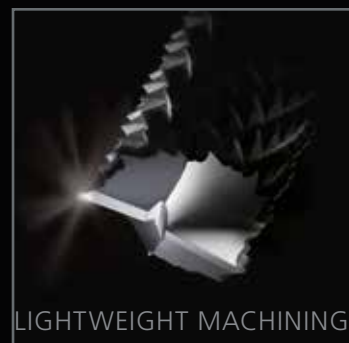


TOOLS PLUS IDEAS



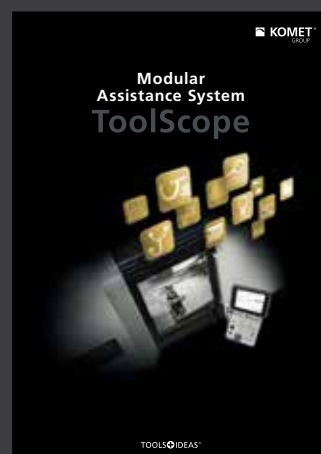
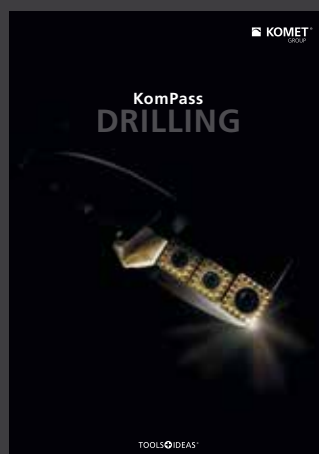
2017 | 2018

With innovative solutions and tool designs for bore machining, the KOMET GROUP holds a leading market role worldwide. Our developments for boring, reaming, tapping and milling contribute enormously to our customers' success.

THE CUTTING EDGE – Solutions for peak performance

NEW

In this "TOOLS PLUS IDEAS" catalogue, we provide you with detailed information about our innovations and about the additions of new products to already existing ranges. For further information regarding the different areas of our product range, please see the relevant special catalogues.



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PCD Face milling cutter ECO | PERFORMANCE | HPC

3D-printed tools – welcome to the machining revolution

The BENEFITS of 3D-printed tools:

- Their unique design affords productivity increases of up to 100% compared to conventional tools
- Lower cutting forces and minimised burring
- Reduced component weight – material is only used where necessary for optimum component functionality
- Optimised cooling channel design for improved chip evacuation and more effective cooling
- Greater design freedom – 3D printing is not restricted by conventional manufacturing rules. Innovative tool solutions thanks to new design freedom



Face milling cutter 88° KOMET® *hi.aeQ*

1Q80 tangential indexable insert with two cutting edges and Wiper geometry

BENEFITS for you:

- Boost productivity while producing the same surface quality
- Improve surface quality while maintaining the same productivity
- Optimum surface finish



Shoulder milling cutter KOMET® Quatron 90

When used together with the highly versatile Quatron indexable insert, the KOMET® Quatron 90 shoulder milling cutter with universal geometry produces shoulders that are step-free and exactly 90° – while reducing warehousing and logistics overheads. The stability and versatility of the KOMET® Quatron 90's cutting edges put it head and shoulders above the rest.

BENEFITS for you:

- The milling cutter runs exceptionally smoothly and quietly
- High material removal rate when plunge milling
- Universal W83 indexable insert reduces warehousing and logistics overheads
- Highly stable indexable insert for greater process reliability



NEW
► 20-28



NEW
► 16-19

Copy milling cutter 1Q54-KCM

BENEFITS for you:

- Eight usable cutting edges thanks to defined contact surfaces
- Indexable insert is secured in the insert seat to prevent it rotating in the insert seat during machining
- Low power consumption thanks to low cutting forces
- Quiet, low-vibration milling reduces the load on the spindle



NEW
► 20-28

Highly positive 1Q41-KFM face-milling cutter

- Indexable insert with eight cutting edges for cutting depths of up to $a_p = 4.5$ mm with a 43° lead angle
- Optimised face-cutting edge geometry for smooth surfaces accompanied by low axial forces
- Symmetrical face-cutting edge design allows use in left- and right-cutting tools
- Specialised topographies for roughing and finishing applications

BENEFITS for you:

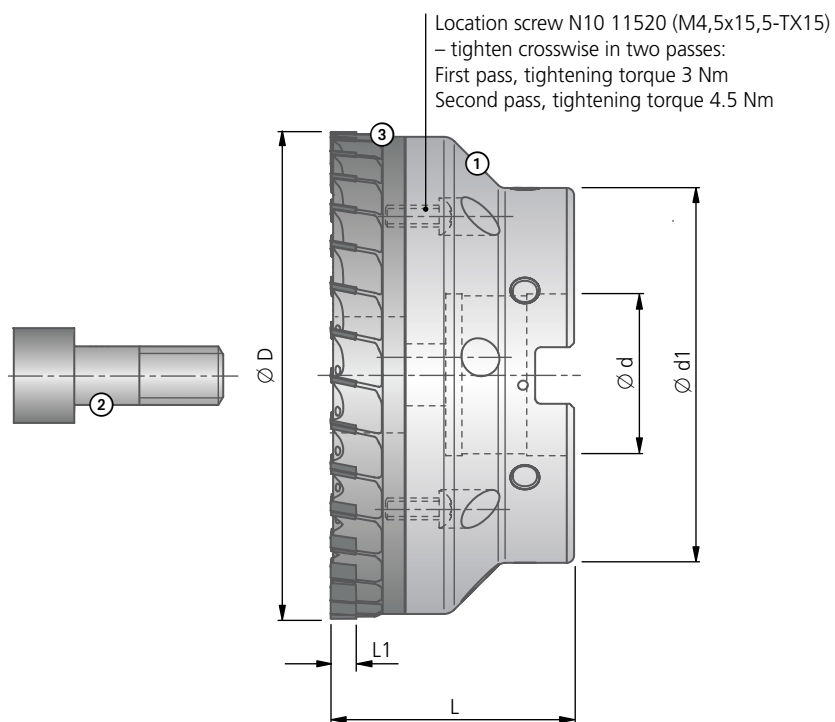
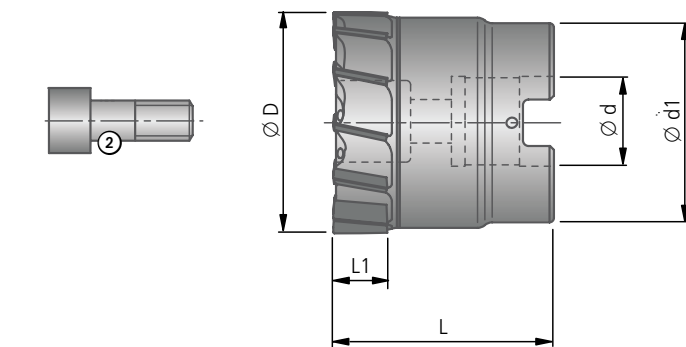
- Low component loading: Reduced breakage in cast iron machining
- Good chip clearance for optimum chip discharge
- Low cutting forces: Higher cutting depths also for low-performance machines, machining of unstable components, steady milling with a long projection



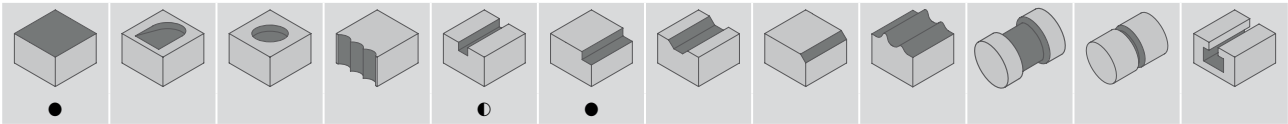
NEW

available in Q1 2018

PCD Face milling cutter ECO | PERFORMANCE | HPC



PCD Face milling cutter ECO | PERFORMANCE | HPC



Arbor milling cutter											
ØD	DIN 8030 form	Ød ^{H6}	Ød1	L	L1	Z	kg	Description	Order No.	Cylindrical screw ②	
										Article	Order No.
40	A	16	36	40	5	5	0,3	ECO	37163099004000	M8x25	55011 08025
						8		PERFORMANCE	37164099004000		
						12		HPC	37165099004000		
50	A	22	41	40	5	5	0,4	ECO	37163099005000	M10x25	55011 10025
						10		PERFORMANCE	37164099005000		
						16		HPC	37165099005000		

Supply includes milling cutter: with cylindrical screw ②.
Screwdriver see chapter "Information".

Arbor milling cutter								Milling ring ③	Basic body ①		
ØD	DIN 8030 form	Ød ^{H6}	Ød1	L	L1			Description	Order No.	Order No.	Cylindrical screw ②  Order No. Article
63	A	22	48	40	5	5	0,34	ECO	37128099006300	37166099006300	55011 10025 M10x25
						10		PERFORMANCE	37129099006300		
						20		HPC	37130099006300		
80	A	27	58	50	5	6	0,62	ECO	37128099008000	37166099008000	55011 12040 M12x40
						12		PERFORMANCE	37129099008000		
						24		HPC	37130099008000		
100	A	32	77	50	5	8	1,0	ECO	37128099010000	37166099010000	55011 16045 M16x45
						16		PERFORMANCE	37129099010000		
						32		HPC	37130099010000		

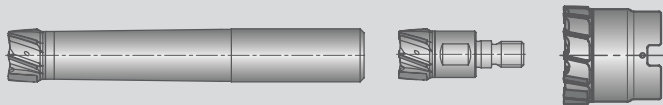
Supply includes milling cutter:
Basic body ① with location screws N10 11520 (M4,5x15,5-TX15) and cylindrical screw ②.
Please order milling ring ③ separately.
Screwdriver see chapter "Information".



Replacement milling rings are available ex stock as an exchange at a discounted price.
To do this, please send in the worn repairable tool with the order.

available in Q4 2017

Recommended cutting data

Guideline values for milling				PCD Face milling cutter ECO PERFORMANCE HPC								
Material group	Strength Rm (N/mm²)	Hardness HB	v _C (m/min) = Cutting speed f _Z (mm/tooth) = Milling feed Material									
				Ø 10		Ø 12		Ø 16 20 25 32		Ø 40 – 100		
				v _C m/min	f _Z mm/tooth	v _C m/min	f _Z mm/tooth	v _C m/min	f _Z mm/tooth	v _C m/min	f _Z mm/tooth	
N	6.1	≤350	≤100	non-alloy copper								
	6.2	≤700	≤200	short chip, brass, bronze, red brass	300-800	0,04-0,12	300-1000	0,04-0,15	300-1000	0,06-0,20	1000-1500	0,04-0,15
	6.3	≤700	≤200	long chip brass								
	6.4	≤500	≤470	Cu-Al-Fe alloy (Ampco)								
	7.1	≤350	≤100	Al, Mg non-alloy	400-1000	0,04-0,12	400-1500	0,04-0,15	400-1500	0,06-0,20	1000-3500	0,04-0,15
	7.2	≤600	≤180	Al wrought alloy, breaking strain (A 5) <14 %	400-1000	0,04-0,12	400-1500	0,04-0,15	400-1500	0,06-0,20	1000-3500	0,04-0,15
	7.3	≤600	≤180	Al wrought alloy, breaking strain (A 5) ≥14 %	400-1000	0,04-0,12	400-1500	0,04-0,15	400-1500	0,06-0,20	1000-3500	0,04-0,15
	7.4	≤600	≤180	Al cast alloy, Si <10 %	400-1000	0,04-0,12	400-1500	0,04-0,15	400-1500	0,06-0,20	1000-1500	0,04-0,15
	7.5	≤600	≤180	Al cast alloy, Si ≥10 %	400-1000	0,04-0,12	400-1500	0,04-0,15	400-1500	0,06-0,20	1000-1500	0,04-0,15
	8.1			thermoplastics								
8.2			thermosetting plastics									
8.3			fibre reinforced plastics	200-600	0,03-0,10	200-600	0,04-0,12	500-1200	0,05-0,15	500-1200	0,05-0,15	

3D-printed HPC PCD milling cutters

Face milling into flange using 20 mm dia. tool

The challenge:

Material: 3.2315 (AlSiMgMn)
 Workpiece: Connector
 Tool: Conventional 20 mm diameter tool with four teeth
 Machining task: Producing a 60 mm diameter collar with a flange facing, $a_p = 3$ mm, $a_e = 20$ mm
 Objective: Reduce machining time per unit

The solution:

20 mm dia. KOMET JEL® HPC PCD screw-in cutter with six teeth (37310001002000)

Cutting values:

$v_c = 1068$ m/min
 $= 17,000$ rpm
 $f_t = 0.1$ mm/tooth



Customer benefits:

The milling cutter runs very smoothly and quietly.
 Machining time per unit is reduced from 1 min 45 s to 55 s.

Machining time per unit is reduced by 48%

Face milling into filter housing using 32 mm dia. tool

The challenge:

Material: 3.2371 (AlSi7Mg0.3)
 Workpiece: Filter housing
 Tool: Conventional 50 mm diameter tool with seven teeth
 $v_c = 1600$ m/min, $f_t = 0.03$ mm/tooth
 Machining task: Milling various webs, lands, surfaces, reliefs and shoulders
 $a_p = 1-3$ mm, $a_e = 19-32$ mm
 Objective: Reduce machining time per unit

The solution:

32 mm dia. KOMET JEL® HPC PCD screw-in cutter with 10 teeth (37310001003200), A = 129 mm

Cutting values:

$v_c = 1206$ m/min = 12,000 rpm
 (max. speed)
 $f_t = 0.04$ mm/tooth



Customer benefits:

Machining time per unit is reduced from 1 min 23 s to 23 s.
 100 min machining time saved per day.

Machining time per unit is reduced by 72%

Face milling into cylinder head using 40 mm dia. tool

The challenge:

Material: 3.2371 (G-AlSi7Mg)
 Workpiece: Cylinder head
 Tool: Conventional tool with six teeth for roughing, $a_p = 2$ mm
 Machining task: Milling the contact surface
 Objective: Increase productivity

The solution:

KOMET JEL®
 40 mm dia. PCD arbour milling cutter with 12 teeth

Cutting values:

$v_c = 1382$ m/min
 $= 11,000$ rpm
 $f_t = 0.1$ mm/tooth = F 13,200 mm/min



Customer benefits:

This tool runs much more smoothly and quietly than conventional tools. No noticeable burr on the edge of the workpiece, unlike when conventional tools are used for machining.

Machining time per unit is reduced by 45%

Face milling into gearbox cover using 40 mm dia. tool

The challenge:

Material: EN AC-48000 (Al Si12CuNiMg)
 Workpiece: Gearbox cover
 Tool: Conventional 40 mm diameter tool with seven teeth
 Machining task: Milling webs or lands, $a_p = 1$ mm, requisite max. surface roughness $R_a = 1.6$ µm
 Objective: Increase productivity

The solution:

KOMET JEL®
 40 mm dia. PCD milling cutter with 12 teeth
 HSK-A63, A = 200 mm

Cutting values:

$v_c = 2000$ m/min
 $= 15,924$ rpm
 $f_t = 0.15$ mm/tooth

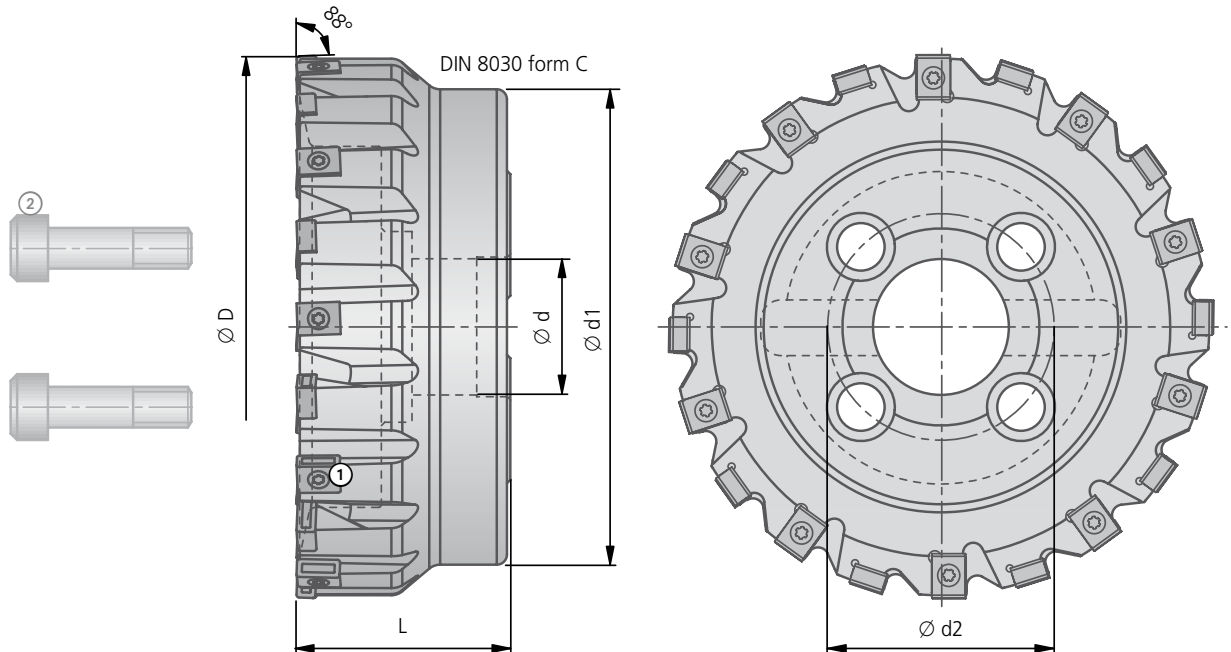
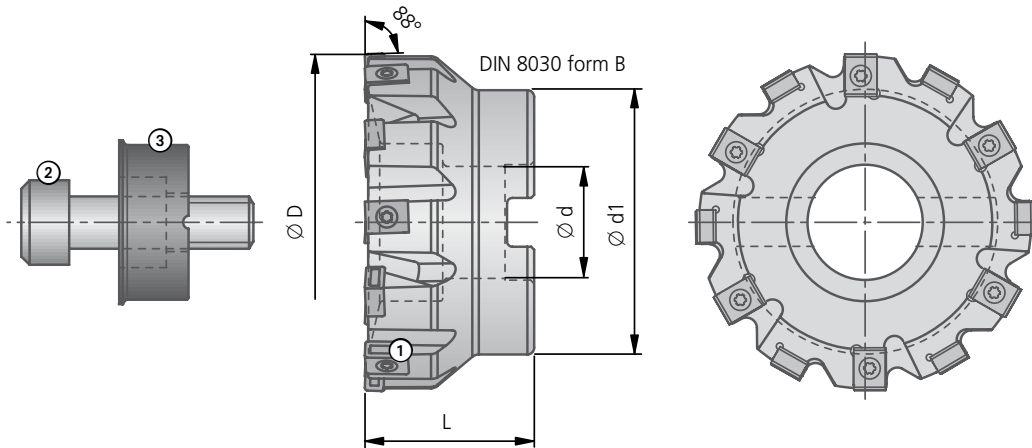
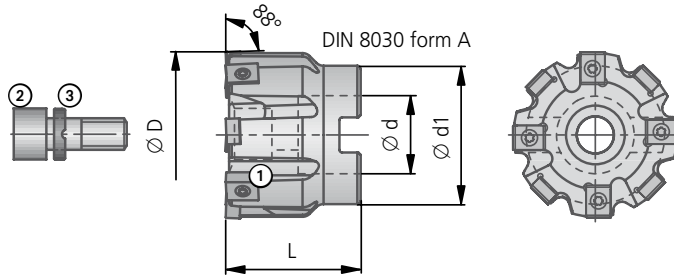


Customer benefits:

This tool runs much more smoothly and quietly than conventional tools, surface roughness $R_a = 1.15$ µm
 Tool life to date 107,000 parts, still in use.

Machining time per unit is reduced by 30%

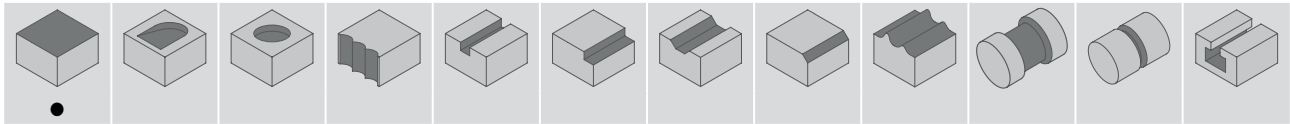
Face milling cutter 88°



a_p max. 3 mm | 4 mm

KOMET® hi.aeQ

Face milling cutter 88°



To reduce the surface roughness by as much as 80% compared to standard tipping, we recommend using the 1Q80 tangential indexable insert with ∇ iper geometry.

The indexable insert must only be installed horizontally, but any horizontal insert seat can be selected. If two ∇ iper indexable inserts are used, we recommend installing them opposite one another, but only ever horizontally.

Two indexable insert sizes with two coatings are available. These have to be adapted to the standard equipment. 1Q8020FW06...0 and 1Q8032FW08...0, both in BK KDA (Δ BK6115) and BK KEP (Δ BK2715).

Z = effective number of teeth for calculating v_f

Arbor milling cutter													Indexable insert		
ØD	Order No.	DIN 8030 form	Ød ^{H6}	Ød1	Bolt circle Ød2	L	a _p max	spindle speed max. rpm			Clamping screw ① 	Cylindrical screw ② 	Coolant sleeve ③ 		
											Order No. Article	Order No. Article	Order No.	Order No. ISO Code	Order No. ISO Code
40	F51 14040	A	16	36	–	40	3	15.000	6	0,36	N00 57251 S3076-8IP 2,25 Nm	55011 08025 M8x25	L01 01020  0,05	Q80 20050.06.. LNGU090406EN-05	1x 1Q8020FW06...0 LNGH0904ZNER-FW
50	F51 14050	A	22	41	–	40	3	13.000	8	0,36	N00 57251 S3076-8IP 2,25 Nm	55011 10025 M10x25	L01 01030  0,05		
63	F51 14060	A	22	48	–	40	4	10.000	8	0,52	N00 57411 S40101-15IP 4,3 Nm	55011 10025 M10x25	L01 01040  0,022	Q80 32000.01.. LNGU120508EN-05	NEW
80	F51 14080	B	27	60	–	50	4	9.000	10	0,99	N00 57411 S40101-15IP 4,3 Nm	55011 12040 M12x40	L01 01050  0,152	Q80 32210.08.. LNGU120508EN-21	
100	F51 14100	B	32	78	–	50	4	8.000	12	1,71	N00 57411 S40101-15IP 4,3 Nm	55011 16030 M16x30	L01 01060  0,17		
125	F51 14120	B	40	100	–	63	4	7.000	16	3,53	N00 57411 S40101-15IP 4,3 Nm	55011 20040 M20x40	L01 01070  0,396	Q80 32000.01.. LNGU120508EN-05	2x 1Q8032FW08...0 LNGH1205ZNER-FW
160	F51 14160	C	40	140	66,7	63	4	6.000	20	5,66	N00 57411 S40101-15IP 4,3 Nm	55011 12040 M12x40	–	Q80 32210.08.. LNGU120508EN-21	

For further details on selecting the cutting material, see page 13. Enter cutting material code ▲

Supply includes milling cutter $\varnothing$ 40 - 63 mm:

with clamping screws ① (pre-fitted with high-temperature paste, order no.: 47001 00105) and cylindrical screw ②.

Supply includes milling cutter $\varnothing$ 80 - 160 mm:

with clamping screws ① (pre-fitted with high-temperature paste, order no.: 47001 00105).

Supply includes coolant sleeve ③:

with cylindrical screw ②.

Please order inserts separately. Screwdriver see chapter "Information".

Recommendation: Change the clamping screws regularly to ensure the smooth running of the milling cutter.

● very good | ● good

Cutting values for milling: Page 13.

Application example face milling cutter 88°

Face milling of large cast material pump casing

Material:
0.7060 (EN-GJS-600-3)
Machine: Mazak BAZ
 $v_c = 360$ m/min
 $f_z = 0,15$ mm
 $f = 3,0$ mm/rev
 $a_p = 1,5$ mm

Quiet and quick machining



BENEFITS for you:

- High stability for high cutting efficiency thanks to the use of tangential screw-fit Q80 indexable inserts
- Eight usable cutting edges thanks to indexable inserts which are fitted in an alternately standing and lying arrangement
- Low power consumption thanks to low cutting forces and a low-vibration, quiet milling characteristic reduces the spindle loads
- This concept guarantees extremely high process reliability when combined with modern, matched substrates and coatings
- Both PVD and CVD-coated indexable inserts are available
- If internal coolant supply is used, optimum cooling of every cutting edge is achieved by using the coolant sleeve



1Q80 tangential indexable insert with two cutting edges and Wiper geometry

1. Boost productivity while producing the same surface quality

Increasing the feed rate with Wiper tipping achieves the same surface finish as standard tipping without Wiper geometry. (observe maximum feed rates)

2. Improve surface quality while maintaining the same productivity

Continuing to use the current feed rates produces significantly better surface quality.

3. Optimum surface finish

To achieve the optimum surface finish, reduce the recommended feed rates by as much as 40%. (See „Feed“ table).

Marks to prevent mistakes pointing in an axial direction towards the workpiece surface.

The indexable insert must only be installed horizontally, but any horizontal insert seat can be selected.

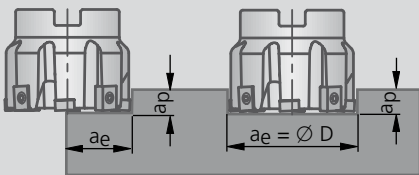
If two Wiper indexable inserts are used, we recommend installing them opposite one another, but only ever horizontally.

Two indexable insert sizes with two coatings are available. These have to be adapted to the standard equipment.

1Q8020FW06...0 and 1Q8032FW08...0, both in BK KDA (△BK6115) and BK KEP (△BK2715).

Example: Mill dia. 63 mm, Z=8, Material 0.7060 (EN-GJS-600-3)				
Indexable insert	f_z (mm)	v_c (m/min)	R_z (μm)	R_a (μm)
8× standard	0,3	160	25	4,4
7× standard / 1× Wiper	0,18	160	3,9	0,56

Recommended cutting data for face milling cutter 88°

		Feed f_z (mm/tooth) at a_e/D												
		$\leq 0,1$ (10%)			$> 0,1-0,2$ (10-20%)			$> 0,2-0,3$ (20-30%)			$> 0,3$ (30%)			
	P	1.0 2.0	0,13	0,31	0,48	0,09	0,22	0,35	0,08	0,18	0,29	0,06	0,16	0,26
		2.1 3.0	0,16	0,37	0,58	0,12	0,27	0,42	0,10	0,22	0,35	0,08	0,19	0,31
		4.0	0,13	0,26	0,39	0,09	0,19	0,28	0,08	0,15	0,23	0,06	0,13	0,21
		S	0,13	0,18	0,23	0,09	0,13	0,16	0,08	0,11	0,14	0,06	0,09	0,12
	M	6.0 6.1	0,13	0,18	0,23	0,09	0,13	0,16	0,08	0,11	0,14	0,06	0,09	0,12
		7.0	0,13	0,14	0,16	0,09	0,10	0,12	0,08	0,09	0,10	0,06	0,07	0,09
		K	0,26	0,47	0,68	0,19	0,34	0,49	0,15	0,28	0,41	0,13	0,24	0,36
	N		0,19	0,56	0,93	0,14	0,41	0,67	0,12	0,34	0,56	0,09	0,30	0,50

p.ex. mill dia. 100 mm, engagement width a_e 10 mm = $\frac{a_e}{D} = \frac{10}{100} = \text{Factor } 0,1$ (i.e. 10% of $\varnothing D$ are engaged)

		Cutting speed v_c (m/min)				
Geometry		Q80...-05			Q80...-21	
Coating type		CVD	PVD	PVD	PVD	PVD
Cutting material designation		BK6115	BK2715	BK2730	BK2730	BK7935
Cutting material code		6115	2715	2730	2730	7935
Material	Material example, material code DIN	Strength R_m (N/mm ²)	Hardness HB	Material group		
non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR) 1.0050 (E295)	≤ 500		1.0		
non-alloy / low alloy steels	1.0535 (C55) 1.7131 (16MnCr5)	500-900		2.0		
lead alloys	1.0718 (11SMnPb30)	<500		2.1		
low alloy steels	1.7225 (42CrMo4) 1.1221 (C60E)	>900		3.0		
high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	>900		4.0		
HSS				4.1		
super alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)		250	5.0		
titanium, titanium alloys	3.7115 (TiAl5Sn2.5)	400		5.1		
stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNiMo17-12-2)	≤ 600		6.0		
stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMoTi17-12-2)	<900		6.1		
stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)	>900		7.0		
gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)		180	8.0	150 - 330	140 - 250
alloy gray cast iron	0.6660 (GGL-NiCr20 2)		250	8.1	120 - 260	110 - 200
spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	≤ 600	130	9.0	140 - 300	130 - 230
spheroidal graphite cast iron, ferritic/perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GJS-55) 0.8055 (GTW-55)		230	9.1	120 - 260	110 - 200
spheroidal graphite cast iron, perlitic, malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	>600	250	10.0	110 - 230	100 - 180
alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)		200	10.1	110 - 230	100 - 180
vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2		300	10.2	90 - 200	90 - 150
copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)		90	12.0		
copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)		100	12.1		
wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)		60	13.0		
cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)		75	13.1		
cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)		100	14.0		

Cutting speed v_c can be increased by reducing the width of cutting edge engagement a_e

Tangential indexable inserts



Application range:

Roughing

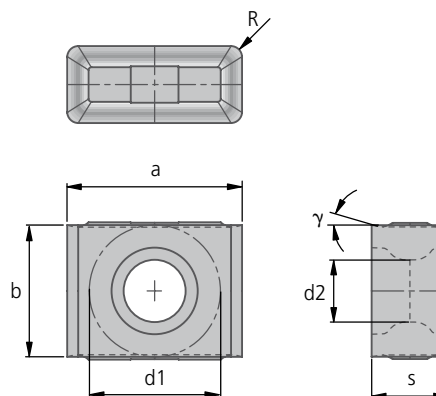
Face milling cutter KOMET® hi.aeQ

Setting angle $\alpha = 88^\circ$

Topography -05:

Cast materials, some steel materials

Cutter geometry:

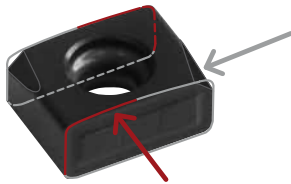


Substrate		Carbide									
Coating type		CVD	PVD	PVD							
Cutting material designation		BK6115	BK2715	BK2730							
ISO Code	Order No. Enter cutting material code				d1	d2	a	b	s	γ	R
LNGU 06T204 EN-05	Q80 09050.04..	▲	▲	▲	4,74	2,3	6,35	4,73	2,88	14°	0,4
LNGU 090406 EN-05	Q80 20050.06..	▲	▲	▲	7,26	3,4	9,52	7,25	4,17	14°	0,6
LNGU 120508 EN-05	Q80 32000.01..	▲	▲	▲	9,52	4,5	12,7	9,52	5,56	10°	0,8
Steel P		●		●	Order example: ISO Code LNGU 120508 EN-05 Cutting material BK2715 Order No. Q80 32000.012715						
Stainless steel M				●							
Cast iron K		●	●	●							
Non-ferrous metals N											
Superalloys and titanium S											
Hardened materials H											

LNGH

KOMET® 1Q80..FW Wiper

Tangential indexable inserts



Application range:

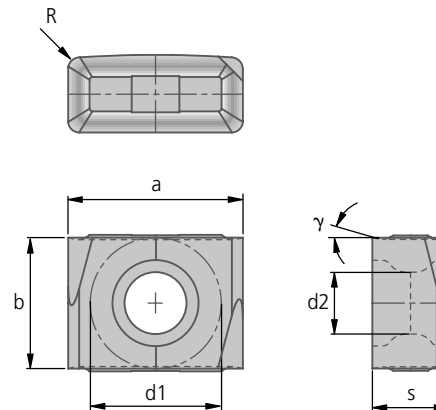
▽▽ Wiper

Face milling cutter KOMET® hi.aeQ
with Wiper geometry for
setting angle $\alpha = 88^\circ$

→ Wiper geometry
for improved surface quality

→ Improper installation is prevented by a mark
(on the surface)

Cutter geometry:



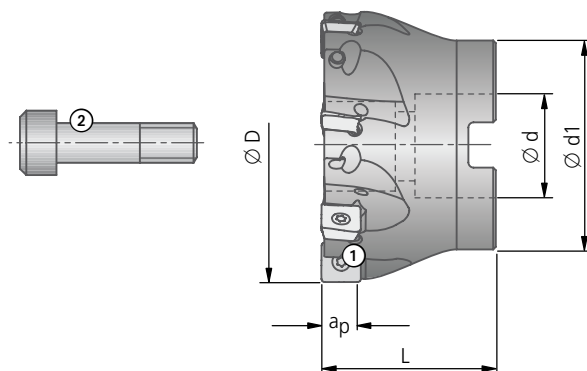
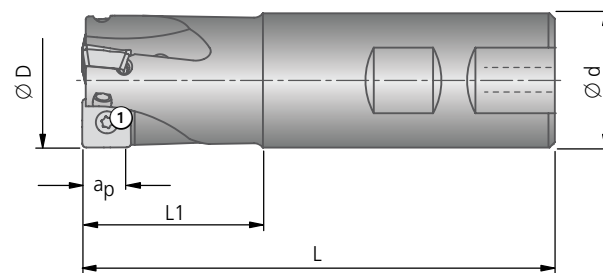
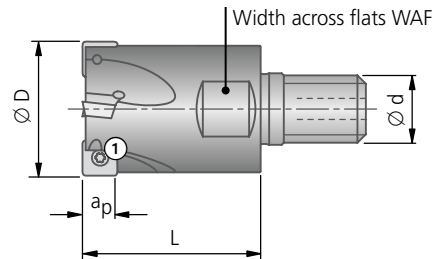
NEW

Substrate		Carbide								
Coating type		CVD	PVD							
Cutting material designation		BK KDA (ΔBK6115)	BK KEP (ΔBK2715)							
ISO Code	Order No.			d1	d2	a	b	s	γ	R
	Enter cutting material code ▼	KDA	KEP							
LNGH 0904ZNER-FW	1Q8020FW06...0	▲	▲	7,26	3,4	9,52	7,25	4,35	14°	0,6
LNGH 1205ZNER-FW	1Q8032FW08...0	▲	▲	9,52	4,5	12,7	9,52	5,80	10°	0,8
Steel P				Order example:						
Stainless steel M				ISO Code						
Cast iron K				LNGH 0904ZNER-FW						
Non-ferrous metals N				Cutting material						
Superalloys and titanium S				BK KDA						
Hardened materials H				Order No.						
				1Q8020FW06KDA0						

● Main area of application ○ Suitable in some cases

Important: See chapter "Information" for more application details and safety notes!

Shoulder milling cutter



Supply includes:

Milling cutter with clamping screws ① (pre-fitted with high-temperature paste, order no.: 47001 00105).

Supply includes arbor milling cutter: available in Q4 2017

Milling cutter with clamping screws ① (pre-fitted with high-temperature paste, order no.: 47001 00105) and cylindrical screw ②.

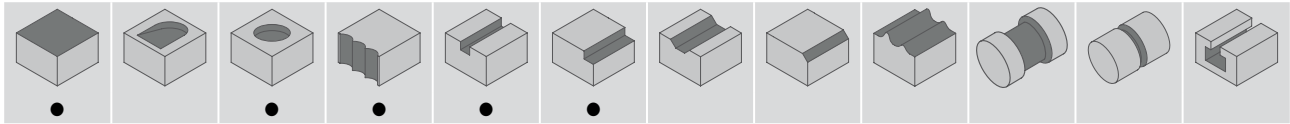
Please order inserts separately. Screwdriver see chapter "Information".

Recommendation: Change the clamping screws regularly to ensure the smooth running of the milling cutter.

a_p max. 5,5 – 11 mm

KOMET® Quatron 90

Shoulder milling cutter



Z = effective number of teeth for calculating v_f

NEW	Screw-in cutter										Indexable insert				
	Ø D	Order No.	Ø d	L	a _p max	Spindle speed max. rpm	Width across flats WAF	Tightening torque Nm			Clamping screw				
												①			
														Order No.	
															Article
20	F56 10090	M10	30	5,5	26.000	15	40	3	0,09	N00 57553 S/M2,2x5,5-6IP 1,01 Nm	W83 18.. SOEX 06..				
25	F56 11110	M12	35	7	19.000	17	60	3	0,09	N00 57571 S/M2,5x6,3-8IP 1,28 Nm	W83 23.. SOEX 07..				
32	F56 11130	M16	42	7	17.000	27	80	4	0,22	N00 57571 S/M2,5x6,3-8IP 1,28 Nm	W83 23.. SOEX 07..				
42	F56 13160	M16	42	8,5	16.000	27	80	5	0,27	N00 57261 S3575-15IP 2,8 Nm	W83 32.. SOEX 09..				

End milling cutter											Indexable insert
NEW	Ø D	Order No.	Ø d _{h6}	L	L1	a_p max.	Spindle speed max. rpm	Z	kg	Clamping screw Order No. Article	Order No. ISO Code
	25	F56 12110	25	100	40	7	19.000	3	0,31	N00 57571 S/M2,5x6,3-8IP 1,28 Nm	W83 23.. SOEX 07..
	32	F56 14130	32	110	46	8,5	18.000	4	0,57	N00 57261 S3575-15IP 2,8 Nm	W83 32.. SOEX 09..
	40	F56 14150	40	115	41	8,5	16.000	5	0,96	N00 57261 S3575-15IP 2,8 Nm	W83 32.. SOEX 09..

NEW

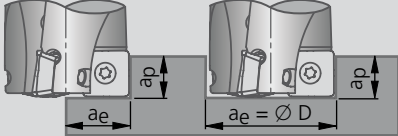
Arbor milling cutter											Indexable insert
Ø D	Order No.	Ø d ^{H6}	Ø d1	L	a _p max	Spindle speed max. rpm			  ②	 ①	
							Z	kg	Order No. Article	Order No. Article	Order No. ISO Code
40	F56 15150	16	36	40	8,5	16.000	5	0,23	55011 08025	N00 57261 S3575-15IP 2,8 Nm	W83 32.. SOEX 09..
42	F56 15160	16	38	40	8,5	16.000	5	0,26	55011 08025		
50	F56 15170	22	41	40	8,5	15.000	6	0,32	55011 10025		
52	F56 15180	22	48	40	8,5	14.000	6	0,40	55011 10025		
63	F56 15190	22	50	40	8,5	13.000	7	0,53	55011 10025		
66	F56 15200	27	60	40	8,5	13.000	7	0,65	55011 12030		
80	F56 15210	27	60	50	8,5	11.000	8	1,13	55011 12030		
85	F56 15220	32	80	50	8,5	11.000	8	1,60	55011 16030		
100	F56 15230	32	80	50	8,5	10.000	10	1,95	55011 16030		
63	F56 16190	22	50	40	11	11.000	7	0,51	55011 10025	N00 57301 S45100-20IP 6,25 Nm	W83 44.. SOEX 12..
66	F56 16200	27	60	40	11	11.000	7	0,61	55011 12030		
80	F56 16210	27	60	50	11	10.000	8	1,07	55011 12030		
85	F56 16220	32	80	50	11	10.000	8	1,50	55011 16030		
100	F56 16230	32	80	50	11	9.000	10	1,85	55011 16030		

For further details on selecting the cutting material, see page 18.

Cutting values for milling: page 18.

KOMET® Quatron 90

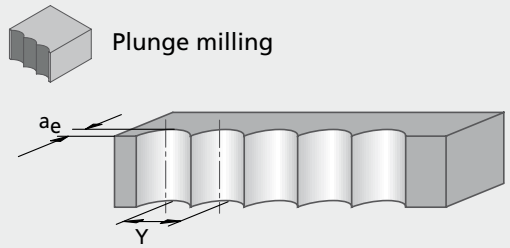
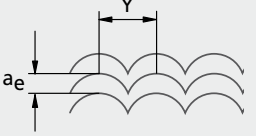
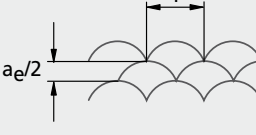
Recommended cutting data

		Feed f_z (mm/tooth) at a_e/D			
		$\leq 0,1$ (10%)	$> 0,1-0,2$ (10-20%)	$> 0,2-0,3$ (20-30%)	$> 0,3$ (30%)
	P	W83 18.. 0,14 0,22 0,29	0,10 0,16 0,21	0,09 0,13 0,17	0,07 0,11 0,15
		W83 23.. 0,14 0,25 0,35	0,10 0,18 0,26	0,09 0,15 0,21	0,07 0,13 0,19
		W83 32.. 0,14 0,28 0,42	0,10 0,20 0,30	0,09 0,17 0,25	0,07 0,15 0,22
		W83 44.. 0,14 0,31 0,48	0,10 0,23 0,35	0,09 0,19 0,29	0,07 0,16 0,26
M		W83 18.. 0,14 0,16 0,18	0,10 0,12 0,13	0,09 0,10 0,11	0,07 0,08 0,09
		W83 23.. 0,14 0,18 0,21	0,10 0,13 0,15	0,09 0,11 0,13	0,07 0,09 0,11
		W83 32.. 0,14 0,19 0,23	0,10 0,13 0,16	0,09 0,11 0,14	0,07 0,10 0,12
		W83 44.. 0,14 0,20 0,26	0,10 0,14 0,19	0,09 0,12 0,15	0,07 0,10 0,14
K		W83 18.. 0,14 0,22 0,29	0,10 0,16 0,21	0,09 0,13 0,17	0,07 0,11 0,15
		W83 23.. 0,14 0,25 0,35	0,10 0,18 0,26	0,09 0,15 0,21	0,07 0,13 0,19
		W83 32.. 0,14 0,28 0,42	0,10 0,20 0,30	0,09 0,17 0,25	0,07 0,15 0,22
		W83 44.. 0,14 0,31 0,48	0,10 0,23 0,35	0,09 0,19 0,29	0,07 0,16 0,26
N		0,14 0,27 0,39	0,10 0,19 0,28	0,09 0,16 0,23	0,07 0,14 0,21

p.ex. mill dia. 100 mm, engagement width a_e 10 mm = $\frac{a_e}{D} = \frac{10}{100} = \text{Factor } 0,1$ (i.e. 10% of $\varnothing D$ are engaged)

Application examples

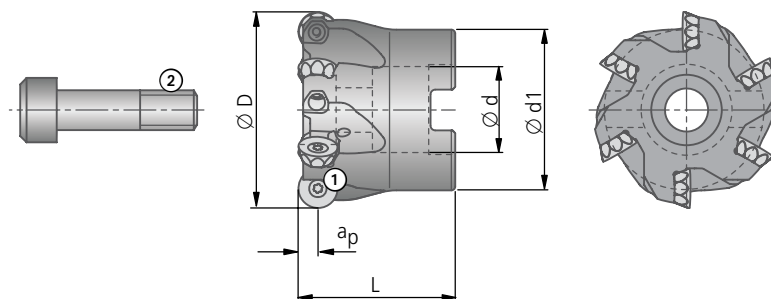
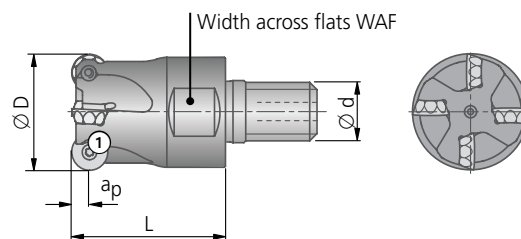
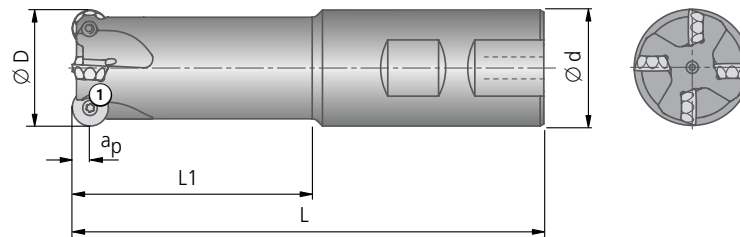
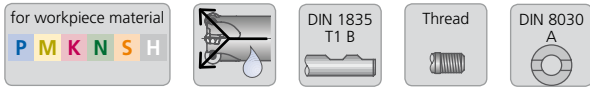
Plunge milling		
	Indexable insert Size	Feed f_z (mm/tooth)
P	W83 18..	0,05 0,08 0,11
	W83 23..	0,06 0,10 0,13
	W83 32..	0,07 0,11 0,15
	W83 44..	0,07 0,13 0,20
M	W83 18..	0,05 0,07 0,09
	W83 23..	0,05 0,08 0,10
	W83 32..	0,05 0,09 0,11
	W83 44..	0,05 0,10 0,12
K	W83 18..	0,05 0,08 0,11
	W83 23..	0,06 0,10 0,13
	W83 32..	0,07 0,11 0,15
	W83 44..	0,07 0,13 0,20
N	W83 18..	0,05 0,08 0,11
	W83 23..	0,06 0,10 0,13
	W83 32..	0,07 0,11 0,15
	W83 44..	0,07 0,13 0,20

Plunge milling			
			
Tool offset with optimum coverage			
			
Tool offset for unstable conditions			
			
Milling cutter dia.	Indexable insert Size	a_e max	
$\varnothing D$			
20	W83 18	5,6	
25 32	W83 23	7,0	
32 40 42 50 52 63 66 80 85 100	W83 32	8,5	
63 66 80 85 100	W83 44	11,5	
Y			
max			
$< 0,7 \times D$			

Recommended cutting data

Cutting speed v_c (m/min)					W83 18_0.06_... / W83 23_0.08_... / W83 32_0.08_... / W83 44_0.08_...			
Indexable insert (enter topography and cutting material code)								
Topography					01		21	
Coating type					PVD	PVD	PVD	PVD
Cutting material designation					BK7935	BK8425	BK8430	BK7710
Cutting material code					7935	8425	8430	7710
Material	Material example, material code DIN	Strength R_m (N/mm ²)	Hardness HB	Material group				
non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	≤500		1.0	250 - 300	250 - 300	250 - 300	
non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	500-900		2.0	180 - 250	180 - 250	180 - 250	
lead alloys	1.0718 (11SMnPb30)	<500		2.1	250 - 300	250 - 300	250 - 300	
low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	>900		3.0	150 - 200	150 - 200	150 - 200	
high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	>900		4.0	120 - 160	120 - 160	120 - 160	
HSS				4.1				
stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNiMo17-12-2)	≤600		6.0	80 - 160	80 - 160	80 - 160	
stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMoTi17-12-2)	<900		6.1	80 - 160	80 - 160	80 - 160	
stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)	>900		7.0	80 - 100	80 - 100	80 - 100	
gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)		180	8.0		140 - 200	140 - 200	
alloy gray cast iron	0.6660 (GGL-NiCr20 2)		250	8.1		100 - 160	100 - 160	
spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	≤600	130	9.0		140 - 230	140 - 230	
spheroidal graphite cast iron, ferritic/perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GJS-55) 0.8055 (GTW-55)		230	9.1		140 - 180	140 - 180	
spheroidal graphite cast iron, perlitic, malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	>600	250	10.0		140 - 200	140 - 200	
alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)		200	10.1		100 - 160	100 - 160	
vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2		300	10.2		70 - 100	80 - 120	
copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)		90	12.0				120 - 250
copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)		100	12.1				120 - 250
wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)		60	13.0				120 - 250
cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)		75	13.1				120 - 250
cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)		100	14.0				120 - 250

Copy milling cutter 1Q54-KCM | RPMX10



Supply includes:

Milling cutter with clamping screws ① (pre-fitted with high-temperature paste, order no.: 47001 00105).

Supply includes arbor milling cutter:

Milling cutter with clamping screws ① (pre-fitted with high-temperature paste, order no.: 47001 00105) and cylindrical screw ②.

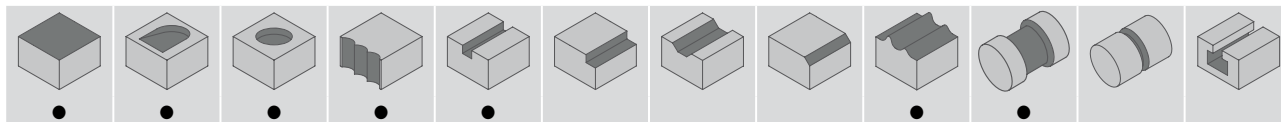
Please order insert separately. Screwdriver see chapter "Information".

Recommendation: Change the clamping screws regularly to ensure the smooth running of the milling cutter.

a_p max. 5 mm

KOMET®

Copy milling cutter 1Q54-KCM | RPMX10



Z = effective number of teeth for calculating v_f

NEW

End milling cutter										Clamping screw	Indexable insert
$\varnothing D$	Order No.	$\varnothing d_{H6}$	L	L1	a_p max.	Spindle speed max. rpm	Z	kg		Order No. Article	Order No. ISO Code
20	F56 01090	20	110	55,87	5	23.000	2	0,205		N00 57251 S3076-8IP 2,25 Nm	1Q5434.... RPMX 10T3M0
25	F56 01110	25	120	60,17	5	21.000	3	0,336			
32	F56 01130	32	130	66,17	5	18.000	4	0,641			

For further details on selecting the cutting material, see page 27. Enter cutting material code ▲

NEW

Screw-in cutter										Clamping screw	Indexable insert
$\varnothing D$	Order No.	$\varnothing d$	L	a_p max.	Spindle speed max. rpm	Width across flats WAF	Tightening torque Nm	Z	kg	Order No. Article	Order No. ISO Code
20	F56 02090	M10	30	5	23.000	15	40	2	0,046	N00 57251 S3076-8IP 2,25 Nm	1Q5434.... RPMX 10T3M0
25	F56 02110	M12	35	5	21.000	17	60	3	0,078		
32	F56 02130	M16	42	5	18.000	27	80	4	0,197		

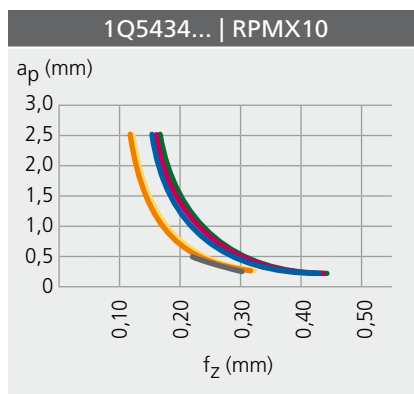
For further details on selecting the cutting material, see page 27. Enter cutting material code ▲

NEW

Arbor milling cutter										Cylindrical screw	Clamping screw	Indexable insert
$\varnothing D$	Order No.	$\varnothing d_{H6}$	$\varnothing d1$	L	a_p max.	Spindle speed max. rpm	Z	kg		Order No. Article	Order No. Article	Order No. ISO Code
40	F56 03150	16	36	40	5	16.000	5	0,176		55011 08025 M8x25	N00 57251 S3076-8IP 2,25 Nm	1Q5434.... RPMX 10T3M0
50	F56 03170	22	41	40	5	14.000	6	0,277		55011 10025 M10x25		

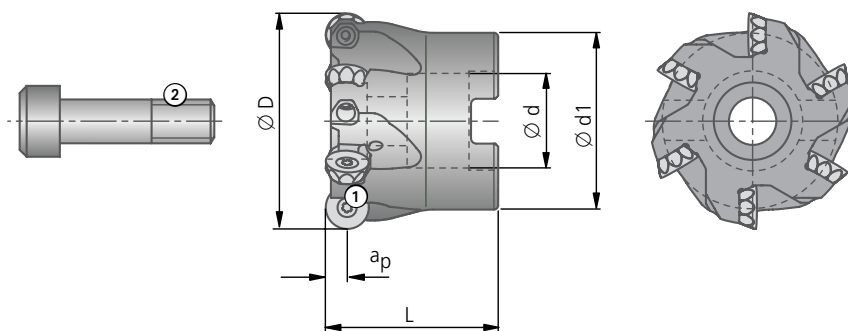
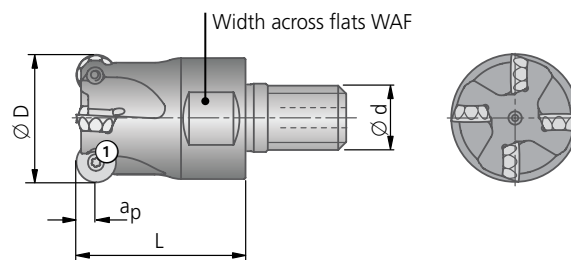
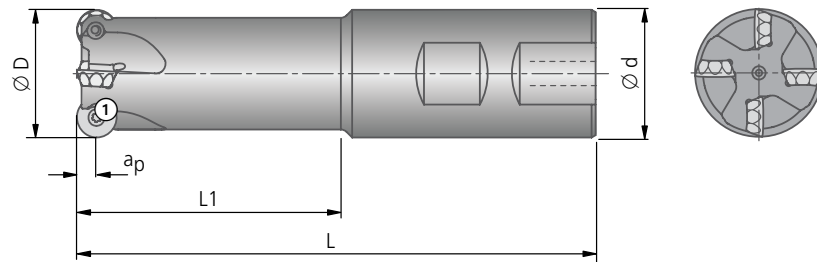
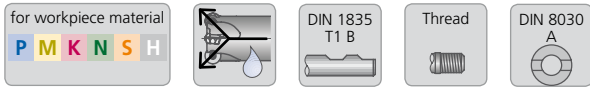
For further details on selecting the cutting material, see page 27. Enter cutting material code ▲

Recommended feed			
4-fold		8-fold	
a_p	a_p max.	a_p	a_p max.
2,5	4,5	1,4	



With decreasing cutting depth the tooth feed can be increased.
Example given for $a_e/D > 0,3-1$

Copy milling cutter 1Q54-KCM | RPMX12



Supply includes: available in Q4 2017

Milling cutter with clamping screws ① (pre-fitted with high-temperature paste, order no.: 47001 00105).

Supply includes arbor milling cutter: available in Q4 2017

Milling cutter with clamping screws ① (pre-fitted with high-temperature paste, order no.: 47001 00105) and cylindrical screw ②.

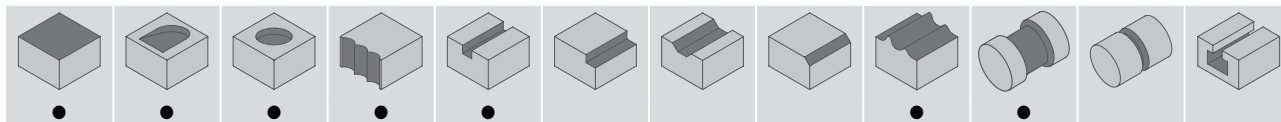
Please order insert separately. Screwdriver see chapter "Information".

Recommendation: Change the clamping screws regularly to ensure the smooth running of the milling cutter.

a_p max. 6 mm

KOMET®

Copy milling cutter 1Q54-KCM | RPMX12



Z = effective number of teeth for calculating v_f

End milling cutter										Clamping screw	Indexable insert
NEW	Ø D	Order No.	Ø d _{h6}	L	L1	a_p max.	Spindle speed max. rpm	Z	kg	Order No. Article	Order No. ISO Code
	25	F56 04110	25	120	59,8	6	21.000	2	0,345	N00 57650 S/M4×8,7-15IP 4,3 Nm	1Q5442.... RPMX 1204M0
	32	F56 04130	32	130	65,8	6	19.000	3	0,683		
	35	F56 04140	32	130	68,1	6	18.000	3	0,697		
	40	F56 04150	40	150	74,4	6	17.000	4	1,16		
	42	F56 04160	40	150	75,4	6	16.000	4	1,23		

For further details on selecting the cutting material, see page 27. Enter cutting material code ▲

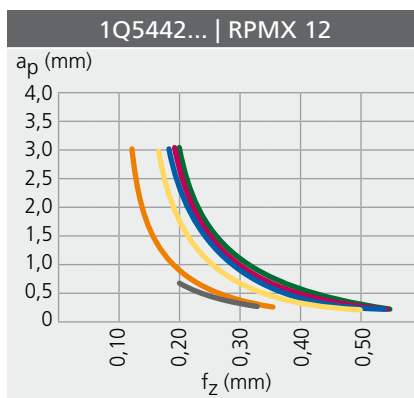
Screw-in cutter										Indexable insert		
NEW	Ø D	Order No.	Ød	L	a _p max.	Spindle speed max. rpm	Width across flats WAF	Tightening torque Nm	Z	kg	Clamping screw	Order No. ISO Code
	25	F56 05110	M12	35	6	21.000	17	60	2	0,076	 Order No. Article	 1Q5442.... RPMX 1204M0
	32	F56 05130	M16	42	6	19.000	27	80	3	0,189		
	35	F56 05140	M16	42	6	18.000	27	80	3	0,202		
	40	F56 05150	M16	42	6	17.000	27	80	4	0,227		
	42	F56 05160	M16	42	6	16.000	27	80	4	0,237		

For further details on selecting the cutting material, see page 27. Enter cutting material code ▲

Arbor milling cutter												
NEW	Ø D	Order No.	Ø d ^{H6}	Ø d1	L	a _p max.	Spindle speed max. rpm			 ②	 ①	
								Z	kg	Order No. Article	Order No. Article	Order No. ISO Code
	50	F56 06170	22	41	40	6	15.000	5	0,252	55011 10025 M10×25	N00 57650 S/M4×8,7-15IP 4,3 Nm	1Q5442.... RPMX 1204M0
	52	F56 06180	22	48	40	6	14.000	5	0,318			
	63	F56 06190	22	50	40	6	13.000	6	0,468			
	66	F56 06200	27	60	50	6	13.000	6	0,729	55011 12030 M12×30		
	80	F56 06210	27	60	50	6	12.000	8	0,994			
	85	F56 06220	32	80	50	6	11.000	8	1,35			
100	F56 06230	32	80	50	6	10.000	10	1,7				

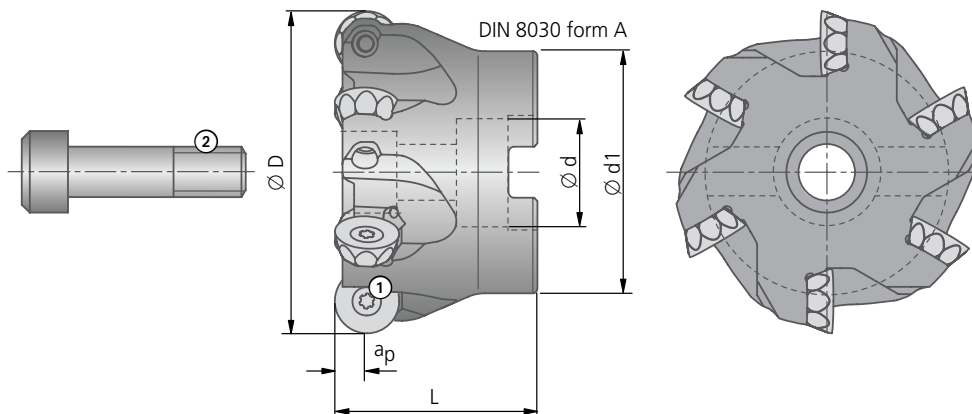
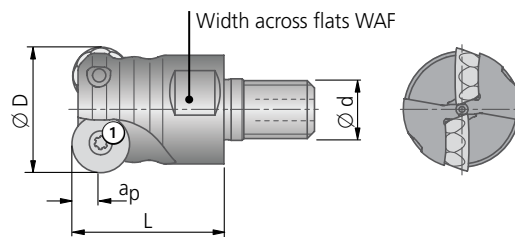
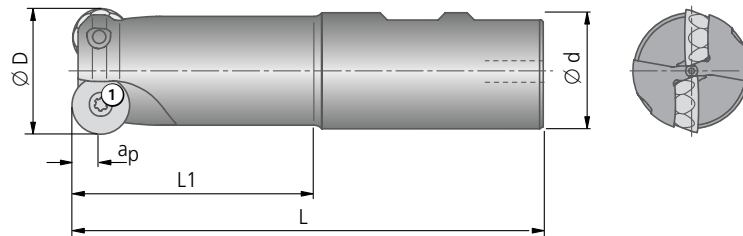
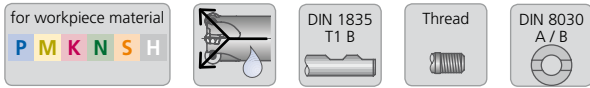
For further details on selecting the cutting material, see page 27. Enter cutting material code ▲

Recommended feed		
4-fold	8-fold	
a_p	a_p max.	a_p max.
3	5,5	1,7



With decreasing cutting depth the tooth feed can be increased.
Example given for $a_p/D > 0,3-1$

Copy milling cutter 1Q54-KCM | RPMX16



Supply includes:

Milling cutter with clamping screws ① (pre-fitted with high-temperature paste, order no.: 47001 00105).

Supply includes milling cutter Ø 52 - 100 mm:

with clamping screws ① (pre-fitted with high-temperature paste, order no.: 47001 00105) and cylindrical screw ②.

Supply includes milling cutter Ø 125 mm:

with clamping screws ① (pre-fitted with high-temperature paste, order no.: 47001 00105) **without** coolant sleeve.

Supply includes coolant sleeve ③: with cylindrical screw ②.

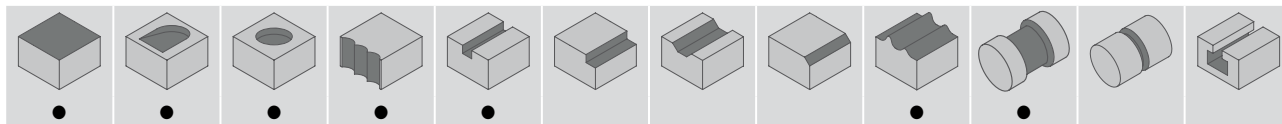
Please order insert separately. Screwdriver see chapter "Information".

Recommendation: Change the clamping screws regularly to ensure the smooth running of the milling cutter.

a_p max. 8 mm

KOMET®

Copy milling cutter 1Q54-KCM | RPMX16



Z = effective number of teeth for calculating v_f

End milling cutter										Clamping screw	Indexable insert
NEW	Ø D	Order No.	Ø d _{h6}	L	L1	a_p max.	Spindle speed max. rpm	Z	kg	Order No. Article	Order No. ISO Code
	32	F56 07130	32	130	65,3	8	15.000	2	0,599	N00 57670 S/M5×10,4-20IP 6,25 Nm	1Q5454.... RPMX 1605M0
	35	F56 07140	32	130	66,8	8	15.000	2	0,663		
	40	F56 07150	40	150	74,4	8	14.000	3	1,16		
	42	F56 07160	40	150	75,4	8	13.000	3	1,22		

For further details on selecting the cutting material, see page 27. Enter cutting material code ▲

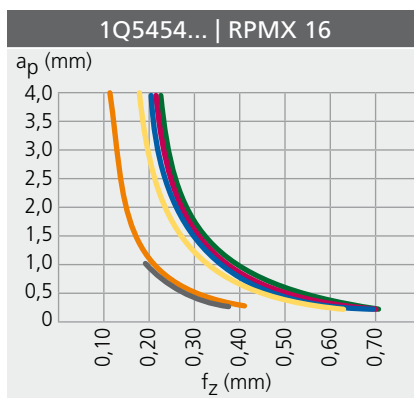
Screw-in cutter											Indexable insert	
NEW	Ø D	Order No.	Ød	L	a _p max.	Spindle speed max. rpm	Width across flats WAF	Tightening torque Nm			 Clamping screw	 Indexable insert
									Z	kg	Order No. Article	Order No. ISO Code
	32	F56 08130	M16	42	8	15.000	27	80	2	0,167	N00 57670 S/M5x10,4-20IP 6,25 Nm	1Q5454.... RPMX 1605M0
	35	F56 08140	M16	42	8	15.000	27	80	2	0,185		
	40	F56 08150	M16	42	8	14.000	27	80	3	0,203		
42	F56 08160	M16	42	8	13.000	27	80	3	0,218			

For further details on selecting the cutting material, see page 27. Enter cutting material code ▲

Arbor milling cutter														Indexable insert
NEW	Ø D	Order No.	DIN 8030 form	Ø dH6	Ø d1	L	ap max.	spindle speed max. rpm	Z		 Cylindrical screw ②	 Coolant sleeve ③	 Clamping screw ①	
											Order No. Article	Order No.	Order No. Article	Order No. ISO Code
	52	F56 09180	A	22	48	40	8	12.000	4	0,289	55011 10025	—	N00 57670 S/M5×10,4-20IP 6,25 Nm	1Q5454.... RPMX 1605MO
	63	F56 09190	A	22	50	40	8	11.000	5	0,417	M10×25			
	66	F56 09200	A	27	60	50	8	11.000	5	0,685	55011 12035	—		
	80	F56 09210	A	27	60	50	8	10.000	6	0,895	M12×35			
	85	F56 09220	A	32	80	50	8	9.000	6	1,24	55011 16030	—		
	100	F56 09230	A	32	80	50	8	9.000	7	1,57	M16×30			
125	F56 09250	B	40	90	63	8	8.000	8	2,64	55011 20040	L01 01070			
										M20×40	 0,396			

For further details on selecting the cutting material, see page 27. Enter cutting material code ▲

Recommended feed		
4-fold	8-fold	
a_p	a_p max.	a_p max.
4,0	7,5	2,3

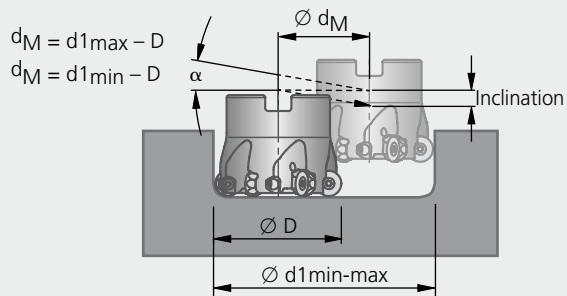


With decreasing cutting depth the tooth feed can be increased.
Example given for $a_p/D > 0,3-1$

Application examples for copy milling cutter 1Q54-KCM



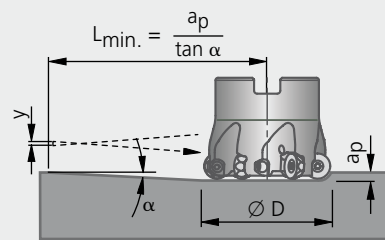
Circular plunging



Ø D	Ramping angle	Ø d1 min		Ø d1 max	
	α max	Ø d1 min	Inclination (mm/rev)	Ø d1 max	Inclination (mm/rev)
RPMX10 1Q5434...					
20	1,3°	26	0,4	30	0,7
25	1,8°	36	1,1	40	1,5
32	1,5°	50	1,5	54	1,8
40	1,1°	65	1,5	70	1,8
50	0,8°	85	1,5	90	1,8
RPMX12 1Q5442...					
25	2,2°	32	0,8	38	1,6
32	1,7°	46	1,3	52	1,9
35	1,6°	52	1,5	58	2,0
40	1,4°	62	1,7	68	2,1
42	1,4°	66	1,8	72	2,3
50	1,1°	82	1,9	88	2,3
52	1,1°	86	2,1	92	2,4
63	0,8°	108	2,2	114	2,5
66	0,8°	114	2,2	120	2,5
80	0,6°	142	2,2	148	2,5
85	0,5°	152	2,2	158	2,5
100	0,4°	182	2,2	188	2,5
RPMX 16 1Q5454...					
32	2,3°	40	1,0	48	2,0
35	2,3°	46	1,4	54	2,4
40	2°	56	1,8	64	2,6
42	2°	60	2,0	68	2,9
52	1,5°	80	2,3	88	3,0
63	1,2°	102	2,6	110	3,1
66	1,2°	108	2,8	116	3,2
80	0,9°	136	2,8	144	3,2
85	0,8°	146	2,8	154	3,2
100	0,6°	176	2,8	184	3,2
125	0,5°	226	2,8	234	3,2



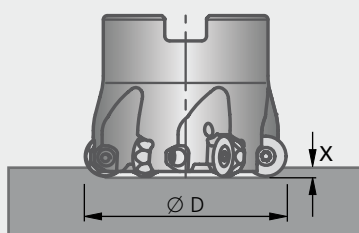
Inclined plunging



Ø D	ap max	Lift from work- piece if direction is reversed y	Ramping angle α max	L min
RPMX10 1Q5434...				
20	5	0,3	1,3°	220
25	5	0,6	2°	143
32	5	1,2	3°	95
40	5	1,4	2,6°	110
50	5	1,4	2°	143
RPMX12 1Q5442...				
25	6	1,4	6°	57
32	6	1,5	4,2°	82
35	6	1,5	3,7°	93
40	6	1,5	3°	114
42	6	1,5	2,8°	123
50	6	1,5	2,2°	156
52	6	1,5	2,1°	164
63	6	1,5	1,6°	215
66	6	1,5	1,5°	229
80	6	1,5	1,2°	286
85	6	1,5	1,1°	312
100	6	1,4	0,9°	382
RPMX 16 1Q5454...				
32	8	1,7	6°	76
35	8	2,0	6°	76
40	8	2,4	5,7°	80
42	8	2,4	5,2°	88
52	8	2,4	3,8°	120
63	8	2,4	2,9°	158
66	8	2,4	2,7°	170
80	8	2,4	2,1°	218
85	8	2,3	1,9°	241
100	8	2,4	1,6°	286
125	8	2,3	1,2°	382



Axial plunging



Milling cutter dia. Ø D	X max
RPMX10	
20	0,2
25	0,4
32	0,8
40 - 50	1,4

Milling cutter dia. Ø D	X max
RPMX12	
25	1,0
32 - 35	1,1
40 - 42	1,2
50 - 100	1,5

Milling cutter dia. Ø D	X max
RPMX16	
32 - 125	1,0

Recommended cutting data for copy milling cutter 1Q54-KCM

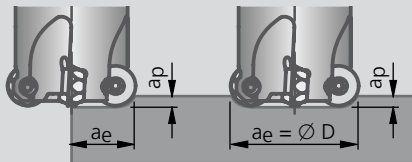


Diagram illustrating the engagement width a_e relative to the mill diameter $\varnothing D$. The left diagram shows a standard engagement width a_e . The right diagram shows a wider engagement width $a_e = \varnothing D$.

Feed f_z (mm/tooth) at a_e/D

	$\leq 0,1$ (10%)			$> 0,1-0,2$ (10-20%)			$> 0,2-0,3$ (20-30%)			$> 0,3$ (30%)			a_p
	RPMX10 1Q5434...												
P	0,22	0,32	0,41	0,16	0,23	0,29	0,13	0,19	0,25	0,11	0,15	0,22	2,5
S	0,15	0,20	0,26	0,11	0,15	0,19	0,09	0,12	0,16	0,07	0,10	0,14	2,5
M	0,19	0,24	0,30	0,13	0,17	0,21	0,11	0,15	0,18	0,09	0,12	0,16	2,5
K	0,22	0,32	0,41	0,16	0,23	0,29	0,13	0,19	0,25	0,11	0,15	0,22	2,5
N	0,22	0,32	0,41	0,16	0,23	0,29	0,13	0,19	0,25	0,11	0,15	0,22	2,5
H	0,34	0,41	0,48	0,25	0,30	0,35	0,21	0,25	0,29	0,17	0,20	0,26	0,5
	RPMX12 1Q5442...												
P	0,22	0,35	0,48	0,16	0,25	0,35	0,13	0,21	0,29	0,11	0,17	0,26	3,0
S	0,15	0,20	0,26	0,11	0,15	0,19	0,09	0,12	0,16	0,07	0,10	0,14	3,0
M	0,19	0,26	0,33	0,13	0,19	0,24	0,11	0,16	0,20	0,09	0,13	0,18	3,0
K	0,22	0,35	0,48	0,16	0,25	0,35	0,13	0,21	0,29	0,11	0,17	0,26	3,0
N	0,22	0,35	0,48	0,16	0,25	0,35	0,13	0,21	0,29	0,11	0,17	0,26	3,0
H	0,41	0,45	0,48	0,30	0,32	0,35	0,25	0,27	0,29	0,20	0,22	0,26	0,7
	RPMX 16 1Q5454...												
P	0,22	0,39	0,56	0,16	0,28	0,40	0,13	0,23	0,33	0,11	0,19	0,30	4,0
S	0,15	0,20	0,26	0,11	0,15	0,19	0,09	0,12	0,16	0,07	0,10	0,14	4,0
M	0,19	0,28	0,37	0,13	0,20	0,27	0,11	0,17	0,22	0,09	0,14	0,20	4,0
K	0,22	0,39	0,56	0,16	0,28	0,40	0,13	0,23	0,33	0,11	0,19	0,30	4,0
N	0,22	0,39	0,56	0,16	0,28	0,40	0,13	0,23	0,33	0,11	0,19	0,30	4,0
H	0,34	0,41	0,48	0,25	0,30	0,35	0,21	0,25	0,29	0,17	0,20	0,26	1,0

p.ex. mill dia. 100 mm, engagement width a_e 10 mm

$= \frac{a_e}{D} = \frac{10}{100} = \text{Factor } 0,1 \text{ (i.e. 10\% of } \varnothing D \text{ are engaged)}$

Cutting speed v_c (m/min)										
Indexable insert					1Q5434M511...0 (RPMX10) 1Q5442M511...0 (RPMX12) 1Q5454M511...0 (RPMX16)		1Q5434L511...0 (RPMX10) 1Q5442L511...0 (RPMX12) 1Q5454L511...0 (RPMX16)			
Coating type					PVD		CVD		PVD	
Cutting material designation					BK PFQ		BK KDA		BK MGP	
Cutting material code					PFQ		KDA		MGP	
Material	Material example, material code DIN	Strength Rm (N/mm ²)	Hardness HB	Material group						
					dry	wet	dry	dry	wet	
non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S235JR)	≤500		1.0	250 - 300				250 - 300	
non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	500-900		2.0	180 - 250				180 - 250	
lead alloys	1.0718 (11SMnPb30)	<500		2.1	250 - 300				250 - 300	
low alloy steels	1.7225 (42CrMo4) 1.1221 (C60E)	>900		3.0	150 - 200				150 - 200	
high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	>900		4.0	120 - 160				120 - 160	
HSS				4.1						
super alloys: Inconel, Hastelloy, Nimonic, etc.	2.4668 (NiCr19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)		250	5.0	25 - 75				25 - 75	
titanium, titanium alloys	3.7115 (TiAl5Sn2.5)	400		5.1						25 - 75
stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNiMo17-12-2)	≤600		6.0		80 - 160				80 - 160
stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMoTi17-12-2)	<900		6.1		80 - 160				80 - 160
stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)	>900		7.0		80 - 100				80 - 100
gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)		180	8.0	140 - 200			150 - 330		
alloy gray cast iron	0.6660 (GGL-NiCr20 2)		250	8.1	100 - 160			120 - 260		
spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	≤600	130	9.0	140 - 230			140 - 300		
spheroidal graphite cast iron, ferritic/perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GJS-55) 0.8055 (GTW-55)		230	9.1	140 - 180			120 - 260		
spheroidal graphite cast iron, perlitic, malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	>600	250	10.0	140 - 200			110 - 230		
alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)		200	10.1	100 - 160			110 - 230		
vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2		300	10.2	70 - 100			90 - 200		
copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)		90	12.0						250 - 500
copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)		100	12.1						200 - 375
wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)		60	13.0						300 - 650
cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)		75	13.1						220 - 450
cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)		100	14.0						200 - 375
hardened steels < 45 HRC		1400		15.0	40 - 60					
hardened steels > 45 HRC		1800		16.0	30 - 50					

Cutting speed v_c can be increased by reducing the width of cutting edge engagement a_e

Important: See chapter "Information" for more application details and safety notes !

Indexable insert



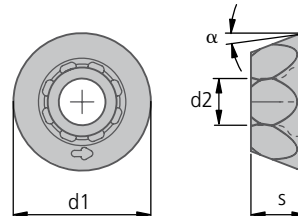
Application range:

Copy milling cutter 1Q54-KCM

Eight useful cutting edges per indexable insert.
Use of different indexable insert clearance angles.

The indexable insert is supported with two surfaces, which allows high feed rates with maximum stability to be achieved. 8 indexing positions for optimum cost-efficiency.

Cutter geometry:



Substrate		Solid carbide						
Coating type		PVD	CVD	PVD				
Cutting material designation		BK PFQ	BK KDA	BK MGP				
ISO Code	Order No.				d1	d2	s	α
Topography ▼	Enter cutting material code ▼	PFQ	KDA	MGP				
RPMX 10T3M0-M5	1Q5434M511...0	▲	▲		10	3,4	3,97	11°
RPMX 10T3M0-L5	1Q5434L511...0			▲				
RPMX 1204M0-M5	1Q5442M511...0	▲	▲		12	4,5	4,76	11°
RPMX 1204M0-L5	1Q5442L511...0			▲				
RPMX 1605M0-M5	1Q5454M511...0	▲	▲		16	5,6	5,56	11°
RPMX 1605M0-L5	1Q5454L511...0			▲				
Steel	P	●		●	Order example: ISO code RPMX10T3M0-M5 Cutting material BK PFQ Order No. 1Q5434M511PFQ0			
Stainless steel	M	●		●				
Cast iron	K	●	●					
Non-ferrous metals	N			●				
Superalloys and titanium	S	●		●				
Hardened materials	H	●						

Milling program

For many decades, the KOMET GROUP has enjoyed a reputation for high-precision bore machining and reaming tool solutions and impeccable threading tool design. With the vast array of new additions to our milling range, we can offer a comprehensive portfolio that is of great value to our customers all across the globe.

Alongside the KOMET JEL® solid carbide milling cutters that cover all requirements in the diameter range 3.0 to 25.0 mm, the KOMET® indexable insert milling cutters in particular have been causing a stir this year.

The cutter holders in the completely redesigned KOMET JEL® PCD milling cutters are manufactured using the generative process of laser melting, which means that these new tools can offer feed rates that are up to 50% higher than before. 3D printing enables up to twice as many cutting edges to be created, depending on the diameter. KOMET® is also utilising the flexibility provided by the additive manufacturing process to optimise the course of the coolant channels inside these milling cutters. Curved channel routes now reduce pressure loss in the coolant and are positioned precisely, in such a way that ensures every cutting edge is optimally supplied with coolant from a separate channel.

Aside from the new production process, KOMET® is also expanding its milling range with new designs, such as the KOMET® hi.aeQ 45° face-milling cutter, which has a feed rate that is up to 40% higher than a shoulder milling cutter. KOMET® is also launching new, standard PCD milling cutters that can be particularly productive when used in applications involving lightweight construction materials.



KOMET DIHART® Reaming tools

KOMET DIHART® *hi.max*

With the completely redeveloped KOMET DIHART® *hi.max* monoblock tool, we have succeeded in producing the perfect upgrade to our proven KOMET DIHART® reaming tools. The new KOMET DIHART® *hi.max* stands out thanks to its extremely high level of stability, which guarantees reliable use and excellent machining performance.

With the KOMET DIHART® *hi.max*, it is no longer necessary to fit individual tool parts (thanks to the monoblock design). This makes the tool significantly easier to handle and use.

BENEFITS for you:

- High machining performance due to combination of cutting topography and cutting material
- Diameter is easy to measure thanks to the cutting edges arranged opposite one another in pairs
- Carbide and cermet versions (uncoated and coated) available for machining various material groups in accordance with the ISO standard
- EASY-TO-USE principle: No accessories, no adjusting, no fitting of individual parts
- Optimum stability and process capability thanks to monoblock design and solid carbide or solid cement cutter part
- Low-cost H7 preferred range with universal geometry for machining through holes and blind holes
- High-performance Cermet H7 preferred range with special geometry for machining steel
- Cylindrical shank similar to DIN 1835
- Comes in 3xD and 5xD versions
- Diameter range 12 - 30 mm



KOMET DIHART REAMAX® TS fix

Modular Reaming System

Unlimited flexibility and cost-effectiveness:

KOMET DIHART REAMAX® TS is a uniform clamping system with a standardised separation point for all reaming heads, offering flexibility and cost-effectiveness thanks to fast and high-precision tool changing.

KOMET DIHART REAMAX® TS guarantees a maximum of system modularity thanks to a versatile and clearly structured range of reaming heads which can handle all commonly encountered diameter ranges and machining requirements. Tool costs and logistical expenditure are thereby reduced to a minimum.



BENEFITS for you:

- High machining performance due to combination of cutting topography and cutting material
- Diameter is easy to measure thanks to the cutting edges arranged opposite one another in pairs
- Carbide and cermet versions (uncoated and coated) available for machining various material groups in accordance with the ISO standard
- Low-cost H7 preferred range with universal geometry for machining through holes and blind holes
- High-performance Cermet H7 preferred range with special geometry for machining steel
- Diameter range 18 - 30 mm

KOMET DIHART® Freemax

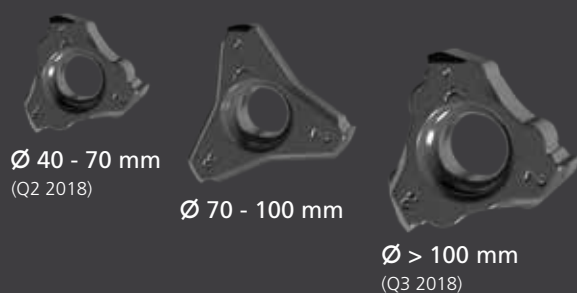
Indexable insert technology has revolutionised reaming with multiple-cutting-edge reamers and has set new standards in terms of cost efficiency and functionality.

We have always focused on minimising tool wear and thus ensure maximum productivity at our customers. We have now applied this approach to our reaming tools and simplified handling at the same time. One new feature of our KOMET DIHART® Freemax is that the user can choose the position of the inserts, similar to how other machining tools currently work. This means that they are easier to fit, quicker and more reliable.

The KOMET DIHART® Freemax has three cutting edges per insert, making handling for the user extremely flexible. This makes our KOMET DIHART® Freemax truly unique.

BENEFITS for you:

- Triple-edged indexable inserts that can be freely assigned
- Coated carbide and cermet inserts available for machining all material groups in accordance with the ISO standard
- The clear assignment of each cutting edge by marking on figures prevents incorrect positioning
- High level of stability thanks to the tangential fitting of the indexable inserts
- High-precision ground indexable inserts for maximum quality
- Can be fitted in KOMET DIHART DAH® compensating holders or with ABS® connection
- EASY-TO-USE principle: Handling is straightforward and the need for adjustments is minimal
- DBG-P coating for better performance



NEW
▶ 53

KOMET DIHART® Coating update

The new DBG-P/DJP coating impresses by increasing the tool life by up to 30%. It replaces the DBF/DJF coating.

DBG-P

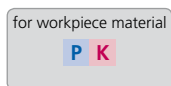
PVD-TiAlN-based:

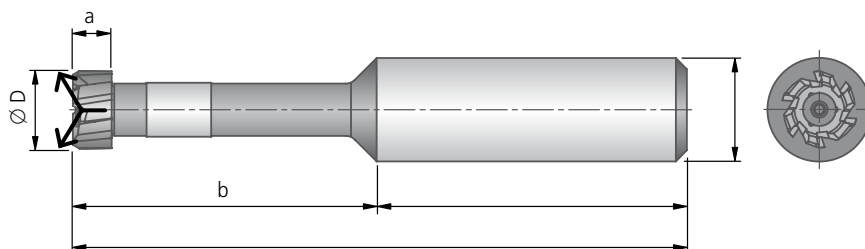
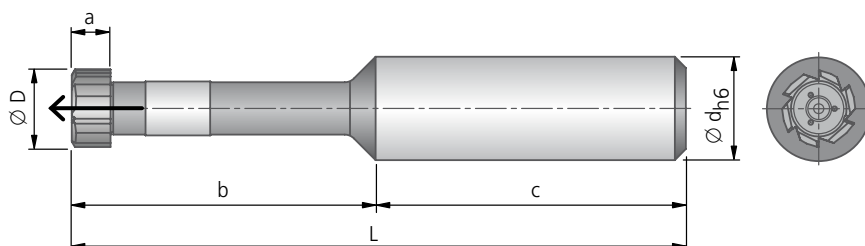
- TiAlN-coated K10 fine-grained carbide
- For high cutting speeds
- Suitable for MQL applications
- For universal use in a large number of materials

DJP

PVD-AlCrN-based:

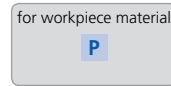
- AlCrN-coated Cermet
- For high cutting speeds
- Suitable for spheroidal graphite cast iron
- Suitable for MQL applications
- Not suitable for interrupted cuts

Diameter H7 – available in Q4 2017

Universal reamer

 radially cooled, left slant,
for through hole machining

 centrally cooled, straight,
for blind hole machining

NEW
Diameter H7 – available in Q4 2017

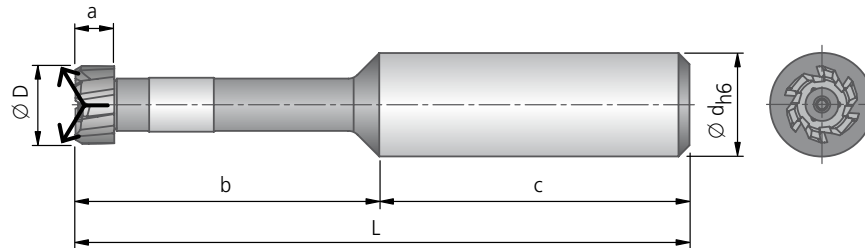
Ø D	Ø d × c	L	b	a ~	Z	kg ~		
							 Order No. DBG-U	 Order No. DBG-U
12 ^{H7}	16 × 48	95	47	6	6	0,092	58N.58.12H7	58M.57.12H7
14 ^{H7}	16 × 48	95	47	6	6	0,093	58N.58.14H7	58M.57.14H7
15 ^{H7}	16 × 48	95	47	6	6	0,098	58N.58.15H7	58M.57.15H7
16 ^{H7}	16 × 48	95	47	6	6	0,099	58N.58.16H7	58M.57.16H7
18 ^{H7}	16 × 48	100	52	6	6	0,113	58N.58.18H7	58M.57.18H7
20 ^{H7}	20 × 50	120	70	6	8	0,184	58N.58.20H7	58M.57.20H7
22 ^{H7}	20 × 50	120	70	6	8	0,186	58N.58.22H7	58M.57.22H7
24 ^{H7}	25 × 56	120	64	6	8	0,319	58N.58.24H7	58M.57.24H7
25 ^{H7}	25 × 56	120	64	6	8	0,320	58N.58.25H7	58M.57.25H7
26 ^{H7}	25 × 56	120	64	6	8	0,321	58N.58.26H7	58M.57.26H7
28 ^{H7}	25 × 56	135	79	7	8	0,446	58N.58.28H7	58M.57.28H7
30 ^{H7}	25 × 56	135	79	7	8	0,452	58N.58.30H7	58M.57.30H7

Cutting speed and feed see pages 38-39.

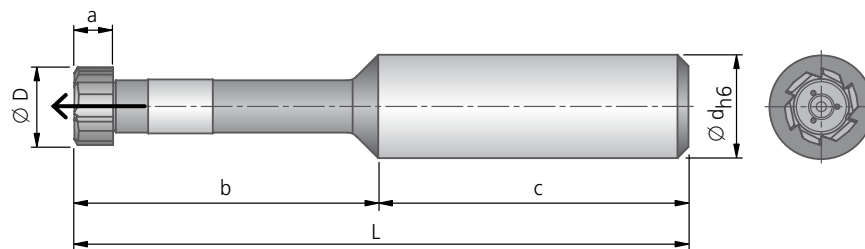


Special reamer P

radially cooled, left slant,
for through hole machining



centrally cooled, straight,
for blind hole machining



Diameter H7 – available in Q4 2017

NEW

Ø D	Ø d × c	L	b	a ~	Z	kg ~			
									
								Order No. DST	Order No. DST
12 ^{H7}	16 × 48	95	47	6	6	0,092		58N.92.12H7	58M.93.12H7
14 ^{H7}	16 × 48	95	47	6	6	0,093		58N.92.14H7	58M.93.14H7
15 ^{H7}	16 × 48	95	47	6	6	0,098		58N.92.15H7	58M.93.15H7
16 ^{H7}	16 × 48	95	47	6	6	0,099		58N.92.16H7	58M.93.16H7
18 ^{H7}	16 × 48	100	52	6	6	0,113		58N.92.18H7	58M.93.18H7
20 ^{H7}	20 × 50	120	70	6	8	0,184		58N.92.20H7	58M.93.20H7
22 ^{H7}	20 × 50	120	70	6	8	0,186		58N.92.22H7	58M.93.22H7
24 ^{H7}	25 × 56	120	64	6	8	0,319		58N.92.24H7	58M.93.24H7
25 ^{H7}	25 × 56	120	64	6	8	0,320		58N.92.25H7	58M.93.25H7
26 ^{H7}	25 × 56	120	64	6	8	0,321		58N.92.26H7	58M.93.26H7
28 ^{H7}	25 × 56	135	79	7	8	0,446		58N.92.28H7	58M.93.28H7
30 ^{H7}	25 × 56	135	79	7	8	0,452		58N.92.30H7	58M.93.30H7

Cutting speed and feed see pages 38-39.

Tool recommendation reaming tool – short version

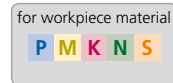
Machining:					Hochgeschwindigkeit										conventional	
Material group	Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code / DIN	Order No. ASG = cutting geometry											
																
					uni	special	uni	special	uni	special	uni	special	uni	special	uni	uni
P	1.0	≤500	non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	58N.58 ASG 2210	58N.92 ASG 05	58N.58 ASG 2210		58M.57 ASG 2110	58M.93 ASG 3000	58M.57 ASG 2110		58N.57 ASG 2210	58N.93 ASG 3000		
	2.0	500-900	non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	58N.58 ASG 2210	58N.92 ASG 05	58N.58 ASG 2210		58M.57 ASG 2110	58M.93 ASG 3000	58M.57 ASG 2110		58N.57 ASG 2210	58N.93 ASG 3000		
	2.1	<500	lead alloys	1.0718 (11SMnPb30)	58N.58 ASG 2210	58N.92 ASG 05	58N.58 ASG 2210		58M.57 ASG 2110	58M.93 ASG 3000	58M.57 ASG 2110		58N.57 ASG 2210	58N.93 ASG 3000		
	3.0	>900	non alloy / low alloy steels; heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	58N.58 ASG 2210	58N.92 ASG 05	58N.58 ASG 2210		58M.57 ASG 2110	58M.93 ASG 3000	58M.57 ASG 2110		58N.57 ASG 2210	58N.93 ASG 3000		
	4.0	>900	high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165Cr-MoV12)	58N.58 ASG 2210	58N.93 ASG 3000	58N.58 ASG 2210		58M.57 ASG 2110	58M.93 ASG 3000	58M.57 ASG 2110		58N.57 ASG 2210	58N.93 ASG 3000		
	4.1		HSS													
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr-19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)											
	5.1	400	titanium, titanium alloys	3.7115 (TiAl5Sn2.5)											58N.21 ASG03	58M.21 ASG03
M	6.0	≤600	stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNi-Mo17-12-2)	58N.65 ASG 0106		58N.65 ASG 0106		58M.65 ASG 0106		58M.65 ASG 0106		58N.65 ASG 0106			
	6.1	<900	stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMo-Ti17-12-2)	58N.65 ASG 0106		58N.65 ASG 0106		58M.65 ASG 0106		58M.65 ASG 0106		58N.65 ASG 0106			
	7.0	>900	stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCr-Si38-18)	58N.65 ASG 0106		58N.65 ASG 0106		58M.65 ASG 0106		58M.65 ASG 0106		58N.65 ASG 0106			
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	58N.58 ASG 2210	58N.65 ASG 2350	58N.58 ASG 2210	58N.65 ASG 2350	58M.57 ASG 2110	58M.65 ASG 2350	58M.57 ASG 2110	58M.65 ASG 2350	58N.57 ASG 2210	58N.65 ASG 2350	
	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	58N.58 ASG 2210	58N.65 ASG 2350	58N.58 ASG 2210	58N.65 ASG 2350	58M.57 ASG 2110	58M.65 ASG 2350	58M.57 ASG 2110	58M.65 ASG 2350	58N.57 ASG 2210	58N.65 ASG 2350	
	9.0	≤600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	58N.58 ASG 2210	58N.65 ASG 2350	58N.58 ASG 2210	58N.65 ASG 2350	58M.57 ASG 2110	58M.65 ASG 2350	58M.57 ASG 2110	58M.65 ASG 2350	58N.57 ASG 2210	58N.65 ASG 2350	
	9.1		230	spheroidal graphite cast iron, ferritic/perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GJS-55) 0.8055 (GTW-55)	58N.58 ASG 2210	58N.65 ASG 2350	58N.58 ASG 2210	58N.65 ASG 2350	58M.57 ASG 2110	58M.65 ASG 2350	58M.57 ASG 2110	58M.65 ASG 2350	58N.57 ASG 2210	58N.65 ASG 2350	
	10.0	>600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	58N.58 ASG 2210	58N.65 ASG 2350	58N.58 ASG 2210	58N.65 ASG 2350	58M.57 ASG 2110	58M.65 ASG 2350	58M.57 ASG 2110	58M.65 ASG 2350	58N.57 ASG 2210	58N.65 ASG 2350	
	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	58N.58 ASG 2210	58N.65 ASG 2350	58N.58 ASG 2210	58N.65 ASG 2350	58M.57 ASG 2110	58M.65 ASG 2350	58M.57 ASG 2110	58M.65 ASG 2350	58N.57 ASG 2210	58N.65 ASG 2350	
	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	58N.58 ASG 2210	58N.65 ASG 2350	58N.58 ASG 2210	58N.65 ASG 2350	58M.57 ASG 2110	58M.65 ASG 2350	58M.57 ASG 2110	58M.65 ASG 2350	58N.57 ASG 2210	58N.65 ASG 2350	
	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	58N.58 ASG 2210	58N.17 ASG 2270	58N.58 ASG 2210	58N.17 ASG 2270	58M.57 ASG 2110	58M.17 ASG 2170	58M.57 ASG 2110	58M.17 ASG 2170	58N.57 ASG 2210	58N.17 ASG 2170	
N	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	58N.58 ASG 2210	58N.17 ASG 2270	58N.58 ASG 2210	58N.17 ASG 2270	58M.57 ASG 2110	58M.17 ASG 2170	58M.57 ASG 2110	58M.17 ASG 2170	58N.57 ASG 2210	58N.17 ASG 2170	
	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)		58N.17 ASG 2270		58N.17 ASG 2270		58M.17 ASG 2170		58M.17 ASG 2170		58N.17 ASG 2170	
	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)		58N.17 ASG 2270		58N.17 ASG 2270		58M.17 ASG 2170		58M.17 ASG 2170		58N.17 ASG 2170	
	14.0		100	cast alum. alloy: Si-content >10%	3.2381.01(G-AlSi10Mg)		58N.17 ASG 2270		58N.17 ASG 2270		58M.17 ASG 2170		58M.17 ASG 2170		58N.17 ASG 2170	
H	15.0	1400		hardened steels < 45 HRC												
	16.0	1800		hardened steels > 45 HRC, ≤ 55 HRC												

Ø 12,000– 30,000 mm

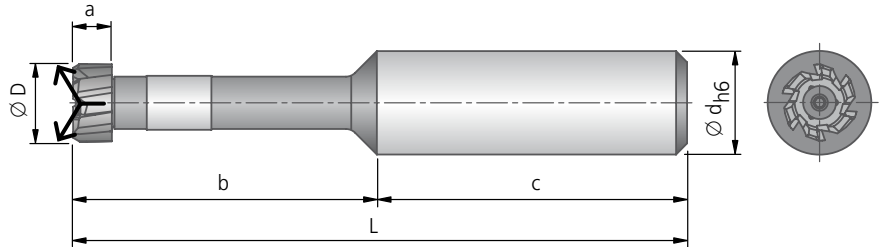
KOMET DIHART® *hi.max*

NEW

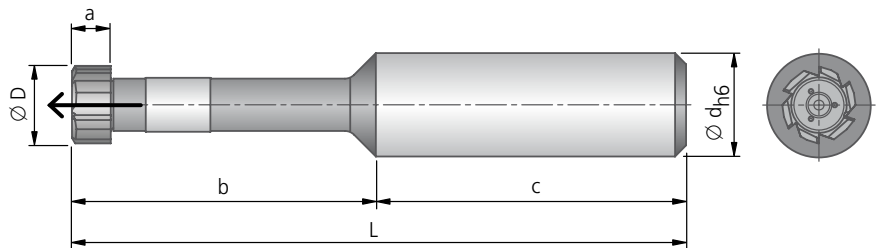
Reaming tool – short version



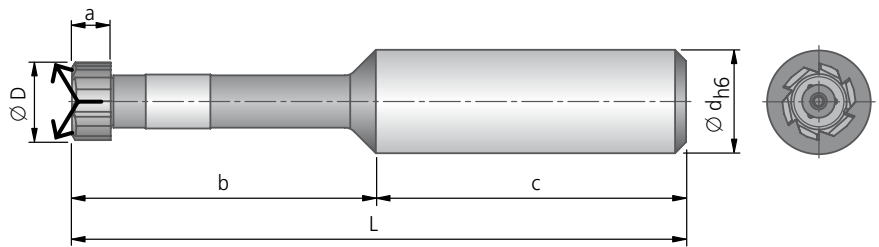
radially cooled, left slant,
for through hole machining



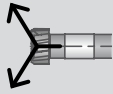
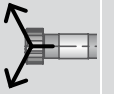
centrally cooled, straight,
for blind hole machining



radially cooled, straight,
for step drilling



Custom reaming tool – selection options!

 Order No.			 Order No.		Cutting material, coating	Dimensions						
						Ø D	Cylindrical shank Ødxc	L	b	a ~	 Z	 kg ~
58N.92	–	58N.93	58M.93	–	DST	12,000 - 14,099	16 × 48	95	47	6	6	0,09
						14,100 - 16,099	16 × 48	95	47	6	6	0,09
58N.82	–	58N.85	58M.85	–	DJP	16,100 - 18,099	16 × 48	100	52	6	6	0,09
						18,100 - 20,099	20 × 50	120	70	6	8	0,11
						20,100 - 22,099	20 × 50	120	70	6	8	0,18
58N.62		58N.65	58M.65		DBG-P	22,100 - 24,099	25 × 56	120	64	6	8	0,18
						24,100 - 26,099	25 × 56	120	64	6	8	0,32
58N.16		58N.17	58M.17		DBC	26,100 - 28,099	25 × 56	135	79	7	8	0,32
						28,100 - 30,000	25 × 56	135	79	7	8	0,45
58N.21			58M.21		HM							

Order example: Order No. 58N.58 · Bore diameter 21 mm · Bore tolerance H7 · Material 1.0037 (S235JR) or ASG2210 (Cutting geometry page 34)

Cutting speed and feed see pages 38-39.

Tool recommendation reaming tool – long version

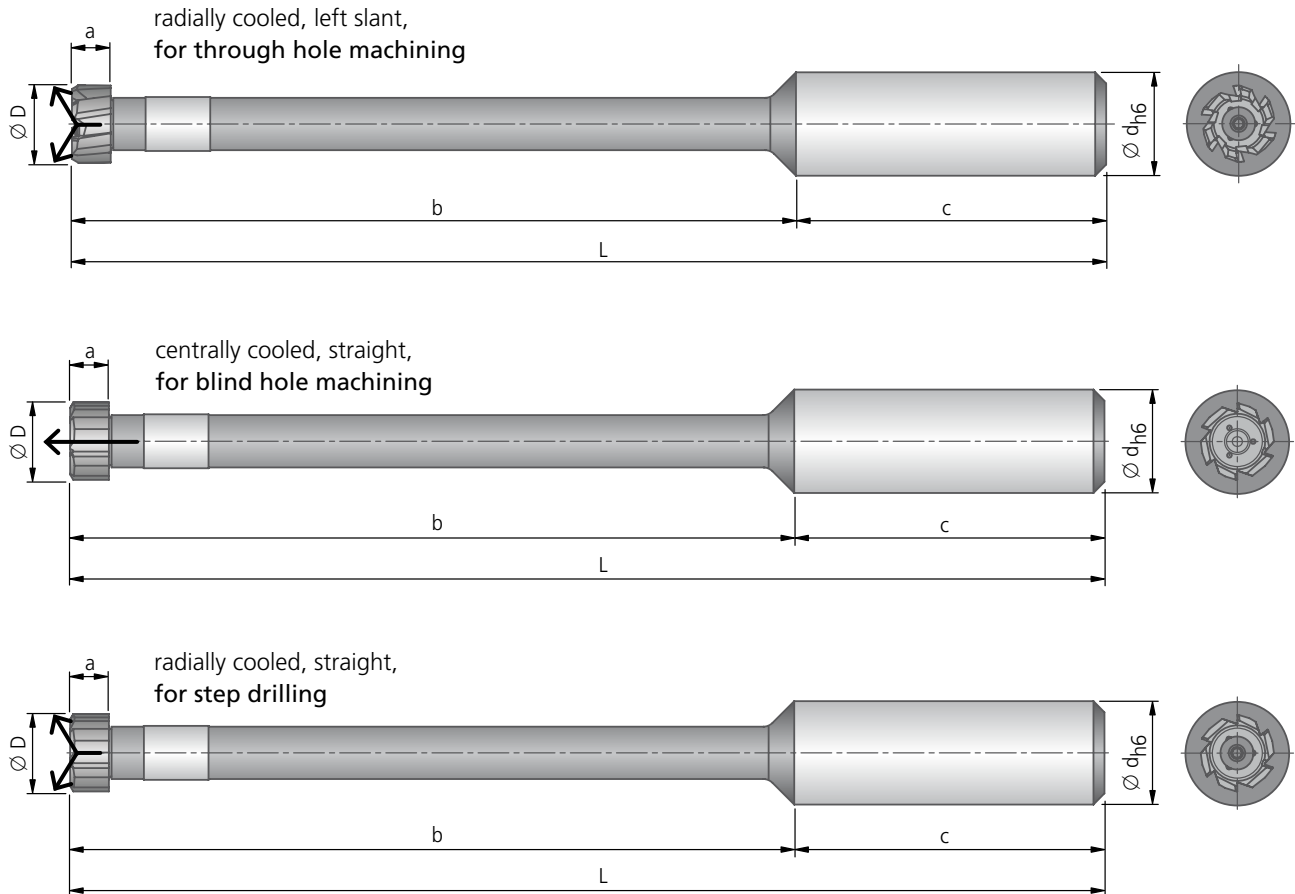
Machining:					High-speed										conventional		
Material group	Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code / DIN	Order No. ASG = cutting geometry												
																	
P	1.0	≤500	non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	58U.58 ASG 2210	58U.92 ASG 05	58U.58 ASG 2210		58T.57 ASG 2110	58T.93 ASG 3000	58T.57 ASG 2110		58U.57 ASG 2210	58U.93 ASG 3000			
	2.0	500-900	non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	58U.58 ASG 2210	58U.92 ASG 05	58U.58 ASG 2210		58T.57 ASG 2110	58T.93 ASG 3000	58T.57 ASG 2110		58U.57 ASG 2210	58U.93 ASG 3000			
	2.1	<500	lead alloys	1.0718 (11SMnPb30)	58U.58 ASG 2210	58U.92 ASG 05	58U.58 ASG 2210		58T.57 ASG 2110	58T.93 ASG 3000	58T.57 ASG 2110		58U.57 ASG 2210	58U.93 ASG 3000			
	3.0	>900	non alloy / low alloy steels; heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	58U.58 ASG 2210	58U.92 ASG 05	58U.58 ASG 2210		58T.57 ASG 2110	58T.93 ASG 3000	58T.57 ASG 2110		58U.57 ASG 2210	58U.93 ASG 3000			
	4.0	>900	high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165Cr-MoV12)	58U.58 ASG 2210	58U.93 ASG 3000	58U.58 ASG 2210		58T.57 ASG 2110	58T.93 ASG 3000	58T.57 ASG 2110		58U.57 ASG 2210	58U.93 ASG 3000			
	4.1		HSS														
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr-19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)												
	5.1	400	titanium, titanium alloys	3.7115 (TiAl5Sn2.5)											58U.21 ASG03	58T.21 ASG03	
M	6.0	≤600	stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNi-Mo17-12-2)	58U.65 ASG 0106		58U.65 ASG 0106		58T.65 ASG 0106		58T.65 ASG 0106		58U.65 ASG 0106				
	6.1	<900	stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMo-Ti17-12-2)	58U.65 ASG 0106		58U.65 ASG 0106		58T.65 ASG 0106		58T.65 ASG 0106		58U.65 ASG 0106				
	7.0	>900	stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCr-Si38-18)	58U.65 ASG 0106		58U.65 ASG 0106		58T.65 ASG 0106		58T.65 ASG 0106		58U.65 ASG 0106				
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	58U.58 ASG 2210	58U.65 ASG 2350	58U.58 ASG 2210	58U.65 ASG 2350	58T.57 ASG 2110	58T.65 ASG 2350	58T.57 ASG 2110	58T.65 ASG 2350	58U.57 ASG 2210	58U.65 ASG 2350		
	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	58U.58 ASG 2210	58U.65 ASG 2350	58U.58 ASG 2210	58U.65 ASG 2350	58T.57 ASG 2110	58T.65 ASG 2350	58T.57 ASG 2110	58T.65 ASG 2350	58U.57 ASG 2210	58U.65 ASG 2350		
	9.0	≤600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	58U.58 ASG 2210	58U.65 ASG 2350	58U.58 ASG 2210	58U.65 ASG 2350	58T.57 ASG 2110	58T.65 ASG 2350	58T.57 ASG 2110	58T.65 ASG 2350	58U.57 ASG 2210	58U.65 ASG 2350		
	9.1		230	spheroidal graphite cast iron, ferritic/perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GJS-55) 0.8055 (GTW-55)	58U.58 ASG 2210	58U.65 ASG 2350	58U.58 ASG 2210	58U.65 ASG 2350	58T.57 ASG 2110	58T.65 ASG 2350	58T.57 ASG 2110	58T.65 ASG 2350	58U.57 ASG 2210	58U.65 ASG 2350		
	10.0	>600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	58U.58 ASG 2210	58U.65 ASG 2350	58U.58 ASG 2210	58U.65 ASG 2350	58T.57 ASG 2110	58T.65 ASG 2350	58T.57 ASG 2110	58T.65 ASG 2350	58U.57 ASG 2210	58U.65 ASG 2350		
	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	58U.58 ASG 2210	58U.65 ASG 2350	58U.58 ASG 2210	58U.65 ASG 2350	58T.57 ASG 2110	58T.65 ASG 2350	58T.57 ASG 2110	58T.65 ASG 2350	58U.57 ASG 2210	58U.65 ASG 2350		
	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	58U.58 ASG 2210	58U.65 ASG 2350	58U.58 ASG 2210	58U.65 ASG 2350	58T.57 ASG 2110	58T.65 ASG 2350	58T.57 ASG 2110	58T.65 ASG 2350	58U.57 ASG 2210	58U.65 ASG 2350		
	N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	58U.58 ASG 2210	58U.17 ASG 2270	58U.58 ASG 2210	58U.17 ASG 2270	58T.57 ASG 2110	58T.17 ASG 2170	58T.57 ASG 2110	58T.17 ASG 2170	58U.57 ASG 2210	58U.17 ASG 2170	
12.1			100	copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	58U.58 ASG 2210	58U.17 ASG 2270	58U.58 ASG 2210	58U.17 ASG 2270	58T.57 ASG 2110	58T.17 ASG 2170	58T.57 ASG 2110	58T.17 ASG 2170	58U.57 ASG 2210	58U.17 ASG 2170		
13.0			60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)		58U.17 ASG 2270		58U.17 ASG 2270		58T.17 ASG 2170		58T.17 ASG 2170		58U.17 ASG 2170		
13.1			75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)		58U.17 ASG 2270		58U.17 ASG 2270		58T.17 ASG 2170		58T.17 ASG 2170		58U.17 ASG 2170		
14.0			100	cast alum. alloy: Si-content >10%	3.2381.01(G-AlSi10Mg)		58U.17 ASG 2270		58U.17 ASG 2270		58T.17 ASG 2170		58T.17 ASG 2170		58U.17 ASG 2170		
H	15.0	1400		hardened steels < 45 HRC													
	16.0	1800		hardened steels > 45 HRC, ≤ 55 HRC													

Ø 12,000– 30,000 mm

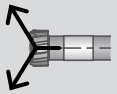
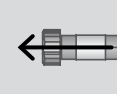
KOMET DIHART® *hi.max*

NEW

Reaming tool – long version



Custom reaming tool – selection options!

 Order No.			 Order No.		Cutting material, coating	Dimensions						
						Ø D	Cylindrical shank Ødxc	L	b	a ~	 Z	 kg ~
58U.92	–	58U.93	58T.93	–	DST	12,000 - 14,099	16 × 48	160	112	6	6	0,13
58U.82	–	58U.85	58T.85	–	DJP	14,100 - 16,099	16 × 48	160	112	6	6	0,15
						16,100 - 18,099	16 × 48	180	132	6	6	0,17
58U.58		58U.57	58T.57		DBG-U	18,100 - 20,099	20 × 50	200	150	6	8	0,20
58U.62		58U.65	58T.65		DBG-P	20,100 - 22,099	20 × 50	200	150	6	8	0,25
58U.16		58U.17	58T.17		DBC	22,100 - 24,099	25 × 56	200	144	6	8	0,35
						24,100 - 26,099	25 × 56	200	144	6	8	0,45
						26,100 - 28,099	25 × 56	210	154	7	8	0,55
58U.21			58T.21		HM	28,100 - 30,000	25 × 56	210	154	7	8	0,60

Order example: Order No. 58U.58 · Bore diameter 21 mm · Bore tolerance H7 · Material 1.0037 (S235JR) or ASG2210 (Cutting geometry page 36)

Cutting speed and feed see pages 38-39.

Recommended cutting data

Guideline values for reaming					Cutting speed v_c (m/min)												
Material group	Strength Rm (N/mm²)	Hardness HB	Material	Material example material code/DIN	optimum · maximum						optimum · maximum						
					3xD Reamers short						5xD Reamers long						
					DST	DBG-U	DIP	DBG-P	HM	DBC	DST	DBG-U	DIP	DBG-P	HM	DBC	
P	1.0	≤ 500	non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	150 200	150 200	150 200				120 160	120 160	120 160				
	2.0	500-900	non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	150 200	150 200	150 200				120 160	120 160	120 160				
	2.1	< 500	lead alloys	1.0718 (11SMnPb30)	150 200	150 200	150 200				120 160	120 160	120 160				
	3.0	> 900	non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	150 200	150 200	150 200				120 160	120 160	120 160				
	4.0	> 900	high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	150 200	150 200	150 200				120 160	120 160	120 160				
	4.1		HSS														
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiCr19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)												
	5.1	400	titanium, titanium alloys	3.7115 (TiAl5Sn2.5)					8 12						8 12		
M	6.0	≤ 600	stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNiMo17-12-2)				40 60						40 60			
	6.1	< 900	stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMo-Ti17-12-2)				30 50						30 50			
	7.0	> 900	stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)				30 50						30 50			
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)		120 180		180 210				120 180		120 180		
	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)		90 130		90 130				90 130		90 130		
	9.0	≤ 600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	175 300	200 250	175 300	200 250			150 180	150 180	150 180	150 180		
	9.1		230	spheroidal graphite cast iron, ferritic / perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	150 250	200 250	150 250	200 250			120 160	150 180	120 160	150 180		
	10.0	> 600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	120 180	120 150	120 180	120 150			120 150	120 150	120 150	120 150		
	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)		90 130		90 130				90 130		90 130		
10.2		300	vermicular cast iron	5.2200 (EN-GJV-350) 5.2300 (EN-GJV-450)		90 130		90 130				90 130		90 130			
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)		150 250			150 250		120 180				120 180	
	12.1		100	copper alloy, brass, bronze:average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)		100 150			100 150		100 150				100 150	
	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)					200 300						150 200	
	13.1		75	cast aluminium alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)					200 300						150 200	
	14.0		100	cast aluminium alloy: Si-content > 10%	3.2381.01 (G-AlSi10Mg)					200 250						150 200	
H	15.0	1400	hardened steels < 45 HRC														
	16.0	1800	hardened steels > 45 HRC, ≤ 55 HRC														

Reaming allowance in diameter (mm)

Important: See chapter "Information" for more application details and safety notes !

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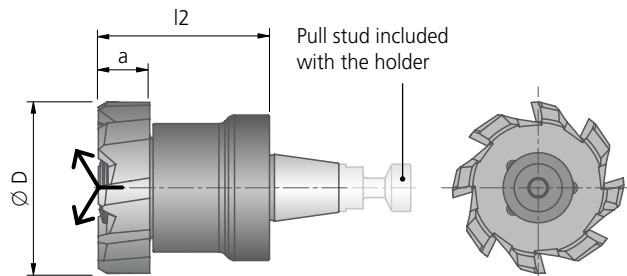
Ø 18^{H7} – 30^{H7} mm

Diameter H7 – available in Q4 2017

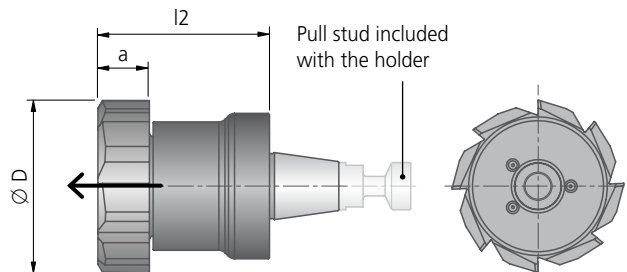


Universal reaming head

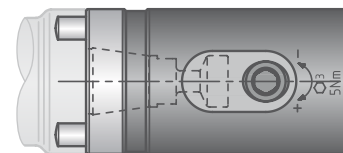
radially cooled, left slant,
for through hole machining



centrally cooled, straight,
for blind hole machining

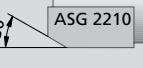
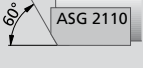


Holder
► 44 - 45



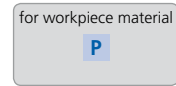
NEW

Diameter H7 – available in Q4 2017

Ø D	a ~	l2 ~	Z	kg ~		Order No. DBG-U		Order No. DBG-U
18 ^{H7}	6	20	8	0,041	ASG 2210	78N.58.18H7	ASG 2110	78M.57.18H7
20 ^{H7}	6	20	8	0,053		78N.58.20H7		78M.57.20H7
22 ^{H7}	6	20	8	0,067		78N.58.22H7		78M.57.22H7
24 ^{H7}	6	20	8	0,070		78N.58.24H7		78M.57.24H7
25 ^{H7}	6	20	8	0,092		78N.58.25H7		78M.57.25H7
26 ^{H7}	6	20	8	0,113		78N.58.26H7		78M.57.26H7
28 ^{H7}	7	25	8	0,176		78N.58.28H7		78M.57.28H7
30 ^{H7}	7	25	8	0,196		78N.58.30H7		78M.57.30H7

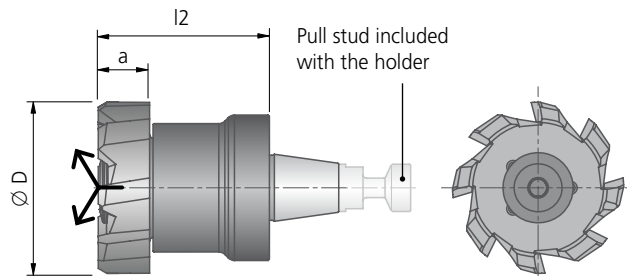
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Diameter H7 – available in Q4 2017

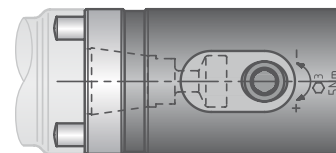


Special reaming head P

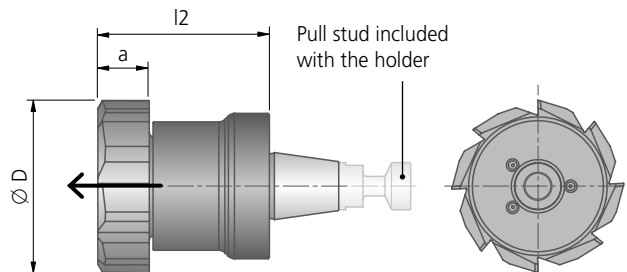
radially cooled, left slant,
for through hole machining



Holder
► 44 - 45



centrally cooled, straight,
for blind hole machining



NEW

Diameter H7 – available in Q4 2017

Ø D	a ~	l2 ~	Z	kg ~	 P	 P
					 25° ASG 05 Order No. DST	 45° ASG 3000 Order No. DST
18 ^{H7}	6	20	8	0,041	78N.92.18H7	78M.93.18H7
20 ^{H7}	6	20	8	0,053	78N.92.20H7	78M.93.20H7
22 ^{H7}	6	20	8	0,067	78N.92.22H7	78M.93.22H7
24 ^{H7}	6	20	8	0,070	78N.92.24H7	78M.93.24H7
25 ^{H7}	6	20	8	0,092	78N.92.25H7	78M.93.25H7
26 ^{H7}	6	20	8	0,113	78N.92.26H7	78M.93.26H7
28 ^{H7}	7	25	8	0,176	78N.92.28H7	78M.93.28H7
30 ^{H7}	7	25	8	0,196	78N.92.30H7	78M.93.30H7

Cutting speed and feed see pages 46-47.
Assembly instructions see catalogue "KomPass REAMING"

KOMET DIHART REAMAX® TS fix

Tool recommendation

		Machining:		High-speed										conventional	
Material group	Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code / DIN	Order No. ASG = cutting geometry										
															
					uni	special	uni	special	uni	special	uni	special	uni	special	
P	1.0	≤500	non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	78N.58 ASG 2210	78N.92 ASG 05	78N.58 ASG 2210		78M.57 ASG 2110	78M.93 ASG 3000	78M.57 ASG 2110		78N.57 ASG 2210	78N.93 ASG 3000	
	2.0	500-900	non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	78N.58 ASG 2210	78N.92 ASG 05	78N.58 ASG 2210		78M.57 ASG 2110	78M.93 ASG 3000	78M.57 ASG 2110		78N.57 ASG 2210	78N.93 ASG 3000	
	2.1	<500	lead alloys	1.0718 (11SMnPb30)	78N.58 ASG 2210	78N.92 ASG 05	78N.58 ASG 2210		78M.57 ASG 2110	78M.93 ASG 3000	78M.57 ASG 2110		78N.57 ASG 2210	78N.93 ASG 3000	
	3.0	>900	non alloy / low alloy steels; heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	78N.58 ASG 2210	78N.92 ASG 05	78N.58 ASG 2210		78M.57 ASG 2110	78M.93 ASG 3000	78M.57 ASG 2110		78N.57 ASG 2210	78N.93 ASG 3000	
	4.0	>900	high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165Cr-MoV12)	78N.58 ASG 2210	78N.93 ASG 3000	78N.58 ASG 2210		78M.57 ASG 2110	78M.93 ASG 3000	78M.57 ASG 2110		78N.57 ASG 2210	78N.93 ASG 3000	
	4.1		HSS												
S	5.0		special alloys: Inconel, Hastelloy, Nimonic, etc.	2.4668 (NiuCr-19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)											
	5.1	400	titanium, titanium alloys	3.7115 (TiAl5Sn2.5)										78N.21 ASG03	78M.21 ASG03
M	6.0	≤600	stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNi-Mo17-12-2)	78N.65 ASG 0106		78N.65 ASG 0106		78M.65 ASG 0106		78M.65 ASG 0106		78N.65 ASG 0106		
	6.1	<900	stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMo-Ti17-12-2)	78N.65 ASG 0106		78N.65 ASG 0106		78M.65 ASG 0106		78M.65 ASG 0106		78N.65 ASG 0106		
	7.0	>900	stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCr-Si38-18)	78N.65 ASG 0106		78N.65 ASG 0106		78M.65 ASG 0106		78M.65 ASG 0106		78N.65 ASG 0106		
K	8.0		gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	78N.58 ASG 2210	78N.65 ASG 2350	78N.58 ASG 2210	78N.65 ASG 2350	78M.57 ASG 2110	78M.65 ASG 2350	78M.57 ASG 2110	78M.65 ASG 2350	78N.57 ASG 2210	78N.65 ASG 2350	
	8.1		alloy gray cast iron	0.6660 (GGL-NiCr20 2)	78N.58 ASG 2210	78N.65 ASG 2350	78N.58 ASG 2210	78N.65 ASG 2350	78M.57 ASG 2110	78M.65 ASG 2350	78M.57 ASG 2110	78M.65 ASG 2350	78N.57 ASG 2210	78N.65 ASG 2350	
	9.0	≤600	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	78N.58 ASG 2210	78N.65 ASG 2350	78N.58 ASG 2210	78N.65 ASG 2350	78M.57 ASG 2110	78M.65 ASG 2350	78M.57 ASG 2110	78M.65 ASG 2350	78N.57 ASG 2210	78N.65 ASG 2350	
	9.1		spheroidal graphite cast iron, ferritic/perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GJS-55) 0.8055 (GTW-55)	78N.58 ASG 2210	78N.65 ASG 2350	78N.58 ASG 2210	78N.65 ASG 2350	78M.57 ASG 2110	78M.65 ASG 2350	78M.57 ASG 2110	78M.65 ASG 2350	78N.57 ASG 2210	78N.65 ASG 2350	
	10.0	>600	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	78N.58 ASG 2210	78N.65 ASG 2350	78N.58 ASG 2210	78N.65 ASG 2350	78M.57 ASG 2110	78M.65 ASG 2350	78M.57 ASG 2110	78M.65 ASG 2350	78N.57 ASG 2210	78N.65 ASG 2350	
	10.1		alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	78N.58 ASG 2210	78N.65 ASG 2350	78N.58 ASG 2210	78N.65 ASG 2350	78M.57 ASG 2110	78M.65 ASG 2350	78M.57 ASG 2110	78M.65 ASG 2350	78N.57 ASG 2210	78N.65 ASG 2350	
	10.2		vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	78N.58 ASG 2210	78N.65 ASG 2350	78N.58 ASG 2210	78N.65 ASG 2350	78M.57 ASG 2110	78M.65 ASG 2350	78M.57 ASG 2110	78M.65 ASG 2350	78N.57 ASG 2210	78N.65 ASG 2350	
	12.0		copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	78N.58 ASG 2210	78N.17 ASG 2270	78N.58 ASG 2210	78N.17 ASG 2270	78M.57 ASG 2110	78M.17 ASG 2170	78M.57 ASG 2110	78M.17 ASG 2170	78N.57 ASG 2210	78N.17 ASG 2170	
N	12.1		copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	78N.58 ASG 2210	78N.17 ASG 2270	78N.58 ASG 2210	78N.17 ASG 2270	78M.57 ASG 2110	78M.17 ASG 2170	78M.57 ASG 2110	78M.17 ASG 2170	78N.57 ASG 2210	78N.17 ASG 2170	
	13.0		wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)		78N.17 ASG 2270		78N.17 ASG 2270		78M.17 ASG 2170		78M.17 ASG 2170		78N.17 ASG 2170	
	13.1		cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)		78N.17 ASG 2270		78N.17 ASG 2270		78M.17 ASG 2170		78M.17 ASG 2170		78N.17 ASG 2170	
	14.0		cast alum. alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)		78N.17 ASG 2270		78N.17 ASG 2270		78M.17 ASG 2170		78M.17 ASG 2170		78N.17 ASG 2170	
H	15.0	1400	hardened steels < 45 HRC												
	16.0	1800	hardened steels > 45 HRC, ≤ 55 HRC												

Ø 18,000 – 30,000 mm

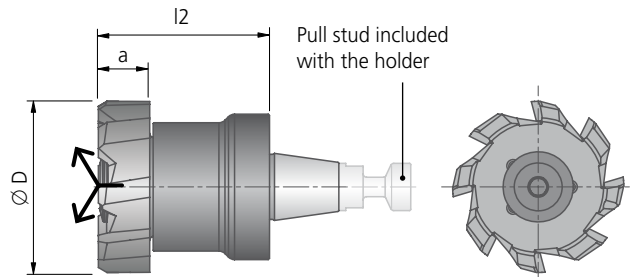
KOMET DIHART REAMAX® TS fix

NEW

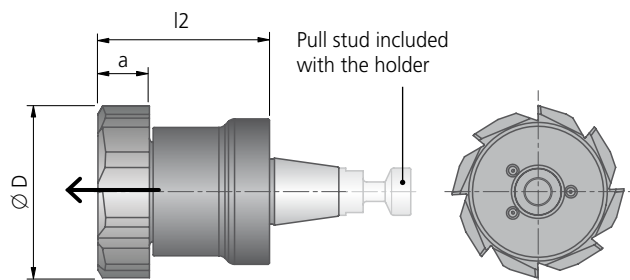
Reaming head – fix



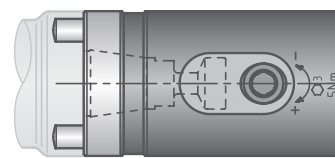
radially cooled, left slant,
for through hole machining



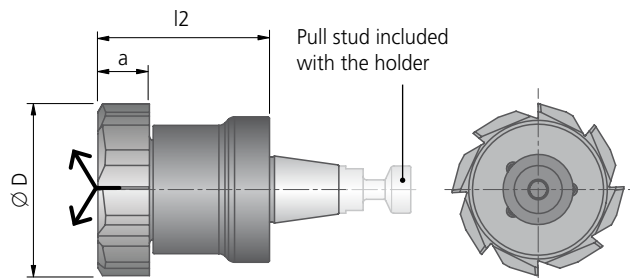
centrally cooled, straight,
for blind hole machining



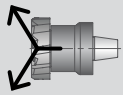
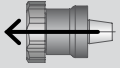
Holder
► 44 - 45



radially cooled, straight,
for step drilling



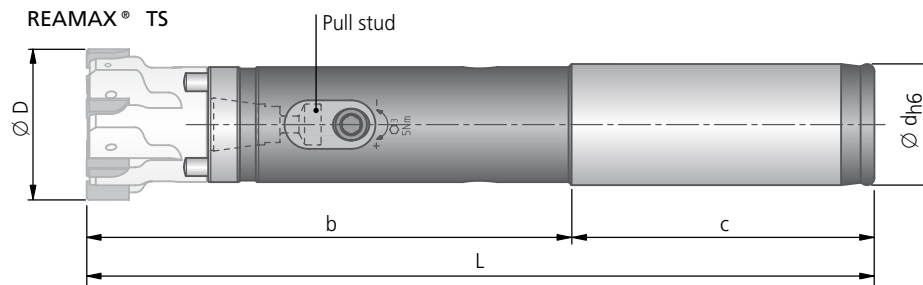
Custom reaming head – selection options!

 Order No.			 Order No.			Dimensions				
						Ø D	a ~	l2 ~	Z 	kg 
	–	78N.93		–	DST	18,000 - 19,999	6	20	8	0,04
	–	78N.85		–	DJP	20,000 - 21,999	6	20	8	0,05
78N.58	78N.57	78M.57	DBG-U			22,000 - 24,099	6	20	8	0,07
78N.62	78N.65	78M.65	DBG-P			24,100 - 26,099	6	20	8	0,10
78N.16	78N.17	78M.17	DBC			26,100 - 26,999	7	20	8	0,11
78N.21	78M.21	78M.21	HM			27,000 - 28,099	7	25	8	0,17
78N.21	78M.21	78M.21	HM			28,100 - 30,000	7	25	8	0,19

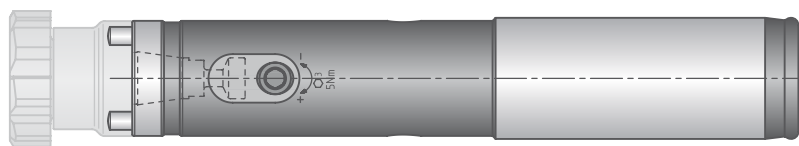
Order example: Order No. 78N.58 · Bore diameter 21 mm · Bore tolerance H7 · Material 1.0037 (S235JR) or ASG2210 (Cutting geometry page 42)

KOMET DIHART REAMAX® TS

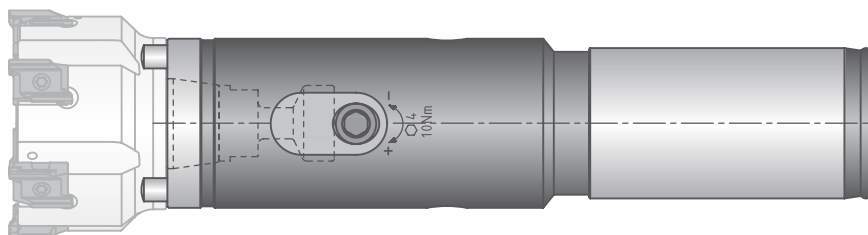
Holder for Ø 18,000 – 70,000 mm



REAMAX® TS fix



REAMAX® TS Duo



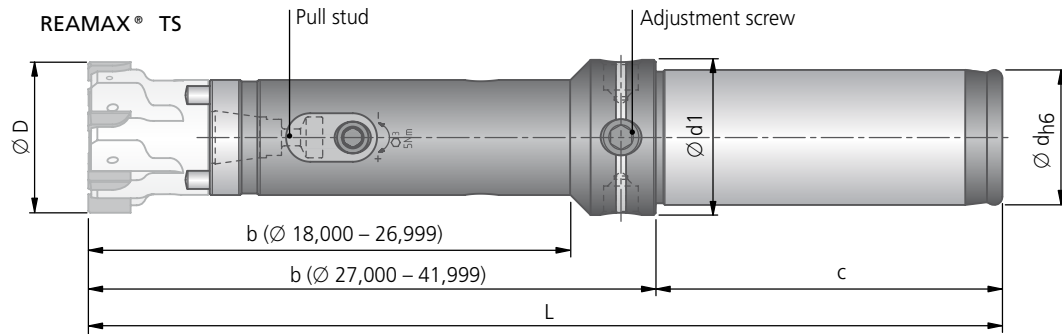
≈ DIN 1835															
REAMAX® TS	REAMAX® TS fix	REAMAX® TS Duo	Diameter range Ø D	short version						long version					
Ø D ^{H7}	Ø D ^{H7}	Ø D		Order No.	L	b	c	Ø d	kg	Order No.	L	b	c	Ø d	kg
18 ^{H7}	18 ^{H7}		18,000 – 19,999	75A.40.13010	130	80	50	20	0,2	75A.40.15010	190	140	50	20	0,3
20 ^{H7}	20 ^{H7}		20,000 – 21,999	75A.40.13020	130	80	50	20	0,2	75A.40.15020	190	140	50	20	0,3
22 ^{H7}	22 ^{H7}		22,000 – 26,999	75A.40.13030	130	80	50	20	0,3	75A.40.15030	210	160	50	20	0,4
24 ^{H7}	24 ^{H7}														
25 ^{H7}	25 ^{H7}														
26 ^{H7}	26 ^{H7}														
28 ^{H7}	28 ^{H7}		27,000 – 34,999	75A.40.13040	176	120	56	25	0,5	75A.40.15040	236	180	56	25	0,7
30 ^{H7}	30 ^{H7}														
32 ^{H7}															
35 ^{H7}															
40 ^{H7}			35,000 – 41,999	75A.40.13050	176	120	56	25	0,6	75A.40.15050	256	200	56	25	1,0
42 ^{H7}		42	42,000 – 51,999	75A.40.13060	180	120	60	32	0,9	75A.40.15060	280	220	60	32	1,5
50 ^{H7}															
54 ^{H7}		54	52,000 – 70,000	75A.40.13070	180	120	60	32	1,0	75A.40.15070	280	220	60	32	1,0
		60													

Supply includes: Holder with pull stud.
Please order reaming head separately.

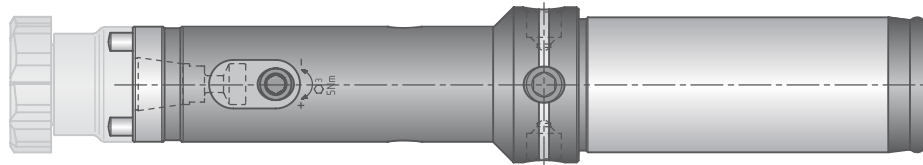
KOMET DIHART REAMAX® TS

DAH® Zero Holder for Ø 18,000 – 41,999 mm

⚠ Please note:
Holder is pre-clamped and set to a concentricity of < 0.005 mm



REAMAX® TS fix



DAH® Zero																
REAMAX® TS Ø D ^{H7}	REAMAX® TS fix Ø D ^{H7}	Diameter range Ø D	short version							long version						
			Order No.	L	b	c	Ø d	Ø d1	kg	Order No.	L	b	c	Ø d	Ø d1	kg
18 ^{H7}	18 ^{H7}	18,000 – 19,999	75A.41.13010	145	80	50	20	24	0,2	75A.41.15010	205	140	50	20	24	0,3
20 ^{H7}	20 ^{H7}	20,000 – 21,999	75A.41.13020	145	80	50	20	25	0,3	75A.41.15020	205	140	50	20	25	0,4
22 ^{H7}	22 ^{H7}	22,000 – 26,999	75A.41.13030	145	80	50	20	26,5	0,3	75A.41.15030	225	160	50	20	26,5	0,4
24 ^{H7}	24 ^{H7}															
25 ^{H7}	25 ^{H7}															
26 ^{H7}	26 ^{H7}															
28 ^{H7}	28 ^{H7}	27,000 – 34,999	75A.41.13040	176	120	56	25	26	0,5	75A.41.15040	236	180	56	25	26	0,7
30 ^{H7}	30 ^{H7}															
32 ^{H7}																
35 ^{H7}																
40 ^{H7}		35,000 – 41,999	75A.41.13050	176	120	56	25	29	0,5	75A.41.15050	256	200	56	25	29	1,05

Supply includes: Holder with pull stud.
Please order reaming head separately.

KOMET DIHART REAMAX® TS fix

Recommended cutting data

Guideline values for reaming					Cutting speed v_c (m/min)												
Material group	Strength Rm (N/mm²)	Hardness HB	Material	Material example material code/DIN	optimum · maximum						optimum · maximum						
					3xD Reamers short						5xD Reamers long						
					DST	DBG-U	DIP	DBG-P	HM	DBC	DST	DBG-U	DIP	DBG-P	HM	DBC	
P	1.0	≤ 500	non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	150 200	150 200	150 200				120 160	120 160	120 160				
	2.0	500-900	non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	150 200	150 200	150 200				120 160	120 160	120 160				
	2.1	< 500	lead alloys	1.0718 (11SMnPb30)	150 200	150 200	150 200				120 160	120 160	120 160				
	3.0	> 900	non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	150 200	150 200	150 200				120 160	120 160	120 160				
	4.0	> 900	high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	150 200	150 200	150 200				120 160	120 160	120 160				
	4.1		HSS														
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.													
	5.1	400	titanium, titanium alloys	3.7115 (TiAl5Sn2.5)					8 12						8 12		
M	6.0	≤ 600	stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNiMo17-12-2)				40 60						40 60			
	6.1	< 900	stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMo-Ti17-12-2)				30 50						30 50			
	7.0	> 900	stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)				30 50						30 50			
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)		120 180		180 210				120 180		120 180		
	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)		90 130		90 130				90 130		90 130		
	9.0	≤ 600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	175 300	200 250	175 300	200 250			150 180	150 180	150 180	150 180		
	9.1		230	spheroidal graphite cast iron, ferritic / perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	150 250	200 250	150 250	200 250			120 160	150 180	120 160	150 180		
	10.0	> 600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	120 180	120 150	120 180	120 150			120 150	120 150	120 150	120 150		
	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)		90 130		90 130				90 130		90 130		
10.2		300	vermicular cast iron	5.2200 (EN-GJV-350) 5.2300 (EN-GJV-450)		90 130		90 130				90 130		90 130			
N	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)		150 250			150 250		120 180				120 180	
	12.1		100	copper alloy, brass, bronze:average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)		100 150			100 150		100 150				100 150	
	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)					200 300						150 200	
	13.1		75	cast aluminium alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)					200 300						150 200	
	14.0		100	cast aluminium alloy: Si-content > 10%	3.2381.01 (G-AlSi10Mg)					200 250						150 200	
H	15.0	1400	hardened steels < 45 HRC														
	16.0	1800	hardened steels > 45 HRC, ≤ 55 HRC														

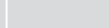
Reaming allowance in diameter (mm)

Recommended cutting data

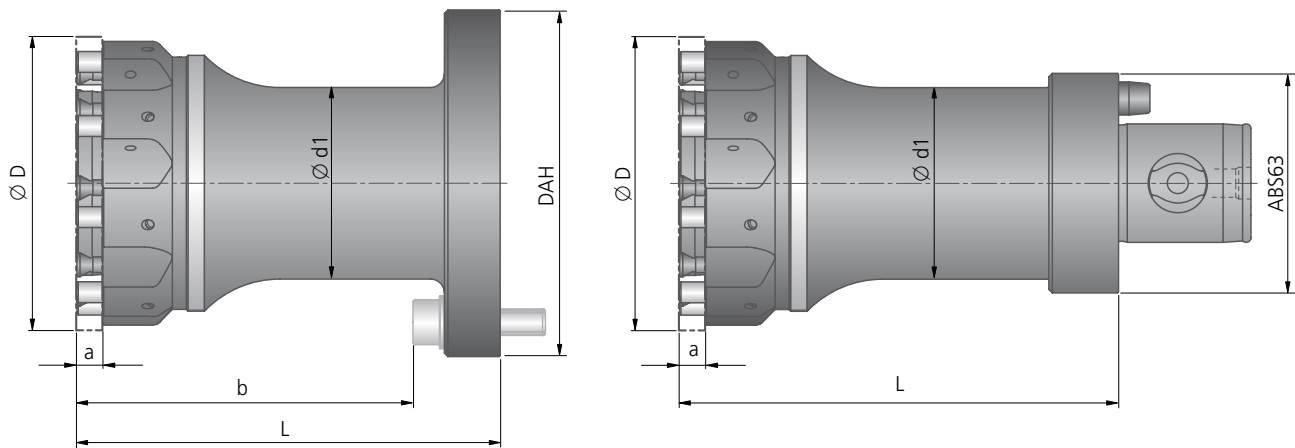
	Feed f (mm/rev)																	
	optimum · maximum									optimum · maximum								
	ASG 2210		ASG 05		ASG 2110		ASG 2170		ASG 2270		ASG 2350		ASG 0106		ASG 03		ASG 3000	
	Ø 18- 18,099 6	Ø 18,1- 30,099 8	Ø 18- 18,099 6	Ø 18,1- 30,099 8	Ø 18- 18,099 6	Ø 18,1- 30,099 8	Ø 18- 18,099 6	Ø 18,1- 30,099 8	Ø 18- 18,099 6	Ø 18,1- 30,099 8	Ø 18- 18,099 6	Ø 18,1- 30,099 8	Ø 18- 18,099 6	Ø 18,1- 30,099 8	Ø 18- 18,099 6	Ø 18,1- 30,099 8	Ø 18- 18,099 6	Ø 18,1- 30,099 8
	1,20 1,50	1,80 2,20	1,20 1,50	1,80 2,40	1,20 1,50	1,80 2,20											0,90 1,20	1,50 2,00
	1,20 1,50	1,80 2,20	1,20 1,50	1,80 2,40	1,20 1,50	1,80 2,20											0,90 1,20	1,50 2,00
	1,20 1,50	1,80 2,20	1,10 1,40	1,80 2,40	1,20 1,50	1,80 2,20											0,90 1,20	1,50 2,00
	1,20 1,50	1,80 2,20	1,10 1,40	1,80 2,40	1,20 1,50	1,80 2,20											0,90 1,20	1,50 2,00
	0,90 1,15	1,20 1,50			0,90 1,15	1,20 1,50											0,60 0,80	1,00 1,40
															0,70 1,00	1,2 1,60		
													0,70 0,90	1,20 1,60				
													0,70 0,90	1,20 1,60				
													0,70 0,90	1,20 1,60				
	1,40 2,00	1,90 2,70			1,40 2,00	1,90 2,70					1,40 2,00	1,90 2,70						
	1,10 1,70	1,50 2,30			1,10 1,70	1,50 2,30					1,10 1,70	1,50 2,30						
	1,40 2,00	1,90 2,70			1,40 2,00	1,90 2,70					1,40 2,00	1,90 2,70						
	1,40 2,00	1,90 2,70			1,40 2,00	1,90 2,70					1,40 2,00	1,90 2,70						
	1,10 1,70	1,50 2,30			1,10 1,70	1,50 2,30					1,10 1,70	1,50 2,30						
	0,90 1,30	1,20 1,80			0,90 1,30	1,20 1,80					0,90 1,30	1,20 1,80						
	0,90 1,30	1,20 1,80			0,90 1,30	1,20 1,80					0,90 1,30	1,20 1,80						
	1,20 1,90	1,70 2,50			1,20 1,90	1,70 2,50	1,20 1,80	1,60 2,40	1,20 1,80	1,60 2,40								
	1,00 1,50	1,40 2,10			1,00 1,50	1,40 2,10	0,90 1,40	1,20 1,90	0,90 1,40	1,20 1,90								
							1,20 1,80	1,60 2,40	1,20 1,80	1,60 2,40								
							1,30 2,00	1,70 2,70	1,30 2,00	1,70 2,70								
							1,30 2,00	1,70 2,70	1,30 2,00	1,70 2,70								
	0,20 - 0,30	0,20 - 0,40	0,20 - 0,30	0,20 - 0,40	0,20 - 0,30	0,20 - 0,40	0,20 - 0,30	0,3	0,20 - 0,30	0,3	0,20 - 0,30	0,3	0,20 - 0,30	0,20 - 0,40	0,20 - 0,30	0,20 - 0,40	0,20 - 0,30	0,20 - 0,40

Cutting speed and feed see page 51.



		Diameter H7 – available in Q4 2017				
Ø D	Z	 		 		
		 		 		
						
		Order No. DBG-P	Order No. DBG-P	Order No. DST	Order No. DST	
70 ^{H7}	6	71G.65.0700N	71G.65.0700D	71G.93.0700N	71G.93.0700D	
75 ^{H7}	6	71G.65.0750N	71G.65.0750D	71G.93.0750N	71G.93.0750D	
80 ^{H7}	8	71H.65.0800N	71H.65.0800D	71H.93.0800N	71H.93.0800D	
85 ^{H7}	8	71H.65.0850N	71H.65.0850D	71H.93.0850N	71H.93.0850D	
90 ^{H7}	8	71H.65.0900N	71H.65.0900D	71H.93.0900N	71H.93.0900D	
95 ^{H7}	8	71H.65.0950N	71H.65.0950D	71H.93.0950N	71H.93.0950D	
100 ^{H7}	8	71H.65.1000N	71H.65.1000D	71H.93.1000N	71H.93.1000D	

¹⁾ material group 9.0 | 9.1 | 10.0 · ²⁾ material group 12.0 · ³⁾ material group 12.0 | 12.1



DAH®								ABS®						
Order No.	DAH	Ø d1	L	b	a ~	kg		Order No.	ABS	Ø d1	L	a ~	kg	Clamping screw  Order No. Article
72A.30.07000	81	38	117	99	7	1,8		72A.60.07000	63	50	125	7	2,7	N00 56861 S4514-20IP 4,3 Nm
72A.30.07500	81	38	117	99	7	2,0		72A.60.07500	63	50	125	7	2,9	
72A.30.08000	115	55	121,5	96	7	3,3		72A.60.08000	63	60	125	7	3,2	
72A.30.08500	115	55	121,5	96	7	3,5		72A.60.08500	63	60	125	7	3,4	
72A.30.09000	115	55	121,5	96	7	3,7		72A.60.09000	63	60	125	7	3,7	
72A.30.09500	115	55	121,5	96	7	3,9		72A.60.09500	63	60	125	7	4	
72A.30.10000	115	55	121,5	96	7	4,2		72A.60.10000	63	60	125	7	4,3	

Supply includes: Holder with clamping screw.

Please order insert separately. Screwdriver see chapter "Information".

DAH® adaptors see catalogue "KomPass REAMING". / ABS® adaptors see catalogue "KomPass DRILLING".

Further holders on request

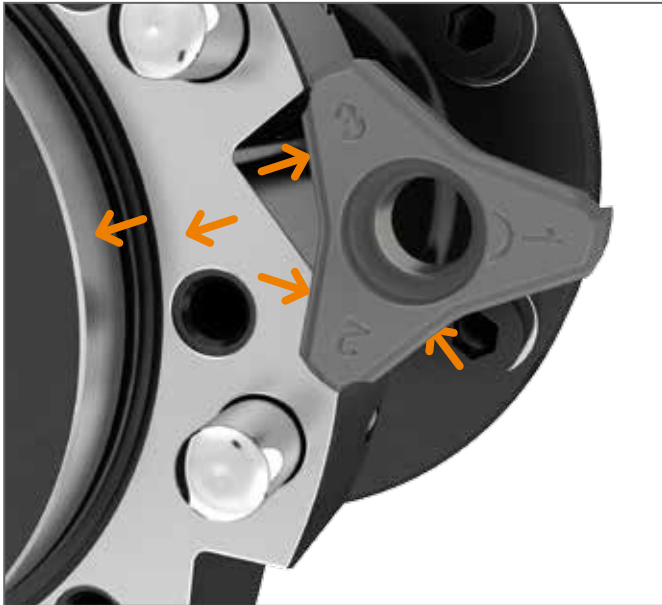
Tool recommendation

				Machining:	High-speed			
Material group	Strength Rm (N/mm²)	Hardness HB	Material	Material example, material code / DIN				
					Order No. ASG = cutting geometry	Order No. ASG = cutting geometry	Order No. ASG = cutting geometry	Order No. ASG = cutting geometry
P	1.0	≤500	non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	71G.93 71H.93 ASG 4000	71G.65 71H.65 ASG 4000	71G.93 71H.93 ASG 3000	71G.65 71H.65 ASG 3000
	2.0	500-900	non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	71G.93 71H.93 ASG 4000	71G.65 71H.65 ASG 4000	71G.93 71H.93 ASG 3000	71G.65 71H.65 ASG 3000
	2.1	<500	lead alloys	1.0718 (11SMnPb30)	71G.93 71H.93 ASG 4000	71G.65 71H.65 ASG 4000	71G.93 71H.93 ASG 3000	71G.65 71H.65 ASG 3000
	3.0	>900	non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	71G.93 71H.93 ASG 4000	71G.65 71H.65 ASG 4000	71G.93 71H.93 ASG 3000	71G.65 71H.65 ASG 3000
	4.0	>900	high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	71G.93 71H.93 ASG 3000	71G.65 71H.65 ASG 3000	71G.93 71H.93 ASG 3000	71G.65 71H.65 ASG 3000
	4.1		HSS					
S	5.0	250	special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr19Fe19N- b5Mo3) 2.4631 (Nimonic 80A)				
	5.1	400	titanium, titanium alloys	3.7115 (TiAl5Sn2.5)				
M	6.0	≤600	stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNi- Mo17-12-2)				
	6.1	<900	stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMo- Ti17-12-2)				
	7.0	>900	stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)				
K	8.0	180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	71G.65 71H.65 ASG 3000	71G.65 71H.65 ASG 3000	71G.65 71H.65 ASG 3000	71G.65 71H.65 ASG 3000
	8.1	250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	71G.65 71H.65 ASG 3000	71G.65 71H.65 ASG 3000	71G.65 71H.65 ASG 3000	71G.65 71H.65 ASG 3000
	9.0	≤600	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	71G.65 71H.65 ASG 3000	71G.65 71H.65 ASG 3000	71G.65 71H.65 ASG 3000	71G.65 71H.65 ASG 3000
	9.1	230	spheroidal graphite cast iron, ferritic/perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GJS-55) 0.8055 (GTW-55)	71G.65 71H.65 ASG 3000	71G.65 71H.65 ASG 3000	71G.65 71H.65 ASG 3000	71G.65 71H.65 ASG 3000
	10.0	>600	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	71G.65 71H.65 ASG 3000	71G.65 71H.65 ASG 3000	71G.65 71H.65 ASG 3000	71G.65 71H.65 ASG 3000
	10.1	200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA- XNiCr20-2)	71G.65 71H.65 ASG 3000	71G.65 71H.65 ASG 3000	71G.65 71H.65 ASG 3000	71G.65 71H.65 ASG 3000
	10.2	300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	71G.65 71H.65 ASG 3000	71G.65 71H.65 ASG 3000	71G.65 71H.65 ASG 3000	71G.65 71H.65 ASG 3000
	12.0	90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	71G.93 71H.93 ASG 4000	71G.65 71H.65 ASG 4000	71G.93 71H.93 ASG 3000	71G.65 71H.65 ASG 3000
N	12.1	100	copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	71G.65 71H.65 ASG 4000	71G.65 71H.65 ASG 4000	71G.65 71H.65 ASG 3000	71G.65 71H.65 ASG 3000
	13.0	60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)				
	13.1	75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)				
	14.0	100	cast alum. alloy: Si-content >10%	3.2381.01(G-AlSi10Mg)				
H	15.0	1400	hardened steels < 45 HRC					
	16.0	1800	hardened steels > 45 HRC, ≤ 55 HRC					

Recommended cutting data

Guideline values for reaming					Cutting speed v_c (m/min)				Feed f (mm/rev)			
Material group	Strength R _m (N/mm ²)	Hardness HB	Material	Material example, material code / DIN	optimum maximum		optimum maximum		optimum maximum		optimum maximum	
					Reamers short		Reamers long		ASG 3000		ASG 4000	
					3xD		5xD		Ø 69,6 - 79,599 ✱ 6	Ø 79,6 - 100,599 ✱ 8	Ø 69,6 - 79,599 ✱ 6	Ø 79,6 - 100,599 ✱ 8
					DST	DBG-P	DST	DBG-P				
P	1.0	≤500	non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	150 200	150 200	120 160	120 160	1,10 1,70	1,50 2,30	1,40 2,00	1,90 2,70
	2.0	500-900	non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	150 200	150 200	120 160	120 160	1,10 1,70	1,50 2,30	1,40 2,00	1,90 2,70
	2.1	<500	lead alloys	1.0718 (11SMnPb30)	150 200	150 200	120 160	120 160	1,10 1,70	1,50 2,30	1,40 2,00	1,90 2,70
	3.0	>900	non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	150 200	150 200	120 160	120 160	1,10 1,70	1,50 2,30	1,40 2,00	1,90 2,70
	4.0	>900	high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	150 200	150 200	150 200	120 160	0,80 1,20	1,10 1,60		
	4.1		HSS									
S	5.0		250	special alloys: Inconel, Hastelloy, Nimonic, stc.								
	5.1	400	titanium, titanium alloys	3.7115 (TiAl5Sn2.5)								
M	6.0	≤600	stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNi-Mo17-12-2)								
	6.1	<900	stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMo-Ti17-12-2)								
	7.0	>900	stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)								
K	8.0		180	gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	150 220		120 150	1,40 2,00	1,90 2,70		
	8.1		250	alloy gray cast iron	0.6660 (GGL-NiCr20 2)	90 130		90 130	1,10 1,70	1,50 2,30		
	9.0	≤600	130	spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	175 300	175 300	150 180	1,40 2,00	1,90 2,70		
	9.1		230	spheroidal graphite cast iron, ferritic/perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GJS-55) 0.8055 (GTW-55)	150 250	150 250	120 160	1,40 2,00	1,90 2,70		
	10.0	>600	250	spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	120 180	120 180	120 150	1,10 1,70	1,50 2,30		
	10.1		200	alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)		70 100		70 100	0,90 1,30	1,20 1,80	
	10.2		300	vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2		80 130		80 130	0,90 1,30	1,20 1,80	
	12.0		90	copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	150 300	150 300	120 180	1,20 1,90	1,70 2,50		
N	12.1		100	copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)		100 150		100 150	1,00 1,50	1,40 2,10	
	13.0		60	wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)							
	13.1		75	cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)							
	14.0		100	cast alum. alloy: Si-content >10%	3.2381.01(G-AlSi10Mg)							
H	15.0	1400	hardened steels < 45 HRC									
	16.0	1800	hardened steels > 45 HRC, ≤ 55 HRC									

Assembly instructions



Cleaning

→ Make sure that the end faces and contact surfaces on basic bodies and indexable inserts are absolutely clean/grease-free. If necessary, remove tiny dust particles with compressed air.



Assembly

All indexable inserts have number markings ①. During assembly, make sure that all indexable inserts are fitted with the same cutting edge (number markings 1, 2, 3). Place the indexable insert on the collar and on the positioning pin ②. Tighten the clamping screw ③ to a defined torque => use a torque wrench.

Perform exactly the same procedure when switching from cutting edge 1 to cutting edge 2 or 3.



Diameter range	70 - 100 mm
Torque	4,30 Nm
Clamping screw	N00 56861 S4514-20IP
Torque tool	L05 00961
Replaceable blade	L05 00770

Coating update

NEW

The new DBG-P/DJP coating impresses by increasing the tool life by up to 30%.

Coating update KOMET DIHART REAMAX®			
Previously		NEW	
640.48	DBF	640.62	DBG-P
640.49	DBF	640.65	DBG-P

Coating update KOMET DIHART REAMAX® TS			
Previously		NEW	
75J.47	DBF	75J.65	DBG-P
75J.87	DJF	75J.85	DJP
75H.47	DBF	75H.65	DBG-P
75H.87	DJF	75H.85	DJP
75J.47.18H7N	DBF	75J.65.18H7N	DBG-P
75J.47.20H7N	DBF	75J.65.20H7N	DBG-P
75J.47.22H7N	DBF	75J.65.22H7N	DBG-P
75J.47.24H7N	DBF	75J.65.24H7N	DBG-P
75J.47.25H7N	DBF	75J.65.25H7N	DBG-P
75J.47.28H7N	DBF	75J.65.28H7N	DBG-P
75J.47.30H7N	DBF	75J.65.30H7N	DBG-P
75J.47.32H7N	DBF	75J.65.32H7N	DBG-P
75J.47.35H7N	DBF	75J.65.35H7N	DBG-P
75J.47.40H7N	DBF	75J.65.40H7N	DBG-P
75J.47.50H7N	DBF	75J.65.50H7N	DBG-P

Coating update KOMET DIHART REAMAX® TS Duo			
Previously		NEW	
76J.47	DBF	76J.65	DBG-P
76J.87	DJF	76J.85	DJP
76H.47	DBF	76H.65	DBG-P
76H.87	DJF	76H.85	DJP
77J.47	DBF	77J.65	DBG-P
77J.87	DJF	77J.85	DJP
77H.47	DBF	77H.65	DBG-P
77H.87	DJF	77H.85	DJP

Coating update KOMET DIHART® Cutting ring			
Previously		NEW	
300.47	DBF	300.65	DBG-P

Coating update KOMET DIHART Monomax®			
Previously		NEW	
56J.47	DBF	56J.65	DBG-P
56H.47	DBF	56H.65	DBG-P
56J.47.06H7N	DBF	56J.65.06H7N	DBG-P
56J.47.08H7N	DBF	56J.65.08H7N	DBG-P
56J.47.10H7N	DBF	56J.65.10H7N	DBG-P
56J.47.12H7N	DBF	56J.65.12H7N	DBG-P
56J.47.14H7N	DBF	56J.65.14H7N	DBG-P
56J.47.15H7N	DBF	56J.65.15H7N	DBG-P
56J.47.16H7N	DBF	56J.65.16H7N	DBG-P
56J.47.18H7N	DBF	56J.65.18H7N	DBG-P
56J.47.20H7N	DBF	56J.65.20H7N	DBG-P
56R.47	DBF	56R.65	DBG-P
56Q.47	DBF	56Q.65	DBG-P
56N.47	DBF	56N.65	DBG-P
56M.47	DBF	56M.65	DBG-P
56U.47	DBF	56U.65	DBG-P
56T.47	DBF	56T.65	DBG-P

Coating update KOMET DIHART Monomax® inch			
Previously		NEW	
55N.47	DBF	55N.65	DBG-P
55M.47	DBF	55M.65	DBG-P
55U.47	DBF	55U.65	DBG-P
55T.47	DBF	55T.65	DBG-P
55J.47	DBF	55J.65	DBG-P
55H.47	DBF	55H.65	DBG-P
55R.47	DBF	55R.65	DBG-P
55Q.47	DBF	55Q.65	DBG-P

Coating update KOMET DIHART® Duomax			
Previously		NEW	
33G.47	DBF	33G.65	DBG-P
33S.47	DBF	33S.65	DBG-P
33R.47	DBF	33R.65	DBG-P
33G.87	DJF	33G.85	DJP
33S.87	DJF	33S.85	DJP
33R.87	DJF	33R.85	DJP

New coating KOMET DIHART® REAMAX®		
NEW		
640.65.15H7N	DBG-P	
640.65.16H7N	DBG-P	
640.65.18H7N	DBG-P	
640.65.20H7N	DBG-P	
640.65.22H7N	DBG-P	
640.65.24H7N	DBG-P	
640.65.25H7N	DBG-P	
640.65.28H7N	DBG-P	
640.65.30H7N	DBG-P	
640.65.40H7N	DBG-P	
640.93.40H7N	DST	
640.93.40H7D	DST	

New coating KOMET DIHART® Fullmax		
NEW		
52Q.17.04H7	DBC	
52Q.17.05H7	DBC	
52Q.17.06H7	DBC	
52Q.17.07H7	DBC	
52Q.17.08H7	DBC	
52Q.17.09H7	DBC	
52Q.17.10H7	DBC	
52Q.17.11H7	DBC	
52Q.17.12H7	DBC	
52Q.17.16H7	DBC	
52N.17.04H7	DBC	
52N.17.05H7	DBC	
52N.17.06H7	DBC	
52N.17.07H7	DBC	
52N.17.08H7	DBC	
52N.17.09H7	DBC	
52N.17.10H7	DBC	
52N.17.11H7	DBC	
52N.17.12H7	DBC	
52N.17.16H7	DBC	

New coating KOMET DIHART® Rapid set head		
NEW		
340.62	DBG-P	
340.65	DBG-P	

KOMET® Solid drilling

KOMET KUB® Drillmax 3xD | 5xD | 7-8xD

High-performance solid carbide drill

The KUB® Drillmax high-performance solid carbide drills complete our range for drill diameters of 3 to 16 mm and length/diameter ratios of 3xD, 5xD and 7-8xD. Optimised, special flutes are ideal for removing chips and for highly productive machining.

KOMET KUB® Drillmax VA 5xD

Ideal for machining stainless steels

KOMET KUB® Drillmax XL 12xD | 20xD | 30xD

High-performance drill for deep holes

KOMET KUB® Drillmax XL ALU 40xD

for machining aluminium

KOMET® Drillmax 90 5xD | 7xD

NCD High-performance drill for machining composite materials

KOMET® Drillmax 5xD

PCD High-performance drill for machining composite materials

NEW
► 56-61

KOMET KUB® Drillmax XH 5xD

Ideal for machining hardened steel

KOMET SERVICE® – Chapter "Information"
The KOMET SERVICE® TOOL lifeBoxicon describes tools that are available for the high quality cost-efficient refurbishment of tools.



KOMET KUB Pentron® continuous drill

The KOMET KUB Pentron® enables up to 20% higher cutting and feed rates, all the way through to a 5xD length/diameter ratio. It can handle extreme working conditions that were previously only feasible with 3xD.

NEW
▶ 88-89

KOMET KUB Pentron® 6xD *Productivity PLUS*

The new high-performance drill bit

NEW
▶ 62-77

KOMET KUB Pentron® 2xD | 3xD

New addition to the range

KOMET KUB Pentron®

Step drill for continuous drilling with up to three counterboring steps
Ø 14 – 46 mm 4xD

NEW
▶ 90-91



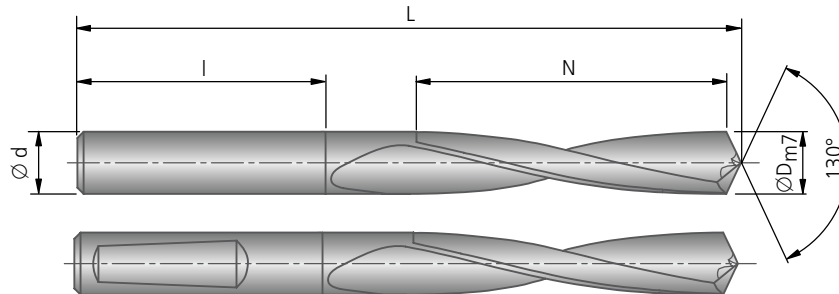
KOMET KUB® Drillmax

Overview

				KUB® Drillmax			KUB® Drillmax VA	
Material Group	Strength Rm (N/mm²)	Hardness HB	Material	LxD Cutting material Coating Page Cutting data: Page	3xD V07 .. s.c. TiAlN	5xD V03 .. s.c. TiAlN	7-8xD V04 .. s.c. TiAlN	5xD V09 .. s.c. TiAlN
P	1.0	≤ 500	non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	●	●	●	●
	2.0	500-900	non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	●	●	●	●
	2.1	< 500	lead alloys	1.0718 (11SMnPb30)	●	●	●	●
	3.0	> 900 - 1200	low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	●	●	●	●
	4.0	> 1200	high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	●	●	●	●
	4.1		HSS					
S	5.0		250 special alloys: Inconel, Hastelloy, Nimonic, etc.	2.4668 (NiuCr19Fe19Nb-5Mo3) 2.4631 (Nimonic 80A)				
	5.1	400	titanium, titanium alloys	3.7115 (TiAl5Sn2.5)				●
M	6.0	≤ 600	stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNiMo17-12-2)	●	●	●	●
	6.1	< 900	stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMo-Ti17-12-2)	●	●	●	●
	7.0	> 900	stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)	●	●	●	●
K	8.0		180 gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	●	●	●	●
	8.1		250 alloy gray cast iron	0.6660 (GGL-NiCr20 2)	●	●	●	●
	9.0	≤ 600	130 spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	●	●	●	●
	9.1		230 spheroidal graphite cast iron, ferritic/perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GJS-55) 0.8055 (GTW-55)	●	●	●	●
	10.0	> 600	250 spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	●	●	●	●
	10.1		200 alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	●	●	●	●
	10.2		300 vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	●	●	●	●
N	12.0		90 copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)				●
	12.1		100 copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)				
	13.0		60 wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)				●
	13.1		75 cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)				●
	14.0		100 cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)				●
H			hardened steels < 45 HRC					
			hardened steels > 45 HRC					

	KUB® Drillmax XH	KUB® Drillmax ALU		KUB® Drillmax XL			Solid carbide spot drill	KUB® Drillmax 90	KUB® Drillmax	
	5xD V19 .. solid carbide AlTiN 58 – 59 60	5xD V26 .. s.c. –	8xD V27 .. s.c. –	12xD V25 .. s.c. TiAlN	20xD V05.. s.c. TiAlN	30xD V06 .. s.c. TiAlN	V95.. solid carbide PVD	5xD V11 .. NCD	7xD V21 .. NCD	5xD V11 .. V03.. PKD
	NEW			●	●	●	●			
				●	●	●	●			
				●	●	●	●			
				●	●	●	●			
							●			
				●						
							●			
							●			
				●	●	●	●			
				●	●	●	●			
				●	●	●	●			
				●	●	●	●			
				●	●	●	●			
				●						
				●	●	●	●			
		●	●				●	CFRP	●	●
		●	●				●	GFRP	●	●
		●	●	●			●	CFRP/Al stacks	●	●
		●	●	●			●	Honeycombs	●	●
	○									
	○									
	○									

High-performance solid carbide drill



5xD						
	DIN 6535 HA	DIN 6535 HE				
D _{m7}	Order No.	Order No.	d×l	L	N	kg
2,5	V19 02500.112830	V19 02500.212830	6×36	62	13	0,017
2,6	V19 02600.112830	V19 02600.212830	6×36	62	13	0,017
3,0	V19 03000.112830	V19 03000.212830	6×36	62	16	0,017
3,3	V19 03300.112830	V19 03300.212830	6×36	62	17	0,017
3,4	V19 03400.112830	V19 03400.212830	6×36	62	17	0,017
3,5	V19 03500.112830	V19 03500.212830	6×36	62	18	0,017
3,9	V19 03900.112830	V19 03900.212830	6×36	72	22	0,019
4,0	V19 04000.112830	V19 04000.212830	6×36	72	23	0,022
4,2	V19 04200.112830	V19 04200.212830	6×36	72	23	0,022
4,3	V19 04300.112830	V19 04300.212830	6×36	72	24	0,022
4,5	V19 04500.112830	V19 04500.212830	6×36	72	25	0,022
4,9	V19 04900.112830	V19 04900.212830	6×36	72	25	0,022

5xD						
	DIN 6535 HA	DIN 6535 HE				
D _{m7}	Order No.	Order No.	d×l	L	N	kg
5,0	V19 05000.112830	V19 05000.212830	6×36	79	30	0,024
5,1	V19 05100.112830	V19 05100.212830	6×36	79	30	0,024
5,5	V19 05500.112830	V19 05500.212830	6×36	79	31	0,024
5,9	V19 05900.112830	V19 05900.212830	6×36	79	32	0,024
6,0	V19 06000.112830	V19 06000.212830	6×36	79	32	0,024
6,1	V19 06100.112830	V19 06100.212830	8×36	89	38	0,028
6,5	V19 06500.112830	V19 06500.212830	8×36	89	38	0,032
6,8	V19 06800.112830	V19 06800.212830	8×36	89	38	0,035
6,9	V19 06900.112830	V19 06900.212830	8×36	89	38	0,036
7,0	V19 07000.112830	V19 07000.212830	8×36	89	39	0,037
7,5	V19 07500.112830	V19 07500.212830	8×36	89	39	0,043
7,9	V19 07900.112830	V19 07900.212830	8×36	89	41	0,047

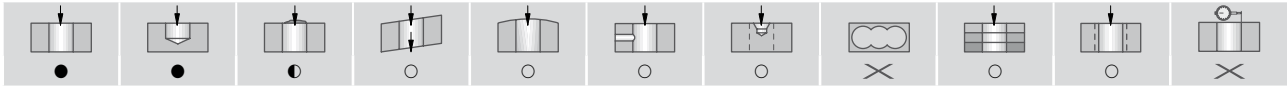
Note: with clamping surface conforming to DIN 6535 HE or DIN 6535 HB (order example **HB**: V19 xxxxx.312930).

Delivery time 1 week (minimum purchase: 3 pieces)

5xD

KOMET KUB® Drillmax XH

High-performance solid carbide drill



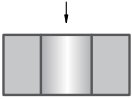
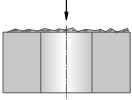
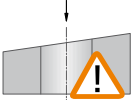
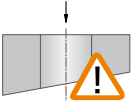
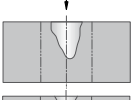
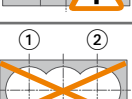
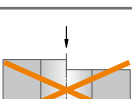
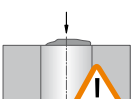
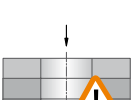
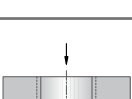
5xD						
D _{m7}	DIN 6535 HA  Order No.	DIN 6535 HE  Order No.	d x l	L	N	 kg
8,0	V19 08000.112830	V19 08000.212830	8x36	89	41	0,049
8,5	V19 08500.112830	V19 08500.212830	10x40	105	49	0,065
8,6	V19 08600.112830	V19 08600.212830	10x40	105	49	0,066
9,0	V19 09000.112830	V19 09000.212830	10x40	105	50	0,073
9,5	V19 09500.112830	V19 09500.212830	10x40	105	50	0,081
9,6	V19 09600.112830	V19 09600.212830	10x40	105	50	0,083
9,9	V19 09900.112830	V19 09900.212830	10x40	105	51	0,088
10,0	V19 10000.112830	V19 10000.212830	10x40	105	51	0,09
10,3	V19 10300.112830	V19 10300.212830	12x45	124	60	0,112
10,4	V19 10400.112830	V19 10400.212830	12x45	124	60	0,115
10,5	V19 10500.112830	V19 10500.212830	12x45	124	60	0,117
10,6	V19 10600.112830	V19 10600.212830	12x45	124	60	0,119

Other diameters on request.

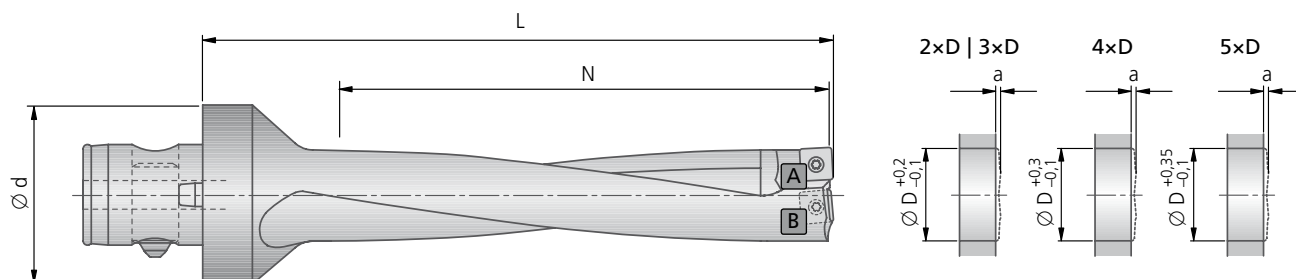
5xD						
D _{m7}	DIN 6535 HA  Order No.	DIN 6535 HE  Order No.	d x l	L	N	 kg
11,0	V19 11000.112830	V19 11000.212830	12x45	124	61	0,128
11,5	V19 11500.112830	V19 11500.212830	12x45	124	61	0,14
11,9	V19 11900.112830	V19 11900.212830	12x45	124	62	0,15
12,0	V19 12000.112830	V19 12000.212830	12x45	124	62	0,153
12,2	V19 12200.112830	V19 12200.212830	14x45	136	70	0,173
12,5	V19 12500.112830	V19 12500.212830	14x45	136	70	0,182
12,6	V19 12600.112830	V19 12600.212830	14x45	136	70	0,184
13,0	V19 13000.112830	V19 13000.212830	14x45	136	71	0,196
13,8	V19 13800.112830	V19 13800.212830	14x45	136	72	0,221
14,0	V19 14000.112830	V19 14000.212830	14x45	136	72	0,228
14,2	V19 14200.112830	V19 14200.212830	16x48	160	88	0,276
14,5	V19 14500.112830	V19 14500.212830	16x48	160	88	0,287
14,6	V19 14600.112830	V19 14600.212830	16x48	160	88	0,291
15,0	V19 15000.112830	V19 15000.212830	16x48	160	89	0,307
15,8	V19 15800.112830	V19 15800.212830	16x48	160	90	0,341
16,0	V19 16000.112830	V19 16000.212830	16x48	160	90	0,35

Recommended cutting data

		KUB® Drillmax XH 5xD																				
Material group	Material	Cutting speed v _C (m/min)			Feed f (mm/rev)																	
					Ø 2,5-5,0			Ø 5,1-8,0			Ø 8,1-10,0			Ø 10,1-12,0			Ø 12,1-14,0			Ø 14,1-16,0		
		min	opt.	max	min	opt.	max	min	opt.	max	min	opt.	max	min	opt.	max	min	opt.	max			
H	hardened steels 50 - 55 HRC	24	30	36	0,05	0,06	0,07	0,06	0,07	0,08	0,07	0,08	0,09	0,08	0,09	0,10	0,09	0,10	0,11	0,01	0,11	0,12
	hardened steels 55 - 60 HRC	16	20	24	0,04	0,05	0,06	0,05	0,06	0,07	0,06	0,07	0,08	0,07	0,08	0,09	0,08	0,09	0,10	0,09	0,10	0,11
	hardened steels 60 - 65 HRC	12	15	18	0,03	0,04	0,05	0,04	0,05	0,06	0,05	0,06	0,07	0,06	0,07	0,08	0,07	0,08	0,09	0,08	0,09	0,1

-
1.  **Starting on straight, machined surfaces**
- starting without feed rate reduction
 - no need for chip removal cycles and pre-centring
 - Please note: If centring has already been performed, care should be taken to ensure that the centring is concentric with the drilling axis and the centring angle is identical to the point angle of the solid carbide drill.
-
2.  **Starting on uneven surfaces (cast surfaces)**
- depending on the quality of the surface or when spot drilling, reduce the feed
 - Please note: Cast workpieces can have mould contours inclined up to an angle of 5° (see 3.)
-
3.  **Starting on angled surfaces**
- depending on the angle of inclination, the feed rate when starting must be reduced accordingly.
Rule of thumb for tools with a maximum projection length of 3xD: 2° $\triangle$ 80°, 4° $\triangle$ 70°, 6° $\triangle$ 50°
 - spotfacing must be performed for greater angles of inclination
-
4.  **Angled bore exit**
- reduce feed by 50 % in the exit area
-
5.  **Starting on cambered surfaces**
- if the drill hole is started in the centre of convex surfaces, no parameter reductions are necessary.
 - if the starting point is outside the radius centre, proceed as indicated at point 3.
-
6.  **Drilling through a cross bore**
- drilling through a cross bore or interrupted cut is generally problematic
 - half feed rate at interruption
-
7.  **Starting on a groove or large centering bore**
- end-face the seam or centre beforehand where applicable (diameter min. 0.1 mm greater than drill diameter)
 - possible under certain conditions. Reduce feed where necessary
-
8.  **Drilling a chamfer**
- not possible
-
9.  **Starting on an edge**
- not possible (start point must be flat)
-
10.  **Starting on a welded seam**
- spot face surface before starting bore
-
11.  **Drilling through stacked plates**
- if the contact surfaces have been machined and the workpieces firmly clamped on top of each other with no gaps, drilling can proceed.
 - Please note: Welded-on eyes made of plate often form a gap between the workpieces. Problems caused by the tool hooking in are then to be expected. Edge fractures may occur more frequently. For this reason, this application is not recommended.
-
12.  **Roughing**
- 3xD and 5xD possible
-

Indexable insert drill



Ø D mm (inch)	**max. diameter with offset	Starting / roughing size a	ABS Ø d	2xD				3xD			
				NEW Order No.	MQL 1-channel N	L	kg	NEW Order No.	MQL 1-channel N	L	kg
14,0	14,5	1,5	50	U42 51400	28	55	0,38	U43 51400	42	69	0,39
14,3 (0,562)	14,8	1,5	50	U42 51430	30	58	0,39	U43 51430	45	73	0,40
14,5	15,0	1,5	50	U42 51450	30	58	0,39	U43 51450	45	73	0,40
15,0	15,5	1,5	50	U42 51500	30	58	0,39	U43 51500	45	73	0,40
15,1 (0,593)	15,6	1,5	50	U42 51510	32	62	0,40	U43 51510	48	78	0,41
15,5	16,0	1,5	50	U42 51550	32	62	0,40	U43 51550	48	78	0,41
15,9 (0,625)	16,4	1,5	50	U42 51590	32	62	0,40	U43 51590	48	78	0,41
16,0	16,5	1,5	50	U42 51600	32	62	0,40	U43 51600	48	78	0,41
16,5	17,0	1,5	50	U42 51650	34	65	0,41	U43 51650	51	82	0,42
16,7 (0,656)*	17,2	1,5	50	U42 51670	34	65	0,41	U43 51670	51	82	0,42
17,0	17,5	1,5	50	U42 51700	34	65	0,41	U43 51700	51	82	0,43
17,5 (0,687)	18,0	1,5	50	U42 51750	36	67	0,42	U43 51750	54	85	0,43
17,9 (0,703)*	18,4	1,9	50	U42 51790	36	67	0,42	U43 51790	54	85	0,44
18,0	18,5	1,9	50	U42 51800	36	67	0,42	U43 51800	54	85	0,44
18,5	19,0	1,9	50	U42 51850	38	70	0,42	U43 51850	57	89	0,44
19,0	19,5	1,9	50	U42 51900	38	70	0,42	U43 51900	57	89	0,44
19,1 (0,750)*	19,6	1,9	50	U42 51910	40	72	0,43	U43 51910	60	92	0,45
19,4 (0,765)*	19,9	1,9	50	U42 51940	40	72	0,43	U43 51940	60	92	0,45
19,5	20,0	1,9	50	U42 51950	40	72	0,43	U43 51950	60	92	0,45
19,8 (0,781)*	20,3	1,9	50	U42 51980	40	72	0,43	U43 51980	60	92	0,45
20,0	20,5	1,9	50	U42 52000	40	72	0,43	U43 52000	60	92	0,45
20,5	21,0	1,9	50	U42 52050	42	74	0,44	U43 52050	63	95	0,47
20,6 (0,812)*	21,1	1,9	50	U42 52060	42	74	0,44	U43 52060	63	95	0,47
21,0 (0,828)	21,5	1,9	50	U42 52100	42	74	0,45	U43 52100	63	95	0,47
21,5	22,0	2,4	50	U42 52150	44	76	0,45	U43 52150	66	98	0,48
21,7	22,2	2,4	50					U43 52170	66	98	0,48
22,0	22,5	2,4	50	U42 52200	44	76	0,46	U43 52200	66	98	0,49
22,2 (0,875)*	22,7	2,4	50	U42 52220	46	78	0,46	U43 52220	69	101	0,50
22,5	23,0	2,4	50	U42 52250	46	78	0,47	U43 52250	69	101	0,50
23,0 (0,906)	23,5	2,4	50	U42 52300	46	78	0,47	U43 52300	69	101	0,51

All intermediate dimensions can be supplied quickly on request.

* Inch measurements marked with an asterisk (*) can be supplied quickly.

** Adjustment device see "KomPass DRILLING – chapter 5"

2xD	●	●	●	●	●	●	●	●	●	●	●
3xD	●	●	●	●	●	●	●	●	●	●	●
4xD	●	●	●	●	●	●	●	○	●	×	●
5xD	●	●	●	●	●	●	●	×	●	×	●

	4xD				5xD					Basic recommendation				
Ø	Order No.	N	L		Order No.	N	L		Clamping screw  	  -01	Pce	  -01	Pce	for workpiece material
									Order No. Article	Order No. ISO code ▽▽ Size		Order No. ISO code ▽▽ Size		
14,0	U44 51400	56	83	0,39	U45 51400	70	97	0,40	N00 56051 S/M1,8x3,85-5IP 0,38 Nm	W80 10010.048425 SOGX 040204-01 BK8425	1	W80 10010.048425 SOGX 040204-01 BK8425	1	
(0,562) 14,3	U44 51430	60	88	0,40	U45 51430	75	103	0,41		W80 10010.047935 SOGX 040204-01 BK7935		W80 10010.047935 SOGX 040204-01 BK7935		 
14,5	U44 51450	60	88	0,40	U45 51450	75	103	0,41		W80 10010.046115 SOGX 040204-01 BK6115		W80 10010.048425 SOGX 040204-01 BK8425		 
15,0	U44 51500	60	88	0,41	U45 51500	75	103	0,41		W80 10010.047710 SOGX 040204-01 BK7710		W80 10010.047710 SOGX 040204-01 BK7710		
(0,593) 15,1	U44 51510	64	94	0,41	U45 51510	80	110	0,42						
15,5	U44 51550	64	94	0,41	U45 51550	80	110	0,42						
(0,625) 15,9	U44 51590	64	94	0,42	U45 51590	80	110	0,43						
16,0	U44 51600	64	94	0,42	U45 51600	80	110	0,43	N00 56041 S/M2x4,3-6IP 0,62 Nm	W80 12010.048425 SOGX 050204-01 BK8425	1	W80 12010.048425 SOGX 050204-01 BK8425	1	
16,5	U44 51650	68	99	0,43	U45 51650	85	116	0,44		W80 12010.047935 SOGX 050204-01 BK7935		W80 12010.047935 SOGX 050204-01 BK7935		 
*(0,656) 16,7	U44 51670	68	99	0,43	U45 51670	85	116	0,44		W80 12010.046115 SOGX 050204-01 BK6115		W80 12010.048425 SOGX 050204-01 BK8425		 
17,0	U44 51700	68	99	0,43	U45 51700	85	116	0,44		W80 12010.047710 SOGX 050204-01 BK7710		W80 12010.047710 SOGX 050204-01 BK7710		
(0,687) 17,5	U44 51750	72	103	0,44	U45 51750	90	121	0,45						
*(0,703) 17,9	U44 51790	72	103	0,44	U45 51790	90	121	0,45						
18,0	U44 51800	72	103	0,44	U45 51800	90	121	0,46						
18,5	U44 51850	76	108	0,47	U45 51850	95	127	0,51	N00 57553 S/M2,2x5,5-6IP 1,01 Nm	W80 18010.068425 SOGX 060206-01 BK8425	1	W80 18010.068425 SOGX 060206-01 BK8425	1	
19,0	U44 51900	76	108	0,49	U45 51900	95	127	0,52		W80 18010.067935 SOGX 060206-01 BK7935		W80 18010.067935 SOGX 060206-01 BK7935		 
*(0,750) 19,1	U44 51910	80	112	0,49	U45 51910	100	132	0,53		W80 18010.066115 SOGX 060206-01 BK6115		W80 18010.068425 SOGX 060206-01 BK8425		 
*(0,765) 19,4	U44 51940	80	112	0,50	U45 51940	100	132	0,53		W80 18010.067710 SOGX 060206-01 BK7710		W80 18010.067710 SOGX 060206-01 BK7710		
19,5	U44 51950	80	112	0,50	U45 51950	100	132	0,53						
*(0,781) 19,8	U44 51980	80	112	0,51	U45 51980	100	132	0,53						
20,0	U44 52000	80	112	0,51	U45 52000	100	132	0,53						
20,5	U44 52050	84	116	0,51	U45 52050	105	137	0,53	N00 57553 S/M2,2x5,5-6IP 1,01 Nm	W80 20010.088425 SOGX 07T208-01 BK8425	1	W80 20010.088425 SOGX 07T208-01 BK8425	1	
*(0,812) 20,6	U44 52060	84	116	0,51	U45 52060	105	137	0,53		W80 20010.087935 SOGX 07T208-01 BK7935		W80 20010.087935 SOGX 07T208-01 BK7935		 
(0,828) 21,0	U44 52100	84	116	0,51	U45 52100	105	137	0,54		W80 20010.086115 SOGX 07T208-01 BK6115		W80 20010.088425 SOGX 07T208-01 BK8425		 
21,5	U44 52150	88	120	0,52	U45 52150	110	142	0,55		W80 20010.087710 SOGX 07T208-01 BK7710		W80 20010.087710 SOGX 07T208-01 BK7710		
21,7	U44 52170	88	120	0,52	U45 52170	110	142	0,55						
22,0	U44 52200	88	120	0,53	U45 52200	110	142	0,56						
*(0,875) 22,2	U44 52220	92	124	0,54	U45 52220	115	147	0,58						
22,5	U44 52250	92	124	0,55	U45 52250	115	147	0,59						
(0,906) 23,0	U44 52300	92	124	0,56	U45 52300	115	147	0,60						

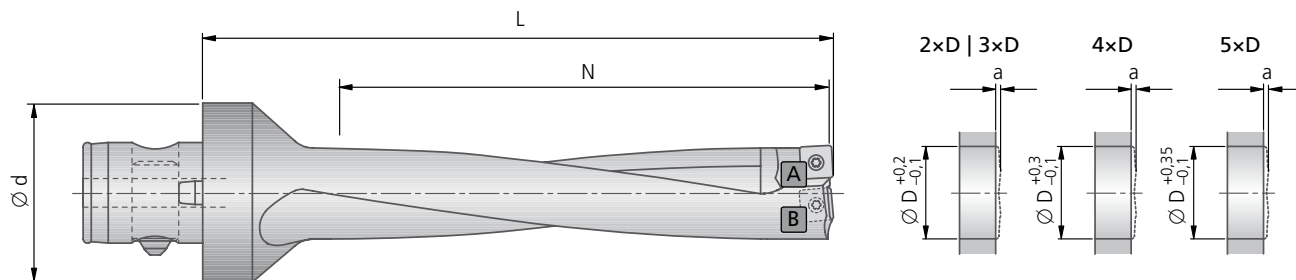
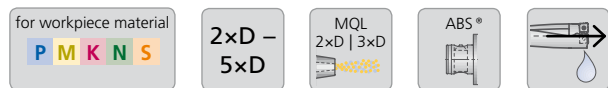
Supply includes: KUB Pentron® drill with clamping screw.

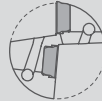
Please order insert separately. Screwdriver see chapter "Information".

● very good | ● good | ○ possible: see technical notes, page 85 | ✕ not possible

Guideline values for solid drilling: pages 78-83 / alternative inserts: page 84.

Indexable insert drill



				NEW	2xD			NEW	3xD			
Ø D mm (inch)	**max. diameter with offset	Starting / roughing size a	ABS Ø d			MQL 1-channel			MQL 1-channel			
										Order No.	N	
23,5	24,0	2,4	50	U42 52350	48	80	0,47	U43 52350	72	104	0,51	
23,8 (0.937)*	24,3	2,4	50	U42 52380	48	80	0,47	U43 52380	72	104	0,51	
24,0	24,5	2,4	50	U42 52400	48	80	0,47	U43 52400	72	104	0,51	
24,5	25,0	2,4	50	U42 52450	50	83	0,49	U43 52450	75	108	0,53	
25,0 (0.985)	25,5	2,4	50	U42 52500	50	83	0,49	U43 52500	75	108	0,54	
25,4 (1.000)*	25,9	2,4	50	U42 52540	52	85	0,50	U43 52540	78	111	0,55	
25,5	26,0	2,4	50	U42 52550	52	85	0,50	U43 52550	78	111	0,55	
26,0	26,5	2,4	50	U42 52600	52	85	0,51	U43 52600	78	111	0,56	
26,2 (1.031)*	26,7	2,4	50	U42 52620	54	88	0,52	U43 52620	81	115	0,57	
26,5	27,0	2,4	50	U42 52650	54	88	0,52	U43 52650	81	115	0,57	
27,0 (1.062)	27,5	2,8	50	U42 52700	54	88	0,53	U43 52700	81	115	0,58	
27,5	28,0	2,8	50	U42 52750	56	90	0,53	U43 52750	84	118	0,60	
28,0	28,5	2,8	50	U42 52800	56	90	0,54	U43 52800	84	118	0,61	
28,2 (1.109)*	28,7	2,8	50	U42 52820	58	93	0,56	U43 52820	87	122	0,63	
28,5	29,0	2,8	50	U42 52850	58	93	0,56	U43 52850	87	122	0,63	
28,6 (1.125)*	29,1	2,8	50	U42 52860	58	93	0,56	U43 52860	87	122	0,63	
29,0	29,5	2,8	50	U42 52900	58	93	0,57	U43 52900	87	122	0,64	
29,4 (1.156)*	29,9	2,8	50	U42 52940	60	95	0,58	U43 52940	90	125	0,66	
29,5	30,0	2,8	50	U42 52950	60	95	0,58	U43 52950	90	125	0,66	
30,0	30,5	2,8	50	U42 53000	60	95	0,59	U43 53000	90	125	0,67	
30,2 (1.187)*	30,7	2,8	63	U42 63020	62	101	0,92	U43 63020	93	132	1,01	
30,5	31,0	2,8	63	U42 63050	62	101	0,93	U43 63050	93	132	1,01	
30,9 (1.218)*	31,4	2,8	63	U42 63090	62	101	0,93	U43 63090	93	132	1,02	
31,0	31,5	2,8	63	U42 63100	62	101	0,93	U43 63100	93	132	1,02	
31,5	32,0	2,8	63	U42 63150	64	103	0,95	U43 63150	96	135	1,04	
31,8 (1.250)*	32,3	2,8	63	U42 63180	64	103	0,95	U43 63180	96	135	1,05	
32,0	32,5	2,8	63	U42 63200	64	103	0,96	U43 63200	96	135	1,06	
32,5 (1.281)	33,0	2,8	63	U42 63250	66	106	0,99	U43 63250	99	139	1,09	
33,0	33,5	2,8	63	U42 63300	66	106	0,99	U43 63300	99	139	1,10	

All intermediate dimensions can be supplied quickly on request.

* Inch measurements marked with an asterisk (*) can be supplied quickly.

** Adjustment device see "KomPass DRILLING – chapter 5"

2xD	●	●	●	●	●	●	●	●	●	●	●
3xD	●	●	●	●	●	●	●	●	●	●	●
4xD	●	●	●	●	●	●	●	○	●	×	●
5xD	●	●	●	●	●	●	●	×	●	×	●

Ø	4xD				5xD				Clamping screw Order No. Article	Basic recommendation		for workpiece material
	Order No.	N	L	kg	Order No.	N	L	kg		Indexable insert Order No. ISO code ▽▽ Size	Piece	
23,5	U44 52350	96	128	0,56	U45 52350	120	152	0,60	N00 57571 S/M2,5x6,3-8IP 1,28 Nm	W80 24010.088425 SOGX 080308-01 BK8425	1	P M S K H N
(0.937)* 23,8	U44 52380	96	128	0,57	U45 52380	120	152	0,61		W80 24010.087935 SOGX 080308-01 BK7935	1	
24,0	U44 52400	96	128	0,57	U45 52400	120	152	0,61		W80 24010.086115 SOGX 080308-01 BK6115	1	
24,5	U44 52450	100	133	0,59	U45 52450	125	158	0,63		W80 24010.087710 SOGX 080308-01 BK7710	1	
(0.985) 25,0	U44 52500	100	133	0,60	U45 52500	125	158	0,64				
*(1.000) 25,4	U44 52540	104	137	0,61	U45 52540	130	163	0,66				
25,5	U44 52550	104	137	0,61	U45 52550	130	163	0,66				
26,0	U44 52600	104	137	0,63	U45 52600	130	163	0,68				
*(1.031) 26,2	U44 52620	108	142	0,61	U45 52620	135	169	0,66				
26,5	U44 52650	108	142	0,61	U45 52650	135	169	0,66				
(1.062) 27,0	U44 52700	108	142	0,62	U45 52700	135	169	0,67	N00 57251 S3076-8IP 2,25 Nm	W80 28010.088425 SOGX 09T308-01 BK8425	1	P M S K H N
27,5	U44 52750	112	146	0,64	U45 52750	140	174	0,70		W80 28010.087935 SOGX 09T308-01 BK7935	1	
28,0	U44 52800	112	146	0,65	U45 52800	140	174	0,71		W80 28010.086115 SOGX 09T308-01 BK6115	1	
*(1.109) 28,2	U44 52820	116	151	0,67	U45 52820	145	180	0,73		W80 28010.087710 SOGX 09T308-01 BK7710	1	
28,5	U44 52850	116	151	0,68	U45 52850	145	180	0,74				
*(1.125) 28,6	U44 52860	116	151	0,68	U45 52860	145	180	0,75				
29,0	U44 52900	116	151	0,69	U45 52900	145	180	0,76				
*(1.156) 29,4	U44 52940	120	155	0,70	U45 52940	150	185	0,77				
29,5	U44 52950	120	155	0,70	U45 52950	150	185	0,77				
30,0	U44 53000	120	155	0,71	U45 53000	150	185	0,79				
*(1.187) 30,2	U44 63020	124	163	1,03	U45 63020	155	194	1,12	N00 57261 S3575-15IP 2,8 Nm	W80 32010.088425 SOGX 100408-01 BK8425	1	P M S K H N
30,5	U44 63050	124	163	1,05	U45 63050	155	194	1,13		W80 32010.087935 SOGX 100408-01 BK7935	1	
*(1.218) 30,9	U44 63090	124	163	1,06	U45 63090	155	194	1,15		W80 32010.086115 SOGX 100408-01 BK6115	1	
31,0	U44 63100	124	163	1,07	U45 63100	155	194	1,15		W80 32010.087710 SOGX 100408-01 BK7710	1	
31,5	U44 63150	128	167	1,10	U45 63150	160	199	1,18				
*(1.250) 31,8	U44 63180	128	167	1,10	U45 63180	160	199	1,19				
32,0	U44 63200	128	167	1,11	U45 63200	160	199	1,20				
(1.281) 32,5	U44 63250	132	172	1,15	U45 63250	165	205	1,25				
33,0	U44 63300	132	172	1,17	U45 63300	165	205	1,27				

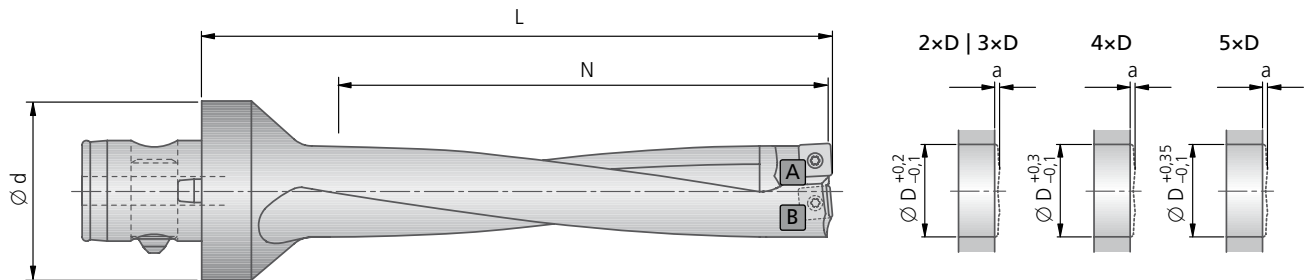
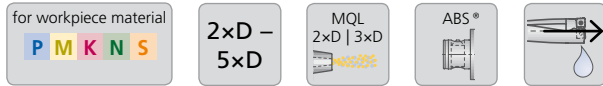
Supply includes: KUB Pentron® drill with clamping screw.

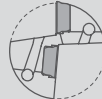
Please order insert separately. Screwdriver see chapter "Information".

● very good | ● good | ○ possible: see technical notes, page 85 | ✕ not possible

Guideline values for solid drilling: pages 78-83 / alternative inserts: page 84.

Indexable insert drill



				2xD				3xD				
Ø D mm (inch)	**max. diameter with offset	Starting / roughing size a	ABS Ø d	NEW		MQL 1-channel		NEW		MQL 1-channel		
				Order No.	N	L		Order No.	N	L		
33,2	33,7	3,0	63	U42 63320	68	108	0,99	U43 63320	102	142	1,10	
33,3 (1.312)*	33,8	3,0	63	U42 63330	68	108	0,99	U43 63330	102	142	1,10	
33,5	34,0	3,0	63	U42 63350	68	108	1,00	U43 63350	102	142	1,11	
33,7 (1.328)*	34,2	3,0	63	U42 63370	68	108	1,00	U43 63370	102	142	1,11	
34,0	34,5	3,0	63	U42 63400	68	108	1,00	U43 63400	102	142	1,12	
34,5	35,0	3,0	63	U42 63450	70	111	1,03	U43 63450	105	146	1,16	
34,9 (1.375)*	35,4	3,0	63	U42 63490	70	111	1,04	U43 63490	105	146	1,17	
35,0	35,5	3,0	63	U42 63500	70	111	1,04	U43 63500	105	146	1,17	
35,5	36,0	3,0	63	U42 63550	72	113	1,06	U43 63550	108	149	1,20	
36,0	36,5	3,0	63	U42 63600	72	113	1,07	U43 63600	108	149	1,21	
36,5 (1.437)	37,0	3,0	63	U42 63650	74	116	1,10	U43 63650	111	153	1,25	
37,0	37,5	3,0	63	U42 63700	74	116	1,11	U43 63700	111	153	1,27	
37,3 (1.469)*	37,8	3,0	63	U42 63730	76	118	1,12	U43 63730	114	156	1,27	
37,5	38,0	3,0	63	U42 63750	76	118	1,12	U43 63750	114	156	1,28	
38,0	38,5	3,0	63	U42 63800	76	118	1,13	U43 63800	114	156	1,29	
38,1 (1.500)*	38,6	3,0	63	U42 63810	78	121	1,15	U43 63810	117	160	1,32	
38,5	39,0	3,0	63	U42 63850	78	121	1,16	U43 63850	117	160	1,33	
39,0	39,5	3,0	63	U42 63900	78	121	1,18	U43 63900	117	160	1,35	
39,2	39,7	3,0	63	U42 63920	80	123	1,19	U43 63920	120	163	1,37	
39,5	40,0	3,0	63	U42 63950	80	123	1,20	U43 63950	120	163	1,38	
39,7 (1.562)*	40,2	3,0	63	U42 63970	80	123	1,20	U43 63970	120	163	1,39	
40,0	40,5	3,0	63	U42 64000	80	123	1,21	U43 64000	120	163	1,40	
40,5	41,0	3,0	63	U42 64050	82	126	1,25	U43 64050	123	167	1,45	
41,0	41,5	3,0	63	U42 64100	82	126	1,26	U43 64100	123	167	1,47	
41,3 (1.625)*	41,8	3,0	63	U42 64130	84	128	1,28	U43 64130	126	170	1,49	
41,5	42,0	3,0	63	U42 64150	84	128	1,28	U43 64150	126	170	1,50	
42,0	42,5	3,0	63	U42 64200	84	128	1,30	U43 64200	126	170	1,52	

All intermediate dimensions can be supplied quickly on request.

* Inch measurements marked with an asterisk (*) can be supplied quickly.

** Adjustment device see "KomPass DRILLING – chapter 5"

2xD	●	●	●	●	●	●	●	●	●	●	●
3xD	●	●	●	●	●	●	●	●	●	●	●
4xD	●	●	●	●	●	●	●	○	●	×	●
5xD	●	●	●	●	●	●	●	×	●	×	●

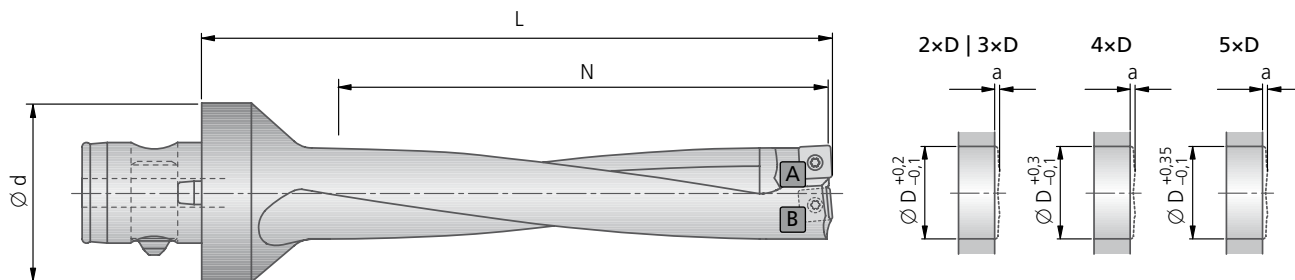
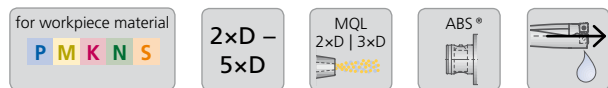
	4xD				5xD					Basic recommendation				
Ø	Order No.	N	L		Order No.	N	L		Clamping screw  	Indexable insert   -01		Indexable insert   -01		for workpiece material
									Order No. Article	Order No. ISO code ▽▽ Size	Piece	Order No. ISO code ▽▽ Size	Piece	
33,2	U44 63320	136	176	1,18	U45 63320	170	210	1,28	N00 57261 S3575-15IP 2,8 Nm	 W80 38010.088425 SOGX 110408-01 BK8425  W80 38010.087935 SOGX 110408-01 BK7935  W80 38010.086115 SOGX 110408-01 BK6115  W80 38010.087710 SOGX 110408-01 BK7710	1	 W80 38010.088425 SOGX 110408-01 BK8425  W80 38010.087935 SOGX 110408-01 BK7935  W80 38010.088425 SOGX 110408-01 BK8425  W80 38010.087710 SOGX 110408-01 BK7710	1	     
*(1.312) 33,3	U44 63330	136	176	1,18	U45 63330	170	210	1,28						
33,5	U44 63350	136	176	1,18	U45 63350	170	210	1,29						
*(1.328) 33,7	U44 63370	136	176	1,19	U45 63370	170	210	1,29						
34,0	U44 63400	136	176	1,19	U45 63400	170	210	1,30						
34,5	U44 63450	140	181	1,23	U45 63450	175	216	1,34						
*(1.375) 34,9	U44 63490	140	181	1,24	U45 63490	175	216	1,36						
35,0	U44 63500	140	181	1,24	U45 63500	175	216	1,36						
35,5	U44 63550	144	185	1,27	U45 63550	180	221	1,40						
36,0	U44 63600	144	185	1,29	U45 63600	180	221	1,42						
(1.437) 36,5	U44 63650	148	190	1,34	U45 63650	185	227	1,48						
37,0	U44 63700	148	190	1,36	U45 63700	185	227	1,50						
*(1.469) 37,3	U44 63730	152	194	1,38	U45 63730	190	232	1,52	N00 57301 S45100-20IP 6,25 Nm	 W80 42010.088425 SOGX 120408-01 BK8425  W80 42010.087935 SOGX 120408-01 BK7935  W80 42010.086115 SOGX 120408-01 BK6115  W80 42010.087710 SOGX 120408-01 BK7710	1	 W80 42010.088425 SOGX 120408-01 BK8425  W80 42010.087935 SOGX 120408-01 BK7935  W80 42010.088425 SOGX 120408-01 BK8425  W80 42010.087710 SOGX 120408-01 BK7710	1	     
37,5	U44 63750	152	194	1,39	U45 63750	190	232	1,53						
38,0	U44 63800	152	194	1,40	U45 63800	190	232	1,55						
*(1.500) 38,1	U44 63810	156	199	1,42	U45 63810	195	238	1,57						
38,5	U44 63850	156	199	1,43	U45 63850	195	238	1,58						
39,0	U44 63900	156	199	1,44	U45 63900	195	238	1,60						
39,2	U44 63920	160	203	1,48	U45 63920	200	243	1,64						
39,5	U44 63950	160	203	1,49	U45 63950	200	243	1,65						
*(1.562) 39,7	U44 63970	160	203	1,50	U45 63970	200	243	1,66						
40,0	U44 64000	160	203	1,51	U45 64000	200	243	1,68						
40,5	U44 64050	164	208	1,56	U45 64050	205	249	1,74						
41,0	U44 64100	164	208	1,58	U45 64100	205	249	1,77						
* (1.625) 41,3	U44 64130	168	212	1,62	U45 64130	210	254	1,82						
41,5	U44 64150	168	212	1,63	U45 64150	210	254	1,83						
42,0	U44 64200	168	212	1,65	U45 64200	210	254	1,86						

Supply includes: KUB Pentron® drill with clamping screw.

Please order insert separately. Screwdriver see chapter "Information".

● very good | ● good | ○ possible: see technical notes, page 85 | ✕ not possible

Guideline values for solid drilling: pages 78-83 / alternative inserts: page 84.

Indexable insert drill


Ø D mm (inch)	**max. diameter with offset	Starting / roughing size a	ABS Ø d	2xD				3xD				
				NEW		MQL 1-channel		NEW		MQL 1-channel		
				Order No.	N	L	kg	Order No.	N	L	kg	
42,1 (1.656)*	42,6	3,0	63	U42 64210	86	131	1,30	U43 64210	129	174	1,52	
42,5	43,0	3,0	63	U42 64250	86	131	1,31	U43 64250	129	174	1,54	
42,9 (1.687)*	43,4	3,0	63	U42 64290	86	131	1,32	U43 64290	129	174	1,56	
43,0	43,5	3,0	63	U42 64300	86	131	1,33	U43 64300	129	174	1,56	
43,5	44,0	3,0	63	U42 64350	88	133	1,35	U43 64350	132	177	1,60	
44,0	44,5	3,0	63	U42 64400	88	133	1,37	U43 64400	132	177	1,62	
44,5 (1.750)	45,0	3,3	63	U42 64450	90	136	1,41	U43 64450	135	181	1,68	
45,0	45,5	3,3	63	U42 64500	90	136	1,42	U43 64500	135	181	1,70	
45,5	46,0	3,3	63	U42 64550	92	135	1,43	U43 64550	138	181	1,71	
46,0	46,5	3,3	63	U42 64600	92	135	1,44	U43 64600	138	181	1,73	

All intermediate dimensions can be supplied quickly on request.

* Inch measurements marked with an asterisk (*) can be supplied quickly.

** Adjustment device see "KomPass DRILLING – chapter 5"

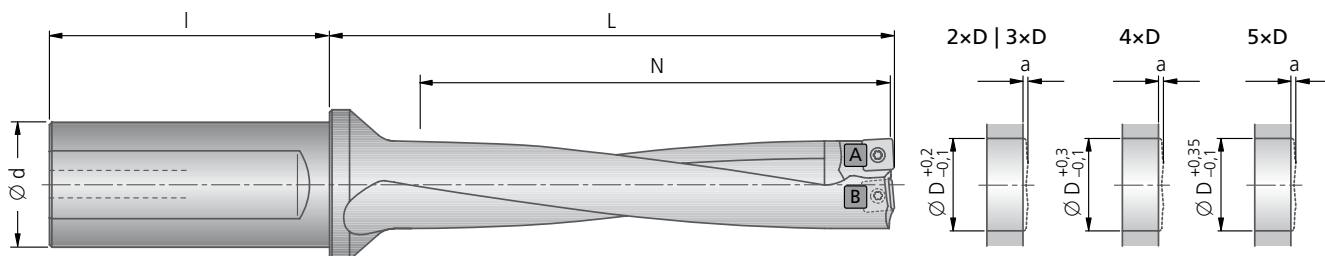
2xD	●	●	●	●	●	●	●	●	●	●	●
3xD	●	●	●	●	●	●	●	●	●	●	●
4xD	●	●	●	●	●	●	●	○	●	×	●
5xD	●	●	●	●	●	●	●	×	●	×	●

Ø	4xD				5xD				Clamping screw	Indexable insert		Indexable insert		for workpiece material
	Order No.	N	L	kg	Order No.	N	L	kg	Order No. Article	Order No. ISO code ▽▽ Size	Piece	Order No. ISO code ▽▽ Size	Piece	
*(1.656) 42,1	U44 64210	172	217	1,66	U45 64210	215	260	1,89	N00 57301 S45100-20IP 6,25 Nm	W80 46010.088425 SOGX 130508-01 BK8425 W80 46010.087935 SOGX 130508-01 BK7935 W80 46010.086115 SOGX 130508-01 BK6115 W80 46010.087710 SOGX 130508-01 BK7710	1	W80 46010.088425 SOGX 130508-01 BK8425 W80 46010.087935 SOGX 130508-01 BK7935 W80 46010.088425 SOGX 130508-01 BK8425 W80 46010.087710 SOGX 130508-01 BK7710	1	P M S K H N
42,5	U44 64250	172	217	1,68	U45 64250	215	260	1,90						
*(1.687) 42,9	U44 64290	172	217	1,70	U45 64290	215	260	1,92						
43,0	U44 64300	172	217	1,70	U45 64300	215	260	1,92						
43,5	U44 64350	176	221	1,75	U45 64350	220	265	1,99						
44,0	U44 64400	176	221	1,78	U45 64400	220	265	2,02						
(1.750) 44,5	U44 64450	180	226	1,84	U45 64450	225	271	2,09						
45,0	U44 64500	180	226	1,87	U45 64500	225	271	2,13						
45,5	U44 64550	184	230	1,93	U45 64550	230	276	2,20						
46,0	U44 64600	184	230	1,96	U45 64600	230	276	2,24						

Supply includes: KUB Pentron® drill with clamping screw.

Please order insert separately. Screwdriver see chapter "Information".

Indexable insert drill



Ø D mm (inch)	max. diameter with offset	Starting / roughing size a	Ø d x l	2xD				3xD			
				NEW Order No.	N	L	kg	NEW Order No.	N	L	kg
14,0	14,5	1,5	20x50	U42 01400	28	41	0,12	U43 01400	42	55	0,13
14,3 (0,562)	14,8	1,5	20x50	U42 01430	30	44	0,13	U43 01430	45	59	0,14
14,5	15,0	1,5	20x50	U42 01450	30	44	0,13	U43 01450	45	59	0,14
15,0	15,5	1,5	20x50	U42 01500	30	44	0,13	U43 01500	45	59	0,14
15,1 (0,593)	15,6	1,5	20x50	U42 01510	32	48	0,13	U43 01510	48	64	0,14
15,5	16,0	1,5	20x50	U42 01550	32	48	0,14	U43 01550	48	64	0,14
15,9 (0,625)	16,4	1,5	20x50	U42 01590	32	48	0,14	U43 01590	48	64	0,15
16,0	16,5	1,5	20x50	U42 01600	32	48	0,14	U43 01600	48	64	0,15
16,5	17,0	1,5	20x50	U42 01650	34	51	0,14	U43 01650	51	68	0,15
16,7 (0,656)*	17,2	1,5	20x50	U42 01670	34	51	0,14	U43 01670	51	68	0,15
17,0	17,5	1,5	20x50	U42 01700	34	51	0,14	U43 01700	51	68	0,15
17,5 (0,687)	18,0	1,5	25x56	U42 11750	36	53	0,22	U43 11750	54	71	0,23
17,9 (0,703)*	18,4	1,9	25x56	U42 11790	36	53	0,22	U43 11790	54	71	0,24
18,0	18,5	1,9	25x56	U42 11800	36	53	0,22	U43 11800	54	71	0,24
18,5	19,0	1,9	25x56	U42 11850	38	56	0,22	U43 11850	55,5	75	0,24
19,0	19,5	1,9	25x56	U42 11900	38	56	0,23	U43 11900	57	75	0,24
19,1 (0,750)*	19,6	1,9	25x56	U42 11910	40	58	0,23	U43 11910	60	78	0,25
19,4 (0,765)*	19,9	1,9	25x56	U42 11940	40	58	0,23	U43 11940	60	78	0,25
19,5	20,0	1,9	25x56	U42 11950	40	58	0,23	U43 11950	60	78	0,25
19,8 (0,781)*	20,3	1,9	25x56	U42 11980	40	58	0,23	U43 11980	60	78	0,25
20,0	20,5	1,9	25x56	U42 12000	40	58	0,23	U43 12000	60	78	0,25
20,5	21,0	1,9	25x56	U42 12050	42	61	0,25	U43 12050	61,5	82	0,27
20,6 (0,812)*	21,1	1,9	25x56	U42 12060	42	61	0,25	U43 12060	63	82	0,27
21,0 (0,828)	21,5	1,9	25x56	U42 12100	44	63	0,25	U43 12100	66	85	0,28
21,5	22,0	2,4	25x56	U42 12150	44	63	0,26	U43 12150	66	85	0,28
21,7	22,2	2,4	25x56	U42 12170	44	63	0,26	U43 12170	66	85	0,28
22,0	22,5	2,4	25x56	U42 12200	44	63	0,26	U43 12200	66	85	0,29
22,2 (0,875)*	22,7	2,4	25x56	U42 12220	46	66	0,27	U43 12220	69	89	0,30
22,5	23,0	2,4	25x56	U42 12250	46	66	0,27	U43 12250	69	89	0,30
23,0 (0,906)	23,5	2,4	25x56	U42 12300	46	66	0,27	U43 12300	69	89	0,31

All intermediate dimensions can be supplied quickly on request.

* Inch measurements marked with an asterisk (*) can be supplied quickly.

2xD	●	●	●	●	●	●	●	●	●	●	●
3xD	●	●	●	●	●	●	●	●	●	●	●
4xD	●	●	●	●	●	●	●	○	●	×	●
5xD	●	●	●	●	●	●	●	×	●	×	●

	4xD				5xD					Basic recommendation				
									Clamping screw 	Indexable insert  -01		Indexable insert  -01		for workpiece material
Ø	Order No.	N	L		Order No.	N	L		Order No. Article	Order No. ISO code ▽▽ Size	Piece	Order No. ISO code ▽▽ Size	Piece	
14,0	U44 01400	56	69	0,14	U45 01400	70	83	0,15	N00 56051 S/M1,8x3,85-5IP 0,38 Nm	W80 10010.048425 SOGX 040204-01 BK8425	1	W80 10010.048425 SOGX 040204-01 BK8425	1	
(0,562) 14,3	U44 01430	60	74	0,15	U45 01430	75	89	0,16		W80 10010.047935 SOGX 040204-01 BK7935		W80 10010.047935 SOGX 040204-01 BK7935		 
14,5	U44 01450	60	74	0,15	U45 01450	75	89	0,16		W80 10010.046115 SOGX 040204-01 BK6115		W80 10010.048425 SOGX 040204-01 BK8425		 
15,0	U44 01500	60	74	0,15	U45 01500	75	89	0,16		W80 10010.047710 SOGX 040204-01 BK7710		W80 10010.047710 SOGX 040204-01 BK7710		
(0,593) 15,1	U44 01510	64	80	0,16	U45 01510	80	96	0,17						
15,5	U44 01550	64	80	0,16	U45 01550	80	96	0,17						
(0,625) 15,9	U44 01590	64	80	0,16	U45 01590	80	96	0,17						
16,0	U44 01600	64	80	0,16	U45 01600	80	96	0,17	N00 56041 S/M2x4,3-6IP 0,62 Nm	W80 12010.048425 SOGX 050204-01 BK8425	1	W80 12010.048425 SOGX 050204-01 BK8425	1	
16,5	U44 01650	68	85	0,17	U45 01650	85	102	0,18		W80 12010.047935 SOGX 050204-01 BK7935		W80 12010.047935 SOGX 050204-01 BK7935		 
*(0,656) 16,7	U44 01670	68	85	0,17	U45 01670	85	102	0,18		W80 12010.046115 SOGX 050204-01 BK6115		W80 12010.048425 SOGX 050204-01 BK8425		 
17,0	U44 01700	68	85	0,17	U45 01700	85	102	0,19		W80 12010.047710 SOGX 050204-01 BK7710		W80 12010.047710 SOGX 050204-01 BK7710		
(0,687) 17,5	U44 11750	72	89	0,25	U45 11750	90	107	0,27						
*(0,703) 17,9	U44 11790	72	89	0,26	U45 11790	90	107	0,28						
18,0	U44 11800	72	89	0,26	U45 11800	90	107	0,28		N00 57553 S/M2,2x5,5-6IP 1,01 Nm		W80 18010.068425 SOGX 060206-01 BK8425		1
18,5	U44 11850	76	94	0,26	U45 11850	95	113	0,28	W80 18010.067935 SOGX 060206-01 BK7935		W80 18010.067935 SOGX 060206-01 BK7935	 		
19,0	U44 11900	76	94	0,27	U45 11900	95	113	0,29	W80 18010.066115 SOGX 060206-01 BK6115		W80 18010.068425 SOGX 060206-01 BK8425	 		
*(0,750) 19,1	U44 11910	80	98	0,28	U45 11910	100	118	0,30	W80 18010.067710 SOGX 060206-01 BK7710		W80 18010.067710 SOGX 060206-01 BK7710			
*(0,765) 19,4	U44 11940	80	98	0,28	U45 11940	100	118	0,30						
19,5	U44 11950	80	98	0,28	U45 11950	100	118	0,30						
*(0,781) 19,8	U44 11980	80	98	0,29	U45 11980	100	118	0,31						
20,0	U44 12000	80	98	0,29	U45 12000	100	118	0,31	N00 57553 S/M2,2x5,5-6IP 1,01 Nm	W80 20010.088425 SOGX 07T208-01 BK8425	1	W80 20010.088425 SOGX 07T208-01 BK8425	1	
20,5	U44 12050	84	103	0,31	U45 12050	105	124	0,33		W80 20010.087935 SOGX 07T208-01 BK7935		W80 20010.087935 SOGX 07T208-01 BK7935		 
*(0,812) 20,6	U44 12060	84	103	0,31	U45 12060	105	124	0,33		W80 20010.086115 SOGX 07T208-01 BK6115		W80 20010.088425 SOGX 07T208-01 BK8425		 
(0,828) 21,0	U44 12100	84	103	0,31	U45 12100	105	124	0,34		W80 20010.087710 SOGX 07T208-01 BK7710		W80 20010.087710 SOGX 07T208-01 BK7710		
21,5	U44 12150	88	107	0,32	U45 12150	110	129	0,35						
21,7	U44 12170	88	107	0,32	U45 12170	110	129	0,35						
22,0	U44 12200	88	107	0,33	U45 12200	110	129	0,36						
*(0,875) 22,2	U44 12220	92	112	0,34	U45 12220	115	135	0,37						
22,5	U44 12250	92	112	0,35	U45 12250	115	135	0,38						
(0,906) 23,0	U44 12300	92	112	0,36	U45 12300	115	135	0,39						

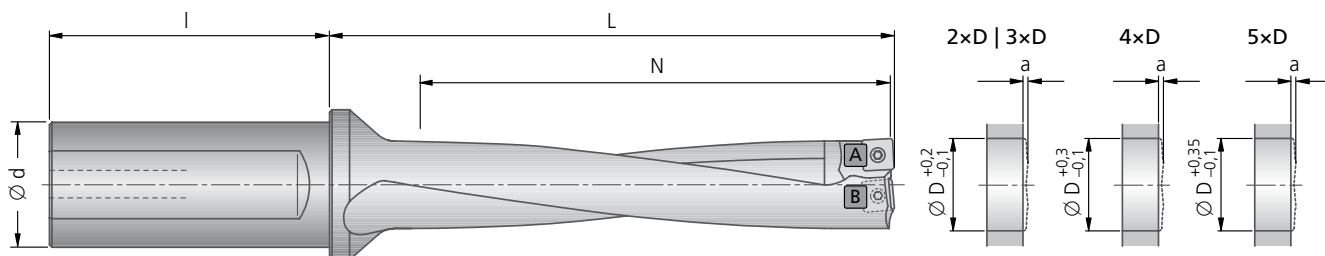
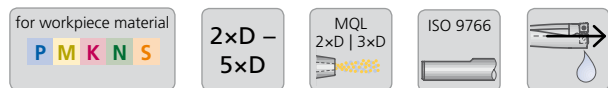
Supply includes: KUB Pentron® drill with clamping screw.

Please order insert separately. Screwdriver see chapter "Information".

● very good | ● good | ○ possible: see technical notes, page 85 | ✕ not possible

Guideline values for solid drilling: pages 78-83 / alternative inserts: page 84.

Indexable insert drill



Ø D mm (inch)	max. diameter with offset	Starting / roughing size a	Ø d x l	2xD				3xD			
				NEW Order No.	N	L	kg	NEW Order No.	N	L	kg
23,5	24,0	2,4	32x60	U42 22350	48	68	0,42	U43 22350	72	92	0,46
23,8 (0.937)*	24,3	2,4	32x60	U42 22380	48	68	0,43	U43 22380	72	92	0,46
24,0	24,5	2,4	32x60	U42 22400	48	68	0,43	U43 22400	72	92	0,46
24,5	25,0	2,4	32x60	U42 22450	49	71	0,44	U43 22450	75	96	0,48
25,0 (0.985)	25,5	2,4	32x60	U42 22500	50	71	0,44	U43 22500	75	96	0,48
25,4 (1.000)*	25,9	2,4	32x60	U42 22540	52	73	0,45	U43 22540	78	99	0,50
25,5	26,0	2,4	32x60	U42 22550	52	73	0,45	U43 22550	78	99	0,50
26,0	26,5	2,4	32x60	U42 22600	52	73	0,46	U43 22600	78	99	0,50
26,2 (1.031)*	26,7	2,4	32x60	U42 22620	54	76	0,47	U43 22620	81	103	0,53
26,5	27,0	2,4	32x60	U42 22650	54	76	0,47	U43 22650	81	103	0,53
27,0 (1.062)	27,5	2,8	32x60	U42 22700	54	76	0,47	U43 22700	81	103	0,54
27,5	28,0	2,8	32x60	U42 22750	56	78	0,48	U43 22750	84	106	0,56
28,0	28,5	2,8	32x60	U42 22800	56	78	0,48	U43 22800	84	106	0,57
28,2 (1.109)*	28,6	2,8	32x60	U42 22820	58	81	0,50	U43 22820	87	110	0,58
28,5	29,0	2,8	32x60	U42 22850	58	81	0,50	U43 22850	87	110	0,59
28,6 (1.125)*	29,1	2,8	32x60	U42 22860	58	81	0,50	U43 22860	87	110	0,59
29,0	29,5	2,8	32x60	U42 22900	58	81	0,50	U43 22900	87	110	0,60
29,4 (1.156)*	29,9	2,8	32x60	U42 22940	60	83	0,51	U43 22940	90	113	0,61
29,5	30,0	2,8	32x60	U42 22950	60	83	0,51	U43 22950	90	113	0,61
30,0	30,5	2,8	32x60	U42 23000	60	83	0,52	U43 23000	90	113	0,62
30,2 (1.187)*	30,7	2,8	40x68	U42 33020	62	86	0,75	U43 33020	93	117	0,85
30,5	31,0	2,8	40x68	U42 33050	62	86	0,75	U43 33050	93	117	0,85
30,9 (1.218)*	31,4	2,8	40x68	U42 33090	62	86	0,75	U43 33090	93	117	0,86
31,0	31,5	2,8	40x68	U42 33100	62	86	0,75	U43 33100	93	117	0,86
31,5	32,0	2,8	40x68	U42 33150	64	88	0,77	U43 33150	96	120	0,88
31,8 (1.250)*	32,3	2,8	40x68	U42 33180	64	88	0,77	U43 33180	96	120	0,89
32,0	32,5	2,8	40x68	U42 33200	64	88	0,77	U43 33200	96	120	0,90
32,5 (1.281)	33,0	2,8	40x68	U42 33250	66	91	0,79	U43 33250	99	124	0,93
33,0	33,5	2,8	40x68	U42 33300	66	91	0,80	U43 33300	99	124	0,94

All intermediate dimensions can be supplied quickly on request.

* Inch measurements marked with an asterisk (*) can be supplied quickly.

2xD	●	●	●	●	●	●	●	●	●	●	●
3xD	●	●	●	●	●	●	●	●	●	●	●
4xD	●	●	●	●	●	●	●	○	●	×	●
5xD	●	●	●	●	●	●	●	×	●	×	●

Ø	4xD				5xD				Clamping screw Order No. Article	Basic recommendation		for workpiece material
	Order No.	N	L	kg	Order No.	N	L	kg		Indexable insert Order No. ISO code ▽▽ Size	Piece	
23,5	U44 22350	96	116	0,51	U45 22350	120	140	0,54	N00 57571 S/M2,5x6,3-8IP 1,28 Nm	W80 24010.088425 SOGX 080308-01 BK8425	1	P M S K H N
(0.937)* 23,8	U44 22380	96	116	0,51	U45 22380	120	140	0,55		W80 24010.087935 SOGX 080308-01 BK7935	1	
24,0	U44 22400	96	116	0,51	U45 22400	120	140	0,55		W80 24010.086115 SOGX 080308-01 BK6115	1	
24,5	U44 22450	100	121	0,54	U45 22450	125	146	0,59		W80 24010.087710 SOGX 080308-01 BK7710	1	
(0.985) 25,0	U44 22500	100	121	0,55	U45 22500	125	146	0,60				
*(1.000) 25,4	U44 22540	104	125	0,56	U45 22540	130	151	0,61				
25,5	U44 22550	104	125	0,56	U45 22550	130	151	0,61				
26,0	U44 22600	104	125	0,57	U45 22600	130	151	0,62				
*(1.031) 26,2	U44 22620	108	130	0,57	U45 22620	135	157	0,63	N00 57251 S3076-8IP 2,25 Nm	W80 28010.088425 SOGX 09T308-01 BK8425	1	P M S K H N
26,5	U44 22650	108	130	0,57	U45 22650	135	157	0,63		W80 28010.087935 SOGX 09T308-01 BK7935	1	
(1.062) 27,0	U44 22700	108	130	0,58	U45 22700	135	157	0,64		W80 28010.086115 SOGX 09T308-01 BK6115	1	
27,5	U44 22750	112	134	0,60	U45 22750	140	162	0,66		W80 28010.087710 SOGX 09T308-01 BK7710	1	
28,0	U44 22800	112	134	0,62	U45 22800	140	162	0,68				
*(1.109) 28,2	U44 22820	116	139	0,63	U45 22820	145	168	0,70				
28,5	U44 22850	116	139	0,64	U45 22850	145	168	0,71				
*(1.125) 28,6	U44 22860	116	139	0,64	U45 22860	145	168	0,71				
29,0	U44 22900	116	139	0,65	U45 22900	145	168	0,72	N00 57261 S3575-15IP 2,8 Nm	W80 32010.088425 SOGX 100408-01 BK8425	1	P M S K H N
*(1.156) 29,4	U44 22940	120	143	0,66	U45 22940	150	173	0,73		W80 32010.087935 SOGX 100408-01 BK7935	1	
29,5	U44 22950	120	143	0,66	U45 22950	150	173	0,73		W80 32010.086115 SOGX 100408-01 BK6115	1	
30,0	U44 23000	120	143	0,67	U45 23000	150	173	0,75		W80 32010.087710 SOGX 100408-01 BK7710	1	
*(1.187) 30,2	U44 33020	124	148	0,89	U45 33020	155	179	0,99				
30,5	U44 33050	124	148	0,90	U45 33050	155	179	1,00				
*(1.218) 30,9	U44 33090	124	148	0,91	U45 33090	155	179	1,01				
31,0	U44 33100	124	148	0,92	U45 33100	155	179	1,01				
31,5	U44 33150	128	152	0,96	U45 33150	160	184	1,05				
*(1.250) 31,8	U44 33180	128	152	0,97	U45 33180	160	184	1,06				
32,0	U44 33200	128	152	0,97	U45 33200	160	184	1,06				
(1.281) 32,5	U44 33250	132	157	1,01	U45 33250	165	190	1,10				
33,0	U44 33300	132	157	1,02	U45 33300	165	190	1,12				

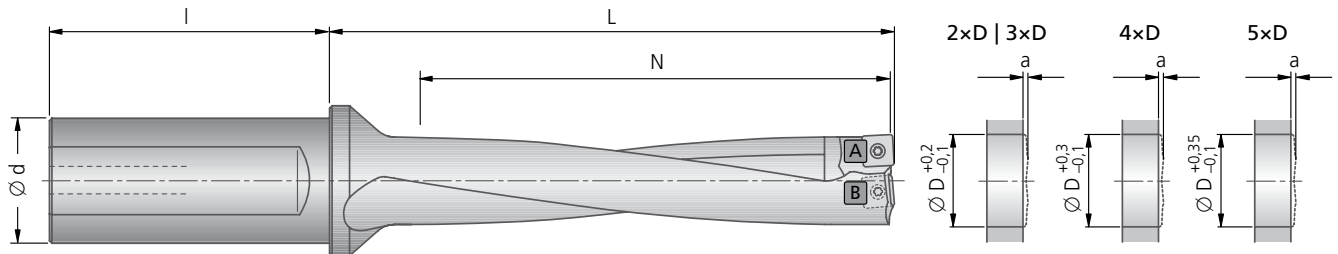
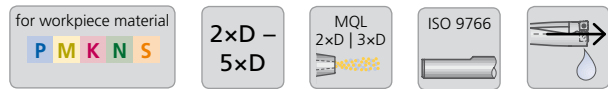
Supply includes: KUB Pentron® drill with clamping screw.

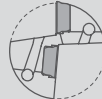
Please order insert separately. Screwdriver see chapter "Information".

● very good | ● good | ○ possible: see technical notes, page 85 | ✕ not possible

Guideline values for solid drilling: pages 78-83 / alternative inserts: page 84.

Indexable insert drill



				2xD				3xD				
Ø D mm (inch)	max. diameter with offset	Starting / roughing size a	Ø d x l	NEW		MQL 1-channel		NEW		MQL 1-channel		
				Order No.	N	L		Order No.	N	L		
33,2	33,7	3,0	40x68	U42 33320	68	93	0,81	U43 33320	102	127	0,94	
33,3 (1.312)*	33,8	3,0	40x68	U42 33330	68	93	0,81	U43 33330	102	127	0,94	
33,5	34,0	3,0	40x68	U42 33350	68	93	0,81	U43 33350	102	127	0,94	
33,7 (1.328)*	34,2	3,0	40x68	U42 33370	68	93	0,82	U43 33370	102	127	0,95	
34,0	34,5	3,0	40x68	U42 33400	68	93	0,82	U43 33400	102	127	0,96	
34,5	35,0	3,0	40x68	U42 33450	70	96	0,83	U43 33450	105	131	0,99	
34,9 (1.375)*	35,4	3,0	40x68	U42 33490	70	96	0,84	U43 33490	105	131	1,00	
35,0	35,5	3,0	40x68	U42 33500	70	96	0,84	U43 33500	105	131	1,00	
35,5	36,0	3,0	40x68	U42 33550	72	98	0,86	U43 33550	108	134	1,03	
36,0	36,5	3,0	40x68	U42 33600	72	98	0,87	U43 33600	108	134	1,04	
36,5 (1.437)	37,0	3,0	40x68	U42 33650	73	101	0,90	U43 33650	111	138	1,08	
37,0	37,5	3,0	40x68	U42 33700	74	101	0,91	U43 33700	111	138	1,09	
37,3 (1.469)*	37,8	3,0	40x68	U42 33730	76	103	0,91	U43 33730	114	141	1,10	
37,5	38,0	3,0	40x68	U42 33750	76	103	0,91	U43 33750	114	141	1,11	
38,0	38,5	3,0	40x68	U42 33800	76	103	0,92	U43 33800	114	141	1,12	
38,1 (1.500)*	38,6	3,0	40x68	U42 33810	78	106	0,94	U43 33810	117	145	1,15	
38,5	39,0	3,0	40x68	U42 33850	78	106	0,95	U43 33850	117	145	1,16	
39,0	39,5	3,0	40x68	U42 33900	78	106	0,96	U43 33900	117	145	1,18	
39,2	39,7	3,0	40x68	U42 33920	80	108	0,98	U43 33920	120	148	1,20	
39,5	40,0	3,0	40x68	U42 33950	80	108	0,98	U43 33950	120	148	1,21	
39,7 (1.562)*	40,2	3,0	40x68	U42 33970	80	108	0,99	U43 33970	120	148	1,21	
40,0	40,5	3,0	40x68	U42 34000	80	108	0,99	U43 34000	120	148	1,23	
40,5	41,0	3,0	40x68	U42 34050	82	111	1,04	U43 34050	123	152	1,27	
41,0	41,5	3,0	40x68	U42 34100	82	111	1,06	U43 34100	123	152	1,29	
41,3 (1.625)*	41,8	3,0	40x68	U42 34130	84	113	1,06	U43 34130	126	155	1,31	
41,5	42,0	3,0	40x68	U42 34150	84	113	1,06	U43 34150	126	155	1,32	
42,0	42,5	3,0	40x68	U42 34200	84	113	1,07	U43 34200	126	155	1,34	

All intermediate dimensions can be supplied quickly on request.

* Inch measurements marked with an asterisk (*) can be supplied quickly.

2xD	●	●	●	●	●	●	●	●	●	●	●
3xD	●	●	●	●	●	●	●	●	●	●	●
4xD	●	●	●	●	●	●	●	○	●	×	●
5xD	●	●	●	●	●	●	●	×	●	×	●

	4xD				5xD					Basic recommendation				
Ø	Order No.	N	L		Order No.	N	L		Clamping screw	Indexable insert		Indexable insert		for workpiece material
									 Order No. Article	 Order No. ISO code ▽▽ Size	 Order No. ISO code ▽▽ Size	Piece		
33,2	U44 33320	136	161	1,01	U45 33320	170	195	1,13	N00 57261 S3575-15IP 2,8 Nm	 W80 38010.088425 SOGX 110408-01 BK8425	1	 W80 38010.087935 SOGX 110408-01 BK7935	1	
*(1.312) 33,3	U44 33330	136	161	1,02	U45 33330	170	195	1,13						
33,5	U44 33350	136	161	1,03	U45 33350	170	195	1,14						
*(1.328) 33,7	U44 33370	136	161	1,03	U45 33370	170	195	1,14						
34,0	U44 33400	136	161	1,04	U45 33400	170	195	1,15						
34,5	U44 33450	140	166	1,08	U45 33450	175	201	1,19						
*(1.375) 34,9	U44 33490	140	166	1,09	U45 33490	175	201	1,21						
35,0	U44 33500	140	166	1,09	U45 33500	175	201	1,21						
35,5	U44 33550	144	170	1,13	U45 33550	180	206	1,25						
36,0	U44 33600	144	170	1,14	U45 33600	180	206	1,27						
(1.437) 36,5	U44 33650	148	175	1,18	U45 33650	185	212	1,32						
37,0	U44 33700	148	175	1,20	U45 33700	185	212	1,34						
*(1.469) 37,3	U44 33730	152	179	1,22	U45 33730	190	217	1,36	N00 57301 S45100-20IP 6,25 Nm	 W80 42010.088425 SOGX 120408-01 BK8425	1	 W80 42010.087935 SOGX 120408-01 BK7935	1	
37,5	U44 33750	152	179	1,23	U45 33750	190	217	1,37						
38,0	U44 33800	152	179	1,24	U45 33800	190	217	1,39						
*(1.500) 38,1	U44 33810	156	184	1,27	U45 33810	195	223	1,41						
38,5	U44 33850	156	184	1,28	U45 33850	195	223	1,43						
39,0	U44 33900	156	184	1,29	U45 33900	195	223	1,45						
39,2	U44 33920	160	188	1,33	U45 33920	200	228	1,49						
39,5	U44 33950	160	188	1,34	U45 33950	200	228	1,50						
*(1.562) 39,7	U44 33970	160	188	1,34	U45 33970	200	228	1,51						
40,0	U44 34000	160	188	1,35	U45 34000	200	228	1,52						
40,5	U44 34050	164	193	1,40	U45 34050	205	234	1,58						
41,0	U44 34100	164	193	1,42	U45 34100	205	234	1,61						
*(1.625) 41,3	U44 34130	168	197	1,46	U45 34130	210	239	1,66						
41,5	U44 34150	168	197	1,47	U45 34150	210	239	1,67						
42,0	U44 34200	168	197	1,49	U45 34200	210	239	1,70						

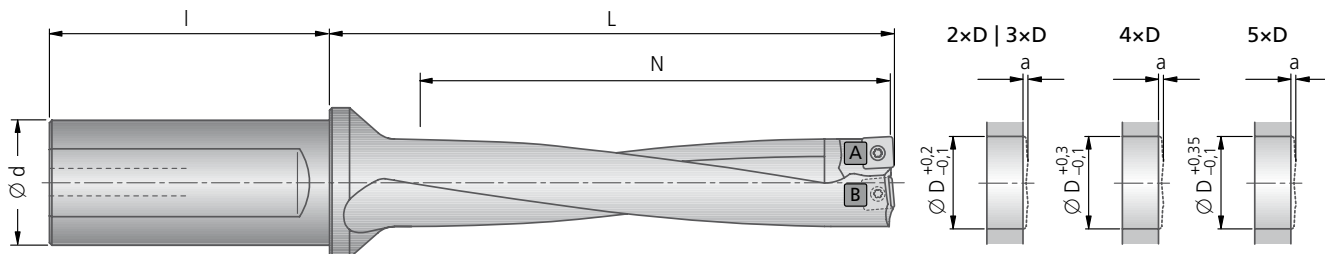
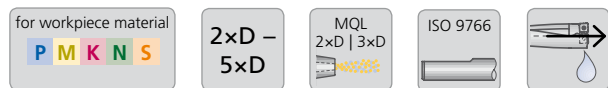
Supply includes: KUB Pentron® drill with clamping screw.

Please order insert separately. Screwdriver see chapter "Information".

● very good | ● good | ○ possible: see technical notes, page 85 | ✕ not possible

Guideline values for solid drilling: pages 78-83 / alternative inserts: page 84.

Indexable insert drill



Ø D mm (inch)	max. diameter with offset	Starting / roughing size a	Ø d x l	2xD				3xD				
				NEW Order No.	MQL 1-channel N	L	kg	NEW Order No.	MQL 1-channel N	L	kg	
42,1 (1.656)*	42,6	3,0	40x68	U42 34210	86	116	1,08	U43 34210	129	159	1,34	
42,5	43,0	3,0	40x68	U42 34250	86	116	1,09	U43 34250	129	159	1,36	
42,9 (1.687)*	43,4	3,0	40x68	U42 34290	86	116	1,10	U43 34290	129	159	1,37	
43,0	43,5	3,0	40x68	U42 34300	86	116	1,11	U43 34300	129	159	1,38	
43,5	44,0	3,0	40x68	U42 34350	88	118	1,13	U43 34350	132	162	1,42	
44,0	44,5	3,0	40x68	U42 34400	88	118	1,15	U43 34400	132	162	1,44	
44,5 (1.750)	45,0	3,3	40x68	U42 34450	90	121	1,22	U43 34450	135	166	1,49	
45,0	45,5	3,3	40x68	U42 34500	90	121	1,24	U43 34500	135	166	1,51	
45,5	46,0	3,3	40x68	U42 34550	92	123	1,27	U43 34550	138	169	1,55	
46,0	46,5	3,3	40x68	U42 34600	92	123	1,29	U43 34600	138	169	1,58	

All intermediate dimensions can be supplied quickly on request.

* Inch measurements marked with an asterisk (*) can be supplied quickly.

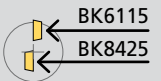
2xD	●	●	●	●	●	●	●	●	●	●	●
3xD	●	●	●	●	●	●	●	●	●	●	●
4xD	●	●	●	●	●	●	●	○	●	×	●
5xD	●	●	●	●	●	●	●	×	●	×	●

	4xD					5xD					Basic recommendation				
	Order No.	N	L		Order No.	N	L		Clamping screw  	Indexable insert   -01	Indexable insert  -01		for workpiece material		
Ø									Order No.	N	L	Order No.		N	L
*(1.656) 42,1	U44 34210	172	202	1,52	U45 34210	215	245	1,73	N00 57301 S45100-20IP 6,25 Nm	 W80 46010.088425 SOGX 130508-01 BK8425	 W80 46010.088425 SOGX 130508-01 BK8425	1	     		
42,5	U44 34250	172	202	1,53	U45 34250	215	245	1,74							
*(1.687) 42,9	U44 34290	172	202	1,54	U45 34290	215	245	1,76							
43,0	U44 34300	172	202	1,54	U45 34300	215	245	1,76							
43,5	U44 34350	176	206	1,60	U45 34350	220	250	1,82							
44,0	U44 34400	176	206	1,62	U45 34400	220	250	1,85							
(1.750) 44,5	U44 34450	180	211	1,68	U45 34450	225	256	1,92							
45,0	U44 34500	180	211	1,70	U45 34500	225	256	1,96							
45,5	U44 34550	184	215	1,76	U45 34550	230	261	2,03							
46,0	U44 34600	184	215	1,79	U45 34600	230	261	2,07							

Supply includes: KUB Pentron® drill with clamping screw.

Please order insert separately. Screwdriver see chapter "Information".

Recommended cutting data

Guideline values for solid drilling					Cutting speed v_c (m/min)																	
Material group	Strength Rm (N/mm ²)	Hardness HB	Material	Material example, material code/DIN	2xD 3xD																	
																						
					min	opt.	max	min	opt.	max	min	opt.	max	min	opt.	max	min	opt.	max			
P	1.0	≤ 500	non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	200	260	320	200	250	300	270	320	370	250	300	350						
	2.0	500-900	non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	250	270	300	250	270	300	250	280	320	250	270	300						
	2.1	< 500	lead alloys	1.0718 (11SMnPb30)	200	260	320	160	220	280	270	320	370	250	300	350						
	3.0	> 900	low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	140	180	220	120	160	200	220	260	300	200	240	280						
	4.0	> 900	high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	120	160	200	100	140	180	190	220	250	170	200	230						
	4.1		HSS		50	70	90	40	60	80	80	100	120	70	90	110						
S	5.0		250 special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)							on request											
	5.1	400	titanium, titanium alloys	3.7115 (TiAl5Sn2.5)							on request											
M	6.0	≤ 600	stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNiMo17-12-2)	150	170	210	140	180	220	190	220	250	210	240	270						
	6.1	< 900	stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMo-Ti17-12-2)	120	150	200	120	160	200	170	200	230	190	220	250						
	7.0	> 900	stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)	110	150	190	120	160	200	170	200	230	190	220	250						
K	8.0		180 gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	140	180	220	120	160	200	150	200	250	160	240	320						
	8.1		250 alloy gray cast iron	0.6660 (GGL-NiCr20 2)	120	150	180	100	130	160	100	140	180	100	140	180						
	9.0	≤ 600	130 spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	140	180	220	120	160	200	120	160	200	120	160	200						
	9.1		230 spheroidal graphite cast iron, ferritic/perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GJS-55) 0.8055 (GTW-55)	120	150	180	110	130	160	100	140	180	100	140	180						
	10.0	> 600	250 spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	110	140	170	90	120	150	90	120	150	90	120	150						
	10.1		200 alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	110	140	170	90	120	150	90	120	150	90	120	150						
	10.2		300 vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	90	110	130	80	100	120	70	100	130	70	100	130						
N	12.0		90 copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	150	200	250	150	200	250							150	250	350			
	12.1		100 copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	200	300	400	200	300	400							250	350	450			
	13.0		60 wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	300	400	500	300	400	500							300	500	700			
	13.1		75 cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	180	250	320	180	250	320							210	280	350			
	14.0		100 cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)	150	200	250	150	200	250							140	220	300			
H	15.0	1400	hardened steels < 45 HRC		80	120	140							80	120	140						
	16.0	1800	hardened steels > 45 HRC		60	100	140							60	100	140						

Cutting values shown are relating to the basic recommendations for cutting materials given.

Patent applied for inside and outside Germany

[illegible]

Recommended cutting data

Guideline values for solid drilling					Cutting speed v_c (m/min)															
Material group	Strength Rm (N/mm ²)	Hardness HB	Material	Material example, material code/DIN	4xD															
																				
					BK8425			BK7935			BK6425			BK6115			BK7710			
					min	opt.	max	min	opt.	max	min	opt.	max	min	opt.	max	min	opt.	max	
P	1.0	≤ 500	non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	200	260	320	200	250	300	270	320	370	250	300	350				
	2.0	500-900	non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	250	270	300	250	270	300	250	280	320	250	270	300				
	2.1	< 500	lead alloys	1.0718 (11SMnPb30)	200	260	320	160	220	280	270	320	370	250	300	350				
	3.0	> 900	low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	140	180	220	120	160	200	220	260	300	200	240	280				
	4.0	> 900	high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	120	160	200	100	140	180	190	220	250	170	200	230				
	4.1		HSS		50	70	90	40	60	80	80	100	120	70	90	110				
S	5.0		250 special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)							on request									
	5.1	400	titanium, titanium alloys	3.7115 (TiAl5Sn2.5)							on request									
M	6.0	≤ 600	stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNiMo17-12-2)	150	170	210	140	180	220	190	220	250	210	240	270				
	6.1	< 900	stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMo-Ti17-12-2)	120	150	200	120	160	200	170	200	230	190	220	250				
	7.0	> 900	stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)	110	150	190	120	160	200	170	200	230	190	220	250				
K	8.0		180 gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	140	180	220	120	160	200	150	200	250	160	240	320				
	8.1		250 alloy gray cast iron	0.6660 (GGL-NiCr20 2)	120	150	180	100	130	160	100	140	180	100	140	180				
	9.0	≤ 600	130 spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	140	180	220	120	160	200	120	160	200	120	160	200				
	9.1		230 spheroidal graphite cast iron, ferritic/perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GJS-55) 0.8055 (GTW-55)	120	150	180	110	130	160	100	140	180	100	140	180				
	10.0	> 600	250 spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	110	140	170	90	120	150	90	120	150	90	120	150				
	10.1		200 alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	110	140	170	90	120	150	90	120	150	90	120	150				
	10.2		300 vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	90	110	130	80	100	120	70	100	130	70	100	130				
N	12.0		90 copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	150	200	250	150	200	250							150	250	350	
	12.1		100 copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	200	300	400	200	300	400							250	350	450	
	13.0		60 wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	300	400	500	300	400	500							300	500	700	
	13.1		75 cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	180	250	320	180	250	320							210	280	350	
	14.0		100 cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)	150	200	250	150	200	250							140	220	300	
H	15.0	1400	hardened steels < 45 HRC								on request									
	16.0	1800	hardened steels > 45 HRC								on request									

Cutting values shown are relating to the basic recommendations for cutting materials given.

Patent applied for inside and outside Germany

4xD

Recommended cutting data

Guideline values for solid drilling					Cutting speed v_c (m/min)															
Material group	Strength Rm (N/mm ²)	Hardness HB	Material	Material example, material code/DIN	5xD															
																				
					BK8425			BK7935			BK6425			BK6115			BK7710			
					min	opt.	max	min	opt.	max	min	opt.	max	min	opt.	max	min	opt.	max	
P	1.0	≤ 500	non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	200	260	320	200	250	300	270	320	370	250	300	350				
	2.0	500-900	non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	250	270	300	250	270	300	250	280	320	250	270	300				
	2.1	< 500	lead alloys	1.0718 (11SMnPb30)	200	260	320	160	220	280	270	320	370	250	300	350				
	3.0	> 900	low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	140	180	220	120	160	200	220	260	300	200	240	280				
	4.0	> 900	high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	120	160	200	100	140	180	190	220	250	170	200	230				
	4.1		HSS		50	70	90	40	60	80	80	100	120	70	90	110				
S	5.0		250 special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)							on request									
	5.1	400	titanium, titanium alloys	3.7115 (TiAl5Sn2.5)							on request									
M	6.0	≤ 600	stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNiMo17-12-2)	150	170	210	140	180	220	190	220	250	210	240	270				
	6.1	< 900	stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMo-Ti17-12-2)	120	150	200	120	160	200	170	200	230	190	220	250				
	7.0	> 900	stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)	110	150	190	120	160	200	170	200	230	190	220	250				
K	8.0		180 gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	140	180	220	120	160	200	150	200	250	160	240	320				
	8.1		250 alloy gray cast iron	0.6660 (GGL-NiCr20 2)	120	150	180	100	130	160	100	140	180	100	140	180				
	9.0	≤ 600	130 spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	140	180	220	120	160	200	120	160	200	120	160	200				
	9.1		230 spheroidal graphite cast iron, ferritic/perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GJS-55) 0.8055 (GTW-55)	120	150	180	110	130	160	100	140	180	100	140	180				
	10.0	> 600	250 spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	110	140	170	90	120	150	90	120	150	90	120	150				
	10.1		200 alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	110	140	170	90	120	150	90	120	150	90	120	150				
	10.2		300 vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	90	110	130	80	100	120	70	100	130	70	100	130				
N	12.0		90 copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	150	200	250	150	200	250							150	250	350	
	12.1		100 copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	200	300	400	200	300	400							250	350	450	
	13.0		60 wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	300	400	500	300	400	500							300	500	700	
	13.1		75 cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	180	250	320	180	250	320							210	280	350	
	14.0		100 cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)	150	200	250	150	200	250							140	220	300	
H	15.0	1400	hardened steels < 45 HRC								on request									
	16.0	1800	hardened steels > 45 HRC								on request									

Cutting values shown are relating to the basic recommendations for cutting materials given.

Patent applied for inside and outside Germany

5xD inserting the drill at a reduced feed (-30%)

on request

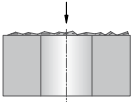
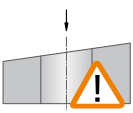
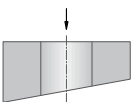
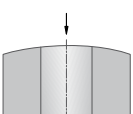
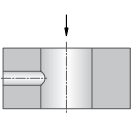
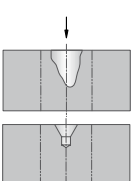
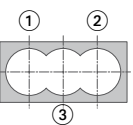
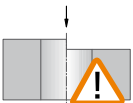
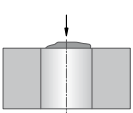
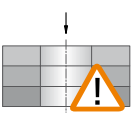
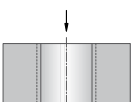
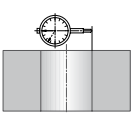
Alternative inserts

for better chip control			
Ø D	Indexable insert		for work-piece material
	Order No.	ISO code	
14,0 – 16,0	W80 10030.048430	SOGX 040204-03 BK8430	 
16,1 – 18,0	W80 12030.048430	SOGX 050204-03 BK8430	 
18,1 – 20,0	W80 18030.068430	SOGX 060206-03 BK8430	 
20,1 – 23,0	W80 20030.088430	SOGX 07T208-03 BK8430	 
23,1 – 26,0	W80 24030.088430	SOGX 080308-03 BK8430	 
26,1 – 30,0	W80 28030.088430	SOGX 09T308-03 BK8430	 
30,1 – 33,0	W80 32030.088430	SOGX 100408-03 BK8430	 
33,1 – 37,0	W80 38030.088430	SOGX 110408-03 BK8430	 
37,1 – 42,0	W80 42030.088430	SOGX 120408-03 BK8430	 
42,1 – 46,0	W80 46030.088430	SOGX 130508-03 BK8430	 

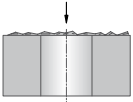
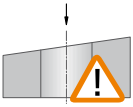
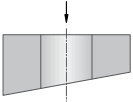
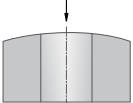
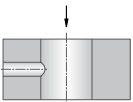
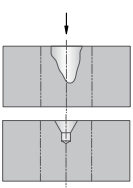
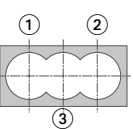
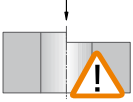
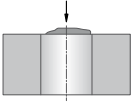
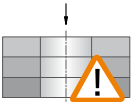
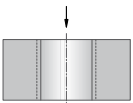
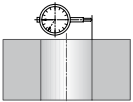
for higher cutting speed			
Ø D	Indexable insert		for work-piece material
	Order No.	ISO code	
14,0 – 16,0	W80 10010.046425 W80 10010.046115	SOGX 040204-01 BK6425 SOGX 040204-01 BK6115 ⚠	 
16,1 – 18,0	W80 12010.046425 W80 12010.046115	SOGX 050204-01 BK6425 SOGX 050204-01 BK6115 ⚠	 
18,1 – 20,0	W80 18010.066425 W80 18010.066115	SOGX 060206-01 BK6425 SOGX 060206-01 BK6115 ⚠	 
20,1 – 23,0	W80 20010.086425 W80 20010.086115	SOGX 07T208-01 BK6425 SOGX 07T208-01 BK6115 ⚠	 
23,1 – 26,0	W80 24010.086425 W80 24010.086115	SOGX 080308-01 BK6425 SOGX 080308-01 BK6115 ⚠	 
26,1 – 30,0	W80 28010.086425 W80 28010.086115	SOGX 09T308-01 BK6425 SOGX 09T308-01 BK6115 ⚠	 
30,1 – 33,0	W80 32010.086425 W80 32010.086115	SOGX 100408-01 BK6425 SOGX 100408-01 BK6115 ⚠	 
33,1 – 37,0	W80 38010.086425 W80 38010.086115	SOGX 110408-01 BK6425 SOGX 110408-01 BK6115 ⚠	 
37,1 – 42,0	W80 42010.086425 W80 42010.086115	SOGX 120408-01 BK6425 SOGX 120408-01 BK6115 ⚠	 
42,1 – 46,0	W80 46010.086425 W80 46010.086115	SOGX 130508-01 BK6425 SOGX 130508-01 BK6115 ⚠	 

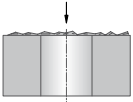
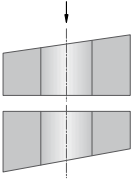
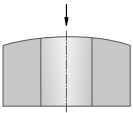
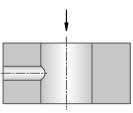
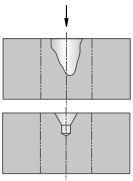
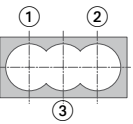
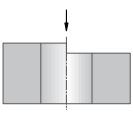
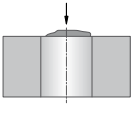
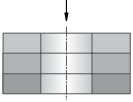
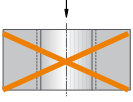
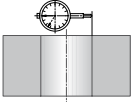


Note: Only use this insert with KUB Pentron® as an external cutting edge:
SOGX ... -01 (geometry 01) in BK6115, internal cutting edge in BK8425

-
1.  **Starting on uneven surfaces (cast surfaces)**
- subject to the surface, reduce feed as required when starting the bore
-
2.  **Starting on angled surfaces**
- subject to the starting angle, the feed must be reduced when starting the bore.
Rule of thumb: $3^\circ \triangleq 30\%$; $10^\circ \triangleq 40\%$; $25^\circ \triangleq 60\%$ use tools max. 2xD
 - use tough insert and stable corner radius
-
3.  **Angled bore exit**
- from wear cut is interrupted reduce feed rate up to 50%
 - use tough insert and stable corner radius
-
4.  **Starting on cambered surfaces**
- no problems
 - reduce feed rate if necessary
-
5.  **Drilling through a cross bore**
- reduce feed rate 50% if necessary
 - watch for chip jamming around tool
 - use tough insert and stable corner radius
-
6.  **Starting on a groove or large centering bore**
- use short tools, max. 3xD
 - spot face if required
 - reduce feed rate
 - use tough insert for internal cutting edge
-
7.  **Drilling a chamber**
- first bore Nos. 1 + 2, then bore No. 3
 - check distribution is symmetrical
 - avoid chip jams
 - if necessary reduce to approx. 1-1.5 mm in the $\varnothing$ on circumference
 - reduce feed rate 50% for interrupted cut
 - use tough insert and stable corner radius
-
8.  **Starting on an edge**
- reduce feed rate by 50%
 - use tough insert and stable corner radius
-
9.  **Starting on a welded seam**
- reduce feed rate
 - use max. 3xD tools
-
10.  **Drilling through stacked plates**
- good workpiece clamping required
 - max. gap = 1 mm
-
11.  **Roughing**
- possible
-
12.  **Adjustable**
- using adjusting device (ABS-MV) and eccentric adjusting device
 - for turning machines over axis
- Note: please note max. offset $\varnothing$ in tables
-

Technical informations

-
1.  **Starting on uneven surfaces (cast surfaces)**
- subject to the surface, reduce feed as required when starting the bore
-
2.  **Starting on angled surfaces**
- max. 3° angled position possible (cast angles)
 - reduce feed rate when starting bore
 - use stable corner radius
-
3.  **Angled bore exit**
- from wear cut is interrupted reduce feed rate up to 50%
 - use tough insert and stable corner radius
-
4.  **Starting on cambered surfaces**
- no problems
 - reduce feed rate if necessary
-
5.  **Drilling through a cross bore**
- reduce feed rate 50% if necessary
 - watch for chip jamming around tool
 - use tough insert and stable corner radius
-
6.  **Starting on a groove or large centering bore**
- use short tools, max. 3xD
 - spot face if required
 - reduce feed rate
 - use tough insert for internal cutting edge
-
7.  **Drilling a chamber**
- first bore Nos. 1 + 2, then bore No. 3
 - check distribution is symmetrical
 - avoid chip jams
 - if necessary reduce to approx. 1-1.5 mm in the Ø on circumference
 - reduce feed rate 50% for interrupted cut
 - use tough insert and stable corner radius
-
8.  **Starting on an edge**
- not possible for 3xD tools
 - because of the undefined surface for starting the bore, pre-machining is required (spot facing, face milling)
 - then continue as described under Point 1
-
9.  **Starting on a welded seam**
- reduce feed rate
 - use max. 3xD tools
-
10.  **Drilling through stacked plates**
- good workpiece clamping required
-
11.  **Roughing**
- possible
-
12.  **Adjustable**
- using adjusting device (ABS® MV) and eccentric adjusting device
 - for turning machines over axis
- Note: please note max. offset Ø in tables
-

-
1.  **Starting on uneven surfaces (cast surfaces)**
- when inserting and withdrawing the drill, reduce the feed rate by approx. 30-50% (depending on component stability, clamping and surface quality)
-
2.  **Starting on angled surfaces / angled bore exit**
- when inserting the drill, reduce the feed rate by approx. 30-60% until full diameter is reached
 - when withdrawing the drill after interruption to the cut, reduce the feed rate by approx. 30-60%
 - use tough insert and stable corner radius
-
3.  **Starting on cambered surfaces**
- when inserting the drill, reduce the feed rate by approx. 30-60% until full diameter is reached
 - when withdrawing the drill after interruption to the cut, reduce the feed rate by approx. 30-60% (depending on component stability and clamping).
-
4.  **Drilling through a cross bore**
- when inserting and withdrawing the drill, reduce the feed rate by approx. 30-50% (depending on component stability, clamping and surface quality)
 - in the vicinity of the cross bore, reduce the feed rate by 50%
 - watch for chip jamming around tool
 - use tough insert and stable corner radius
-
5.  **Starting on a groove or large centering bore**
- when inserting the drill, reduce the feed rate by approx. 30-50% until centring depth is reached
 - reduce feed rate
 - use tough insert for internal cutting edge
 - spot face if required
-
6.  **Drilling a chamber**
- first bore Nos. 1 + 2, then bore No. 3
 - check distribution is symmetrical
 - avoid chip jams
 - use tough insert and stable corner radius
 - Continuous drilling: when inserting the drill, reduce the feed rate by approx. 30-60% (depending on component stability and clamping)
 - Interruption to cut: when drilling the cut interruption, reduce the feed rate by approx. 50-60%
-
7.  **Starting on an edge**
- when inserting and withdrawing the drill, reduce the feed rate by approx. 30-50% (depending on component stability, clamping and surface quality)
 - use tough insert and stable corner radius
-
8.  **Starting on a welded seam**
- when inserting the drill, reduce the feed rate by approx. 30-60% until full diameter is reached
 - when withdrawing the drill after interruption to the cut, reduce the feed rate by approx. 30-60% (depending on component stability and clamping).
-
9.  **Drilling through stacked plates**
- good workpiece clamping required
 - max. gap = 1 mm
-
10.  **Roughing**
- not possible
-
11.  **Adjustable**
- when inserting and withdrawing the drill reduce the feed rate by approx. 30-50% until full bore diameter is reached (depending on component stability and clamping).
 - use tough insert and stable corner radius
-

KOMET KUB Pentron® 6xD *Productivity PLUS*

6xD indexable insert high-performance drill bit.

Retains its stability without a centring point or guide rails.



5xD is as good as it gets when it comes to the length/diameter ratio of drilling tools. Or at least, that's what was previously thought, since larger ratios have a considerable adverse effect on stiffness; until now, stable machining operations and adequate feed rates have been mutually exclusive.

But KOMET has been hard at work, pooling its many years of experience and sophisticated development methods to come up with the new KUB Pentron® 6xD *Productivity PLUS* with performance data that will not fail to impress.

BENEFITS for you:

- Drilling and chamfering in a single operation
- Low-cost, high-performance alternative without guide elements
- Does not compromise on productivity or process reliability
- Superior stiffness thanks to the optimised basic-body geometry

Field test data:

Roughing in 42CrMo4 quenched and tempered steel

Feed rate of up to 0,12 mm/rev

Cutting speed of up to 176 m/min

Tool life travel of up to 9,9 m

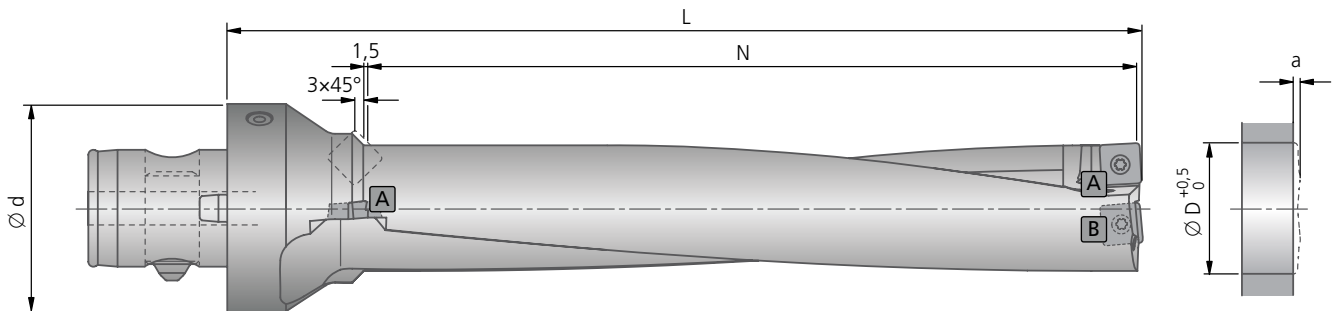
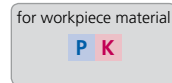
In summary:

With this kind of cutting data and the results it has achieved in testing, the KUB Pentron® 6xD *Productivity PLUS* without additional centring point is set to be a highly productive tool. Not only are these figures considerably higher than comparable drill bits without guide elements, but they also demonstrate that the new tool can hold its own against its guided counterparts.

Ø 26 | 33 | 39 | 45 mm

KOMET KUB Pentron® 6xD Productivity PLUS

Indexable insert drill



NEW

EW

6xD							Basic recommendation					
Ø D	Starting / roughing size a	ABS Ø d	Order No.	N	L		Clamping screw  	  -01	 -01	for workpiece material		
							Order No. Article	Order No. ISO code ▽▽Size	Piece	Order No. ISO code ▽▽Size	Piece	
26,0	2,4	50	U49 02600	156	189	0,74	N00 57571 S/M2,5x6,3-8IP 1,28 Nm	W80 24010.088425 SOGX 080308-01 BK8425 W80 24010.086115 SOGX 080308-01 BK6115	2	W80 24010.088425 SOGX 080308-01 BK8425 W80 24010.088425 SOGX 080308-01 BK8425	1	P K
32,2	2,8	63	U49 03220	198	238	1,45	N00 57261 S3575-15IP 2,8 Nm	W80 32010.088425 SOGX 100408-01 BK8425	2	W80 32010.088425 SOGX 100408-01 BK8425	1	P
32,8	2,8	63	U49 03280	198	238	1,53		W80 32010.086115 SOGX 100408-01 BK6115		W80 32010.088425 SOGX 100408-01 BK8425		K
33,0	2,8	63	U49 03300	198	238	1,53						
38,8	3,0	63	U49 03880	234	277	2,04	N00 57301 S45100-20IP 6,25 Nm	W80 42010.088425 SOGX 120408-01 BK8425	2	W80 42010.088425 SOGX 120408-01 BK8425	1	P
39,0	3,0	63	U49 03900	234	277	2,04		W80 42010.086115 SOGX 120408-01 BK6115		W80 42010.088425 SOGX 120408-01 BK8425		K
39,2	3,0	63	U49 03920	235,2	277	2,02						
44,8	3,3	63	U49 04480	270	316	2,80	N00 57301 S45100-20IP 6,25 Nm	W80 46010.088425 SOGX 130508-01 BK8425	2	W80 46010.088425 SOGX 130508-01 BK8425	1	P
45,0	3,3	63	U49 04500	270	316	2,80		W80 46010.086115 SOGX 130508-01 BK6115		W80 46010.088425 SOGX 130508-01 BK8425		K

Supply includes: KUB Pentron® drill with clamping screw.
Please order insert separately. Screwdriver see chapter "Information".

KUB Pentron® Ø 26.0 mm, available in Q1 2018

Design your own tool!

Step drill for continuous drilling with up to three counterboring steps

Diameters of 14 mm to 46 mm | 4xD

Can't find a suitable solution in our standard range? Can't find dimensions that suit your requirements?

Our KUB Pentron® step drill enables you to create your own combinations in a wide range of dimensions. Select the basic type and define the useful length.

We check your requirements to ensure that they are technically feasible and create an individualised offer for you.

BENEFITS for you:

- Continuous drilling, counterboring and chamfering in a single operation
- Does not compromise on productivity or process reliability
- Superior stiffness thanks to the optimised basic-body geometry
- Maximum performance and life with excellent drilling performance due to optimum main body stability
- Cost reductions in stocking and ease of handling due to identical internal and external indexable inserts
- Maximum tool life due to four fully useable cutting edges of modern substrates with appropriate coatings



Enquiry KUB Pentron® Step Drill

Company:

Customer No.:

Address:

Contact:

Department:

Phone:

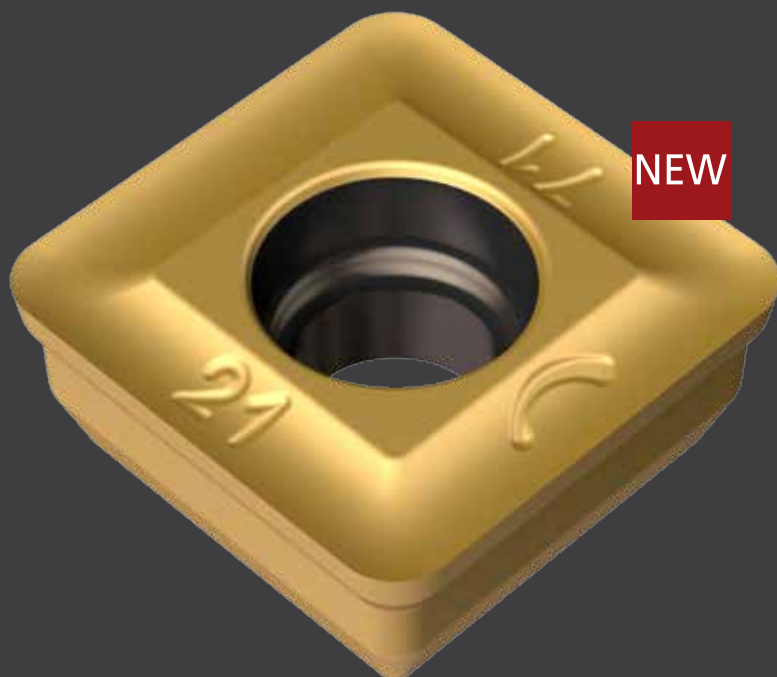
Fax:

E-Mail:

Bore variants:

ØD	L1 min	ØD	L1 min
14 - 16	9,5	26,1 - 30	18
16,1 - 18	11	30,1 - 33	20
18,1 - 20	12,5	33,1 - 37	22
20,1 - 23	14	37,1 - 42	24
23,1 - 26	16	42,1 - 46	26,5

<



KOMET® W80..21 – SOGX

Application range:

- Solid drilling with KUB Pentron®
- Special tools

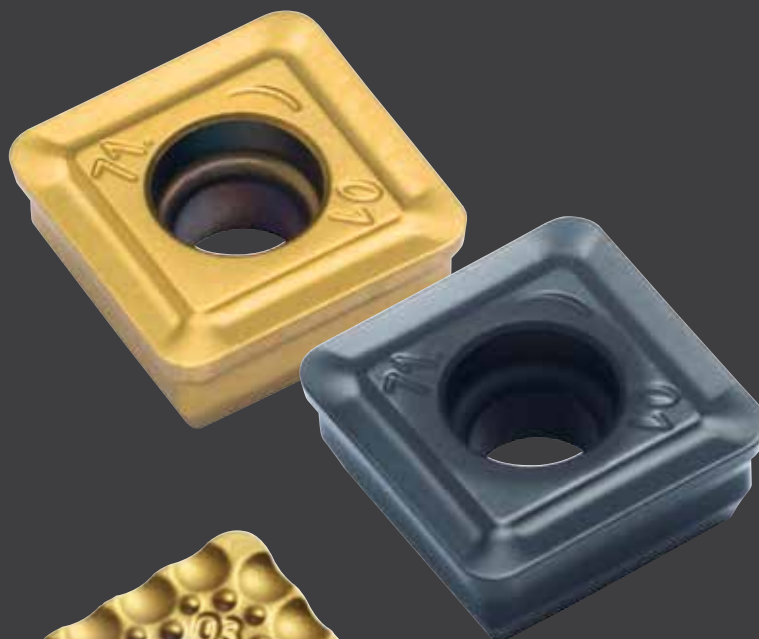
Soft-cutting topography that reduces cutting forces for the KUB Pentron®: Wear-resistant, high-positive indexable insert

KOMET® W80..01 – SOGX

Application range:

- Solid drilling with KUB Pentron®
- Special tools

All-round geometry for KUB Pentron®: wear-resistant indexable insert for universal use



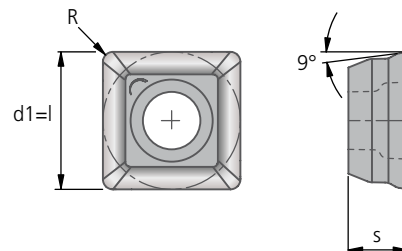
KOMET® W80..03 – SOGX

Application range:

- Solid drilling with KUB Pentron®
- Special tools

This geometry is suitable for all steels in general, especially for long-chipping and stainless steel materials. The SOGX indexable insert topography is predestined for use in long-chipping materials and, thanks to optimum chip formation, ensures the reliable removal of chips, even with high L/D ratios.



**NEW**

Substrate		Carbide						
Coating type		PVD	PVD	PVD				
Cutting material designation		BK8430	BK7935	BK7710				
ISO Code	Order No. Enter cutting material code	 8430	 7935	 7710	d1	s	l	R
SOGX 040204-21	W80 10210.04..	▲	▲	▲	4,8	2,2	4,8	0,4
SOGX 050204-21	W80 12210.04..	▲	▲	▲	5,5	2,4	5,5	0,4
SOGX 060206-21	W80 18210.06..	▲	▲	▲	6,2	2,75	6,2	0,6
SOGX 07T208-21	W80 20210.08..	▲	▲	▲	7,1	2,97	7,1	0,8
SOGX 080308-21	W80 24210.08..	▲	▲	▲	8,0	3,4	8,0	0,8
SOGX 09T308-21	W80 28210.08..	▲	▲	▲	8,9	3,9	8,9	0,8
SOGX 100408-21	W80 32210.08..	▲	▲	▲	9,8	4,2	9,8	0,8
SOGX 110408-21	W80 38210.08..	▲	▲	▲	10,9	4,5	10,9	0,8
SOGX 120408-21	W80 42210.08..	▲	▲	▲	12,0	4,8	12,0	0,8
SOGX 130508-21	W80 46210.08..	▲	▲	▲	13,2	5,2	13,2	0,8
Steel P		●	●		Order example: ISO Code SOGX 040204-21 Cutting material BK8430 Order No. W80 10210.048430			
Stainless steel M		●	●					
Cast iron K		●	●					
Non-ferrous metals N		●		●				
Superalloys and titanium S			●					
Hardened materials H								
 External cutting edge		✓	✓	✓				
 Internal cutting edge <i>Recommendation</i>		✓	W80..21 - BK8430	✓				

KOMET MicroKom *BluFlex*® 2

Precision boring system with Bluetooth® technology

Precision boring head with integrated high-contrast OLED display and Bluetooth® low-energy wireless technology for connecting to all common Bluetooth®-compatible smartphones from Android™ 4.4 and iOS® 10



Finger on the pulse of time – The clever alternative: „MicroKom BluFlex“ APP for use as display unit in Google Play™ for Android™ smartphones or the App Store for smartphones running iOS®.

Bluetooth® is a registered trademark of Bluetooth SIG, Inc.

iOS® is a registered trademark of Cisco Systems, Inc.

Google Play™ and Android™ are registered trademarks of Google Inc.

App Store is a trademark of Apple Inc.

Patent applied

New and improved – the second generation

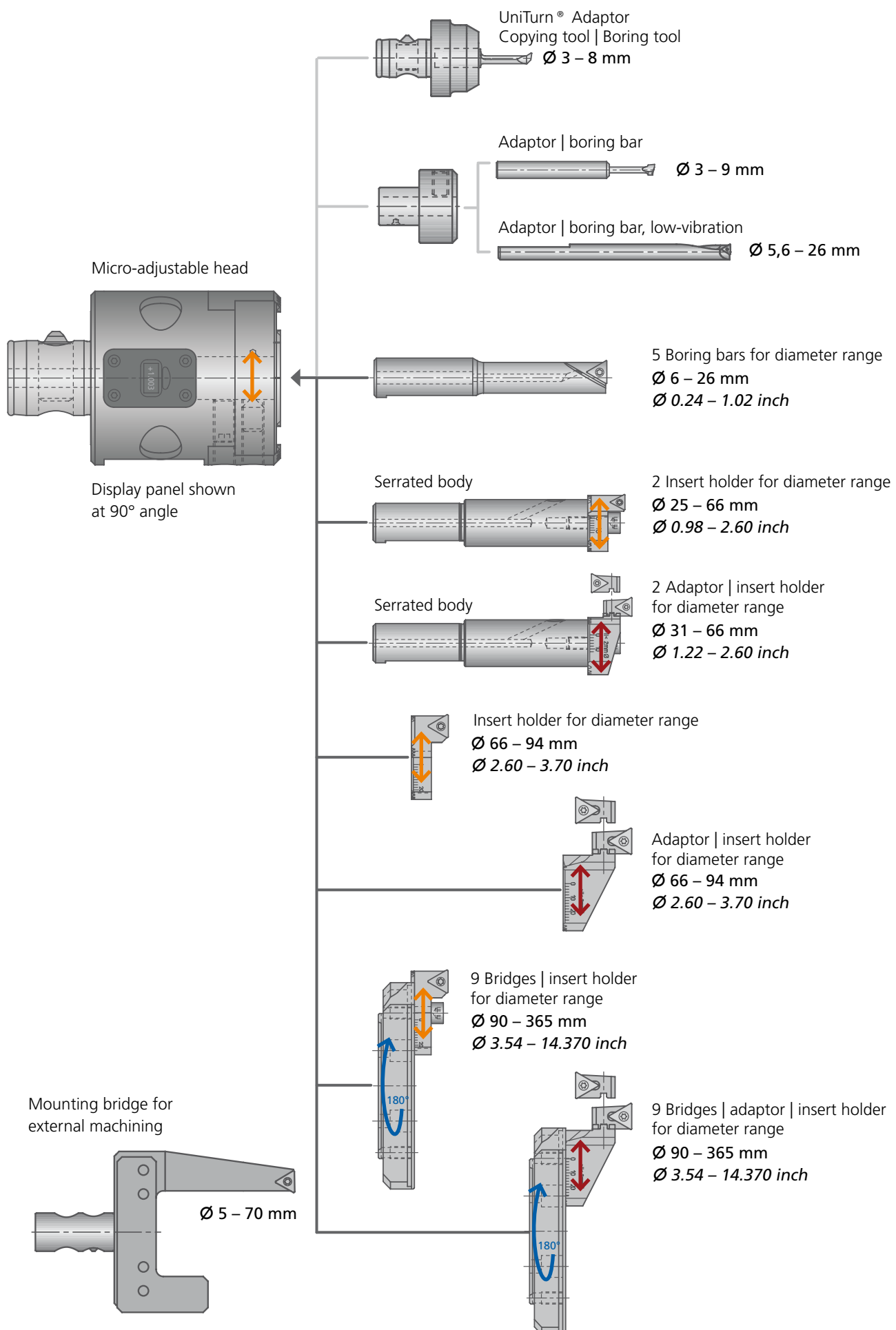
Besides its peerlessly innovative qualities and unparalleled precision, the second, completely redesigned version of our KOMET MicroKom *BluFlex*® system boasts a sophisticated, extremely high-contrast OLED display and is exceptionally easy to use.

BENEFITS for you:

- Display resolution precise to the nearest micrometre: 0.001 mm in diameter
- Sophisticated, high-contrast OLED display on the precision adjustment head itself
- Display can be rotated 180°
- Easy to operate on the touch display itself
- Additional Bluetooth® low-energy interface that allows information to be displayed easily on a conventional smartphone
- Higher speeds due to integral part balancing
- Highly sensitive adjustment allows for a precise feed
- Absolute position measuring system – the absolute and relative positions of the slide are displayed at every switch-on
- Universal ABS® interface
- Batteries are easy to replace
- Same construction as the previous version
- Fully compatible with the old system variants

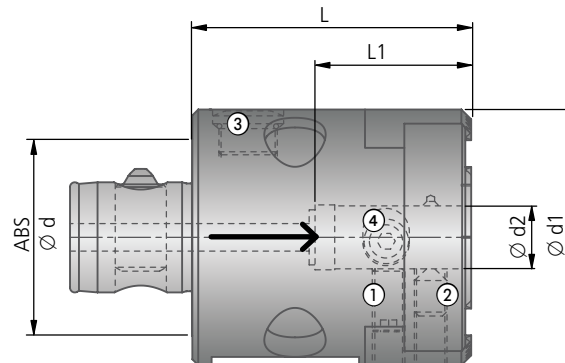
KOMET MicroKom *BluFlex*® 2

Variation options



KOMET MicroKom *BluFlex*® 2

Micro-adjustable head



Micro-adjustable head												
Order No.	ABS Ø d	Ø d1	Ø d2	Adjust- ment S	L	L1		Tool clamp:		Battery compartment: Cover/O-ring ③ Order No.	Slide clamp ④:	
								Clamping screw  ①	Clamping screw  ②		Clamping screw	Sleeve
								Order No. Article	Order No. Article		Order No. Article	Order No.
M04 30100	50	65	ABS32 Ø 16	2,3	71	38	1,45	55051 08120 M8×1×20-Ø4	N00 02062 ABS32-F1.1-Ø4	M04 30000.20 (Ø4) 52914 011315	M04 30000.24 M5×14-Ø4 8 Nm	M04 30000.23
M04 30000 												

Adjustment must be in line with cutting parameters and spindle speed.

Screwdriver see chapter "Information".

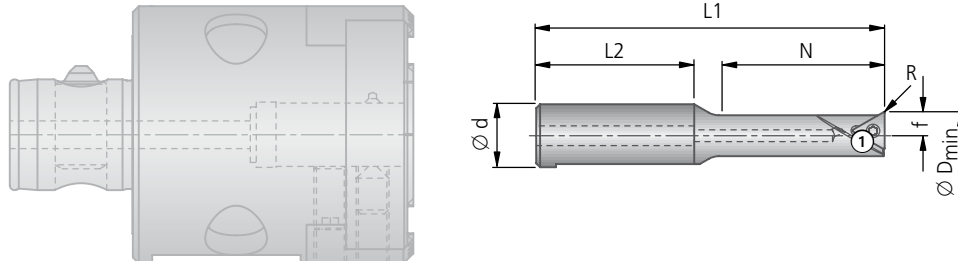
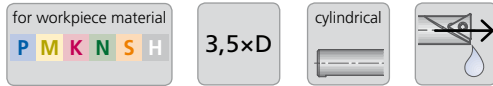
A radio certification is required for the distribution of radio-enabled devices (M04 30000). This certification for the MicroKom *BluFlex*® 2 currently exists for all CE countries, USA and Canada (FCC). In other countries, only the distribution of the fine adjustment head without Bluetooth® (M04 30100) is permitted.

Fine boring set Ø 6 – 125 mm	Contents of case		
Order No.	Order No.	Qty.	Article
M04 30110	① M04 30100	1	Micro-adjustable head
M04 30010	① M04 30000	1	Micro-adjustable head Bluetooth®
	② M05 20101	1	Insert holder Ø 25-44 mm / 0.98"-1.73"
	③ M05 20151	1	Insert holder Ø 44-125 mm / 1.73"-4.92"
	④ M05 80101	1	Bridge Ø 90-125 mm / 3.54"-4.92"
	⑤ M05 90100	1	Serrated body Ø 25-63 mm / 0.98"-2.48"
	⑥ M05 90501	1	Packing piece
	⑦ B05 20100	1	Boring bar Ø 6 mm / 0.236"
	⑧ B05 20140	1	Boring bar Ø 10 mm / 0.394"
	⑨ B05 20180	1	Boring bar Ø 14 mm / 0.551"
	⑩ B05 20220	1	Boring bar Ø 18 mm / 0.709"
	⑪ B05 20260	1	Boring bar Ø 22 mm / 0.866"
	⑫ 18050 10030	1	Allen key SW3
	L05 01110	1	Flag key 5IP
	L05 01120	1	Flag key 6IP
	L05 01240	1	Flag key 8IP
⑬	55011 05016	5	Cylindrical screw M5x16
	W57 04140.0260	4	Insert BK60
	W57 14140.0460	4	Insert BK60
	W00 04120.018440	2	Insert BK8440
	39924 28021	1	Operating Instructions
	49811 02040	1	Case

Bluetooth® is a registered trademark of Bluetooth SIG, Inc.

Patent applied for inside and outside Germany

Boring bar



3,5xD												
Boring bar									Basic recommendation			
Ø D mm inch	Order No.	Ø d	L1	L2	N	f	R	kg	Clamping screw Order No. Article	Indexable insert Order No. ▽▽ size	ISO Code	for workpiece material
6 0.24	B05 20100	16	71,7	40	21 0.83	3	0,1	0,06	N00 56011 S/M1,8x2,9-5IP 0,38 Nm	W00 04120.018440 W00 04120.012710 W00 04120.0121	WOHX 02T001EL-G12 BK8440 WOHX 02T001EL-G12 BK2710 WOHX02T001FL-G12 K10	P M K H N S
10 0.39	B05 20140	16	81,8	40	34 1.34	5	0,2	0,08	N00 56101 S/M2,6x5,2-8IP 1,28 Nm	W57 14140.0460 W30 14060.042710	TOGX 090204EN-14 BK60 TOHX 090204EL-G06 BK2710	P M K H N S <52 HRC
14 0.55	B05 20180	16	94,4	40	50 1.97	7	0,2	0,10		W30 14060.046110 W57 14120.0423	TOHX 090204EL-G06 BK6110 TOGX 090204FN-12 K10	
18 0.71	B05 20220	16	100	40	60 2.36	9	0,2	0,14		W30 14990.0440	TOEX 090204TN CBN40	
22 0.87	B05 20260	16	108	36	68,5 2.68	11	0,2	0,21	N00 56211 S/M3,5x7,3-10IP 2,8 Nm	W57 26140.0460 W30 26060.042710 W30 26060.046110 W57 26120.0423 W30 26990.0440	TOGX 140304EN-14 BK60 TOHX 140304EL-G06 BK2710 TOHX 140304EL-G06 BK6110 TOGX 140304FN-12 K10 TOEX 140304TN CBN40	P M K H N S <52 HRC

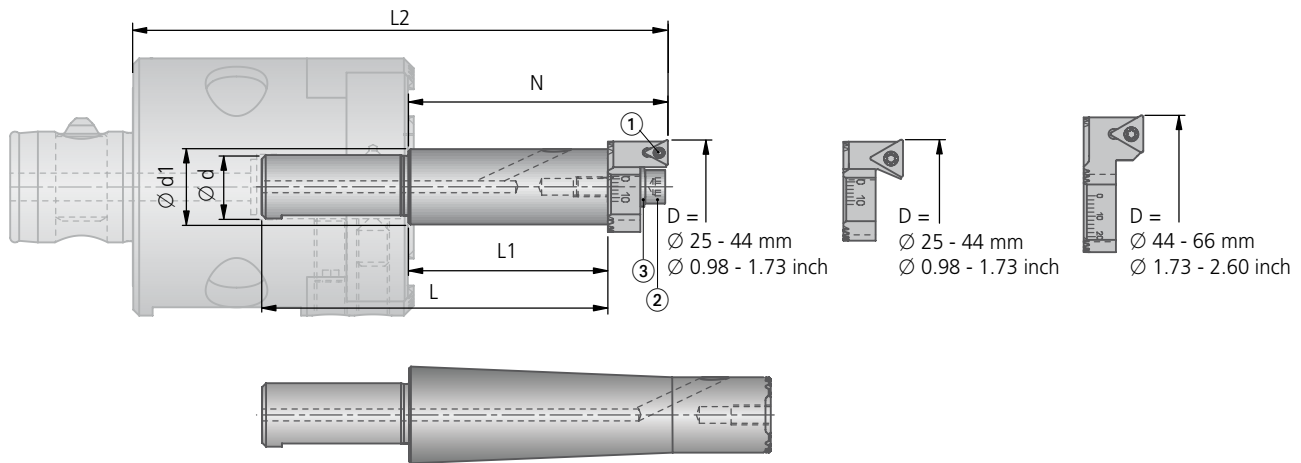
Supply includes boring bar: with clamping screw ①.

Please order insert separately. Screwdriver see chapter "Information".

Ø 25 – 66 mm

KOMET MicroKom *BluFlex*® 2

Serrated body | Insert holder



3,5xD									
Serrated body									
								Location screw 	Cup spring
Order No.	d	d1	N	L	L1	L2		Order No. Article	Order No. Article
M05 90100	16	19	65	88,5	51,5	134,73	0,163	55011 05016	56771 10053
M05 90110	16	24	105	129,12	92,12	176	0,296	M5x16-Ø4	D10x5,2x0,3

Supply includes serrated body: with location screw ② and cup spring ③.

Insert holder				Basic recommendation		
Ø D mm inch	Order No. mm inch		Clamping screw ① 	Indexable insert		for workpiece material
			Order No. Article	Order No. ▽ size	ISO Code	
25 – 44 0.98 – 1.73	M05 20101 M05 20601	0,019	N00 56031 S/M2x4,9-6IP 0,62 Nm	W57 04140.0260 W30 04060.032710 W30 04060.037615 W57 04120.0223	TOGX 06T102EN-14 BK60 TOHX 06T103EL-G06 BK2730 TOHX 06T103EL-G06 BK7615 TOGX 06T102FN-12 K10	P M K N
25 – 44 0.98 – 1.73	M05 20110 M05 20610	0,019	N00 56111 S/M2,6x6,2-8IP 1,28 Nm	W57 14140.0460 W30 14060.042710 W30 14060.047615 W57 14120.0423	TOGX 090204EN-14 BK60 TOHX 090204EL-G06 BK2710 TOHX 090204EL-G06 BK7615 TOGX 090204FN-12 K10	P M K N
44 – 66 1.73 – 2.60	M05 20151 M05 20651	0,026				

Supply includes insert holder: with clamping screw ①.

Supply includes insert holder M05 20110:

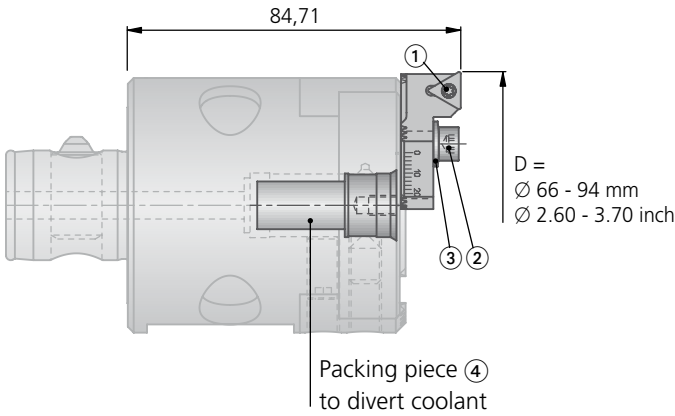
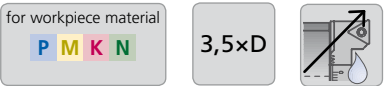
with clamping screw ① and location screw L02 30180 (M5x16)

Please order insert separately. Screwdriver see chapter "Information".

● very good | ● good | ○ possible | ✕ not possible

Guideline values for fine boring and alternative inserts: Pages 108-109.

Insert holder



3,5xD								
Insert holder					Basic recommendation			
Ø D mm inch	 Order No. mm inch	 kg	Clamping screw ① Order No. Article	Indexable insert -14 -12 W30 Order No. ▽▽ size		ISO Code		for workpiece material
63 – 93 2.60 – 3.70	M05 20151 M05 20651	0,026	N00 56111 S/M2,6x6,2-8IP 1,28 Nm	W57 14140.0460 W30 14060.042710 W30 14060.047615 W57 14120.0423	TOGX 090204EN-14 BK60 TOHX 090204EL-G06 BK2710 TOHX 090204EL-G06 BK7615 TOGX 090204FN-12 K10		P M K N	

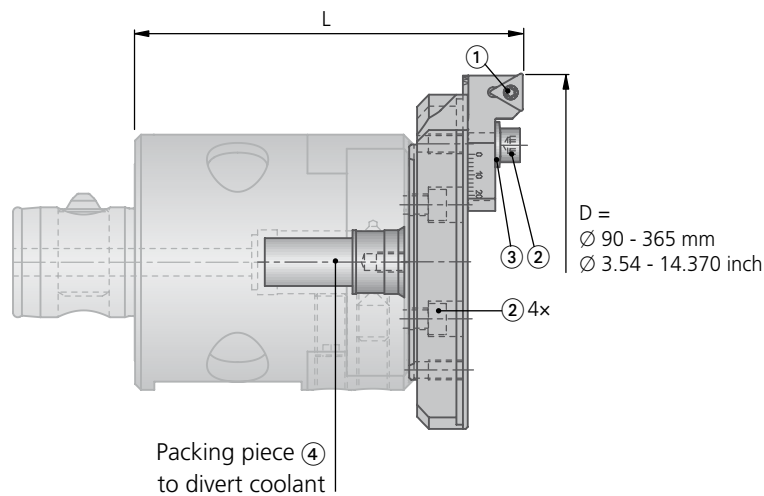
Supply includes insert holder: with clamping screw ①.
Please order insert, location screw ②, cup spring ③ and packing piece ④ separately.
Screwdriver see chapter "Information".

Accessories		
Location screw Order No. Article	Cup spring Order No. Article	Packing piece Order No.
55011 05016 M5x16-Ø4	56771 10053 D10x5,2x0,3	M05 90501

Ø 90 – 365 mm

KOMET MicroKom *BluFlex*® 2

Bridge | Insert holder



3,5xD								
Ø D mm inch	L	Bridge Order No.	Insert holder Order No. mm inch	Clamping screw ① Order No. Article	Basic recommendation			
90 - 125 3.54 - 4.92	98,72	M05 80101 	M05 20151 M05 20651 	N00 56111 S/M2,6x6,2-8IP 1,28 Nm	Indexable insert Order No. ISO Code ∇∇ size W57 14140.0460 TOGX 090204EN-14 BK60 W30 14060.042710 TOHX 090204EL-G06 BK2710 W30 14060.047615 TOHX 090204EL-G06 BK7615 W57 14120.0423 TOGX 090204FN-12 K10			
120 - 155 4.72 - 6.10	100,72	M05 80200 						
150 - 185 5.91 - 7.28	102,72	M05 80300 						
180 - 215 7.09 - 8.46	105,72	M05 80400 						
210 - 245 8.268 - 9.646	105,72	M05 80500 						
240 - 275 9.449 - 10.827	105,72	M05 80510 						
270 - 305 10.630 - 12.008	105,72	M05 80520 						
300 - 335 11.811 - 13.189	105,72	M05 80530 						
330 - 365 12.992 - 14.370	105,72	M05 80540 						

Supply includes bridge: bridge without insert holder.

Supply includes insert holder: with clamping screw ①.

Please order insert, location screw ②, cup spring ③ and packing piece ④ separately.

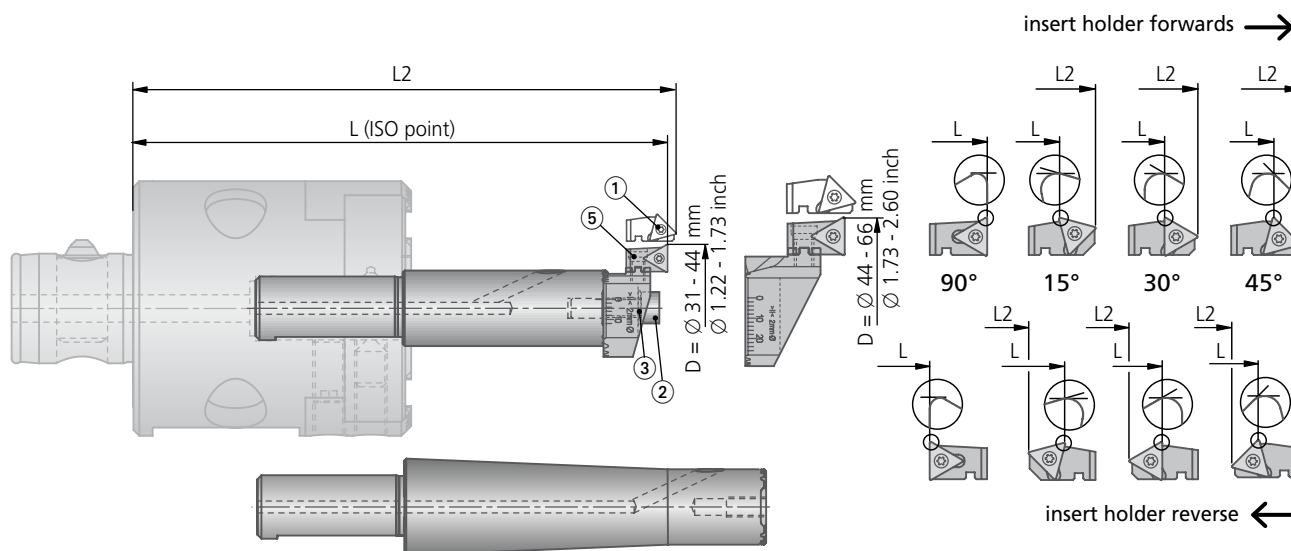
Screwdriver see chapter "Information".

Accessories		
Location screw	Cup spring	Packing piece
 Order No. Article	 Order No. Article	 Order No.
55011 05016 M5x16-04	56771 10053 D10x5,2x0,3	M05 90501

● very good | ● good | ○ possible | ✕ not possible

Guideline values for fine boring and alternative inserts: Pages 108-109.

Serrated body | Adaptor | Insert holder

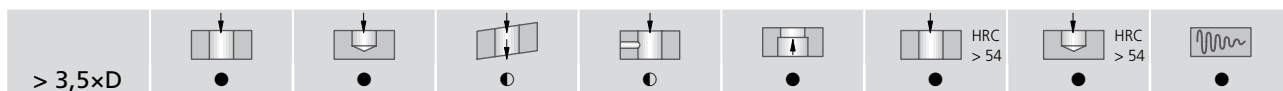


Ø D mm inch	Serrated body			Adaptor		→ Insert holder forwards					
	Order No.	Location screw ② Order No. Article	Cup spring ③ Order No. Article	Order No. mm · inch	Location screw ⑤ Order No. Article	90° Order No.	L	L2	15° Order No.	L	L2
31 - 44 1.22 - 1.73	M05 90100 0,163	55011 05016 M5×16-Ø4	56771 10053 D10×5,2×0,3	M05 21100 M05 21600	N00 56211 S/M3,5×7,3-10IP	M03 10033	135,85	–	M03 11120	131,35	142,05
	M05 90110 0,296						177,12	–		172,62	178,81
44 - 66 1.73 - 2.60	M05 90100 0,163	55011 05016 M5×16-Ø4	56771 10053 D10×5,2×0,3	M05 21150 M05 21650	N00 56211 S/M3,5×7,3-10IP	M03 10043	144,75	–	M03 11130	138,25	146,65
	M05 90110 0,296						186,02	–		179,52	187,89

Ø D mm inch	Serrated body			Adaptor		← Insert holder reverse					
	Order No.	Location screw ② Order No. Article	Cup spring ③ Order No. Article	Order No. mm · inch	Location screw ⑤ Order No. Article	90° Order No.	L	L2	15° Order No.	L	L2
31 - 44 1.22 - 1.73	M05 90100 0,163	55011 05016 M5×16-Ø4	56771 10053 D10×5,2×0,3	M05 21100 M05 21600	N00 56211 S/M3,5×7,3-10IP	M03 12020	121,65	–	M03 12120	126,25	120,05
	M05 90110 0,296						162,92	–		167,52	161,32
44 - 66 1.73 - 2.60	M05 90100 0,163	55011 05016 M5×16-Ø4	56771 10053 D10×5,2×0,3	M05 21150 M05 21650	N00 56211 S/M3,5×7,3-10IP	M03 12030	124,75	–	M03 12130	131,25	122,85
	M05 90110 0,296						166,02	–		172,52	164,14

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Serrated body | Adaptor | Insert holder



Supply includes serrated body: with location screw ② and cup spring ③.

Supply includes adaptor: with location screw ⑤.

Supply includes insert holder: with clamping screw ①.

Please order insert separately. Screwdriver see chapter "Information".

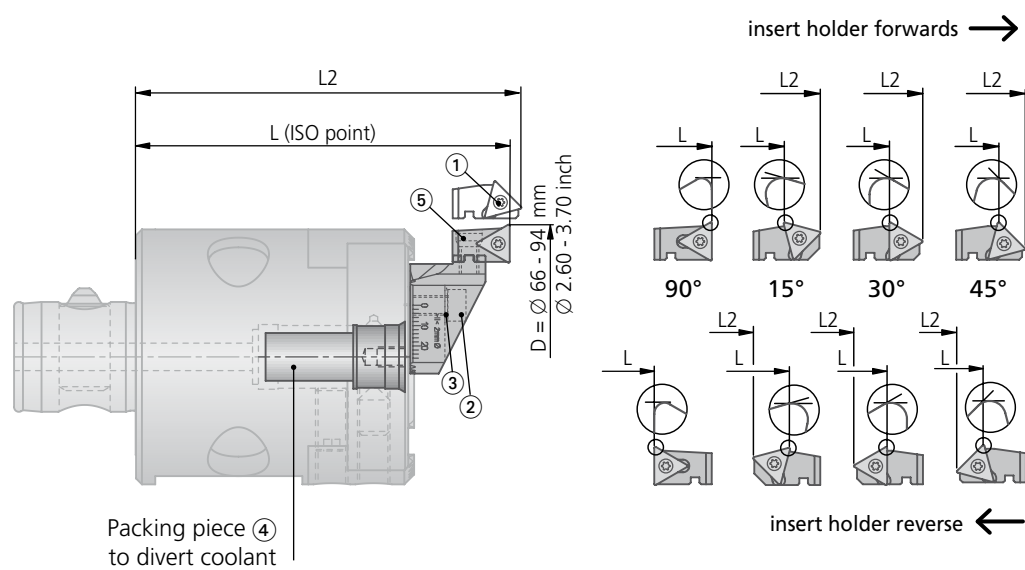
								Basic recommendation		
	30° 			45° 			 Clamping screw 	 Indexable insert -14 -12 W30	for workpiece material	
	Order No.	L	L2	Order No.	L	L2	 Order No. Article	Order No. ISO code ▽▽ size		
	M03 11220	132,35	142,35	M03 11320	133,35	142,35	0,002 N00 56031 S/M2×4,9-6IP 0,62 Nm	W57 04140.0260 TOGX 06T102EN-14 BK60 W30 04060.032710 TOHX 06T103EL-G06 BK2710 W30 04060.037615 TOHX 06T103EL-G06 BK7615 W57 04120.0223 TOGX06T102FN-12 K10		
		173,62	179,16		174,62	179,14				
	M03 11230	139,25	146,75	M03 11330	141,55	147,65	0,005 N00 56101 S/M2,6×5,2-8IP 1,28 Nm	W57 14140.0460 TOGX 090204EN-14 BK60 W30 14060.042710 TOHX 090204EL-G06 BK2710 W30 14060.047615 TOHX 090204EL-G06 BK7615 W57 14120.0423 TOGX 090204FN-12 K10		
		180,52	188,01		182,82	188,93				
										
										

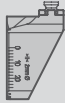
								Basic recommendation		
	30° 			45° 				Clamping screw ① 	 -14 -12 W30	for workpiece material
	Order No.	L	L2	Order No.	L	L2		Order No. Article	Order No. ISO code ▽▽ size	
	M03 12220	125,25	119,75	M03 12320	124,25	119,75	0,002	N00 56031 S/M2×4,9-6IP 0,62 Nm	W57 04140.0260 TOGX 06T102EN-14 BK60 W30 04420.038425 TOHX 06T103ER-G12 BK8425 W57 04120.0223 TOGX 06T102FN-12 K10 W30 04990.0240 TOEX 06T102TN CBN40	  <52 HRC   >52 HRC
		166,52	160,97		165,52	160,99				
	M03 12230	130,25	122,75	M03 12330	127,75	121,65	0,005	N00 56101 S/M2,6×5,2-8IP 1,28 Nm	W57 14140.0460 TOGX 090204EN-14 BK60 W30 14420.047615 TOHX 090204ER-G12 BK7615 W57 14120.0423 TOGX 090204FN-12 K10 W30 14990.0440 TOEX 090204TN CBN40	  <52 HRC   >52 HRC
		171,52	164,02		169,02	162,90				

● very good | ● good | ○ possible | ✗ not possible

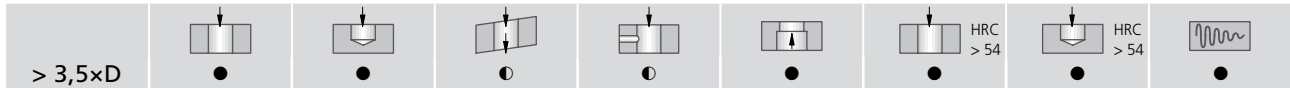
Guideline values for fine boring and alternative inserts: Pages 108-109.

Adaptor | Insert holder



Adaptor			→ Insert holder forwards					
Ø D mm inch	 Order No. mm · inch	Location screw  Order No. Article	90° 			15° 		
			Order No.	L	L2	Order No.	L	L2
66 - 94 2.60 - 3.70	M05 21150 M05 21650	N00 56211 S/M3,5×7,3-10IP	M03 10043	94,73	–	M03 11130	88,23	96,63

Adaptor			← Insert holder forwards					
Ø D mm inch	 Order No. mm · inch	Location screw  Order No. Article	90° 			15° 		
			Order No.	L	L2	Order No.	L	L2
66 - 94 2.60 - 3.70	M05 21150 M05 21650	N00 56211 S/M3,5×7,3-10IP	M03 12030	74,73	–	M03 12130	81,23	72,83



Supply includes adaptor: with location screw ⑤.
 Supply includes insert holder: with clamping screw ①.
 Please order insert, location screw ②, cup spring ③ and packing piece ④ separately.
 Screwdriver see chapter "Information".

Accessories		
Location screw  Order No. Article	Cup spring  Order No. Article	Packing piece  Order No.
55011 05016 M5x16-Ø4	56771 10053 D10x5,2x0,3	M05 90501

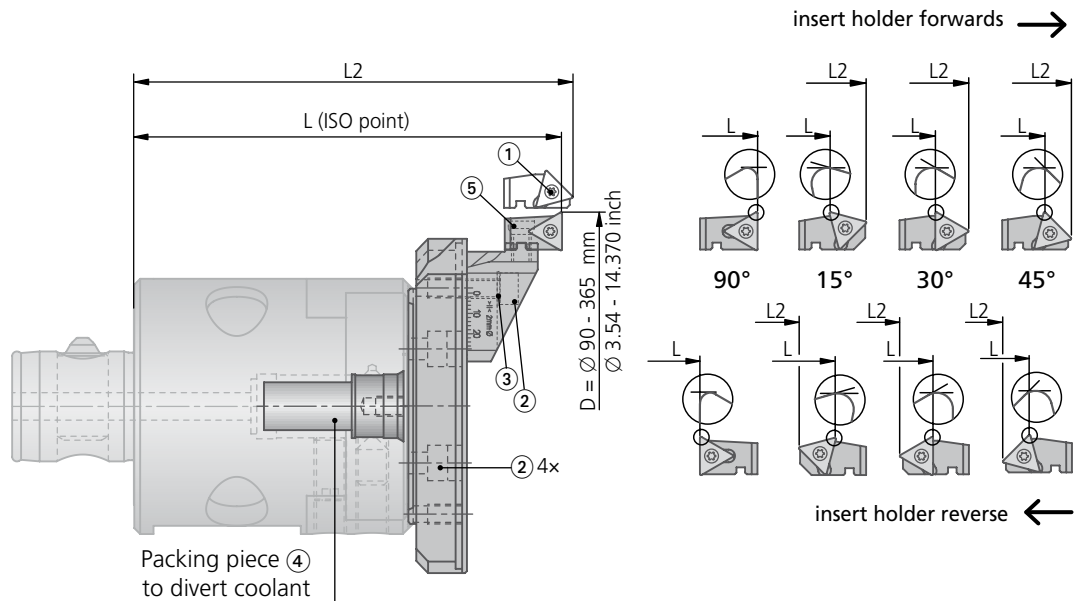
								Basic recommendation	
30° 			45° 				Clamping screw  Order No. Article	Indexable insert  Order No. ISO code ▽▽size	for workpiece material
Order No.	L	L2	Order No.	L	L2				
M03 11230	89,23	96,73	M03 11330	91,53	97,63	0,005	N00 56101 S/M2,6x5,2-8IP 1,28 Nm	W57 14140.0460 TOGX 090204EN-14 BK60 W30 14060.042710 TOHX 090204EL-G06 BK2710 W30 14060.047615 TOHX 090204EL-G06 BK7615 W57 14120.0423 TOGX 090204FN-12 K10	   

								Basic recommendation		
30° 			45° 			 kg	Clamping screw  Order No. Article	 -14 -12 W30 Order No. ISO code ▽▽ size	for workpiece material	
Order No.	L	L2	Order No.	L	L2					
M03 12230	80,23	72,73	M03 12330	77,73	71,63	0,005	N00 56101 S/M2,6×5,2-8IP 1,28 Nm	W57 14140.0460 TOGX 090204EN-14 BK60 W30 14420.047615 TOHX 090204ER-G12 BK7615 W57 14120.0423 TOGX 090204FN-12 K10 W30 14990.0440 TOGX 090204TN CBN40	   	

● very good | ● good | ○ possible | ✗ not possible

Guideline values for fine boring and alternative inserts: Pages 108-109.

Bridge | Adaptor | Insert holder

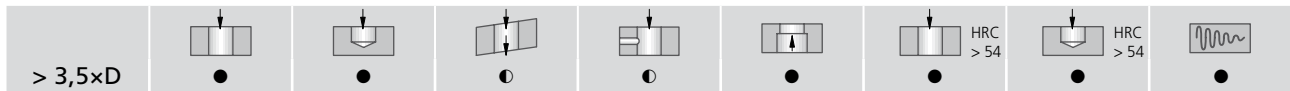


	Bridge		Adaptor		→ Insert holder forwards						
Ø D mm <i>inch</i>				Location screw 							
	Order No.		Order No. mm · <i>inch</i>	Order No. Article	Order No.	L	L2	Order No.	L	L2	
90 - 125 <i>3.54 - 4.92</i>	M05 80101	0,147	M05 21150 <i>M05 21650</i>	N00 56211 <i>S/M3,5x7,3-10IP</i>	M03 10043	108,74	–	M03 11130	102,24	110,64	
120 - 155 <i>4.72 - 6.10</i>	M05 80200	0,107				110,74	–		104,24	112,64	
150 - 185 <i>5.91 - 7.28</i>	M05 80300	0,152				112,74	–		106,24	114,64	
180 - 215 <i>7.09 - 8.46</i>	M05 80400	0,229				115,74	–		109,24	117,64	
210 - 245 <i>8.268 - 9.646</i>	M05 80500	0,306									
240 - 275 <i>9.449 - 10.827</i>	M05 80510	0,349									
270 - 305 <i>10.630 - 12.008</i>	M05 80520	0,394									
300 - 335 <i>11.811 - 13.189</i>	M05 80530	0,435									
330 - 365 <i>12.992 - 14.370</i>	M05 80540	0,478									

	Bridge		Adaptor		← Insert holder forwards						
Ø D mm inch	 Order No.	 kg	 Order No. mm · inch	Location screw  Order No. Article	 90°			 15°			
					Order No.	L	L2	Order No.	L	L2	
90 - 125 3.54 - 4.92	M05 80101	0,147	M05 21150 M05 21650	N00 56211 S/M3,5x7,3-10IP	M03 12030	88,74	–	M03 12130	94,24	85,84	
120 - 155 4.72 - 6.10	M05 80200	0,107				90,74	–		97,24	88,84	
150 - 185 5.91 - 7.28	M05 80300	0,152				92,74	–		99,24	90,84	
180 - 215 7.09 - 8.46	M05 80400	0,229				95,74	–		102,24	93,84	
210 - 245 8.268 - 9.646	M05 80500	0,306									
240 - 275 9.449 - 10.827	M05 80510	0,349									
270 - 305 10.630 - 12.008	M05 80520	0,394									
300 - 335 11.811 - 13.189	M05 80530	0,435									
330 - 365 12.992 - 14.370	M05 80540	0,478									

KOMET MicroKom *BluFlex*® 2

Bridge | Adaptor | Insert holder



Supply includes **bridge**: bridge without adaptor.

Supply includes **adaptor**: with location screw ⑤.

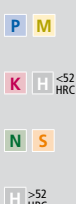
Supply includes **insert holder**: with clamping screw ①.

Please order insert, 5x location screw ②, cup spring ③ and packing piece ④ separately.

Screwdriver see chapter "Information".

Accessories		
Location screw  Order No. Article	Cup spring  Order No. Article	Packing piece  Order No.
55011 05016 M5x16-04	56771 10053 D10x5,2x0,3	M05 90501

								Basic recommendation		
	30° 			45° 				Clamping screw ① 	 -14 -12 W30	for workpiece material
	Order No.	L	L2	Order No.	L	L2		Order No. Article	Order No. ISO code ▽▽ size	
	M03 11230	103,24	110,74	M03 11330	105,54	111,64	0,009	N00 56101 S/M2,6x5,2-8IP 1,28 Nm	W57 14140.0460 TOGX 090204EN-14 BK60 W30 14060.042710 TOHX 090204EL-G06 BK2710 W30 14060.047615 TOHX 090204EL-G06 BK7615 W57 14120.0423 TOGX 090204FN-12 K10	   
		105,24	112,74		107,54	113,64				
		107,24	114,74		109,54	115,64				
		110,24	117,74		112,54	118,64				

								Basic recommendation		
	30° 			45° 				Clamping screw ① 	 Indexable insert -14 -12 W30	for workpiece material
	Order No.	L	L2	Order No.	L	L2		Order No. Article	Order No. ISO code ▽▽ size	
	M03 12230	93,24	85,74	M03 12330	90,74	84,64	0,009	N00 56101 S/M2,6×5,2-8IP 1,28 Nm	W57 14140.0460 TOGX 090204EN-14 BK60 W30 14420.047615 TOHX 090204ER-G12 BK7615 W57 14120.0423 TOGX 090204FN-12 K10 W30 14990.0440 TOGX 090204TN CBN40	
		96,24	88,74		93,74	87,64				
		98,24	90,74		95,74	89,64				
		101,24	93,74		98,74	92,64				

● very good | ○ good | ○ possible | ✗ not possible

Guideline values for fine boring and alternative inserts: Pages 108-109.

Recommended cutting data

Guideline values for fine boring					V _C	f (mm/rev)					
Material group	Strength R _m (N/mm ²)	Hardness HB	Material	Material example, material code DIN		max. feed 3,5×D					
					Cutting speed v _C (m/min)	Ø 6 – 7,9	Ø 8 – 11,9	Ø 12 – 25	Ø 25 – 44	Ø 44 – 94	Ø 90 – 365
P	1.0	≤ 500	non-alloy steels	1.0037 (S235JR) 1.0715 (11SMn30) 1.0044 (S2575JR)	300	0,04	0,07	0,10	0,08	0,10	0,10
	2.0	500-900	non-alloy / low alloy steels	1.0050 (E295) 1.0535 (C55) 1.7131 (16MnCr5)	250	0,04	0,06	0,12	0,08	0,12	0,12
	2.1	< 500	lead alloys	1.0718 (11SMnPb30)	300	0,04	0,07	0,12	0,10	0,15	0,15
	3.0	> 900	low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1.7225 (42CrMo4) 1.1221 (C60E)	240	0,03	0,06	0,10	0,08	0,10	0,10
	4.0	> 900	high alloy steels	1.2341 (6CrMo15-5) 1.2601 (X165CrMoV12)	200	0,03	0,05	0,10	0,06	0,10	0,10
	4.1		HSS		120	0,02	0,04	0,08	0,06	0,08	0,08
S	5.0		250 special alloys: Inconel, Hastelloy, Nimonic, stc.	2.4668 (NiuCr19Fe19Nb5Mo3) 2.4631 (Nimonic 80A)	50	0,01	0,04	0,08	0,06	0,08	0,08
	5.1	400	titanium, titanium alloys	3.7115 (TiAl5Sn2.5)	30	0,01	0,04	0,08	0,06	0,08	0,08
M	6.0	≤ 600	stainless steels	1.4306 (X2CrNi19-11) 1.4401 (X5CrNiMo17-12-2)	200	0,01	0,05	0,10	0,08	0,10	0,10
	6.1	< 900	stainless steels	1.4511 (X3CrNb17) 1.4571 (X10CrNiMo-Ti17-12-2)	180	0,01	0,05	0,10	0,06	0,10	0,10
	7.0	> 900	stainless / fireproof steels	1.4713 (X10CrAlSi7) 1.4862 (X8NiCrSi38-18)	120	0,01	0,04	0,08	0,06	0,10	0,10
K	8.0		180 gray cast iron	0.6025 (EN-GJL-250) 0.6035 (EN-GJL-350)	240	0,05	0,10	0,15	0,15	0,20	0,20
	8.1		250 alloy gray cast iron	0.6660 (GGL-NiCr20 2)	200	0,05	0,10	0,15	0,15	0,20	0,20
	9.0	≤ 600	130 spheroidal graphite cast iron, ferritic	0.7040 (EN-GJS-400-15)	180	0,04	0,08	0,15	0,10	0,15	0,15
	9.1		230 spheroidal graphite cast iron, ferritic/perlitic	0.7050 (EN-GJS-500-7) 0.7055 (GGG-55) 0.8055 (GTW-55)	180	0,04	0,08	0,15	0,10	0,15	0,15
	10.0	> 600	250 spheroidal graphite cast iron, perlitic malleable iron	0.7060 (EN-GJS-600-3) 0.8165 (GTS-65)	160	0,04	0,08	0,15	0,10	0,15	0,15
	10.1		200 alloyed spheroidal graphite cast iron	0.7661 (EN-GJSA-XNiCr20-2)	140	0,03	0,07	0,12	0,10	0,15	0,15
	10.2		300 vermicular cast iron	EN-GJV Ti < 0,2 EN-GJV Ti > 0,2	120	0,03	0,10	0,15	0,10	0,15	0,15
N	12.0		90 copper alloy, brass, lead-alloy bronze, lead bronze: good cut	2.0375 (CuZn36Pb3) 2.1182.01 (G-CuPb15Sn)	400	0,02	0,04	0,08	0,10	0,15	0,15
	12.1		100 copper alloy, brass, bronze: average cut	2.0550 (CuZn40Al2) 2.0060 (E-Cu57)	300	0,05	0,08	0,15	0,10	0,15	0,15
	13.0		60 wrought aluminium alloys	3.3315 (AlMg1) 3.0517 (AlMnCu)	500	0,02	0,06	0,10	0,08	0,12	0,12
	13.1		75 cast alum. alloy: Si-content <10% magnesium alloy	3.3561 (G-AlMg5) 3.2373.61 (G-AlSi9Mg wa)	350	0,05	0,08	0,12	0,10	0,15	0,15
	14.0		100 cast alum.alloy: Si-content >10%	3.2381.01 (G-AlSi10Mg)	300	0,05	0,08	0,12	0,10	0,15	0,15
H	15.0	1400	hardened steels < 45 HRC		80	–	0,05	0,08	0,08	0,08	0,08
	16.0	1800	hardened steels > 45 HRC		60	–	0,05	0,08	0,06	0,08	0,08

Cutting values shown are maximum values relating to the basic recommendations for cutting materials given.

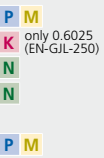
Important: See chapter "Information" for more application details and safety notes!

3,5 × D

KOMET MicroKom *BluFlex*® 2

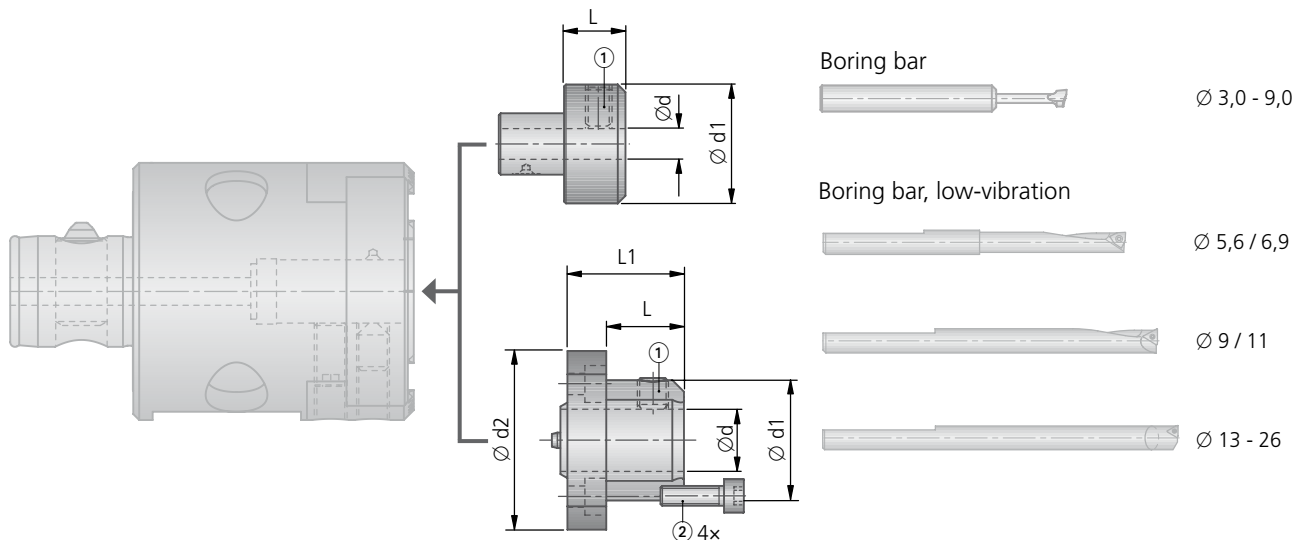
Alternative inserts

for better chip control			
Insert size	Indexable insert		for workpiece material
	Order No.	ISO-Code	
W..04...	→ only for forward machining: W30 04120.3232 W30 04120.3977	TOHX 06T102EL-US12 CK32 TOHX 06T1ZZEL-39G12 BK77	
W..14...	→ only for forward machining: W30 14120.3232 W30 14120.3977	TOHX 090202EL-US12 CK32 TOHX 0902ZZEL-39G12 BK77	
W..26...	→ only for forward machining: W30 26120.3232 W30 26120.3977	TOHX 140304-US12 CK32 TOHX 1403ZZEL-39G12 BK77	
Wiper – for better surface			
W..04...	W57 04180.048430 W57 04180.0432	TOGX 060104 EN-18 BK8430 TOGX 060104 EN-18 CK32	
W..14...	W57 14180.048430 W57 14180.0432	TOGX 090204 EN-18 BK8430 TOGX 090204 EN-18 CK32	
W..26...	W57 26180.048430 W57 26180.0432	TOGX 140304 EN-18 BK8430 TOGX 140304 EN-18 CK32	

for higher cutting speed			
Insert size	Indexable insert		for workpiece material
	Order No.	ISO-Code	
W..04...	W57 04140.023210 W30 04990.0257 W30 04990.025510 W57 04120.027710 → only for forward machining: W30 04120.0238	TOGX 06T102EN-14 CK3210 TOEX 06T102TN CBN57 TOEX 06T102FN PKD5510 TOGX 06T102FN-12 BK7710 TOHX 06T102EL-G12 CK38	
W..14...	W57 14140.043210 W30 14990.0457 W30 14990.045510 W57 14120.047710 → only for forward machining: W30 14120.0238	TOGX 090204EN-14 CK3210 TOEX 090204TN CBN57 TOEX 090204FN PKD5510 TOGX 090204FN-12 BK7710 TOHX 090202EL-G12 CK38	
W..26...	W57 26140.043210 W30 26990.0457 W30 26990.045510 W57 26120.047710 → only for forward machining: W30 26120.0438	TOGX 140304EN-14 CK3210 TOEX 140304TN CBN57 TOEX 140304FN PKD5510 TOGX 140304FN-12 BK7710 TOHX 140304EL-G12 CK38	
for greater strength			
W..04...	W57 04140.023210 W30 04990.025510 → only for forward machining: W30 04060.036110 W30 04200.0321	TOGX 06T102EN-14 CK3210 TOEX 06T102FN PKD5510 TOHX 06T103EL-G06 BK6110 TOHX 06T103FL-G20 K10	
W..14...	W57 14140.043210 W30 14990.025510 → only for forward machining: W30 14060.046110 W30 14200.0421	TOGX 090204EN-14 CK3210 TOEX 090204FN PKD5510 TOHX 090204EL-G06 BK6110 TOHX 090204FL-G20 K10	
W..26...	W57 26140.043210 W30 26990.045510 → only for forward machining: W30 26060.046110 W30 26200.0521	TOGX 140304EN-14 CK3210 TOEX 140304FN PKD5510 TOHX 140304EL-G06 BK6110 TOHX 140305FL-G20 K10	

KOMET MicroKom *BluFlex*® 2

Adaptor for clamping vibration dampened fine boring bars



Adaptor							Clamping screw ①	
Order No.	Ø d	Ø d1	Ø d2	L	L1		Article	Order No.
M05 90200	6	31	–	16	–	0,112	M8x10-Ø4	55051 08010
M05 90210	8	31	–	16	–	0,107	M8x10-Ø4	55051 08010
M05 90220	10	31	46	15	25	0,155	M8x10-Ø4	55051 08010
M05 90230	12	31	46	15	25	0,147	M8x10-Ø4	55051 08010
M05 90240	16	31	46	20	30	0,146	M8x8-Ø4	55051 08008

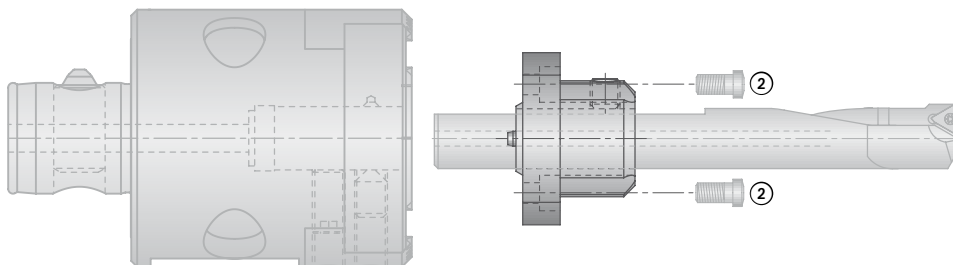
Accessories
Location screw
 ②
Order No.
–
55011 05016 M5x16-Ø4

Supply includes: Adaptor with clamping screw ①. Please order location screw ② separately.

Instruction for adaptor M05 90240

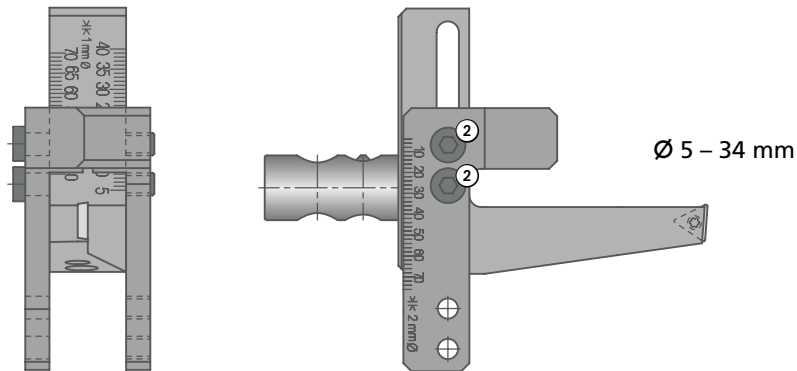
Please note:

Before tightening the location screw ②, centre the adaptor with shank diameter for the boring bar on the micro-adjustable head.

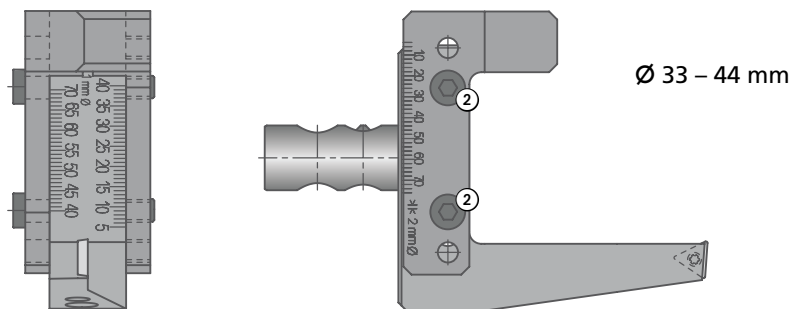


KOMET MicroKom BluFlex® 2

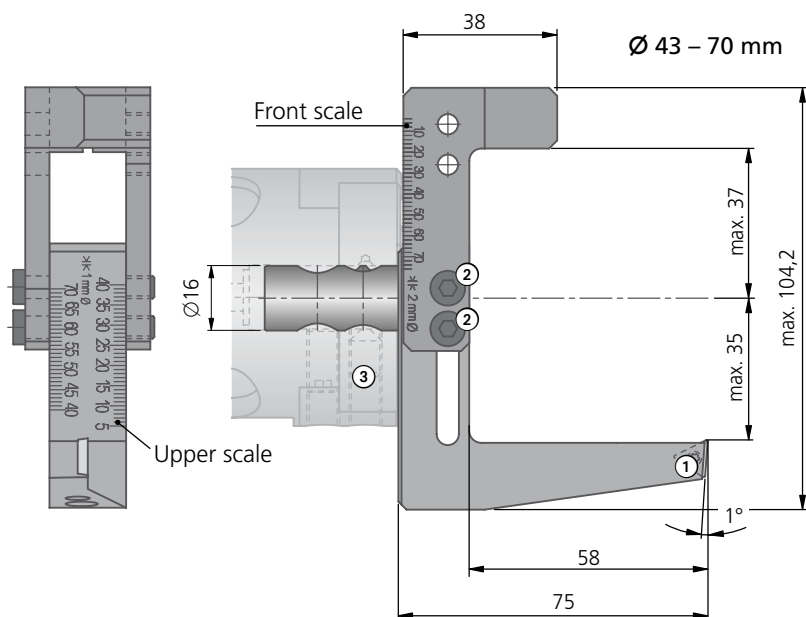
Mounting bridge for external machining Ø 5 – 70 mm



Ø 5 – 34 mm



Ø 33 – 44 mm



Ø 43 – 70 mm

Setting the diameter

- Position the mounting bridge on the micro-adjustable head.
- Set the coarse position on the upper scale, tighten screw ②.
- **Important note: check position of screw ② for required Ø range!**
- Set the coarse position of the diameter on the setting device, tighten screw ③.
- Fine adjustment on the presetting device using the hex key and the OLED display in the head, or alternatively using any mobile end device (the "MicroKom BluFlex" app must be installed for this).

Fine adjustment of the slide can also be performed in the machine using the hex key and the OLED display in the head, or can alternatively be carried out using any mobile end device.

Mounting bridge					Basic recommendation		
Ø D	Order No.		Clamping screw ①	Cylindrical screw ②	Indexable insert		for workpiece material
			 Order No. Article	 Order No. Article	 -12 Order No. ▽ size	 -14  W30 ISO Code	
5 – 70	M05 90300	0,377	N00 56101 S/M2,6x5,2-8IP 1,28 Nm	55011 05030 M5x30-□4	W57 14140.0460 W30 14360.047615 W57 14120.0423	TOGX 090204EN-14 BK60 TOHX 090204ER-G06 BK7615 TOGX 090204FN-12 K10	

Supply includes: Mounting bridge with clamping screw ① and cylindrical screw ②.
Please order insert separately. Screwdriver see chapter "Information".

BENEFITS for you – KOMET® CBN indexable inserts:

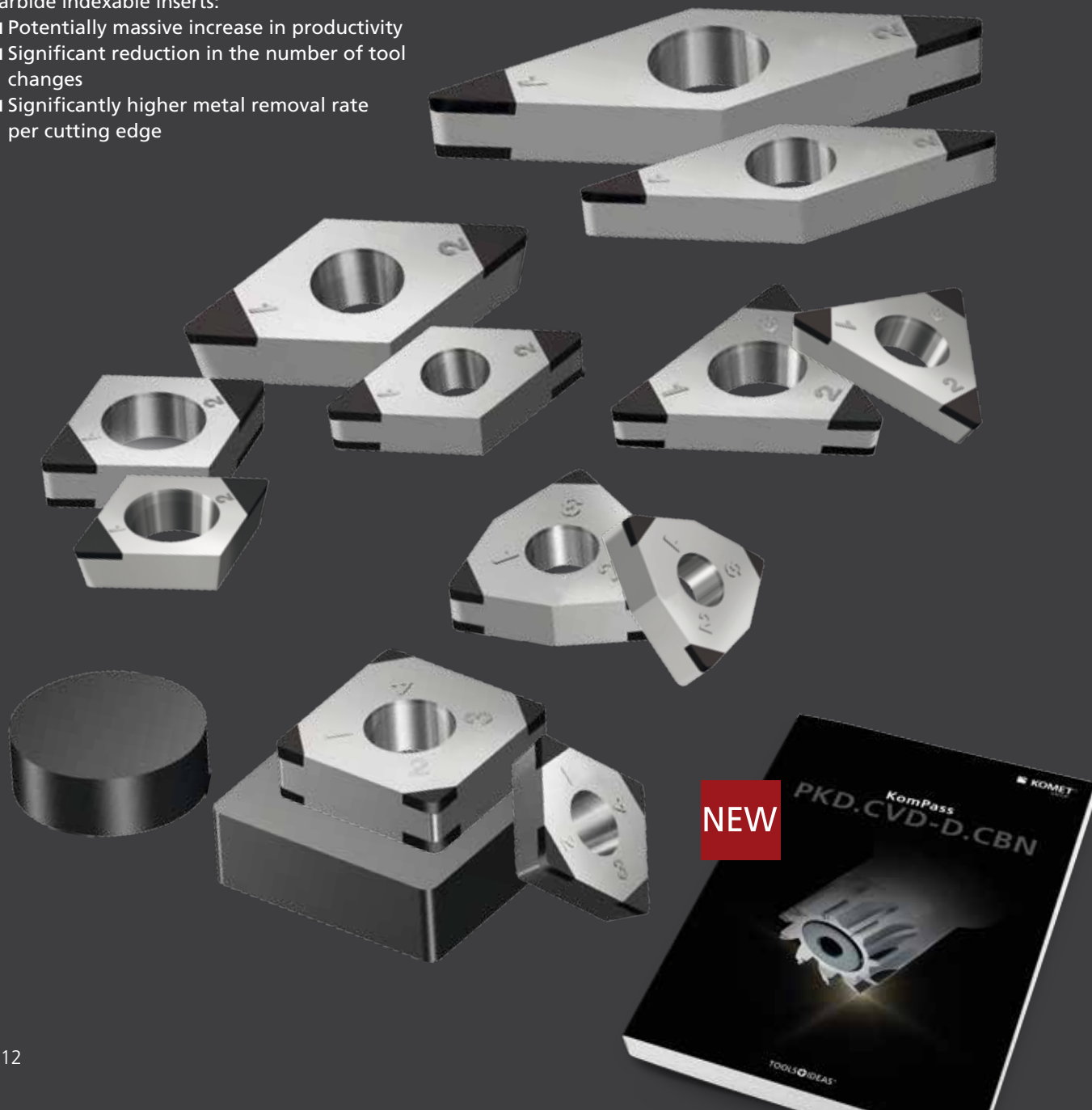
- Large selection of cutting materials for cost-effective machining of hardened steels, cast iron, high-temperature alloys and sinter metals
- Diverse portfolio of shapes and sizes
- Double-sided model with up to eight insert corners for high efficiency
- Unique cutting material concept for easy and application-specific process optimisation (Custom Solution)

BENEFITS for you – machining hardened steels with CBN indexable inserts instead of grinding:

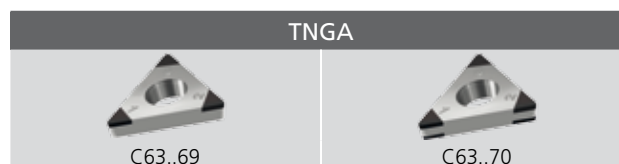
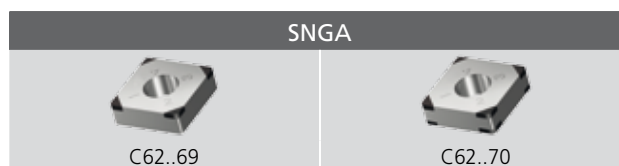
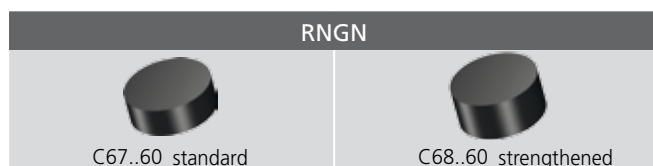
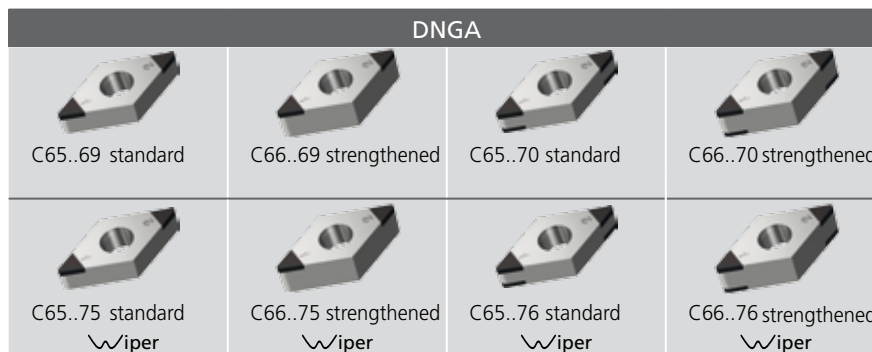
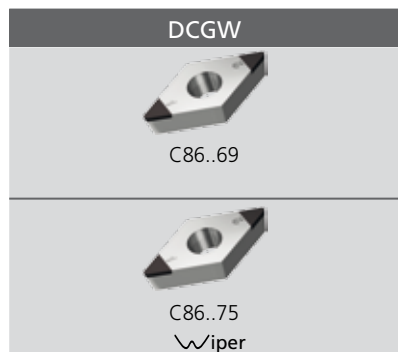
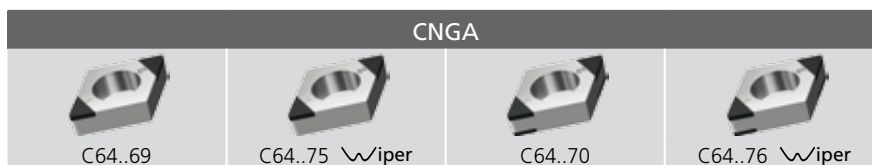
- Full machining flexibility with geometrically defined cutting edge
- Reduced machine times and higher removal rates
- Rotary machines typically less cost-intensive than grinding machines
- Also successful with interrupted cuts
- Lower energy consumption and power requirements than grinding equipment
- Save up to 15% in costs thanks to dry machining
- Easy chip disposal (recycling), reduced disposal costs compared with grinding sludge

BENEFITS for you – machining cast iron and sinter metal with CBN instead of carbide indexable inserts:

- Potentially massive increase in productivity
- Significant reduction in the number of tool changes
- Significantly higher metal removal rate per cutting edge



Portfolio overview – ISO PcBN Indexable inserts



CBN: Polycrystalline cubic boron nitride, particularly suitable for machining hardened steels, as well as cast iron and many other hard and abrasive materials with very efficient machining parameters. After diamond, CBN is the second hardest material in the world.



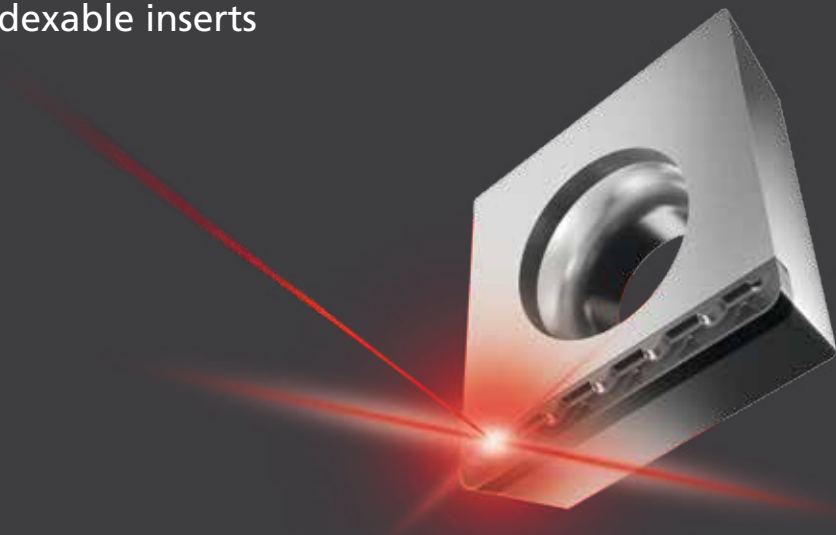
Laser-machined chip breakers



CS stands for custom solution. The CS cutting materials from KOMET facilitate easy and application-specific process optimisation thanks to a wide range of slightly modified standard cutting materials. This guarantees a significant and welcome productivity boost when using the most extreme cutting forces and temperatures – which are typical of CBN applications.

KOMET® ISO Diamond indexable inserts

With super-hard PCD / CVD-D diamond cutting tool materials. Superior performance at the cutting edge thanks to the use of state-of-the-art laser technology.



Laser technology and the benefit for YOU

The EXTRA FEATURE in the cutting tool material

- PCD mixed grain with bimodal microstructure By using large and small grains, the microstructure guarantees an increase in packing density and, consequently, a uniform diamond cutting edge with no gaps. As a result, the efficient machining of abrasive materials is guaranteed and the material can be used with interrupted cuts.
- CVD-D thickfilm diamond is pure polycrystalline diamond and, unlike PCD, is binder-free. That makes it the hardest and most wear-resistant cutting tool material for machining non-ferrous metals, composite materials, carbide, ceramic, plastic with fillers and MMC (metal matrix composite). This cutting tool material can only be machined with laser technology and its superior performance can be used to its full potential when maximum wear resistance is demanded.
- In addition to innovative laser technology, KOMET opts for high-vacuum soldering when fitting the diamond cutting edges. The high-strength solder used in this process wins favour in machining due to its higher temperature resistance, process reliability and service life.

The EXTRA FEATURE at the cutting edge

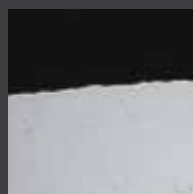
- Despite the use of larger-sized diamond grains in the PCD mixed grain, the chipping of the cutting edge is significantly reduced and, as a result, a good surface quality is assured with simultaneously prolonged service life of the cutting edge.
- Due to the laser technology, the diamond grains are cut apart and not torn out of the microstructure, as is the case with conventional grinding operations. Even damage to the PCD microstructure caused by grinding pressure can be avoided in this way. In addition to the lower level of chipping, laser machining allows extremely good accuracy in terms of shape to be achieved in the cutting edge contour.
- Regardless of the size of the diamond grain, an extremely sharp cutting edge is created as a result of the diamond grains splitting apart. The benefit for you is a soft cutting action with low shearing forces and an excellent surface quality.
- The wiper geometries provide a further possibility of significantly improving the surface quality.

The EXTRA FEATURE in chip control

- The laser technology enables the inclusion of 3D chip breakers and their arrangement in whatever formation may be desired. KOMET has optimised chip control and developed two outstanding chip breakers for finishing and roughing operations. As a result, excellent chip breaking properties are created in a wide application field of materials and cutting parameters.



Ground PCD cutting edge
Diamond grains that are torn out leave gaps in the microstructure and produce chipping. Microstructure close to cutting edges is also damaged by grinding pressure.



Laser-machined PCD cutting edge
The mixture of grain used and laser machining guarantee a uniform and undamaged cutting edge, with no gaps. Benefits for YOU in terms of service life, surface quality and accuracy of shape.

Portfolio overview – ISO PCD/CVD-D Indexable inserts

CCGT										CCGW			
 C85..98	 C85..97 ▽	 C85..93 ▽ Wiper	 C85..96 ▽▽	 C85..92 ▽▽ Wiper	 C85..86 ▽ L.H.	 C85..87 ▽ R.H.	 C85..84 ▽▽ L.H.	 C85..85 ▽▽ R.H.	 C85..99	 C85..91 Wiper	 C85..94 L.H.	 C85..95 R.H.	
CPGT						CPGW							
 C95..97 ▽	 C95..96 ▽▽	 C95..86 ▽ L.H.	 C95..87 ▽ R.H.	 C95..84 ▽▽ L.H.	 C95..85 ▽▽ R.H.	 C95..94 L.H.	 C95..95 R.H.	 C95..99					
DCGT					DCGW								
 C86..98	 C86..97 ▽	 C86..93 ▽ Wiper	 C86..96 ▽▽	 C86..92 ▽▽ Wiper	 C86..99	 C86..91 Wiper							
RCGT				RCGW		RDHX							
 C87..90 ▽ standard	 C88..90 ▽ strengthened	 C87..89 ▽▽ standard	 C88..89 ▽▽ strengthened	 C87..88 standard	 C88..88 strengthened	 C98..90 ▽	 C98..89 ▽▽	 C98..88					
TCGT								TCGW					
 C84..98	 C84..97 ▽	 C84..96 ▽▽	 C84..81	 C84..86 ▽	 C84..84 ▽▽	 C84..90 ▽	 C84..89 ▽▽	 C84..99	 C84..94	 C84..88			
VBGT			VBGW	VCGT			VCGW						
 C79..98	 C79..97 ▽	 C79..96 ▽▽	 C79..99	 C89..98	 C89..97 ▽	 C89..96 ▽▽	 C89..99						

PCD



PKD5510: Polycrystalline diamond cutting tool material for machining aluminium materials, abrasive materials, plastics and composite materials with high cutting speeds.

CVD-D



DSD5605: CVD-D thick layer diamond is the latest generation of diamond cutting materials. The most wear-resistant cutting material for non-ferrous metals and non-metallic materials. Superior performance over PCD, particularly in applications requiring the greatest abrasion resistance.



Laser-machined cutting edges, chip breakers, chamfers and rounding



3-D chip breaker for roughing



3-D chip breaker for finishing

NEW



KOMET JEL®

Fast. Faster. Threading tools HPC.

Optimised for high feed rate speeds due to a higher number of teeth.

KOMET JEL® MGF HPC

Thread milling tool with rear chamfer for machining steel to 1200 N/mm² tensile strength, stainless steel, cast materials and titanium alloys.

BENEFITS for you:

- Significantly shorter machining times compared to conventional thread milling
- Approximately the same machining times as tapping
- The same tool can be used for all threads with the same pitch $\geq$ internal thread
- Same tool can be used for different materials
- Full thread almost to the bottom of the hole

		No. of teeth: MGF HPC vs. standard thread milling tool									
		M4	M5	M6	M8	M10	M12	M14	M16	M20	
Standard		3	3	3	3	3	3	4	4	4	
MGF HPC		5	5	6	7	7	7	7	8	8	

Convince yourself.

The KOMET JEL® MGF HPC in action.



KOMET JEL® TOMILL GWF HPCPKD

For cutting lightweight structural materials such as aluminium, magnesium and fibre-reinforced plastics. For producing large thread diameters ≥ 16 mm in line with the 2/3 concept.

Special variants:

- Delivered within 2-3 weeks of order confirmation
- Additional thread profiles: Butress, Whitworth, pipe thread, UN
- With deburring cutting edge
- With countersink step on front face or shank
- For tool diameter range between 12 and 32 mm, individual dimensioning of I1, I2, I3



Click here for inquiry
www.kometgroup.com/gwf





KOMET JEL® TOMILL GWF HPC

For machining steel to 1200 N/mm² tensile strength, stainless steel, cast materials and titanium alloys. For producing large thread diameters ≥ 24 mm in line with the 2/3 concept.

BENEFITS for you:

- Standard range kept in stock
- Significantly faster than conventional thread milling cutters due to the additional cutting edges
- One and the same tool for different tolerances
- One and the same tool for different diameters > nominal $\varnothing$ with same pitch
- One and the same tool for blind and through holes
- Exact and repeatable thread depth
- No chip root remaining in the thread
- High speed cutting (HSC) possible
- Other thread profiles and tool diameters available on request



CNC programs for various control systems can be configured online at <http://tpt.kometgroup.com> or can be obtained on request by telephoning: +49 711 788910.

Also available as "TPT Mobile" app, with identical features for mobile end devices like iPhone and iPad, in the webshop App Store as well as Google Play™ for Android™ smartphones.

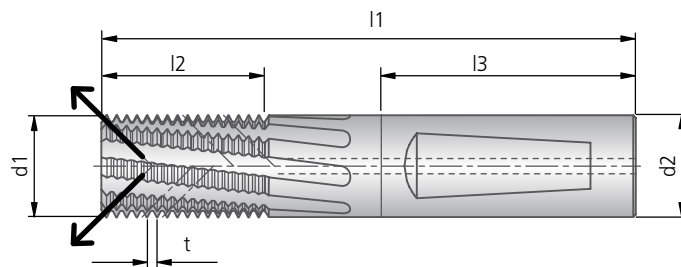
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KOMET JEL® TOMILL GWF HPC

Thread milling tool M-GWF HPC | MF-GWF HPC



for machining steel to 1200 N/mm² tensile strength, stainless steel, cast materials and titanium alloys
Extremely stable clamping of the tool is required!



* without neck recess

NEW	M-GWF HPC MF-GWF HPC							DIN 6535 HE	DIN 6535 HA
								AlCrN	AlCrN
									
	d1 x l2 x t t = pitch in mm	Nut d min	l1	l2	l3	d2	Z	Order No.	Order No.
16x25xM1,0*	24	90	25	48	16	7	0,23	80896006001100	88896006001100
16x25xM1,5*	24	90	25,5	48	16	7	0,23	80896006001150	88896006001150
16x25xM2,0*	24	90	24	48	16	7	0,23	80896006001200	88896006001200
20x32xM1,0*	30	105	33	50	20	8	0,4	80896008001100	88896008001100
20x32xM1,5*	30	105	33	50	20	8	0,4	80896008001150	88896008001150
20x32xM2,0*	30	105	32	50	20	8	0,4	80896008001200	88896008001200

Guideline values for thread milling						
Material group		Strength Rm (N/mm²)	Hardness HB	Material	GWF HPC	
					AlCrN v _c m/min	≥ Ø 16 f _z mm/tooth
P	1.1	≤400	≤120	magnetic soft iron	100-150	0,08-0,15
	1.2	≤700	≤200	structural, case hardened steel	100-150	0,08-0,15
	1.3	≤850	≤250	carbon steel	100-150	0,08-0,15
	1.4	≤850	≤250	alloy steel	100-150	0,08-0,15
	1.5	>850 ≤1200	>250 ≤350	alloy/heat treated steel	100-150	0,08-0,12
	1.6	>1200	>350	alloy/heat treated steel	80-120	0,08-0,12
	1.7	≤1400	≤400	hardened steel to 45 HRC		
H	1.8	≤2200	≤600	hardened steel to 58 HRC		
	2.1	≤850	≤250	stainless steel, sulphuretted	60-80	0,08-0,15
M	2.2	≤850	≤250	austentic	60-80	0,05-0,10
	2.3	≤1000	≤300	ferritic, ferritic & austentic, martensitic	60-80	0,05-0,10
K	3.1	≤500	≤150	grey cast iron	120-160	0,08-0,16
	3.2	>500 ≤1000	>150 ≤300	grey cast iron, heat treated	120-150	0,08-0,15
	3.3	400-500	200-250	vermicular cast iron	120-160	0,08-0,15
	3.4	≤700	≤200	spheroidal graphite cast iron	100-150	0,08-0,15
	3.5	>700 ≤1000	>200 ≤300	spheroidal graphite cast iron, heat treated	100-150	0,08-0,15
	3.6	≤700	≤200	malleable iron	100-150	0,08-0,15
	3.7	>700 ≤1000	>200 ≤300	malleable iron heat treated	100-150	0,08-0,15
S	4.1	≤700	≤200	pure titanium	60-100	0,05-0,15
	4.2	≤900	≤270	titanium alloys	60-100	0,05-0,15
	4.3	>900 ≤1250	>270 ≤300	titanium alloys	60-80	0,05-0,12
	5.1	≤500	≤150	pure nickel		
	5.2	≤900	<270	nickel alloys, heat resistant		
N	5.3	>900 ≤1200	>270 ≤350	nickel alloys, high heat resistance		
	6.1	≤350	≤100	non-alloy copper		
	6.2	≤700	≤200	short chip, brass, bronze, red brass		
	6.3	≤700	≤200	long chip brass		
	6.4	≤500	≤470	Cu-Al-Fe alloy (Ampco)		
	7.1	≤350	≤100	Al, Mg non-alloy		
	7.2	≤600	≤180	Al wrought alloy, breaking strain (A 5) <14 %		
8	7.3	≤600	≤180	Al wrought alloy, breaking strain (A 5) ≥14 %		
	7.4	≤600	≤180	Al cast alloy, Si <10 %		
	7.5	≤600	≤180	Al cast alloy, Si ≥10 %		
	8.1			thermoplastics		
	8.2			thermosetting plastics		
8.3				fibre reinforced plastics		

KOMET Kometric®

Semi-finished heads with ABS® | HSK | PSC connection

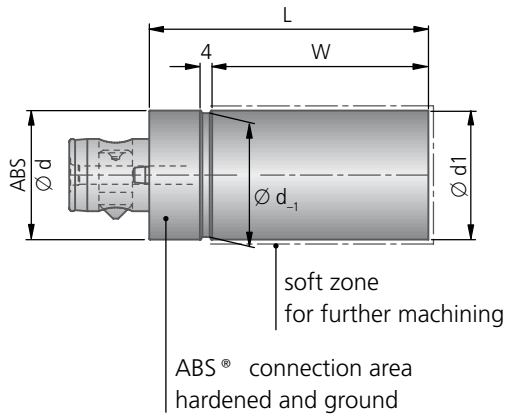
KOMET Kometric® is a proven, economical system comprising effective indexable inserts and fine turning inserts.

The semi-finished heads allow you to produce a custom tool quickly and easily.



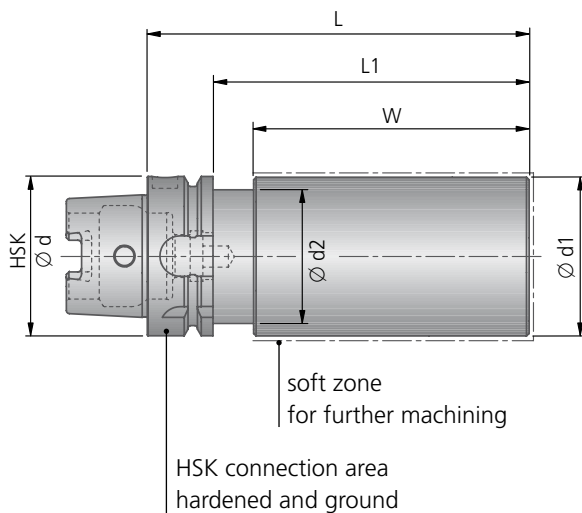
Semi-finished heads

ABS® Semi-finished heads



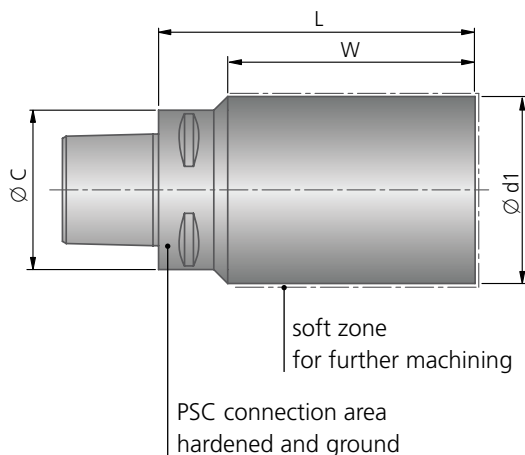
ABS®						
Article	Order No.	ABS Ø d	Ø d1	L	W	kg
ABS 25-HK	B10 01011	25	26	70	51	0,30
ABS 32-HK	B10 02011	32	33	80	61	0,57
ABS 40-HK	B10 03011	40	41	100	78	1,10
ABS 50-HK	B10 04011	50	51	120	95	2,02
ABS 63-HK	B10 05011	63	64	150	120	4,08
ABS 80-HK	B10 06011	80	81	180	141	7,76
ABS 100-HK	B10 07011	100	101	200	154	13,48

HSK-A Semi-finished heads



HSK-A DIN 69893 T1								
Article	Order No.	HSK Ød	Ød1	Ød2	L	L1	W	 kg
HSK-A63-63x200	A06 33650	63	63	53	200	174	158	4,87
HSK-A100-100x250	A06 53650	100	100	85	250	221	205	14,38

PSC Semi-finished heads



NEW

PSC ISO 26623						
Article	Order No.	PSC Ø C	Ø d1	L	W	kg
C4-D50	A69 04200	40	50	160	140	2,4
C4-D63	A69 04210	40	63	160	140	3,6
C4-D80	A69 04220	40	80	160	140	5,7
C5-D63	A69 05210	50	63	160	140	3,8
C5-D80	A69 05220	50	80	160	140	5,9
C5-D100	A69 05230	50	100	180	160	10,2
C6-D80	A69 06220	63	80	162	140	6,2
C6-D100	A69 06230	63	100	182	160	10,4
C6-D120	A69 06240	63	120	202	180	17,0
C8-D100	A69 08230	80	100	190	160	11,5
C8-D140	A69 08250	80	140	210	180	23,4

As all heavy-duty tools are completely hardened, semi-finished heads should only be used where there is no alternative. These semi-finished heads are hardened and ground on the connecting faces only and are soft at the front, i. e. not heat-treated. Further machining of semi-finished heads can only be carried out in the area marked W.

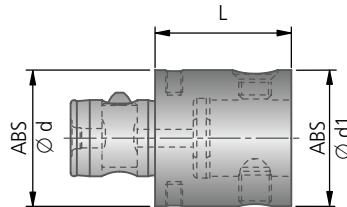
Note: Subsequent hardening of semi-finished heads can cause distortion and deviations in the dimensions; under these circumstances function and quality cannot be guaranteed.

KOMET ABS®

Balanced adapter
with ABS® connection



Balanced adapter with ABS® connection



ABS® W					
Article	Order No.	ABS Ø d	ABS Ø d1	L	kg
ABS32-W35	A20 60530	32	32	35	0,20
ABS40-W40	A20 60540	40	40	40	0,35
ABS50-W50	A20 60550	50	50	50	0,71
ABS63-W60	A20 60560	63	63	60	1,38
ABS80-W70	A20 60570	80	80	70	2,57

Supply includes:

Adaptor without balancing screws.

To finely balance tool adaptors with M6 balancing threads, we recommend the balancing screw set from HAIMER.



Balancing screw set:

- Assortment with 11 different screw sizes with different weights
- Screws are turned and tightened to the thread root
- No screw locking device or adhesive required

Facing head with direct encoder

Mechatronic tools such as precision adjustment heads, facing slides and the KomTronic® U-axis systems, available in several variants, are one of the KOMET GROUP's specialities.

A direct encoder has been available as an optional extra for U-axes and the purely mechanical KomDrive facing heads for two years.

In order to enable encoding to take place directly on the slider, the encoder also takes disturbance variables of mechanical elements into account, such as the drive element tolerances, the temperature range and wear. The control system can respond to the measurement data immediately, providing accuracy to $\pm 3 \mu\text{m}$ and thereby enabling outstanding machining quality to be achieved.

Further information can be found in the following catalogues:

KOMET KomTronic®
Feedout tools
for machining centres



KOMET KomTronic®
Drawbar tools
for special purpose machines



KOMET® KomDrive
Drawbar tools
for special purpose machines



KOMET KomTronic® u-axis – slide adjustment accurate to a thousandth of a millimetre



The KOMET KomTronic® u-axis system adjusts the slide position accurate to a thousandth of a millimetre based on the numerical input of the target value. Unique positioning accuracy for even more precise machining.



Technical data

Stroke: ± 25 mm

Max. feed:
350 mm/min (optional 700 mm/min)

Spindle adapter:
HSK100-A, SK50, CAT 50, BT50
Other spindle adapters on request

Tool interface:
Smooth slide with threads at 20 mm intervals
for securing various snap-on tools

External diameter: 160 mm, on the slide: 198 mm +50 mm stroke

Length: 20 mm shorter than previous UAS-160 u-axis tools

Weight: 1 kg lighter than previous UAS-160 u-axis tools

max. spindle speed: 500-4000 rpm (depending on slide position)

Internal coolant: 40 bar

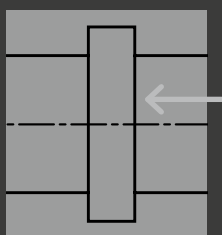
Measuring system: Direct position measuring system on the slide, resolution of $0.1 \mu\text{m}$

Maintenance: The UAS-160 u-axes have an oil filler opening in the facing slide

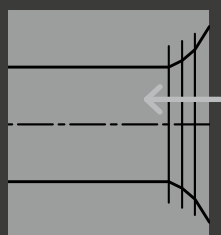
Oil level check interval: Every 3 months

Oil change interval: Depending on use, every 1-2 years

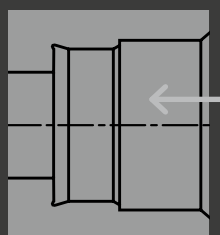
Lubricant: MOBILGEAR 600XP220 or a comparable oil



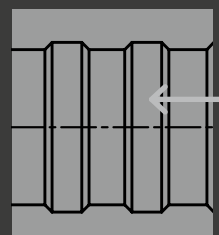
Grooving



Turning valve seats

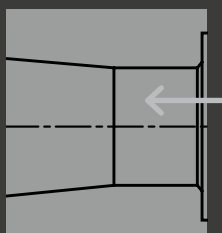


Bearing seat

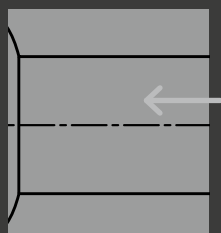


Bore with coolant passages

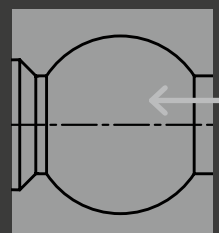
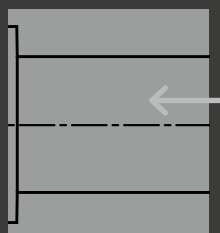
Machining
examples



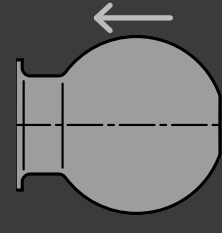
Tie rod



Undercutting differential housing



Internal and external contour turning



The functionality of the tool combinations depends on the L/D ratio, weight and cutting parameter.

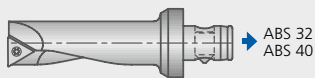


Complete program
see catalogue
KomPass DRILLING



ABS® Boring bars

Ø 8 – 28 mm



Ø 11,9 – 30 mm



Ø 28 – 44 mm



UniTurn® Copying tool | Boring tool | Adaptor

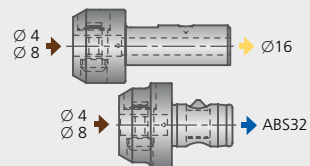
Ø 3 – 8 mm



Ø 3 – 8 mm



Ø 2,7 – 7,5 mm



Boring bars | Adaptor

Ø 5,6 mm | Ø 6,9 mm



Ø 3,0 – 9,0 mm



Ø 5,6 – 12 mm



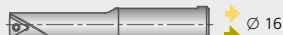
Ø 9 mm | Ø 11 mm



Ø 13 – 17 mm



Ø 6 – 25 mm



Ø 8 – 24 mm



Ø 17 – 26 mm



Serrated body + Insert holder
Ø 25 – 63 mm

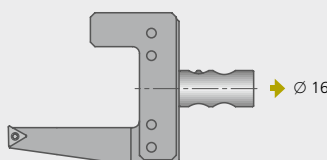


Insert holder

Ø 63 – 93 mm

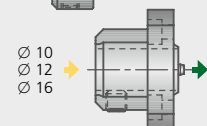
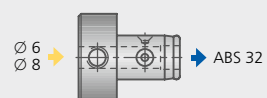


Mounting bridge for external machining
Ø 5 – 70 mm



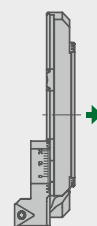
Key

- ➡ ABS® | ABS® N connection
- ➡ Cylindrical connection
- ➡ Toothing
- ➡ HSK connection
- ➡ UniTurn® connection
- ➡ Front tool



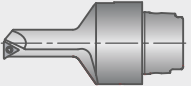
Bridge +
Insert holder

Ø 90 – 365 mm



Attachment tool range for U-Axis system

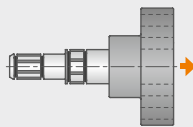
HSK Boring bars

Ø 8 – 14 mm  → HSK-C 32

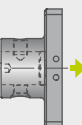
UniTurn® Adaptor

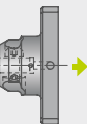
Ø 4
Ø 8  → HSK-C32

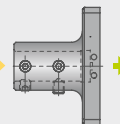
Honing tools

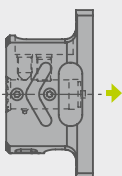


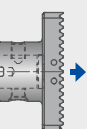
Front tools

ABS 32
ABS 40
ABS 50 

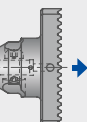
Ø 4
Ø 8 

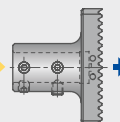
Ø 10
Ø 12
Ø 16
Ø 20
Ø 25
Ø 32 

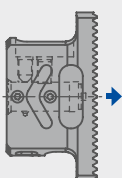
ABS 32
Ø 16 

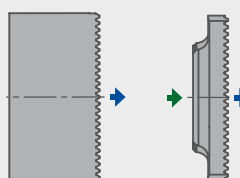
ABS-N 32
ABS-N 40
ABS-N 50 

ABS 32
ABS 40
ABS 50 

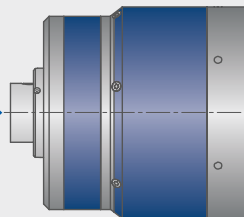
Ø 4
Ø 8 

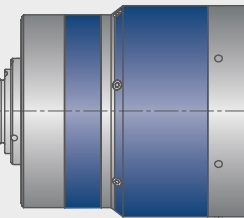
Ø 10
Ø 12
Ø 16
Ø 20
Ø 25
Ø 32 

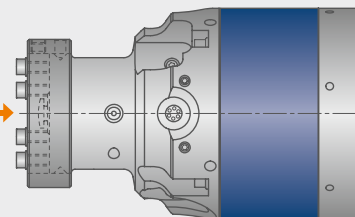
ABS 32
Ø 16 

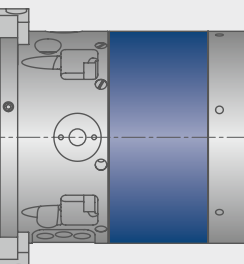


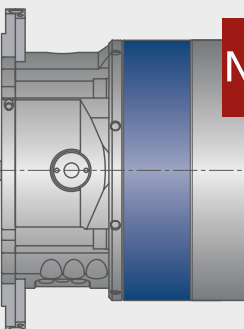
Semi-finished product
for customer-specific
tool configuration

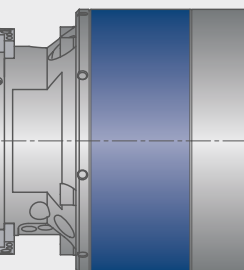
ABS 32  KomTronic®
HPS-115-EM-ABS32
HSK 63 | SK 40

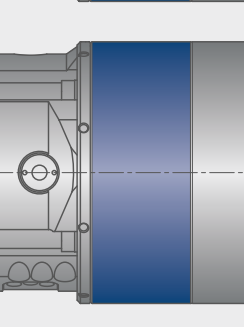
HSK-C 32  KomTronic®
HPS-115-UM-HSK32
HSK 63 | SK 40
CAT 40 | BT 40

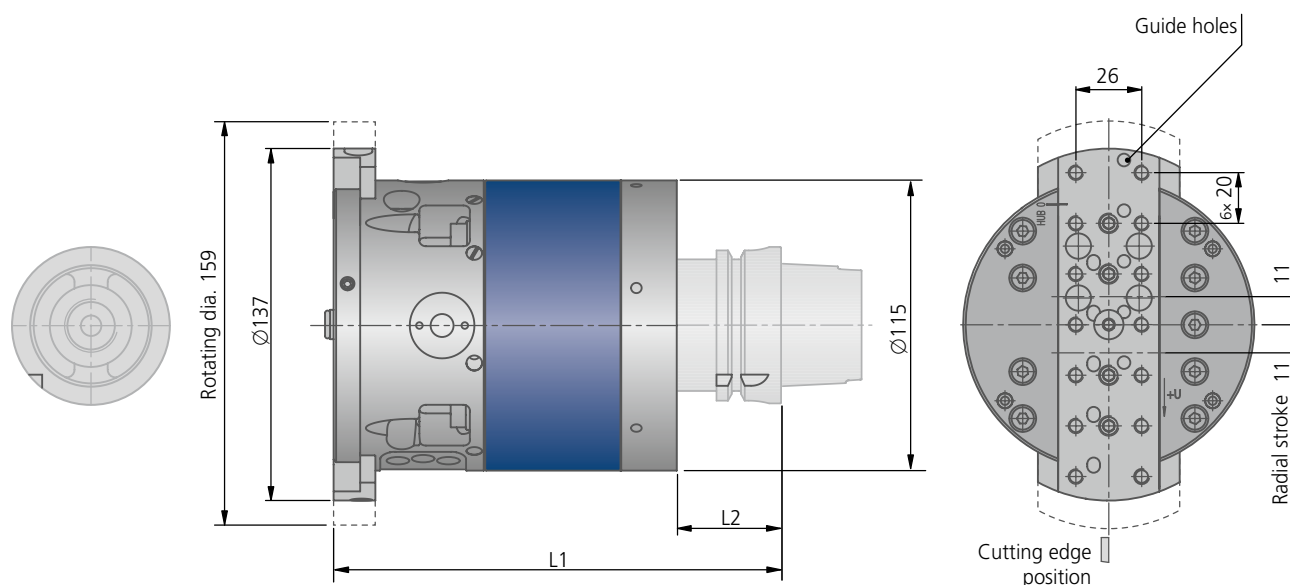
 KomTronic®
HAS-115
HAS-160
HSK 63 | HSK 100

 KomTronic®
UAS-115-E-G-Z-22-2
UAS-115-EM-G-Z-22-2
UAS-115-E90-G-Z-22-2
UAS-115-EM90-G-Z-22-2
HSK 63 | SK 40
CAT 40 | BT 40

 **NEW** KomTronic®
UAS-160-EM-G-50-3
HSK 100 | SK 50
CAT 50 | BT 50

 KomTronic®
UAS-160-E-Z-22-1
HSK 100 | SK 50
CAT 50 | BT 50

 KomTronic®
UAS-160-E-Z-50-1
HSK 100 | SK 50
CAT 50 | BT 50



UAS-115-E-G-22-2		UAS-115-EM-G-22-2					
		Position sensor direct on slide					
Order No.	Article	Order No.	Article	Connection	L1	L2	kg
E21 20110	UAS-115-HSK63-E-G-22-2	E31 20110	UAS-115-HSK63-EM-G-22-2	HSK 63	178	42	6,4
E21 22110	UAS-115-SK40-E-G-22-2	E31 22110	UAS-115-SK40-EM-G-22-2	SK 40	171	35	6,5
E21 24110	UAS-115-CAT40-E-G-22-2	E31 24110	UAS-115-CAT40-EM-G-22-2	CAT 40	171	35	6,8
E21 26110	UAS-115-BT40-E-G-22-2	E31 26110	UAS-115-BT40-EM-G-22-2	BT 40	178	42	6,7

Technical data

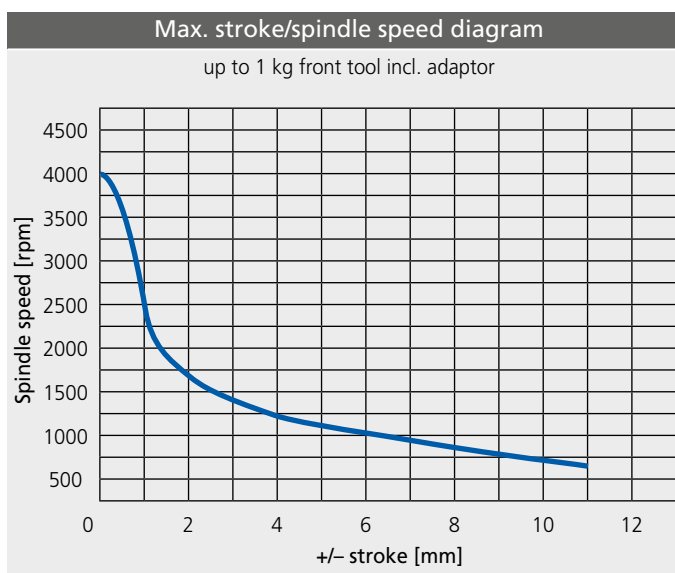
- Stroke: 22 (±11) mm
- Max. feed: 300 mm/min
- Spindle speed: 750-4000 rpm, depending on slide position (see stroke/spindle speed diagram)
- With internal coolant: 40 bar
- Versions with other strokes on request

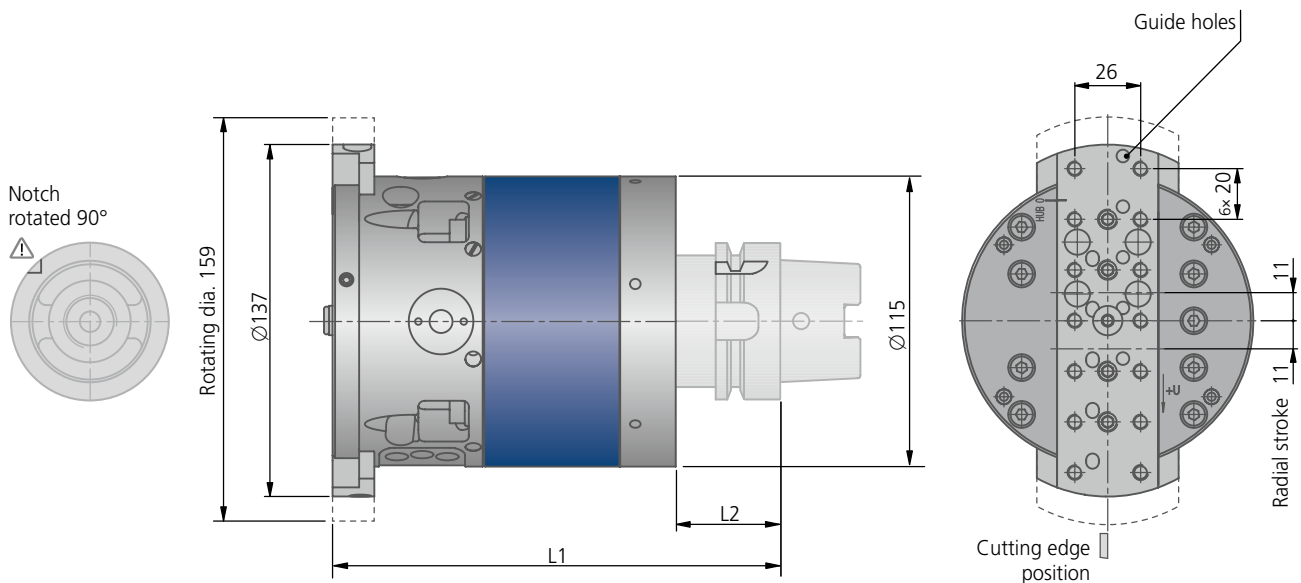
Protection class: IP67

Operating modes: full NC axis for interpolation

Adaption into machine tool control and spindle:
page 132.

Front tools: page 131





UAS-115-E90-G-22-2		UAS-115-EM90-G-22-2					
		Position sensor direct on slide					
Order No.	Article	Order No.	Article	Connection	L1	L2	kg
E21 20120	UAS-115-HSK63-E90-G-22-2	E31 20120	UAS-115-HSK63-EM90-G-22-2	HSK63	178	42	6,4
E21 22120	UAS-115-SK40-E90-G-22-2	E31 22120	UAS-115-SK40-EM90-G-22-2	SK40	171	35	6,5
E21 24120	UAS-115-CAT40-E90-G-22-2	E31 24120	UAS-115-CAT40-EM90-G-22-2	CAT40	171	35	6,8
E21 26120	UAS-115-BT40-E90-G-22-2	E31 26120	UAS-115-BT40-EM90-G-22-2	BT40	178	42	6,7

Technical data

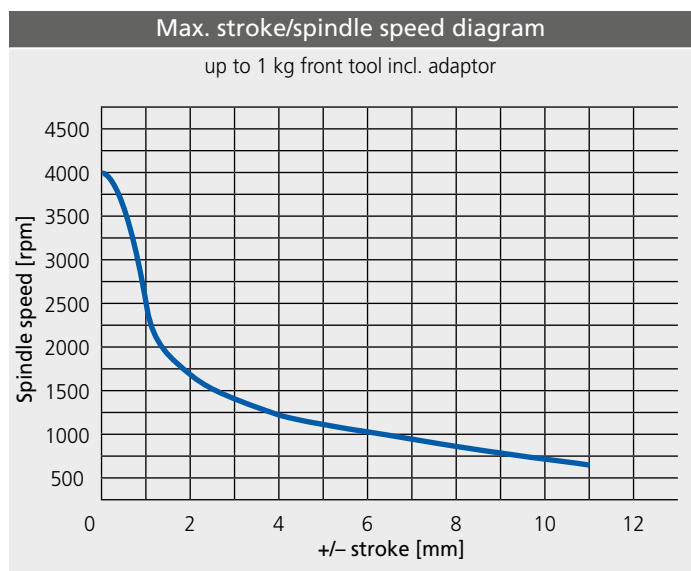
- Stroke: 22 (±11) mm
- Max. feed: 300 mm/min
- Spindle speed: 750-4000 rpm, depending on slide position (see stroke/spindle speed diagram)
- With internal coolant: 40 bar
- Versions with other strokes on request

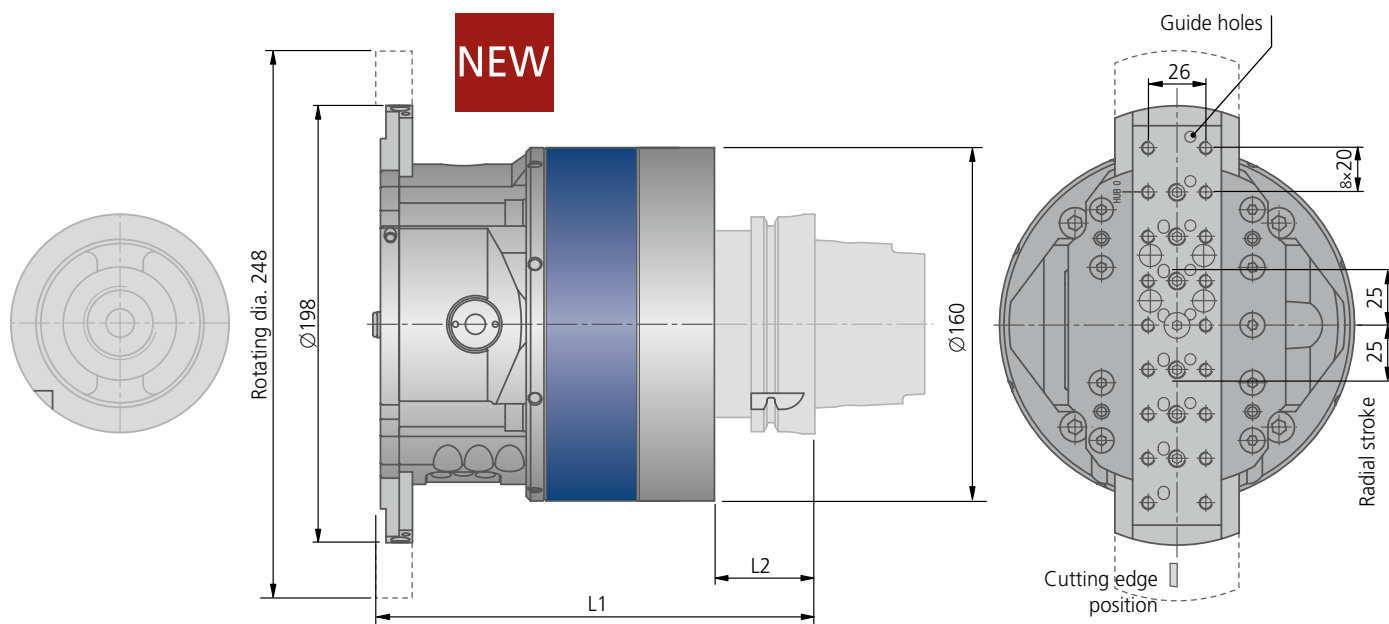
Protection class: IP67

Operating modes: full NC axis for interpolation

Adaption into machine tool control and spindle:
page 132.

Front tools: page 131





Technical data

- Stroke: 50 (±25) mm
- Max. feed: 350 mm/min
- Spindle speed: 560–4000 rpm, depending on slide position (see stroke/spindle speed diagram)
- With internal coolant: 40 bar
- Versions with other strokes on request

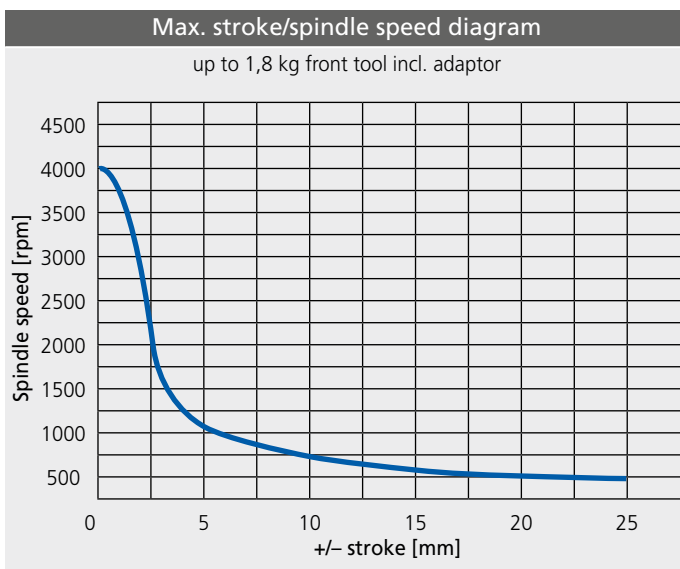
Protection class: IP67

Operating modes: full NC axis for interpolation

Adaption into machine tool control and spindle:
page 133.

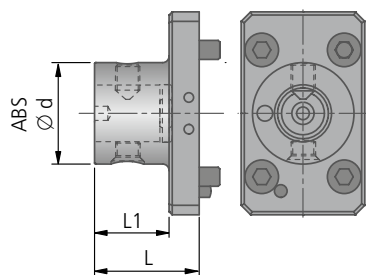
Front tools: page 131.

UAS-160-EM-G-50-3					
Position sensor direct on slide		Connection	L1	L2	kg
Order No.	Article				
1E313310050010	UAS-160-HSK100-EM-G-50-3	HSK100	196	45	12,4
1E313330050010	UAS-160-SK50-EM-G-50-3	SK50	186	35	12,8
1E313350050010	UAS-160-CAT50-EM-G-50-3	CAT50	186	35	12,8
1E313370050010	UAS-160-BT50-EM-G-50-3	BT50	204	53	13,9

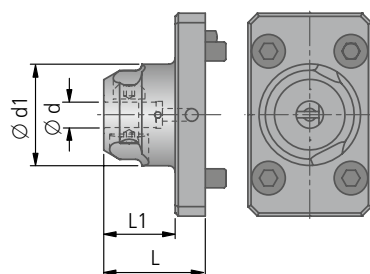


Front tools

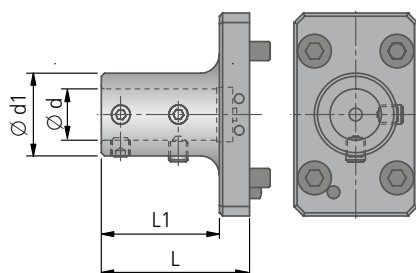
The front tool can be mounted directly onto the slide.
The following adaptors are available when using standard tools (others available on request).



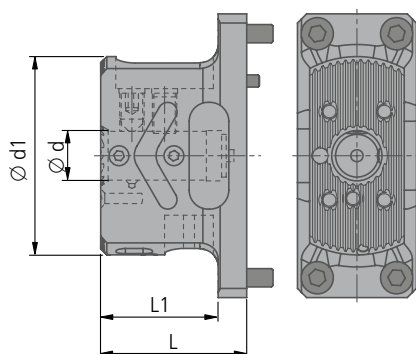
ABS® Adaptor				
Order No.	ABS Ø d	L	L1	kg
P80 23060	32	33	23,5	0,28
P80 24060	40	37	27,5	0,37
P80 25060	50	42	28	0,64



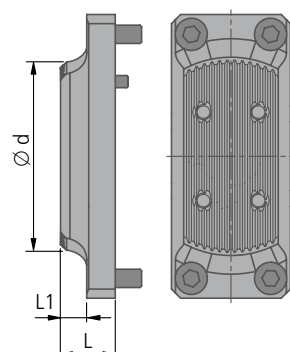
UniTurn® Adaptor					
Order No.	Ø d	Ø d1	L	L1	kg
P81 22020	4	32	28	18,5	0,26
P81 22030	8	32	32	22,5	0,29



Cylindrical adaptor					
Order No.	Ø d	Ø d1	L	L1	kg
P81 21070	10	17,8	36	26,5	0,22
P81 21080	12	21,8	36	26,5	0,23
P81 21090	16	25,8	46,5	37	0,27
P81 21100	20	33,8	46,5	37	0,38
P81 21110	25	38,8	56	46,5	0,53
P81 21120	32	47,8	58,5	49	0,67



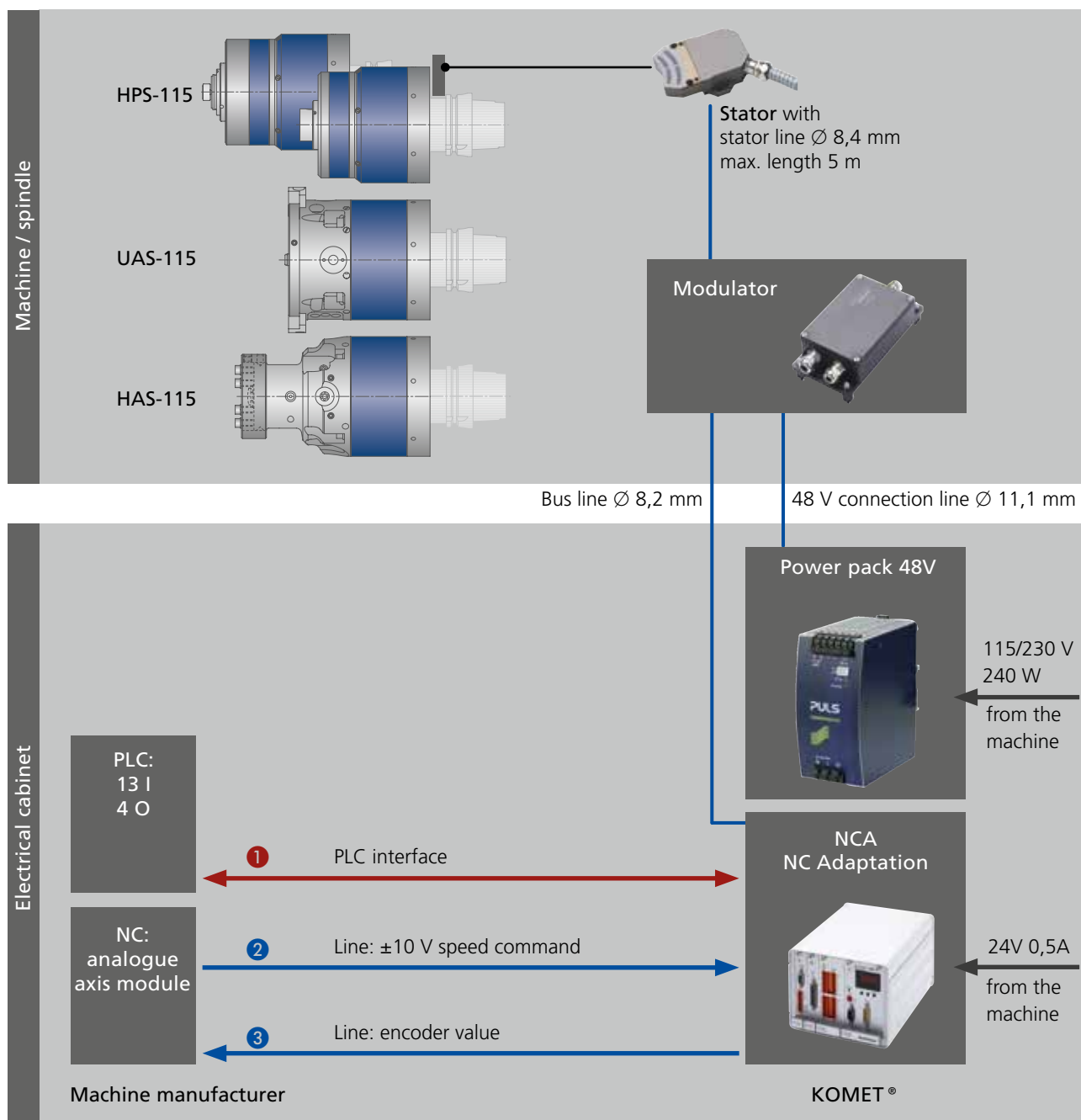
Universal adaptor					
Order No.	Ø d	Ø d1	L	L1	kg
P81 29060	16 ABS32	65	48	38	0,56



Bridge adaptor				
Order No.	Ø d	L	L1	kg
P81 29070	65	18	8,49	0,36

KOMET KomTronic® UAS-115 | HPS-115 | HAS-115

Adaption into machine tool control and spindle



1 PLC connection

13 inputs and 4 outputs are required on the PLC. 3 M-commands are required for selecting u-axis functions.

2 Nominal value requirement

±10 V nominal speed value from analogue axis module of NC control to the KOMET® NCA.

3 Incremental actual position value

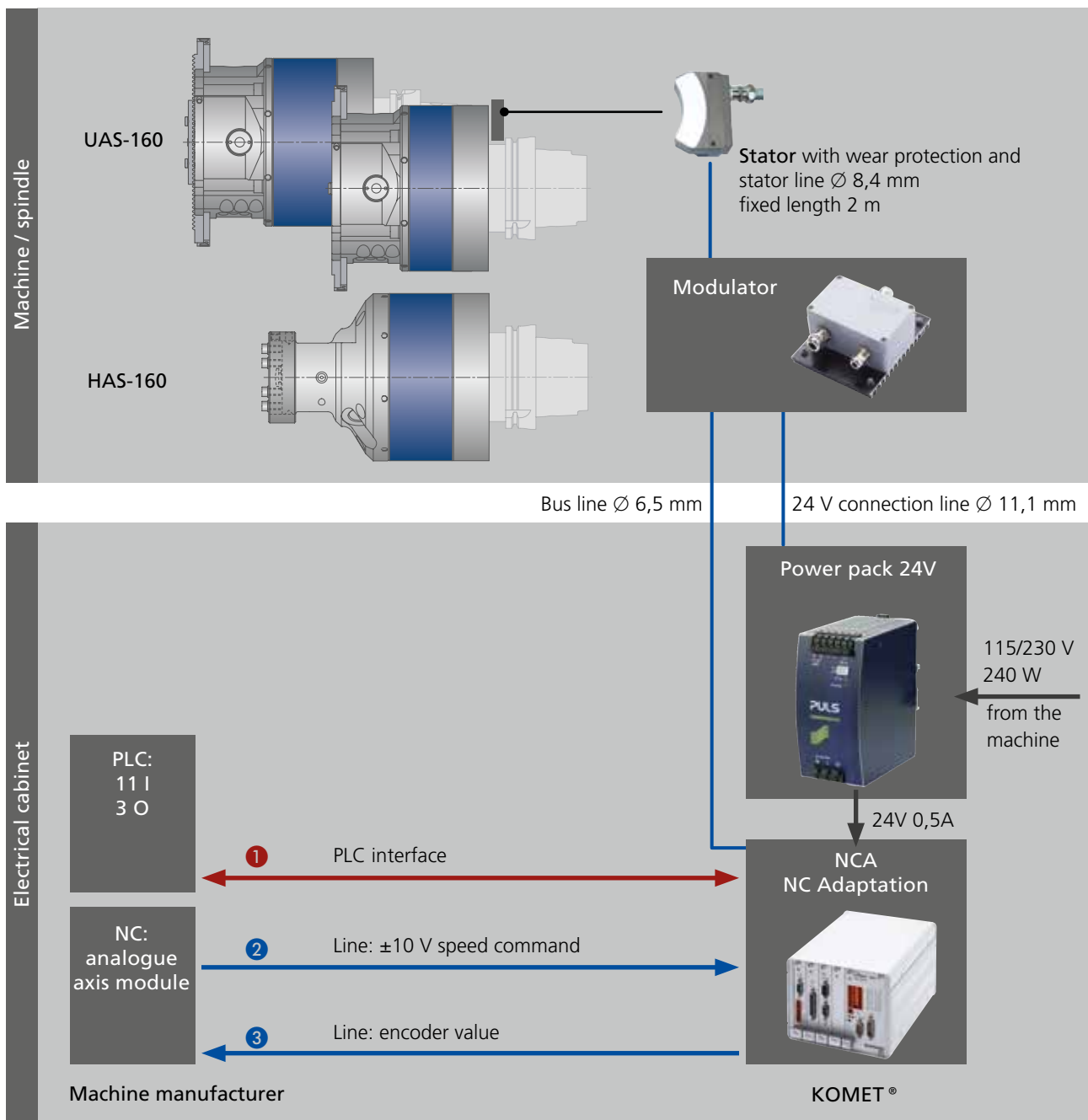
The current position is transmitted from the KOMET® NCA to the analogue axis module for the NC control. The following signal forms are available:

- TTL level (5 V) in acc. with RS 422, interpolated, square signal form
- 1 Vpp (1 V peak to peak), sine signal form

The KomTronic® u-axis system does not need a power unit on the NC control.

KOMET KomTronic® UAS-160 | HAS-160

Adaption into machine tool control and spindle



1 PLC connection

11 inputs and 3 outputs are required on the PLC. 3 M-commands are required for selecting u-axis functions.

2 Nominal value requirement

±10 V nominal speed value from analogue axis module of NC control to the KOMET® NCA.

3 Incremental actual position value

The current position is transmitted from the KOMET® NCA to the analogue axis module for the NC control. The following signal forms are available:

- TTL level (5 V) in acc. with RS 422, interpolated, square signal form
- 1 Vpp (1 V peak to peak), sine signal form

The KomTronic® u-axis system does not need a power unit on the NC control.

KOMET® extension tools special solutions

Machining examples

Hydraulic block/rotary-driven slide boring bar

The modular slide boring bar is rotary-driven by the machine spindle, supported by the counter bearing. The boring bar is used in hydraulic block manufacturing and machines the transition from the main bore to the cross bore.

The slide stroke is 18 mm with an external diameter of 50 mm.

The indexable insert holders can be replaced after each machining task (semi, finish).

The modular structure means that the boring bar can be flexibly extended using an adapter. The boring bar has a length of 458 mm without an adapter (HSK100 collar up to cutting edge) and 790 mm with an adapter.

Functional sequence:

- Insertion when stationary and counter-bearing positioned
- Retraction to the middle of the cross bore
- Spindle set to machining speed
- Transition removed (forwards and back)
- Boring bar moved to middle of cross bore
- Spindle stopped
- When stationary, removed from bore
- The counter bearing is pulled out of the bearing hole

Cutting data

$n = 260 \text{ U/min}$

$v_c = 116\text{-}130 \text{ m/min}$

$f = 0,20 \text{ mm/rev}$

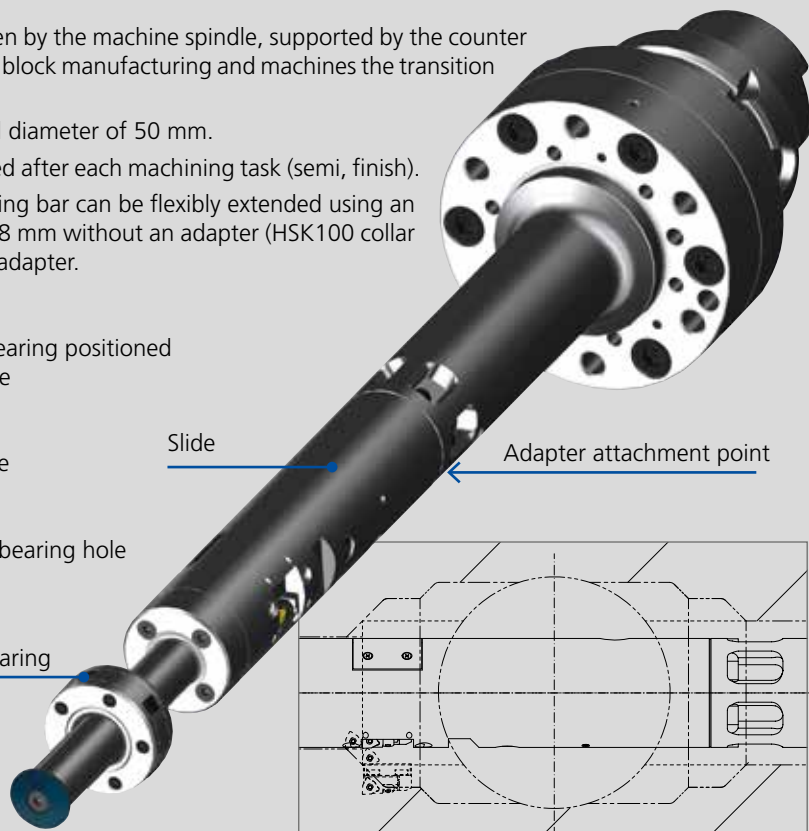
$f_z = 0,10 \text{ mm/rev}$

$v_f = 52 \text{ mm/min}$

Counter bearing

Slide

Adapter attachment point



Cylinder bore in engine blocks/coolant-precision drilling system

The tool is loaded with 40 bar (ICS), the cutting edges extend. The pressure is increased on the bottom of the hole, the cutting edges retract.

The tool can be moved out of the fitted position in rapid mode G0 with no contour distortion.

The cutting edge adjustment is performed via the machine control system/spindle.

BENEFITS for you:

- Central cutting edge adjustment
- Lifting of the cutting edge above ICS 40 bar

Material 3.3206 (AlSi7MgCu0,5)

Cutting data

$v_c = 500 \text{ m/min}$

$v_f = 1415 \text{ mm/min}$

$n = 1887 \text{ U/min}$

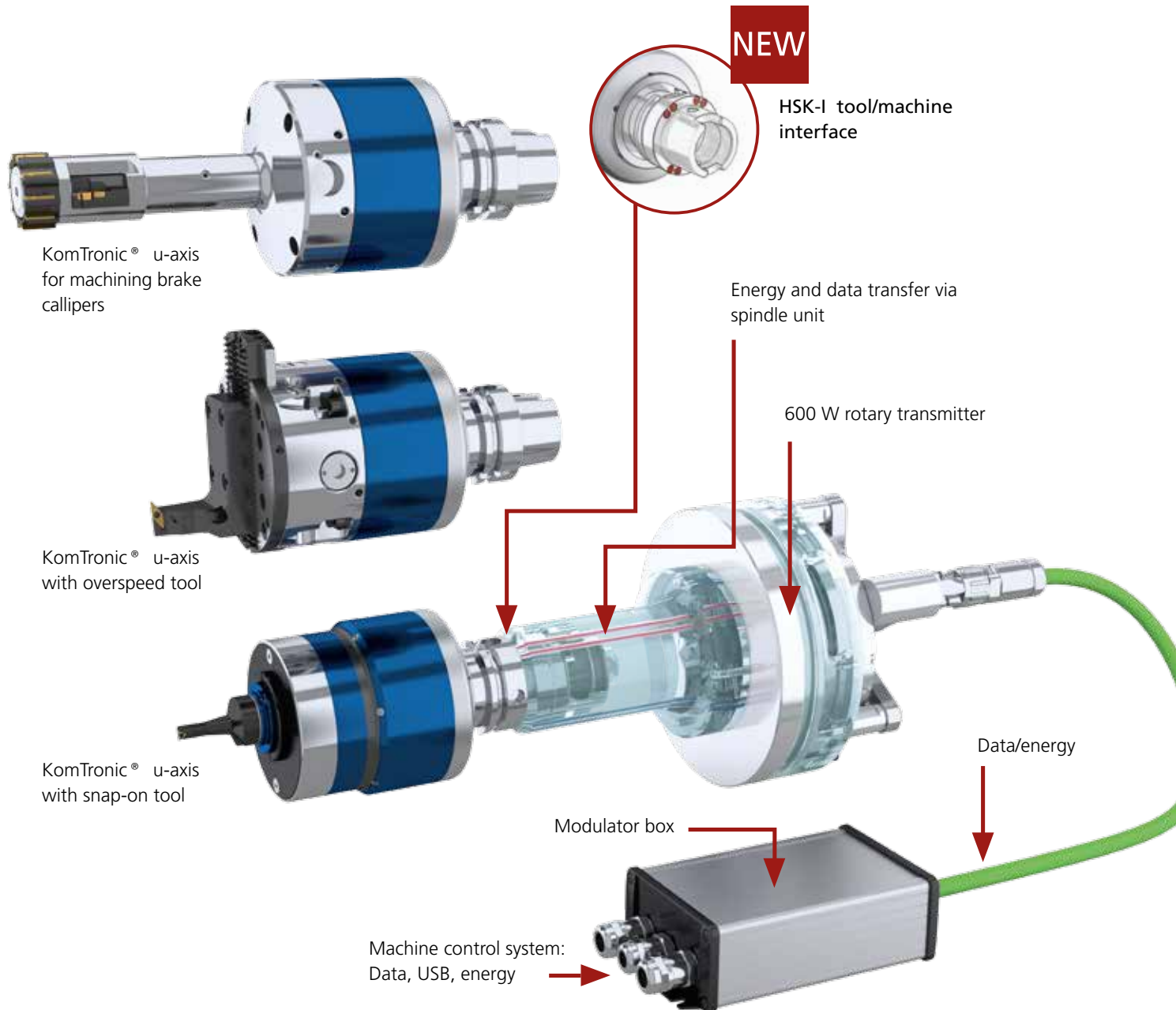
$f = 0,75 \text{ mm/rev}$

$a_p = 0,35 \text{ mm in radius}$

Surface Rz 25,8

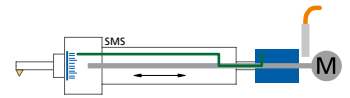


Component-compatible machine configuration Configuration in production via CPS (cyber-physical system)



BENEFITS for you:

- Standardised HSK-I 63 interface
- CPS fitted with sensor and actuator for process monitoring
- Contact-free data and energy transfer at the spindle end
- Up to 600 W power transferable
- Can be switched between +5 V and +48 V
- Data transfer speed of 10 Mbit/s
- Transfer reliability through differential RS422 transfer
- Full duplex operation possible



Produce turning contours economically when working with a stationary workpiece

- Facing heads with direct encoder on the slide
- KomTronic® systems for spindle integration with own drive

Based on decades of experience producing facing heads for special purpose machines, KOMET® is expanding its product range to include KomTronic® systems for spindle integration for different installation and usage requirements for facing heads.

Conventional facing heads with direct encoder (SMS)

KomDrive facing heads fitted with measuring system are conventionally operated with a drawbar. A high-resolution measuring system attached directly on the slide increases the level of positioning accuracy. Mechanical tolerances of the drive elements and the temperature range can be compensate. This results in machining accuracy that cannot be achieved with facing heads without measuring system.

BENEFITS for you:

- Direct measuring system on slide increases positioning accuracy and thus machining quality
- Suppression of backlash, even in the case of wear-related change
- Reduced influence of wear on machining quality
- Possible to compensate for heat cycle of draw bar drive
- Process capability is improved

Direct KomTronic® encoding in drawbar-actuated facing heads

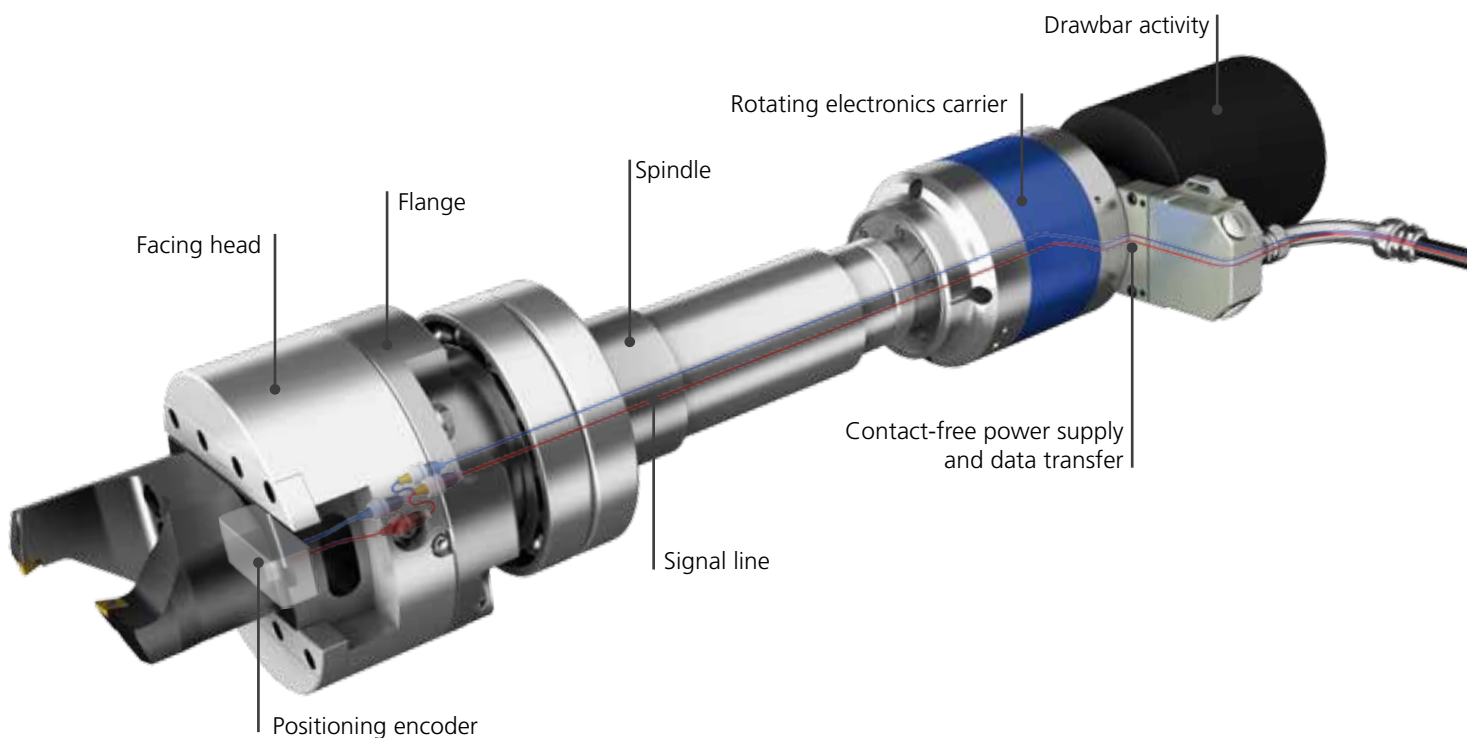
For the first time, the slide movement in the facing head can be measured directly and therefore controlled directly. The slide in the facing head is moved with draw and push bar via a drive on the machine side. The measuring signals are transmitted through contact-free power and data transfer at the spindle end. Signal lines must be fed through the spindle body to connect the sensors in the facing head.

Adaption into machine tool control and spindle see page 139.

Prior to integration in the machine tool, the following points must be clarified with the machine tool manufacturer:

- Housing of electronic components
- Integrating the electronics carrier and fitting the stator
- Feeding of cables through the spindle from the facing head to the electronics carrier
- Lubrication type and connection
- Setting of NC axis parameters and connection of position feedback system to the NC

The facing heads can be customised for special machining tasks. The details concerning technical data for draw bar tools that can be integrated into a spindle differ depending on the combination selected. This is therefore not covered at this point. Planning for draw bar tools that can be integrated into a spindle is carried out in close coordination between machine manufacturer, spindle manufacturer and KOMET®.



KOMET KomTronic® direct encoder now also available in PKU facing heads

Maximum precision in dimensional and form tolerances is possible thanks to the combination of direct encoder and imbalance compensation. The direct encoder can also be integrated into twin slide facing heads. Roughing and finishing are taken care of by fitting specially designed cutting bodies.

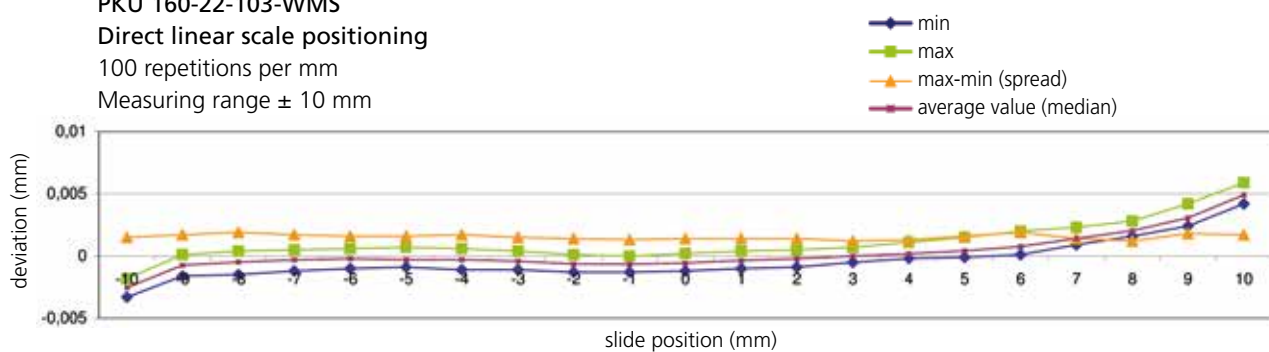
PKU with imbalance compensation

$n = 3500 \text{ min}^{-1}$



Example:

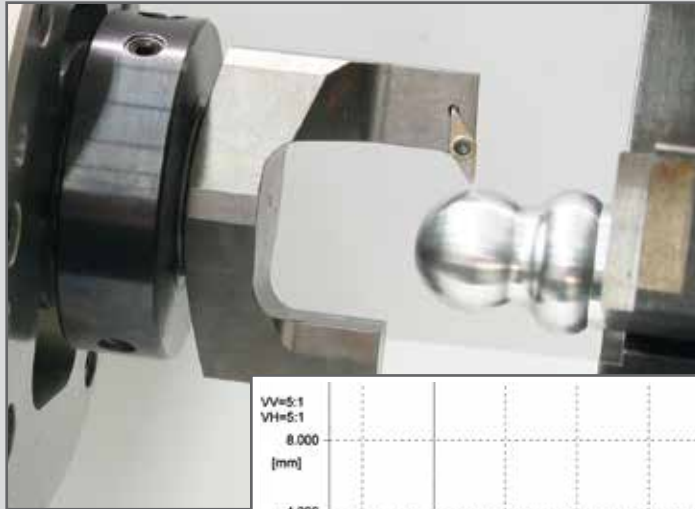
PKU 160-22-103-WMS
Direct linear scale positioning
100 repetitions per mm
Measuring range $\pm 10 \text{ mm}$



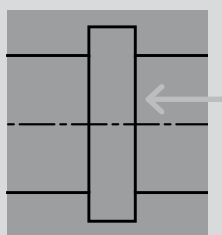
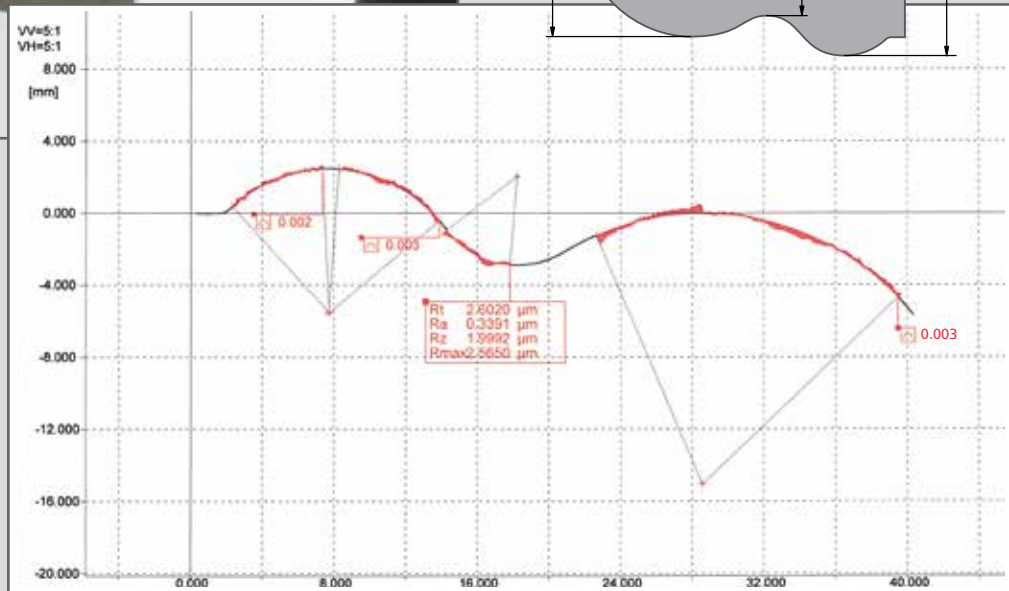
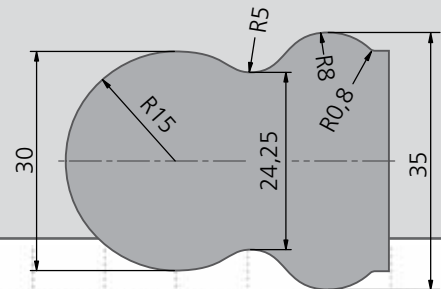
Machining examples

Workpiece: Double sphere

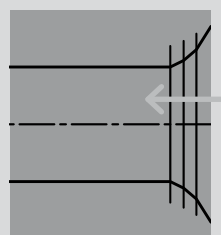
Machining: Sphere turning with direct encoder



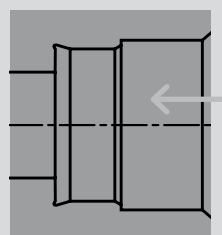
Material Aluminium
Stroke ± 11 mm
Spindle speed $n = 3500 \text{ min}^{-1}$
Feed $f = 0,06 \text{ mm/rev}$
No. of teeth $z = 1$



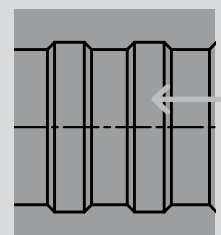
Grooving



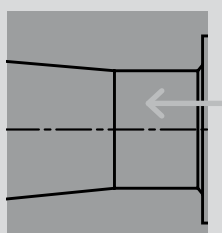
Turning valve seats



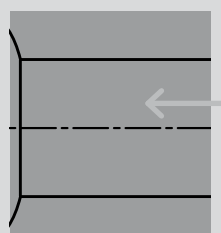
Bearing seat



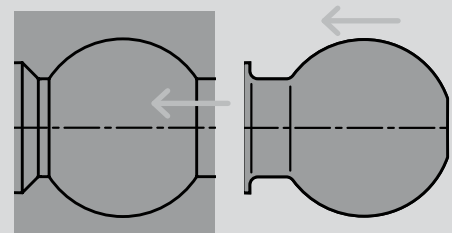
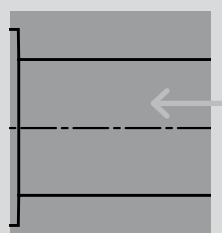
Bore with coolant passages



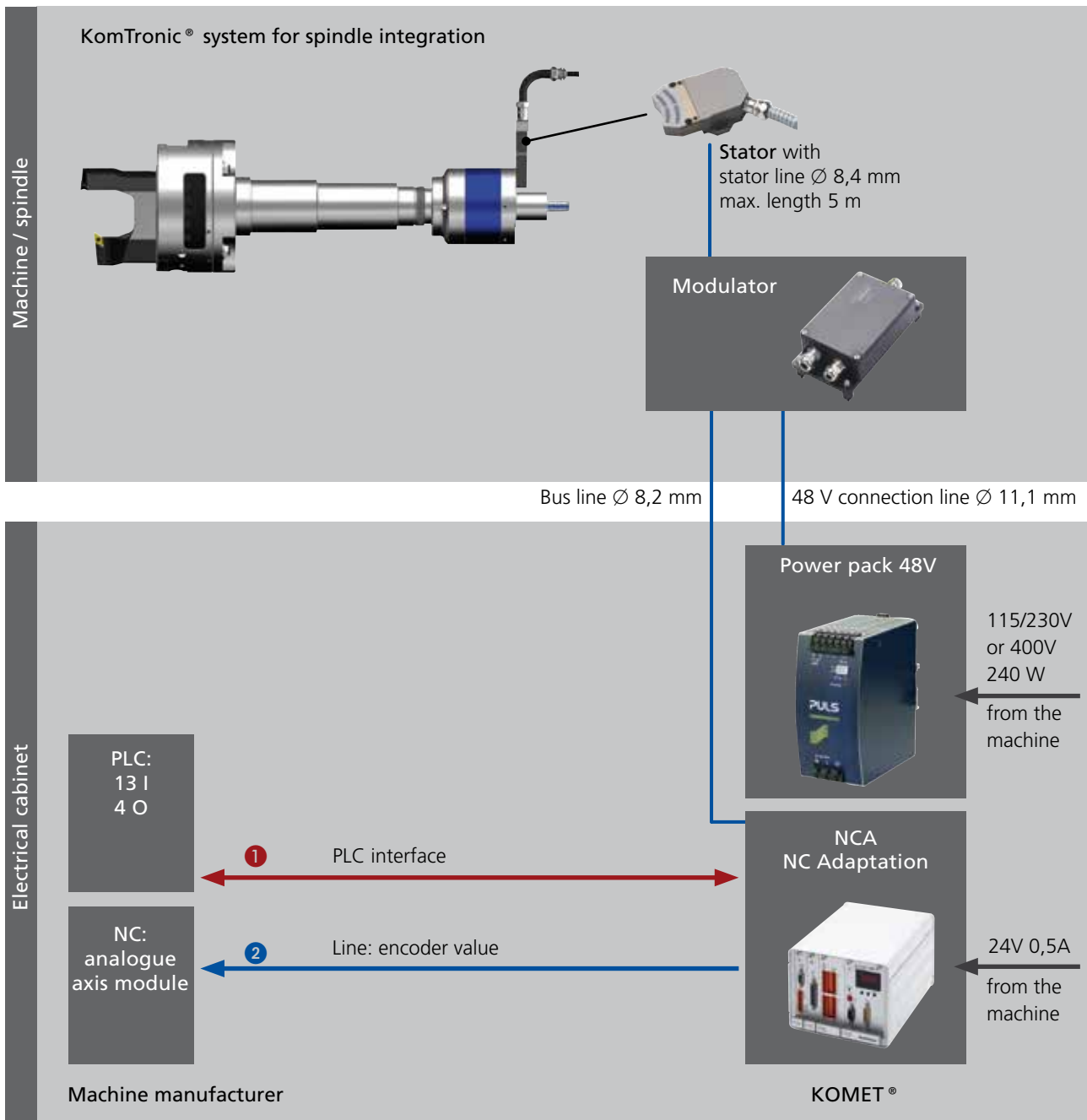
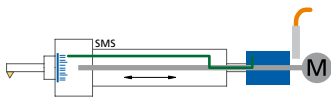
Tie rod



Undercutting differential housing



Internal and external contour turning



1 PLC connection

13 inputs and 4 outputs are required on the PLC. 3 M-commands are required for selecting u-axis functions.

2 Incremental actual position value

The current position is transmitted from the KOMET® NCA to the analogue axis module for the NC control. The following signal forms are available:

- TTL level (5 V) in acc. with RS 422, interpolated, square signal form
- 1 Vpp (1 V peak to peak), sine signal form

The KomTronic® u-axis system does not need a power unit on the NC control.

KOMET® BRINKHAUS ToolScope

The modular assistance system for manufacturing



A comprehensive Industry 4.0 solution for machining

The KOMET GROUP marks a milestone for the machining industry in relation to the Industry 4.0 concept: With the introduction of firmware version 10, the ToolScope monitoring system developed by KOMET® BRINKHAUS has become a comprehensive KOMET® assistance system for production machining.

In order to offer the customer independent added value, KOMET® BRINKHAUS has developed a number of applications, known as apps, that can be simply licensed and activated. These allow users to easily access and utilise the recorded machine, operating and process data. The new developments focused on ease of operation and modularity.

The KOMET® BRINKHAUS ToolScope system is based on the latest technology in the field of process and machine monitoring. Using a special, patented method for statistical process control, it is possible to not only monitor tool breakage but also observe significantly lower manufacturing deviations.

As a result, the system provides a method for quality control never seen before, in addition to the usual methods of process control. It also detects events such as tool changes and machine stoppages.

To complement these features, KOMET® offers various services relating to tools and the ToolScope assistance system. This is not the only reason why we are the partner by your side who you can count on.



App TS-PM
Tool / Process Monitoring



App TS-CM
Condition Monitoring



App TS-QRep
Quality Monitoring /
Documentation



App TS-Wear
Tool Wear Monitoring



App TS-VIB
Chatter Control /
Monitoring



App TS-MDA
Automatic Shift Log



App TS-TCLog
Automatic
Tool Change Log



App TS-AFC
Adaptive Feed Control



App TS-Cloud
Cloud Function



App CD-xDim
Collision Detection



The ideas factory

The IDEEN-FABRIK reflects the evolution of the KOMET GROUP from a tool manufacturer into a creative expert for solutions covering all aspects of boring, reaming, thread milling and mechatronic tools.

The central objective is to offer our customers and employees scope for creative working and learning.

On a total area of 2,500 m², we have created a modern, multi-storey factory environment. The IDEEN-FABRIK was deliberately not constructed as a separate, detached training building, but integrated directly above a manufacturing business.

While the metal swarf flies down below, ideas are exchanged above. By this, we aim to demonstrate that the work here is always associated with new ideas and creative ambition.

With the IDEEN-FABRIK and the comprehensive seminar programme for customers and employee qualification, we aim to offer you a measurable and permanent competitive advantage in your markets.

Ask for our no-obligation specialist seminar brochure.



TOOLS+IDEAS®

The KOMET GROUP is the worldwide technology leader for innovative tool concepts and complete solutions for drilling machining.

Our customers know us as a manufacturer of premium tools, and know the ideas behind our solutions. The further creativity is still unused, and remains to be discovered. We have set ourselves the objective of exploiting the added value thus created for the benefit of our customers.

We call this TOOLS+IDEAS. A new and different way of being able to offer our customers long-term, sustainable advantages through a plus in support and services.

Our IDEEN-FABRIK in Besigheim is the first step in this direction.

Informations

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A network of local partners that provide professional tool refurbishment, trade tools and manufacture customized solid carbide special tools	
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The service brand name
of the KOMET GROUP

**Fast, flexible
and always close to you.**

A network of local partners that provide professional
tool refurbishment, trade tools and manufacture
customized solid carbide special tools:

Everything from a single source.





Tool reconditioning that matches the original quality

Our conditioning experts analyse your tools both from a technical point of view and in terms of cost-effectiveness, and custom recondition them based on this assessment.

Fully customised coating

It goes without saying that KOMET GROUP tools are always given the same coating as they had originally.

We meet your specific needs and complete the coating within a few days – even with other common coatings available on the market.

Special tools

Thanks to expert technical project engineering and design planning by your KOMET SERVICE® partner, you will be provided with a special tool tailor-made from solid carbide to your exact requirements in next to no time.

Tool reworking

Our partners will happily adapt your tools for you, quickly and flexibly.

Tool life range

Buy KomPass TOOL life tools directly from your KOMET SERVICE® partner.

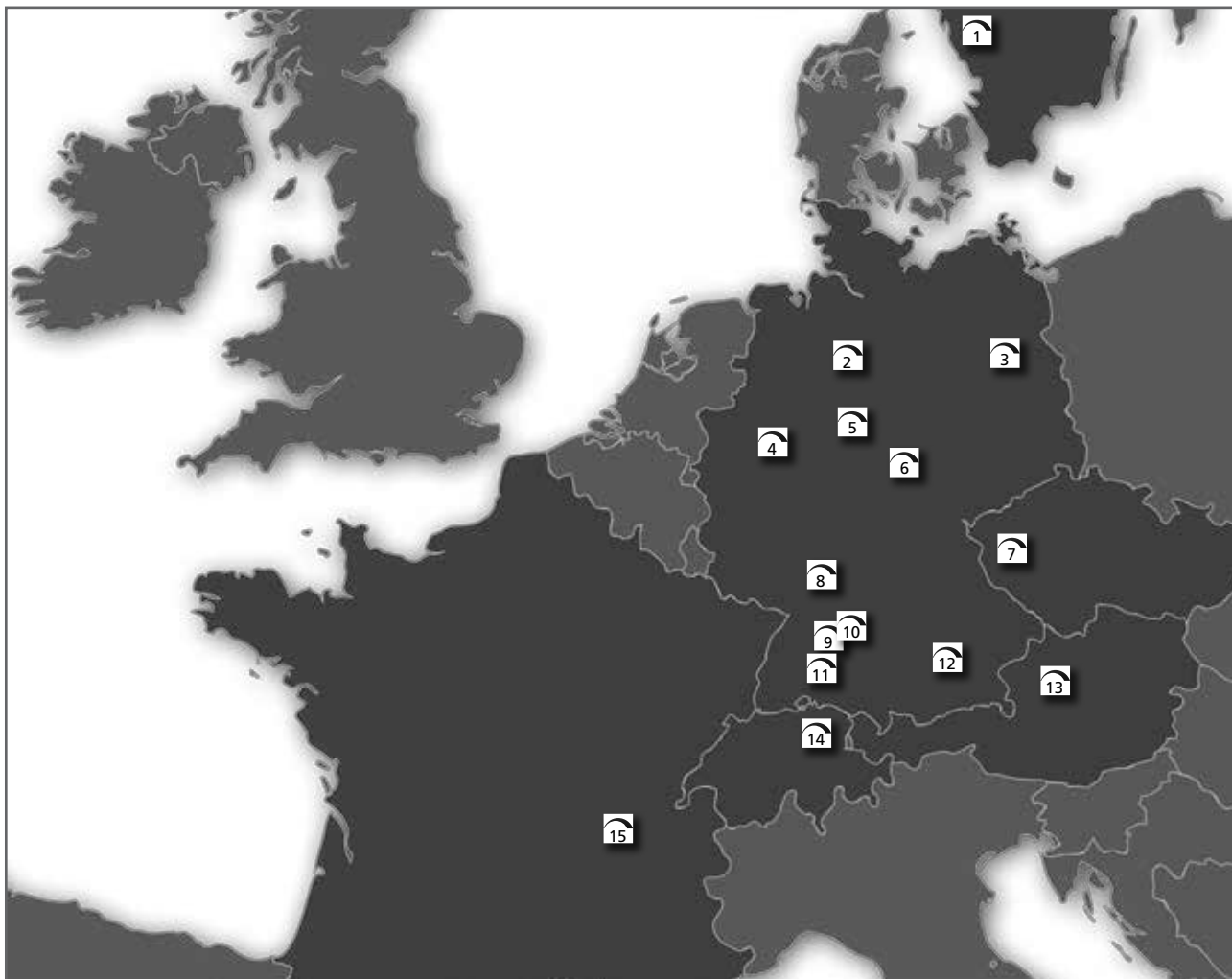
Strong and supportive network

Extensive network of KOMET SERVICE® partners – wherever you are.

Collection and delivery service

Your KOMET SERVICE® partner will get your tools back to you in just a few days.





1	Görans Slipservice AB Ångpannegatan 3 SE-417 05 Göteborg Tel. +46 31 232060 Fax +46 31 229684 gorans@kometservice.com
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6	CNC Werkzeugschleiferei und Werkzeughandel J. Steikert OT Göllingen - Am Atzelsberg 1 D-99707 Kyffhäuserland Tel. +49 34671 62551 Fax +49 34671 79651 steikert@kometservice.com

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11	NB Werkzeugtechnik Im Anwandel 12 D-72459 Albstadt Tel. +49 7432 2009422 Fax +49 7432 2009424 nb@kometservice.com

12	WEMA GmbH Raiffeisenstraße 9 D-85276 Pfaffenhofen Tel. +49 8441 859160 Fax +49 8441 8591620 wema@kometservice.com
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Fast, flexible and always close to you

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507 West Rolling Meadows Drive
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4 Ekstrom Carlson
5248 27th Avenue
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Fax +1 586 779 0157
breckers@kometservice.com

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9 Cutting Tool Engineers, Inc.
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10 Grinding Technology, LLC
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Houston, TX 77090, USA
Tel. +1 713 910 7719
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GT@kometservice.com

A PLUS for our customers and the environment



The company targets

The KOMET GROUP pursues a consistent policy of investments and achieves long-term and profitable growth via continuous improvement of products and processes as well as via consistent qualification of employees. This increases the value of the company. The KOMET GROUP consistently increases its innovation quota via research and development, offering the market new products every year. The KOMET GROUP is a premium quality manufacturer and motivates employee qualification and customers in their IDEAS FACTORY. The training quota of vocational beginners is exemplary for the entire field of business.

The products and services

KOMET GROUP products and services offer the customer incomparable added value. The KOMET GROUP develops, manufactures and sells the comprehensive, modular portfolio on bore machining as full-range suppliers. The KOMET GROUP offers the innovative technologies, thereby taking the high economic viability, best quality and most attractive designs into account. The KOMET GROUP sees itself not purely as a tool manufacturer, but rather as suppliers of innovative solutions and ideas for the benefit of the customer: **TOOLS+IDEAS®**.

The customer

The KOMET GROUP places value on long-term, binding customer relations, seeing itself as a partner of the customer in a balance of benefit supplies and benefit harvests.

The KOMET GROUP records customers' demands and then produces the most effective ideas and tool solutions for their machining tasks. The KOMET GROUP offers the customer information and collaboration via their worldwide presence in local Service Centres. The IDEAS FACTORY supports vocation-related training and further qualifications for customers.

The environment / surroundings

The KOMET GROUP feels itself obliged to avoid any wastage, and therefore commits itself to responsible usage of raw materials and careful utilisation of remaining materials.

The KOMET GROUP management is well aware of its responsibilities towards society, and creates the foundations for modern working environments and working conditions. The specifications on ergonomics and work safety are taken into account. Beholden to the founder, Robert Breuning, the KOMET GROUP supports the site at Besigheim, maintaining direct contact to schools and social facilities in the region.

With these claims in mind, the KOMET GROUP has introduced a modern, integrated management system, known as KMS (KOMET Management System), which is certified in accordance with ISO 9001:2008, ISO 14001:2009 and the German „Akkreditierungs- und Zulassungsverordnung Arbeitsförderung – AZAV“.

Certification

<http://www.kometgroup.com/navigation-top/download/service/zertifikate.html>



The KOMET GROUP's *praxisFORUM+*

provides well-founded information and practical expertise on subjects from a range of different disciplines.

The *praxisFORUM+* provides thought-provoking ideas and scores points with a clear and professional profile. The series of events organised by the KOMET GROUP provides a platform for topics and questions arising from a range of different disciplines. Renowned speakers provide an insight into the various aspects of a selected range of topics. Emphasis is placed on communicating practice-based expertise.



KOMET[®]
GROUP

Einladung
Zerspanung wie geplant?!
Lösungsansätze zur Optimierung
von Zerspanungsprozessen

***praxis*FORUM⁺**
AUS DER PRAXIS FÜR DIE PRAXIS

praxisFORUM+ on tour – Right by our customers' side

The concept is simple: We go wherever our customers are. Because our customers come from all over Germany, we want to be able to meet them on their home turf to assist them with any specific issues they may have, in order to reduce the burden on them whilst also maximising the benefits we can bring them. We want to do this because we are more than just a supplier: We consider ourselves to be a partner in increasing productivity.

Where in Germany will the *praxisFORUM+* be making an appearance?

We are working closely with our customers and are also seeking out training centres such as universities and other institutions of higher education where we can share our expertise.

We will also continue to hold events in the IDEEN-FABRIK+ here in Besigheim.

More detailed information can be found at www.daspraxisforum.de

KOMET® Smartphone-Apps

Get KOMET® on your Android or Apple device:

The KOMET® apps provide you with useful tools such as the cutting data calculator, or the TPT tool selector with program generator. For use at home or on the road



KOMET GROUP App

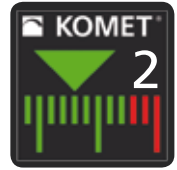
Innovative tool concepts and integrated solutions have always been among the core competencies of the KOMET GROUP. We see ourselves not as a mere tool manufacturer, but as a provider of innovative ideas. With the new app KOMET GROUP we offer our customers a more in support and services.

App Features

- KOMET GROUP Product Overview
- Cutting data calculator for calculating average speed, speed, feed, processing time, input power and torque
- Dictionary of German / English with full text search
- International Material classification
- Videos

KOMET MicroKom BluFlex® 2

Finger on the pulse of time – The clever alternative: „MicroKom BluFlex“ APP for use as display unit in Google Play™ for Android™ smartphones or the App Store for smartphones running iOS®.



KOMET® Cutting Data Calculator

Useful tool for calculating various machining parameters. Cutting speed (vc), spindle speed (n), feed (vf), feed (f), machining time (th), drive power (P) and the torque (Md) can be calculated. Simply enter the values. The app calculates in the background. An optimal machining process requires the correct cutting data. With the use of the KOMET GROUP app you have the full control of the machining process. The app starts in German, but can be switched to English language



TPT mobile: Tool Selection and CNC Generating Program

TPT mobile is listing you all suitable standard thread milling cutters, respective drill-/thread milling cutters after you have keyed your threading application.

For the chosen tools you will receive a CNC-program. 6 different controls are available. TPT online can be operated in 6 languages, as well as the data output.

Available languages: English, French, German, Italian, Portuguese, Spanish

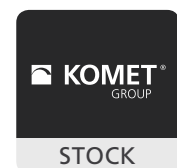
CNC programs for various control systems can be configured online at <http://tpt.kometgroup.com> or can be obtained on request by telephoning: +49 711 788910.

Also available as "TPT Mobile" app, with identical features for mobile end devices like iPhone and iPad, in the webshop App Store as well as Google Play™ for Android™ smartphones.



KOMET® Stock

After entering a Username and Password, the new Stock checker app allows the user to view the current stock levels of the KOMET GROUP. The list shown can be sorted into three different categories, Part number, Tool Description and Stock quantities. With an additional full-text search also possible.



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App Store is a trademark of Apple Inc.
Google Play™ and Android™ are registered trademarks of Google Inc.

Torque tools | Screwdriver | Key

Reduce your costs: The correct torque protects you from warranty claims.

Protect your health: With a patented SoftFinish® handle design to protect your hands and muscles while you work. Recommended by German doctors and therapists from the AGR (German Campaign for Healthier Backs).

Increase your efficiency: The correct torque protects you from material damage and needing to perform rework.

Increase your process reliability: Preset torque for repetitive processes.

To ensure the correct starting torque on screws, the torque key from the TORX® and TORX PLUS® system has. Complies with the following requirements: EN ISO 6789, BS EN 26789, ASME B107.14M (with certificate).

Preset torque tools

- For controlled screwdriving work, for example in series production or in applications that are frequently repeated.
- Click signal which can be heard and felt clearly when the set torque value is reached.
- Each rotary screwdriver handle provides a ratio between guidance, speed and torque that is perfectly adapted to the screwdriving task at hand.
- Logged inspection of individual parts immediately after manufacture in the plant.

TorqueFix® torque tool

with fixed preset torque
accuracy: $\pm 6\%$
release torque: + 30%

TorqueFix®	
	
Torque	Order No.
0,38 Nm	L05 00901
0,62 Nm	L05 00911
0,90 Nm	L05 00921
1,01 Nm	L05 03301
1,28 Nm	L05 00931
2,25 Nm	L05 03311
2,50 Nm	L05 00941
2,80 Nm	L05 00951
4,30 Nm	L05 00961
6,25 Nm	L05 00971
8 Nm	L05 03400

easyTorque torque tool

with fixed preset torque
accuracy: $\pm 10\%$
release torque: unbounded

easyTorque	
	
Torque	Order No.
0,38 Nm	L05 00902
0,62 Nm	L05 00912
1,01 Nm	L05 00922
1,28 Nm	L05 00932
1,8 Nm	L05 03320
2,25 Nm	L05 00942
2,50 Nm	L05 00952
2,80 Nm	L05 00962
4,30 Nm	L05 00972

Replaceable blade		
		
Size	Order No.	Torque max.
5IP	L05 00700	0,5 Nm
6IP	L05 00710	1,01 Nm
7IP	L05 00720	1,3 Nm
8IP	L05 00730	2,25 Nm
9IP	L05 00740	3,0 Nm
10IP	L05 00750	4,5 Nm
15IP	L05 00760	6,6 Nm
20IP	L05 00770	8,0 Nm
SW4	L05 03140	8,0 Nm

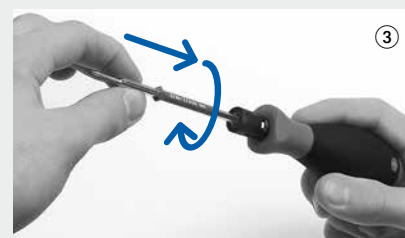
TORX PLUS®	
	
Size	Order No.
5IP	L05 00800
6IP	L05 00810
7IP	L05 00820
8IP	L05 00830
9IP	L05 00840
10IP	L05 00850
15IP	L05 00860
20IP	L05 00870

TORX PLUS®	
	
Size	Order No.
5IP	L05 01110
6IP	L05 01120
8IP	L05 01240

TORX®	
	
Size	Order No.
T15	L05 00607
T20	L05 00608

TORX®	
	
Size	Order No.
T8	L05 00605

The TORX® keys do fit the new TORX PLUS® shape but we recommend only TORX PLUS® keys be used for tightening screws.



Changing the torque

- ① Remove blade
- ② Insert adjusting key in variable torque key handle and turn to set the required torque. The appropriate IP size can be read from the graduated scale.
- ③ Push blade in again

TorqueVario® torque tool

Variable adjustment

TorqueVario®					
Size	Torque	Order No.	Adjusting key	Replaceable blades	
5IP – 7IP	0,38 – 1,01 Nm	L05 00781	L05 00990	5IP	L05 00700
				6IP	L05 00710
				7IP	L05 00720
				9IP	L05 00740
9IP – 20IP	2,25 – 6,25 Nm	L05 00791	L05 00990	10IP	L05 00750
				15IP	L05 00760
				20IP	L05 00770

Supply includes:

Torque wrench with adjusting key and replaceable blades.

TorqueVario®-S torque tool

Variable adjustment

TorqueVario®-S			appropriate replaceable blade	
Size	Torque	Order No.	Size	Order No.
T8 – T20	0,8 – 5 Nm (0,2 Nm)	L05 00600	T8	L05 00601
			T15	L05 00603
			T20	L05 00604

Supply includes: Torque wrench with adjusting key without replaceable blade.

Allen key

Size	Order No.
SW1,5	18591 10015
SW2,5	18591 10025
SW3	18591 10030
SW4	18591 10040
SW5	18591 10050
SW6	18591 10060
SW10	18591 10100

Allen key

 ~ISO 2936L	
Size	Order No.
SW4	18591 10041

Key

 DIN 6368	
Size	Order No.
16	18701 80016
22	18701 80022
27	18701 80027
32	18701 80032
40	18701 80040
50	18701 80050

Numerical Index

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U45 11980	71	U45 34250	77	U45 63320	67	V19 04500.112830	58	V19 13800.112830	59
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U45 22600	73	U45 51670	63	U45 63920	67	V19 06800.112830	58	W80 12210.04..	93
U45 22620	73	U45 51700	63	U45 63950	67	V19 06800.212830	58	W80 18210.06..	93
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U45 22860	73	U45 51940	63	U45 64200	67	V19 07900.112830	58	W80 46210.08..	93
U45 22900	73	U45 51950	63	U45 64210	69	V19 07900.212830	58		
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U45 23000	73	U45 52050	63	U45 64300	69	V19 08500.112830	59		
U45 33020	73	U45 52060	63	U45 64350	69	V19 08500.212830	59		
U45 33050	73	U45 52100	63	U45 64400	69	V19 08600.112830	59		

Usage and Safety Notes

The application details given depend on the environmental and application conditions (e.g. machine, ambient temperature, lubricant/coolant used and machining result required): they are based on the correct application conditions, correct use and compliance with the spindle speed limits given for the tools.

All measurement specifications stated in the catalogue apply to the metric unit system, unless they are expressly identified using another unit of measurement.

Hazard warning:

If using tungsten carbide-based hard metal products together with cobalt as a binder metal, please read our safety data sheets, which are available for you to download from our website.

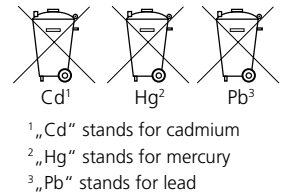
(<http://www.kometgroup.com/navigation-top/download/service/datenblaetter.html>)

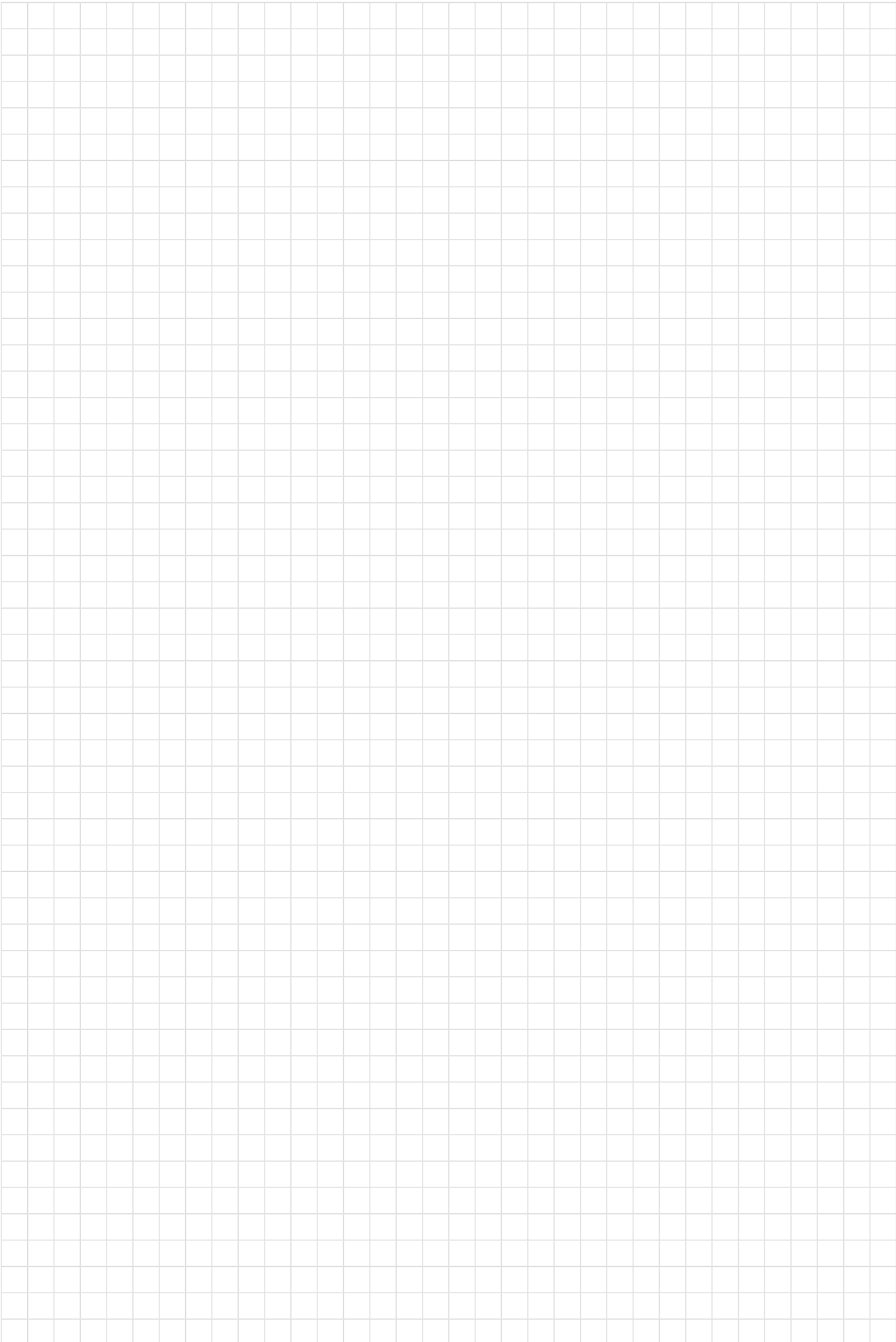
Balancing note:

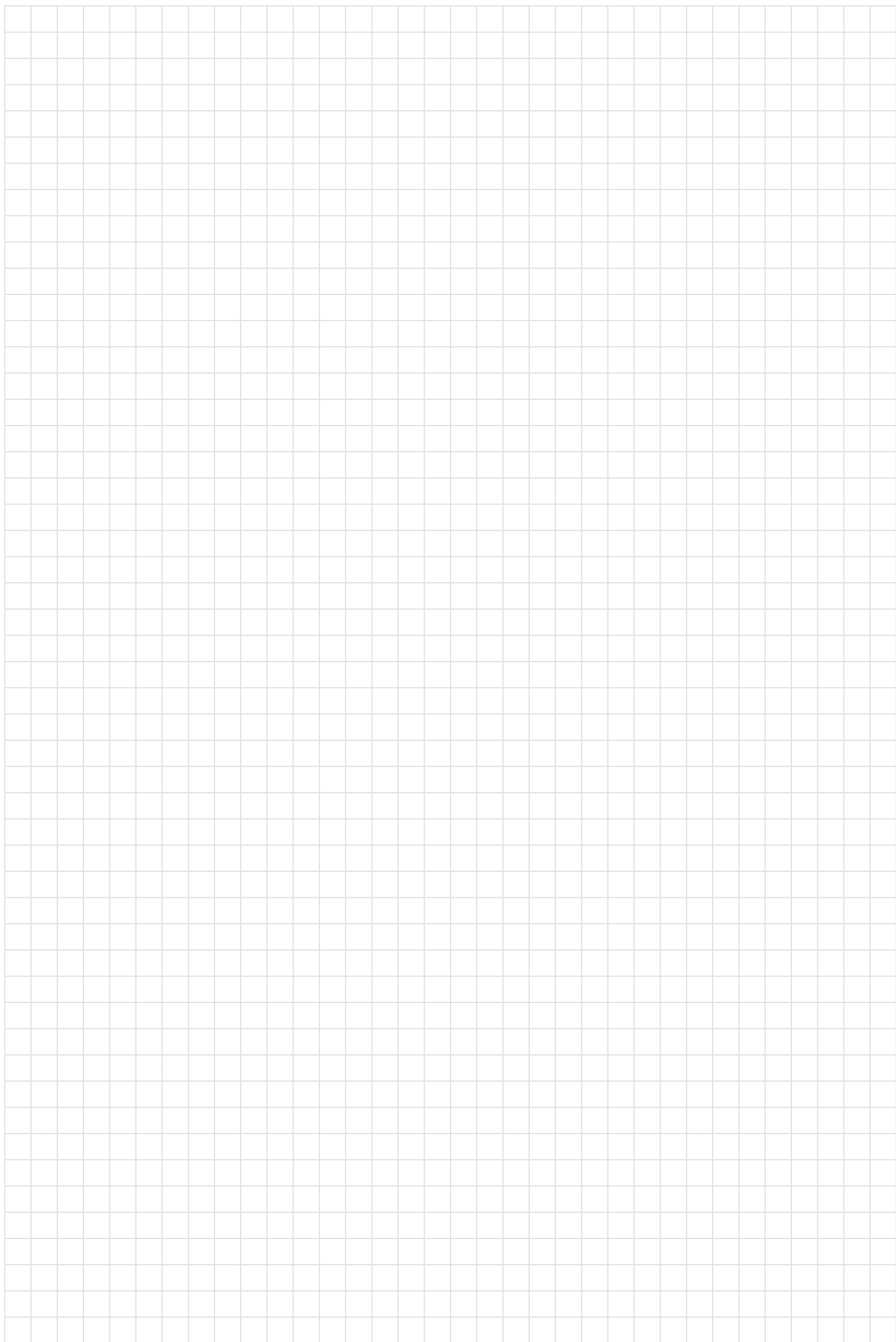
Tool holders or adaptors are only balanced as supplied, i.e. no allowance has been made for items which can alter this, such as boring tools, milling cutters, inserts, etc. When used at high speeds, we recommend precision balancing be carried out when the tool is fitted ready for use.

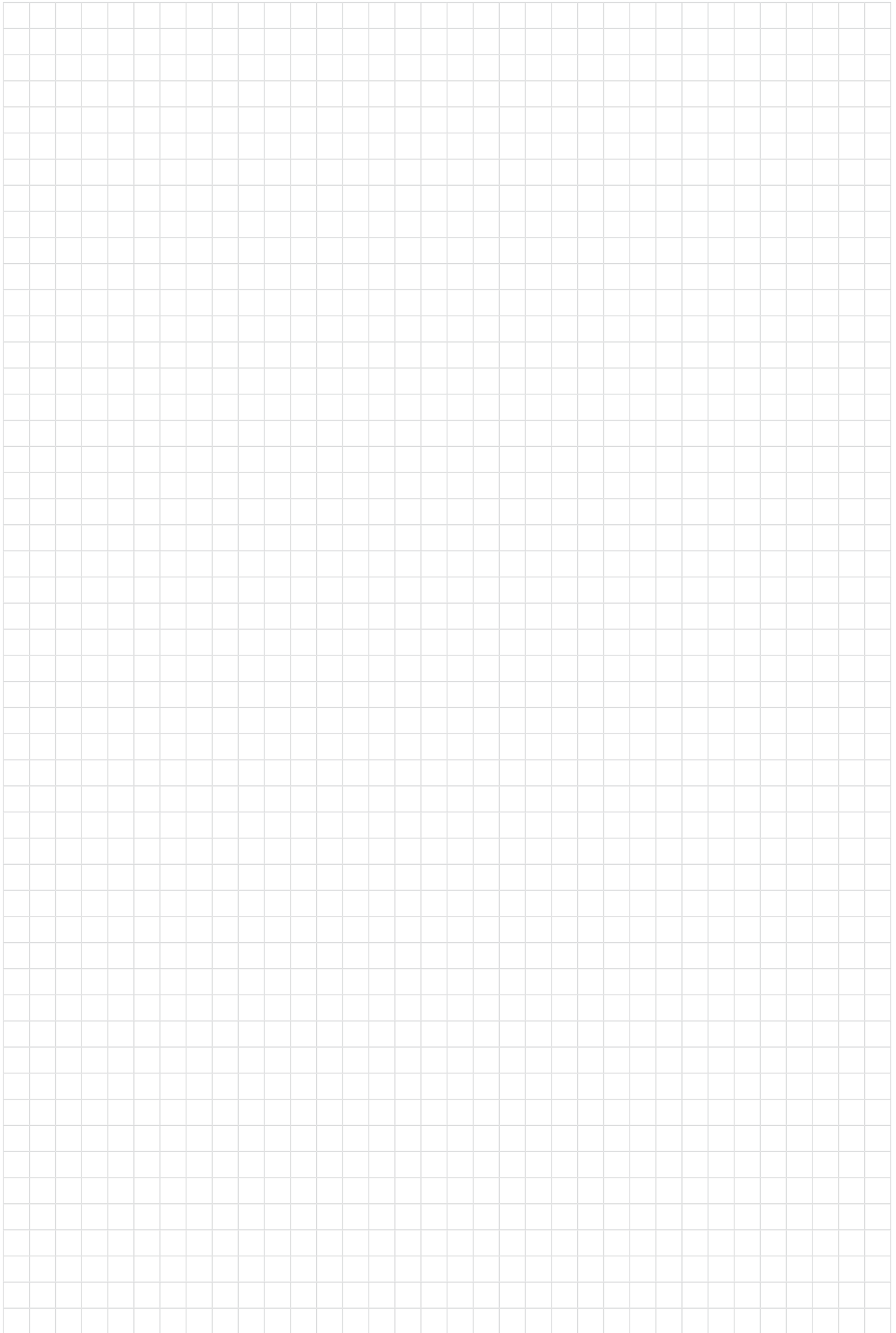
In accordance with German battery legislation, we are required to state the following:

Do not dispose of old batteries along with household waste. You can return used batteries free of charge to our shipping depot. As a consumer, you are legally obliged to return old batteries. Batteries containing hazardous substances are marked with a crossed-out wheelee bin and the chemical symbol (Cd, Hg or Pb) that determines its classification as a hazardous-substance-containing heavy metal.









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