

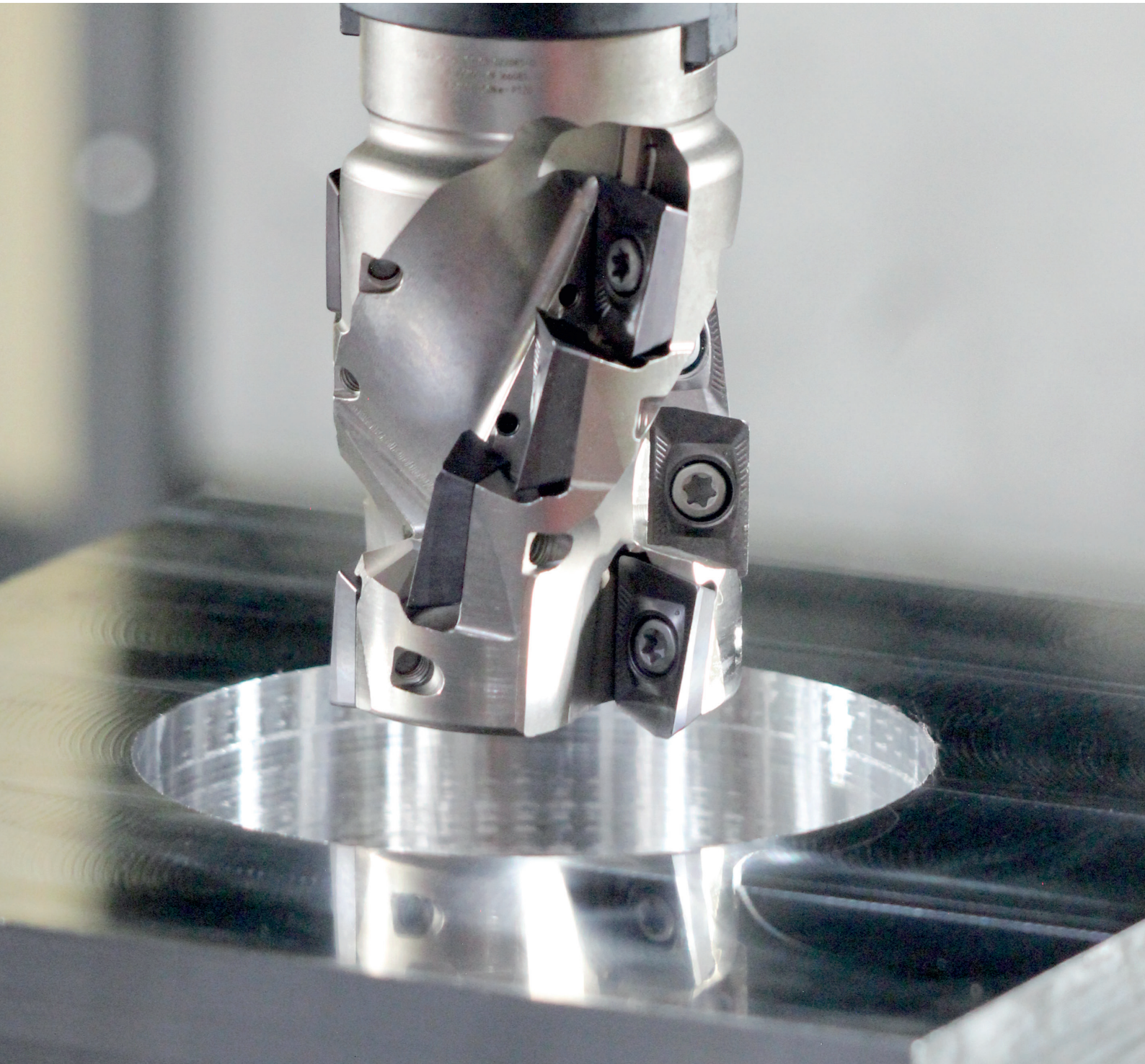
20290

HELIPRO

Unlock the power of high Material Removal Rates

MILLING

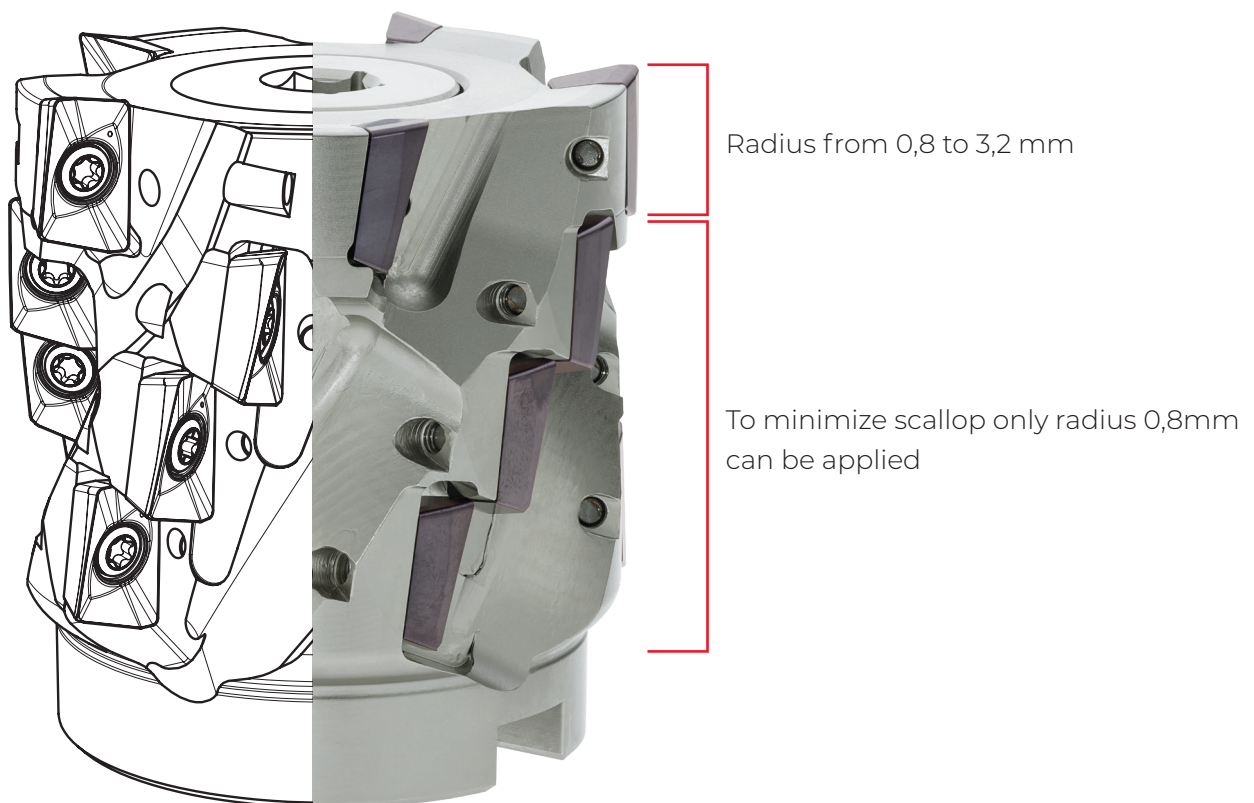
Shouldering | Facing | Slotting

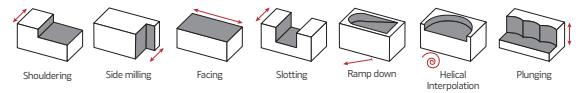


Palbit's latest innovation, the HeliPro 20290 brings the well-known XPET 1706 insert to a new level of productivity. With the disposal of this in a helical configuration we are able to achieve higher depths of cut, allowing us to speed up production with higher material removal rates (MRR). With the increasing competitiveness of the industry, customers are forced to reduce production costs and increase profitability. One of the best ways to achieve it is through the reduction of production cycle times and improving productivity of the milling operations.

This range of helical cutters has been specifically designed for shoulder and slot milling, providing an efficient and cost-effective solution for machining a variety of materials such as steel, stainless steel, cast iron, aluminum and super alloys. The lead line pockets are designed to accommodate various corner radius from 0,8mm to 3,2mm, meeting the needs of every customer. With such a wide range of options available, setting the HeliPro 20290 apart, users can tailor the tool to their specific application, ensuring optimal performance and precision. The helical design of the tool also offers a smoother cutting experience, which reduces the tool wear.

Palbit's attention to detail is evident in every aspect of the HeliPro 20290, from design to manufacturing to quality control. This results in a durable and reliable tool that professionals across many industries can depend on. If you are looking for a versatile and efficient solution for machining **P**, **M**, **K**, **N** and **S** classes materials with high performance results, the HeliPro 20290 is an excellent choice.

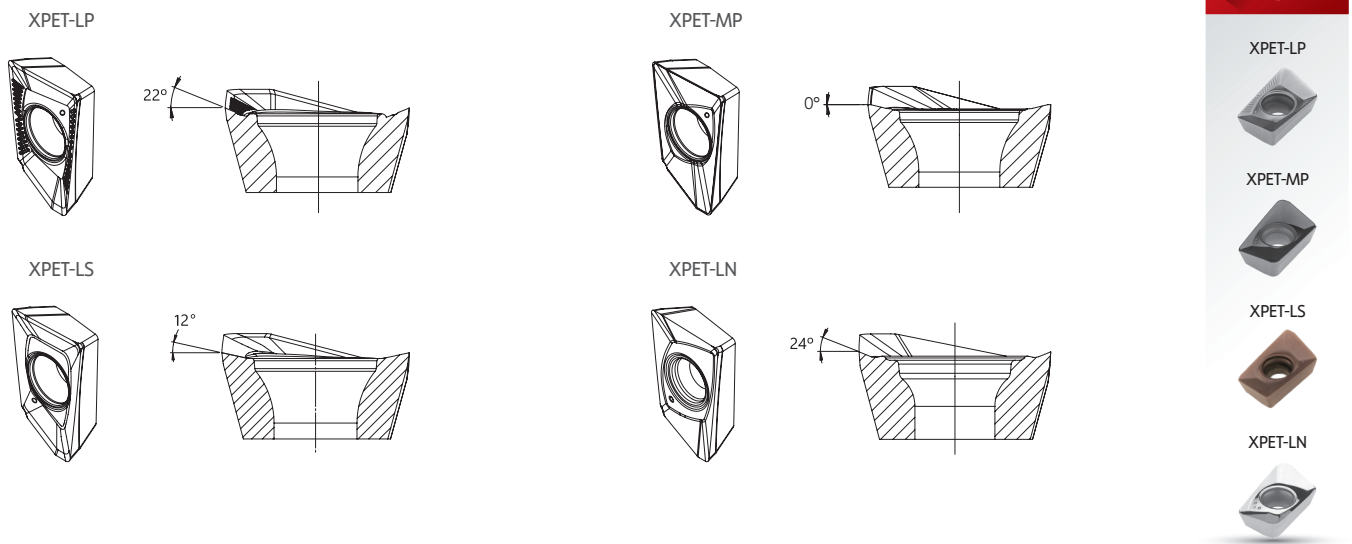




Advantages :

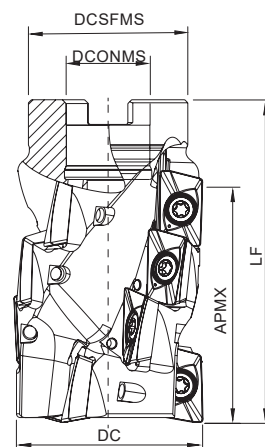
- **High metal removal capacity:** long edge cutters have a high metal removal capacity, making them ideal for deeper, larger, and heavier shoulder milling applications;
- **Superior stability:** the advanced design provides exceptional stability, which is critical in tough side milling applications;
- **Superior chip evacuation:** the large helix ensures a smooth, hassle-free chip flow even at higher metal removal rates;
- **Versatility:** the different chip-breakers and radius are suitable for a wide range of materials and applications, including high depth of cut shouldering and full slotting, making it a versatile tool that can compensate for the use of multiple tools;
- **Cost-effective:** due to the high material removal rate, it allows to reduce the production times, making it an excellent choice for professionals looking to reduce costs without sacrificing performance or quality.

XPET 1706... Inserts | Pastilhas | Plaquitas



CHIP BREAKERS Quebra- aparas | Rompevirutas

Chip Breaker	Features Características Características
Geometry LP Light machining	Positive top rake angle to promote a good chip flow and reduce power consumption on low alloy steels.
Geometry MP Light machining	Chip-breaker with a reinforced chamfer for general applications on steel and cast iron.
Geometry LS Light machining	Positive chip-breaker dedicated to stainless steel and HRSA.
Geometry LN Light machining	High positive chip-breaker, polished for applications of non ferrous materials (aluminium).



Arbor Mounting

KAPR=90° | GAMP=+8°

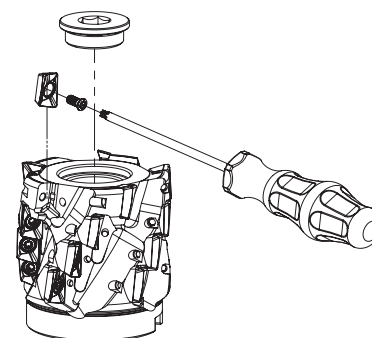
Order code Código	Reference Referência Referencia	CICT	Nº Stages	Nº Flutes	Dimensions Dimensões Dimensiones (mm)					WT	Insert Pastilha Inserto	Stock
					DC	DCONMS	DCSFMS	LF	APMX			
181100100	050A20290-03-08-022085-063-12	12	4	3	50	22	42	85	63	0,465	XP.. 1706...	⊗
181133000	063A20290-04-08-027085-063-16	16	4	4	63	27	60	85	63	0,930	XP.. 1706...	⊗
181126500	080A20290-05-08-032085-063-20	20	4	5	80	32	70	85	63	1,723	XP.. 1706...	⊗
181126600	100A20290-06-08-040085-063-24	24	4	6	100	40	90	85	63	3,011	XP.. 1706...	⊗
181133100	125A20290-06-08-040105-079-30	30	5	6	125	40	115	105	79	6,595	XP.. 1706...	⊗

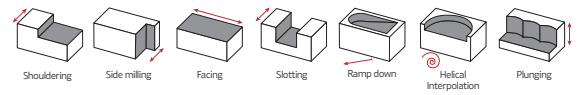
⊗ Stock item | Produto de stock | Itens de stock

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

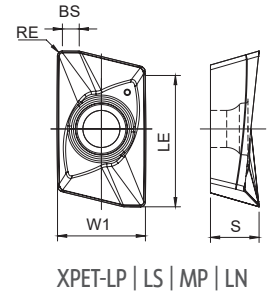
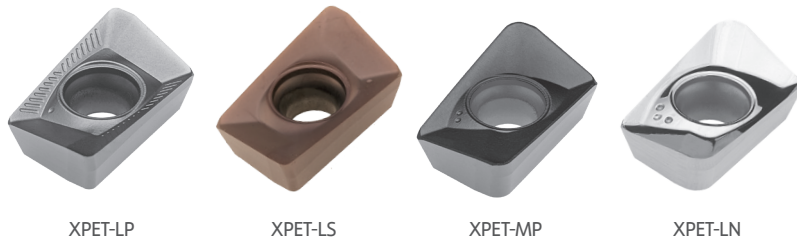
SPARE PARTS Acessórios | Repuestos

Cutter DC	Insert Screw	Key (Torx)	Order separately		Sealing Cap
			Key (Torx - Nm)	Torque Value	
A20290 - 50	P0451001	PT20	DT2050	5,0	TRM2009S8
A20290 - 63	P0451001	PT20	DT2050	5,0	TRM2411S10
A20290 - 80	P0451001	PT20	DT2050	5,0	TRM3012S14
A20290 - 100-125	P0451001	PT20	DT2050	5,0	TRM3615S17





XPET 1706... Inserts | Pastilhas | Plaquetas



(1) Geometry code	(2) Grade code ISO Reference	P			M		K				N	S		Dimensions Dimensões Dimensiones (mm)				
		CVD	PVD		PVD		CVD		PVD		UNC	PVD		W1	S	LE	RE	BS
		T9	T1	G6	X9	G6	L5	L9	T1	G6	10	X9	G6					
1111986	XPET 170608 PDER-LP		⊗	⊗		⊗			⊗	⊗			⊗	11,30	6,35	17,50	0,80	1,80
1111987	XPET 170616 PDER-LP		⊗	⊗		⊗			⊗	⊗			⊗	11,30	6,35	17,50	1,60	1,20
1112223	XPET 170608 PDER-LS				⊗	⊗						⊗	⊗	11,30	6,35	17,50	0,80	1,94
1113373	XPET 170612 PDER-LS				○							○		11,30	6,35	17,50	1,20	1,56
1113361	XPET 170616 PDER-LS				⊗							⊗		11,30	6,35	17,50	1,60	1,19
1113362	XPET 170620 PDER-LS				⊗							⊗		11,30	6,35	17,50	2,00	2,10
1113363	XPET 170632 PDER-LS				⊗							⊗		11,30	6,35	17,50	3,20	0,96
1111988	XPET 170608 PDSR-MP	⊗	⊗	⊗			⊗	⊗	⊗	⊗				11,30	6,35	17,50	0,80	1,80
1111989	XPET 170616 PDSR-MP		⊗	⊗			⊗	⊗	⊗	⊗				11,30	6,35	17,50	1,60	1,00
1111990	XPET 170608 PDFR-LN										⊗			11,30	6,35	17,50	0,80	1,20
1111991	XPET 170620 PDFR-LN										⊗			11,30	6,35	17,50	2,00	1,00
1111992	XPET 170632 PDFR-LN										⊗			11,30	6,35	17,50	3,20	0,80

⊗ 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

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

ISO	PSM	Material	HB (Brinell)	Grades								
				← Wear Resistance				Toughness →				
				PH0910	PH5705	PHP920	PHP930	PHH930	PH5740	PHS740	PH7740	
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						✓			✓
K	7	Malleable Cast Iron	130-230		✓	✓	✓			✓		✓
	8	Grey Cast Iron	180-245		✓	✓	✓			✓		✓
	9	Nodular Cast iron	160-250		✓	✓	✓			✓		✓
N	10	Aluminium and Non Ferrous	30-130	✓								
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 →			
				PH0910	PH5705	PHP920	PHP930	PHH930	PH5740	PHS740	PH7740
P	1	Unalloyed Steel	125-220	-	-	180-250	160-230	-	-	140-220	140-200
	2	Low-Alloyed Steel	220-280	-	-	160-230	140-210	-	-	120-200	130-180
	3	High-Alloyed Steel	280-380	-	-	140-220	120-200	-	-	100-190	100-170
M	4	SS - Ferritic / Martensitic	200-330	-	-	-	-	140-210	-	-	130-180
	5	SS - Austenitic	200-330	-	-	-	-	120-170	-	-	110-160
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	-	-	-	100-150	-	-	90-150
K	7	Malleable Cast Iron	130-230	-	160-290	160-270	-	-	160-260	-	140-220
	8	Grey Cast Iron	180-245	-	170-320	140-250	-	-	140-240	-	120-210
	9	Nodular Cast iron	160-250	-	140-200	120-210	-	-	120-200	-	100-190
N	10	Aluminium and Non Ferrous	30-130	100-2000	-	-	-	-	-	-	-
S	11	Heat Resistant Super Alloys	200-320	-	-	-	-	30-110	-	-	30-100

ISO	PSM	Material	HB (Brinell)	Feed fz (mm/t)			
				XPET 17... LP		XPET 17... MP	
				XPET 17... LN	XPET 17... LS		
P	1	Unalloyed Steel	125-220	0,10-0,35	0,10-0,35	-	-
	2	Low-Alloyed Steel	220-280	0,10-0,35	0,10-0,35	-	-
	3	High-Alloyed Steel	280-380	0,10-0,30	0,10-0,30	-	-
M	4	SS - Ferritic / Martensitic	200-330	0,10-0,30	-	-	0,10-0,35
	5	SS - Austenitic	200-330	0,10-0,30	-	-	0,10-0,30
	6	SS - Austenitic-ferritic (Duplex)	230-260	0,10-0,25	-	-	0,10-0,25
K	7	Malleable Cast Iron	130-230	0,10-0,35	0,10-0,35	-	-
	8	Grey Cast Iron	180-245	0,10-0,35	0,10-0,35	-	-
	9	Nodular Cast iron	160-250	0,10-0,30	0,10-0,30	-	-
N	10	Aluminium and Non Ferrous	30-130	-	-	0,10-0,35	-
S	11	Heat Resistant Super Alloys	200-320	0,10-0,20	-	-	0,10-0,20

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

(Note 2) Cutting conditions should be adjusted according to the machine and work rigidity.

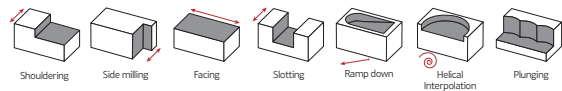
(Note 3):

Operation	a_e	Vc & fz	AP (mm)
Slotting	100%	<20%	13,0-42,0
Shouldering	<50%	>8%	30,0-63,0
	≤25%	>12%	42,0-79,0

(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.

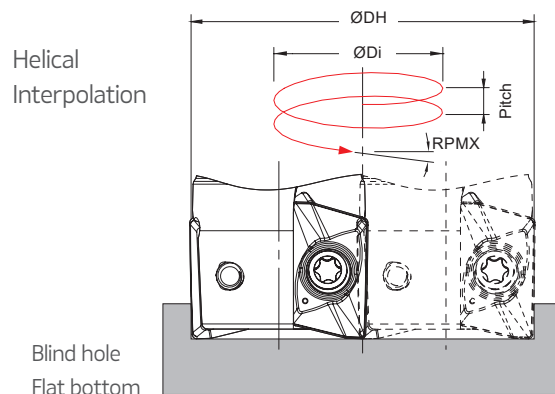
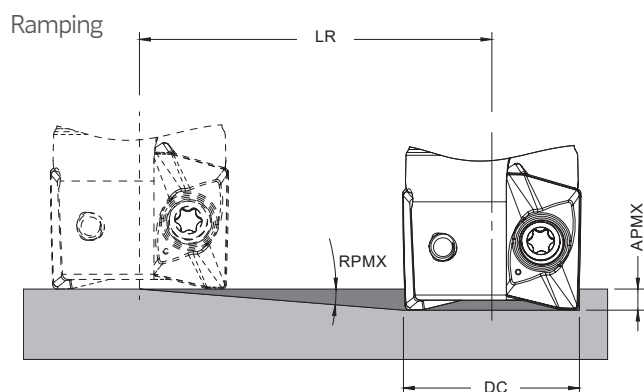


CHIP BREAKER SELECTION GUIDE Guia para aplicações do quebra- aparas | Guía para aplicación del rompevirutas

ISO	PSM	Material	HB (Brinell)	Chip breaker application	
				1st choice	Difficult Operations
P	1	Unalloyed Steel	125-220	XPET 17... LP	XPET 17... MP
	2	Low-Alloyed Steel	220-280	XPET 17... LP	XPET 17... MP
	3	High-Alloyed Steel	280-380	XPET 17... MP	-
M	4	SS - Ferritic / Martensitic	200-330	XPET 17... LS	XPET 17... LP
	5	SS - Austenitic	200-330	XPET 17... LS	XPET 17... LP
	6	SS - Austenitic-ferritic (Duplex)	230-260	XPET 17... LS	XPET 17... LP
K	7	Malleable Cast Iron	130-230	XPET 17... LP	XPET 17... MP
	8	Grey Cast Iron	180-245	XPET 17... MP	-
	9	Nodular Cast iron	160-250	XPET 17... MP	-
N	10	Aluminium and Non Ferrous	30-130	XPET 17... LN	-
S	11	Heat Resistant Super Alloys	200-320	XPET 17... LS	XPET 17... LP

RAMPING AND HELICAL INTERPOLATION

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



Blind hole
Flat bottom

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

DC	Ramping			Helical Interpolation		
	RPMX	APMX	Min LR	Diameter for Blind Hole, Flat Bottom Face (1)		Max Pitch/Rev.
				ØDHmin	ØDHmax	
50	2,0	8,5	243,4	94,8 -	- 98,4	4,9 5,3
63	1,5	8,5	324,6	120,8 -	- 124,4	4,7 5,0
80	1,0	8,5	487,0	154,8 -	- 158,4	4,1 4,2
100	0,8	8,5	608,7	194,8 -	- 198,4	4,1 4,3
125	0,7	8,5	695,7	244,8 -	- 248,4	4,5 4,7

(1) using LP insert with radius 0,8 mm

Note: During helical interpolation do not exceed maximum pitch

When using HF insert or other different insert radius to calculate the ØDHmin and ØDHmax use the equation below:

- Minimum Diameter: $\text{ØDHmin} = 2 \times (\text{DC} - (\text{R corner radius} + \text{F width of edge wiper}))$

- Maximum Diameter: $\text{ØDHmax} = 2 \times (\text{DC} - \text{R corner radius})$

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Check the QrCode for more information



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