

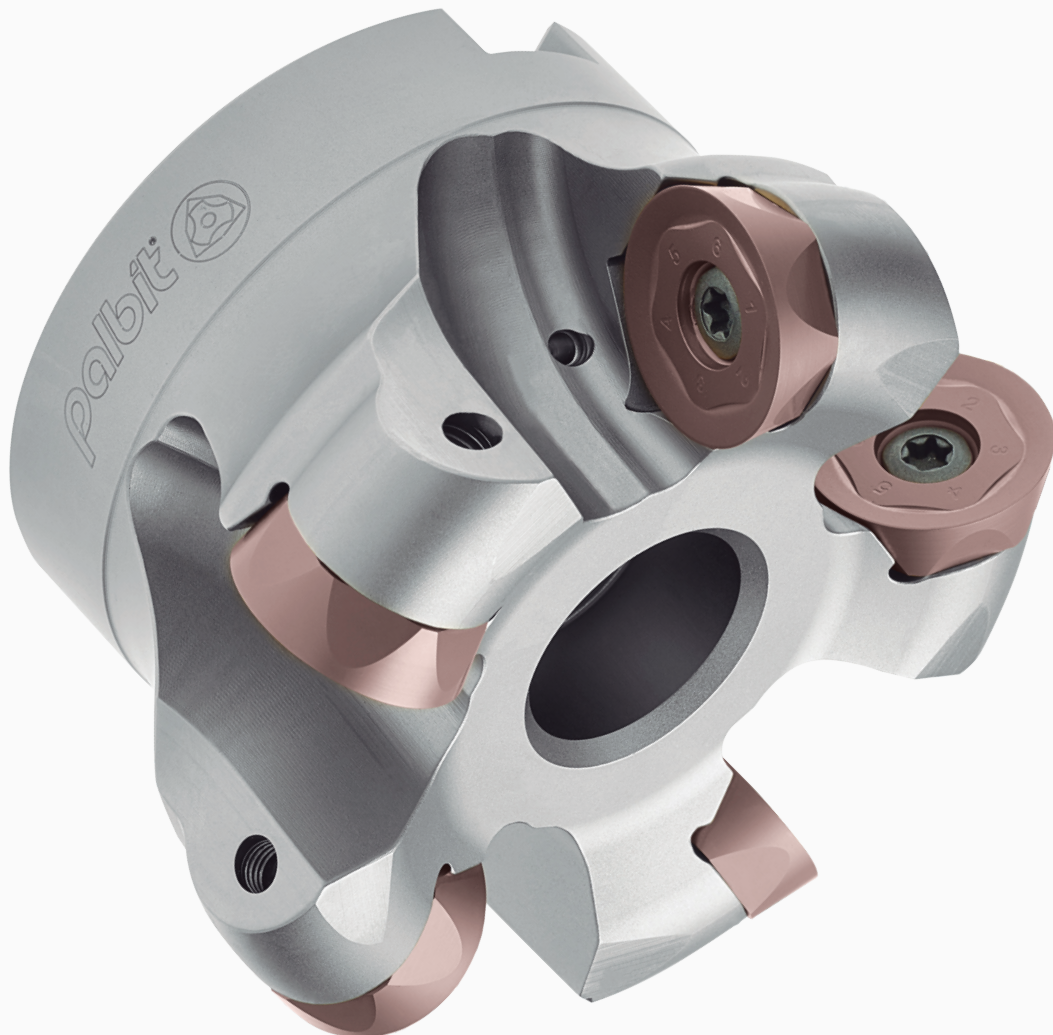
33590 | 33690 | 33790 | 33890 | 33990

# TOROMILL

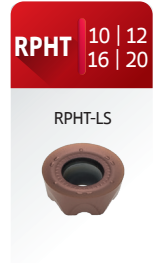
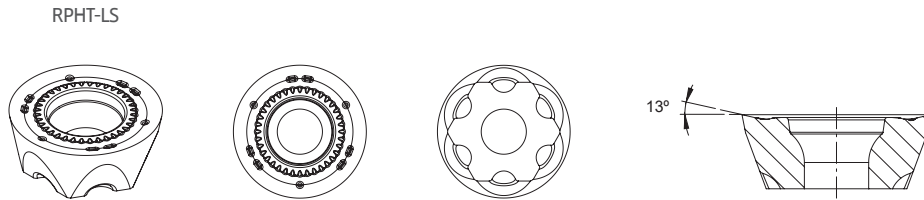
Machining stainless steel & difficult-to-cut materials

**MILLING**

Profiling | Copying | Facing



RPHT-LS INSERT INFORMATION Informação de pastilha RPHT-LS | Información del inserto RPHT-LS



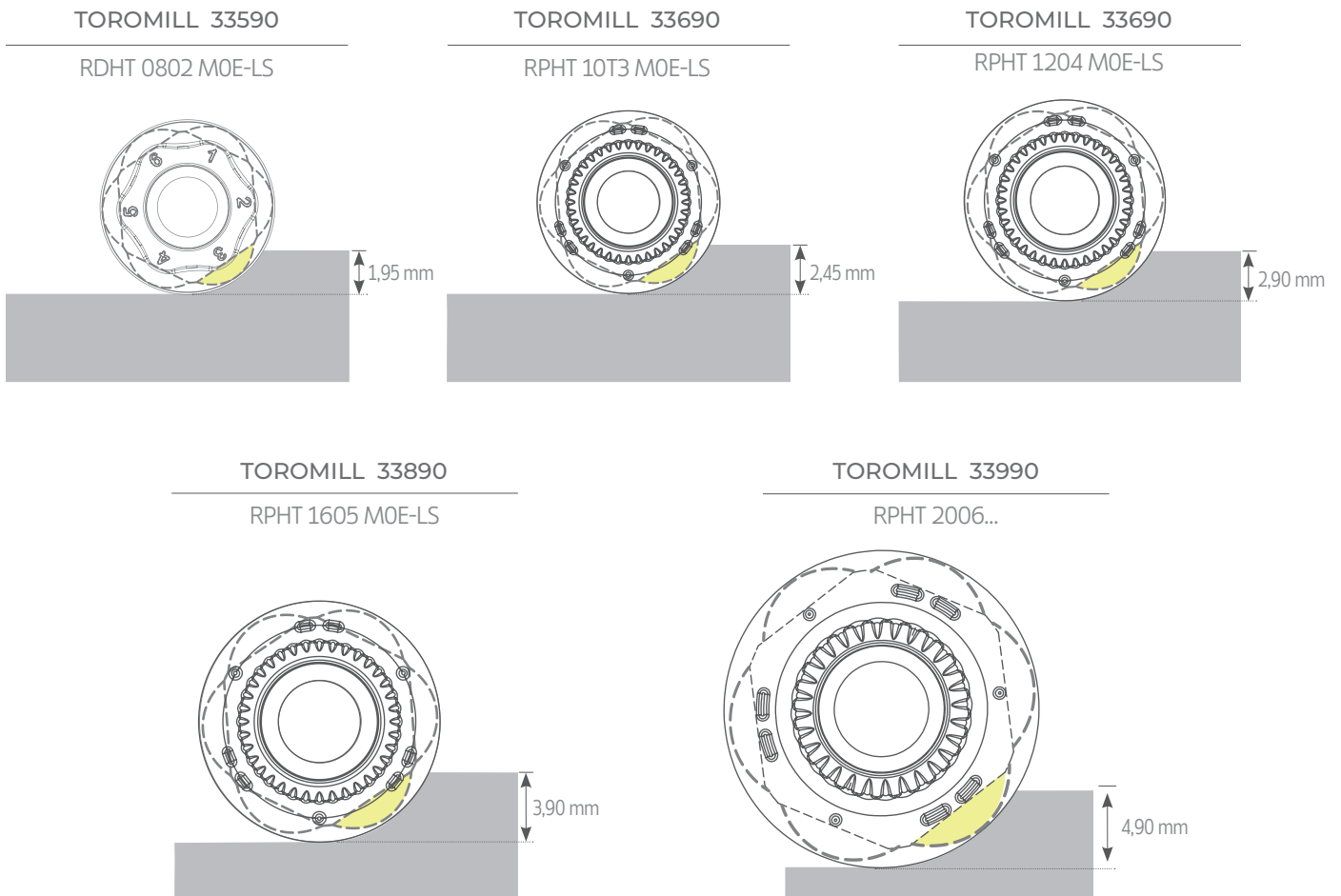
**6 cutting edges insert**

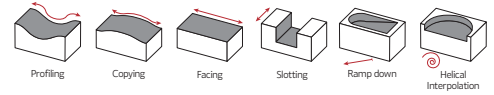
- Insert with 6 cutting edges for a higher productivity.

**Insert Geometry**

- Improved geometry for low cutting force;  
- Positive insert with a brand new edge positioning system.

**The maximum depth of cut using 6 cutting edges (LS)**





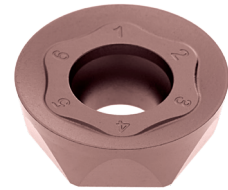
**Line for machining stainless steel and difficult cutting materials**



RDHT



RPHT



**Features**

- High positive rake angle results in low cutting resistance;
- Optimal cutter design for stainless steel and difficult-to-cut material machining;
- Optimized insert for machining with 6 cutting edges

TOROMILL 33590

RDHT 0802 M0E-LS

TOROMILL 33690

RPHT 10T3 M0E-LS

TOROMILL 33690

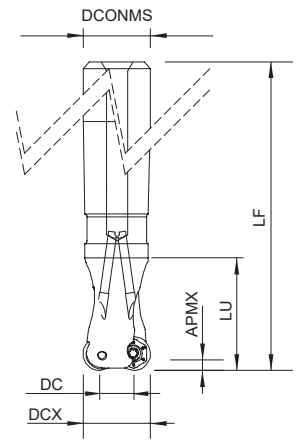
RPHT 1204 M0E-LS

TOROMILL 33890

RPHT 1605 M0E-LS

TOROMILL 33990

RPHT 2006...



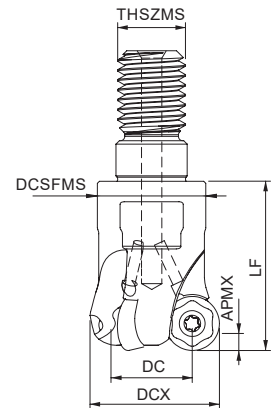
## Cylindrical Shank

GAMP=+5°

Order code Código	Reference Referência Referencia	CICT	Dimensions   Dimensões   Dimensiones (mm)					WT	Specifications	Insert Pastilha Inserto	Stock
			DCX	DC	DCONMS	LF	LU		APMX (mm)		
33590											
181122500	016E33590-02-04-016160	2	16	8	16	160	59	0,23	4,0	RD...0802 M0E	☉
181122600	020E33590-03-05-020180	3	20	12	20	180	59	0,36	4,0	RD...0802 M0E	☉
181122700	025E33590-04-05-025200	4	25	17	25	200	59	0,65	4,0	RD...0802 M0E	☉
33690											
181123400	020E33690-02-05-020180	2	20	10	20	180	50	0,40	5,0	RP...10T3 M0E	☉
181123500	025E33690-03-05-025200	3	25	15	25	200	60	0,76	5,0	RP...10T3 M0E	☉
181123600	032E33690-04-05-032200	4	32	22	32	200	60	0,98	5,0	RP...10T3 M0E	☉

☉ Stock item | Produto de stock | Itens de stock

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



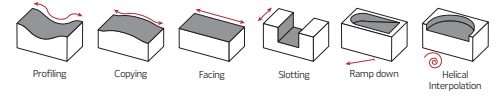
## Threaded Coupling

GAMP=+5°

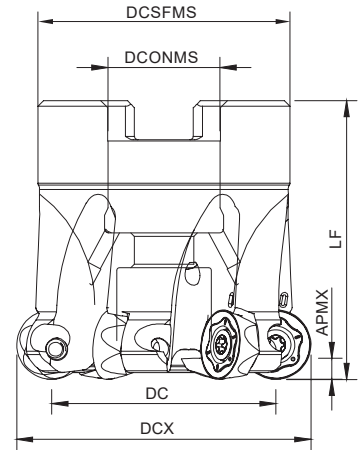
Order code Código	Reference Referência Referencia	CICT	Dimensions   Dimensões   Dimensiones (mm)					WT	Specifications	Insert Pastilha Inserto	Stock
			DCX	DC	THSZMS	DCSFMS	LF		APMX (mm)		
33590											
181098600	016R33590-02-04-M08020	2	16	8	M8	13	20	0,03	4,0	RD...0802 M0E	☉
181122800	020R33590-03-05-M10025	3	20	12	M10	16	25	0,07	4,0	RD...0802 M0E	☉
181122900	025R33590-04-05-M12030	4	25	17	M12	21	30	0,14	4,0	RD...0802 M0E	☉
181123000	032R33590-05-05-M16043	5	32	24	M16	29	43	0,25	4,0	RD...0802 M0E	○
33690											
181110600	020R33690-02-05-M10032	2	20	10	M10	16	32	0,10	5,0	RP...10T3 M0E	○
181110700	025R33690-03-05-M12035	3	25	15	M12	21	35	0,19	5,0	RP...10T3 M0E	☉
181110800	032R33690-04-05-M16035	4	32	22	M16	29	35	0,31	5,0	RP...10T3 M0E	☉
181120700	035R33690-05-05-M16045	5	35	25	M16	29	45	0,40	5,0	RP...10T3 M0E	☉

☉ Stock item | Produto de stock | Itens de stock

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



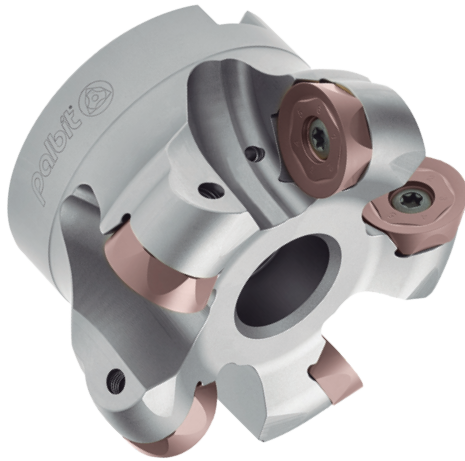
**Arbor Mounting**  
GAMP=+5°



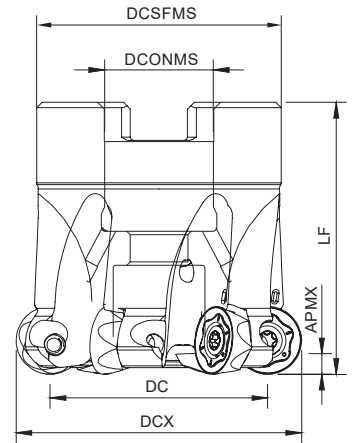
Order code Código	Reference Referência Referencia	CICT	Dimensions   Dimensões   Dimensiones (mm)					WT	Specifications		Insert Pastilha Inserto	Stock
			DCX	DC	DCONMS	DCSFMS	LF		Arbor Type	APMX (mm)		
33690												
181123700	042A33690-06-05-016040	6	42	32	16	36	40	0,16	A	5,0	RP...10T3 M0E	⊗
181123800	050A33690-06-05-022040	6	50	40	22	42	40	0,26	A	5,0	RP...10T3 M0E	⊗
181123900	052A33690-07-05-022040	7	52	42	22	42	40	0,30	A	5,0	RP...10T3 M0E	○
33790												
181098700	040A33790-04-05-016040	4	40	28	16	36	40	0,15	A	6,0	RP...1204 M0E	⊗
181111500	050A33790-04-05-022040	4	50	38	22	42	40	0,20	A	6,0	RP...1204 M0E	⊗
181124200	052A33790-05-05-022040	5	52	40	22	42	40	0,25	A	6,0	RP...1204 M0E	⊗
181122100	063A33790-06-05-022040	6	63	51	22	48	40	0,36	A	6,0	RP...1204 M0E	⊗
181124300	066A33790-06-05-027050	6	66	54	27	48	50	0,40	A	6,0	RP...1204 M0E	○
181124400	080A33790-07-05-027050	7	80	68	27	60	50	0,68	A	6,0	RP...1204 M0E	○

⊗ Stock item | Produto de stock | Itens de stock

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



Arbor Mounting  
GAMP=+5°



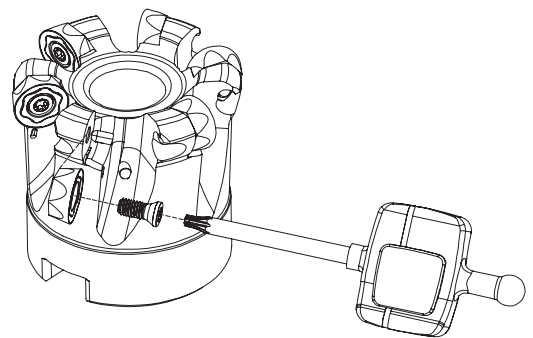
Order code Código	Reference Referência Referencia	CICT	Dimensions   Dimensões   Dimensiones (mm)					WT	Specifications		Insert Pastilha Inserto	Stock
			DCX	DC	DCONMS	DCSFMS	LF		Arbor Type	APMX (mm)		
33890												
181124500	050A33890-04-05-022040	4	50	34	22	42	40	0,21	A	8,0	RP...1605 M0E	☉
181124600	052A33890-04-05-022040	4	52	36	22	42	40	0,25	A	8,0	RP...1605 M0E	○
181114900	063A33890-05-05-022040	5	63	47	22	48	40	0,37	A	8,0	RP...1605 M0E	☉
181124700	066A33890-05-05-027050	5	66	54	27	48	50	0,46	A	8,0	RP...1605 M0E	☉
181124800	080A33890-06-05-027052	6	80	64	27	60	52	0,85	A	8,0	RP...1605 M0E	☉
181124900	100A33890-07-05-032052	7	100	84	32	80	52	1,57	A	8,0	RP...1605 M0E	☉
181122200	125A33890-08-05-040052	8	125	109	40	90	52	2,12	A	8,0	RP...1605 M0E	☉
33990												
181112200	080A33990-05-05-027050	5	80	60	27	60	50	0,73	A	10,0	RP...2006 M0E	☉
181099800	100A33990-06-05-032063	6	100	80	32	80	63	1,62	A	10,0	RP...2006 M0E	☉
181099900	125A33990-06-05-040063	6	125	105	40	90	63	2,53	A	10,0	RP...2006 M0E	☉

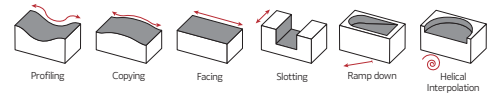
☉ Stock item | Produto de stock | Itens de stock

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

## SPARE PARTS Acessórios | Repuestos

Cutter DC	Order separately			
	Insert Screw	Key (Torx)	Key (Torx - Nm)	Torque Value
33590				
R33590	P0250503	XT08	DT0812	1,20
E33590	P0250503	XT08	DT0812	1,20
33690				
A33690	P0300800	XT09	DT0914	1,40
R33690	P0300800	XT09	DT0914	1,40
E33690	P0300800	XT09	DT0914	1,40
33790				
A33790	P0350800	XT15	DT1530	3,00
33890				
A33890	P0451100	XT20	DT2050	5,00
33990				
A33990	P0501302	PT20	DT2050	5,00

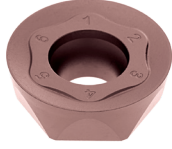




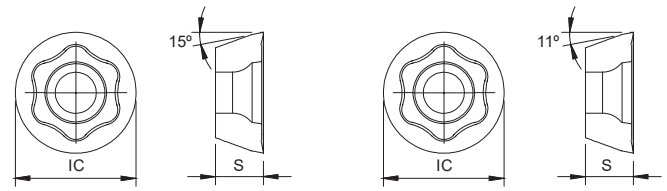
# RDHT | RPHT Inserts | Pastilhas | Plaquetas



RDHT



RPHT



RDHT

RPHT

(1) Geometry code	(2) Grade code  ISO Reference	P				M				S			Dimensions Dimensões Dimensiones (mm)	
		CVD	PVD			PVD				PVD				
		T9	T1	Z1	Z2	X9	Y2	Z2	Z3	X9	Y2	Z3		
1112152	RDHT 0802 M0E-LS				⊗			⊗	⊗			⊗	8,00	2,38
1112253	RPHT 10T3 M0E-MS		⊗			⊗				⊗			10,00	3,97
1112772	RPHT 10T3 M0E-LS	⊗		⊗	⊗		⊗	⊗	⊗		⊗	⊗	10,00	3,97
1112186	RPHT 1204 M0E-MS		⊗			⊗				⊗			12,00	4,76
1112766	RPHT 1204 M0E-LS	⊗		⊗	⊗		⊗	⊗	⊗		⊗	⊗	12,00	4,76
1112254	RPHT 1605 M0E-MS		⊗			⊗				⊗			16,00	5,56
1112951	RPHT 1605 M0E-LS			⊗	⊗		⊗	⊗	⊗		⊗	⊗	16,00	5,56
1112958	RPHT 2006 M0E-LS				⊗		⊗	⊗	⊗		⊗	⊗	20,00	6,35

⊗ First choice | Primeira opção | 1ª opción

⊗ Stock item | Produto de stock | Itens de stock

○ Available under request | Disponível sobre consulta  
Disponível bajo consulta

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



GRADES SELECTION GUIDE Guia para selecção de graus | Tabla para selección de calidades

ISO	PSM	Material	HB (Brinell)	Grades						
				← Wear Resistance					Toughness →	
				PHP920	PHH930	PHP530	PHH530	PHP808	PHH808	PHS740
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	200-330		✓		✓		✓	
	6	SS - Austenitic-ferritic (Duplex)	230-260		✓		✓		✓	
S	11	Heat Resistant Super Alloys	200-320		✓		✓		✓	

Good Conditions    
 Average Conditions    
 Difficult Conditions

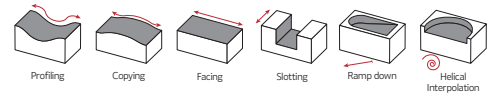
RECOMMENDED CUTTING CONDITIONS Condições de corte recomendadas | Condiciones de corte recomendables

ISO	PSM	Material	HB (Brinell)	Vc (m/min)						
				← Wear Resistance					Toughness →	
				PHP920	PHH930	PHP530	PHH530	PHP808	PHH808	PHS740
P	1	Unalloyed Steel	125-220	180-250	-	180-340	-	180-340	-	180-350
	2	Low-Alloyed Steel	220-280	160-230	-	180-340	-	180-340	-	180-340
	3	High-Alloyed Steel	280-380	140-220	-	180-330	-	180-330	-	180-340
M	4	SS - Ferritic / Martensitic	200-330	-	140-210	150-270	170-280	-	160-270	-
	5	SS - Austenitic	200-330	-	120-170	-	160-280	-	160-270	-
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	100-150	-	150-260	-	150-250	-
S	11	Heat Resistant Super Alloys	200-320	-	30-110	-	30-150	-	30-140	-

ISO	PSM	Material	HB (Brinell)	Feed fz (mm/t)				
				RDHT 08..	RPHT 10...	RPHT 12...	RPHT 16...	RPHT 20...
				P	1	Unalloyed Steel	125-220	0,05-0,35
2	Low-Alloyed Steel	220-280	0,05-0,35		0,05-0,40	0,05-0,45	0,08-0,55	0,10-0,55
3	High-Alloyed Steel	280-380	0,05-0,30		0,05-0,35	0,05-0,40	0,08-0,50	0,10-0,55
M	4	SS - Ferritic / Martensitic	200-330	0,05-0,25	0,05-0,30	0,05-0,35	0,08-0,45	0,10-0,50
	5	SS - Austenitic	200-330	0,05-0,25	0,05-0,30	0,05-0,35	0,08-0,45	0,10-0,50
	6	SS - Austenitic-ferritic (Duplex)	230-260	0,05-0,25	0,05-0,30	0,05-0,35	0,08-0,45	0,10-0,45
S	11	Heat Resistant Super Alloys	200-320	0,05-0,20	0,05-0,25	0,05-0,30	0,08-0,35	0,10-0,40

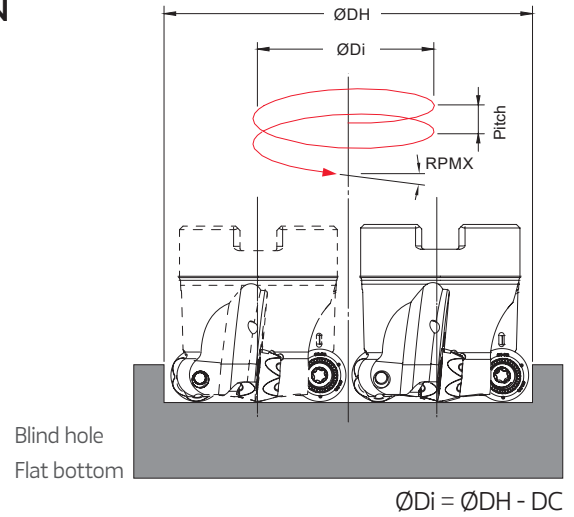
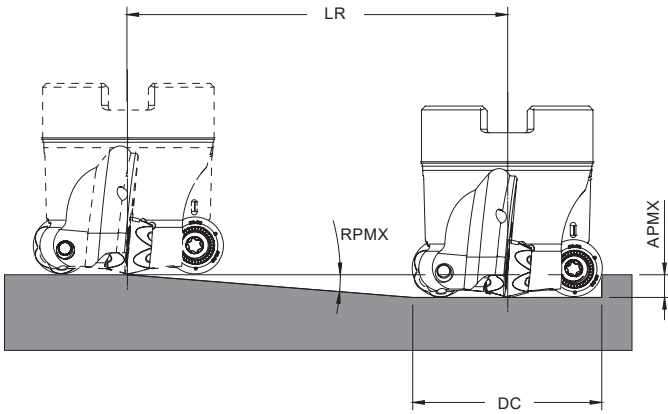
(Note 1) Cutting conditions  $a_e/DC=70\%$ .





# RAMPING AND HELICAL INTERPOLATION

Descida em rampa e interpolação helicoidal | Bajada en rampa e interpolación circular



Blind hole  
Flat bottom

$$\text{ØDi} = \text{ØDH} - \text{DC}$$

Insert	DC	Ramping			Helical Interpolation		
		RPMX	APMX	Min LR	ØDHmin	ØDHmax	Max Pitch/Rev.
33590							
RD... 08	16	10,0	4,0	22,7	24	-	4
	20	8,0	4,0	28,5	32	32	8
	25	10,0	4,0	22,7	42	40	8
	32	8,0	4,0	28,5	56	50	9
33690							
RP.. 10	20	7,0	5,0	40,7	30	-	3
	25	6,0	5,0	47,6	40	40	7
	32	6,0	5,0	47,6	54	-	4
	35	5,0	5,0	57,2	60	64	8
	42	5,0	5,0	57,2	74	-	7
	50	4,0	5,0	71,5	90	70	10
	52	3,0	5,0	95,4	94	84	6
33790							
RP.. 12	40	8,0	6,0	42,7	68	-	12
	50	3,5	6,0	98,1	88	80	17
	52	3,0	6,0	114,5	92	100	7
	63	2,5	6,0	137,4	114	104	9
	66	2,5	6,0	137,4	120	126	6
	80	2,0	6,0	171,8	148	132	8
33890							
RP.. 16	50	7,0	8,0	65,2	84	-	13
	52	7,0	8,0	65,2	88	100	19
	63	7,0	8,0	65,2	110	104	13
	66	3,0	8,0	152,6	116	126	20
	80	3,0	8,0	152,6	144	132	18
	100	3,0	8,0	152,6	184	160	24
	125	2,5	8,0	183,2	234	200	8
33990							
RP.. 20	80	4,0	10,0	143,0	140	-	10
	100	3,0	10,0	190,8	180	160	13
	125	2,5	10,0	229,0	230	200	16

Note: During helical interpolation do not exceed APMX.

33590 | 33690 | 33790 | 33890 | 33990

# TOROMILL

Machining stainless steel & difficult-to-cut materials



Check the QrCode for more information



**HEADQUARTERS**

PALBIT. S.A.

T (+351) 234 540 300 | F (+351) 234 540 301

palbit@palbit.pt | www.palbit.pt

**Branch office**

PALBIT México, S de RL de CV

T (+52) 5555 454 543 | F (+52) 5552 509 190

info@palbit.com.mx | www.palbit.pt/mx

**Branch office**

PALBIT Brasil

T (+55) 011 25 343 648

palbit@palbit.com.br | www.palbit.pt/br