Products compilation
& main applications

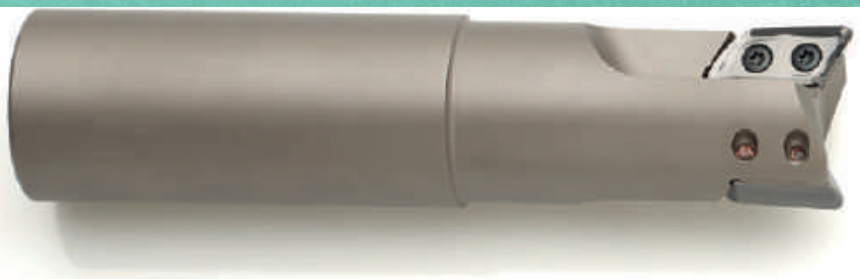
palbit®
TOOLING SOLUTIONS EXPERTS
SINCE1916

ALUMINIUM
& non ferrous materials

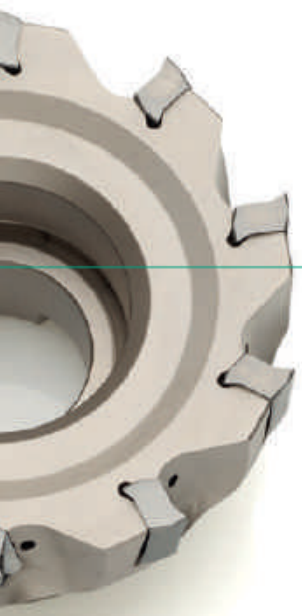
N

PDF

SINCE 1916



MILLING



DRILLING

TURNING

GROOVING &
PARTING OFF

MILLING

MILLING

MILLING

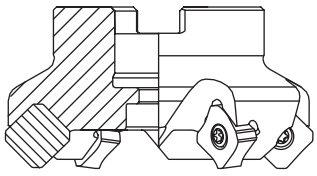
COUPLING TYPES

Tipo de acoplamento | Tipo de acoplamiento

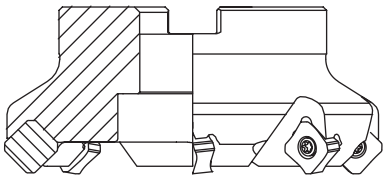
Symbol Símbolo Símblo	Coupling type Tipo de acoplamento Tipo de acoplamiento	Inserts fixation type Fixação de pastilhas Fijación de plaquitas	Standard Norma Norma
A	Arbor mounting Montagem tipo árvore Montaje tipo husillo	Insert screw Parafuso pastilha Tornillo de la plaquita	ISO 6462
B		Wedge Cunha Cuña	ISO 6462
C		Insert screw and washer, Screw clamp or clamp Parafuso para pastilha e anilha, parafuso e grampo ou grampo Tornillo de la plaquita y arandela, tornillo y brida o brida	ISO 6462
D		Washer Anilha Arandela	ISO 6462
E	Cylindrical shank Haste cilíndrica Mango recto	Any type Qualquer tipo Cualquier tipo	DIN 1835 - A
R	Threaded coupling Acoplamento roscado Acoplamiento tipo tornillo	Any type Qualquer tipo Cualquier tipo	Palbit internal standard Norma interna Palbit
W	Weldon shank Haste weldon tipo mango	Any type Qualquer tipo Cualquier tipo	DIN 1835 - B
X	Special coupling Acoplamento especial Acoplamiento especial	Any type Qualquer tipo Cualquier tipo	

ISO ARBOR MOUNTING TYPES | Estilos de montagem ISO tipo árvore | Estilos de montaje ISO tipo husillo

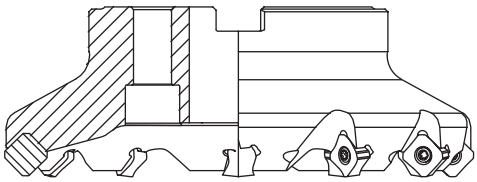
Arbor type A



Arbor type B



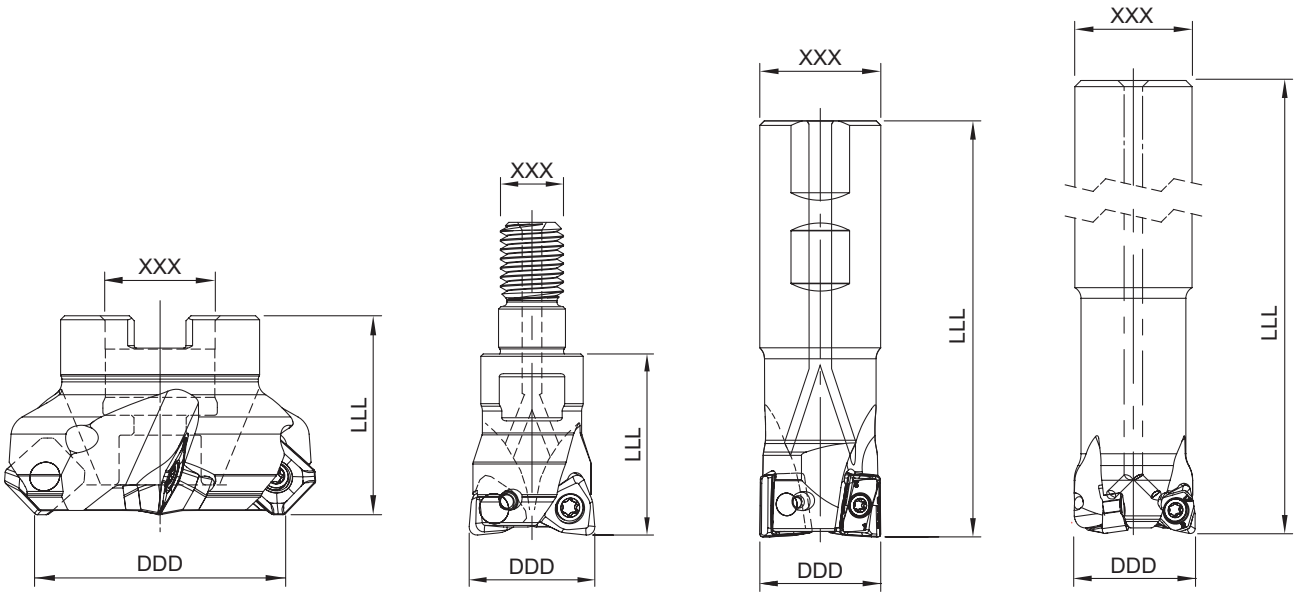
Arbor type C



NOTE: For each type of arbor mounting (see previous table of coupling type on simbols A, B, C, D), we can have a different arbor types (see images above).

MILLING TOOLS CODIFICATION

Codificação das ferramentas de fresagem | Codificación de heramientas de fresado



D D D Y Z Z Z T T - N N - L L U X X X L L L - L - A A A # #

Diameter
Diâmetro
Diametro

Coupling Type
Tipo de acoplamento
Tipo de acoplamiento

Insert Type
Pastilha aplicável
Inserto aplicable

Lead angle
Ângulo de posicionamento da pastilha
Ángulo de posicion del inserto

Number of teeth
Número de dentes
Numero de dientes

Axial angle (angle of the tool construtions)
Ângulo Axial (ângulo de construção da ferramenta)
Ángulo Axial (ángulo de la construcción de herramienta)

Cooling system
Refrigeração
Refrigeración
U - Whitout cooling system
U - Sem refrigeração
U - Sin refrigeración

Coupling diameter
Diâmetro de acoplamento
Diámetro de acoplamiento

Total length
Comprimento total
Longitud total

Rotation (R/L)
Rotação (R/L)
Rotación (R/L)
*In case of right rotation the "R" is supressed.

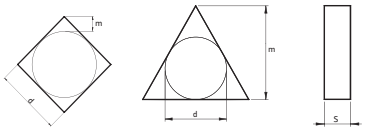
Depth of cut
Profundidade de corte
Profundidad del corte
*In case it is a helical cutter

Number of inserts
Número de pastilhas
Número de Insertos
*In case it is a helical cutter

MILLING INSERTS ISO IDENTIFICATION SYSTEM

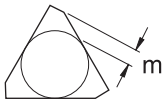
H	120°	M	86°
O	135°	V	35°
P	108°	W	80°
S	90°	L	90°
T	60°	A	85°
C	80°	B	82°
D	55°	K	55°
E	75°	R	
F	50°	X	Special

1- Insert shape symbol



Symbol	m (mm)	d (mm)	s (mm)
A	±0.005	±0.025	±0.025
F	±0.005	±0.013	±0.025
C	±0.013	±0.025	±0.025
H	±0.013	±0.013	±0.025
E	±0.025	±0.025	±0.025
G	±0.025	±0.025	±0.13
J	±0.005	±0.05~±0.13	±0.025
K*	±0.013	±0.05~±0.13	±0.025
L*	±0.025	±0.05~±0.13	±0.025
M*	±0.08~±0.20	±0.05~±0.13	±0.13
N*	±0.08~±0.20	±0.05~±0.13	±0.025
U*	±0.13~±0.38	±0.08~±0.25	±0.13

*As a rule, the sides of these inserts are as sintered. Tolerance differs with insert size, for the accuracy of class M, refer to the table on the right.



Triangular inserts with a facet (secondary cutting edge)

Detailed dimension of M class insert
Insert height Tolerances (mm)

Inscribed circle	T	S	C	D	V
6.35	±0.08	-	-	-	-
9.525	±0.08	±0.08	±0.11	±0.10	±0.13
12.70	±0.13	±0.13	±0.13	±0.15	-
15.875	±0.15	±0.15	±0.15	±0.18	-
19.05	±0.15	±0.15	±0.15	±0.18	-
25.40	-	±0.18	-	-	-
31.75	-	±0.25	-	-	-

Inscribed circle Tolerances (mm)

Inscribed circle	T	S	C	D	V
6.35	±0.05	-	-	-	-
9.525	±0.05	±0.05	±0.05	±0.05	±0.05
12.70	±0.08	±0.08	±0.08	±0.08	±0.08
15.875	±0.10	±0.10	±0.10	±0.10	±0.10
19.05	-	-	-	-	±0.10
25.40	-	±0.13	-	-	±0.10
31.75	-	±0.20	-	-	±0.12

3 - Tolerances symbol

A	B	C	D	E
3°	5°	7°	15°	20°
F	**G**	**N**	**P**	**O**
25°	30°	0	11°	Other clearance angle

2 - Normal clearance symbol

ISO | ANSI

S N H X

4 - Insert symbol

symbol	Type	Hole type	Chipbreaker	Shape
W	with hole	Round hole / one countersink (40°~60°)	Without chipbreaker	
T			Chipbreaker on one side	
Q		Round hole / double countersink (40°~60°)	Without chipbreaker	
U			Chipbreaker on both sides	
B		Round hole / one countersink (70°~90°)	Without chipbreaker	

symbol	Type	Hole type	Chipbreaker	Shape
H	with hole	Round hole / one countersink (70°~90°)	Chipbreaker on one side	
C		Round hole / double countersink (70°~90°)	Without chipbreaker	
J			Chipbreaker on both sides	
A		Round hole	Without chipbreaker	
M			Chipbreaker on one side	

symbol	Type	Hole type	Chipbreaker	Shape
G	with hole	Round hole	Chipbreaker on both sides	
N	without hole	-	Without chipbreaker	
R		-	Chipbreaker on one side	
F		-	Chipbreaker on both sides	
X	-	-	-	On request

R's	V's (35°)	D's (55°)	C's (80°)	S's (90°)	T's (60°)	W's (80°)	Ø CI mm	Ø CI inch	ANSI Symbol
-	06	04	-	03	06	02	3,97	5/32	1,20
-	08	05	04	04	08	L3	4,76	3/16	1,50
-	09	06	05	05	09	03	5,56	7/32	1,80
06**	-	-	-	-	-	-	6,00	0,236	
06*	11	07	06	06	11	04	6,35	1/4	2,00
07*	13	09	08	07	13	05	7,94	5/16	2,50
08*	-	-	-	-	-	-	8,00	0,315	
09*	16	11	09	09	16	06	9,525	3/8	3,00
10**	-	-	-	-	-	-	10,00	0,394	
12**	-	-	-	-	-	-	12,00	0,472	
12*	22	15	12	12	22	08	12,70	1/2	4,00
15*	27	19	16	15	27	10	15,875	5/8	5,00
16**	-	-	-	-	-	-	16,00	0,63	
19*	33	23	19	19	33	13	19,05	3/4	6,00
20**	-	-	-	-	-	-	20,00	0,787	
25**	-	-	-	-	-	-	25,00	0,984	
25*	44	31	25	25	44	17	25,40	1,00	8,00
31*	54	38	32	31	54	21	31,75	1 1/4	10,00
32**	-	-	-	-	-	-	32,00	1,26	

5 - Insert size symbol

* ANSI designation only
(Radius Designation is 00)

** Metric designation only
(Radius Designation is M0)

According to International Standard ISO 1832 - 2012(E)

"Indexable inserts for cutting tools - Designation"

ISO	mm	ANSI	inch
01	1.59	1	0.062
T1	1.98	1.2	0.078
02	2.38	1.5	0.094
03	3.18	2	0.125
T3	3.97	2.5	0.156
04	4.76	3	0.188
05	5.56	3.5	0.219
06	6.35	4	0.250
07	7.94	5	0.312
09	9.52	6	0.375
12	12.70	8	0.500

6 - Insert thickness symbol

12 06 00 AN F N - LN

10 - Chipbreaker geometries	
Cutting Condition	Main Application
1st letter	2nd letter
L - Light	P - Steel
M - Medium	M - Stainless Steel
H - Heavy	K - Cast Iron
W - Wiper	N - Aluminium
*only when required.	S - HRSA Titanium Alloys
	H - Hardened Materials

Ex.: ANHX 160708 PNFR - **LN**

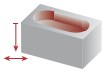
7* - Insert corner symbol			
ISO	mm	inch	ANSI
00	Sharp nose		0
01	0.10	.004	0.2
02	0.20	.008	0.5
04	0.40	.015	1
08	0.80	.032	2
12	1.2	.047	3
16	1.6	.062	4
20	2.0	.078	5
24	2.4	.094	6
28	2.8	.109	7
32	3.2	.125	8
00 (inch or M0/ metric)	Round insert		0
*only when required.			

7.1* - Insert edges symbol			
For inserts having secondary edges two digits are used:			
1st digit is secondary edge		2nd digit is secondary edges relief angle	
A	45°	A	3°
D	60°	B	5°
E	75°	C	7°
F	85°	D	15°
P	90°	E	20°
Z	special	F	25°
*only when required.		G	30°
		N	0°
		P	11°
		Z	special

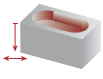
8* - Cutting edge information		
Shape	Honing	Symbol
	No honing	F
	With honing	E
	Chamfered No honing	T
	Chamfred with honing	S
*only when required.		

9 - Cutting direction		
Shape	Hand	Symbol
	Right	R
	Left	L
	None	N

MILLING TOOLS OVERVIEW

	LINEPRO 06045	ALUPRO 08390	LINEPRO 09945	LINEPRO 17090	PLUS 17190	LINEPRO 18090	PLUS 18190	LINEPRO 20090	LINEPRO 20190
Page	22	66	24	50	28	54	32	36	40
Insert	SEHT 1204...	VCGX 2205...	SEHT 13T3...	APET 1003...	ANHX 1004...	AP... 1604...	ANHX 1607...	XPET 0602...	XPET 1003...
Arbor mouting	Ø 50-160	-	Ø 50-250	Ø 40-63	Ø 40-100	Ø 40-125	Ø 50-160	-	Ø 40-63
Weldon Shank	-	-	-	Ø 16-25	Ø 14-40	Ø 25-40	Ø 32-40	-	Ø 16-27
Cylindrical Shank	-	-	-	-	-	-	-	Ø 10-21	-
Threaded Coupling	-	Ø 32	-	Ø 16-25	-	-	Ø 32-40	Ø 10-32	Ø 16-40
 Facing	●	○	●	○	○	○	○	●	●
 Shouldering		●		●	●	●	●	●	●
 Slanted Shoulder & Chamfer	○		○						
 Ramp down		○		○		○		○	○
 Helical Interpolation		○		○		○		○	○
 Plunging					○		○	○	○
 Side milling								○ (only with XPET-HF)	○ (only with XPET-HF)
 Slotting		○		○	○	○	○	○	○
 Profiling		○						○	○
 Copying		○						○	○
 Plunging & Recessing		○							

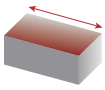
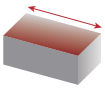
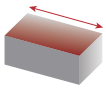
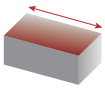
● Main Operation ○ Other Operations

	LINEPRO 20290	LINEPRO 40095	LINEPRO 40595	LINEPRO 41095	PLUS 49090	HARDMILL 72090	ALUPRO 76090	ALUPRO 77090	PLUS 90845	PLUS 90945
Page	46	68	68	68	26	74	58	62	18	20
Insert	XPET 1706...	XDHW 0602...	XDHW 10T3...	XDHW 0401...	WNHU 04T308	XNHW 1205...	XDGX 15M5...	XDGX 22M7...	SNHX 1206...	SNHX 1206...
Arbor mouting	Ø 40-125	-	Ø 52-80	-	-	Ø 40-160	Ø 40-100	Ø 50-125	Ø 50-250	Ø 50-250
Weldon Shank	Ø 32-40	-	-	-	-	-	-	-	Ø 32-40	-
Cylindrical Shank	-	-	-	-	Ø16-25	-	Ø 20-40	Ø 32-40	-	-
Threaded Coupling	-	Ø 16-25	Ø 25-42	Ø 10-12	Ø16-32	-	-	-	-	-
 Facing	◎	◎	◎	◎	◎	●	◎	◎	●	●
 Shouldering	●				●	◎	●	●		
 Slanted Shoulder & Chamfer									◎	◎
 Ramp down	◎	◎	◎	◎			◎	◎		
 Helical Interpolation	◎	◎	◎	◎			◎	◎		
 Plunging	◎									
 Side milling										
 Slotting	◎	◎	◎	◎			◎	◎		
 Profiling		●	●	●						
 Copying		●	●	●						
 Plunging & Recessing							◎	◎		

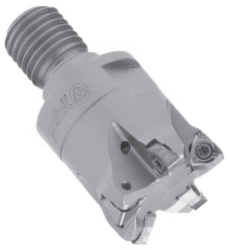
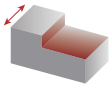
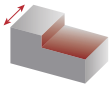
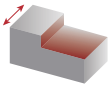
● Main Operation ◎ Other Operations

MILLING TOOLS OVERVIEW

FACE MILLING CUTTERS

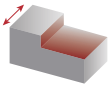
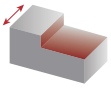
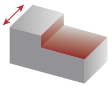
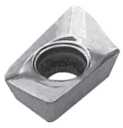
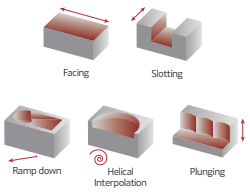
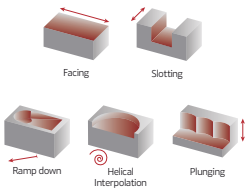
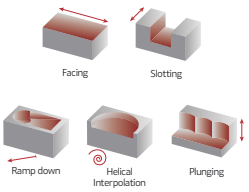
Program	PLUS 90845	PLUS 90945	LINEPRO 06045	LINEPRO 09945
	Proprietary milling line	Proprietary milling line		
				
Main Operation	 Facing	 Facing	 Facing	 Facing
Kr°	45°	45°	45°	45°
Range (ØDc - mm)	32 - 250	50 - 250	50 - 160	50 - 250
Insert	SNHX 1206...	SNHX 1206...	SEHT 1204...	SEHT 13T3...
				
Couplings	Arbor mounting Weldon shank	Arbor mounting	Arbor mounting	Arbor mounting
Other Operations	 Slanted Shoulder & Chamfer	 Slanted Shoulder & Chamfer	 Slanted Shoulder & Chamfer	 Slanted Shoulder & Chamfer
Page	18	20	22	24
Features	Economical because double sided inserts applied Variety of insert geometries is available for all applications materials Excellent surface finishing Available in regular and fine pitch cutters		Low cutting forces Good chip flow	Low cutting forces Suitable for high-speed machining Excellent chip flow High rigidity due to carbide shim

SHOULDER MILLING CUTTERS

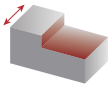
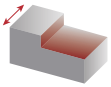
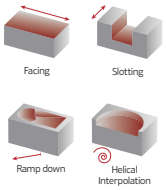
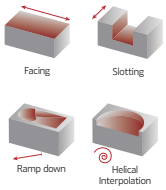
Program	PLUS 49090	PLUS 17190	PLUS 18190
	Proprietary milling line	Proprietary milling line	Proprietary milling line
			
Main Operation	 Shouldering	 Shouldering	 Shouldering
Kr°	90°	90°	90°
Range (ØDc - mm)	16 - 32	14 - 100	32 - 160
Insert	WNHU 04T308	ANHX 1004...	ANHX 1607...
			
Couplings	Threaded coupling Cylindrical Shank	Arbor mounting Weldon shank	Arbor mounting Weldon shank Threaded coupling
Other Operations	 Facing	 Facing Slotting Plunging	 Facing Slotting Plunging
Page	26	28	32
Features	Economical because double sided inserts applied	4 corners insert with positive cutting edge Variety of insert geometries is available for all applications Helical cutting edge Available in regular and fine pitch cutters	

MILLING TOOLS OVERVIEW

SHOULDER MILLING CUTTERS

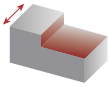
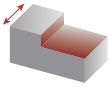
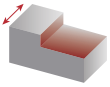
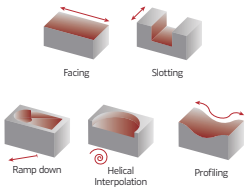
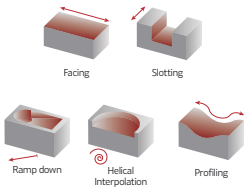
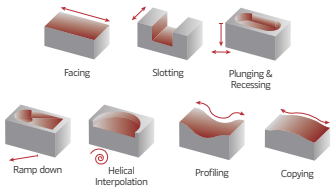
Program	LINEPRO 20090	LINEPRO 20190	LINEPRO 20290
	Proprietary milling line	Proprietary milling line	Proprietary milling line
			
Main Operation	 Shouldering	 Shouldering	 Shouldering
Kr°	90°	90°	90°
Range (ØDc - mm)	10 - 32	16 - 63	32 - 125
Insert	XPET 0602... 	XPET 1003... 	XPET 1706... 
Couplings	Threaded coupling Cylindrical shank	Arbor mounting Weldon shank Threaded coupling	Arbor mounting Weldon shank
Other Operations			
Page	36	40	46
Features	Excellent solution for square shoulder milling Offers longer tool life, better tolerances and better productivity parameters Low power requirement & smooth cutting possible due to positive helical angle Very flexible and suitable for most milling operations High positive cutting rake geometry.		

SHOULDER MILLING CUTTERS

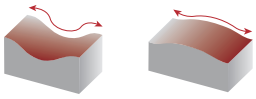
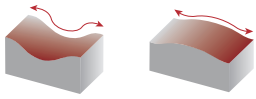
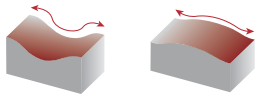
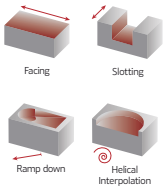
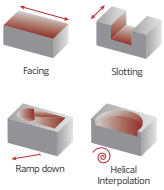
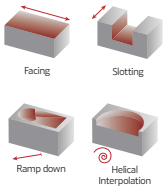
Program	LINEPRO 17090	LINEPRO 18090
		
Main Operation	 Shouldering	 Shouldering
Kr°	90°	90°
Range (ØDc - mm)	16 - 63	25 - 125
Insert	APET 1003...	AP...1604...
		
Couplings	Arbor mounting Weldon shank Threaded coupling	Arbor mounting Weldon shank
Other Operations	 Facing, Slotting, Ramp down, Helical Interpolation	 Facing, Slotting, Ramp down, Helical Interpolation
Page	50	54
Features	Strong insert and low cutting force Helical cutting edge Good ship evacuation	

MILLING TOOLS OVERVIEW

SHOULDER MILLING CUTTERS

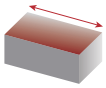
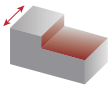
Program	ALUPRO 76090	ALUPRO 77090	ALUPRO 08390
	Proprietary milling line	Proprietary milling line	
			
Main Operation	 Shouldering	 Shouldering	 Shouldering
Kr°	90°	90°	90°
Range (ØDc - mm)	20 - 100	32 - 125	32
Insert	XDGX 15M5...	XDGX 22M7...	VCGX 2205...
			
Couplings	Arbor mounting Cylindrical shank	Arbor mounting Cylindrical shank	Threaded coupling
Other Operations			
Page	58	62	66
Features	Solution for multi functional milling operations on aluminum alloys High speed conditions with high metal removel rate Stable clamping conditions (Anti-fly) High rake angle geometry that provides a good surface finish and low cutting forces		Excellent chip flow

PROFILE MILLING CUTTERS

Program	LINEPRO 40095	LINEPRO 40595	LINEPRO 41095
			
Main Operation	 Profiling Copying	 Profiling Copying	 Profiling Copying
Kr°	95°	95°	95°
Range (ØDc - mm)	16 - 25	25 - 80	10 - 12
Insert	XD...0602... 	XD...10T3... 	XD...0401... 
Couplings	Threaded coupling	Arbor mounting Threaded coupling	Threaded coupling
Other Operations	 Facing Slotting Ramp down Helical Interpolation	 Facing Slotting Ramp down Helical Interpolation	 Facing Slotting Ramp down Helical Interpolation
Page	68	68	68
Features	Designed for finishing and profile milling Low energy consumption		

MILLING TOOLS OVERVIEW

Guia de ferramentas | Guía de herramientas

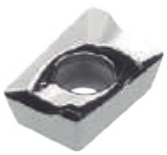
HARDMILL	
Program	HARDMILL 72090
	
Main Operation	 Facing
Kr°	90°
Range (ØDc - mm)	40 - 160
Insert	XNHW 1205...
	
Couplings	Arbor mounting
Other Operations	 Shouldering
Page	74
Features	Excellent solution for aluminium PCD tip

MILLING INSERTS OVERVIEW

Visão genérica de pastilhas para fresagem | Visión general de plaquitas para fresado

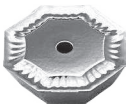
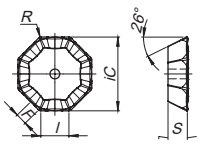
	FACE MILLING INSERTS	
Reference	SNHX	SEHT
	Proprietary milling insert 	
Size	12	12 | 13
Page	19 | 21	22 | 24

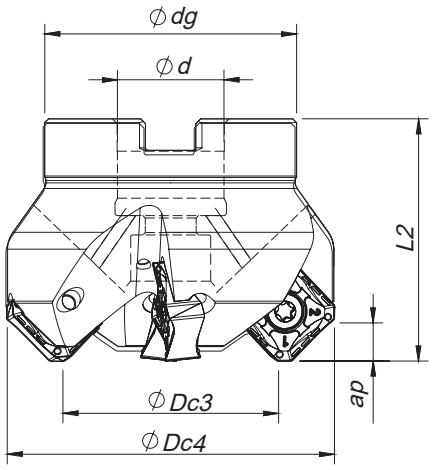
	SHOULDER MILLING INSERTS	
Reference	WNHU	ANHX
	Proprietary milling insert 	Proprietary milling insert 
Size	08	10 | 16
Page	27	28 | 33

	SHOULDER MILLING INSERTS					
Reference	XPET	APET	APKT	APHT	XDGX	VCGX
	Proprietary milling insert 				Proprietary milling insert 	
Size	06 | 10 | 17	10	16	16	15 | 22	22
Page	37 | 42 | 47	51	55	55	59 | 63	66

	PROFILE MILLING INSERTS
Reference	XDHW
	
Size	04 | 06 | 10
Page	69

	HARDMILL MILLING INSERTS	
Reference	XDHW	XNHW
		
Size	04 | 06 | 10	12
Page	69	75

	OTHER INSERTS
Reference	OFKR 070408 FN-LN
Order code	111156910
	 
Dimensions	iC = 18,00 / S = 4,76 / l = 7,40 / R = 0,60 / F = 2,20 mm

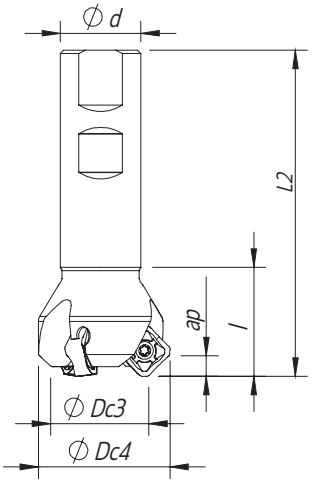


Arbor Mounting

K_r=45° | γ_p=-6°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)					Kg	Specifications		Insert Pastilha Inserto	Stock
			ØDc3	ØDc4	Ød	Ødg	L2		Arbor Type	Ap (mm)		
181111400	050A90845-04-06-022040	4	47,1	62	22	48	41,5	0,383	A	6,0	SNHX 1206	◈
181117400	050A90845-06-06-022040	6	47,1	62	22	48	41,5	0,374	A	6,0	SNHX 1206	○
181117500	063A90845-06-06-022040	6	60,1	75	22	52	41,5	0,525	A	6,0	SNHX 1206	◈
181117600	063A90845-08-06-022040	8	60,1	75	22	52	41,5	0,517	A	6,0	SNHX 1206	◈
181117700	080A90845-07-06-027050	7	77,1	92	27	60	51,5	0,846	B	6,0	SNHX 1206	◈
181117800	080A90845-10-06-027050	10	77,1	92	27	60	51,5	0,842	B	6,0	SNHX 1206	◈
181117900	100A90845-08-06-032050	8	97,1	112	32	80	51,5	1,559	B	6,0	SNHX 1206	◈
181120900	100A90845-12-06-032050	12	97,1	112	32	80	51,5	1,540	B	6,0	SNHX 1206	◈
181121000	125A90845-10-06-040063	10	122,1	137	40	90	64,5	2,890	B	6,0	SNHX 1206	◈
181121100	160A90845-12-06-U040063	12	157,1	172	40	110	64,5	4,360	C	6,0	SNHX 1206	◈
181121200	200A90845-14-06-U060063	14	197,1	212	60	172	64,5	8,890	C	6,0	SNHX 1206	◈
181121300	250A90845-16-06-U060063	16	247,1	262	60	172	64,5	11,490	C	6,0	SNHX 1206	◈

◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

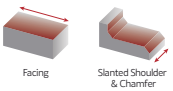


Weldon Shank

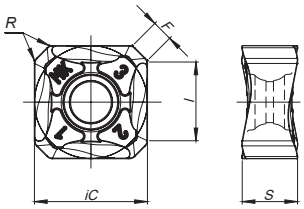
K_r=45° | γ_p=-6°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Specifications	Insert Pastilha Inserto	Stock
			ØDc3	ØDc4	Ød	L2		Ap (mm)		
181118000	032W90845-03-06-025100	3	29,1	44	25	101,5	0,375	6,0	SNHX 1206	◈
181118100	040W90845-04-06-032110	4	37,1	52	32	111,5	0,653	6,0	SNHX 1206	◈

◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta



SNHX 1206 | Inserts | Pastilhas | Plaquitas



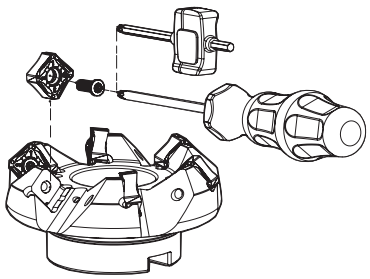
N								
		UNC	PCD					
	(2) Grade code	10	D6	Dimensions (mm)				
(1) Geometry code	ISO Reference	PH0910	PDP410	iC	S	l	R	F
1111504	SNHX 1206 ANFN-LN	⚙		12,70	6,35	9,30	0,80	2,00

⚙ 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)	Order separately Key (Torx - Nm)	Torque Value	Order separately Screw	DIN 6368 Wrench
A90845 – 50 - 63	P0401200	XT15	DT1530	3,0	-	-
A90845 – 80	P0401200	XT15	DT1530	3,0	J0123510	SD6368-12
A90845 – 100	P0401200	PT15	DT1530	3,0	J0164110	SD6368-16
A90845 – 125	P0401200	PT15	DT1530	3,0	J0204610	SD6368-20
A90845 – 160 - 250	P0401200	PT15	DT1530	3,0	-	-
W90845 - 32 - 40	P0401200	XT15	DT1530	3,0	-	-



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

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance Toughness → PH0910
N	10	Aluminium and Non Ferrous	30-130	●

● 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	Feed fz (mm/t) SNHX 1206
N	10	Aluminium and Non Ferrous	30-130	100-2000	0,10-0,35

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

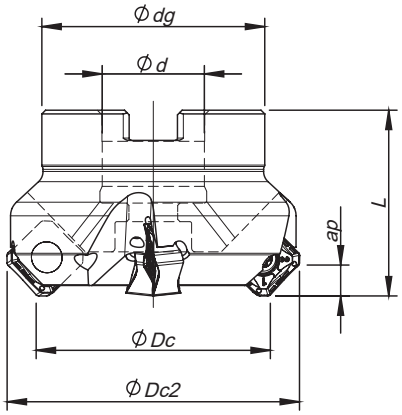
Check here the complete line:

PDF

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

ISO	PSM	Material	HB (Brinell)	Chip-Breaker Application	
				1st choise	Dificult Operations
N	10	Aluminium and Non Ferrous	30-130	LN	-

PLUS 90945



Arbor Mounting

K_r=45° | γ_p=-6°

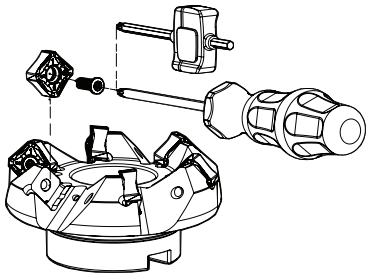
Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)					Kg	Specifications		Insert Pastilha Inserto	Stock
			ØDc	ØDc2	Ød	Ødg	L		Arbor Type	Ap max (mm)		
181048200	050A90945-04-06-022040	4	50	63	22	48	40	0,424	A	6,0	SNHX 1206	◈
181067000	050A90945-06-06-022040	6	50	63	22	48	40	0,415	A	6,0	SNHX 1206	◈
181048300	063A90945-06-06-022040	6	63	76	22	52	40	0,575	A	6,0	SNHX 1206	◈
181067100	063A90945-08-06-022040	8	63	76	22	52	40	0,577	A	6,0	SNHX 1206	◈
181048400	080A90945-07-06-027050	7	80	93	27	60	50	0,966	B	6,0	SNHX 1206	◈
181067200	080A90945-10-06-027050	10	80	93	27	60	50	0,950	B	6,0	SNHX 1206	◈
181048500	100A90945-08-06-032050	8	100	113	32	80	50	1,667	B	6,0	SNHX 1206	◈
181067300	100A90945-12-06-032050	12	100	113	32	80	50	1,650	B	6,0	SNHX 1206	◈
181048600	125A90945-10-06-040063	10	125	138	40	90	63	2,890	B	6,0	SNHX 1206	◈
181048700	160A90945-12-06-U040063	12	160	173	40	110	63	4,360	C	6,0	SNHX 1206	◈
181052800	200A90945-14-06-U060063	14	200	213	60	172	63	8,890	C	6,0	SNHX 1206	◈
181064700	250A90945-16-06-U060063	16	250	263	60	172	63	11,490	C	6,0	SNHX 1206	◈

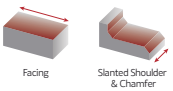
◈ Stock item | Produto de stock | Itens de stock

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

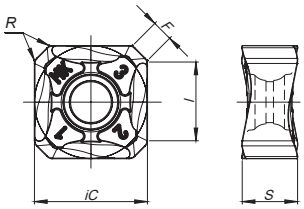
SPARE PARTS | Complementos | Complementos

Cutter ØDc	Insert Screw	Key (Torx)	Order separately Key (Torx - Nm)	Torque Value	Order separately Screw	DIN 6368 Wrench
A90945 – 50 - 63	P0401200	XT15	DT1530	3,0	-	-
A90945 – 80	P0401200	XT15	DT1530	3,0	J0123510	SD6368-12
A90945 – 100	P0401200	PT15	DT1530	3,0	J0164110	SD6368-16
A90945 – 125	P0401200	PT15	DT1530	3,0	J0204610	SD6368-20
A90945 – 160 - 250	P0401200	PT15	DT1530	3,0	-	-





SNHX 1206 ‖ Inserts | Pastilhas | Plaquitas



N								
		UNC	PCD					
	(2) Grade code	10	D6	Dimensions (mm)				
(1) Geometry code	ISO Reference	PH0910	PDP410	iC	S	I	R	F
1111504	SNHX 1206 ANFN-LN	⊛		12,70	6,35	9,30	0,80	2,00

⊛ 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
N	10	Aluminium and Non Ferrous	30-130	●

● 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	Feed fz (mm/t) SNHX 1206
N	10	Aluminium and Non Ferrous	30-130	100-2000	0,10-0,35

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

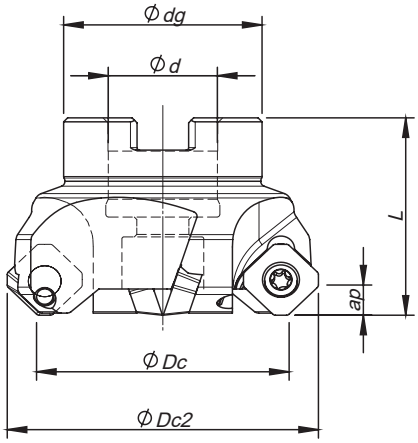
CHIP-BREAKER SELECTION GUIDE ‖ Guia para aplicações do quebra-aparas | Guía para aplicación del rompevirutas

ISO	PSM	Material	HB (Brinell)	Chip-Breaker Application	
				1st choise	Dificult Operations
N	10	Aluminium and Non Ferrous	30-130	LN	-

Check here the complete line:

PDF

LINEPRO 06045



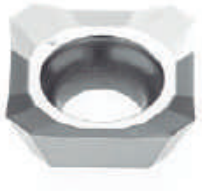
Arbor Mounting

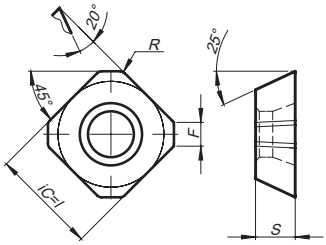
K_r=45° | γ_p=+19°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)					Kg	Specifications		Insert Pastilha Inserto	Stock
			ØDc	ØDc2	Ød	Ødg	L		Arbor Type	Ap max (mm)		
181163200	050A06045-04-19-022040	4	50	62	22	42	40	0,350	A	6,0	SEHT 1204	○
181148800	063A06045-05-19-022050	5	63	75	22	42	50	0,800	A	6,0	SEHT 1204	○
181148900	080A06045-06-19-027050	6	80	92	27	50	50	1,150	A	6,0	SEHT 1204	○
181149000	100A06045-06-19-032050	6	100	112	32	64	50	1,700	A	6,0	SEHT 1204	○
181163300	125A06045-07-19-040063	7	125	132	40	85	63	2,750	B	6,0	SEHT 1204	○
181040300	160A06045-08-19-U040063	8	160	172	40	100	63	4,600	C	6,0	SEHT 1204	○

Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

SEHT 1204 ‖ Inserts | Pastilhas | Plaquitas

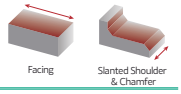




N							
		UNC	PCD				
	(2) Grade code	10	D6	Dimensions (mm)			
(1) Geometry code	ISO Reference	PH0910	PDP410	iC	S	l	F
1112283	SEHT 1204 AFFN-LN			12,70	4,76	12,70	2,80

Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

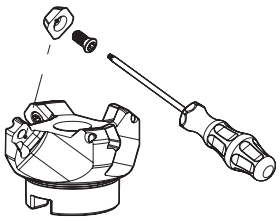
Insert order code = (1) Geometry Code + (2) Grade Code



SPARE PARTS | Complementos | Complementos

Order separately

Cutter ØDc	Insert Screw	Key (Torx)	Key (Torx - Nm)	Torque Value
A06045 – 50 - 160	P0501100	PT20	DT2050	5,0



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

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance Toughness → PH0910
N	10	Aluminium and Non Ferrous	30-130	●

● Good Conditions
● Average Conditions
● Difficult Conditions

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

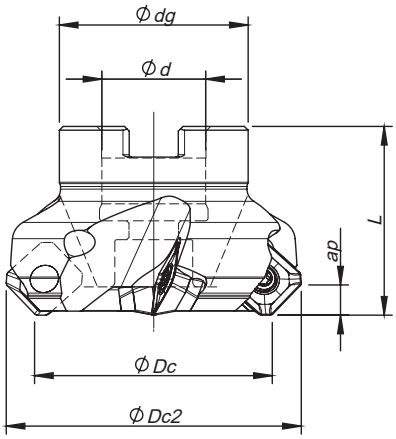
ISO	PSM	Material	HB (Brinell)	Vc (m/min) ← Wear Resistance Toughness → PH0910	Feed fz (mm/t) SEHT 1204 LN
N	10	Aluminium and Non Ferrous	30-130	350-1400	0,10-0,25

(Note 1) Cutting conditions ae/DC=70%
(Note 2) Cutting conditions should be ajusted according to the machine and work rigidity.
(Note 3) If chattering occurs, reduce ap and Vc by 30% and keep the same fz per thooth

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

ISO	PSM	Material	HB (Brinell)	Chip-Breaker Application	
				1st choise	Dificult Operations
N	10	Aluminium and Non Ferrous	30-130	SEHT 1204 AFFN-LN	-

LINEPRO 09945



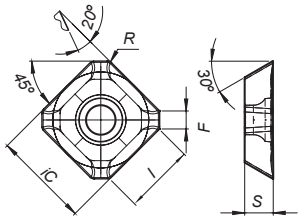
Arbor Mounting

K_r=45° | γ_p=+20° ~+21°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)					Kg	Specifications		Insert Pastilha Inserto	Stock
			ØDc	ØDc2	Ød	Ødg	L		Arbor Type	Ap max (mm)		
181034700	050A09945-04-20-U022040	4	50	63	22	40	40	0,36	A	6,0	SEHT 13T3	◈
181024200	063A09945-05-21-U022040	5	63	76	22	48	40	0,59	A	6,0	SEHT 13T3	◈
181024300	080A09945-06-21-U027050	6	80	93	27	60	50	1,02	B	6,0	SEHT 13T3	◈
181024400	100A09945-07-21-U032050	7	100	113	32	70	50	1,52	B	6,0	SEHT 13T3	◈
181024500	125A09945-08-21-U040063	8	125	138	40	90	63	3,16	B	6,0	SEHT 13T3	◈
181024600	160A09945-10-21-U040063	10	160	173	40	110	63	4,61	C	6,0	SEHT 13T3	◈
181051400	250A09945-24-21-U060063L	24	250	263	60	172	63	13,89	C	6,0	SEHT 13T3	○
181024800	250A09945-24-21-U060063	24	250	263	60	172	63	13,89	C	6,0	SEHT 13T3	○

◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

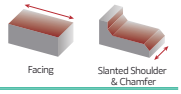
SEHT 13T3 ‖ Inserts | Pastilhas | Plaquitas



N							
		UNC	PCD				
	(2) Grade code	10	D6	Dimensions (mm)			
(1) Geometry code	ISO Reference	PH0910	PDP410	iC	S	l	F
1111586	SEHT 13T3 AGTN-LN	◈		13,35	3,97	10,0	2,30

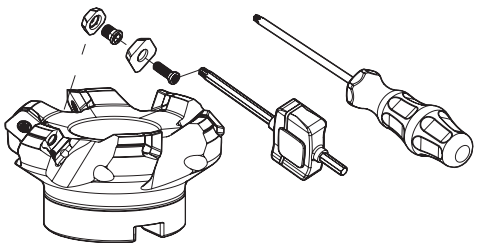
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

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



SPARE PARTS | Complementos | Complementos

Cutter ØDc	Insert Screw	Key (Torx)	Key (Torx - Nm) (Order separately)	Torque Value	Shim (Order separately)	Shim Screw
A09945 – 50 - 80	P0351200	XT15	DT1530	3,0	CS130300	T0503509
A09945 – 100-250	P0351200	PT15	DT1530	3,0	CS130300	T0503509



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

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance Toughness → PH0910
N	10	Aluminium and Non Ferrous	30-130	●

● Good Conditions
◐ Average Conditions
◔ Difficult Conditions

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

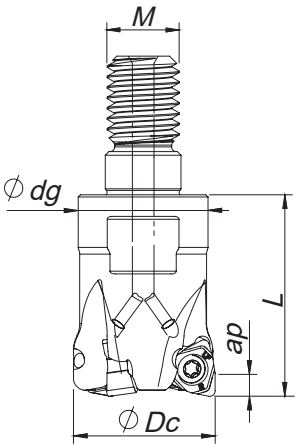
ISO	PSM	Material	HB (Brinell)	Vc (m/min) ← Wear Resistance Toughness → PH0910	Feed fz (mm/t) SEHT 13T3 AGTN-LN
N	10	Aluminium and Non Ferrous	30-130	350-1400	0,10-0,20

(Note 1) Cutting conditions ae/DC=70%
(Note 2) Cutting conditions should be ajusted according to the machine and work rigidity.
(Note 3) If chattering occurs, reduce ap and Vc by 30% and keep the same fz per thooth

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

ISO	PSM	Material	HB (Brinell)	Chip-Breaker Application	
				1st choise	Dificult Operations
N	10	Aluminium and Non Ferrous	30-130	SEHT 13T3 AGFN-LN	-

PLUS 49090

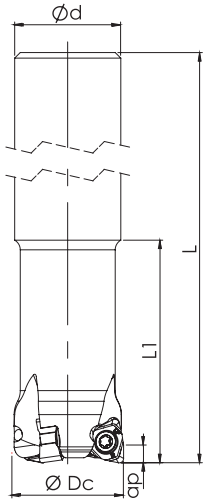


Threaded Coupling

K_r=90º | γ_p = -7º

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Specification	Insert Pastilha Inserto	Stock
			ØDc	M	Ødg	L		Ap max (mm)		
181136000	016R49090-02-07-M08023	2	16	M08	13	23	0,023	3,00	WNHU 04T308	◉
181128300	020R49090-03-07-M10028	3	20	M10	18	28	0,052	3,00	WNHU 04T308	◉
181110900	025R49090-04-07-M12030	4	25	M12	21	30	0,078	3,00	WNHU 04T308	◉
181128400	032R49090-05-07-M16035	5	32	M16	29	35	0,150	3,00	WNHU 04T308	◉

◉ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta



Cylindrical Shank

K_r=90º | γ_p = -7º

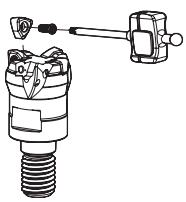
Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Specification	Insert Pastilha Inserto	Stock
			ØDc	Ød	L	L1		Ap max (mm)		
181136100	016E49090-02-07-U015150	2	16	15	150	32	0,185	3,00	WNHU 04T308	◉
181136200	020E49090-03-07-U019150	3	20	19	150	40	0,292	3,00	WNHU 04T308	◉
181136300	025E49090-04-07-U024150	4	25	24	150	50	0,471	3,00	WNHU 04T308	◉

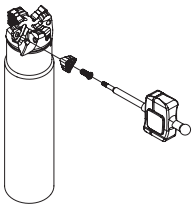
◉ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

SPARE PARTS | Acessórios | Repuestos

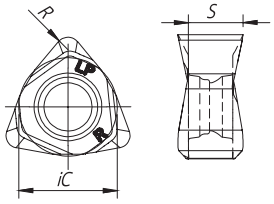
Order separately

Cutter ØDc	Insert Screw	Key (Torx)	Key (Torx - Nm)	Torque Value
				
R49090 - 20-32	P0250704	XT08	DT0812	1,2
E49090 - 16-25	P0250704	XT08	DT0812	1,2





WNHU 04T308 | Inserts | Pastilhas | Plaquitas



N								
		UNC	PCD					
	(2) Grade code	10	D6	Dimensions (mm)				
(1) Geometry code	ISO Reference	PH0910	PDP410	iC	S	I	R	F
1112277	WNHU 04T308 PNER-LP	⊛		6,35	3,50	-	0,80	-

⊛ 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
N	10	Aluminium and Non Ferrous	30-130	●

● 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	Feed fz (mm/t) WNHU 04T308-LN
N	10	Aluminium and Non Ferrous	30-130	100-2000	0,10-0,30

(Note 1): Cutting conditions a_e/Dc=70%.

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

(Note 3):

Operation	a_e	Vc & fz	a_p (mm)
Slotting	100%	<20%	2,0-3,5
Shouldering	<50%	>8%	3,0-6,0
	≤25%	>12%	6,0-8,5

(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.

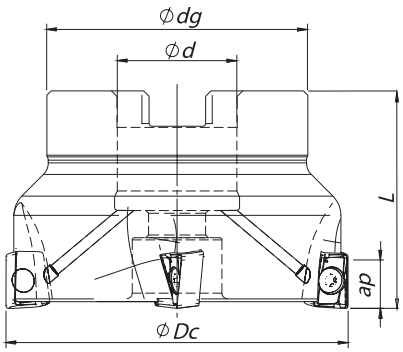
Insert	Feed f_z (mm/t) Roughing	Feed f_z (mm/t) Finishing	a_p Rec.
WNHU 04T308-LN	0,15-0,30	0,10-0,25	0,50-3,00

(Note 1) Cutting conditions should be adjusted according to the machine and work rigidity.
(Note 2) If chattering occurs, reduce a_p and V_c by 30% and keep the same f_z per tooth.

Check here the complete line:

PDF

PLUS 17190



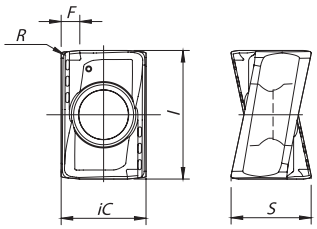
Arbor Mounting

$\kappa_r = 90°$ | $\gamma_p = -7°$

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Specifications		Insert Pastilha Inserto	Stock
			ØDc	Ød	Ødg	L		Arbor Type	Ap max (mm)		
181075300	040A17190-04-07-016040	4	40	16	32	40	0,21	A	9,00	ANHX 1004...	⛭
181075400	040A17190-05-07-016040	5	40	16	32	40	0,21	A	9,00	ANHX 1004...	⛭
181075500	050A17190-05-07-022040	5	50	22	42	40	0,35	A	9,00	ANHX 1004...	⛭
181075600	050A17190-07-07-022040	7	50	22	42	40	0,34	A	9,00	ANHX 1004...	⛭
181075700	063A17190-07-07-022040	7	63	22	52	40	0,55	A	9,00	ANHX 1004...	⛭
181075800	063A17190-09-07-022040	9	63	22	52	40	0,54	A	9,00	ANHX 1004...	⛭
181075900	080A17190-08-07-027050	8	80	27	60	50	1,00	B	9,00	ANHX 1004...	⛭
181076000	080A17190-10-07-027050	10	80	27	60	50	1,00	B	9,00	ANHX 1004...	⛭
181076100	100A17190-09-07-032050	9	100	32	80	50	1,80	B	9,00	ANHX 1004...	⛭
181076200	100A17190-12-07-032050	12	100	32	80	50	1,80	B	9,00	ANHX 1004...	⛭

⛭ Stock item | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

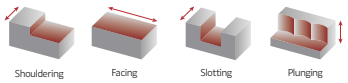
ANHX 1004... ‖ Inserts | Pastilhas | Plaquitas

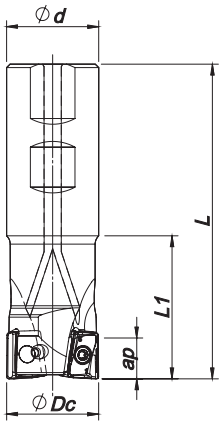


N								
		UNC	PCD					
	(2) Grade code	10	D6	Dimensions (mm)				
(1) Geometry code	ISO Reference	PH0910	PDP410	iC	S	l	R	F
1111997	ANHX 100405 PNFR-LN	⛭		6,60	6,20	10,00	0,50	0,85
1112102	ANHX 100412 PNR-LN	⛭		6,60	6,20	10,00	1,20	0,30

⛭ 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





Weldon Shank

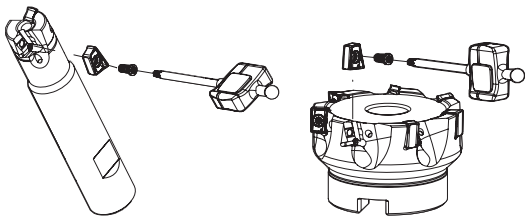
K_r = 90° | γ_p = -7° (-6°*)

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Specifications	Insert Pastilha Inserto	Stock
			ØDc	Ød	L	L1		Ap max (mm)		
181075000	014W17190-01-06-016090*	1	14	16	90	23	0,188	9,00	ANHX 1004...	◉
181101400	016W17190-02-06-016090*	2	16	16	90	25	0,123	9,00	ANHX 1004...	◉
181096800	016W17190-02-06-016150*	2	16	16	150	25	0,190	9,00	ANHX 1004...	◉
181075200	018W17190-02-06-016090*	2	18	16	90	23	0,125	9,00	ANHX 1004...	◉
181071400	020W17190-02-06-020100*	2	20	20	100	30	0,210	9,00	ANHX 1004...	◉
181071500	020W17190-03-06-020100*	3	20	20	100	30	0,206	9,00	ANHX 1004...	◉
181074400	025W17190-02-06-025115*	2	25	25	115	35	0,391	9,00	ANHX 1004...	◉
181074500	025W17190-03-06-025115*	3	25	25	115	35	0,387	9,00	ANHX 1004...	◉
181074600	032W17190-03-06-032125*	3	32	32	125	40	0,701	9,00	ANHX 1004...	◉
181074700	032W17190-04-06-032125*	4	32	32	125	40	0,698	9,00	ANHX 1004...	◉
181074800	040W17190-04-07-032130	4	40	32	130	40	0,780	9,00	ANHX 1004...	◉
181074900	040W17190-05-07-032130	5	40	32	130	40	0,777	9,00	ANHX 1004...	◉

◉ Stock item | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

SPARE PARTS | Complementos | Repuestos

Cutter ØDc	Insert Screw	Key (Torx)	Order separately Key (Torx - Nm)	Torque Value	Order separately Screw	DIN 6368 Wrench
W17190 – 14 - 40	P0300800	XT09	DT0914	1,4	-	-
A17190 – 40 - 63	P0300800	XT09	DT0914	1,4	-	-
A17190 – 80	P0300800	XT09	DT0914	1,4	J0123510	SD6368-12
A17190 – 100	P0300800	XT09	DT0914	1,4	J0164110	SD6368-16



PLUS 17190

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

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance Toughness → PH0910
N	10	Aluminium and Non Ferrous	30-130	●

● 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	Feed fz (mm/t) ANHX 1004... LN
N	10	Aluminium and Non Ferrous	30-130	100-2000	0,08-0,20

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

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

(Note 3):

Operation	a_e	Vc & fz	a_p (mm)
Slotting	100%	<20%	2,0-3,5
Shouldering	<50%	>8%	3,0-6,0
	≤25%	>12%	6,0-8,5

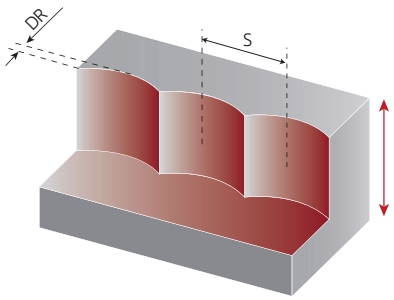
(Note 4):
It's possible to occur vibrations in certain cases. Please reduce depth of cut and / or reduce cutting conditions in following cases:
- When using long shank;
- When using long tool overhang with arbor type;
- When application has poor clamping rigidity or when using a low rigidity machine.

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

ISO	PSM	Material	HB (Brinell)	Chip-Breaker Application	
				1st choise	Dificult Operations
N	10	Aluminium and Non Ferrous	30-130	ANHX 1004... LN	-

PLUNGING | Mergulho | Plunge

L≤3Dc	L>3Dc	S max.
f_z (mm/t)		
0,10-0,20	0,10-0,14	$Smax = \sqrt{DC.Dr - Dr^2}$

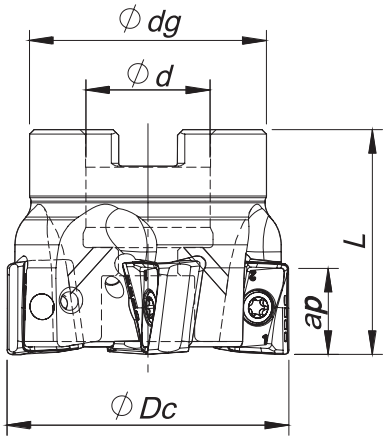


S max and DR corresponding cutting diameter Dc (mm)											
DR (mm)	Dc (mm)										
	14	16	18	20	25	32	40	50	63	80	100
1,0	3,6	3,9	4,1	4,4	4,9	5,6	6,2	7,0	7,9	8,9	9,9
2,0	4,9	5,3	5,7	6,0	6,8	7,7	8,7	9,8	11,0	12,5	14,0
3,0	5,7	6,2	6,7	7,1	8,1	9,3	10,5	11,9	13,4	15,2	17,1

Check here the complete line:

PDF

PLUS 18190

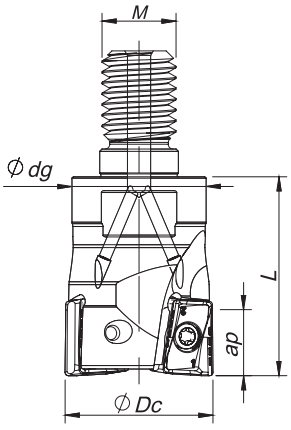


Arbor Mounting

$\kappa_r = 90°$ | $\gamma_p = -4°$

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Specifications		Insert Pastilha Inserto	Stock
			ØDc	Ød	ØDg	L		Arbor Type	Ap max		
181067600	050A18190-03-04-022040	3	50	22	42	40	0,28	A	15,0	ANHX 1607...	◉
181067700	050A18190-04-04-022040	4	50	22	42	40	0,27	A	15,0	ANHX 1607...	◉
181067800	063A18190-04-04-022040	4	63	22	52	40	0,51	A	15,0	ANHX 1607...	◉
181067900	063A18190-06-04-022040	6	63	22	52	40	0,48	A	15,0	ANHX 1607...	◉
181068000	080A18190-05-04-027050	5	80	27	60	50	0,88	B	15,0	ANHX 1607...	◉
181051800	080A18190-07-04-027050	7	80	27	60	50	0,36	B	15,0	ANHX 1607...	◉
181068100	100A18190-05-04-032050	5	100	32	80	50	1,60	B	15,0	ANHX 1607...	◉
181068200	100A18190-08-04-032050	8	100	32	80	50	1,59	B	15,0	ANHX 1607...	◉
181068300	125A18190-07-04-040063	7	125	40	90	63	2,93	B	15,0	ANHX 1607...	◉
181068400	125A18190-10-04-040063	10	125	40	90	63	2,89	B	15,0	ANHX 1607...	◉
181068500	160A18190-08-04-U040063	8	160	40	110	63	4,29	C	15,0	ANHX 1607...	◉
181068600	160A18190-12-04-U040063	12	160	40	110	63	4,29	C	15,0	ANHX 1607...	◉

◉ Stock item | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

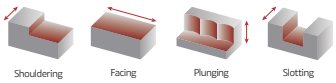


Threaded coupling

$\kappa_r = 90°$ | $\gamma_p = -4°$

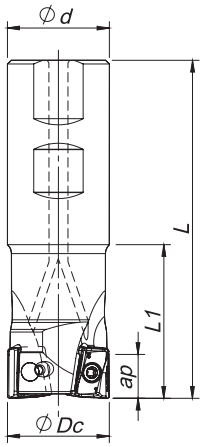
Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Specifications	Insert Pastilha Inserto	Stock
			ØDc	ØM	Ødg	L		Ap max		
181082800	032R18190-02-04-M16043	2	32	M16	29	43	0,20	15,0	ANHX 1607...	◉
181082900	040R18190-03-04-M16043	3	40	M16	29	43	0,24	15,0	ANHX 1607...	◉

◉ Stock item | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta



Weldon Shank

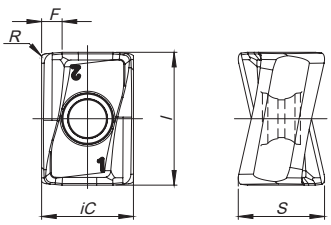
$K_r = 90°$ | $\gamma_p = -4°$



Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Specifications	Insert Pastilha Inserto	Stock
			ØDc	Ød	L	L1		Ap max		
181051600	032W18190-02-04-032110	2	32	32	110	50	0,66	15,0	ANHX 1607...	◈
181067500	040W18190-03-04-032115	3	40	32	115	40	0,66	15,0	ANHX 1607...	◈

◈ Stock item | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

ANHX 1607... | Inserts | Pastilhas | Plaquitas



N								
		UNC	PCD					
	(2) Grade code	10	D6	Dimensions (mm)				
(1) Geometry code	ISO Reference	PH0910	PDP410	iC	S	l	R	F
1111659	ANHX 160708 PNFR-LN	◈		11,20	10,80	16,00	0,80	1,40
1111597	ANHX 160712 PNFR-LN	◈		11,20	10,50	16,00	1,20	1,20

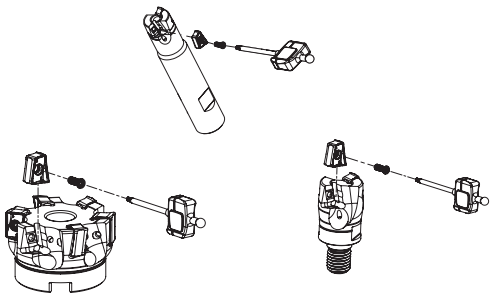
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

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

PLUS 18190

SPARE PARTS | Complementos | Repuestos

Cutter ØDc	Insert Screw	Key (Torx)	Order separately Key (Torx - Nm)	Torque Value	Order separately Screw	DIN 6368 Wrench
W18190 – 32 - 40	P0401200	XT15	DT1530	3,0	-	-
R18190 – 32 - 40	P0401200	XT15	DT1530	3,0	-	-
A18190 – 50 - 63	P0401200	XT15	DT1530	3,0	-	-
A18190 – 80	P0401200	XT15	DT1530	3,0	J0123510	SD6368-12
A18190 – 100	P0401200	XT15	DT1530	3,0	J0164110	SD6368-16
A18190 – 125	P0401200	PT15	DT1530	3,0	J0204610	SD6368-20
A18190 – 160	P0401200	PT15	DT1530	3,0	-	-



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

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance Toughness → PH0910
N	10	Aluminium and Non Ferrous	30-130	●

● 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	Feed fz (mm/t) ANHX 1607... LN
N	10	Aluminium and Non Ferrous	30-130	100-2000	0,10-0,40

(Note 1): Cutting conditions a_e/Dc=70%.

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

(Note 3):

Operation	a_e	Vc & fz	a_p (mm)
Slotting	100%	<20%	2,0-4,5
Shouldering	<50%	>8%	6,0-8,0
	≤25%	>12%	8,0-15,0

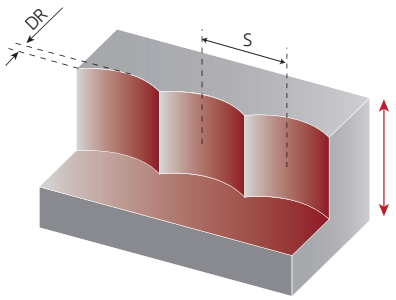
(Note 4):
It's possible to occur vibrations in certain cases. Please reduce depth of cut and / or reduce cutting conditions in following cases:
- When using long shank;
- When using long tool overhang with arbor type;
- When application has poor clamping rigidity or when using a low rigidity machine.

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

ISO	PSM	Material	HB (Brinell)	Chip-Breaker Application	
				1st choise	Dificult Operations
N	10	Aluminium and Non Ferrous	30-130	ANHX 1607... LN	-

PLUNGING | Mergulho | Plunge

L≤3Dc	L>3Dc	S max.
f_z (mm/t)		
0,10-0,20	0,10-0,14	$Smax = \sqrt{DC.Dr - Dr^2}$

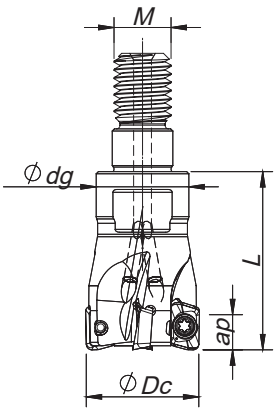


S max and DR corresponding cutting diameter Dc (mm)								
DR (mm)	Dc (mm)							
	32	40	50	63	80	100	125	160
1,0	5,6	6,2	7,0	7,9	8,9	9,9	11,1	12,6
2,0	7,7	8,7	9,8	11,0	12,5	14,0	15,7	17,8
3,0	9,3	10,5	11,9	13,4	15,2	17,1	19,1	21,7
4,0	10,6	12,0	13,6	15,4	17,4	19,6	22,0	25,0
5,0	11,6	13,2	15,0	17,0	19,4	21,8	24,5	27,8

Check here the complete line:

PDF

LINEPRO 20090

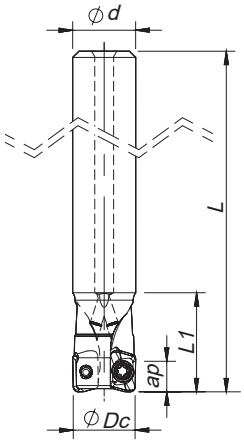


Threaded Coupling

κ_r=90° | γ_p=+4°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Specifications	Insert Pastilha Inserto	Stock
			ØDc	ØM	Ødg	L		Ap max		
181120400	010R20090-02-04-M06020	2	10	M6	9,8	20	0,01	4,00	XPET 0602...	◉
181112800	011R20090-02-04-M06020	2	11	M6	9,8	20	0,01	4,00	XPET 0602...	◉
181120500	012R20090-03-04-M06020	3	12	M6	9,8	20	0,02	4,00	XPET 0602...	◉
181112900	013R20090-03-04-M06020	3	13	M6	9,8	20	0,02	4,00	XPET 0602...	◉
181087500	016R20090-04-04-M08025	4	16	M8	13,0	25	0,03	4,00	XPET 0602...	◉
181113000	017R20090-04-04-M08025	4	17	M8	13,0	25	0,04	4,00	XPET 0602...	◉
181087600	020R20090-05-04-M10030	5	20	M10	18,0	30	0,06	4,00	XPET 0602...	◉
181087700	025R20090-07-04-M12030	7	25	M12	21,0	30	0,09	4,00	XPET 0602...	◉
181087800	032R20090-08-04-M16035	8	32	M16	29,0	35	0,19	4,00	XPET 0602...	◉

◉ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta



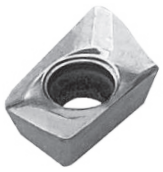
Cylindrical Shank

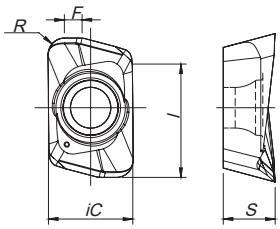
κ_r=90° | γ_p=+4°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Specifications	Insert Pastilha Inserto	Stock
			ØDc	Ød	L	L1		Ap max		
181087100	010E20090-02-04-010055	2	10	10	55	16	0,03	4,00	XPET 0602...	◉
181108300	010E20090-02-04-010100	2	10	10	100	25	0,03	4,00	XPET 0602...	◉
181087200	012E20090-02-04-012080	2	12	12	80	17	0,06	4,00	XPET 0602...	◉
181109900	012E20090-03-04-012120	3	12	12	120	30	0,06	4,00	XPET 0602...	◉
181087300	016E20090-03-04-016090	3	16	16	90	20	0,12	4,00	XPET 0602...	◉
181087400	016E20090-04-04-016090	4	16	16	90	20	0,11	4,00	XPET 0602...	◉
181097100	017E20090-05-04-016090	5	17	16	90	35	0,11	4,00	XPET 0602...	◉
181097200	021E20090-05-04-020090	5	21	20	90	35	0,13	4,00	XPET 0602...	◉

◉ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

XPET 0602.. | Inserts | Pastilhas | Plaquitas





N								
		UNC	PCD					
	(2) Grade code	10	D6	Dimensions (mm)				
(1) Geometry code	ISO Reference	PH0910	PDP410	iC	S	l	R	F
1112579	XPET 060202 PDFR-LN	◎		3,90	2,40	5,10	0,20	0,95
1112580	XPET 060204 PDFR-LN	◎		3,90	2,40	5,10	0,40	0,80

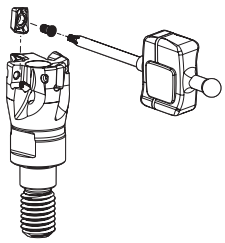
◎ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

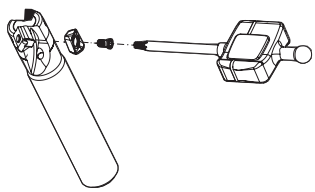
Insert order code = (1) Geometry Code + (2) Grade Code

SPARE PARTS | Complementos | Repuestos

Order separately

Cutter ØDc	Insert Screw	Key (Torx)	Key (Torx - Nm)	Torque Value
			Nm	Nm
E20090 - 10	P0180300	XT06IP	DT0606IP	0,6
E20090 - 12-16	P0180400	XT06IP	DT0606IP	0,6
R20090 - 12-16	P0180400	XT06IP	DT0606IP	0,6





LINEPRO 20090

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

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance Toughness → PH0910
N	10	Aluminium and Non Ferrous	30-130	●

● 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	Feed fz (mm/t) XPET 0602... LN
N	10	Aluminium and Non Ferrous	30-130	100-2000	0,05-0,07

(Note 1): Cutting conditions a_e/Dc=70%.

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

(Note 3):

Operation	a_e	Vc & fz	a_p (mm)
Slotting	100%	<20%	1,0-3,0
Shouldering	<50%	>8%	1,0-4,0
	≤25%	>12%	1,0-4,0

(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.

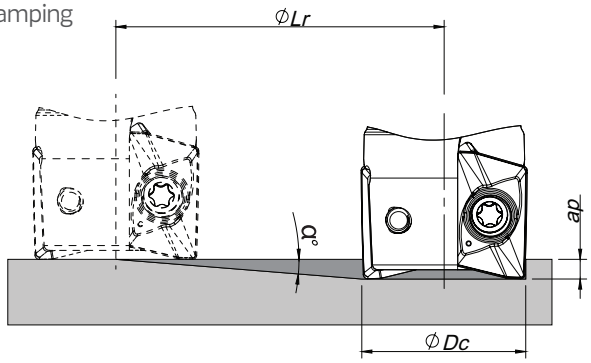
CHIP-BREAKER SELECTION GUIDE ‖ Guia para aplicações do quebra-aparas | Guía para aplicación del rompevirutas

ISO	PSM	Material	HB (Brinell)	Chip-Breaker Application	
				1st choise	Dificult Operations
N	10	Aluminium and Non Ferrous	30-130	XPET 0602... LN	-

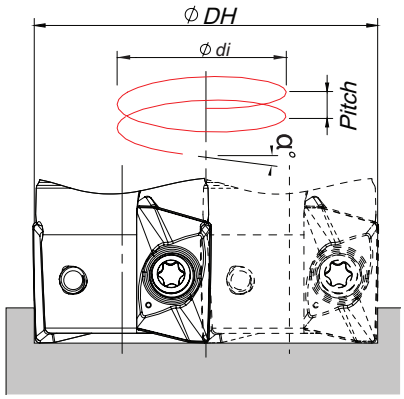
RAMPING AND HELICAL INTERPOLATION

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

Ramping



Helical Interpolation



Ødi = ØDH - ØDc

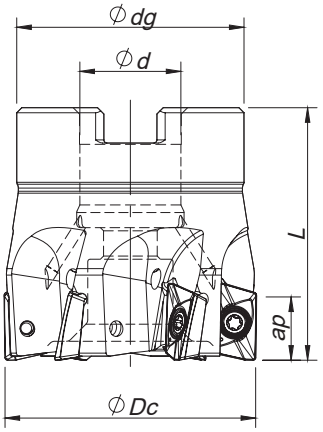
ØDc	Ramping			Helical Interpolation		
				Diameter for Blind Hole, Flat Bottom Face (1)		Max Pitch/Rev.
	Max Ramp a°	Max a_p	Min Lr	ØDHmin	ØDHmax	
10	5,5	4,0	41,5	17,2 -	- 18,4	2,2 2,5
12	4,0	4,0	57,2	21,2 -	- 22,4	2,0 2,3
16	2,5	4,0	91,6	29,2 -	- 30,4	1,8 2,0
17	2,2	4,0	104,1	31,2 -	- 32,4	1,7 1,9
20	1,9	4,0	120,6	37,2 -	- 38,4	1,8 1,9
21	1,6	4,0	143,2	39,2 -	- 40,4	1,6 1,7
25	1,3	4,0	171,0	47,2 -	- 48,4	1,6 1,7
32	1,0	4,0	229,2	61,2 -	- 62,4	1,6 1,7

(1) Using insert radius 0,8 mm
Note: During helical interpolation do not exceed maximum pitch
When using different insert radius to calculate the ØDHmin and ØDHmax use the below equation:
- Minium Diameter: ØDHmin = 2x(ØDc- (R corner radius + F width of edge wiper))
- Maximum Diameter: ØDHmax = 2 x (ØDc - R corner radius)

Check here the complete line:

PDF

LINEPRO 20190

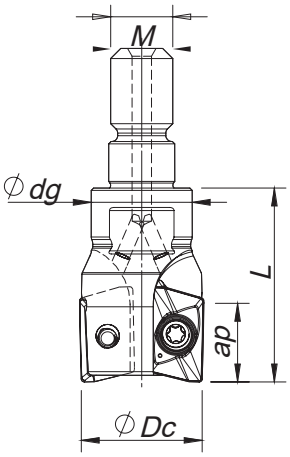


Arbor Mounting

K_r=90° | γ_p=+7° ~+8°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Max ap (mm)			Arbor Style	Insert Pastilha Inserto	Stock
			ØDc	Ød	Ødg	L		LP/MP	HF	MH			
181088600	040A20190-06-08-016040	6	40	16	36	40	0,22	10,0	0,80	3,00	A	XP... 1003...	⛭
181088700	050A20190-07-08-022040	7	50	22	42	40	0,31	10,0	0,80	3,00	A	XP... 1003...	⛭
181088800	063A20190-08-08-022040	8	63	22	52	40	0,43	10,0	0,80	3,00	A	XP... 1003...	⛭

⛭ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

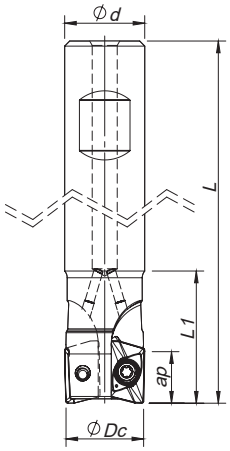


Threaded Coupling

K_r=90° | γ_p=+5° ~+6°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Max ap (mm)			Insert Pastilha Inserto	Stock
			ØDc	ØM	Ødg	L		LP/MP	HF	MH		
181088200	016R20190-02-05-M08025	2	16	M8	14	25	0,03	10,0	0,80	3,00	XP... 1003...	⛭
181088300	020R20190-03-05-M10030	3	20	M10	18	30	0,06	10,0	0,80	3,00	XP... 1003...	⛭
181088400	025R20190-04-05-M12035	4	25	M12	21	35	0,12	10,0	0,80	3,00	XP... 1003...	⛭
181088500	032R20190-05-06-M16035	5	32	M16	29	35	0,15	10,0	0,80	3,00	XP... 1003...	⛭
181149100	040R20190-06-08-M16043	6	40	M16	29	43	0,25	10,0	0,80	3,00	XP... 1003...	⛭

⛭ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

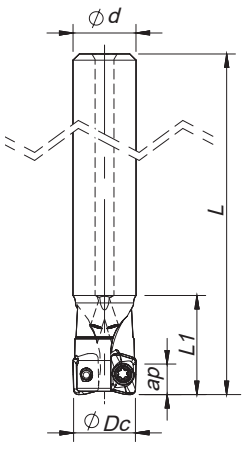


Weldon Shank

κ_r=90° | γ_p=+5°~8°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Max ap (mm)			Insert Pastilha Inserto	Stock
			ØDc	Ød	L	L1		LP/MP	HF	MH		
181087900	016W20190-02-05-016085	2	16	16	85	32	0,10	10,0	0,80	3,00	XP... 1003...	◎
181100600	016W20190-02-05-016150	2	16	16	150	70	0,13	10,0	0,80	3,00	XP... 1003...	◎
181108600	017W20190-02-05-016150	2	17	16	150	36	0,14	10,0	0,80	3,00	XP... 1003...	◎
181088000	020W20190-03-05-020090	3	20	20	90	28	0,21	10,0	0,80	3,00	XP... 1003...	◎
181100700	020W20190-03-05-020150	3	20	20	150	70	0,26	10,0	0,80	3,00	XP... 1003...	◎
181108700	022W20190-03-05-020150	3	22	20	150	70	0,30	10,0	0,80	3,00	XP... 1003...	◎
181088100	025W20190-04-05-025095	4	25	25	95	30	0,33	10,0	0,80	3,00	XP... 1003...	◎
181100800	025W20190-04-05-025150	4	25	25	150	80	0,36	10,0	0,80	3,00	XP... 1003...	◎
181108800	027W20190-04-05-025150	4	27	25	150	80	0,38	10,0	0,80	3,00	XP... 1003...	◎
181085400	032W20190-04-08-032110	4	32	32	110	50	0,55	10,0	0,80	3,00	XP... 1003...	◎

◎ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta



Cylindrical Shank

κ_r=90° | γ_p=+4°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Max ap (mm)			Insert Pastilha Inserto	Stock
			ØDc	Ød	L	L1		LP/MP	HF	MH		
181171700	016E20190-02-05-016085	2	16	16	85	32	0,10	10,0	0,8	3,0	XP...1003...	◎
181173000	016E20190-02-05-016150	2	16	16	150	70	0,13	10,0	0,8	3,0	XP...1003...	◎
181171600	020E20190-03-05-020090	3	20	20	90	28	0,21	10,0	0,8	3,0	XP...1003...	◎
181171800	020E20190-03-05-020150	3	20	20	150	70	0,26	10,0	0,8	3,0	XP...1003...	◎
181171400	025E20190-04-05-025095	4	25	25	95	30	0,33	10,0	0,8	3,0	XP...1003...	◎
181172900	025E20190-04-05-025150	4	25	25	150	80	0,36	10,0	0,8	3,0	XP...1003...	◎

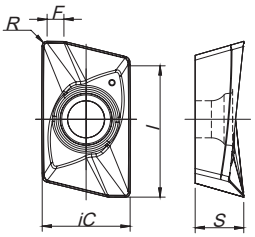
◎ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

LINEPRO 20190

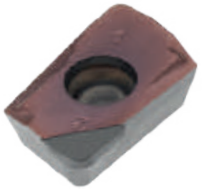
XPET 1003... | Inserts | Pastilhas | Plaquitas

XPET-LN

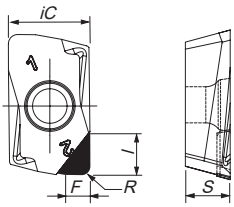
XPET-LP | MP | LN



XPHW-R Z1 NEW



XPHW-R Z1



N								
		UNC	PCD					
	(2) Grade code	10	D6	Dimensions (mm)				
(1) Geometry code	ISO Reference	PH0910	PDP410	iC	S	l	R	F
1111984	XPET 100304 PDFR-LN	◎		6,95	3,96	10,50	0,40	0,75
1112906	XPET 100308 PDFR-LN	◎		6,95	3,96	10,50	0,80	1,05
1111985	XPET 100312 PDFR-LN	◎		6,95	3,96	10,50	1,20	0,75
1112556	XPHW 100308 R Z1		◎	6,95	3,60	3,80	0,80	2,30

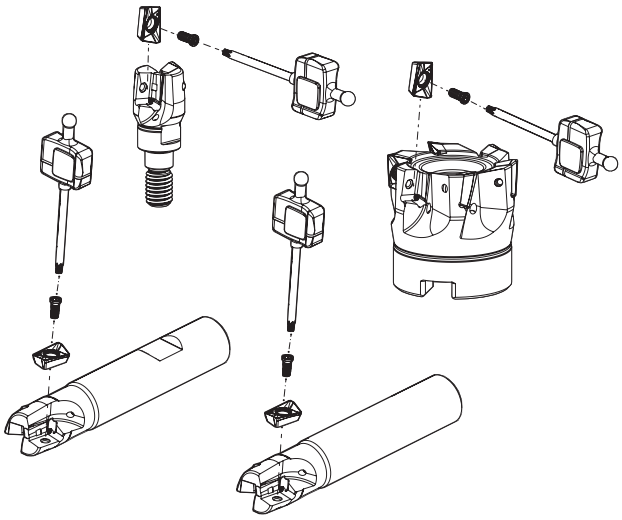
◎ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

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

SPARE PARTS | Complementos | Repuestos

Order separately

Cutter ØDc	Insert Screw	Key (Torx)	Key (Torx - Nm)	Torque Value
A20190 - 40-63	P0250704	XT08	DT0812	1,2
R20190 - 16	P0250503	XT08	DT0812	1,2
R20190 - 20-40	P0250704	XT08	DT0812	1,2
W20190 - 16-17	P0250503	XT08	DT0812	1,2
W20190 - 20-32	P0250704	XT08	DT0812	1,2
E20190 - 16	P0250503	XT08	DT0812	1,2
E20190 - 20-25	P0250704	XT08	DT0812	1,2



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

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance Toughness →	PCD
				PH0910	PDP410
N	10	Aluminium and Non Ferrous	30-130	●	✓

● Good Conditions
● Average Conditions
● Difficult Conditions

LINEPRO 20190

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

ISO	PSM	Material	HB (Brinell)	Vc (m/min) ← Wear Resistance Toughness →	PCD	Feed fz (mm/t)
				PH0910	PDP410	XPET 1003... LN/R Z1
N	10	Aluminium and Non Ferrous	30-130	100-2000	100-3000	0,07-0,25

(Note 1): Cutting conditions a_e/Dc=70%.

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

(Note 3):

Operation	a_e	Vc & fz	a_p (mm)
Slotting	100%	<20%	2,0-4,0
Shouldering	<50%	>8%	3,0-6,0
	≤25%	>12%	7,0-9,0

(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.

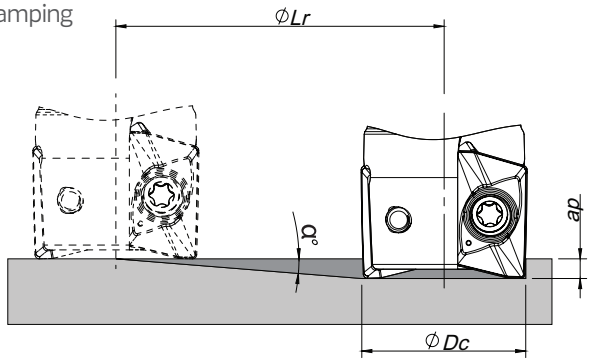
CHIP-BREAKER SELECTION GUIDE | Guia para aplicações do quebra-aparas | Guía para aplicación del rompevirutas

ISO	PSM	Material	HB (Brinell)	Chip-Breaker Application	
				1st choise	Dificult Operations
N	10	Aluminium and Non Ferrous	30-130	XPET 1003... LN/R Z1	-

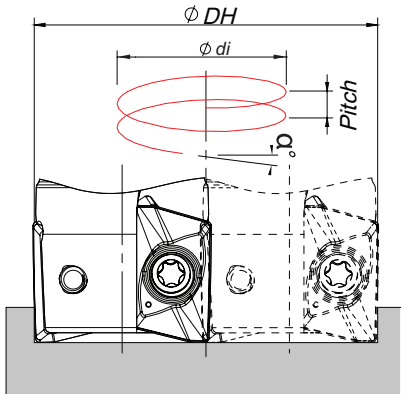
RAMPING AND HELICAL INTERPOLATION

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

Ramping



Helical Interpolation



Ødi = ØDH - ØDc

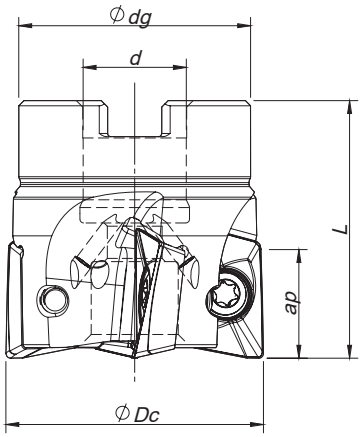
ØDc	Ramping			Helical Interpolation		
				Diameter for Blind Hole, Flat Bottom Face (1)		Max Pitch/Rev.
	Max Ramp a°	Max a_p	Min Lr	ØDHmin	ØDHmax	
16	7,5	10,0	76,0	27,6 -	- 30,4	4,8 6,0
17	7,0	10,0	81,4	29,6 -	- 32,4	4,9 5,9
20	5,0	10,0	114,3	35,6 -	- 38,4	4,3 5,1
22	4,5	10,0	127,1	39,6 -	- 42,4	4,3 5,0
25	3,5	10,0	163,5	45,6 -	- 48,4	4,0 4,5
27	3,0	10,0	190,8	49,6 -	- 52,4	3,7 4,2
32	2,5	10,0	229,0	59,6 -	- 62,4	3,8 4,2
40	1,7	10,0	336,9	75,6 -	- 78,4	3,3 3,6
50	1,3	10,0	440,7	95,6 -	- 98,4	3,2 3,4
63	1,0	10,0	572,9	121,6 -	- 124,4	3,2 3,4

(1) Using insert radius 0,8 mm
Note: During helical interpolation do not exceed maximum pitch
When using different insert radius to calculate the ØDHmin and ØDHmax use the below equation:
- Minium Diameter: ØDHmin = 2x(ØDc- (R corner radius + F width of edge wiper))
- Maximum Diameter: ØDHmax = 2 x (ØDc - R corner radius)

Check here the complete line:

PDF

LINEPRO 20290



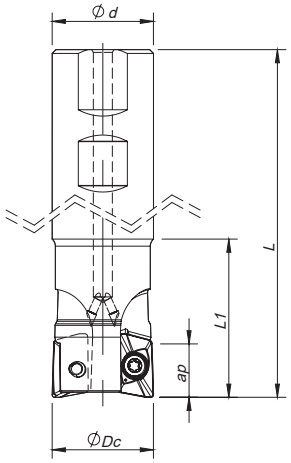
Arbor Mounting

K_r=90° | γ_p=+7° ~+8°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Specifications		Insert Pastilha Inserto	Stock
			ØDc	Ød	Ødg	L		Arbor Type	Ap max (mm)		
181090900	040A20290-04-07-016040	4	40	16	32	40	0,18	A	17,0	XPET 1706...	◎
181091000	050A20290-05-08-022040	5	50	22	42	40	0,29	A	17,0	XPET 1706...	◎
181091100	063A20290-06-08-027040*	6	63	27	52	40	0,53	A	17,0	XPET 1706...	◎
181091200	080A20290-07-08-027050	7	80	27	60	50	0,92	A	17,0	XPET 1706...	◎
181091300	100A20290-08-08-032050	8	100	32	80	50	1,68	A	17,0	XPET 1706...	◎
181091400	125A20290-09-08-040063	9	125	40	90	63	3,01	A	17,0	XPET 1706...	◎

◎ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

* For shank assembly a DIN 6920 screw is needed.



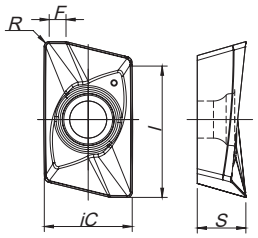
Weldon Shank

K_r=90° | γ_p=+6° ~+7°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Specifications	Insert Pastilha Inserto	Stock
			ØDc	Ød	L	L1		Ap max (mm)		
181090500	032W20290-02-06-032110	2	32	32	110	50	0,56	17,0	XPET 1706...	◎
181090600	032W20290-02-06-032200	2	32	32	200	60	1,10	17,0	XPET 1706...	◎
181090700	040W20290-03-07-032115	3	40	32	115	50	0,67	17,0	XPET 1706...	◎
181090800	040W20290-03-07-032200	3	40	32	200	60	1,19	17,0	XPET 1706...	◎

◎ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

XPET 1706... | Inserts | Pastilhas | Plaquitas



N								
		UNC	PCD					
	(2) Grade code	10	D6	Dimensions (mm)				
(1) Geometry code	ISO Reference	PH0910	PDP410	iC	S	l	R	F
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

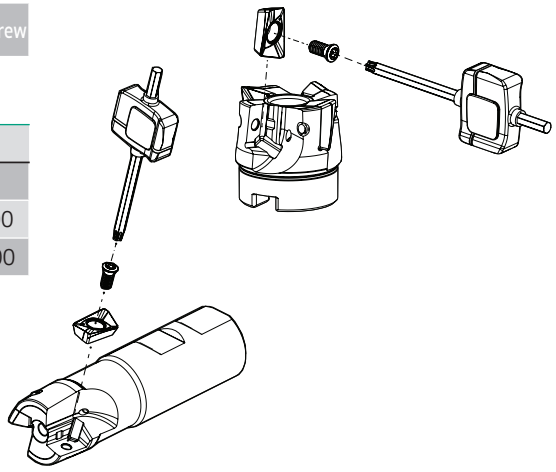
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

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

SPARE PARTS | Complementos | Complementos

Order separately

Cutter ØDc	Insert Screw	Key (Torx)	Key (Torx - Nm)	Torque Value	Retaining Screw
W20290 - 32-40	P0451001	XT20	DT2050	5	-
A20290 - 40-80	P0451001	XT20	DT2050	5	-
A20290 - 100	P0451001	PT20	DT2050	5	D1603500
A20290 - 125	P0451001	PT20	DT2050	5	D2004000



LINEPRO 20290

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

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance Toughness →
				PH0910
N	10	Aluminium and Non Ferrous	30-130	●

● 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 →	Feed fz (mm/t)
				PH0910	XPET 1706... LN
N	10	Aluminium and Non Ferrous	30-130	100-2000	0,10-0,35

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

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

(Note 3):

Operation	a_e	Vc & fz	a_p (mm)
Slotting	100%	<20%	2,0-6,0
Shouldering	<50%	>8%	7,0-13,0
	≤25%	>12%	13,0-16,0

(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.

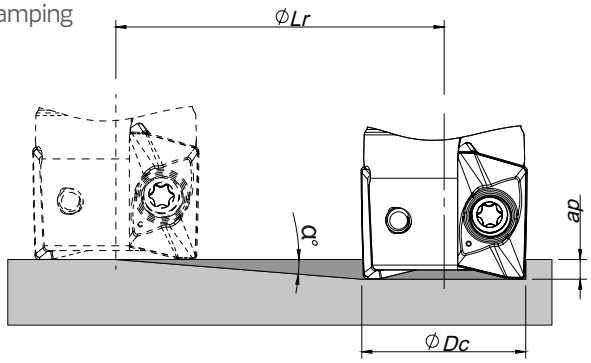
CHIP-BREAKER SELECTION GUIDE | Guia para aplicações do quebra-aparas | Guía para aplicación del rompevirutas

ISO	PSM	Material	HB (Brinell)	Chip-Breaker Application	
				1st choise	Dificult Operations
N	10	Aluminium and Non Ferrous	30-130	XPET 1706... LN	-

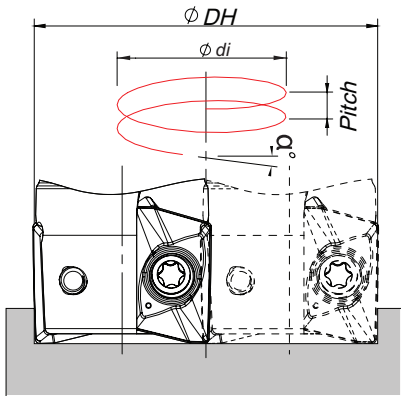
RAMPING AND HELICAL INTERPOLATION

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

Ramping



Helical Interpolation



Ødi = ØDH - ØDc

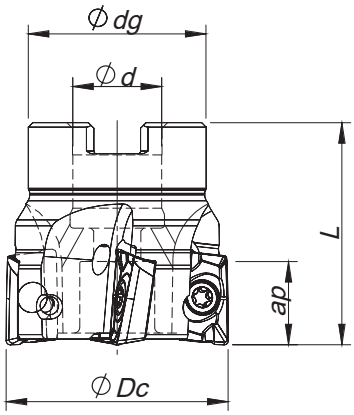
ØDc	Ramping			Helical Interpolation		
				Diameter for Blind Hole, Flat Bottom Face (1)		Max Pitch/Rev.
	Max Ramp a°	Max a_p	Min Lr	ØDHmin	ØDHmax	
32	3,8	17,0	255,9	58,8 -	- 62,4	5,6 6,3
40	2,7	17,0	360,5	74,8 -	- 78,4	5,2 5,7
50	2,0	17,0	486,8	94,8 -	- 98,4	4,9 5,3
63	1,5	17,0	649,2	120,8 -	- 124,4	4,8 5,0
80	1,0	17,0	973,9	154,8 -	- 158,4	4,1 4,3
100	0,8	17,0	1217,5	194,8 -	- 198,4	4,2 4,3
125	0,7	17,0	1498,4	244,8 -	- 248,4	4,3 4,4

(1) Using insert radius 0,8 mm
Note: During helical interpolation do not exceed maximum pitch
When using different insert radius to calculate the ØDHmin and ØDHmax use the below equation:
- Minium Diameter: ØDHmin = 2x(ØDc- (R corner radius + F width of edge wiper))
- Maximum Diameter: ØDHmax = 2 x (ØDc - R corner radius)

Check here the complete line:

PDF

LINEPRO 17090

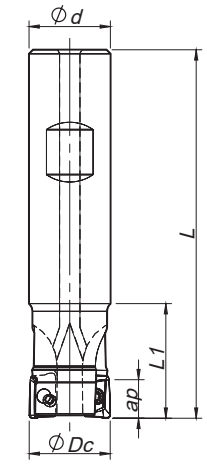


Arbor Mounting

κ_r=90° | γ_p=+9°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Specifications		Insert Pastilha Inserto	Stock
			ØDc	Ød	Ødg	L		Arbor Type	Ap max (mm)		
181010200	040A17090-06-09-022040	6	40	22	39	40	0,210	A	9,0	APET 1003...	◈
181010300	050A17090-07-09-022040	7	50	22	40	40	0,320	A	9,0	APET 1003...	◈
181014300	063A17090-08-09-022040	8	63	22	48	40	0,560	A	9,0	APET 1003...	◈

◈ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta



Weldon Shank

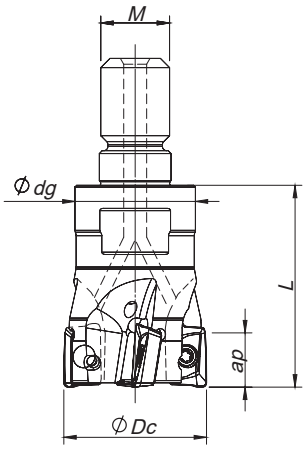
κ_r=90° | γ_p=+7° ~+9°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Specifications	Insert Pastilha Inserto	Stock
			ØDc	Ød	L	L1		Ap max (mm)		
181041300	016W17090-02-07-016085	2	16	16	85	26	0,110	9,0	APET 1003...	◈
181031700	016W17090-02-07-016150	2	16	16	150	26	0,210	9,0	APET 1003...	◈
181041400	020W17090-03-09-020090	3	20	20	90	28	0,190	9,0	APET 1003...	◈
181041600	020W17090-03-09-020150	3	20	20	150	28	0,320	9,0	APET 1003...	◈
181041700	025W17090-04-09-020150	4	25	20	150	26	0,340	9,0	APET 1003...	◈
181041500	025W17090-04-09-025095	4	25	25	95	30	0,310	9,0	APET 1003...	◈

◈ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

Threaded Coupling

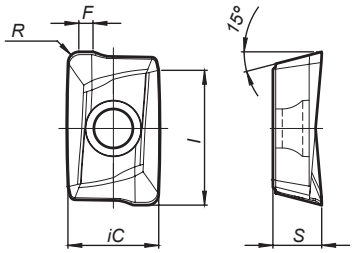
K_r=90° | γ_p=+7° ~+9°



Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Specifications	Insert Pastilha Inserto	Stock
			ØDc	ØM	Ødg	L		Ap max (mm)		
181015100	016R17090-02-07-M08025	2	16	M8	13	25	0,030	9,0	APET 1003...	⛭
181015200	020R17090-03-09-M10030	3	20	M10	18	30	0,058	9,0	APET 1003...	⛭
181015300	025R17090-04-09-M12035	4	25	M12	21	35	0,110	9,0	APET 1003...	⛭

⛭ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

APET 1003... ‖ Inserts | Pastilhas | Plaquitas



N								
		UNC	PCD					
	(2) Grade code	10	D6	Dimensions (mm)				
(1) Geometry code	ISO Reference	PH0910	PDP410	iC	S	l	R	F
1112043	APET 100305 PDFR-LN	⛭		6,70	3,50	10,00	0,50	1,20

⛭ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

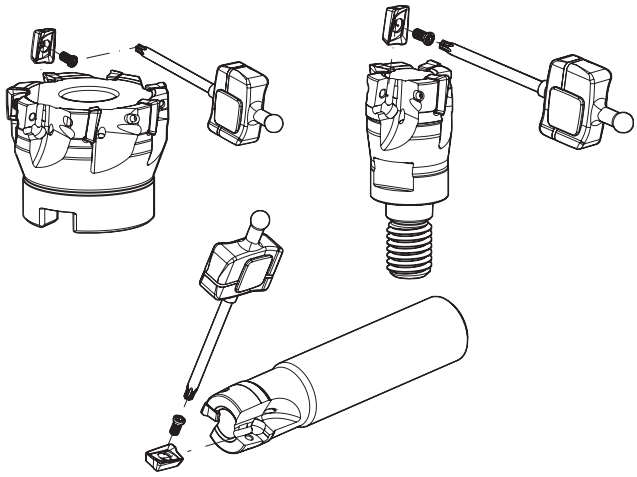
Insert order code = (1) Geometry Code + (2) Grade Code

LINEPRO 17090

SPARE PARTS ‖ Complementos | Complementos

Order separately

Cutter ØDc	Insert Screw	Key (Torx)	Key (Torx - Nm)	Torque Value
				
W17090 - 16-25	P0250503	XT08	DT0812	1,2
R17090 - 16-25	P0250503	XT08	DT0812	1,2
A17090 - 40-63	P0250503	XT08	DT0812	1,2



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

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance Toughness → PH0910
N	10	Aluminium and Non Ferrous	30-130	●

● 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	Feed fz (mm/t) APET 1003... LN
N	10	Aluminium and Non Ferrous	30-130	100-2000	0,07-0,20

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

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

(Note 3):

Operation	a_e	Vc & fz	a_p (mm)
Slotting	100%	<20%	3,0-4,0
Shouldering	<50%	>8%	5,0-6,0
	≤25%	>12%	7,0-8,0

(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.

(Note 5): If chattering occurs, reduce ap and Vc by 30% and keep the same fz per tooth.

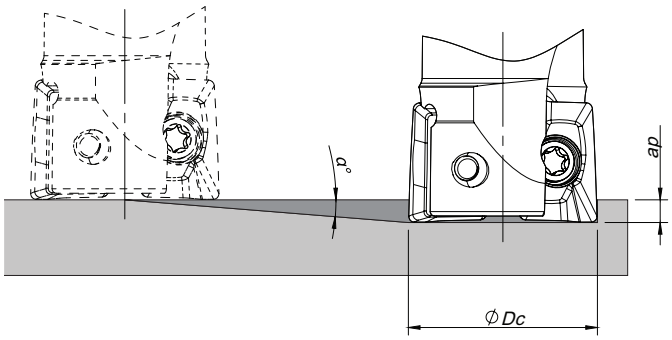
CHIP-BREAKER SELECTION GUIDE ‖ Guia para aplicações do quebra-aparas | Guía para aplicación del rompevirutas

ISO	PSM	Material	HB (Brinell)	Chip-Breaker Application	
				1st choise	Dificult Operations
N	10	Aluminium and Non Ferrous	30-130	APET 1003... LN	-

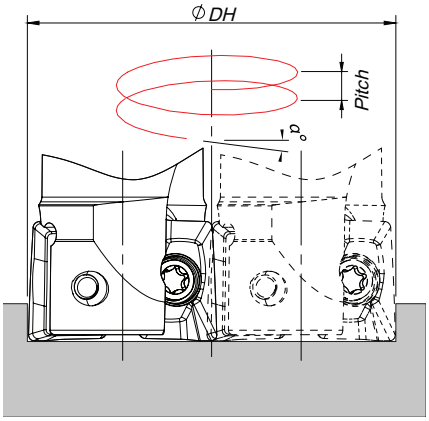
RAMPING AND HELICAL INTERPOLATION

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

Ramping



Helical Interpolation



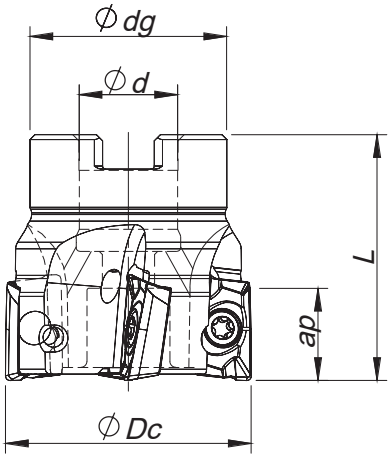
Blind hole
Flat bottom

Ødi = ØDH - ØDc

ØDc	Ramping			Helical Interpolation		
				Diameter for Blind Hole, Flat Bottom Face (1)		Max Pitch/Rev.
	Max Ramp a°	Max a_p	Min Lr	ØDHmin	ØDHmax	
16	1,3	9,0	396,6	29,2 -	- 31,0	0,9 1,1
20	0,9	9,0	572,9	37,2 -	- 39,0	0,8 0,9
25	0,6	9,0	859,4	47,2 -	- 49,0	0,7 0,8
40	0,4	9,0	1289,1	77,2 -	- 79,0	0,8 0,9
50	0,25	9,0	2062,6	97,2 -	- 99,0	0,6 0,7
63	0,2	9,0	2578,3	123,2 -	- 125,0	0,7 0,7

(1) Using insert radius 0,8 mm
Note: During helical interpolation do not exceed maximum pitch
When using different insert radius to calculate the ØDHmin and ØDHmax use the below equation:
- Minium Diameter: ØDHmin = 2x(ØDc- (R corner radius + F width of edge wiper))
- Maximum Diameter: ØDHmax = 2 x (ØDc - R corner radius)

LINEPRO 18090

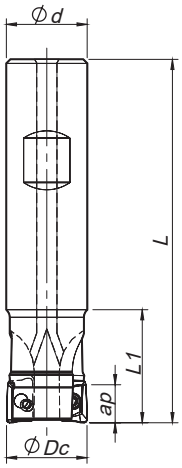


Arbor Mounting

K_r=90° | γ_p=+8° ~ 10°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Specifications		Insert Pastilha Inserto	Stock
			ØDc	Ød	Ødg	L		Arbor Type	Ap max (mm)		
181031200	040A18090-04-08-016040	4	40	16	32	40	0,180	A	14,5	AP... 1604	◎
181030900	050A18090-05-08-022040	5	50	22	42	40	0,290	A	14,5	AP... 1604	◎
181031300	063A18090-06-09-022040	6	63	22	52	40	0,530	A	14,5	AP... 1604	◎
181031400	080A18090-07-10-027050	7	80	27	60	50	0,920	B	14,5	AP... 1604	◎
181031500	100A18090-08-10-032050	8	100	32	80	50	1,680	B	14,5	AP... 1604	◎
181031600	125A18090-09-10-040063	9	125	40	90	63	3,010	B	14,5	AP... 1604	◎

◎ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta



Weldon Shank

K_r=90° | γ_p=+6° ~ 8°

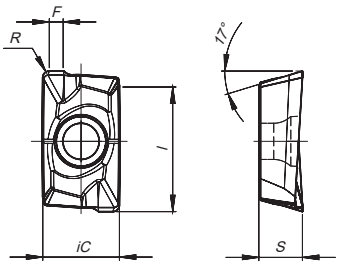
Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Specifications	Insert Pastilha Inserto	Stock
			ØDc	Ød	L	L1		Ap max (mm)		
181041800	025W18090-02-06-025100	2	25	25	100	44	0,310	14,5	AP... 1604	◎
181042100	025W18090-02-06-025200	2	25	25	200	60	0,670	14,5	AP... 1604	◎
181041900	032W18090-03-07-032110	3	32	32	110	50	0,560	14,5	AP... 1604	◎
181042200	032W18090-03-07-032200	3	32	32	200	60	1,100	14,5	AP... 1604	◎
181042000	040W18090-04-08-032115	4	40	32	115	40	0,670	14,5	AP... 1604	◎
181042300	040W18090-04-08-032200	4	40	32	200	40	1,190	14,5	AP... 1604	◎

◎ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

AP...T 1604... | Inserts | Pastilhas | Plaquitas

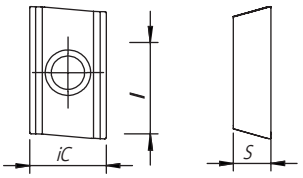
APKT - LN

APKT - LN



APHT - LN

APHT - LN



N								
		UNC	PCD					
	(2) Grade code	10	D6	Dimensions (mm)				
(1) Geometry code	ISO Reference	PH0910	PDP410	iC	S	l	R	F
1111924	APHT 1604 PDFR-LN	◎		9,45	5,35	16,00	-	-
1111923	APKT 160408 PDFR-LN	◎		9,45	5,35	16,00	0,80	0,80

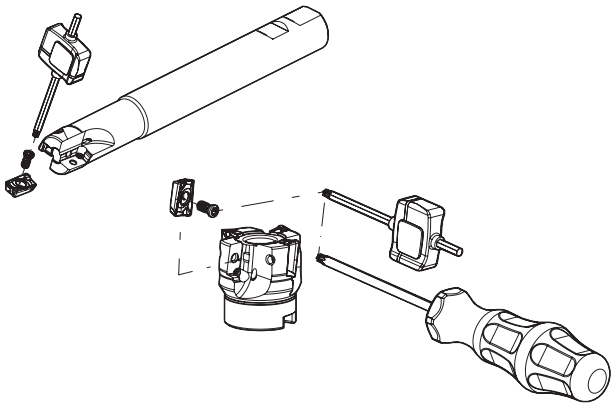
◎ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

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

SPARE PARTS | Complementos | Complementos

Order separately

Cutter ØDc	Insert Screw	Key (Torx)	Key (Torx - Nm)	Torque Value
			Nm	Nm
W18090 - 25-40	P0400900	XT15	DT1530	3,0
A18090 - 40-80	P0400900	XT15	DT1530	3,0
A18090 - 100-125	P0400900	PT15	DT1530	3,0



LINEPRO 18090

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

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance Toughness → PH0910
N	10	Aluminium and Non Ferrous	30-130	●

● 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	Feed fz (mm/t) AP...T 1604... LN
N	10	Aluminium and Non Ferrous	30-130	100-2000	0,07-0,20

(Note 1): Cutting conditions a_e/Dc=70%.

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

(Note 3):

Operation	a_e	Vc & fz	a_p (mm)
Slotting	100%	<20%	5,0-6,0
Shouldering	<50%	>8%	6,0-9,0
	≤25%	>12%	10,0-12,5

(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.

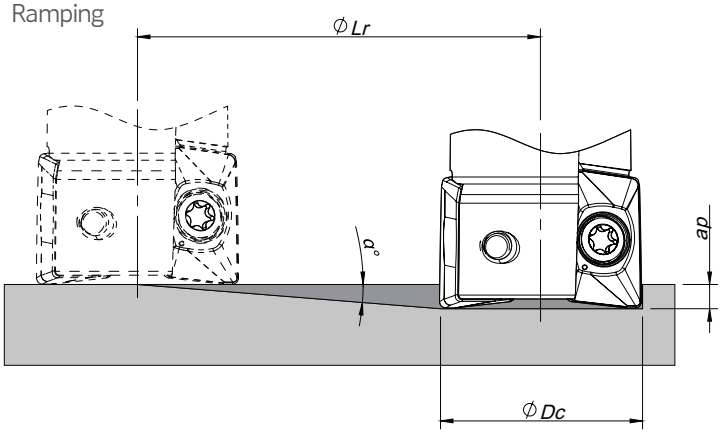
CHIP-BREAKER SELECTION GUIDE ‖ Guia para aplicações do quebra-aparas | Guía para aplicación del rompevirutas

ISO	PSM	Material	HB (Brinell)	Chip-Breaker Application	
				1st choise	Dificult Operations
N	10	Aluminium and Non Ferrous	30-130	AP...T 16... PDFR-LN	APHT 16.... PDFR-LN

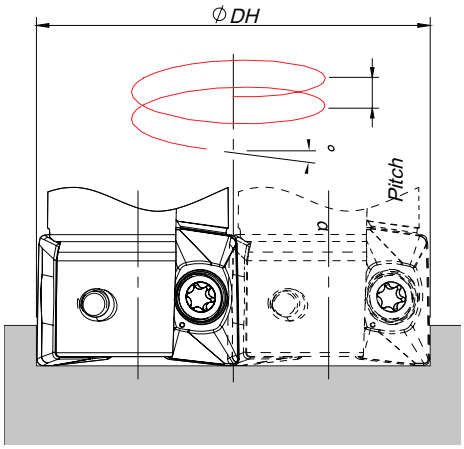
RAMPING AND HELICAL INTERPOLATION

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

Ramping



Helical Interpolation



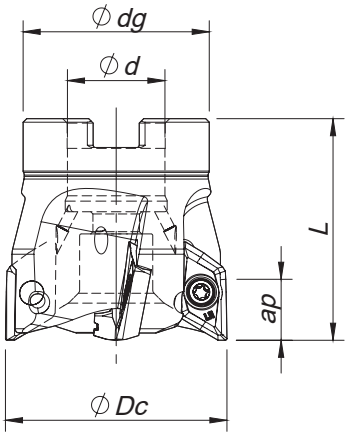
Blind hole
Flat bottom

Ødi = ØDH - ØDc

ØDc	Ramping			Helical Interpolation		
				Diameter for Blind Hole, Flat Bottom Face (1)		Max Pitch/Rev.
	Max Ramp a°	Max a_p	Min Lr	ØDHmin	ØDHmax	
25	3	14,5	276,7	46,1 -	- 48,4	3,5 3,9
32	2	14,5	415,2	60,1 -	- 62,4	3,1 3,3
40	1,5	14,5	553,7	76,1 -	- 78,4	3,0 3,2
50	1,1	14,5	755,2	96,1 -	- 98,4	2,8 2,9
63	0,85	14,5	977,3	122,1 -	- 124,4	2,8 2,9
80	0,64	14,5	1298,1	156,1 -	- 158,4	2,7 2,7
100	0,5	14,5	1661,5	196,1 -	- 198,4	2,6 2,7
125	0,38	14,5	2186,3	246,1 -	- 248,4	2,5 2,6

(1) Using insert radius 0,8 mm
Note: During helical interpolation do not exceed maximum pitch
When using different insert radius to calculate the ØDHmin and ØDHmax use the below equation:
- Minium Diameter: ØDHmin = 2x(ØDc- (R corner radius + F width of edge wiper))
- Maximum Diameter: ØDHmax = 2 x (ØDc - R corner radius)

ALUPRO 76090



Arbor Mounting

K_r=90° | γ_p=+11°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Specifications			Insert radius Raio da pastilha Rayo del Inserto	Stock
			ØDc	Ød	Ødg	L		Cutter Type	Max ap (mm)	rpm max		
181094200	040A76090-03-11-016050-A	3	40	16	32	50	0,3	A	14,0	29 000	0,4~3,2	◎
181083400	050A76090-04-11-022050-A	4	50	22	42	50	0,4	A	14,0	24 000	0,4~3,2	◎
181085300	063A76090-05-11-022050-A	5	63	22	48	50	0,7	A	14,0	21 000	0,4~3,2	◎
181094300	080A76090-05-11-027050-A	5	80	27	60	50	1,1	A	14,0	19 000	0,4~3,2	◎
181094400	100A76090-06-11-032063-A	6	100	32	73	63	2,0	A	14,0	16 000	0,4~3,2	◎
181094500	040A76090-03-11-016050-B	3	40	16	32	50	0,3	B	14,0	29 000	4,0~5,0	◎
181094600	050A76090-04-11-022050-B	4	50	22	42	50	0,4	B	14,0	24 000	4,0~5,0	◎
181094700	063A76090-05-11-022050-B	5	63	22	48	50	0,7	B	14,0	21 000	4,0~5,0	◎
181094800	080A76090-05-11-027050-B	5	80	27	60	50	1,1	B	14,0	19 000	4,0~5,0	◎
181094900	100A76090-06-11-032063-B	6	100	32	73	63	2,0	B	14,0	16 000	4,0~5,0	◎

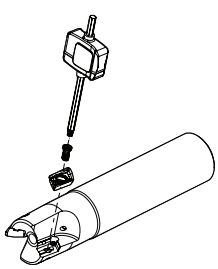
◎ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

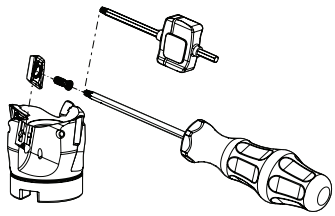
Note: Type A cutters can only assemble inserts with a radius between 0,4 and 3,2. Type B cutters can only assemble inserts with a radius between 4,0 and 5,0.

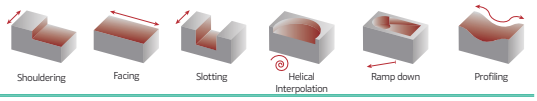
SPARE PARTS | Complementos | Complementos

Order separately

Cutter ØDc	Insert Screw	Key (Torx)	Key (Torx - Nm)	Torque Value
				Nm
A76090- 40-80	P0400900	XT15	DT1530	3,0
A76090 - 100	P0400900	PT15	DT1530	3,0
E76090 - 20-25	P0400803	XT15	DT1530	3,0
E76090 - 32-40	P0400900	XT15	DT1530	3,0

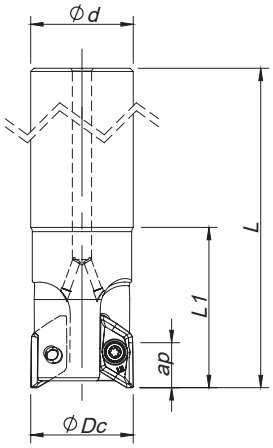






Cylindrical Shank

K_r=90° | γ_p=+6° ~+11°

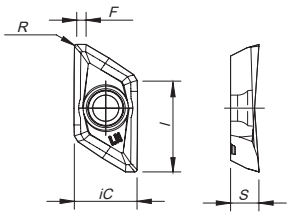


Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Specifications			Insert radius Raio da pastilha Rayo del Inserto	Stock
			ØDc	Ød	L	L1		Cutter Type	Max ap (mm)	rpm max		
181095000	020E76090-01-06-020150-A	1	20	20	150	60	0,2	A	15,0	40 000	0,4~3,2	⚙
181095100	025E76090-02-09-025180-A	2	25	25	180	90	0,4	A	15,0	38 000	0,4~3,2	⚙
181095200	032E76090-02-09-032200-A	2	32	32	200	120	0,7	A	15,0	33 000	0,4~3,2	⚙
181095300	040E76090-03-11-032250-A	3	40	32	250	65	1,4	A	15,0	29 000	0,4~3,2	⚙
181095400	020E76090-01-06-020150-B	1	20	20	150	60	0,2	B	15,0	40 000	4,0~5,0	⚙
181095500	025E76090-02-09-025180-B	2	25	25	180	90	0,4	B	15,0	38 000	4,0~5,0	⚙
181095600	032E76090-02-09-032200-B	2	32	32	200	120	0,7	B	15,0	33 000	4,0~5,0	○
181095700	040E76090-03-11-032250-B	3	40	32	250	65	1,4	B	15,0	29 000	4,0~5,0	⚙

⚙ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Note: Type A cutters can only assemble inserts with a radius between 0,4 and 3,2. Type B cutters can only assemble inserts with a radius between 4,0 and 5,0.

XDGX 15M5... | Inserts | Pastilhas | Plaquitas



N								
		UNC						
	(2) Grade code	10	Dimensions (mm)					
(1) Geometry code	ISO Reference	PH0910	iC	S	l	R	F	Cutter Type
1111624	XDGX 15M504 PDFR-LN	⚙	11,20	5,00	16,0	0,40	1,50	A
1111625	XDGX 15M508 PDFR-LN	⚙	11,20	5,00	16,0	0,80	1,10	A
1111626	XDGX 15M512 PDFR-LN	⚙	11,20	5,00	16,0	1,20	0,70	A
1111627	XDGX 15M516 PDFR-LN	⚙	11,20	5,00	16,0	1,60	0,40	A
1111628	XDGX 15M520 PDFR-LN	⚙	11,20	5,00	16,0	2,00	0,20	A
1112154	XDGX 15M530 PDFR-LN	⚙	11,20	5,00	16,0	3,00	0,60	A
1111629	XDGX 15M532 PDFR-LN	⚙	11,20	5,00	16,0	3,20	0,60	A
1111630	XDGX 15M540 PDFR-LN	⚙	11,20	5,00	16,0	4,00	0,50	B
1111631	XDGX 15M550 PDFR-LN	⚙	11,20	5,00	16,0	5,00	0,40	B

⚙ 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

ALUPRO 76090

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

SHOULDERING							
ISO	PSM	Material	HB (Brinell)	Vc (m/min) PH0910	Width of Cut ae (mm)	Depth of Cut ap (mm)	Feed fz(mm/t)
N	10	Aluminium and Non Ferrous	30-130	350-3000	≤ 25% ØDc	≤5,0	0,35 - 0,40
						5,0 - 10,0	0,30 - 0,35
						10,0 - 15,0	0,25 - 0,30
					< 50% ØDc	≤5,0	0,35 - 0,40
						5,0 - 10,0	0,30 - 0,35
						10,0 - 15,0	0,25 - 0,30
					≤ 75% ØDc	≤5,0	0,30 - 0,35
						5,0 - 10,0	0,25 - 0,30
						10,0 - 15,0	0,20 - 0,25

SLOTTING							
ISO	PSM	Material	HB (Brinell)	Vc (m/min) PH0910	Width of Cut ae (mm)	Depth of Cut ap (mm)	Feed fz(mm/t)
N	10	Aluminium and Non Ferrous	30-130	350-3000	100% ØDc	≤5,0	0,25 - 0,35
						5,0 - 10,0	0,20 - 0,30
						10,0 - 15,0	0,15 - 0,25

(Note 1) Cutting conditions a_e/Dc=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) Use internal coolant supply

OPERATIONAL GUIDE | Guia operacional | Guía operativa

- The maximum allowable revolutions are shown in Table 1. Ensure that the cutter operates under the maximum allowable revolutions. The maximum allowable revolutions for safety purposes are determined in accordance with ISO 15641 (Milling Cutters for high speed machining–Safety requirements).

Table 1 - Maximum allowable revolutions:

ØDc	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
RPM (min^{-1})	40000	38000	33000	29000	24000	21000	19000	16000

- Even when operating under the maximum allowable spindle speed, if the spindle speed is equal or higher than the values shown in Table 2., it is recommended that the balance quality (with the arbor or chuck) according ISO 1940.

Table 2 - Maximum revolutions when balancing with the arbor or chuck has not been achieved:

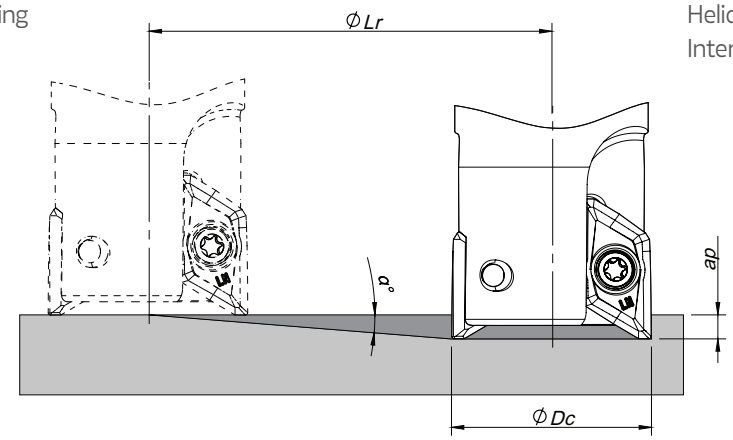
ØDc	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
RPM (min^{-1})	15000	12000	9500	8500	7600	6800	6000	5400

- When setting the spindle speed, take into consideration the maximum allowable revolutions of arbor or chuck.
- Use the specified set bolt when using the arbor type with internal coolant supply.

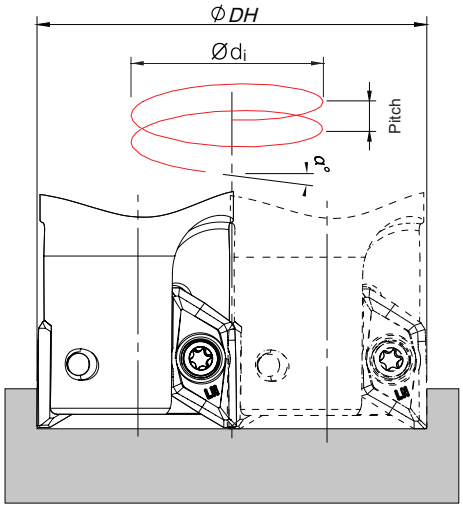
RAMPING AND HELICAL INTERPOLATION

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

Ramping



Helical Interpolation



Blind hole
Flat bottom

Ødi = ØDH - ØDc

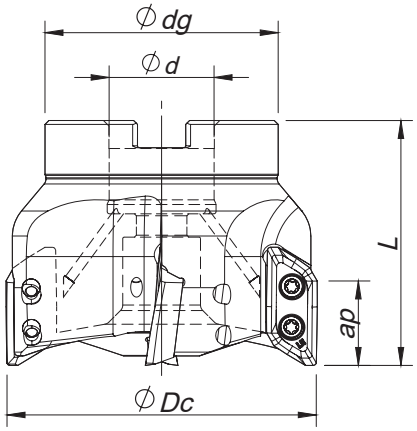
Cutter Type	ØDc	Ramping			Helical Interpolation		
					Diameter for Blind Hole, Flat Bottom Face (1)		Max Pitch/Rev.
		Max Ramp a°	Max ap	Min Lr	ØDHmin	ØDHmax	
A	20	23	15,0	35,3	36,2 -	- 38,4	21,6 24,5
	25	21	15,0	39,1	46,2 -	- 48,4	25,6 28,2
	32	15	15,0	56,0	60,2 -	- 62,4	23,7 25,6
	40	10	15,0	85,1	76,2 -	- 78,4	20,0 21,3
	50	8	15,0	106,7	96,2 -	- 98,4	20,4 21,4
	63	6	15,0	142,7	122,2 -	- 124,4	19,5 20,3
	80	4	15,0	214,5	156,2 -	- 158,4	16,7 17,2
	100	2,5	15,0	343,6	196,2 -	- 198,4	13,2 13,5
B	20	20	13,5	37,1	36,2 -	- 38,4	18,5 21,0
	25	18,5	13,5	40,3	46,2 -	- 48,4	22,3 24,6
	32	13,5	13,5	56,2	60,2 -	- 62,4	21,3 22,9
	40	8,5	13,5	90,3	76,2 -	- 78,4	17,0 18,0
	50	7	13,5	109,9	96,2 -	- 98,4	17,8 18,7
	63	5,5	13,5	140,2	122,2 -	- 124,4	17,9 18,6
	80	3,5	13,5	220,7	156,2 -	- 158,4	14,6 15,1
	100	2,5	13,5	309,2	196,2 -	- 198,4	13,2 13,5

(1) Using insert radius 0,8 mm
Note: During helical interpolation do not exceed maximum pitch
When using different insert radius to calculate the ØDHmin and ØDHmax use the below equation:
- Minium Diameter: ØDHmin = 2x(ØDc- (R corner radius + F width of edge wiper))
- Maximum Diameter: ØDHmax = 2 x (ØDc - R corner radius).

Check here the complete line:

PDF

ALUPRO 77090



Arbor Mounting
K_r=90° | γ_p=+7°

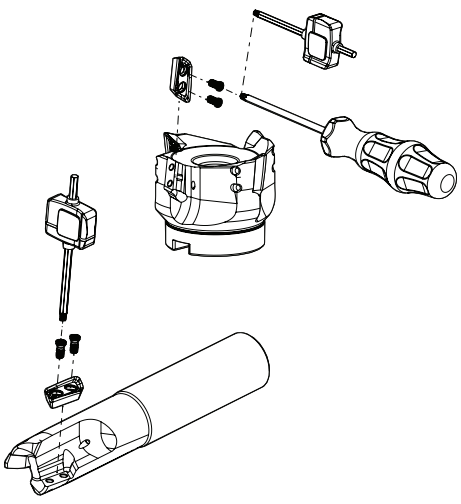
Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Specifications			Insert radius Raio da pastilha Rayo del Inserto	Stock
			ØDc	Ød	Ødg	L		Cutter Type	Max ap (mm)	rpm max		
181093000	050A77090-03-07-022050-A	3	50	22	42	50	0,4	A	21,5	30 000	0,8~3,2	◈
181093100	063A77090-03-07-022050-A	3	63	22	42	50	0,5	A	21,5	25 000	0,8~3,2	◈
181071600	080A77090-04-07-027063-A	4	80	27	60	63	1,2	A	21,5	23 000	0,8~3,2	◈
181093200	100A77090-05-07-032063-A	5	100	32	70	63	1,8	A	21,5	19 000	0,8~3,2	◈
181093300	125A77090-06-07-040063-A	6	125	40	100	63	2,7	A	21,5	16 000	0,8~3,2	◈
181093400	050A77090-03-07-022050-B	3	50	22	42	50	0,4	B	21,0	30 000	4,0~5,0	◈
181093500	063A77090-03-07-022050-B	3	63	22	42	50	0,5	B	21.0	25 000	4,0~5,0	◈
181093600	080A77090-04-07-027063-B	4	80	27	60	63	1,2	B	21.0	23 000	4,0~5,0	◈
181093700	100A77090-05-07-032063-B	5	100	32	70	63	1,8	B	21.0	19 000	4,0~5,0	◈
181093800	125A77090-06-07-040063-B	6	125	40	100	63	2,7	B	21.0	16 000	4,0~5,0	◈

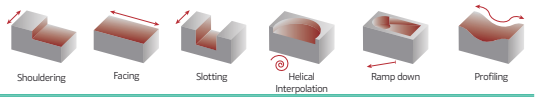
◈ Stock item | Produto de stock | Itens de stock

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

SPARE PARTS | Complementos | Complementos

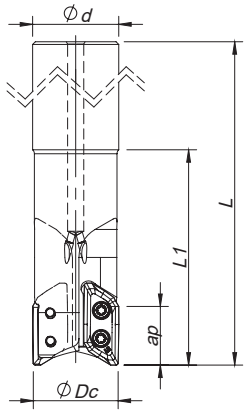
Cutter ØDc	Insert Screw	Key (Torx)	Order separately Key (Torx - Nm)	Torque Value	Order separately Screw	DIN 6368 Wrench
A77090 - 50-80	P0401200	XT15	DT1530	3,0	-	-
A77090 - 100	P0401200	PT15	DT1530	3,0	J0164110	SD6368-16
A77090 - 125	P0401200	PT15	DT1530	3,0	J0204610	SD6368-20
E77090 - 32-40	P0401200	XT15	DT1530	3,0	-	-





Cylindrical Shank

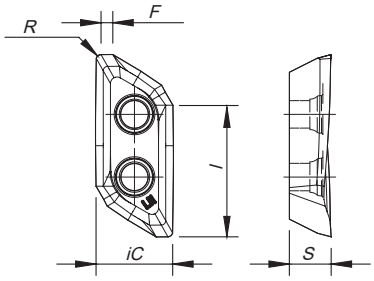
K_r=90° | γ_p=+6°



Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Specifications			Insert radius Raio da pastilha Rayo del Inserto	Stock
			ØDc	Ød	L	L1		Cutter Type	Max ap (mm)	rpm max		
181069800	032E77090-02-06-032170-A	2	32	32	170	80	0,8	A	21.5	41 000	0,8~3,2	◈
181093900	040E77090-02-06-040170-A	2	40	40	170	80	0,9	A	21.5	36 000	0,8~3,2	◈
181094000	032E77090-02-06-032170-B	2	32	32	170	80	0,8	B	21.0	41 000	4,0~5,0	○
181094100	040E77090-02-06-040170-B	2	40	40	170	80	0,9	B	21.0	36 000	4,0~5,0	◈

◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

XDGX 22M7... ‖ Inserts | Pastilhas | Plaquitas



N								
		UNC						
	(2) Grade code	10	Dimensions (mm)					
(1) Geometry code	ISO Reference	PH0910	iC	S	l	R	F	Cutter Type
1111618	XDGX 22M708 PDFR-LN	◈	13,00	7,00	22,0	0,80	2,00	A
1111619	XDGX 22M716 PDFR-LN	◈	13,00	7,00	22,0	1,60	1,20	A
1111620	XDGX 22M720 PDFR-LN	◈	13,00	7,00	22,0	2,00	0,80	A
1111621	XDGX 22M732 PDFR-LN	◈	13,00	7,00	22,0	3,20	0,60	A
1111622	XDGX 22M740 PDFR-LN	◈	13,00	7,00	22,0	4,00	0,90	B
1111623	XDGX 22M750 PDFR-LN	◈	13,00	7,00	22,0	5,00	0,40	B

◈ 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

ALUPRO 77090

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

SHOULDERING							
ISO	PSM	Material	HB (Brinell)	Vc (m/min) PH0910	Width of Cut ae (mm)	Depth of Cut ap (mm)	Feed fz(mm/t)
N	10	Aluminium and Non Ferrous	30-130	350-3000	≤ 25% ØDc	≤5,0	0,35 - 0,40
						5,0 - 10,0	0,30 - 0,35
						10,0 - 15,0	0,25 - 0,30
						15,0 - 20,0	0,20 - 0,25
					< 50% ØDc	≤5,0	0,35 - 0,40
						5,0 - 10,0	0,30 - 0,35
						10,0 - 15,0	0,25 - 0,30
						15,0 - 20,0	0,20 - 0,25
					≤ 75% ØDc	≤5,0	0,30 - 0,35
						5,0 - 10,0	0,25 - 0,30
						10,0 - 15,0	0,20 - 0,25
						15,0 - 20,0	0,15 - 0,20

SLOTTING							
ISO	PSM	Material	HB (Brinell)	Vc (m/min) PH0910	Width of Cut ae (mm)	Depth of Cut ap (mm)	Feed fz(mm/t)
N	10	Aluminium and Non Ferrous	30-130	350-3000	100% ØDc	≤5,0	0,25 - 0,35
						5,0 - 10,0	0,20 - 0,30
						10,0 - 15,0	0,15 - 0,25
						15,0 - 20,0	0,10 - 0,20

(Note 1) Cutting conditions a_e/Dc=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) Use internal coolant supply.

OPERATIONAL GUIDE | Guia operacional | Guía operativa

- Only use the inserts and parts provided by Palbit with this tool. Use of the correct insert clamp screws is especially important to ensure overall tool safety. Do not use damaged or worn clamp screws.
- When tightening the clamp screws, follow the order in Figure 1. The recommended torque value is 3.5Nm.
- The maximum allowable revolutions are shown in Table 1. Ensure that the cutter operates under the maximum allowable revolutions.

The maximum allowable revolutions for safety purposes are determined in accordance with ISO 15641 (Milling Cutters for high speed machining–Safety requirements).

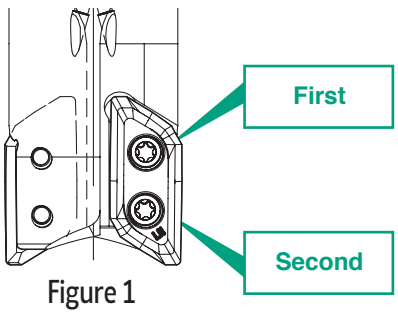


Figure 1

Table 1 - Maximum allowable revolutions:

ØDc	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100	Ø125
RPM (min^{-1})	41000	36000	30000	25000	23000	19000	16000

- Even when operating under the maximum allowable spindle speed, if the spindle speed is equal or higher than the values shown in Table 2., it is recommended that the balance quality (with the arbor or chuck) according ISO 1940.

Table 2 - Maximum revolutions when balancing with the arbor or chuck has not been achieved:

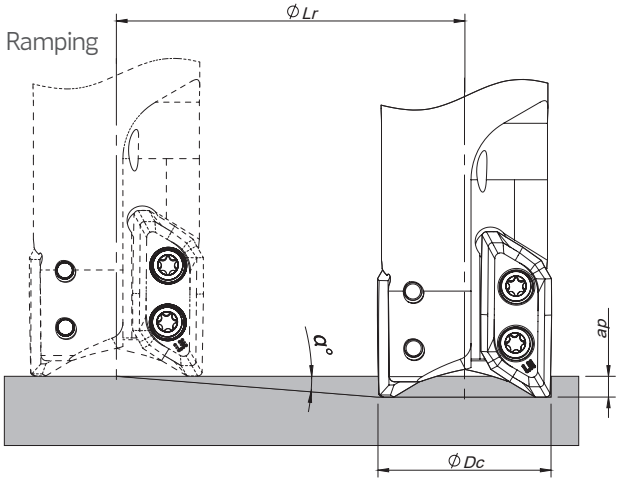
ØDc	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100	Ø125
RPM (min^{-1})	9500	7600	6000	4800	3800	3000	2400

- When setting the spindle speed, take into consideration the maximum allowable revolutions of arbor or chuck.
- Use the specified set bolt when using the arbor type with internal coolant supply.

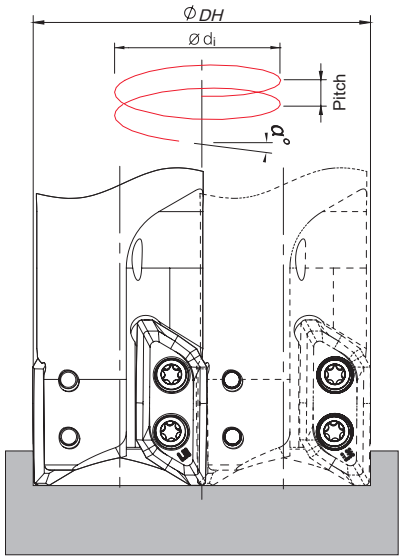
RAMPING AND HELICAL INTERPOLATION

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

Ramping



Helical Interpolation



Blind hole
Flat bottom

Ødi = ØDH - ØDc

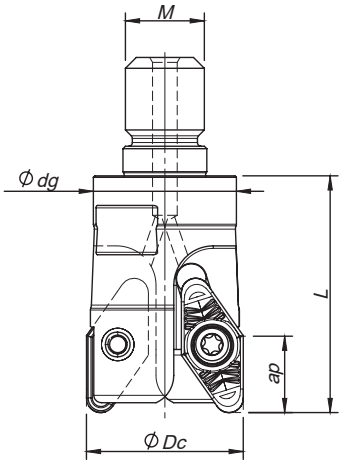
Holder Type	ØDc	Ramping			Helical Interpolation		
					Diameter for Blind Hole, Flat Bottom Face (1)		Max Pitch/Rev.
		Max Ramp a°	Max a_p	Min Lr	ØDHmin	ØDHmax	
A	32	19	21,5	62,4	60,0 -	- 62,4	30,3 32,9
	40	13	21,5	93,1	76,0 -	- 78,4	26,1 27,8
	50	9	21,5	135,7	96,0 -	- 98,4	22,9 24,1
	63	7	21,5	175,1	122,0 -	- 124,4	22,7 23,7
	80	5	21,5	245,7	156,0 -	- 158,4	20,9 21,5
	100	4	21,5	307,5	196,0 -	- 198,4	21,1 21,6
	125	3	21,5	410,2	246,0 -	- 248,4	19,9 20,3
B	32	18	21,0	64,6	60,0 -	- 62,4	28,6 31,0
	40	11	21,0	108,0	76,0 -	- 78,4	22,0 23,4
	50	8	21,0	149,4	96,0 -	- 98,4	20,3 21,4
	63	6	21,0	199,8	122,0 -	- 124,4	19,5 20,3
	80	4	21,0	300,3	156,0 -	- 158,4	16,7 17,2
	100	3	21,0	400,7	196,0 -	- 198,4	15,8 16,2
	125	2	21,0	601,4	246,0 -	- 248,4	13,3 13,5

(1) Using insert radius 0,8 mm
Note: During helical interpolation do not exceed maximum pitch
When using different insert radius to calculate the ØDHmin and ØDHmax use the below equation:
- Minium Diameter: ØDHmin = 2x(ØDc- (R corner radius + F width of edge wiper))
- Maximum Diameter: ØDHmax = 2 x (ØDc - R corner radius).

Check here the complete line:

PDF

ALUPRO 08390



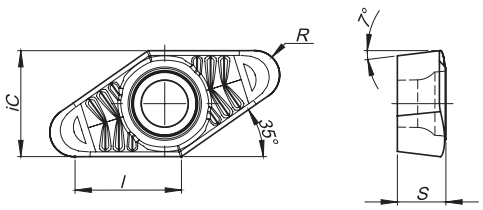
Threaded Coupling

K_r=90° | γ_p=0°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Specifications	Insert Pastilha Inserto	Stock
			ØDc	Ød/M	Ødg	L		Ap max (mm)		
181019900	032R08390-02-M16048	2	32	M16	29	48	0,19	15,00	VCGX 22...	◈

◈ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

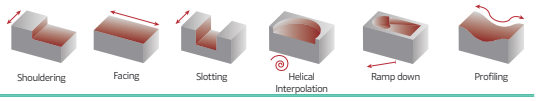
VCGX 220530 ‖ Inserts | Pastilhas | Plaquitas



N								
		UNC	PCD					
	(2) Grade code	10	D6	Dimensions (mm)				
(1) Geometry code	ISO Reference	PH0910	PDP410	iC	S	l	R	F
1121907	VCGX 220530 LN	◈		12,70	5,60	12,70	3,00	-

◈ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

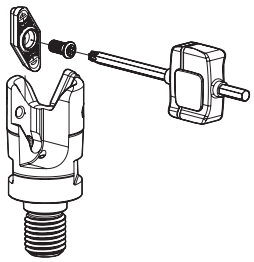
Insert order code = (1) Geometry Code + (2) Grade Code



SPARE PARTS | Complementos | Complementos

Order separately

Cutter ØDc	Insert Screw	Key (Torx)	Key (Torx - Nm)	Torque Value
R08390 – 32	P0451001	XT20	DT2050	5,00



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

ISO	PSM	Material	HB (Brinell)	Vc (m/min)	Feed fz (mm/t)
				PH0910	VCGX 22...
N	10	Aluminium and Non Ferrous	30-130	350-1400	0,20-0,50

ØDc	Ø32
RPM (min^{-1})	9500

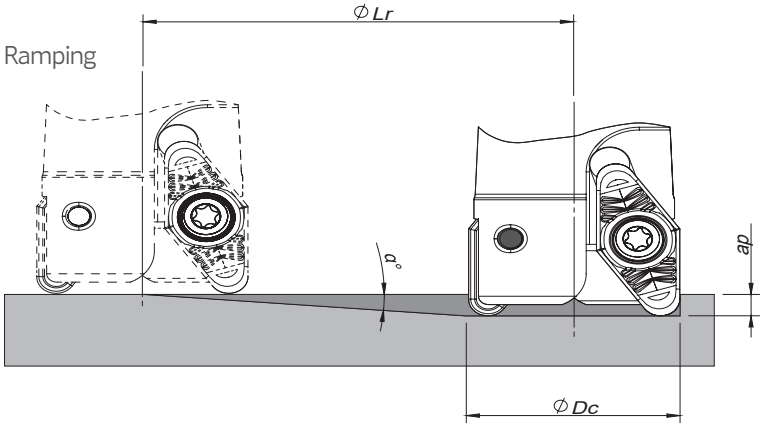
(Note 1) Cutting conditions a_e/Dc=70%.
(Note 2) It's possible to occur vibrations in certain cases. Please reduce depth of cut and / or reduce cutting conditions in following cases:
- When using long shank;
- When using long tool overhang with arbor type;
- When application has poor clamping rigidity or when using a low rigidity machine.

(Note 3) Use internal coolant supply.

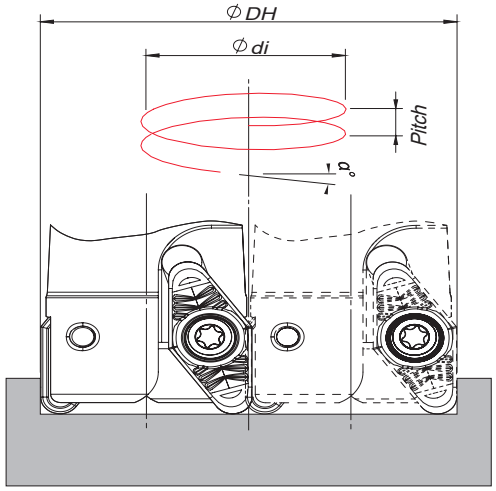
RAMPING AND HELICAL INTERPOLATION

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

Ramping



Helical Interpolation



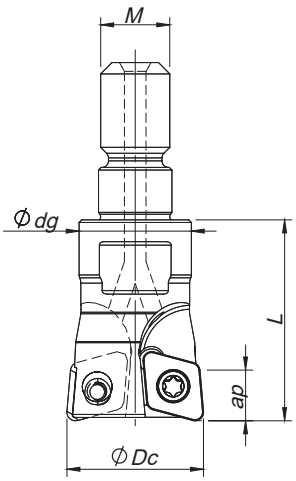
Blind hole
Flat bottom

Ødi = ØDH - ØDc

ØDc	Ramping			Helical Interpolation		
	Max Ramp a°	Max a_p	Min Lr	ØDHmin	ØDHmax	Max Pitch/Rev.
32	6,8	15,0	25,4	53,0 -	- 62,0	7,0 11,0

Note: During helical interpolation do not exceed max Pitch.

LINEPRO 40095 | 40595 | 41095

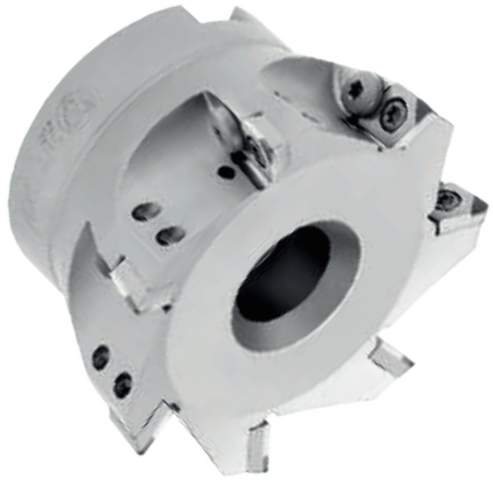


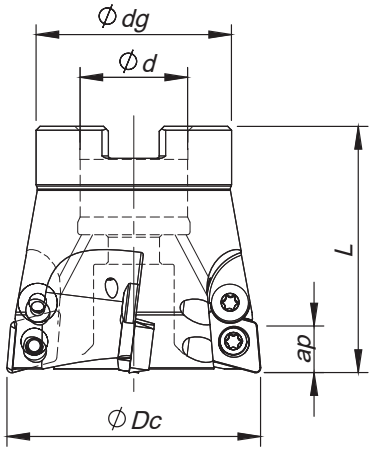
Threaded Coupling

K_r=95° | γ_p=+7° ~ (+9*)

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Specifications	Insert Pastilha Inserto	Stock
			ØDc	ØM	Ødg	L		Ap max (mm)		
41095										
181012400	010R41095-02-09-M06020*	2	10	M6	9,8	20	0,010	0,8	XD... 0401...	◈
181016300	012R41095-02-09-M06020*	2	12	M6	9,8	20	0,012	0,8	XD... 0401...	◈
40095										
181012100	016R40095-02-07-M08023	2	16	M8	13	23	0,022	1,0	XD... 0602...	◈
181012200	020R40095-03-07-M10028	3	20	M10	18	28	0,050	1,0	XD... 0602...	◈
181015600	025R40095-03-07-M12030	3	25	M12	21	30	0,081	1,0	XD... 0602...	◈
181034000	025R40095-04-07-M12030	4	25	M12	21	30	0,078	1,0	XD... 0602...	◈
40595										
181015700	025R40595-02-07-M12035	2	25	M12	21	35	0,077	1,0	XD... 10T3...	◈
181012300	035R40595-03-07-M16043	3	35	M16	29	43	0,200	1,0	XD... 10T3...	◈
181016900	042R40595-04-07-M16043	4	42	M16	29	43	0,230	1,0	XD... 10T3...	◈

◈ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta





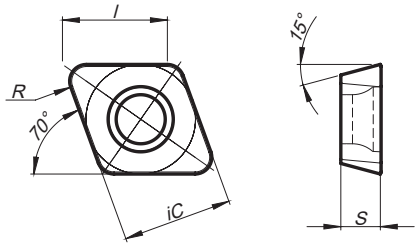
Arbor Mouting

K_r=95° | γ_p=+7°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Specifications		Insert Pastilha Inserto	Stock
			ØDc	Ød	Ødg	L		Arbor Type	Ap max (mm)		
40595											
181027700	052C40595-05-07-022050	5	52	22	40	50	0,342	A	1,0	XD... 10T3...	◈
181027800	066C40595-06-07-027050	6	66	27	48	50	0,565	A	1,0	XD... 10T3...	◈
181027900	080C40595-07-07-027050	7	80	27	60	50	0,972	A	1,0	XD... 10T3...	◈

◈ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

XDHW | Inserts | Pastilhas | Plaquitas

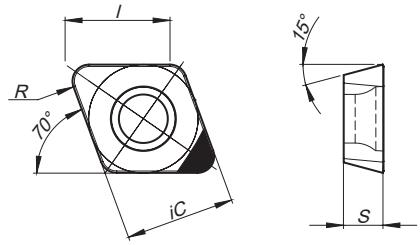


N								
		CVD						
	(2) Grade code	P2	Dimensions (mm)					
(1) Geometry code	ISO Reference	PHD103	iC	S	l	F	B	R
1110905	XDHW 040105	⚙	4,00	1,59	4,00	-	-	0,50
1110573	XDHW 040110	⚙	4,00	1,59	4,00	-	-	1,00
1110532	XDHW 060210	⚙	6,50	2,38	6,20	-	-	1,00
1110565	XDHW 10T310	○	10,00	3,97	9,90	-	-	1,00

⚙ 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

XDHW - PCD | Inserts | Pastilhas | Plaquitas



N								
		PCD						
	(2) Grade code	D6	Dimensions (mm)					
(1) Geometry code	ISO Reference	PDP410	iC	S	l	F	B	R
1112316	XDHW 040110 FN	⚙	4,00	1,59	4,00	-	-	1,00
1112318	XDHW 060210 FN	⚙	6,50	2,38	6,20	-	-	1,00
1112320	XDHW 10T310 FN	⚙	10,00	3,97	9,90	-	-	1,00

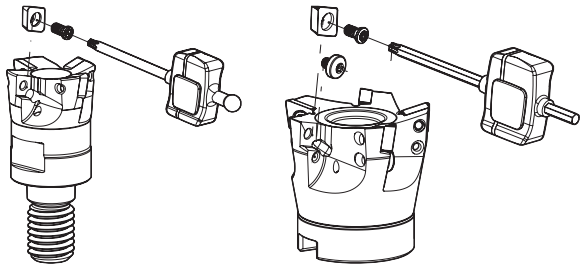
⚙ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

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

LINEPRO 40095 | 40595 | 41095

SPARE PARTS | Complementos | Complementos

Cutter ØDc	Insert Screw	Key (Torx)	Order separately Key (Torx - Nm)	Torque Value	Order separately Screw Clamp
R41095 – 10 - 12	P0180401	XT06	DT0606	0,6	-
R40095 – 16 - 25	P0250503	XT08	DT0812	1,2	-
R40595 – 25 - 42	P0350800	XT15	DT1530	3,0	-
C40595 – 52 - 80	P0350800	XT15	DT1530	3,0	P0350750



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

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance Toughness → PHD103	PCD PDP410
N	10	Aluminium and Non Ferrous	30-130	●	✓

● 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 → PHD103	PCD PDP410
N	10	Aluminium and Non Ferrous	30-130	300-1000	800-3000

Insert	Feed f_z (mm/t)		a_p Rec.
	Roughing	Finishing	
XD... 04	0,10-0,20	0,10-0,15	0,1-0,5
XD... 06	0,15-0,30	0,10-0,25	0,2-0,8
XD... 10	0,15-0,35	0,10-0,30	0,2-0,8

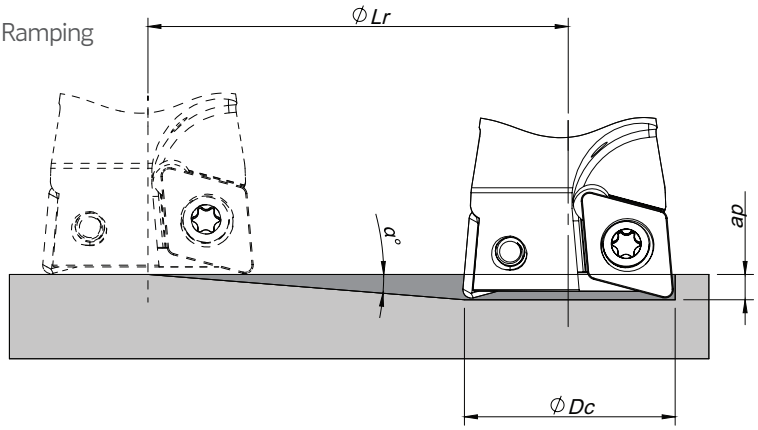
(Note 1): Cutting conditions should be ajusted according to the machine and work rigidity.

(Note 2): If chattering occurs, reduce ap and Vc by 30% and keep the same fz per thooth.

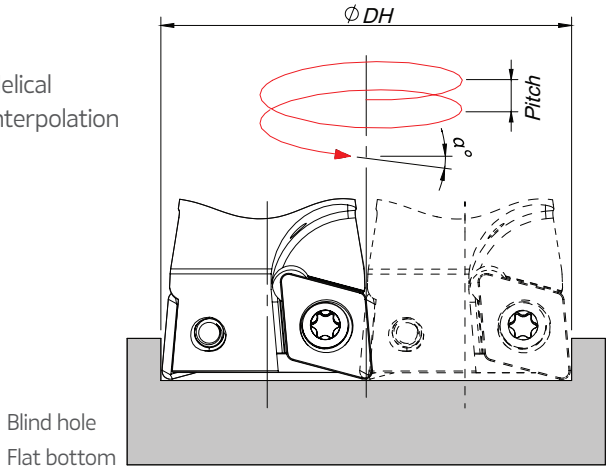
RAMPING AND HELICAL INTERPOLATION

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

Ramping



Helical Interpolation



Ødi = ØDH - ØDc

Insert	ØDc	Ramping			Helical Interpolation		
		Max Ramp a°	Max a_p	Min Lr	ØDHmin	ØDHmax	Max Pitch/Rev.
XDHW 04...	10	7,3	0,8	6,2	18,0 -	- 20,0	3,2 4,0
	12	5,3	0,8	8,6	22,0 -	- 24,0	2,9 3,5
XDHW 06...	16	8	1,0	7,1	30,0 -	- 32,0	6,2 7,1
	20	5,7	1,0	10,0	38,0 -	- 40,0	5,6 6,3
	25	4	1,0	14,3	48,0 -	- 50,0	5,1 5,5
XDHW 10...	25	8,7	1,0	6,5	48,0 -	- 50,0	11,1 12,0
	35	5,2	1,0	11,0	68,0 -	- 70,0	9,4 10,0
	42	4	1,0	14,3	82,0 -	- 84,0	8,8 9,2
	52	3	1,0	19,1	102,0 -	- 104,0	8,2 8,6
	66	2,3	1,0	24,9	130,0 -	- 132,0	8,1 8,3
	80	1,8	1,0	31,8	158,0 -	- 160,0	7,7 7,9

Note: During helical interpolation do not exceed max Pitch.

HARDMILL 72090

INSERTS CODIFICATION SYSTEM ‖ Sistema de codificação de pastilhas | Sistema de codificación de insertos

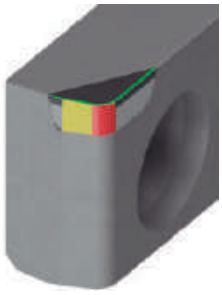
ISO CODE	Insert size	Insert thickness	Insert radius	Cutting edge position angle	Cutting edge relief angle	Cutting edge conditions	Cut direction		Wiper edge lenght	Máx. Ap
XNHW	12	05	04	P	Z	F	R	-	015	030

PCD RANGE ‖ Gama de produtos PCD | Rango de productos PCD

XNHW 120504 PZFR-0150045

XNHW 120504 PZFR-000080

XNHW 120508 PZFR-015045

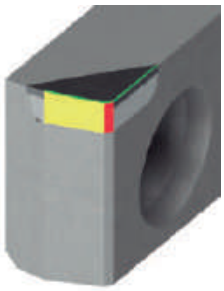


XNHW 120508 PZTR-015045

XNHW 120508 PZTR-000080

XNHW 1205 PZFR-020120

XNHW 1205 PZFR-030045



XNHW 1205 PZTR-030045

Cutting edge Type (radius, chamfer)

Wipper cutting edge

Edge Preparation (F, T)

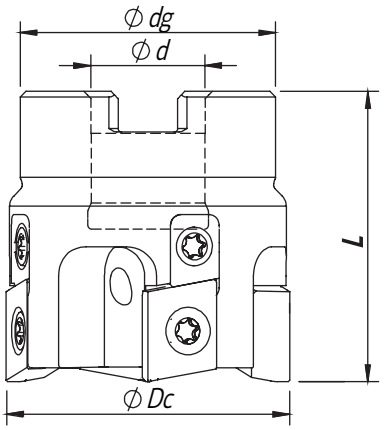
HARDMILL
NEW
PCD

XNHW 1205
PZFR-020120

XNHW 120508
PZTR-000080

XNHW 120508
PZTR-015045

HARDMILL 72090



Arbor Mounting

K_r=90° | γ_p=0

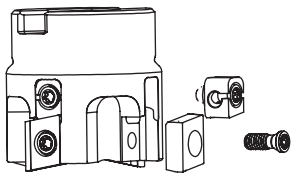
Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Specifications		Insert Pastilha Inserto	Stock
			ØDc	Ød	Ødg	L		Arbor Type	N max (mm)		
181129700	040A72090-04-016040	4	40	16	36	40	0,32	A	32 000	XNHW 1205...	◎
181129800	050A72090-04-022040	4	50	22	46	40	0,38	A	32 000	XNHW 1205...	◎
181129900	050A72090-05-022040	5	50	22	46	40	0,37	A	32 000	XNHW 1205...	○
181130000	063A72090-04-022040	4	63	22	49	40	0,65	A	29 000	XNHW 1205...	○
181130100	063A72090-07-022040	7	63	22	49	40	0,62	A	29 000	XNHW 1205...	◎
181130200	080A72090-05-027050	5	80	27	60	50	1,25	A	26 000	XNHW 1205...	◎
181130300	080A72090-09-027050	9	80	27	60	50	1,17	A	26 000	XNHW 1205...	◎
181130400	100A72090-06-032050	6	100	32	70	50	1,93	A	24 000	XNHW 1205...	◎
181130500	100A72090-12-032050	12	100	32	70	50	1,80	A	24 000	XNHW 1205...	○
181130600	125A72090-08-040063	8	125	40	72	63	2,88	A	22 000	XNHW 1205...	○
181130700	125A72090-14-040063	14	125	40	72	63	2,60	A	22 000	XNHW 1205...	○
181135500	160A72090-10-040063	10	160	40	72	63	3,30	A	18 000	XNHW 1205...	○
181135600	160A72090-16-040063	16	160	40	118	63	5,45	A	18 000	XNHW 1205...	○

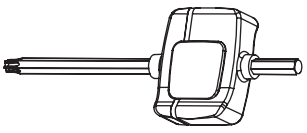
◎ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

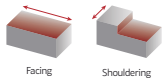
SPARE PARTS | Complementos | Complementos

Order separately

Cutter ØDc	Insert Screw	Key (Torx)	Key (Torx - Nm)	Torque Value	Wedge
A72090 - 40-160	P0401100	XT15	DT1530	3,00	SETDEV AS 04 00

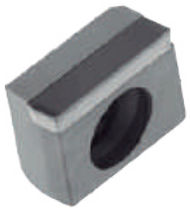






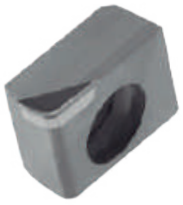
XNHW 1205... | Inserts | Pastilhas | Plaquitas

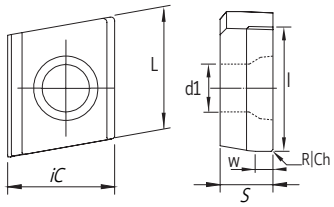
XNHW 1205 PZFR-020120



XNHW 120508 PZTR-000080

XNHW 120508 PZTR-015045





N									
		PCD							
	(2) Grade code	I3	D6	Dimensions (mm)					
(1) Geometry code	ISO Reference	PDP403	PDP410	L	S	l	d1	R	W
1112564	XNHW 120504 PZFR-015045	○	○	12,25	5,40	4,50	4,80	0,40	1,50
1112565	XNHW 120504 PZFR-000080	○	○	12,25	5,40	8,00	4,80	0,40	-
1112566	XNHW 120508 PZFR-015045	◈	○	12,25	5,40	4,50	4,80	0,80	1,50
1112551	XNHW 120508 PZTR-015045	◈	○	12,25	5,40	4,50	4,80	0,80	1,50
1112552	XNHW 120508 PZTR-000080	◈	○	12,25	5,40	8,00	4,80	0,80	-
1112553	XNHW 1205 PZFR-020120	◈	○	12,25	5,40	12,00	4,80	-	2,00
1112567	XNHW 1205 PZFR-030045	○	○	12,25	5,40	4,50	4,80	-	3,00
1112568	XNHW 1205 PZTR-030045	○	○	12,25	5,40	4,50	4,80	-	3,00

◈ 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

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

ISO	Material		HB (Brinell)	Vc (m/min)	Feed fz (mm/t)
	Work piece material	Type of treatment / alloy		PDP403	XNHW 12...
N	Aluminium wrought alloys		80	300 - 4000	0,05 - 0,40
			90	300 - 1500	
	Aluminium cast alloys	< 12% Si	130	300 - 5000	
		< 12% Si	90	300 - 3000	
		> 12% Si	100	300 - 1000	
		brass, red bronze	100	100 - 700	
		bronze	-	100 - 1500	
		lead-free copper and electrolytic copper	-	300 - 3000	
	Non-metallic materials	thermosetting plastics	-	80 - 300	
		fibre-reinforced plastics	200-320	80 - 300	
		hard rubber		80 - 300	

CODIFICATION SYSTEM FOR PCD TIPPED END MILLS

Sistema de codificação para fresas de metal duro com pontas de PCD | Sistema de codificación para fresas de carburo con puntas de PCD

Straight Flute example:

D	S	N	S	2	050	080	010	060
1	2	3	4	5	6	7	8	9

1 - Tool type

D - Diamond (PCD tipped)

2 - Design

B - Ball nose
S - Straight

3 - Application

N - Non-ferrous materials

4 - Length of Shank

S - Short length
L - Long length
XL - Extra long length

5 - Flutes number (Z)

Example: Z = 1 ; Z = 2 ; Z = 3

6 - Cutting diameter (ØDc)

Example: 120 = 12,0 mm ; 008 = 0,8 mm

7 - Max cutting depth
(L2 - on straight flute solid carbide)

060 = 6 mm ; 080 = 8 mm

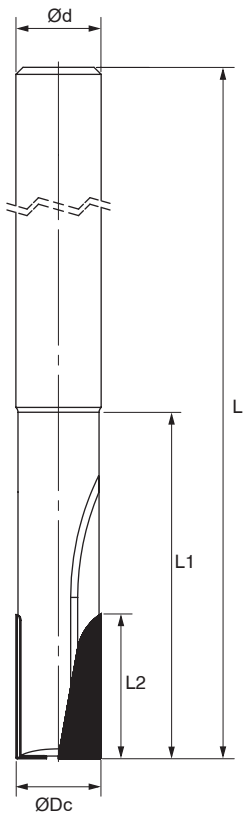
8 - Corner radius (Suppressed when it doesn't exist)

R... Example: R150 = 1,5 mm ; R015 = 0,15 mm

9 - Shank diameter (only on straight flute solid carbide)

Example: 060 = 6 mm

Straight Flute
technical drawing example

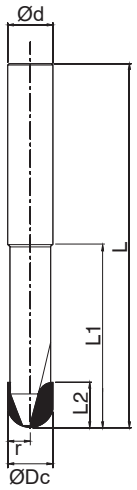


ØDc	Tool diameter
Ød	Shank diameter
L	Overall length
L2	Tip length
r	Corner form (radius or chamfer)

PCD TIPPED END MILLS

Fresas de metal duro com pontas de PCD | Fresas de carburo con puntas de PCD

HARDMILL BALL NOSE

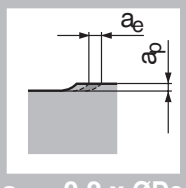
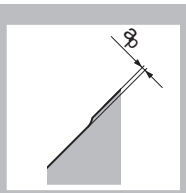


(1) Geometry code	(2) Grade code: Reference Referência Referencia		N PCD D6 PDP410	Dimensions | Dimensões | Dimensiones (mm) ØDc	Ød	L	L1	L2	r
1180079	DBNS 1 030 050 150 060	1	◈	3	3	60	30	5	1,50
1180080	DBNS 1 040 100 200 040	1	◈	4	4	60	30	10	2,00
1180081	DBNS 2 060 100 300 060	2	◈	6	6	80	40	10	3,00
1180082	DBNS 2 080 100 400 080	2	◈	8	8	80	40	10	4,00
1180083	DBNS 2 100 100 500 100	2	◈	10	10	80	40	10	5,00
1180084	DBNS 2 120 100 600 120	2	○	12	12	100	60	10	6,00

◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

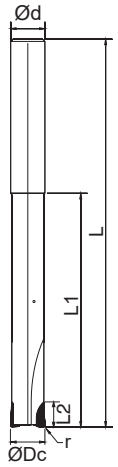
Order code = (1) Geometry Code + (2) Grade Code

Material Group	Correction factor	V_c (m/min)
Aluminium cast alloys 5% < Si ≤ 12%	1,6	790-1000
Aluminium cast alloys 12% < Si	1,5	790-1000
Fibre-reinforced synthetics	1,0	400-500
Graphite	1,0	700-850

ØD	 a_e = 0.2 x ØDc a_p = 0.1 x ØDc	 a_p = 0.05 x ØDc
	f_z (mm/t)	f_z (mm/t)
3	0,020	0,022
4	0,025	0,028
6	0,035	0,040
8	0,050	0,055
10	0,060	0,070
12	0,075	0,078

Please note that the value fz from the table above must be multiplied with the corresponding correction factor.

HARDMILL BULL NOSE



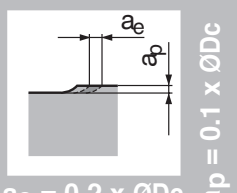
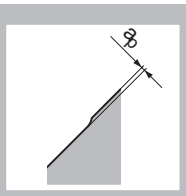
(1) Geometry code	(2) Grade code Reference Referência Referencia		N PCD D6 PDP410	Dimensions | Dimensões | Dimensiones (mm) ØDc	Ød	L	L1	L2	r
1180073	DSNS 1 030 050 030 040	1	◈	3	4	60	30	5	0,30
1180075	DSNL 2 040 050 030 040	2	◈	4	4	75	45	5	0,30
1180076	DSNL 2 060 060 030 060	2	◈	6	6	100	60	6	0,30
1180077	DSNL 2 080 060 030 080	2	◈	8	8	125	80	6	0,30
1180074	DSNL 2 100 060 050 100	2	◈	10	10	150	100	6	0,30
1180078	DSNL 2 120 070 050 120	2	◈	12	12	150	100	7	0,30

◈ Stock item | Produto de stock | Itens de stock

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

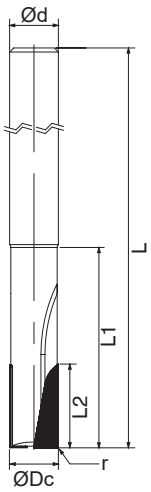
Order code = (1) Geometry Code + (2) Grade Code

Material Group	Correction factor	V_c (m/min)
Aluminium cast alloys 5% < Si ≤ 12%	1,6	790-1000
Aluminium cast alloys 12% < Si	1,5	790-1000
Fibre-reinforced synthetics	1,0	400-500
Graphite	1,0	700-850

ØD	 a_e = 0.2 x ØDc a_p = 0.1 x ØDc	 a_p = 0.05 x ØDc
	f_z (mm/t)	f_z (mm/t)
3	0,020	0,022
4	0,025	0,028
6	0,035	0,040
8	0,050	0,055
10	0,060	0,070
12	0,075	0,078

Please note that the value fz from the table above must be multiplied with the corresponding correction factor.

HARDMILL STRAIGHT EDGE



(1) Geometry code	(2) Grade code Reference Referência Referencia		N PCD D6 PDP410	Dimensions | Dimensões | Dimensiones (mm) ØDc	Ød	L	L1	L2	r
1180011	DSNS 2 040 060 010 060	2	⏣	4	6	51	6,40	6	0,10
1180012	DSNS 2 050 080 010 060	2	⏣	5	6	51	8,40	8	0,10
1180006	DSNS 2 060 080 010 060	2	⏣	6	6	63	21	8	0,10
1180013	DSNS 2 080 080 010 080	2	⏣	8	8	63	27	8	0,10
1180014	DSNS 2 080 120 010 080	2	⏣	8	8	63	27	12	0,10
1180015	DSNS 2 100 080 010 100	2	⏣	10	10	72	32	8	0,10
1180016	DSNS 2 100 160 010 100	2	⏣	10	10	72	32	16	0,10
1180017	DSNS 2 120 080 010 120	2	⏣	12	12	83	38	8	0,10
1180018	DSNS 2 120 160 010 120	2	⏣	12	12	83	38	16	0,10
1180019	DSNS 3 140 080 010 140	3	⏣	14	14	83	38	8	0,10
1180020	DSNS 3 140 160 010 140	3	⏣	14	14	83	38	16	0,10
1180021	DSNS 3 160 120 010 160	3	⏣	16	16	100	52	12	0,10
1180022	DSNS 3 160 200 010 160	3	⏣	16	16	100	52	20	0,10

⏣ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

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

NON-FERROUS MATERIALS | Materiais não ferrosos | Materiales no ferrosos

ISO	Workpiece Material	Vc (m/min) min	Vc (m/min) max	fz (mm/t) min	fz (mm/t) max	Coolant
N	Aluminium <6%Si	200	6000	0,05	0,30	Emulsion / MQL
	Aluminium <12%Si	200	4000	0,05	0,25	
	Aluminium >12%Si	200	2000	0,05	0,20	
	Cooper/Cooper Alloys	250	3000	0,03	0,30	

SYNTHETICS MATERIALS | Materiais sintéticos | Materiales sintéticos

ISO	Workpiece Material	Vc (m/min) min	Vc (m/min) max	fz (mm/t) min	fz (mm/t) max	Coolant
N	Graphit	150	2500	0,05	0,40	Dry/ Air
	GFRP, CFRP	200	3000	0,05	0,40	Dry/ Air
	Plastics (Termo/Duroplast)	100	2500	0,05	0,30	Emulsion/MQL
	Acrylic (PMMA)	100	1200	0,01	0,25	Emulsion /MQL
	Laminate	100	1200	0,02	0,50	Dry/Air

These recommended parameters are only approximate values. It can be necessary to adjust them regarding to the specific machining operation.

ANYTIME, ANYWHERE

Online ordering available 24-hour per day and shipments around the globe.

CLIENTS.PALBIT.PT

CODIFICATION SYSTEM FOR SOLID CARBIDE END MILLS

Sistema de codificação para fresas de metal duro para acabamento | Sistema de codificación para fresas de carburo para acabado

Straight Flute example:	H	C	38	A	S	3	120	22	R050	-	W
Integral Solid Carbide example:	1	2	3	4	5	6	7	8	9		10

1 - Tool type

H - Solid carbide end mill (Hard metal)

2 - Design

F - Square form (Flat top)
R - Square form with corner radius
C - Square form with corner chamfer
B - Ball nose
CH – Conical Top
XC – Conical Segment
XT - Tangential Segment
RO - Rougher

3 - Helix Angle (Suppressed when it is 90°)

... - Degree of helix rounded to nearest 5 degree

4 - Application

A - Aluminium
G - General application
F - Finishing
M - Steel
S - Stainless steel
H - Hard materials
TSP - Trochoidal milling
MIN - Micro milling

5 - Length of Shank

S - Short length
L - Long length
XL - Extra long length

6 - Flutes number (Z)

Example: Z = 1 ; Z = 2 ; Z = 3 ;

7 - Cutting diameter (ØDc)

Example: 120 = 12,0 mm ; 008 = 0,8 mm

8 - Max cutting depth (ap)

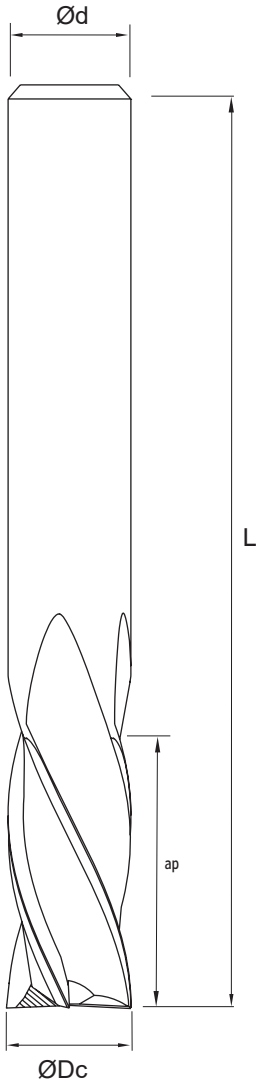
Example: 04 = 4 mm ; 06 = 6 mm

9 - Shank diameter (only on straight flute solid carbide)

Example for corner radius: R150 = 1,5 mm ; R015 = 0,15 mm
Example for conical segment: 18RM120 - α/2 = 18° , RM = 1200 mm
Example for tangential segment: RM090 - RM = 90 mm

10 - Weldon (Suppressed when it doesn't exist)

Integral Solid Carbide technical drawing example



Check here the complete program:

PDF

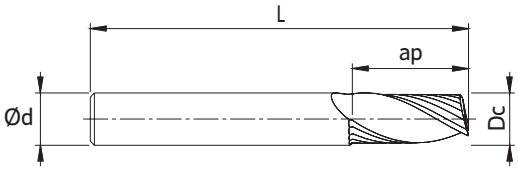
SOLID CARBIDE END MILLS

Fresas de metal duro integral | Fresas de carburo monobloque

AL-INTEG - Aluminium Specialized Endmills

HF30AS Single edge aluminium endmills

N



(1) Geometry code	(2) Grade code: Reference Referência Referencia		12 PH0920	Dimensions | Dimensões | Dimensiones (mm) ØDc	Ød (h6)	ap max	L
1180751	HF30AS 1 020 05	1	◎	2	6	5	57
1180752	HF30AS 1 030 08	1	◎	3	6	8	57
1180753	HF30AS 1 040 11	1	◎	4	6	11	57
1180754	HF30AS 1 050 13	1	◎	5	6	13	57
1180755	HF30AS 1 060 13	1	◎	6	6	13	57
1180756	HF30AS 1 080 19	1	◎	8	8	19	63
1180757	HF30AS 1 100 25	1	◎	10	10	22	72
1180758	HF30AS 1 120 26	1	◎	12	12	26	83

◎ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

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

CUTTING CONDITIONS | Condições de corte | Condiciones de corte

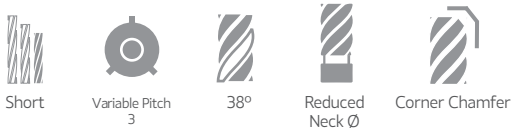
ISO	Material	f_z (mm/t) a_e = 25%	a_e = 50%	a_e = 100%	Vc (m/min) a_e = 25%	a_e = 50%	a_e = 100%
N	Aluminium <6%Si	0,011 x ØDc	0,009 x ØDc	0,006 x ØDc	230	220	190
	Aluminium <12%Si	0,009 x ØDc	0,008 x ØDc	0,005 x ØDc	210	200	180
	Aluminium >12%Si	0,008 x ØDc	0,007 x ØDc	0,005 x ØDc	200	190	170

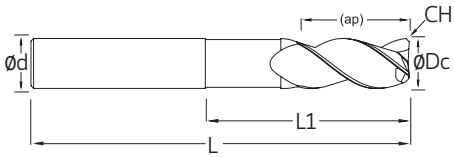
Note[1]: Recommended feed values for maximum a_p. For reduced a_p, consider increasing f_z up to 25%.
Note[2]: Cutting speeds selected for an economic use of the tool, for higher productivity consider increasing up to 70%.

PDF

HC38AS 3 Corner chamfer aluminium specialized endmills

N





(1) Order code		(2) Grade code		12	Dimensions | Dimensões | Dimensiones (mm)					
HA (Cylindrical)	HB (Weldon)	Reference Referência Referencia		PH0920	ØDc	Ød (h6)	ap_{max}	CH	L1	L
1180401	1180410	HC38AS 3 030 07	3	◎	3	6	7	0,15 x 45°	15	57
1180402	1180411	HC38AS 3 040 08	3	◎	4	6	8	0,15 x 45°	17	57
1180403	1180412	HC38AS 3 050 10	3	◎	5	6	10	0,15 x 45°	19	57
1180404	1180413	HC38AS 3 060 10	3	◎	6	6	10	0,15 x 45°	21	57
1180405	1180414	HC38AS 3 080 16	3	◎	8	8	16	0,15 x 45°	27	63
1180406	1180415	HC38AS 3 100 19	3	◎	10	10	19	0,20 x 45°	32	72
1180407	1180416	HC38AS 3 120 22	3	◎	12	12	22	0,20 x 45°	38	83
1180408	1180417	HC38AS 3 160 26	3	◎	16	16	26	0,35 x 45°	44	92
1180409	1180418	HC38AS 3 200 32	3	◎	20	20	32	0,35 x 45°	54	104

◎ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

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

Note: For HB (Weldon) endmills, the reference ends with "-W "
Example: "HC38AS 3 030 07-W PH0920"

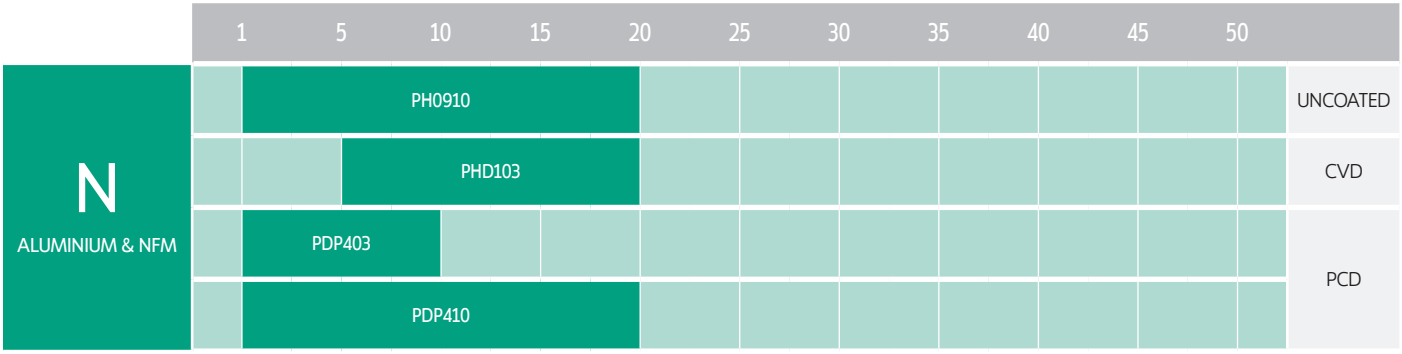
CUTTING CONDITIONS | Condições de corte | Condiciones de corte

ISO	Material	f_z (mm/t)			Vc (m/min)		
		a_e = 25%	a_e = 50%	a_e = 100%	a_e = 25%	a_e = 50%	a_e = 100%
N	Aluminium <6%Si	0,011 x ØDc	0,009 x ØDc	0,006 x ØDc	230	220	190
	Aluminium <12%Si	0,009 x ØDc	0,008 x ØDc	0,005 x ØDc	210	200	180
	Aluminium >12%Si	0,008 x ØDc	0,007 x ØDc	0,005 x ØDc	200	190	170

Note[1]: Recommended feed values for maximum a_p. For reduced a_p, consider increasing f_z up to 25%.
Note[2]: Cutting speeds selected for an economic use of the tool, for higher productivity consider increasing up to 70%.

PDF

MILLING GRADES | Graus de fresagem | Calidades de fresado



PHD103 - CVD GRADE

A carbide substract with high abrasion resistance coated with crystalline diamond CVD coating. Ideal for graphite machining.

PHD103
N05-N15

PH0910 - UNCOATED GRADE

Uncoated carbide micro-grain grade combining a good abrasive wear resistance and toughness. Suitable for rough to finish operations of aluminum alloys.

PH0910
N01-N05

PCD

PDP4...

Carbide insert with Polycrystaline Diamond tip for finishing operations on aluminums and non-ferrous metallic materials.

PDP403
N01-N10

PDP410
N01-N20

PCD

COMPARATIVE GRADES CHART | Tabela comparativa de graus | Tabla de comparación de calidad

PVD COATED GRADES | GRAUS REVESTIDOS A PVD | GRADOS CON RECUBRIMIENTO PVD

ISO	Material	Palbit	Sandvik	Kennametal	Iscar	Seco	Mitsubishi	Sumitomo	Hitachi	Walter	Kyocera	Taegutec	Dijet	Ceratizit
N	N01			KC410M KC510M KC5410								TT6080		AMZ
ALUMINIUM	N10		GC1025 GC1030	KC410M KC510M KC5410 KC620M				DL1000	SD5010 HD7010	WXN15		TT6080 TT8020		AMZ
	N20		GC1025 GC1030	KC422M KC620M		F15M	LC15TF	DL1000	SD5010 HD7010	WXN15		TT8020		

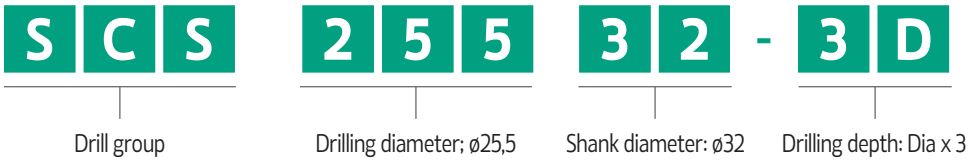
UNCOATED GRADES | GRAUS NÃO REVESTIDOS | GRADOS SÍN RECUBRIMIENTO

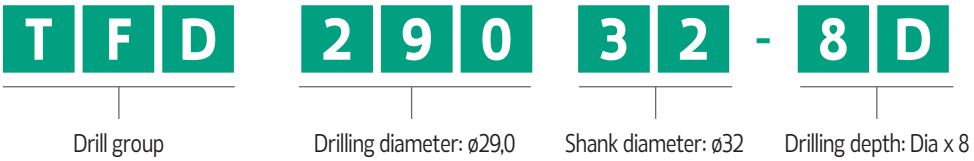
ISO	Material	Palbit	Sandvik	Kennametal	Iscar	Seco	Mitsubishi	Sumitomo	Hitachi	Walter	Kyocera	Taegutec	Dijet	Ceratizit
N	N01	**PH0910**	H10	K115M KC313	IC20		HTi 10	H1 G10E	PCS08M CY100H		PCS08M CY100H			H210T
ALUMINIUM	N10	**PH0910**	H13A H10F	K115M KC313	IC08	H15	HTi 10	H1 G10E	PCS08M CY100H CY10H	WK10	PCS08M CY100H CY10H	K10 UF10		H210T
	N20	**PH0910**	H13A H10F	K125M	IC08 IC28	HX H15 H25	HTi 10					K10		H216T

DRILLING

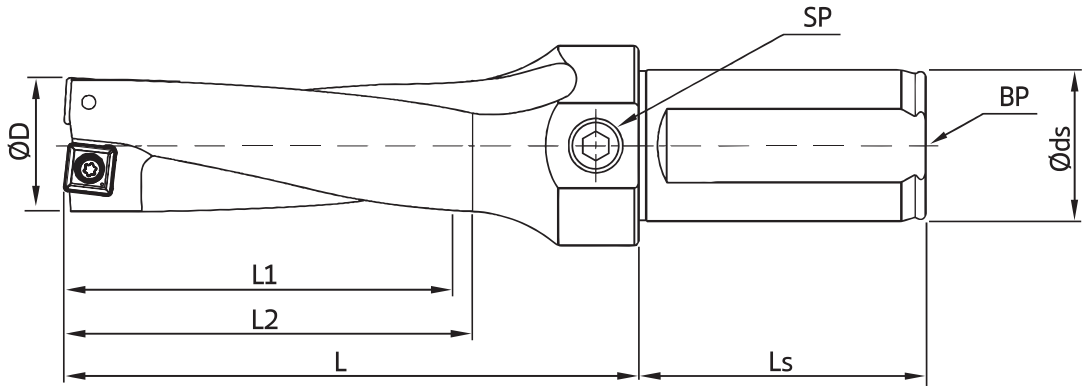
DRILLING

DRILLING



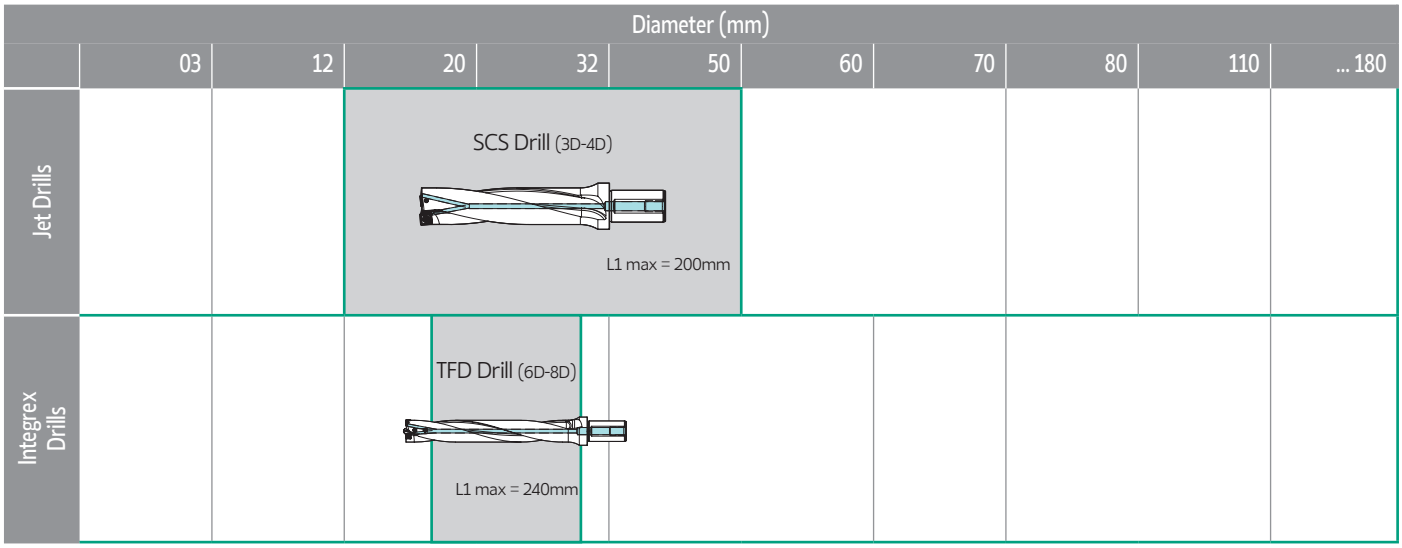


NOMENCLATURE | Nomenclatura | Nomenclatura



ØD - Drill diameter	L - Length	L1 - Cut length	SP - Side plug
Øds - Shank diameter	Ls - Shank Length	L2 - Safety cut length	BP - Back plug

OVERVIEW | Vista genérica | Información general



COOLANT SUPPLY | Furos de refrigeração | Agujeros de refrigeración

New version / Standard version *

Type	BP	SP
SCS	✓ / ✓	✗ / ✓
TFD	✓ / ✓	✓ / ✓

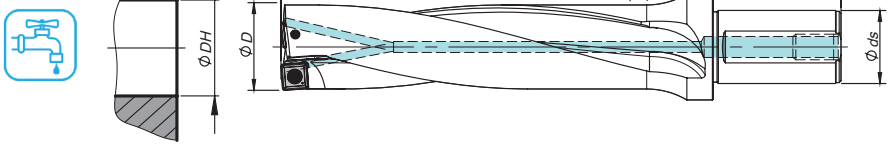
BP - Back Plug

SP - Side Plug

✓ - Available

✗ - Not Available

* The new Drill version will replace the standard version when this type will be sold out.



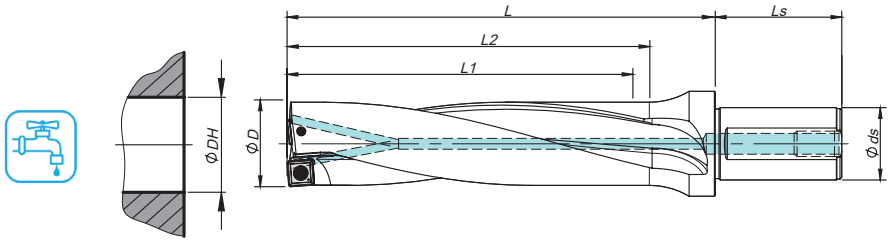
Øds	Ls	BP / SP
25	56	PT - 1/8

ØDH tolerance (mm)	
ØD	3D
15.5 - 21,5	-0,10 / +0,15

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)					Insert	Insert Screw	Torx key	Stock
		ØD	Ø ds	L1	L2	L				
184041900	SCS 15525-3D	15,5	25	47	50	75	SPKX 060204	P0220500	XT07	◎
184042000	SCS 16025-3D	16,0	25	48	51	76	SPKX 060204	P0220500	XT07	◎
184042100	SCS 16525-3D	16,5	25	50	53	78	SPKX 060204	P0220500	XT07	◎
184042200	SCS 17025-3D	17,0	25	51	54	79	SPKX 060204	P0220500	XT07	◎
184042300	SCS 17525-3D	17,5	25	53	56	81	SPKX 060204	P0220500	XT07	◎
184042400	SCS 18025-3D	18,0	25	54	57	82	SPKX 060204	P0220500	XT07	◎
184042500	SCS 18525-3D	18,5	25	56	59	84	SPKX 060204	P0220500	XT07	◎
184042600	SCS 19025-3D	19,0	25	57	60	85	SPKX 060204	P0220500	XT07	◎
184042700	SCS 19525-3D	19,5	25	59	62	87	SPKX 060204	P0220500	XT07	◎
184042800	SCS 20025-3D	20,0	25	60	63	88	SPKX 060204	P0220500	XT07	◎
184042900	SCS 20525-3D	20,5	25	62	65	90	SPKX 060204	P0220500	XT07	◎
184043000	SCS 21025-3D	21,0	25	63	66	91	SPKX 060204	P0220500	XT07	◎
184043100	SCS 21525-3D	21,5	25	65	68	93	SPKX 060204	P0220500	XT07	◎

◎ Stock item | Produto de stock | Itens de stock

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

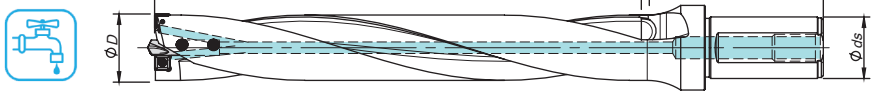


Øds	Ls	BP / SP
25	56	PT - 1/8

ØDH tolerance (mm)	
ØD	4D
15.5 - 21,5	-0,10 / +0,15

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)					Insert	Insert Screw	Torx key	Stock
		ØD	Ø ds	L1	L2	L				
184047600	SCS 15525-4D	15,5	25	62	65	90	SPKX 060204	P0220500	XT07	●
184047700	SCS 16025-4D	16,0	25	64	67	92	SPKX 060204	P0220500	XT07	●
184047800	SCS 16525-4D	16,5	25	66	69	94	SPKX 060204	P0220500	XT07	●
184047900	SCS 17025-4D	17,0	25	68	71	96	SPKX 060204	P0220500	XT07	●
184048000	SCS 17525-4D	17,5	25	70	73	98	SPKX 060204	P0220500	XT07	●
184048100	SCS 18025-4D	18,0	25	72	75	100	SPKX 060204	P0220500	XT07	●
184048200	SCS 18525-4D	18,5	25	74	77	102	SPKX 060204	P0220500	XT07	●
184048300	SCS 19025-4D	19,0	25	76	79	104	SPKX 060204	P0220500	XT07	●
184048400	SCS 19525-4D	19,5	25	78	81	106	SPKX 060204	P0220500	XT07	●
184048500	SCS 20025-4D	20,0	25	80	83	108	SPKX 060204	P0220500	XT07	●
184048600	SCS 20525-4D	20,5	25	82	85	110	SPKX 060204	P0220500	XT07	●
184048700	SCS 21025-4D	21,0	25	84	87	112	SPKX 060204	P0220500	XT07	●
184048800	SCS 21525-4D	21,5	25	86	89	114	SPKX 060204	P0220500	XT07	●

● Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta



Øds	Ls	BP / SP
25	56	PT - 1/8

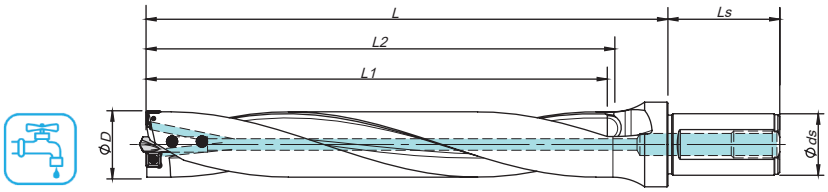
Order seperately

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)					Insert	Insert Screw	Torx key	Pilot drill	Stock
		ØD	Ø ds	L1	L2	L					
184154700	TFD 20025-6D	20,0	25	120	124	154	SPKX 060204	P0220500	XT07	MDP 2006	○
184154800	TFD 20525-6D	20,5	25	123	127	157	SPKX 060204	P0220500	XT07	MDP 2006	○
184154900	TFD 21025-6D	21,0	25	126	130	160	SPKX 060204	P0220500	XT07	MDP 2006	○
184155000	TFD 21525-6D	21,5	25	129	133	163	SPKX 060204	P0220500	XT07	MDP 2006	○
184155100	TFD 22025-6D	22,0	25	132	136	166	SPKX 060204	P0220500	XT07	MDP 2006	○
184155200	TFD 22525-6D	22,5	25	135	139	169	SPKX 060204	P0220500	XT07	MDP 2006	○
184155300	TFD 23025-6D	23,0	25	138	142	172	SPKX 060204	P0220500	XT07	MDP 2006	○
184155400	TFD 23525-6D	23,5	25	141	145	175	SPKX 060204	P0220500	XT07	MDP 2006	○
184155500	TFD 24025-6D	24,0	25	144	148	178	SPKX 060204	P0220500	XT07	MDP 2006	○
184155600	TFD 24525-6D	24,5	25	147	151	181	SPKX 060204	P0220500	XT07	MDP 2006	○
184155700	TFD 25025-6D	25,0	25	150	154	184	SPKX 060204	P0220500	XT07	MDP 2006	○

Stock item | Produto de stock | Itens de stock

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

Note:This type of drills are supplied without pilot drills. Please order them separately.



Øds	Ls	BP / SP
25	56	PT - 1/8

Order seperately

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)					Insert	Insert Screw	Torx key	Pilot drill	Stock
		ØD	Ø ds	L1	L2	L					
184152200	TFD 20025-8D	20,0	25	160	165	195	SPKX 060204	P0220500	XT07	MDP 2006	○
184152300	TFD 20525-8D	20,5	25	164	169	199	SPKX 060204	P0220500	XT07	MDP 2006	○
184152400	TFD 21025-8D	21,0	25	168	173	203	SPKX 060204	P0220500	XT07	MDP 2006	○
184152500	TFD 21525-8D	21,5	25	172	177	207	SPKX 060204	P0220500	XT07	MDP 2006	○
184151200	TFD 22025-8D	22,0	25	176	181	211	SPKX 060204	P0220500	XT07	MDP 2006	○
184152700	TFD 22525-8D	22,5	25	180	185	215	SPKX 060204	P0220500	XT07	MDP 2006	○
184152800	TFD 23025-8D	23,0	25	184	189	219	SPKX 060204	P0220500	XT07	MDP 2006	○
184152900	TFD 23525-8D	23,5	25	188	193	223	SPKX 060204	P0220500	XT07	MDP 2006	○
184153000	TFD 24025-8D	24,0	25	192	197	227	SPKX 060204	P0220500	XT07	MDP 2006	○
184153100	TFD 24525-8D	24,5	25	196	201	231	SPKX 060204	P0220500	XT07	MDP 2006	○
184151300	TFD 25025-8D	25,0	25	200	205	235	SPKX 060204	P0220500	XT07	MDP 2006	○

Stock item | Produto de stock | Itens de stock

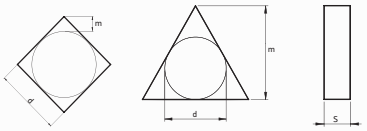
○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Note:This type of drills are supplied without pilot drills. Please order them separately.

ISO DRILLING INSERTS CODE KEY

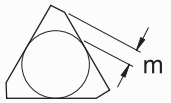
H	120°	M	86°
O	135°	V	35°
P	108°	W	80°
S	90°	L	90°
T	60°	A	85°
C	80°	B	82°
D	55°	K	55°
E	75°	R	
F	50°	X	Special

1- Insert shape symbol



Symbol	m (mm)	d (mm)	s (mm)
A	±0.005	±0.025	±0.025
F	±0.005	±0.013	±0.025
C	±0.013	±0.025	±0.025
H	±0.013	±0.013	±0.025
E	±0.025	±0.025	±0.025
G	±0.025	±0.025	±0.13
J	±0.005	±0.05~±0.13	±0.025
K*	±0.013	±0.05~±0.13	±0.025
L*	±0.025	±0.05~±0.13	±0.025
M*	±0.08~±0.20	±0.05~±0.13	±0.13
N*	±0.08~±0.20	±0.05~±0.13	±0.025
U*	±0.13~±0.38	±0.08~±0.25	±0.13

*As a rule, the sides of these inserts are as sintered. Tolerance differs with insert size, for the accuracy of class M, refer to the table on the right.



Triangular inserts with a facet (secondary cutting edge)

Detailed dimension of M class insert Insert height Tolerances (mm)					
Inscribed circle	T	S	C	D	V
6.35	±0.08	-	-	-	-
9.525	±0.08	±0.08	±0.11	±0.10	±0.13
12.70	±0.13	±0.13	±0.13	±0.15	-
15.875	±0.15	±0.15	±0.15	±0.18	-
19.05	±0.15	±0.15	±0.15	±0.18	-
25.40	-	±0.18	-	-	-
31.75	-	±0.25	-	-	-

Inscribed circle Tolerances (mm)					
Inscribed circle	T	S	C	D	V
6.35	±0.05	-	-	-	-
9.525	±0.05	±0.05	±0.05	±0.05	±0.05
12.70	±0.08	±0.08	±0.08	±0.08	±0.08
15.875	±0.10	±0.10	±0.10	±0.10	±0.10
19.05	-	-	-	-	±0.10
25.40	-	±0.13	-	-	±0.10
31.75	-	±0.20	-	-	±0.12

3 - Tolerances symbol

A	B	C	D	E
3°	5°	7°	15°	20°
F	G	N	P	O
25°	30°	0	11°	Other clearance angle

2 - Normal clearance symbol

ISO **S P H X**

4 - Insert symbol

symbol	Type	Hole type	Chipbreaker	Shape
W	with hole	Round hole / one countersink (40°~60°)	Without chipbreaker	
T			Chipbreaker on one side	
Q		Round hole / double countersink (40°~60°)	Without chipbreaker	
U			Chipbreaker on both sides	
B		Round hole / one countersink (70°~90°)	Without chipbreaker	
H	with hole	Round hole / one countersink (70°~90°)	Chipbreaker on one side	
C		Round hole / double countersink (70°~90°)	Without chipbreaker	
J			Chipbreaker on both sides	
A		Round hole	Without chipbreaker	
M			Chipbreaker on one side	
G	with hole	Round hole	Chipbreaker on both sides	
N	without hole	-	Without chipbreaker	
R		-	Chipbreaker on one side	
F		-	Chipbreaker on both sides	
X	-	-	-	On request

R's	V's (35°)	D's (55°)	C's (80°)	S's (90°)	T's (60°)	W's (80°)	Ø CI mm	Ø CI inch	ANSI Symbol
-	06	04	-	03	06	02	3,97	5/32	1,20
-	08	05	04	04	08	L3	4,76	3/16	1,50
-	09	06	05	05	09	03	5,56	7/32	1,80
06**	-	-	-	-	-	-	6,00	0,236	
06*	11	07	06	06	11	04	6,35	1/4	2,00
07*	13	09	08	07	13	05	7,94	5/16	2,50
08*	-	-	-	-	-	-	8,00	0,315	
09*	16	11	09	09	16	06	9,525	3/8	3,00
10**	-	-	-	-	-	-	10,00	0,394	
12**	-	-	-	-	-	-	12,00	0,472	
12*	22	15	12	12	22	08	12,70	1/2	4,00
15*	27	19	16	15	27	10	15,875	5/8	5,00
16**	-	-	-	-	-	-	16,00	0,63	
19*	33	23	19	19	33	13	19,05	3/4	6,00
20**	-	-	-	-	-	-	20,00	0,787	
25**	-	-	-	-	-	-	25,00	0,984	
25*	44	31	25	25	44	17	25,40	1,00	8,00
31*	54	38	32	31	54	21	31,75	1 1/4	10,00
32**	-	-	-	-	-	-	32,00	1,26	

5 - Insert size symbol

* ANSI designation only
(Radius Designation is 00)

** Metric designation only
(Radius Designation is M0)

According to International Standard ISO 1832 - 2012(E)

"Indexable inserts for cutting tools - Designation"

ISO	mm	ANSI	inch
01	1.59	1	0.062
T1	1.98	1.2	0.078
02	2.38	1.5	0.094
03	3.18	2	0.125
T3	3.97	2.5	0.156
04	4.76	3	0.188
05	5.56	3.5	0.219
06	6.35	4	0.250
07	7.94	5	0.312
09	9.52	6	0.375
12	12.70	8	0.500

6 - Insert thickness symbol

10 - Chipbreaker geometries

LN

06 02 04 AN E - LN

7 - Insert corner symbol

ISO	mm	inch	ANSI
00	Sharp nose		0
01	0.10	.004	0.2
02	0.20	.008	0.5
04	0.40	.015	1
08	0.80	.032	2
12	1.2	.047	3
16	1.6	.062	4
20	2.0	.078	5
24	2.4	.094	6
28	2.8	.109	7
32	3.2	.125	8
00 (inch or M0/ metric)	Round insert		0

7.1* - Insert edges symbol

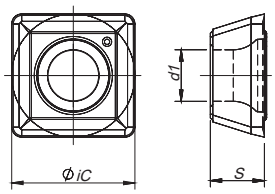
For inserts having secondary edges two digits are used:

1st digit is secondary edge		2nd digit is secondary edges relief angle	
A	45º	A	3º
D	60º	B	5º
E	75º	C	7º
F	85º	D	15º
P	90º	E	20º
Z	special	F	25º
*only when required.		G	30º
		N	0º
		P	11º
		Z	special

8 - Cutting edge information

Shape	Honing	Symbol
	No honing	F
	With honing	E
	Chamfered No honing	T
	Chamfered with honing	S
*only when required.		

SPHX-LN | Inserts | Pastilhas | Plaquitas



N							
		UNC	PCD				
	(2) Grade code	10	D6	Dimensions (mm)			
(1) Geometry code	ISO Reference	PH0910	PDP410	iC	S	d1	R
1142099	SPHX 060204-LN	◈		6,00	2,38	2,55	0,40

◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

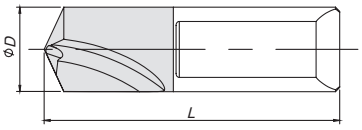
Insert order code = (1) Geometry Code + (2) Grade Code

SCREWS & KEYS

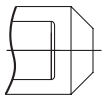
Order Code	Reference Referência Referencia
290030600	P0220500

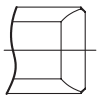
Order Code	Reference Referência Referencia
290012900	XT07

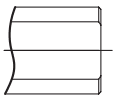
PILOT DRILL



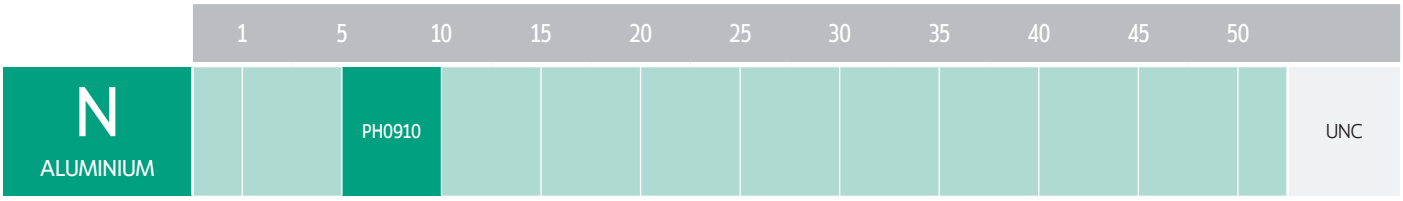
Shank Type


A (with cone)


B (with chamfer)


C

Order Code	Reference	Dimensions (mm)		Type	Oil Hole	For Drill
		ØD	L			
184150900	MDP 2006	6	20	A	-	TFD (Ø18,0 - Ø25,0)



DRILLING GRADES | Graus de furação | Grados de furacción

PH0910 - UNCOATED GRADE

Uncoated carbide micro-grain grade combining a good abrasive wear resistance and toughness.
Suitable for rough to finish operations of aluminum alloys.

PH0910
N01-N05

ANYTIME, ANYWHERE

Online ordering available 24-hour per day and shipments around the globe.

CLIENTS.PALBIT.PT

TURNING

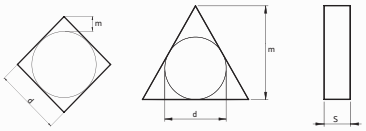
TURNING

TURNING

ISO TURNING INSERTS CODE KEY

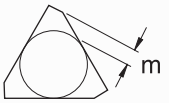
H	120°	M	86°
O	135°	V	35°
P	108°	W	80°
S	90°	L	90°
T	60°	A	85°
C	80°	B	82°
D	55°	K	55°
E	75°	R	
F	50°	X	Special

1 - Insert shape symbol



Symbol	m (mm)	d (mm)	s (mm)
A	±0.005	±0.025	±0.025
F	±0.005	±0.013	±0.025
C	±0.013	±0.025	±0.025
H	±0.013	±0.013	±0.025
E	±0.025	±0.025	±0.025
G	±0.025	±0.025	±0.13
J	±0.005	±0.05~±0.13	±0.025
K*	±0.013	±0.05~±0.13	±0.025
L*	±0.025	±0.05~±0.13	±0.025
M*	±0.08~±0.20	±0.05~±0.13	±0.13
N*	±0.08~±0.20	±0.05~±0.13	±0.025
U*	±0.13~±0.38	±0.08~±0.25	±0.13

*As a rule, the sides of these inserts are as sintered. Tolerance differs with insert size, for the accuracy of class M, refer to the table on the right.



Triangular inserts with a facet (secondary cutting edge)

Detailed dimension of M class insert Insert height Tolerances (mm)

Inscribed circle	T	S	C	D	V
6.35	±0.08	-	-	-	-
9.525	±0.08	±0.08	±0.11	±0.10	±0.13
12.70	±0.13	±0.13	±0.13	±0.15	-
15.875	±0.15	±0.15	±0.15	±0.18	-
19.05	±0.15	±0.15	±0.15	±0.18	-
25.40	-	±0.18	-	-	-
31.75	-	±0.25	-	-	-

Inscribed circle Tolerances (mm)

Inscribed circle	T	S	C	D	V
6.35	±0.05	-	-	-	-
9.525	±0.05	±0.05	±0.05	±0.05	±0.05
12.70	±0.08	±0.08	±0.08	±0.08	±0.08
15.875	±0.10	±0.10	±0.10	±0.10	±0.10
19.05	-	-	-	-	±0.10
25.40	-	±0.13	-	-	±0.10
31.75	-	±0.20	-	-	±0.12

3 - Tolerances symbol

A	B	C	D	E
3°	5°	7°	15°	20°
F	G	N	P	O
25°	30°	0	11°	Other clearance angle

2 - Normal clearance symbol

ISO	T	N	M	G
ANSI	T	N	M	G

4 - Insert symbol

symbol	Type	Hole type	Chipbreaker	Shape
W	with hole	Round hole / one countersink (40°~60°)	Without chipbreaker	
T			Chipbreaker on one side	
Q		Round hole / double countersink (40°~60°)	Without chipbreaker	
U			Chipbreaker on both sides	
B		Round hole / one countersink (70°~90°)	Without chipbreaker	
H	with hole	Round hole / one countersink (70°~90°)	Chipbreaker on one side	
C		Round hole / double countersink (70°~90°)	Without chipbreaker	
J			Chipbreaker on both sides	
A		Round hole	Without chipbreaker	
M			Chipbreaker on one side	
G	with hole	Round hole	Chipbreaker on both sides	
N	without hole	-	Without chipbreaker	
R		-	Chipbreaker on one side	
F		-	Chipbreaker on both sides	
X	-	-	-	On request

R's	V's (35°)	D's (55°)	C's (80°)	S's (90°)	T's (60°)	W's (80°)	Ø CI mm	Ø CI inch	ANSI Symbol
-	06	04	-	03	06	02	3,97	5/32	1,20
-	08	05	04	04	08	L3	4,76	3/16	1,50
-	09	06	05	05	09	03	5,56	7/32	1,80
06**	-	-	-	-	-	-	6,00	0,236	
06*	11	07	06	06	11	04	6,35	1/4	2,00
07*	13	09	08	07	13	05	7,94	5/16	2,50
08*	-	-	-	-	-	-	8,00	0,315	
09*	16	11	09	09	16	06	9,525	3/8	3,00
10**	-	-	-	-	-	-	10,00	0,394	
12**	-	-	-	-	-	-	12,00	0,472	
12*	22	15	12	12	22	08	12,70	1/2	4,00
15*	27	19	16	15	27	10	15,875	5/8	5,00
16**	-	-	-	-	-	-	16,00	0,63	
19*	33	23	19	19	33	13	19,05	3/4	6,00
20**	-	-	-	-	-	-	20,00	0,787	
25**	-	-	-	-	-	-	25,00	0,984	
25*	44	31	25	25	44	17	25,40	1,00	8,00
31*	54	38	32	31	54	21	31,75	1 1/4	10,00
32**	-	-	-	-	-	-	32,00	1,26	

5 - Insert size symbol

* ANSI designation only
(Radius Designation is 00)

** Metric designation only
(Radius Designation is M0)

According to International Standard ISO 1832 - 2012(E)

"Indexable inserts for cutting tools - Designation"

ISO	mm	ANSI	inch
01	1.59	1	0.062
T1	1.98	1.2	0.078
02	2.38	1.5	0.094
03	3.18	2	0.125
T3	3.97	2.5	0.156
04	4.76	3	0.188
05	5.56	3.5	0.219
06	6.35	4	0.250
07	7.94	5	0.312
09	9.52	6	0.375
12	12.70	8	0.500

6 - Insert thickness symbol

16	04	08 / AN	E	N	-MS
3	3	2	E	N	-MS

10 - Chipbreaker geometries

NEGATIVE Chipbreakers: MS

POSITIVE Chipbreakers: LN

7 - Insert corner symbol

ISO	mm	inch	ANSI
00	Sharp nose		0
01	0.10	.004	0.2
02	0.20	.008	0.5
04	0.40	.015	1
08	0.80	.032	2
12	1.2	.047	3
16	1.6	.062	4
20	2.0	.078	5
24	2.4	.094	6
28	2.8	.109	7
32	3.2	.125	8
00 (inch or M0/ metric)	Round insert		0

7.1* - Insert edges symbol

For inserts having secondary edges two digits are used:

1st digit is secondary edge		2nd digit is secondary edges relief angle	
A	45°	A	3°
D	60°	B	5°
E	75°	C	7°
F	85°	D	15°
P	90°	E	20°
Z	special	F	25°
*only when required.		G	30°
		N	0°
		P	11°
		Z	special

8* - Cutting edge information

Shape	Honing	Symbol
	No honing	F
	With honing	E
	Chamfered No honing	T
	Chamfered with honing	S

*only when required.

9* - Cutting direction

Shape	Hand	Symbol
	Right	R
	Left	L
	None	N

*only when required.

NEGATIVE TURNING Application Range Overview | Vista geral de aplicações | Vista general de aplicaciones

	Fine finishing	Finishing	Medium	Roughing	Heavy roughing
N			MS 		
	Uncoated Grades				
			PH0910 (N01-N20) 		
	Continuous cut ← → Interrupted cut				

POSITIVE TURNING Application Range Overview | Vista geral de aplicações | Vista general de aplicaciones

	Fine finishing	Finishing	Medium	Roughing	Heavy roughing
N		LN 			
	Uncoated Grades				
7°		PH0910 (N01-N20) 			
	Continuous cut ← → Interrupted cut				

NEGATIVE TURNING INSERTS OVERVIEW

CNMG-MS

Medium to Finishing

Page 108 Rhombic 80°

DNMG-MS

Medium to Finishing

Page 108 Rhombic 55°

TNMG-MS

Medium to Finishing

Page 109 Triangular 60°

VNMG-MS

Medium to Finishing

Page 109 Rhombic 35°

WNMG-MS

Medium to Finishing

Page 110 Trigon 80°

POSITIVE TURNING INSERTS OVERVIEW

CCGT-LN

Finishing to fine finishing

Page 111 Rhombic 80°

DCGT-LN

Finishing to fine finishing

Page 111 Rhombic 55°

RCGT-LN

Finishing to fine finishing

Page 112 Round R°

TCGT-LN

Finishing to fine finishing

Page 112 Triangular 60°

SCGT-LN

Finishing to fine finishing

Page 113 Square 90°

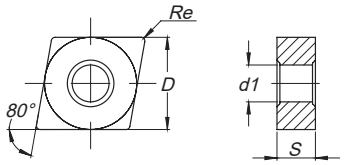
VCGT-LN

Finishing to fine finishing

Page 113 Rhombic 35°

CN - RHOMBIC 80º NEGATIVE

RÔMBICA 80º NEGATIVA | RÓMBICA 80º NEGATIVA



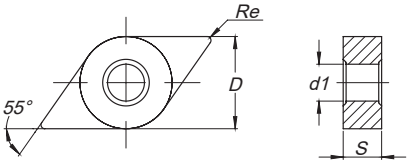
N															
		(2) Grade code		UNC 10	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	ANSI Reference	PH0910	D	S	Re	d1	ap (mm)	Min	Max	fn (mm/rev)	Min	Max
CNMG-MS  Medium to Finishing	1121479	CNMG 120404-MS	CNMG 431-MS	◎	12,700	4,76	0,40	5,16	1,50	0,20	3,60	0,15	0,10	0,20
	1121481	CNMG 120408-MS	CNMG 432-MS	◎	12,700	4,76	0,80	5,16	2,00	0,30	3,60	0,25	0,10	0,40
	1121483	CNMG 120412-MS	CNMG 433-MS	◎	12,700	4,76	1,20	5,16	2,40	0,40	3,60	0,30	0,15	0,60
	1121486	CNMG 120416-MS	CNMG 434-MS	○	12,700	4,76	1,60	5,16	2,40	0,40	3,60	0,40	0,15	0,80

◎ Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

Insert Order Code: (1) Geometry code + (2) Grade code

DN - RHOMBIC 55º NEGATIVE

RÔMBICA 55º NEGATIVA | RÓMBICA 55º NEGATIVA



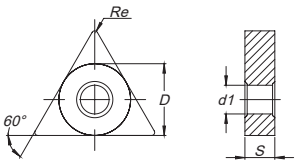
N															
		(2) Grade code		UNC 10	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	ANSI Reference	PH0910	D	S	Re	d1	ap (mm)	Min	Max	fn (mm/rev)	Min	Max
DNMG-MS  Medium to Finishing	1121503	DNMG 150404-MS	DNMG 431-MS	◎	12,700	4,76	0,40	5,16	1,50	0,20	3,60	0,15	0,10	0,20
	1121505	DNMG 150408-MS	DNMG 432-MS	◎	12,700	4,76	0,80	5,16	2,00	0,30	3,80	0,25	0,10	0,40
	1121509	DNMG 150412-MS	DNMG 433-MS	◎	12,700	4,76	1,20	5,16	2,50	0,40	4,00	0,30	0,15	0,60
	1121513	DNMG 150416-MS	DNMG 434-MS	○	12,700	4,76	1,60	5,16	2,80	0,40	4,50	0,40	0,15	0,80
	1121927	DNMG 150604-MS	DNMG 441-MS	◎	12,700	6,35	0,40	5,16	1,50	0,20	3,60	0,15	0,10	0,20
	1121928	DNMG 150608-MS	DNMG 442-MS	◎	12,700	6,35	0,80	5,16	2,00	0,30	4,00	0,25	0,10	0,40
	1122030	DNMG 150612-MS	DNMG 443-MS	○	12,700	6,35	1,20	5,16	2,80	0,40	4,50	0,30	0,15	0,60

◎ Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

Insert Order Code: (1) Geometry code + (2) Grade code

TN = TRIANGULAR 60º NEGATIVE

TRIANGULAR 60º NEGATIVA | TRIANGULAR 60º NEGATIVA



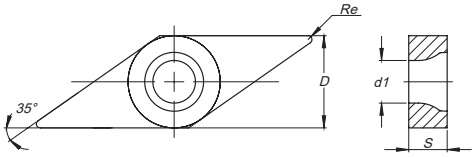
N															
		(2) Grade code		UNC 10	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	ANSI Reference	PH0910	D	S	Re	d1	ap (mm)	Min	Max	fn (mm/rev)	Min	Max
TNMG -MS  Medium to Finishing	1121557	TNMG 160404-MS	TNMG 331-MS	⛭	9,525	4,76	0,40	3,81	2,00	0,30	3,80	0,15	0,10	0,20
	1121559	TNMG 160408-MS	TNMG 332-MS	⛭	9,525	4,76	0,80	3,81	2,00	0,30	3,80	0,25	0,10	0,40
	1121561	TNMG 160412-MS	TNMG 333-MS	⛭	9,525	4,76	1,20	3,81	2,00	0,40	3,80	0,30	0,15	0,60

⛭ Stock Itens | Itens de stock ◯ Available under request | Disponível sob consulta | Disponible bajo consulta

Insert Order Code: (1) Geometry code + (2) Grade code

VN = RHOMBIC 35º NEGATIVE

RÔMBICA 35º NEGATIVA | RÓMBICA 35º NEGATIVA



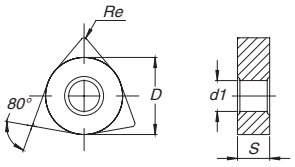
N															
		(2) Grade code		UNC 10	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	ANSI Reference	PH0910	D	S	Re	d1	ap (mm)	Min	Max	fn (mm/rev)	Min	Max
VNMG-MS  Medium to Finishing	1121579	VNMG 160404-MS	VNMG 331-MS	⛭	9,525	4,76	0,40	3,81	2,00	0,20	4,00	0,15	0,10	0,20
	1121580	VNMG 160408-MS	VNMG 332-MS	⛭	9,525	4,76	0,80	3,81	2,50	0,20	4,00	0,25	0,15	0,40

⛭ Stock Itens | Itens de stock ◯ Available under request | Disponível sob consulta | Disponible bajo consulta

Insert Order Code: (1) Geometry code + (2) Grade code

WN = TRIGON 80º NEGATIVE

TRIGONAL 80º NEGATIVA | TRIGONA 80º NEGATIVA



N															
				UNC	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		(2) Grade code		10										
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	ANSI Reference	PH0910	D	S	Re	d1	ap (mm)	Min	Max	fn (mm/rev)	Min	Max
WNMG-MS  Medium to Finishing	1124574	WNMG 080404-MS	WNMG 431-MS	⊛	12,700	4,76	0,40	5,16	2,50	0,70	4,00	0,15	0,10	0,30
	1121588	WNMG 080408-MS	WNMG 432-MS	⊛	12,700	4,76	0,80	5,16	2,50	0,70	4,00	0,25	0,20	0,40
	1121590	WNMG 080412-MS	WNMG 433-MS	⊛	12,700	4,76	1,20	5,16	2,50	1,00	4,00	0,30	0,25	0,55

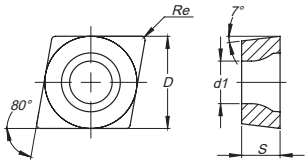
⊛ Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

Insert Order Code: (1) Geometry code + (2) Grade code

CC = RHOMBIC 80° POSITIVE

RÔMBICA 80° POSITIVA | RÓMBICA 80° POSITIVA

RELIEF ANGLE 7°



N															
		(2) Grade code		UNC 10	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	ANSI Reference	PH0910	D	S	Re	d1	ap (mm)	Min	Max	fn (mm/rev)	Min	Max
CCGT-LN  Finishing to Fine Finishing	1121884	CCGT 060202-LN	CCGT 21.50.5-LN	◎	6,350	2,38	0,20	2,80	1,00	0,05	3,00	0,07	0,05	0,12
	1121885	CCGT 060204-LN	CCGT 21.51-LN	◎	6,350	2,38	0,40	2,80	1,55	0,10	3,00	0,15	0,10	0,20
	1121886	CCGT 09T302-LN	CCGT 32.50.5-LN	◎	9,525	3,97	0,20	4,40	1,53	0,05	3,00	0,07	0,05	0,12
	1121887	CCGT 09T304-LN	CCGT 32.51-LN	◎	9,525	3,97	0,40	4,40	2,55	0,10	5,00	0,16	0,10	0,22
	1121888	CCGT 09T308-LN	CCGT 32.52-LN	◎	9,525	3,97	0,80	4,40	2,55	0,10	5,00	0,22	0,15	0,45
	1123679	CCGT 120402-LN	CCGT 430.5-LN	◎	12,700	4,76	0,20	5,50	2,03	0,05	4,00	0,07	0,05	0,12
	1123681	CCGT 120404-LN	CCGT 431-LN	◎	12,700	4,76	0,40	5,50	2,55	0,10	5,00	0,17	0,10	0,26
	1123682	CCGT 120408-LN	CCGT 432-LN	◎	12,700	4,76	0,80	5,50	2,80	0,10	5,50	0,25	0,15	0,50

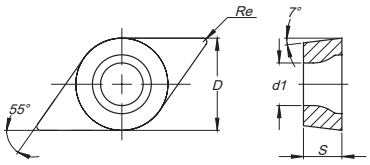
◎ Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

Insert Order Code: (1) Geometry code + (2) Grade code

DC = RHOMBIC 55° POSITIVE

RÔMBICA 55° POSITIVA | RÓMBICA 55° POSITIVA

RELIEF ANGLE 7°



N															
		(2) Grade code		UNC 10	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	ANSI Reference	PH0910	D	S	Re	d1	ap (mm)	Min	Max	fn (mm/rev)	Min	Max
DCGT-LN  Finishing to Fine Finishing	1121900	DCGT 070202-LN	DCGT 21.50.5-LN	◎	6,350	2,38	0,20	2,80	1,00	0,05	3,00	0,07	0,05	0,12
	1121901	DCGT 070204-LN	DCGT 21.51-LN	◎	6,350	2,38	0,40	2,80	2,05	0,10	4,00	0,15	0,10	0,20
	1111540	DCGT 11T302-LN	DCGT 32.50.5-LN	◎	9,525	3,97	0,20	4,40	2,03	0,05	4,00	0,07	0,05	0,12
	1111534	DCGT 11T304-LN	DCGT 32.51-LN	◎	9,525	3,97	0,40	4,40	2,55	0,10	5,00	0,16	0,10	0,22
	1121904	DCGT 11T308-LN	DCGT 32.52-LN	◎	9,525	3,97	0,80	4,40	2,55	0,10	5,00	0,22	0,15	0,50
	1124004	DCGT 11T312-LN	DCGT 32.53-LN	◎	9,525	3,97	1,20	4,40	2,70	0,15	5,00	0,35	0,15	0,70

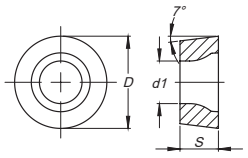
◎ Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

Insert Order Code: (1) Geometry code + (2) Grade code

RC = ROUND Rº POSITIVE

REDONDA Rº POSITIVA | REDONDA Rº POSITIVA

RELIEF ANGLE 7º



N															
		(2) Grade code		UNC 10	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	ANSI Reference	PH0910	D	S	Re	d1	ap (mm)	Min	Max	fn (mm/rev)	Min	Max
RCGT-LN  Finishing to Fine Finishing	1124005	RCGT 0602M0-LN	RCGT 0602M0-LN	◎	6,00	2,38	-	2,80	1,25	0,50	2,00	0,13	0,05	0,20
	1124006	RCGT 0803M0-LN	RCGT 0803M0-LN	◎	8,00	3,18	-	3,40	1,50	0,50	2,50	0,15	0,05	0,25
	1124007	RCGT 1003M0-LN	RCGT 1003M0-LN	◎	10,00	3,18	-	4,40	2,00	1,00	3,00	0,20	0,10	0,30
	1123684	RCGT 1204M0-LN	RCGT 1204M0-LN	◎	12,00	4,76	-	4,40	2,25	1,00	3,50	0,23	0,10	0,35

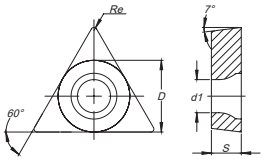
◎ Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

Insert Order Code: (1) Geometry code + (2) Grade code

TC = TRIANGULAR 60º POSITIVE

TRIANGULAR 60º POSITIVA | TRIANGULAR 60º POSITIVA

RELIEF ANGLE 7º



N															
		(2) Grade code		UNC 10	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	ANSI Reference	PH0910	D	S	Re	d1	ap (mm)	Min	Max	fn (mm/rev)	Min	Max
TCGT-LN  Finishing to Fine Finishing	1124011	TCGT 090202-LN	TCGT 1.81.50.5-LN	◎	5,560	2,38	0,20	2,50	1,00	0,05	2,50	0,10	0,07	0,15
	1123683	TCGT 090204-LN	TCGT 1.81.51-LN	◎	5,560	2,38	0,40	2,50	1,00	0,05	2,50	0,15	0,10	0,20
	1121895	TCGT 110202-LN	TCGT 21.50.5-LN	◎	6,350	2,38	0,20	2,80	2,03	0,05	4,00	0,12	0,07	0,15
	1121896	TCGT 110204-LN	TCGT 21.51-LN	◎	6,350	2,38	0,40	2,80	2,05	0,10	4,00	0,15	0,10	0,20
	1124012	TCGT 110208-LN	TCGT 21.52-LN	◎	6,350	2,38	0,80	2,80	2,05	0,10	4,00	0,25	0,15	0,50
	1121897	TCGT 16T302-LN	TCGT 32.50.5-LN	◎	9,525	3,97	0,20	4,40	2,53	0,05	5,00	0,10	0,07	0,15
	1121898	TCGT 16T304-LN	TCGT 32.51-LN	◎	9,525	3,97	0,40	4,40	2,80	0,10	5,50	0,15	0,10	0,20
	1121899	TCGT 16T308-LN	TCGT 32.52-LN	◎	9,525	3,97	0,80	4,40	2,80	0,10	5,50	0,25	0,15	0,50
	1124013	TCGT 16T312-LN	TCGT 32.53-LN	◎	9,525	3,97	1,20	4,40	3,00	0,15	5,50	0,45	0,15	0,70
	1124014	TCGT 16T316-LN	TCGT 32.54-LN	◎	9,525	3,97	1,60	4,40	3,00	0,15	5,50	0,65	0,20	0,90

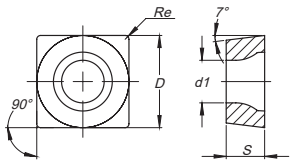
◎ Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

Insert Order Code: (1) Geometry code + (2) Grade code

SC = SQUARE 90º POSITIVE

QUADRADA 90º POSITIVA | ESCUADRA 90º POSITIVA

RELIEF ANGLE 7º



N															
				UNC	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		(2) Grade code		10										
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	ANSI Reference	PH0910	D	S	Re	d1	ap (mm)	Min	Max	fn (mm/rev)	Min	Max
SCGT-LN  Finishing to fine Finishing	1124008	SCGT 09T304-LN	SCGT 32.51-LN	●	9,525	3,97	0,40	4,40	2,05	0,10	4,00	0,16	0,10	0,26
	1124009	SCGT 09T308-LN	SCGT 32.52-LN	●	9,525	3,97	0,80	4,40	2,55	0,10	5,00	0,22	0,15	0,40
	1124743	SCGT 120402-LN	SCGT 430.5-LN	○	12,700	4,76	0,20	5,50	2,55	0,10	4,50	0,15	0,08	0,25
	1124010	SCGT 120404-LN	SCGT 431-LN	●	12,700	4,76	0,40	5,50	2,55	0,10	5,00	0,20	0,10	0,26
	1123685	SCGT 120408-LN	SCGT 432-LN	●	12,700	4,76	0,80	5,50	2,55	0,10	5,00	0,30	0,15	0,50

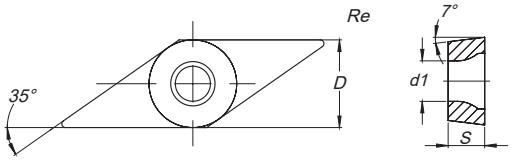
● Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

Insert Order Code: (1) Geometry code + (2) Grade code

VC = RHOMBIC 35º POSITIVE

RÔMBICA 35º POSITIVA | RÓMBICA 35º POSITIVA

RELIEF ANGLE 7º



N															
				UNC	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		(2) Grade code		10										
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	ANSI Reference	PH0910	D	S	Re	d1	ap (mm)	Min	Max	fn (mm/rev)	Min	Max
VCGT-LN  Finishing to Fine Finishing	1124779	VCGT 110204-LN	VCGT 21.51-LN		6,350	2,42	0,40	2,80	1,53	0.05	3,00	0,15	0,10	0,25
	1123689	VCGT 110301-LN	VCGT 220.2-LN	●	6,350	3,18	0,10	2,80	1,53	0,05	3,00	0,04	0,02	0,06
	1121889	VCGT 110302-LN	VCGT 220.5-LN	●	6,350	3,18	0,20	2,80	1,53	0,05	3,00	0,07	0,05	0,12
	1121890	VCGT 110304-LN	VCGT 221-LN	●	6,350	3,18	0,40	2,80	1,53	0,05	3,00	0,15	0,10	0,25
	1121891	VCGT 110308-LN	VCGT 222-LN	●	6,350	3,18	0,80	2,80	1,53	0,05	3,00	0,22	0,15	0,45
	1124015	VCGT 130302-LN	VCGT 2.520.5-LN	●	7,940	3,18	0,20	3,40	2,00	0,10	4,00	0,07	0,05	0,12
	1124016	VCGT 130304-LN	VCGT 2.521-LN	●	7,940	3,18	0,40	3,40	2,00	0,10	4,00	0,15	0,10	0,25
	1124677	VCGT 130308-LN	VCGT 2.522-LN	●	7,940	3,18	0,80	3,40	2,50	0,15	4,50	0,18	0,10	0,30
	1111878	VCGT 160402-LN	VCGT 330.5-LN	●	9,525	4,76	0,20	4,40	2,30	0,10	5,00	0,07	0,05	0,12
	1111533	VCGT 160404-LN	VCGT 331-LN	●	9,525	4,76	0,40	4,40	2,55	0,10	5,00	0,15	0,10	0,25
	1121893	VCGT 160408-LN	VCGT 332-LN	●	9,525	4,76	0,80	4,40	2,55	0,10	5,00	0,22	0,15	0,45
	1121894	VCGT 160412-LN	VCGT 333-LN	●	9,525	4,76	1,20	4,40	2,55	0,10	5,00	0,40	0,15	0,60
	1121929	VCGT 220530-LN	VCGT 43.57.5-LN	●	12,700	5,56	3,00	5,50	3,55	0,10	7,00	0,80	0,15	1,60

● Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

Insert Order Code: (1) Geometry code + (2) Grade code

PCD GRADES SELECTION

Selecção de graus | Selección de calidades

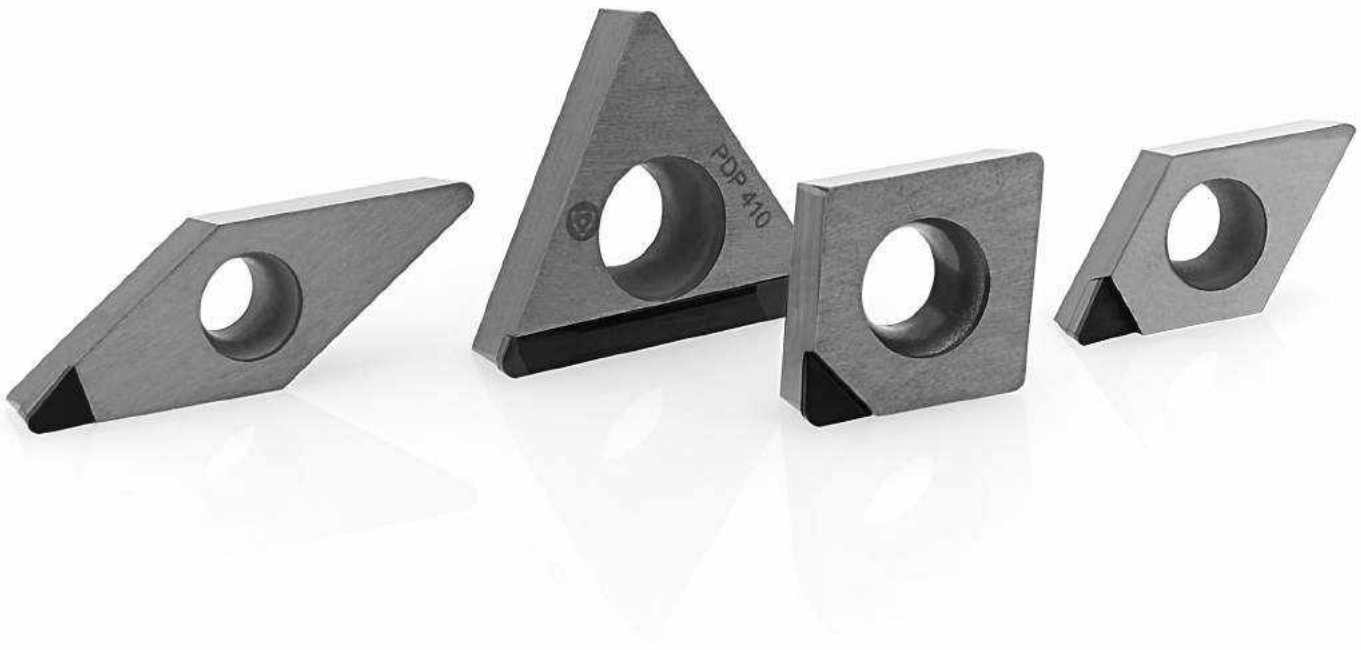
PCD (Polycristalline Diamond) is a composite of diamond particles that are sintered with a metallic binder creating the hardest and one of the most abrasion resistant materials used in cutting tools.
Its development achieved an extremely significance for the machining of Non-Ferrous Materials, such as high-silicon aluminium, metal matrix composites (MMC) and carbon fibre reinforced plastics (CFRP).

Grade description:

Grade	Code	Characteristics	Application
PDP410	D6	General purpose Fine surface finishing	- <14% silicon aluminium alloy - automotive industry - Graphite and graphite composites - Wood composites - Copper alloy
PDP403	I3	Highest abrasion resistance Bimodal grain structure for increased diamond percentage content	- >14% silicon aluminium alloy - Fiber glass, fiberboard - Wood laminates - Metal matrix composites - Stone sawing - Ceramics - Sintered tungsten carbide (10-16% Co)

PDP410
<14% silicon aluminium alloy

PDP403
>14% silicon aluminium alloy



DIATURN
PCD
RANGE

PDF

palbit
TOOLING SOLUTIONS EXPERTS

GEOMETRY SELECTION

Selecção da geometria | Selección de la geometria

The insert geometry and nose radius are very important on turning operation having direct influence on the tool life and productivity.

Insert nose radius is an important performance parameter:

• For good chip breaking, must be used a small nose radius: 0,2-0,4mm (0,008-0,016inch);

• A large nose radius: 0,8-1,2mm (0,031-0,047inch) generates better surface finishing and produces thinner chips, which reduces the degree of crater wear in hard part turning operations

• The machining with large nose radius and small depth of cut results in reduced entry and exit forces..

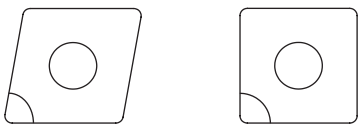
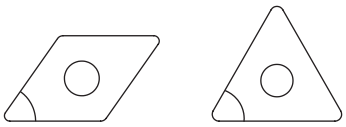
In general, a large nose radius provides greater edge strength and therefore extended tool life. For this reason, it is advised to use the largest and allowed nose radius based on the requirements of each process.

Finishing and semi-finishing:

In these cases, there are special requirements on the surface and tolerances.

Roughing:

For the evaluation of the cutting edge radius in roughing operations it is recommended to use the following formula, in order to calculate the minimum radius vs feed:

Insert shape	Formula
	Radius >1,6 x feed per rev.
	Radius >2,5 x feed per rev.

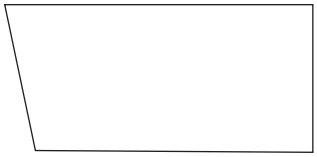
EDGE PREPARATION SELECTION

Selecção da preparação de aresta | Selección de la preparación de arista

The most important criteria for the stability and cutting edge tool-life is to define the correct cutting edge preparation. Its choice is mainly required in order to achieve the best economical result.

Edge preparation:

PCD: F type cutting edge preparation:

Cutting forces Edge strength + - 	**F – Standard preparation without honing - Standard** - Sharp cutting edge; - Standard and recommended edge preparation for aluminium or other non-ferrous materials.

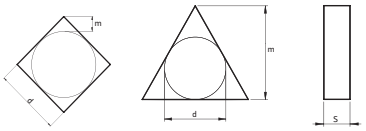
Note:

Based on our experience sometimes is necessary to define edge preparation during several tests to provide the best possible solution for each application.

ISO PCD INSERTS CODE KEY

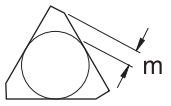
H	120°	M	86°
O	135°	V	35°
P	108°	W	80°
S	90°	L	90°
T	60°	A	85°
C	80°	B	82°
D	55°	K	55°
E	75°	R	
F	50°	X	Special

1- Insert shape symbol



Symbol	m (mm)	d (mm)	s (mm)
A	±0.005	±0.025	±0.025
F	±0.005	±0.013	±0.025
C	±0.013	±0.025	±0.025
H	±0.013	±0.013	±0.025
E	±0.025	±0.025	±0.025
G	±0.025	±0.025	±0.13
J	±0.005	±0.05~±0.13	±0.025
K*	±0.013	±0.05~±0.13	±0.025
L*	±0.025	±0.05~±0.13	±0.025
M*	±0.08~±0.20	±0.05~±0.13	±0.13
N*	±0.08~±0.20	±0.05~±0.13	±0.025
U*	±0.13~±0.38	±0.08~±0.25	±0.13

As a rule, the sides of these inserts are as sintered. Tolerance differs with insert size, for the accuracy of class M, refer to the table on the right.



Triangular inserts with a facet (secondary cutting edge)

Detailed dimension of M class insert
Insert height Tolerances (mm)

Inscribed circle	T	S	C	D	V
6.35	±0.08	-	-	-	-
9.525	±0.08	±0.08	±0.11	±0.10	±0.13
12.70	±0.13	±0.13	±0.13	±0.15	-
15.875	±0.15	±0.15	±0.15	±0.18	-
19.05	±0.15	±0.15	±0.15	±0.18	-
25.40	-	±0.18	-	-	-
31.75	-	±0.25	-	-	-

Inscribed circle Tolerances (mm)

Inscribed circle	T	S	C	D	V
6.35	±0.05	-	-	-	-
9.525	±0.05	±0.05	±0.05	±0.05	±0.05
12.70	±0.08	±0.08	±0.08	±0.08	±0.08
15.875	±0.10	±0.10	±0.10	±0.10	±0.10
19.05	-	-	-	-	±0.10
25.40	-	±0.13	-	-	±0.10
31.75	-	±0.20	-	-	±0.12

3 - Tolerances symbol

A	B	C	D	E
3°	5°	7°	15°	20°
F	**G**	**N**	**P**	**O**
25°	30°	0	11°	Other clearance angle

2 - Normal clearance symbol

ISO	D	C	G	W
ANSI	D	C	G	W

4 - Insert symbol

symbol	Type	Hole type	Chipbreaker	Shape
W	with hole	Round hole one countersink (40°~60°)	Without chipbreaker	
T			Chipbreaker on one side	
A	with hole	Round hole	Without chipbreaker	
M			Chipbreaker on one side	

symbol	Type	Hole type	Chipbreaker	Shape
G	with hole	Round hole	Chipbreaker on both sides	
N	without hole	-	Without chipbreaker	
R		-	Chipbreaker on one side	
X	-	-	-	On request

R's	V's (35°)	D's (55°)	C's (80°)	S's (90°)	T's (60°)	W's (80°)	IC mm	IC inch	ANSI Symbol
-	06	04	-	03	06	02	3,97	5/32	1,20
-	08	05	04	04	08	L3	4,76	3/16	1,50
-	09	06	05	05	09	03	5,56	7/32	1,80
06**	-	-	-	-	-	-	6,00	0,236	
06*	11	07	06	06	11	04	6,35	1/4	2,00
07*	13	09	08	07	13	05	7,94	5/16	2,50
08*	-	-	-	-	-	-	8,00	0,315	
09*	16	11	09	09	16	06	9,525	3/8	3,00
10**	-	-	-	-	-	-	10,00	0,394	
12**	-	-	-	-	-	-	12,00	0,472	
12*	22	15	12	12	22	08	12,70	1/2	4,00
15*	27	19	16	15	27	10	15,875	5/8	5,00
16**	-	-	-	-	-	-	16,00	0,63	
19*	33	23	19	19	33	13	19,05	3/4	6,00
20**	-	-	-	-	-	-	20,00	0,787	
25**	-	-	-	-	-	-	25,00	0,984	
25*	44	31	25	25	44	17	25,40	1,00	8,00
31*	54	38	32	31	54	21	31,75	1 1/4	10,00
32**	-	-	-	-	-	-	32,00	1,26	

5 - Insert size symbol

* ANSI designation only
(Radius Designation is 00)

** Metric designation only
(Radius Designation is M0)

According to International Standard ISO 1832 - 2012(E)

"Indexable inserts for cutting tools - Designation"

ISO	mm	ANSI	inch
01	1.59	1	0.062
T1	1.98	1.2	0.078
02	2.38	1.5	0.094
03	3.18	2	0.125
T3	3.97	2.5	0.156
04	4.76	3	0.188
05	5.56	3.5	0.219
06	6.35	4	0.250
07	7.94	5	0.312
09	9.52	6	0.375
12	12.70	8	0.500

6 - Insert thickness symbol

11	T3	04 / AN	T	-	NF	Z1
3	2.5	1	T	-	NF	Z1

10 - Tip type	
Z1 (1 tip)	Z6 (6 tips)
Z2 (2 tips)	Z8 (8 tips)
Z3 (3 tips)	FL (Full edge left)
Z4 (4 tips)	FR (Full edge right)
Z5 (5 tips)	O (other)

7 - Insert corner symbol			
ISO	mm	inch	ANSI
00	Sharp nose		0
01	0.10	.004	0.2
02	0.20	.008	0.5
04	0.40	.015	1
08	0.80	.032	2
12	1.2	.047	3
16	1.6	.062	4
20	2.0	.078	5
24	2.4	.094	6
28	2.8	.109	7
32	3.2	.125	8
00 (inch or M0/ metric)	Round insert		0

7.1* - Insert edges symbol			
For inserts having secondary edges two digits are used:			
1st digit is secondary edge		2nd digit is secondary edges relief angle	
A	45°	A	3°
D	60°	B	5°
E	75°	C	7°
F	85°	D	15°
P	90°	E	20°
Z	special	F	25°
*only when required.		G	30°
		N	0°
		P	11°
		Z	special

8* - Cutting edge information		
Shape	Honing	Symbol
	No honing	F
	With honing	E
	Chamfered No honing	T
	Chamfered with honing	S
*only when required.		

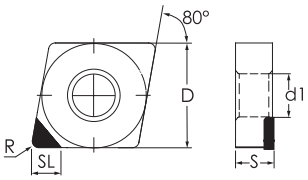
9* - Chipbreaker geometries	
NF	Finishing
*only when required. Custom-made chipbreakers available.	

palbit TOOLING SOLUTIONS EXPERTS

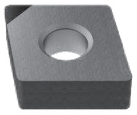
NEGATIVE INSERTS

CN = RHOMBIC 80º NEGATIVE

RÔMBICA 80º NEGATIVA | RÓMBICA 80º NEGATIVA



CNGA Z1



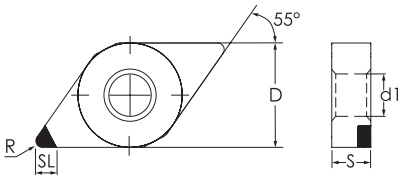
	[1] Geometry code	[2] Grade code ISO Reference	[2] Grade code ANSI Reference	N D6 PDP410	N I3 PDP403	Dimensions Dimensões Dimenciones (mm) D	S	R	d1	W	SL	Cutting conditions Condições de corte Condiciones de corte ap (mm)	Min	Max	fn (mm/r)	Min	Max
	1124228	CNGA 120404 Z1	CNGA 431 Z1	⚙	⚙	12,70	4,76	0,40	5,16	-	3,50	0,10	0,07	0,40	0,10	0,06	0,20
	1124110	CNGA 120408 Z1	CNGA 432 Z1	⚙	○	12,70	4,76	0,80	5,16	-	3,50	0,15	0,07	0,80	0,15	0,08	0,30
	1124229	CNGA 120412 Z1	CNGA 433 Z1	○	○	12,70	4,76	1,20	5,16	-	3,50	0,25	0,08	1,20	0,30	0,10	0,40
	1124230	CNGA 120416 Z1	CNGA 434 Z1	○	○	12,70	4,76	1,60	5,16	-	3,50	0,50	0,08	1,60	0,35	0,10	0,50

⚙ Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

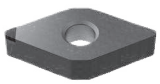
Insert Order Code: [1] Geometry code + [2] Grade code

DN = RHOMBIC 55º NEGATIVE

RÔMBICA 55º NEGATIVA | RÓMBICA 55º NEGATIVA



DNGA Z1



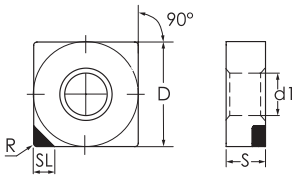
	[1] Geometry code	[2] Grade code ISO Reference	[2] Grade code ANSI Reference	N D6 PDP410	N I3 PDP403	Dimensions Dimensões Dimenciones (mm) D	S	R	d1	W	SL	Cutting conditions Condições de corte Condiciones de corte ap (mm)	Min	Max	fn (mm/r)	Min	Max
	1124235	DNGA 150404 Z1	DNGA 431 Z1	○	○	12,70	4,76	0,40	5,16	-	3,50	0,10	0,07	0,40	0,10	0,05	0,20
	1124236	DNGA 150408 Z1	DNGA 432 Z1	○	○	12,70	4,76	0,80	5,16	-	3,50	0,15	0,07	0,80	0,15	0,05	0,25
	1124362	DNGA 150608 Z1	DNGA 442 Z1	○	○	12,70	6,35	0,80	5,16	-	3,50	0,15	0,07	0,80	0,15	0,05	0,25
	1124363	DNGA 150612 Z1	DNGA 443 Z1	○	○	12,70	6,35	1,20	5,16	-	3,50	0,20	0,08	1,20	0,20	0,05	0,30

⚙ Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

Insert Order Code: [1] Geometry code + [2] Grade code

SN = SQUARE 90º NEGATIVE

QUADRADA 90º NEGATIVA | ESQUADRA 90º NEGATIVA



SNGA Z1

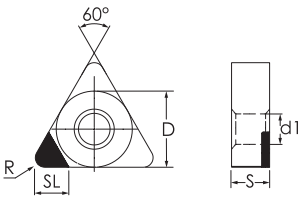
	[1] Geometry code	[2] Grade code ISO Reference	[2] Grade code ANSI Reference	N D6 PDP410	N I3 PDP403	Dimensions Dimensões Dimenciones (mm) D	S	R	d1	W	SL	Cutting conditions Condições de corte Condiciones de corte ap (mm)	Min	Max	fn (mm/r)	Min	Max
	1124243	SNGA 090304 Z1	SNGA 321 Z1	○	○	9,53	3,18	0,40	3,81	-	3,50	0,10	0,07	0,40	0,10	0,07	0,20
	1124244	SNGA 090308 Z1	SNGA 322 Z1	○	○	9,53	3,18	0,80	3,81	-	3,50	0,20	0,08	0,80	0,12	0,08	0,25
	1124245	SNGA 120404 Z1	SNGA 431 Z1	○	○	12,70	4,76	0,40	5,16	-	3,50	0,10	0,07	0,40	0,12	0,07	0,25
	1124246	SNGA 120408 Z1	SNGA 432 Z1	○	○	12,70	4,76	0,80	5,16	-	3,50	0,20	0,08	0,80	0,15	0,08	0,30

⚙ Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

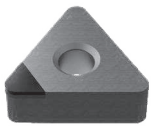
Insert Order Code: [1] Geometry code + [2] Grade code

TN = TRIANGULAR 60º NEGATIVE

TRIANGULAR 60º NEGATIVA | TRIANGULAR 60º NEGATIVA



TNGA Z1

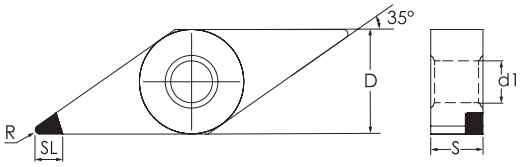
	(1) Geometry code	(2) Grade code ISO Reference	ANSI Reference	N D6 PDP410	N I3 PDP403	Dimensions Dimensões Dimenciones (mm) D	S	R	d1	W	SL	Cutting conditions Condições de corte Condiciones de corte ap (mm)	Min	Max	fn (mm/r)	Min	Max
	1124256	TNGA 110304 Z1	TNGA 221 Z1	○	○	6,350	3,18	0,40	2,26	-	3,50	0,10	0,08	0,40	0,08	0,03	0,15
	1124257	TNGA 110308 Z1	TNGA 222 Z1	○	○	6,350	3,18	0,80	2,26	-	3,50	0,15	0,10	0,80	0,10	0,05	0,25
	1124258	TNGA 160404 Z1	TNGA 331 Z1	⛁	○	9,525	4,76	0,40	3,81	-	3,50	0,10	0,08	0,40	0,10	0,05	0,20
	1124259	TNGA 160408 Z1	TNGA 332 Z1	○	○	9,525	4,76	0,80	3,81	-	3,50	0,20	0,10	0,80	0,15	0,08	0,30
	1124385	TNGA 160412 Z1	TNGA 333 Z1	○	○	9,525	4,76	1,20	3,81	-	3,50	0,20	0,10	0,80	0,15	0,08	0,30

⛁ Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

Insert Order Code: (1) Geometry code + (2) Grade code

VN = RHOMBIC 35º NEGATIVE

RÔMBICA 35º NEGATIVA | RÓMBICA 35º NEGATIVA



VNGA Z1

	(1) Geometry code	(2) Grade code ISO Reference	ANSI Reference	N D6 PDP410	N I3 PDP403	Dimensions Dimensões Dimenciones (mm) D	S	R	d1	W	SL	Cutting conditions Condições de corte Condiciones de corte ap (mm)	Min	Max	fn (mm/r)	Min	Max
	1124285	VNGA 160404 Z1	VNGA 331 Z1	○	○	9,53	4,76	0,40	3,81	0,00	3,50	0,10	0,07	0,40	0,10	0,07	0,20
	1124286	VNGA 160408 Z1	VNGA 332 Z1	○	○	9,53	4,76	0,80	3,81	0,00	3,50	0,20	0,08	0,80	0,15	0,08	0,30
	1124287	VNGA 160412 Z1	VNGA 333 Z1	○	○	9,53	4,76	1,20	3,81	0,00	3,50	0,25	0,10	1,20	0,17	0,10	0,35

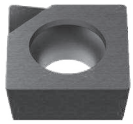
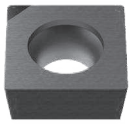
⛁ Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

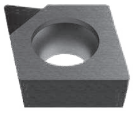
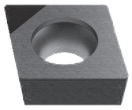
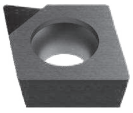
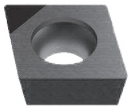
Insert Order Code: (1) Geometry code + (2) Grade code

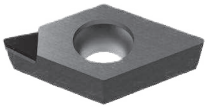
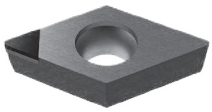
POSITIVE INSERTS

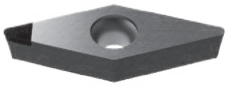
OVERVIEW | VISTA GENÉRICA | VISIÓN GENERAL

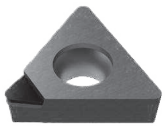
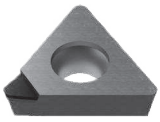
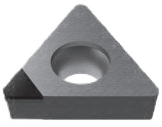
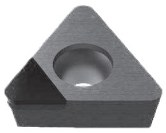
SINGLE TIP

SCGT Z1	SCGW Z1
	
Size 06 | 09 | 12	Size 06 | 09 | 12
Page 123	

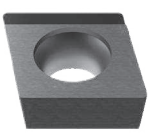
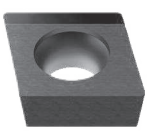
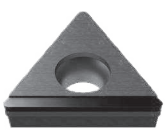
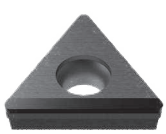
CCGT Z1	CCGW Z1	CPGT Z1	CPGW Z1
			
Size 06 | 09 | 12	Size 06 | 09 | 12	Size 06 | 09 | 12	Size 06 | 09 | 12
Page 124		Page 125	

DCGT Z1	DCGW Z1
	
Size 07 | 11	Size 07 | 11 | 15
Page 126	

VCGT Z1	VCGW Z1
	
Size 07 | 11 | 16	Size 07 | 11 | 16
Page 127	

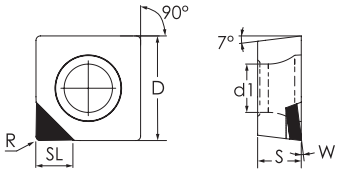
TCGT Z1	TCGW Z1	TPGT Z1	TPGW Z1
			
Size 09 | 11 | 16	Size 09 | 11 | 16	Size 11 | 16	Size 11 | 16
Page 128		Page 129	

FULL EDGE

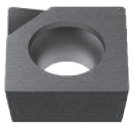
CCGT FR/FL	CCGW FR/FL	TCGT FL	TCGW FL
			
Size 06 | 09 | 12	Size 06 | 09 | 12	Size 11 | 16	Size 11 | 16 | 22
Page 130		Page 131	

SC = SQUARE 90º POSITIVE

QUADRADA 90º POSITIVA | ESQUADRA 90º POSITIVA

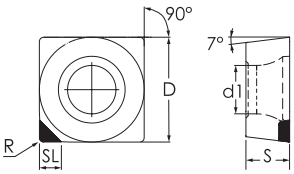


SCGT Z1

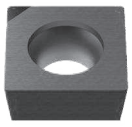
	(1) Geometry code	(2) Grade code ISO Reference	ANSI Reference	N D6 PDP410	N I3 PDP403	Dimensions Dimensões Dimenciones (mm) D	S	R	d1	W	SL	Cutting conditions Condições de corte Condiciones de corte ap (mm)	Min	Max	fn (mm/r)	Min	Max
	1124386	SCGT 060202 Z1	SCGT 21.50.5 Z1	○	○	6,35	2,38	0,20	2,80	7º	3,50	0,08	0,05	0,20	0,07	0,05	0,15
	1124387	SCGT 060204 Z1	SCGT 21.51 Z1	○	○	6,35	2,38	0,40	2,80	7º	3,50	0,10	0,05	0,40	0,09	0,05	0,20
	1124388	SCGT 09T304 Z1	SCGT 32.51 Z1	○	○	9,52	3,97	0,40	4,40	10º	3,50	0,10	0,07	0,40	0,10	0,05	0,20
	1124389	SCGT 09T308 Z1	SCGT 32.52 Z1	ⓢ	○	9,52	3,97	0,80	4,40	10º	3,50	0,20	0,08	0,80	0,15	0,07	0,30
	1124390	SCGT 120404 Z1	SCGT 431 Z1	○	○	12,70	4,76	0,40	5,50	10º	3,50	0,12	0,07	0,40	0,10	0,05	0,20
	1124391	SCGT 120408 Z1	SCGT 432 Z1	ⓢ	○	12,70	4,76	0,80	5,50	10º	3,50	0,22	0,08	0,80	0,15	0,08	0,30

ⓢ Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

Insert Order Code: (1) Geometry code + (2) Grade code



SCGW Z1

	(1) Geometry code	(2) Grade code ISO Reference	ANSI Reference	N D6 PDP410	N I3 PDP403	Dimensions Dimensões Dimenciones (mm) D	S	R	L	W	SL	Cutting conditions Condições de corte Condiciones de corte ap (mm)	Min	Max	fn (mm/r)	Min	Max
	1124237	SCGW 060202 Z1	SCGW 21.50.5 Z1	○	○	6,35	2,38	0,20	6,35	-	3,50	0,08	0,05	0,20	0,07	0,05	0,15
	1124238	SCGW 060204 Z1	SCGW 21.51 Z1	○	○	6,35	2,38	0,40	6,35	-	3,50	0,10	0,05	0,40	0,09	0,05	0,20
	1124239	SCGW 09T304 Z1	SCGW 32.51 Z1	○	○	9,53	3,97	0,40	9,53	-	3,50	0,10	0,07	0,40	0,10	0,05	0,20
	1124240	SCGW 09T308 Z1	SCGW 32.52 Z1	○	○	9,53	3,97	0,80	9,53	-	3,50	0,20	0,08	0,80	0,15	0,07	0,30
	1124794	SCGW 09T312 Z1	SCGW 32.53 Z1	○	○	6,35	3,96	1,20	6,35	-	3,50	0,30	0,09	1,20	0,20	0,10	0,40
	1124241	SCGW 120404 Z1	SCGW 431 Z1	○	○	12,70	4,76	0,40	12,70	-	3,50	0,12	0,07	0,40	0,10	0,05	0,20
	1124242	SCGW 120408 Z1	SCGW 432 Z1	○	○	12,70	4,76	0,80	12,70	-	3,50	0,22	0,08	0,80	0,15	0,08	0,30

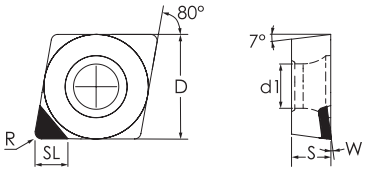
ⓢ Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

Insert Order Code: (1) Geometry code + (2) Grade code

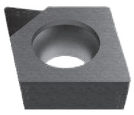
POSITIVE INSERTS

CC = RHOMBIC 80º POSITIVE

RÔMBICA 80º POSITIVA | RÓMBICA 80º POSITIVA

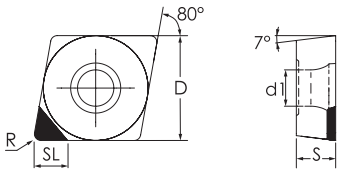


CCGT Z1

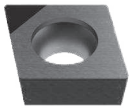
	(1) Geometry code	(2) Grade code ISO Reference	ANSI Reference	N D6 PDP410	N I3 PDP403	Dimensions D	S	R	d1	W	SL	Cutting conditions ap (mm)	Min	Max	fn (mm/r)	Min	Max
	1124113	CCGT 060202 Z1	CCGT 21.50.5 Z1	◈	○	6,35	2,38	0,20	2,80	7º	3,50	0,08	0,05	0,20	0,08	0,05	0,15
	1124209	CCGT 060204 Z1	CCGT 21.51 Z1	○	○	6,35	2,38	0,40	2,80	7º	3,50	0,10	0,07	0,40	0,12	0,07	0,25
	1124487	CCGT 060220 Z1	CCGT 21.55 Z1	○	○	6,35	2,38	2,00	2,80	10º	3,14	0,20	0,10	0,50	0,15	0,10	0,30
	1112592	CCGT 09T304 Z1	CCGT 32.51 Z1	◈	○	9,53	3,97	0,40	4,40	10º	3,50	0,10	0,07	0,40	0,12	0,07	0,25
	1124210	CCGT 09T308 Z1	CCGT 32.52 Z1	○	○	9,53	3,97	0,80	4,40	10º	3,50	0,20	0,08	0,80	0,15	0,08	0,30
	1124211	CCGT 120404 Z1	CCGT 431 Z1	◈	○	12,70	4,76	0,40	5,50	10º	3,50	0,10	0,07	0,40	0,12	0,07	0,25
	1112630	CCGT 120408 Z1	CCGT 432 Z1	◈	○	12,70	4,76	0,80	5,50	10º	3,50	0,20	0,08	0,80	0,15	0,08	0,30
	1124465	CCGT 09T304-NF Z1	CCGT 32.51-NF Z1	◈	○	9,53	3,97	0,40	4,40	-	4,00	0,12	0,07	0,40	0,15	0,07	0,25
	1124726	CCGT 09T308-NF Z1	CCGT 32.52-NF Z1	◈	○	9,53	3,97	0,80	4,40	-	4,00	0,20	0,08	0,80	0,20	0,08	0,30

◈ Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

Insert Order Code: (1) Geometry code + (2) Grade code



CCGW Z1

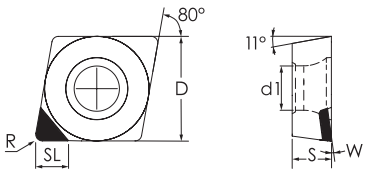
	(1) Geometry code	(2) Grade code ISO Reference	ANSI Reference	N D6 PDP410	N I3 PDP403	Dimensions D	S	R	d1	W	SL	Cutting conditions ap (mm)	Min	Max	fn (mm/r)	Min	Max
	1124114	CCGW 060202 Z1	CCGW 21.50.5 Z1	◈	○	6,35	2,38	0,20	2,80	-	3,50	0,08	0,05	0,20	0,08	0,05	0,13
	1124218	CCGW 060204 Z1	CCGW 21.51 Z1	◈	○	6,35	2,38	0,40	2,80	-	3,50	0,10	0,07	0,40	0,11	0,07	0,23
	1124793	CCGW 060220 Z1	CCGW 21.55 Z1	◈	○	6,35	2,38	2,00	2,80	-	3,20	0,80	0,40	2,00	0,15	0,10	0,40
	1124219	CCGW 09T302 Z1	CCGW 32.50.5 Z1	○	○	9,53	3,97	0,20	4,40	-	3,50	0,08	0,05	0,20	0,08	0,05	0,15
	1112593	CCGW 09T304 Z1	CCGW 32.51 Z1	◈	○	9,53	3,97	0,40	4,40	-	3,50	0,10	0,07	0,40	0,12	0,06	0,25
	1124220	CCGW 09T308 Z1	CCGW 32.2 Z1	○	○	9,53	3,97	0,80	4,40	-	3,50	0,20	0,08	0,80	0,15	0,08	0,30
	1124221	CCGW 120404 Z1	CCGW 431 Z1	◈	○	12,70	4,76	0,40	5,50	-	3,50	0,10	0,07	0,40	0,12	0,06	0,25
	1112631	CCGW 120408 Z1	CCGW 432 Z1	◈	○	12,70	4,76	0,80	5,50	-	3,50	0,20	0,08	0,80	0,15	0,08	0,30

◈ Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

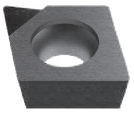
Insert Order Code: (1) Geometry code + (2) Grade code

CP = RHOMBIC 80º POSITIVE

RÔMBICA 80º POSITIVA | RÓMBICA 80º POSITIVA



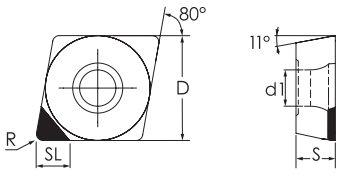
CPGT Z1

	(1) Geometry code	(2) Grade code ISO Reference	ANSI Reference	N D6 PDP410	N I3 PDP403	Dimensions Dimensões Dimenciones (mm) D	S	R	d1	W	SL	Cutting conditions Condições de corte Condiciones de corte ap (mm)	Min	Max	fn (mm/r)	Min	Max
	1124392	CPGT 060202 Z1	CCGT 21.50.5 Z1	○	○	6,35	2,38	0,20	2,80	7º	3,50	0,08	0,05	0,2	0,08	0,05	0,15
	1124393	CPGT 060204 Z1	CCGT 21.51 Z1	○	○	6,35	2,38	0,40	2,80	7º	3,50	0,10	0,07	0,4	0,12	0,07	0,25
	1124394	CPGT 09T304 Z1	CCGT 32.51 Z1	○	○	9,53	3,97	0,40	4,40	10º	3,50	0,10	0,07	0,4	0,12	0,07	0,25
	1124395	CPGT 09T308 Z1	CCGT 32.52 Z1	○	○	9,53	3,97	0,80	4,40	10º	3,50	0,20	0,08	0,8	0,15	0,08	0,30
	1124396	CPGT 120404 Z1	CCGT 431 Z1	○	○	12,70	4,76	0,40	5,50	10º	3,50	0,10	0,07	0,4	0,12	0,07	0,25
	1124397	CPGT 120408 Z1	CCGT 432 Z1	○	○	12,70	4,76	0,80	5,50	10º	3,50	0,20	0,08	0,8	0,15	0,08	0,30

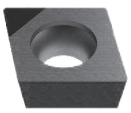
Stock Itens | Itens de stock

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

Insert Order Code: (1) Geometry code + (2) Grade code



CPGW Z1

	(1) Geometry code	(2) Grade code ISO Reference	ANSI Reference	N D6 PDP410	N I3 PDP403	Dimensions Dimensões Dimenciones (mm) D	S	R	d1	W	SL	Cutting conditions Condições de corte Condiciones de corte ap (mm)	Min	Max	fn (mm/r)	Min	Max
	1124398	CPGW 060202 Z1	CPGW 21.50.5 Z1	○	○	6,35	2,38	0,20	2,80	-	3,50	0,08	0,05	0,20	0,08	0,05	0,13
	1124399	CPGW 060204 Z1	CPGW 21.51 Z1	○	○	6,35	2,38	0,40	2,80	-	3,50	0,10	0,07	0,40	0,11	0,07	0,23
	1124400	CPGW 09T302 Z1	CPGW 32.50.5 Z1	○	○	9,53	3,97	0,20	4,40	-	3,50	0,08	0,05	0,20	0,08	0,05	0,15
	1124401	CPGW 09T304 Z1	CPGW 32.51 Z1	○	○	9,53	3,97	0,40	4,40	-	3,50	0,10	0,07	0,40	0,12	0,06	0,25
	1124402	CPGW 09T308 Z1	CPGW 32.52 Z1	○	○	9,53	3,97	0,80	4,40	-	3,50	0,20	0,08	0,80	0,15	0,08	0,30
	1124403	CPGW 120404 Z1	CPGW 431 Z1	○	○	12,70	4,76	0,40	5,50	-	3,50	0,10	0,07	0,40	0,12	0,06	0,25
	1124404	CPGW 120408 Z1	CPGW 432 Z1	○	○	12,70	4,76	0,80	5,50	-	3,50	0,20	0,08	0,80	0,15	0,08	0,30

Stock Itens | Itens de stock

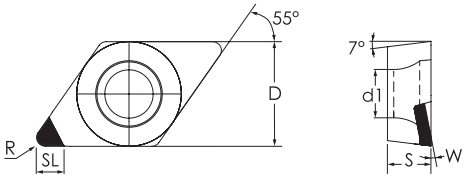
○ Available under request | Disponível sob consulta | Disponible bajo consulta

Insert Order Code: (1) Geometry code + (2) Grade code

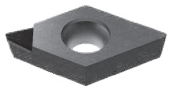
POSITIVE INSERTS

DC = RHOMBIC 55º POSITIVE

RÔMBICA 55º POSITIVA | RÓMBICA 55º POSITIVA

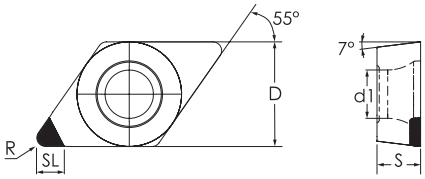


DCGT Z1

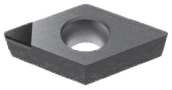
	(1) Geometry code	(2) Grade code ISO Reference	ANSI Reference	N D6 PDP410	N I3 PDP403	Dimensions Dimensões Dimenciones (mm) D	S	R	d1	W	SL	Cutting conditions Condições de corte Condiciones de corte ap (mm)	Min	Max	fn (mm/r)	Min	Max
	1124116	DCGT 070202 Z1	DCGT 21.50.5 Z1	●	○	6,35	2,38	0,20	2,80	7º	3,50	0,08	0,05	0,20	0,08	0,05	0,15
	1124231	DCGT 070204 Z1	DCGT 21.51 Z1	●	○	6,35	2,38	0,40	2,80	7º	3,50	0,10	0,07	0,40	0,10	0,05	0,20
	1112634	DCGT 11T304 Z1	DCGT 32.501 Z1	●	○	9,53	3,97	0,40	4,40	10º	3,50	0,10	0,07	0,40	0,10	0,05	0,20
	1124380	DCGT 11T308 Z1	DCGT 32.52 Z1	●	●	9,53	3,97	0,80	4,40	10º	3,50	0,20	0,08	0,80	0,15	0,08	0,30
	1124529	DCGT 150408 Z1	DCGT 432 Z1	●	○	12,70	4,76	0,80	5,50	10º	3,50	0,60	0,10	1,20	0,25	0,10	0,40

● Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

Insert Order Code: (1) Geometry code + (2) Grade code



DCGW Z1

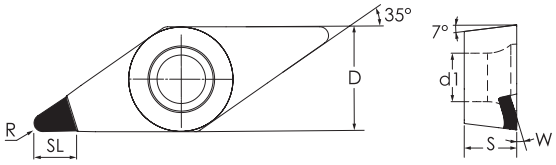
	(1) Geometry code	(2) Grade code ISO Reference	ANSI Reference	N D6 PDP410	N I3 PDP403	Dimensions Dimensões Dimenciones (mm) D	S	R	d1	W	SL	Cutting conditions Condições de corte Condiciones de corte ap (mm)	Min	Max	fn (mm/r)	Min	Max
	1124232	DCGW 070202 Z1	DCGW 21.50.5 Z1	●	○	6,35	2,38	0,20	2,80	-	3,50	0,08	0,05	0,20	0,08	0,05	0,15
	1124233	DCGW 070204 Z1	DCGW 21.51 Z1	●	○	6,35	2,38	0,40	2,80	-	3,50	0,10	0,07	0,40	0,10	0,05	0,20
	1124458	DCGW 11T302 Z1	DCGW 32.50.5 Z1	●	○	9,53	3,97	0,20	4,40	-	3,50	0,10	0,05	0,35	0,10	0,05	0,15
	1112635	DCGW 11T304 Z1	DCGW 32.51 Z1	●	○	9,53	3,97	0,40	4,40	-	3,50	0,10	0,07	0,40	0,10	0,05	0,20
	1124168	DCGW 11T308 Z1	DCGW 32.52 Z1	●	○	9,53	3,97	0,80	4,40	-	3,50	0,20	0,08	0,80	0,15	0,08	0,30
	1124234	DCGW 150404 Z1	DCGW 431 Z1	○	○	12,70	4,76	0,40	5,50	-	3,50	0,10	0,08	0,40	0,10	0,05	0,20
	1124117	DCGW 150408 Z1	DCGW 432 Z1	●	○	12,70	4,76	0,80	5,50	-	3,50	0,20	0,10	0,80	0,15	0,08	0,30

● Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

Insert Order Code: (1) Geometry code + (2) Grade code

VC = RHOMBIC 35º POSITIVE

RÔMBICA 35º POSITIVA | RÓMBICA 35º POSITIVA

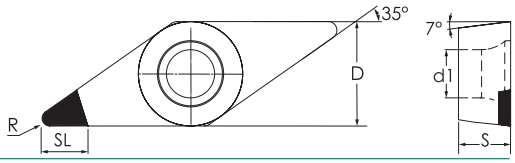


VCGT Z1

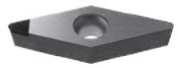
	(1) Geometry code	(2) Grade code ISO Reference	ANSI Reference	N D6 PDP410	N I3 PDP403	Dimensions Dimensões Dimenciones (mm) D	S	R	d1	W	SL	Cutting conditions Condições de corte Condiciones de corte ap (mm)	Min	Max	fn (mm/r)	Min	Max
	1124275	VCGT 070202 Z1	VCGT 1.31.50.5 Z1	○	○	3,97	2,38	0,20	2,20	7º	3,00	0,08	0,05	0,20	0,08	0,03	0,10
	1124276	VCGT 070204 Z1	VCGT 1.31.51 Z1	○	○	3,97	2,38	0,40	2,20	7º	3,00	0,10	0,07	0,40	0,10	0,05	0,20
	1124277	VCGT 110302 Z1	VCGT 220.5 Z1	◈	○	6,35	3,18	0,20	2,80	10º	3,50	0,08	0,05	0,20	0,08	0,03	0,10
	1124071	VCGT 110304 Z1	VCGT 221 Z1	◈	○	6,35	3,18	0,40	2,80	10º	3,50	0,10	0,07	0,40	0,10	0,05	0,20
	1124278	VCGT 160404 Z1	VCGT 331 Z1	◈	○	9,53	4,76	0,40	4,40	10º	3,50	0,10	0,07	0,40	0,10	0,05	0,20
	1112640	VCGT 160408 Z1	VCGT 332 Z1	◈	○	9,53	4,76	0,80	4,40	10º	3,50	0,20	0,08	0,80	0,15	0,08	0,30
	1124279	VCGT 160412 Z1	VCGT 333 Z1	○	○	9,53	4,76	1,20	4,40	10º	3,50	0,30	0,10	1,20	0,17	0,08	0,35

◈ Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

Insert Order Code: (1) Geometry code + (2) Grade code



VCGW Z1

	(1) Geometry code	(2) Grade code ISO Reference	ANSI Reference	N D6 PDP410	N I3 PDP403	Dimensions Dimensões Dimenciones (mm) D	S	R	d1	W	SL	Cutting conditions Condições de corte Condiciones de corte ap (mm)	Min	Max	fn (mm/r)	Min	Max
	1124280	VCGW 070202 Z1	VCGW 1.31.50.5 Z1	○	○	3,97	2,38	0,20	2,20	-	3,00	0,08	0,05	0,20	0,08	0,03	0,10
	1124281	VCGW 070204 Z1	VCGW 1.31.51 Z1	◈	○	3,97	2,38	0,40	2,20	-	3,00	0,10	0,07	0,40	0,10	0,05	0,20
	1124796	VCGW 110302 Z1	VCGW 220.5 Z1	◈	○	6,35	3,18	0,20	2,80	-	3,50	0,13	0,05	0,20	0,10	0,05	0,15
	1124378	VCGW 110304 Z1	VCGW 221 Z1	◈	○	6,35	3,18	0,40	2,80	-	3,50	0,10	0,07	0,40	0,10	0,05	0,20
	1124282	VCGW 110308 Z1	VCGW 222 Z1	◈	○	6,35	3,18	0,80	2,80	-	3,50	0,20	0,08	0,80	0,15	0,08	0,30
	1124795	VCGW 160402 Z1	VCGW 330.5 Z1	◈	○	9,53	4,76	0,20	4,40	-	3,50	0,18	0,05	0,30	0,10	0,05	0,15
	1124283	VCGW 160404 Z1	VCGW 331 Z1	◈	○	9,53	4,76	0,40	4,40	-	3,50	0,10	0,07	0,40	0,10	0,05	0,20
	1112641	VCGW 160408 Z1	VCGW 332 Z1	◈	○	9,53	4,76	0,80	4,40	-	4,00	0,20	0,08	0,80	0,15	0,08	0,30
	1124284	VCGW 160412 Z1	VCGW 333 Z1	◈	○	9,53	4,76	1,20	4,40	-	3,50	0,30	0,10	1,20	0,17	0,08	0,35

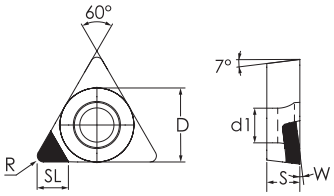
◈ Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

Insert Order Code: (1) Geometry code + (2) Grade code

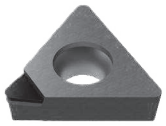
POSITIVE INSERTS

TC = TRIANGULAR 60º POSITIVE

TRIANGULAR 60º POSITIVA | TRIANGULAR 60º POSITIVA

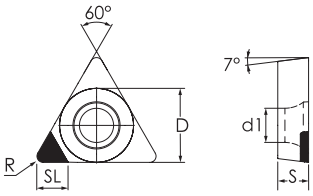


TCGT Z1

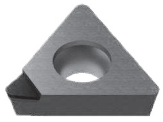
	(1) Geometry code	(2) Grade code ISO Reference	ANSI Reference	N D6 PDP410	N I3 PDP403	Dimensions Dimensões Dimenciones (mm) D	S	R	d1	W	SL	Cutting conditions Condições de corte Condiciones de corte ap (mm)	Min	Max	fn (mm/r)	Min	Max
	1124186	TCGT 090202 Z1	TCGT 1.81.50.5 Z1	◈	○	5,56	2,38	0,20	2,50	7º	3,00	0,07	0,04	0,20	0,07	0,03	0,10
	1124188	TCGT 090204 Z1	TCGT 1.81.51 Z1	◈	○	5,56	2,38	0,40	2,50	7º	3,00	0,10	0,07	0,40	0,10	0,05	0,20
	1124501	TCGT 090208 Z1	TCGT 1.81.52 Z1	◈	○	7,54	2,38	0,80	2,50	7º	3,00	0,45	0,10	0,80	0,18	0,08	0,30
	1124119	TCGT 110204 Z1	TCGT 21.51 Z1	◈	○	6,35	2,38	0,40	2,80	7º	3,00	0,10	0,07	0,40	0,10	0,05	0,20
	1124190	TCGT 110208 Z1	TCGT 21.52 Z1	◈	○	6,35	2,38	0,80	2,80	7º	3,00	0,20	0,08	0,80	0,15	0,08	0,30
	1124247	TCGT 16T304 Z1	TCGT 32.51 Z1	○	○	9,53	3,97	0,40	4,40	10º	3,00	0,10	0,07	0,40	0,10	0,05	0,20
	1112637	TCGT 16T308 Z1	TCGT 32.52 Z1	◈	○	9,53	3,97	0,80	4,40	10º	3,00	0,20	0,08	0,80	0,15	0,08	0,30

◈ Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

Insert Order Code: (1) Geometry code + (2) Grade code



TCGW Z1

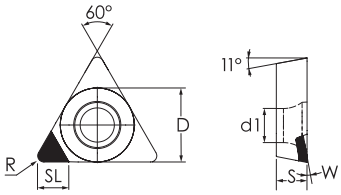
	(1) Geometry code	(2) Grade code ISO Reference	ANSI Reference	N D6 PDP410	N I3 PDP403	Dimensions Dimensões Dimenciones (mm) D	S	R	d1	W	SL	Cutting conditions Condições de corte Condiciones de corte ap (mm)	Min	Max	fn (mm/r)	Min	Max
	1124185	TCGW 090202 Z1	TCGW 1.81.50.5 Z1	◈	○	5,56	2,38	0,20	2,50	-	3,00	0,07	0,04	0,20	0,07	0,03	0,10
	1124187	TCGW 090204 Z1	TCGW 1.81.51 Z1	◈	○	5,56	2,38	0,40	2,50	-	3,00	0,10	0,07	0,40	0,10	0,05	0,20
	1124507	TCGW 110202 Z1	TCGW 21.50.5 Z1	◈	○	6,35	2,38	0,20	2,80	-	3,00	0,07	0,04	0,20	0,07	0,03	0,10
	1124192	TCGW 110204 Z1	TCGW 21.51 Z1	◈	○	6,35	2,38	0,40	2,80	-	3,50	0,10	0,07	0,40	0,10	0,05	0,20
	1124189	TCGW 110208 Z1	TCGW 21.52 Z1	◈	○	6,35	2,38	0,80	2,80	-	3,50	0,20	0,08	0,80	0,15	0,08	0,30
	1124251	TCGW 16T304 Z1	TCGW 32.51 Z1	◈	○	9,53	3,97	0,40	4,40	-	3,50	0,10	0,07	0,40	0,10	0,05	0,20
	1112638	TCGW 16T308 Z1	TCGW 32.52 Z1	◈	○	9,53	3,97	0,80	4,40	-	3,50	0,20	0,08	0,80	0,15	0,08	0,30

◈ Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

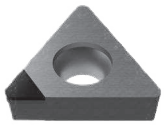
Insert Order Code: (1) Geometry code + (2) Grade code

TP = TRIANGULAR 60º POSITIVE

TRIANGULAR 60º POSITIVA | TRIANGULAR 60º POSITIVA

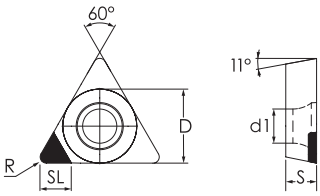


TPGT Z1

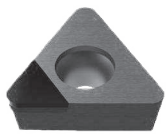
				N														
		[2] Grade code		D6	I3	Dimensions Dimensões Dimenciones (mm)						Cutting conditions Condições de corte Condiciones de corte						
	[1] Geometry code	ISO Reference	ANSI Reference	PDP410	PDP403	D	S	R	d1	W	SL	ap (mm)	Min	Max	fn (mm/r)	Min	Max
	1124260	TPGT 110302 Z1	TPGT 220.5 Z1	○	○	6,35	3,18	0,20	3,40	10º	3,50	0,07	0,04	0,20	0,07	0,05	0,10
	1124261	TPGT 110304 Z1	TPGT 221 Z1	○	○	6,35	3,18	0,40	3,40	10º	3,50	0,10	0,07	0,40	0,10	0,05	0,20
	1124262	TPGT 110308 Z1	TPGT 222 Z1	○	○	6,35	3,18	0,80	3,40	10º	3,50	0,20	0,08	0,80	0,15	0,08	0,30
	1124263	TPGT 16T304 Z1	TPGT 32.51 Z1	○	○	9,53	3,97	0,40	4,30	10º	3,50	0,10	0,07	0,40	0,10	0,05	0,20
	1124174	TPGT 16T308 Z1	TPGT 32.52 Z1	○	○	9,53	3,97	0,80	4,30	10º	3,50	0,20	0,08	0,80	0,15	0,08	0,30
	1124264	TPGT 160404 Z1	TPGT 331 Z1	○	○	9,53	4,76	0,40	4,30	10º	3,50	0,10	0,07	0,40	0,10	0,05	0,20
	1124265	TPGT 160408 Z1	TPGT 332 Z1	○	○	9,53	4,76	0,80	4,30	10º	3,50	0,20	0,08	0,80	0,15	0,08	0,30

Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

Insert Order Code: [1] Geometry code + [2] Grade code



TPGW Z1

				N														
		[2] Grade code		D6	I3	Dimensions Dimensões Dimenciones (mm)						Cutting conditions Condições de corte Condiciones de corte						
	[1] Geometry code	ISO Reference	ANSI Reference	PDP410	PDP403	D	S	R	d1	W	SL	ap (mm)	Min	Max	fn (mm/r)	Min	Max
	1124266	TPGW 110202 Z1	TPGW 21.50.5 Z1	○	○	6,35	2,38	0,20	2,80	-	3,50	0,07	0,04	0,20	0,07	0,05	0,10
	1124267	TPGW 110204 Z1	TPGW 21.51 Z1	○	○	6,35	2,38	0,40	2,80	-	3,50	0,10	0,07	0,40	0,10	0,05	0,20
	1124268	TPGW 110208 Z1	TPGW 21.52 Z1	○	○	6,35	2,38	0,80	2,80	-	3,50	0,20	0,08	0,80	0,15	0,08	0,30
	1124269	TPGW 110302 Z1	TPGW 220.5 Z1	○	○	6,35	3,18	0,20	2,80	-	3,50	0,07	0,04	0,20	0,07	0,05	0,10
	1124270	TPGW 110304 Z1	TPGW 221 Z1	◈	○	6,35	3,18	0,40	2,80	-	3,50	0,10	0,07	0,40	0,10	0,05	0,20
	1124379	TPGW 110308 Z1	TPGW 222 Z1	◈	○	6,35	3,18	0,80	2,80	-	3,50	0,20	0,08	0,80	0,15	0,08	0,30
	1124271	TPGW 16T304 Z1	TPGW 32.51 Z1	○	○	9,53	3,97	0,40	4,30	-	3,50	0,10	0,07	0,40	0,10	0,05	0,20
	1124272	TPGW 16T308 Z1	TPGW 32.52 Z1	○	○	9,53	3,97	0,80	4,30	-	3,50	0,20	0,08	0,80	0,15	0,08	0,30
	1124273	TPGW 160404 Z1	TPGW 331 Z1	○	○	9,53	4,76	0,40	4,30	-	3,50	0,10	0,07	0,40	0,10	0,05	0,20
	1124274	TPGW 160408 Z1	TPGW 332 Z1	○	○	9,53	4,76	0,80	4,30	-	3,50	0,20	0,08	0,80	0,15	0,08	0,30

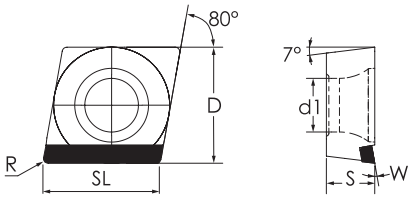
Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

Insert Order Code: [1] Geometry code + [2] Grade code

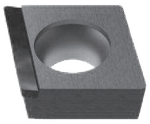
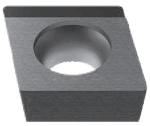
POSITIVE INSERTS

CC = RHOMBIC 80º POSITIVE

RÔMBICA 80º POSITIVA | RÓMBICA 80º POSITIVA

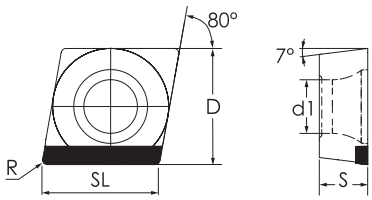


CCGT FR/FL

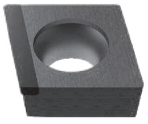
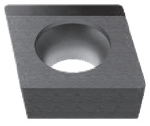
	(1) Geometry code	(2) Grade code ISO Reference	ANSI Reference	N D6 PDP410	N I3 PDP403	Dimensions L	S	R	D	W	SL	Cutting conditions ap (mm)	Min	Max	fn (mm/r)	Min	Max
CCGT FR 	1124212	CCGT 09T302 FR	CCGT 32.50.5 FR	○	○	9,53	3,97	0,20	4,40	10º	9,70	4,85	0,2	6,40	0,08	0,05	0,15
	1124165	CCGT 09T304 FR	CCGT 32.51 FR	◈	○	9,53	3,97	0,40	4,40	10º	9,70	4,85	0,40	6,40	0,12	0,07	0,25
	1124213	CCGT 120404 FR	CCGT 431 FR	○	○	12,70	4,76	0,40	5,50	10º	12,90	6,45	0,40	8,50	0,15	0,08	0,30
	1124214	CCGT 120408 FR	CCGT 432 FR	○	○	12,70	4,76	0,80	5,50	10º	12,90	6,45	0,80	8,50	0,3	0,10	0,40
CCGT FL 	1124215	CCGT 09T302 FL	CCGT 32.50.5 FL	○	○	9,53	3,97	0,20	4,40	10º	9,70	4,85	0,20	6,40	0,08	0,05	0,15
	1124166	CCGT 09T304 FL	CCGT 32.51 FL	◈	○	9,53	3,97	0,40	4,40	10º	9,70	4,85	0,40	6,40	0,12	0,07	0,25
	1124216	CCGT 120404 FL	CCGT 431 FL	◈	○	12,70	4,76	0,40	5,50	10º	12,90	6,45	0,40	8,50	0,15	0,08	0,30
	1124217	CCGT 120408 FL	CCGT 432 FL	◈	○	12,70	4,76	0,80	5,50	10º	12,90	6,45	0,80	8,50	0,3	0,10	0,40

◈ Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

Insert Order Code: (1) Geometry code + (2) Grade code



CCGW FR/FL

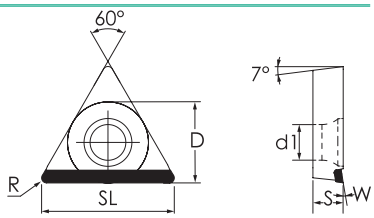
	(1) Geometry code	(2) Grade code ISO Reference	ANSI Reference	N D6 PDP410	N I3 PDP403	Dimensions D	S	R	d1	W	SL	Cutting conditions ap (mm)	Min	Max	fn (mm/r)	Min	Max
CCGW FR 	1124547	CCGW 060204 FR	CCGW 21.51 FR	◈	○	9,53	3,97	0,4	4,4	-	9,7	4,85	0,4	6,4	0,12	0,07	0,25
	1124170	CCGW 09T304 FR	CCGW 32.51 FR	○	○	9,53	3,97	0,4	4,4	-	9,7	4,85	0,4	6,4	0,12	0,07	0,25
	1124222	CCGW 09T308 FR	CCGW 32.52 FR	○	○	9,53	3,97	0,8	4,4	-	9,7	4,85	0,8	6,4	0,16	0,1	0,35
	1124223	CCGW 120404 FR	CCGW 431 FR	○	○	12,7	4,76	0,4	5,5	-	12,9	6,45	0,4	8,5	0,15	0,08	0,3
	1124224	CCGW 120408 FR	CCGW 432 FR	○	○	12,7	4,76	0,8	5,5	-	12,9	6,45	0,8	8,5	0,3	0,1	0,4
CCGW FL 	1124548	CCGW 060204 FL	CCGW 21.51 FL	◈	○	6,35	2,38	0,4	2,8	-	6,5	3,25	0,4	4,2	0,08	0,07	0,25
	1124171	CCGW 09T304 FL	CCGW 32.51 FL	○	○	9,53	3,97	0,4	4,4	-	9,7	4,85	0,4	6,4	0,12	0,07	0,25
	1124225	CCGW 09T308 FL	CCGW 32.52 FL	○	○	9,53	3,97	0,8	4,4	-	9,7	4,85	0,8	6,4	0,16	0,1	0,35
	1124226	CCGW 120404 FL	CCGW 431 FL	○	○	12,7	4,76	0,4	5,5	-	12,9	6,45	0,4	8,5	0,15	0,08	0,3
	1124227	CCGW 120408 FL	CCGW 432 FL	◈	○	12,7	4,76	0,8	5,5	-	12,9	6,45	0,8	8,5	0,3	0,1	0,4

◈ Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

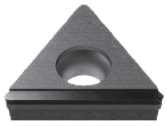
Insert Order Code: (1) Geometry code + (2) Grade code

TC = TRIANGULAR 60º POSITIVE

TRIÂNGULAR 60º POSITIVA | TRIANGULAR 60º POSITIVA



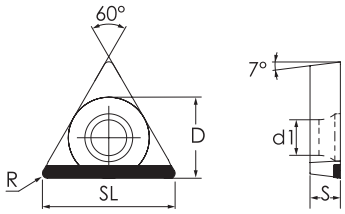
TCGT FL

	(1) Geometry code	(2) Grade code ISO Reference	(2) Grade code ANSI Reference	N D6 PDP410	N I3 PDP403	Dimensions Dimensões Dimenciones (mm) D	S	R	d1	W	SL	Cutting conditions Condições de corte Condiciones de corte ap (mm)	Min	Max	fn (mm/r)	Min	Max
	1124173	TCGT 110204 FL	TCGT 21.51 FL	◉	○	6,35	2,38	0,40	2,80	7º	10,41	5,20	0,40	6,90	0,10	0,05	0,20
	1124248	TCGT 110208 FL	TCGT 21.52 FL	○	○	6,35	2,38	0,80	2,80	7º	9,83	4,92	0,80	6,50	0,15	0,08	0,30
	1124249	TCGT 16T304 FL	TCGT 32.51 FL	◉	○	9,53	3,97	0,40	4,40	10º	15,91	7,96	0,40	10,50	0,10	0,05	0,20
	1124250	TCGT 16T308 FL	TCGT 32.52 FL	○	○	9,53	3,97	0,80	4,40	10º	15,33	7,67	0,80	10,15	0,15	0,08	0,30

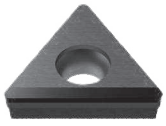
◉ Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

Insert Order Code: (1) Geometry code + (2) Grade code

Note: Can be used as FR geometry.



TCGW FL

	(1) Geometry code	(2) Grade code ISO Reference	(2) Grade code ANSI Reference	N D6 PDP410	N I3 PDP403	Dimensions Dimensões Dimenciones (mm) D	S	R	d1	W	SL	Cutting conditions Condições de corte Condiciones de corte ap (mm)	Min	Max	fn (mm/r)	Min	Max
	1124252	TCGW 110202 FL	TCGW 21.50.5 FL	○	○	6,35	2,38	0,20	2,80	-	10,71	5,20	0,40	6,90	0,10	0,05	0,20
	1112777	TCGW 110204 FL	TCGW 21.51 FL	◉	○	6,35	2,38	0,40	2,80	-	10,41	5,21	0,80	6,50	0,15	0,08	0,30
	1124253	TCGW 16T304 FL	TCGW 32.51 FL	◉	○	9,53	3,97	0,40	4,40	-	15,91	7,96	0,40	10,50	0,10	0,05	0,20
	1124254	TCGW 16T308 FL	TCGW 32.52 FL	◉	○	9,53	3,97	0,80	4,40	-	15,33	7,67	0,80	10,15	0,15	0,08	0,30
	1124255	TCGW 220404 FL	TCGW 431 FL	○	○	12,70	4,76	0,40	5,50	-	21,40	8,00	0,40	10,70	0,10	0,08	0,20
	1124382	TCGW 220408 FL	TCGW 432 FL	◉	○	12,70	4,76	0,80	5,50	-	20,83	7,84	0,80	10,45	0,15	0,10	0,30

◉ Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

Insert Order Code: (1) Geometry code + (2) Grade code

Note: Can be used as FR geometry.

PCD RECOMMENDED CUTTING DATA

Condições de corte recomendadas para PCD | Datos de corte recomiendadas para PCD

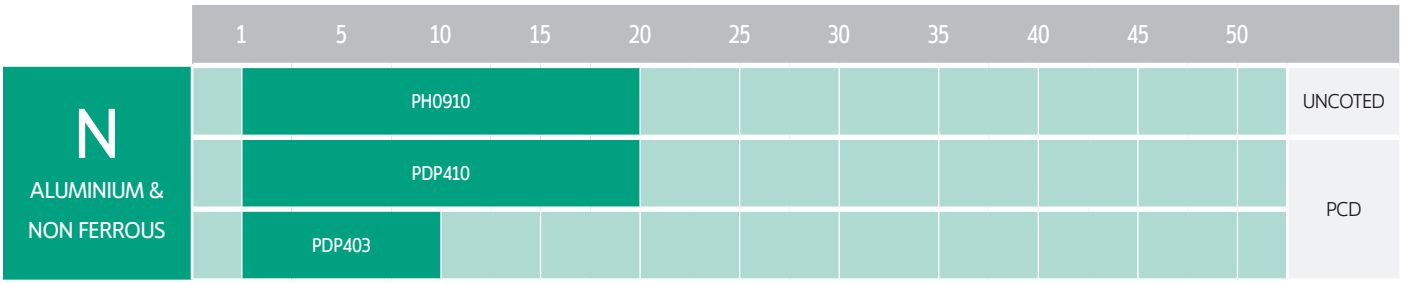
Workpiece material	VC (m/min)		Recommend grade for PCD	
			PDP 410	PDP 403
Aluminium alloys: Aluminium, Si<14%	Roughing Finishing	800-3000 800-3000	◎ ◎	
Aluminium: Aluminium, Si≥14%	Roughing Finishing	300-700 250-700	○ ○	◎ ◎
Copper alloys: Copper, Zinc, Brass	Roughing Finishing	600-1200 700-1500	◎ ◎	
Metal matrix composites: Al (10-20%) SiC	Roughing Finishing	300-1150 400-1260		◎ ◎
Tungsten carbide 10-16% Co: Unsintered	Roughing Finishing	50-200 60-220		◎ ◎
Tungsten carbide 10-16% Co: Sintered	Roughing Finishing	20-40 25-45		◎ ◎
Ebonite, Fiberglass, Plastic materials, Graphite, Glass.	Roughing Finishing	200-1500 300-2000	◎ ◎	◎ ◎
Ceramic: Unsintered	Roughing Finishing	50-150 50-200		◎ ◎
Ceramic: Sintered	Roughing Finishing	20-35 20-40		◎ ◎
Wood	Finishing	1000-4000	◎	

◎ **Recomended** ○ **Second choice**

ANYTIME, ANYWHERE

Online ordering available 24-hour per day and shipments around the globe.

CLIENTS.PALBIT.PT



PH0910 - UNCOATED GRADE

Uncoated carbide micro-grain grade combining a good abrasive wear resistance and toughness.
Suitable for rough to finish operations of aluminum alloys.

PH0910
N01-N20

PCD

PDP4...

PCD insert are an achievement of extreme significance for the machining of Non-Ferrous Materials, such as high-silicon aluminium, metal matrix composites (MMC) and carbon fiber reinforced plastics (CFRP).

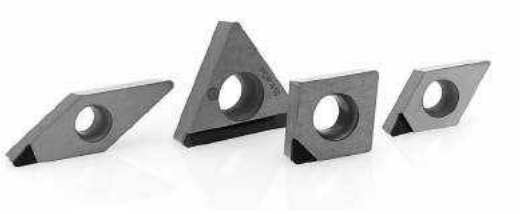
PCD

PDP410
N01-N20

General purpose Fine surface finishing.
<14% silicon aluminium alloy

PDP403
N01-N10

Highest abrasion resistance Bimodal grain structure for increased diamond percentage content.
>14% silicon aluminium alloy



CUTTING SPEED (m/min) ‖ Velocidade de corte (m/min) | Velocidad de corte (m/min)

ISO	Material	Grade fn (mm/r) / HB (brinell)	Uncoated	
			PH0910	
			0.15	0.8
N	Alluminium alloys	60-130	375-2400	40-240
	Cooper and cooper alloys	90-110	375-630	35-65

COMPARATIVE GRADES CHART ‖ Tabela comparativa de graus| Tabla de comparación de calidades

UNCOATED GRADES | GRAUS NÃO REVESTIDOS | CALIDADES SIN RECUBRIMIENTO

ISO Material		Palbit	Sandvik	Kennametal	Iscar	Seco	Mitsubishi	Sumitomo	Tungaloy	Walter	Kyocera	Taegutec	Korloy	Ceratizit
N ALUMINIUM	N01	PH0910	H10		IC20				KS05F	WK1	KW10	K10		
	N10		H10 H13A	KU10 K313 K68	IC20 IC08 IC28	890 HX KX	HTi10		TH10	WK1	KW10 KWK15	K10	H01	
	N20		H10 H13A	KU10 K313 K68	IC08 IC28	HX KX 883		H1	KS15F	WK1	KW10 KWK15		H01	
	N30				IC28									

PH7910 = Best available choice

CHIP BREAKER COMPARATIVE CHART ‖ Tabela de equivalências de quebra-aparas | Tabla de comparación de rompevirutas

NEGATIVES | NEGATIVAS | NEGATIVAS

Application Mat.	Operations	Palbit	Sandvik	Kennametal	Iscar	Seco	Tungaloy	Mitsubishi	Sumitomo	Walter	Kyocera	Taegutec	Korloy	Ceratizit
N ALUMINIUM	Medium	MS	MF, QM	MS , MP MG	PP	-	P		AX		AH , A3	ML	HA	F32

MS = Best available choice

CHIP BREAKER COMPARATIVE CHART ‖ Tabela de equivalências de quebra-aparas | Tabla de comparación de rompevirutas

POSITIVES | POSITIVAS | POSITIVAS - CLEARANCE ANGLE 7°

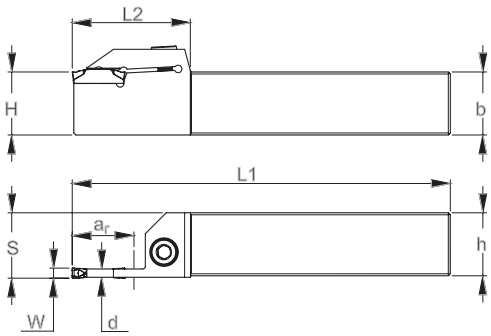
Application Mat.	Operations	Palbit	Sandvik	Kennametal	Iscar	Seco	Tungaloy	Mitsubishi	Sumitomo	Walter	Kyocera	Taegutec	Korloy	Ceratizit
N ALUMINIUM	Medium	LN	AL	HP, GT	AF, AS	AL	AL, PP	AZ, R/L-F	AG, AX, AY	PF2, PM2	AH, A3	FL	AK, AR	23P, 25P, 27

GROOVING & PARTING OFF

GROOVING & PARTING OFF

GROOVING & PARTING OFF

GPRC

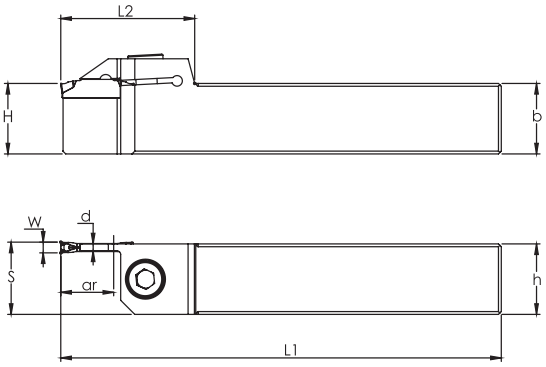


Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)									Seat Size	Insert	Screw	Wrench	Stock
		ar	L1	h	b	H	L2	S	d	W					
213020400	GPRC-150 015 25.25.E.1	15	150	25	25	25	34	26,00	4,0	6	E	GP06...	D0602200	SS50	◈
213020500	GPRC-150 023 25.25.E.1	23	150	25	25	25	42	26,00	4,0	6		GP06...	D0602200	SS50	◈

◈ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

Note: For inserts with 2 cutting edges, the ar is defined by the insert

GPLC

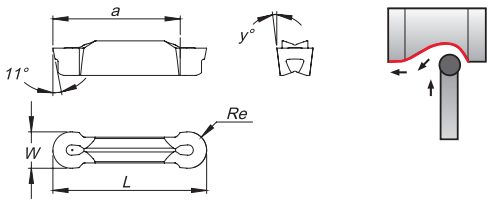


Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)									Seat Size	Insert	Screw	Wrench	Stock
		ar	L1	h	b	H	L2	S	d	W					
213022800	GPLC-150 015 25.25.E.1	15	150	25	25	25	34	26	4	6	E	GP06...	D0602200	SS50	◈
213022900	GPLC-150 023 25.25.E.1	23	150	25	25	25	42	26	4	6		GP06...	D0602200	SS50	◈

◈ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

Note: For inserts with 2 cutting edges, the ar is defined by the insert

GP...02-NP | Non-Ferrous Profiling



N															
	(2) Grade code	UNC 10	Dimensions (mm)							Cutting Conditions					
(1) Geometry code	ISO/ANSI Reference	PH0910	W	Re	L	x°	a	y°	Seat Size *	Ap (mm)	Min	Max	fn (mm/r)	Min	Max
1130405	GP0600E300-N02-NP	⛭	6,0	3,0	25,4	-	18,5	7,0	E	1,30	0,50	2,50	0,20	0,15	0,25

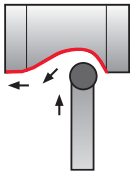
⛭ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

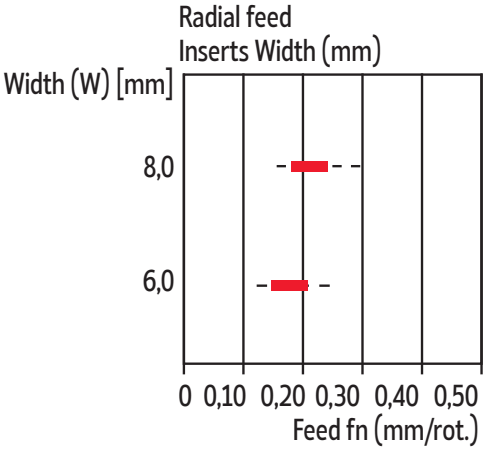
Insert Order Code = (1) geometry Code + (2) Grade Code

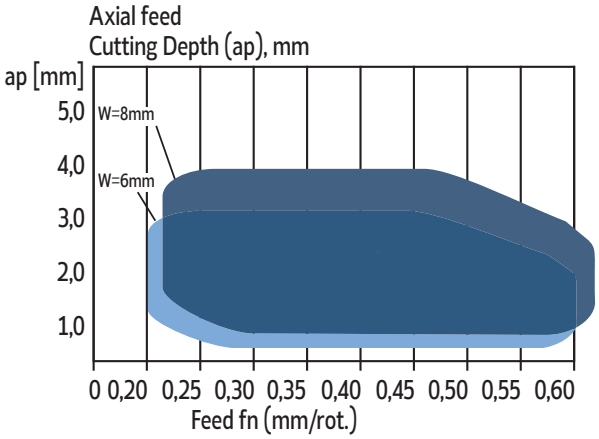
* - Correspond to a Specific Holder

Feed recommendations and geometry descriptions	Grooving & Parting Off

GP...02-NP







Medium Aluminium profiling

First choice for profiling in non-ferrous materials.

Good chip flow provides a better surface finishing.

Sharp cutting edge.

GROOVING & PARTING OFF GRADES | Graus de sangramento e canais | Calidades para tronzado e ranurado

	1	5	10	15	20	25	30	35	40	45	50	
N ALUMINIUM		PH0910										UNCOTED

PH0910 - UNCOATED GRADE

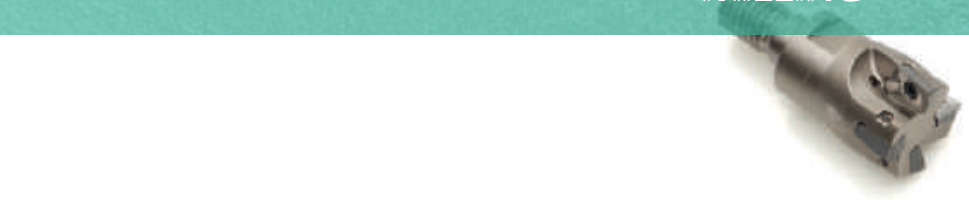
PH0910
N01-N20

Uncoated carbide with polished surface.
1st choice for machining aluminum alloys.

CUTTING SPEED (m/min) | Velocidade de corte (m/min) | Velocidad de corte (m/min)

ISO	Material	Grade / fn (mm/r) / HB (brinell)	Uncoated
			PH0910
			0.04 - 0.35
N	Alluminium alloys	60-130	190-1800

MILLING

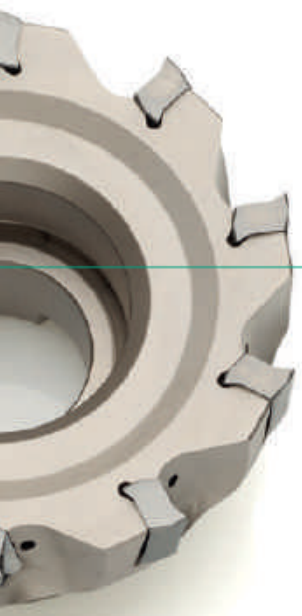


DRILLING

TURNING

GROOVING & PARTING OFF

MILLING



DRILLING

TURNING

GROOVING &
PARTING OFF

palbit
TOOLING SOLUTIONS EXPERTS
SINCE1916

ALUMINIUM
& non ferrous materials

HEADQUARTERS

PALBIT, S.A.

P.O.Box 4 - Palhal

3854-908 - Branca ALB - Portugal

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

palbit@palbit.pt | www.palbit.pt

Branch office:

Palbit México

Emerson 150, Int.803-804, Colonia Chapultepec

Morales Delagación Miguel Hidalgo

C.P. 11570 México DF

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

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

MKT07_ED02_REV00

SINCE 1916