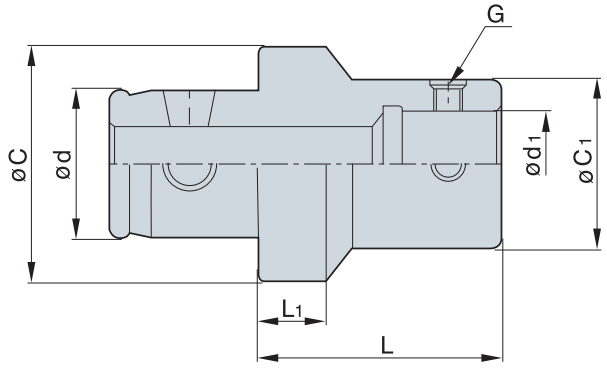
● : Disponibile ○ : A richiesta

## Parti di ricambio

| Applicazione | Parti di ricambio | | |
|---|---|---|---|
| | Standard | | Opzionale |
| | Vite conica | Sede della molla | Chiave |
| Tipo |  |  |  |
| MD19F | BTT0506F | - | LW-2.5 |
| MD25F | BTT0608F | SP0308 | LW-3 |
| MD32F | BTT0810F | SP0410 | LW-4 |
| MD40F | BTT1013F | SP0516 | LW-5 |
| MD50F | BTT1215F | SP0616 | LW-6 |
| MD63F | BTT1620F | SP0818 | LW-8 |
| MD80F | BTT1626F | SP1020 | LW-8 |
| MD90F | BTT1631F | SP1020 | LW-8 |

# RDC






(mm)

| Articolo | Stock | ød | øC1 | ød1 | øC | L | L1 | G |
|---|---|---|---|---|---|---|---|---|
| RDC 3225F | ● | 18 | 25 | 14 | 32 | 30 | 9 | M6 |
| 4025F | ● | 22 | 25 | 14 | 40 | 30 | 9 | M6 |
| 4032F | ● | 22 | 32 | 18 | 40 | 30 | 9 | M8 |
| 5025F | ● | 28 | 25 | 14 | 50 | 30 | 9 | M6 |
| 5032F | ● | 28 | 32 | 18 | 50 | 30 | 9 | M8 |
| 5040F | ● | 28 | 40 | 22 | 50 | 40 | 10 | M10 |
| 6325F | ● | 36 | 25 | 14 | 63 | 30 | 9 | M6 |
| 6332F | ● | 36 | 32 | 18 | 63 | 30 | 9 | M8 |
| 6340F | ● | 36 | 40 | 22 | 63 | 40 | 10 | M10 |
| 6350F | ● | 36 | 50 | 28 | 63 | 45 | 10 | M12 |
| 8032F | ● | 45 | 32 | 18 | 80 | 30 | 9 | M6 |
| 8040F | ● | 45 | 40 | 22 | 80 | 40 | 10 | M10 |
| 8050F | ● | 45 | 50 | 28 | 80 | 45 | 10 | M12 |
| 8063F | ● | 45 | 63 | 36 | 80 | 50 | 13 | M16 |

• Oltre ai modelli riportati sopra, è possibile produrre anche barre di estensione su richiesta

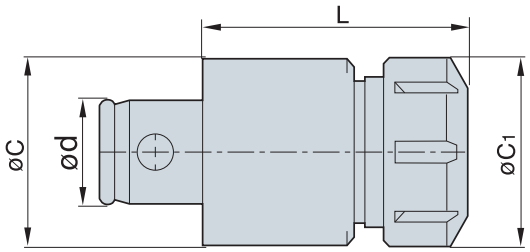
● : Disponibile ○ : A richiesta

## Parti di ricambio

| Applicazione | Parti di ricambio | | |
|---|---|---|---|
| | Standard | | Opzionale |
| | Vite conica | Sede della molla | Chiave |
| Tipo |  |  |  |
| MD25F | BTT0608F | SP0308 | LW-3 |
| MD32F | BTT0810F | SP0410 | LW-4 |
| MD40F | BTT1013F | SP0516 | LW-5 |
| MD50F | BTT1215F | SP0616 | LW-6 |
| MD63F | BTT1620F | SP0818 | LW-8 |
| MD80F | BTT1626F | SP1020 | LW-8 |

# RDC






(mm)

| Articolo | | Stock | Dia. di lavorazione | øC | ød | øC1 | L | Bussola | Gamma |
|---|---|---|---|---|---|---|---|---|---|
| SDC | 2507F | | ø1.0 ~ ø7.0 | 25 | 14 | 19 | 45 | GER11 | 0.5 |
| | 2510F | | ø1.0 ~ ø10.0 | 25 | 14 | 28 | 50 | GER16 | 1.0 |
| | 3213 | | ø1.0 ~ ø13.0 | 32 | 18 | 35 | 60 | GER20 | 1.0 |
| | 4013 | | ø1.0 ~ ø13.0 | 40 | 22 | 35 | 65 | GER20 | 1.0 |
| | 5020 | | ø2.0 ~ ø20 | 50 | 28 | 50 | 76 | GER32 | 1.0 |
| | 6326 | | ø3.0 ~ ø26 | 63 | 36 | 63 | 90 | GER40 | 1.0 |

• Oltre ai modelli riportati sopra, è possibile produrre anche barre di estensione su richiesta

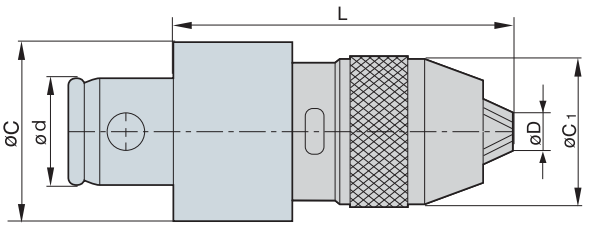
● : Disponibile ○ : A richiesta

## Parti di ricambio

| Applicazione | Parti di ricambio | | | | |
|---|---|---|---|---|---|
| | Standard | | | Opzionale | |
| | Dado | Vite di regolazione | Sede della molla | Chiave | Bussola GER |
| Tipo |  |  |  |  |  |
| SDC2507F | R11 | BN0716F | SP0308 | S-17 | GER11-ΦD |
| SDC2510 | R16 | BN1025F | SP0308 | 32-25 | GER16-ΦD |
| SDC3213 | RU20 | BN1325F | SP0410 | 35-38 | GER20-ΦD |
| SDC4013 | RU20 | BN1830F | SP0516 | 35-38 | GER20-ΦD |
| SDC5020 | RU32 | BN2230F | SP0616 | 48-52 | GER32-ΦD |
| SDC6326 | RU40 | BN2838F | SP0818 | 62-65 | GER40-ΦD |

# MD-NPU






(mm)

| Articolo | | Stock | Dia. di lavorazione øD | | øC | ød | øC1 | L |
|---|---|---|---|---|---|---|---|---|
| | | | min | max | | | | |
| NPU | 4008 | | 0 | 8 | 40 | 22 | 38 | 115 |
| | 5008 | | 0 | 8 | 50 | 28 | 38 | 115 |
| | 5013 | | 1 | 13 | 50 | 28 | 50 | 145 |
| | 6308 | | 0 | 8 | 63 | 36 | 38 | 115 |
| | 6313 | | 1 | 13 | 63 | 36 | 50 | 145 |

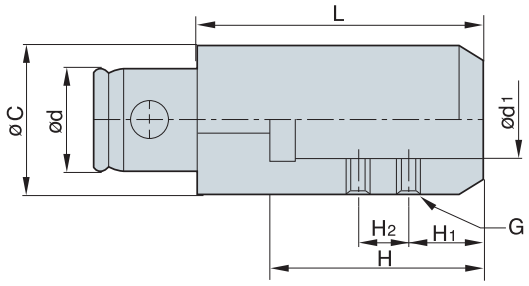
● : Disponibile ○ : A richiesta

## Parti di ricambio

| Applicazione | Parti di ricambio | | |
|---|---|---|---|
| | Standard | | Opzionale |
| | Manddrino | Sede della molla | Chiave |
| Tipo |  |  |  |
| NPU4008 | NPU08 | SP0516 | NPU0836 |
| NPU5008 | NPU08 | SP0616 | NPU0836 |
| NPU5013 | NPU13 | SP0616 | NPU1348 |
| NPU6308 | NPU08 | SP0818 | NPU0836 |
| NPU6313 | NPU13 | SP0818 | NPU1348 |

# MD-SLA






(mm)

| Articolo | | Stock | øC | ød | ød1 | L | H | H1 | H2 | G |
|---|---|---|---|---|---|---|---|---|---|---|
| SLA | 5012 | | 50 | 28 | 12 | 55 | 50 | 14 | 13 | M 8 |
| | 5016 | | 50 | 28 | 16 | 55 | 50 | 20 | - | M10 |
| | 5020 | | 50 | 28 | 20 | 60 | 50 | 25 | - | M12 |
| | 6312 | | 63 | 36 | 12 | 55 | 50 | 14 | 13 | M 8 |
| | 6316 | | 63 | 36 | 16 | 55 | 50 | 20 | - | M10 |
| | 6320 | | 63 | 36 | 20 | 60 | 50 | 25 | - | M12 |
| | 6325 | | 63 | 36 | 25 | 80 | 70 | 24 | 25 | M12 |
| | 6332 | | 63 | 36 | 32 | 85 | 80 | 25 | 20 | M14 |
| | 8040 | | 80 | 45 | 40 | 85 | 80 | 25 | 25 | M16 |

● : Disponibile ○ : A richiesta

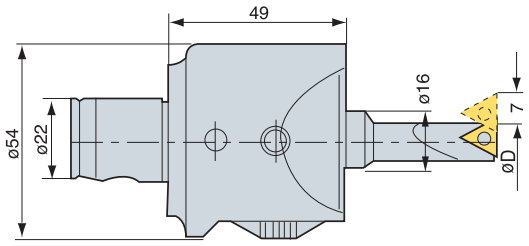
## Parti di ricambio

| Applicazione | Parti di ricambio | | | |
|---|---|---|---|---|
| | Standard | | | Opzionale |
| | Vite per il kit | Vite di regolazione | Sede della molla | Chiave |
| Tipo |  |  |  |  |
| SLA5012 | BTF0808 | BN1030C | SP0616 | LW-4 |
| SLA5016 | BTF1010 | BN1240C | SP0616 | LW-5 |
| SLA5020 | BTF1212 | BN1240C | SP0616 | LW-6 |
| SLA6312 | BTF0808 | BN1030C | SP0818 | LW-4 |
| SLA6316 | BTF1010 | BN1240C | SP0818 | LW-5 |
| SLA6320 | BTF1212 | BN1240C | SP0818 | LW-6 |
| SLA6325 | BTF1212 | BN1240C | SP0818 | LW-6 |
| SLA6332 | BTF1414 | BN1240C | SP0818 | LW-7 |
| SLA8040 | BTF1616 | BN1240C | SP1020 | LW-8 |

## MD-SMH

• Lunghezza regolabile : 7mm






※1DIV=ø0.01mm

(mm)

| Articolo | Stock | N. MD | Alesatura øD | kg |
|---|---|---|---|---|
| **SMH4022** | ● | Sede della molla | ø6.0~ø34.0 | 0.7 |

● : Disponibile ○ : A richiesta

### Parti di ricambio

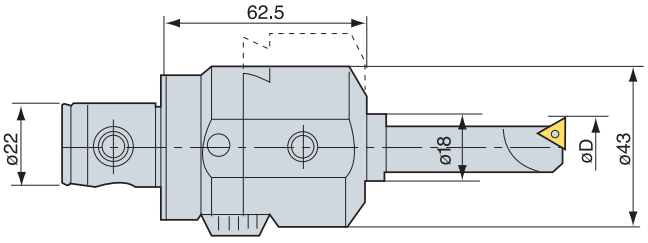
| Parti di ricambio | | | | | |
|---|---|---|---|---|---|
| | Standard | | | Opzionale | |
| | Vite per il kit | Vite per il kit | Chiave | Cartuccia | Portainserti standard |
| Tipo |  |  |  |  |  |
| SMH | BTF0610 | BTF0608 | LW-3 | BB16 | MD40F |

● : Disponibile ○ : A richiesta

## MD-SMB

• Lunghezza regolabile : 10mm






※1DIV=ø0.02 mm

(mm)

| Articolo | Stock | N. MD | Alesatura øD | kg |
|---|---|---|---|---|
| SMB4022 | ● | 40 | ø8.0~ø38.0 | 0.65 |

● : Disponibile ○ : A richiesta

| Articolo | Stock | Alesatura øD | | Inserto | Vite |
|---|---|---|---|---|---|
| | | min | max | | |
| **BB18-7S** | ● | 8 | 28 | TBGT0601○○L | BFTX0204A |
| **BB18-9S** | ● | 10 | 30 | TPGT0802○○L | BFTX0204A |
| **BB18-11S** | ● | 12 | 32 | TPGT1103○○L | BFTX0307A |
| **BB18-13S** | ● | 14 | 34 | TPGT1103○○L | BFTX0307A |
| **BB18-15S** | ● | 16 | 36 | TPGT1103○○L | BFTX0307A |
| **BB18-17S** | ● | 18 | 38 | TPGT1103○○L | BFTX0307A |

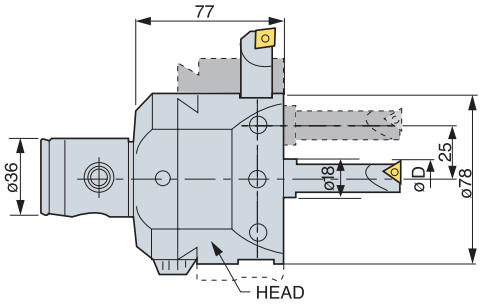
• Inserti applicabili, vedere pag. B38, B40

● : Disponibile ○ : A richiesta

# MD-KMB

• Lunghezza regolabile : 17mm






※1DIV=ø0.02

(mm)

| Articolo | Stock | N. MD | Posizione bussola | Alesatura øD | kg |
|---|---|---|---|---|---|
| KMB6336 | ● | 63 | Foro centrale | ø8.0~ø38.0 | 2.2 |
| KMB6336 | ● | 63 | Foro eccentrico | ø41.0~ø101.0 | 2.2 |
| KMB6336 | ● | 63 | Foro laterale | Max.ø165.0 | 2.2 |

● : Disponibile ○ : A richiesta

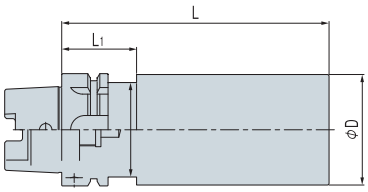
| Articolo | Stock | Alesatura øD | | | | Inserto | Vite |
|---|---|---|---|---|---|---|---|
| | | Foro centrale | | Foro eccentrico | | | |
| | | min | max | min | max | | |
| BB18-7S | ● | 8 | 41 | 43 | 91 | TBGT0601○○L | BFTX0204A |
| BB18-9S | ● | 10 | 43 | 45 | 93 | TPGT08021○○L | BFTX0204A |
| BB18-11S | ● | 12 | 45 | 47 | 95 | TPGT11031○○L | BFTX0307A |
| BB18-13S | ● | 14 | 47 | 49 | 97 | TPGT11031○○L | BFTX0307A |
| BB18-15S | ● | 16 | 49 | 51 | 99 | TPGT11031○○L | BFTX0307A |
| BB18-17S | ● | 18 | 51 | 53 | 101 | TPGT11031○○L | BFTX0307A |

• Inserti applicabili, vedere pag. B38, B40

● : Disponibile ○ : A richiesta

# Utensili grezzi (BLK)






(mm)

| Articolo | Stock | ød | øC | L | L1 |
|---|---|---|---|---|---|
| HSK40A- BLK42 -180 | | 42 | 34 | 180 | 35 |
| HSK50A- BLK52 -200 | | 52 | 42 | 200 | 42 |
| HSK63A- BLK63 -150 | | 63 | 53 | 150 | 42 |
| BLK63 -250 | | 63 | 53 | 250 | 42 |
| BLK82 -200 | | 82 | 53 | 200 | 42 |
| HSK100A-BLK102-150 | | 102 | 85 | 150 | 45 |
| BLK102-250 | | 102 | 85 | 250 | 45 |
| BLK126-200 | | 126 | 85 | 200 | 45 |
| BT30- BLK48 -180 | | 48 | 44 | 180 | 30 |
| BT40- BLK63-150 | | 63 | 61 | 150 | 35 |
| BLK63-250 | | 63 | 61 | 250 | 35 |
| BLK82-200 | | 82 | 61 | 200 | 35 |
| BT50- BLK102-150 | | 102 | 98 | 150 | 48 |
| BLK102-250 | | 102 | 98 | 250 | 48 |
| BLK126-200 | | 126 | 98 | 200 | 48 |

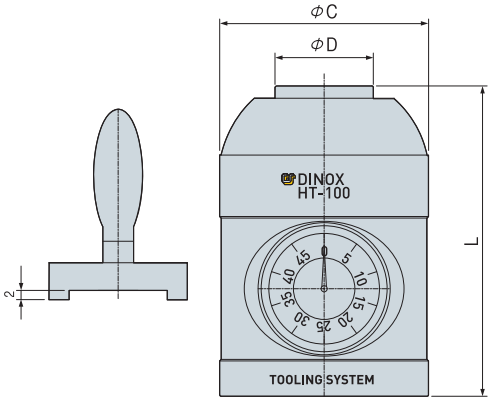
• Durezza con trattamento a caldo per lo stelo (HRC48~52) e l'utensile (HRC40~43) conformemente alla figura e alle applicazioni degli utensili grezzi
• Gli utensili grezzi possono essere prodotti in caso di richiesta di utensili speciali, richieste urgenti o su ordinazione

● : Disponibile ○ : A richiesta



# HT



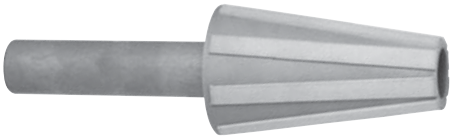

(mm)

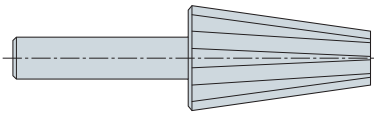
| Articolo | Stock | øD | øC | L |
|---|---|---|---|---|
| HT-100 | ● | 32 | 68 | 100 |

● : Disponibile ○ : A richiesta

• Indicato per la regolazione della lunghezza dell'utensile nei macchinari CNC
• Piena sicurezza di lavorazione grazie all'assenza di interferenze
• Precisione : ± 0.003mm

# ISO SC-NT





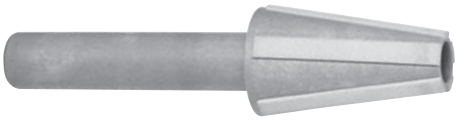
(mm)

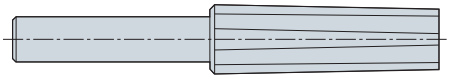
| Articolo | Stock | N. cono |
|---|---|---|
| SC 20 | | BT20(NT20) |
| 30 | ● | BT30(NT30) |
| 40 | ● | BT40(NT40) |
| 45 | | BT45(NT45) |
| 50 | ● | BT50(NTt50) |
| | | |

● : Disponibile ○ : A richiesta

- Panno speciale per l'eliminazione di olio e sporco
- Panno morbido che non graffia la superficie del mandrino
- Leggero, facile da maneggiare
- Indicato per tutti i tipi di mandrino (BT, NT, MT ecc.)
- Agevole pulizia

# ISO SC-MT





(mm)

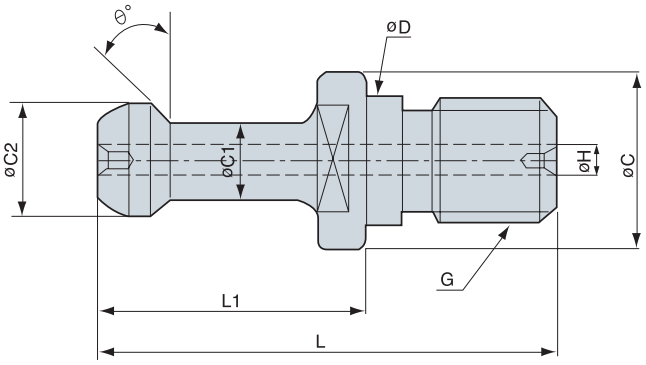
| Articolo | Stock | N. cono |
|---|---|---|
| SC 1 | | MT1 |
| 2 | | MT2 |
| 3 | | MT3 |
| 4 | | MT4 |
| 5 | | MT5 |
| 6 | | MT6 |

● : Disponibile ○ : A richiesta

- Panno speciale per l'eliminazione di olio e sporco
- Panno morbido che non graffia la superficie del mandrino
- Leggero, facile da maneggiare
- Indicato per tutti i tipi di mandrino (BT, NT, MT ecc.)
- Agevole pulizia

# Vite Pull Stud






(mm)

| Articolo | Stock | ØD | ØC | ØC1 | ØC2 | L1 | L | θ | G | øH |
|---|---|---|---|---|---|---|---|---|---|---|
| P30T-1 | ● | 12.5 | 16.5 | 7 | 11 | 23 | 43 | 45° | M12 | |
| P30T-2 | ● | 12.5 | 16.5 | 7 | 11 | 23 | 43 | 30° | M12 | |
| P40T-1 | ● | 17 | 23 | 10 | 15 | 35 | 60 | 45° | M16 | ø3 |
| P40T-1(3) | | 17 | 23 | 10 | 15 | 35 | 60 | 45° | M16 | |
| P40T-2 | ● | 17 | 23 | 10 | 15 | 35 | 60 | 30° | M16 | ø3 |
| P40T-2(3) | | 17 | 23 | 10 | 15 | 35 | 60 | 30° | M16 | |
| PS40-3F | ● | 17 | 23 | 10 | 15 | 35 | 60 | 0° | M16 | |
| PS40-1F | | 17 | 23 | 10 | 15 | 29.6 | 54.6 | 0° | M16 | ø7 |
| PS-G51 | ● | 17 | 22 | 12.45 | 18.80 | 19.11 | 44.11 | 45° | M16 | |
| MP-40 | | 17 | 23 | 10 | 15 | 25 | 50 | 0° | M16 | ø7 |
| DIN69872-A40 | | 17 | 23 | 14 | 19 | 26 | 54 | 15° | M16 | |
| DIN69872-B40 | | 17 | 23 | 14 | 19 | 26 | 54 | 15° | M16 | ø7 |
| ISO7388/A40 | | 17 | 23 | 14 | 19 | 26 | 54 | 15° | M16 | ø7.35 |
| ISO7388/B40 | | 17 | 22.5 | 12.95 | 18.95 | 16.4 | 44.5 | 45° | M16 | ø7 |
| JISB6339-A40(PS-806) | ● | 17 | 23 | 14 | 19 | 29 | 54 | 15° | M16 | |
| JISB6339-B40(PS-805) | ● | 17 | 23 | 14 | 19 | 29 | 54 | 15° | M16 | |
| P50T-1 | ● | 25 | 38 | 17 | 23 | 45 | 85 | 45° | M24 | ø7 |
| P50T-1(7) | ● | 25 | 38 | 17 | 23 | 45 | 85 | 45° | M24 | |
| P50T-2 | ● | 25 | 38 | 17 | 23 | 45 | 85 | 30° | M24 | ø7 |
| P50T-2(7) | | 25 | 38 | 17 | 23 | 45 | 85 | 30° | M24 | |
| PS50-1F | ● | 25 | 38 | 17 | 23 | 45 | 85 | 0° | M24 | ø8 |
| PS50-1FH | | 25 | 38 | 17 | 23 | 45 | 85 | 0° | M24 | |
| PS50-1L | | 25 | 38 | 16 | 22 | 72 | 110 | 30° | M24 | |
| PS50-2L | | 25 | 39 | 18 | 25 | 55 | 95 | 30° | M24 | |
| PS50-3L | | 25 | 39.3 | 18 | 23 | 64 | 104 | R4 | M24 | |
| PS50-4L | | 25 | 39 | 15 | 21 | 63.1 | 105.1 | 45° | M24 | ø10 |
| PS-G41 | ● | 25 | 37 | 20.83 | 28.96 | 25.2 | 65.2 | 45° | M24 | |
| MP-50 | | 25 | 36 | 18 | 24 | 31 | 71 | 0° | M24 | ø11.5 |
| DIN69872-A50 | | 25 | 36 | 21 | 28 | 34 | 74 | 15° | M24 | O-Ring |
| DIN69872-B50 | | 25 | 36 | 21 | 28 | 34 | 74 | 15° | M24 | ø11.5 |
| ISO7388/A50 | | 25 | 36 | 21 | 28 | 34 | 74 | 15° | M24 | ø11.5 |
| ISO7388/B50 | | 25 | 37 | 19.6 | 29.1 | 25.55 | 65.5 | 45° | M24 | ø10 |
| JISB6339-A50 | | 25 | 38 | 21 | 28 | 34 | 74 | 15° | M24 | |
| JISB6339-B50 | | 25 | 38 | 21 | 28 | 34 | 74 | 15° | M24 | |

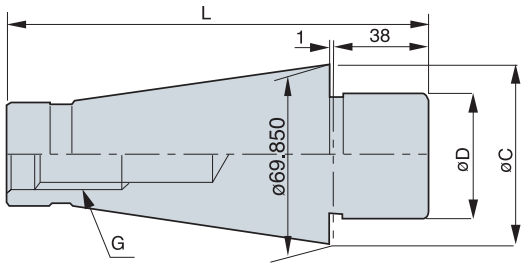
● : Disponibile ○ : A richiesta

## Vite Pull stud nel mercato nazionale degli utensili

| PRODUTTORE | MODELLO | Mandrino | | | | | |
|---|---|---|---|---|---|---|---|
| | | BT30 | | BT40 | | BT50 | |
| | | Foro di lubrif. | - | Foro di lubrif. | - | Foro di lubrif. | - |
| DOOSAN | MYNX-400 | | | PS-806 | P40T-1 | | |
| | MYNX-500/40 | | | PS-806 | P40T-1 | | |
| | MYNX-500/50 | | | | | P50T-1(Φ7) | P50T-1 |
| | MYNX-650 | | | PS-806 | P40T-1 | | |
| | MYNX-650/50 | | | | | P50T-1(Φ7) | P50T-1 |
| | ACE-V430 | | | PS-806 | P40T-1 | | |
| | ACE-VC500 | | | PS-806 | P40T-1 | | |
| | ACE-VM410 | | | PS-806 | P40T-1 | | |
| | ACE-VM510 | | | PS-806 | P40T-1 | | |
| | ACE-VM650 | | | | | P50T-1 | P50T-1(Φ7) |
| | ACE-VM900 | | | | | P50T-1 | P50T-1(Φ7) |
| | ACE-VMD550/5AX | | | PS-806 | P40T-1 | | |
| | ACE-TC320D | P30T-1(Φ2) | P30T-1 | | | | |
| | ACE-TC380 | P30T-1(Φ2) | P30T-1 | | | | |
| | ACE-HP5000 | | | PS-806 | P40T-1 | | |
| | ACE-HP400 | | | PS-806 | P40T-1 | | |
| | ACE-HP500 | | | | | P50T-1(Φ7) | P50T-1 |
| | ACE-HP630 | | | | | P50T-1(Φ7) | P50T-1 |
| | ACE-HC400 | | | PS-806 | P40T-1 | | |
| | ACE-HC500 | | | PS-806 | P40T-1 | | |
| | ACE-HM500 | | | | | P50T-1(Φ7) | P50T-1 |
| | ACE-HM630 | | | | | P50T-1(Φ7) | P50T-1 |
| | ACE-HM800 | | | | | P50T-1(Φ7) | P50T-1 |
| | ACE-DB250T<br>ACE-DB130C<br>ACE-DB250C | | | | | P50T-1(Φ7) | P50T-1 |
| | VMT 36/36A | P30T-1(Φ2) | P30T-1 | | | | |
| | REVO 51 | | | P40T-1(Φ3) | P40T-1 | | |
| | VM50/43H | | | P40T-1(Φ3) | P40T-1 | | |
| | HM45H | | | P40T-1(Φ3) | P40T-1 | | |
| | VM84/70/56/43 | | | | | P50T-2(Φ7) | P50T-2 |
| | HM50/63 | | | | | P50T-2(Φ7) | P50T-2 |
| HYUNDAI-WIA | KV25/25P | | P30T-1 | | | | |
| | | | | | | | |
| | KV35/35P | | | P40T-1(Φ3) | P40T-1 | | |
| | KV-45 | | | P40T-1(Φ3) | P40T-1 | | |
| | VX500 | | | P40T-1(Φ3) | P40T-1 | | |
| | V50D | | | P40T-1(Φ3) | P40T-1 | | |
| | KH50/63 | | | | | PS50-1FH | P50T-1 |
| | KV60/90/90L | | | | | | P50T-1 |
| | HC800 | | | | | | P50T-1 |
| | KBN135/KB10A | | | | | | P50T-1 |
| S & T | TCH45 | | | | P40T-1 | | |
| | TCH50 | | | | | | P50T-2 |
| | TCH80 | | | | | | P50T-2 |
| | V40 | | | | P40T-1 | | |
| | TNV 40A | | | | P40T-1 | | |
| | TNV 80B | | | | P40T-1 | | |
| | | | | | | | P50T-1 |
| | TCH80TS | | | | | | P50T-1 |

# KCP






(mm)

| Articolo | Stock | Cono | Dia. fresa | øD | øC | L | G |
|---|---|---|---|---|---|---|---|
| NTN 50- KCP47.625 | | NT50 | 200(8″<) | 47.625 | 69.55 | 164.00 | U1”-8(M24) |
| NTN 50- KCP60 | | NT50 | 200(8″<) | 60 | 69.55 | 164.00 | M24 |

● : Disponibile ○ : A richiesta

## Confronto dei sistemi di utensili (mercato nazionale)

| Dine | | JEIL | | ATOM | |
|---|---|---|---|---|---|
| Nome utensile | Articolo | Nome utensile | Articolo | Nome utensile | Articolo |
| Mandrini a espansione idraulica | DHE | MANDRINI A ESPANSIONE IDRAULICA | JHM | MANDRINI IDRAULICI | HC |
| Mandrini New Power Milling | NPM | MANDRINI A DOPPIO CUSCINETTO | DBC | MANDRINI PER FRESATURA | C |
| Mandrini ad alta velocità | HPM | - | - | - | - |
| Shrinking Chcuk | DSC | SHRINKING FIT CHUCK | SHR | SHRINKING FIT HOLDER | - |
| Mandrini a pinza | SDC,SDC/S | MANDRINI A PINZE- | DCC | MANDRINI A PINZA ER | ER |
| Mandrini slim a pinza ad alta velocità | HPS | - | - | - | - |
| Mandrini slim a pinza a ultra velocità | HDC | - | - | - | - |
| Mandrini slim a pinza ad alta velocità | DSK | | - | - | - |
| Mandrini di foratura NPU | NPU | MANDRINI DI FORATURA NC | NPU | MANDRINI DI FORATURA NC | NPU |
| Attacco conico morse tipo “A” | MTA | ATTACCO CONICO MORSE | MTA | ADATTATORE CONICO MORSE | MTA |
| Attacco conico morse tipo “B” | MTB | ATTACCO CONICO MORSE | MTB | ADATTATORE CONICO MORSE | MTB |
| Attacco conico Jacobs | JTA | ATTACCO CONICO JACOBS | JTA | ADATTATORE CONICO JACOBS | JTA |
| Attacco a serraggio laterale | SLA, SLW | PORTAINSERTI PER FRESA INTEGRALE | EMH | PORTAINSERTI A SERRAGGIO LATERALE | SLA,SLB |
| Maschiatrice Nuovo tipo | DTN | MANDRINI PER MASCHIATURA | TC | MANDRINI PER MASCHIATURA | TC |
| Mandrini synchro per maschiatura | SDT | - | - | - | - |
| Attacco per spianatura | FMA,FMC | ATTACCO PER SPIANATURA | FMA,FMC | ATTACCO PER SPIANATURA | FMA,FMC |
| Attacco per fresa a disco | SCA | ATTACCO PER FRESA A DISCO | SCA | ATTACCO PER FRESA A DISCO | SCA |
| Bareno quadrato (tipo A/B) | BSA, BSB | BARENO QUADRATO- | BSA,BSB | BARENO QUADRATO | BSA,BSB |
| Utensile di bilanciamento per sgrossatura | DBC | - | - | - | - |
| Utensile di bilanciamento per sgrossatura (grandi diametri) | TBC | - | - | - | - |
| Micro bareni FZ tipo "A" | BKA | - | - | - | - |
| Micro bareni FZ tipo "B" | BKB | | - | - | - |
| Micro bareni | BCF | Portainserti standard per testina intercambiabile modulare | | - | - |
| Micro bareni di piccole dimensioni (elevata precisione) | SMH | - | - | - | - |
| Micro bareni di piccole dimensioni | SMB | - | - | - | - |
| Micro bareni | KMB | - | - | - | - |
| Micro bareni (elevata precisione) | FBH | Portainserti standard per testina intercambiabile modulare | | - | - |
| Utensile di bilanciamento per finitura (grandi diametri) | FBC | | | - | - |
| Micro bareni MUP | MUP | - | - | - | - |
| Mandrini a pinza con supporto foro lubrificante | OHDC | PORTAINSERTI CON FORO DI LUBRIFICAZIONE | OHDC | - | - |
| Mandrini a serraggio laterale con supporto foro lubrificante | OHSL | PORTAINSERTI CON FORO DI LUBRIFICAZIONE | OHSL | - | - |
| Regolatore della velocità del mandrino | KSH | - | - | - | - |
| Teste angolari tipo universale | KHU | - | - | - | - |
| Teste angolari tipo ad attacco | KAG | - | - | - | - |
| Teste angolari modulari (90□) | KAH | - | - | - | - |
| Teste angolari modulari (45□) | KAC | - | - | - | - |
| Teste angolari ad alta velocità | KAHZ/KACX | - | - | - | - |

## Confronto dei sistemi di utensili (mercato estero)

| Dine | | NIKKEN | | BIG | |
|---|---|---|---|---|---|
| Nome utensile | Articolo | Nome utensile | Articolo | Nome utensile | Articolo |
| Mandrini a espansione idraulica | DHE | - | - | MANDRINI IDRAULICI | HDC |
| Mandrini NPM (New Power Milling Chuck) | NPM | MANDRINI PER FRESATURA | C | NUOVI MANDRINI PER FRESATURA HI POWER | HMC |
| Mandrini per fresatura | DPSN/DPS | - | - | - | - |
| Mandrini per fresatura ad alta velocità | HPM | MANDRINI PER FRESATURA AD ALTA VELOCITÀ | C-G | MANDRINI MEGA DOUBLE POWER | MEGA |
| Shrinking Chuck | DSC | - | - | - | - |
| Mandrini a pinza | SDC,SDC/S | - | - | MANDRINI NEW BABY | NBS |
| Mandrini slim a pinza ad alta velocità | HPS | MANDRINI A PINZA SLIM AD ALTA VELOCITÀ | GSK | - | - |
| Mandrini slim a pinza a ultra velocità | HDC | - | - | MANDRINI MEGA E | MEGA-E |
| Mandrini slim a pinza ad alta velocità | DSK | MANDRINI SLIM | SK | - | - |
| Mandrini di foratura NPU | NPU | MANDRINI DI FORATURA NC | NPU | - | - |
| Attacco conico morse | MTA | MANICOTTI CONICI MORSE | MTA | ATTACCO CONICO MORSE | MTA |
| Attacco conico morse | MTB | MANICOTTI CONICI MORSE | MTB | - | - |
| Attacco conico Jacobs | JTA | ADATTATORE CONICO JACOBS | JTA | ATTACCO CONICO JACOBS | JTA |
| Attacco a serraggio laterale | SLA,SLW | PORTAINSERTI A SERRAGGIO LATERALE | SLA | PORTAINSERTI A SERRAGGIO LATERALE | SLB |
| Maschiatrice Nuovo tipo | DTN | MANDRINI PER MASCHIATURA | Z | SERIE CONI AUTO | AUTO |
| Mandrini synchro per maschiatura | SDT | PORTAINSERTI PER MASCHIATURA SINCRONIZZATI | ZH | - | - |
| Attacco per spianatura | FMA,FMC | ATTACCO PER SPIANATURA | FMA,FMC | ATTACCO PER SPIANATURA | FMA,FMC |
| Attacco per fresa a disco | SCA | ATTACCO PER FRESA A DISCO | SCA | - | - |
| Bareno quadrato (tipo A/B) | BSA,BSB | BARENO QUADRATO | BSA,BSB | - | - |
| Utensile di bilanciamento per sgrossatura | DBC | ATTACCO DI BILANCIAMENTO PER ALESATURA | RAC | SISTEMA DI ALESATURA CK | RW |
| Utensile di bilanciamento per sgrossatura (grandi diametri) | TBC | | | | |
| Micro bareni FZ tipo "A" | BKA | - | - | - | - |
| Micro bareni FZ tipo "B" | BKB | - | - | - | - |
| Micro bareni | BCF | - | - | - | - |
| Micro bareni di piccole dimensioni (elevata precisione) | SMH | TESTINA DI ALESATURA DJ | DJ | SISTEMA DI ALESATURA CK | EW |
| Micro bareni di piccole dimensioni | SMB | | | | |
| Micro bareni | KMB | - | - | - | - |
| Micro bareni (elevata precisione) | FBH | TESTINA DI ALESATURA MODULARE TIPO ZMAC | ZMAC | SISTEMA DI ALESATURA CK | EWN |
| Utensile di bilanciamento per finitura (grandi diametri) | FBC | ATTACCO DI BILANCIAMENTO PER ALESATURA | BAC | | |
| Micro bareni MUP | MUP | - | - | - | - |
| Mandrini a pinza con supporto foro lubrificante | OHDC | SUPPORTO PER FORO LUBRIFICANTE SLIM TIPO MULTI | MOK | PORTAINSERTI CON FORO DI LUBRIFICAZIONE MANDRINI NEW BABY | ONBS |
| Mandrini a serraggio laterale con supporto foro lubrificante | OHSL | SUPPORTO PER FORO LUBRIFICANTE MULTI | MOL | PORTAINSERTI CON FORO DI LUBRIFICAZIONE A SERRAGGIO LATERALE | OSL |
| Regolatore della velocità del mandrino | KSH | REGOLATORE DELLA VELOCITÀ DEL MANDRINO | NX | MANDRINI AD ALTA VELOCITÀ | GTR |
| Teste angolari tipo universale | KHU | - | - | TESTE ANGOLARI TIPO UNIVERSALE | AGU |
| Teste angolari tipo ad attacco | KAG | TESTE ANGOLARI INTEGRALI | AFK | TESTE ANGOLARI SERIE AG90 STANDARD | AG90/ AGH35 |
| Teste angolari modulari (90°) | KAH | TESTE ANGOLARI MODULARI | AHM | TESTE ANGOLARI SERIE AG90 STANDARD | AG90/ HMC32 |
| Teste angolari modulari (45°) | KAC | TESTE ANGOLARI QUICK 45° | AHT | TESTE ANGOLARI SERIE AG45 SERIE NBS | AG45/ NBS |

I N D I C E

# Esempi di lavorazione

J

## Esempi di lavorazione industriale

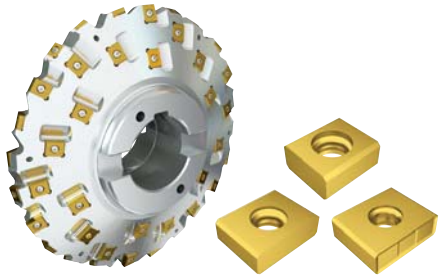

Fabbricazione ingranaggi J02
Industria navale J04
Lavorazione rulli J07
Industria ferroviaria J08
Fabbricazione tubi J10
Soluzioni per intaglio J12
Centrali elettriche J13
Aviazione J14
Rifenditrici J18
Inserti per lavorazione a puleggia J19


## Esempi di lavorazione per l'industria automobilistica


Knuckle J20
Freni J22
Settore automobilistico J24
Blocco motore J26
Testata J28
Albero a gomiti J30




## Fabbricazione ingranaggi (lavorazioni esterne)



### Fresa per sgrossatura

- Diametro fresa: Ø 300
- N. taglienti: 60
- Indicata per velocità elevate di lavorazione grazie a taglienti V-Style studiati per ridurre lo sforzo di taglio



### Fresa per media lavorazione

- Diametro fresa: Ø 280
- N. taglienti: 48
- Indicata per elevata efficienza, maggiore durata e produttività superiore grazie alla forma dell'inserto Korloy
- Esecuzione di parti R dell'ingranaggio mediante inserto a R appositamente progettato



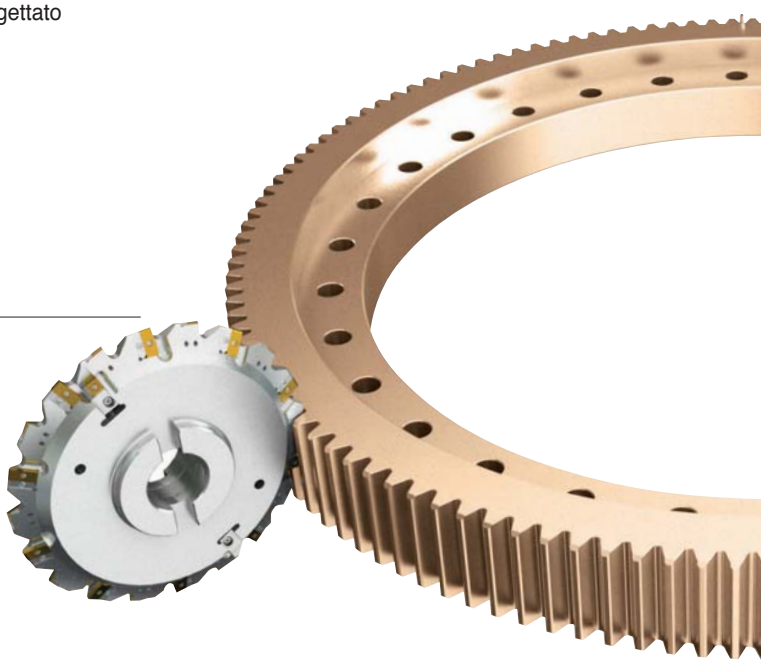
### Fresa per finitura: M20

- Diametro fresa: Ø 400
- N. taglienti: 20
- Fresa per lavorazioni medie realizzata sui 4 gradi di precisione. (KS, JS)
- Sistema di svasatura indicato per una maggiore efficienza di lavorazione



### Fresa a vite

- Diametro fresa: Ø 350
- N. taglienti: 100
- Creatore a inserti per sgrossatura
- Indicata per lavorazioni personalizzate dall'utente







### LPD, SPD, NPD

- Elevata rigidità, punte a inserti economiche che permettono di ridurre i costi sfruttando i 4 taglienti
- Migliore produttività grazie a una buona evacuazione del truciolo e una maggiore durata dell'inserto
- Grado: PC9530, H01



### Rompitruciolo VH

- Migliore rottura del truciolo durante le lavorazioni medie
- Buone prestazioni durante lavorazioni di flange e lavorazioni continue
- Tipo di SNMM / CNMM









### TPD

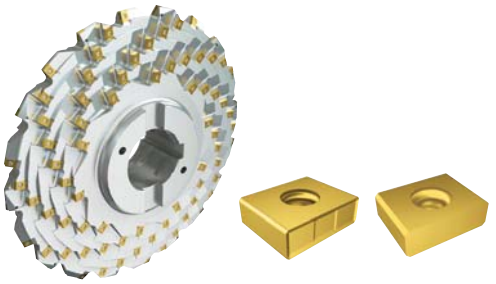
- Punta a inserti dall'efficienza e precisione elevate
- Punta altamente efficiente con buoni risultati qualitativi durante lavorazioni ad alte velocità ed elevato avanzamento
- Indicata per ottenere forature di precisione, buona superficie di lavorazione e accuratezza del foro



### Rompitruciolo VT

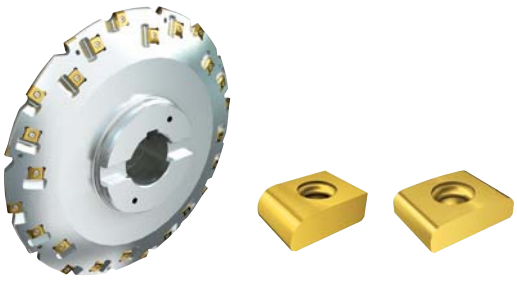
- Ottima rigidità durante lavorazioni ad elevati avanzamento e profondità di passata
- Ottima resistenza agli urti e lunga durata grazie a una struttura stabile e di eccezionale rigidità
- Tipo di SNMM / CNMM

## Fabbricazione ingranaggi (lavorazioni interne)



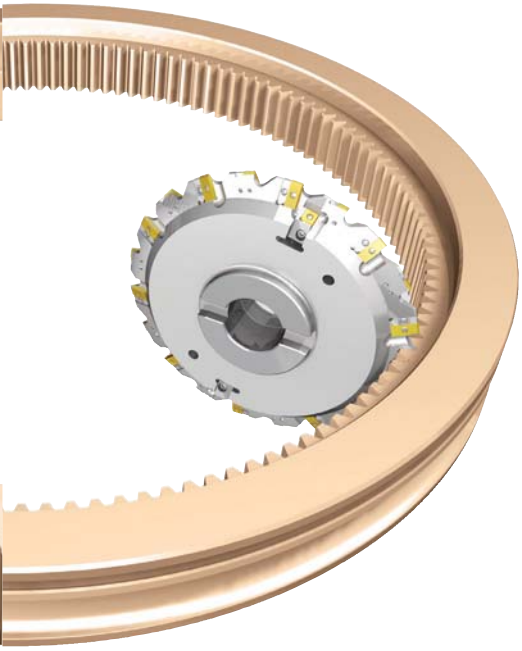
### Fresa per sgrossatura

- Diametro fresa: Ø 560
- N. taglienti: 140
- Indicata per la lavorazione di tutti gli ingranaggi modulari grazie ai taglienti dall'apposito design a scalare



### Fresa per media lavorazione

- Diametro fresa: Ø 400
- N. taglienti: 48
- Indicata per la fabbricazione di ingranaggi interni con dentatura a evolvente



### Fresa per finitura



- Diametro fresa: Ø 400
- N. taglienti: 20
- Fresa per finitura indicata per lavorazioni di precisione sui 4 gradi dell'ingranaggio interno
- Indicata per svasatura e lavorazioni di finitura



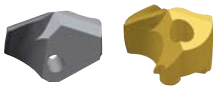




### LPD, SPD, NPD

- Punte economiche dalle eccellenti prestazioni
- Elevata rigidità, punte a inserti economiche che permettono di ridurre i costi sfruttando i 4 taglienti
- Grado: PC9530, H01





### TPD

- Punta a inserti dall'efficienza e precisione elevate
- Punta altamente efficiente con buoni risultati qualitativi durante lavorazioni ad alte velocità ed elevato avanzamento
- Indicata per ottenere forature di precisione, buona superficie di lavorazione e accuratezza del foro

## Industria navale (blocco motore)

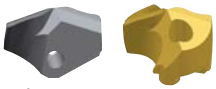




### Fresa per sgrossatura del blocco cilindro

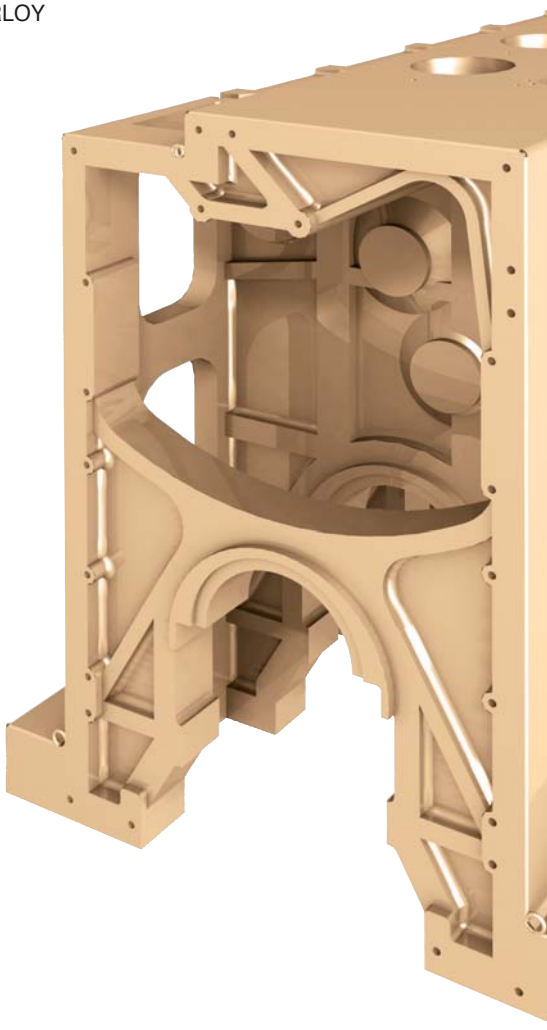
- Diametro fresa: Ø 200
- Inserto applicabile: SNCF1507ANN-MF
- Vantaggi: inserto a 8 taglienti, utensile ad elevato avanzamento
- L'esclusivo sistema di montaggio a leva KORLOY consente di cambiare rapidamente l'inserto





### TPD

- Punta a inserti dall'efficienza e precisione elevate
- Punta altamente efficiente con buoni risultati qualitativi durante lavorazioni ad alte velocità e di precisione
- Indicata per ottenere forature di precisione, buona superficie di lavorazione e accuratezza del foro

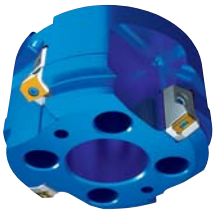




### LPD, SPD, NPD

- Punte economiche dalle eccellenti prestazioni
- Elevata rigidità, punte a inserti economiche che permettono di ridurre i costi sfruttando i 4 taglienti
- Grado: PC9530, H01





### Fresa per alesatura dell'albero a camme del blocco cilindro (corpo fresa in alluminio)

- Diametro fresa: Ø 270
- Inserto applicabile: LNE434 / SDKX1506
- Corpo fresa in alluminio a rotazione destra, facile da maneggiare, per alesature di precisione



## Fresa per sgrossatura del blocco cilindro con elevato angolo di spoglia

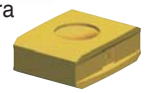
- Diametro fresa: Ø 250
- Inserto applicabile: SECN2606AFN
- Fresa con elevato angolo di spoglia indicata per lavorazioni che tendono a produrre vibrazioni





## Fresa regolabile per lavorazioni medie

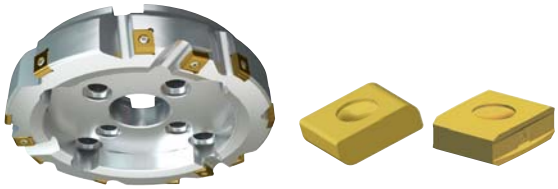
- Diametro fresa: Ø 250
- Inserto applicabile: LNCS1907-C1.5-WC
- Il dispositivo di regolazione dell'altezza del tagliente consente di ottenere un'eccellente superficie di finitura





## Fresa per lavorazione dell'alloggiamento cappello del supporto del blocco cilindro

- Diametro fresa: Ø 250
- Inserto applicabile: RDKT2006M0
- Sono disponibili diverse dimensioni di inserti per rispondere ai requisiti del raggio del pezzo da lavorare
- Inserti rigidi per un'elevata efficienza di lavorazione



## Sgrossatura e media lavorazione del blocco cilindro (ENTRAMBE)

- Diametro fresa: Ø 200
- Inserto applicabile: LNE434 / LNCS1907-R3.0-WC
- Design disponibili per applicazioni di sgrossatura e di media lavorazione
- Inserto LNE 434 indicato per un'elevata efficienza di sgrossatura e affidabilità del grado
- Inserto LNCS1907-R3.0-WC Wiper indicato per ottenere un'ottima superficie durante medie lavorazioni

## Industria navale (albero a gomiti / elica)



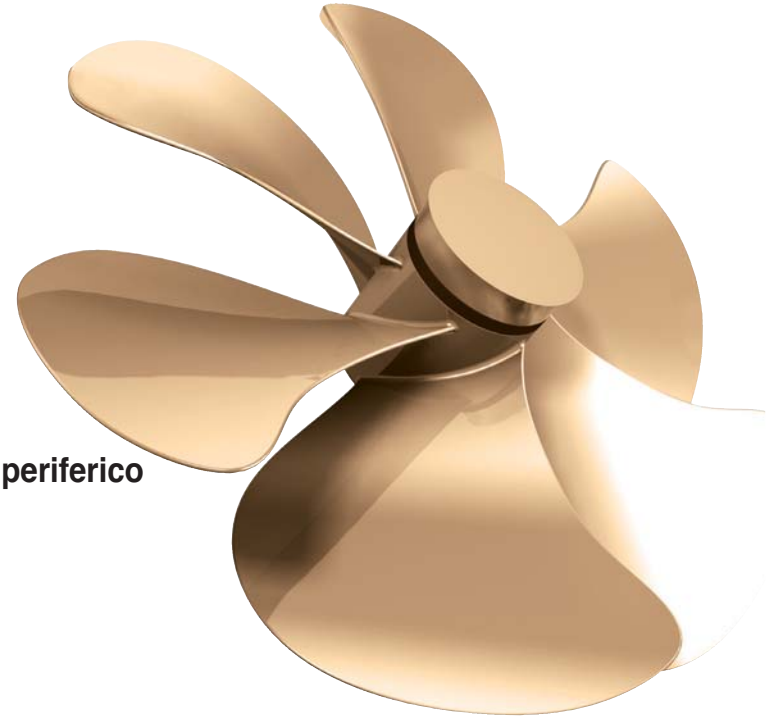
### Esclusiva fresa a disco KORLOY con sistema a vite



- Diametro fresa: Superiore a Ø 2000
- Peso: 1,5 tonnellate
- Fresa a disco per albero a gomiti di motori navali di dimensioni medie
- L'esclusivo sistema di montaggio sviluppato da KORLOY consente di maneggiare agevolmente l'utensile e di ottenere eccellenti prestazioni con una buona evacuazione del truciolo



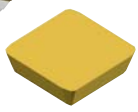




### Utensile per la lavorazione del lato periferico dell'elica

- Diametro fresa: Ø 150
- Inserto applicabile: CDEW170708R
- Angolo di spoglia positivo per un taglio morbido senza vibrazioni





### Utensile per la lavorazione della facciata superiore dell'elica

- Diametro fresa: Ø 250
- Inserto applicabile: SECN1904EER
- Inserto con doppio rivestimento per una maggiore profondità di passata



# Lavorazione rulli (corpo / forma / troncatura)

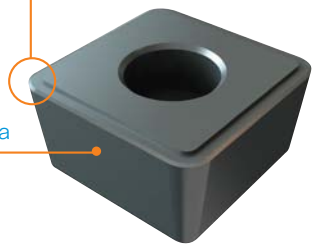
## Lavorazione rulli (corpo / forma / troncatura)

Il rompitruciolo è più vicino al tagliente per consentire un controllo migliore del truciolo, anche quando si eseguono scanalature profonde



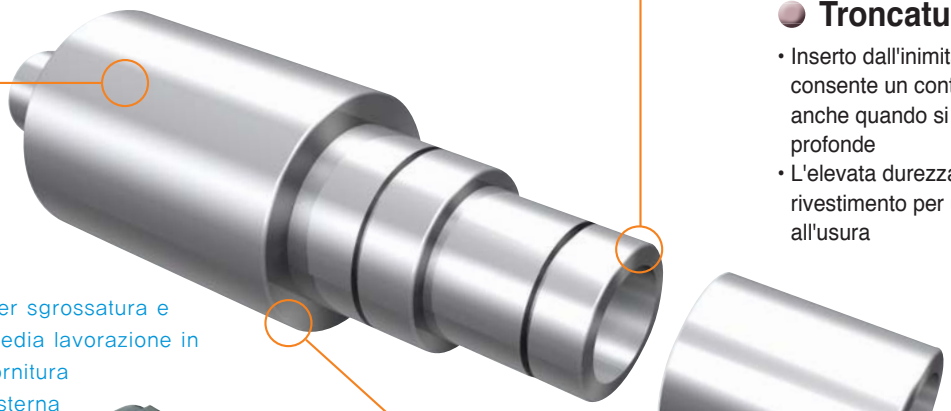

- Buona evacuazione del truciolo anche durante scanalature profonde
- L'elevata durezza del grado di rivestimento per un'eccellente resistenza all'usura previene i danni provocati dallo sforzo di taglio. (L'immagine illustra i danni al tagliente riportati dopo un uguale numero di lavorazioni alle stesse condizioni di taglio)

Per troncatura

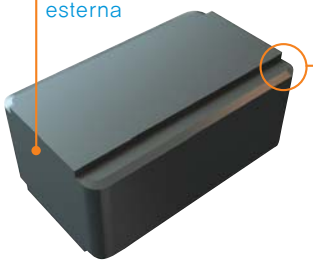


## Troncatura rullo

- Inserto dall'inimitabile geometria che consente un controllo migliore del truciolo, anche quando si eseguono scanalature profonde
- L'elevata durezza del grado di rivestimento per un'eccellente resistenza all'usura



Per sgrossatura e media lavorazione in tornitura esterna



Per lavorazione del giunto

## Tornitura esterna del rullo

- Combinazione di elevata durezza del grado di rivestimento (NC6110) e rompitruciolo per una durata maggiore dell'utensile e un controllo migliore del truciolo
- Vari taglienti disponibili in funzione del materiale da lavorare e delle condizioni di taglio

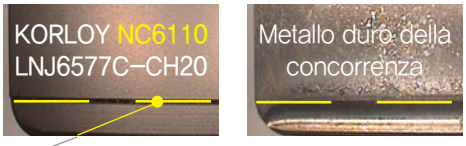


## Lavorazione del rullo

- Rompitruciolo speciale per un'adeguata formazione del truciolo (larghezza e profondità del rompitruciolo appositamente sviluppati)
- Il trattamento speciale rinforza il tagliente ed evita fratture improvvise

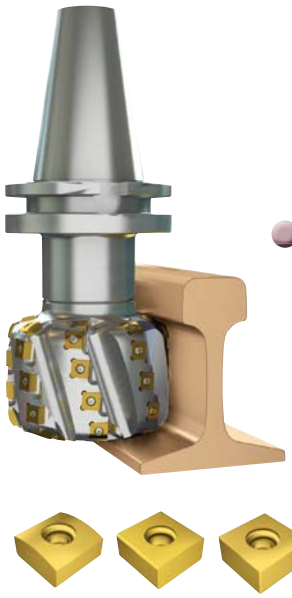
## Esempio di applicazione

La combinazione data dall'elevata durezza del grado di rivestimento (NC6110) e dal rompitruciolo offre prestazioni migliori.




- L'ampio rompitruciolo previene l'usura per craterizzazione
- Il controllo migliore del truciolo sin dall'inizio della lavorazione e l'elevata durezza del grado di rivestimento garantiscono una durata dell'utensile di 3 volte superiore rispetto a un utensile convenzionale. (Soprattutto in finitura)

## Industria ferroviaria (separatori/scambi/binari)



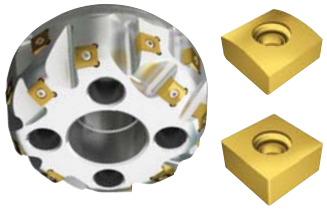


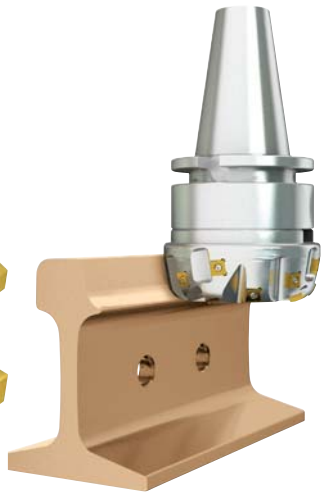
### Fresa per la lavorazione dei separatori binari

- Diametro fresa: Ø 160
- N. taglienti: 54
- Personalizzabile su richiesta del cliente

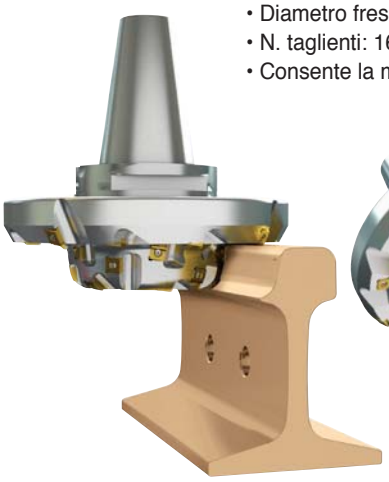


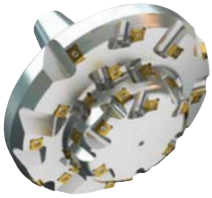
### Fresa per la lavorazione della parte superiore del guard-rail



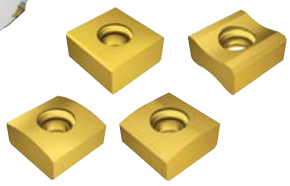


- Diametro fresa: Ø 160
- N. taglienti: 16
- Consente la massima precisione nella fabbricazione dei binari



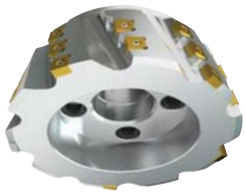


- Diametro fresa: Ø 300
- N. taglienti: 33
- Design di fresa ad albero specifica per ottenere un'elevata rigidità









### Fresa conica per la lavorazione della parte superiore del guard-rail

- Diametro fresa: Ø 200
- N. taglienti: 24
- Inserto economico a 8 taglienti
- Personalizzabile su richiesta del cliente

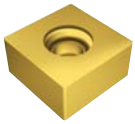






### Spianatura periferica del lato superiore del binario

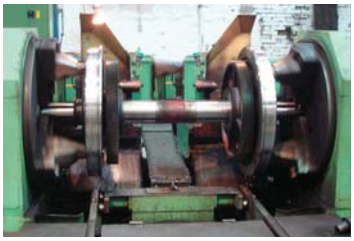
- Diametro fresa: Ø 240
- N. taglienti: 25



### Fresa per la profilatura dei binari

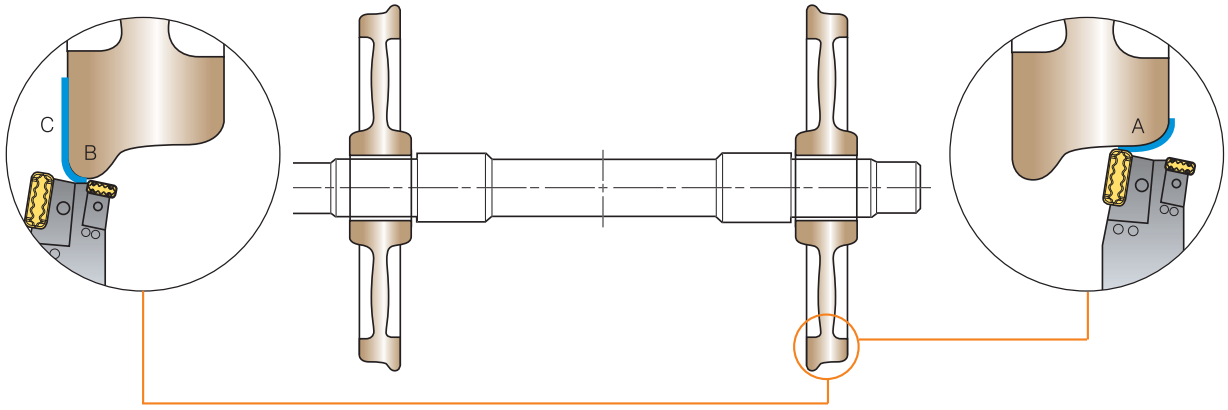
- Diametro fresa: Ø 600
- N. taglienti: 198
- Fresatura sulla parte del binario da ripristinare

## Industria ferroviaria (ruote)



### Tipo LNUX per la lavorazione delle ruote (riparazione)

- Materiale : SSW2. Ø 920~1000
- Condizioni di taglio: vc=78m/min (13~18min^1) fn=1.0mm/giro, ap=3~4mm
- Inserto: LNUX301940-TM Grado: NC3015
- Risultato : buona evacuazione del truciulo, struttura stabile e ottima durata dell'utensile






**LNUX301940-TF**
- Per taglio leggero, genera poco sforzo di taglio e ha un buon controllo del truciolo (uso generico)



**LNUX301940-TM**
- Design indicato per uso generico, tagliente robusto e buona formazione del truciolo (Raccomandazione principale)

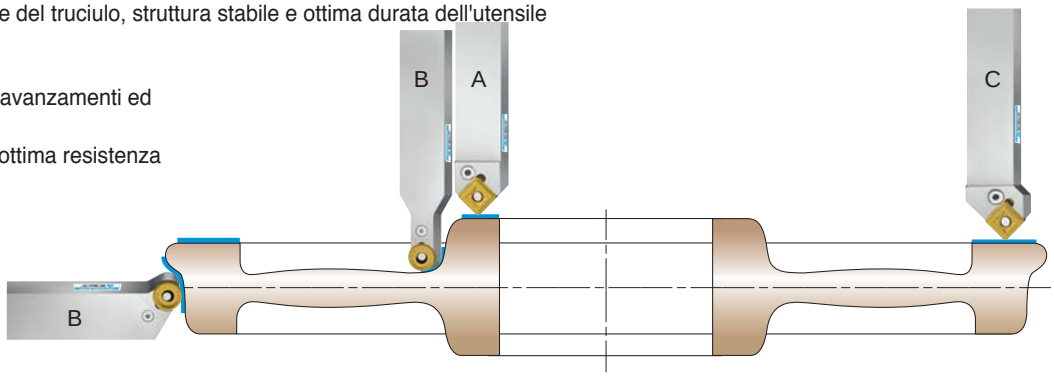
| Lavorazione | A | B | C |
|---|---|---|---|
| Inserto | LNUX301940–TF/TM | LNUX191940–25/22 | |
| Grado | NC3015 | NC3015 | |
| Condizioni di taglio | Diminuire la velocità sulla parte più profonda di A | Aumentare la velocità per una migliore evacuazione del truciolo | |

### Inserto RCMX per la lavorazione di ruote

- Materiale: SSW2. Ø 840
- Condizioni di taglio: vc=55~100m/min, fn=1.0~1.5mm/giro, ap=1.0~6.0mm
- Inserto: RCMX3209M0-SL Grado: NC3015
- Risultato : buona evacuazione del truciulo, struttura stabile e ottima durata dell'utensile

**Rompitruciolo VT chip**
- Tagliente robusto per elevati avanzamenti ed elevate profondità di passata
- Rompitruciolo tenace per un'ottima resistenza agli urti
- Tipo SNMM



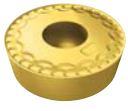





**Rompitruciolo SL**
- Rompitruciolo generico per un'ampia gamma di applicazioni
- Adeguato controllo del truciolo e lunga durata dell'utensile



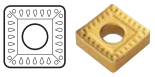
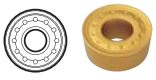
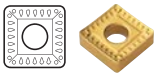
**Rompitruciolo B**
- Design per sgrossatura con ottima robustezza del tagliente e lunga durata dell'utensile



**Rompitruciolo SB**
- Migliore controllo del truciolo in lavorazioni con basse profondità di passata



**Rompitruciolo TM**
- Rompitruciolo per medie lavorazioni/ finitura, buona superficie di finitura, maggiore resistenza all'usura

| Lavorazione | A | B | C |
|---|---|---|---|
| Inserto applicabile |  |  |  |
| Utensile | PSDNN5050-U25 | PRDCN5050-U32<br>PRGCN5050-U32 | PSSNR5050-S25 |
| Inserto | SNMM250724-GH | RCMX3209MO-SL | SNMM250724-VT |
| Grado | NC3015 | NC3015 | NC3015 |

## Fabbricazione tubi (frese smussatrici)

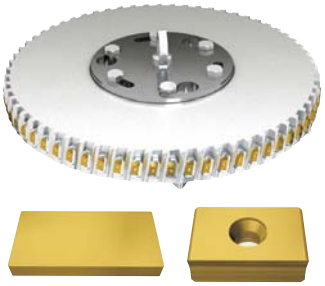


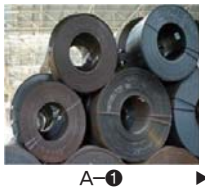
### Lavorazione a “X"

- Lavorazione per eseguire forme a "X" su entrambi i lati di aste di acciaio, per saldatura a incastro
- Il sistema di staffaggio a cuneo applicato alla fresa conferisce maggiore durata all'utensile e maggiore robustezza.

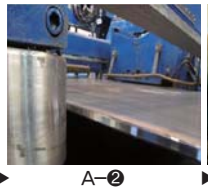
### Lavorazione a “I”

- Lavorazione per eseguire forme a "I" su entrambi i lati di aste di acciaio, per saldatura a incastro o piana.
- Ampia varietà di inserti (con o senza rompitruciolo) disponibili per varie condizioni di taglio

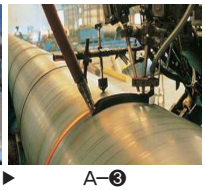




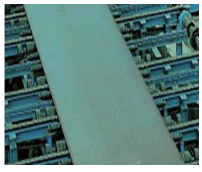
A–❶ ▶



A–❷ ▶



A–❸



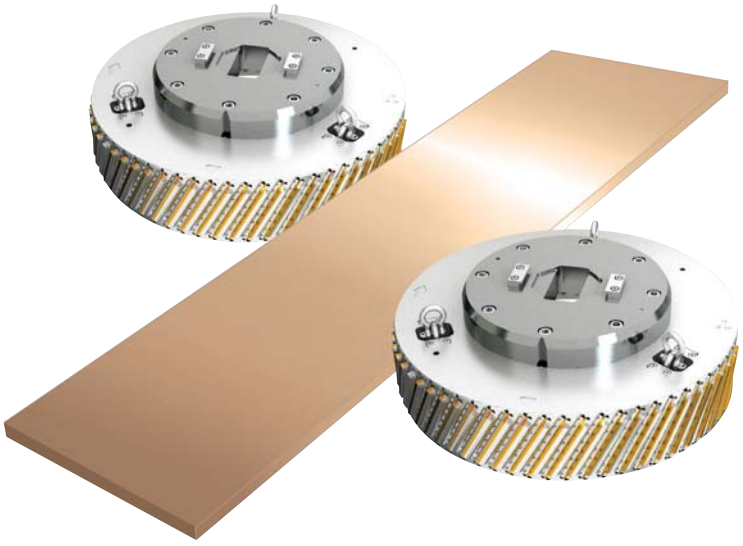
B–❶ ▶



B–❷ ▶



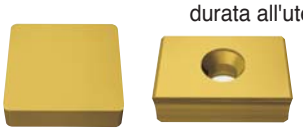
B–❸





### Lavorazione a “Y”

- Lavorazione per eseguire forme a "Y" su entrambi i lati di aste di acciaio, per saldatura a incastro
- La fresa è dotata di un ampio scarico per i trucioli che conferisce maggiore durata all'utensile riducendo il contatto tra il truciolo e il corpo fresa



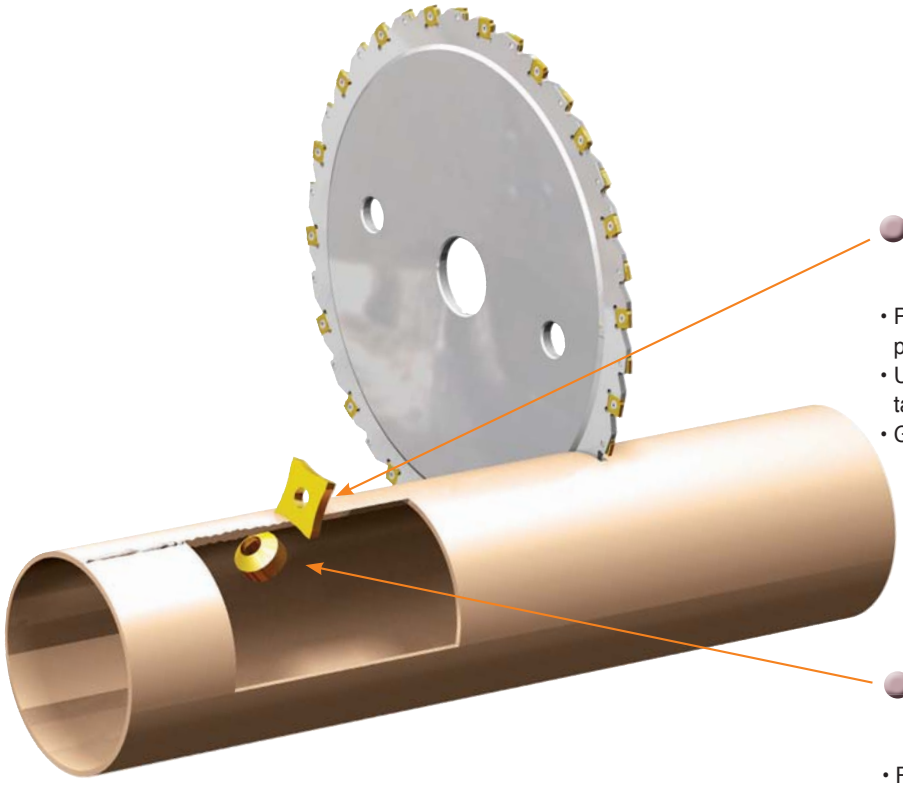
### Lavorazioni speciali

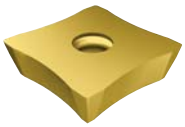
- Design speciale di fresa su richiesta del cliente





## Fabbricazione tubi (asportazione/troncatura/svasatura)





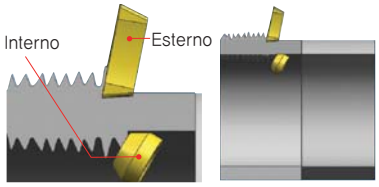
### Inserto per asportazione bava: esterno

- Per l'asportazione di scarti di saldatura sulla parte esterna del tubo
- Utensile economico con inserto quadrato a 4 taglienti
- Grado: NC3030



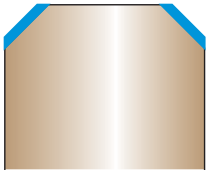
### Inserto per asportazione bava: interno

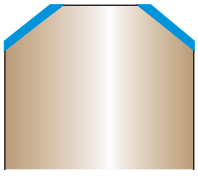
- Per l'asportazione di scarti di saldatura sulla parte interna del tubo
- Grado: CX1222

| Metodo di lavorazione | Applicazione | Inserti applicabili | Fresa |
|---|---|---|---|
|   | Per asportazione bava esterna | SDMX80−R*□□ / SEGW54−R□□<br>SNMG150708−R□□ / SNMN1207(SUN452)−□□R<br>SNMN1507(SNU552)−□□R / SOET1906−254<br>SEGX2509−R□□ | Persona−lizzabile |
| | Per asportazione bava interna | AR□□(AC) / SF□□R−□□ | |









### Utensile di svasatura

- Utensile di svasatura durante lavorazioni di troncatura
- Speciale design angolare per svasatura su richiesta del cliente
- Economico: inserti bilaterali triangolari e quadrati consentono di sfruttare 6~8 taglienti
- Grado : NCM325, PC3500

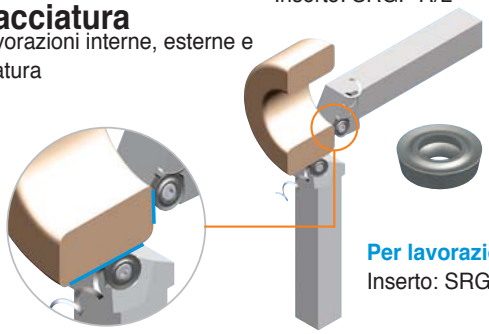




## Produzione di cuscinetti

### Per lavorazione esterna e sfacciatura

• Per lavorazioni interne, esterne e sfacciatura

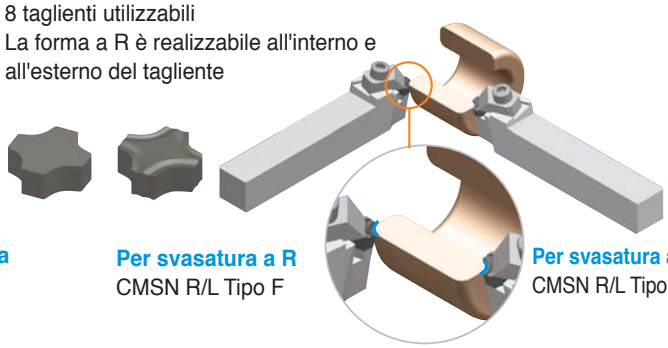


**Per sfacciatura**
Inserto: SRGP R/L

**Per lavorazione esterna**
Inserto: SRGP R/L E

### Per svasatura a R interna ed esterna

• 8 taglienti utilizzabili
• La forma a R è realizzabile all'interno e all'esterno del tagliente

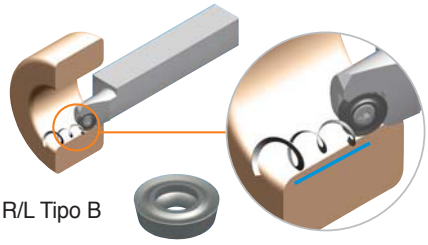


**Per svasatura a R**
CMSN R/L Tipo F

**Per svasatura a R interna**
CMSN R/L Tipo B

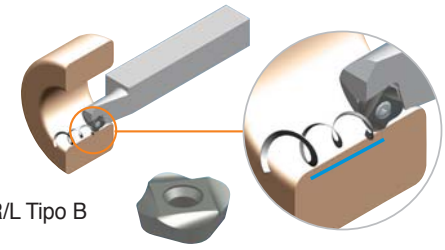
### Per lavorazione interna

• Per diametri superiori a Ø 12



SRCP R/L Tipo B

• Per inserti di diametro superiore a 11.5 e con 4 taglienti per lavorazioni interne e basse

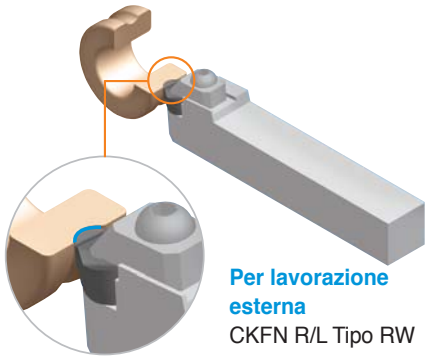


SSKP R/L Tipo B

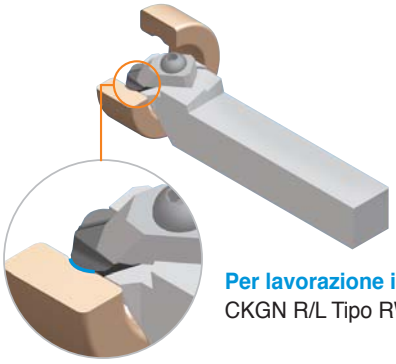
### Per canali

• Per canali interni ed esterni
• Inserto a 3 taglienti
• Personalizzabile





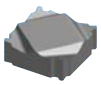
**Per lavorazione esterna**
CKFN R/L Tipo RW

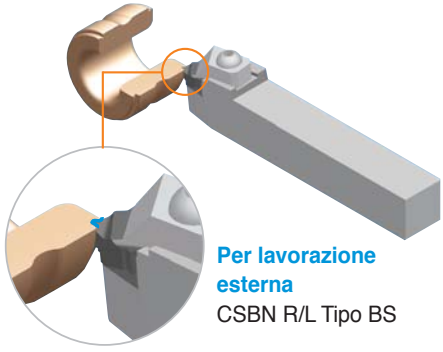


**Per lavorazione interna**
CKGN R/L Tipo RW

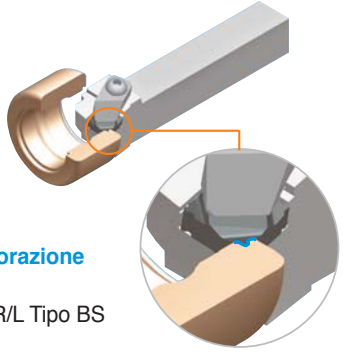
### Per svasatura interna

• Per svasatura interna ed esterna
• Inserto a 4 taglienti
• Personalizzabile





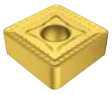
**Per lavorazione esterna**
CSBN R/L Tipo BS



**Per lavorazione interna**
CSKN R/L Tipo BS

## Centrali elettriche (alberi centrali eoliche / flange di energia eolica)







### Rompitruciolo VT chip

- Tagliente robusto per elevati avanzamenti ed elevate profondità di passata
- Rompitruciolo tenace per un'ottima resistenza agli urti
- Tipo SNMM / CNMM





### TM (Frese a filettare)

- Utensili a inserti per filettatura
- Vari tipi di frese (standard, lunghe, coniche) e di inserti
- Diametro vite: Ø 9 ~ Ø 46mm



### Rompitruciolo VH

- Ottimo controllo del truciolo durante le lavorazioni pesanti
- Risultati eccellenti nella lavorazione delle flange
- Indicato per taglio continuo
- Tipo SNMM / CNMM





### H-MAX

- Fresa in metallo duro per materiali induriti
- Il metallo duro sub-micron conferisce resistenza al tagliente prevenendo le piccole scheggiature
- L'avanzato rivestimento PVD dall'elevata durezza e proprietà antiossidante contribuisce a un'eccellente durata dell'utensile durante la lavorazione di materiale duro e tenace



### Tipo RCMX

- Lavorazione di alta qualità
- Inserto rigido che garantisce ottima superficie di finitura e lunga durata dell'utensile
- Tipo RCMX







### Punte saldo brasate (VZD)

- Corpo rigido per elevati avanzamenti e lavorazioni di precisione
- Ottima evacuazione del truciolo grazie al rompitruciolo migliore
- Indicate per forature a basse condizioni di taglio



### LPD, SPD, NPD

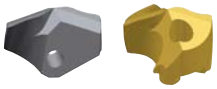
- Punte economiche dalle prestazioni eccellenti
- Corpo molto rigido
- Costi ridotti grazie all'inserto a 4 taglienti
- Ottimo controllo del truciolo e lunga durata dell'utensile garantiscono un'elevata produttività
- Grado PC9530, H01



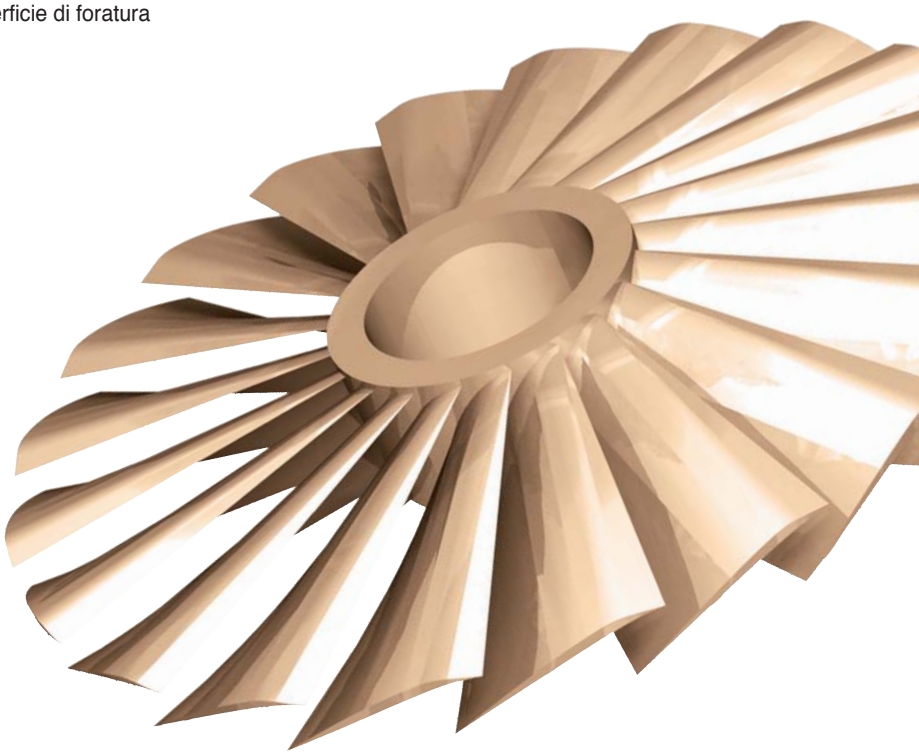
## Aviazione (motore / turbina)



### TPD



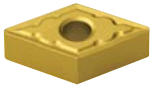
- Punta a inserti precisa e dalle elevate prestazioni
- Indicata per le alte velocità e gli elevati avanzamenti
- Garantisce forature di precisione e un'ottima superficie di foratura





### Tornitura ISO

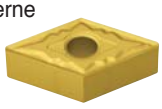
- Utensili personalizzabili per articoli speciali e di forme complesse e diverse



### Bareno



- Tornitura interna
- Bareno standard ISO per lavorazioni interne





### I-Max

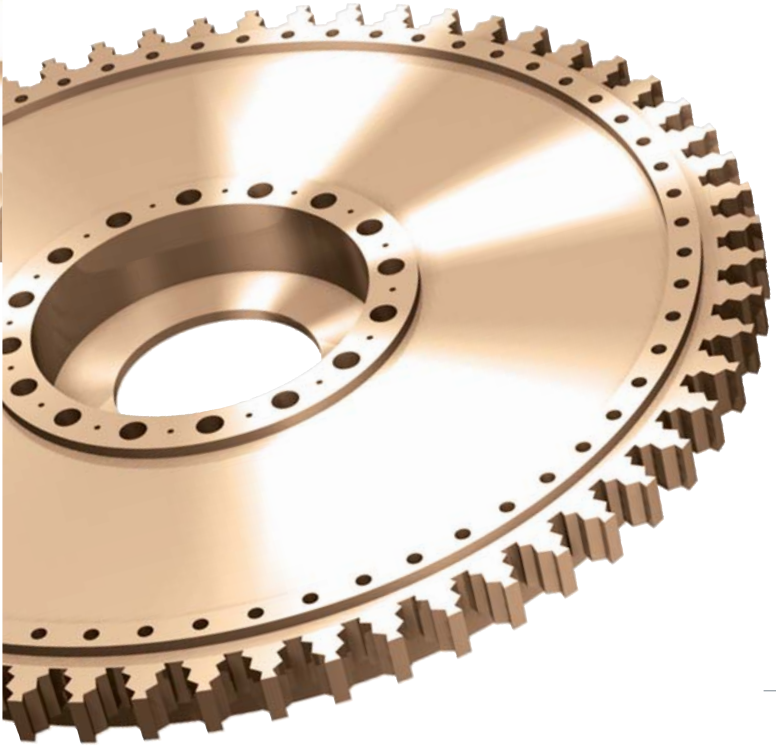
- Fresa in metallo duro per materiali duri (IFSE3000)
- Eccellente controllo del truciolo grazie all'alto angolo di spoglia e allo scarico a elica
- Speciale tagliente studiato per i tagli difficili
- Ottimi risultati nelle lavorazioni di materiali duri





## Rich Mill

- Maggior numero di taglienti e ottima durata dell'utensile grazie agli 8 taglienti
- Taglio dolce con poco sforzo di taglio grazie alla sua geometria unica e all'elevato angolo di spoglia del tagliente che contribuiscono a una maggiore durata dell'utensile





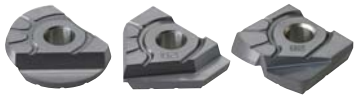
## MSD

- Lunga durata dell'utensile grazie al materiale di protezione
- Ottimo controllo del truciolo grazie allo scarico appositamente studiato
- Riduce le scheggiature e aumenta la capacità di taglio grazie all'inserto dalla forma aerodinamica
- Aumenta la resistenza agli urti e la lubrificazione grazie al rivestimento nero PVD K sul materiale sub-micron



## Laser Mill

- Fresa a inserti multifunzione
- Il grado estremamente duro contribuisce a una lunga durata dell'utensile
- Staffaggio semplice e agevole grazie all'uso di un'unica vite
- Eccellente qualità per ultrafinitura grazie alla precisa tolleranza





## H-MAX

- Fresa in metallo duro per materiali induriti
- Il metallo duro sub-micron conferisce resistenza al tagliente prevenendo le piccole scheggiature
- L'avanzato rivestimento PVD dall'elevata durezza e proprietà antiossidanti contribuisce a un'eccellente durata dell'utensile durante la lavorazione di materiale duro e tenace

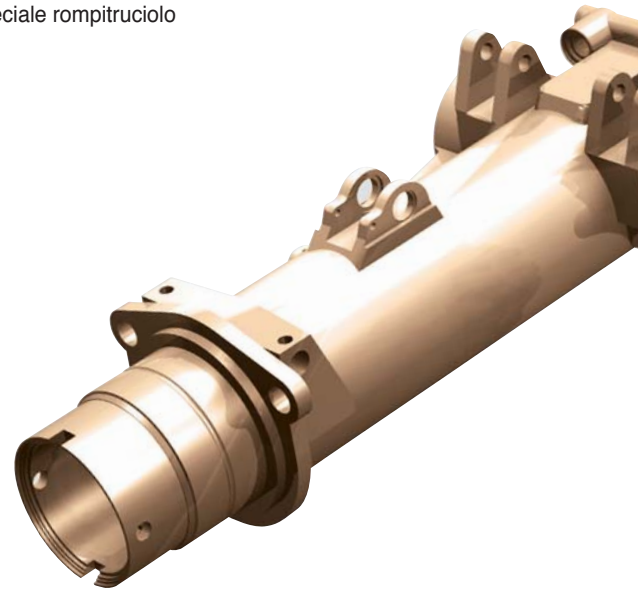
## Aerospace (ingranaggi/accessori per l'atterraggio)





### HRMDouble

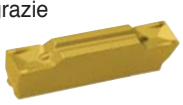
- Utensile efficiente ed economico con inserto bilaterale
- Utensile conveniente grazie all'inserto bilaterale con un totale di 6 taglienti
- Taglio dolce grazie a uno speciale rompitruciolo

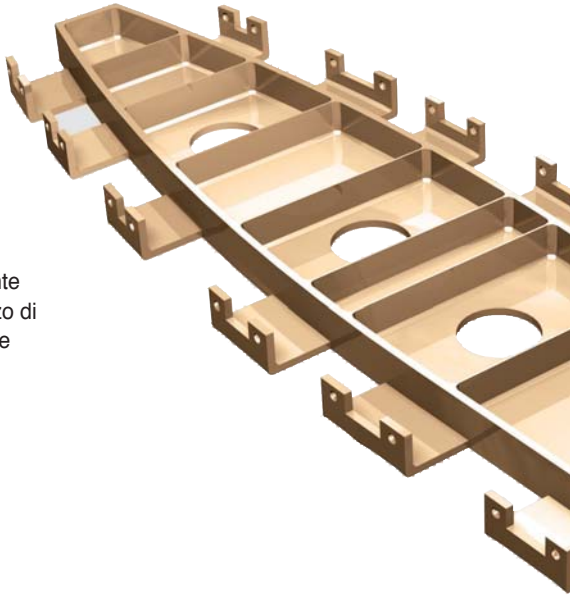




### MGT

- Per scanalatura, tornitura, profilatura, troncatura
- Utensili per scanalatura multifunzione in grado di affrontare una varietà di lavorazioni grazie
- all'avanzato rompitruciolo







### Pro-X Mill

- Fresa in alluminio per elevate velocità
- Unico sistema di montaggio dell'inserto estremamente stabile
- La superficie lappata e l'elevato angolo di spoglia dell'inserto consentono un'eccellente superficie di lavorazione riducendo lo sforzo di taglio e la formazione di riporto sul tagliente
- Grado: H01





Titanio
Immagine fornita da: KPC Inc.



### SSEA

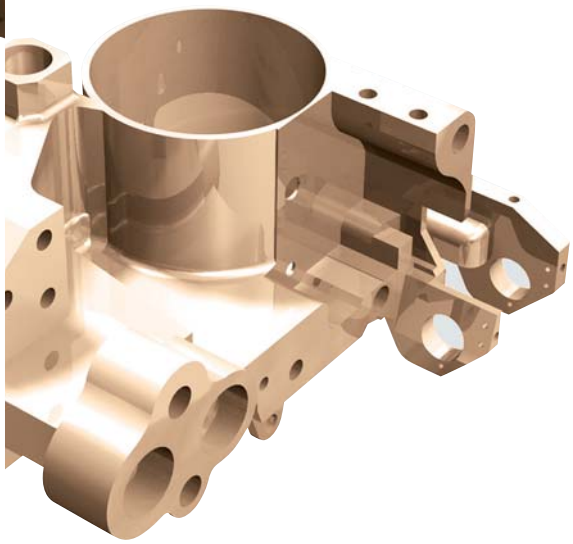
- Fresa in metallo duro per la lavorazione dell'alluminio
- L'avanzata geometria della fresa evita la formazione di riporto sul tagliente
- Eccellente superficie di lavorazione
- Disponibili frese con rivestimento DLC



## LPD, SPD, NPD

- Punte economiche dalle prestazioni eccellenti
- Corpo molto rigido
- Costi ridotti grazie all'inserto a 4 taglienti
- Ottimo controllo del truciolo e lunga durata dell'utensile garantiscono un'elevata produttività
- Grado PC9530, H01







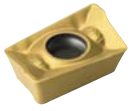
## MLD (Mach Long Drill)

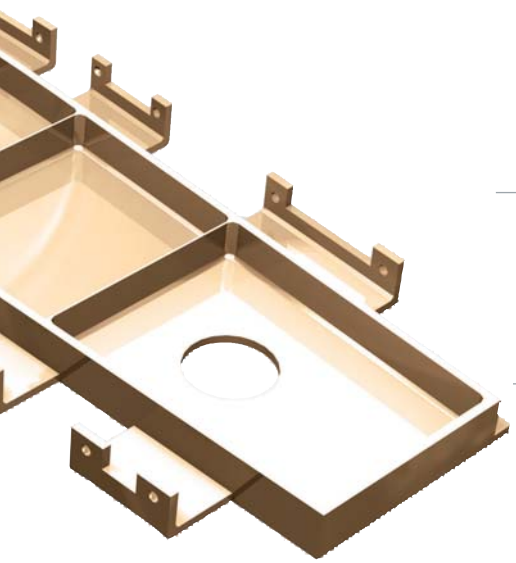
- Foratura diretta senza operazioni secondarie (foratura intermedia) sup. 20 x D
- Scarico più ampio per un miglior controllo del truciolo
- Design speciale del corpo rigido per una foratura più dolce senza flessioni della punta

## Alpha Mill



- Fresa multifunzione
- Ampia copertura delle operazioni di fresatura grazie alla varietà di frese e inserti disponibili
- Design tridimensionale del rompitruciolo per un taglio dolce







## Frese integrali brasate

- Elevato angolo a spirale (sup. 40 gradi) per un'ottima affilatura
- Indicata per le elevate velocità e per ridurre la temperatura di lavorazione
- Elevata durata dell'utensile grazie all'utilizzo di materiale metallico indurito.
- Utensile saldato economico, riaffilabile 2 o 3 volte

## Rifenditrici

### Applicazione

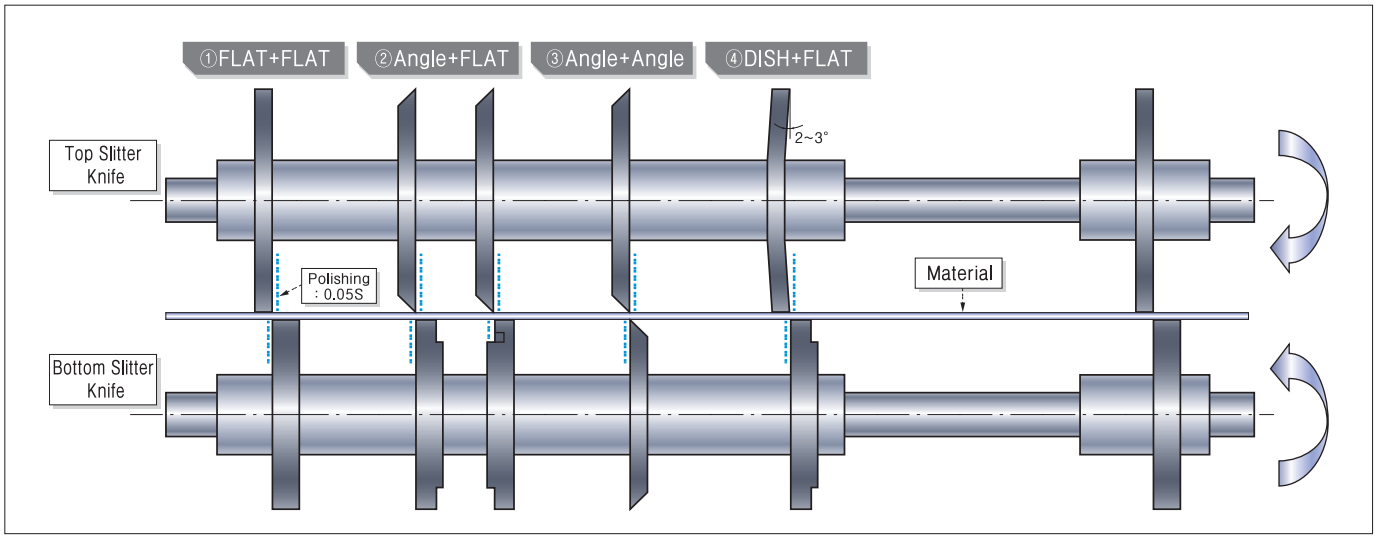
- Per nastri video
- Per nastri audio
- Per nastri magnetici
- Per piastre in ottone, batterie mobili



### Gamma utensili

- Rifenditrice superiore : Spessore : ±0,01~0,02mm
- Rifenditrice inferiore : Spessore : ±0,001mm
  Planarità : inf. 0,0005mm
  Finitura di superficie : inf. 0,05S

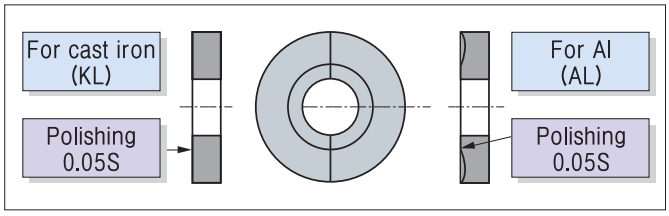
### Esempio di lavorazione

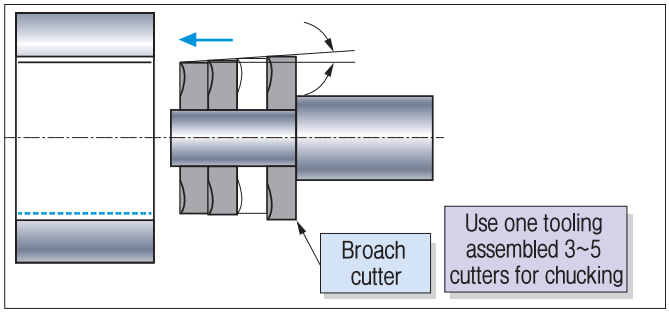



## Affilatrice

### Applicazione

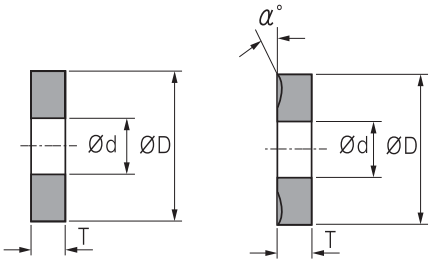
- Le affilatrici si utilizzano per la lavorazione interna dei cuscinetti impiegata nella produzione di alberi a gomiti nell'industria automobilistica




### Ordine

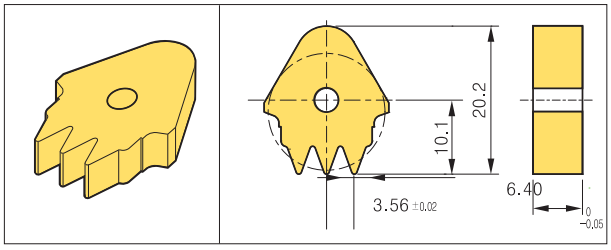
- Indicazioni per ghisa : KL ød × ød × T
- Indicazioni per AL : AL ød × ød × T
  : AL ød × ød × T × α°
  (Se non è menzionato alcun angolo, α = 30°)



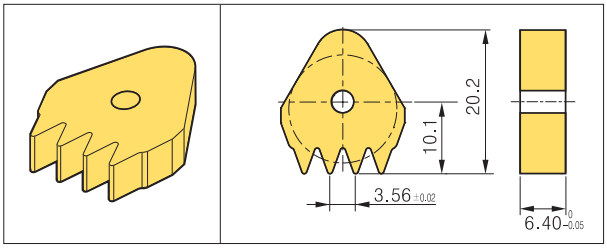
## Produzione pulegge



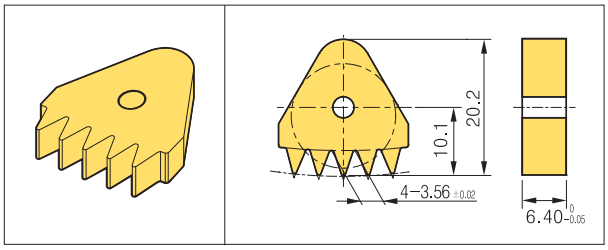
‣Indicazione : DF356-3B

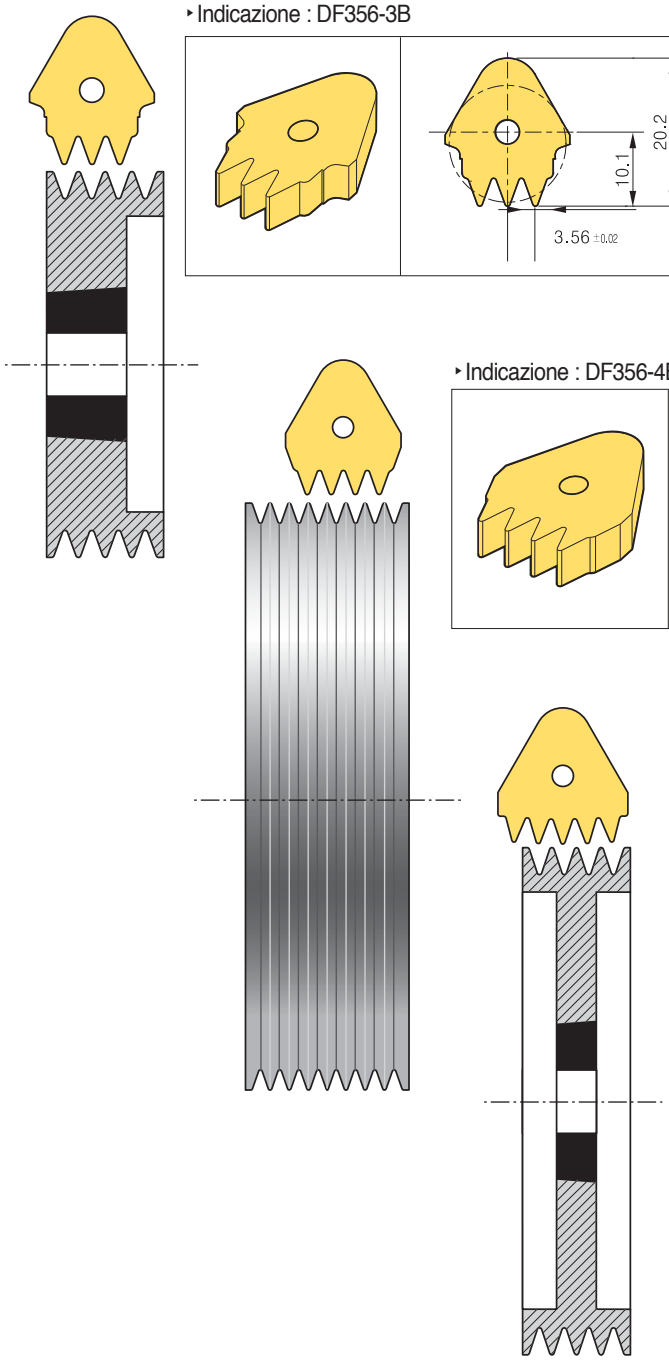



‣Indicazione : DF356-4B

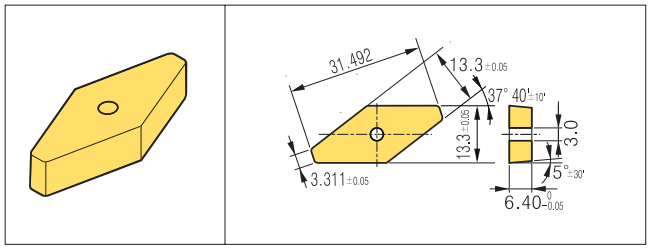



‣Indicazione : DF356-5A

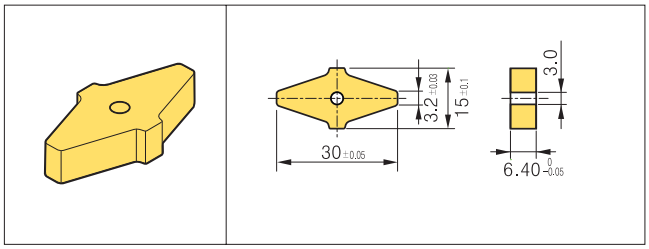


‣Indicazione : VF13M522




‣Indicazione : UF320



## Esempi utensili settore automobilistico (Knucle)



Micro bareno



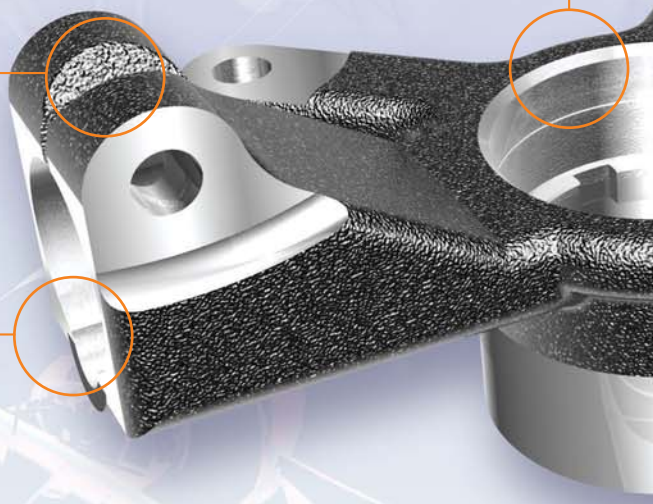
Micro bareno



Fresa a disco (SPB)

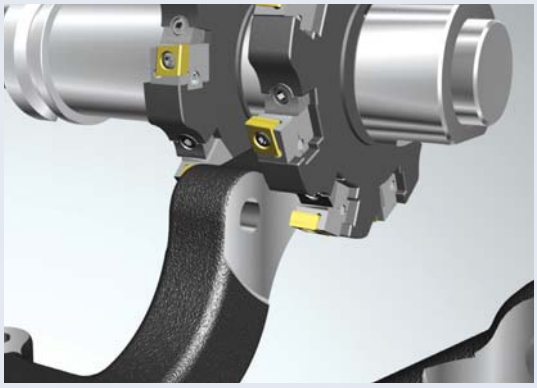


Future Mill (FMP)





Mach Drill



Fresa a disco (tangenziale)

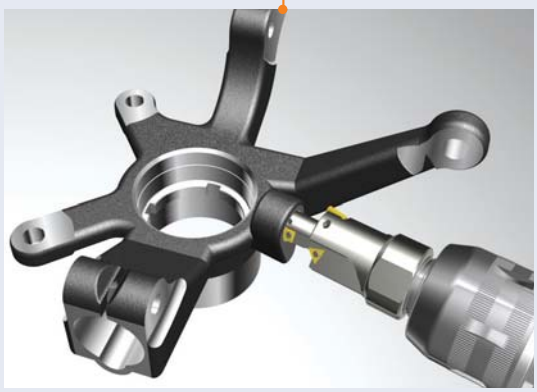




Fresa a disco (radiale)



Future Mill (FMP)

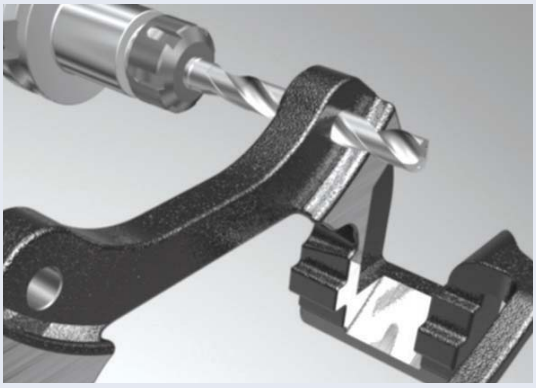


Foratura e smussatura



Foratura (SPD)

## Produzione freni



Foratura



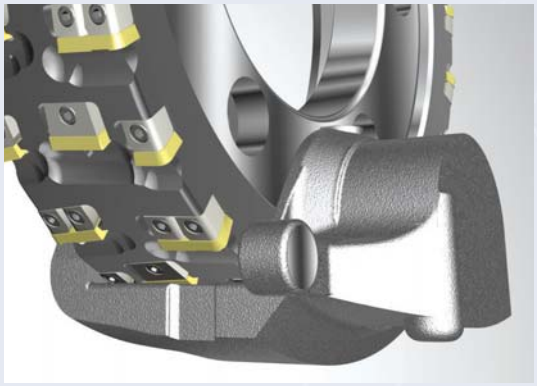
Foratura





Fresatura laterale

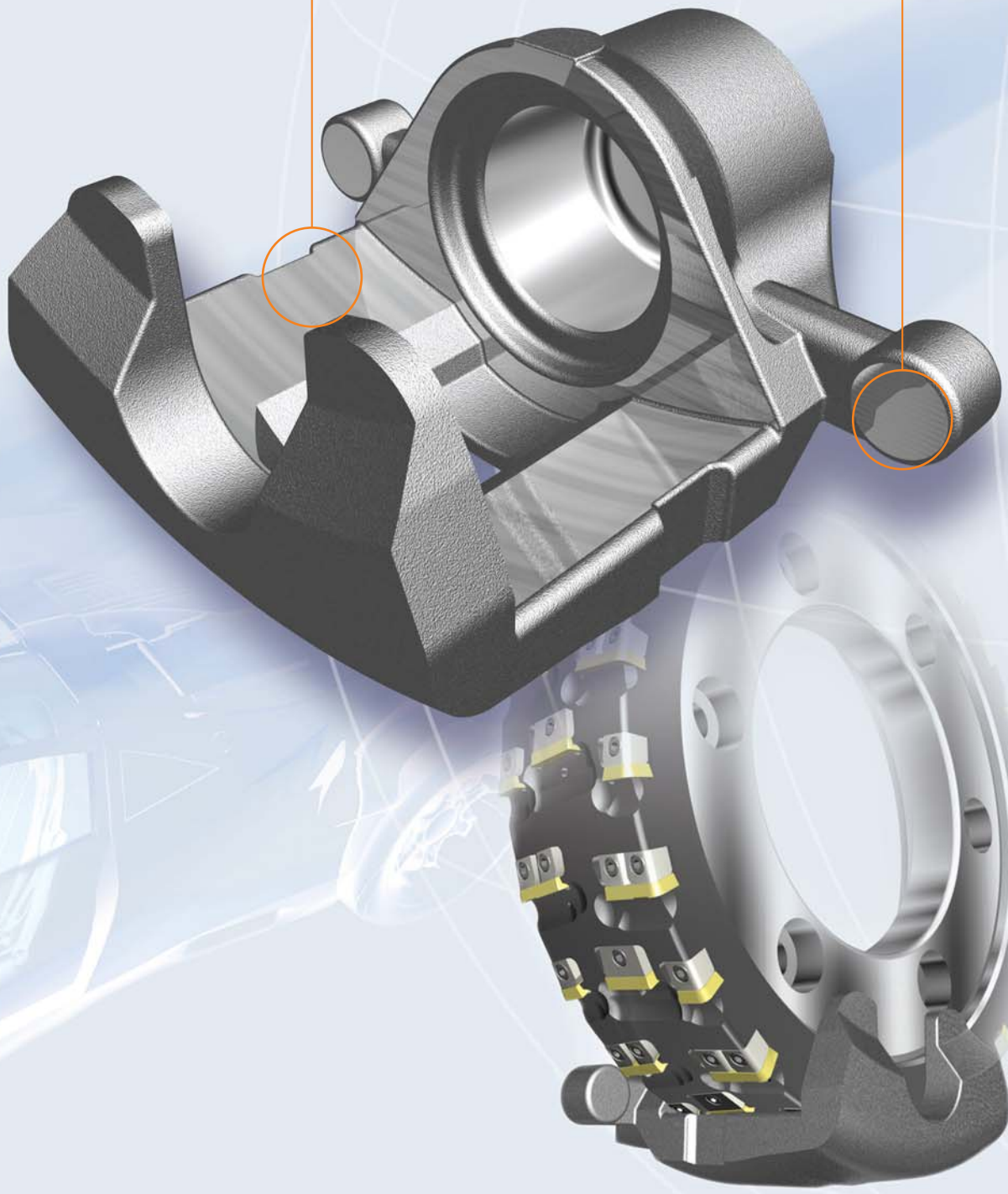
## Produzione freni



Fresatura laterale



Fresatura laterale



## Settore automobilistico



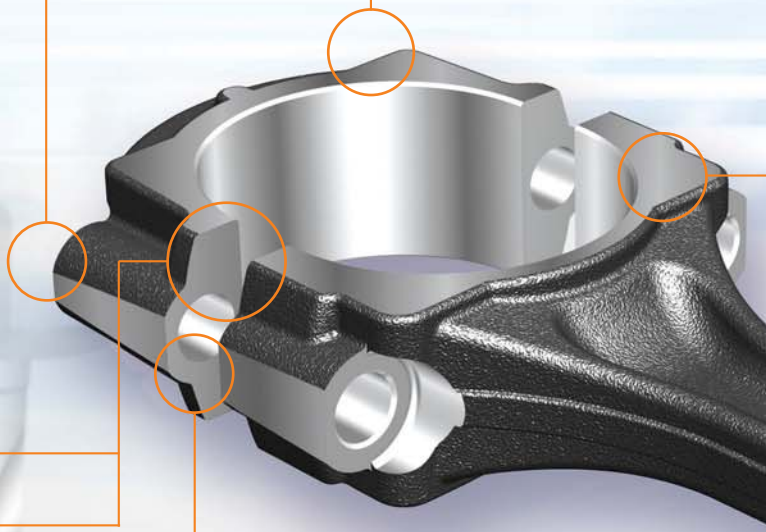
Punta



Rich Mill (RM4)



Fresa laterale

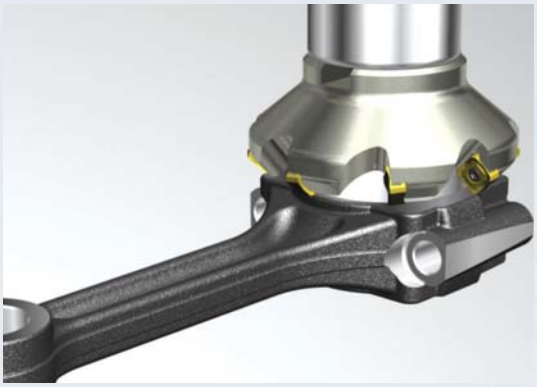




Fresa laterale



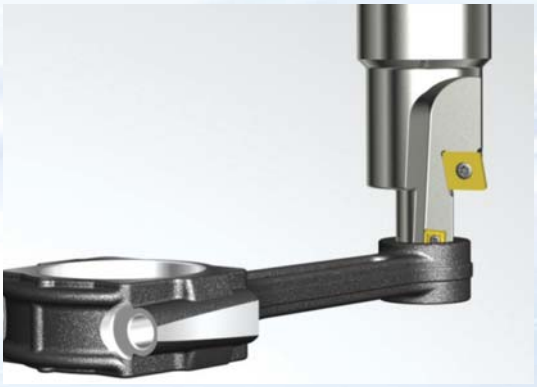
Rich Mill (RM4)



Rich Mill (RM8)



Foratura (SPD)



Foratura e sbavatura

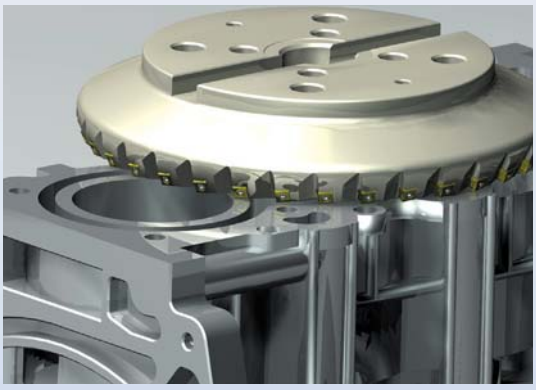






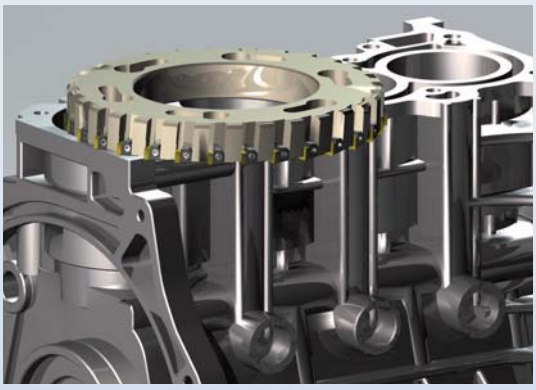
Foratura

## Blocco motore



Sfacciatura blocco testa

• 8 taglienti per inserto



Sfacciatura blocco testa (finitura) - Fresa ad elevato avanzamento



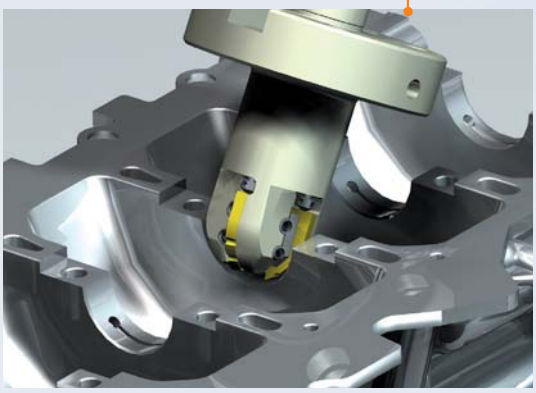
Mozzi - Alpha Mill



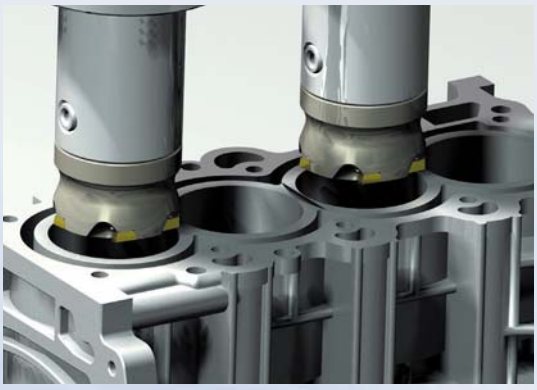
Alesatore



Alloggiamento cappello del supporto



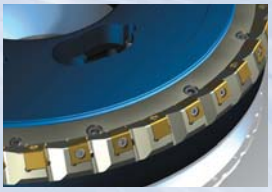
Alloggiamento albero motore



Alesatura cilindri

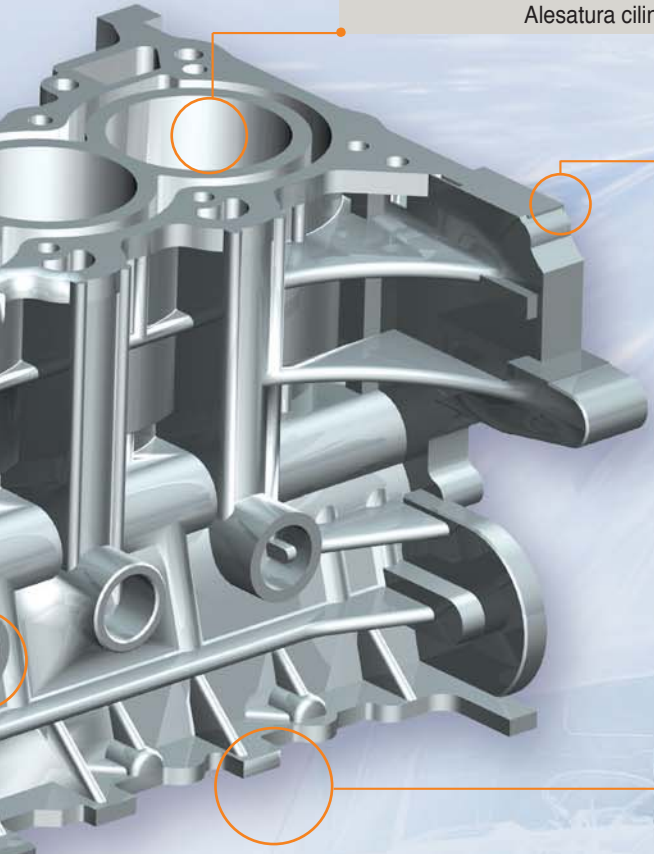


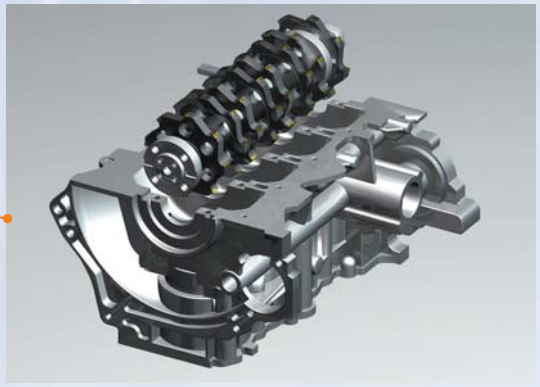




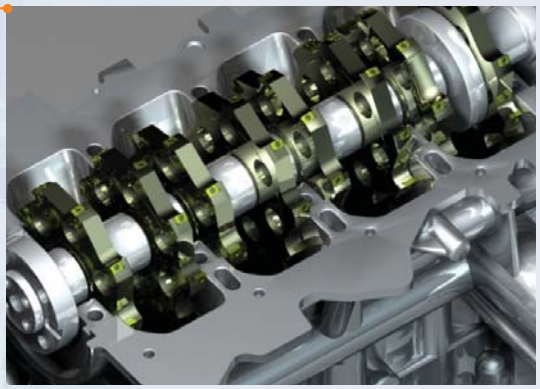
Lato anteriore e posteriore - Cube Couple Mill

- Fresa in alluminio per elevati avanzamenti
- Utensile leggero, facile da maneggiare ed efficiente nella prevenzione di incidenti





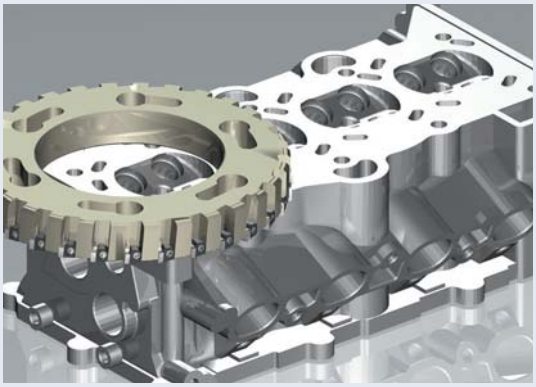
Lati ganascia - Gruppo di frese



Lati ganascia - Gruppo di frese

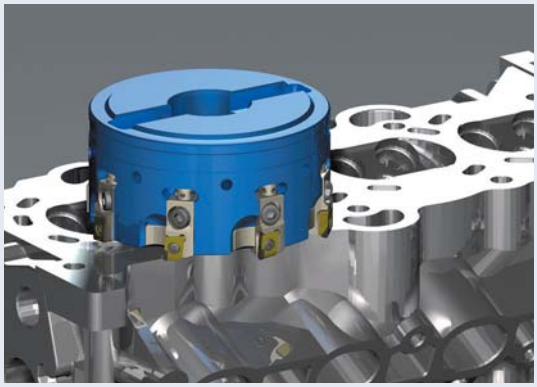
# J Esempi utensili settore automobilistico

## Esempi utensili per motori automobili (testata)



Facciata superiore (sgrossatura e finitura)
- Fresa ad elevato avanzamento

• Inserto in metallo duro, inserto PCD



Facciata superiore (sgrossatura e finitura) - Aero Mill

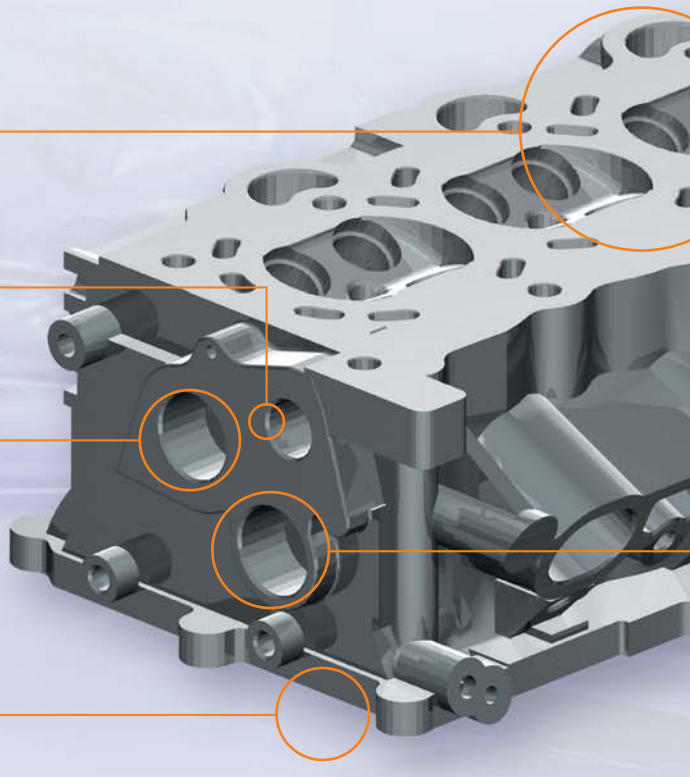
• Corpo fresa in alluminio (50%) molto leggero che consente di ottenere ottimi risultati ad elevate velocità di lavorazione.

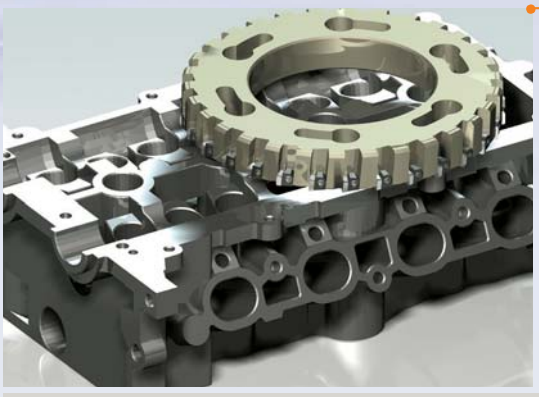


Alesatore per brunitura intermedia



Alesatore per fori cilindrici





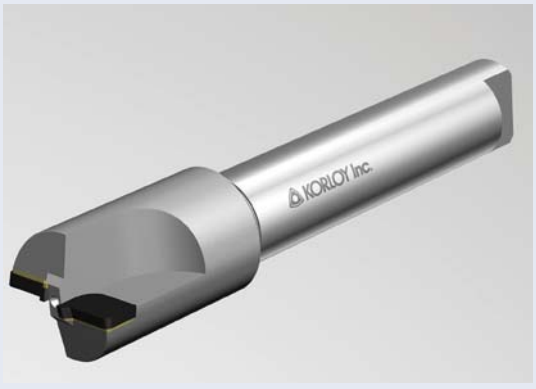
Facciata inferiore (sgrossatura e finitura) - Fresa ad elevato avanzamento

• Inserto in metallo duro, inserto PCD

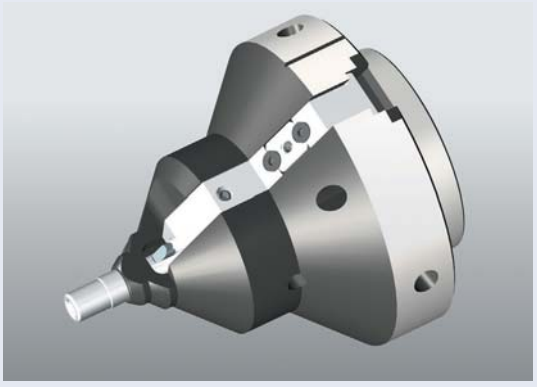


Alloggiamento supporto albero a camme

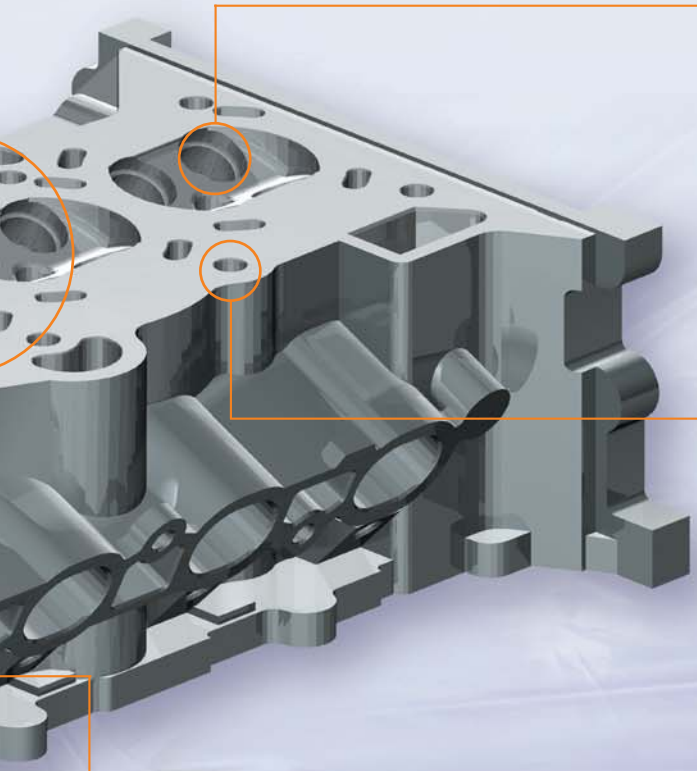
• Lavorazione stabile ad elevate velocità senza vibrazioni

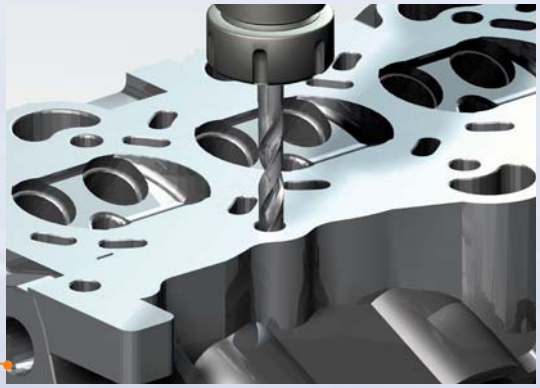



Alesatore speciale



Alloggiamento valvola - Apolo Cutter (fresa speciale per alesatura)





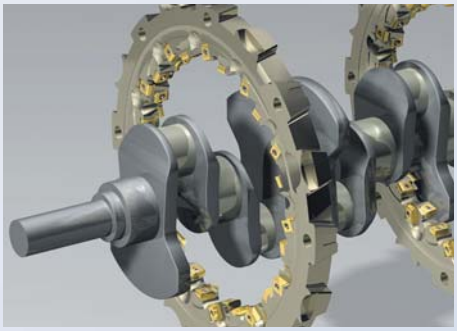
Facciata superiore (foratura) - Mach Drill



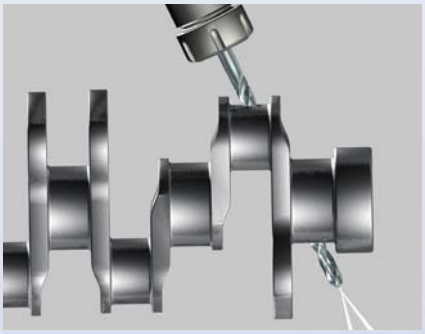
Alesatore alta velocità

- Indicato per velocità elevate di lavorazione
- Eccellente superficie di finitura e precisione

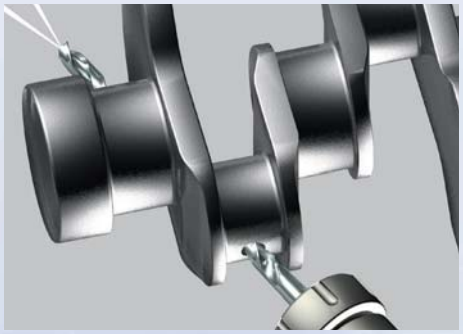
## Esempi utensili per motori automobili (albero a gomiti)



Perno e cuscinetto - Fresa per albero a gomiti (interno/esterno)



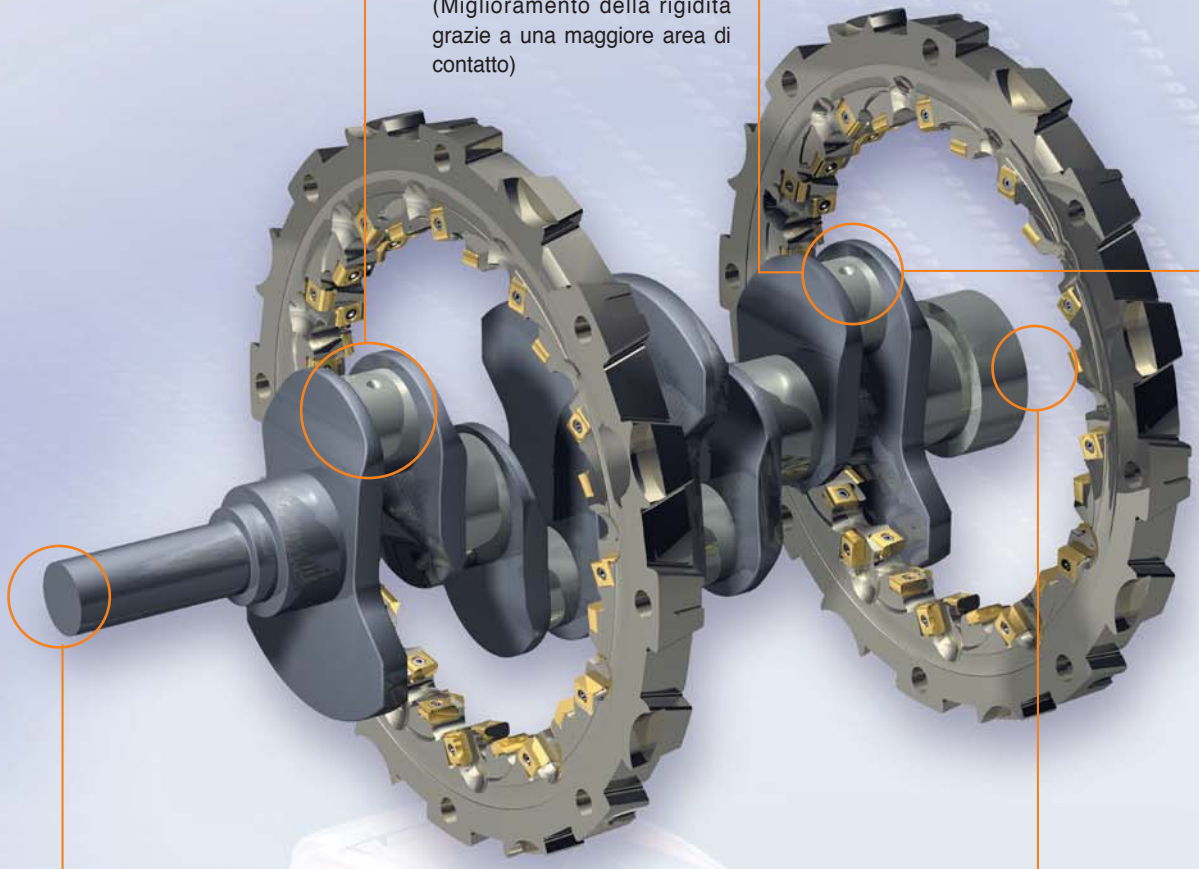
Foratura profonda

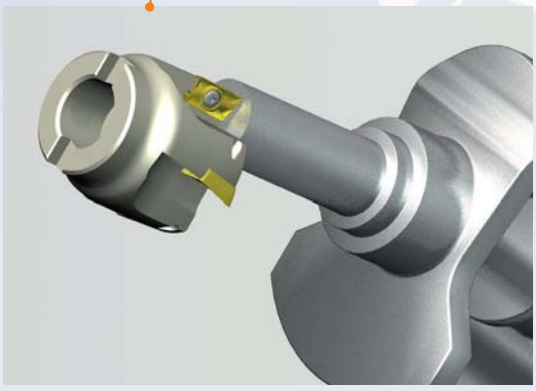


Foro lubrificante - Mach Long Drill (MLD)

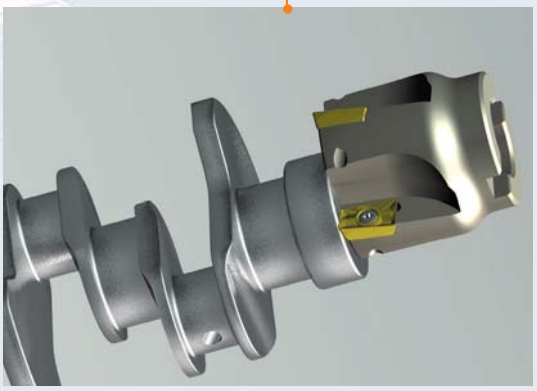
- Lavorazione senza operazioni intermedie per forature profonde fino a 20D
- Prestazioni ottimali con il sistema MQL

Struttura scanalata conica (Miglioramento della rigidità grazie a una maggiore area di contatto)





Alpha Mill



Alpha Mill

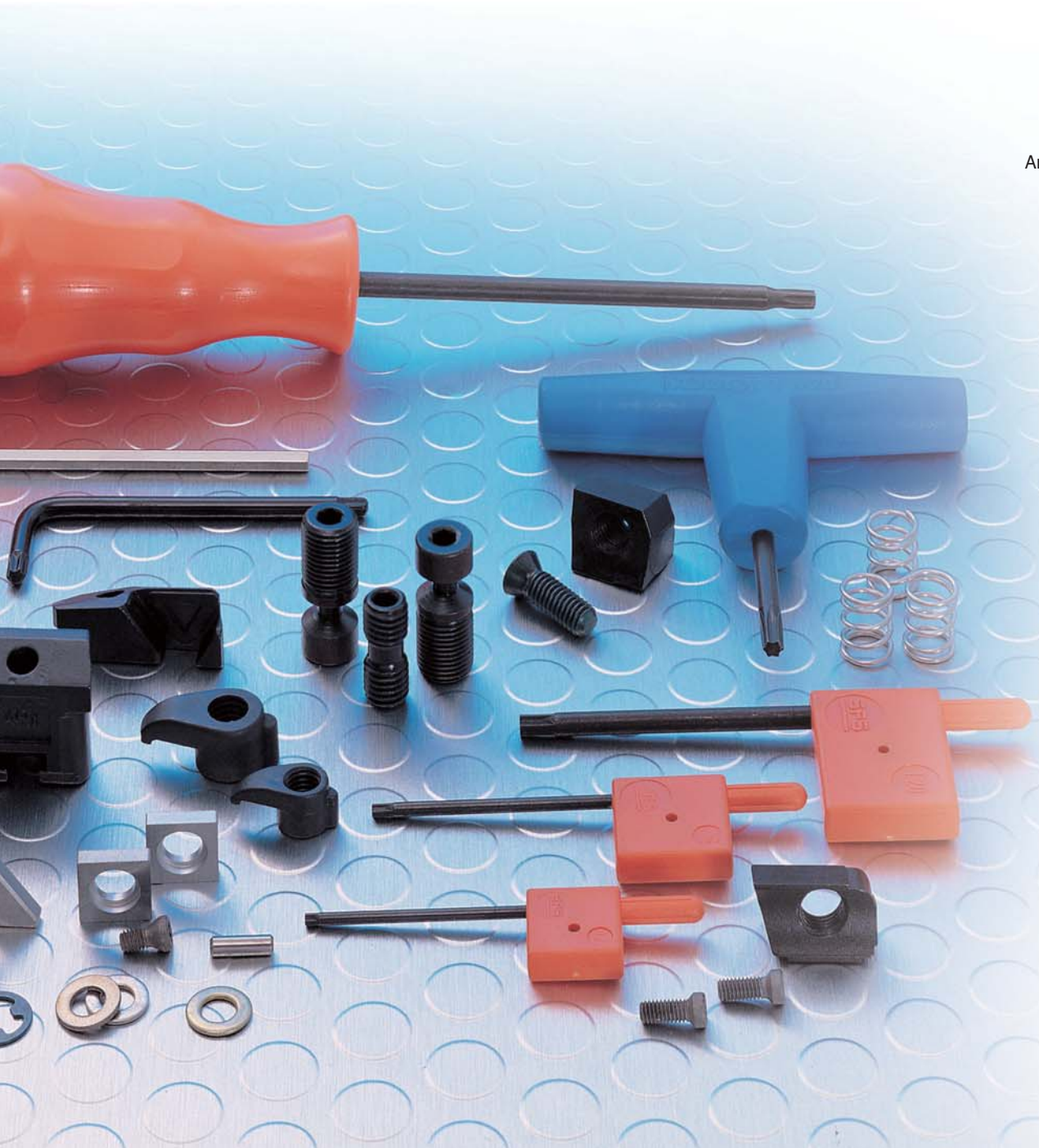
# INDICE

## Parti di ricambio

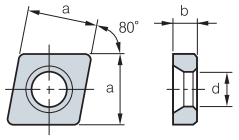
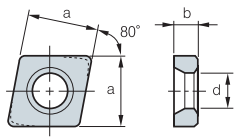
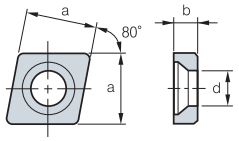
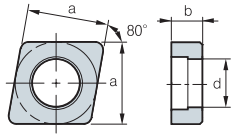
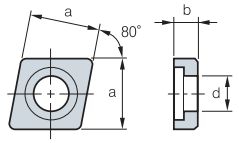
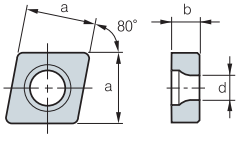
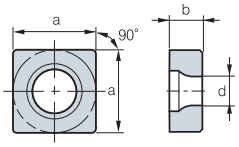
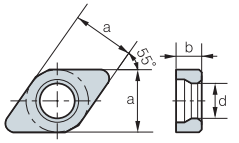
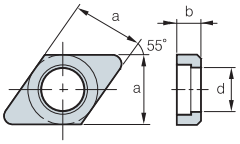
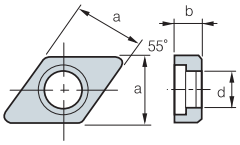
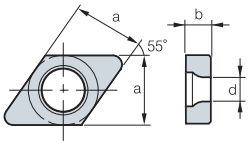
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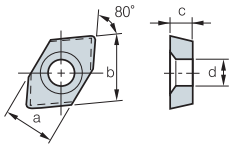
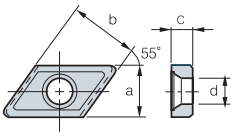
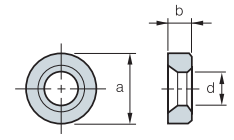
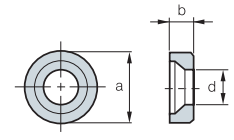
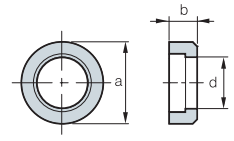
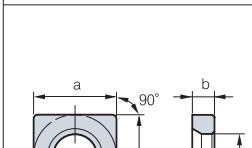
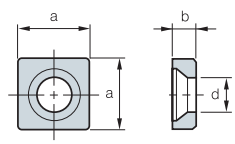
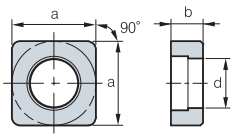
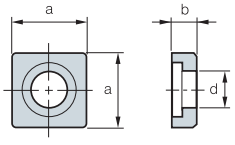
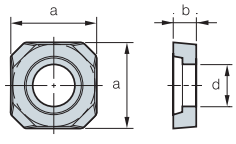
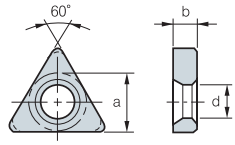
**Parti di ricambio**


| | |
|---|---|
| Sede | K02 |
| Cartuccia | K03 |
| Rompitruciolo | K03 |
| Copritruciolo | K03 |
| Staffa | K03 |
| Vite | K04 |
| Vite della chiave | K04 |
| Leva | K04 |
| Base | K05 |
| Dado | K05 |
| Perno | K05 |
| Vite | K05 |
| Spina | K06 |
| Molla | K07 |
| Chiave | K07 |
| Anello di chiusura | K07 |
| Rondella | K07 |
| Fermo | K07 |
| Ugello | K07 |

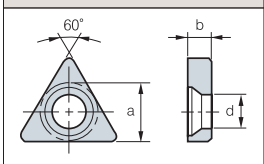
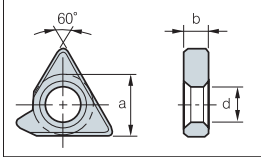
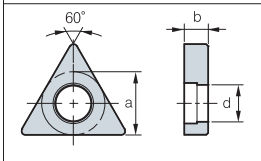
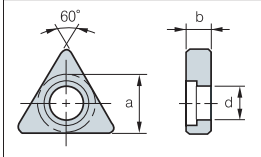
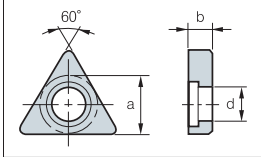
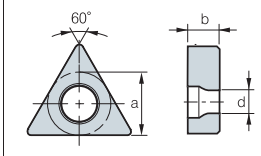
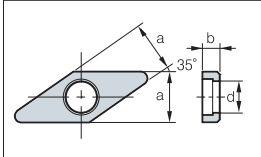
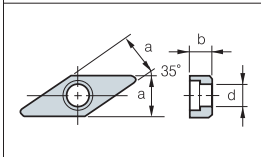
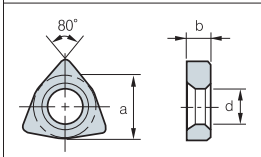
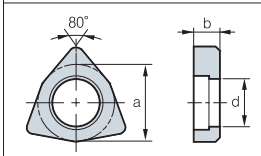
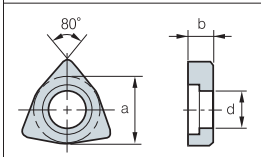
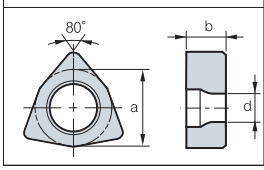



## Sede

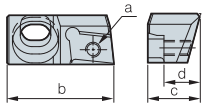
| Geometria | Articolo | Dimensioni a | b | c | d | Ang. |
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|  | SC32 | 8.5 | 3.18 | | 4.9 | |
| | SC32N | 8.5 | 3.18 | | 4.88 | |
| | SC42 | 12.5 | 3.18 | | 6.9 | |
| | SC42N | 11.6 | 3.18 | | 6.5 | |
| | SC53 | 15.7 | 4.76 | | 7.9 | |
| | SC53N | 14.6 | 4.76 | | 8.11 | |
| | SC63 | 18.85 | 4.76 | | 10 | |
| | SC63N | 17.8 | 4.76 | | 9.6 | |
| | SC83 | 24.4 | 4.76 | | 12.8 | |
| | SC84N | 24.2 | 6.35 | | 13 | |
|  | SC42B | 12.5 | 3.18 | | 6.9 | |
|  | SC42CC | 12.5 | 3.18 | | 3.5 | |
|  | SC32D | 9.27 | 3.18 | | 6.48 | |
| | SC43D | 12.45 | 4.76 | | 7.34 | |
| | SC53D | 15.62 | 4.76 | | 9.65 | |
| | SC63D | 18.8 | 4.76 | | 11.25 | |
| | SC84D | 25.08 | 6.35 | | 14.85 | |
|  | SC42S | 11.5 | 3.18 | | 6.4 | |
|  | SC32V | 9.12 | 3.18 | | 3.4 | |
| | SC42V | 12.6 | 3.18 | | 4.5 | |
| | SC44V | 12.6 | 6.35 | | 4.5 | |
| | SC54V | 15.75 | 6.35 | | 5.5 | |
|  | SC32V | 9.12 | 3.18 | | 3.4 | |
| | SC42V | 12.6 | 3.18 | | 4.5 | |
| | SS54V | 15.75 | 6.35 | | 5.5 | |
| | SS64V | 18.9 | 6.35 | | 5.5 | |
|  | SD317 | 9.35 | 2.7 | | 5.2 | |
| | SD32N | 8.5 | 3.18 | | 4.88 | |
| | SD42 | 12.5 | 3.18 | | 6.9 | |
| | SD42N | 11.6 | 3.18 | | 6.5 | |
| | SD43N | 11.6 | 4.75 | | 6.5 | |
|  | SD32D | 9.2 | 3.18 | | 5.8 | |
| | SD43D | 12.45 | 4.76 | | 7.34 | |
|  | SD32S | 8.5 | 3.18 | | 5.4 | |
|  | SD32V | 9.12 | 3.18 | | 3.4 | |
| | SD43V | 12.6 | 4.76 | | 4.5 | |
| | SD44V | 12.6 | 6.35 | | 4.5 | |

| Geometria | Articolo | Dimensioni a | b | c | d | Ang. |
|---|---|---|---|---|---|---|
|  | SES33C | 9.1 | 12 | 4.76 | 3.5 | |
|  | SK33C | 9.33 | 14.7 | 4.8 | 3.5 | |
| | SK33CL | 9.33 | 14.7 | 4.8 | 3.5 | |
|  | SR10 | 8.4 | 3.18 | | 4.7 | |
| | SR12 | 10 | 3.18 | | 4.7 | |
| | SR16 | 13.55 | 4.76 | | 6.9 | |
| | SR20 | 17.1 | 4.85 | | 7.9 | |
| | SR25 | 22 | 6.35 | | 9.6 | |
| | SR32 | 27.8 | 6.35 | | 13 | |
|  | SR42CC | 12.575 | 3.18 | | 3.5 | |
|  | SR10S | 8.8 | 3.18 | | 5.4 | |
| | SR12S | 10.55 | 3.18 | | 5.4 | |
|  | SS32 | 8.5 | 3.18 | | 4.9 | |
| | SS32N | 8.5 | 3.18 | | 4.88 | |
| | SS42 | 12.5 | 3.18 | | 6.9 | |
| | SS42B | 12.5 | 3.18 | | 6.9 | |
| | SS42N | 11.6 | 3.18 | | 6.5 | |
| | SS53 | 15.7 | 4.76 | | 7.9 | |
| | SS53N | 14.6 | 4.76 | | 8.11 | |
| | SS63 | 18.85 | 4.76 | | 10 | |
| | SS63N | 17.8 | 4.76 | | 9.6 | |
| | SS84 | 24.4 | 6.35 | | 12.8 | |
| | SS84N | 24.2 | 6.35 | | 13 | |
|  | SS42CC | 12.5 | 3.18 | | 3.5 | |
|  | SS32D | 9.27 | 3.18 | | 5.77 | |
| | SS43D | 12.45 | 4.76 | | 7.34 | |
| | SS53D | 15.62 | 4.76 | | 9.65 | |
| | SS63D | 18.8 | 4.76 | | 11.25 | |
| | SS84D | 25.15 | 6.35 | | 14.43 | |
|  | SS32S | 8.3 | 3.18 | | 5.4 | |
| | SS42S | 11.5 | 3.18 | | 6.4 | |
|  | SS42SAF | 11.2 | 3 | | 5.5 | |
|  | ST317 | 9.35 | 2.7 | | 5 | |
| | ST317B | 9.35 | 2.7 | | 5 | |
| | ST317N | 8.5 | 2.7 | | 4.88 | |
| | ST42 | 12.5 | 3.18 | | 6.9 | |
| | ST42N | 11.6 | 3.18 | | 6.5 | |
| | ST53 | 15.7 | 4.76 | | 7.9 | |

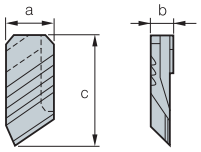
## Sede

| Geometria | Articolo | Dimensioni a | b | c | d | Ang. |
|---|---|---|---|---|---|---|
|  | ST32CC | 9.35 | 3.18 | | 3.5 | |
|  | ST32C1 | 9.13 | 3.18 | | 4.95 | |
| | ST42C1 | 12.3 | 3.18 | | 4.95 | |
|  | ST32D | 9.35 | 3.18 | | 5.77 | |
| | ST43D | 12.52 | 4.76 | | 7.34 | |
| | ST53D | 15.7 | 4.76 | | 9.65 | |
| | ST63D | 18.87 | 4.76 | | 11.25 | |
|  | ST32M | 8.7 | 3.18 | | 4.7 | |
| | ST43M | 12.5 | 4.76 | | 6.3 | |
|  | ST32S | 8.5 | 3.18 | | 5.4 | |
|  | ST32V | 9.12 | 6.18 | | 3.4 | |
| | ST44V | 12.6 | 6.35 | | 4.5 | |
|  | SV32D | 9.2 | 3.18 | | 5.8 | |
| | SV43D | 12.29 | 4.76 | | 7.34 | |
|  | SV32D2 | 9.2 | 3.18 | | 5.8 | |
| | SV32S | 8.4 | 3.18 | | 5.4 | |
|  | SW317 | 9.35 | 2.7 | | 5 | |
| | SW317N | 8.5 | 2.7 | | 4.88 | |
| | SW42 | 12.5 | 3.18 | | 6.9 | |
| | SW42N | 11.6 | 3.18 | | 6.5 | |
|  | SW32D | 9.25 | 3.18 | | 5.8 | |
| | SW43D | 12.45 | 4.76 | | 7.34 | |
|  | SW43M | 12.5 | 4.76 | | 6.2 | |
|  | SW32V | 9.12 | 3.18 | | 3.4 | |
| | SW44V | 12.6 | 6.35 | | 4.5 | |

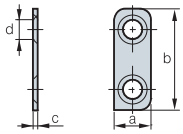
## Cartuccia

| Geometria | Articolo | Dimensioni a | b | c | d | Ang. |
|---|---|---|---|---|---|---|
|  | LAPDR-AJ | M4×0.7 | 30 | 15 | 10 | |

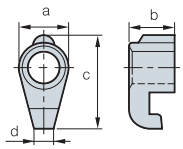
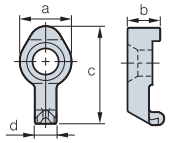
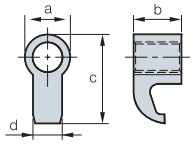
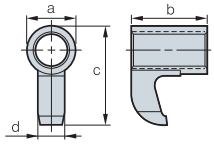
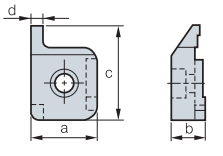
## Rompitruciolo

| Geometria | Articolo | Dimensioni a | b | c | d | Ang. |
|---|---|---|---|---|---|---|
|  | CB20 | 8.5 | 3.4 | 20 | | |

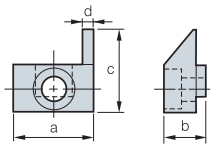
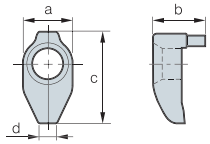
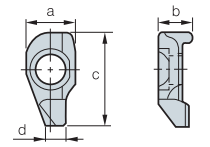
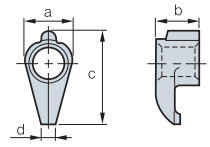
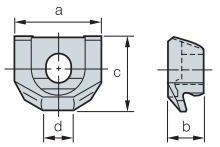
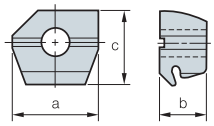
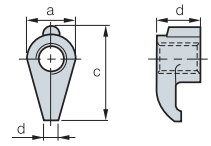
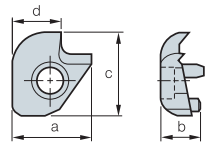
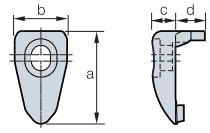
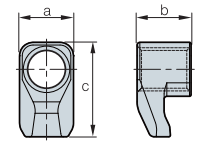
## Copritruciolo

| Geometria | Articolo | Dimensioni a | b | c | d | Ang. |
|---|---|---|---|---|---|---|
|  | CFMP3R14R1-A | 10.5 | 20 | 1 | (Ø4.3) | |
| | CFMP3R-A | 8 | 18 | 1 | (Ø4.3) | |
| | CFMP4R-A | 8 | 22 | 1 | (Ø4.3) | |

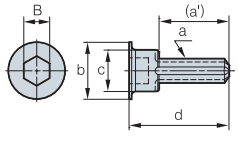
## Staffa

| Geometria | Articolo | Dimensioni a | b | c | d | |
|---|---|---|---|---|---|---|
|  | CA05R | 8.9 | 5.5 | 17.6 | 3.3 | |
| | CA06R | 12 | 7.2 | 20.6 | 5.3 | |
| | CH5R3 | 7.85 | 7.2 | 14.8 | 3.1 | |
| | CH6R4 | 12.02 | 9 | 23.97 | 3.75 | |
|  | CBH4.5R1 | 8 | 5.74 | 17.7 | 4 | |
| | CBH4.5R2 | 9.5 | 6.4 | 18 | 4 | |
| | CBH5R1 | 10 | 7.8 | 21.3 | 5 | |
| | CBH6R1 | 12 | 9.3 | 26 | 6 | |
|  | CDH6N | 9.5 | 10 | 18.6 | 6.1 | |
| | CDH7N | 7.9 | 11.4 | 14.7 | 4.7 | |
| | CDH8N | 10.9 | 16.9 | 22.4 | 6.1 | |
| | CDH8N1 | 10.9 | 16.9 | 19.1 | 6.1 | |
| | CDH8N2 | 10.9 | 16.9 | 25.4 | 6.1 | |
| | CDH8N3 | 12.5 | 19.8 | 25.4 | 9.2 | |
|  | CDS8N | 10.8 | 17 | 22.2 | 5 | |
|  | CGH5R1 | 19.5 | 9.5 | 28.8 | 2.5 | |
| | CGH5R2 | 20.5 | 9.5 | 28.8 | 3.5 | |
| | CGH5R3 | 22.5 | 9.5 | 28.8 | 5.5 | |

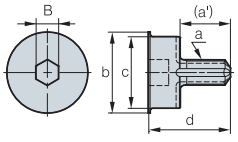
## Staffa

| Geometria | Articolo | Dimensioni a | b | c | d |
|---|---|---|---|---|---|
|  | CGH6R1 | 22.3 | 11.9 | 23.2 | 2.5 |
| | CGH6R2 | 23.2 | 11.9 | 23.2 | 3.4 |
| | CGH6R3 | 24.0 | 11.9 | 23.2 | 4.2 |
|  | CHH3.5R1 | 7.5 | 6.7 | 13 | 2.45 |
| | CHH4.5R1 | 7.9 | 7.85 | 14.1 | 2.54 |
| | CHH5.5R1 | 9.8 | 10 | 16.4 | 4 |
|  | CH4R1 | 7.4 | 5 | 14.1 | 3.1 |
| | CH5R1 | 10.0 | 6.6 | 20.2 | 4.5 |
|  | CH5R2 | 6.85 | 7 | 13.8 | 2 |
| | CH6R2 | 8.85 | 8.7 | 16.5 | 2 |
| | CH6R3 | 11.8 | 10 | 23 | 4.2 |
|  | CMH5R1 | 18.5 | 7.9 | 16 | 6.26 |
| | CMH6R2 | 20.0 | 11 | 17.5 | 13.8 |
| | CMH6R6 | 18.5 | 7.9 | 16 | 6.26 |
| | CMH6R1 | 24 | 8.5 | 16.5 | 8.28 |
|  | CMH6R3 | 20.0 | 11 | 17.51 | |
| | CMH6L3 | 20.0 | 11 | 17.51 | |
|  | CS5R1 | 6.8 | 7 | 14.5 | 2 |
| | CS6R1 | 8.8 | 8.5 | 18.1 | 2.7 |
| | CS8R1 | 11.8 | 10 | 23 | 4.2 |
|  | CTH6L1 | 23.5 | 12 | 25.4 | 14.35 |
| | CTH6R1 | 23.5 | 12 | 25.4 | 14.35 |
| | CTH6R2 | 21.78 | 12.9 | 31.22 | 17.33 |
|  | CVH3 | 21 | 11 | 5.8 | 7.7 |
| | CHV3V | 29 | 14 | 7 | 8 |
| | CVH4 | 25.5 | 14.5 | 6 | 7 |
| | CVH5 | 30 | 17 | 7.5 | 9.5 |
| | CVH6 | 33.5 | 18.5 | 8 | 10 |
|  | CXH8N | 10.1 | 10.0 | 17.5 | - |

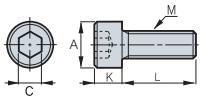
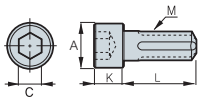
## Vite

| Geometria | Articolo | Dimensioni a | b | c | d | B(T) | á |
|---|---|---|---|---|---|---|---|
|  | CBA063-3IN/MM | M10 | Ø25 | Ø16 | 37 | 8 | (27) |
| | CBA063-4IN/MM | M10 | Ø25 | Ø16 | 42.5 | 8 | (27) |
| | CBA080-IN/MM | M12 | Ø28 | Ø18 | 45.5 | 10 | (32) |
| | CBP063-IN/MM | M10 | Ø22 | Ø16 | 38.6 | 8 | (27) |
| | CBP080-IN/MM | M12 | Ø25 | Ø18 | 48.6 | 10 | (32) |

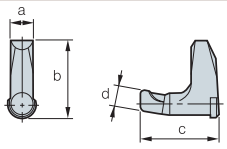
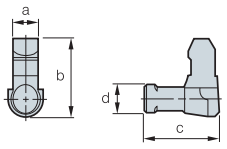
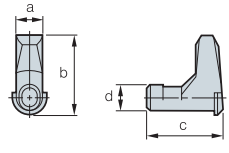
## Vite

| Geometria | Articolo | Dimensioni a | b | c | d | B(T) | á |
|---|---|---|---|---|---|---|---|
|  | CBA100-IN/MM | M16 | Ø54 | Ø43 | 47 | 14 | (32) |
| | CBA100-IN-25.4 | M12 | Ø44 | Ø36 | 41.5 | 10 | (25) |
| | CBA125-IN | M20 | Ø65 | Ø54 | 56 | 17 | (38) |
| | CBA125-IN-25.4 | M12 | Ø44 | Ø36 | 43.5 | 10 | (25) |
| | CBA125-MM | M20 | Ø65 | Ø54 | 57 | 17 | (35) |
| | CBA160-IN | M24 | Ø83 | Ø73 | 56 | 19 | (38) |
| | CBA160-MM | M20 | Ø83 | Ø73 | 53 | 17 | (34) |
| | CBP100-IN | M16 | Ø50 | Ø43 | 48.6 | 14 | (32) |
| | CBP100-IN-25.4 | M12 | Ø44 | Ø36 | 46.5 | 10 | (25) |
| | CBP100-MM-1 | M16 | Ø50 | Ø43 | 48.6 | 14 | (36) |
| | CBP125-IN | M20 | Ø65 | Ø54 | 56 | 17 | (38) |
| | CBP125-IN-25.4 | M12 | Ø44 | Ø36 | 55 | 10 | (25) |
| | CBP125-MM | M20 | Ø65 | Ø54 | 57 | 17 | (35) |
| | CBP125-MM-1 | M20 | Ø61 | Ø54 | 65.6 | 14 | (33) |
| | CBP160-IN | M24 | Ø83 | Ø73 | 56 | 19 | (38) |
| | CBP160-MM | M20 | Ø83 | Ø73 | 53 | 17 | (34) |

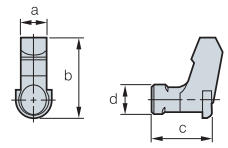
## Vite della chiave

| Geometria | Articolo | Dimensioni A | C | K | L | M |
|---|---|---|---|---|---|---|
|  | SB0825 | 13 | 6 | 8 | 25 | M08 × 1.25 |
| | SB1025 | 16 | 8 | 10 | 25 | M10 × 1.50 |
| | SB1035 | 16 | 8 | 10 | 35 | M10 × 1.50 |
| | SB1230 | 18 | 10 | 12 | 30 | M12 × 1.75 |
| | SB1630 | 24 | 14 | 16 | 30 | M16 × 2.0 |
| | SB1645 | 24 | 14 | 16 | 45 | M6 × 2.0 |
| | SB2040 | 30 | 17 | 20 | 40 | M20 × 2.5 |
|  | CB1025 | 13 | 6 | 8 | 25 | M08 × 1.25 |
| | CB1025 | 16 | 8 | 10 | 25 | M10 × 1.50 |
| | CB1035 | 16 | 8 | 10 | 35 | M10 × 1.50 |
| | CB1230 | 18 | 10 | 12 | 30 | M12 × 1.75 |
| | CB1245 | 18 | 10 | 12 | 45 | M12 × 1.75 |
| | CB1630 | 24 | 14 | 16 | 30 | M16 × 2.0 |
| | CB1645 | 24 | 14 | 16 | 45 | M16 × 2.0 |
| | CB2040 | 30 | 17 | 20 | 40 | M20 × 2.5 |

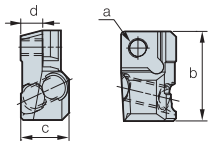
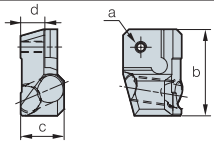
## Leva

| Geometria | Articolo | Dimensioni a | b | c | d |
|---|---|---|---|---|---|
|  | LR10 | 3.4 | 10.8 | 11.7 | 3 |
| | LR12 | 3.7 | 13.5 | 13.4 | 3.5 |
| | LR16 | 4.75 | 18.7 | 18.3 | 4.3 |
| | LR20 | 5.9 | 20.5 | 18.7 | 5.55 |
| | LR25 | 7.35 | 24.25 | 23.7 | 6.2 |
| | LR32 | 8.45 | 29.7 | 26.95 | 7.9 |
|  | LV2 | 2.6 | 7.75 | 6 | 2.1 |
| | LV3B | 3.1 | 10 | 9.5 | 3.7 |
| | LV4B | 4.7 | 14.55 | 15.6 | 4.7 |
| | LV4BN | 4.7 | 16 | 14.9 | 4.68 |
|  | LV3 | 3.7 | 10 | 12 | 3.6 |
| | LV3N | 3.75 | 10 | 12 | 3.55 |
| | LV3AN | 3.75 | 12.1 | 11.4 | 4.64 |
| | LV3C | 3.1 | 10 | 7.85 | 3.6 |
| | LV3CN | 3.2 | 10 | 7.8 | 3.6 |
| | LV3D | 3.1 | 11.7 | 9.5 | 3.6 |
| | LV3DN | 3.2 | 11.65 | 9.5 | 3.55 |
| | LV4 | 4.7 | 14.55 | 14 | 4.7 |
| | LV4N | 4.7 | 13.45 | 13.2 | 4.68 |
| | LV5 | 6 | 17.1 | 17 | 6 |
| | LV5N | 6 | 16.4 | 17.08 | 5.95 |
| | LV5AN | 6 | 18.82 | 17.3 | 5.95 |
| | LV6N | 7.5 | 20.5 | 21 | 7.6 |
| | LV8N | 8.6 | 25.5 | 25.4 | 8.6 |

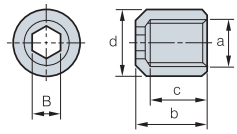
## Leva

| Geometria | Articolo | Dimensioni a | b | c | d |
|---|---|---|---|---|---|
|  | LV4A | 4.6 | 13.24 | 9.95 | 4.7 |
| | LV4AN | 4.7 | 13.3 | 10 | 4.68 |

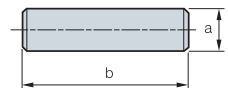
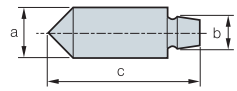
## Base

| Geometria | Articolo | Dimensioni a | b | c | d |
|---|---|---|---|---|---|
|  | LFMP3R-A | M3.5 | 18.7 | 10.1 | 4.6 |
| | LFMP4R1-A | M4.5 | 24.3 | 13.8 | 6.2 |
| | LFMP4R-A | M4.5 | 26.3 | 13.8 | 6.2 |
|  | LFMA3R-A | M3 | 18.5 | 9.5 | 4.8 |
| | LFMA4R-A | M3.5 | 26 | 13.1 | 7.3 |

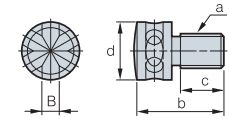
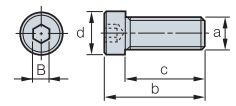
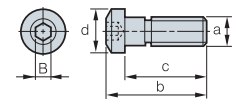
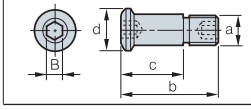
## Dado

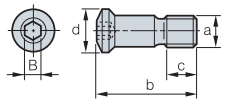
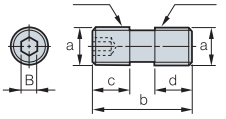
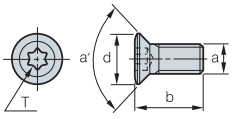
| Geometria | Articolo | Dimensioni a | b | c | d | B(T) | á |
|---|---|---|---|---|---|---|---|
|  | N0407 | M4 X 0.7 | 7.5 | 6 | 7 | 3 | |
| | N0508 | M5 X 0.8 | 8.3 | 6.6 | 7 | 3 | |

## Perno

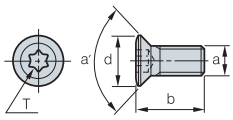
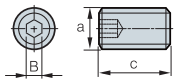
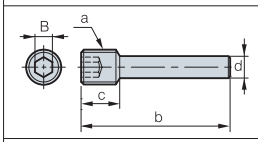
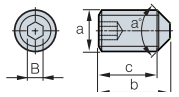
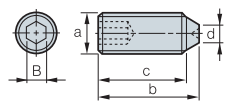
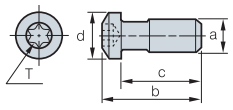
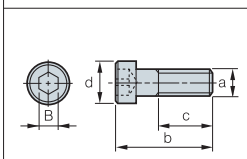
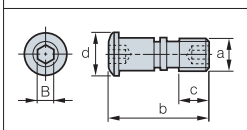
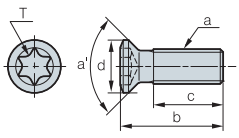
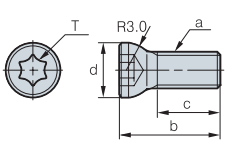
| Geometria | Articolo | Dimensioni a | b | c |
|---|---|---|---|---|
|  | PN0308 | 3.0 | 8 | |
| | PN0310 | 3.0 | 10 | |
| | PN0312 | 3.0 | 12 | |
| | PN0314 | 3.0 | 14 | |
|  | PN0515 | 4.8 | 3.3 | 14.5 |

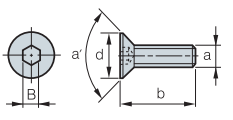
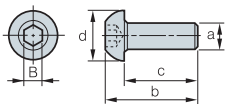
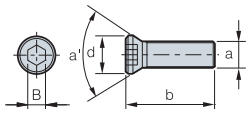
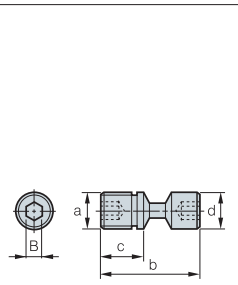
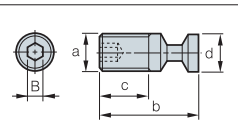
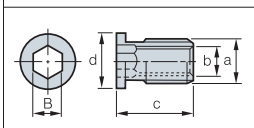
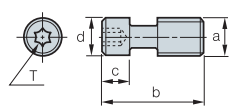
## Vite

| Geometria | Articolo | Dimensioni a | b | c | d | B(T) | á |
|---|---|---|---|---|---|---|---|
|  | AZ0508F | M5 X 0.5 | 13 | 8 | 9 | Ø2 | |
| | AZ0514 | M5 X 0.8 | 14 | 7 | 9 | Ø2.5 | |
|  | BHA0510 | M5 X 0.8 | 15 | 10 | 8.5 | 4.0 | |
| | BHA0512 | M5 X 0.8 | 17 | 12 | 8.5 | 4.0 | |
| | BHA0612 | M6 X 1.0 | 18 | 12 | 10 | 5.0 | |
| | BHA0614 | M6 X 1.0 | 20 | 14 | 10 | 5.0 | |
| | BHA0616 | M6 X 1.0 | 22 | 16 | 10 | 5 | |
| | BHA0619-NYLOK | M6 X 1.0 | 25 | 19 | 10 | 5 | |
|  | CHX0407 | M4 X 0.7 | 9.5 | 7.36 | 5.7 | 2.5 | |
| | CHX0415 | M4 X 0.7 | 17.5 | 15 | 5.4 | 2.5 | |
| | CHX0510 | M5 X 0.8 | 13.1 | 10.1 | 7.7 | 3 | |
| | CHX0518 | M5 X 0.8 | 21.5 | 18 | 8 | 3 | |
| | CHX0622 | M6 X 1.0 | 26.5 | 22 | 10 | 4 | |
|  | CHX0513 | M5 X 0.8 | 13 | 8 | 6.4 | 2.5 | |
| | CHX0616 | M6 X 1.0 | 16.2 | 10.1 | 8.5 | 3 | |
| | CHX0617L | M6 x 1.0(왼나사) | 17.2 | 10.1 | 8.5 | 3 | |
| | CHX0621 | M6 X 1.0 | 21 | 10.1 | 8.5 | 3 | |

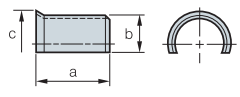
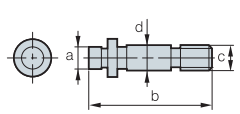
| Geometria | Articolo | Dimensioni a | b | c | d | B(T) | á |
|---|---|---|---|---|---|---|---|
|  | CHX0625 | 1/4-20UNC | 24.8 | 11 | 10 | 4 | |
| | CTX03510 | M3.5 X 0.6 | 10 | 4.7 | 5.3 | 15 | |
| | CTX04513 | M4.5 X 0.75 | 13.1 | 6.9 | 6.8 | 20 | |
| | CTX04513H | M4.5 X 0.75 | 13.1 | 7.2 | 6.8 | 20 | |
| | CTX0515 | M5 X 0.8 | 15 | 8 | 7 | 20 | |
| | CTX0517 | M5 X 0.8 | 17.5 | 10 | 7 | 20 | |
| | CTX0621 | M6 X 1.0 | 21.2 | 12.4 | 9 | 25 | |
|  | DHA0514 | M5 X 0.8 | 14.0 | 5.0 | 7.0 | 2.5 | |
| | DHA0617 | M6 X 1.0 | 17.0 | 7.0 | 7.5 | 3.0 | |
| | DHA0620 | M6 X 1.0 | 20.0 | 8.0 | 8.0 | 3.0 | |
| | DHA0624 | M6 X 1.0 | 24.0 | 12.0 | 8.5 | 3.0 | |
| | DHA0815 | M8 X 1.25 | 15.5 | 6.25 | 6.25 | 4.0 | |
| | DHA0818F | M8 X 1.0 | 18 | 8.5 | 5.5 | 4.0 | |
| | DHA0820 | M8 X 1.25 | 20.0 | 8.0 | 9.0 | 4.0 | |
| | DHA0821F | M8 X 1.0 | 21.0 | 8.5 | 8.5 | 4.0 | |
| | DHA0825 | M8 X 1.25 | 25.0 | 10.0 | 9.0 | 4.0 | |
| | DHA0830 | M8 X 1.25 | 30.0 | 11.5 | 11.5 | 4.0 | |
|  | ETGA0520CBM | M5 X 0.8 | 20 | | 6.5 | 20 | 43° |
| | ETGD0825 | M8 X 1.25 | 25.2 | | 11.1 | 40 | 40° |
| | ETKA0523 | M5 X 0.8 | 23 | | 7.6 | 20 | 43° |
| | ETKA0625 | M6 X 1.0 | 25.5 | | 8.8 | 20 | 43° |
| | ETKD0516 | M5 X 0.8 | 16.4 | | 6.8 | 20 | 40° |
| | ETKD0620 | M6 X 1.0 | 20 | | 8.3 | 30 | 40° |
| | ETNA02506 | M2.5 X 0.45 | 5.7 | | 3.4 | 7 | 43° |
| | ETNA0408 | M4 X 0.7 | 8.0 | | 5.1 | 15 | 43° |
| | ETNA0412 | M4 X 0.7 | 12 | | 5.1 | 15 | 43° |
| | ETNA0511 | M5 X 0.8 | 11.0 | | 6.4 | 20 | 43° |
| | ETND02506F | M2.5 X 0.35 | 6.25 | | 3.1 | 7 | 40° |
| | ETND0307F | M3 X 0.35 | 7.8 | | 3.7 | 8 | 40° |
| | ETND03509 | M3.5 X 0.6 | 9.6 | | 4.7 | 10 | 40° |
| | FTGA03507 | M3.5 X 0.6 | 7.0 | | 5.3 | 15 | 60° |
| | FTGA03508 | M3.5 X 0.6 | 8.0 | | 5.3 | 15 | 60° |
| | FTGA03510 | M3.5 X 0.6 | 10.0 | | 5.3 | 15 | 60° |
| | FTGA03512 | M3.5 X 0.6 | 12.0 | | 5.0 | 15 | 60° |
| | FTGA0411F | M4 X 0.5 | 11.0 | | 7.0 | 15 | 60° |
| | FTGA0417CBM | M4 X 0.7 | 17.0 | | 5.5 | 15 | 62° |
| | FTGA0510-P | M5 X 0.8 | 10.0 | | 7.0 | 20 | 63° |
| | FTGA0512-P | M5 X 0.8 | 12.0 | | 7.0 | 20 | 63° |
| | FTGA0513 | M5 X 0.8 | 13.2 | | 7.0 | 20 | 61° |
| | FTGA0513-P | M5 X 0.8 | 13.0 | | 7.0 | 20 | 63° |
| | FTGA0517 | M5 X 0.8 | 17.0 | | 7.5 | 20 | 61° |
| | FTGA0621 | M6 X 1.0 | 21.5 | | 9.0 | 20 | 61° |
| | FTGA0826 | M8 X 1.25 | 26.0 | | 11.6 | 25 | 61° |
| | FTKA02206 | M2.2 X 0.45 | 5.5 | | 3.0 | 6 | 60° |
| | FTKA02206S | M2.2 X 0.45 | 5.6 | | 3.05 | 7 | 60° |
| | FTKA02555 | M2.5 X 0.45 | 5.5 | | 3.5 | 7 | 60° |
| | FTKA02565 | M2.5 X 0.45 | 6.5 | | 3.5 | 7 | 60° |
| | FTKA02565S | M2.5 X 0.45 | 6.5 | | 3.8 | 8 | 60° |
| | FTKA0307 | M3 X 0.5 | 7.2 | | 4.2 | 9 | 60° |
| | FTKA03508 | M3.5 X 0.6 | 8.4 | | 5.5 | 15 | 60° |
| | FTKA03510 | M3.5 X 0.6 | 10.4 | | 5.5 | 15 | 60° |
| | FTKA03511A | M3.5 X 0.6 | 11.0 | | 5.2 | 15 | 60° |
| | FTKA0408 | M4 X 0.7 | 8.4 | | 5.5 | 15 | 60° |
| | FTKA0410 | M4 X 0.7 | 10.0 | | 5.5 | 15 | 60° |
| | FTKA0411K | M4 X 0.7 | 11.0 | | 6.8 | 15 | 60° |
| | FTKA0412B | M4 X 0.7 | 12.5 | | 5.5 | 15 | 60° |
| | FTKA0413 | M4 X 0.7 | 13.0 | | 5.5 | 15 | 60° |
| | FTNA01633 | M1.6 X 0.35 | 3.3 | | 2.6 | 6 | 60° |
| | FTNA0203 | M2 X 0.4 | 3.0 | | 2.7 | 6 | 60° |
| | FTNA02033 | M2 X 0.4 | 3.3 | | 2.7 | 6 | 60° |
| | FTNA0204 | M2 X 0.4 | 4.3 | | 2.7 | 6 | 60° |
| | FTNA02205 | M2.2 X 0.45 | 4.5 | | 3.0 | 6 | 60° |
| | FTNA0238 | M2 X 0.4 | 3.8 | | 3.0 | 6 | 60° |
| | FTNA0305 | M3 X 0.5 | 5.2 | | 4.2 | 9 | 60° |
| | FTNA0306 | M3 X 0.5 | 6.2 | | 4.2 | 9 | 60° |
| | FTNA0307 | M3 X 0.5 | 7.2 | | 4.2 | 9 | 60° |
| | FTNA0408 | M4 X 0.7 | 8.5 | | 5.5 | 15 | 60° |
| | FTNA0411 | M4 X 0.7 | 11.0 | | 5.5 | 15 | 60° |
| | FTNA0511 | M4 X 0.8 | 7 | 11 | 6.7 | 20 | 63° |
| | FTNA0513 | M5 X 0.8 | 13.0 | | 7.0 | 20 | 60° |
| | FTNA0516 | M5 X 0.8 | 16.0 | | 7.0 | 20 | 60° |

## Vite

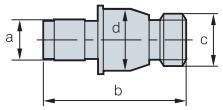
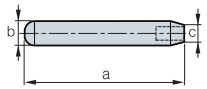
| Geometria | Articolo | Dimensioni a | b | C | d | B(T) | a′ |
|---|---|---|---|---|---|---|---|
|  | FTNB0411 | M4 X 0.7 | 10.8 | | 5.7 | 15 | 60° |
| | FTNC04509 | M4.5 X 0.75 | 9.5 | | 6.8 | 20 | 55° |
| | FTNC04511 | M4.5 X 0.75 | 11.5 | | 6.8 | 20 | 55° |
|  | KHA0508 | M5 X 0.8 | 8 | | | 2.5 | |
| | KHA0510 | M5 X 0.8 | 10 | | | 2.5 | |
| | KHA0610 | M6 X 1.0 | 10 | | | 3 | |
| | KHA0612 | M6 X 1.0 | 12 | | | 3.0 | |
| | KHA0812 | M8 X 1.25 | 12 | | | 4.0 | |
| | KHA0815 | M8 X 1.25 | 15 | | | 4.0 | |
| | KHA1015 | M10 X 1.5 | 15 | | | 5.0 | |
| | KHA1020 | M10 X 1.5 | 20 | | | 5.0 | |
|  | KHB0417 | M4 X 0.7 | 17.2 | 4.5 | 2.5 | 2 | |
|  | KHC0510 | M5 X 0.8 | 10 | 8.1 | | 2.5 | 90° |
| | KHC0610 | M6 X 1.0 | 10 | 7.8 | | 3.0 | 90° |
| | KHC0812 | M8 X 1.25 | 12 | 9 | | 4.0 | 90° |
| | KHC1016 | M10 X 1.5 | 16 | 12.3 | | 5.0 | 90° |
| | KHC1020 | M10 X 1.5 | 20 | 16.3 | | 5.0 | 90° |
|  | KHD0510 | M5 X 0.8 | 10 | 9 | 3 | 2.5 | |
| | KHD0610 | M6 X 1.0 | 10 | 10 | 4 | 3 | |
| | KHD0810 | M8 X 1.25 | 10 | 10 | 7.5 | 4 | |
|  | LTX0512 | M5 X 0.8 | 15.1 | 12 | 7.3 | 20 | |
| | LTX0514 | M5 X 0.8 | 17.1 | 14 | 7.3 | 20 | |
|  | MHA0512 | M5 X 0.8 | 17.0 | 10.8 | 8.0 | 4.0 | |
| | MHB0310 | M3 X 0.5 | 13.4 | 8.0 | 5.5 | 2.5 | |
| | MHB0410 | M4 X 0.7 | 14.0 | 8.0 | 7.0 | 3.0 | |
| | MHB1055 | M10 X 1.5 | 65 | 50 | 16 | 8 | |
| | MHB1260 | M12 x 1.75 | 72 | 55 | 18 | 10 | |
| | MHB1680 | M16 X 2.0 | 96 | 75 | 24 | 14 | |
|  | MHX0523 | M5 X 0.8 | 23.5 | 9.7 | 10 | 2.5 | |
| | MHX0626 | M6 X 1.0 | 25.8 | 10 | 11 | 3 | |
| | MHX0630 | M6 X 1.0 | 30 | 12.5 | 10.5 | 4 | |
|  | PTKA02508 | M2.5 X 0.45 | 8 | 5 | 3.8 | 8 | 92° |
| | PTKA03510 | M3.5 X 0.6 | 10 | 5 | 5 | 15 | 92° |
| | PTKA0407 | M4 X 0.7 | 7 | 4.6 | 5.5 | 15 | 86° |
| | PTKA0407F | M4 X 0.5 | 7.3 | 3.8 | 6.5 | 15 | 91° |
| | PTKA0408 | M4 X 0.7 | 8 | 5.6 | 5.5 | 15 | 86° |
| | PTKA0408F | M4 X 0.5 | 8.3 | 5.7 | 6.5 | 15 | 91° |
| | PTKA0409F | M4 X 0.5 | 9.3 | 6.7 | 6.5 | 15 | 91° |
| | PTKA0410F | M4 X 0.5 | 10.3 | 7.7 | 6.5 | 15 | 91° |
| | PTKA0411F | M4 X 0.5 | 11.3 | 8.7 | 6.5 | 15 | 91° |
| | PTKA0412 | M4 X 0.7 | 12 | 7.5 | 5.9 | 15 | 92° |
| | PTKA0412F | M4 X 0.5 | 12.3 | 9.7 | 6.5 | 15 | 91° |
| | PTKA0413F | M4 X 0.5 | 13.3 | 10.7 | 6.5 | 15 | 91° |
| | PTKA0512 | M5 X 0.8 | 12 | 7 | 6.9 | 20 | 92° |
| | PTMA03508 | M3.5 X 0.6 | 8 | 5.3 | 6 | 9 | 90° |
| | PTMA0403F | M4 X 0.5 | 3.3 | 1.7 | 6.5 | 15 | 91° |
| | PTMA0404F | M4 X 0.5 | 4.3 | 2.7 | 6.5 | 15 | 91° |
| | PTMA0405F | M4 X 0.5 | 5.3 | 3.7 | 6.5 | 15 | 91° |
| | PTMA0406F | M4 X 0.5 | 6.3 | 4.7 | 6.5 | 15 | 91° |
| | PTMA0411 | M4 X 0.7 | 11 | 8.5 | 6.6 | 15 | 90° |
|  | PTKA0411-R3 | M4 X 0.7 | 11 | 6.9 | 6 | 15 | |

| Geometria | Articolo | Dimensioni a | b | c | d | B(T) | a′ |
|---|---|---|---|---|---|---|---|
|  | PXMA0306 | M3 X 0.5 | 5.9 | | 5.7 | 2 | 90° |
| | SHX0310 | M3 X 0.5 | 10 | | 5.9 | 2 | 91° |
|  | RHA0510 | M5 X 0.8 | | 10 | | 4.0 | |
| | RHA0613 | M6 X 1.0 | 16.3 | 13 | 10.5 | 4.0 | |
| | RHA0620 | M6 X 1.0 | 24 | 20 | 10.5 | 4.0 | |
|  | RHA0613 | M6 X 1.0 | 18 | | 8.5 | 4.0 | 61° |
|  | VHX0509B | M5 X 0.8 | 9 | 4.15 | 5 | 2 | |
| | VHX0512B | M5 X 0.8 | 12 | 6.5 | 5 | 2 | |
| | VHX0512BN | M5 X 0.8 | 12 | 6.56 | 5 | 2 | |
| | VHX0514 | M5 X 0.8 | 14.5 | 8.25 | 5 | 2 | |
| | VHX0613N | M6 X 1.0 | 13.4 | 7.5 | 5.93 | 2.5 | |
| | VHX0617 | M6 X 1.0 | 17 | 10 | 6 | 2.5 | |
| | VHX0617N | M6 X 1.0 | 16.75 | 8.34 | 5.9 | 2.5 | |
| | VHX0817N | M8 X 1.0 | 17.05 | 7.98 | 7.9 | 3 | |
| | VHX0820N | M8 X 1.0 | 20.7 | 7.98 | 7.9 | 3 | |
| | VHX0820AN | M8 X 1.0 | 20.5 | 10.36 | 7.9 | 3 | |
| | VHX0821 | M8 X 1.0 | 21 | 10 | 8 | 3 | |
| | VHX0821N | M8 X 1.0 | 21.2 | 9.68 | 7.9 | 3 | |
| | VHX0823N | M8 X 1.0 | 23.5 | 10.36 | 7.9 | 3 | |
| | VHX0825 | M8 X 1.0 | 25 | 12 | 8 | 3 | |
| | VHX1027N | M10 X 1.0 | 27.2 | 14.4 | 9.8 | 5 | |
| | VHX1236N | M12 X 1.0 | 36 | 18.3 | 11.8 | 5 | |
|  | VHX0613A | M6 X 1.0 | 13.4 | 9.1 | 6.0 | 2.5 | |
|  | SHXN0509F | M5 X 0.5 | M3.5 X 0.6 | 8.65 | 6.3 | 3.5 | |
| | SHXN0610F | M6 X0.75 | M4 X 0.5 | 10 | 7.8 | 4 | |
| | SHXN0712F | M7 X0.75 | M5 X 0.8 | 12 | 8.5 | 5 | |
|  | WTX0813 | M8 X 1.25 | 17.2 | 4.9 | 8.5 | 25 | |
| | WTX0817 | M8 X 1.25 | 22 | 4.9 | 8.5 | 25 | |

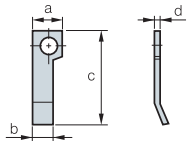
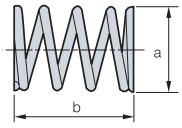
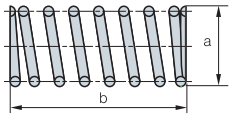
## Spina

| Geometria | Articolo | Dimensioni a | b | c | d |
|---|---|---|---|---|---|
|  | SP3 | 5.5 | 3.5 | 5.9 | |
| | SP3N | 6.85 | 3.3 | 5.55 | |
| | SP3N-1 | 5.3 | 3.3 | 5.55 | |
| | SP4 | 7.0 | 4.0 | 7.6 | |
| | SP4N | 5.8 | 4.35 | 7.4 | |
| | SP5 | 8.5 | 4.5 | 8.8 | |
| | SP5N | 8.5 | 5.68 | 9 | |
| | SP6N | 11.1 | 6.0 | 11.0 | |
| | SP8N | 12.0 | 10.0 | 15.35 | |
|  | SP2M | 5 | 14 | M5 X 0.8 | 6 |
| | SP3M | 3.5 | 19.5 | M4 X 0.7 | 4 |
| | SP3M-1 | 3.5 | 16.5 | M4 X 0.7 | 4 |
| | SP4M | 5 | 19 | M5 X 0.8 | 6 |

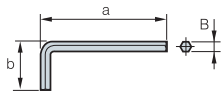
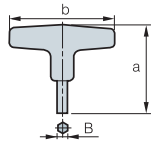
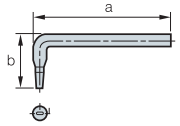
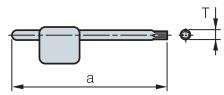
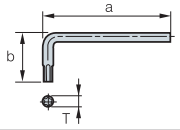
## Spina

| Geometria | Articolo | Dimensioni a | b | C | d |
|---|---|---|---|---|---|
|  | SP3D | 3.7 | 13.1 | UNF10-32 | 5.6 |
| | SP3D2 | 3.6 | 12 | UNF10-32 | 5.5 |
| | SP3DS | 3.7 | 11.54 | UNF10-32 | 5.6 |
| | SP4D | 4.97 | 17.19 | UNF1/4 28 | 7.12 |
| | SP4DL | 5 | 17.1 | UNF1/4 28 | 7 |
| | SP4DS | 4.97 | 13.26 | UNF1/4 28 | |
| | SP5D | 6.21 | 21.9 | UNF5/16-24 | 9.44 |
| | SP6D | 7.75 | 21.9 | UNF3/8-24 | 11.02 |
| | SP8D | 9.02 | 29.63 | UNF7/16-20 | 14.21 |
|  | LSPS3 | 60 | 8.2 | 5.55 | |
| | LSPS4 | 65 | 10 | 7 | |
| | LSPS5 | 69 | 11.4 | 8.85 | |
| | LSPS6 | 69 | 13 | 11 | |
| | LSPS8 | 73 | 16.5 | 15.2 | |

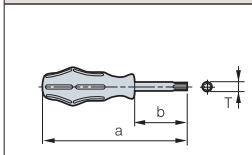
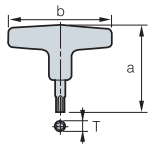
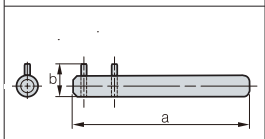
## Molla

| Geometria | Articolo | Dimensioni a | b | C | d |
|---|---|---|---|---|---|
|  | SR2 | 4.0 | 2.8 | 12.6 | 0.4 |
|  | SPR0315 | 3.0 | 15 | | |
| | SPR0415 | 4.0 | 15 | | |
| | SR3 | 9.2 | 12.5 | | |
| | SR4 | 4.0 | 11.0 | | |
| | SPR0714 | 7 | 14 | | |
|  | SPR0510 | 5 | 10 | | |
| | SPR0714 | 7 | 14 | | |
| | SPR0811 | 8 | 11 | | |

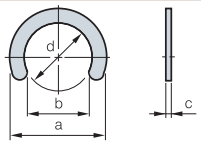
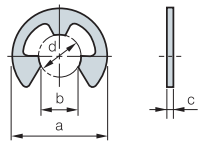
## Chiave

| Geometria | Articolo | Dimensioni a | b | B(T) | d | Ang. |
|---|---|---|---|---|---|---|
|  | HW20L | 52 | 18 | 2 | | |
| | HW25L | 58.5 | 20.5 | 2.5 | | |
| | HW30L | 66 | 23 | 3 | | |
| | HW35L | 72 | 25 | 3.5 | | |
| | HW40L | 74 | 29 | 4 | | |
| | HW50L | 85 | 33 | 5 | | |
|  | HW40 | 82 | 80 | 4 | | |
| | HW50 | 96 | 90 | 5 | | |
|  | SW50L | 70 | 27.5 | | | |
|  | TW06P | 63 | | 6 | | |
| | TW07P | 63 | | 7 | | |
| | TW08P | 71 | | 8 | | |
| | TW09P | 75 | | 9 | | |
| | TW10P | 78 | | 10 | | |
| | TW15P | 82 | | 15 | | |
| | TW20P | 86 | | 20 | | |
|  | TW15L | 60 | 21 | 15 | | |
| | TW20L | 60 | 21 | 20 | | |

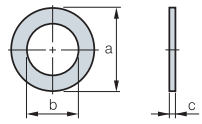
## Chiave

| Geometria | Articolo | Dimensioni a | b | B(T) | d | Ang. |
|---|---|---|---|---|---|---|
|  | TW07S | 140 | 60 | 7 | | |
| | TW08S | 150 | 76 | 8 | | |
| | TW09S | 165 | 70 | 9 | | |
| | TW15S | 190 | 90 | 15 | | |
| | TW20S | 195 | 91 | 20 | | |
|  | TW20 | 75 | 80 | 20 | | |
| | TW25 | 74 | 80 | 25 | | |
|  | SW15S | 150 | 13 | | | |

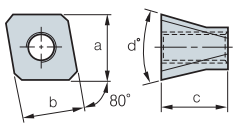
## Anello di chiusura

| Geometria | Articolo | Dimensioni a | b | c | d |
|---|---|---|---|---|---|
|  | CR03 | 4.8 | 2.6 | 0.4 | 3.0 |
| | CR04 | 6.6 | 3.6 | 0.4 | 4.0 |
| | CR05 | 7.6 | 4.6 | 0.4 | 5.0 |
|  | ER03 | 7.0 | 2.6 | 0.6 | 3.0 |
| | ER04 | 9.0 | 3.5 | 0.6 | 4.0 |
| | ER05 | 11 | 4.3 | 0.6 | 5.0 |

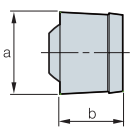
## Rondella

| Geometria | Articolo | Dimensioni a | b | c | | |
|---|---|---|---|---|---|---|
|  | WA3 | 11.0 | 6.8 | 0.5~1.0 | | |
| | WA4 | 10.0 | 5.3 | 0.5~1.0 | | |

## Fermo

| Geometria | Articolo | Dimensioni a | b | c | $d_s$ | |
|---|---|---|---|---|---|---|
|  | STP5 | 11 | 10.2 | 11 | 30° | |

## Ugello

| Geometria | Articolo | Dimensioni a | b | c | $d_s$ | |
|---|---|---|---|---|---|---|
|  | STP5 | 11 | 10.2 | 11 | 30° | |



I N D I C E

# Informazioni tecniche

L





## Informazioni generali I

Gradi materiale lavorato L02
Elenco simoboli acciaio, materiale non ferroso L06
Tabella di conversione unità SI L07
Tabella di calcolo della durezza L08
Proprietà dei gradi Korloy L09
Informazioni tecniche sull'acciaio inossidabile L10

## Tornitura

Informazioni tecniche per tornitura L12

## Fresatura

Informazioni tecniche per fresatura L20

## Coni

Informazioni tecniche per i coni L24

## Frese integrali in metallo duro

Informazioni tecniche per le frese integrali L27

## Foratura

Informazioni tecniche per foratura L30

## Informazioni generali II

Tabella di raffronto gradi dei L36
Rompitrucioli KORLOY L37
Confronto tra i gradi L40

## Acciaio al carbonio e acciaio legato per uso strutturale

| Tipo | Korea | ISO | Giappone | U.S.A. | UK | Germania | Francia | Russia |
|---|---|---|---|---|---|---|---|---|
| | KS | ISO | JIS | AISI SAE | BS BS/EN | DIN DIN/EN | NF NF/EN | ГОСТ |
| Acciaio al carbonio | SM10C | C10 | S10C | 1010 | 040A10<br>045A10<br>045M10 | C10E<br>C10R | XC10 | - |
| | SM15C | C15E4<br>C15M2 | S15C | 1015 | 055M15 | C15E<br>C15R | - | - |
| | SM20C | - | S20C | 1020 | 070M20<br>C22, C22E<br>C22R | C22<br>C22E<br>C22R | C22<br>C22E<br>C22R | - |
| | SM25C | C25<br>C25E4<br>C25M2 | S25C | 1025 | C25<br>C25E<br>C25R | C25<br>C25E<br>C25R | C25<br>C25E<br>C25R | - |
| | SM30C | C30<br>C30E4<br>C30M2 | S30C | 1030 | 080A30<br>080M30<br>CC30<br>C30E<br>C30R | C30<br>C30E<br>C30R | C30<br>C30E<br>C30R | 30Г |
| | SM35C | C35<br>C35E4<br>C35M2 | S35C | 1035 | C35<br>C35E<br>C35R | C35<br>C35E<br>C35R | C35<br>C35E<br>C35R | 35Г |
| | SM40C | C40<br>C40E4<br>C40M2 | S40C | 1039<br>1040 | 080M40<br>C40<br>C40E<br>C40R | C40<br>C40E<br>C40R | C40<br>C40E<br>C40R | 40Г |
| | SM43C | - | S43C | 1042<br>1043 | 080A42 | - | - | 40Г |
| | SM45C | C45<br>C45E4<br>C45M2 | S45C | 1045<br>1046 | C45<br>C45E<br>C45R | C45<br>C45E<br>C45R | C45<br>C45E<br>C45R | 45Г |
| | SM48C | - | S458C | - | 080A47 | - | - | 45Г |
| | SM50C | C50<br>C50E4<br>C50M2 | S50C | 1049 | 080M50<br>C50<br>C50E<br>C50R | C50<br>C50E<br>C50R | C50<br>C50E<br>C50R | 50Г |
| | SM53C | - | S53C | 1050<br>1053 | - | - | - | 50Г |
| | SM55C | C55<br>C55E4<br>C55M2 | S55C | 1055 | 070M55<br>C55<br>C55E<br>C55R | C55<br>C55E<br>C55R | C55<br>C55E<br>C55R | - |
| | SM58C | C60<br>C60E4<br>C60M2 | S58C | 1059<br>1060 | C60<br>C60E<br>C60R | C60<br>C60E<br>C60R | C60<br>C60E<br>C60R | 60Г |

| Tipo | | Korea | ISO | Giappone | U.S.A. | UK | Germania | Francia | Russia |
|---|---|---|---|---|---|---|---|---|---|
| | | KS | ISO | JIS | AISI SAE | BS BS/EN | DIN DIN/EN | NF NF/EN | ГОСТ |
| Acciaio legato | Acciaio al nichel-cromo | SNC236<br>SNC415(H)<br>SNC631(H)<br>SNC815(H)<br>SNC836 | -<br>-<br>-<br>15NiCr13<br>- | SNC236<br>SNC415(H)<br>SNC631(H)<br>SNC815(H)<br>SNC836 | -<br>-<br>-<br>-<br>- | -<br>-<br>-<br>655M13(655H13)<br>- | -<br>-<br>-<br>15NiCr13<br>- | -<br>-<br>-<br>-<br>- | 40XH<br>-<br>30XH3A<br>-<br>- |
| | Acciaio al nichel-cromo-molibdeno | SNCM220 | 20NiCrMo2<br>20NiCrMoS2 | SNCM220 | 8615<br>8617(H)<br>8620(H)<br>8622(H) | 805A20<br>805M20<br>805A22<br>805M22 | 20NiCrMo2<br>20NiCrMoS2 | 20NCD2 | - |
| | | SNCM240 | 41CrNiMo2<br>41CrNiMoS2 | SNCM240 | 8637<br>8640 | - | - | - | - |
| | | SNCM415<br>SNCM420(H)<br>SNCM431<br>SNCM439<br>SNCM447<br>SNCM616<br>SNCM625<br>SNCM630<br>SNCM815 | -<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- | SNCM415<br>SNCM420(H)<br>SNCM431<br>SNCM439<br>SNCM447<br>SNCM616<br>SNCM625<br>SNCM630<br>SNCM815 | -<br>4320(H)<br>-<br>4340<br>-<br>-<br>-<br>-<br>- | -<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- | -<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- | -<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- | -<br>20XH2M(20XHM)<br>-<br>-<br>-<br>-<br>-<br>-<br>- |
| | Acciaio al cromo | SCr415(H) | - | SCr415(H) | - | - | 17Cr3<br>17CrS3 | - | 15X<br>15XA |
| | | SCr420(H) | 20Cr4(H)<br>20CrS4 | SCr420(H) | 5120(H) | - | - | - | 20X |
| | | SCr430(H) | 34Cr4<br>34CrS4 | SCr430(H) | 5130(H)<br>5132(H) | 34Cr4<br>34CrS4 | 34Cr4<br>34CrS4 | 34Cr4<br>34CrS4 | 30X |
| | | SCr435(H) | 34Cr4<br>34CrS4<br>37Cr4<br>37CrS4 | SCr435(H) | 5135(H) | 37Cr4<br>37CrS4 | 37Cr4<br>37CrS4 | 37Cr4<br>37CrS4 | 35X |
| | | SCr440(H) | 37Cr4<br>37CrS4<br>41Cr4<br>41CrS4 | SCr440(H) | 5140(H) | 530M40<br>41Cr4<br>41CrS4 | 41Cr4<br>41CrS4 | 41Cr4<br>41CrS4 | 40X |
| | | SCr445(H) | | SCr445(H) | | | | | 45X |

| Tipo | | Korea | ISO | Giappone | U.S.A. | UK | Germania | Francia | Russia |
|---|---|---|---|---|---|---|---|---|---|
| | | KS | ISO | JIS | AISI SAE | BS BS/EN | DIN DIN/EN | NF NF/EN | ГОСТ |
| Acciaio legato | Acciaio al cromo-molibdeno | SCM415(H) | - | SCM415(H) | - | - | - | - | - |
| | | SCM418(H) | 18CrMo4<br>18CrMoS4 | SCM418(H) | - | - | 18CrMo4<br>18CrMoS4 | - | 20XM |
| | | SCM420(H) | - | SCM420(H) | - | 708M20(708H20) | - | - | 20XM |
| | | SCM430 | - | SCM430 | 4130 | - | - | - | 30XM<br>30XMA |
| | | SCM432 | - | SCM432 | - | - | - | - | - |
| | | SCM435(H) | 34CrMo4<br>34CrMoS4 | SCM435(H) | (4135H)<br>4137(H) | 34CrMo4<br>34CrMoS4 | 34CrMo4<br>34CrMoS4 | 34CrMo4<br>34CrMoS4 | 35XM |
| | | SCM440(H) | 42CrMo4<br>42CrMoS4 | SCM440(H) | 4140(H)<br>4142(H) | 708M70<br>709M40<br>42CrMo4<br>42CrMoS4 | 42CrMo4<br>42CrMoS4 | 42CrMo4<br>42CrMoS4 | - |
| | | SCM445(H) | - | SCM445(H) | 4145(H)<br>4147(H) | - | - | - | - |
| | Acciaio al manganese e Acciaio al cromo-manganese | SMn420(H) | 22Mn6(H) | SMn420(H) | 1522(H) | 150M19 | - | - | - |
| | | SMn433(H) | - | SMn433(H) | 1534 | 150M36 | - | - | 30Г2<br>35Г2 |
| | | SMn438(H) | 36Mn6(H) | SMn438(H) | 1541(H) | 150M36 | | | 35Г2<br>40Г2 |
| | | SMn443(H) | 42Mn6(H) | SMn443(H) | 1541(H) | - | - | - | 40Г2<br>45Г2 |
| | | SMnC420(H) | - | SMnC420(H) | - | - | - | - | - |
| | | SMnC443(H) | - | SMnC443(H) | - | - | - | - | - |
| | Acciaio al molibdeno-cromo | SACM645 | 41CrAlMo74 | SACM645 | - | - | - | - | - |

## Acciaio per utensili

| Tipo | Korea | ISO | Giappone | U.S.A. | UK | Germania | Francia | Russia |
|---|---|---|---|---|---|---|---|---|
| | KS | ISO | JIS | AISI SAE | BS BS/EN | DIN DIN/EN | NF NF/EN | ГОСТ |
| Acciaio ad alte velocità | SKH2 | HS18-0-1 | SKH2 | T1 | | | | |
| | SKH3 | - | SKH3 | T4 | | | | |
| | SKH4 | - | SKH4 | T5 | | | | |
| | SKH10 | - | SKH10 | T15 | BM 2 | S6/5/2 | Z 85 WDCV | |
| | SKH51 | HS6-5-2 | SKH51 | M2 | | | | |
| | SKH52 | HS6-6-2 | SKH52 | M3-1 | | | | |
| | SKH53 | HS6-5-3 | SKH53 | M3-2 | | | | |
| | SKH54 | HS6-5-4 | SKH54 | M4 | BM 35 | S6/5/2/5 | 6-5-2-5 | |
| | SKH55 | HS6-5-2-5 | SKH55 | M 35 | | | | |
| | SKH56 | - | SKH56 | M36 | | | | |
| | SKH57 | HS10-4-3-10 | SKH57 | - | | S2/9/2 | | |
| | SKH58 | HS2-9-2 | SKH58 | M7 | | | | |
| | SKH59 | HS2-9-1-8 | SKH59 | M42 | | | | |
| Aacciaio a basse velocità | STS11 | - | SKS11 | F2 | | | | |
| | STS2 | - | SKS2 | - | | | | |
| | STS21 | - | SKS21 | - | | | | |
| | STS5 | - | SKS5 | - | | | | |
| | STS51 | - | SKS51 | L6 | | | | |
| | STS7 | - | SKS7 | - | | | | |
| | STS8 | - | SKS8 | - | | | | |
| | STS4 | - | SKS4 | - | | | | |
| | STS41 | - | SKS41 | - | | | | |
| | STS43 | 105V | SKS43 | W2-9 1/ | | | | |
| | STS44 | - | SKS44 | W2-8 1-2 | | | | |
| | STS3 | - | SKS3 | - | | 105WCr6 | 105WC13 | |
| | STS31 | 105WCr1 | SKS31 | - | | | | |
| | STS93 | - | SKS93 | - | | | | |
| | STS94 | - | SKS94 | - | | | | |
| | STS95 | - | SKS95 | - | BD3 | X210Cr12 | Z200C12 | |
| | STD1 | 210Cr12 | SKD1 | D3 | | | | |
| | STD11 | - | SKD11 | D2 | BA2 | X100CrMoV5 1 | Z100CDV5 | |
| | STD12 | 100CrMoV5 | SKD12 | A2 | | | | |
| | STD4 | - | SKD4 | - | BH21 | X30WCrV9 3 | Z30WCV9 | |
| | STD5 | X30WCrV9-3 | SKD5 | H21 | | | | |
| | STD6 | X37CrMoV5-1 | SKD6 | H11 | BH13 | X40CrMoV5 1 | Z40CDV5 | |
| | STD61 | X40CrMoV5-1 | SKD61 | H13 | | | | |
| | STD62 | X35CrWMoV5 | SKD62 | H12 | | | | |
| | STD7 | 32CrMoV12-28 | SKD7 | H10 | | | | |
| | STD8 | - | SKD8 | H19 | | | | |
| | STF3 | - | SKT3 | - | | 55NiCrMoV6 | 55NCDV7 | |
| | STF4 | 55NiCrMoV7 | SKT4 | L6 | | | | |

| Tipo | Korea | ISO | Giappone | U.S.A. | | UK | Germania | Francia | Russia |
|---|---|---|---|---|---|---|---|---|---|
| | KS | ISO | JIS | AISI SAE | | BS BS/EN | DIN DIN/EN | NF NF/EN | ГОСТ |
| Acciaio al carbonio | SUM11 | - | SUM11 | 1110 | | | | | |
| | SUM12 | - | SUM12 | 1109 | | | | | |
| | SUM21 | 9S20 | SUM21 | 1212 | | | | | |
| | SUM22 | 11SMn28 | SUM22 | 1213 | | 230M07 | 9SMn28 | S250 | |
| | SUM22L | 11SMnPb28 | SUM22L | 12L13 | | | 9SMnPb28 | S250Pb | |
| | SUM23 | - | SUM23 | 1215 | | 240M07 | 9SMn36 | S 300 | |
| | SUM23L | - | SUM23L | - | | | | | |
| | SUM24L | 11SMnPb28 | SUM24L | 12L14 | | | 9SMnPb36 | S300Pb | |
| | SUM25 | 12SMn35 | SUM25 | - | | | | | |
| | SUM31 | - | SUM31 | 1117 | | | | | |
| | SUM31L | - | SUM31L | - | | | | | |
| | SUM32 | - | SUM32 | - | | | | | |
| | SUM41 | - | SUM41 | 1137 | | | | | |
| | SUM42 | - | SUM42 | 1141 | | | | | |
| | SUM43 | 44SMn28 | SUM43 | 1144 | | | | | |
| Cromo a elevato tenore di carbonio | STB1 | - | SUJ1 | - | | | | | |
| | STB2 | b1 | SUJ2 | 52100 | | 534A99 | 100Cr6 | 100Cr6 | |
| | STB3 | b2 | SUJ3 | ASTM A 485 Grado 1 | | | | | |
| | STB4 | - | SUJ4 | - | | | | | |
| | STB5 | - | SUJ5 | - | | | | | |

## Acciaio inossidabile

| Tipo | | Korea | ISO | Giappone | U.S.A. | | UK | Germania | Francia | Russia |
|---|---|---|---|---|---|---|---|---|---|---|
| | | KS | ISO | JIS | UNS | AISI SAE | BS BS/EN | DIN DIN/EN | NF NF/EN | ГОСТ |
| Acciaio inossidabile | Austenitico | STS201 | X12CrMnNiN17-7-5 | SUS201 | S20100 | 201 | 284S16 | X12CrNi17-7 | Z12CMN17-07Az | 12Х17•√9АН4 |
| | | STS202 | X12CrMnNiN18-9-5 | SUS202 | S20200 | 202 | 301S21 | X2CrNiN18-7 | | 07Х16Н6 |
| | | STS301 | X10CrNi18-8 | SUS301 | S30100 | 301 | | X12CrNi17-7 | Z11CN17-08 | |
| | | STS301L | X2CrNiN18-7 | SUS301L | | | | | | |
| | | STS301J1 | | SUS301J1 | | | 302S25 | | | 12Х18Н9 |
| | | STS302 | | SUS302 | S30200 | 302 | | X10CrNiS18-9 | Z12CN18-09 | |
| | | STS302B | X12CrNiSi18-9-3 | SUS302B | S30215 | 302B | 303S21 | | | |
| | | STS303 | X10CrNiS18-9 | SUS303 | S30300 | 303 | 303S41 | | Z8CNF18-09 | 12Х18Н10Е |
| | | STS303Se | | SUS303Se | S30323 | 303Se | | X5CrNi18-10 | | |
| | | STS303Cu | | SUS303Cu | | | 304S31 | | | 08Х18Н10 |
| | | STS304 | X5CrNi18-9<br>X2CrNi18-9 | SUS304 | S30400 | 304 | 304S11 | X2CrNi19-11 | Z7CN18-09 | 03Х18Н11 |
| | | STS304L | X2CrNi19-11 | SUS304L | S30403 | 304L | | X2CrNiN18-10 | Z3CN19-11 | |
| | | STS304N1 | X5CrNiN18-8 | SUS304N1 | S30451 | 304N | | | Z6CN19-09Az | |
| | | STS304LN | X2CrNiN18-8 | SUS304LN | S30453 | 304LN | | X5CrNi18-12 | Z3CN18-10Az | |
| | | STS304J1 | | SUS304J1 | | | 305S19 | | | 06Х18Н11 |
| | | STS305 | X6CrNi18-12 | SUS305 | S30500 | 305 | | | Z8CN18-12 | |
| | | STS309S | | SUS309S | S30908 | 309S | 310S31 | X5CrNiMo27-12-2 | Z10CN24-13 | 10Х23Н18 |
| | | STS310S | X6CrNi25-20 | SUS310S | S31008 | 310S | 316S31 | X5CrNiMo27-13-3 | Z8CN25-20 | |
| | | SUS316 | X5CrNiMo17-12-2<br>X3CrNiMo17-12-3 | SUS316 | S31600 | 316 | 316S11 | X2CrNiMo17-13-2<br>X2CrNiMo17-14-3 | Z7CND17-12-02<br>Z6CND18-12-03 | 03Х17Н14М3 |
| | | STS316L | X2CrNiMo17-12-2<br>X2CrNiMo17-12-3<br>X2CrNiMo18-14-3 | SUS316L | S31603 | 316L | | | Z3CND17-12-02<br>Z3CND17-12-03 | |
| | | STS316N | | SUS316N | S31651 | 316N | 317S16 | X6CrNiTi18-10 | | |
| | | STS317 | | SUS317 | S31700 | 317 | 321S31 | X6CrNiNb18-10 | | 08Х18Н10Т |
| | | STS321 | X6CrNiTi18-10 | SUS321 | S32100 | 321 | 347S31 | | Z6CNT18-10 | 08Х18Н12 |
| | | STS347 | X6CrNiNb18-10 | SUS347 | S34700 | 347 | | X6CrAl13 | Z6CNNb18-10 | |
| | | STS384 | X3NiCr18-16 | SUS384 | S38400 | 384 | 405S17 | | Z6CN18-16 | |
| | Ferritico | STS405 | X6CrAl13 | SUS405 | S40500 | 405 | | | Z8CA12 | |
| | | STS410L | | SUS410L | | | | X6Cr17 | Z3C14 | |
| | | STS429 | | SUS429 | S42900 | 429 | 430S17 | X7CrS18 | | 12Х17 |
| | | STS430 | X6Cr17 | SUS430 | S43000 | 430 | | X6CrMo17-1 | Z8C17 | |
| | | STS430F | X7CrS17 | SUS430F | S43020 | 430F | 434S17 | | Z8CF17 | |
| | | STS434 | X6CrMo17-1 | SUS434 | S43400 | 434 | | | Z8CD17-01 | |
| | | STS444 | X2CrMoTi18-2 | SUS444 | S44400 | 444 | | | Z3CDT18-02 | |
| | | STSXM27 | | SUSXM27 | S44627 | | | X10Cr13 | Z1CD26-01 | |
| | Martensitico | STS403 | | SUS403 | S40300 | 403 | 410S21 | | | |
| | | STS410 | X12Cr13 | SUS410 | S41000 | 410 | 416S21 | X20Cr13 | Z13C13 | |
| | | STS416 | X12CrS13 | SUS416 | S41600 | 416 | 420S29 | X20CrNi17-2 | Z11CF13 | 20Х13 |
| | | STS420J1 | X20Cr13 | SUS420J1 | S42000 | 420 | 431S29 | | Z20C13 | 20Х17Н2 |
| | | STS431 | X19CrNi16-2 | SUS431 | S43100 | 431 | | | Z15CN16-02 | |
| | | STS440A | X70CrMo15 | SUS440A | S44002 | 440A | | X7CrNiAl17-7 | Z70C15 | |
| | Indurito per precipitazione | STS630 | X5CrNiCuNb16-4 | SUS630 | S17400 | S17400 | | | Z6CNU17-04 | 09Х17Н7ІО |
| | | STS631 | X7CrNiAl17-7 | SUS631 | S17700 | S17700 | | | Z9CNA17-07 | |
| | | STS631J1 | | SUS631J1 | | | | | | |

## Acciaio fuso o forgiato

| Tipo | | Korea | ISO | Giappone | U.S.A. | UK | Germania | Francia | Russia |
|---|---|---|---|---|---|---|---|---|---|
| | | KS | ISO | JIS | AISI SAE | BS BS/EN | DIN DIN/EN | NF NF/EN | ГОСТ |
| Ferro fuso | Ghisa grigia | GC100<br>GC150<br>GC200<br>GC250<br>GC300<br>GC350 | 100,150, 200, 250, 300, 350 | FC100<br>FC150<br>FC200<br>FC250<br>FC300<br>FC350 | No 20 B<br>No 25 B<br>No 30 B<br>No 35 B<br>No 45 B<br>No 50 B<br>No 55 B | Gradu 150<br>Grado 220<br>Grado 260<br>Grado 300<br>Grado 350<br>Grado 400 | GG 10<br>GG 15<br>GG 20<br>GG 25<br>GG 30<br>GG 35<br>GG 40 | Ft 10 D<br>Ft 15 D<br>Ft 20 D<br>Ft 25 D<br>Ft 30 D<br>Ft 35 D<br>Ft 40 D | - |
| | Grafite sferoidale | GCD400<br><br>GCD500<br>GCD600<br>GCD700 | 700-2, 600-3, 500-7, 450-10, 400-15, 400-18, 350-22 | FCD400<br><br>FCD500<br>FCD600<br>FCD700 | 60-40-18<br><br>80-55-06<br><br>100-70-03 | SNG 420/12<br>SNG 370/17<br>SNG 500/7<br>SNG 600/3<br>SNG 700/2 | GGG 40<br>GGG 40.3<br>GGG 50<br>GGG 60<br>GGG 70 | FCS 400-12<br>FGS 370-17<br>FGS 500-7<br>FGS 600-3<br>FGS 700-2 | B |
| | Grafite sferoidale | FCAD | - | FCAD | - | EN-GJS- | EN-GJS- | EN-GJS- | - |
| | Austenitico | FCA-<br>FCDA- | L-, S- | FCA-<br>FCDA- | Tipo 1, 2,<br>Tipo D-2, D-3A<br>Classe 1, 2 | F1, F2,<br>S2W, S5S | GGL-, GGG- | L-, S- | - |

## Leghe non ferrose

| Tipo | | Korea | ISO | Giappone | U.S.A. | | UK | Germania | Francia | Russia |
|---|---|---|---|---|---|---|---|---|---|---|
| | | KS | ISO | JIS | AISI SAE | | BS BS/EN | DIN DIN/EN | NF NF/EN | ГОСТ |
| Lega di alluminio | Lega di alluminio per fusione | AC1B | Al-Cu4MgTi | AC1B | 204.0 | | - | - | A-U5GT | |
| | | AC2A | - | AC2A | - | | - | - | - | |
| | | AC2B | - | AC2B | 319.0 | | - | - | - | |
| | | AC3A | - | AC3A | - | | LM-6 | - | - | |
| | | AC4A | - | AC4A | - | | - | G(GK)-AlSi9Cu3 | - | |
| | | AC4B | - | AC4B | - | | - | - | - | |
| | | AC4C | Al-Si7Mg(Fe) | AC4C | 356.0 | | LM-25 | G(GK)-AlSi7MG | A-S7G | |
| | | AC4CH | Al-Si7Mg | AC4CH | A356.0 | | - | - | - | |
| | | AC4D | Al-Si5Cu1Mg | AC4D | 355.0 | | LM-16 | - | - | |
| | | AC5A | Al-Cu4Ni2Mg2 | AC5A | 242.0 | | - | G(GK)-AlMg5 | A-U4NT | |
| | | AC7A | - | AC7A | 514.0 | | LM-5 | - | - | |
| | | AC8A | - | AC8A | - | | LM-13 | - | A-S12UNG | |
| | | AC8B | - | AC8B | - | | LM-26 | - | A-S10UG | |
| | | AC8C | - | AC8C | - | | - | - | A-S10UG | |
| | | AC9A | - | AC9A | - | | LM-29 | - | - | |
| | | AC9B | - | AC9B | - | | - | GD-AlSi12 (Cu) | A-S18UNG | |
| | Stampo lega di alluminio per fusione | ALDC1 | Al-Si12CuFe | ADC1 | A413.0 | | LM20 | GD-AlSi10Mg | A-S13 | |
| | | ALDC2 | - | ADC3 | A360.0 | | - | GD-AlMg9 | A-S9G | |
| | | ALDC3 | - | ADC5 | 518.0 | | - | - | A-G6 | |
| | | ALDC4 | - | ADC6 | - | | - | GD-AlSi9Cu3 | A-G3T | |
| | | ALDC7 | Al-Si8Cu3Fe | ADC10 | A380.0 | | - | GD-AlSi9Cu3 | - | |
| | | ALDC7Z | Al-Si8Cu3Fe | ADC10Z | A380.0 | | LM24 | - | - | |
| | | ALDC8 | - | ADC12 | 383.0 | | LM2 | - | - | |
| | | ALDC8Z | - | ADC12Z | 383.0 | | LM2 | - | - | |
| | | ALDC9 | - | ADC14 | B390.0 | | LM30 | EN AW-5052 | - | |
| | Forme estruse lega di alluminio | A5052S | - | A5052S | 5052 | | EN AW-5052 | EN AW-5454 | EN AW-5052 | |
| | | A5454S | - | A5454S | 5454 | | EN AW-5454 | EN AW-5083 | EN AW-5454 | |
| | | A5083S | AlMg4.5Mn0.7 | A5083S | 5083 | | EN AW-5083 | EN AW-5086 | EN AW-5083 | |
| | | A5086S | - | A5086S | 5086 | | EN AW-5086 | EN AW-6061 | EN AW-5086 | |
| | | A6061S | AlMg1SiCu | A6061S | 6061 | | EN AW-6061 | EN AW-6063 | EN AW-6061 | |
| | | A6063S | AlMg0.7Si | A6063S | 6063 | | EN AW-6063 | EN AW-7003 | EN AW-6063 | |
| | | A7003S | - | A7003S | - | | EN AW-7003 | - | EN AW-7003 | |
| | | A7N01S | - | A7N01S | - | | - | EN AW-7075 | - | |
| | | A7075S | AlZn5.5MgCu | A7075S | 7075 | | EN AW-7075 | | EN AW-7075 | |

## Acciaio resistente al calore

| Tipo | | Korea | ISO | Giappone | U.S.A. | | UK | Germania | Francia | Russia |
|---|---|---|---|---|---|---|---|---|---|---|
| | | KS | ISO | JIS | UNS | AISI SAE | BS BS/EN | DIN DIN/EN | NF NF/EN | ГОСТ |
| Acciaio resistente al calore | Austenitico | STR31 | | SUH31 | | | 331S42 | | Z35CNWS14-14 | |
| | | STR35 | | SUH35 | | | 349S52 | X53CrMnNi21-9 | Z52CMN21-09-Az | |
| | | STR36 | | SUH36 | | | 349S54 | | Z55CMN21-09-Az | |
| | | STR37 | | SUH37 | S63008 | | 381S34 | | | |
| | | STR38 | | SUH38 | S63017 | | | | | |
| | | STR309 | | SUH309 | | | 309S24 | CrNi2520 | Z15CN24-13 | |
| | | STR310 | | SUH310 | S30900 | | 310S24 | | Z15CN25-20 | |
| | | STR330 | | SUH330 | S31000 | 309 | | | Z12NCS35-16 | |
| | | STR660 | | SUH660 | N08330 | 310 | | | Z6NCTV25-20 | |
| | | STR661 | | SUH661 | S66286 | N08330 | | CrAl1205 | | |
| | Ferritico | STR21 | | SUH21 | R30155 | | | X6CrTi12 | | |
| | | STR409 | X6CrTi12 | SUH409 | | | 409S19 | | Z6CT12 | |
| | | STR409L | X2CrTi12 | SUH409L | S40900 | | | | Z3CT12 | |
| | | STR446 | | SUH446 | | 409 | | X45CrSi9-3 | Z12C25 | |
| | Martensitico | STR1 | | SUH1 | S44600 | | 401S45 | | Z45CS9 | |
| | | STR3 | | SUH3 | S65007 | 446 | | | Z40CSD10 | |
| | | STR4 | | SUH4 | | | 443S65 | | Z80CSN20-02 | |
| | | STR11 | | SUH11 | | | | | | |
| | | STR600 | | SUH600 | | | | | | |
| | | STR616 | | SUH616 | S42200 | | | | | |

## Elenco simoboli acciaio, materiale non ferroso

### Raffronto degli standard per il materiale lavorato

| GRUPPO | | DEFINIZIONE STANDARD | CODICE |
|---|---|---|---|
| Acciasio strutturale | | Acciaio arrotolato per strutture saldate | SWS |
| | | Acciaio riarrotolato | SBR |
| | | Acciaio arrotolato per strutture generiche | SB |
| | | Acciaio leggero per strutture generiche | SBC |
| | | Asta acciaio laminato a caldo, Lastra/nastro per uso strutturale automob. | SAPH |
| Asta di acciaio | | Lastra/nastro di acciaio laminato a freddo | SBC |
| | | Lastra/nastro di acciaio leggero laminato a caldo | SHP |
| Tubo di acciaio | | Tubo di acciaio al carbonio per tubature generiche | SPP |
| | | Tubo di acciaio al carbonio per caldaie e scambiatori di calore | STH |
| | | Tubo di acciaio senza saldature per cilindro gas ad alta pressione | STHG |
| | | Tubo di acciaio al carbonio per uso strutturale generico | SPS |
| | | Tubo di acciaio al carbonio per uso strutturale con macchinari | STST |
| | | Tubo di acciaio legato per uso strutturale | STA |
| | | Tubo di acciaio inosssidabile per uso strutturale e con macchinari | STS-TK |
| | | Tubo quadrato di acciaio al carbonio per uso strutturale generico | SPSR |
| | | Tubo di acciaio legato | SPA |
| | | Tubo di acciaio al carbonio per servizio pressione | SPPS |
| | | Tubo di acciaio al carbonio per servizio alte temperature | SPSR |
| | | Tubo di acciaio al carbonio per servizio pressione | SPPH |
| | | Tubo acciaio inossidabile | STSxT |
| Fusione di utensili di acciaio in ferro e acciaio | | Acciaio al carbonio per uso strutturale con macchinari | SMxxC, SMxxCK |
| | | Acciaio al molibdeno-cromo-alluminio | SACM |
| | | Acciaio al molibdeno-cromo | SCM |
| | | Acciaio al cromo | SBCR |
| | | Acciaio al nichel-cromo | SNC |
| | | Acciaio al molibdeno-cromo-nichel | SNCM |
| | | Acciaio al manganese e acciaio al manganese-cromo per uso struttuarle con macchinari | SMn |
| Acciaio speciale | | Acciaio per utensili al carbonio | STC |
| | | Acciaio per foratura cavo | STC |
| | | Acciaio per utensili legato | STS, STD, STT |
| | | Acciaio per utensili ad alte velocità | SKH |
| | Acciaio inossidabile | Acciaio al carbonio free cutting | SUM |
| | | Acciaio per cuscinetti al cromo ad alto tenore di carbonio | STB |
| | | Acciaio per molle | SPS |
| | | Barra di acciaio inossidabile | STS |
| | Acciaio resistente al calore | Acciaio resistente al calore | STR |
| | | Barra di acciaio resistente al calore | STR |
| | | Lastra di acciaio resistente al calore | STR |

| GRUPPO | DEFINIZIONE STANDARD | CODICE |
|---|---|---|
| Acciaio forgiato | Acciaio al carbonio per forgiatura | SF |
| | Acciaio al molibdeno-cromo per forgiatura | SFCM |
| | Acciaio al molibdeno-cromo-nichel per forgiatura | SFNCM |
| Ghisa | Ghisa grigia | GC |
| | Ghisa alla grafite sferoidale | GCD |
| | Ghisa malleabile a cuore nero | BMC |
| | Ghisa malleabile a cuore bianco | WMC |
| | Ghisa malleabile perlitica | PMC |
| Ghisa acciaiosa per fusione | Ghisa acciaiosa al carbonio | SC |
| | Ghisa acciaiosa al carbonio ad alto carico di rottura e ghisa acciaiosa a basso tenore | HSC |
| | Ghisa acciaiosa inossidabile | SSC |
| | Ghisa acciaiosa resistente al calore | HRSC |
| | Ghisa acciaiosa a elevato tenore di manganese | HMnSC |
| | Ghisa acciaiosa per servizio alta temperatura e alta pressione | SCPH |
| | Ottone per fusione | BsC |
| | Ottone ad alta resistenza | HBsC |
| | Bronzo per fusione | BrC |
| | Bronzo fosforico per fusione | PCB |
| | Bronzo all'alluminio per fusione | AIBC |
| | Lega di alluminio per fusione | ACxA |
| | Lega di magnesio per fusione | MgC |
| | Stampo di lega di zinco per fusione | ZnDC |
| | Stampo di lega di alluminio per fusione | AIDC |
| | Stampo di lega di magnesio per fusione | MgDC |
| | Metallo bianco | WM |
| | Fusione lega di alluminio per produzione cuscinetti | AM |
| | Fusione lega di ottone per produzione cuscinetti | KM |

# Tabella di conversione unità SI

## Tabella di conversione principali unità SI

### • Forza

| N | kgf | dyn |
|---|---|---|
| 1 | $1.01972\times10^{-1}$ | $1\times10^{-5}$ |
| 9.80665 | 1 | $9.80665\times10^{5}$ |
| $1\times10^{-5}$ | $1.01972\times10^{-6}$ | 1 |

### • Tensione

| Pa o N/m² | MPa o N/mm² | kgf/mm² | kgf/cm² | kgf/m² |
|---|---|---|---|---|
| 1 | $1\times10^{-6}$ | $1.01972\times10^{-7}$ | $1.01972\times10^{-5}$ | $1.01972\times10^{-1}$ |
| $1\times10^{6}$ | 1 | $1.01972\times10^{-1}$ | $1.01972\times10$ | $1.01972\times10^{5}$ |
| $9.80665\times10^{6}$ | 9.80665 | 1 | $1\times10^{2}$ | $1\times10^{6}$ |
| $9.80665\times10^{4}$ | $9.80665\times10^{-2}$ | $1\times10^{-2}$ | 1 | $1\times10^{4}$ |
| 9.80665 | $9.80665\times10^{-6}$ | $1\times10^{-6}$ | $1\times10^{-4}$ | 1 |

### • Pressione

| Pa | kPa | MPa | bar | kgf/cm² |
|---|---|---|---|---|
| 1 | $1\times10^{-3}$ | $1\times10^{-6}$ | $1\times10^{-5}$ | $1.01972\times10^{-5}$ |
| $1\times10^{3}$ | 1 | $1\times10^{-3}$ | $1\times10^{-2}$ | $1.01972\times10^{-2}$ |
| $1\times10^{6}$ | $1\times10^{3}$ | 1 | $1\times10$ | $1.01972\times10$ |
| $1\times10^{5}$ | $1\times10^{2}$ | $1\times10^{-1}$ | 1 | 1.01972 |
| $9.80665\times10^{4}$ | $9.80665\times10$ | $9.80665\times10^{-2}$ | $9.80665\times10^{-1}$ | 1 |

### • Lavoro, energia, caloria

| J | kW·h | kgf·m | kcal |
|---|---|---|---|
| 1 | $2.77778\times10^{-7}$ | $1.01972\times10^{-1}$ | $2.38889\times10^{-4}$ |
| $3.60000\times10^{6}$ | 1 | $3.67098\times10^{5}$ | $8.60000\times10^{2}$ |
| 9.80665 | $2.72407\times10^{-6}$ | 1 | $2.34270\times10^{-3}$ |
| $4.18605\times10^{3}$ | $1.16279\times10^{-3}$ | $4.26858\times10^{2}$ | 1 |

### • Potenza

| W | kW | kgf·m/s | PS | kcal/h |
|---|---|---|---|---|
| 1 | $1\times10^{-3}$ | $1.01972\times10^{-1}$ | $1.35962\times10^{-3}$ | 0.860 |
| $1\times10^{3}$ | 1 | $1.01972\times10^{2}$ | 1.359 62 | $8.60000\times10^{2}$ |
| 9.81 65 | $9.80665\times10^{-3}$ | 1 | $1.33333\times10^{-2}$ | 8.433 71 |
| $7.355\times10^{2}$ | $7.355\times10^{-1}$ | $7.5\times10$ | 1 | $6.32529\times10^{2}$ |
| 1.162 79 | $1.16279\times10^{-3}$ | $1.18572\times10^{-1}$ | $1.58095\times10^{-3}$ | 1 |

### • Calore specifico

| J/(kg·K) | kcal/(kg·℃) cal/(g·℃) |
|---|---|
| 1 | $2.38889\times10^{-4}$ |
| $4.18605\times10^{3}$ | 1 |

### • Conduttività termica

| W/(m·k) | kcal/(h·m·℃) |
|---|---|
| 1 | $8.6000\times10^{-1}$ |
| 1.16279 | 1 |

### • Giri al minuto

| $min^{-1}$ | $s^{-1}$ | r.p.m. |
|---|---|---|
| 1 | 0.0167 | 1 |
| 60 | 1 | 60 |

## Tabella di calcolo della durezza

### Tabella di calcolo della durezza per materiale lavorato

| Vickers 50kgf Hv | Brinell, 3000kgf HB: Sfera standard 10mm | Brinell, 3000kgf HB: Sfera in metallo duro sinterizzato 10mm | Rockwell: Scala A 60kgf Particella di diamante HRA | Rockwell: Scala B 100kgf Sfera 1/16in HRB | Rockwell: Scala C 150kgf Particella di diamante HRC | Rockwell: Scala D 100kgf Particella di diamante HRD | Shore HS | Carico di rottura (approx.) MPa(1) |
|---|---|---|---|---|---|---|---|---|
| 940 | - | - | 85.6 | - | 68.0 | 76.9 | 97 | |
| 920 | - | - | 85.3 | - | 67.5 | 76.5 | 96 | |
| 900 | - | - | 85.0 | - | 67.0 | 76.1 | 95 | |
| 880 | - | (767) | 84.7 | - | 66.4 | 75.7 | 93 | |
| 860 | - | (757) | 84.4 | - | 65.9 | 75.3 | 92 | |
| 840 | - | (745) | 84.1 | - | 65.3 | 74.8 | 91 | |
| 820 | - | (733) | 83.8 | - | 64.7 | 74.3 | 90 | |
| 800 | - | (722) | 83.4 | - | 64.0 | 74.8 | 88 | |
| 780 | - | (710) | 83.0 | - | 63.3 | 73.3 | 87 | |
| 760 | - | (698) | 82.6 | - | 62.5 | 72.6 | 86 | |
| 740 | - | (684) | 82.2 | - | 61.8 | 72.1 | 84 | |
| 720 | - | (670) | 81.8 | - | 61.0 | 71.5 | 83 | |
| 700 | - | (656) | 81.3 | - | 60.1 | 70.8 | 81 | |
| 690 | - | (647) | 81.1 | - | 59.7 | 70.5 | - | |
| 680 | - | (638) | 80.8 | - | 59.2 | 70.1 | 80 | |
| 670 | - | 630 | 80.6 | - | 58.8 | 69.8 | - | |
| 660 | - | 620 | 80.3 | - | 58.3 | 69.4 | 79 | |
| 650 | - | 611 | 80.0 | - | 57.8 | 69.0 | - | |
| 640 | - | 601 | 79.8 | - | 57.3 | 68.7 | 77 | |
| 630 | - | 591 | 79.5 | - | 56.8 | 68.3 | - | |
| 620 | - | 582 | 79.2 | - | 56.3 | 67.9 | 75 | |
| 610 | - | 573 | 78.9 | - | 55.7 | 67.5 | - | |
| 600 | - | 564 | 78.6 | - | 55.2 | 67.0 | 74 | |
| 590 | - | 554 | 78.4 | - | 54.7 | 66.7 | - | 2055 |
| 580 | - | 545 | 78.0 | - | 54.1 | 66.2 | 72 | 2020 |
| 570 | - | 535 | 77.8 | - | 53.6 | 65.8 | - | 1985 |
| 560 | - | 525 | 77.4 | - | 53.0 | 65.4 | 71 | 1950 |
| 550 | (505) | 517 | 77.0 | - | 52.3 | 64.8 | - | 1905 |
| 540 | (496) | 507 | 76.7 | - | 51.7 | 64.4 | 69 | 1860 |
| 530 | (488) | 497 | 76.4 | - | 51.1 | 63.9 | - | 1825 |
| 520 | (480) | 488 | 76.1 | - | 50.5 | 63.5 | 67 | 1795 |
| 510 | (473) | 479 | 75.7 | - | 49.8 | 62.9 | - | 1750 |
| 500 | (465) | 471 | 75.3 | - | 49.1 | 62.2 | 66 | 1705 |
| 490 | (456) | 460 | 74.9 | - | 48.4 | 61.6 | - | 1660 |
| 480 | 488 | 452 | 74.5 | - | 47.7 | 61.3 | 64 | 1620 |
| 470 | 441 | 442 | 74.1 | - | 46.9 | 60.7 | - | 1570 |
| 460 | 433 | 433 | 73.6 | - | 46.1 | 60.1 | 62 | 1530 |
| 450 | 425 | 425 | 73.3 | - | 45.3 | 59.4 | - | 1495 |
| 440 | 415 | 415 | 72.8 | - | 44.5 | 58.8 | 59 | 1460 |
| 430 | 405 | 405 | 72.3 | - | 43.6 | 58.2 | - | 1410 |
| 420 | 397 | 397 | 71.8 | - | 42.7 | 57.5 | 57 | 1370 |
| 410 | 388 | 388 | 71.4 | - | 41.8 | 56.8 | - | 1330 |
| 100 | 379 | 379 | 70.8 | - | 40.8 | 56.0 | 55 | 1290 |
| 390 | 369 | 369 | 70.3 | - | 39.8 | 55.2 | - | 1240 |
| 380 | 360 | 360 | 69.8 | (100.0) | 38.8 | 54.4 | 52 | 1205 |
| 370 | 350 | 350 | 69.2 | - | 39.9 | 53.6 | - | 1170 |
| 360 | 341 | 341 | 68.7 | (109.0) | 36.6 | 52.8 | 50 | 1130 |
| 350 | 331 | 331 | 68.1 | - | 35.5 | 51.9 | - | 1095 |
| 340 | 322 | 322 | 67.6 | (108.0) | 34.4 | 51.1 | 47 | 1070 |
| 330 | 313 | 313 | 67.0 | - | 33.3 | 50.2 | - | 1035 |

| Vickers 50kgf | Brinell, 3000kgf HB: Sfera standard 10mm | Brinell, 3000kgf HB: Sfera in metallo duro sinterizzato 10mm | Rockwell: Scala A 60kgf Particella di diamante HRA | Rockwell: Scala B 100kgf Sfera 1/16in HRB | Rockwell: Scala C 150kgf Particella di diamante HRC | Rockwell: Scala D 100kgf Particella di diamante HRD | Shore HS | Carico di rottura (approx.) MPa(1) |
|---|---|---|---|---|---|---|---|---|
| 320 | 303 | 303 | 66.4 | (107.0) | 32.2 | 49.4 | 45 | 1005 |
| 310 | 294 | 294 | 65.8 | - | 31.0 | 48.4 | - | 980 |
| 300 | 284 | 284 | 65.2 | (105.5) | 29.8 | 47.5 | 42 | 950 |
| 295 | 280 | 280 | 64.8 | - | 29.2 | 47.1 | - | 935 |
| 290 | 275 | 275 | 64.5 | (104.5) | 28.5 | 46.5 | 41 | 915 |
| 285 | 270 | 270 | 64.2 | - | 27.8 | 46.0 | - | 905 |
| 280 | 265 | 265 | 63.8 | (103.5) | 27.1 | 45.3 | 40 | 890 |
| 275 | 261 | 261 | 63.5 | - | 26.4 | 44.9 | - | 875 |
| 270 | 256 | 256 | 63.1 | (102.0) | 25.6 | 44.3 | 38 | 855 |
| 265 | 252 | 252 | 62.7 | - | 24.8 | 43.7 | - | 840 |
| 260 | 247 | 247 | 62.4 | (101.0) | 24.0 | 43.1 | 37 | 825 |
| 255 | 243 | 243 | 62.0 | - | 23.1 | 42.2 | - | 805 |
| 250 | 238 | 238 | 61.6 | 99.5 | 22.2 | 41.7 | 36 | 795 |
| 245 | 233 | 233 | 61.2 | - | 21.3 | 41.1 | - | 780 |
| 240 | 228 | 228 | 60.7 | 98.1 | 20.3 | 40.3 | 34 | 765 |
| 230 | 219 | 219 | - | 96.7 | (18.0) | - | 33 | 730 |
| 220 | 209 | 209 | - | 95.0 | (15.7) | - | 32 | 695 |
| 210 | 200 | 200 | - | 93.4 | (13.4) | - | 30 | 670 |
| 200 | 190 | 190 | - | 91.5 | (11.0) | - | 29 | 635 |
| 190 | 181 | 181 | - | 89.5 | (8.5) | - | 28 | 605 |
| 180 | 171 | 171 | - | 87.1 | (6.0) | - | 26 | 580 |
| 170 | 162 | 162 | - | 85.0 | (3.0) | - | 25 | 545 |
| 160 | 152 | 152 | - | 81.7 | (0.0) | - | 24 | 515 |
| 150 | 143 | 143 | - | 78.7 | - | - | 22 | 490 |
| 140 | 133 | 133 | - | 75.0 | - | - | 21 | 455 |
| 130 | 124 | 124 | - | 71.2 | - | - | 20 | 425 |
| 120 | 114 | 114 | - | 66.7 | - | - | - | 390 |
| 110 | 105 | 105 | - | 62.3 | - | - | - | - |
| 100 | 95 | 95 | - | 56.2 | - | - | - | - |
| 95 | 90 | 90 | - | 52.0 | - | - | - | - |
| 90 | 86 | 86 | - | 48.0 | - | - | - | - |
| 85 | 81 | 81 | - | 41.0 | - | - | - | - |

Nota1.) Il numero si riferisce a ASTM E 1 nell'elenco 140

Nota 2.) 1. 1MPa = 1N/mm²

2. Lo spazio vuoto si riferisce a valori non usati generalmente.

## Proprietà dei gradi Korloy

### Proprietà fisiche dei gradi Korloy

| Applicazione | Simbolo di classificazione ISO | | Gradi Korloy | Gravità specifica ($g/cm^3$) | Durezza (HRA) | TRS ($kgf/mm^2$) | Forza di compressione ($kg/mm^2$) | Modulo di elasticità ($10^3 kgf/mm^2$) | Coefficiente di dilatazione termica ($10^{-6}/℃$) | Conduttività termica (cal/cm·sec·℃) |
|---|---|---|---|---|---|---|---|---|---|---|
| Gradi per gli utensili | P | P01 | ST05 | 10.6 | 92.7 | 140 | 440 | - | - | - |
| | | P10 | ST10 | 10.0 | 92.1 | 175 | 460 | 48 | 6.2 | 25 |
| | | P20 | ST20 | 11.8 | 91.9 | 200 | 480 | 56 | 5.2 | 42 |
| | | P30 | ST30A | 12.2 | 91.3 | 230 | 500 | 53 | 5.2 | - |
| | M | M10 | U10 | 12.9 | 92.4 | 170 | 500 | 47 | - | - |
| | | M20 | U20 | 13.1 | 91.1 | 210 | 500 | - | - | 88 |
| | | M30 | ST30A | 12.2 | 91.3 | 230 | 500 | 53 | 5.2 | - |
| | | M40 | U40 | 13.3 | 89.2 | 270 | 440 | - | - | - |
| | K | K01 | H02 | 14.8 | 93.2 | 185 | - | 61 | 4.4 | 105 |
| | | K10 | H01 | 13.0 | 92.9 | 210 | 570 | 66 | 4.7 | 109 |
| | | K20 | G10 | 14.7 | 90.9 | 250 | 500 | 63 | - | 105 |
| Lega di grana ultrafine | Z | Z10 | FA1 | 14.1 | 91.4 | 290 | - | 58 | 5.7 | - |
| | | Z20 | FCC | 12.5 | 91.3 | 235 | - | - | - | - |
| Grado per le parti usurate in carbonio di tungsteno | V | V1 | D1 | 15.0 | 92.3 | 205 | 520 | - | - | - |
| | | V2 | D2 | 14.8 | 90.9 | 250 | 150 | - | - | - |
| | | V3 | D3 | 14.6 | 89.7 | 310 | 410 | - | - | - |
| | | V4 | G5 | 14.3 | 89.0 | 320 | 380 | - | - | - |
| | | V5 | G6 | 14.0 | 87.7 | 350 | 330 | - | - | - |
| Grado per utensili di ingegneria civile e miniere | E | E1 | GR10 | 14.8 | 90.9 | 220 | - | - | - | - |
| | | E2 | GR20 | 14.8 | 90.3 | 240 | - | - | - | - |
| | | E3 | GR30 | 14.8 | 89.0 | 270 | - | - | - | - |
| | | E4 | GR35 | 14.8 | 88.2 | 270 | - | - | - | - |
| | | E5 | GR50 | 14.5 | 87.0 | 300 | - | - | - | - |

### Proprietà fisiche dell'elemento

| Elemento | Gravità specifica ($g/cm^3$) | Durezza ($H_V$) | Modulo di elasticità ($\times 10^3 kgf/mm^2$) | Conduttività termica (cal/cm·sec·℃) | Coefficiente di dilatazione termica ($\times 10^{-6}/℃$) | Punto di fusione (℃) |
|---|---|---|---|---|---|---|
| WC | 15.6 | 2,150 | 70 | 0.3 | 5.1 | 2,900 |
| TiC | 4.94 | 3,200 | 45 | 0.04 | 7.6 | 3,200 |
| TaC | 14.5 | 1,800 | 29 | 0.05 | 6.6 | 3,800 |
| NbC | 8.2 | 2,050 | 35 | 0.04 | 6.8 | 3,500 |
| TiN | 5.43 | 2,000 | 26 | 0.07 | 9.2 | 2,950 |
| $Al_2O_3$ | 3.98 | 3,000 | 42 | 0.07 | 8.5 | 2,050 |
| cBN | 3.48 | 4,500 | 71 | 3.1 | 4.7 | - |
| Diamante | 3.52 | 9,000 | 99 | 5.0 | 3.1 | - |
| Co | 8.9 | - | 10~18 | 0.165 | 12.3 | 1,495 |
| Ni | 8.9 | - | 20 | 0.22 | 13.3 | 1,455 |

## Informazioni tecniche per l'acciaio inossidabile

### Guida alla lavorazione dell'acciaio inossidabile

- L'acciaio inossidabile è noto per la sua eccellente proprietà anticorrosiva
- Questa proprietà gli è conferita dall'aggiunta di cromo alla sua lega. In genere, l'acciaio inossidabile ha un contenuto di cromo pari al 4%~10%

#### • Classificazioni e caratteristiche dell'acciaio inossidabile

1) Austenitico: È uno degli acciai inossidabili più diffusi dalle ottime proprietà anticorrosive grazie al suo elevato contenuto di Cr e Ni. L'elevato contenuto di nichel ne rende difficoltosa la lavorazione. L'acciaio inossidabile austeritico viene generalmente impiegato nella lavorazione della latta, dei prodotti chimici e in costruzione (AISI 303,304,316)
2) Ferritico: Il contenuto di cromo è simile a quello dell'acciaio inossidabile austeritico ma l'assenza di nichel ne agevola la lavorazione (AISI 410,430,434)
3) Martensitico: È l'unico acciaio inossidabile che può essere trattato termicamente. È caratterizzato da un elevato contenuto di carbonio ma da scarsa resistenza alla corrosione, pertanto è utilizzato con materiale che necessita di maggior durezza (AISI410, 420,432)
4) Indurente per precipitazione: Lega di cromo-nichel dalla maggiore durezza grazie al trattamento termico a basse tempereature, ha una maggiore resistenza alla corrosione e tenacità allo stesso tempo(AISI 17, 15)
5) Austenitico-ferritico: Sebbene abbia proprietà simili a quelle dell'acciaio inossidabile austenitico e ferritico, la reistenza al calore è di gran lunga maggiore (ciraca 2 volte in più). Si impiega normalmente laddove si richiede una maggiore stabilità termica e della corrosione, come ad esempio nei condensatori (AISI S2304, 2507)

#### • Difficioltà di lavorazione dell'acciaio inossidabile

1) Indurimento durante la lavorazione - Causa la prematura usura dell'utensile e uno scarso controllo del truciolo
2) Bassa conduttività termica - Causa la deformazione del tagliente e la rapida usura degli utensili
3) Tagliente diriporto - Maggiormente suscettibile alla micro scheggiatura sul tagliente e provoca una cattiva superficie di finitura
4) La superficie di contatto tra l'utensile e il materiale lavorato provocata dall'indurimento nella lavorazione e dalla bassa conduttività termica del pezzo lavorato possono generare usura, scheggiature e fratture anomale

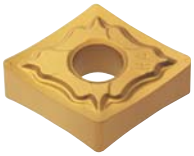
#### • Suggerimenti per la lavorazione dell'acciaio inossidabile

1) Utilizzare un utensile dalla superiore conduttività termica
La bassa conduttività termica dell'acciaio inossidabile accelera l'usura dell'utensile provocando una riduzione della durezza del tagliente dell'inserto, in quanto il calore si accumula. È consigliabile utilizzare un utensile dalla conduttività termica superiore e con refrigerante a sufficienza
2) Tagliente più affilato
Si raccomanda di utilizzare angoli di spoglia più ampi e rompitrucioli più grandi per ridurre lo sforzo di taglio e prevenire la formazione di riporto sul tagliente. In questo modo l'operatore può eseguire un migliore controllo del truciolo
3) Condizioni di taglio ottimali
Condizioni di taglio scorrette, come velocità troppo basse o troppo alte o avanzamenti bassi, possono compromettere la durata dell'utensile a causa dell'indurimento durante la lavorazione del pezzo
4) Scegliere l'utensile giusto
Gli utensili per la lavorazione dell'acciaio inossidabile devono essere tanaci, robusti sul tagliente e avere una buona resistenza all'usura



## Rompitrucioli per acciaio inossidabile

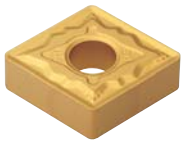
### HA / Finitura





- Tagliente affilato per basse profondità di taglio
- Aumenta la durata dell'utensile grazie al migliore controllo del truciolo nelle alte velocità di lavorazione
- Buona superficie di finitura del pezzo lavorato

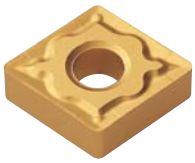
### HS / Medie lavorazioni





- Maggiore efficienza e durata dell'utensile grazie al migliore controllo del truciolo
- Aumenta la resistenza all'usura grazie all'angolo di spoglia maggiore
- Il design speciale previene le scheggiature sul tagliente e aumenta la tenacità

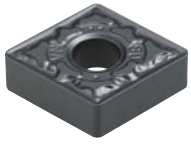
### GS / Medie lavorazioni e sgrossatura





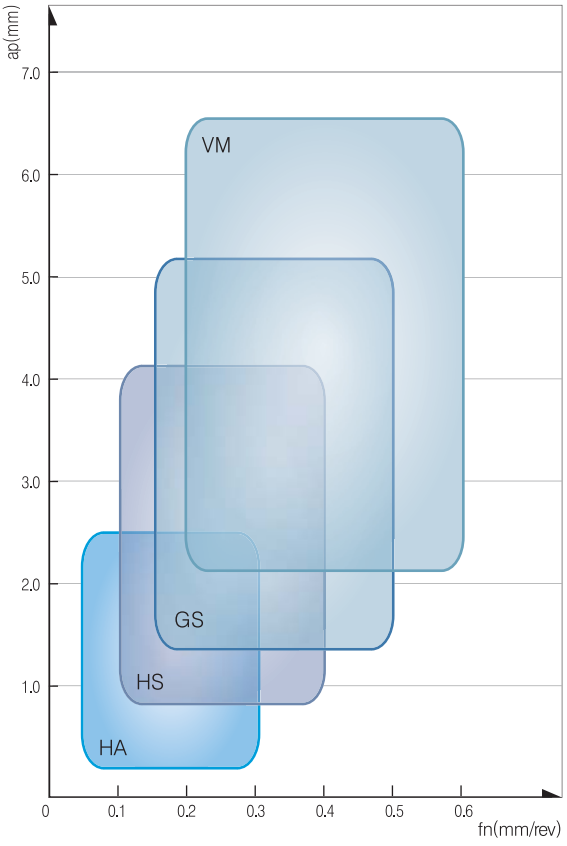
- Maggiore durata dell'utensile nel taglio interrotto leggero
- Migliore controllo del truciolo grazie allo scarico più ampio
- Previene la formazione di tagliente di riporto grazie ai bassi sforzi di taglio

### VM / Sgrossatura





- Rompitruciolo per tagli interrotti
- Design esclusivo del rompitruciolo per un migliore controllo del truciolo
- Tagliente robusto che consente una maggiore tenacità

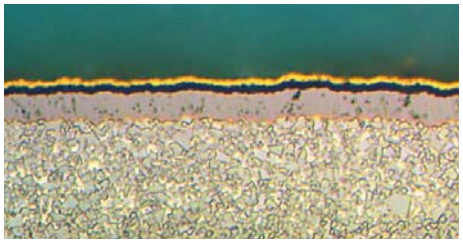



## Nuovi gradi Korloy per la lavorazione dell'acciaio inossidabile

- Nuovi gradi KORLOY per la lavorazione dell'acciaio inossidabile

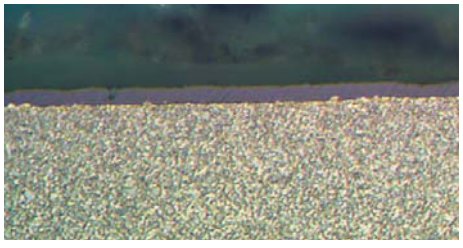
### • NC9025 per tornitura ad alte e medie velocità dell'acciaio inossidabile

- Substrato e rivestimento speciali appositamente studiati per lavorazioni ad alta velocità dell'acciaio inossidabile
- Prestazioni superiori in lavorazioni a velocità moderata di acciaio e acciaio legato a basso tenore di carbonio
- Maggiore durata dell'utensile grazie alla migliore resistenza alla scheggiatura del tagliente
- Migliori prestazioni di taglio. Korloy offre svariate combinazioni di rompitrucioli per lavorare facilmente i materiali, anche con elevate profondità di taglio



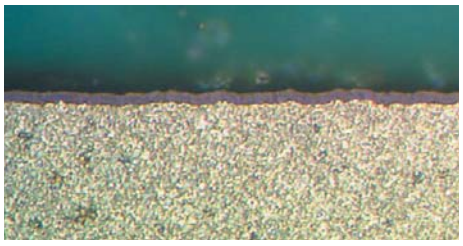
### • PC9030 per tornitura a medie e basse velocità dell'acciaio inossidabile.

- Grazie al substrato in metallo duro ultrafine, PC9030 è più tenace e adatto alle lavorazioni a velocità moderata e con taglio interrotto dell'acciaio inossidabile
- Il rivestimento PVD migliora la resistenza alla scheggiatura e la resistenza all'usura durante la lavorazione di materiali pastosi
- Grado esclusivo per acciaio inossidabile, con substrato in metallo duro molto tenace e rivestimento in PVD che conferiscono all'inserto buone proprietà lubrificanti
- Migliora la superficie di finitura e riduce le vibrazioni grazie agli esclusivi rompitrucioli studiati per l'acciaio inossidabile

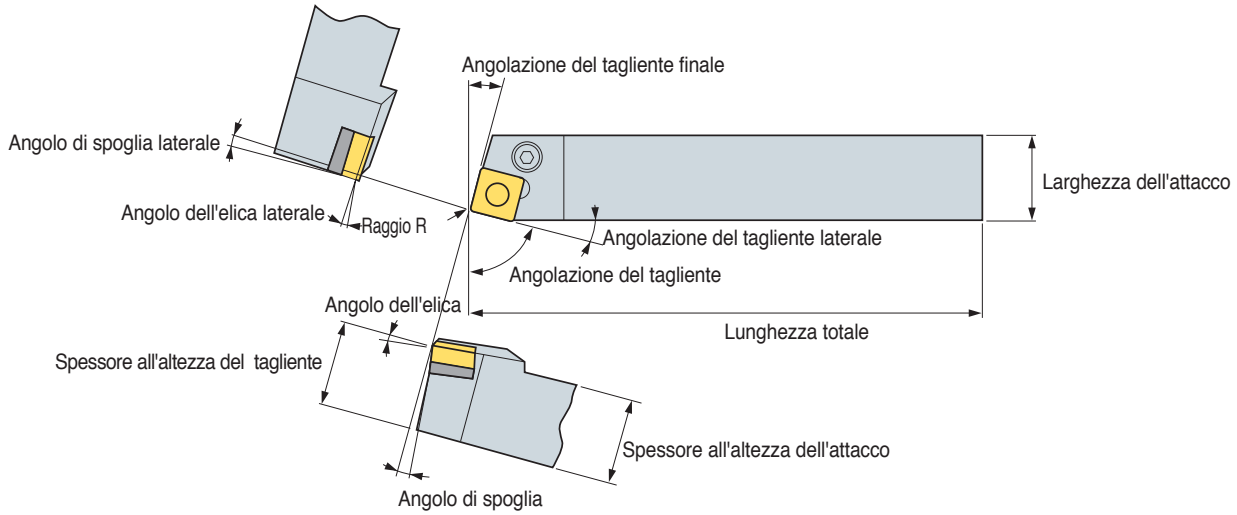


### • PC9530 per fresatura a medie e basse velocità dell'acciaio inossidabile

- Tenace substrato in metallo duro ultrafine utilizzato principalmente per lavorazioni di sgrossatura e/o con taglio interrotto dell'acciaio inossidabile
- Il rivestimento in PVD consente di allungare la durata dell'utensile nelle lavorazioni dell'acciaio inossidabile e dell'acciaio al nichel-cromo
- Per ridurre il rischio di scheggiatura dell'inserto, Korloy ricorre a un tenace substrato in metallo duro e al rivestimento in PVD che prevengono la formazioni di riporto sul tagliente.



## Forma dell'inserto e definizioni

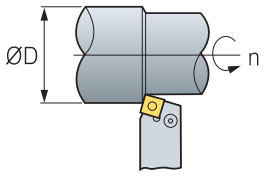



### • Rapporto tra le angolazioni dell'utensile e del pezzo lavorato

| Inclinazione tagliente | Definizione | Funzione | Effetto |
|---|---|---|---|
| **Angolo dell'elica** | Angolo dell'elica laterale<br>Angolo dell'elica | • Sforzo di taglio, calore del taglio, effetti del controllo truciolo sulla durata dell'utensile | • (+) : Eccellente lavorabilità (sforzi di taglio ridotti, minore carico sul tagliente)<br>• (+) : Per materiali altamente lavorabili o pezzi sottili<br>• (-) : Quando si richiede un tagliente robusto per condizioni di taglio interrotto |
| **Angolo di spoglia** | Angolo di spoglia<br>Angolo di spoglia laterale | • Contatto solo tra tagliente e superficie di taglio | • (-) : Il tagliente è robusto ma la durata dell'utensile è influenzata negativamente dall'usura del fianco |
| **Angolo tagliente** | Angolazione del tagliente | • Influenza il controllo del truciolo e la direzione dello sforzo di taglio | • (+) : Migliore controllo del truciolo considerato lo spessore consistente del truciolo |
| | Angolazione del tagliente laterale | • Influenza il controllo del truciolo e la direzione dello sforzo di taglio | • (+) : Il tagliente è robusto in quanto lo sforzo di taglio è ben distribuito ma il controllo del truciolo è scarso a causa del suo sottile spessore<br>• (-) : Migliore controllo del truciolo |
| | Angolazione del tagliente finale | • Previene l'attrito tra il tagliente e la superficie di taglio | • (-) : Il tagliente è robusto ma la durata dell'utensile è breve influenzando negativamente l'usura del fianco |

## Formule per la lavorazione

### • Velocità ditaglio




$$vc = \frac{\pi \times D \times n}{1000} \text{ (m/min)}$$

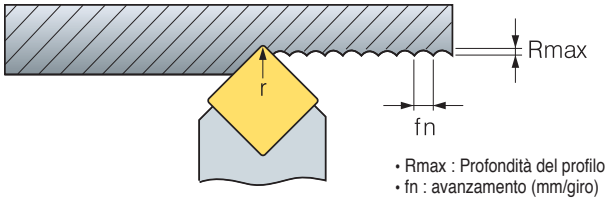
• vc : Velocità di taglio (m/min) • n : Giri al minuto ($min^{-1}$)
• D : Diametro (mm) • π : Costante circolare (3.14)

### • Avanzamento

$$fn = \frac{vf}{n} \text{ (mm/rev)}$$

• fn : Avanzamento al giro (mm/rev) • n : Giri al minuto ($min^{-1}$)
• vf : Avanzamento al minuto (mm/min)

### • Superficie di finitura




• Rmax : Profondità del profilo (rugosità altezza max.) μ)
• fn : avanzamento (mm/giro)
• r : Raggio R

• Rugosità superficiale teorica

$$Rmax = \frac{fn^2}{8r} \; 1000(\mu m)$$

• Rugosità superficiale reale
Acciaio : Rmax × (1.5~3) Ghisa : Rmax × (3~5)

### • Potenza richiesta

$$P_{kw} = \frac{Q \times kc}{60 \times 102 \times \eta} \qquad P_{HP} = \frac{P_{KW}}{0.75} \qquad Q = \frac{vc \times fn \times ap}{1000}$$

• $P_{kw}$ : Potenza richiesta [kW]
• $P_{HP}$ : Potenza richiesta (cavalli) [HP]
• vc : Velocità di taglio [m/min]
• ap : Profonidtà di taglio [mm]
• fn : Avanzamento al giro [mm/giro]
• kc : Resistenza di taglio specifica [$kg/mm^2$]
• η : Efficienza (0.7~0.8)

| Kc | |
|---|---|
| Acciaio leggero | 190 |
| Acciaio a medio tenore di carbonio | 210 |
| Acciaio a elevato tenore di carbionio | 240 |
| Acciaio poco legato | 190 |
| Acciaio molto legato | 245 |
| Ghisa | 93 |
| Ghisa malleabile | 120 |
| Bronzo, ottone | 70 |

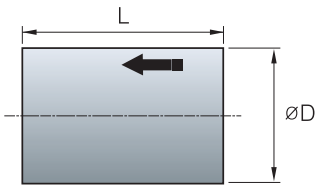
### • Materiale asportato

$$Q = \frac{vc \times fn \times ap}{1000}$$

• Q : Materiale asportato [$cm^3$/min] • ap : Profondità di taglio [mm]
• vc : Velocità di taglio [m/min] • fn : Avanzamento al giro [mm/rev]

## • Tempo di lavorazione

### Spianatura esterna 1




• Giro costante al minuto

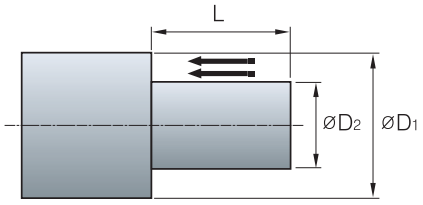
$$T = \frac{60 \times L}{fn \times n}$$

• Velocità di taglio costante

$$T = \frac{60 \times \pi \times L \times D}{1000 \times fn \times n}$$

T : Durata lavorazione [sec]
L : Lunghezza di taglio [mm]
fn : Avanzamento al giro [mm/rev]
n : Giri al minuto [min]
D : Diametro del pezzo lavorato [mm]
vc : Velocità di taglio [m/min]

### Spianatura esterna 2




• Giro costante al minuto

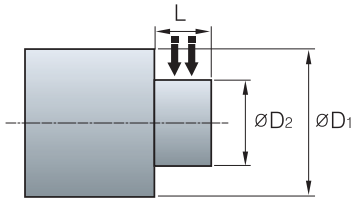
$$T = \frac{60 \times L}{fn \times n} \times N$$

• Velocità di taglio costante

$$T = \frac{60 \times \pi \times L \times (D1 + D2)}{2 \times 1000 \times fn \times n} \times N$$

T : Durata lavorazione [sec]
L : Lunghezza di taglio [mm]
fn : Avanzamento al giro [mm/rev]
n : Giri al minuto [min]
$D_1$ : Diametro max. del pezzo lavorato [mm]
$D_2$ : Diametro min. del pezzo lavorato [mm]
vc : Velocità di taglio [m/min]
n : Numero di passate = $(D_1-D_2)/d/2$

### Sfacciatura




• Giro costante al minuto

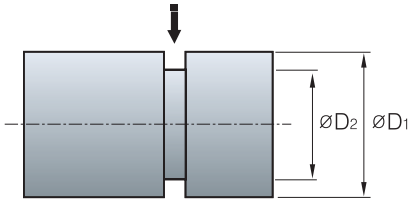
$$T = \frac{60 \times (D_1 - D_2)}{2 \times fn \times n} \times N$$

• Velocità di taglio costante

$$T_1 = \frac{60 \times \pi \times (D1 + D2) \times (D1 - D2)}{4000 \times fn \times vc} \times N$$

T : Durata lavorazione [sec]
$T_1$ : Durata della lavorazione prima dei rpm max. [sec]
L : Lunghezza di taglio [mm]
fn : Avanzamento al giro [mm/rev]
n : Giri al minuto [$min^{-1}$]
$D_1$ : Diametro max. del pezzo lavorato [mm]
$D_2$ : Diametro min. del pezzo lavorato [mm]
vc : Velocità di taglio [m/min]
n : Numero di passate = $(D_1-D_2)/d/2$

### Scanalatura




• Giro costante al minuto

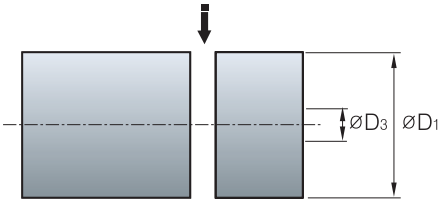
$$T = \frac{60 \times (D_1 - D_2)}{2 \times fn \times n}$$

• Velocità di taglio costante

$$T_1 = \frac{60 \times \pi \times (D_1 + D_2) \times (D_1 - D_2)}{4000 \times fn \times vc}$$

T : Durata lavorazione [sec]
$T_1$ : Durata della lavorazione [sec]
L : Lunghezza di taglio [mm]
fn : Avanzamento al giro [mm/rev]
n : Giri al minuto [$min^{-1}$]
$D_1$ : Diametro max. del pezzo lavorato [mm]
$D_2$ : Diametro min. del pezzo lavorato [mm]
vc : Velocità di taglio [m/min]

### Troncatura




• Giro costante al minuto

$$T = \frac{60 \times D_1}{2 \times fn \times n}$$

• Velocità di taglio costante

$$T_1 = \frac{60 \times \pi \times (D_1 + D_3)\ (D_1 - D_3)}{4000 \times fn \times vc}$$

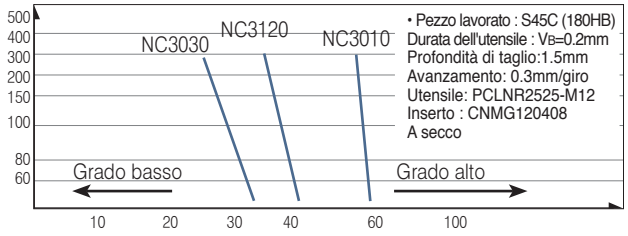
$$T_3 = T_1 + \frac{60 \times D_3}{2 \times fn \times n_{max}}$$

T : Durata lavorazione [sec]
$T_1$ : Durata della lavorazione [sec]
$T_3$ : Durata della lavorazione fino a rpm max. [sec]
fn : Avanzamento al giro [mm/rev]
n : Giri al minuto [$min^{-1}$]
$n_{max}$ : Giri al minuto max. [$min^{-1}$]
$D_1$ : Diametro max. del pezzo lavorato [mm]
$D_3$ : Diametro max. a RPM max. [mm]
vc : Velocità di taglio [m/min]

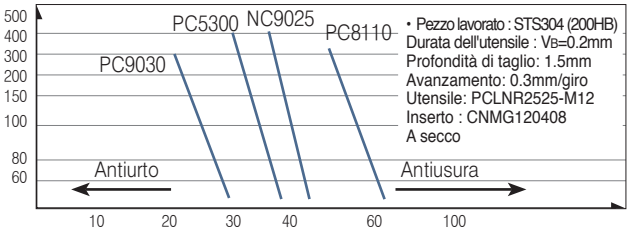
## Importanza delle condizioni di taglio

▸La lavorazione ottimale è rappresentata da breve durata di lavorazione, lunga durata dell'utensile e precisione. Questo è il motivo per cui occorre selezionare le condizioni di taglio appropriate per ogni utensile in funzione dei þroprietà, durezza, forma del materiale ed efficienza della macchina.

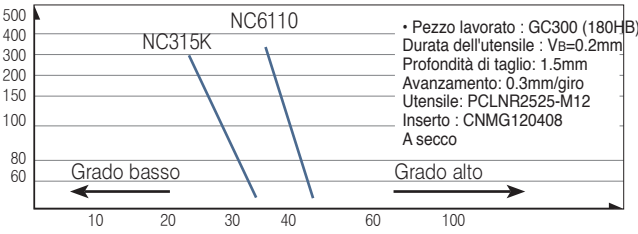
## Velocità di taglio




Durata utensile con grado P




Durata utensile con grado M




Durata utensile con grado K

## Importanza della velocità di taglio

▸Se la velocità di taglio aumenta del 20%, la durata dell'utensile si riduce del 50%. Inversamente, se la velocità di taglio aumenta del 50%, la durata dell'utensile diminuisce del 20%. D'altro canto, se la velocità di taglio è troppo bassa (20-40m/min), la durata dell'utensile si riduce a causa delle vibrazioni.

## Avanzamento

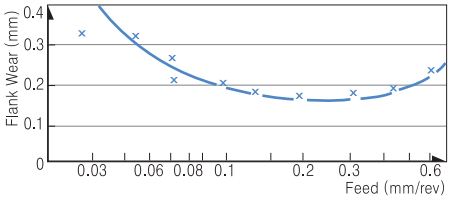
▸L'avanzamento in tornitura indica l'intervallo di progressione di una distanza sul pezzo lavorato in 1 giro. L'avanzamento in fresatura indica l'avanzamento al minuto diviso il numero di taglienti della fresa (avanzamento per dente)

## Importanza dell'avanzamento

▸Se si riduce l'avanzamento, aumenta l'usura del fianco. Se l'avanzamento è troppo basso, la durata dell'utensile si riduce considerevolmente

▸Se l'avanzamento aumenta, l'usura del fianco aumento a causa delle elevate temperature; tuttavia l'avanzamento influenza la durata dell'utensile in misura inferiore rispetto alla velocità di taglio. Avanzamenti più alti comportano una maggiore efficienza di lavorazione.

- Rapporto tra avanzamento e usura del fianco in tornitura dell'acciaio




Condizioni di taglio
• Pezzo lavorato : SNCN431
Grado : ST20
Velocità di taglio : 200m/min
Profondità di taglio : 1.0mm
Durata : 10min

## Profondità di taglio

▸È determinata dai limiti di tollerana propri della lavorazione di un dato materiale e dalla capacità della macchina di rispettarli. I limiti di taglio variano in funzione delle diverse forme e dimensioni dell'inserto.

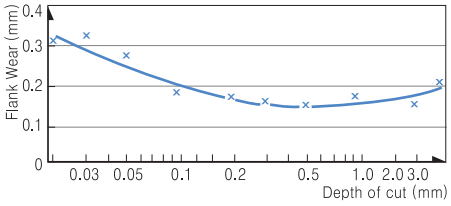
## Importanza della profondità di taglio

▸La profondità di taglio non influenza molto la durata dell'utensile

▸In caso di profondità di taglio ridotte, il pezzo lavorato non viene tagliato ma levigato.

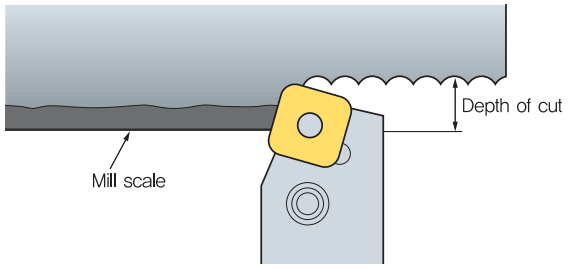
▸Durante la lavorazione della ghisa, le profondità di taglio ridotte provocano normalmente scheggiature e usura anomala a causa delle impurità dure sulla superficie del pezzo lavorato.

- Rapporto tra profondità di taglio e usura del fianco in tornitura dell'acciaio




Condizioni di taglio
• Pezzo lavorato : SNCN431
Grado : ST20
Velocità di taglio : 200m/min
Avanzamento: 0.2mm/rev
Durata : 10min

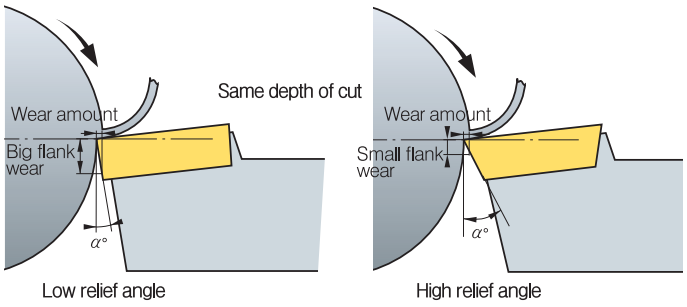
- Superficie lavorata

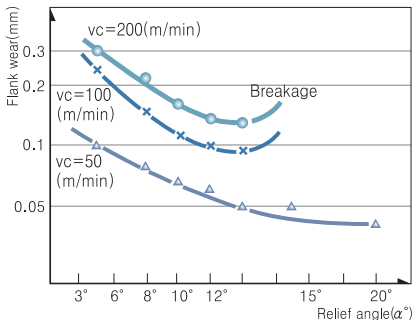


## Angolo di spoglia

L'angolo di spoglia evita l'attrito tra il pezzo lavorato e il lato di spoglia e consente al tagliente di muoversi agevolmente lungo il pezzo lavorato

### • Rapporto tra i vari angoli di spoglia e usura del fianco




- Pezzo lavorato : SNCM431(HB200)
- Grado: P20
- ap : 1mm
- fn : 0.32mm/giro
- T : 20min

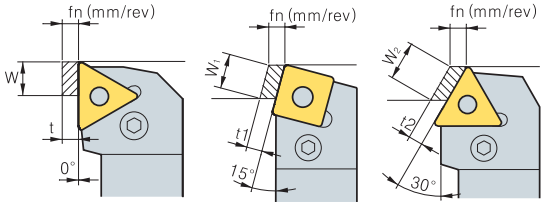
· Conseguenze
1. Se l'angolo di spoglia è ampio, l'usura del fianco diminuisce
2. Se l'angolo di spoglia è ampio, il tagliente si indebolisce
3. Se l'angolo di spoglia è piccolo, si verificano delle vibrazioni

· Sistema di selezione
1. Materiale duro / Si richiede tagliente robusto - Angolo di spoglia minore
2. Materiale morbido / Il pezzo si lavora facilmente - Angolo di spoglia maggiore

## Angolazione del tagliente laterale

L'angolazione del tagliente laterale influenza molto l'evacuazione del truciolo e lo sforzo di taglio pertanto è importante scegliere l'angolazione del tagliente laterale apporpriato.

### • Angolazione del tagliente laterale e spessore del truciolo

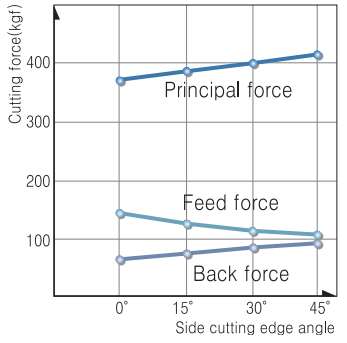



① Angolazione 0° ②Angolazione 15° ③Angolazione 30°

Se l'angolazione del tagliente laterale aumenta, i trucioli diventano più sottili e più larghi (fare riferimento alla figura). A parità di avanzamento e profondità di passata con angolazione 0° lo spessore dei trucioli è uguale all'avanzamento (t=fn) e la larghezza dei trucioli è uguale alla profondità di taglio (W=ap)

t1 = 0.97t, W1 = 1.04W
t2 = 0.87t, W2 = 1.15W

### • Angolazione del tagliente laterale e 3 sforzi di taglio

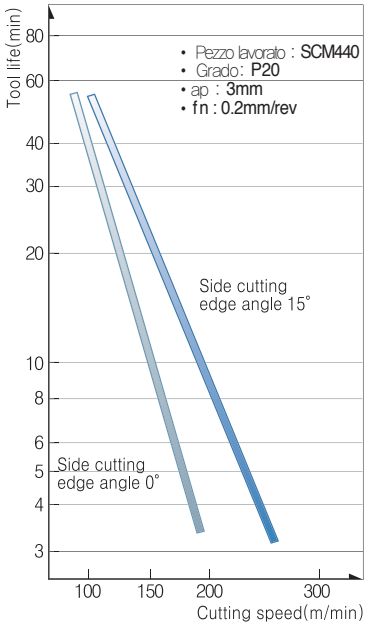



- Pezzo lavorato : SCM440(HB250)
- Grado : TNGA220412
- vc = 100m/min
- ap= 4mm
- fn = 0.45mm/rev

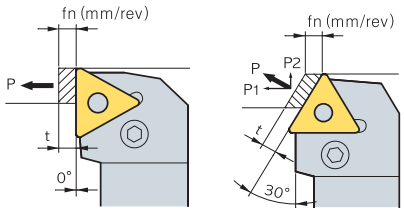
· Conseguenze
1. Un'ampia angolazione del tagliente laterale con identico avanzamento rende i trucioli più lunghi e più sottili. Pertanto, gli sforzi di taglio si distribuiscono sul tagliente lungo e aumenta la durata dell'utensile.
2. Un'ampia angolazione del tagliente laterale nella lavorazione di barre lunghe comporta rischi di piegatura.

· Sistema di selezione
1. Elevata pfondità di taglio per finitura / Pezzo lavorato lungo e sottile / Bassa rigidità di lavorazione - Angolazione del tagliente laterale
2. Pezzo lavorato duro e ad elevata potenza calorifica / Sgrossatura di pezzo grande / Elevata rigidità del pezzo - Angolazione del tagliente laterale

### Angolazione del tagliente laterale e durata dell'utensile




### • Angolazione del tagliente laterale e sforzi di taglio




①"Forza P" ②"Forza P distribuita tra P1e P2."

Se l'angolazione aumenta, la forza posteriore aumenta e l'avanzamento si riduce

### • Angolazione del tagliente laterale e prestazioni di taglio

| Specifiche | Bassa ← Angolazione → Alta |
|---|---|
| Usura | Alta ← - - -

## Angolazione del tagliente finale

Influenza la superficie lavorata e previene le interferenze tra la superficie del pezzo lavorato e l'inserto

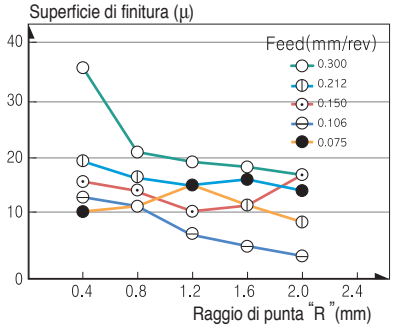
**· Conseguenze**

1. Se si riduce l'angolazione del tagliente finale, il tagliente diventa più robusto ma aumenta il calore generato durante la lavorazione
2. Un'angolazione ridotta del tagliente finale può provocare vibrazioni in quanto aumenta lo sforzo di taglio

## Raggio di punta "R"

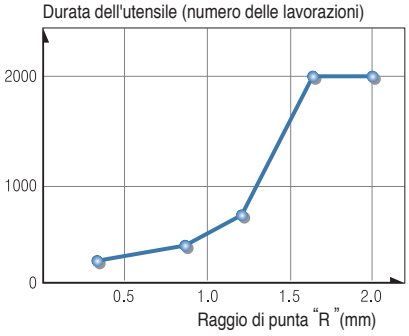
1. Il raggio di punta influenza la rugosità superficiale e la robustezza del tagliente
2. Di norma, è preferibile che il raggio di punta "R" SIA 2~3 volte più grande dell'avanzamento

### • Raggio di punta R e superficie di finitura



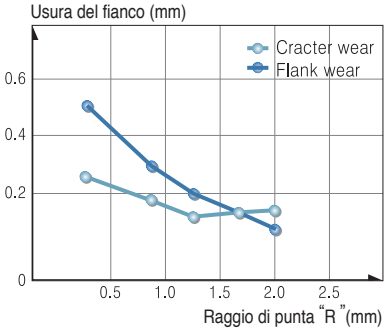

- Pezzo lavorato : SNCM439, HB200
- Grado: P20
- vc = 120m/min, ap = 0.5mm

### • Raggio di punta R e durata dell'utensile




- Pezzo lavorato : SCM440, HB280
- Grado: P10
- vc = 100m/min, ap = 0.5mm
- fn = 0.3mm/giro

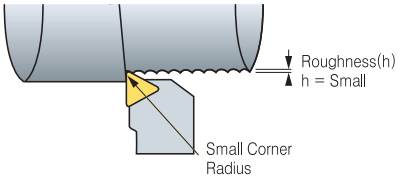
### • Raggio di punta R e usura dell'utensile




- Pezzo lavorato : SNCM439, HB200
- Grado: P10
- vc = 140m/min, ap = 2mm
- fn = 0.2mm/rev, T = 10min

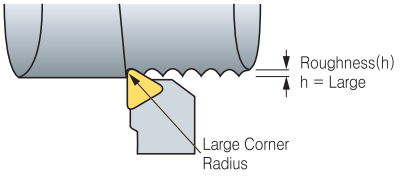
**· Conseguenze del raggio di punta "R"**

1. Un raggio di punta grande migliora la superficie di finitura
2. Un raggio di punta grande migliora la robustezza del tagliente
3. Un raggio di punta grande riduce l'usura del fianco e l'usura per craterizzazione
4. Un raggio di punta eccessivamente grande provoca vibrazioni a causa dell'aumento dello sforzo di taglio

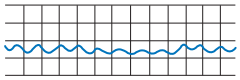
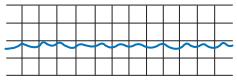
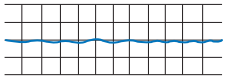
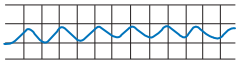
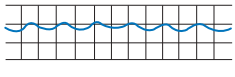
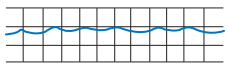
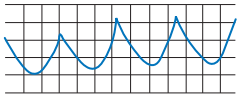
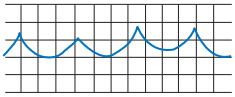
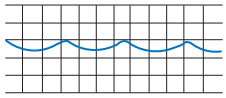



**· Sistema di selezione**

1. Per finitura con ridotta profondità di taglio / pezzo lavorato lungo e sottile / Potenza della macchina ridotta - Raggio di punto "R" piccolo
2. Per applicazioni che richiedono un tagliente robusto, come i tagli interrotti / Sgrossatura di un pezzo di grandi dimensioni / Potenza della macchina adeguata - Raggio di punta "R" grande



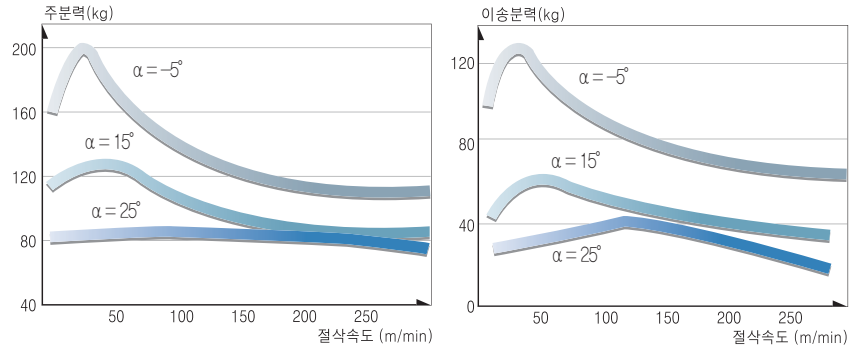

### • Rapporto tra il raggio di punta, l'avanzamento e la rugosità superficiale

| Raggio di punta "R" / Avanzamento (mm/giro) | 0.4 | 0.8 | 1.2 |
|---|---|---|---|
| 0.15 |  |  |  |
| 0.26 |  |  |  |
| 0.46 |  |  |  |

## Importanza della foma del tagliente

### • Angolo dell'elica [α ]

L'angolo dell'elica influenza notevolmente lo sforzo di taglio, l'evacuazione del truciolo e la durata dell'utensile



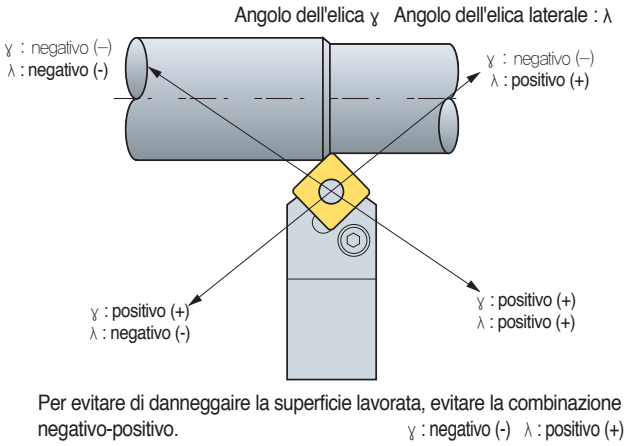

**· Conseguenze**

1. Un elevato angolo dell'elica produce una buona superficie di finitura
2. Riducendo l'angolo dell'elica di 1°, la potenza della macchina si riduce dell'1%.
3. Un angolo dell'elica elvato indebolisce il tagliente

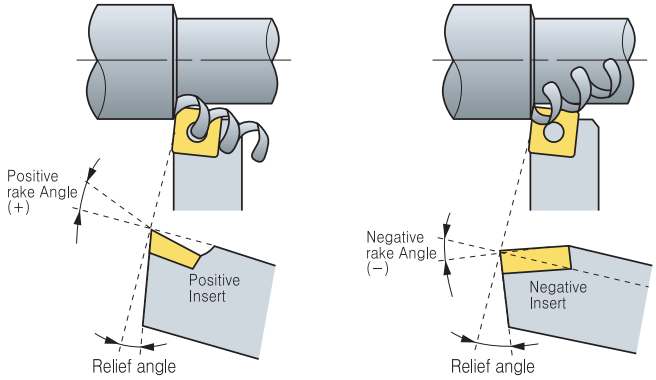
**· Sistema di selezione**

1. Per materiale duro / Per applicazioni che richiedono tagliente robusto, come tagli interrotti
   - Angolo dell'elica ridotto
2. Per materiale morbido / Materiale facile da tagliare / Quando rigidità della macchina e dei pezzi lavorati è bassa
   - Elevato angolo dell'elica

### • Angolo dell'elica e direzione dell'evacuazione trucioli




Per evitare di danneggiare la superficie lavorata, evitare la combinazione negativo-positivo. γ : negativo (-) λ : positivo (+)




## Scegliere gli utensili giusti

Oggi è molto difficile scegliere gli utensili più adatti per complicati sistemi di utensili e con varie condizioni di taglio. Tuttavia, è possibile semplificare la procedura attenendosi ai fattori principali classificati di seguito.

### • Scelta degli inserti e del portainserti

Di seguito sono elencati i fattori principali; scelgiere B in funzione di A.

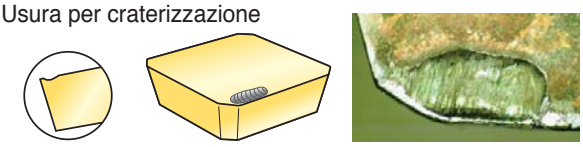
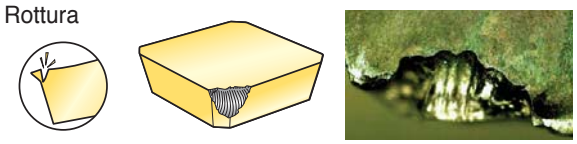
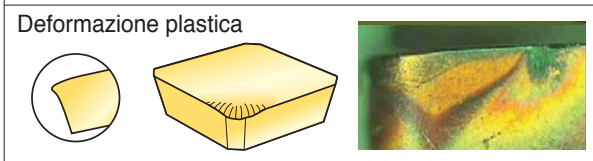
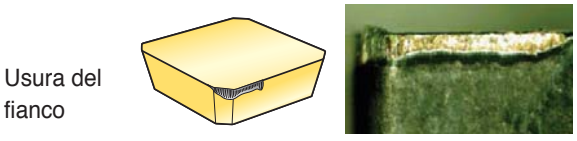
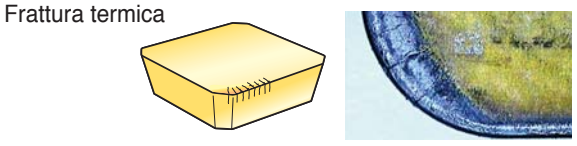
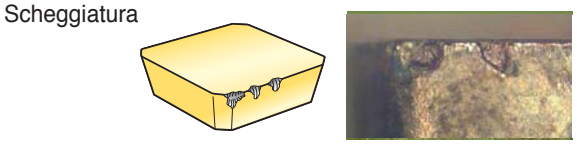
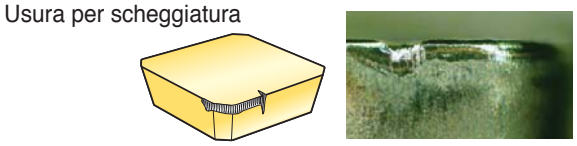
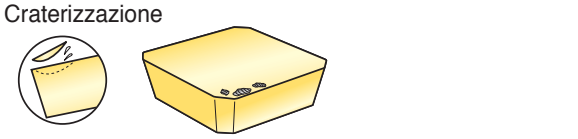
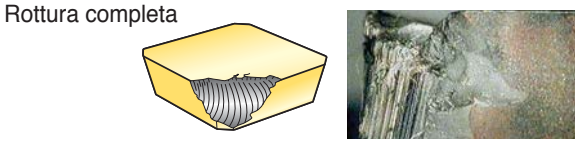
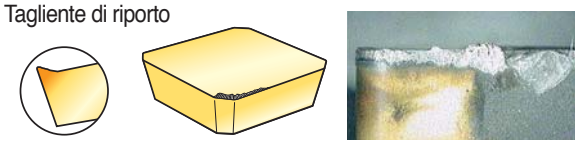
A : Fattori principali

- Materiale del pezzo lavorato
- Forma del pezzo lavorato
- Dimensione del pezzo lavorato
- Durezza del pezzo lavorato
- Rugosità superficiale del pezzo lavorato (prima della lavorazione)
- Superficie di finitura richiesta
- Tipo di tornio
- Condizioni del tornio (rigidità, potenza ecc.)
- Cavalli della macchina
- Sistema di staffaggio del pezzo lavorato

B : Sistema di selezione

① Selezionare l'angolazione massima possibile.
② Selezionare l'attacco massimo possibile.
③ Selezionare il tagliente più robusto
④ Selezionare il raggio di punta massimo possibile.
⑤ In finitura, selezionare l'inserto con più taglienti.
⑥ Selezionare l'inserto più piccolo.
⑦ Determinare accuratamente la velocità di taglio in funzione delle condizioni di taglio.
⑧ Selezionare la profondità di taglio massima possibile.
⑨ Selezionare l'avanzamento massimo possibile.
⑩ Determinare le condizioni di taglio in funzione dell'applicazione del rompitruciolo

## Soluzione dei problemi

| Problemi dell'utensile | Causa | Soluzione |
|---|---|---|
| Usura per craterizzazione  | • Grado errato<br>• Condizioni di taglio eccessive | • Scegliere un grado più duro<br>• Ridurre le condizioni di taglio |
| Rottura  | • Grado errato<br>• Avanzamento eccessivo<br>• Ridurre la robustezza del tagliente<br>• Rigidità del portainserti insufficiente | • Scegliere un grado più tenace<br>• Ridurre l'avanzamento<br>• Applicare a tagliente onizzato o svasato<br>• Scegliere un portainserti più grande |
| Deformazione plastica  | • Grado errato<br>• Condizioni di taglio eccessive<br>• Temperatura alta | • Scegliere un grado più duro<br>• Ridurre le condizioni di taglio<br>• Scegliere un grado con elevata conduttività di calore |
| Usura sul raggio di punta<br>Usura del fianco  | • Se la durezza del pezzo lavorato è eccessiva, confrontare con l'utensile<br>• Nella lavorazione di materiale temprato<br>• Grado errato<br>• Velocità di taglio eccessiva<br>• Angolo di spoglia troppo piccolo<br>• Avanzamento troppo ridotto | • Scegliere un grado più duro<br>• Ridurre la velocità di taglio<br>• Scegliere un raggio di punta maggiore<br>• Aumentare l'avanzamento |
| Frattura termica  | • Dilatazione e restringimento in funzione della temperatura di taglio<br>• Grado errato (*soprattutto in fresatura) | • Lavorazione a secco (In caso di refrigerante, utilizzare lubrificante a sufficienza)<br>• Scegliere un grado più tenace |
| Scheggiatura  | • Grado errato<br>• Avanzamento eccessivo<br>• Ridurre la robustezza del tagliente<br>• Rigidità del portainserti insufficiente | • Scegliere un grado più tenace<br>• Ridurre l'avanzamento<br>• Applicare a tagliente onizzato o svasato<br>• Scegliere un portainserti più grande |
| Usura per scheggiatura  | • Pezzo lavorato dalla superficie indurita<br>• Attrito provocado da errata geometria del truciolo (genera vibrazioni) | • Scegliere un grado più duro<br>• Migliorare il controllo del truciolo mediante angolo di spoglia grande |
| Craterizzazione  | • Deposito sul tagliente<br>• Scarso controllo del truciolo | • Migliorare le prestazioni utilizzando un angolo dell'elica maggiore<br>• Per scarichi del truciolo di grandi dimensioni |
| Rottura completa  | • Inutilizzabile a causa della progressiva usura del tagliente | |
| Tagliente di riporto  | | |

## Problemi e soluzioni

| Problemi | Cause | Soluzione | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Condizioni di taglio | | | | Grado dell'inserto | | | | Formad dell'utensile | | | | | | | Staffaggio | | |
| | | Velocità di taglio | Avanzamento | Profondità di taglio | Refrigerante | Selezionare un grado più duro | Selezionare un grado più tenace | Selezionare un grado più resistente al calore | Selezionare un grado più resistente all'urusa | Rompitruciolo | Angolo dell'elica | Raggio di punta | Angolazione tagliente laterale | Robustezza del tagliente Onatura | Migliorare precisione inserto Classe M → Classe G | Migliorare la rigidità del portainserti | Staffaggio del pezzo lavorato | Tmax portainserti | Vibrazioni macchina |
| Scarsa precisione<br>Dimensione macchina instabile | Precisione dell'inserto variabile | | | | | | | | | | | | | | ● | | | | |
| | Pezzo lavorato, separazione utensile | | | | | | | | | ● | ⬆ | ⬇ | | | | ● | ● | ● | ● |
| Elevata spinta posteriore del tagliente<br>E' necesario regolare la spinta perché la precisione varia durante la lavorazione | Aumenta l'usura del fianco | | | | | ● | | | | | | ⬆ | | | | | | | |
| | Condizioni di taglio errate | ⬇ | ⬆ | | | | | | | | | | | | | | | | |
| Brutta superficie di finitura<br>Durata dell'utensile | Lo sforzo di taglio è inferiore aumentando l'usura dell'utente | ⬇ | | | Con refrigerante | ● | | | ● | ● | ⬆ | ⬆ | | ⬇ | ● | | | | |
| | Scheggiatura del tagliente | | ⬇ | ⬇ | | | ● | | | ● | | ⬆ | | ⬆ | | | ● | ● | ● |
| | Aderenza, tagliente di riporto | ⬆ | ⬆ | | Con refrigerante | | | | ● | ● | ⬆ | | | ⬇ | ● | | | | |
| | Condizioni di taglio errate | ⬆ | ⬇ | ⬇ | Con refrigerante | | | | | | | | | | | | | | |
| | | | | | | | | | | ● | | ⬆ | | ⬇ | ● | | | | |
| | Vibrazioni | ⬇ | ⬇ | ⬇ | Con refrigerante | | ● | | | ● | ⬆ | ⬇ | | ⬇ | | ● | ● | ● | ● |
| Generazione di calore durante il taglio<br>Scarsa precisione di lavorazione e breve durata dell'utensile | Condizioni di taglio errate | ⬇ | ⬇ | ⬇ | | | | | | | | | | | | | | | |
| | | | | | | ● | | | | ● | ⬆ | | | ⬇ | | | | | |
| Vibrazioni, scheggiatura, spaccatura<br>Acciaio, alluminio (vibrazioni) | Condizioni di taglio errate | ⬇ | ⬆ | | Con refrigerante | | | | | | | | | | | | | | |
| | | | | | | ● | | | | ● | ⬆ | ⬇ | | ⬇ | | | | | |
| Ghisa<br>(Debole scheggiatura) | Condizioni di taglio errate | | ⬇ | ⬇ | | | | | | | | | | | | | | | |
| | | | | | | ● | | | | ● | ⬆ | ⬆ | | ⬇ | | ● | ● | ● | ● |
| Acciaio morbido<br>(granulazione) | Condizioni di taglio errate | ⬆ | ⬍ | | Con refrigerante | | | | | | | | | | | | | | |
| | | | | | | ● | | | | ● | ⬆ | | | ⬇ | | | | | |

⬆ : Maggiore ⬇ : Minore ● : uso ◉ : Uso corretto

## Durata dell'utensile

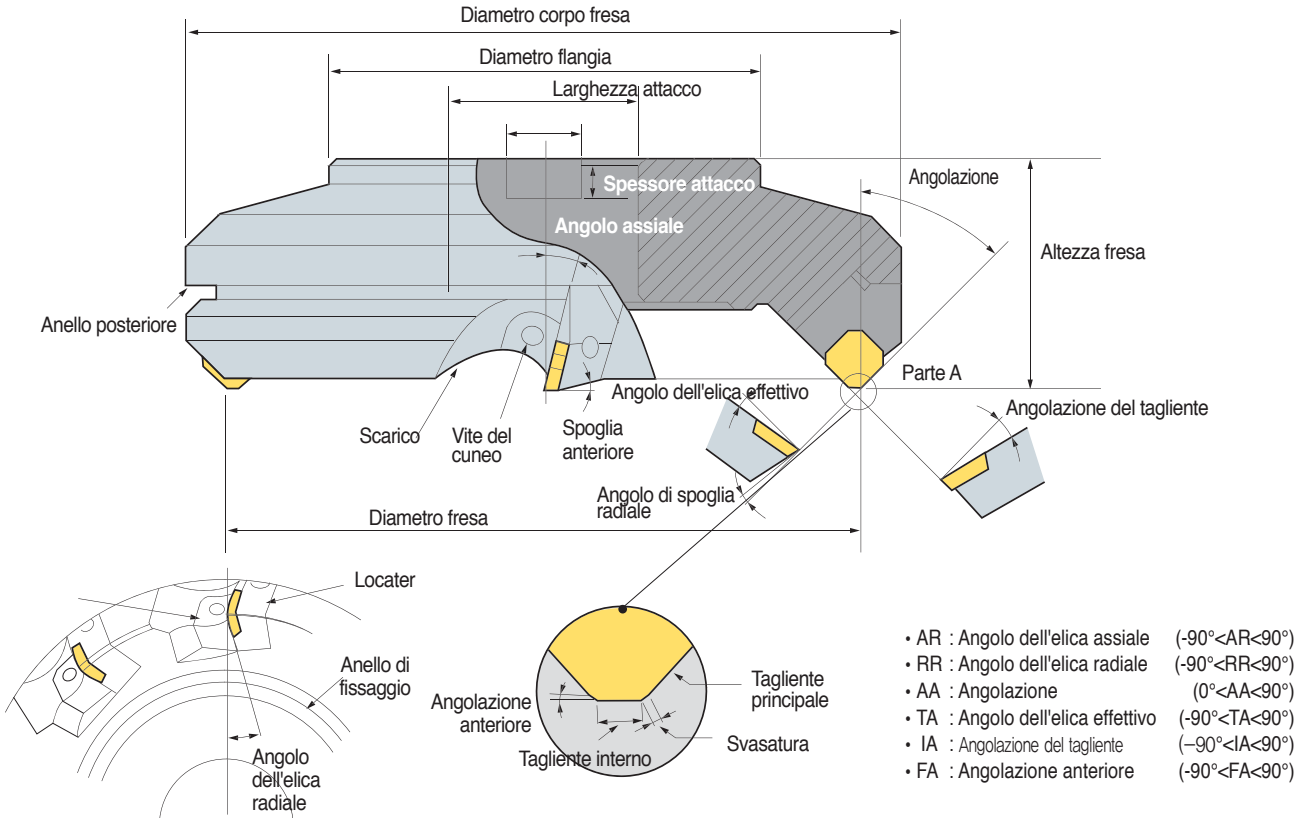
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| | | |
|---|---|---|
| **Usura del fianco** | 0.2mm | Taglio leggero di precisione, finitura di lega non ferrosa |
| | 0.4mm | Lavorazione di acciaio speciale |
| | 0.7mm | Lavorazine generica di ghisa, acciaio ecc. |
| | 1~1.25mm | Lavorazine generica di ghisa, acciaio ecc. |
| **Usura per craterizzazione** | In genere 0.05~0.1 mm | |

### • ISO B8688

| Durata dell'utensile | Applicazione |
|---|---|
| Rottura completa | Lavorazione di acciaio speciale |
| Usura del fianco $V_B$ = 0.3mm | Usura del fianco regolare di utensili in metallo duro, ceramici |
| $V_{Bmax}$ = 0.5mm | Usura del fianco irregolare |
| Usura per craterizzazione KT=0.06+0.3fmm (f : mm/giro) | Utensili in metallo duro sinterizzato |
| Rugosità superficiale 1, 1.6, 2.5, 4, 6.3, 10㎛Ra | Quando è importante la rugosità superficiale |

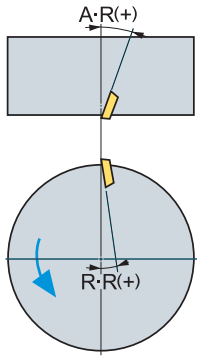
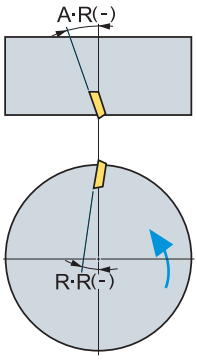
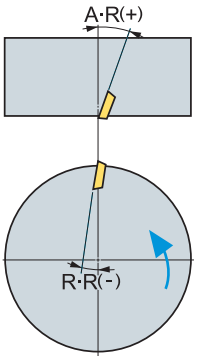
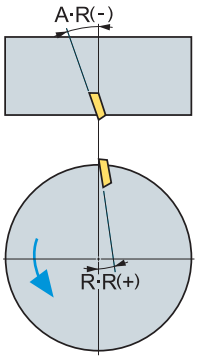
## Forma e struttura del corpo fresa



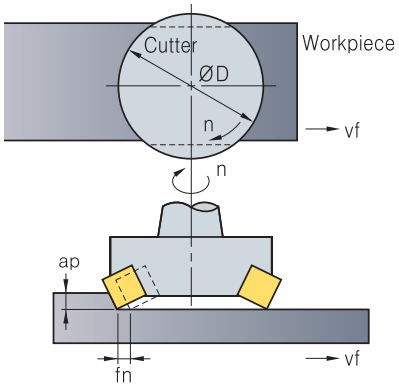

### • Terminologia e funzioni dell'angolazione del tagliente

| Problemi dell'utensile | | Simbolo | Funzione | Conseguenze |
|---|---|---|---|---|
| 1 | Angolo dell'elica assiale | A.R | Direzione dell'evacuazione, aderenza | - |
| 2 | Angolo dell'elica radiale | R.R | Effetto sulla spinta | - |
| 3 | Angolazione | A.A | Spesso del truciolo, influenza la direzione dell'evacuazione | (+) : I trucioli si assottigliano, si riduce lo sforzo di taglio |
| 4 | Angolo dell'elica effettivo | T.A | Angolo dell'elica effettivo | (+) : Migliori prestazioni di taglio. Previene l'aderenza, Si riduce la robustezza del tagliente<br>(-) : Aumenta la robustezza del tagliente, aumenta l'aderenza |
| 5 | Angolazione del tagliente | I.A | Influenza la direzione dell'evacuazione | (+) : Buona evacuazione del truciolo, si riduce lo sforzo di taglio<br>Si riduce la robuesta del tagliente |
| 6 | Angolazione anteriore | F.A | Controlla la rugosità superficiale per la finitura | (-) : Migliora la rugosità superficiale |
| 7 | Angolo di spoglia | R.A | Controlla la robustezza del tagliente, la durata dell'utensile e le vibrazioni | - |

## Caratteristiche e combinazioni

| | Doppio angolo positivo | Doppio angolo negativo | Angolo positivo-negativo | Angolo negativo-positivo |
|---|---|---|---|---|
| |  |  |  |  |
| **Usi** | • Lavorazione generica di acciaio, ghisa, acciaio inossidabile<br>• Lavorazione di acciaio morbido che provoca facilmente riporto sul tagliente<br>• Lavorazione di materiale che tende a produrre una brutta superficie di finitura | • Per taglio interrotto<br>• Sgrossatura di ghisa e acciaio | • Lavorazione di materiali pastosi<br>• Sgrossatura con elevate profondità di passata e taglio ampio di acciaio e ghisa | • Evacuazione trucioli verso il centro del corpo fresa |
| **Vantaggi** | • Come per i materiali duri, previene la formazione di riporto sul tagliente e migliora la rugosità superficiale<br>• Bassi carichi di sforzo e migliore lavorabilità | • Tagliente robusto<br>• Sgrossatura di materialil dalla superficie brutta contenenti sabbia, mill scale<br>• È possibile utilizzare taglienti bilaterali (economico)<br>• Buon controllo del truciolo | • Buon controllo del truciolo e lavorabilità<br>• Indicato per la lavorazione di materiali pastosi<br>• Il sistema di staffaggio previene la craterizzazione | - |
| **Svantaggi** | • Tagliente poco robusto<br>• Solo inserti a un tagliente (antieconomico)<br>• La macchina e la fresa necessitano di potenza e rigidità sufficienti | • La macchina e la fresa necessitano di potenza e rigidità sufficienti | • Solo inserti a un tagliente (antieconomico) | • I trucioli evacuano verso il centro della fresa, graffiando la superficie lavorata.<br>• Cattiva evacuazione del truciolo<br>• Antieconomico |

## Formule principali




### • Velocità ditaglio

$$vc = \frac{\pi \cdot D \cdot n}{1000} \ (m/min)$$

- vc : Velocità di taglio (m/min)
- D : Diametro utensile (mm)
- n : Giri al minuto ($min^{-1}$)
- π : Costante circolare (3.14)

### • Avanzamento

$$fz = \frac{vf}{z \cdot n} \ (mm/t)$$

- fz : Avanzamento al dente (mm/t)
- vf : Avanzamento al minuto (mm/min)
- n : Giri al minuto ($min^{-1}$)
- z : Numero di denti

### • Asportazione truciolo

$$Q = \frac{L \times vf \times ap}{1000} \ (㎤/min)$$

- Q : Asportazione del truciolo (□/min)
- L : Larghezza di taglio (mm)
- vf : Avanzamento al minuto (mm/min)
- ap : Profondità di taglio (mm)

### • Potenza richiesta

$$P_{kw} = \frac{Q \times kc}{60 \times 102 \times \eta} \qquad P_{hp} = \frac{P_{kw}}{0.75}$$

- Pc : Potenza richiesta (kW)
- H : Cavalli (hp) (mm/min)
- Q : Asportazione del truciolo ($cm^3$/min)
- kc : Resistenza di taglio specifica ($kgf/mm^3$)
- η : Efficienza (0.7~0.8)

### • Tempo di lavorazione

$$T = \frac{60 \times Lt}{vf} \ (sec)$$

- T : Tempo di lavorazione (sec)
- Lt : Lunghezza totale di avanzamento al minuto (mm) (=Lw+D+2R)
- Lw : Lunghezza del pezzo lavorato (mm)
- D : Diametro del corpo fresa (mm)
- vf : Avanzamento al minuto (mm/min)
- R : Lunghezza spoglia (mm)

### • Angolo dell'elica effettivo / Angolazione tagliente

Angolo dell'elica effettivo $\tan(T) = \tan(R) \times \cos(AA) + \tan(A) \times \sin(C)$

Angolazione tagliente $\tan(I) = \tan(A) \times \cos(AA) - \tan(R) \times \sin(C)$

## Valori della resistenza al taglio specifica

| Pezzo lavorato | Carico di rottura (kg/mm²) e durezza | Resistenza al taglio specifica e avanzamenti (MPa) | | | | |
|---|---|---|---|---|---|---|
| | | 0.1 (mm/t) | 0.2 (mm/t) | 0.3 (mm/t) | 0.4 (mm/t) | 0.6 (mm/t) |
| Acciaio morbido | 52 | 220 | 195 | 182 | 170 | 158 |
| Acciaio a medio tenore di carbonio | 62 | 198 | 180 | 173 | 160 | 157 |
| Acciaio a elevato tenore di carbonio | 72 | 252 | 220 | 204 | 185 | 174 |
| Acciaio per utensili | 67 | 198 | 180 | 173 | 170 | 160 |
| Acciaio per utensili | 77 | 203 | 180 | 175 | 170 | 158 |
| Acciaio al cromo-manganese | 77 | 230 | 200 | 188 | 175 | 166 |
| Acciaio al cromo-manganese | 63 | 275 | 230 | 206 | 180 | 178 |
| Acciaio al cromo-molibdeno | 73 | 254 | 225 | 214 | 200 | 180 |
| Acciaio al cromo-molibdeno | 60 | 218 | 200 | 186 | 180 | 167 |
| Acciaio al nichel-cromo-molibdeno | 94 | 200 | 180 | 168 | 160 | 150 |
| Acciaio al nichel-cromo-molibdeno | HB352 | 210 | 190 | 176 | 170 | 153 |
| Ghisa | 52 | 280 | 250 | 232 | 220 | 204 |
| Ghisa temprata | HRC46 | 300 | 270 | 250 | 240 | 220 |
| Ghisa meehanite | 36 | 218 | 200 | 175 | 160 | 147 |
| Ghisa grigia | HB200 | 175 | 140 | 124 | 105 | 97 |
| Ottone | 50 | 115 | 95 | 80 | 70 | 63 |
| Lega leggera (Al - Mg) | 16 | 58 | 48 | 40 | 35 | 32 |
| Lega leggera (Al - Si) | 20 | 70 | 60 | 52 | 45 | 39 |

## Asportazione truciolo (cm³/min) per cavalli nominali

| Pezzo lavorato | | Cavalli nominali | | | | | |
|---|---|---|---|---|---|---|---|
| | | 5Hp | 10Hp | 20Hp | 30Hp | 40Hp | 50Hp |
| Acciaio | Morbido | 32 | 75 | 163 | 295 | 425 | 570 |
| | Medio | 26 | 55 | 127 | 212 | 310 | 425 |
| | Duro | 18 | 41 | 93 | 163 | 228 | 310 |
| Ghisa | Morbido | 52 | 116 | 260 | 455 | 670 | 880 |
| | Medio | 32 | 75 | 163 | 295 | 425 | 570 |
| | Duro | 26 | 55 | 127 | 212 | 310 | 425 |
| Bronzo, ottone | Morbido | 77 | 163 | 390 | 670 | 980 | 1,280 |
| | Medio | 54 | 118 | 275 | 490 | 700 | 910 |
| | Duro | 26 | 55 | 127 | 245 | 325 | 425 |
| Alluminio | | 90 | 195 | 440 | 780 | 1,110 | 1,500 |

## Scelta del diametro MILL-MAX (D)

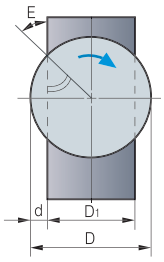
### • Rigidità macchina

| Cavalli (PS) | 10~15 | 15~20 | Over 20 |
|---|---|---|---|
| Specifiche corpo fresa (mm) | ø80~ø100 | ø125~ø160 | ø160~ø200 |

### • Rigidità macchina

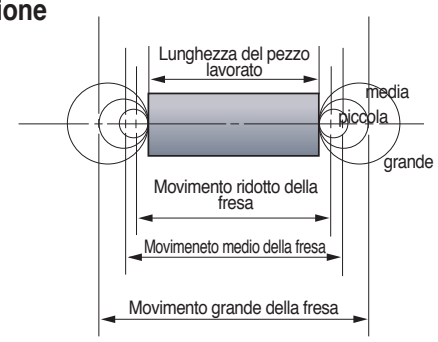
| Pezzo lavorato | E | δ |
|---|---|---|
| Acciaio | +20° ~ -10° | 3 : 2 |
| Ghisa inferiore a +50° | 5 : 4 | |
| Lega leggera inferiore a +40° | 5 : 3 | |

D : Diametro esterno corpo fresa
D1 : Larghezza del pezzo lavorato
d : Proiezione del corpo fresa
E : Angolo impegnato
δ : Rapporto corpo fresa e larghezza pezzo lavorato (D:D1)




### • Tempo di lavorazione

Le frese più grandi comportano tempi più lunghi di lavorazione.

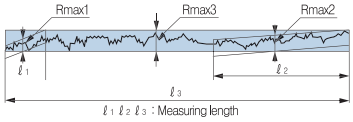
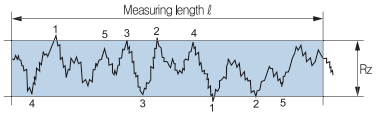
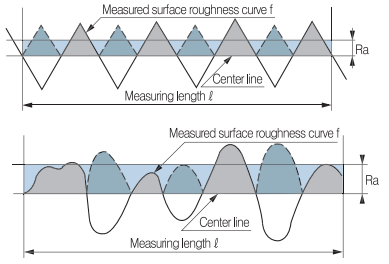



### • Numero di denti

| Pezzo lavorato | Acciaio | Ghisa | Lega leggera |
|---|---|---|---|
| Numero di denti | D×(1~1.5) | D×(1~4) | D×1+α |

es.) D=ø100 ⇒ 4″×(1~1.5)=4~6 D è la dimensione del corpo della fresa convertita in pollici.

## Classificazione della rugosità superficiale

| Tipo | Simbolo | Come calcolare | Valore misurato |
|---|---|---|---|
| Altezza massima | Rmax | • La distanza tra la linea di picco del profilo superiore e la linea di fondo del profilo inferiore è calcolata su questa porzione di campione in direzione longitudinale della curva di rugosità (Unità di misura : μ )<br>• Esclude valori straordinari (troppo piccoli o troppo grandi) che appaiono come gole o protuberanze |  |
| Rugosità media +10 punti | Rz | • Il campione è tratto dalla curva di rugosità in direzione della sua linea mediana, la somma del valore medio del valore assoluto dei picchi di profilo più alti e della profondità dei cinque profili inferiori più profondi misurati in direzione verticale si esprime in micro metri (μ ) |  |
| Sgrossatura media aritmetica | Ra | • Il campione si basa solo sulla lunghezza di riferimento della curva di rugosità in direzione della linea mediana, prendendo l'asse delle X in direzione della linea mediana e l'asse delle Y in direzione longitudinale del porzione campionato; si esprime in micro metri (μ )<br>• In genere, leggere il valore misurato con un misuratore Ra |  |

| Voto finale | | ▽▽▽▽ | ▽▽▽ | ▽▽ | ▽ | ~ |
|---|---|---|---|---|---|---|
| Rugosità superficiale | Rmax | 0.8s | 6.3s | 25s | 100s | Non specificato |
| | Rz | 0.8z | 6.3z | 25z | 100z | |
| | Ra | 0.2a | 1.6a | 6.3a | 25a | |

## Soluzione dei problemi di fresatura

| Problema | Cause | Soluzioni | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Condizioni di taglio | | | | Formad dell'utensile | | | | | Grado dell'inserto | |
| | | Velocità di taglio | Prof. di taglio | Avanza-mento | Refrige-rante | Angolo dell'elica | Angolo di spoglia | Angola-zione | Craterizzazione del tagliente | Raggio di punta | Tenacia | Durezza |
| **Usura del fianco** | • Grado errato<br>• Condizioni di taglio errate<br>• Craterizzazione | ⬇ | | ⬆ | | | ⬆ | ⬇ | | ⬆ | | ⬆ |
| **Usura per craterizzazione** | • Condizioni di taglio errate<br>• Grado errato | ⬇ | ⬇ | ⬇ | | ⬆ | | | | ⬇ | | ⬆ |
| **Scheggiatura** | • Mancanza di tenacità dell'inserto<br>• Avanzamento eccessivo<br>• Sforzo di taglio eccessivo | | | ⬇ | | ⬇ | ⬇ | ⬇ | | ⬆ | ⬆ | |
| **Tagliente di riporto** | • Condizioni di taglio errate<br>• Forma del tagliente errata<br>• Grado errato | ⬆ | ⬇ | ⬆ | | ⬆ | | | | ⬇ | | |
| **Craterizzazione** | • Condizioni di taglio errate<br>• Numero di denti insufficiente<br>• Forma del tagliente errata<br>• Staffaggio instabile del pezzo lavorato | | ⬇ | ⬇ | | ⬆ | | ⬆ | ⬇ | ⬇ | | |
| **Cattiva superficie di finitura** | • Tagliente di riporto<br>• Condizioni di taglio errate<br>• Craterizzazione<br>• Cattiva evacuazione del truciolo | ⬆ | ⬇ | ⬇ | | ⬆ | | | ⬇ | ⬆ | | |
| **Frattura termica** | • Condizioni di taglio errate<br>• Grado errato | ⬇ | ⬇ | ⬇ | ◉ | ⬆ | | | | ⬆ | ⬆ | |
| **Rottura** | • Grado errato<br>• Sforzo di taglio eccessivo<br>• Cattiva evacuazione del truciolo<br>• Craterizzazione<br>• Profondità di entrata eccessiva | | ⬇ | ⬇ | | | | | | | ⬆ | |

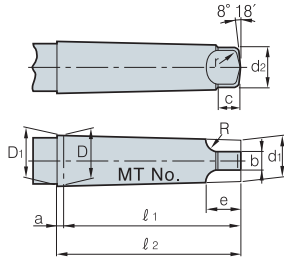
⬆ : Maggiore ⬇ : Minore ● : uso ◉ : Uso corretto

## Formule generiche di fresatura

### • Efficienza macchina (η)

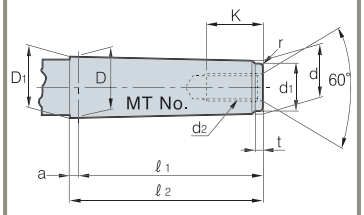
| Trasmissione potenza | Efficienza (E) | Riferimento |
|---|---|---|
| Alimentazione diretta sull'asse principale | 0.90 | |
| Cinghia | 0.85 | Doppia connessione : 0.85 × 0.85 ≒ 0.70 |
| Alimentazione iniziale | 0.75 | |
| Alimentazione olio di pressione | 0.60~0.90 | |

## • Cono morse (codolo)



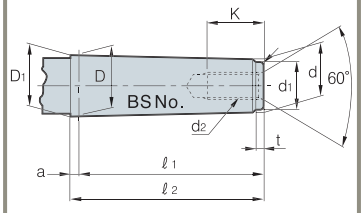

| MT N. | Cono | Angolazione cono (α) | D | a | D1 | d1 | ℓ1 | ℓ2 | d2 | b | c | e | R | r |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1/19.212 | 1°29′27″ | 9.045 | 3 | 9.201 | 6.104 | 56.5 | 59.5 | 6.0 | 3.9 | 6.5 | 10.5 | 4 | 1 |
| 1 | 1/20.047 | 1°25′43″ | 12.065 | 3.5 | 12.240 | 8.972 | 62.0 | 65.5 | 8.7 | 5.2 | 8.5 | 13.5 | 5. | 1.2 |
| 2 | 1/20.020 | 1°25′50″ | 17.780 | 5 | 18.030 | 14.034 | 75.0 | 80.0 | 13.5 | 6.3 | 10 | 16 | 6 | 1.6 |
| 3 | 1/19.922 | 1°26′16″ | 23.825 | 5 | 24.076 | 19.107 | 94.0 | 99.0 | 18.5 | 7.9 | 13 | 20 | 7 | 2 |
| 4 | 1/19.254 | 1°29′15″ | 31.267 | 6.5 | 31.605 | 25.164 | 117.5 | 124.0 | 24.5 | 11.9 | 16 | 24 | 8 | 2.5 |
| 5 | 1/19.002 | 1°30′26″ | 44.399 | 6.5 | 4.741 | 36.531 | 149.5 | 156.0 | 35.7 | 15.9 | 19 | 29 | 10 | 3 |
| 6 | 1/19.180 | 1°29′36″ | 63.348 | 8 | 63.765 | 52.399 | 210.0 | 218.0 | 51.0 | 19.0 | 27 | 40 | 13 | 4 |
| 7 | 1/19.231 | 1°29′22″ | 83.058 | 10 | 83.578 | 68.186 | 286.0 | 296.0 | 66.8 | 28.6 | 35 | 54 | 19 | 5 |

## • Cono morse (vite)



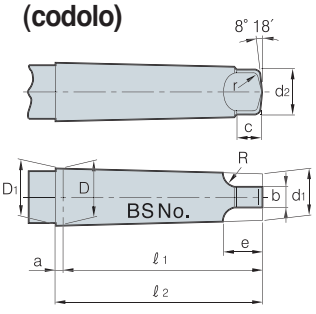

| MT N. | Cono | Angolazione cono (α) | D | a | D1 | d | ℓ1 | ℓ2 | d1 | d2 | k | t | r |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1/19.212 | 1°29′27″ | 9.045 | 3 | 9.201 | 6.442 | 50 | 53 | 6 | - | | 4 | 0.2 |
| 1 | 1/20.047 | 1°25′43″ | 12.065 | 3.5 | 12.230 | 9.396 | 53.5 | 57 | 9 | M6 | 16 | 5 | 0.2 |
| 2 | 1/20.020 | 1°25′50″ | 17.780 | 5 | 18.030 | 14.583 | 64 | 69 | 14 | M10 | 24 | 5 | 0.2 |
| 3 | 1/19.922 | 1°26′16″ | 23.825 | 5 | 24.076 | 19.759 | 81 | 86 | 19 | M12 | 28 | 7 | 0.6 |
| 4 | 1/19.254 | 1°29′15″ | 31.267 | 6.5 | 31.605 | 25.943 | 02.5 | 109 | 25 | M16 | 32 | 9 | 1 |
| 5 | 1/19.002 | 1°30′26″ | 44.399 | 6.5 | 4.741 | 37.584 | 129.5 | 136 | 35.7 | M20 | 40 | 9 | 2.5 |
| 6 | 1/19.180 | 1°29′36″ | 63.348 | 8 | 63.765 | 53.859 | 182 | 190 | 51 | M24 | 50 | 12 | 4 |
| 7 | 1/19.231 | 1°29′22″ | 83.058 | 10 | 83.578 | 70.058 | 250 | 260 | 65 | M33 | 80 | 18.5 | 5 |

## • Coni Brown sharp (vite)



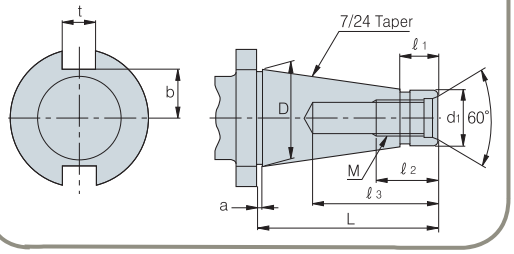

| B&S N. | D | a | D1 | d | d1 | ℓ1 | ℓ2 | t | r | d2 | K |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 10.221 | 2.4 | 10.321 | 8.890 | 8.0 | 31.0 | 34.2 | 2 | 0.2 | - | - |
| 5 | 13.286 | 2.4 | 13.386 | 11.430 | 10.0 | 44.4 | 46.8 | 3 | 0.2 | - | - |
| 6 | 15.229 | 2.4 | 15.330 | 12.700 | 11.0 | 60.0 | 62.7 | 3 | 0.2 | M 8(1/4) | 20 |
| 7 | 18.424 | 2.4 | 18.524 | 15.240 | 14.0 | 76.2 | 78.6 | 4 | 0.2 | M10(3/8) | 24 |
| 8 | 22.828 | 3.2 | 22.962 | 19.090 | 17.0 | 90.5 | 93.7 | 4 | 0.6 | M12(1/2) | 28 |
| 9 | 27.104 | 3.2 | 27.238 | 22.863 | 21.0 | 101.6 | 104.8 | 4 | 0.6 | M12(1/2) | 28 |
| 10 | 32.749 | 3.2 | 32.887 | 26.534 | 24.0 | 144.5 | 147.7 | 5 | 1.0 | M16(5/8) | 32 |
| 11 | 38.905 | 3.2 | 39.039 | 31.749 | 29.0 | 171.4 | 174.6 | 5 | 1.0 | M16(5/8) | 32 |
| 12 | 45.641 | 3.2 | 45.774 | 38.103 | 35.0 | 181.0 | 184.2 | 6 | 2.5 | M20(3/4) | 40 |
| 13 | 52.654 | 3.2 | 52.787 | 44.451 | 41.0 | 196.8 | 200.0 | 6 | 3.0 | M20(3/4) | 40 |
| 14 | 59.533 | 3.2 | 59.666 | 50.800 | 47.0 | 209.6 | 212.8 | 7 | 4.0 | M24(1) | 40 |
| 15 | 66.408 | 3.2 | 66.541 | 57.150 | 53.0 | 222.2 | 225.4 | 7 | 4.0 | M24(1) | 50 |
| 16 | 73.292 | 3.2 | 73.425 | 63.500 | 59.0 | 35.0 | 238.2 | 8 | 5.0 | M30(11/8) | 60 |

## • Coni Brown sharp (codolo)




| B&S N. | D | a | D1 | d1 | d2 | ℓ2 | ℓ2 | b | c | e | R | r |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 10.221 | 2.4 | 10.321 | 8.458 | 8.1 | 42.1 | 44.5 | 5.5 | 8.7 | 14.4 | 7.9 | 1.3 |
| 5 | 13.286 | 2.4 | 13.386 | 10.962 | 10.7 | 55.6 | 58.0 | 6.3 | 9.5 | 16.2 | 7.9 | 1.5 |
| 6 | 15.229 | 2.4 | 15.330 | 12.167 | 11.7 | 73.0 | 75.4 | 7.1 | 11.1 | 18.0 | 7.9 | 1.5 |
| 7 | 18.424 | 2.4 | 18.524 | 14.675 | 14.2 | 89.7 | 92.1 | 7.9 | 11.9 | 20.3 | 9.5 | 1.8 |
| 8 | 22.828 | 3.2 | 22.962 | 18.453. | 18.0 | 104.8 | 108.0 | 8.7 | 12.7 | 22.0 | 9.5 | 2.0 |
| 9 | 28.104 | 3.2 | 27.238 | 22.200 | 21.8 | 117.5 | 120.7 | 9.5 | 14.3 | 25.4 | 11.1 | 2.5 |
| 10 | 32.749 | 3.2 | 32.887 | 25.751 | 25.7 | 162.7 | 165.9 | 11.1 | 16.7 | 28.1 | 11.1 | 2.8 |
| 11 | 38.905 | 3.2 | 39.039 | 30.985 | 30.7 | 189.7 | 192.9 | 11.1 | 16.7 | 30.0 | 12.7 | 3.3 |
| 12 | 45.641 | 3.2 | 45.774 | 37.246 | 37.1 | 201.6 | 204.8 | 12.7 | 190 | 32.5 | 12.7 | 3.8 |
| 13 | 52.654 | 3.2 | 52.787 | 43.589 | 43.4 | 217.5 | 220.7 | 12.7 | 19.0 | 35.7 | 15.9 | 4.3 |
| 14 | 59.533 | 3.2 | 59.666 | 49.841 | 49.8 | 232.6 | 235.8 | 14.2 | 21.4 | 41.2 | 19.0 | 4.8 |
| 15 | 66.408 | 3.2 | 66.541 | 56.186 | 56.1 | 245.3 | 248.5 | 14.2 | 21.4 | 44.4 | 22.2 | 5.3 |
| 16 | 73.292 | 3.2 | 73.425 | 62.441 | 62.2 | 260.4 | 263.6 | 15.8 | 23.8 | 50.0 | 25.4 | 5.8 |

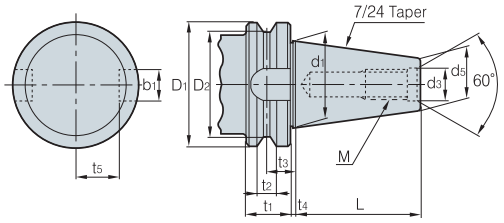
## • Cono standard per fresatrice americana KSB4014




(mm)

| NT N. | Dimesnioni | D | D1 | L | ℓ1 | M | ℓ2 | ℓ3 | a | t | b |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 30 | $1\frac{1}{4}$ | 31.750 | $17.40^{-0.29}_{-0.36}$ | 70 | 20 | M12 UNC$\frac{1}{2}$″ | 24 | 50 | 1.6 | 15.9 | 6 |
| 40 | $1\frac{3}{4}$ | 44.450 | $25.32^{-0.30}_{-0.384}$ | 95 | 25 | M16 UNC$\frac{5}{8}$″ | 30 | 60 | 1.6 | 15.9 | 22.5 |
| 50 | $2\frac{3}{4}$ | 69.850 | $39.60^{-0.31}_{-0.41}$ | 130 | 25 | M24 UNC1″ | 45 | 90 | 3.2 | 25.4 | 35 |
| 60 | $4\frac{1}{4}$ | 107.950 | $60.20^{-0.34}_{-0.46}$ | 210 | 45 | M30 UNC$1-\frac{1}{4}$″ | 56 | 110 | 3.2 | 25.4 | 60 |

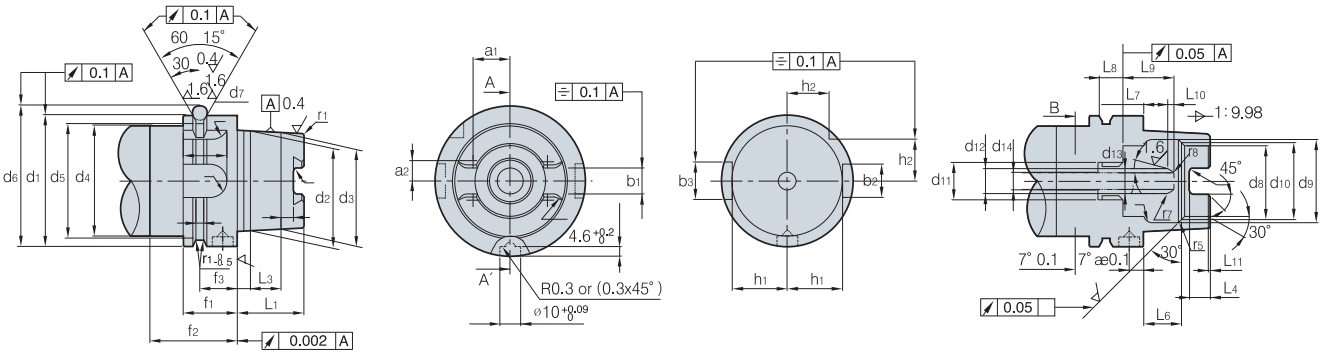
## • Cono bottle grip KSB4409




(mm)

| BT N. | D1 | D2 | t1 | t2 | t3 | t4 | d1 | d3 | L | M | b1 | t5 | d5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 35 | 53 | 43 | 22 | 10 | 14.6 | 2 | 38.1 | 13 | 56.5 | M12×1.75 | 16.1 | 19.6 | 21.62 |
| 40 | 63 | 52 | 25 | 10 | 16.6 | 2 | 44.45 | 17 | 65.4 | M16×2 | 16.1 | 22.6 | 25.3 |
| 45 | 85 | 73 | 30 | 12 | 21.2 | 3 | 57.15 | 21 | 82.8 | M20×25 | 19.3 | 29.1 | 33.1 |
| 50 | 100 | 85 | 35 | 15 | 23.2 | 3 | 69.85 | 25 | 101.8 | M24×3 | 25.7 | 35.4 | 40.1 |
| 60 | 155 | 135 | 45 | 20 | 28.2 | 3 | 107.95 | 31 | 161.8 | M30×3.5 | 25.7 | 60.1 | 60.7 |

## • Attacco HSK (DIN 69893) KSB IS012164-1



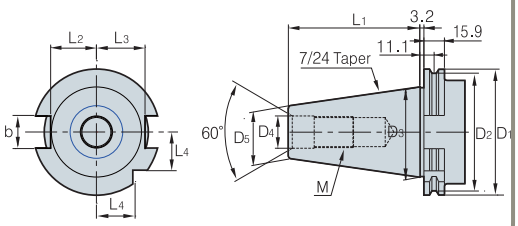

(mm)

| HSK N. | b1 | b2 | b3 | d1 | d2 | d3 | d4 | d5 | d6 | d7 | d8 | d9 | d10 | d11 | d12 | d13 | d14 | a1 | a2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 50 | 10.54 | 12 | 14 | 50 | 38 | 36.90 | 42 | 43 | 59.3 | 7 | 26 | 32 | 29 | M16X1 | 10 | 6.8 | 6.8 | 13.997 | 7.648 |
| 63 | 12.5 | 16 | 14 | 63 | 48 | 46.53 | 53 | 55 | 72.3 | 7 | 34 | 40 | 37 | M18X1 | 12 | 8 | 8.4 | 17.862 | 9.25 |
| 100 | 20 | 20 | 14 | 100 | 75 | 72,80 | 85 | 92 | 109.75 | 7 | 53 | 63 | 58 | M24X1.5 | 16 | 12 | 12 | 27.329 | 15.00 |

(mm)

| HSK N. | f1 | f2 | f3 | f4 | b1 | b2 | L1 | L2 | L3 | L4 | L5 | L6 | L7 | L8 | L9 | L10 | L11 | L12 | R1 | R2 | r3 | r4 | r5 | r6 | r7 | r8 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 50 | 26 | 42 | 18 | 3.75 | 2 | 15.5 | 25 | 5 | 11 | 7.5 | 4.5 | 14.13 | 10 | 10 | 23 | 3 | 1 | 19 | 1 | 1.5 | 2.38 | 6 | 0.5 | 1 | 2 | 6 |
| 63 | 26 | 42 | 18 | 3.75 | 28.5 | 20 | 32 | 6.3 | 14.7 | 10 | 6 | 18.13 | 10 | 12 | 24.5 | 3 | 1 | 21 | 1.2 | 1.5 | 3 | 8 | 0.6 | 1.5 | 3 | 8 |
| 100 | 29 | 45 | 20 | 3.75 | 44 | 31.5 | 50 | 10 | 24 | 15 | 10 | 28.56 | 12.5 | 16 | 28 | 3 | 1.5 | 24 | 2 | 2 | 3 | 12 | 1 | 1.5 | 3 | 10 |

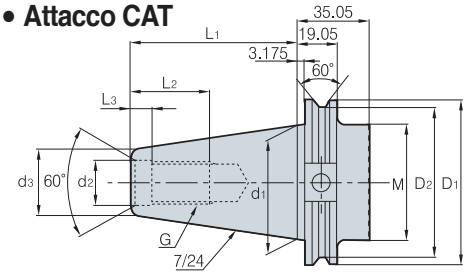
## • DIN 69871




(mm)

| Attacco N. | D1 | D2 | D3 | D4 | D5 | L1 | L2 | L3 | L | b | M |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 30 | 50.0 | 44.3 | 31.75 | 13 | 17.8 | 47.8 | 16.4 | 19.0 | 33.5 | 16. | M12x1.75 |
| 40 | 63.5 | 56.2 | 44.45 | 17 | 24.5 | 68.4 | 22.8 | 25.0 | 42.5 | 16.1 | M16x2 |
| 45 | 82.5 | 57.2 | 57.15 | 21 | 33.0 | 82.7 | 29.1 | 31.3 | 52.5 | 19.3 | M20x2.5 |
| 50 | 97.5 | 91.2 | 68.85 | 25 | 40.1 | 101.7 | 35.5 | 37.7 | 61.5 | 25.7 | M24x3 |

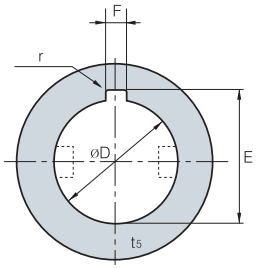
## • Attacco CAT




(mm)

| Attacco N. | D1 | D2 | M | d1 | d2 | d3 | L1 | L2 | L3 | G |
|---|---|---|---|---|---|---|---|---|---|---|
| CAT40 | 63.5 | 56.36 | 44.45 | 44.45 | 16.28 | 21.84 | 68.25 | 28.45 | 4.78 | 5/8-11 |
| CAT45 | 82.55 | 75.41 | 57.15 | 57.15 | 19.46 | 27.69 | 82.55 | 38.1 | 4.78 | 3/4-10 |
| CAT50 | 98.43 | 91.29 | 69.85 | 69.85 | 26.19 | 35.05 | 101.6 | 44.45 | 6.35 | 1-8 |

## • Foro di fresatura standard (KSB3203)



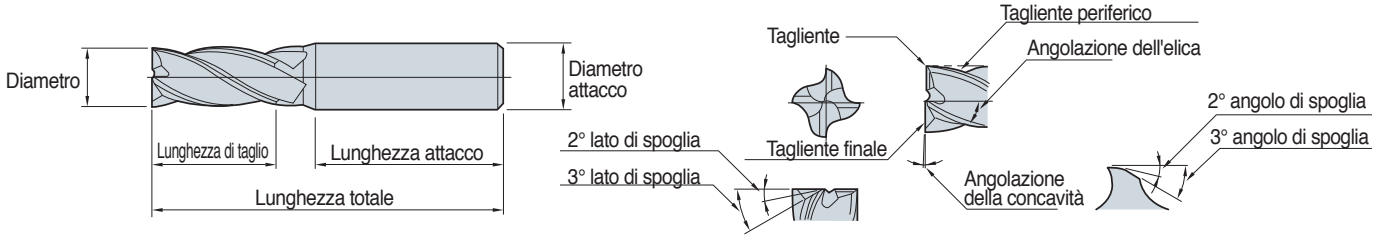

### • Tipo A

| Diametro | øDH7 | E | F | r |
|---|---|---|---|---|
| 8 | $8^{+0.015}_{0}$ | $8.9^{+0.25}_{0}$ | $2^{+0.16}_{+0.06}$ | 0.4 |
| 10 | $10^{+0.015}_{0}$ | $11.5^{+0.25}_{0}$ | $3^{+0.16}_{+0.06}$ | 0.4 |
| 13 | $13^{+0.018}_{0}$ | $14.6^{+0.25}_{0}$ | $3^{+0.16}_{+0.06}$ | 0.6 |
| 16 | $16^{+0.018}_{0}$ | $17.7^{+0.25}_{0}$ | $4^{+0.19}_{+0.07}$ | 0.6 |
| 19 | $19^{+0.021}_{0}$ | $21.1^{+0.25}_{0}$ | $5^{+0.19}_{+0.07}$ | 1 |
| 22 | $22^{+0.021}_{0}$ | $24.1^{+0.25}_{0}$ | $6^{+0.19}_{+0.07}$ | 1 |
| 27 | $27^{+0.021}_{0}$ | $29.8^{+0.25}_{0}$ | $7^{+0.23}_{+0.08}$ | 1.2 |
| 32 | $32^{+0.025}_{0}$ | $34.8^{+0.25}_{0}$ | $8^{+0.23}_{+0.08}$ | 1.2 |
| 40 | $40^{+0.025}_{0}$ | $43.5^{+0.3}_{0}$ | $10^{+0.23}_{+0.08}$ | 1.2 |
| 50 | $50^{+0.025}_{0}$ | $53.5^{+0.3}_{0}$ | $12^{+0.275}_{+0.095}$ | 1.6 |
| 60 | $60^{+0.030}_{0}$ | $64.2^{+0.3}_{0}$ | $14^{+0.275}_{+0.095}$ | 1.6 |
| 70 | $70^{+0.030}_{0}$ | $75.0^{+0.3}_{0}$ | $16^{+0.275}_{+0.095}$ | 2 |
| 80 | $80^{+0.030}_{0}$ | $85.5^{+0.3}_{0}$ | $18^{+0.275}_{+0.095}$ | 2 |
| 100 | $100^{+0.035}_{0}$ | $107.0^{+0.3}_{0}$ | $24^{+0.32}_{+0.11}$ | 2.5 |
| | | | | |

### • Tipo B

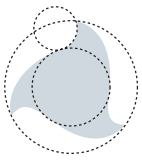
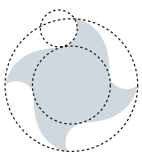
| Diametro | øDH7 | E | F | r |
|---|---|---|---|---|
| 1/2 | $12.70^{+0.018}_{0}$ | $14.17^{+0.25}_{0}$ | $2.38^{+0.31}_{+0.13}$ | 0.5 |
| 5/8 | $15.875^{+0.018}_{0}$ | $17.74^{+0.25}_{0}$ | $3.18^{+0.31}_{+0.13}$ | 0.8 |
| 3/4 | $19.050^{+0.021}_{0}$ | $20.89^{+0.25}_{0}$ | $3.18^{+0.31}_{+0.13}$ | 0.8 |
| 7/8 | $22.225^{+0.021}_{0}$ | $24.07^{+0.25}_{0}$ | $3.18^{+0.31}_{+0.13}$ | 0.8 |
| 1 | $25.40^{+0.021}_{0}$ | $28.04^{+0.25}_{0}$ | $6.35^{+0.31}_{+0.13}$ | 1.2 |
| 1 1/4 | $31.750^{+0.025}_{0}$ | $35.18^{+0.25}_{0}$ | $7.94^{+0.32}_{+0.14}$ | 1.6 |
| 1 1/2 | $38.10^{+0.025}_{0}$ | $42.32^{+0.25}_{0}$ | $9.53^{+0.89}_{+0.25}$ | 1.6 |
| 1 3/4 | $44.450^{+0.025}_{0}$ | $49.48^{+0.25}_{0}$ | $11.11^{+0.89}_{+0.25}$ | 1.6 |
| 2 | $50.80^{+0.03}_{0}$ | $55.83^{+0.25}_{0}$ | $12.7^{+0.89}_{+0.25}$ | 1.6 |
| 2 1/2 | $63.50^{+0.03}_{0}$ | $69.42^{+0.25}_{0}$ | $15.81^{+0.89}_{+0.25}$ | 1.6 |
| 3 | $76.20^{+0.03}_{0}$ | $82.93^{+0.25}_{0}$ | $19.05^{+0.89}_{+0.25}$ | 2.4 |
| 3 1/2 | $88.90^{+0.035}_{0}$ | $98.81^{+0.25}_{0}$ | $22.23^{+0.89}_{+0.25}$ | 2.4 |
| 4 | $101.60^{+0.035}_{0}$ | $111.51^{+0.25}_{0}$ | $25.4^{+0.89}_{+0.25}$ | 2.4 |
| 4 1/2 | $114.30^{+0.035}_{0}$ | $125.81^{+0.25}_{0}$ | $25.58^{+0.89}_{+0.25}$ | 3.2 |
| 5 | $127.0^{+0.04}_{0}$ | $140.08^{+0.25}_{0}$ | $31.75^{+0.89}_{+0.25}$ | 3.2 |

## Frese integrali (forme e nomi)




## Confronto del numero di eliche

• Caratteristiche del numero di eliche

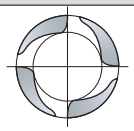
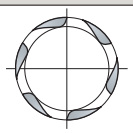
| Ø10mm | 2 eliche (IFE2100) | 3 eliche (IFE3100) | 4 eliche (IFE4100) |
|---|---|---|---|
| Forma |  |  |  |
| Sezione trasversale | 44mm$^2$ | 46mm$^2$ | 48mm$^2$ |
| Rapporto | 56% | 58% | 61% |
| Vantaggi | Buona evacuaz. truciolo | Buona evacuaz. truciolo | Elevata rigidità |
| Svantaggi | Scarsa rigidità | Difficile misurare il diametro esterno | Cattiva evacuaz. truciolo |
| Usi | Spianamento lat., scanalatura | Spianamento lat., scanalatura | Angolaz. del tagliente lat. |
| | Mulfunzione | Medie lavorazioni, finitura | Finitura |

• Importanza del numero di scanalature

| Specifiche | Caratteristiche principali | 2 scanalature | 4 scanalature |
|---|---|---|---|
| Rigidità dell'utensile | Rigidità alla torsione | ○ | ◎ |
| | Rigidità alla piegatura | ○ | ◎ |
| Superficie di finitura | Rugosità superficiale | ○ | ◎ |
| | Accuratezza lavoraz. | ○ | ◎ |
| Controllo del truciolo | Ostruzione trucioli | ◎ | ○ |
| | Evacuazione truciolo | ◎ | ○ |
| Scanalatura | Evacuazione truciolo | ◎ | ○ |
| | Scanalatura | ◎ | ○ |
| Spianamento laterale | Superficie di finitura | ○ | ◎ |
| | Vibrazioni | ◎ | ○ |

◎-Eccellente ○-Buono

## Differenze tra frese integrali generiche e frese integrali ad alte velocità

| Frese integrali generiche | | Frese integrali ad alta velocità | |
|---|---|---|---|
| Sezione trasversale | Caratteristiche | Sezione trasversale | Caratteristiche |
|  | - Indicate per basse evlocità, elevate profondità di taglio, avanzamenti ridotti<br>- Materiali poco duri (acciaio generico, ghisa) |  | - Indicate per alte evlocità, ridotte profondità di taglio, avanzamenti elevati<br>- Utili per lavorare materiale temprato come acciaio per stampi |

## Calcolo delle condizioni di taglio

### • Calcolo delle velocità di taglio

$$vc = \frac{\pi \times D \times n}{1000} \qquad n = \frac{1000 \times vc}{\pi \times D}$$

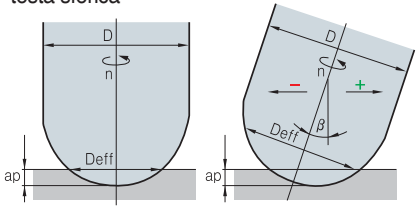
### • Calcolo delle velocità di avanzamento

$$vf = n \times fn \text{ or } n \times fz \times z$$

$$fn = \frac{vf}{n} \qquad fz = \frac{fn}{z} \text{ or } \frac{vf}{n \times z}$$

vc : Velocità di taglio (m/min)
π : Costante circolare (3.141592)
D : Diametro fresa integrale(mm)
n : Giri al minuto ($min^{-1}$)
vf : Velocità di avanzamento (mm/min)
fn : Avanzamento al minuto (mm/rev)
fz : Avanzamento per elica (mm/t)
z : Numero di scanalature

## Velocità di taglio e formule delle frese integrali a testa sferica

| | |
|---|---|
| Giri al minuto | $n = \frac{vc \times 1000}{D \times \pi}$ |
| Velocità di taglio | $vc = \frac{D \times \pi \times n}{1000}$ |
| Avanzamento per tagliente | $fz = \frac{vf}{z \times n}$ |
| Avanzamento a giro | $fn = fz \times z$ |
| Velocità di avanzamento | $vf = fz \times z \times n$ |
| Asportazione del truciolo | $Q = ae \times ap \times vf$ |
| Diametro effettivo della fresa integrale a testa sferica   | $D_{eff} = 2 \times \sqrt{D \times ap - ap^2}$ Tabella dei calcoli<br>$D_{eff} = D \times \sin\left[\beta \pm \arccos\left(\frac{D-2ap}{D}\right)\right]$ |

## Importanza della lunghezza della scanalatura

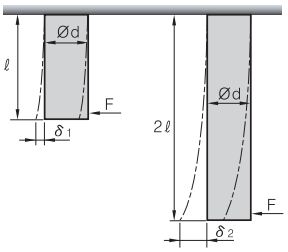
### • Lunghezza di lavoro

- Lunghezza di lavoro
- ℓ/d
- Es.) 3D, 15D, 22D

### • Deformazione e lunghezza

- La percentuale di deformazione rappresenta la forza di reazione a una forza esterna
- Proporzionale al cubo della lunghezza
- Impostare la lunghezza elica e lunghezza totale più corte possibile
- Maggiore è la scanalatura, migliore è la rigidità
- Quando la larghezza della scanalatura è ridotta, aumenta la rigidità della punta

$$\delta = \frac{P\ell^3}{3EI}$$




δ = Volume di deformazione ⊨ Lunghezza di taglio I = Punto di inerzia ( $I = \frac{\pi d^4}{64}$ )

P = Sforzo di taglio E = Coefficiente di elasticità

- $\ell \rightarrow 2\ell$
- $\delta_1 \rightarrow \delta_1 = 8\delta_1 = \delta_2$

## Tabella di conversione dei giri del mandrino (RPM) - diametro esterno

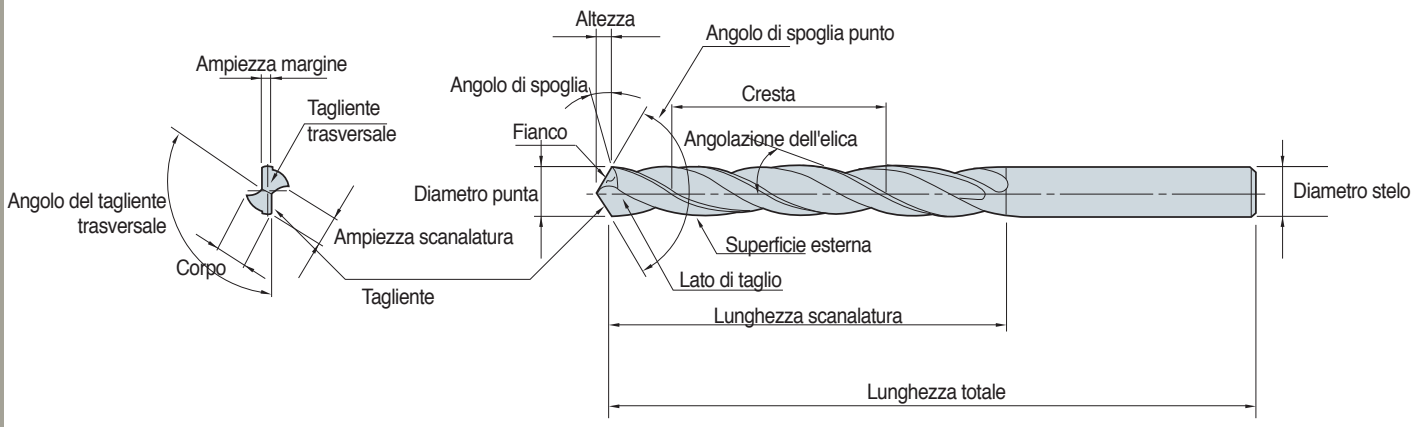
| VC / Esterno | Velocità di taglio (vc, m/min) | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 120 | 140 | 150 | 180 | 200 | 250 | 300 |
| 0.2 | 31,831 | 47,746 | 63,662 | 79,577 | 95,493 | 111,408 | 127,324 | 143,239 | 159,155 | 190,986 | 222,817 | 23,872 | 286,479 | 318,310 | 397,887 | 477,465 |
| 0.3 | 21,221 | 31,831 | 42,441 | 53,052 | 63,662 | 74,272 | 84,883 | 95,493 | 106,103 | 127,324 | 148,545 | 159,155 | 190,986 | 212,207 | 265,258 | 318,310 |
| 0.4 | 15,915 | 23,873 | 31,831 | 39,789 | 47,746 | 55,704 | 63,662 | 71,620 | 79,577 | 95,493 | 111,408 | 119,366 | 143,239 | 159,155 | 198,944 | 238,732 |
| 0.5 | 12,732 | 19,099 | 25,465 | 31,831 | 38,197 | 44,563 | 50,930 | 57,296 | 63,662 | 76,394 | 89,127 | 95,493 | 114,592 | 127,324 | 159,155 | 190,986 |
| 0.6 | 10,610 | 15,915 | 21,221 | 26,526 | 31,831 | 37,136 | 42,441 | 47,746 | 53,052 | 63,662 | 74,272 | 79,577 | 95,493 | 106,103 | 132,629 | 159,155 |
| 0.7 | 9,095 | 13,642 | 18,189 | 22,736 | 27,284 | 31,831 | 36,378 | 40,926 | 45,473 | 54,567 | 63,662 | 68,209 | 81,851 | 90,946 | 113,682 | 136,419 |
| 0.8 | 7,958 | 11,937 | 15,915 | 19,894 | 23,873 | 27,852 | 31,831 | 35,810 | 39,789 | 47,746 | 55,704 | 59,683 | 71,620 | 79,577 | 99,472 | 119,366 |
| 0.9 | 7,074 | 10,610 | 14,147 | 17,684 | 21,221 | 24,757 | 28,294 | 31,831 | 35,368 | 42,441 | 49,515 | 53,052 | 63,662 | 70,736 | 88,419 | 106,103 |
| 1 | 6,366 | 9,549 | 12,732 | 15,915 | 19,009 | 22,282 | 25,465 | 28,648 | 31,831 | 38,197 | 44,563 | 47,746 | 57,296 | 63,662 | 79,577 | 95,793 |
| 1.5 | 4,244 | 6,366 | 8,488 | 10,610 | 12,732 | 14,854 | 16,977 | 19,099 | 21,221 | 25,465 | 29,709 | 31,831 | 38,197 | 42,441 | 53,052 | 63,662 |
| 2 | 3,183 | 4,775 | 6,366 | 7,958 | 9,549 | 11,141 | 12,732 | 14,324 | 15,915 | 19,099 | 22,282 | 23,873 | 28,648 | 31,831 | 39,789 | 47,746 |
| 2.5 | 2,546 | 3,820 | 5,093 | 6,366 | 7,639 | 8,913 | 10,186 | 11,459 | 12,732 | 15,279 | 17,825 | 19,099 | 22,918 | 25,465 | 31,831 | 38,197 |
| 3 | 2,122 | 3,183 | 4,244 | 5,305 | 6,366 | 7,427 | 8,488 | 9,549 | 10,610 | 12,732 | 14,854 | 15,915 | 19,099 | 21,221 | 26,526 | 31,831 |
| 3.5 | 1,819 | 2,728 | 3,638 | 4,547 | 5,457 | 6,366 | 7,276 | 8,185 | 9,095 | 10,913 | 12,732 | 13,642 | 16,370 | 18,189 | 22,736 | 27,284 |
| 4 | 1,592 | 2,387 | 3,183 | 3,979 | 4,775 | 5,570 | 6,366 | 7,162 | 7,958 | 9,549 | 11,141 | 11,937 | 14,324 | 15,915 | 19,894 | 23,873 |
| 4.5 | 1,415 | 2,122 | 2,829 | 3,537 | 4,244 | 4,951 | 5,659 | 6,366 | 7,074 | 8,488 | 9,903 | 10,610 | 12,732 | 14,147 | 17,684 | 21,221 |
| 5 | 1,273 | 1,910 | 2,546 | 3,183 | 3,820 | 4,456 | 5,093 | 5,730 | 6,366 | 7,639 | 8,913 | 9,549 | 11,459 | 12,732 | 15,915 | 19,099 |
| 5.5 | 1,157 | 1,736 | 2,315 | 2,894 | 3,472 | 4,051 | 4,630 | 5,209 | 5,787 | 6,945 | 8,102 | 8,681 | 10,417 | 11,575 | 14,469 | 17,362 |
| 6 | 1,061 | 1,592 | 2,122 | 2,653 | 3,183 | 3,714 | 4,244 | 4,775 | 5,305 | 6,366 | 7,427 | 7,958 | 9,549 | 10,610 | 13,263 | 15,915 |
| 6.5 | 979 | 1,469 | 1,959 | 2,449 | 2,938 | 3,428 | 3,918 | 4,407 | 4,897 | 5,876 | 6,856 | 7,346 | 8,815 | 9,794 | 12,243 | 14,691 |
| 7 | 909 | 1,364 | 1,819 | 2,274 | 2,728 | 3,183 | 3,638 | 4,093 | 4,547 | 5,457 | 6,366 | 6,821 | 8,185 | 9,095 | 11,368 | 13,642 |
| 7.5 | 849 | 1,273 | 1,698 | 2,122 | 2,546 | 2,971 | 3,395 | 3,820 | 4,244 | 5,093 | 5,942 | 6,366 | 7,639 | 8,488 | 10,610 | 12,732 |
| 8 | 796 | 1,194 | 1,592 | 1,989 | 2,387 | 2,785 | 3,183 | 3,581 | 3,979 | 4,775 | 5,570 | 5,968 | 7,162 | 7,958 | 9,947 | 11,937 |
| 8.5 | 749 | 1,123 | 1,498 | 1,872 | 2,247 | 2,621 | 2,996 | 3,370 | 3,745 | 4,494 | 5,243 | 5,617 | 6,741 | 7,490 | 9,362 | 11,234 |
| 9 | 707 | 1,061 | 1,415 | 1,768 | 2,122 | 2,476 | 2,829 | 3,183 | 3,537 | 4,244 | 4,951 | 5,305 | 6,366 | 7,074 | 8,842 | 10,610 |
| 9.5 | 670 | 1,005 | 1,340 | 1,675 | 2,010 | 2,345 | 2,681 | 3,016 | 3,351 | 4,021 | 4,691 | 5,026 | 6,031 | 6,701 | 9,377 | 10,052 |
| 10 | 637 | 955 | 1,273 | 1,592 | 1,910 | 2,228 | 2,546 | 2,865 | 3,183 | 3,820 | 4,456 | 4,775 | 5,730 | 6,366 | 7,958 | 9,549 |
| 11 | 579 | 868 | 1,157 | 1,447 | 1,736 | 2,026 | 2,315 | 2,604 | 2,894 | 3,472 | 4,051 | 4,341 | 5,209 | 5,787 | 7,234 | 8,681 |
| 12 | 531 | 796 | 1,061 | 1,326 | 1,592 | 1,857 | 2,122 | 2,387 | 2,653 | 3,183 | 3,714 | 3,979 | 4,775 | 5,305 | 6,631 | 7,958 |
| 13 | 490 | 735 | 979 | 1,224 | 1,469 | 1,714 | 1,959 | 2,204 | 2,449 | 2,938 | 3,428 | 3,673 | 4,407 | 4,897 | 6,121 | 7,346 |
| 14 | 455 | 682 | 909 | 1,137 | 1,364 | 1,592 | 1,819 | 2,046 | 2,274 | 2,728 | 3,183 | 3,410 | 4,093 | 4,547 | 5,684 | 6,821 |
| 15 | 424 | 637 | 849 | 1,061 | 1,273 | 1,485 | 1,698 | 1,910 | 2,122 | 2,546 | 2,971 | 3,183 | 3,820 | 4,244 | 5,305 | 6,366 |
| 16 | 398 | 597 | 796 | 995 | 1,194 | 1,393 | 1,592 | 1,790 | 1,989 | 2,387 | 2,785 | 2,984 | 3,581 | 3,979 | 4,974 | 5,968 |
| 17 | 374 | 562 | 749 | 969 | 1,123 | 1,311 | 1,498 | 1,685 | 1,872 | 2,247 | 2,621 | 2,809 | 3,370 | 3,745 | 4,681 | 5,617 |
| 18 | 354 | 531 | 707 | 884 | 1,061 | 1,238 | 1,415 | 1,592 | 1,768 | 2,122 | 2,476 | 2,653 | 3,183 | 3,537 | 4,421 | 5,305 |
| 19 | 335 | 503 | 670 | 838 | 1,005 | 1,173 | 1,340 | 1,508 | 1,675 | 2,010 | 2,345 | 2,513 | 3,016 | 3,351 | 4,188 | 5,026 |
| 20 | 318 | 477 | 637 | 796 | 955 | 1,114 | 1,273 | 1,432 | 1,592 | 1,910 | 2,228 | 2,387 | 2,865 | 3,183 | 3,979 | 4,775 |
| 21 | 303 | 455 | 606 | 758 | 909 | 1,061 | 1,213 | 1,364 | 1,516 | 1,819 | 2,122 | 2,274 | 2,728 | 3,032 | 9,789 | 4,547 |
| 22 | 289 | 434 | 579 | 723 | 868 | 1,013 | 1,157 | 1,302 | 1,447 | 1,736 | 2,026 | 2,170 | 2,604 | 2,894 | 3,617 | 4,341 |
| 23 | 277 | 415 | 554 | 692 | 830 | 969 | 1,107 | 1,246 | 1,384 | 1,661 | 1,938 | 2,076 | 2,491 | 2,768 | 3,460 | 4,152 |
| 24 | 265 | 398 | 531 | 663 | 796 | 928 | 1,061 | 1,194 | 1,326 | 1,592 | 1,857 | 1,989 | 2,387 | 2,653 | 3,316 | 3,979 |
| 25 | 255 | 382 | 509 | 637 | 764 | 891 | 1,019 | 1,146 | 1,273 | 1,528 | 1,783 | 1,910 | 2,292 | 2,546 | 3,183 | 3,820 |

## Guasti e soluzione dei problemi

| Problemi | | Cause | Soluzione | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Condizioni di taglio | | | | | Forma dell'utensile | | | | | | Grado | | ecc. | | | |
| | | | Velocità di taglio | Avanzamento | Profondità di taglio | Refrigerante | Taglio verso l'alto Taglio verso il basso | Angolo di spoglia | Angolo di punta | Lunghezza dell'elica | Numero di scanalature | Onatura | Scarico trucioli | Tenacità | Durezza | Rigidità della macchina | Vibrazioni macchina | Fissaggio pezzo lavorato | Profondità di entrata |
| Danno del tagliente | Tagliente periferico eccessivo | Condizioni di taglio errate | ⬇ | ⬆ | | ◉ | | | | | | | | | | | ⬆ | | |
| | Scheggiatura | Condizioni di taglio errate<br>Tagliente di riporto<br>Scarsa rigidità dell'utensile<br>Grado errato | | ⬇ | | | ⬇ | ⬇ | | | | ◉ | | ⬆ | | | ⬇ | ⬆ | ⬇ |
| | Rottura durante la lavorazione | Condizioni di taglio errate<br>Sforzo di taglio eccessivo<br>Profondità di entrata | | ⬇ | ⬇ | | | | | ⬇ | | | ⬆ | | | ⬆ | | ⬆ | ⬇ |
| Cattiva superficie di finitura | | eccessiva Tagliente di riporto | ⬆ | ⬆ | | ◉ | | | ⬆ | | | ◉ | | | | | | | |
| | | Craterizzazione | ⬇ | | | | ⬇ | | | ⬇ | | | | | | ⬆ | ⬇ | ⬆ | ⬇ |
| | | Scarsa robustezza | | ⬇ | ⬇ | | ⬆ | | ⬆ | ⬇ | | | | | | | | | ⬇ |
| Scarsa precisione della lavorazione (dimensione lavorata, perpendicolarità) | | Condizioni di taglio errate<br>Forma utensile errata | ⬆ | ⬇ | | | ⬇ | | | ⬇ | ⬆ | | | | | ⬆ | ⬇ | | ⬇ |
| Scarsa evacuazione del truciolo | | Volume di taglio ecessivo<br>Scarico trucioli errato<br>Condizioni di taglio errate | | ⬇ | ⬇ | | | | | | ⬇ | | ⬆ | | | | | | |

⬆ : Maggiore ⬇ : Minore ● : uso ◉ : Uso corretto

## Punte (frome e nomi)

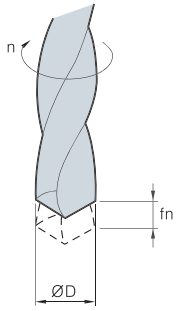



## Forma e caratteristiche di taglio

| | |
|---|---|
| **Angolazione dell'elica** | Svolge il ruolo del tagliente dell'angolo dell'elica. Se l'angolo dell'elica aumenta, lo sforzo di taglio diminuisce. Al contrario, se l'angolo dell'elica è troppo grande, la rigidità della punta diminuisce.<br>Scarsa lavorabilità ◀ basso - Angolo dell'elica - alto ▶ Buona evacuazione del truciolo<br>Pezzo lavorato duro (acciaio temprato) ◀ basso - Angolo dell'elica - alto ▶ Materiale morbido (alluminio ecc.) |
| **Lunghezza dell'elica** | Percorso dell'evacuazione trucioli e del refrigerante. Una lunghezza eccessiva indebolisce la rigidità della punta mentre una lunghezza ridotta compromette l'evacuazione del truciolo |
| **Angolo di punta** | L'angolo di punta influenza considerevolmente la prestazione di taglio. Dipende principalmente dal pezzo lavorato. Nelle punte standard, l'angolo di punta è generalmente 118.<br>Diminuisce la resistenza alla spinta ◀ basso - Angolo di punta - alto ▶ Aumenta la resistenza alla spinta<br>Aumenta la coppia, aumenta la bava all'uscita ◀ basso - Angolo di punta - alto ▶ Diminuisce la coppia, diminuisce la bava all'uscita<br>Materiale morbido (alluminio ecc.) ◀ basso - Angolo di punta - alto ▶ Materiale duro (acciaio temprato) |
| **Margine** | Nella lavorazione, il margine è la parte di contatto tra il pezzo lavorato e la parte esterna della punta. Previene le piegature e svolge il ruolo di guida. Dipende dalla dimensione della punta<br>Diminuisce lo sforzo di taglio ◀ piccolo - Margine - grande ▶ Aumenta lo sforzo di taglio<br>Guida insufficiente ◀ piccolo - Margine - grande ▶ Guida buona |
| **Spessore nocciolo** | Il disco è la parte centrale della punta da cui dipende la rigidità della punta. La punta deve avere tagliente e tagliente trasversale in quanto il foro viene praticato all'inizio della foratura. Se lo spessore del nocciolo è grande, occorre l'assottigliamento per ridurre lo sforzo di taglio.<br>Diminuisce lo sforzo di taglio ◀ piccolo - Spessore nocciolo - grande ▶ Aumenta lo sforzo di taglio<br>Diminuisce la rigidità ◀ piccolo - Spessore nocciolo - grande ▶ Aumenta la rigidità<br>Buona evacuazione del truciolo ◀ piccolo - Spessore nocciolo - grande ▶ Cattiva evacuazione del truciolo<br>Materiale morbido (alluminio ecc.) ◀ piccolo - Spessore nocciolo - grande ▶ Materiale duro (acciaio temprato) |
| **Cono posteriore** | Il diametro della punta diminuisce dalla punta allo stelo per evitare attrito tra la periferia della punta e il pezzo lavorato. La riduzione di diametro diviso per la lunghezza della scanalatura di 100mm in genere diventa 0,04~0,1mm. |
| **Assottigliamento** | In genere la spinta della punta incide sul tagliente trasversale per più del 50%. La lunghezza del tagliente trasversale dipende dallo spessore del disco e dall'angolazione del tagliente trasversale.Tuttavia, se il disco è sottile, diminuise la rigidità. Pertanto, se non si cambia lo spessore del disco, l'assottigliamento riduce il tagliente trasversale o produce angolo di spoglia. In altre parole, l'assottigliamento produce angolo di spoglia e tagliente trasversale, migliora l'evacuazione del truciolo e riduce la spinta. |

| Tipo | Forma del tagliente | Caratteristiche | Punte Korloy |
|---|---|---|---|
| Tipo X |  | Buona centratura<br>Elevato spessore centrale<br>Albero a gomiti | Mach drill (MSD)<br>Vulcan drill (VZD) |
| Tipo S |  | Per svariati usi<br>Per uso generico<br>Facile da riaffilare | Punta integrale (SSD) |

## Formule principali




| Velocità di taglio | Avanzamento | Angolazione dell'elica | Tempo di lavorazione |
|---|---|---|---|
| $vc = \frac{\pi \cdot D \cdot n}{1000}$ (m/min) | $fn = \frac{vf}{n}$ (mm/rev) | $\delta = \tan^{-1}\left(\frac{\pi D}{L}\right)$ | $tc = \frac{ld}{n \cdot fn}$ (min) |
| • vc : Velocità di taglio (m/min)<br>• D : Diametro punta (mm)<br>• n : Giri al minuto ($min^{-1}$)<br>• π : Costante circolare (3.14) | • fn : Avanzamento al giro (mm/rev)<br>• vf : Avanzamento al minuto (mm/min)<br>• n : Giri al minuto ($min^{-1}$) | • δ : Angolazione dell'elica<br>• D : Diametro punta (mm)<br>• L : Cresta (mm)<br>• π : Costante circolare (3.14) | • tc : Tempo di lavorazione (min)<br>• n : Giri al minuto ($min^{-1}$)<br>• ld : Tempo di foratura (mm)<br>• fn : avanzamento (mm/giro) |

**Spinta e coppia di taglio (formule)**

$Md = KD^2 \times (0.0631 + 1.686 \times fn)(kg \cdot cm)$
$T = 57.95KDfn^{0.85}(kg)$

• Md : Coppia di taglio (kg · cm)
• T : Spinta di taglio (kg)
• D : Diametro punta (mm)
• fn : Avanzamento al giro (mm/rev)
• K : Coefficiente materiale

| Materiale lavorato (SAE/AISI) | | Carico di rottura (kgf) | Durezza (HB) | Coefficiente materiale K |
|---|---|---|---|---|
| Ghisa | Ghisa (grigia) | 21 | 177 | 1.00 |
| | Ghisa | 28 | 198 | 1.39 |
| | Ghisa (duttile) | 35 | 224 | 1.88 |
| Acciaio generico | 1020(acciaio al carbonio C 0.2%) | 55 | 160 | 2.22 |
| | 1112(C 0.12, S 0.2%) | 62 | 183 | 1.42 |
| | 1335(Mn 1.75%) | 63 | 197 | 1.45 |
| Acciaio al nichel-cromo | 3115 (Ni 1.25, Cr 0.6, Mn 0.5) | 53 | 163 | 1.56 |
| | 3120 (Ni 1.25, Cr 0.6, Mn 0.7) | 69 | 174 | 2.02 |
| | 3140 | 88 | 241 | 2.32 |
| Acciaio al cromo-molibdeno | 4115 (Cr 0.5, Mo 0.11, Mn 0.8) | 63 | 167 | 1.62 |
| | 4130 (Cr 0.95, Mo 0.2, Mn 0.5) | 77 | 229 | 2.10 |
| | 4140 (Cr 0.95, Mo 0.2, Mn 0.85) | 94 | 269 | 2.41 |
| Acciaio al nichel-molibdeno | 4615 (Ni 1.8, Mo 0.25, Mn 0.5) | 75 | 212 | 2.12 |
| | 4820 (Ni 3.5, Mo 0.25, Mn 0.6) | 140 | 390 | 3.44 |
| Acciaio al cromo | 5150 (Cr 0.8, Mn 0.8) | 95 | 277 | 2.46 |
| Acciaio al cromo-vanadio | 6115 (Cr 0.6, Mn 0.6, V 0.12) | 58 | 174 | 2.08 |
| | 6120 (Cr 0.8, Mn 0.8, V 0.1) | 80 | 255 | 2.22 |

**Spinta e coppia di taglio (formula empirica)**

$Md = K_1 \cdot d^2 \cdot fn^m$
$T = K_2 \cdot d \cdot fn^n$

• Md : Coppia di taglio (kg · cm)
• T : Spinta (kg)
• fn : Avanzamento (mm/rev)
• $K_1$, $K_2$, m, n : Valore dei dati sperimentali
• d : Diametro punta (mm)

| Pezzo lavorato | $K_1$ | m | $K_2$ | n |
|---|---|---|---|---|
| Acciaio morbido | 5.9 | 1.00 | 125.0 | 0.88 |
| Acciaio arrotolatto | 3.5 | 1.00 | 55.0 | 0.88 |
| Ottone 7-3 | 2.5 | 0.94 | 44.4 | 0.87 |
| Alluminio | 1.5 | 0.90 | 33.3 | 0.78 |
| Zinco | 1.4 | 0.88 | 27.0 | 0.74 |
| Bronzo duro | 2.0 | 0.94 | 21.6 | 0.75 |
| Ferro zincato | 0.3 | 0.57 | 6.4 | 0.55 |

## Soluzione guasti

| Problema | | Cause | Soluzione | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Condizioni di taglio | | | | | Forma dell'utensile | | | | | | Grado | | ecc. | | | |
| | | | Velocità di taglio | Avanzamento | Avanzamento intermedio | Avanzamento iniziale | Refrigerante | Angolo di spoglia | Angolo di punta | Angolo di assottigliamento | Onatura | Larghezza scanalatura | Assottigliamento | Tenacità | Durezza | Rigidità della macchina | Vibrazione macchina | Boccola guida | Staffaggio del pezzo lavorato |
| **Scheggiatura** | | • Tagliente troppo affilato (angolo di spoglia troppo grande) (il tragliente di assottigliamento è troppo affilato) | | | | | | ⬇ | | ⬇ | ⬆ | | | ⬆ | | | | | |
| | | • Velocità di taglio eccessiva | ⬇ | | | | ● | | | | | | | | | | | | |
| | | • Tagliente di riporto | | | | | ● | ⬇ | | ⬇ | ⬆ | | | ⬆ | | | | | |
| | | • Vibrazioni e craterizzazione | ⬇ | | | | | | | | | | | | | ⬆ | ⬇ | | ● |
| **Usura** | | • Velocità di taglio eccessiva (Usura anormale sul margine) | ⬇ | | | | ● | | | | | | | | | | | | |
| | | • Velocità di taglio insufficiente (Usura anormale al centro) | ⬆ | | | | ● | | | | | | | | | | | | |
| **Controllo truciolo** | | • Truciolo lungo | ⬆ | ⬆ | | | ● | | | | ⬇ | | | | | | | | |
| | | • Sovrapposizione | ⬆ | ⬆ | | | | | | | | | | | | | | | |
| | | • Bruciatura del truciolo | ⬆ | | | | ● | | | | | | | | | | | | |
| **Precisione del foro, bava e cattiva superficie di finitura** | | • Precisione di staffaggio utensile | | | | ⬇ | | | ⬇ | | ⬇ | | | | | ⬆ | ⬇ | | ● |
| | | • Avanzamento eccessivo angolo di punta affilato | | ⬇ | | | | | ⬆ | | ⬇ | | | | | | | | |
| | | • Velocità di taglio eccessiva (rispetto algrado dell'utensile) | ⬆ | | | | ● | ⬇ | ◉ | | | | | | ⬆ | | | | |
| **Rottura** | **Rottura al contatto** | • Cattiva superficie di finitura | | | ● | ⬇ | | | | | | | | | | | | ● | |
| | | • Rigidità macchina insufficiente | | | | | | | | | | | | | | ⬆ | | | ● |
| | | • Condizioni di taglio errate | ⬆ | ⬇ | | | | | | | | | | | | | | | |
| | **Rottura sul fondo del foro** | • Foro curvo | ⬆ | | | | | | ⬆ | | | | ● | | | | ⬇ | ● | |
| | | • Ostruzione dei trucioli | | ⬇ | ● | | | | | | | ⬆ | | | | | | | |

⬆ : Maggiore ⬇ : Minore ● : uso ◉ : Uso corretto

## Prefori per filettatura

### • Filettatura metrica

| Specifiche | | | Diametro foro |
|---|---|---|---|
| M1 | X | 0.25 | 0.75 |
| M1.1 | X | 0.25 | 0.85 |
| M1.2 | X | 0.25 | 0.95 |
| M1.4 | X | 0.3 | 1.1 |
| M1.6 | X | 0.35 | 1.25 |
| M1.7 | X | 0.35 | 1.35 |
| M1.8 | X | 0.35 | 1.45 |
| M2 | X | 0.4 | 1.6 |
| M2.2 | X | 0.45 | 1.75 |
| M2.3 | X | 0.4 | 1.9 |
| M2.5 | X | 0.45 | 2.1 |
| M2.6 | X | 0.45 | 2.2 |
| M3 | X | 0.6 | 2.4 |
| M3 | X | 0.5 | 2.5 |
| M3.5 | X | 0.6 | 2.9 |
| M4 | X | 0.75 | 3.25 |
| M4 | X | 0.7 | 3.3 |
| M4.5 | X | 0.75 | 3.8 |
| M5 | X | 0.9 | 4.1 |
| M5 | X | 0.8 | 4.2 |
| M5.5 | X | 0.9 | 4.6 |
| M6 | X | 1 | 5 |
| M7 | X | 1 | 6 |
| M8 | X | 1.25 | 6.8 |
| M9 | X | 1.25 | 7.8 |
| M10 | X | 1.5 | 8.5 |
| M11 | X | 1.5 | 9.5 |
| M12 | X | 1.75 | 10.3 |
| M14 | X | 2 | 12 |
| M16 | X | 2 | 14 |
| M18 | X | 2.5 | 15.5 |
| M20 | X | 2.5 | 17.5 |
| M22 | X | 2.5 | 19.5 |
| M24 | X | 3 | 21 |
| M27 | X | 3 | 24 |
| M30 | X | 3.5 | 26.5 |
| M33 | X | 3.5 | 29.5 |
| M36 | X | 4 | 32 |
| M39 | X | 4 | 35 |
| M42 | X | 4.5 | 37.5 |
| M45 | X | 4.5 | 40.5 |
| M48 | X | 5 | 43 |

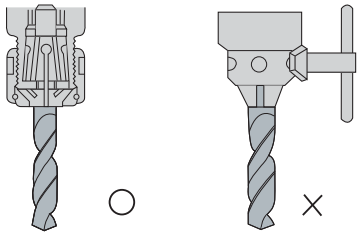
### • Filettatura metrica

| Specifiche | | | Diametro foro |
|---|---|---|---|
| M2.5 | X | 0.35 | 2.2 |
| M3 | X | 0.35 | 2.7 |
| M3.5 | X | 0.35 | 3.2 |
| M4 | X | 0.5 | 3.5 |
| M4.5 | X | 0.5 | 4 |
| M5 | X | 0.5 | 4.5 |
| M5.5 | X | 0.5 | 5 |
| M6 | X | 0.75 | 5.3 |
| M7 | X | 0.75 | 6.3 |
| M8 | X | 1 | 7 |
| M8 | X | 0.75 | 7.3 |
| M9 | X | 1 | 8 |
| M9 | X | 0.75 | 8.3 |
| M10 | X | 1.25 | 8.8 |
| M10 | X | 1 | 9 |
| M10 | X | 0.75 | 9.3 |
| M11 | X | 1 | 10 |
| M11 | X | 0.75 | 10.3 |
| M12 | X | 1.5 | 10.5 |
| M12 | X | 1.25 | 10.8 |
| M12 | X | 1 | 11 |
| M14 | X | 1.5 | 12.5 |
| M14 | X | 1 | 13 |
| M15 | X | 1.5 | 13.5 |
| M15 | X | 1 | 14 |
| M16 | X | 1.5 | 14.5 |
| M16 | X | 1 | 15 |
| M17 | X | 1.5 | 15.5 |
| M17 | X | 1 | 16 |
| M18 | X | 2 | 16 |
| M18 | X | 1.5 | 16.5 |
| M18 | X | 1 | 17 |
| M20 | X | 2 | 18 |
| M20 | X | 1.5 | 18.5 |
| M20 | X | 1 | 19 |
| M22 | X | 2 | 20 |
| M22 | X | 1.5 | 20.5 |
| M22 | X | 1 | 21 |
| M24 | X | 2 | 22 |
| M24 | X | 1.5 | 22.5 |
| M24 | X | 1 | 23 |
| M25 | X | 2 | 23 |
| M25 | X | 1.5 | 23.5 |
| M25 | X | 1 | 24 |
| M26 | X | 1.5 | 24.5 |
| M27 | X | 2 | 25 |

## Attenzione

### • Scelta del mandrino

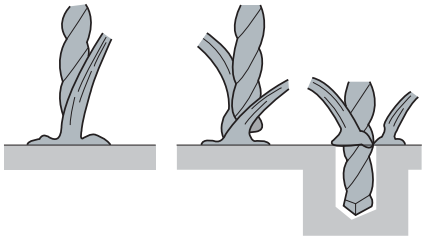
• Il mandrino a pinza è consigliabile in quanto esercita maggiore presa
(I mandrini generici e i mandrini Keyless non esercitano una presa sufficiente)



• Mandirno a pinza • Mandrino generico

### • Refrigerante

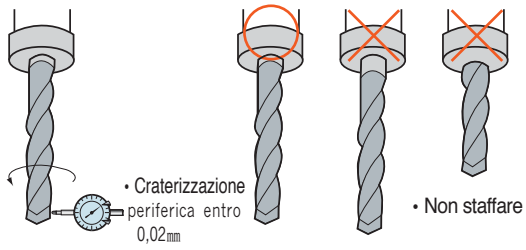
• Erogare refrigerante a sufficienza attorno all'ingresso del foro
• Pressione olio standard: 3~5kg/㎠, Flux : 2~5 ℓ/min



• Erogare più refrigerante in prossimità dell'ingresso del foro

### • Montaggio della punta

• Quando si monta la punta, la tolleranza deve essere entro 0,02㎜
• Non staffare l'elica

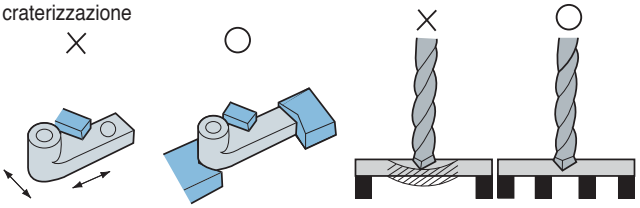


• Craterizzazione periferica entro 0,02㎜

• Non staffare l'elica

### • Staffaggio del pezzo lavorato

• Nelle forature ad elevate prestazioni, spinta elevata, coppia e sforzo di taglio orizzontale operano contemporaneamente, per questo il pezzo lavorato deve essere staffato saldamente, in modo da evitare la craterizzazione



• Si richiede uno staffaggio uniforme e robusto (destra e sinistra, alto e basso)

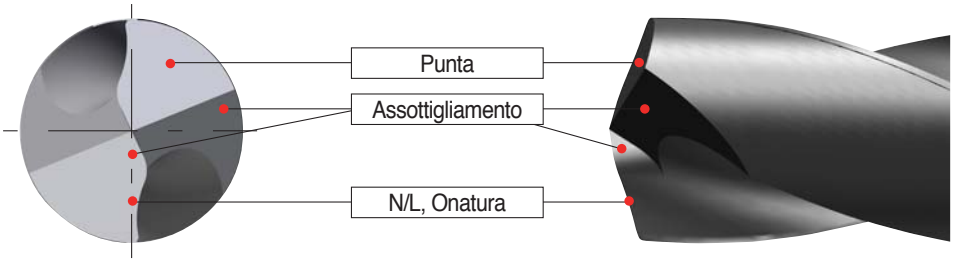
• Si richiede uno staffaggio robusto in quanto la piegatura provoca scheggiature

## Avvertenze

1) Per una maggiore sicurezza della punta, rettificare in caso di piccoli danni e usura
2) Per rettificare, i danni e l'usura devono essere entro 1,5 mm
3) Non è possibile rettiricare se la punta si è rotta
4) Si accettano ordini di rettiricazione, in alternativa acquistare una macchina rettrificatrice

## Procedura di rettificazione

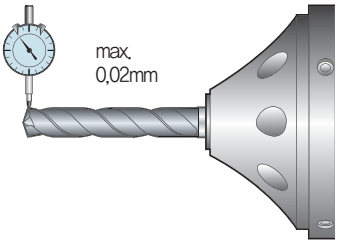
### • Metodo di rettificazione (MACH drill)




**1) Preparazione**
- Determinare le aree di rettificazione Controllare i danni sul tagliente e l'usura. Se si è verificata una grossa rottura, rimuovere con una rettrificazione grossolana



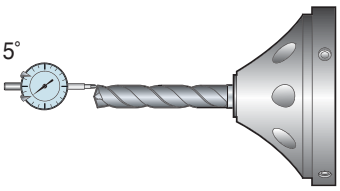

**2) Affilatura**
- Confirgurazione delle punte Staffare la punta alla bussola la vibrazione del mandrino resta entro 0,02mm

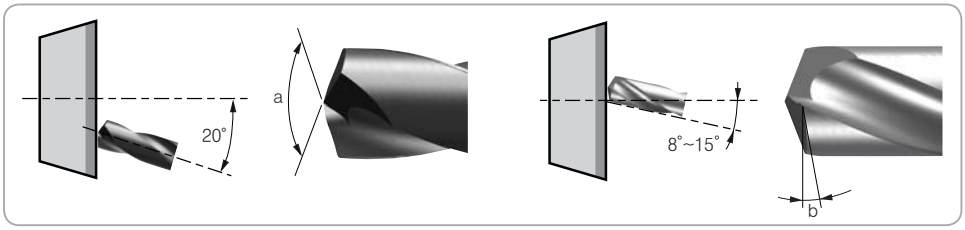


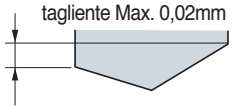
**3) Procedura di rettificazione - Punto di rettificazione**

- Controllare i danni e l'usura sulla punta e rimuoverli completamente
- Mantenere la differnza dell'altezza tagliente entro 0,02 mm

Angolo del punto (a) : 140°
Angolo del punto di spoglia (b)t : 8°~ 15°



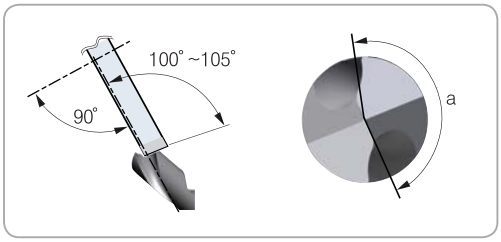


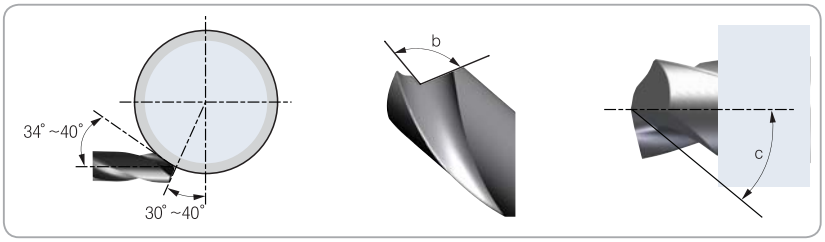




**4) Procedura di rettificazione - Rettificazione di assottigliamento**

- Considerando la larghezza N/L, la lunghezza del tagliente dal centro dell'asse della punta deve essere 0,03~0,08mm per un corretto bilanciamento
- Impostare la mola in modo che inclini l'asse della unta di 34°~ 40°

Angolo di assottigliamento (a)° : 155°~ 160°/ Angolo di assottigliamento aperto (b) : 100°~ 105°
Angolo di spoglia di assottigliamento (c) : 34°~ 40°

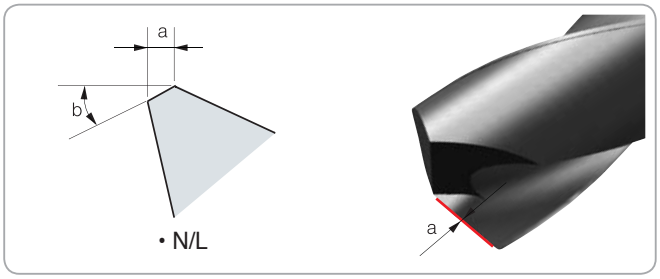



**5) Procedura di affilatura - Affilatura N/L e onatura**

- Utilizzare lo scalpello a punta di diamante e affilare la larghezza lungo il tagliente
- Lappare la superficie

Larghezza N/L (a) : 0,05mm~0,16mm / angolo N/L (b) : 24°~26°

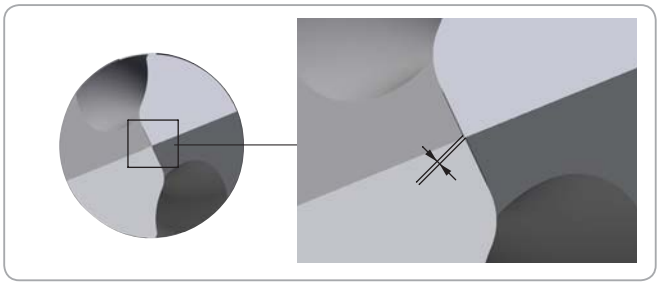



• N/L

• SUGGERIMENTO

- Senza la parte autocentrante lo spessore del nocciolo deve essere inferiore a 0,10mm

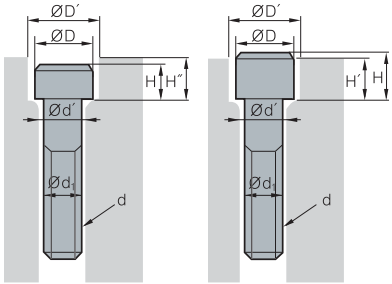
· Condizioni di affilatura raccomandate
- Mola diamantata: 240~400 mesh
- Scalpello a punta di diamante: 400~600 mesh



## Dimensione della vite esagonale (vite di staffaggio)

### • Alesatura e dimensione del foro della vite esagonale

| ISO (d) | M3 | M4 | M5 | M6 | M8 | M10 | M12 | M14 | M16 | M18 | M20 | M22 | M24 | M27 | M30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ød1 | 3 | 4 | 5 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 27 | 30 |
| Ød′ | 3.4 | 4.5 | 5.5 | 6.5 | 8.5 | 11 | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 30 | 33 |
| ØD | 5.5 | 7 | 8.5 | 10 | 13 | 16 | 18 | 21 | 24 | 27 | 30 | 33 | 36 | 40 | 45 |
| Ød′ | 5 | 8 | 9.5 | 11 | 14 | 17.5 | 20 | 23 | 26 | 29 | 32 | 35 | 39 | 43 | 48 |
| H | 3 | 4 | 5 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 27 | 30 |
| H′ | 2.7 | 3.6 | 4.6 | 5.5 | 7.4 | 9.2 | 11.0 | 12.8 | 14.5 | 16.5 | 18.5 | 20.5 | 22.5 | 25 | 28 |
| H″ | 3.3 | 4.4 | 5.4 | 6.5 | 8.6 | 10.8 | 13.0 | 15.2 | 17.5 | 19.5 | 21.5 | 23.5 | 25.5 | 29 | 32 |



## Comparazione dei rompitrucioli

| Applicazione | | | KORLOY Principale | KORLOY Secondario | SUMITOMO | SANDVIK | KENNA-METAL | KYOCERA | MITSU-BISHI | ISCAR | TOSHIBA | SECO | WALTER | DIJET | TAEGUTEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NEG ATIVO | Acciaio | Ultrafinitura | HU | D02 | FA<br>FL | QF | FF | GP<br>DP<br>CF | FS<br>FH<br>FY | SF | TF | | | F1<br>FA | FA<br>EA |
| | | Finitura | vf | GF | SU<br>LU | pf | fn<br>FP<br>K | CQ<br>HQ | SA<br>SH<br>SY | NF | TSF<br>TS,SS<br>CF,ZF | MF2 | NF<br>NF5 | FT<br>UA | FG<br>SF |
| | | Medie lavorazioni - finitura | HC | VM | SX<br>UU | SM | P | CQ<br>HQ | SH | NF<br>RF<br>LF | ZM<br>NM | MF1 | NS4<br>NS8 | GP<br>UR<br>pf | ML |
| | | Medie lavorazioni | VM | GM | GU<br>UX<br>UG | PM<br>QM | MN<br>MP | GS<br>HS<br>CS<br>PS | MV<br>MA<br>MH | TF<br>PP | CM<br>TM<br>SM | M3<br>MR3<br>MF5 | NM,NM4<br>NM5<br>NM7 | UB<br>GG | MP<br>Mc<br>MT |
| | | Sgrossatura | HR | GR | MU<br>MX | PR | RN | GT<br>HT<br>★ | GH | NR | TH<br>CH | MR4<br>M5 | NR5<br>NR7 | UD | RT<br>★ |
| | | Lavorazioni pesanti | GH | B40 | HG<br>MP<br>HP | HR | RH | HX | HZ<br>HV<br>HH<br>HX | TNM | TU<br>57<br>65 | RR9 | | UC | RH<br>HT |
| | | Finitura WIPER I/S | VW<br>LW | | GUW<br>LUW | WF,WM<br>WR,WL | MW<br>FW<br>RW | WQ<br>WP | MW<br>SW | WG<br>WF | AFW<br>ASW | M3,M5 | NF,NM | | WS<br>WT |
| | Uso generico | | B25 | GR | UZ | 23 | MG | ★ | MT, MV | GN | | | | GN | ★ |
| | Acciaio inossidabile, acciaio morbido | | HA<br>HS<br>GS | HC<br>VM<br>GR<br>X38 | SU<br>EX<br>(GU)<br>MU<br>FL | MF<br>MM,QM<br>MR,QM<br>LC | FF,FW<br>FP,MP<br>MW,RN | GU,HU<br>XP,XQ<br>XS<br>MU,MS | FS, FJ<br>SH, MJ<br>MS, GJ<br>GH,FY | PP<br>TF | TF<br>SS<br>SA<br>TU<br>MS | MF1<br>MF3<br>M5 | NS4<br>NM4<br>NR7 | SF | FG,ML<br>MP,MT<br>RH,ET<br>EA |
| | Ghisa | | GR | B20<br>B25<br>HR | UZ<br>UX<br>★ | KF<br>KM,QM<br>KR,QR | FF,FW<br>MP,MW<br>RN,UN | GC<br>★<br>ZS | ★<br>MA<br>GH | GN | ★<br>33<br>★<br>CM | MF3<br>M5 | NS4,NS8<br>★<br>NM4 | | MT,RT<br>★ |
| | Alluminio | | HA | | | | F<br>GP<br>MS | AH | | PP | | | | | |
| POSITIVO | Acciaio · Ghisa | Finitura | HFP | | LU<br>FP | pf<br>KF | MT-UF<br>MT-LF<br>GT-LF | GP<br>DP<br>HQ | FV<br>SQ | ★<br>SM | 01<br>pf | F1 | PF5 | FT | FA |
| | | Medie lavorazioni - finitura (medie lavorazioni) | HMP | | SJ,SU<br>SK | (PM)<br>(KM) | MT-LF | XQ<br>HQ<br>GK | SV<br>R/L<br>R/L-F | 14,SM<br>17,19 | PS<br>23<br>PM | F1<br>F2 | PS4<br>PS5 | | FG |
| | | Mmedie lavorazioni (sgrossatura) | C25 | HMP | SF<br>MU | (PR)<br>(KR) | MT-MF | ★<br>G | MV<br>MQ<br>★ | 19 | 24<br>★ | F2 | PM2<br>PM5<br>(PR5) | | MT |
| | Alluminio | | AR<br>AK<br>MA | | AG | AL | HP | A3 | | AS | PP | | | ALU<br>ACB | FL |
| | Acciaio inossdabile | | HMP | AK | SU | MF, MM<br>MR | LF | (XQ) | FV<br>★ | 14,SM<br>17,19 | SS | | PS4<br>PM5 | | FA<br>FG<br>MT |
| | WIPER I/S | | | | LUW | WF<br>WM | | | SW<br>MW | WF<br>WG | | | | | WT |
| | Punte a inserti | | DM<br>DS,DA<br>DF | C20<br>C21 | S04<br>R06 | 51,53<br>56,58 | | ★<br>SU,SP | | SW,GF<br>GG,DT | | C1,P1<br>85,86 | | | |

★ : Tipo semplice ★ : Nessun nome

## Tabella dei gradi KORLOY

| Cat. | ISO | Grado | Gamma | Applicazione e materiale lavorato | Tornitura | Fresatura | Sfacciatura | Scanalatura | Filettatura | Troncatura | Punte a inserti | Punte integrali | Frese integrali | Rivestimento |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CVD | P | NC3010 | P05–P15 | Per lavorazione di acciai ad alte velocità | ● | | | ● | | ● | | | | $Al_2O_3$ / MT–TiCN |
| | | NC3020 | P15–P25 | Medie lavorazioni dell'acciaio | ● | | | ● | | ● | | | | $Al_2O_3$ / MT–TiCN |
| | | NC3120 | P15–P30 | Medie lavorazioni dell'acciaio | ● | | ● | ● | | ● | | | | $Al_2O_3$ / TiC / MT–TiCN |
| | | NC3030 | P25–P35 | Sgrossatura e taglio interrotto di acciaio | ● | | | ● | | ● | | | | TiN / $Al_2O_3$ / TiC / MT–TiCN |
| | | NC5330 New | P30–P40 | Uso generico di acciaio leggero e fuso | ● | ● | ● | ● | | ● | ● | | | TiN / $Al_2O_3$ / MT–TiCN |
| | | NC500H | P25–P35 | Taglio pesante di acciaio | ● | | | | | ● | | | | $Al_2O_3$ / MT–TiCN |
| | | NCM325 | P20–P30 | Fresatura di acciai ad alte velocità | | ● | | | ● | | ● | | | TiN / $Al_2O_3$ / MT–TiCN |
| | | NCM335 | P30–P40 | Sgrossatura e taglio interrotto Fresatura di acciaio Lavorazione di ghisa ad alte velocità | | ● | | | | | | | | TiN / $Al_2O_3$ / MT–TiCN |
| | K | NC6105 New | K01–K10 | Uso generico di ghisa grigia e duttile | ● | | | ● | | | | | | $Al_2O_3$ / MT–TiCN |
| | | NC6110 New | K05–K15 | Uso generico di ghisa grigia e duttile | ● | | | ● | | | | | | $Al_2O_3$ / MT–TiCN |
| | | NC315K | K10–K20 | Lavorazioni a basse velocità e taglio interrotto di ghisa | ● | | | ● | | | | | | $Al_2O_3$ / MT–TiCN |
| | | NC5330 New | K20–K30 | Uso generico con acciai inossidabili | ● | ● | | ● | | ● | | | | TiN / $Al_2O_3$ / MT–TiCN |
| | M | NC9025 New | M25–M35 | Acciaio inossidabile | ● | | | | | | | | | TiN / $Al_2O_3$ / MT–TiCN |
| | | NC5330 New | M25–M35 | Acciaio generico (1^ raccomandazione) | | ● | ● | ● | | ● | ● | | | TiN / $Al_2O_3$ / MT–TiCN |
| | | NCM325 | M20–M30 | Fresatura di acciai inossidabili ad alte velocità | | ● | | | | ● | ● | | | TiN / $Al_2O_3$ / MT–TiCN |
| | | NCM335 | M30–M40 | Sgrossatura e fresatura a taglio interrotto di acciaio inossidabile | | ● | | | | | | | | TiN / $Al_2O_3$ / MT–TiCN |
| | S | NC5330 New | S20–S30 | Taglio interrotto di leghe resistenti al calore | ● | | ● | ● | | ● | ● | | | TiN / $Al_2O_3$ / MT–TiCN |
| PVD | P | PC230 | P15–P30 | Finitura, medie lavorazioni di acciaio | | ● | | | ● | | ● | | | TiAlN |
| | | PC3500 | P25–P35 | Finitura, sgrossatura in fresatura (1^ raccomandazione) di acciaio | | ● | ● | ● | ● | | ● | | | TiN / ★Nuovo rivestimento TiAlN |
| | | PC5300 New | P30–P40 | Medie lavorazioni e sgrossatura in fresatura di acciaio | ● | ● | ● | ● | ● | ● | | | | ★Nuovo rivestimento TiAlN (Elevata durezza / resistente all'ossidazione) |
| | | PC3545 | P30–P50 | Medie lavorazioni, sgrossatura e lavorazioni pesanti in fresatura di acciaio | | ● | | | | | | | | TiN / TiAlN |
| | | PC3030T | P20–P30 | Filettatura di acciaio | | | | ● | | | | | | TiAlN |
| | | PC203F | P01–P10 | Lavorazioni E/M ad alte velocità di acciaio | | | | | | | | | | ★Nuovo rivestimento TiAlN (Elevata durezza / resistente all'ossidazione) |
| | | PC210F | P10–P20 | Fresatura ad alte velocità di acciaio generico e acciaio legato | | | | | | | | | | ★Nuovo rivestimento TiAlN (Elevata durezza / resistente all'ossidazione) |

## Tabella dei gradi KORLOY

| Cat. | ISO | Grado | Gamma | Applicazione e materiale lavorato | Tornitura | Fresatura | Sfacciatura | Scanalatura | Filettatura | Troncatura | Punte a inserti | Punte integrali | Frese integrali | Rivestimento |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PVD | P | PC220 | P15–P35 | Uso generico E/M ad alte velocità di acciaio | | | | | | | | | ● | ★Nuovo rivestimento TiAlN (Elevata durezza / resistente all'ossidazione) |
| | | PC205F | P15–P30 | Foratura (generica)/ inferiore a ϕ20 per punte integrali | | | | | | | | ● | | TiAlN |
| | | PC225F | P20–P35 | Foratura (generica)/ superiore a ϕ16 per punte integrali con refrigerante | | | | | | | | ● | | TiAlN |
| | K | PC6510 | K01–K15 | Fresatura di ghisa ad alte velocità | ● | ● | | | ● | | ● | | | TiN TiAlN |
| | | PC5300 Nuovo | K15–K25 | Medie lavorazioni e sgrossatura in tornitura/ fresatura di ghisa | ● | ● | ● | ● | ● | ● | ● | | | ★Nuovo rivestimento TiAlN (Elevata durezza / resistente all'ossidazione) |
| | | PC203F | K01–K10 | Lavorazioni E/M ad alte velocità di ghisa | | | | | | | | | ● | ★Nuovo rivestimento TiAlN (Elevata durezza / resistente all'ossidazione) |
| | | PC220 | K15–K35 | Uso generico E/M ad alte velocità di ghisa | | | | | | | | | ● | ★Nuovo rivestimento TiAlN (Elevata durezza / resistente all'ossidazione) |
| | | PC205F | K10–K20 | Foratura (generica)/ inferiore a ϕ20 per punte integrali | | | | | | | | ● | | TiAlN |
| | | PC225F | K15–K25 | Foratura (generica)/ superiore a ϕ16 per punte integrali con refrigerante | | | | | | | | ● | | TiAlN |
| | | PC215K | K15–K30 | Medie lavorazioni e sgrossatura in fresatura di ghisa | | ● | ● | ● | ● | | | | | TiAlN |
| | M | PC8110 Nuovo | M01–M10 | Medie lavorazioni e finitura di acciaio inossidabile | ● | | | ● | | ● | | | | ★Nuovo rivestimento TiAlN (Elevata durezza / resistente all'ossidazione) |
| | | PC5300 Nuovo | M20–M35 | Medie lavorazioni, sgrossatura in tornitura/fresatura di acciaio inossidabile | ● | ● | ● | ● | ● | ● | ● | | | ★Nuovo rivestimento TiAlN (Elevata durezza / resistente all'ossidazione) |
| | | PC9030 | M20–M35 | Medie lavorazioni, sgrossatura in tornitura con taglio interrotto di acciaio inossidabile | ● | | ● | ● | | ● | | | | TiAlN |
| | | PC9530 | M20–M35 | Medie lavorazioni, sgrossatura in fresatura con taglio interrotto di acciaio inossidabile | | ● | | | | | ● | | | TiAlN |
| | | PC3545 | M30–M50 | Sgrossatura/taglio pesante in fresatura con taglio interrotto di acciaio inossidabile | | ● | | | | | | | | TiN TiAlN |
| | | PC3030T | M20–M30 | Filettatura di acciaio inossidabile | | | | | ● | | | | | TiAlN |
| | | PC210 | M15–M30 | Uso generico E/M ad alte velocità di acciaio inossidabile | | | | | | | | | ● | ★Nuovo rivestimento TiAlN (Elevata durezza / resistente all'ossidazione) |
| | | PC205F | M15–M30 | Foratura (generica)/ inferiore a ϕ20 per punte integrali | | | | | | | | ● | | TiAlN |
| | | PC225F | M20–M35 | Foratura (generica)/ superiore a ϕ16 per punte integrali con refrigerante | | | | | | | | ● | | TiAlN |
| | S | PC8110 Nuovo | S01–S20 | Medie lavorazioni e finitura in tornitura di acciaio legato resistente al calore | ● | | | ● | | ● | | | | ★Nuovo rivestimento TiAlN (Elevata durezza / resistente all'ossidazione) |
| | | PC5300 Nuovo | S15–S25 | Medie lavorazioni e sgrossatura in tornitura/fresatura di acciaio legato resistente al calore | ● | ● | ● | ● | ● | ● | ● | | ● | ★Nuovo rivestimento TiAlN (Elevata durezza / resistente all'ossidazione) |
| | | PC3545 | S30–S50 | Medie lavorazioni e taglio pesante interrotto in fresatura di acciaio legato resistente al calore | | ● | | | | | | | | TiN TiAlN |
| | | PC210 | S15–S30 | Uso generico E/M per acciaio legato resistente al calore | | | | | | | | | ● | ★Nuovo rivestimento TiAlN (Elevata durezza / resistente all'ossidazione) |
| | | PC205F | S15–S25 | Foratura (generica)/ inferiore a ϕ20 per punte integrali | | | | | | | | ● | | TiAlN |
| | | PC225F | S20–S35 | Foratura (generica)/ superiore a ϕ16 per punte integrali con refrigerante | | | | | | | | ● | | TiAlN |

## Tabella dei gradi KORLOY

| Cat. | ISO | Grado | Gamma | Applicazione e materiale lavorato | Tornitura | Fresatura | Sfacciatura | Scanalatura | Filettatura | Troncatura | Punte a inserti | Punte integrali | Frese integrali | Rivestimento |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Non rivestito | P | ST30A | P25–P35 | Lavorazioni generiche dell'acciaio | ● | | ● | | ● | ● | | | | |
| | K | H01 | K05–K15 | Finitura di ghisa, materiale non ferroso (alluminio ecc.) | ● | | | ● | | | ● | | ● | |
| | | PC210C (Nuovo) | N10–N20 | Finitura di ghisa | ● | ● | | | | | | | | |
| | | G10 | K15–K25 | Medie lavorazioni di ghisa | ● | ● | | ● | | | | | | |
| | N | H01 | N05–K15 | Finitura di ghisa, materiale non ferroso (alluminio ecc.) | ● | | | ● | | | ● | | ● | |
| Cermet | P | CC105 | P01–P10 | Taglio leggero ad alte velocità di acciaio (alesatura precisa) | ● | | | | | | | | | ★Nuovo rivestimento TiAlN (Elevata durezza / resistente all'ossidazione) |
| | | CC115 | P10–P20 | Medie lavorazioni, taglio leggero ad alte velocità di acciaio | ● | | | | | | | | | TiN / TiAlN |
| | | CC125 | P15–P25 | Medie lavorazioni e sgrossatura in fresatura di acciaio | ● | | | | | | | | | TiN / TiAlN |
| | | CN1000 (Nuovo) | P05–P15 | Lavorazioni ad alte velocità di acciaio (metalli sinterizzati) | ● | | | | | | | | | |
| | | CN20 | P15–P25 | Uso generico in tornitura/ fresatura di acciaio | ● | ● | | ● | ● | ● | | | | |
| | | CN2000 | P10–P20 | Medie lavorazioni, sgrossatura in tornitura/fresatura di acciaio | ● | | | ● | | ● | | | | |
| | | CN30 | P20–P30 | Sgrossatura in fresatura di acciaio | ● | | | | | | | | | |
| | K | CN1000 | K05–K10 | Lavorazione di ghisa ad alte velocità | ● | | | | | | | | | |
| cBN | H | DBNX10 | H01–H10 | Taglio continuo ad alte velocità di acciaio resistente al calore | ● | | | | | | | | | |
| | | DBNX20 | H05–H15 | Lavorazioni altamente efficienti di acciaio resistente al calore | ● | | | | | | | | | |
| | | DBN210 | H10–H20 | Taglio continuo ad alte velocità/ leggero interrotto di acciaio resistente al calore | ● | | | | | | | | | |
| | | DBNX25 | H15–H25 | Taglio interrotto ad alte velocità di acciaio resistente al calore | ● | | | | | | | | | |
| | | DBN250 | H15–H25 | Taglio continuo, interrotto di acciaio resistente al calore | ● | | | | | | | | | |
| | | DBN350 | H25–H35 | Taglio interrotto di acciaio resistente al calore (taglio pesante interrotto) | ● | | | | | | | | | |
| | K | DBN500 | K01–K10 | Taglio molto pesante di ghisa ad alte velocità | ● | | | | | | | | | |
| | | DBN700 | K05–K15 | Lavorazione di ghisa ad alte velocità | ● | ● | | | | | | | | |
| PVD | N | DP90 | N01–N10 | Metallo duro sinterizzato, sgrosstura cermici, leghe ad alto tenore di Si-Al, roccia, pietra | ● | | | | | | | | | |
| | | DP150 | N05–N15 | Leghe ad alto tenore di Si-Al, lega di rame, gomma, legno, carbonio | ● | | | | | | | | | |
| | | DP200 | N10–N20 | Plastica, legno, finitura di alluminio | ● | | | | | | | | | |
| DLC | N | PD1000 | N01–N20 | Tornitura di materiale non ferroso (alluminio ecc.) | ● | | | | | | | | | DLC |
| | | PD2000 | N01–N20 | Fresatura di materiale non ferroso (alluminio ecc.) | | ● | | | | | | | | DLC |
| | | PD3000 | N01–N20 | Lavorazione E/M di materiale non ferroso (alluminio ecc.) | | | | | | | | | ● | DLC |
| Rivestimento diamante | N | ND1000 | N01–N20 | Tornitura di materiale non ferroso (grafite, alluminio, bronzo) | ● | | | | | | | | | Rivestimento diamante |
| | | ND2000 | N01–N20 | Fresatura di materiale non ferroso (grafite, alluminio, bronzo) | | ● | | | | | | | | |
| | | ND3000 (Nuovo) | N01–N20 | Lavorazione E/M di materiale non ferroso (grafite, alluminio, bronzo) | | | | | | | | | ● | |

## Comparazione dei Gradi di tornitura

### WC

| ISO | KORLOY | SUMITOMO | KYOCERA | ISCAR | SANDVIK | SECO | KENNAMETAL | TOSHIBA | MITSUBISHI | HITACHI | VALENITE | WALTER | TAECUTEC | NTK | DIJET |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tornitura P | ST50E<br>ST10<br>ST15<br>ST20<br>MA2<br>ST30<br>ST30A<br>ST30N<br>ST40 | ST10P<br>ST20E<br>A30<br>ST40E | PW30 | IC50M<br>IC54 | S1P<br>SM30<br>S30T<br>S6 | TTX<br>TTM<br>TTR | K45<br>KM<br>K420 | TX10S<br>TX20<br>TX30<br>TX40 | STi10T<br>STi20T<br>UTi20T | SRN5<br>WS20B<br>EX35<br>EX40<br>EX45 | S1F<br>VC6<br>VC5<br>VC56 | | P10<br>P20<br>P30<br>P40 | | |
| Tornitura M | U10<br>U20<br>U40 | U10E<br>U2<br>A30<br>A40 | | | H13A<br>H10F | AT10<br>AT15<br>TTR | K2885<br>K2S | TU10<br>TU20<br>TU40 | UTi20T | WAM10B<br>EX35 | VC27<br>VC28 | | M10<br>M20<br>M40 | | |
| Tornitura K | H02<br>H01<br>H05<br>H10<br>G10 | h1<br>G10E | KW10H | IC4<br>IC20<br>IC28 | H1P<br>H10F | THM<br>THR | K68<br>K8735 | TH03<br>TH10<br>KS20 | HTi10T<br>HTi20T | WH05<br>W10<br>WH20 | VC3<br>VC2<br>VC1 | | K10<br>K20<br>K20M<br>K30 | | |

### Rivestimento CVD

| ISO | KORLOY | SUMITOMO | KYOCERA | ISCAR | SANDVIK | SECO | KENNAMETAL | TOSHIBA | MITSUBISHI | HITACHI | VALENITE | WALTER | TAECUTEC | NTK | DIJET |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tornitura P | NC3010★<br>NC3020<br>NC3120<br>NC3030<br>NC5330★<br>NC500H | AC700G<br>AC820P<br>AC830P | CA5505<br>CA5515<br>CA5525<br>CA5535 | IC8150<br>IC8250<br>IC8350 | GC4205<br>GC4215<br>GC4225<br>GC4235 | TP1000<br>TP1500<br>TP2500<br>TP3000 | KCP05<br>KCP10<br>KU30T<br>KCP25<br>KCP40 | T9005<br>T9015<br>T9025<br>T9035 | UE6105<br>UE6110<br>UE6020<br>UE6035 | HG8010<br>HG8025 | VP5515<br>VP5525<br>VP5535 | WPP01<br>WPP05<br>WPP10<br>WPP20<br>WPP30 | TT8115<br>TT3500<br>TT5100<br>TT7100 | CP5 | JC110V<br>JC215V<br>JC325V<br>JC450 |
| Tornitura M | NC9020<br>NC9025★ | AC610M<br>AC630M | CA6515<br>CA6525 | IC9025 | GC2015<br>GC2025 | TM2000<br>TM4000 | KCM15<br>KCM25<br>KCM35 | T6030 | US7020<br>US735 | GM25<br>GX30 | VP8515<br>VP8525 | WAM20<br>WAM30 | TT5100 | | JC5003<br>JC110V<br>JC5015 |
| Tornitura K | NC6105★<br>NC6110★<br>NC315K | AC410K<br>AC300G<br>AC700G | CA4110<br>CA4115<br>CA4120<br>CA4125<br>CR7015 | IC5005<br>IC5010<br>IC428<br>IC9150 | GC3205<br>GC3210<br>GC3215 | TK1000<br>TK2000 | KCK05<br>KCK15<br>KCK20 | T5105<br>T5115<br>T5125 | UC5105<br>UC5115 | HG3305<br>HG3315<br>GM8015<br>GM8020 | VP1505<br>VP1510<br>VP5515 | WAK10<br>WAK20 | TT7310<br>TT1300 | CP2<br>CP5 | JC105V<br>JC110V<br>JC215V |

### RIVESTIMENTO PVD

| ISO | KORLOY | SUMITOMO | KYOCERA | ISCAR | SANDVIK | SECO | KENNAMETAL | TOSHIBA | MITSUBISHI | HITACHI | VALENITE | WALTER | TAECUTEC | NTK | DIJET |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tornitura P | PC230<br>PC3535<br>PC5300★<br>PC3545 | | PR1005<br>PR915<br>PR1115<br>PR930<br>PR1025<br>PR630<br>PR660 | IC507<br>IC808★<br>IC830★<br>IC908<br>IC3028<br>IC330★ | GC1025<br>GC4125 | CP200<br>CP250<br>CP500 | KU10T<br>KU25T | AH710<br>GH730<br>AH330<br>AH740<br>AH120<br>GH330 | VP15TF<br>VP20MF | IP2000<br>IP3000 | VC907<br>VC927<br>VC905 | WTA43<br>WTA41 | TT5030 | | JC5003<br>JC5015 |
| Tornitura M | PC8110★<br>PC5300★<br>PC9030 | AC510U<br>EH510Z<br>AC520U<br>EH520Z<br>AC530U★ | PR915<br>PR930<br>PR1125<br>PR630<br>PR660 | IC808★<br>IC907<br>IC3028<br>IC830★<br>IC330★ | GC1005<br>GC1105★<br>GC1020<br>GC1025<br>GC4125 | CP200<br>CP250<br>CP500 | KC5010<br>KC5510★<br>KC5025<br>KC5525 | AH330<br>GH330<br>AH120<br>GH730<br>AH140 | VP05RT<br>VP10RT<br>VP15TF<br>VP20MF | IP50S★<br>IP100S★ | VC929<br>VC927<br>VC902<br>VC901<br>VC905 | | TT5030 | ZM3<br>QM3<br>VM1<br>TAS | JC5003<br>JC5015 |
| Tornitura K | PC5300★ | EH510Z<br>EH520Z | | IC5100★<br>IC810★<br>IC220<br>IC908<br>IC228 | | CP200<br>CP250<br>CP500 | | AH110<br>GH110<br>AH120 | | CY110H | VC929<br>VC903<br>VC927<br>VC902<br>VC901<br>VC907 | | TT5030 | | |
| S | PC8110★<br>PC5300★ | AC510U<br>AC520U | PR915<br>PC660 | IC808★<br>IC907<br>IC3028 | GC1105<br>GC1025 | TS2000★<br>CP500<br>TS2500★ | KC5010<br>KC5025 | AH110<br>AH120 | VP05RT<br>VP10RT<br>VP15TF | | | | TT5030 | | |

### Cermet

| ISO | KORLOY | SUMITOMO | KYOCERA | ISCAR | SANDVIK | SECO | KENNAMETAL | TOSHIBA | MITSUBISHI | HITACHI | VALENITE | WALTER | TAECUTEC | NTK | DIJET |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tornitura P | CN1000<br>CC115★<br>CN2000<br>CN20 | T110A<br>T2000Z★<br>T1200A<br>T3000Z★ | PV30★<br>TN30<br>PV60★<br>TN60<br>TN6020<br>TN90 | IC20N<br>IC520N<br>IC30N<br>IC530N | CT5015<br>CT525<br>GC1525★ | CM<br>C15M | HT2<br>KT125<br>HT5<br>KT175<br>KT195M | NS520<br>GT530★<br>NC530<br>NC540<br>NC730 | NX2525<br>NX3035<br>UP35N★<br>AP25N★<br>NX335 | CH350<br>CZ25★<br>CH530<br>CH550<br>CH570 | VC83 | WTA43★<br>WTA41★ | PV3010★<br>CT3000 | T3N<br>T15<br>N20<br>C30<br>N40 | LN10<br>CX50<br>CX75<br>CX90<br>CX99 |
| Tornitura M | | T1200A | | | | | | | NX2525 | | | | | | LN10<br>CX75<br>CX99 |
| Tornitura K | CN1000 | T110A<br>T1200A | | | | | | | NX2525 | | | | CT3000 | T15 | LN10<br>CX75 |

★ : Cermet rivestito PVD ★ : Nuovo grado

# Comparazione dei Gradi di fresatura

## Rivestimento CVD

| ISO | | KORLOY | SUMITOMO | KYOCERA | ISCAR | SANDVIK | SECO | KENNAMETAL | TOSHIBA | MITSUBISHI | HITACHI | VALENITE | WALTER | TAECUTEC | NTK | DIJET |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fresatura | P | NC5330★<br>NCM325<br>NCM335 | ACP100 | | IC520M<br>IC635 | GC4220<br>GC4230<br>GC4240 | T20M<br>T250M<br>T350M | | T325<br>T3030 | F7030 | | SM245 | WQM15<br>WKP25<br>WQM25<br>WKP35<br>WQM35 | TT7800 | QM3 | |
| | M | NC5330★<br>MCM325<br>NCM335 | | | | GC2040 | MH1000<br>MP2500 | | | | | | WQM25<br>WTP35<br>WXP45 | | | |
| | K | NC5330★ | ACK100<br>ACK200 | | IC4050 | GC3220 | MK1500<br>MK3000 | KC992M | T1015 | F5010 | | V01<br>VN8 | WAK15<br>WKP25<br>WKP35 | | | |

## RIVESTIMENTO PVD

| ISO | | KORLOY | SUMITOMO | KYOCERA | ISCAR | SANDVIK | SECO | KENNAMETAL | TOSHIBA | MITSUBISHI | HITACHI | VALENITE | WALTER | TAECUTEC | NTK | DIJET |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fresatura | P | PC210F<br>PC3500<br>PC3525<br>PC3535<br>PC5300★<br>PC3545 | ACZ310<br>ACP200<br>ACZ330<br>ACP300<br>ACZ350 | PR730<br>PR830<br>PR630<br>PR660 | IC903<br>IC908<br>IC950<br>IC1008<br>IC928 | GC1010<br>GC1025<br>GC1030<br>GC1030 | MP3000★<br>F25M<br>F30M<br>F40M<br>T60M | KC522M<br>KUC20M<br>KC525M<br>KUC30M<br>KC935M<br>KC7140<br>KC720 | GH330<br>AH120 | AP20M<br>GP20M<br>VP15TF<br>UP20M<br>VP30RT | ATH80D<br>PCA08M<br>ACS05E<br>PCA12M<br>PC20M<br>JX1005<br>TB6005<br>JX1020<br>CY9020<br>TB6045<br>CY250<br>PTH30E<br>PTH40H | VC935 | | TT7070<br>TT7080<br>TT7030<br>TT8020 | | JC5003<br>JC5015<br>JC5030<br>JC5040 |
| | M | PC5300★<br>PC9530<br>PC3545 | ACP200<br>ACP300<br>ACZ350 | PR730<br>PR1025<br>PR630<br>PR660 | IC903<br>IC900<br>IC250<br>IC928<br>IC328 | GC1125<br>GC1025<br>GC2030<br>GC1030 | F25M<br>F30M<br>F40M | KC5510<br>KC7020<br>KC522M<br>KC725M<br>KC735M<br>KC7030<br>KC722 | AH120<br>AH140 | | JX1020<br>CY9020<br>JX1015<br>TB6020<br>CY250<br>JX1045<br>TB6045<br>JX1060<br>TB6060 | VC928<br>VC902<br>VC901 | WQM35<br>WSP45 | TT9030<br>TT9080<br>TT8020 | | JC5003<br>JC5015<br>JC5030<br>JC5040 |
| | K | PC8110★<br>PC6510<br>PC5300★ | | PR510<br>PR905 | DT7150<br>IC900<br>IC910<br>IC950<br>IC350 | | | KC510M<br>KC915M<br>KC520M | AH120 | VP10MF<br>VP15TF<br>VP20RT | | VC903<br>VC928<br>VC902<br>VC901 | | TT6290<br>TT6030<br>TT6060 | | JC5003<br>JC5015 |
| | S | PC5300★ | AC520U | PC660 | IC328 | GC1025 | TS2500 | KC510M | | VP15TF | ACS05E | | | TT9030 | | |

## Cermet

| ISO | | KORLOY | SUMITOMO | KYOCERA | ISCAR | SANDVIK | SECO | KENNAMETAL | TOSHIBA | MITSUBISHI | HITACHI | VALENITE | WALTER | TAECUTEC | NTK | DIJET |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fresatura | P | CN20<br>CN30 | T250A | TN100M<br>TC60M | IC30N | | | KT195M | NS540<br>NS740 | NX2525<br>NX4545 | CH550<br>CH570 | | | CT3000<br>CT5000 | C50 | |
| | M | | T250A | | | CT530 | | | | | | | | | | |
| | K | | | | | | | | | NX2525 | | | | | | |

★ : Cermet rivestito PVD ★ : Nuovo grado


Total Tooling System
KORLOY

I N D I C E

# Informazioni sui prodotti classici

M

## Prodotti classici


Grado M02
Portainserti per esterno M02
Fine Tool M02
Utensili a filettare M03
Mill Max M03
Cen Mill M03
Jip Drill M03




# M Informazioni sui prodotti classici

## Grado

| Codice ISO | | Vecchio grado | Nuovo grado |
|---|---|---|---|
| Grado di rivestimento | P | NC310 | NC3010 |
| | | NC320 | NC3020,NC3120 |
| | | NC330 | NC3030 |
| | M | PC3530,PC3525,PC3535 | PC3500 |
| | K | NC305K | NC6105 |
| | S | PC8010 | PC8110 |
| | P, M, K, S | PC8520,PC215K | PC5300 |
| Cermet | | CN100 | CN1000 |
| | | CT10, CN200 | CN2000 |

- Korloy è costantemente impegnata nella progettazione di utensili e gradi tecnologicamente avanzati in grado di affrontare condizioni di taglio ad alte velocità ed elevati avanzamenti
- Korloy garantisce prestazioni migliori e un'ampia scelta di articoli per i nuovi gradi

## Portainserti per esterno

| Articolo | Inserto | Vecchie parti di ricambio | | | | | | Nuovo portainserti | Pag. |
|---|---|---|---|---|---|---|---|---|---|
| | | Leva | Vite | Sede | Spina | Chiave | Chiave della spina | | |
| **PCBNR□□□□-□19** | CN**1906 | LV6 | VHX1027 | SC63 | SP6 | HW40L | - | PCBNR□□□□-□19N | **B**68 |
| **PCBNR□□□□-□25** | CN**2509 | LV8 | VHX1236 | SC83 | SP8 | HW50L | - | PCBNR□□□□-□25N | |
| **PCLNR□□□□-□19** | CN**1906 | LV6 | VHX1027 | SC63 | SP6 | HW40L | - | PCLNR□□□□-□19N | **B**69 |
| **PCLNR□□□□-□25** | CN**2509 | LV8 | VHX1236 | SC83 | SP8 | HW50L | - | PCLNR□□□□-□25N | |
| **PSBNR□□□□-□19** | SN**1906 | LV6 | VHX1027 | SS63 | SP6 | HW40L | - | PSBNR□□□□-□19N | **B**72 |
| **PSBNR□□□□-□25** | SN**2507 | LV8 | VHX1236 | SS83 | SP8 | HW50L | - | PSBNR□□□□-□25N | |
| **PSDNN□□□□-□19** | SN**1906 | LV6 | VHX1027 | SS63 | SP6 | HW40L | - | PSDNN□□□□-□19N | **B**72, **B**73 |
| **PSDNN□□□□-□25** | SN**2507 | LV8 | VHX1236 | SS83 | SP8 | HW50L | - | PSDNN□□□□-□25N | |
| **PSKNR□□□□-□19** | SN**1906 | LV6 | VHX1027 | SS63 | SP6 | HW40L | - | PSKNR□□□□-□19N | **B**73 |
| **PSKNR□□□□-□25** | SN**2507 | LV8 | VHX1236 | SS83 | SP8 | HW50L | - | PSKNR□□□□-□25N | |
| **PSSNR□□□□-□19** | SN**1906 | LV6 | VHX1027 | SS63 | SP6 | HW40L | - | PSSNR□□□□-□19N | **B**74 |
| **PSSNR□□□□-□25** | SN**2507 | LV8 | VHX1236 | SS83 | SP8 | HW50L | - | PSSNR□□□□-□25N | |

- Le vecchie parti di ricambio non sono intercambiabili con quelle del nuovo portainserti
- Il nuovo portainserti è economico, garantisce ottime prestazioni e qualità eccellente

| Articolo | Inserto | Vecchie parti di ricambio | | | | Nuovo portainserti | Pag. |
|---|---|---|---|---|---|---|---|
| | | Staffa a cuneo | Vite | Rondella | Altro | | |
| **WTEEN□□□□-□16 (Old Type:MTEEN)** | TN**1604 | CMH5R1 | MHX0523 | WA4 | Come sopra | WTEEN□□□□-□16 | **B**77 |
| **WTJNR□□□□-□16 (Old Type:MTJNR)** | TN**1604 | CMH5R1 | MHX0523 | WA4 | Come sopra | WTJNR□□□□-□16 | **B**77 |
| **WTXNR□□□□-□16 (Old Type:MTXNR)** | TN**1604 | CMH5R1 | MHX0523 | WA4 | Come sopra | WTXNR□□□□-□16 | **B**77 |

- Le vecchie parti di ricambio non sono intercambiabili con quelle del nuovo portainserti
- Il nuovo portainserti è economico, garantisce ottime prestazioni e qualità eccellente

## Fine tool

| Articolo | Inserto | | Vecchie parti di ricambio | | Nuovo portainserti | Pag. |
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| | FTIH11**** | FTG11, FTT11, FTF11 | PTKA03510 | TW15P | | |
| | FTIH14**** | FTG14, FTT14, FTF14 | PTKA0412 | TW15P | | |
| | FTIH16**** | FTG16, FTT16, FTF16 | PTKA0512 | TW20P | | |

- I vecchi inserti e le vecchie parti di ricambio non sono intercambiabili con i nuovi fine tool
- I nuovi fine tool sono economici, garantiscono ottime prestazioni e qualità eccellente

## Utensili a filettare

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| | ~ETH4**R | ECTR4*** | CH6R4 | CHX0621 | ST42C1 | SHX0310 | CR05 | HW20L,HW30L | | |
| ITH | ~ITH2**R | ICTR2*** | CH5R3 | CHX0513 | ST32C1 | FTKA02565 | CR04 | TW07P | IR(L)H-* | D25 |
| | ~ITH3**R | ICTR3*** | CH5R3 | CHX0513 | ST32C1 | SHX0310 | CR04 | TW15P,HW20L,HW25L | | |
| | ~ITH4**R | ICTR4*** | CH6R4 | CHX0621 | ST42C1 | SHX0310 | CR05 | HW20L,HW30L | | |

• I vecchi inserti e le vecchie parti di ricambio non sono intercambiabili con i portainserti a filettare
• I nuovi fine tool sono economici, garantiscono ottime prestazioni e qualità eccellente

## Mill-Max

| Articolo | Inserto | Vecchie parti di ricambio | | | | | Nuova fresa | Pag. |
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| AD(ADM)5000 | SD**1504 | LAS5R/L | WASR/L | WTX0817 | LTX0512 | TW25 | ADN(ADNM)5000 | E30 |
| EP(EPM)4000 | SP**1203 | LES4R/L<br>LES4R1/L1(Φ80 ~ Φ100) | WESR/L | WTX0817<br>WTX0813((Φ80 ~ Φ100) | LTX0512 | TW25 | EPN(EPNM)4000 | E35 |
| EP(EPM)5000 | SP**1504 | LES5R/L<br>LES5R1/L1(Φ80 ~ Φ100) | WESR/L | WTX0817<br>WTX0813((Φ80 ~ Φ100) | LTX0512 | TW25 | EPN(EPNM)5000 | E36 |
| PP(PPM)4000 | TP**2204 | LPT4R/L<br>LPT4R1/L1(Φ80 ~ Φ100) | WESR/L | WTX0817<br>WTX0813((Φ80 ~ Φ100) | LTX0512 | TW25 | PPN(PPNM)4000 | E38 |

• Le parti di ricambio non sono intercambiabili con le nuove frese Mill-Max
• Le nuove frese Mill-Max sono economiche, garantiscono ottime prestazioni e qualità eccellente

## Cen-mill

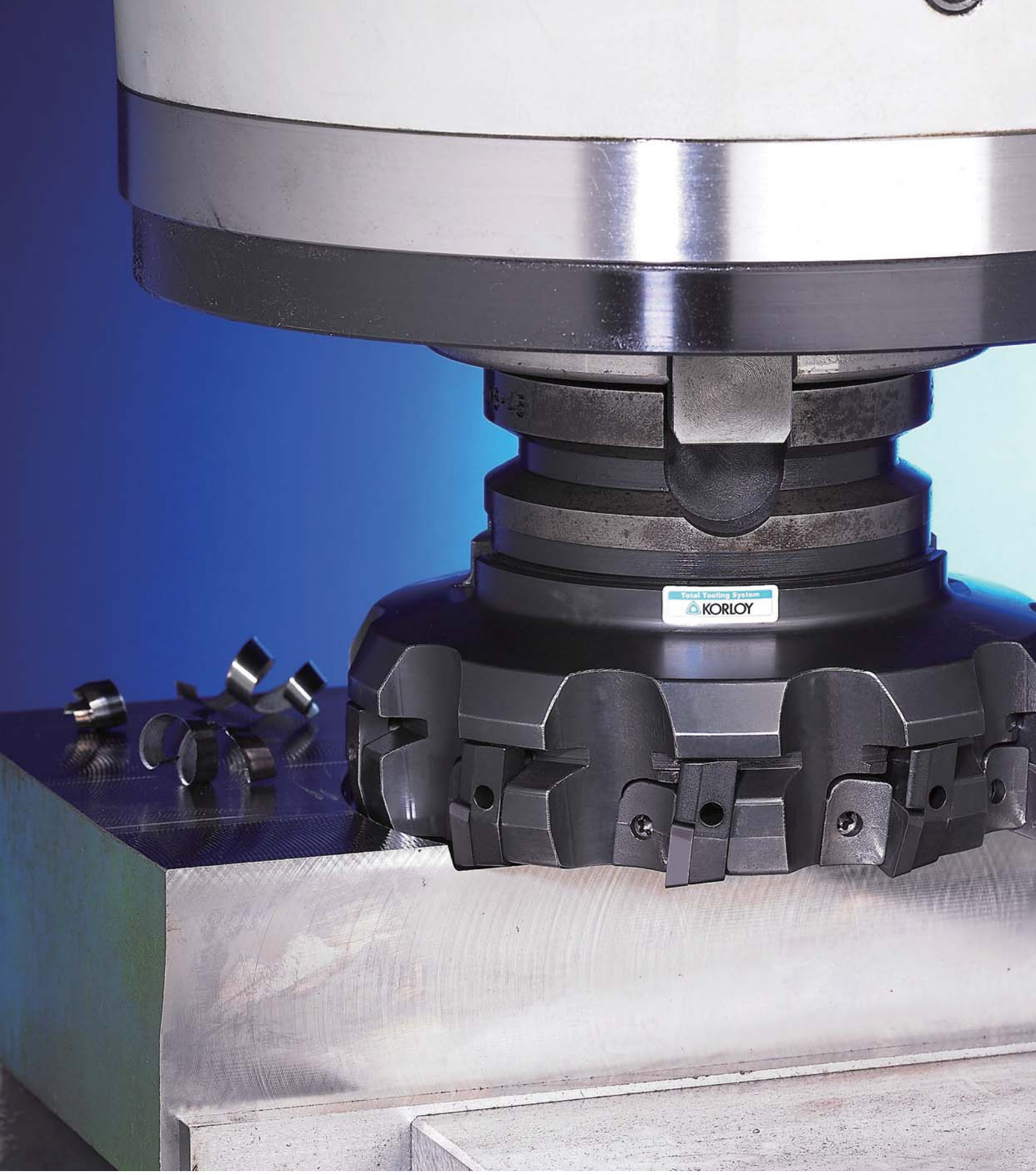
| Articolo | Inserto | | Vecchie parti di ricambio | | Nuovo prodotto | Pag. |
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| | Φ32, 40, 50 | MCMT09T308EN<br>ZCMT09T308ER | FTNA0408 | TW15P | | |
| LE(LEM) | LOCX1205ZZ | | FTNB0411 | TW15P | AMC****M | E88~E89 |
| SE | Φ25 | MPMT090308 | FTNA0408 | TW15L | AMS****MH | E99 |
| | Φ32, 40 | MPMT120408 | FTNA0513 | TW20L | | |
| TM | MIT100<br>MET150,200,300,400 | | FTNA0408<br>FTNA0513(TM950) | TW15L<br>TW20L(TM950) | TMS(I) | D42 |
| Modifica codice | SPG(M)N1203** | | | | CE45-****R-S32<br>(Nuovo codice) | E169 |

• I vecchi inserti e le vecchie parti di ricambio non sono intercambiabili con i nuovi utensili di fresatura
• Nuovo prodotto: la nuova curvatura del tagliente di Alpha mill garantisce un'ampia gamma di lavorazioni e ottime prestazioni
• I nuovi utensili di fresatura sono economici, garantiscono ottime prestazioni e qualità eccellente

## Jip drill

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| | ~JD250 | WCMT040208-C20 | | | | |
| | ~JD300 | WCMT050308-C20 | FTNA0307 | TW09P | | |
| | ~JD410 | WCMT06T308-C20 | FTGA03508 | | | |
| | ~JD580 | WCMT080408-C20 | FTNA0408 | TW15P | | |

• I vecchi inserti e le vecchie parti di ricambio non sono intercambiabili con la nuova punta a inserti
• La nuova punta a inserti è economica, garantisce ottime prestazioni e qualità eccellente


Total Tooling System
KORLOY

# INDICE

## Indice analitico

N



# N Indice analitico

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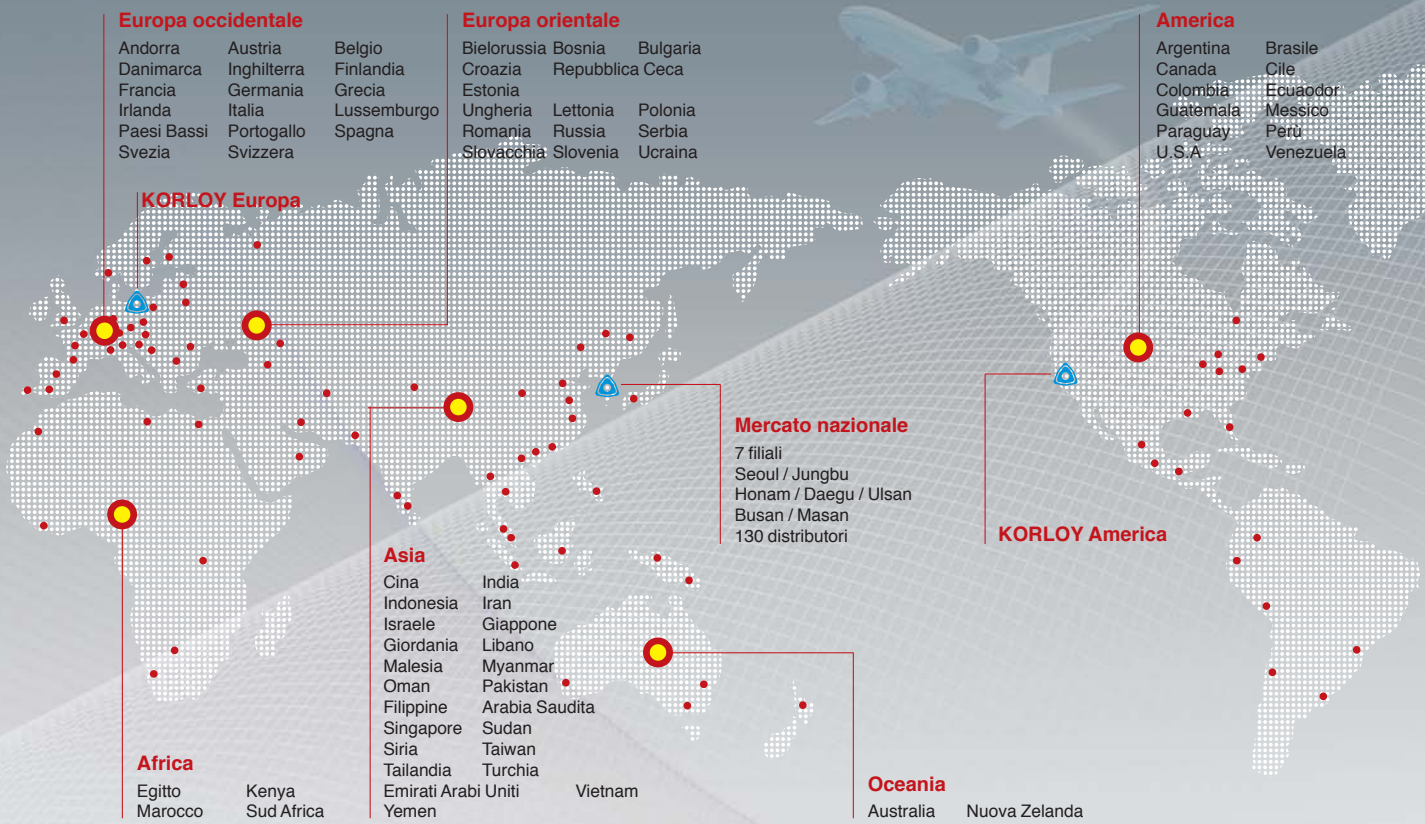
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