

The best solution for High productivity milling



palbit
CUTTING TOOLS SOLUTIONS

HIFEED

SO10-08 | SO10-13 | SO15-16



INSERT SIZE
08 | SO...
0803



INSERT SIZE
13 | SO...
13M5



INSERT SIZE
16 | SO...
1605

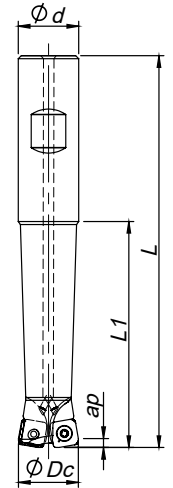


100
YEARS
SINCE 1916



Weldon Shank

$K_r=10^\circ$ | $\gamma_p=+2^\circ$ | $\gamma_f=+2^\circ$ | $R_p=0.079$



Order code Código	Reference Referência Referencia		Dimensions Dimensões Dimensiones (in)				 lbs	Specifications	Insert Pastilha Inserto	Stock
			ϕD_c	$\phi d/M$	L	L1		Ap max (in)		
181078700	SO10 D.750-W.750/5.00-02-08	2	0.750	0.750	5.000	2.835	0.79	0.039	SO...0803...	
181078800	SO10 D.750-W.750/8.00-02-08	2	0.750	0.750	8.000	2.835	0.69	0.039	SO...0803...	
181078900	SO10 D1.00-W1.00/5.00-03-08	3	1.000	1.000	5.000	2.835	0.90	0.039	SO...0803...	
181079000	SO10 D1.00-W1.00/8.00-03-08	3	1.000	1.000	8.000	4.843	1.26	0.039	SO...0803...	
181134800	SO10 D1.25-W1.25/6.00-04-08	4	1.250	1.250	6.000	3.425	0.76	0.039	SO...0803...	
181134900	SO10 D1.25-W1.25/8.00-04-08	4	1.250	1.250	8.000	4.843	1.68	0.039	SO...0803...	

Stock item | Produto de stock | Itens de stock

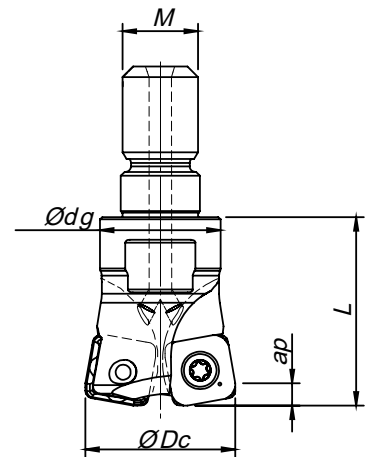
Available under request | Disponível sobre consulta | Disponible bajo consulta

Inventory maintained. To be replaced by new item. | Iten em stock.
Será substituído por novo item | Iten en stock. Será reemplazado por nuevo item.



Threaded Coupling

$K_r=10^\circ$ | $\gamma_p=+2^\circ$ | $\gamma_f=+2^\circ$ | $R_p=0.079$

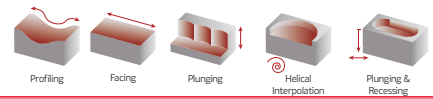


Order code Código	Reference Referência Referencia		Dimensions Dimensões Dimensiones (in)				 lbs	Specifications	Insert Pastilha Inserto	Stock
			ϕD_c	$\phi d/M$	ϕdg	L		Ap max (in)		
181135000	SO10 D.750-R-10/.984-02-08	2	0.750	M10	0.630	0.984	0.088	0.039	SO...0803...	
181135100	SO10 D1.00-R-12/1.18-03-08	3	1.000	M12	0.827	1.181	0.154	0.039	SO...0803...	
181135200	SO10 D1.25-R-16/1.37-04-08	4	1.250	M16	1.142	1.378	0.358	0.039	SO...0803...	

Stock item | Produto de stock | Itens de stock

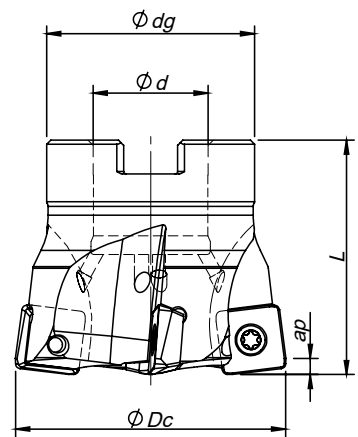
Available under request | Disponível sobre consulta | Disponible bajo consulta

Inventory maintained. To be replaced by new item. | Iten em stock.
Será substituído por novo item | Iten en stock. Será reemplazado por nuevo item.



Arbor Mounting

$K_r=10^\circ$ | $\gamma_p=+2^\circ$ | $\gamma_f=+2^\circ$ | $R_p=0.079$



Order code Código	Reference Referência Referencia		Dimensions Dimensões Dimensiones (in)					Specifications		Insert Pastilha Inserto	Stock
			ϕDc	$\phi d/M$	ϕdg	L		Ap max (in)	Arbor Type		
181135300	SO10 D1.50-A.500/1.50-05-08	5	1.500	0.500	1.200	1.500	0.33	0.039	A	SO...0803...	
181135400	SO10 D2.00-A.750/1.75-06-08	6	2.000	0.750	1.457	1.750	0.63	0.039	A	SO...0803...	

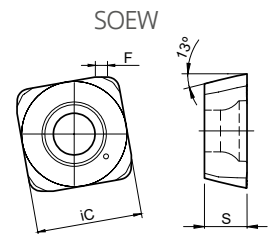
Stock item | Produto de stock | Itens de stock

Available under request | Disponível sobre consulta | Disponible bajo consulta

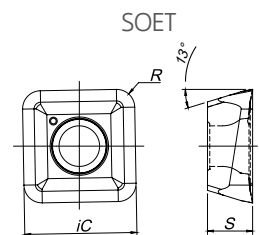
Inventory maintained. To be replaced by new item. | Iten em stock.
Será substituído por novo item | Iten en stock. Será reemplazado por nuevo ítem.

SO...0803... || Inserts | Pastilhas | Plaquitas

SOEW | SOKW



SOET



		P					M				K					N		S			H		Dimensions (in)				
		PVD					CVD				PVD					UNC		PCD	CVD	PVD		PVD					CBN
		P7	G1	G4	P3	G6	R1	G4	P3	G6	L5	L9	G1	G4	P3	G6	10	D6	R1	P3	G6	P7					D4
⁽¹⁾ Geometry code	ISO Reference	PH7603	PH7910	PH7920	PH7930	PH7740	PHM740	PH7920	PH7930	PH7740	PH5705	PH5740	PH7910	PH7920	PH7930	PH7740	PH0910	PDP410	PHM740	PH7930	PH7740	PH7603	PBH910	iC	S	R	F
1111884	SOEW 080310 S																							0.339	0.137	0.039	0.039
1112149	SOET 080315-MS																							0.339	0.137	0.059	-

First choice | Primeira opção | 1ª opción

Stock item | Produto de stock | Itens de stock

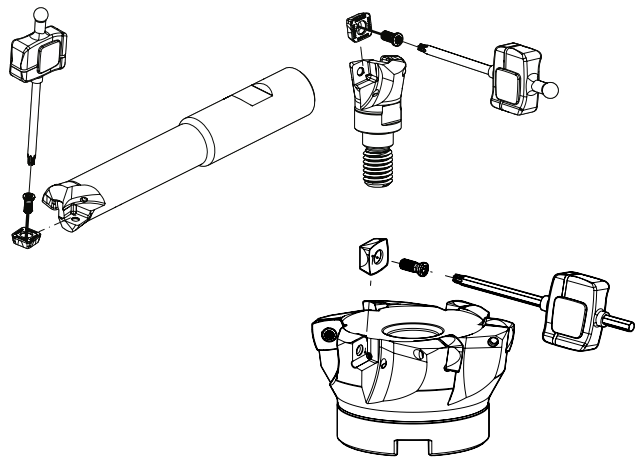
Available under request | Disponível sobre consulta
Disponible bajo consulta

Insert order code = (1) Geometry Code + (2) Grade Code

HIFEED SO10-08

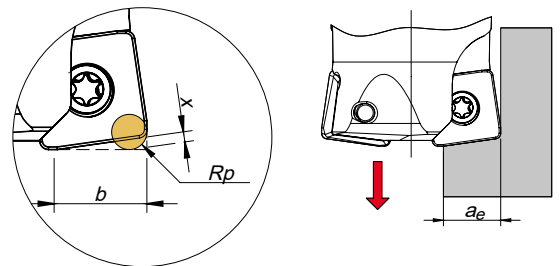
SPARE PARTS | Complementos | Complementos

Cutter ØDc	Order separately			
	Insert Screw 	Key (Torx) 	Torque Key (Torx) 	Torque Value 
SO10-W-08 – 0.75-1.25	P0300800	XT09	DT0914	12.4
SO10-R-08 – 0.75-1.25	P0300800	XT09	DT0914	12.4
SO10-A-08 – 1.50-2.00	P0300800	XT09	DT0914	12.4



PROGRAMMING DATA

Insert	Programming Data			
	Rp	X	b	ae
SO... 0803..	0.079	0.031	0.268	0.248



GRADES SELECTION GUIDE

ISO	PSM	Material	HB (Brinell)	Grades				
				← Wear Resistance		Toughness →		
				PH7910	PH7920	PH7930	PH7740	PHM740
								
P	1	Unalloyed Steel	125-220	✓	✓	✓	✓	
	2	Low-Alloyed Steel	220-280	✓	✓	✓	✓	
	3	High-Alloyed Steel	280-380	✓	✓	✓	✓	
M	4	SS - Ferritic / Martensitic	200-330			✓	✓	✓
	5	SS - Austenitic / Duplex	200-330			✓	✓	✓
	6	SS - Duplex	230-260			✓	✓	✓
K	7	Malleable Cast Iron	130-230	✓	✓			
	8	Grey Cast Iron	180-245	✓	✓			
	9	Nodular Cast iron	160-250	✓	✓			
S	11	Heat Resistant Super Alloys	200-320			✓		✓

-  Good Conditions
-  Average Conditions
-  Difficult Conditions

RECOMMENDED CUTTING CONDITIONS

ISO	PSM	Material	HB (Brinell)	Vc (sfm)					Feed fz (in/t)	
				← Wear Resistance			Toughness →			
				PH7910	PH7920	PH7930	PH7740	PHM740	SOE(K)W 08...	SOET 08...
P	1	Unalloyed Steel	125-220	525-918	492-754	459-722	328-590	-	0.016-0.071	0.016-0.059
	2	Low-Alloyed Steel	220-280	492-754	459-722	426-590	295-558	-	0.016-0.071	0.016-0.059
	3	High-Alloyed Steel	280-380	459-623	426-590	328-558	262-459	-	0.012-0.059	0.016-0.051
M	4	SS - Ferritic / Martensitic	200-330	-	-	426-722	328-590	328-590	-	0.016-0.051
	5	SS - Austenitic / Duplex	200-330	-	-	394-590	295-492	296-492	-	0.016-0.051
	6	SS - Duplex	230-260	-	-	230-459	230-394	230-394	-	0.004-0.039
K	7	Malleable Cast Iron	130-230	525-1148	492-1017	459-853	394-787	-	0.020-0.071	0.016-0.059
	8	Grey Cast Iron	180-245	492-984	459-853	426-722	328-656	-	0.020-0.071	0.016-0.059
	9	Nodular Cast iron	160-250	394-853	328-722	328-590	262-492	-	0.020-0.059	0.016-0.051
S	11	Heat Resistant Super Alloys	200-320	-	-	115-213	82-197	82-197	-	0.016-0.039

(Note 1) Cutting conditions $a_e/D_c=70\%$.

(Note 2) It's possible to occur vibrations in certain cases. Please reduce depth of cut and / or reduce cutting conditions in following cases:

- When using long shank;
- When using long tool overhang with arbor type;
- When application has poor clamping rigidity or when using a low rigidity machine.

(Note 3) PH5... can be used wet or dry. PH7... only air thru.

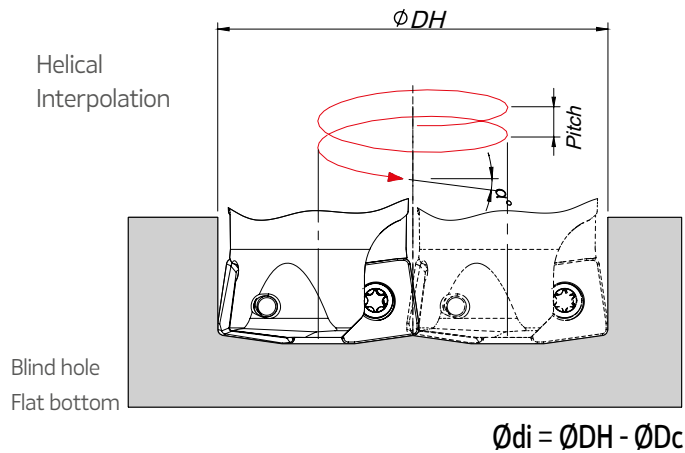
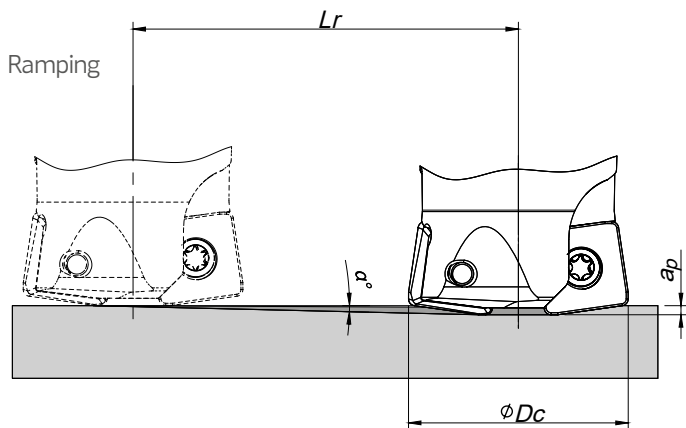
(Note 4) It's possible to occur vibrations in certain cases. Please reduce depth of cut and / or reduce cutting conditions in following cases:

- When using long shank;
- When using long tool overhang with arbor type;
- When application has poor clamping rigidity or when using a low rigidity machine.

CHIP-BREAKER SELECTION GUIDE

ISO	PSM	Material	HB (Brinell)	Chip-Breaker Application	
				1st choice	Difficult Operations
P	1	Unalloyed Steel	125-220	SOET 08...	SOE(K)W 08...
	2	Low-Alloyed Steel	220-280	SOE(K)W 08...	-
	3	High-Alloyed Steel	280-380	SOE(K)W 08...	-
M	4	SS - Ferritic / Martensitic	200-330	SOET 08...	-
	5	SS - Austenitic / Duplex	200-330	SOET 08...	-
	6	SS - Duplex	230-260	SOET 08...	-
K	7	Malleable Cast Iron	130-230	SOET 08...	SOE(K)W 08...
	8	Grey Cast Iron	180-245	SOE(K)W 08...	-
	9	Nodular Cast iron	160-250	SOE(K)W 08...	-
S	11	Heat Resistant Super Alloys	200-320	SOET 08...	-

RAMPING AND HELICAL INTERPOLATION

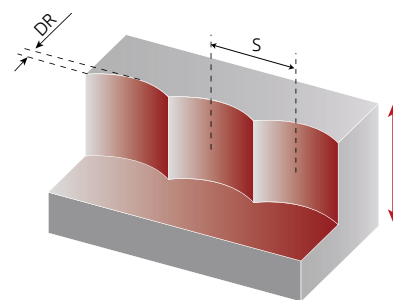


ϕD_c	Ramping			Helical Interpolation		
	Max Ramp α°	Max a_p	Min L_r	ϕDH_{min}	ϕDH_{max}	Max Pitch/Rev. (in)
0.750	15	0.039	0.146	0.965 -	- 1.421	0.181 0.565
1.000	9.5	0.039	0.233	1.465 -	- 1.921	0.244 0.484
1.250	5.5	0.039	0.405	1.965 -	- 2.421	0.216 0.354
1.500	4	0.039	0.558	2.465 -	- 2.921	0.212 0.312
2.000	2.5	0.039	0.893	3.465 -	- 3.921	0.201 0.264

Note: During helical interpolation do not exceed max Pitch.

PLUNGING

L≤3Dc	L>3Dc	S max.
f _z (in/t)		
0.004-0.006	0.002-0.004	S _{max} = √DC.DR-DR ²



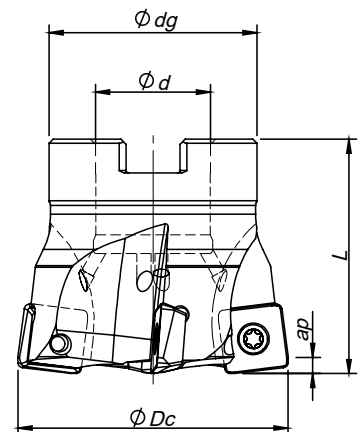
S max and DR corresponding cutting diameter Dc (in)					
DR (in)	Dc (in)				
	0.750	1.000	1.250	1.500	2.000
0.039	0.167	0.194	0.217	0.239	0.277
0.079	0.230	0.270	0.304	0.335	0.390
0.118	0.273	0.323	0.365	0.404	0.471
0.157	0.305	0.364	0.414	0.459	0.538
0.197	0.330	0.398	0.455	0.507	0.596
0.236	0.348	0.425	0.489	0.546	0.645

Note: Recommended for $L \leq 4 D_c$ for extra long tool this step and side cut must be reduced.



Arbor Mounting

$K_r=10^\circ$ | $\gamma_p=+5^\circ$ | $R_p=0.098$



Order code Código	Reference Referência Referencia		Dimensions Dimensões Dimensiones (in)				lbs	Specifications		Insert Pastilha Inserto	Stock
			ϕDc	$\phi d/M$	ϕdg	L		Ap max (in)	Arbor Type		
181099300	SO10 D2.00-A.750/1.75-04-13	4	2.000	0.750	1.772	1.750	0.73	0.059	A	SO...13M5	⊗
NEW 181139300	SO10 D2.00-A.750/1.75-05-13	5	2.000	0.750	1.772	1.750	0.70	0.059	A	SO...13M5	⊗
181099400	SO10 D2.50-A1.00/2.00-05-13	5	2.500	1.000	2.205	2.000	1.32	0.059	A	SO...13M5	⊗
181099500	SO10 D3.00-A1.00/2.00-06-13	6	3.000	1.000	2.205	2.000	1.98	0.059	A	SO...13M5	⊗
NEW 181137800	SO10 D3.00-A1.25/2.00-06-13	6	3.000	1.250	2.441	2.000	1.82	0.059	A	SO...13M5	⊗
181099600	SO10 D4.00-A1.25/2.00-06-13	6	4.000	1.250	2.874	2.000	3.31	0.059	A	SO...13M5	⊗
NEW 181137900	SO10 D4.00-A1.50/2.50-08-13	8	4.000	1.500	3.150	2.500	4.41	0.059	A	SO...13M5	⊗

⊗ Stock item | Produto de stock | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

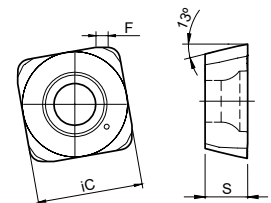
⊗ Inventory maintained. To be replaced by new item. | Iten em stock. Será substituído por novo item | Iten en stock. Será reemplazado por nuevo item.

SO...13M5... || Inserts | Pastilhas | Plaquetas

SOEW | SOKW



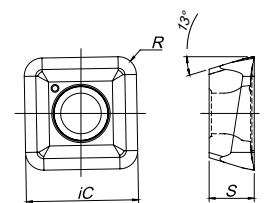
SOEW



SOET



SOET



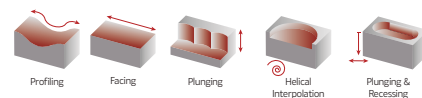
		P					M				K					N		S			H		Dimensions (in)			
		PVD					CVD	PVD			CVD		PVD			UNC	PCD	CVD	PVD		PVD	CBN				
		⁽²⁾ Grade code	P7	G1	G4	P3	G6	R1	G4	P3	G6	L5	L6	G1	G4	P3	10	D6	R1	P3	G6	P7				
⁽¹⁾ Geometry code	ISO Reference	PH7603	PH7910	PH7920	PH7930	PH7740	PHM740	PH7920	PH7930	PH7740	PH5705	PH5320	PH7910	PH7920	PH7930	PH0910	PDP410	PHM740	PH7930	PH7740	PH7603	PBH910	iC	S	R	F
1111906	SOEW 13M510 S		⊗	⊗		⊗							⊗	⊗									0.489	0.197	0.047	0.039
1112147	SOET 13M520-MS				⊗	⊗	⊗		⊗	⊗								⊗	⊗	⊗			0.489	0.197	0.079	-

⊗ First choice | Primeira opção | 1ª opción

⊗ Stock item | Produto de stock | Itens de stock

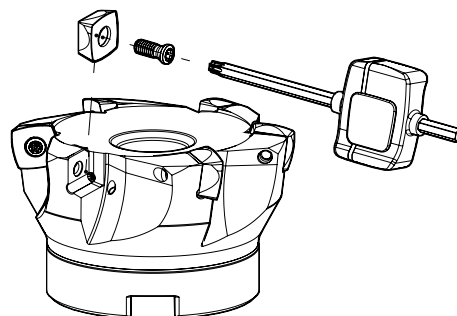
○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert order code = (1) Geometry Code + (2) Grade Code



SPARE PARTS | Complementos | Complementos

Cutter ØDc	Insert Screw 	Key (Torx) 	Torque Value 
SO10-A-13 - 2.00-3.00	P0401200	XT15	26.6
SO10-A-13 - 4.00	P0401200	PT15	26.6



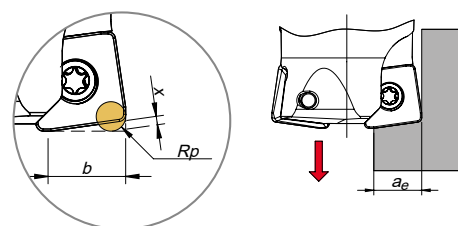
GRADES SELECTION GUIDE

ISO	PSM	Material	HB (Brinell)	Grades				
				← Wear Resistance			Toughness →	
				PH7910 	PH7920 	PH7930 	PH7740 	PHM740 
P	1	Unalloyed Steel	125-220	✓	✓	✓	✓	
	2	Low-Alloyed Steel	220-280	✓	✓	✓	✓	
	3	High-Alloyed Steel	280-380	✓	✓	✓	✓	
M	4	SS - Ferritic / Martensitic	200-330				✓	✓
	5	SS - Austenitic / Duplex	200-330				✓	✓
	6	SS - Duplex	230-260				✓	✓
K	7	Malleable Cast Iron	130-230	✓	✓		✓	
	8	Grey Cast Iron	180-245	✓	✓		✓	
	9	Nodular Cast iron	160-250	✓	✓		✓	
S	11	Heat Resistant Super Alloys	200-320			✓	✓	✓

-  Good Conditions
-  Average Conditions
-  Difficult Conditions

PROGRAMMING DATA

Insert	Programming Data			
	Rp	X	b	ae
SO... 13M5..	0.098	0.043	0.413	0.394



RECOMMENDED CUTTING CONDITIONS

ISO	PSM	Material	HB (Brinell)	Vc (sfm)					Feed fz (in/t)	
				← Wear Resistance			Toughness →		SOE(K)W 13...	SOET 13...
				PH7910	PH7920	PH7930	PH7740	PHM740		
P	1	Unalloyed Steel	125-220	525-918	492-754	459-722	328-590	-	0.020-0.087	0.020-0.079
	2	Low-Alloyed Steel	220-280	492-754	459-722	426-590	295-558	-	0.020-0.087	0.020-0.079
	3	High-Alloyed Steel	280-380	459-623	426-590	328-558	262-459	-	0.020-0.079	0.020-0.071
M	4	SS - Ferritic / Martensitic	200-330	-	-	426-722	328-590	328-590	-	0.020-0.071
	5	SS - Austenitic / Duplex	200-330	-	-	394-590	295-492	296-492	-	0.020-0.071
	6	SS - Duplex	230-260	-	-	230-459	230-394	230-394	-	0.020-0.059
K	7	Malleable Cast Iron	130-230	525-1148	492-1017	459-853	394-787	-	0.020-0.087	0.020-0.079
	8	Grey Cast Iron	180-245	492-984	459-853	426-722	328-656	-	0.020-0.087	0.020-0.079
	9	Nodular Cast iron	160-250	394-853	328-722	328-590	262-492	-	0.020-0.079	0.020-0.071
S	11	Heat Resistant Super Alloys	200-320	-	-	115-213	82-197	82-197	-	0.016-0.051

(Note 1) Cutting conditions $a_e/D_c=70\%$.

(Note 2) It's possible to occur vibrations in certain cases. Please reduce depth of cut and / or reduce cutting conditions in following cases:

- When using long shank;
- When using long tool overhang with arbor type;
- When application has poor clamping rigidity or when using a low rigidity machine.

(Note 3) PH5... can be used wet or dry. PH7... only air thru.

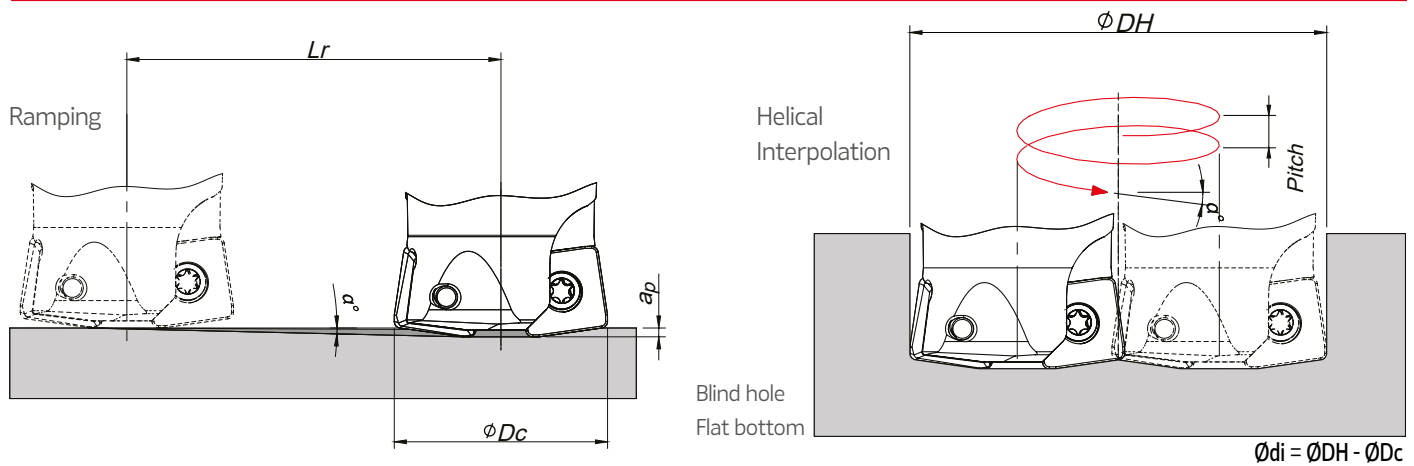
(Note 4) It's possible to occur vibrations in certain cases. Please reduce depth of cut and / or reduce cutting conditions in following cases:

- When using long shank;
- When using long tool overhang with arbor type;
- When application has poor clamping rigidity or when using a low rigidity machine.

CHIP-BREAKER SELECTION GUIDE

ISO	PSM	Material	HB (Brinell)	Chip-Breaker Application	
				1st choice	Difficult Operations
P	1	Unalloyed Steel	125-220	SOET 13...	SOE(K)W 13...
	2	Low-Alloyed Steel	220-280	SOE(K)W 13...	-
	3	High-Alloyed Steel	280-380	SOE(K)W 13...	-
M	4	SS - Ferritic / Martensitic	200-330	SOET 13...	-
	5	SS - Austenitic / Duplex	200-330	SOET 13...	-
	6	SS - Duplex	230-260	SOET 13...	-
K	7	Malleable Cast Iron	130-230	SOET 13...	SOE(K)W 13...
	8	Grey Cast Iron	180-245	SOE(K)W 13...	-
	9	Nodular Cast iron	160-250	SOE(K)W 13...	-
S	11	Heat Resistant Super Alloys	200-320	SOET 13...	-

RAMPING AND HELICAL INTERPOLATION

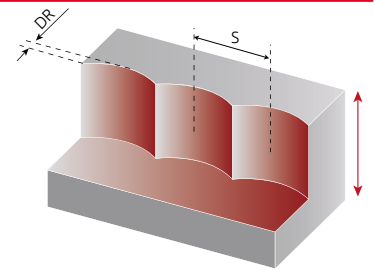


ϕD_c	Ramping			Helical Interpolation		
	Max Ramp α°	Max a_p	Min L_r	ϕDH_{min}	ϕDH_{max}	Max Pitch/Rev. (in)
2.000	4.0	0.059	0.844	3.173 -	- 3.921	0.258 0.422
2.500	3.0	0.059	1.126	4.173 -	- 4.921	0.275 0.399
3.000	2.0	0.059	1.690	5.173 -	- 5.921	0.238 0.320
4.000	0.7	0.059	4.829	7.173 -	- 7.921	0.122 0.151

Note: During helical interpolation do not exceed max Pitch.

PLUNGING

L≤3Dc	L>3Dc	S max.
fz (in/t)		
0.004-0.008	0.003-0.006	Smax = √DC.DR-DR²



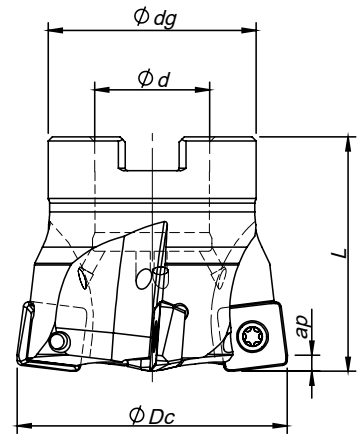
S max and DR corresponding cutting diameter D_c (in)				
DR (in)	D_c (in)			
	2.000	2.500	3.000	4.000
0.039	0.277	0.310	0.340	0.393
0.079	0.389	0.437	0.479	0.556
0.118	0.471	0.530	0.583	0.677
0.157	0.539	0.607	0.669	0.778
0.197	0.596	0.673	0.743	0.865
0.236	0.645	0.731	0.808	0.943
0.276	0.689	0.783	0.866	1.013
0.315	0.729	0.830	0.920	1.077
0.354	0.764	0.872	0.968	1.137
0.394	0.795	0.911	1.013	1.192

Note: Recommended for $L \leq 4 D_c$ for extra long tool this step and side cut must be reduced.



Arbor Mounting

$K_r=15^\circ$ | $\gamma_p=+2^\circ$ | $R_p=0.177$



Order code Código	Reference Referência Referencia		Dimensions Dimensões Dimensiones (in)					Specifications		Insert Pastilha Inserto	Stock
			ϕDc	$\phi d/M$	ϕdg	L		Ap max (in)	Arbor Type		
181073900	SO15 D2.50-A1.00/1.75-05-16	5	2.500	1.000	2.205	1.750	1.42	0.138	A	SO...1605...	
181074000	SO15 D3.00-A1.00/2.00-06-16	6	3.000	1.000	2.205	2.000	1.69	0.138	A	SO...1605...	
NEW 181138400	SO15 D3.00-A1.25/2.00-06-16	6	3.000	1.250	2.441	2.000	1.69	0.138	A	SO...1605...	
181074100	SO15 D4.00-A1.25/2.00-08-16	8	4.000	1.250	2.874	2.000	3.19	0.138	A	SO...1605...	
NEW 181138500	SO15 D4.00-A1.50/2.50-08-16	8	4.000	1.500	3.150	2.500	3.19	0.138	A	SO...1605...	
181074200	SO15 D5.00-A1.50/2.50-10-16	10	5.000	1.500	3.386	2.500	6.92	0.138	A	SO...1605...	
181074300	SO15 D6.00-A2.00/2.50U-12-16	12	6.000	2.000	4.882	2.500	8.22	0.138	B	SO...1605...	

Stock item | Produto de stock | Itens de stock

Available under request | Disponível sobre consulta | Disponible bajo consulta

Inventory maintained. To be replaced by new item. | Iten em stock.
Será substituído por novo item | Iten en stock. Será reemplazado por nuevo item.

SOE...1605... || Inserts | Pastilhas | Plaquitas

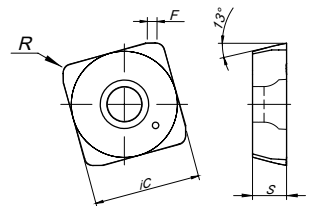
SOEW



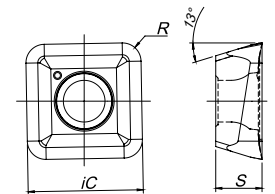
SOET



SOEW



SOET



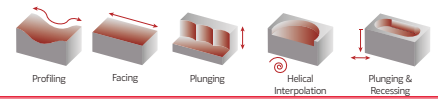
		P						M			K						N		S			H		Dimensions (in)				
		PVD						CVD	PVD			CVD		PVD				UNC	PCD	CVD	PVD		PVD					CBN
		P7	G1	G4	P3	G6	R1	P3	G6	L5	L6	G1	G4	P3	G6	10	D6	R1	P3	G6	P7	D4						
⁽¹⁾ Geometry code	ISO Reference	PH7603	PH7910	PH7920	PH7930	PH7740	PHM740	PH7930	PH7740	PH5705	PH5320	PH7910	PH7920	PH7930	PH7740	PH0910	PDP410	PHM740	PH7930	PH7740	PH7603	PBH910	iC	S	R	F		
1111907	SOEW 160512 S																						0.646	0.207	0.047	0.059		
1112221	SOET 160520-MS																						0.646	0.207	0.079	-		

First choice | Primeira opção | 1ª opción

Stock item | Produto de stock | Itens de stock

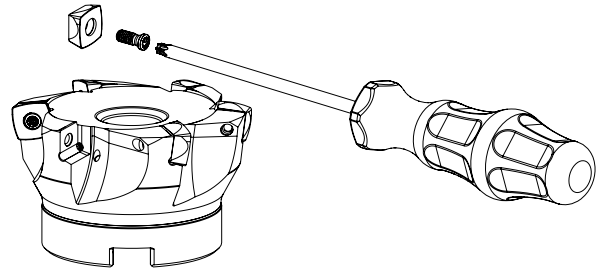
Available under request | Disponível sobre consulta
Disponible bajo consulta

Insert order code = (1) Geometry Code + (2) Grade Code



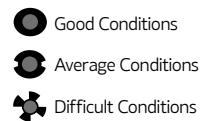
SPARE PARTS || Complementos | Complementos

Cutter ØDc	Insert Screw	Key (Torx)	Torque Value
SO15-A-16 - 2.50-6.00	P0501302	PT20	44.3 



GRADES SELECTION GUIDE

ISO	PSM	Material	HB (Brinell)	Grades				
				← Wear Resistance		Toughness →		
				PH7910	PH7920	PH7930	PH7740	PHM740
P	1	Unalloyed Steel	125-220	✓	✓	✓	✓	
	2	Low-Alloyed Steel	220-280	✓	✓	✓	✓	
	3	High-Alloyed Steel	280-380	✓	✓	✓	✓	
M	4	SS - Ferritic / Martensitic	200-330			✓	✓	✓
	5	SS - Austenitic / Duplex	200-330			✓	✓	✓
	6	SS - Duplex	230-260			✓	✓	✓
K	7	Malleable Cast Iron	130-230	✓	✓		✓	
	8	Grey Cast Iron	180-245	✓	✓		✓	
	9	Nodular Cast iron	160-250	✓	✓		✓	
S	11	Heat Resistant Super Alloys	200-320			✓	✓	✓



RECOMMENDED CUTTING CONDITIONS

ISO	PSM	Material	HB (Brinell)	Vc (sfm)					Feed fz (in/t)	
				← Wear Resistance		Toughness →			SOEW 16...	SOET 16...
				PH7910	PH7920	PH7930	PH7740	PHM740		
P	1	Unalloyed Steel	125-220	525-918	492-754	459-722	328-590	-	0.024-0.098	0.020-0.087
	2	Low-Alloyed Steel	220-280	492-754	459-722	426-590	295-558	-	0.024-0.098	0.020-0.087
	3	High-Alloyed Steel	280-380	459-623	426-590	328-558	262-459	-	0.024-0.079	0.020-0.071
M	4	SS - Ferritic / Martensitic	200-330	-	-	426-722	328-590	328-590	-	0.024-0.079
	5	SS - Austenitic / Duplex	200-330	-	-	394-590	295-492	296-492	-	0.024-0.079
	6	SS - Duplex	230-260	-	-	230-459	230-394	230-394	-	0.024-0.071
K	7	Malleable Cast Iron	130-230	525-1148	492-1017	459-853	394-787	-	0.024-0.098	0.020-0.087
	8	Grey Cast Iron	180-245	492-984	459-853	426-722	328-656	-	0.024-0.098	0.020-0.087
	9	Nodular Cast iron	160-250	394-853	328-722	328-590	262-492	-	0.024-0.098	0.020-0.071
S	11	Heat Resistant Super Alloys	200-320	-	-	115-213	82-197	82-197	-	0.016-0.071

(Note 1) Cutting conditions $a_e/D_c=70\%$.

(Note 2) It's possible to occur vibrations in certain cases. Please reduce depth of cut and / or reduce cutting conditions in following cases:
 - When using long shank;
 - When using long tool overhang with arbor type;
 - When application has poor clamping rigidity or when using a low rigidity machine.

(Note 3) PH5... can be used wet or dry. PH7... only air thru.

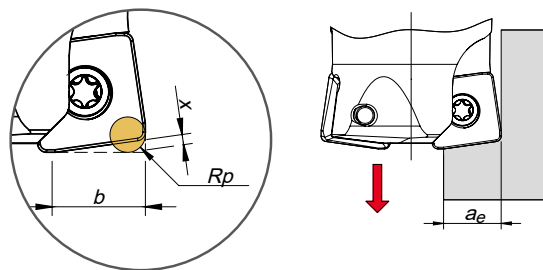
(Note 4) It's possible to occur vibrations in certain cases. Please reduce depth of cut and / or reduce cutting conditions in following cases:
 - When using long shank;
 - When using long tool overhang with arbor type;
 - When application has poor clamping rigidity or when using a low rigidity machine.

CHIP-BREAKER SELECTION GUIDE

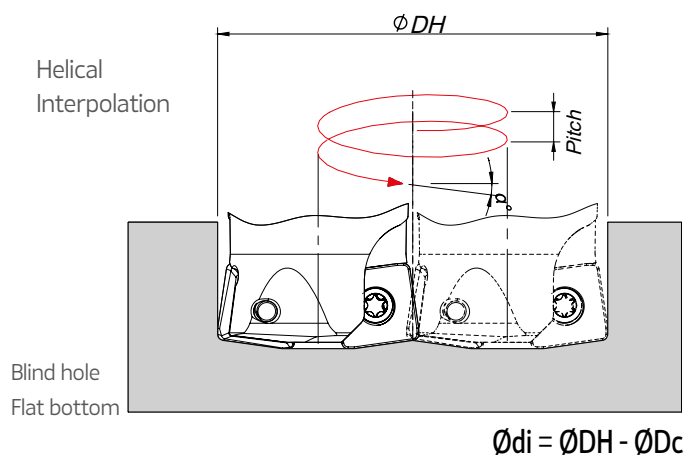
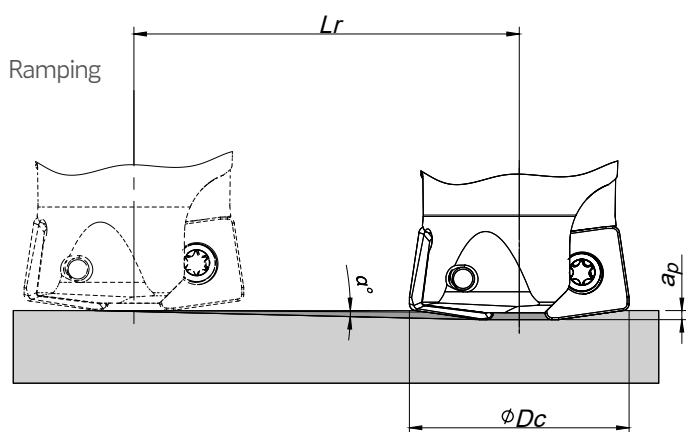
ISO	PSM	Material	HB (Brinell)	Chip-Breaker Application	
				1st choice	Difficult Operations
P	1	Unalloyed Steel	125-220	SOET 16...	SOEW 16...
	2	Low-Alloyed Steel	220-280	SOEW 16...	-
	3	High-Alloyed Steel	280-380	SOEW 16...	-
M	4	SS - Ferritic / Martensitic	200-330	SOET 16...	-
	5	SS - Austenitic / Duplex	200-330	SOET 16...	-
	6	SS - Duplex	230-260	SOET 16...	-
K	7	Malleable Cast Iron	130-230	SOET 16...	SOEW 16...
	8	Grey Cast Iron	180-245	SOEW 16...	-
	9	Nodular Cast iron	160-250	SOEW 16...	-
S	11	Heat Resistant Super Alloys	200-320	SOET 16...	-

PROGRAMMING DATA

Insert	Programming Data			
	Rp	X	b	a _e
SO...1605...	0.177	0.09	0.531	0.504



RAMPING AND HELICAL INTERPOLATION

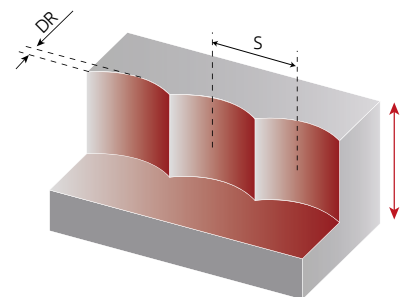


ØDc	Ramping			Helical Interpolation		
	Max Ramp a°	Max ap	Min Lr	ØDHmin	ØDHmax	Max Pitch/Rev.
2.500	3.0	0.138	2.633	3.937 -	- 4.906	0.237 0.396
3.000	2.0	0.138	3.952	4.937 -	- 5.902	0.213 0.318
4.000	1.5	0.138	5.270	6.937 -	- 7.902	0.242 0.321
5.000	1.0	0.138	7.906	8.937 -	- 9.902	0.216 0.269
6.000	0.5	0.138	15.813	10.937 -	- 11.902	0.135 0.162

Note: During helical interpolation do not exceed max Pitch.

PLUNGING

L≤3Dc	L>3Dc	S max.
f _z (in/t)		
0.004-0.008	0.003-0.006	$S_{max} = \sqrt{D_C \cdot DR - DR^2}$



S max and DR corresponding cutting diameter Dc (in)					
DR (in)	Dc (in)				
	2.500	3.000	4.000	5.000	6.000
0.039	0.310	0.340	0.393	0.440	0.482
0.079	0.437	0.479	0.556	0.622	0.683
0.118	0.530	0.583	0.677	0.759	0.833
0.157	0.607	0.669	0.778	0.873	0.959
0.197	0.673	0.743	0.865	0.972	1.069
0.236	0.731	0.808	0.943	1.061	1.167
0.276	0.783	0.866	1.013	1.141	1.256
0.315	0.830	0.920	1.077	1.215	1.338
0.354	0.872	0.968	1.137	1.283	1.414
0.394	0.911	1.013	1.192	1.347	1.486
0.433	0.946	1.054	1.243	1.406	1.553
0.472	0.978	1.092	1.290	1.462	1.615

Note: Recommended for L ≤ 4 Dc for extra long tool this step and side cut must be reduced.



HIFEED

SO10-08 | SO10-13 | SO15-16

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