palbit

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METRIC

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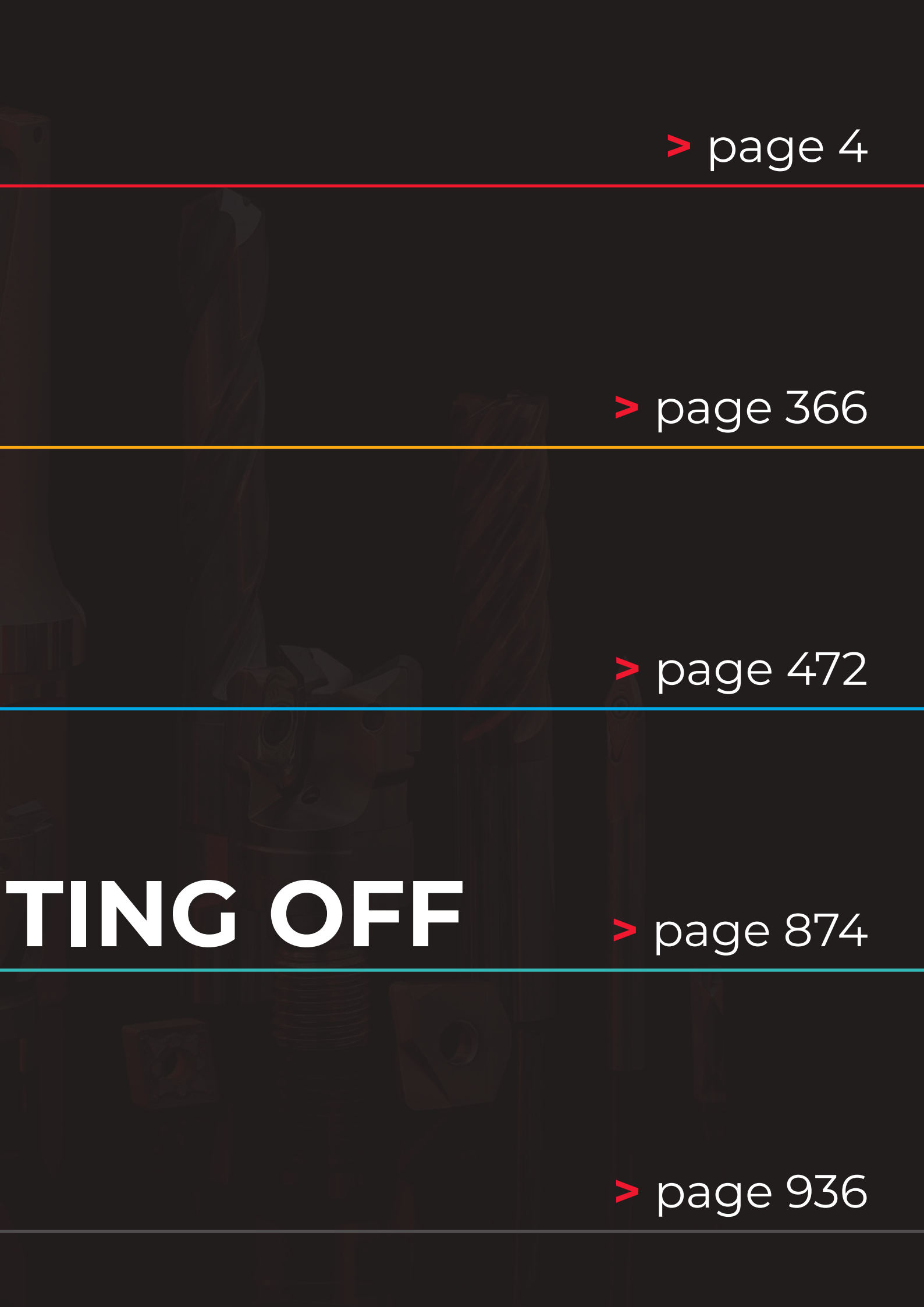
MILLING

HOLEMAKING

TURNING

GROOVING & PAR

THREADING



> page 4

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TING OFF

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CUTTING TOOLS FOR

MILLING

A

A - MILLING

A - 06 | Operation selection

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A - 74 | High feed milling
A - 122 | Shoulder milling
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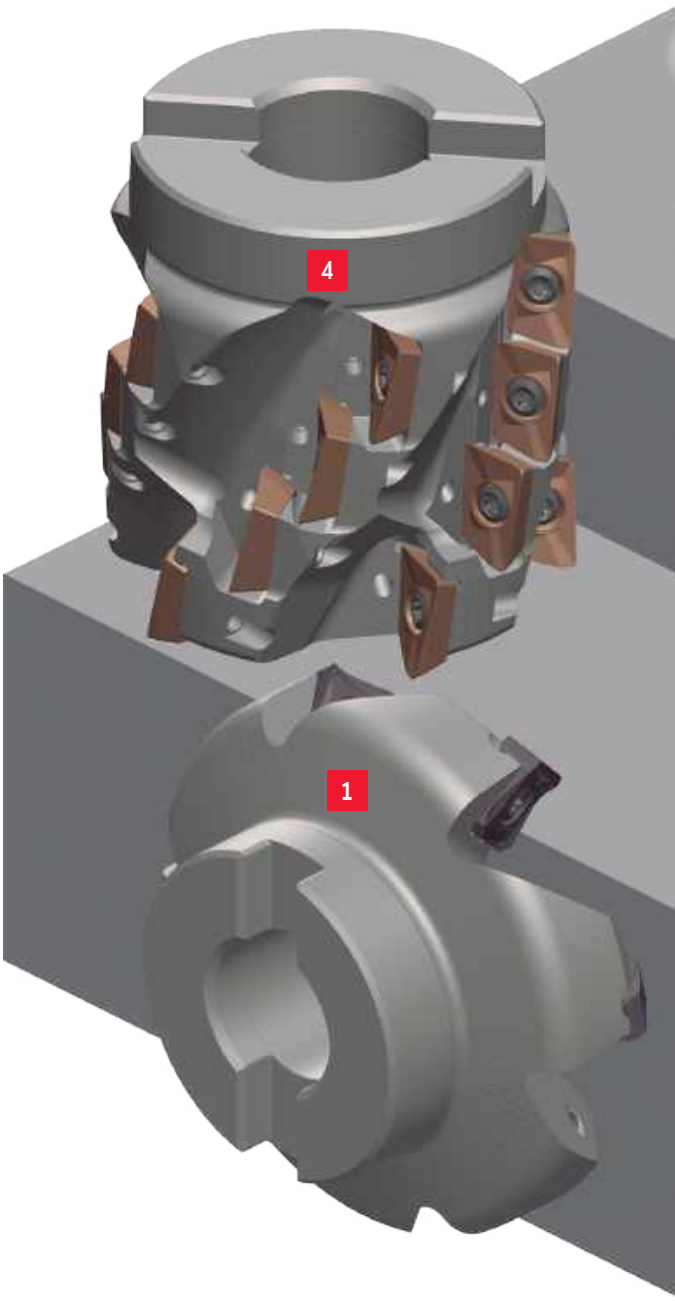
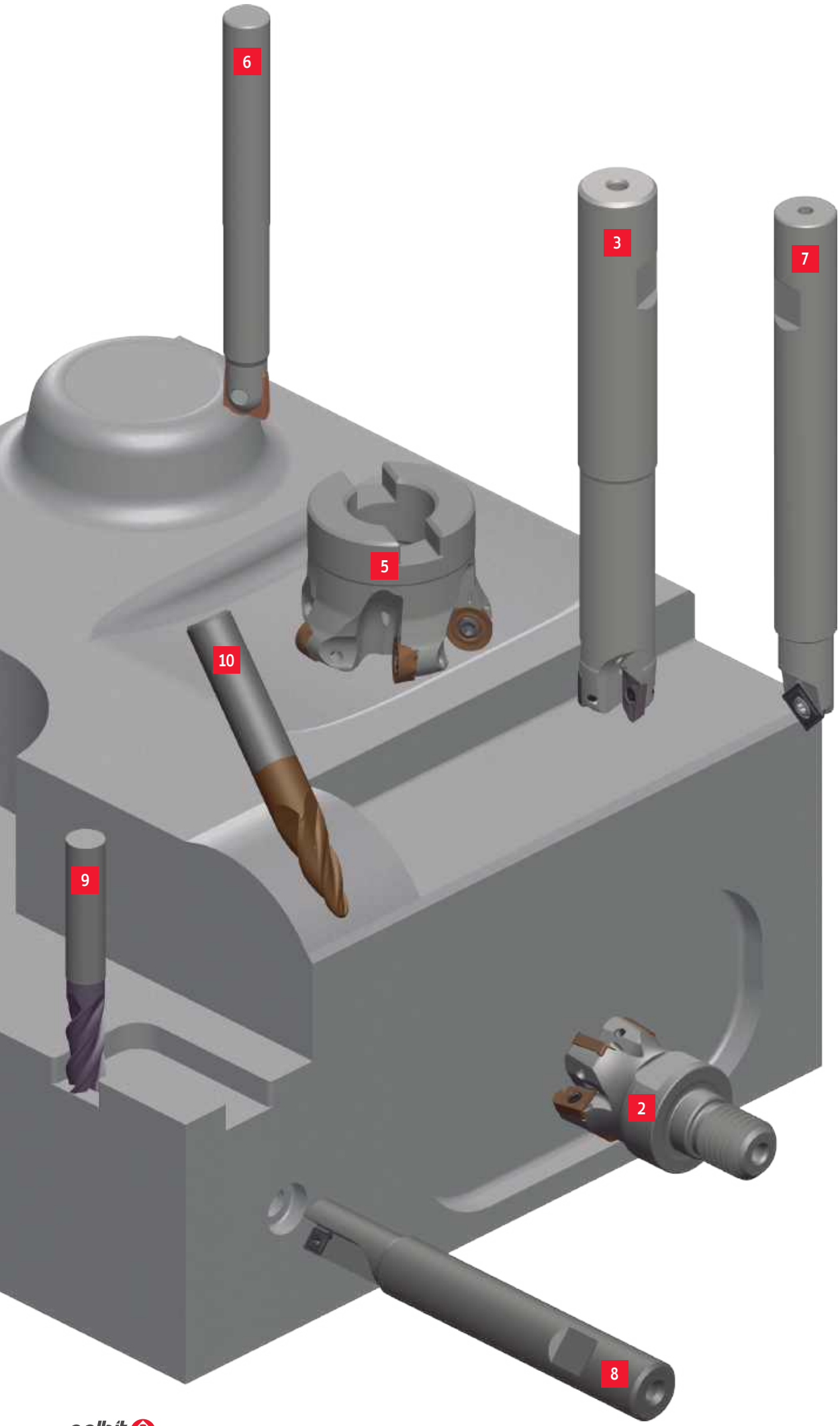
OPERATION SELECTION Seleção da operação | Selección de operación

MILLING OPERATIONS

1. Face milling
2. High feed milling
3. Shoulder milling
4. Heavy milling
5. Profile milling
6. Finishing
7. Speciality
8. Spot face
9. Solid carbide end mills
10. 5-Axis




6
3
7
5
10
9
2
8

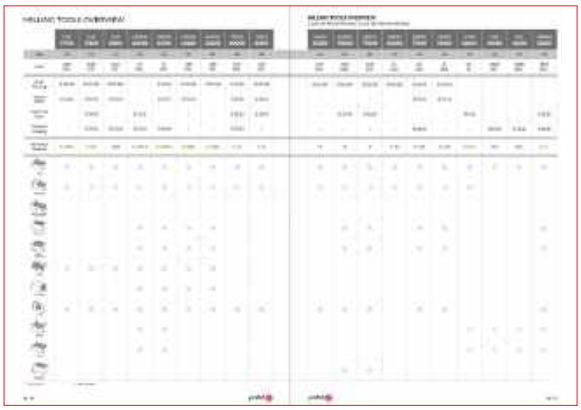
MILLING TOOL SELECTION Seleção da ferramenta de fresagem | Selección de la herramienta de fresado

1 - Define your operation type:

- Face milling
- Highfeed milling
- Shoulder milling
- Profile milling
- Hardmill

Select your tool:

See page A - 12



2 - Define your material according to ISO:

- P Steel
- M Stainless Steel
- K Cast Iron
- N Aluminium & Non Ferrous Materials
- S Heat Resistant and Titanium Alloy
- H Hardened Material

See the last page for Palbit Selection Materials - PSM

3 - Select your milling cutter.

Choose the cutter pitch and mounting:

- Use a close pitch cutter as first choice
- Use a coarse pitch cutter for long overhang and unstable conditions
- Choose a mounting type
- The cutter marked as “stock available under request” has a minimum order quantity according to the following table:

Qty	* DC Size
10	≤ 100 mm
5	> 100 mm

4 - Select your insert.

Choose the chip breaker for your operation:

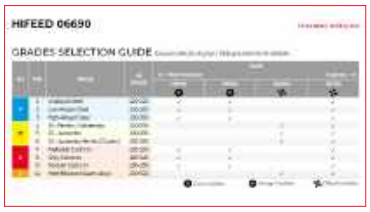
- Chip breaker L= Light (for light cuts when low forces/power are required)
- Chip breaker M = Medium (first choice for mixed production)
- Chip breaker H = Heavy (for rough operations, forging, cast skin and vibration)
- Select insert grade for optimum productivity
- The insert marked as "stock available under request" has a minimum order quantity according to the following table:

Qty	*IC Size
300	≤ IC 25 mm
150	> IC 25 mm

5 - Define your starting cutting parameters.

Cutting speeds and feeds for different materials are given on the insert boxes and in the tables for each solution.

The values should be optimized according to the machine and conditions.



INSERTS CODIFICATION FOR MILLING TOOLHOLDERS

Codificação de pastilhas para fresas | Codificación de insertos para herramientas de fresado

Code	Inserts Description	Page
060	SE...T/W 1204	68
062	SP..X 1204	210
063	POKT 0403	90
064	SOEW | SOET 0803...	96
066	SOEW | SOET 13M...	102
068	SOEW | SOET 1605...	108
099	SE...T/W 13T3	70
163	XNKU 06T3	78
164	XNKU 1205	84
170	AP..T 1003	214
171	ANHX 1004	142
175	ANHX 1204	146
180	AP.. 1604	220
181	ANHX 1607	150
200	XP.. 0602	156
201	XP. 1003	162
202	XPET 1706	172 | 180
245	RDHW 0702	260

Code	Inserts Description	Page
250	RD...T/W 1003 MO	260
251	RD...T/W 12T3MO	260
252	RD...T/W 1604MO	262
253	RD...T/W 2006MO	262
280	SN...U 1206	40
335	RD...0802	240
336	RP..10T3	240
337	RP..1204	241
338	RP..1605	242
339	RP..2006	242
341	RPHT 10T3-LS(4)	244
342	RPHT 1204-LS(4)	246
351	RN...1204	254
400	XDHW 060210	270
405	XDHW 10T310	270
410	XDHW 040110	270
450	WNHU 060410	236
490	WNHU 04T3...	138 | 234

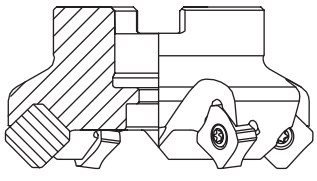
Code	Inserts Description	Page
494	WNXT | WOXT 0403...	126
495	WNXT 0806...	132
500	WNMW 1207	118
505	WDET | WDMW 1204...	114
570	SFHX 1004.. | OFHX 0403..	62
620	WCL(R)...	228 | 229
640	VPGT 0602..	282
720	XNHW 1205...	278
760	XDGX 15M5	200
770	XDGX 22M7	204
900	LNXT 0904	186
901	LNXT 1306	190
902	PN...X 1105	44
903	LNXT 1506	194
908	SN...X 1206 & ON...X 0505	48
909	SN...X 1206	52
912	SN...X 1606 & ON...X 0606	56

COUPLING TYPES Tipo de acoplamento | Tipo de acoplamiento

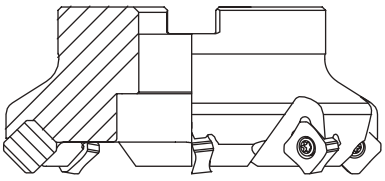
Symbol Símbolo Símblo	Coupling type Tipo de acoplamento Tipo de acoplamiento	Inserts fixation type Fixação de pastilhas Fijación de plaquitas	Standard Norma Norma
A	Arbor mounting Montagem tipo árvore Montaje con tornillo	Insert screw Parafuso pastilha Tornillo de la plaquita	ISO 6462
B		Wedge Cunha 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 cilindrico	Any type Qualquer tipo Cualquier tipo	DIN 1835 - A
R	Threaded coupling Acoplamento roscado Acoplamiento roscado	Any type Qualquer tipo Cualquier tipo	Palbit internal standard Norma interna Palbit
W	Weldon shank Haste weldon Mango tipo weldon	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

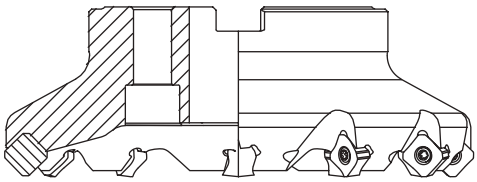
Arbor type A



Arbor type B



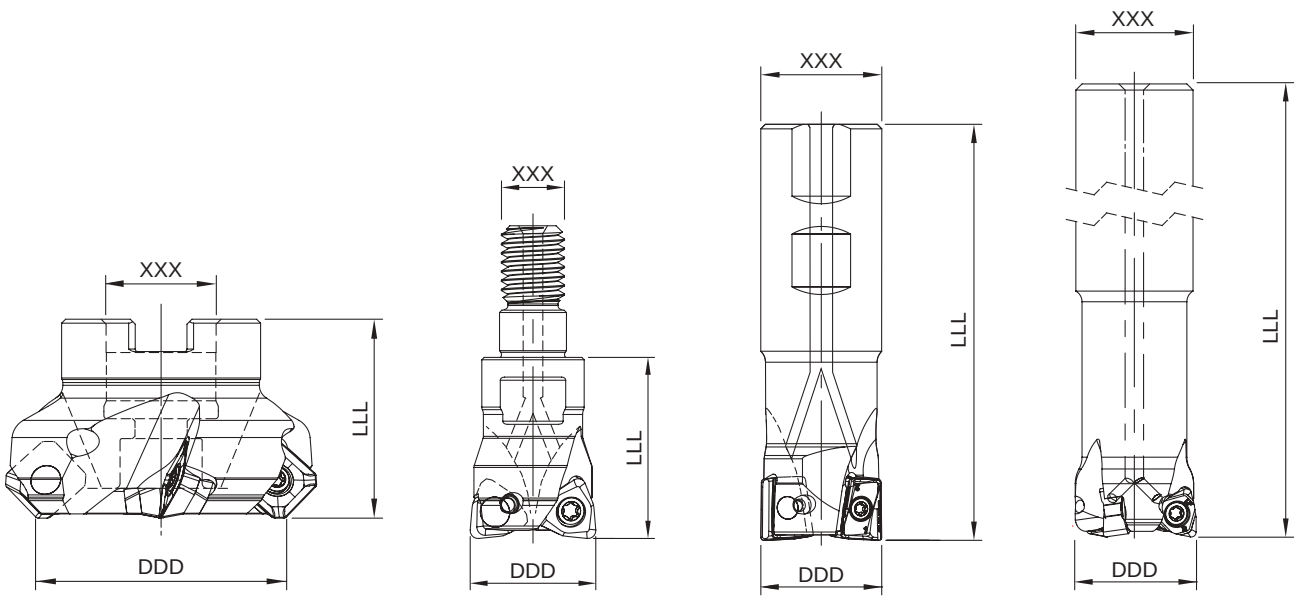
Arbor type C



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

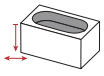
Codificação das ferramentas de fresagem | Codificación de heramientas de fresado



DDD Y ZZZ TT-NN-LL-U XXX LLL-L-AAA ##

- DDD — Diameter / Diâmetro / Diametro
- Y — Coupling Type (A-10) / Tipo de acoplamento (A-10) / Tipo de acoplamiento (A-10)
- ZZZ — Insert Type (A-9) / Pastilha aplicável (A-9) / Inserto aplicable (A-9)
- TT — Lead angle / Ângulo de posicionamento da pastilha / Ángulo de posicion del inserto
- NN — Number of teeth / Número de dentes / Numero de dientes
- LL — Axial angle (angle of the tool construtions) / Ângulo Axial (ângulo de construção da ferramenta) / Ángulo Axial (ángulo de la construcción de herramienta)
- U — Cooling system / Refrigeração / Refrigeración
  - U - Whitout cooling system
  - U - Sem refrigeração
  - U - Sin refrigeración
- XXX — Coupling diameter / Diâmetro de acoplamento / Diámetro de acoplamiento
- LLL — Total length / Comprimento total / Longitud total
- L — Rotation (R/L) / Rotação (R/L) / Rotación (R/L)
  *In case of right rotation the "R" is supressed.
- AAA — 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 TOOLS OVERVIEW

	PLUS 28088	PLUS 90260	PLUS 90845	PLUS 90945	PLUS 91245	NEW LINEPRO 57045	LINEPRO 06045	LINEPRO 09945	TETRAFEED 16320
Page	40	44	48	52	56	62	68	70	78
Insert	SN...U 1206...	PN...X 1105	SN... 1206 ON... 0505...	SN..X 1206	SN... 1606... ON... 0606...	SFHX 1004.. OFHX 0403..	SE... 1204...	SE... 13T3...	XNKU... 06...
Arbor Mounting	Ø 50-200	Ø 50-160	Ø 50-250	Ø 50-250	Ø 63-250	Ø40-125	Ø 50-160	Ø 50-250	Ø 40-80
Weldon Shank	-	-	Ø 32-40	-	-	Ø20-32	-	-	Ø 16-32
Cylindrical Shank	-	-	-	-	-	Ø20-32	-	-	Ø 16-32
Threaded Coupling	-	-	-	-	-	Ø20-32	-	-	Ø 16-42
Workpiece Material	P M K	P K	P M K N S	P M K N S	P M K S	P M K S	P M K N	P M K N	P M K S
Facing	●	●	●	●	●	●	●	●	●
Shouldering	○								
Slanted Shoulder & Chamfer			○	○	○	○	○	○	
Ramp down									○
Helical Interpolation									○
Plunging									○
Side milling									
Slotting									
Profiling									○
Copying									○
 Plunging & Recessing									

● Main Operation ○ Other Operations

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MILLING TOOLS OVERVIEW

Guia de ferramentas | Guía de herramientas

NEW TETRAFEED 16420	PENTA HIFEED 06320	HIFEED 06410	HIFEED 06690	HIFEED 06815	HIFEED 50560	HIFEED 50060	NEW HEXAPLUS 49490	HEXAPLUS 49590	PLUS 49090
84	90	96	102	108	114	118	126	132	138
XNKU... 12...	POKT 0403...	SO... 0803...	SO... 13M5...	SO... 1605...	WD... 1204...	WN... 1207...	W..XT 0403..	WNXT 0806...	WNHU 04T308-LP
Ø50-100	Ø 40-66	Ø 40-52	Ø 50-100	Ø 63-160	Ø 52-80	Ø 52-80	Ø32-63	Ø 40-160	-
Ø32-40	-	Ø 20-32	-	-	-	-	Ø20-32	Ø 32-50	-
-	Ø 20-40	-	-	-	-	-	-	-	Ø 16-25
-	Ø 16-42	Ø 20-42	Ø 32-42	-	-	Ø 35	Ø18-32	-	Ø 16-32
P M K S	P K	P M K S	P M K S	P M K S	P M K S	P K	P K	P K	P K
●	●	●	●	●	●	●	○	○	○
							●	●	●
○	○	○	○	○	○	○	○	○	
○	○	○	○	○	○	○	○	○	
○	○	○	○	○		○			
							○	○	
○	●	●	●	●	●	●			
○	●	●	●	●	●	●			

MILLING TOOLS OVERVIEW

	PLUS 17190	PLUS 17590	PLUS 18190	LINEPRO 20090	LINEPRO 20190	LINEPRO 20290	NEW HELIPRO 20290	TGPLUS 90090	TGPLUS 90190
Page	142	146	150	156	162	172	180	186	190
Insert	ANHX 1004...	ANHX 1206...	ANHX 1607...	XP.. 0602...	XP.. 1003...	XPET 1706...	XPET 1706...	LNXT 0904...	LNXT 1306...
Arbor Mounting	Ø 40-100	Ø 40-125	Ø 50-160	-	Ø 40-63	Ø 40-125	Ø 50-125	Ø 40-63	Ø 40-125
Weldon Shank	Ø 14-40	Ø 25-40	Ø 32-40	-	Ø 16-32	Ø 32-40	-	Ø 16-32	Ø 25-40
Cylindrical Shank	-	Ø 26-33	-	Ø 10-21	Ø 16-25	-	-	Ø 20-32	Ø 25-40
Threaded Coupling	-	Ø 25-42	Ø 32-40	Ø 10-32	Ø 16-40	-	-	Ø 25-32	-
Workpiece Material	P M K N S	P M K S	P K N	P M K N S H	P M K N S H	P M K N S	P M K N S	P M K S	P M K
Facing	◎	◎	◎	◉	◉	◎	◎	◎	◎
Shouldering	◉	◉	◉	◉	◉	◉	◉	◉	◉
Slanted Shoulder & Chamfer									
Ramp down				◎	◎	◎	◎		
Helical Interpolation				◎	◎	◎	◎		
Plunging	◎	◎	◎	◎	◎	◎	◎		
Side milling				◎	◎	◎	◎		
Slotting	◎	◎	◎	◎	◎	◎	◎	◎	◎
Profiling				◎	◎				
Copying				◎	◎				
Plunging & Recessing									

◉ Main Operation ◎ Other Operations

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MILLING TOOLS OVERVIEW

Guia de ferramentas | Guía de herramientas

	TGPLUS **90390**	ALUPRO **76090**	ALUPRO **77090**	LINEPRO **06290**	LINEPRO **17090**	LINEPRO **18090**	W-PRO **62090**	PLUS **49095**	PLUS **45095**	TOROMILL **33590**
	194	200	204	210	214	220	228	234	236	240
	LNXT 1506...	XDGX 15M5...	XDGX 22M7...	SP.. 1204...	AP.. 1003...	AP.. 1604...	WC... 08...	WNHU 04T3...	WNHU 0604...	RDHT 0802...
	Ø 50-160	Ø 40-100	Ø 50-125	Ø 40-160	Ø 40-63	Ø 40-125	-	-	-	-
	-	-	-	-	Ø 16-25	Ø 25-40	-	-	-	-
	-	Ø 20-40	Ø 32-40	-	-	-	Ø 8-20	-	-	Ø 16-25
	-	Ø 25-40	-	-	Ø 16-25	-	Ø 10-20	Ø 16-35	Ø 25-42	Ø 16-32
	P K	N	N	P M K S	P M K N	P M K N	P M K S H	P K H	P K H	P M S
	●	●	●	●	●	●	●	●	●	●
	●	●	●	●	●	●	●			
		●	●		●	●				●
		●	●		●	●				●
	●	●	●		●	●				●
							●	●	●	●
							●	●	●	●
		●	●							

MILLING TOOLS OVERVIEW

	TOROMILL 33690	TOROMILL 33790	TOROMILL 33890	TOROMILL 33990	TURBOMILL 34190	TURBOMILL 34290	TOROMILL X2 35190	TOROMILL 24590	TOROMILL 25090
Page	240	241	242	242	244	246	254	260	260
Insert	RPHT 10T3...	RPHT 1204...	RPHT 1605...	RPHT 2006...	RPHT 10T3...LS(4)	RPHT 1204... LS(4)	RNHX 1204...	RD... 0702...	RD... 1003...
Arbor Mounting	Ø 42-52	Ø 40-80	Ø 50-125	Ø 80-125	Ø 42-52	Ø 40-80	Ø 40-100	-	Ø 42-52
Weldon Shank	-	-	-	-	-	-	Ø 32	Ø 15	Ø 20
Cylindrical Shank	Ø 20-32	-	-	-	Ø20-32	-	-	-	-
Threaded Coupling	Ø 20-35	-	-	-	Ø20-35	-	Ø 32-42	Ø 15-20	Ø 20-42
Workpiece Material	P M S	P M S	P M S	P M S	P M S	P M S	P M K S	P K H	P K H
Facing	◎	◎	◎	◎	◎	◎	◎	◎	◎
Shouldering									
Slanted Shoulder & Chamfer									
Ramp down	◎	◎	◎	◎	◎	◎	◎	◎	◎
Helical Interpolation	◎	◎	◎	◎	◎	◎	◎	◎	◎
Plunging								◎	◎
Side milling									
Slotting	◎	◎	◎	◎	◎	◎	◎	◎	◎
Profiling	●	●	●	●	●	●	●	●	●
Copying	●	●	●	●	●	●	●	●	●
Plunging & Recessing									

● Main Operation ◎ Other Operations

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MILLING TOOLS OVERVIEW

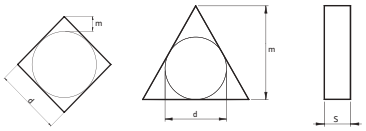
Guia de ferramentas | Guía de herramientas

	TOROMILL 25190	TOROMILL 25290	TOROMILL 25390	LINEPRO 40095	LINEPRO 40595	LINEPRO 41095	HARDMILL 72090	CENTER & CHAMFER	NEW ENGRAVING 64067	SPOT FACE
	260	262	262	270	270	270	278	282	286	290
	RD... 12T3...	RD... 1604...	RD... 2006..	XD... 0602...	XD... 10T3...	XD... 0401...	XNHW 1205...	SOMT 11T3.. SOGT 11T3..	VPGT 0602..	SPKX
	Ø 50-80	Ø 52-160	Ø 80-160	-	Ø 52-80	-	Ø 40-160			-
	Ø 25	-	-	-	-	-	-	Depth of machining	Depth of engraving	Ø 10-25
	-	-	-	-	-	-	-	1,00 to 6,50 mm	0,05 to 2,00 mm	-
	Ø 24-42	Ø 32-35	-	Ø 16-25	Ø 25-42	Ø 10-12	-			-
	P K H	P K H	P K H	P K N H	P K N H	P K N H	N	P M K	P M N S	P M K S
	●	●	●	●	●	●	●			
							●			
	●	●	●	●	●	●				
	●	●	●	●	●	●				
	●	●	●							
	●	●	●	●	●	●				
	●	●	●	●	●	●				
	●	●	●	●	●	●				

MILLING INSERTS ISO IDENTIFICATION SYSTEM

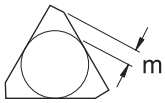
H	120°	M	86°
O	135°	V	35°
P	108°	W	80°
S	90°	L	90°
T	60°	A	85°
C	80°	B	82°
D	55°	K	55°
E	75°	R	
F	50°	X	Special

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	Chip breaker	Shape
W	with hole	Round hole / one countersink (40°~60°)	Without chip breaker	
T			Chip breaker on one side	
Q		Round hole / double countersink (40°~60°)	Without chip breaker	
U			Chip breaker on both sides	
B		Round hole / one countersink (70°~90°)	Without chip breaker	

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

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

palbit

MILLING INSERTS ISO IDENTIFICATION SYSTEM

Sistema de identificação ISO para pastilhas de fixação mecânica | Codificación ISO para plaquitas indexables

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

12 06 00 AN S N - MP

10* - Chip breaker 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 PNER - MP

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 INSERTS OVERVIEW

FACE MILLING INSERTS

Reference	SNHU	SNKU	PNHX	PNKX	SNHX	SNKX	ONHX
Size	12	12	11	11	12 | 16	12 | 16	05 | 06
Material	P M K	P M K	P K	P K	P M K N S	P K	P M K S
Page	41	41	44	44	49 | 53 | 57	49 | 53 | 57	49 | 57

HIGH FEED MILLING INSERTS

Reference	ONKX	SEHW	SEHT
Size	05 | 06	12 | 13	12 | 13
Material	P M K S	P M K	P M K N
Page	49 | 57	68 | 71	68 | 71

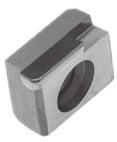
HIGH FEED MILLING INSERTS

Reference	XNKU
Size	06 | 12
Material	P M K S
Page	80 | 85

HIGH FEED MILLING INSERTS

Reference	POKT	SOEW	SOET	WDET	WDMW	WNMW	XPET...HF
Size	04	08 | 13 | 16	08 | 13 | 16	12	12	12	06 | 10
Material	P K	P K	P M S	P M S	P K	P K	P M K S
Page	91	97 | 103 | 108	97 | 103 | 108	114	114	119	157 | 166

SPECIAL MILLING INSERTS

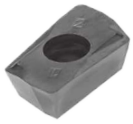
	HARDMILL		CENTER & CHAMFER		ENGRAVING	SPOT FACE
Reference	XDHW	XNHW	SOMT	SOGT	VPGT	SPKX
						
Size	04 | 06 | 10	12	11	11	06	05 | 06 | 07 | 09 | 11
Material	N H	K N	P M K	P M K	P M N S	P M K S
Page	271	279	282	282	286	290

palbit

MILLING INSERTS OVERVIEW

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

SHOULDER MILLING INSERTS

Reference	WOXT	WNXT	WNHU	ANHX	XPET	XPHW	LNXT
							
Size	04	04 | 08	04	10 | 12 | 16	06 | 10 | 17	06 | 10	09 | 13 | 15
Material	P K	P K	P K	P M K N S	P M K N S	P H	P M K
Page	128	128 | 133	139	142 | 148 | 151	157 | 166 | 173	157 | 167	188 | 191 | 195

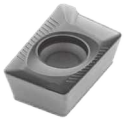
Reference	XDGX	SPGX	SPMX	APET	APKT	APHT
Size	15 | 22	12	12	10	10 | 16	16
Material	N	P M K S	P M K S	N	P M K	N
Page	201 | 205	210	210	216	216 | 221	221

PROFILE MILLING INSERTS

Reference	WCR	WCL	WNHU	RDHT	RPHT	RNHX	RDHT
Size	08 | 10 | 12 | 16 | 20	08 | 10 | 12 | 16 | 20	04 | 06	08	10 | 12 | 16 | 20	12	10 | 12 | 16 | 20
Material	P M K N S H	P M K N S H	P K H	P M S	P M S	P M K S	P K
Page	229	230	234 | 236	243	243 | 247	255	263

Reference	RDHW	RDMT	RDMW	XDHW	XDHW
Size	07 | 10 | 12 | 16 | 20	10 | 12 | 20	10 | 12 | 16 | 20	04 | 06 | 10	04 | 06 | 10
Material	P K H	P	P K	P K N H	N H
Page	263	263	263	271	271

OTHER MILLING INSERTS

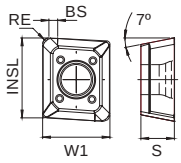
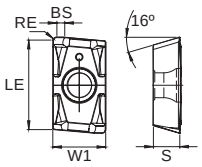
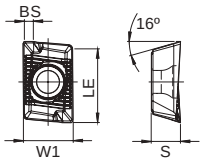
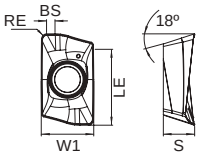
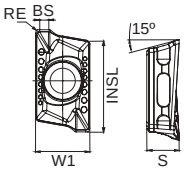
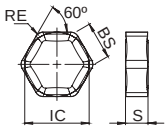
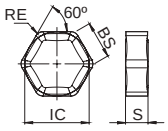
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	P							M			K								N
			PVD							PVD			CVD		PVD						UNC
		(2) Grade code	M6	54	68	66	78	86	I5	68	66	I5	L5	L9	D2	54	68	67	66	I5	10
			PH6103	PH6910	PH6920	PH6930	PH6125	PH6135	PH6740	PH6920	PH6930	PH6740	PH5705	PH5740	PH6705	PH6910	PH6920	PH6325	PH6930	PH6740	PH0910
	1111423	ACET 150612 TR			◈			△		◈							◈				
	1110014	APFT 1604 PDFR			○												○				
	1110015	APFT 1604 PDSR			◈												◈				
	1110557	APFT 1604 PDTR			○												○				
	1110006	ADKT 1505 PDR			◈	○				◈	○						◈		○		
	1111218	ADKT 1505 PDSR			◈	◈				◈	◈						◈		◈		
	1111209	ADKT 1505 PDTR			◈	○				◈	○						◈		○		
	1112192	BOMT 130408R			○												○				
	1110038	BCKT 1304 PDR						○													
	1110922	HNGF 090520 - V											◈				◈	△			
	1110957	HNGF 090520 - W											◈		◈	△					

◈ First choice | 1ª Escolha | 1ª Opción
◈ Stock Itens | Itens de stock
△ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock
○ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

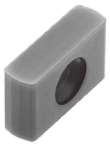
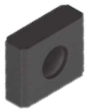
Insert Order Code: (1) Geometry code + (2) Grade code

OTHER MILLING INSERTS

Outras pastilhas para fresagem | Otras plaquitas para fresado

Dimensions (mm) | Dimensões (mm) | Dimensiones (mm)						Drawing
IC | W1	S	INSL | LE	RE	BCH	BS	
12,7	6,35	15,00	1,20	-	1,70	
9,53	4,76	16,00	0,80	-	2,00	
9,53	4,76	16,00	0,80	-	2,00	
9,53	4,76	16,00	0,80	-	2,00	
9,54	5,63	15,70	-	-	1,60	
9,54	5,63	15,70	-	-	1,60	
9,54	5,63	15,70	-	-	1,60	
8,13	4,85	11,50	1,20	-	1,40	
8,41	4,90	12,80	0,61	-	1,40	
16,20	5,56	9,16	2,00	-	-	
16,20	5,56	9,16	2,00	-	-	

OTHER MILLING INSERTS

Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	P							M			K							N
			PVD							PVD			CVD		PVD					UNC
		(2) Grade code	54	68	G4	66	78	86	I5	68	66	I5	L5	L9	D2	54	68	67	I5	10
			PH6910	PH6920	PH7920	PH6930	PH6125	PH6135	PH6740	PH6920	PH6930	PH6740	PH5705	PH5740	PH6705	PH6910	PH6920	PH6325	PH6740	PH0910
	1111876	LNE 323-02															○			
	1111877	LNE 323-10															○			
	1110952	LNE 323-02 SP															○			
	1113037	LNE 434 R08-SP																		
	1113038	LNE 434 R16-SP																		
	1111420	LNE 434-02															○			
	1111894	LNE 434-05																		
	1111416	LNJN 2205 DDSR-A1															○			
	1111518	OFEN 070405 TN	◈	◈					◈							◈	◈		◈	
	1111569	OFKR 070408 FN-LN																		◈
	1111568	OFKR 070408 SN-MP	◈	◈			◈		◈			◈				◈	◈		◈	
	1110555	PDMW 120420 T					○	○												
	1110554	PDHW 120420 T		◈			◈	◈									◈			
	1112133	RPEW 1204 M0		○							○						○			
	1121742	RPMT 1003 M0T		○													○			
	1120448	RPMT 1204 M0T		○													○			

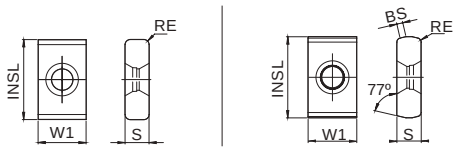
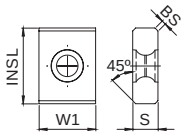
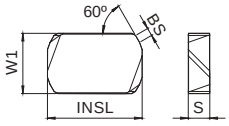
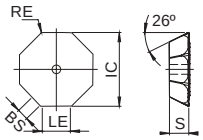
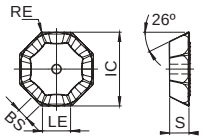
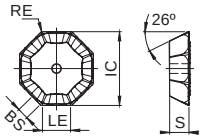
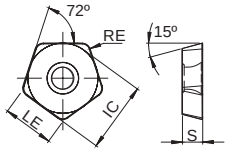
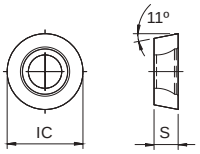
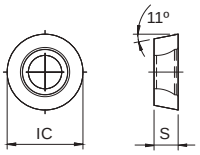
◈ First choice | 1ª Escolha | 1ª Opción
◈ Stock Itens | Itens de stock
◈ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock
○ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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

palbit

OTHER MILLING INSERTS

Outras pastilhas para fresagem | Otras plaquitas para fresado

Dimensions (mm) | Dimensões (mm) | Dimensiones (mm)						Drawing
IC | W1	S	INSL | LE	RE	BCH	BS	
9,53	4,76	15,88	-	-	0,40	
9,53	4,76	15,88	1,27	-	-	
9,53	4,76	15,88	0,80	-	1,20	
14,25	5,85	18,55	0,80	-	-	
14,25	5,85	18,55	1,60	-	-	
14,25	6,35	19,05	-	-	0,80	
14,25	6,35	19,05	1,60	-	-	
14,00	5,00	22,00	-	2,00	-	
18,00	4,76	7,40	0,60	-	2,20	
18,00	4,76	7,40	0,60	-	2,20	
18,00	4,76	7,40	0,60	-	1,60	
16,52	4,76	12,0	2,00	-	-	
16,52	4,76	12,0	2,00	-	-	
12,00	4,76	-	-	-	-	
10,00	3,18	-	-	-	-	
12,00	4,76	-	-	-	-	

OTHER MILLING INSERTS

Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	P							M			K							N
			PVD							PVD			CVD		PVD					UNC
		(2) Grade code	M6	54	68	66	78	86	I5	68	66	I5	L5	L9	D2	54	68	67	I5	10
			PH6103	PH6910	PH6920	PH6930	PH6125	PH6135	PH6740	PH6920	PH6930	PH6740	PH5705	PH5740	PH6705	PH6910	PH6920	PH6325	PH6740	PH0910
	1110200	SDHT 1204 AEEN			○						○						○			
	1110693	SDHT 1204 AFFN		○													○			
	1110201	SDHT 1204 AESN-PL			○		○										○			
	1110818	SDHW 09T3 AEEN			○												○			
	1110743	SDHW 09T3 AEFN			○												○			
	1110781	SDHW 1204 AEEN			○												○			
	1110782	SDHW 1204 AETN			○												○			
	1112339	SDHW 150412			○												○			
	1110206	SEAN 1203 AFEN			○												○			
	1110207	SEAN 1203 AFFN			○												○			
	1110208	SEAN 1203 AFSN			◬												◬			
	1110209	SEAN 1203 AFTN			○												○			
	1110211	SEAN 1504 AFFN			○												○			
	1110212	SEAN 1504 AFTN			○												○			
	1110219	SEHW 1204 AFEN			◬				◬			◬					◬		◬	
	1110222	SEHW 1204 AFTN			◬				◬			◬					◬		◬	
	1111146	SEHW 13T3 AGFN			◬												◬			
	1110224	SEHW 1504 AFSN			○												○			
	1110225	SEHW 1504 AFTN			○												○			
	1110226	SEKN 1203 AFEN			○												○			
	1110227	SEKN 1203 AFFN			○												○			
	1110228	SEKN 1203 AFSN			◬												◬			
	1110230	SEKN 1203 AFTN			○												○			
	1110794	SEKN 1204 AFFN			○												○			
	1110232	SEKN 1204 AFSN			◬												◬			
	1110233	SEKN 1204 AFTN			○												○			
	1110235	SEKN 1504 AFEN		◬	◬				◬			◬				◬	◬		◬	
	1110238	SEKN 1504 AFTN			◬				◬			◬					◬		◬	
	1110239	SEKR 1203 AFEN			◬												◬			
	1110240	SEKR 1203 AFSN			◬												◬			
	1110241	SEKR 1204 AFSN			○												○			
	1110759	SEKR 1504 AFSN			◬				◬								◬		◬	
	1111921	SEXT 14M4 AGSN-M		△	○												○			

◬ First choice | 1ª Escolha | 1ª Opción
◬ Stock Itens | Itens de stock
△ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock
○ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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

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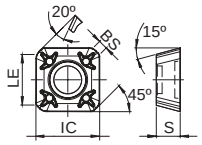
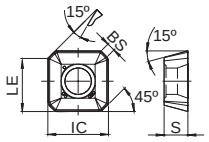
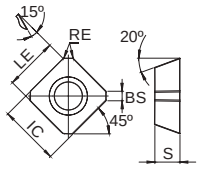
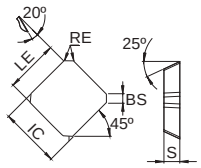
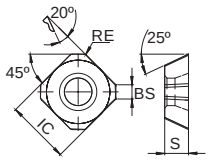
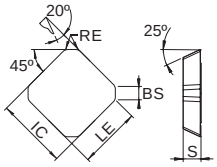
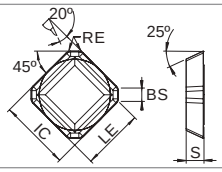
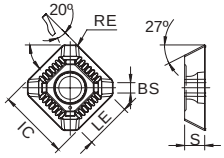
OTHER MILLING INSERTS

Outras pastilhas para fresagem | Otras plaquitas para fresado

Dimensions (mm) | Dimensões (mm) | Dimensiones (mm)						Drawing
IC | W1	S	INSL | LE	RE	BCH	BS	
12,70	4,76	10,00	-	-	1,80	
12,70	4,76	10,00	-	-	1,80	
12,70	4,76	10,00	-	-	1,80	
9,53	3,97	7,30	0,30	-	1,50	
9,53	3,97	7,30	0,30	-	1,50	
12,70	4,76	9,00	-	-	2,50	
12,70	4,76	9,00	-	-	2,50	
15,88	4,76	-	1,20		-	
12,70	3,18	9,20	0,80	-	2,40	
12,70	3,18	9,20	0,80	-	2,40	
12,70	3,18	9,20	1,20	-	2,40	
12,70	3,18	9,20	1,20	-	2,40	
15,88	4,76	11,60	1,00	-	2,40	
15,88	4,76	11,60	1,00	-	2,40	
12,70	4,76	12,70	-	-	2,80	
12,70	4,76	12,70	-	-	2,80	
13,36	3,96	10,00	-	-	2,00	
15,88	4,76	11,60	0,20	-	2,80	
15,88	4,76	11,60	0,20	-	2,80	
12,70	3,18	9,20	1,20	-	2,40	
12,70	3,18	9,20	1,20	-	2,40	
12,70	3,18	9,20	1,20	-	2,40	
12,70	3,18	9,20	1,20	-	2,40	
12,70	4,76	9,20	1,20	-	2,40	
12,70	4,76	9,20	1,20	-	2,40	
12,70	4,76	9,20	1,20	-	2,40	
15,88	4,76	12,30	1,00	-	2,40	
15,88	4,76	12,30	1,00	-	2,40	
12,70	3,18	9,20	1,20	-	2,40	
12,70	3,18	9,20	1,20	-	2,40	
12,70	4,76	9,20	1,20	-	2,40	
15,88	4,76	12,30	1,00	-	2,40	
14,00	4,00	9,20	1,00	-	2,80	

OTHER MILLING INSERTS

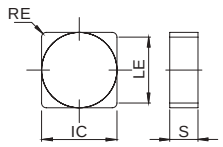
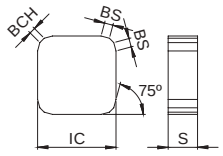
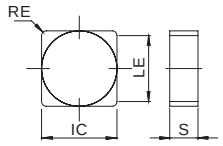
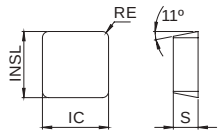
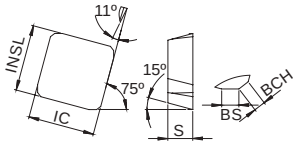
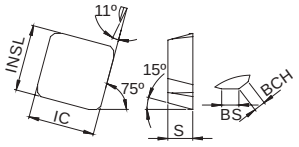
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	P							M			K							N
			PVD							PVD			CVD		PVD					UNC
		(2) Grade code	M6	54	68	66	78	86	I5	68	66	I5	L5	L9	D2	54	68	67	I5	10
			PH6103	PH6910	PH6920	PH6930	PH6125	PH6135	PH6740	PH6920	PH6930	PH6740	PH5705	PH5740	PH6705	PH6910	PH6920	PH6325	PH6740	PH0910
	1110266	SNGN 120408			○												○			
	1110267	SNGN 120412			○												○			
	1110597	SNGN 190412			○												○			
	1110598	SNGN 190416			○												○			
	1110271	SNKN 1204 ENEN			◈												◈			
	1110273	SNKN 1204 ENSN			◈												◈			
	1120541	SNUN 120404			○												○			
	1120542	SNUN 120408			○												○			
	1120544	SNUN 120412			○												○			
	1121880	SNUN 190612T				○														
	1110765	SPGN 090312			○												○			
	1111173	SPGN 090316			○												○			
	1110300	SPGN 120308			○												○			
	1110301	SPGN 120312			○												○			
	1110303	SPGN 120408			○												○			
	1110588	SPGN 120412			○												○			
	1110590	SPGN 150408			○												○			
	1110304	SPGN 150412			○												○			
	1110328	SPKN 1203 EDSR			○		◈	◈									○			
	1110330	SPKN 1203 EDTR			◈		◈	◈	◈								◈		◈	
	1110331	SPKN 1204 EDER			◈															
	1110332	SPKN 1204 EDSR			◈				◈								◈		◈	
	1110333	SPKN 1204 EDTR			○												○			
	1110336	SPKN 1504 EDER			◈		◈										◈			
	1110337	SPKN 1504 EDFR			○												○			
	1110339	SPKN 1504 EDSR			◈				◈								◈		◈	
	1110340	SPKN 1504 EDTR			◈		◈		◈								◈		◈	
	1110335	SPKN 1504 EDEL			○												○			
	1110338	SPKN 1504 EDSL			○												○			

◈ First choice | 1ª Escolha | 1ª Opción
◈ Stock Itens | Itens de stock
◇ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock
○ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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

OTHER MILLING INSERTS

Outras pastilhas para fresagem | Otras plaquitas para fresado

Dimensions (mm) | Dimensões (mm) | Dimensiones (mm)						Drawing
IC | W1	S	INSL | LE	RE	BCH	BS	
12,70	4,76	-	0,80	-	-	
12,70	4,76	-	1,20	-	-	
19,05	4,76	-	1,20	-	-	
19,05	4,76	-	1,60	-	-	
						
12,70	4,76	-	-	1,50	0,80	
12,70	4,76	-	-	1,50	0,80	
						
12,70	4,76	11,10	0,40	-	-	
12,70	4,76	11,10	0,80	-	-	
12,70	4,76	11,10	1,20	-	-	
19,05	6,35	-	1,20	-	-	
9,53	3,18	-	1,20	-	-	
9,53	3,18	-	1,60	-	-	
12,70	3,18	-	0,80	-	-	
12,70	3,18	-	1,20	-	-	
12,70	4,76	-	0,80	-	-	
12,70	4,76	-	1,20	-	-	
15,88	4,76	-	0,80	-	-	
15,88	4,76	-	1,20	-	-	
12,70	3,18	12,70	-	1,00	1,50	
12,70	3,18	12,70	-	1,00	1,50	
12,70	4,76	12,70	-	1,00	1,50	
12,70	4,76	12,70	-	1,00	1,50	
12,70	4,76	12,70	-	1,00	1,50	
15,88	4,76	15,88	-	1,00	1,50	
15,88	4,76	15,88	-	1,00	1,50	
15,88	4,76	15,88	-	1,00	1,50	
15,88	4,76	15,88	-	1,00	1,50	
15,88	4,76	15,88	-	1,00	1,50	
15,88	4,76	15,88	-	1,00	1,50	

OTHER MILLING INSERTS

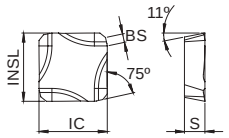
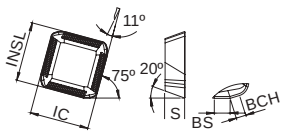
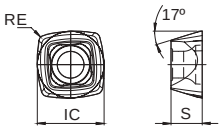
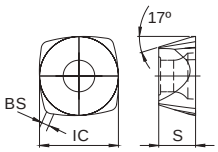
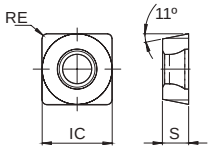
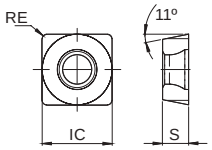
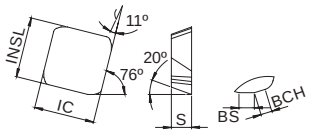
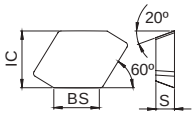
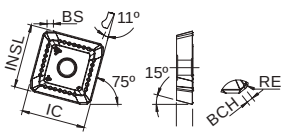
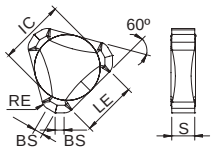
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	P							M		K							N	S
			PVD							PVD		CVD		PVD					UNC	PVD
		(2) Grade code	54	68	G4	78	86	I5	G6	68	I5	L5	L9	D2	54	68	67	I5	10	I5
			PH6910	PH6920	PH7920	PH6125	PH6135	PH6740	PH7740	PH6920	PH6740	PH5705	PH5740	PH6705	PH6910	PH6920	PH6325	PH6740	PH0910	PH6740
	1111976	SPKR 1203 EDTR		○												○				
	1110564	SPKR 1504 EDFR		○												○				
	1111449	SPKR 1504 EDSR		○												○				
	1111107	SPKR 1906		○												○				
	1111314	SPKT 08T308-E		○						○						○				
	1111195	SPKT 130510-E		○												○				
	1111364	SPKW 08T308-E		○												○				
	1121227	SPKW 08T308-S		○												○				
	1111153	SPKW 130510 F												○		○				
	1111355	SPKW 130510-E		◬			○			◬						◬				
	1110888	SPKW 130510-S		◬		◬	◬									◬				
	1111609	SPMT 120408-MP		◬				◬		◬	◬					◬		◬		◬
	1120572	SPMW 120408		○				◬			◬			○		○		◬		
	1191186	SPXN 1906		○			○	○					○			○				
	1112384	SPXN 1906-W		○												○				
	1112134	SPXR 1203 EDSR-MP		◬	○			◬	○							◬	○	◬		
	1110393	TNHF 1204 AN-CA										◬	◬	◬	◬	○				
	1111333	TNHF 1204 AN-K										◬	◬		○	○				

◬ First choice | 1ª Escolha | 1ª Opción
◬ Stock Itens | Itens de stock
◬ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock
○ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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

OTHER MILLING INSERTS

Outras pastilhas para fresagem | Otras plaquitas para fresado

Dimensions (mm) | Dimensões (mm) | Dimensiones (mm)						Drawing
IC | W1	S	INSL | LE	RE	BCH	BS	
12,70	3,18	12,70	-	1,00	1,40	
15,88	4,76	15,88	-	1,00	1,40	
15,88	4,76	15,88	-	1,00	1,40	
19,05	6,35	19,05	-	1,00	1,40	
8,51	4,04	-	0,80	-	-	
13,00	5,56	-	1,00	-	-	
8,51	3,96	-	0,80	-	-	
8,51	3,96	-	0,80	-	-	
13,00	5,56	-	1,00	-	-	
13,00	5,56	-	1,00	-	-	
13,00	5,56	-	1,00	-	-	
12,70	4,76	-	0,80	-	-	
12,70	4,76	-	0,80	-	-	
19,05	6,35	19,05	-	1,00	1,40	
19,05	6,35	-	-	-	12,00	
12,70	3,18	12,70	1,00	1,00	1,37	
12,70	4,76	12,00	2,00	-	1,70	
12,70	4,76	12,00	3,00	-	1,30	

OTHER MILLING INSERTS

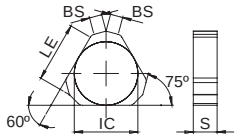
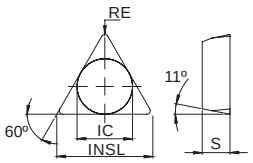
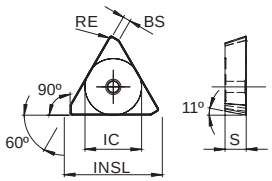
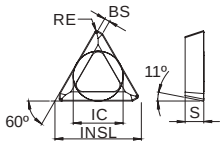
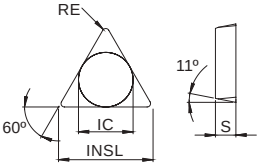
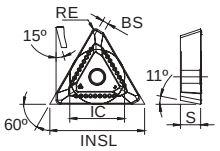
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	P								M			K						N
			PVD						CVD		PVD			CVD		PVD				UNC
		(2) Grade code	54	68	G4	66	I5	G6	L8	L9	68	66	I5	L5	L9	54	68	67	I5	10
			PH6910	PH6920	PH7920	PH6930	PH6740	PH7740	PH5125	PH5740	PH6920	PH6930	PH6740	PH5705	PH5740	PH6910	PH6920	PH6325	PH6740	PH0910
	1111911	TNJN 1204 ANEN		○													○			
	1110422	TPGN 110304															○			
	1110423	TPGN 110308		○													○			
	1110425	TPGN 160304		◈													◈			
	1110426	TPGN 160308		◈													◈			
	1110431	TPGN 220408		○													○			
	1110432	TPGN 220412		○													○			
	1110450	TPKN 1603 PDEL		○													○			
	1110451	TPKN 1603 PDER		◈			◈										◈		◈	
	1110671	TPKN 1603 PDSR		○													○			
	1110455	TPKN 1603 PDTR		◈			◈										◈		◈	
	1110459	TPKN 1603 PPFN		○													○			
	1110463	TPKN 1603 PPTR		○													○			
	1110465	TPKN 2204 PDER		◈			◈										◈		◈	
	1110466	TPKN 2204 PDFR		○													○			◈
	1110609	TPKN 2204 PDSR		◈			◈										◈		◈	
	1110471	TPKN 2204 PPSR		○													○			
	1110468	TPKN 2204 PDTR		○													○			
	1110476	TPKR 1603 PDSR		◈			◈										◈		◈	
	1110921	TPKR 1603 PDTR		○													○			
	1110477	TPKR 2204 PDSR		◈			◈										◈		◈	
	1120761	TPUN 110304			○															
	1120762	TPUN 110308			○															
	1120765	TPUN 160304			◈			○	◈	◈										
	1120766	TPUN 160308			◈			◈	◈	◈										
	1120770	TPUN 160312			○			○	◈	◈										
	1120777	TPUN 220404			○			○	◈	◇										
	1120779	TPUN 220408			○			◈	◈	◈										
	1120783	TPUN 220412			◈			◈	◈	◈										
	1120791	TPUN 270616							○											
	1112135	TPXR 2204 PDSR-MP		◈			◈										◈		◈	

◈ First choice | 1ª Escolha | 1ª Opción
◈ Stock Itens | Itens de stock
◇ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock
○ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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

OTHER MILLING INSERTS

Outras pastilhas para fresagem | Otras plaquitas para fresado

Dimensions (mm) | Dimensões (mm) | Dimensiones (mm)						Drawing
IC | W1	S	INSL | LE	RE	BCH	BS	
12,70	4,76	12,00	-	-	2,50	
6,35	3,18	-	0,40	-	-	
6,35	3,18	-	0,40	-	-	
9,53	3,18	-	0,40	-	-	
9,53	3,18	-	0,80	-	-	
12,70	4,76	-	0,80	-	-	
12,70	4,76	-	1,20	-	-	
9,53	3,18	16,50	0,70	-	1,20	
9,53	3,18	16,50	0,70	-	1,40	
9,53	3,18	16,50	0,70	-	1,20	
9,53	3,18	16,50	0,70	-	1,40	
9,53	3,18	16,50	-	-	1,10	
9,53	3,18	16,50	-	-	1,10	
12,70	4,76	22,00	0,50	-	1,70	
12,70	4,76	22,00	0,50	-	1,70	
12,70	4,76	22,00	0,50	-	1,70	
12,70	4,76	22,00	-	-	1,40	
12,70	4,76	22,00	-	-	1,40	
9,53	3,18	16,50	0,60		1,20	
9,53	3,18	16,50	0,60	-	1,20	
12,70	4,76	22,00	0,50	-	1,70	
6,35	3,18	11,00	0,40	-	-	
6,35	3,18	11,00	0,80	-	-	
9,53	3,18	16,50	0,40	-	-	
9,53	3,18	16,50	0,80	-	-	
9,53	3,18	16,50	1,20	-	-	
12,70	4,76	22,00	0,40	-	-	
12,70	4,76	22,00	0,80	-	-	
12,70	4,76	22,00	1,20	-	-	
15,88	6,35	27,00	1,60	-	-	
12,70	4,76	22,00	1,00	-	1,70	

OTHER MILLING INSERTS

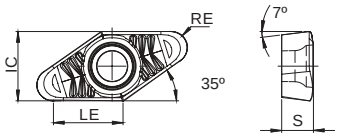
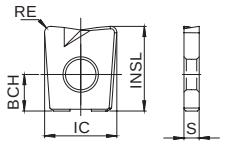
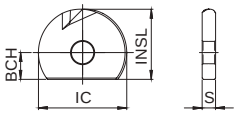
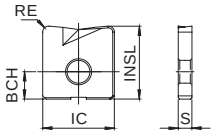
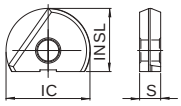
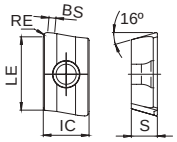
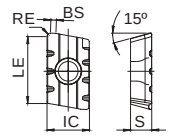
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	P						M			K								N	
			PVD						PVD			CVD		PVD						UNC	UNC
		(2) Grade code	M6	54	68	66	78	I5	68	66	I5	L5	L9	D2	54	68	67	I5	17	10
			PH6103	PH6910	PH6920	PH6930	PH6125	PH6740	PH6920	PH6930	PH6740	PH5705	PH5740	PH6705	PH6910	PH6920	PH6325	PH6740	PH0325	PH0910
	1121907	VCGX 220530 LN																			○
	1110851	WPB 08	○	○	○										○	○					
	1110852	WPB 10	○	○	○										○	○					
	1110853	WPB 12	○	○	○										○	○					
	1110923	WPB 16	○	○	○										○	○					
	1111019	WPB 20	○	○	○										○	○					
	1111554	WPRX-2 08		○	○										○	○					
	1111331	WPRX-2 10		◬	◬										◬	◬					
	1111555	WPRX-2 12		◬	◬										◬	◬					
	1111329	WPRX-2 16		◬	◬										◬	◬					
	1111330	WPRX-2 20		◬	◬										◬	◬					
	1111556	WPRX-2 25		◬	◬										◬	◬					
	1111557	WPRX-2 32		◬	◬										◬	◬					
	1110820	WPV 08	△	△	○		○								○	○					
	1110821	WPV 10	△	△	○		○								○	○					
	1110822	WPV 12	△	△	○		○								○	○					
	1110948	WPV 16	△	△	○		○								○	○					
	1111020	WPV 20	○	○	○		○								○	○					
	1110543	WPZ 08	◬	○	○										○	○					
	1110551	WPZ 10	◬	○	○										○	○					
	1110552	WPZ 12	◬	○	○										○	○					
	1110544	WPZ 16	◬	○	○										○	○					
	1110553	WPZ 20	◬	△	○										△	○					
	1110661	WPZ 25	◬	◬	○										◬	○					
	1110662	WPZ 32	◬	◬	○										◬	○					
	1110910	XPHT 1604 PDTR			○											○					
	1111206	XPHT 160420 PPTR			○											○					
	1110926	XPHT 160432 PDSR			○											○					
	1110958	XPHT 160412-MR			○											○					

◬ First choice | 1ª Escolha | 1ª Opción
◬ Stock Itens | Itens de stock
△ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock
○ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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

OTHER MILLING INSERTS

Outras pastilhas para fresagem | Otras plaquitas para fresado

Dimensions (mm) | Dimensões (mm) | Dimensiones (mm)						Drawing
IC | W1	S	INSL | LE	RE	BCH	BS	
12,70	5,60	12,70	3,00	-	-	
8,00	2,00	9,50	0,60	4,00	-	
10,00	2,50	11,50	0,80	5,00	-	
12,00	2,50	14,00	1,00	6,00	-	
16,00	3,00	16,00	1,30	6,00	-	
20,00	3,00	20,00	1,60	6,00	-	
8,00	2,00	9,50	-	2,50	-	
10,00	2,50	11,50	-	5,00	-	
12,00	2,50	11,90	-	6,00	-	
16,00	3,00	13,90	-	6,00	-	
20,00	3,00	15,90	-	6,00	-	
25,00	4,00	21,30	-	9,00	-	
32,00	5,00	25,80	-	10,00	-	
8,00	2,00	9,50	0,60	4,00	-	
10,00	2,50	11,50	0,80	5,00	-	
12,00	2,50	14,00	1,00	6,00	-	
16,00	3,00	16,00	1,30	6,00	-	
20,00	3,00	20,00	1,60	6,00	-	
8,00	2,40	7,00	-	3,00	-	
10,00	2,60	8,50	-	3,50	-	
12,00	3,00	10,00	-	4,00	-	
16,00	4,00	12,00	-	4,00	-	
20,00	5,00	15,00	-	5,00	-	
25,00	6,00	18,50	-	6,00	-	
32,00	7,00	23,50	-	7,50	-	
9,53	4,75	16,00	1,20	-	1,70	
9,53	4,75	16,00	2,00	-	0,70	
9,53	4,75	16,00	3,20	-	-	
9,53	4,75	16,00	1,20	-	1,70	

FACE MILLING

FACE MILLING

1 PLUS 28088

> Suitable for machining **P M K**

> See page A - 38

2 PLUS 90260

> Suitable for machining **P K**

> See page A - 42

3 PLUS 90845 | 90945 | 91245

> Suitable for machining **P M K N S**

> See page A - 46

4 LINEPRO 57045

> Suitable for machining **P M K N S**

> See page A - 60

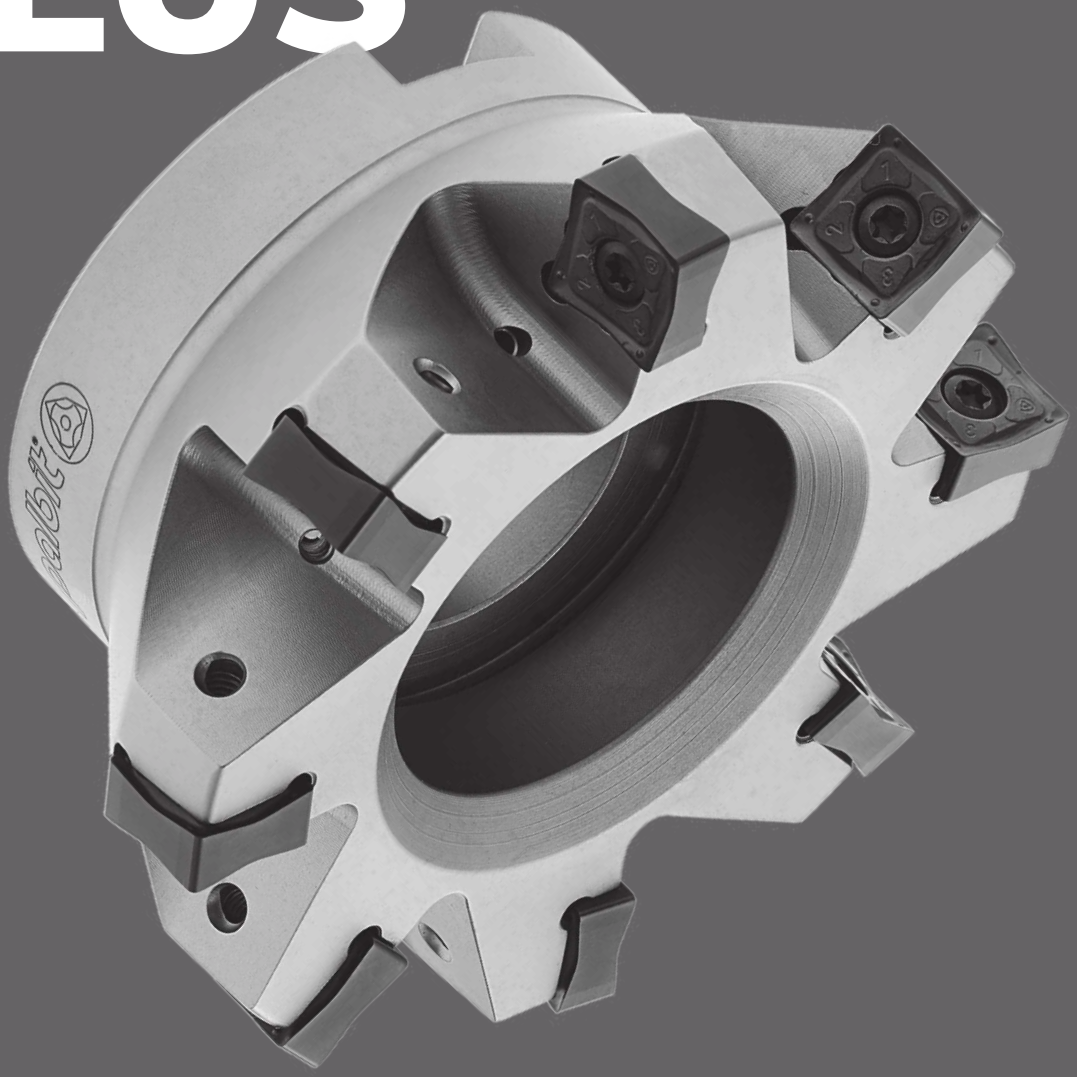
5 LINEPRO 06045 | 09945

> Suitable for machining **P M K S**

> See page A - 66

28088

PLUS



The PLUS 28088 presents 8 cutting edges designed for rough to semi-finish face milling operations, providing high efficiency. The cutting edge angle (88º) of these mills enables them to perform face milling very close to the sidewall.

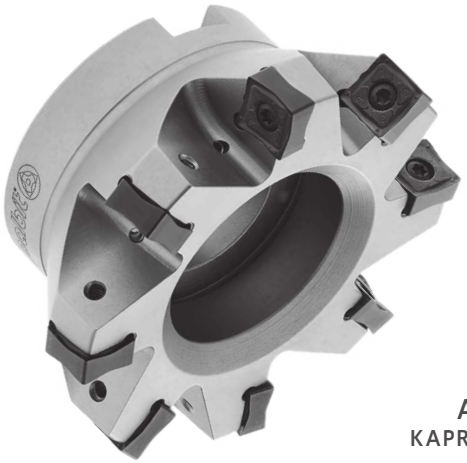
A linha PLUS 28088 apresenta 8 arestas de corte projetadas para operações de facejamento de desbaste a semi-acabamento, proporcionando alta eficiência. O ângulo da aresta de corte (88º) dessas fresas permite realizar facejamento muito próximo à parede lateral.

La línea PLUS 28088 presenta 8 filos de corte diseñados para operaciones de fresado de cara de desbaste a semiacabado, proporcionando alta eficiencia. El ángulo del filo de corte (88º) de estas fresas permite realizar el fresado de cara muy cerca de la pared lateral.

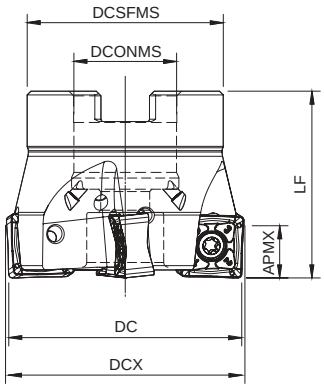
PLUS 28088 > page 40

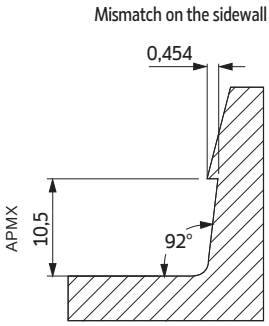
- From DC 50mm to 200mm
  De DC 50mm a 200mm | Desde DC 50mm hasta 200mm
- Available in arbor mounting
  Disponível em montagem tipo árvore | Disponible en fijación con tornillo central
- Negative inserts with 8 cutting-edges
  Pastilhas negativas com 8 arestas de corte | Insertos negativos con 8 filos de corte
- For higher depths of cut
  Para altas taxas de remoção em peças pequenas | Para una alta tasa de remoción en piezas pequeñas

PLUS 28088



Arbor Mounting
KAPR=88° | GAMP=-6°





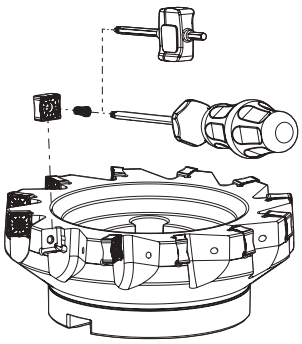
Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)					WT	Specifications		Insert Pastilha Inserto	Stock
			DC	DCX	DCONMS	DCSFMS	LF		Arbor Type	APMX (mm)		
181084300	050A28088-05-06-022040	5	50	50,9	22	42	40	0,4	A	10,5	SN... 1206...	●
181091600	063A28088-06-06-022040	6	63	63,9	22	48	40	0,5	A	10,5	SN... 1206...	●
181091700	080A28088-07-06-027050	7	80	80,9	27	60	50	1,0	A	10,5	SN... 1206...	●
181091800	080A28088-09-06-027050	9	80	80,9	27	60	50	0,9	A	10,5	SN... 1206...	●
181091900	100A28088-08-06-032050	8	100	100,9	32	73	50	1,6	B	10,5	SN... 1206...	●
181092000	100A28088-11-06-032050	11	100	100,9	32	73	50	1,5	B	10,5	SN... 1206...	●
181092100	125A28088-10-06-040063	10	125	125,9	40	90	63	3,1	B	10,5	SN... 1206...	●
181092200	125A28088-14-06-040063	14	125	125,9	40	90	63	3,0	B	10,5	SN... 1206...	●
181092300	160A28088-12-06-U040063	12	160	160,9	40	110	63	3,7	C	10,5	SN... 1206...	●
181092700	160A28088-18-06-U040063	18	160	160,9	40	110	63	3,5	C	10,5	SN... 1206...	○
181092800	200A28088-14-06-U060063	14	200	200,9	60	172	63	6,3	C	10,5	SN... 1206...	●
181092900	200A28088-22-06-U060063	22	200	200,9	60	172	63	6,1	C	10,5	SN... 1206...	●

● Stock item | Produto de stock | Itens de stock

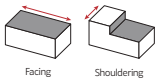
○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

SPARE PARTS Acessórios | Repuestos

Cutter DC	Insert Screw	Key (Torx)	Order separately Key (Torx - Nm)	Torque Value	Order separately Screw	DIN 6368 Wrench
A28088 - 50 - 80	P0401200	XT15	DT1530	3,0	-	-
A28088 - 100	P0401200	PT15	DT1530	3,0	J0164110	SD6368-16
A28088 - 125	P0401200	PT15	DT1530	3,0	J0204610	SD6368-20
A28088 - 160 - 200	P0401200	PT15	DT1530	3,0	-	-



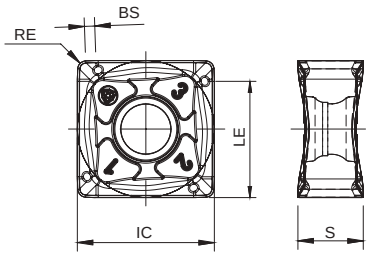
Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.



SNH(K)U 1206 Inserts | Pastilhas | Plaquitas

SNHU-LP

SNKU-LP



		P					M		K								Dimensions Dimensões Dimensiones (mm)				
		CVD	PVD				PVD		CVD				PVD								
	(2) Grade code	T9	G4	T1	P3	G6	P3	G6	L5	L6	L9	T9	G4	T1	P3	G6					
(1) Geometry code	ISO Reference	PH5740	PH7920	PHP920	PH7930	PH7740	PH7930	PH7740	PH5705	PH5320	PH5740	PHS740	PH7920	PHP920	PH7930	PH7740	IC	S	LE	RE	BS
1112020	SNHU 120608 ZNER-LP		◎	◎	◎	◎	◎	◎	◎		◎		◎	◎	◎	◎	13,30	6,35	11,60	0,80	1,00
1112278	SNKU 120608 ZNER-LP	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	13,30	6,35	11,60	0,80	1,00

◎ First choice | Primeira opção | 1ª opción ◎ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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 → PH5705	PH5320	PHP920	PH7920	PH7930	PH5740	PHS740	PH7740
P	1	Unalloyed Steel	125-220			✓	✓	✓		✓	✓
P	2	Low-Alloyed Steel	220-280			✓	✓	✓		✓	✓
P	3	High-Alloyed Steel	280-380			✓	✓	✓		✓	✓
M	4	SS - Ferritic / Martensitic	200-330					✓			✓
M	5	SS - Austenitic	200-330					✓			✓
M	6	SS - Austenitic-ferritic (Duplex)	230-260					✓			✓
K	7	Malleable Cast Iron	130-230	✓	✓	✓	✓	✓	✓		✓
K	8	Grey Cast Iron	180-245	✓	✓	✓	✓	✓	✓		✓
K	9	Nodular Cast iron	160-250	✓	✓	✓	✓	✓	✓		✓

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 → PH5705	PH5320	PHP920	PH7920	PH7930	PH5740	PHS740	PH7740	Feed fz (mm/t) SNH(K)U 1206
P	1	Unalloyed Steel	125-220	-	-	180-250	180-240	160-220	-	140-220	140-200	0,10 **(0,25)** 0,35
P	2	Low-Alloyed Steel	220-280	-	-	160-230	160-220	140-200	-	120-200	130-180	0,10 **(0,25)** 0,35
P	3	High-Alloyed Steel	280-380	-	-	140-220	140-210	120-190	-	100-190	100-170	0,10 **(0,25)** 0,35
M	4	SS - Ferritic / Martensitic	200-330	-	-	-	-	140-200	-	-	130-180	0,10 **(0,25)** 0,35
M	5	SS - Austenitic	200-330	-	-	-	-	120-160	-	-	110-160	0,10 **(0,25)** 0,35
M	6	SS - Austenitic-ferritic (Duplex)	230-260	-	-	-	-	100-140	-	-	90-150	0,10 **(0,25)** 0,35
K	7	Malleable Cast Iron	130-230	160-290	150-280	160-270	160-260	150-240	160-260	-	140-220	0,10 **(0,25)** 0,35
K	8	Grey Cast Iron	180-245	170-320	160-320	140-250	140-240	140-230	140-240	-	120-210	0,10 **(0,25)** 0,35
K	9	Nodular Cast iron	160-250	140-200	100-190	120-210	120-200	100-190	120-200	-	100-190	0,10 **(0,25)** 0,35

90260

PLUS

PNK(H)X is an economical negative insert with 10 cutting edges, offering an improved insert design that effectively distributes cutting forces, making it an ideal solution for cast iron applications.

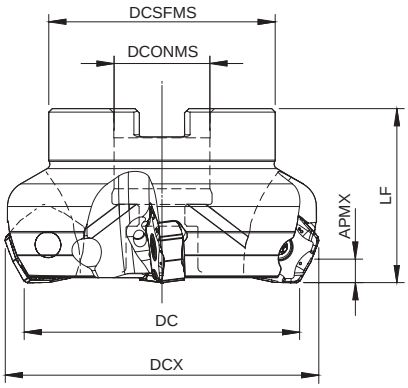
PNK(H)X é uma pastilha negativa económica com 10 arestas de corte, oferecendo um design de pastilha aprimorada que distribui efetivamente as forças de corte, tornando-a uma solução ideal para aplicações em ferro fundido.

PNK(H)X é uma plaquita negativa económica com 10 arestas de corte, oferecendo um design de plaquita aprimorada que distribui efetivamente as forças de corte, tornando-a uma solução ideal para aplicações em ferro fundido.

PLUS 90260 > page 44

- From DC 50mm to 160mm
  De DC 50mm a 160mm | Desde DC 50mm hasta 160mm
- Available in arbor mounting
  Disponível em montagem tipo árvore | Disponible en fijación con tornillo central
- Negative inserts with 10 cutting edges
  Pastilhas negativas com 10 arestas de corte | Insertos negativos con 10 filos de corte
- Excellent solution for cast iron
  Excelente solução para ferro fundido | Excelente solución para hierro fundido

PLUS 90260



Arbor Mounting
KAPR=60° | GAMP=-7°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)					WT	Specifications		Insert Pastilha Inserto	Stock
			DC	DCX	DCONMS	DCSFMS	LF		Arbor Type	APMX (mm)		
181050200	050A90260-05-07-022040	5	50	59,05	22	48	40	0,388	A	5,0	PN... 1105...	◈
181050300	063A90260-06-07-022040	6	63	72,05	22	52	40	0,597	A	5,0	PN... 1105...	◈
181050400	080A90260-08-07-027050	8	80	89,05	27	60	50	1,072	B	5,0	PN... 1105...	◈
181045900	100A90260-10-07-032050	10	100	109,05	32	80	50	1,745	B	5,0	PN... 1105...	◈
181050500	125A90260-12-07-040063	12	125	134,05	40	90	63	3,047	B	5,0	PN... 1105...	◈
181050600	160A90260-14-07-U040063	14	160	169,05	40	110	63	4,397	C	5,0	PN... 1105...	◈

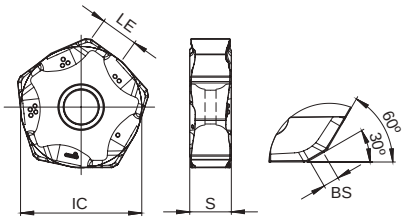
◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

PNH(K)X 1105 Inserts | Pastilhas | Plaquitas

PNHX-MK

PNHX-HK

PNKX-MK



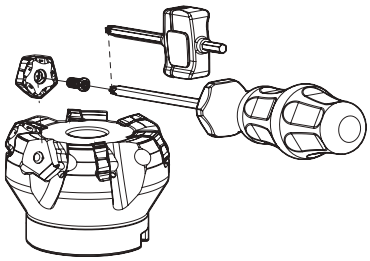
		P		K				Dimensions Dimensões Dimensiones (mm)				
		PVD		CVD		PVD						
	(2) Grade code	G1	G4	L5	L9	G1	G4					
(1) Geometry code	ISO Reference	PH7910	PH7920	PH5705	PH5740	PH7910	PH7920	IC	S	LE	RE	BS
1111374	PNHX 1105 ZNER-MK	◈	◈	◈	◈	◈	◈	16,50	5,66	5,70	-	1,30
1111998	PNHX 1105 ZNER-HK			◈	◯			16,50	5,66	5,70	-	1,30
1112294	PNKX 1105 ZNER-MK	◈	◈	◈	◯	◈	◈	16,50	5,66	5,70	-	1,30

◈ First choice | Primeira opção | 1ª opción ◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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

SPARE PARTS Acessórios | Repuestos

Cutter DC	Insert Screw	Key (Torx)	Key (Torx - Nm) (Order separately)	Torque Value	Screw (Order separately)	DIN 6368 Wrench
A90260 – 50 - 63	P0401200	XT15	DT1530	3,0	-	-
A90260 – 80	P0401200	XT15	DT1530	3,0	J0123510	SD6368-12
A90260 – 100	P0401200	PT15	DT1530	3,0	J0164110	SD6368-16
A90260 – 125	P0401200	PT15	DT1530	3,0	J0204610	SD6368-20
A90260 – 160	P0401200	PT15	DT1530	3,0	-	-



Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.

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

ISO	PSM	Material	HB (brinell)	Grades ← Wear Resistance — Toughness → PH5705	PH7910	PH7920	PH5740	PH7740
P	1	Unalloyed Steel	125-220		✓	✓		✓
	2	Low-Alloyed Steel	220-280		✓	✓		✓
	3	High-Alloyed Steel	280-380		✓	✓		✓
K	7	Malleable Cast Iron	130-230	✓	✓	✓	✓	
	8	Grey Cast Iron	180-245	✓	✓	✓	✓	
	9	Nodular Cast iron	160-250	✓	✓	✓	✓	

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 → PH5705	PH7910	PH7920	PH5740	Feed fz (mm/t) PNH(K)X 1105...
P	1	Unalloyed Steel	125-220	-	180-250	180-240	-	0,15-0,30
	2	Low-Alloyed Steel	220-280	-	160-230	160-220	-	0,15-0,30
	3	High-Alloyed Steel	280-380	-	140-220	140-210	-	0,15-0,25
K	7	Malleable Cast Iron	130-230	160-290	180-300	160-260	160-260	0,12-0,35
	8	Grey Cast Iron	180-245	170-320	160-250	140-240	140-240	0,12-0,35
	9	Nodular Cast iron	160-250	140-200	150-200	120-200	120-200	0,12-0,30

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

ISO	PSM	Material	HB (Brinell)	Chip breaker application 1st choice	Dificult Operations
P	1	Unalloyed Steel	125-220	PNH(K)X 11... MK	-
	2	Low-Alloyed Steel	220-280	PNH(K)X 11... MK	-
	3	High-Alloyed Steel	280-380	PNH(K)X 11... MK	-
K	7	Malleable Cast Iron	130-230	PNH(K)X 11... MK	PNH(K)X 11... HK
	8	Grey Cast Iron	180-245	PNH(K)X 11... MK	PNH(K)X 11... HK
	9	Nodular Cast iron	160-250	PNH(K)X 11... MK	PNH(K)X 11... HK

90845 | 90945 | 91245

PLUS

The PLUS line provides high-performance face milling suitable for a wide range of materials. It combines stability and process security with low power consumption. Featuring a negative insert, it ensures high productivity and low cost per edge, leading to significant cost-effectiveness.

A linha PLUS oferece facejamento de alta performance adequado para uma ampla gama de materiais. Combina estabilidade e segurança do processo com baixo consumo de energia. Apresentando uma pastilha negativa, garante alta produtividade e baixo custo por aresta, resultando em significativa economia de custos.

La línea PLUS ofrece fresado de alta rendimiento adecuado para una amplia gama de materiales. Combina estabilidad y seguridad del proceso con bajo consumo de energía. Al presentar una plaquita negativa, asegura alta productividad y bajo costo por filo, lo que resulta en una significativa economía de costos.

PLUS 90845 > page 48

- From DC 32mm to 250mm
  De DC 32mm a 250mm | Desde DC 32mm hasta 250mm
- Available in arbor mounting and weldon shank
  Disponível em montagem tipo árvore e haste weldon | Disponible en fijación con tornillo central y mango tipo weldon
- Two different geometries for same pocket (ON.. 0505.. and SN.. 1206..)
  Duas geometrias diferentes para o mesmo alojamento (ON.. 0505.. e SN.. 1206..) | Dos geometrías diferentes para el mismo alojamiento (ON.. 0505.. y SN.. 1206..)
- For high productivity and low cost per edge
  Para alta produtividade e baixo custo por aresta | Para alta productividad y bajo costo por filo

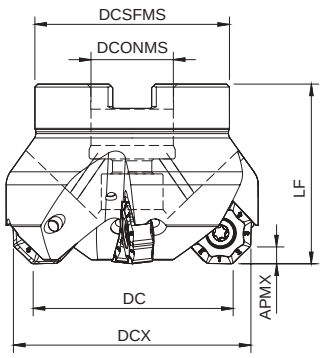
PLUS 90945 > page 52

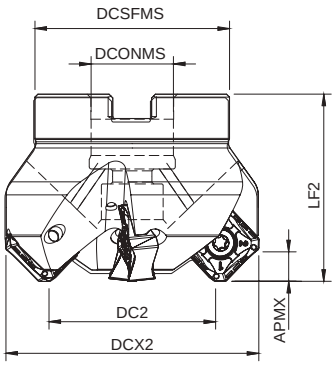
- From DC 50mm to 250mm
  De DC 50mm a 250mm | Desde DC 50mm hasta 250mm
- Available in arbor mounting
  Disponível em montagem tipo árvore | Disponible en fijación con tornillo central
- Optimized line for SN.. 1206 Inserts
  Linha otimizada para pastilhas SN.. 1206 / Línea optimizada para pastillas SN.. 1206
- Designed for high stability and safety
  Projetada para alta estabilidade e segurança | Diseñada para alta estabilidad y seguridad

PLUS 91245 > page 56

- From DC 63mm to 250mm
  De DC 63mm a 250mm | Desde DC 63mm hasta 250mm
- Available in arbor mounting
  Disponível em montagem tipo árvore | Disponible en fijación con tornillo central
- Two different geometries for same pocket (ON.. 0606.. and SN.. 1606..)
  Duas geometrias diferentes para o mesmo alojamento (ON.. 0606.. e SN.. 1206..) | Dos geometrías diferentes para el mismo alojamiento (ON.. 0606.. y SN.. 1206..)
- Excellent surface finishing
  Excelente acabamento de superfície | Excelente acabado superficial

PLUS 90845



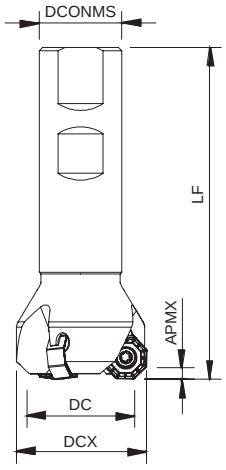


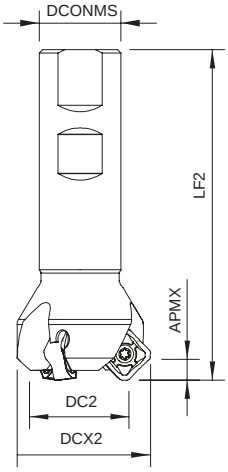
Arbor Mounting

KAPR=44,5°~46° | GAMP=-6°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)								WT	Specifications		Insert Pastilha Inserto	Stock
			DC	DCX	DC2	DCX2	DCONMS	DCSFMS	LF	LF2		Arbor Type	APMX (mm)		
181111400	050A90845-04-06-022040	4	50	57,6	47,1	62	22	48	40	41,5	0,383	A	3,5 | 6,0	ON...05 | SN...12	◎
181117400	050A90845-06-06-022040	6	50	57,6	47,1	62	22	48	40	41,5	0,374	A	3,5 | 6,0	ON...05 | SN...12	◎
181117500	063A90845-06-06-022040	6	63	70,6	60,1	75	22	52	40	41,5	0,525	A	3,5 | 6,0	ON...05 | SN...12	◎
181117600	063A90845-08-06-022040	8	63	70,6	60,1	75	22	52	40	41,5	0,517	A	3,5 | 6,0	ON...05 | SN...12	◎
181117700	080A90845-07-06-027050	7	80	87,6	77,1	92	27	60	50	51,5	0,846	B	3,5 | 6,0	ON...05 | SN...12	◎
181117800	080A90845-10-06-027050	10	80	87,6	77,1	92	27	60	50	51,5	0,842	B	3,5 | 6,0	ON...05 | SN...12	◎
181117900	100A90845-08-06-032050	8	100	107,6	97,1	112	32	80	50	51,5	1,559	B	3,5 | 6,0	ON...05 | SN...12	◎
181120900	100A90845-12-06-032050	12	100	107,6	97,1	112	32	80	50	51,5	1,54	B	3,5 | 6,0	ON...05 | SN...12	◎
181121000	125A90845-10-06-040063	10	125	132,6	122,1	137	40	90	63	64,5	2,89	B	3,5 | 6,0	ON...05 | SN...12	◎
181121100	160A90845-12-06-U040063	12	160	167,6	157,1	172	40	110	63	64,5	4,36	C	3,5 | 6,0	ON...05 | SN...12	◎
181121200	200A90845-14-06-U060063	14	200	207,6	197,1	212	60	172	63	64,5	8,89	C	3,5 | 6,0	ON...05 | SN...12	◎
181121300	250A90845-16-06-U060063	16	250	257,6	247,1	262	60	172	63	64,5	11,49	C	3,5 | 6,0	ON...05 | SN...12	◎

◎ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)



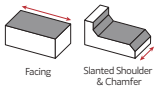


Weldon Shank

KAPR=44,5°~46° | GAMP=-6°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)							WT	Specifications	Insert Pastilha Inserto	Stock
			DC	DCX	DC2	DCX2	DCONMS	LF	LF2		APMX (mm)		
181118000	032W90845-03-06-025100	3	32	39,6	29,1	44	25	100	101,5	0,375	3,5 | 6,0	ON...05 | SN...12	◎
181118100	040W90845-04-06-032110	4	40	47,6	37,1	52	32	110	111,5	0,653	3,5 | 6,0	ON...05 | SN...12	◎

◎ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

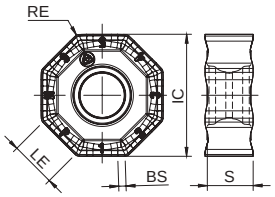


ONH(K)X 05 | SNH(K)X 12 Inserts | Pastilhas | Plaquitas

ONH(K)X-LP

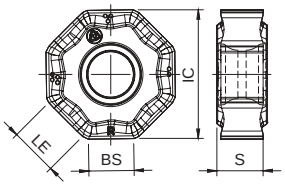
ONH(K)X-MP

ONH(K)X-MK



ONH(K)X-LP | MP | MK

ONHX-W
8 Cutting Edges (8R)



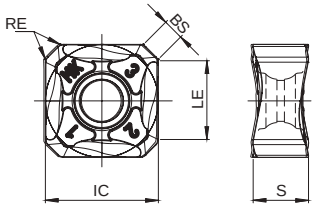
ONHX-W

SNH(K)X-MK

SNH(K)X-MP

SNHX-LP

SNHX-LN



SNH(K)X- MK | MP | LP | LN

		P							M		K									N	S		Dimensions Dimensões Dimensiones (mm)				
		CVD	PVD						PVD		CVD				PVD						UNC	PVD						
	(2) Grade code	T9	X5	G4	T1	P3	P4	G6	X9	G6	L5	L6	L9	T9	X5	G4	T1	P3	P4	G6	10	X9	G6					
(1) Geometry code	ISO Reference	PHS740	PHP910	PH7920	PHP920	PH7930	PHP930	PH7740	PHH930	PH7740	PH5705	PH5320	PH5740	PHS740	PHP910	PH7920	PHP920	PH7930	PHP930	PH7740	PH0910	PHH930	PH7740	IC	S	LE	RE	BS
1112302	ONHX 050505 ANEN-LP				◉		◉	◉		◉							◉		◉	◉			◉	12,70	5,20	5,30	0,50	-
1112304	ONHX 050505 ANSN-MP				◉		◉										◉		◉					12,70	5,20	5,30	0,50	-
1112301	ONKX 050505 ANEN-LP	○		△	◉	△	◉	○	◉					○		△	◉	△	◉	○		◉	○	12,70	5,20	5,30	0,50	-
1112303	ONKX 050505 ANSN-MP	◉		△	◉	△	◉							◉		△	◉	△	◉					12,70	5,20	5,30	0,50	-
1112305	ONKX 050500 ANEN-MK										○	◉	◉					△						12,70	5,20	5,30	-	-
1112307	ONHX 050500 ANER-W			△	◉						◉					△	◉							12,70	5,20	5,30	-	4,30
1111452	SNHX 1206 ANEN-LP*				◉		◉		◉								◉		◉	○		◉	○	12,70	6,35	9,30	0,80	2,00
1111502	SNHX 1206 ANSN-MP*	◉	◉	◉	◉		◉							◉	◉		◉		◉	○		○	○	12,70	6,35	9,30	0,80	2,00
1111503	SNHX 1206 ANEN-MK*										◉		◉		◉	△	◉							12,70	6,35	9,30	0,80	2,00
1111504	SNHX 1206 ANFN-LN*																				◉			12,70	6,35	9,30	0,80	2,00
1112293	SNKX 1206 ANSN-MP*	◉		△	◉			◉					○	◉		△	◉			◉			◉	12,70	6,35	9,30	0,80	2,00
1112249	SNKX 1206 ANEN-MK*										◉	◉	◉											12,70	6,35	9,30	0,80	2,00

◉ First choice | 1ª Escolha | 1ª Opción
◉ Stock Itens | Itens de stock
△ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock
○ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

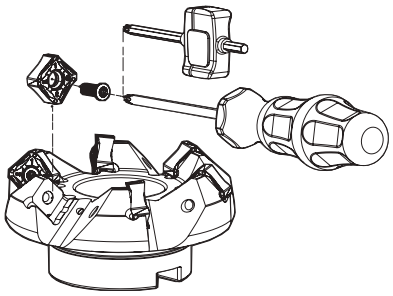
Insert Order Code: (1) Geometry code + (2) Grade code

* Right hand insert.

PLUS 90845

SPARE PARTS Acessórios | Repuestos

Cutter DC	Insert Screw	Key (Torx)	Key (Torx - Nm) Order separately	Torque Value	Screw Order separately	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	-	-



Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.

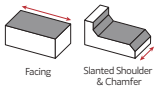
GRADES SELECTION GUIDE Guia para selecção de graus | Tabla para selección de calidades

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance Toughness → PH0910	PH5705	PH5320	PHP910	PHP920	PH7920	PHP930	PHH930	PH7930	PH5740	PHS740	PH7740
P	1	Unalloyed Steel	125-220				✓	✓	✓	✓		✓		✓	✓
	2	Low-Alloyed Steel	220-280				✓	✓	✓	✓		✓		✓	✓
	3	High-Alloyed Steel	280-380				✓	✓	✓	✓		✓		✓	✓
M	4	SS - Ferritic / Martensitic	200-330								✓	✓			✓
	5	SS - Austenitic	200-330								✓	✓			✓
	6	SS - Austenitic-ferritic (Duplex)	230-260								✓	✓			✓
K	7	Malleable Cast Iron	130-230		✓	✓	✓	✓	✓	✓		✓	✓		✓
	8	Grey Cast Iron	180-245		✓	✓	✓	✓	✓	✓		✓	✓		✓
	9	Nodular Cast iron	160-250		✓	✓	✓	✓	✓	✓		✓	✓		✓
N	10	Aluminium and Non Ferrous	30-130	✓											
S	11	Heat Resistant Super Alloys	200-320								✓	✓			✓

Good Conditions Average Conditions Difficult Conditions

Spare Parts: A - 292 Technical Data: A - 302

palbit



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

ISO	PSM	Material	HB (Brinell)	Vc (m/min) ← Wear Resistance						Toughness →
				PH0910	PH5705	PH5320	PHP910	PHP920	PH7920	PHP930
P	1	Unalloyed Steel	125-220	-	-	-	180-250	180-250	180-240	160-220
	2	Low-Alloyed Steel	220-280	-	-	-	160-240	160-230	160-220	140-200
	3	High-Alloyed Steel	280-380	-	-	-	140-230	140-220	140-210	120-190
M	4	SS - Ferritic / Martensitic	200-330	-	-	-	-	-	140-220	140-200
	5	SS - Austenitic	200-330	-	-	-	-	-	130-180	120-160
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	-	-	-	-	120-160	100-140
K	7	Malleable Cast Iron	130-230	-	160-290	150-280	180-300	160-270	160-260	150-240
	8	Grey Cast Iron	180-245	-	170-320	160-320	160-250	140-250	140-240	140-230
	9	Nodular Cast iron	160-250	-	140-200	100-190	150-210	120-210	120-200	100-190
N	10	Aluminium and Non Ferrous	30-130	100-2000	-	-	-	-	-	-
S	11	Heat Resistant Super Alloys	200-320	-	-	-	-	-	-	30-100

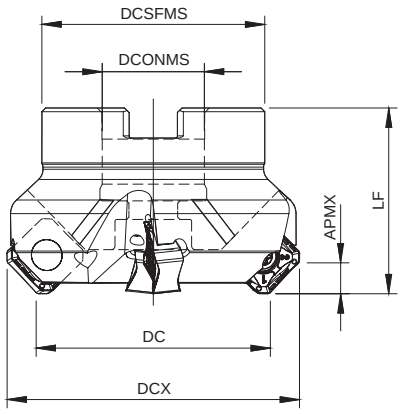
ISO	PSM	Material	HB (Brinell)	Vc (m/min) ← Wear Resistance				Toughness →	Feed fz (mm/t)	
				PHH930	PH7930	PH5740	PHS740	PH7740	SNH(K)X 12...	ONH(K)X 05...
P	1	Unalloyed Steel	125-220	-	160-220	-	140-220	140-200	0,10-0,35	0,10-0,35
	2	Low-Alloyed Steel	220-280	-	140-200	-	120-200	130-180	0,10-0,35	0,10-0,35
	3	High-Alloyed Steel	280-380	-	120-190	-	100-190	100-170	0,10-0,30	0,10-0,30
M	4	SS - Ferritic / Martensitic	200-330	140-210	140-200	-	-	130-180	0,10-0,30	0,10-0,30
	5	SS - Austenitic	200-330	120-170	120-160	-	-	110-160	0,10-0,30	0,10-0,30
	6	SS - Austenitic-ferritic (Duplex)	230-260	100-150	100-140	-	-	90-150	0,10-0,25	0,10-0,25
K	7	Malleable Cast Iron	130-230	-	150-240	160-260	-	140-220	0,10-0,35	0,10-0,35
	8	Grey Cast Iron	180-245	-	140-230	140-240	-	120-210	0,10-0,35	0,10-0,35
	9	Nodular Cast iron	160-250	-	100-190	120-200	-	100-190	0,10-0,30	0,10-0,30
N	10	Aluminium and Non Ferrous	30-130	-	-	-	-	-	0,10-0,35	-
S	11	Heat Resistant Super Alloys	200-320	30-110	30-100	-	-	30-100	0,07-0,20	0,07-0,18

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

PLUS 90945



Arbor Mounting

KAPR=44,5°~46° | GAMP=-6°

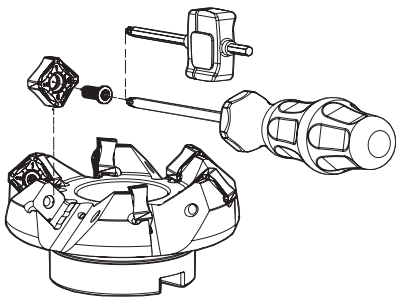
Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)					WT	Specifications		Insert Pastilha Inserto	Stock
			DC	DCX	DCONMS	DCSFMS	LF		Arbor Type	APMX (mm)		
181048200	050A90945-04-06-022040	4	50	63	22	48	40	0,424	A	6,0	SN... 1206	⊛
181067000	050A90945-06-06-022040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

⊛ Stock item | Produto de stock | Itens de stock

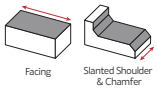
◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

SPARE PARTS Acessórios | Repuestos

Cutter DC	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	-	-



Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.



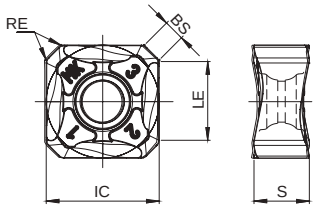
SNH(K)X 12 Inserts | Pastilhas | Plaquitas

SNH(K)X-MK

SNH(K)X-MP

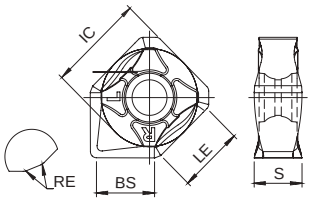
SNHX-LP

SNHX-LN



SNH(K)X- MK | LP | MP | LN

SNHX-W
4 Cutting edges (2R + 2L)



SNHX-W

		P							M		K									N	S		Dimensions Dimensões Dimensiones (mm)				
		CVD	PVD						PVD		CVD				PVD						UNC	PVD						
	[2] Grade code	T9	X5	G4	T1	P3	P4	G6	X9	G6	L5	L6	L9	T9	X5	G4	T1	P3	P4	G6	10	X9	G6					
[1] Geometry code	ISO Reference	PHS740	PHP910	PH7920	PHP920	PH7930	PHP930	PH7740	PHH930	PH7740	PH5705	PH5320	PH5740	PHS740	PHP910	PH7920	PHP920	PH7930	PHP930	PH7740	PH0910	PHH930	PH7740	IC	S	LE	RE	BS
1112293	SNKX 1206 ANSN-MP*	◈		△	◉			◈					○	◈		△	◉			◈			◉	12,70	6,35	9,30	0,80	2,00
1112249	SNKX 1206 ANEN-MK*										◈	◉	◈											12,70	6,35	9,30	0,80	2,00
1111452	SNHX 1206 ANEN-LP*				◉		◈		◉								◉		◈	○		◉	○	12,70	6,35	9,30	0,80	2,00
1111502	SNHX 1206 ANSN-MP*	◈	◈	◈	◉		◈							◈	◈		◉		◈	○		○	○	12,70	6,35	9,30	0,80	2,00
1111503	SNHX 1206 ANEN-MK*										◈		◈		◈	△	◈							12,70	6,35	9,30	0,80	2,00
1111504	SNHX 1206 ANFN-LN*																				◉			12,70	6,35	9,30	0,80	2,00
1111899	SNHX 1206 ANFN-W**		◈		◉										◈		◉							12,70	6,30	9,30	0,40	7,60

◉ First choice | 1ª Escolha | 1ª Opción
◈ Stock Itens | Itens de stock
△ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock
○ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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

* Right hand insert.
** Wiper insert with 2 rights and 2 left-hand cutting edges.

PLUS 90945

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

ISO	PSM	Material	HB (Brinell)	Vc (m/min) ← Wear Resistance								Toughness →	
				PH0910	PH5705	PH5320	PHP910	PHP920	PH7920	PHP930	PHH930	PH7930	PH5740
P	1	Unalloyed Steel	125-220	-	-	-	180-250	180-250	180-240	160-220	-	160-220	-
	2	Low-Alloyed Steel	220-280	-	-	-	160-240	160-230	160-220	140-200	-	140-200	-
	3	High-Alloyed Steel	280-380	-	-	-	140-230	140-220	140-210	120-190	-	120-190	-
M	4	SS - Ferritic / Martensitic	200-330	-	-	-	-	-	140-220	140-200	140-210	140-200	-
	5	SS - Austenitic	200-330	-	-	-	-	-	130-180	120-160	120-170	120-160	-
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	-	-	-	-	120-160	100-140	100-150	100-140	-
K	7	Malleable Cast Iron	130-230	-	160-290	150-280	180-300	160-270	160-260	150-240	-	150-240	160-260
	8	Grey Cast Iron	180-245	-	170-320	160-320	160-250	140-250	140-240	140-230	-	140-230	140-240
	9	Nodular Cast iron	160-250	-	140-200	100-190	150-210	120-210	120-200	100-190	-	100-190	120-200
N	10	Aluminium and Non Ferrous	30-130	100-2000	-	-	-	-	-	-	-	-	-
S	11	Heat Resistant Super Alloys	200-320	-	-	-	-	-	-	30-100	30-110	30-100	-

ISO	PSM	Material	HB (Brinell)	Vc (m/min) Toughness →		Feed fz (mm/t)				
				PHS740	PH7740	SNHX 12... LP	SNH(K)X 12... MP	SNH(K)X 12... MK	SNHX 12... LN	SNHX 12... W
P	1	Unalloyed Steel	125-220	140-220	140-200	0,10-0,35	0,10-0,35	-	-	0,10-0,35
	2	Low-Alloyed Steel	220-280	120-200	130-180	0,10-0,35	0,10-0,35	-	-	0,10-0,35
	3	High-Alloyed Steel	280-380	100-190	100-170	0,10-0,30	0,10-0,30	-	-	0,10-0,30
M	4	SS - Ferritic / Martensitic	200-330	-	130-180	0,10-0,30	-	-	-	-
	5	SS - Austenitic	200-330	-	110-160	0,10-0,30	-	-	-	-
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	90-150	0,10-0,25	-	-	-	-
K	7	Malleable Cast Iron	130-230	-	140-220	0,10-0,35	-	0,10-0,35	-	0,10-0,40
	8	Grey Cast Iron	180-245	-	120-210	0,10-0,35	-	0,10-0,35	-	0,10-0,40
	9	Nodular Cast iron	160-250	-	100-190	0,10-0,30	-	0,10-0,30	-	0,10-0,40
N	10	Aluminium and Non Ferrous	30-130	-		-	-	-	0,10-0,35	-
S	11	Heat Resistant Super Alloys	200-320	-	30-100	0,07-0,20	-	-	-	-

(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.

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

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance										Toughness →	
				PH0910	PH5705	PH5320	PHP910	PHP920	PH7920	PHP930	PHH930	PH7930	PH5740	PHS740	PH7740
P	1	Unalloyed Steel	125-220				✓	✓	✓	✓		✓		✓	✓
	2	Low-Alloyed Steel	220-280				✓	✓	✓	✓		✓		✓	✓
	3	High-Alloyed Steel	280-380				✓	✓	✓	✓		✓		✓	✓
M	4	SS - Ferritic / Martensitic	200-330								✓	✓			✓
	5	SS - Austenitic	200-330								✓	✓			✓
	6	SS - Austenitic-ferritic (Duplex)	230-260								✓	✓			✓
K	7	Malleable Cast Iron	130-230		✓	✓	✓	✓	✓	✓		✓	✓		✓
	8	Grey Cast Iron	180-245		✓	✓	✓	✓	✓	✓		✓	✓		✓
	9	Nodular Cast iron	160-250		✓	✓	✓	✓	✓	✓		✓	✓		✓
N	10	Aluminium and Non Ferrous	30-130	✓											
S	11	Heat Resistant Super Alloys	200-320								✓	✓			✓

Good Conditions Average Conditions Difficult Conditions

Spare Parts: A - 292 Technical Data: A - 302

palbit

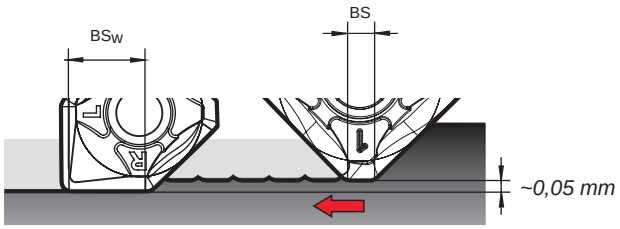
CHIP BREAKER SELECTION GUIDE Guia para aplicações do quebra-aparas | Guía para aplicación del rompevirutas

ISO	PSM	Material	HB (Brinell)	Chip breaker application	
				1st choice	Dificult Operations
P	1	Unalloyed Steel	125-220	SNHX 12... LP	SNH(K)X 12... MP
	2	Low-Alloyed Steel	220-280	SNHX 12... LP	SNH(K)X 12... MP
	3	High-Alloyed Steel	280-380	SNH(K)X 12... MP	-
M	4	SS - Ferritic / Martensitic	200-330	SNHX 12... LP	-
	5	SS - Austenitic	200-330	SNHX 12... LP	-
	6	SS - Austenitic-ferritic (Duplex)	230-260	SNHX 12... LP	-
K	7	Malleable Cast Iron	130-230	SNH(K)X 12... MK	-
	8	Grey Cast Iron	180-245	SNH(K)X 12... MK	-
	9	Nodular Cast iron	160-250	SNH(K)X 12... MK	-
N	10	Aluminium and Non Ferrous	30-130	SNHX 12... LN	-
S	11	Heat Resistant Super Alloys	200-320	SNHX 12... LP	-

WIPER INSERTS

Recommended Cutting Conditions:

- f_n should be equal to 0,8 x BS_W
- Axial depth of cut is 0,5 to 0,8mm.



Example:

- The width of the parallel land (BS) of the insert is 2mm.
- To obtain a good surface finishing, the feed per revolution should be a maximum of 80% of 2mm = 1,6mm.
- The wiper insert will have a parallel land (BS_W) with a width of 7,6mm.
- Result: Feed per revolution (f_n) could be increased from 1,6mm to 6,1mm (80% of 7,6mm).

Note:

- Other limitations, such as machine power, must be taken into consideration.
- $f_n \leq 0,8 \times BS_W = f_Z \leq 0,8 \times BS_W / Z$

How to use a wiper insert:

- Since wiper is one corner use to standard cutters, please attach the insert with the parallel land down to the workpiece cutting surface.

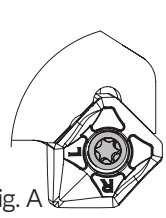


Fig. A

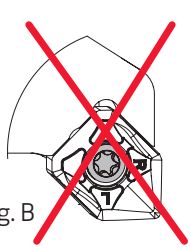
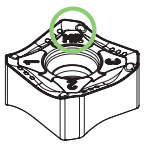
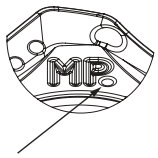


Fig. B

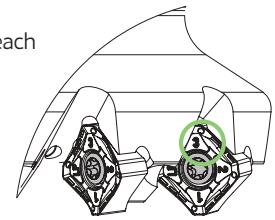
When using wiper insert, install the insert as shown on Fig. A if the insert is installed as shown on Fig. B breakage of the insert is inevitable and normal surface finish can not been obtained.



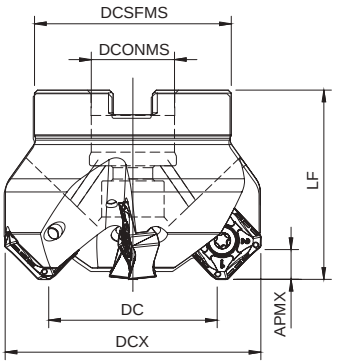


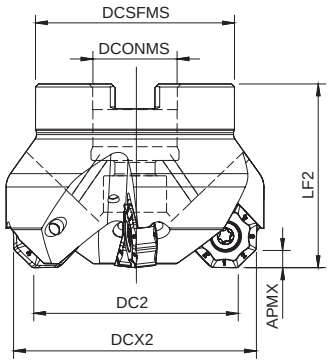
This point shows the SNKX insert difference to SNHX

Put the same side of insert in each pocket for best radial and axial runout when using SNKX.



PLUS 91245





Arbor Mounting

KAPR=44,5°~46° | GAMP=-6°

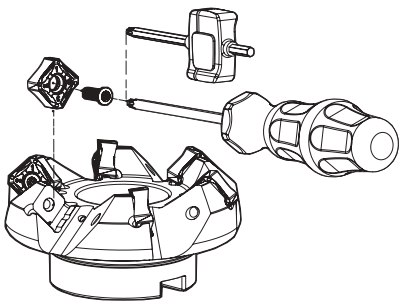
Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)								WT	Specifications		Insert Pastilha Inserto	Stock
			DC	DCX	DC2	DCX2	DCONMS	DCSFMS	LF	LF2		Arbor Type	APMX (mm)		
181088900	063A91245-05-06-022050	5	63	80,1	66,6	76,0	22	52	50	48	0,81	A	3,8 | 8,5	ON...06 | SN...16	◎
181089000	080A91245-06-06-027050	6	80	97,1	83,6	93,0	27	60	50	48	1,06	B	3,8 | 8,5	ON...06 | SN...16	◎
181089100	080A91245-08-06-027050	8	80	97,1	83,6	93,0	27	60	50	48	1,09	B	3,8 | 8,5	ON...06 | SN...16	◎
181089200	100A91245-07-06-032063	7	100	117,1	103,6	113,0	32	80	63	61	2,24	B	3,8 | 8,5	ON...06 | SN...16	◎
181089300	100A91245-10-06-032063	10	100	117,1	103,6	113,0	32	80	63	61	2,28	B	3,8 | 8,5	ON...06 | SN...16	◎
181089400	125A91245-08-06-040063	8	125	142,1	128,6	138,0	40	90	63	61	3,04	B	3,8 | 8,5	ON...06 | SN...16	◎
181089500	160A91245-10-06-U040063	10	160	177,1	163,6	173,0	40	110	63	61	4,40	C	3,8 | 8,5	ON...06 | SN...16	◎
181089600	200A91245-12-06-U060063	12	200	217,1	203,6	213,0	60	172	63	61	9,12	C	3,8 | 8,5	ON...06 | SN...16	◎
181089700	250A91245-14-06-U060063	14	250	267,1	253,6	263,0	60	172	63	61	11,93	C	3,8 | 8,5	ON...06 | SN...16	◎

◎ Stock item | Produto de stock | Itens de stock

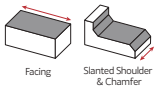
○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

SPARE PARTS Acessórios | Repuestos

Cutter DC	Insert Screw	Key (Torx)	Order separately Key (Torx - Nm)	Torque Value	Order separately Screw	DIN 6368 Wrench
A91245 - 63	P0451400	XT20	DT2050	5,0	-	-
A91245 - 80	P0451400	XT20	DT2050	5,0	J0123510	SD6368-12
A91245 -100	P0451400	PT20	DT2050	5,0	J0164110	SD6368-16
A91245 -125	P0451400	PT20	DT2050	5,0	J0204610	SD6368-20
A91245 - 160-250	P0451400	PT20	DT2050	5,0	-	-



Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.



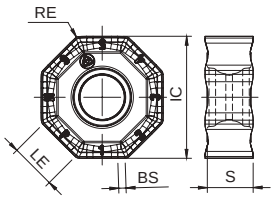
ONH(K)X 06 | SNH(K)X 16 Inserts | Pastilhas | Plaquitas

ONH(K)X-LP

ONH(K)X-MP

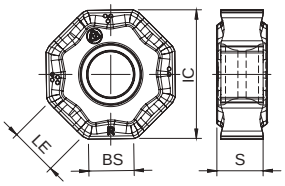
ONH(K)X-MK

ONHX-LS



ONH(K)X-LP | MP | MK | LS

ONHX-W
8 Cutting Edges (8R)

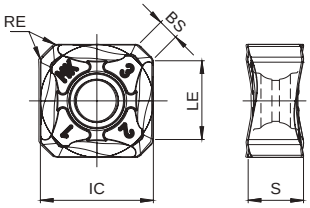


ONHX-W

SNHX-LP

SNH(K)X-MP

SNH(K)X-MK



SNH(K)X- MK | LP | MP

		P						M			K									S			Dimensions Dimensões Dimensiones (mm)				
		CVD	PVD					PVD			CVD			PVD						PVD							
	(2) Grade code	T9	G4	T1	P3	P4	G6	P3	X9	G6	L5	L6	L9	T9	G4	T1	P3	P4	G6	P3	X9	G6					
(1) Geometry code	ISO Reference	PHS740	PH7920	PHP920	PH7930	PHP930	PH7740	PH7930	PHH930	PH7740	PH5705	PH5320	PH5740	PHS740	PH7920	PHP920	PH7930	PHP930	PH7740	PH7930	PHH930	PH7740	IC	S	LE	RE	BS
1111954	ONHX 0606 ANEN-LP			◈	◇	◈	◈	◇		◈						◈	◇	◈	◈	◇		◈	16,50	6,20	6,20	0,80	1,00
1112696	ONHX 0606 ANEN-LS	○					○		◈	○				○					○		◈	○	16,50	6,25	6,20	0,80	1,00
1111955	ONHX 0606 ANEN-MP			◈			◈			◈			○			◈			◈			◈	16,50	6,20	6,20	0,80	1,00
1111956	ONHX 0606 ANEN-MK										◈		◈										16,50	6,00	6,20	0,80	1,00
1112053	ONHX 0606 ANEN-W*		◇	◈							◈				◇	◈							16,50	5,96	6,20	-	6,00
1112284	ONKX 0606 ANEN-LP	○	◇	◈	◇	◈	◈	◇	◈	◈		◈		○	◇	◈	◇	◈	◈	◇	◈	◈	16,50	6,20	6,20	0,80	1,00
1112287	ONKX 0606 ANEN-MP	◈	◇	◈			◈			◈				◈	◇	◈			◈			◈	16,50	6,20	6,20	0,80	1,00
1112291	ONKX 0606 ANEN-MK										◈		◈										16,50	6,00	6,20	0,80	1,00
1111951	SNHX 1606 ANER-LP			◈		◈	◈			◈			○			◈	○	◈	◈	○		◈	16,50	6,35	12,50	0,80	2,20
1111952	SNHX 1606 ANER-MP	◈		◈			◈			◈		○		◈		◈			◈			◈	16,50	6,35	12,50	0,80	2,20
1111953	SNHX 1606 ANER-MK												◈										16,50	6,35	12,50	0,80	2,20
1112281	SNKX 1606 ANER-MP	◈	◇	◈			◈			◈				◈	◇	◈			◈			◈	16,50	6,35	12,50	0,80	2,20
1112282	SNKX 1606 ANER-MK											◈	◈										16,50	6,35	12,50	0,80	2,20

◈ First choice | Primeira opção | 1ª opción ◈ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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

PLUS 91245

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

ISO	PSM	Material	HB (Brinell)	Vc (m/min) ← Wear Resistance					Toughness →
				PH5705	PH5320	PHP920	PH7920	PHP930	PHH930
P	1	Unalloyed Steel	125-220	-	-	180-250	180-240	160-230	-
	2	Low-Alloyed Steel	220-280	-	-	160-230	160-220	140-210	-
	3	High-Alloyed Steel	280-380	-	-	140-220	140-210	120-200	-
M	4	SS - Ferritic / Martensitic	200-330	-	-	-	-	-	140-210
	5	SS - Austenitic	200-330	-	-	-	-	-	120-170
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	-	-	-	-	100-150
K	7	Malleable Cast Iron	130-230	160-290	150-280	160-270	160-260	150-250	-
	8	Grey Cast Iron	180-245	170-320	160-320	140-250	140-240	140-230	-
	9	Nodular Cast iron	160-250	140-200	100-190	120-210	120-200	100-200	-
S	11	Heat Resistant Super Alloys	200-320	-	-	-	-	-	30-110

ISO	PSM	Material	HB (Brinell)	Vc (m/min) ← Wear Resistance			Toughness →	Feed fz (mm/t)
				PH7930	PH5740	PHS740	PH7740	SNH(K)X/ONH(K)X
P	1	Unalloyed Steel	125-220	160-220	-	140-220	140-200	0,15 **(0,25)** 0,4
	2	Low-Alloyed Steel	220-280	140-200	-	120-200	130-180	0,15 **(0,25)** 0,4
	3	High-Alloyed Steel	280-380	120-190	-	100-190	100-170	0,15 **(0,25)** 0,4
M	4	SS - Ferritic / Martensitic	200-330	140-200	-	-	130-180	0,1 **(0,20)** 0,3
	5	SS - Austenitic	200-330	120-160	-	-	110-160	0,1 **(0,20)** 0,3
	6	SS - Austenitic-ferritic (Duplex)	230-260	100-140	-	-	90-150	0,1 (**0,20**) 0,3
K	7	Malleable Cast Iron	130-230	150-240	160-260	-	140-220	0,15 **(0,25)** 0,4
	8	Grey Cast Iron	180-245	140-230	140-240	-	120-210	0,14 **(0,25)** 0,4
	9	Nodular Cast iron	160-250	100-190	120-200	-	100-190	0,14 **(0,25)** 0,4
S	11	Heat Resistant Super Alloys	200-320	30-100	-	-	30-100	0,1 **(0,15)** 0,17

(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.

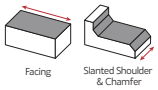
GRADES SELECTION GUIDE Guia para selecção de graus | Tabla para selección de calidades

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance									Toughness →
				PH5705	PH5320	PHP920	PH7920	PHP930	PHH930	PH7930	PH5740	PHS740	PH7740
P	1	Unalloyed Steel	125-220			✓	✓	✓		✓		✓	✓
	2	Low-Alloyed Steel	220-280			✓	✓	✓		✓		✓	✓
	3	High-Alloyed Steel	280-380			✓	✓	✓		✓		✓	✓
M	4	SS - Ferritic / Martensitic	200-330						✓	✓			✓
	5	SS - Austenitic	200-330						✓	✓			✓
	6	SS - Austenitic-ferritic (Duplex)	230-260						✓	✓			✓
K	7	Malleable Cast Iron	130-230	✓	✓	✓	✓	✓		✓	✓		✓
	8	Grey Cast Iron	180-245	✓	✓	✓	✓	✓		✓	✓		✓
	9	Nodular Cast iron	160-250	✓	✓	✓	✓	✓		✓	✓		✓
S	11	Heat Resistant Super Alloys	200-320						✓	✓			✓

Good Conditions Average Conditions Difficult Conditions

Spare Parts: A - 292 Technical Data: A - 302

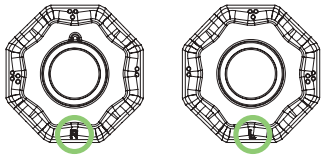
palbit



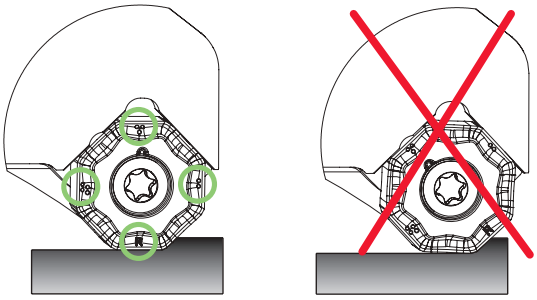
CHIP BREAKER SELECTION GUIDE Guia para aplicações do quebra-aparas | Guía para aplicación del rompevirutas

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

WIPER INSERTS

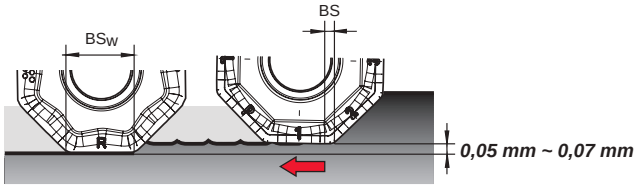


Wiper insert with 4 Right and 4 Left-hand cutting edges.
The side work of the insert it's indicated by the letter R (Right) & L (Left).



The points and letter (R or L) on the insert indicates the side that should be parallel to the workpiece material.

Recommended Cutting Conditions:
- f_n should be equal to 0,8 x BS_W
- Axial depth of cut is 0,5 to 0,8mm.



Example:
- The width of the parallel land (BS) of the insert is 1mm.
- To obtain a good surface finishing, the feed per revolution should be a maximum of 80% of 1mm = 0,8mm.
- The wiper insert will have a parallel land (BS_W) with a width of 6,0mm.
- Result: Feed per revolution (f_n) could be increased from 0,8mm to 4,8mm (80% of 6,0mm).

Note:

- Other limitations, such as machine power, must be taken into consideration.
- $f_n \leq 0,8 \times BS_W = f_Z \leq 0,8 \times BS_W / Z$

How to use a wiper insert:
- Since wiper is one corner use to standard cutters, please attach the insert with the parallel land down to the workpiece cutting surface.
- The points and the letter (R or L) on the insert indicates the side that should be parallel to the workpiece material.
- The side work of the insert it's indicated by the letter (R - Right & L - Left).

NEW 57045

LINEPRO

The new LINEPRO 57045 is engineered for face milling operations on stainless steel and exotic materials. It features a high number of teeth, resulting in enhanced productivity. Available in both normal and fine pitches, its design ensures an extremely positive insert position upon mounting, facilitating smooth cutting and achieving a superior surface finish. Moreover, it offers versatility by accommodating the mounting of two different types of inserts on the same toolholder.

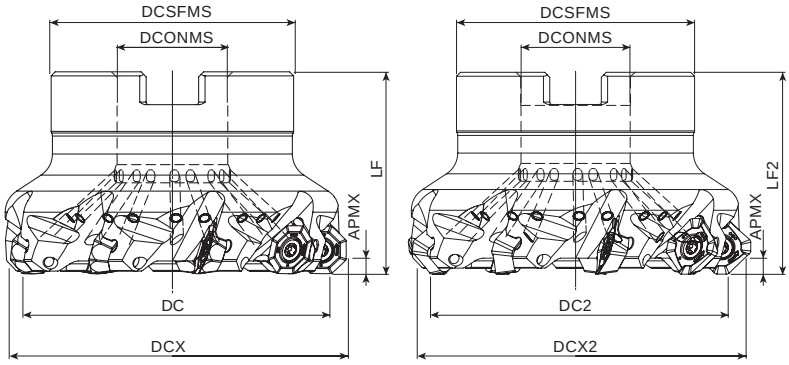
A nova linha LINEPRO 57045 é projetada para operações de facejamento em aço inoxidável e materiais exóticos. Ela possui um grande número de dentes, resultando em produtividade aprimorada. Disponível em passos normais e finos, o seu design garante uma posição da pastilha extremamente positiva ao ser montada, permitindo um corte suave e alcançando um acabamento superficial superior. Além disso, oferece versatilidade ao permitir a montagem de dois tipos diferentes de pastilhas no mesmo suporte.

La nueva línea LINEPRO 57045 está diseñada para operaciones de fresado en acero inoxidable y materiales exóticos. Cuenta con un gran número de dientes, lo que resulta en una productividad mejorada. Disponible en pasos normales y finos, su diseño garantiza una posición de la pastilla extremadamente positiva al ser montada, lo que permite un corte suave y un acabado superficial superior. Además, ofrece versatilidad al permitir el montaje de dos tipos diferentes de pastillas en el mismo porta-herramientas.

NEW LINEPRO 57045 > page 62

- From DC 20mm to 125mm
  De DC 20mm a 125mm | Desde DC 20mm hasta 125mm
- Available in arbor, threaded, weldon and cylindrical shank
  Disponível em montagem tipo árvore, acoplamento roscado, haste weldon e cilíndrica | Disponible en fijación con tornillo central, fijación roscada, mango tipo weldon y cilindrico
- Two different geometries for same pocket (OFHX 0403.. and SFHX 1004..)
  Duas geometrias diferentes para o mesmo alojamento (OFHX 0403.. e SFHX 1004..) / Dos geometrías diferentes para el mismo alojamiento (OFHX 0403.. y SFHX 1004..)
- Extremely positive rake angle
  Ângulo de ataque extremamente positivo | Ángulo de ataque extremadamente positivo

NEW LINEPRO 57045



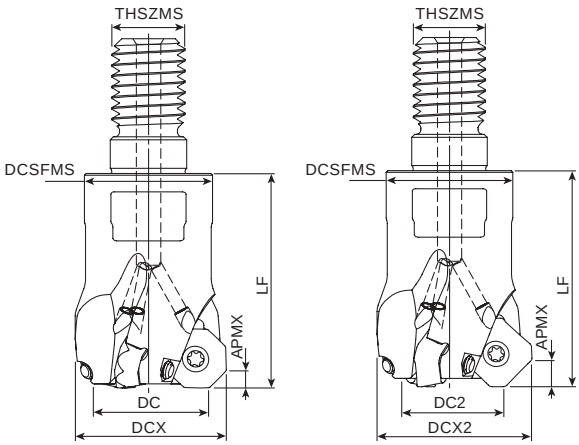
Arbor Mounting

KAPR=45° | GAMP=+18°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)								WT	Specifications		Insert Pastilha Inserto	Stock
			DC	DCX	DC2	DCX2	DCONMS	DCSFMS	LF	LF2		Arbor Type	APMX (mm)		
181164100	040A57045-04-18-016040	4	40	45,8	38,4	47,7	16	38	40	40,7	0,150	A	3,5 | 2,5	SF..10 | OF..04	○
181164200	040A57045-06-18-016040	6	40	45,8	38,4	47,7	16	38	40	40,7	0,180	A	3,5 | 2,5	SF..10 | OF..04	◈
181164300	050A57045-05-18-022040	5	50	55,8	48,4	57,7	22	48	40	40,7	0,330	A	3,5 | 2,5	SF..10 | OF..04	○
181164400	050A57045-07-18-022040	7	50	55,8	48,4	57,7	22	48	40	40,7	0,315	A	3,5 | 2,5	SF..10 | OF..04	◈
181164500	063A57045-06-18-022040	6	63	68,8	61,4	70,7	22	48	40	40,7	0,505	A	3,5 | 2,5	SF..10 | OF..04	◈
181164600	063A57045-09-18-022040	9	63	68,8	61,4	70,7	22	48	40	40,7	0,495	A	3,5 | 2,5	SF..10 | OF..04	○
181164700	080A57045-07-18-027050	7	80	85,8	78,4	87,7	27	58	50	50,7	1,150	B	3,5 | 2,5	SF..10 | OF..04	○
181164800	080A57045-11-18-027050	11	80	85,8	78,4	87,7	27	58	50	50,7	1,000	B	3,5 | 2,5	SF..10 | OF..04	○
181164900	100A57045-09-18-032050	9	100	105,8	98,4	107,7	32	78	50	50,7	1,650	B	3,5 | 2,5	SF..10 | OF..04	○
181165000	100A57045-13-18-032050	13	100	105,8	98,4	107,7	32	78	50	50,7	1,550	B	3,5 | 2,5	SF..10 | OF..04	○
181165100	125A57045-12-18-040063	12	125	130,8	123,4	132,7	40	88	63	63,7	2,700	B	3,5 | 2,5	SF..10 | OF..04	○

◈ Stock item | Produto de stock | Itens de stock

○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)



Threaded Coupling

KAPR=45° | GAMP=+18°

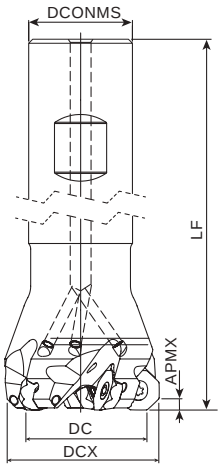
Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)								WT	Specifications	Insert Pastilha Inserto	Stock
			DC	DCX	DC2	DCX2	THSZMS	DCSFMS	LF	LF2		APMX (mm)		
181163800	020R57045-03-18-M12035	3	20	25,6	18,6	27,4	M12	21	35	35,7	0,100	3,5 | 2,5	SF..10 | OF..04	○
181163900	025R57045-04-18-M12035	4	25	30,7	23,3	32,6	M12	21	35	35,7	0,190	3,5 | 2,5	SF..10 | OF..04	○
181164000	032R57045-05-18-M16035	5	32	37,8	30,4	39,7	M16	29	35	35,7	0,310	3,5 | 2,5	SF..10 | OF..04	○

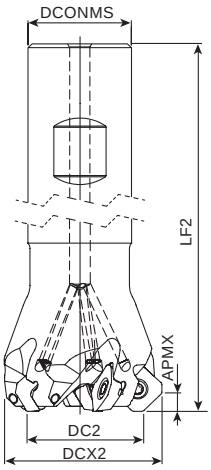
◈ Stock item | Produto de stock | Itens de stock

○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

LINEPRO 57045

OFHX 04 | SFHX 10





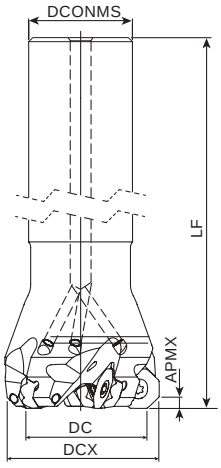
Weldon Shank

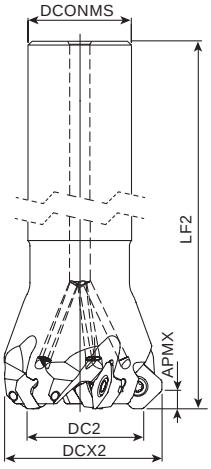
KAPR=45° | GAMP=+18°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)							WT	Specifications	Insert Pastilha Inserto	Stock
			DC	DCX	DC2	DCX2	DCONMS	LF	LF2		APMX (mm)		
181165900	020W57045-03-18-020080	3	20	25,6	18,6	27,7	20	80	80,7	0,180	3,5 | 2,5	SF..10 | OF..04	◈
181166000	025W57045-04-18-020085	4	25	30,7	23,6	32,7	20	85	85,7	0,240	3,5 | 2,5	SF..10 | OF..04	◈
181166100	032W57045-05-18-025100	5	32	37,8	30,6	39,7	25	100	100,7	0,375	3,5 | 2,5	SF..10 | OF..04	◈

◈ Stock item | Produto de stock | Itens de stock

◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)





Cilindrical Shank

KAPR=45° | GAMP=+18°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)							WT	Specifications	Insert Pastilha Inserto	Stock
			DC	DCX	DC2	DCX2	DCONMS	LF	LF2		APMX (mm)		
181165200	020E57045-03-18-020080	3	20	25,6	18,6	27,7	20	80	80,7	0,180	3,5 | 2,5	SF..10 | OF..04	◈
181165300	025E57045-04-18-020085	4	25	30,7	23,6	32,7	20	85	85,7	0,240	3,5 | 2,5	SF..10 | OF..04	◈
181146500	032E57045-05-18-025100	5	32	37,8	30,6	39,7	25	100	100,7	0,375	3,5 | 2,5	SF..10 | OF..04	◈

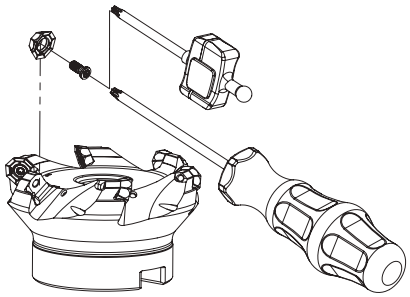
◈ Stock item | Produto de stock | Itens de stock

◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

NEW LINEPRO 57045

SPARE PARTS Acessórios | Repuestos

Cutter DC	Insert Screw	Key (Torx)	Key (Torx - Nm) (Order separately)	Torque Value	Screw	DIN 6368 Wrench
A57045 - 40-80	P0300800	XT09	DT0914	1,4	-	-
A57045 - 100	P0300800	XT09	DT0914	1,4	J0164110	SD6368-16
A57045 - 125	P0300800	XT09	DT0914	1,4	J0204610	SD6368-20
R57045 - 20-32	P0300800	XT09	DT0914	1,4	-	-
W57045 - 20-32	P0300800	XT09	DT0914	1,4	-	-
E57045 - 20-32	P0300800	XT09	DT0914	1,4	-	-



Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.

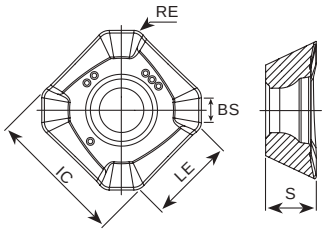
SFHX 100410 | OFHX 040305 Inserts | Pastilhas | Plaquitas

SFHX-LP

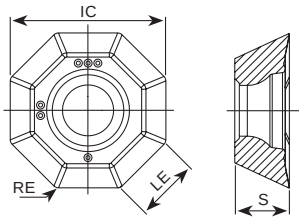
SFHX-LS

OFHX-LP

OFHX-LS



SFHX-LP | LS

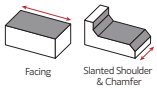


OFHX-LP | LS

(1) Geometry code	ISO Reference	P			M		K			S		Dimensions Dimensões Dimensiones (mm)				
		CVD	PVD		PVD		CVD	PVD		PVD						
	(2) Grade code	T9	T1	P4	X9	Z3	T9	T1	P4	X9	Z3					
		PHS740	PHP920	PHP930	PHH930	PHH530	PHS740	PHP920	PHP930	PHH930	PHH530	IC	S	LE	RE	BS
1112738	SFHX 100410 AFER-LS				◈	◈				◈	◈	10,10	3,72	6,50	1,00	2,50
1113485	SFHX 100410 AFSR-LP		◈					◈				10,10	3,72	6,50	1,00	2,50
1112737	OFHX 040305 AFEN-LS				◈	◈				◈	◈	10,00	3,45	4,10	0,50	-
1112739	OFHX 040305 AFSN-LP	○	◈	○			○	◈	○			10,00	3,45	4,10	0,50	-

◈ First choice | Primeira opção | 1ª opción ◈ Stock item | Produto de stock | Items de stock ○ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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



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

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance — Toughness → PHP920	PHP930	PHH530	PHH930	PHS740
P	1	Unalloyed steel	125-220	✓	✓			✓
	2	Low-alloyed steel	220-280	✓	✓			✓
	3	High-alloy steel	280-380	✓	✓			✓
M	4	SS - Ferritic / Martensitic	200-330			✓	✓	
	5	SS - Austenitic	200-330			✓	✓	
	6	SS - Austenitic-ferritic (Duplex)	230-260			✓	✓	
K	7	Malleable cast iron	130-230	✓	✓			
	8	Grey cast iron	180-245	✓	✓			
	9	Nodular cast iron	160-250	✓	✓			
S	11	Heat Resistant Super Alloys	200-320			✓	✓	

Good Conditions Average Conditions Difficult Conditions

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

ISO	PSM	Material	HB (Brinell)	Vc (m/min) ← Wear Resistance — Toughness → PHP920	PHP930	PHH530	PHH930	PHS740	Feed fz (mm/t) OFHX 04..	SFHX 10..
P	1	Unalloyed steel	125-220	180-250	160-220	-	-	140-170	0,10-0,30	0,10-0,30
	2	Low-alloyed steel	220-280	170-210	150-180	-	-	130-160	0,10-0,30	0,10-0,30
	3	High-alloy steel	280-380	160-200	130-160	-	-	110-140	0,10-0,25	0,10-0,25
M	4	SS - Ferritic / Martensitic	200-330	-	-	120-180	100-160	-	0,10-0,25	0,10-0,25
	5	SS - Austenitic	200-330	-	-	100-160	90-150	-	0,10-0,25	0,10-0,25
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	-	70-140	60-130	-	0,10-0,20	0,10-0,20
K	7	Malleable cast iron	130-230	170-300	160-280	-	-	-	0,10-0,30	0,10-0,30
	8	Grey cast iron	180-245	150-250	140-240	-	-	-	0,10-0,30	0,10-0,30
	9	Nodular cast iron	160-250	90-210	90-200	-	-	-	0,10-0,25	0,10-0,25
S	11	Heat Resistant Super Alloys	200-320	-	-	30-75	25-70	-	0,07-0,15	0,07-0,15

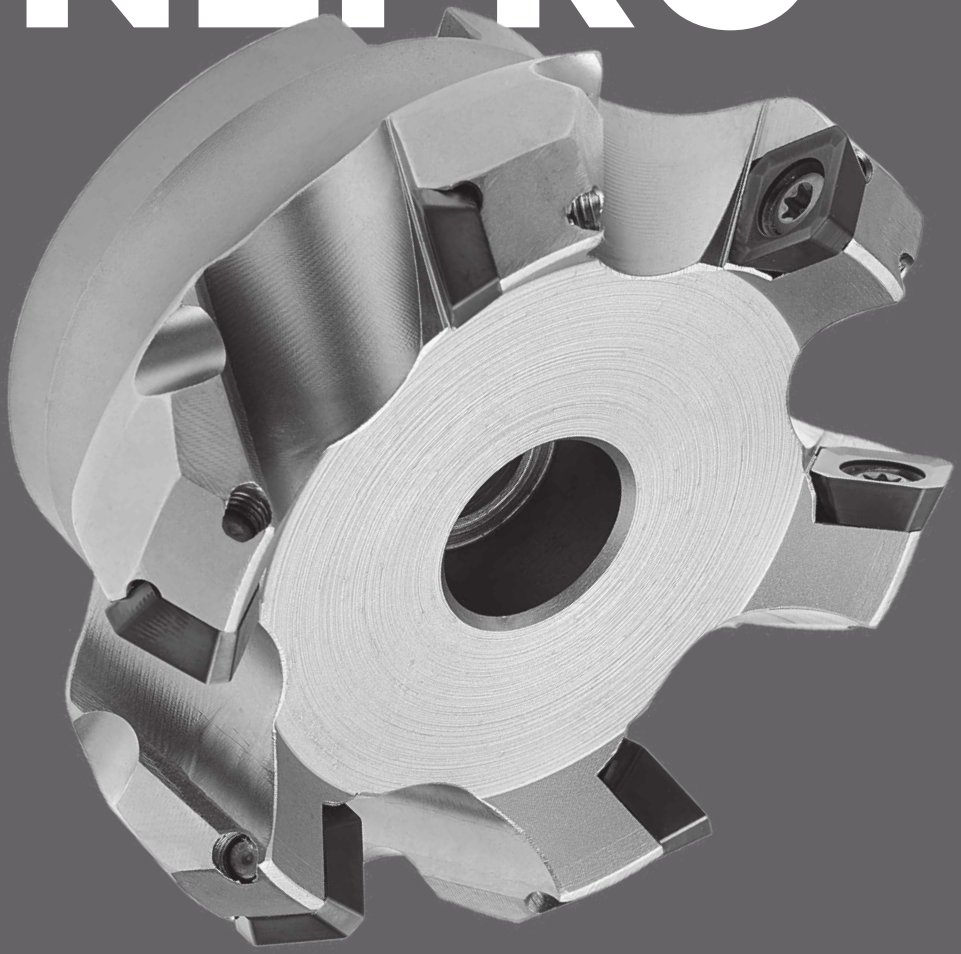
(Note 1) Cutting conditions ae/DC=70%
(Note 2) Cutting conditions should be ajusted according to the machine and work rigidity.
(Note 3) If chattering occurs, reduce ap and Vc by 30% and keep the same fz per tooth.

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

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

06045 | 09945

LINEPRO

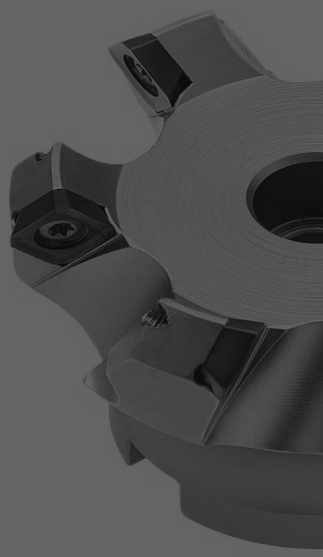


LINEPRO is a standard 45° face milling system designed for universal application. Its positive geometry ensures a sharp cutting edge that minimizes cutting forces while enhancing surface quality.

LINEPRO é um sistema padrão de facejamento a 45° projetada para aplicação universal. A sua geometria positiva garante uma aresta de corte afiada que minimiza as forças de corte, enquanto melhora a qualidade da superfície.

LINEPRO es un sistema estándar de fresado frontal a 45° diseñado para aplicación universal. Su geometría positiva garantiza un filo de corte afilado que minimiza las fuerzas de corte, mientras mejora la calidad de la superficie.

LINEPRO 06045 > page 68

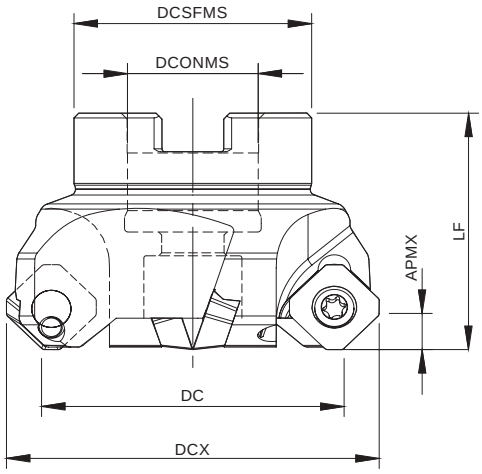


- From DC 50mm to 160mm
  De DC 50mm a 160mm | Desde DC 50mm hasta 160mm
- Available in arbor mounting
  Disponível em montagem tipo árvore | Disponible en fijación con tornillo central
- Low cutting forces
  Baixas forças de corte | Bajas fuerzas de corte
- General application
  Aplicação geral | Aplicación general

LINEPRO 09945 > page 70

- From DC 50mm to 250mm
  De DC 50mm a 250mm | Desde DC 50mm hasta 250mm
- Available in arbor mounting
  Disponível em montagem tipo árvore | Disponible en fijación con tornillo central
- Excellent chip flow
  Excelente fluxo de aparas | Excelente flujo de virutas
- High rigidity due to carbide shim
  Alta rigidez devido ao calço de metal duro / Alta rigidez gracias al calce de carburo

LINEPRO 06045



Arbor Mounting

KAPR=45° | GAMP=+19°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)					WT	Specifications		Insert Pastilha Inserto	Stock
			DC	DCX	DCONMS	DCSFMS	LF		Arbor Type	APMX (mm)		
181163200	050A06045-04-19-022040	4	50	62	22	42	40	0,350	A	6,0	SE...T/W 1204	○
181148800	063A06045-05-19-022050	5	63	75	22	42	50	0,800	A	6,0	SE...T/W 1204	○
181148900	080A06045-06-19-027050	6	80	92	27	50	50	1,150	A	6,0	SE...T/W 1204	○
181149000	100A06045-06-19-032050	6	100	112	32	64	50	1,700	A	6,0	SE...T/W 1204	○
181163300	125A06045-07-19-040063	7	125	132	40	85	63	2,750	B	6,0	SE...T/W 1204	○
181040300	160A06045-08-19-U040063	8	160	172	40	100	63	4,600	C	6,0	SE...T/W 1204	○

Stock item | Produto de stock | Itens de stock

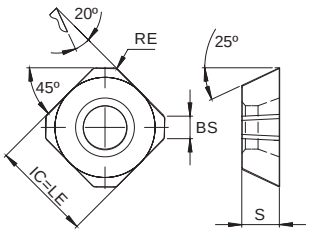
○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

SEH... 1204 Inserts | Pastilhas | Plaquitas

SEHW

SEHT

SEHT-LN

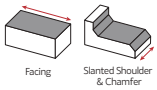


SEHW | SEHT | SEHT-LN

		P		M	K		N	Dimensions Dimensões Dimensiones (mm)			
		PVD		PVD	PVD		UNC				
	(2) Grade code	68	I5	I5	68	I5	10				
(1) Geometry code	ISO Reference	PH6920	PH6740	PH6740	PH6920	PH6740	PH0910	IC	S	LE	BS
1110216	SEHT 1204 AFEN	◎	◎	◎	◎	◎		12,70	4,76	12,70	2,80
1110218	SEHT 1204 AFTN	◎	◎	◎	◎	◎		12,70	4,76	12,70	2,80
1112283	SEHT 1204 AFFN-LN						◎	12,70	4,76	12,70	2,00
1110219	SEHW 1204 AFEN	◎	◎	◎	◎	◎		12,70	4,76	12,70	2,80
1110222	SEHW 1204 AFTN	◎	◎	◎	◎	◎		12,70	4,76	12,70	2,80

◎ First choice | Primeira opção | 1ª opción ◎ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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

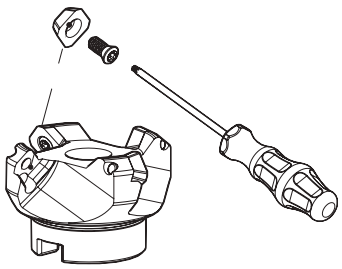


SPARE PARTS Acessórios | Repuestos

Order separately

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

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.



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

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance — Toughness → PH0910	PH6920	PH6740
P	1	Unalloyed steel	125-220		✓	✓
	2	Low-alloyed steel	220-280		✓	✓
	3	High-alloy steel	280-380		✓	✓
M	4	SS - Ferritic / Martensitic	200-330			✓
	5	SS - Austenitic	200-330			✓
	6	SS - Austenitic-ferritic (Duplex)	230-260			✓
K	7	Malleable cast iron	130-230		✓	✓
	8	Grey cast iron	180-245		✓	✓
	9	Nodular cast iron	160-250		✓	✓
N	10	Aluminium and Non Ferrous	30-130	✓		

Good Conditions Average Conditions Difficult Conditions

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

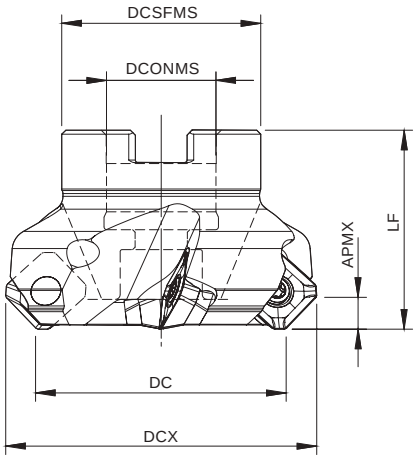
ISO	PSM	Material	HB (Brinell)	Vc (m/min) ← Wear Resistance — Toughness → PH0910	PH6920	PH6740	Feed fz (mm/t) SEHT 1204...	SEHT 1204 LN	SEHW 1204...
P	1	Unalloyed steel	125-220	-	150-230	130-160	0,10-0,20	-	0,10-0,20
	2	Low-alloyed steel	220-280	-	140-220	120-150	0,10-0,20	-	0,10-0,20
	3	High-alloy steel	280-380	-	130-180	100-130	0,10-0,20	-	0,10-0,20
M	4	SS - Ferritic / Martensitic	200-330	-	-	100-120	0,10-0,15	-	0,10-0,20
	5	SS - Austenitic	200-330	-	-	80-110	0,10-0,15	-	0,10-0,20
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	-	70-100	0,10-0,15	-	0,10-0,20
K	7	Malleable cast iron	130-230	-	-	130-250	0,10-0,25	-	0,10-0,25
	8	Grey cast iron	180-245	-	-	110-220	0,10-0,25	-	0,10-0,25
	9	Nodular cast iron	160-250	-	-	80-170	0,10-0,25	-	0,10-0,25
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 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 choice	Dificult Operations
P	1	Unalloyed Steel	125-220	SEHT 12... AFEN	SEHW 12... AFEN
	2	Low-Alloyed Steel	220-280	SEHT 12... AFTN	SEHW 12... AFTN
	3	High-Alloyed Steel	280-380	SEHT 12... AFTN	SEHW 12... AFTN
M	4	SS - Ferritic / Martensitic	200-330	SEHT 12... AFEN	SEHW 12... AFEN
	5	SS - Austenitic	200-330	SEHT 12... AFEN	SEHW 12... AFEN
	6	SS - Austenitic-ferritic (Duplex)	230-260	SEHW 12... AFEN	-
K	7	Malleable Cast Iron	130-230	SEHT 12... AFEN	SEHW 12... AFEN
	8	Grey Cast Iron	180-245	SEHT 12... AFEN	SEHW 12... AFEN
	9	Nodular Cast iron	160-250	SEHW 12... AFEN	SEHW 12... AFTN
N	10	Aluminium and Non Ferrous	30-130	SEHT 12... AFFN-LN	-

LINEPRO 09945



Arbor Mounting

KAPR=45° | GAMP=+20°~+21°

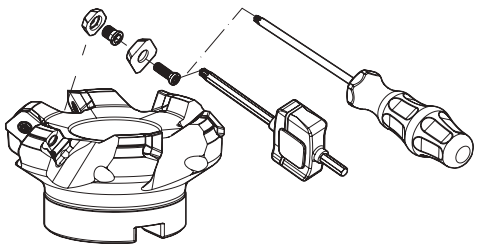
Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)					WT	Specifications		Insert Pastilha Inserto	Stock
			DC	DCX	DCONMS	DCSFMS	LF		Arbor Type	APMX (mm)		
181034700	050A09945-04-20-U022040	4	50	63	22	40	40	0,36	A	6,0	SE...13T3	◈
181024200	063A09945-05-21-U022040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

◈ Stock item | Produto de stock | Itens de stock

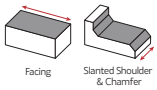
○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

SPARE PARTS Acessórios | Repuestos

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



Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.

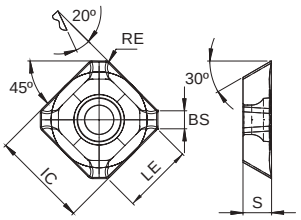


SE... 13T3 Inserts | Pastilhas | Plaquitas

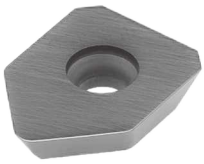
SEHT

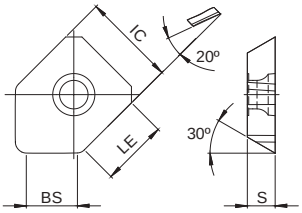
SEHW

SEHT-LN



SEHT | SEHW | SEHT-LN


SEHT-W



SEHT-W

		P		M	K		N	Dimensions Dimensões Dimensiones (mm)			
		PVD		PVD	PVD		UNC				
	(2) Grade code	68	15	15	68	15	10				
(1) Geometry code	ISO Reference	PH6920	PH6740	PH6740	PH6920	PH6740	PH0910	IC	S	LE	BS
1110559	SEHT 13T3 AGSN	●	◍	●	●	◍		13,35	3,97	10,00	2,00
1111586	SEHT 13T3 AGFN-LN						●	13,35	3,97	10,00	2,30
1110627	SEHT 13T3 AGSN-W	●			●			13,35	3,97	10,00	8,20
1111146	SEHW 13T3 AGFN	●			●			13,35	3,97	10,00	2,00

● First choice | Primeira opção | 1ª opción ◍ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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

LINEPRO 09945

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

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance — Toughness → PH0910	PH6920	PH6740
P	1	Unalloyed steel	125-220		✓	✓
	2	Low-alloyed steel	220-280		✓	✓
	3	High-alloy steel	280-380		✓	✓
M	4	SS - Ferritic / Martensitic	200-330			✓
	5	SS - Austenitic	200-330			✓
	6	SS - Austenitic-ferritic (Duplex)	230-260			✓
K	7	Malleable cast iron	130-230		✓	✓
	8	Grey cast iron	180-245		✓	✓
	9	Nodular cast iron	160-250		✓	✓
N	10	Aluminium and Non Ferrous	30-130	✓		

Good Conditions | Average Conditions | Difficult Conditions

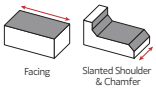
RECOMMENDED CUTTING CONDITIONS Condições de corte recomendadas | Condiciones de corte recomendables

ISO	PSM	Material	HB (Brinell)	Vc (m/min) ← Wear Resistance — Toughness → PH0910	PH6920	PH6740	Feed fz (mm/t) SEHT 13T3 AGSN	SEHW 13T3 AGFN	SEHT 13T3 AGFN-LN	SEHT 13T3 AGSN-W
P	1	Unalloyed Steel	125-220	-	180-340	180-240	0,10-0,25	-	-	0,10-0,30
	2	Low-Alloyed Steel	220-280	-	180-340	160-220	0,10-0,20	-	-	0,10-0,30
	3	High-Alloyed Steel	280-380	-	180-330	140-210	0,10-0,20	-	-	0,10-0,30
M	4	SS - Ferritic / Martensitic	200-330	-	-	140-220	0,10-0,20	-	-	-
	5	SS - Austenitic	200-330	-	-	130-180	0,10-0,20	-	-	-
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	-	120-160	0,10-0,20	-	-	-
K	7	Malleable Cast Iron	130-230	-	-	160-260	0,10-0,25	0,10-0,25	-	0,10-0,30
	8	Grey Cast Iron	180-245	-	-	140-240	0,10-0,25	0,10-0,25	-	0,10-0,30
	9	Nodular Cast iron	160-250	-	-	120-200	0,10-0,20	0,10-0,20	-	0,10-0,30
N	10	Aluminium and Non Ferrous	30-130	350-1400	-	-	0,10-0,20	-	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 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 choice	Dificult Operations
P	1	Unalloyed Steel	125-220	SEHT... AGSN	-
	2	Low-Alloyed Steel	220-280	SEHT... AGSN	-
	3	High-Alloyed Steel	280-380	SEHT... AGSN	-
M	4	SS - Ferritic / Martensitic	200-330	SEHT... AGSN	SEHW... AGFN
	5	SS - Austenitic	200-330	SEHT... AGSN	SEHW... AGFN
	6	SS - Austenitic-ferritic (Duplex)	230-260	SEHT... AGSN	SEHW... AGFN
K	7	Malleable Cast Iron	130-230	SEHW... AGFN	-
	8	Grey Cast Iron	180-245	SEHW... AGFN	-
	9	Nodular Cast iron	160-250	SEHW... AGFN	-
N	10	Aluminium and Non Ferrous	30-130	SEHT... AGFN-LN	-



WIPER INSERTS

Rec. Cutting Conditions
- BS_W at least 40% larger than fn (f_n=f_z x Z);
- Axial depth of cut is 0,5 - 0,8 mm;

Example:
- The width of parallel land (BS) of the SEHT insert is 2,0 mm.
- With a cutter of 10 inserts and using a feed per tooth (f_z) of 0,3 mm, the feed per revolution (f_n) will be 3 mm, i.e. 66% bigger than the parallel land.
- To obtain a good surface finishing, the feed per revolution should be a maximum 80% of 2,0 mm = 1,6 mm.
- The wiper insert will have a parallel land (BS_W) with a width of approximately 8,2 mm.
- Result: Feed per revolution (f_n) could be increased from 1,6 mm to 60% of 6,0 mm = 4,9 mm.

Note: Other limitations, such as machine power, must be taken into consideration.

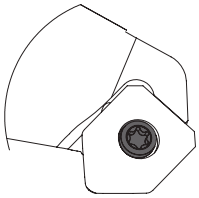


Fig. A

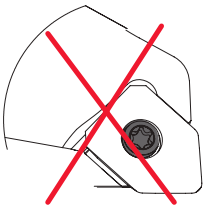


Fig. B

When using wiper insert, install the insert as shown on Fig. A.
If the insert is installed as shown on Fig. B breakage of the insert is inevitable and normal surface finish can not been obtained.

HIGH FEED MILLING

HIGH FEED MILLING

1 TETRAFEED 16320 | 16420

> Suitable for machining **P M K S**

> See page A - 76

2 PENTA HIFEED 06320

> Suitable for machining **P K**

> See page A - 88

3 HIFEED 06410 | 06690 | 06815

> Suitable for machining **P M K S**

> See page A - 94

4 HIFEED 50560 | 50060

> Suitable for machining **P M K S**

> See page A - 112

5 LINEPRO 20090 | 20190 (with XPET-HF insert)

> Suitable for machining **P M K S**

> See page A - 154

16320 | 16420

TETRAFEED

TETRAFEED 16320 | 16420 are lines with a robust cutter body that provides higher fatigue and deformation resistance, ensuring a longer tool life. Thanks to its light-cutting action, combined with a robust shank design, TETRAFEED ensures secure and vibration-free machining, even with long overhangs. The progressive cutting insert edge permits a smoother cut, reducing cutting forces.

TETRAFEED 16320 | 16420 são linhas com um corpo de ferramenta robusto oferecendo maior resistência à fadiga e deformação, garantindo uma vida útil mais longa da ferramenta. Graças à sua ação de corte leve, combinada com um design de haste robusto, as TETRAFEED garantem fresagem segura e livre de vibrações, mesmo com balanços longos. A geometria curva da aresta de corte da pastilha permite um corte mais suave, reduzindo as forças de corte.

TETRAFEED 16320 | 16420 son líneas con un cuerpo de herramienta robusto que ofrece una mayor resistencia a la fatiga y deformación, asegurando una vida útil más larga de la herramienta. Gracias a su acción de corte ligera, combinada con un diseño de mango robusto, las TETRAFEED garantizan un fresado seguro y libre de vibraciones, incluso con voladizos largos. La geometría curva del filo de corte de la plaquita permite un corte más suave, reduciendo las fuerzas de corte.

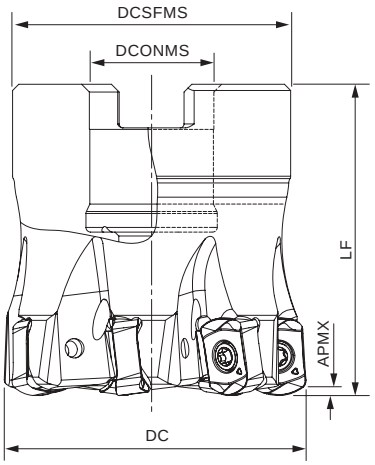
TETRAFEED 16320 > page 78

- From DC 26mm to 80mm
  De DC 16mm a 80mm | Desde DC 16mm hasta 80mm
- Available in arbor, threaded, weldon and cylindrical shank
  Disponível em montagem tipo árvore, acoplamento roscado, haste weldon e cilíndrica | Disponible en fijación con tornillo central, fijación roscada, mango tipo weldon y cilindrico
- Robust XNKU 06 insert with 4 cutting edges
  Pastilha XNKU 06 robusta com 4 arestas de corte | Plaquita XNKU 06 robusta con 4 filos de corte
- Close pitch cutter design for high productivity
  Passo fino para alta produtividade | Paso fino para alta productividad

NEW TETRAFEED 16420 > page 84

- From DC 50mm to 100mm
  De DC 50mm a 100mm | Desde DC 50mm hasta 100mm
- Available in arbor mounting and weldon shank
  Disponível em montagem tipo árvore e haste weldon | Disponible en fijación con tornillo central y mango tipo weldon
- Ideal for rough milling of medium to large-sized components
  Ideal para fresagem de desbaste de componentes de médio a grande porte| Ideal para el fresado de desbaste de componentes de tamaño mediano a grande.
- For high removal rate materials
  Para altas taxas de remoção de material | Para una alta tasa de remoción de material

TETRAFEED 16320



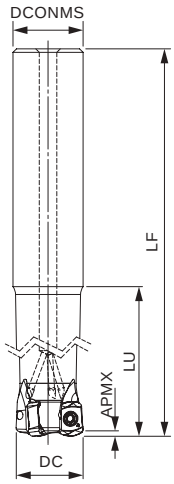
Arbor Mounting

KAPR=20° | GAMP=-7° | RP=1,8

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications		Insert	Stock
			DC	DCONMS	DCSFMS	LF		Arbor Type	APMX (mm)		
181206300	032A16320-05-07-016040	5	32	16	30	40	0,14	A	1,00	XNKU 06...	◈
181218600	040A16320-05-07-016040	5	40	16	36	40	0,20	A	1,00	XNKU 06...	◈
181152300	040A16320-07-07-016040	7	40	16	36	40	0,20	A	1,00	XNKU 06...	◈
181157500	050A16320-06-07-022040	6	50	22	42	40	0,25	A	1,00	XNKU 06...	◈
181152400	050A16320-08-07-022040	8	50	22	42	40	0,29	A	1,00	XNKU 06...	◈
181152500	052A16320-08-07-022040	8	52	22	42	40	0,39	A	1,00	XNKU 06...	◈
181152600	063A16320-09-07-022040	9	63	22	48	40	0,50	A	1,00	XNKU 06...	◈
181177800	080A16320-10-07-027050	10	80	27	60	50	0,95	A	1,00	XNKU 06...	◈

◈ Stock item | Produto de stock | Itens de stock

◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)



Cylindrical Shank

KAPR=20° | GAMP=-7° | RP=1,8

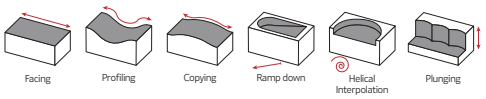
Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications	Insert	Stock
			DC	DCONMS	LF	LU		APMX (mm)		
181183700	016E16320-02-07-016100	2	16	16	100	30	0,19	1,00	XNKU 06...	◈
181171900	016E16320-02-07-016150	2	16	16	150	50	0,19	1,00	XNKU 06...	◇
181183800	020E16320-03-07-020130	3	20	20	130	50	0,30	1,00	XNKU 06...	◈
181183400	020E16320-03-07-020160	3	20	20	160	80	0,30	1,00	XNKU 06...	◇
181183900	025E16320-04-07-025140	4	25	25	140	60	0,54	1,00	XNKU 06...	◈
181183500	025E16320-04-07-025180	4	25	25	180	100	0,54	1,00	XNKU 06...	◇
181172200	032E16320-05-07-032150	5	32	32	150	60	1,00	1,00	XNKU 06...	◈
181183600	032E16320-05-07-032200	5	32	32	200	120	1,00	1,00	XNKU 06...	◇

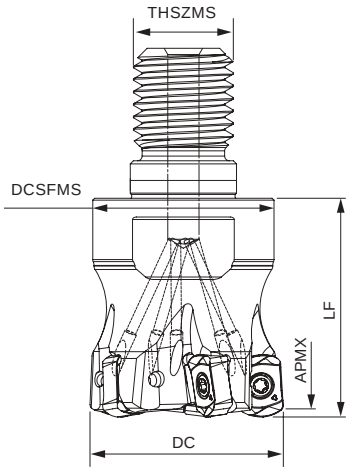
◈ Stock item | Produto de stock | Itens de stock

◇ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

◯ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

TETRAFEED 16320
XNKU 06





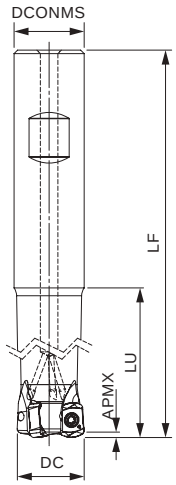
Threaded Coupling

KAPR=20° | GAMP=-7° | RP=1,8

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications	Insert	Stock
			DC	THSZMS	DCSFMS	LF		APMX (mm)		
181151300	016R16320-02-07-M08025	2	16	M08	13	25	0,02	1,00	XNKU 06...	⛭
181151400	020R16320-03-07-M10028	3	20	M10	18	28	0,05	1,00	XNKU 06...	⛭
181151500	025R16320-04-07-M12035	4	25	M12	21	35	0,07	1,00	XNKU 06...	⛭
181148000	032R16320-05-07-M16035	5	32	M16	29	35	0,16	1,00	XNKU 06...	⛭
181178600	035R16320-05-07-M16035	5	35	M16	29	35	0,16	1,00	XNKU 06...	⛭
181151600	035R16320-06-07-M16035	6	35	M16	29	35	0,17	1,00	XNKU 06...	⛭
181151700	040R16320-05-07-M16045	5	40	M16	29	45	0,24	1,00	XNKU 06...	⛭
181178500	040R16320-06-07-M16035	6	40	M16	29	35	0,23	1,00	XNKU 06...	⛭
181151800	042R16320-07-07-M16035	7	42	M16	29	35	0,24	1,00	XNKU 06...	⛭

⛭ Stock item | Produto de stock | Itens de stock

◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)



Weldon Shank

KAPR=20° | GAMP=-7° | RP=1,8

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications	Insert	Stock
			DC	DCONMS	LF	LU		APMX (mm)		
181161000	016W16320-02-07-016150	2	16	16	150	50	0,19	1,00	XNKU 06...	⛭
181151900	020W16320-03-07-020160	3	20	20	160	90	0,29	1,00	XNKU 06...	⛭
181152000	025W16320-04-07-025180	4	25	25	180	100	0,40	1,00	XNKU 06...	⛭
181152100	032W16320-05-07-032200	5	32	32	200	120	1,10	1,00	XNKU 06...	⛭

⛭ Stock item | Produto de stock | Itens de stock

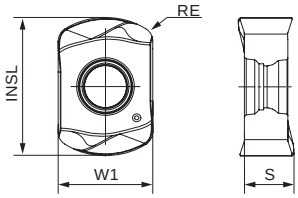
◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

TETRAFEED 16320

XNKU 06T3... Inserts | Pastilhas | Plaquitas

XNKU-MP

XNKU-MS



XNKU-MP | MS

		P					M				K		S			Dimensions Dimensões Dimensiones (mm)			
		CVD	PVD				CVD	PVD			CVD	PVD	CVD	PVD					
	(2) Grade code	T9	X5	T1	P4	Z2	T9	X9	Z2	Z3	T9	T1	T9	X9	Z3				
(1) Geometry code	ISO Reference	PHS740	PHP910	PHP920	PHP930	PHP530	PHS740	PHH1930	PHP530	PHH1530	PHS740	PHP920	PHS740	PHH1930	PHH1530	W1	S	INSL	RE
1112802	XNKU 06T310-MP	◎	◎	◎	◎		◎	◎			◎	◎	◎	◎		6,85	3,60	10,00	1,00
1113209	XNKU 06T310-MS					◎			◎	◎					◎	6,85	3,60	10,00	1,00

◎ First choice | Primeira opção | 1ª opción ◎ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

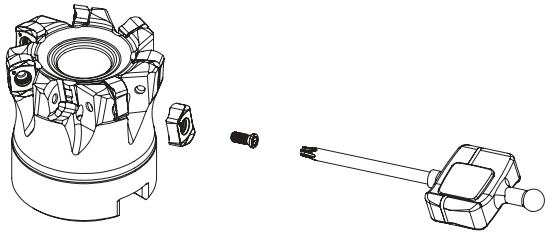
Insert order code = (1) Geometry Code + (2) Grade Code

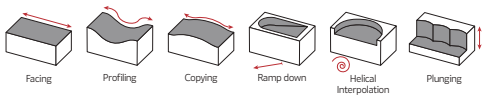
SPARE PARTS Acessórios | Repuestos

Order separately

Cutter DC	Insert Screw	Key (Torx)	Key (Torx - Nm)	Torque Value
A16320 - 32-80	P0250704	XT08	DT0812	1,20
R16320 - 20-42	P0250704	XT08	DT0812	1,20
W16320 - 20-32	P0250704	XT08	DT0812	1,20

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.





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)	
				PHP910	PHP920	PHP930	PHH930	PHS740	PHP530	PHH530	XNKU 06...-MP	XNKU 06...-MS
P	1	Unalloyed Steel	125-220	180-250	180-250	160-230	-	160-230	180-340	-	0,50-1,50	0,50-1,50
	2	Low-Alloyed Steel	220-280	160-240	170-210	150-190	-	150-190	180-340	-	0,50-1,50	0,50-1,50
	3	High-Alloyed Steel	280-380	140-230	160-200	140-180	-	140-180	180-330	-	0,50-1,50	0,50-1,50
M	4	SS - Ferritic / Martensitic	200-330	-	-	-	130-170	120-180	150-270	170-280	0,50-1,40	0,50-1,40
	5	SS - Austenitic	200-330	-	-	-	100-160	100-150	-	160-280	0,50-1,40	0,50-1,40
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	-	-	80-140	70-130	-	150-260	0,50-1,40	0,50-1,40
K	7	Malleable Cast Iron	130-230	180-300	180-320	-	-	160-300	-	-	0,50-1,50	-
	8	Grey Cast Iron	180-245	160-250	170-280	-	-	150-260	-	-	0,50-1,50	-
	9	Nodular Cast iron	160-250	150-210	100-240	-	-	80-220	-	-	0,50-1,50	-
S	11	Heat Resistant Super Alloys	200-320	-	-	-	30-75	30-70	-	30-150	0,50-1,30	0,50-1,30

(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) When using DC=16mm apply 70% or less feed (fz) from the table.

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

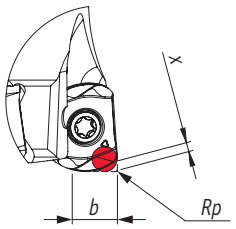
ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance						Toughness →
				PHP910	PHP920	PHP930	PHH930	PHS740	PHP530	PHH530
P	1	Unalloyed Steel	125-220	✓	✓	✓		✓	✓	
	2	Low-Alloyed Steel	220-280	✓	✓	✓		✓	✓	
	3	High-Alloyed Steel	280-380	✓	✓	✓		✓	✓	
M	4	SS - Ferritic / Martensitic	200-330				✓	✓	✓	✓
	5	SS - Austenitic	200-330				✓	✓		✓
	6	SS - Austenitic-ferritic (Duplex)	230-260				✓	✓		✓
K	7	Malleable Cast Iron	130-230	✓	✓			✓		
	8	Grey Cast Iron	180-245	✓	✓			✓		
	9	Nodular Cast iron	160-250	✓	✓			✓		
S	11	Heat Resistant Super Alloys	200-320				✓	✓		✓

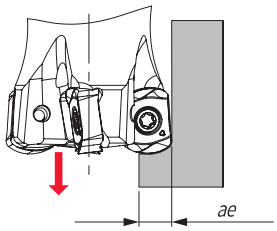
Good Conditions Average Conditions Difficult Conditions

TETRAFEED 16320

PROGRAMMING DATA Dados para programação | Datos para la programación

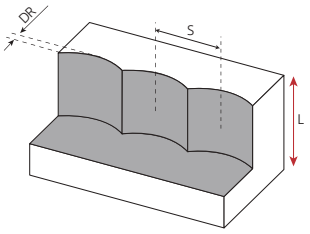
Insert	Programming Data			
	Rp	X	b	a_e
XNKU 06T3...	1,8	0,4	3,6	3,4





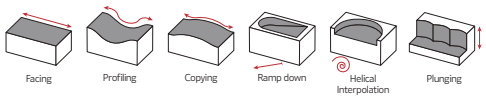
PLUNGING Mergulho | Plunge

L≤3DC	L>3DC	S max.
f_z (mm/t)		
0,08-0,15	0,05 - 0,10	$Smax = \sqrt{DC.Dr-Dr^2}$



S max and DR corresponding cutting diameter DC (mm)											
DR (mm)	DC (mm) XNKU 06...										
	16	20	25	32	35	40	42	50	52	60	80
1	3,9	4,4	4,9	5,6	5,8	6,2	6,4	7,0	7,1	7,9	8,9
2	5,3	6,0	6,8	7,7	8,1	8,7	8,9	9,8	10,0	11,0	12,5
3	6,2	7,1	8,1	9,3	9,8	10,5	10,8	11,9	12,1	13,4	15,2

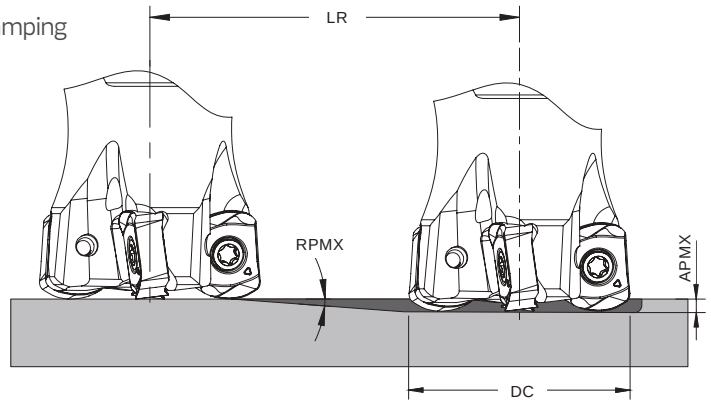
Note: Recommended for L ≤ 4 Dc for extra long tool this step and side cut must be reduced.



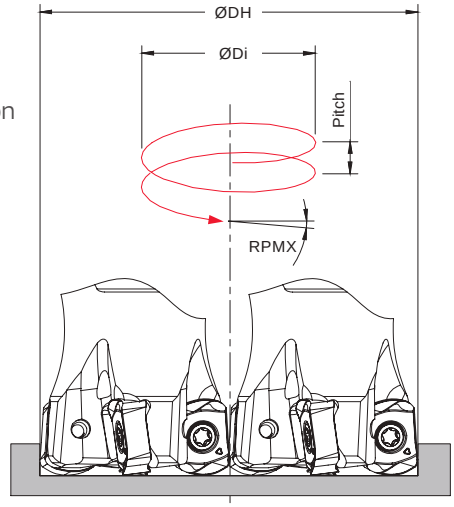
RAMPING AND HELICAL INTERPOLATION

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

Ramping



Helical Interpolation



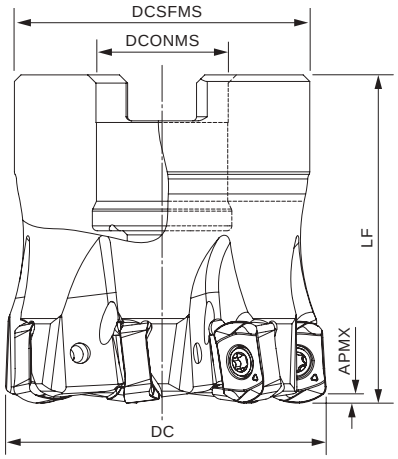
Blind hole
Flat bottom

ØDi = ØDH - DC

DC	Ramping			Helical Interpolation		
	RPMX	APMX	Min LR	ØDHmin	ØDHmax	Max Pitch/Rev.
16	2,00	1	28,6	24,8 - 28,4	-	0,96 1,00
20	1,30	1	44,1	32,8 - 36,4	-	0,91 1,00
25	0,90	1	63,7	42,8 - 46,4	-	0,87 1,00
32	0,65	1	88,1	56,8 - 60,4	-	0,88 1,00
35	0,55	1	104,2	62,8 - 66,4	-	0,83 0,94
40	0,50	1	114,6	72,8 - 76,4	-	0,89 0,99
42	0,45	1	127,3	76,8 - 80,4	-	0,85 0,94
50	0,35	1	163,7	92,8 - 96,4	-	0,82 0,89
52	0,35	1	163,7	96,8 - 100,4	-	0,85 0,92
63	0,30	1	191,0	118,8 - 122,4	-	0,91 0,97
80	0,20	1	286,5	152,8 - 156,4	-	0,79 0,83

Note: During helical interpolation do not exceed APMX.
(*) Down cutting is recommended, tool pass rotation should be counter-clockwise.
(*) In case of ramping and helical interpolation, apply 70% or less feed (fz) from recommended cutting conditions table.

NEW TETRAFEED 16420



Arbor Mounting

KAPR=20° | GAMP=-7° | RP=3,2

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications		Insert	Stock
			DC	DCONMS	DCSFMS	LF		Arbor Type	APMX (mm)		
181169300	050A16420-04-07-022045	4	50	22	42	45	0,28	A	1,50	XNKU 12...	◈
181180100	050A16420-05-07-022045	5	50	22	42	45	0,31	A	1,50	XNKU 12...	◈
181178400	052A16420-04-07-022045	4	52	22	42	45	0,33	A	1,50	XNKU 12...	◈
181180200	052A16420-05-07-022045	5	52	22	42	45	0,33	A	1,50	XNKU 12...	◈
181180300	063A16420-05-07-027050	5	63	27	48	50	0,51	A	1,50	XNKU 12...	◈
181180400	063A16420-06-07-027050	6	63	27	48	50	0,52	A	1,50	XNKU 12...	◈
181180500	066A16420-05-07-027050	5	66	27	48	50	0,54	A	1,50	XNKU 12...	◈
181180600	066A16420-06-07-027050	6	66	27	48	50	0,55	A	1,50	XNKU 12...	◈
181177900	080A16420-06-07-027050	6	80	27	60	50	0,94	A	1,50	XNKU 12...	◈
181180700	080A16420-08-07-027050	8	80	27	60	50	0,95	A	1,50	XNKU 12...	◈
181180800	100A16420-06-07-032050	6	100	32	80	50	1,21	A	1,50	XNKU 12...	○
181180900	100A16420-08-07-032050	8	100	32	80	50	1,24	A	1,50	XNKU 12...	◈

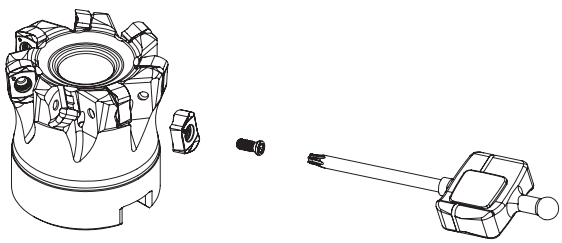
◈ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

SPARE PARTS Acessórios | Repuestos

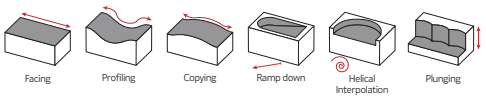
Order separately

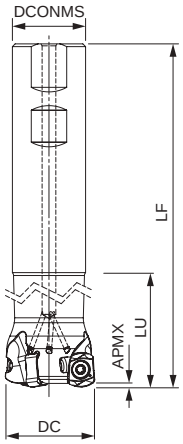
Cutter DC	Insert Screw	Key (Torx)	Key (Torx - Nm)	Torque Value
			Nm	Nm
A16420 - 50-80	P0451400	XT20	DT2050	5,0
A16420 - 100	P0451400	PT20	DT2050	5,0
W16420 - 32-40	P0451400	XT20	DT2050	5,0

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.



TETRAFEED 16420
XNKU 12





Weldon Shank

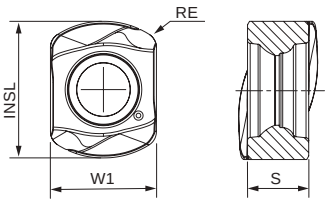
KAPR=20° | GAMP=-7° | RP=3,2

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications	Insert	Stock
			DC	DCONMS	LF	LU		APMX (mm)		
181181000	032W16420-02-07-032150	2	32	32	150	70	0,80	1,50	XNKU 12...	◈
181181100	032W16420-02-07-032200	2	32	32	200	120	1,10	1,50	XNKU 12...	○
181181200	035W16420-02-07-032150	2	35	32	150	45	0,90	1,50	XNKU 12...	○
181181300	035W16420-02-07-032200	2	35	32	200	45	1,20	1,50	XNKU 12...	○
181181400	040W16420-03-07-032150	3	40	32	150	45	1,10	1,50	XNKU 12...	○
181181500	040W16420-03-07-032220	3	40	32	220	45	1,40	1,50	XNKU 12...	◈

◈ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

XNKU 1205... Inserts | Pastilhas | Plaquitas

XNKU-MP



XNKU-MP | MS

		P					M				K		S			Dimensions Dimensões Dimensiones (mm)			
		CVD	PVD				CVD	PVD			CVD	PVD	CVD	PVD					
	(2) Grade code	T9	X5	T1	P4	Z2	T9	X9	Z2	Z3	T9	T1	T9	X9	Z3				
(1) Geometry code	ISO Reference	PHS740	PHP910	PHP920	PHP930	PHP530	PHS740	PHH930	PHP530	PHH530	PHS740	PHP920	PHS740	PHH930	PHH530	W1	S	INSL	RE
1113071	XNKU 120516-MP	◈	◈	◈	○		◈	◈			◈	◈	◈	◈		11,70	5,90	15,00	1,60

◈ First choice | Primeira opção | 1ª opción ◈ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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

NEW TETRAFEED 16420

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)
				PHP910	PHP920	PHP930	PHH930	PHS740	XNKU 12...-MP
P	1	Unalloyed Steel	125-220	180-250	180-250	160-230	-	160-230	0,50-1,50
	2	Low-Alloyed Steel	220-280	160-240	170-210	150-190	-	150-190	0,50-1,50
	3	High-Alloyed Steel	280-380	140-230	160-200	140-180	-	140-180	0,50-1,50
M	4	SS - Ferritic / Martensitic	200-330	-	-	-	130-170	120-180	0,50-1,40
	5	SS - Austenitic	200-330	-	-	-	100-160	100-150	0,50-1,40
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	-	-	80-140	70-130	0,50-1,40
K	7	Malleable Cast Iron	130-230	180-300	180-320	-	-	160-300	0,50-1,50
	8	Grey Cast Iron	180-245	160-250	170-280	-	-	150-260	0,50-1,50
	9	Nodular Cast iron	160-250	150-210	100-240	-	-	80-220	0,50-1,50
S	11	Heat Resistant Super Alloys	200-320	-	-	-	30-75	30-70	0,50-1,30

(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) When using DC=16mm apply 70% or less feed (fz) from the table.

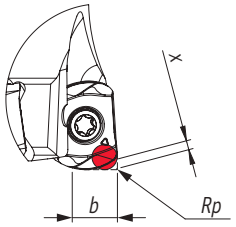
GRADES SELECTION GUIDE Guia para selecção de graus | Tabla para selección de calidades

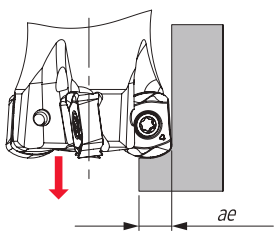
ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance				Toughness →
				PHP910	PHP920	PHP930	PHH930	PHS740
P	1	Unalloyed Steel	125-220	✓	✓	✓		✓
	2	Low-Alloyed Steel	220-280	✓	✓	✓		✓
	3	High-Alloyed Steel	280-380	✓	✓	✓		✓
M	4	SS - Ferritic / Martensitic	200-330				✓	✓
	5	SS - Austenitic	200-330				✓	✓
	6	SS - Austenitic-ferritic (Duplex)	230-260				✓	✓
K	7	Malleable Cast Iron	130-230	✓	✓			✓
	8	Grey Cast Iron	180-245	✓	✓			✓
	9	Nodular Cast iron	160-250	✓	✓			✓
S	11	Heat Resistant Super Alloys	200-320				✓	✓

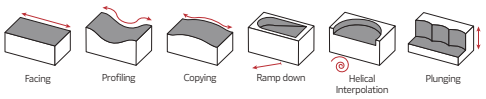
Good Conditions Average Conditions Difficult Conditions

PROGRAMMING DATA Dados para programação | Datos para la programación

Insert	Programming Data			
	Rp	X	b	a_e
XNKU 1206...	3,2	0,65	7,5	7,1

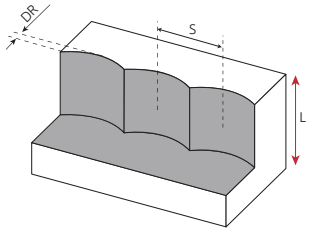






PLUNGING Mergulho | Plunge

L≤3DC	L>3DC	S max.
f_z (mm/t)		
0,10-0,15	0,05 - 0,10	$Smax = \sqrt{DC.Dr-Dr^2}$



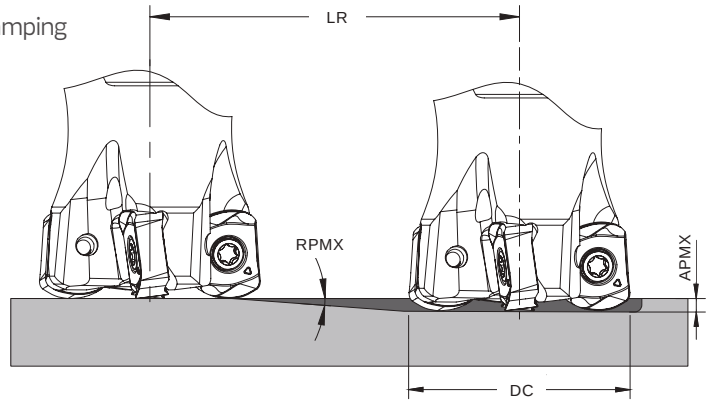
S max and DR corresponding cutting diameter DC (mm)									
DR (mm)	DC (mm)								
	32	35	40	50	52	63	66	80	100
1	5,6	5,8	6,2	7,0	7,1	7,9	8,1	8,9	9,9
2	7,7	8,1	8,7	9,8	10,0	11,0	11,3	12,5	14,0
3	9,3	9,8	10,5	11,9	12,1	13,4	13,7	15,2	17,1
4	10,6	11,1	12,0	13,6	13,9	15,4	15,7	17,4	19,6
5	11,6	12,2	13,2	15,0	15,3	17,0	17,5	19,4	21,8
6	12,5	13,2	14,3	16,2	16,6	18,5	19,0	21,1	23,7
7	13,2	14,0	15,2	17,3	17,7	19,8	20,3	22,6	25,5

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

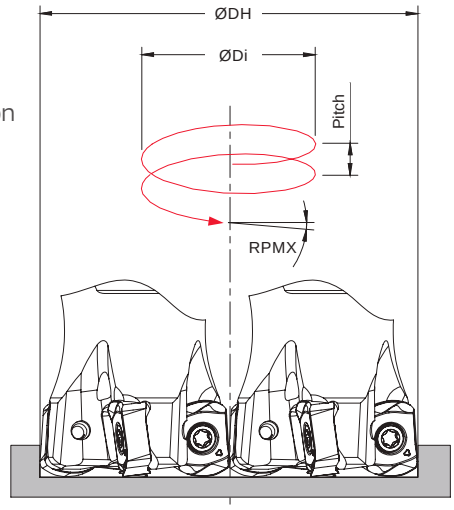
RAMPING AND HELICAL INTERPOLATION

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

Ramping



Helical Interpolation



Blind hole
Flat bottom

ØDi = ØDH - DC

DC	Ramping			Helical Interpolation		
	RPMX	APMX	Min LR	ØDHmin	ØDHmax	Max Pitch/Rev.
32	1,25	1,5	68,7	49 -	- 57,6	1,16 1,50
35	1,1	1,5	78,1	55 -	- 63,6	1,20 1,50
40	0,85	1,5	101,1	65 -	- 73,6	1,16 1,50
50	0,6	1,5	143,2	85 -	- 93,6	1,15 1,43
52	0,55	1,5	156,3	89 -	- 97,6	1,11 1,37
63	0,45	1,5	191,0	111 -	- 119,6	1,18 1,39
66	0,4	1,5	214,9	117 -	- 125,6	1,11 1,30
80	0,3	1,5	286,5	145 -	- 153,6	1,06 1,21
100	0,25	1,5	343,8	185 -	- 193,6	1,16 1,28

Note: During helical interpolation do not exceed APMX.
(*) Down cutting is recommended, tool pass rotation should be counter-clockwise.
(*) In case of ramping and helical interpolation, apply 70% or less feed (fz) from recommended cutting conditions table.

06320

PENTA HIFEED

PENTA HIFEED features five positive cutting edges designed for high-feed applications with low cutting forces. This optimization enhances machining efficiency while also maintaining a long tool life.

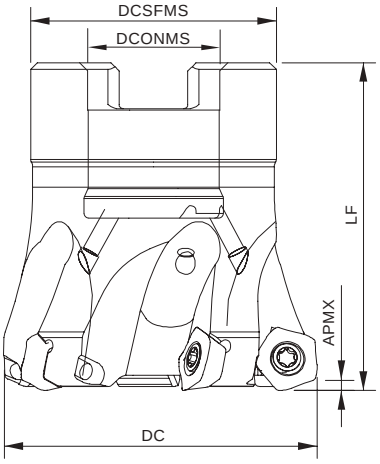
A PENTA HIFEED possui cinco arestas de corte positivas projetadas para aplicações de alto avanço com baixas forças de corte. Essa otimização melhora a eficiência da fresagem, mantendo também uma longa vida útil da ferramenta.

PENTA HIFEED cuenta con cinco filos de corte positivos diseñados para aplicaciones de alto avance con bajas fuerzas de corte. Esta optimización mejora la eficiencia del fresado, manteniendo también una larga vida útil de la herramienta.

PENTA HIFEED 06320 > page 90

- From DC 16mm to 66mm
  De DC 16mm a 66mm | Desde DC 16mm hasta 66mm
- Available in arbor mounting, threaded coupling and cylindrical shank
  Disponível em montagem tipo árvore, acoplamento roscado e haste cilíndrica | Disponible en fijación con tornillo central, fijación roscada y mango cilíndrico
- Positive insert with 5 cutting edges
  Pastilhas positivas com 5 arestas de corte | Insertos positivas con 5 filos de corte
- Low cutting forces
  Baixas forças de corte | Bajas fuerzas de corte

PENTA HIFEED 06320

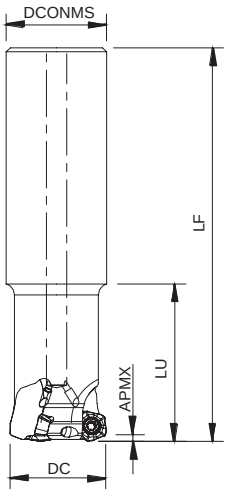


Arbor Mounting

KAPR=20° | GAMP=14° | RP=2,5

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications		Insert	Stock
			DC	DCONMS	DCSFMS	LF		APMX (mm)	Arbor Type		
181129300	040A06320-05-14-016040	5	40	16	30	40	0,15	1,0	A	POKT 0403...	◈
181129400	050A06320-06-14-022045	6	50	22	40	45	0,19	1,0	A	POKT 0403...	◈
181129500	052A06320-06-14-022045	6	52	22	40	45	0,29	1,0	A	POKT 0403...	◈
181129600	063A06320-07-14-027050	7	63	27	48	50	0,50	1,0	A	POKT 0403...	○
181131300	066A06320-07-14-027050	7	66	27	48	50	0,55	1,0	A	POKT 0403...	○

◈ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)



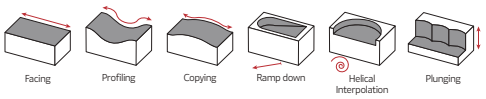
Cylindrical Shank

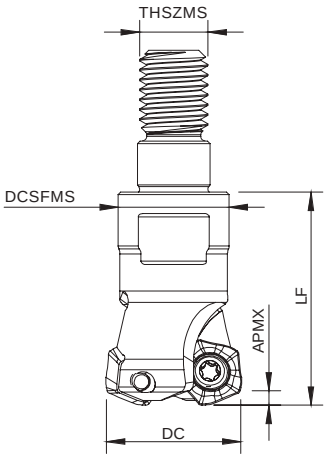
KAPR=20° | GAMP=14° | RP=2,5

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications	Insert	Stock
			DC	DCONMS	LF	LU		APMX (mm)		
181147200	020E06320-02-14-020130	2	20	20	130	40	0,38	1,0	POKT 0403...	◈
181131000	025E06320-03-14-025150	3	25	25	150	40	0,41	1,0	POKT 0403...	◈
181131100	032E06320-05-14-032180	5	32	32	180	40	0,56	1,0	POKT 0403...	◈
181131200	040E06320-05-14-032180	5	40	32	180	50	0,70	1,0	POKT 0403...	○

◈ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

PENTA HIFEED 06320
POKT 04





Threaded Coupling

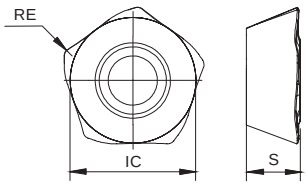
KAPR=20° | GAMP=14° | RP=2,5

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications	Insert	Stock
			DC	THSZMS	DCSFMS	LF		APMX (mm)		
181113500	016R06320-02-14-M08025	2	16	M08	13	25	0,02	1,0	POKT 0403...	◈
181113600	020R06320-02-14-M10025	2	20	M10	18	25	0,05	1,0	POKT 0403...	◈
181113700	025R06320-03-14-M12028	3	25	M12	21	28	0,07	1,0	POKT 0403...	◈
181129100	032R06320-05-14-M16035	5	32	M16	29	35	0,17	1,0	POKT 0403...	◈
181129200	035R06320-05-14-M16035	5	35	M16	29	35	0,19	1,0	POKT 0403...	◈
181130900	042R06320-05-14-M16035	5	42	M16	29	35	0,23	1,0	POKT 0403...	◈

◈ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

POKT 0403... Inserts | Pastilhas | Plaquitas

POKT-MP



POKT-MP

		P				K		Dimensions Dimensões Dimensiones (mm)		
		PVD				PVD				
	(2) Grade code	G1	G4	P3	G6	G1	G4			
(1) Geometry code	ISO Reference	PH7910	PH7920	PH7930	PH7740	PH7910	PH7920	IC	S	RE
1112365	POKT 040305 ZDSR-MP	◈	◈	◈	◈	◈	◈	7,00	3,00	0,50

◈ First choice | Primeira opção | 1ª opción ◈ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

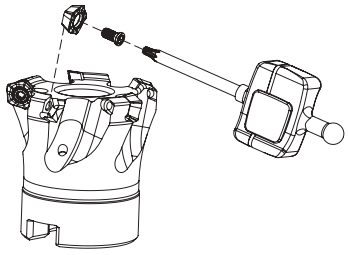
Insert order code = (1) Geometry Code + (2) Grade Code

PENTA HIFEED 06320

SPARE PARTS Acessórios | Repuestos

Order separately

Cutter DC	Insert Screw	Key (Torx)	Key (Torx - Nm)	Torque Value
R06320 - 16-42	P0250503	XT08	DT0812	1,20
E06320 - 25-40	P0250503	XT08	DT0812	1,20
A06320 - 40-60	P0250503	XT08	DT0812	1,20



Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.

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

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance			Toughness →
				PH7910	PH7920	PH7930	PH7740
P	1	Unalloyed Steel	125-220	✓	✓	✓	✓
	2	Low-Alloyed Steel	220-280	✓	✓	✓	✓
	3	High-Alloyed Steel	280-380	✓	✓	✓	✓
K	7	Malleable Cast Iron	130-230	✓	✓		
	8	Grey Cast Iron	180-245	✓	✓		
	9	Nodular Cast iron	160-250	✓	✓		

Good Conditions Average Conditions Difficult Conditions

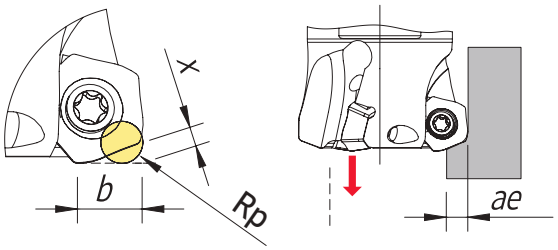
RECOMMENDED CUTTING CONDITIONS Condições de corte recomendadas | Condiciones de corte recomendables

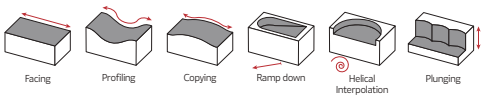
ISO	PSM	Material	HB (Brinell)	Vc (m/min) ← Wear Resistance			Toughness →	Feed fz (mm/t)
				PH7910	PH7920	PH7930	PH7740	POKT 04...-MP
P	1	Unalloyed Steel	125-220	180-250	180-240	160-220	140-200	0,50-1,50
	2	Low-Alloyed Steel	220-280	160-230	160-220	140-200	130-180	0,50-1,51
	3	High-Alloyed Steel	280-380	140-220	140-210	120-190	100-170	0,50-1,52
K	7	Malleable Cast Iron	130-230	180-300	160-260	-	-	0,50-1,53
	8	Grey Cast Iron	180-245	160-250	140-240	-	-	0,50-1,54
	9	Nodular Cast iron	160-250	150-200	120-200	-	-	0,50-1,55

(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.

PROGRAMMING DATA Dados para programação | Datos para la programación

Insert	Programming Data			
	Rp	X	b	a_e
POKT 0403...	2,5	1,2	4,3	4,0

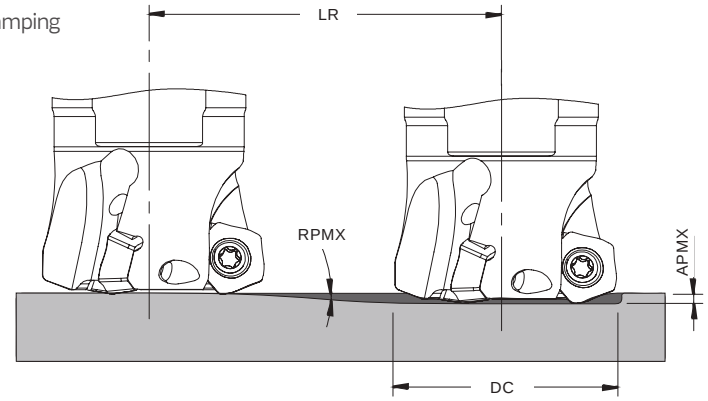




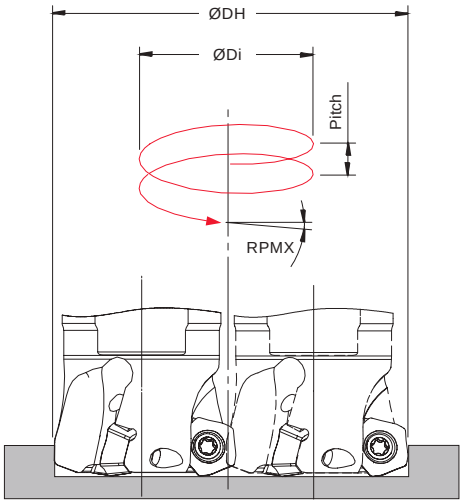
RAMPING AND HELICAL INTERPOLATION

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

Ramping



Helical Interpolation



Blind hole
Flat bottom

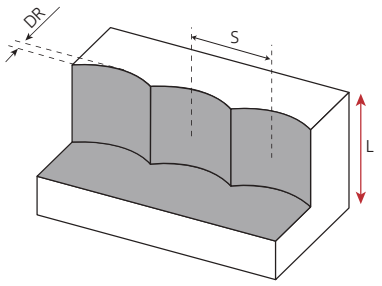
ØDi = ØDH - DC

DC	Ramping			Helical Interpolation		
	RPMX	APMX	Min LR	ØDHmin	ØDHmax	Max Pitch/Rev.
16	15	1,0	3,7	23,4 -	- 30,0	6 11
20	9,0	1,0	6,3	31,4 -	- 38,0	5 8
25	5,0	1,0	11,4	41,4 -	- 48,0	4 6
32	3,4	1,0	16,8	55,4 -	- 62,0	4 5
35	3,0	1,0	19,1	61,4 -	- 68,0	4 5
40	2,0	1,0	28,6	71,4 -	- 78,0	3 4
42	2,0	1,0	28,6	84,0 -	- 82,0	4 4
50	2,0	1,0	28,6	91,4 -	- 98,0	4 5
52	2,0	1,0	28,6	95,4 -	- 102,0	4 5
63	2,0	1,0	28,6	117,4 -	- 124,0	5 6
66	1,8	1,0	31,8	123,4 -	- 130,0	5 6

Note: During helical interpolation do not exceed APMX.

PLUNGING Mergulho | Plunge

L≤3DC	L>3DC	S max.
f_z (mm/t)		
0,08-0,15	0,05 - 0,10	$Smax = \sqrt{DC.Dr-Dr^2}$



S max and DR corresponding cutting diameter DC (mm)											
DR (mm)	DC (mm)										
	16	20	25	32	35	40	42	50	52	63	66
1,0	3,9	4,4	4,9	5,7	5,8	6,2	6,4	7,0	7,1	7,9	8,1
2,0	5,3	6,0	6,8	2,7	8,1	8,7	8,9	9,8	10,0	11,0	11,3
3,0	6,2	7,1	8,1	9,3	9,8	10,5	10,8	11,9	12,1	13,4	13,7
4,0	6,9	8,0	9,2	10,6	11,1	12,0	12,3	13,6	13,9	15,4	15,7

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

06410 | 06690 | 06815

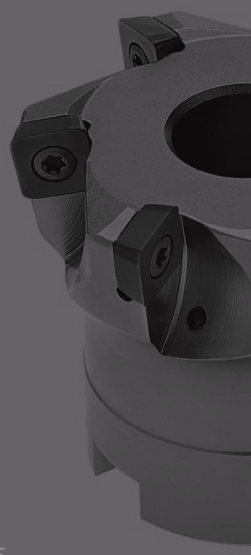
HIFEED

Designed for efficient rough milling across diverse materials in industries like die & mold, aerospace and automotive, HIFEED line spans a broad spectrum of applications. These applications include milling slots and pockets, helical interpolation strategies and plunging. Presenting an effective solution for boosting productivity in rough milling operations, excellent for mold and die industry.

Projetada para fresagem de desbaste eficiente em diversos materiais em indústrias como matrizes e moldes, aeroespacial e automóvel, a linha HIFEED abrange um amplo espectro de aplicações. Essas aplicações incluem fresagem de ranhuras e caixas, estratégias de interpolação helicoidal e fresagem em mergulho. Apresentando uma solução eficaz para aumentar a produtividade em operações de fresagem de desbaste é excelente para a indústria de moldes e matrizes.

Diseñada para un fresado de desbaste eficiente en diversos materiales en industrias como matrices y moldes, aeroespacial y automotriz, la línea HIFEED abarca un amplio espectro de aplicaciones. Estas aplicaciones incluyen fresado de ranuras y cavidades, estrategias de interpolación helicoidal y fresado en rampa. Presentando una solución efectiva para aumentar la productividad en operaciones de fresado de desbaste, es excelente para la industria de matrices y moldes.

HIFEED 06410 > page 96



- From DC 20mm to 52mm
  De DC 20mm a 52mm | Desde DC 20mm hasta 52mm
- Available in arbor mounting, threaded coupling and weldon shank
  Disponível em montagem tipo árvore, acoplamento roscado e haste weldon | Disponible en fijación con tornillo central, fijación roscada y mango tipo weldon
- Small positive insert with 4 cutting edges (SO.. 0803..)
  Pequena pastilha positiva com 4 arestas de corte (SO.. 0803..) | Plaquita positiva pequeña con 4 filos de corte (SO.. 0803..)
- For high productivity in small workpieces
  Para alta produtividade em pequenas peças de trabalho | Para alta productividad en piezas de trabajo pequeñas

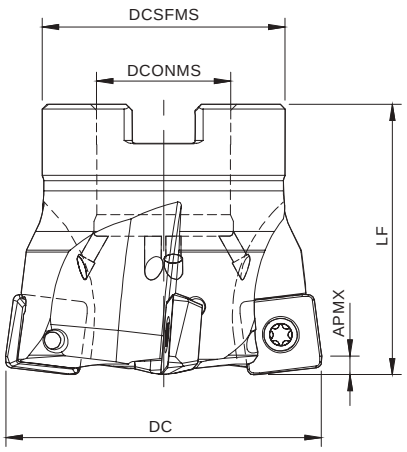
HIFEED 06690 > page 102

- From DC 32mm to 100mm
  De DC 32mm a 100mm | Desde DC 32mm hasta 100mm
- Available in arbor mounting and threaded coupling
  Disponível em montagem tipo árvore e acoplamento roscado | Disponible en fijación con tornillo central y roscada
- Medium positive insert with 4 cutting edges (SO.. 13M5..)
  Pastilha positiva média com 4 arestas de corte (SO.. 13M5..) | Plaquita positiva media con 4 filos de corte (SO.. 13M5..)
- Strong and reliable insert
  Pastilha forte e fiável | Plaquita fuerte y confiable

HIFEED 06815 > page 108

- From DC 63mm to 160mm
  De DC 63mm a 160mm | Desde DC 63mm hasta 160mm
- Available in arbor mounting and weldon shank
  Disponível em montagem tipo árvore e haste weldon | Disponible en fijación con tornillo central y mango tipo weldon
- Large positive insert with 4 cutting edges (SO.. 1605..)
  Pastilha positiva grande com 4 arestas de corte (SO.. 1605..) | Plaquita positiva grande con 4 filos de corte (SO.. 1605..)
- For high removal rate materials
  Para altas taxas de remoção de material | Para una alta tasa de remoción de material

HIFEED 06410



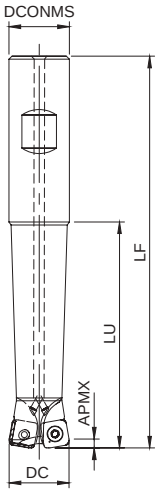
Arbor Mounting

KAPR=10° | GAMP=+2° | GAMF =+2° | RP=2,0

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications		Insert Pastilha Inserto	Stock
			DC	DCONMS	DCSFMS	LF		Arbor Type	APMX (mm)		
181149800	040A06410-05-02-016040	5	40	16	30	40	0,157	A	1,00	SO...0803...	ⓢ
181153200	050A06410-06-02-022045	6	50	22	40	45	0,312	A	1,00	SO...0803...	ⓢ
181149900	052A06410-06-02-022045	6	52	22	40	45	0,331	A	1,00	SO...0803...	ⓢ

ⓢ Stock item | Produto de stock | Itens de stock

◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)



Weldon Shank

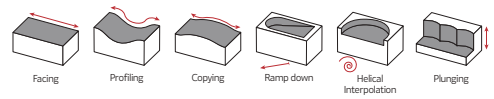
KAPR=10° | GAMP=+2° | GAMF =+2° | RP=2,0

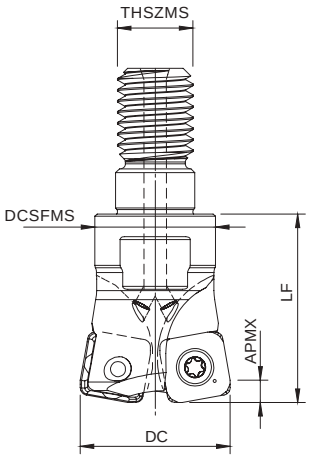
Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications	Insert Pastilha Inserto	Stock
			DC	DCONMS	LF	LU		APMX (mm)		
181076300	020W06410-02-02-020130	2	20	20	130	75	0,360	1,00	SO...0803...	ⓢ
181080900	020W06410-02-02-020190	2	20	20	190	110	0,340	1,00	SO...0803...	ⓢ
181076400	025W06410-03-02-025140	3	25	25	140	80	0,410	1,00	SO...0803...	ⓢ
181081100	025W06410-03-02-025200	3	25	25	200	130	0,570	1,00	SO...0803...	ⓢ
181076500	032W06410-04-02-032150	4	32	32	150	90	0,760	1,00	SO...0803...	ⓢ
181081300	032W06410-04-02-032200	4	32	32	200	130	1,010	1,00	SO...0803...	ⓢ

ⓢ Stock item | Produto de stock | Itens de stock

◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

HIFEED 06410
SOEW 08 | SOET 08





Threaded Coupling

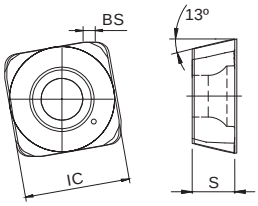
KAPR=10° | GAMP=+2° | GAMF =+2° | RP=2,0

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications	Insert Pastilha Inserto	Stock
			DC	THSZMS	DCSFMS	LF		APMX (mm)		
181071900	020R06410-02-02-M10025	2	20	M10	16	25	0,040	1,00	SO...0803...	◈
181076600	025R06410-03-02-M12028	3	25	M12	21	28	0,070	1,00	SO...0803...	◈
181076700	032R06410-04-02-M16035	4	32	M16	29	35	0,160	1,00	SO...0803...	◈
181076800	035R06410-04-02-M16035	4	35	M16	29	35	0,180	1,00	SO...0803...	◈
181076900	042R06410-05-02-M16035	5	42	M16	29	35	0,220	1,00	SO...0803...	◈

◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

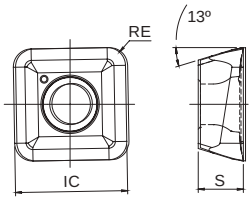
SO...0803... Inserts | Pastilhas | Plaquitas

SOEW



SOEW

SOET



SOET

		P			M			K			S			Dimensions Dimensões Dimensiones (mm)			
		PVD			PVD			PVD			PVD						
	(2) Grade code	X5	T1	G6	X9	4H	G6	X5	T1	G6	X9	4H	G6				
(1) Geometry code	ISO Reference	PHP910	PHP920	PH7740	PHH930	PHF530	PH7740	PHP910	PHP920	PH7740	PHH930	PHF530	PH7740	IC	S	RE	BS
1111884	SOEW 080310 S	◈	◈					◈	◈					8,60	3,47	1,0	1,0
1112149	SOET 080315-MS			◈	◈	◈	◈			◈	◈	◈	◈	8,60	3,47	1,5	-

◈ First choice | Primeira opção | 1ª opción ◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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

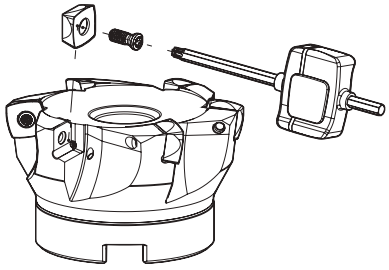
HIFEED 06410

SPARE PARTS Acessórios | Repuestos

Order separately

Cutter DC	Insert Screw	Key (Torx)	Key (Torx - Nm)	Torque Value
A06410 – 40 - 52	P0300800	XT09	DT0914	1,4
R06410 – 20 - 42	P0300800	XT09	DT0914	1,4
W06410 – 20 - 32	P0300800	XT09	DT0914	1,4

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.



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

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance — Toughness → PHP910	PHP920	PHH930	PHF530	PH7740
P	1	Unalloyed Steel	125-220	✓	✓			✓
	2	Low-Alloyed Steel	220-280	✓	✓			✓
	3	High-Alloyed Steel	280-380	✓	✓			✓
M	4	SS - Ferritic / Martensitic	200-330			✓	✓	✓
	5	SS - Austenitic	200-330			✓	✓	✓
	6	SS - Austenitic-ferritic (Duplex)	230-260			✓	✓	✓
K	7	Malleable Cast Iron	130-230	✓	✓			✓
	8	Grey Cast Iron	180-245	✓	✓			✓
	9	Nodular Cast iron	160-250	✓	✓			✓
S	11	Heat Resistant Super Alloys	200-320			✓	✓	✓

Good Conditions Average Conditions Difficult Conditions

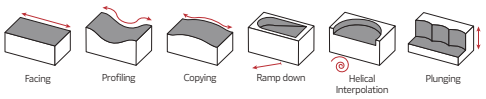
RECOMMENDED CUTTING CONDITIONS Condições de corte recomendadas | Condiciones de corte recomendables

ISO	PSM	Material	HB (Brinell)	Vc (m/min) ← Wear Resistance — Toughness → PHP910	PHP920	PHH930	PHF530	PH7740	Feed fz (mm/t) SOEW 08...	SOET 08...
P	1	Unalloyed Steel	125-220	180-250	180-250	-	-	140-200	0,40-1,80	0,40-1,80
	2	Low-Alloyed Steel	220-280	160-240	160-230	-	-	130-180	0,40-1,80	-
	3	High-Alloyed Steel	280-380	140-230	140-220	-	-	100-170	0,40-1,50	-
M	4	SS - Ferritic / Martensitic	200-330	-	-	140-210	140-250	130-180	-	0,40-1,30
	5	SS - Austenitic	200-330	-	-	120-170	130-240	110-160	-	0,40-1,30
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	-	100-150	120-220	90-150	-	0,10-1,00
K	7	Malleable Cast Iron	130-230	180-300	160-270	-	-	-	0,40-1,80	0,40-1,80
	8	Grey Cast Iron	180-245	160-250	140-250	-	-	-	0,40-1,80	-
	9	Nodular Cast iron	160-250	150-210	120-210	-	-	-	0,40-1,80	-
S	11	Heat Resistant Super Alloys	200-320			30-110	30-150	30-100	-	0,40-1,00

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

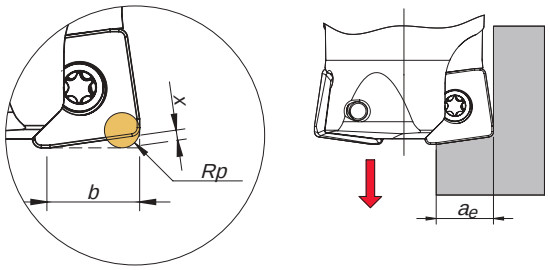


CHIP BREAKER SELECTION GUIDE Guia para aplicações do quebra-aparas | Guía para aplicación del rompevirutas

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

PROGRAMMING DATA Dados para programação | Datos para la programación

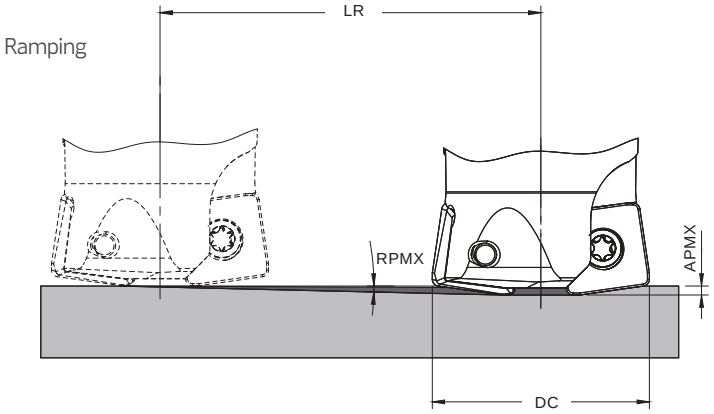
Insert	Programming Data			
	Rp	X	b	a_e
SO... 0803..	2,0	0,8	6,8	6,3

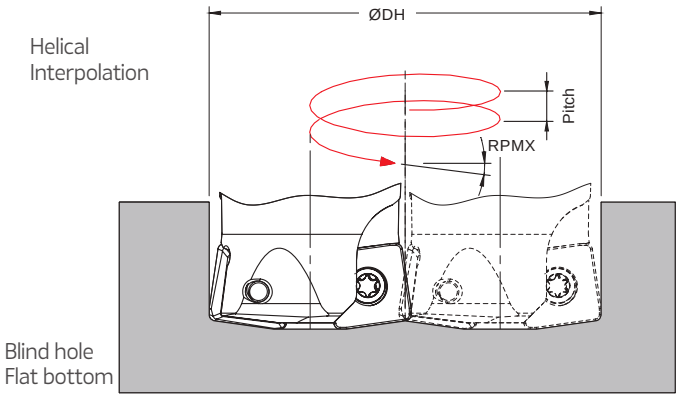


HIFEED 06410

RAMPING AND HELICAL INTERPOLATION

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

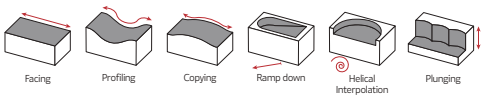




ØDi = ØDH - DC

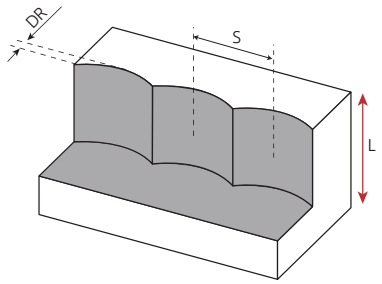
DC	Ramping			Helical Interpolation		
	RPMX	APMX	Min LR	ØDHmin	ØDHmax	Max Pitch/Rev.
20	15	1,0	3,2	26,4 -	- 38,0	6 17
25	9,5	1,0	6,0	36,4	- 48,0	5 12
32	5,5	1,0	10,4	50,4 -	- 62,0	5 9
35	4,5	1,0	12,7	56,4 -	- 68,0	5 8
40	3,5	1,0	16,3	66,4 -	- 80,0	5 7
42	3,5	1,0	16,3	70,4 -	- 82,0	5 7
50	3,5	1,0	16,3	86,4 -	- 100,0	6 9
52	3,5	1,0	16,3	90,4 -	- 104,0	7 9

Note: During helical interpolation do not exceed APMX.



PLUNGING Mergulho | Plunge

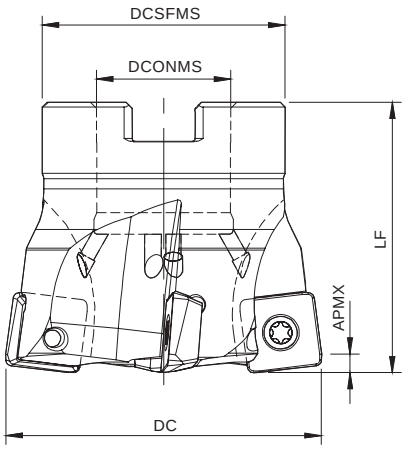
L≤3DC	L>3DC	S max.
f_z (mm/t)		
0,08-0,15	0,05-0,10	$Smax = \sqrt{DC.DR-DR^2}$



S max and DR corrsponding cutting diameter DC (mm)								
DR (mm)	DC (mm)							
	20	25	32	35	40	42	50	52
1,0	4,4	4,9	5,6	5,8	6,2	6,4	7,0	7,1
2,0	6,0	6,8	7,7	8,1	8,7	8,9	9,8	10,0
3,0	7,1	8,1	9,3	9,8	10,5	10,8	11,9	12,1
4,0	8,0	9,2	10,6	11,1	12,0	12,3	13,6	13,9
5,0	8,7	10,0	11,6	12,2	13,2	13,6	15,0	15,3
6,0	9,2	10,7	12,5	13,2	14,3	14,7	16,2	16,6

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

HIFEED 06690



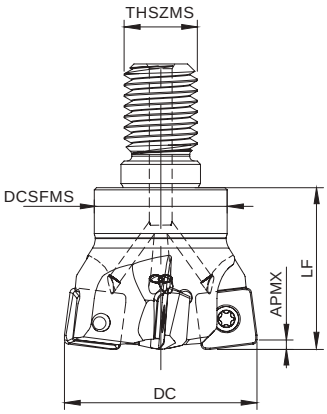
Arbor Mounting

KAPR=10º | GAMP=+5º | RP=2,5

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications		Insert Pastilha Inserto	Stock
			DC	DCONMS	DCSFMS	LF		Arbor Type	APMX (mm)		
181069100	050A06690-04-05-022045	4	50	22	40	45	0,274	A	1,50	SO...13M5...	◈
181111100	050A06690-05-05-022045	5	50	22	40	45	0,272	A	1,50	SO...13M5...	◈
181029800	052A06690-04-05-022045	4	52	22	40	45	0,290	A	1,50	SO...13M5...	◈
181033500	063A06690-05-05-027050	5	63	27	48	50	0,500	A	1,50	SO...13M5...	◈
181029900	066A06690-05-05-027050	5	66	27	48	50	0,550	A	1,50	SO...13M5...	◈
181030000	080A06690-06-05-027050	6	80	27	60	50	0,955	A	1,50	SO...13M5...	◈
181113100	100A06690-08-05-032050*	8	100	32	70	50	1,500	A	1,50	SO...13M5...	◈

◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

* For shank assembly a DIN 6912 screw is needed.

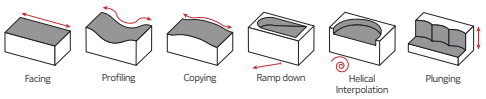


Threaded Coupling

KAPR=10º | GAMP=+5º | RP=2,5

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications	Insert Pastilha Inserto	Stock
			DC	THSZMS	DCSFMS	LF		APMX (mm)		
181038700	032R06690-03-05-M16035	3	32	M16	29	35	0,145	1,50	SO...13M5	◈
181064600	035R06690-03-05-M16035	3	35	M16	29	35	0,163	1,50	SO...13M5	◈
181038800	042R06690-04-05-M16035	4	42	M16	29	35	0,194	1,50	SO...13M5	◈

◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

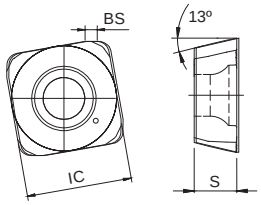


SO...13M5... Inserts | Pastilhas | Plaquitas

SOEW

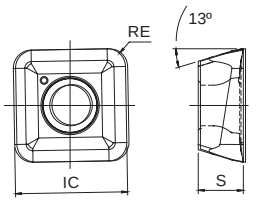
SOEW-MD

NEW SOEW-MP



SOEW

SOET-MS



SOET

		P			M			K			S			Dimensions Dimensões Dimensiones (mm)			
		PVD			PVD			PVD			PVD						
	(2) Grade code	X5	T1	G6	X9	4H	G6	X5	T1	G6	X9	4H	G6				
(1) Geometry code	ISO Reference	PHP910	PHP920	PH7740	PHH930	PHF530	PH7740	PHP910	PHP920	PH7740	PHH930	PHF530	PH7740	IC	S	RE	BS
1111906	SOEW 13M510 S	◉	◉	◉				◉	◉	◉				12,43	5,00	1,20	1,0
1112813	SOEW 13M510-MD		◉						◉					12,43	5,00	1,20	1,0
1113533	SOEW 13M520-MP		◉						◉					12,45	5,00	2,00	1,0
1112147	SOET 13M520-MS	○		◉	◉	◉	◉			◉	◉	◉	◉	12,43	5,00	2,00	-

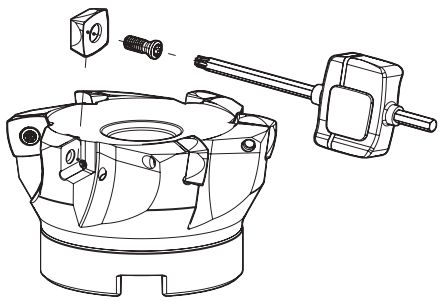
◉ First choice | Primeira opção | 1ª opción ◉ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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

SPARE PARTS Acessórios | Repuestos

Order separately

Cutter DC	Insert Screw	Key (Torx)	Key (Torx - Nm)	Torque Value	Retaining Screw
R06690 – 32 - 42	P0401200	XT15	DT1530	3,0	-
A06690 – 50 - 80	P0401200	XT15	DT1530	3,0	-
A06690 – 100	P0401200	XT15	DT1530	3,0	D1603500



Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.

HIFEED 06690

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

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance				Toughness →
				PHP910	PHP920	PHH930	PHF530	PH7740
P	1	Unalloyed Steel	125-220	✓	✓			✓
	2	Low-Alloyed Steel	220-280	✓	✓			✓
	3	High-Alloyed Steel	280-380	✓	✓			✓
M	4	SS - Ferritic / Martensitic	200-330			✓	✓	✓
	5	SS - Austenitic	200-330			✓	✓	✓
	6	SS - Austenitic-ferritic (Duplex)	230-260			✓	✓	✓
K	7	Malleable Cast Iron	130-230	✓	✓			✓
	8	Grey Cast Iron	180-245	✓	✓			✓
	9	Nodular Cast iron	160-250	✓	✓			✓
S	11	Heat Resistant Super Alloys	200-320			✓	✓	✓

Good Conditions Average Conditions Difficult Conditions

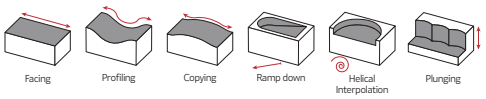
RECOMMENDED CUTTING CONDITIONS Condições de corte recomendadas | Condiciones de corte recomendables

ISO	PSM	Material	HB (Brinell)	Vc (m/min) ← Wear Resistance				Toughness →	Feed fz (mm/t)			
				PHP910	PHP920	PHH930	PHF530	PH7740	SOEW S	SOEW MD	SOEW MP	SOET MS
P	1	Unalloyed Steel	125-220	180-250	180-250	-	-	140-200	0,50-2,10	0,50-2,20	0,50-2,20	0,50-2,10
	2	Low-Alloyed Steel	220-280	160-240	160-230	-	-	130-180	0,50-2,10	0,50-2,20	0,50-2,20	-
	3	High-Alloyed Steel	280-380	140-230	140-220	-	-	100-170	0,50-2,00	0,50-2,10	0,50-2,10	-
M	4	SS - Ferritic / Martensitic	200-330	-	-	140-210	140-250	130-180	-	-	-	0,50-1,80
	5	SS - Austenitic	200-330	-	-	120-170	130-240	110-160	-	-	-	0,50-1,80
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	-	100-150	120-220	90-150	-	-	-	0,50-1,50
K	7	Malleable Cast Iron	130-230	180-300	160-270	-	-	140-220	0,50-2,10	0,50-2,20	0,50-2,20	0,50-2,10
	8	Grey Cast Iron	180-245	160-250	140-250	-	-	120-210	0,50-2,10	0,50-2,20	0,50-2,20	-
	9	Nodular Cast iron	160-250	150-210	120-210	-	-	100-190	0,50-2,10	0,50-2,20	0,50-2,20	-
S	11	Heat Resistant Super Alloys	200-320	-	-	30-110	30-150	30-100	-	-	-	0,40-1,30

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

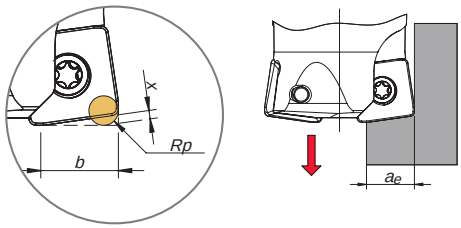


CHIP BREAKER SELECTION GUIDE Guia para aplicações do quebra-aparas | Guía para aplicación del rompevirutas

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

PROGRAMMING DATA Dados para programação | Datos para la programación

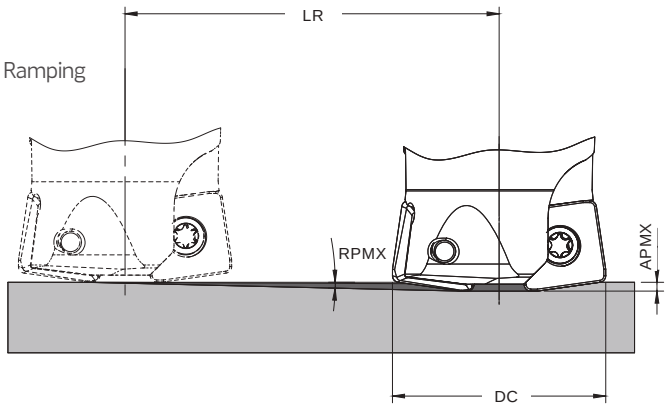
Insert	Programming Data			
	Rp	X	b	a_e
SO... 13M5..	2,5	1,1	10,5	10,0
SOEW 13M520-MP	3,0	0,9	9,2	8,7

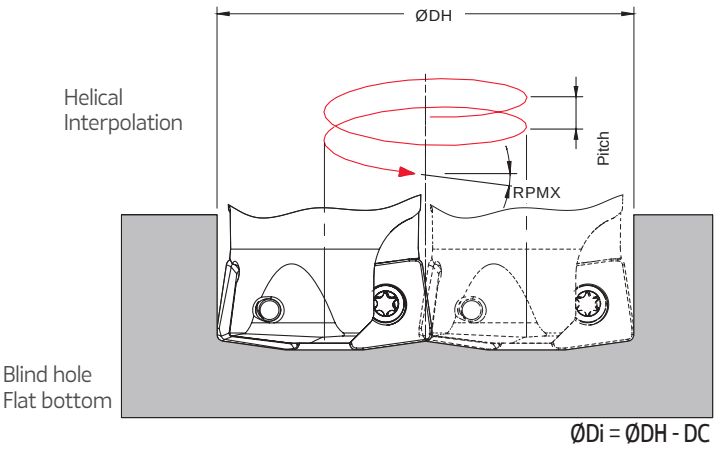


HIFEED 06690

RAMPING AND HELICAL INTERPOLATION

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

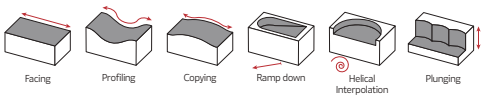




ØDi = ØDH - DC

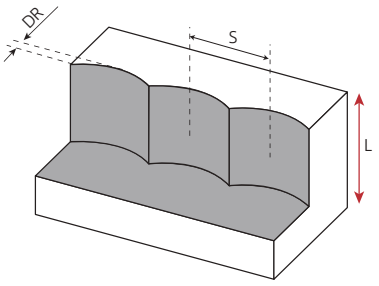
DC	Ramping			Helical Interpolation		
	RPMX	APMX	Min LR	ØDHmin	ØDHmax	Max Pitch/Rev.
32	10,0	1,5	6,0	43 -	- 62,0	6 16
35	9,0	1,5	9,5	49 -	- 68,0	6 16
42	6,4	1,5	13,4	63 -	- 82,0	7 14
50	4,3	1,5	19,9	79 -	- 98,0	6 11
52	4,0	1,5	21,5	83 -	- 102,0	6 10
63	3,0	1,5	28,6	105 -	- 124,0	6 10
66	2,6	1,5	33,0	111 -	- 130,0	6 9
80	2,0	1,5	43,0	139 -	- 158,0	6 8
100	1,0	1,5	85,9	179 -	- 198,0	4 5

Note: During helical interpolation do not exceed APMX.



PLUNGING Mergulho | Plunge

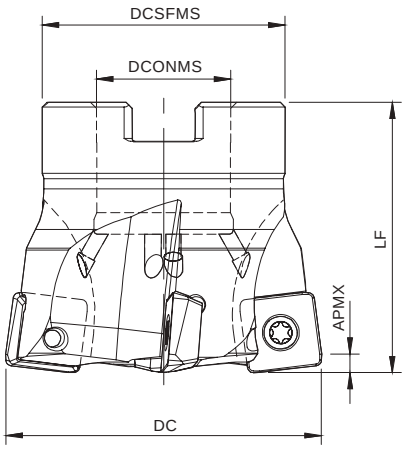
L≤3DC	L>3DC	S max.
f_z (mm/t)		
0,10-0,20	0,07-0,14	$Smax = \sqrt{DC.DR-DR^2}$



S max and DR corresponding cutting diameter DC (mm)								
DR (mm)	DC (mm)							
	32	35	42	50	52	63	66	80
1,0	5,6	5,8	6,4	7,0	7,1	7,9	8,1	8,9
2,0	7,7	8,1	8,9	9,8	10,0	11,0	11,3	12,5
3,0	9,3	9,8	10,8	11,9	12,1	13,4	13,7	15,2
4,0	10,6	11,1	12,3	13,6	13,9	15,4	15,7	17,4
5,0	11,6	12,2	13,6	15,0	15,3	17,0	17,5	19,4
6,0	12,5	13,2	14,7	16,2	16,6	18,5	19,0	21,1
7,0	13,2	14,0	15,7	17,3	17,7	19,8	20,3	22,6
8,0	13,9	14,7	16,5	18,3	18,8	21,0	21,5	24,0
9,0	14,4	15,3	17,2	19,2	19,7	22,0	22,6	25,3
10,0	14,8	15,8	17,9	20,2	20,5	23,0	23,7	26,5

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

HIFEED 06815



Arbor Mounting

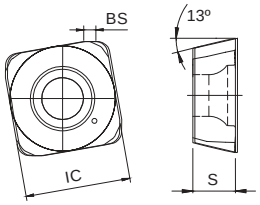
KAPR=15º | GAMP=+2º | RP=4,5

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications		Insert Pastilha Inserto	Stock
			DC	DCONMS	DCSFMS	LF		Arbor Type	APMX (mm)		
181100400	063A06815-05-02-027050	5	63	27	48	50	0,460	A	3,50	SO...1605...	◈
181081900	066A06815-05-02-027050	5	66	27	48	50	0,500	A	3,50	SO...1605...	◈
181082000	080A06815-06-02-027050	6	80	27	60	50	0,900	A	3,50	SO...1605...	◈
181082100	100A06815-08-02-032050	8	100	32	80	50	1,600	B	3,50	SO...1605...	◈
181082200	125A06815-10-02-040063	10	125	40	90	63	2,900	B	3,50	SO...1605...	◈
181082300	160A06815-12-02-U040063	12	160	40	110	63	4,400	C	3,50	SO...1605...	◈

◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

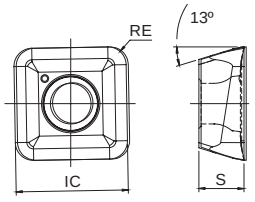
SO...1605... Inserts | Pastilhas | Plaquitas

SOEW



SOEW

SOET

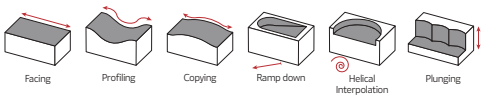


SOET

		P			M		K			S		Dimensions Dimensões Dimensiones (mm)			
		PVD			PVD		PVD			PVD					
	(2) Grade code	X5	T1	G6	X9	G6	X5	T1	G6	X9	G6				
(1) Geometry code	ISO Reference	PHP910	PHP920	PH7740	PHH930	PH7740	PHP910	PHP920	PH7740	PHH930	PH7740	IC	S	RE	BS
1111907	SOEW 160512 S	◈	◈	◈		◈	◈	◈	◈			16,40	5,26	1,20	1,50
1112221	SOET 160520-MS			◈	◈	◈			◈	◈	◈	16,40	5,26	2,00	-

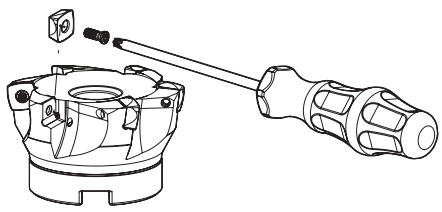
◈ First choice | Primeira opção | 1ª opción ◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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



SPARE PARTS Acessórios | Repuestos

Cutter DC	Insert Screw	Key (Torx)	Key (Torx - Nm) Order separately	Torque Value	Screw Order separately	DIN 6368 Wrench
A06815 - 63-80	P0501302	PT20	DT2050	5,0	-	-
A06815 - 100	P0501302	PT20	DT2050	5,0	J0123510	SD6368-12
A06815 – 125	P0501302	PT20	DT2050	5,0	J0164110	SD6368-16
A06815 – 160	P0501302	PT20	DT2050	5,0	-	-



Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.

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

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance — Toughness → PHP910	PHP920	PHH930	PH7740
P	1	Unalloyed Steel	125-220	✓	✓		✓
	2	Low-Alloyed Steel	220-280	✓	✓		✓
	3	High-Alloyed Steel	280-380	✓	✓		✓
M	4	SS - Ferritic / Martensitic	200-330			✓	✓
	5	SS - Austenitic	200-330			✓	✓
	6	SS - Austenitic-ferritic (Duplex)	230-260			✓	✓
K	7	Malleable Cast Iron	130-230	✓	✓		✓
	8	Grey Cast Iron	180-245	✓	✓		✓
	9	Nodular Cast iron	160-250	✓	✓		✓
S	11	Heat Resistant Super Alloys	200-320			✓	✓

Good Conditions Average Conditions Difficult Conditions

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

ISO	PSM	Material	HB (Brinell)	Vc (m/min) ← Wear Resistance — Toughness → PHP910	PHP920	PHH930	PH7740	Feed fz (mm/t) SOEW S...	SOET MS...
P	1	Unalloyed Steel	125-220	180-250	180-250	-	140-200	0,50-2,10	0,50-2,20
	2	Low-Alloyed Steel	220-280	160-240	160-230	-	130-180	0,50-2,10	0,50-2,20
	3	High-Alloyed Steel	280-380	140-230	140-220	-	100-170	0,50-2,00	0,50-1,80
M	4	SS - Ferritic / Martensitic	200-330	-	-	140-210	130-180	-	0,50-1,80
	5	SS - Austenitic	200-330	-	-	120-170	110-160	-	0,50-1,80
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	-	100-150	90-150	-	0,50-1,50
K	7	Malleable Cast Iron	130-230	180-300	160-270	-	140-220	0,50-2,10	0,50-2,00
	8	Grey Cast Iron	180-245	160-250	140-250	-	120-210	0,50-2,10	0,50-2,00
	9	Nodular Cast iron	160-250	150-210	120-210	-	100-190	0,50-2,10	0,50-1,80
S	11	Heat Resistant Super Alloys	200-320	-	-	30-110	30-100	-	0,40-1,30

(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) 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.

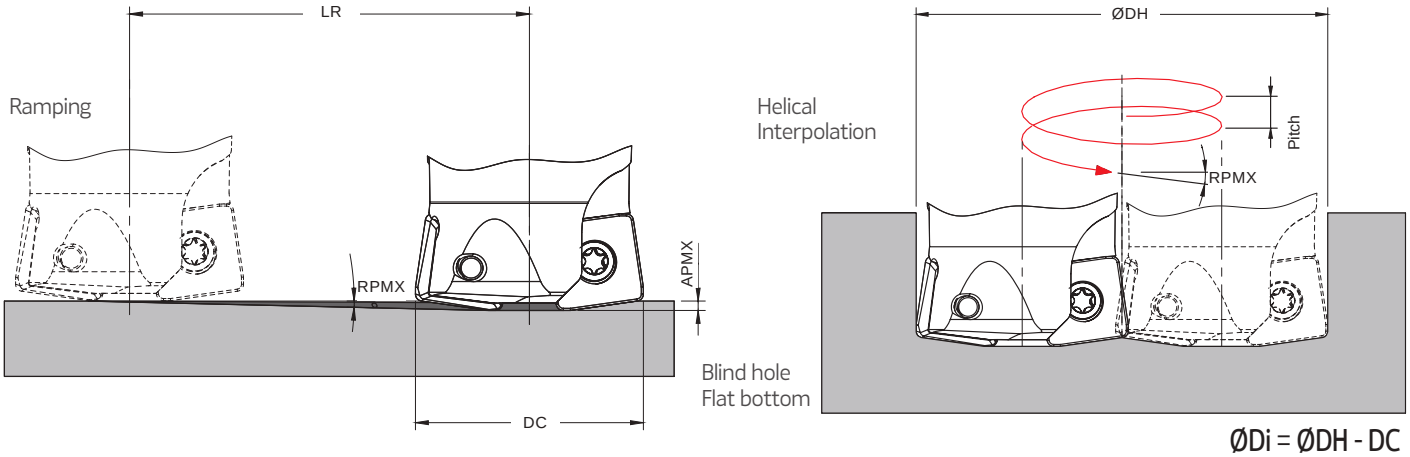
HIFEED 06815

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

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

RAMPING AND HELICAL INTERPOLATION

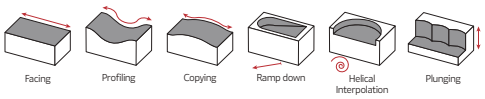
Descida em rampa e interpolação helicoidal | Bajada en rampa e interpolación circular



ØDi = ØDH - DC

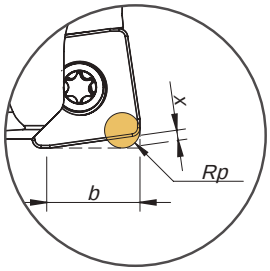
DC	Ramping			Helical Interpolation		
	RPMX	APMX	Min LR	ØDHmin	ØDHmax	Max Pitch/Rev.
63	3,5	3,5	80,2	99,0 -	- 123,6	6 11
66	3,0	3,5	66,8	105 -	- 129,6	6 10
80	2,0	3,5	100,2	133 -	- 157,5	5 8
100	1,5	3,5	133,7	173 -	- 197,5	6 8
125	1,0	3,5	200,5	223 -	- 247,5	5 6
160	0,5	3,5	401,1	293 -	- 317,5	3 4

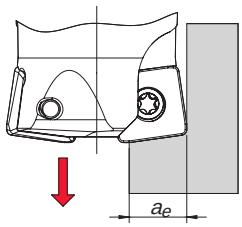
Note: During helical interpolation do not exceed APMX.



PROGRAMMING DATA Dados para programação | Datos para la programación

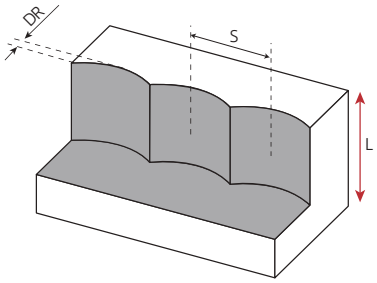
Insert	Programming Data			
	Rp	X	b	a_e
SO... 1605..	4,5	2,3	13,5	12,8





PLUNGING Mergulho | Plunge

L≤3DC	L>3DC	S max.
f_z (mm/t)		
0,10-0,20	0,07-0,14	$Smax = \sqrt{DC.DR-DR^2}$



S max and DR corresponding cutting diameter DC (mm)		
DR (mm)	DC (mm)	
	66	80
1,0	8,1	8,9
2,0	11,3	12,5
3,0	13,7	15,2
4,0	15,7	17,4
5,0	17,5	19,4
6,0	19,0	21,1
7,0	20,3	22,6
8,0	21,5	24,0
9,0	22,6	25,3
10,0	23,7	26,5
11,0	24,6	27,5
12,0	25,5	28,6

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

50560 | 50060

HIFEED

The HIFEED line featuring three cutting edges excels in high overhang applications, demonstrating exceptional stability and performance. Its curved design mitigates vibration and enhances tool longevity, making them ideal for challenging machining tasks.

A linha HIFEED, com três arestas de corte, destaca-se em aplicações de elevada profundidade, demonstrando estabilidade e desempenho excepcionais. Seu design curvo reduz a vibração e melhora a longevidade da ferramenta, tornando-as ideais para tarefas de fresagem desafiadoras.

La línea HIFEED, con tres filos de corte, sobresale en aplicaciones de alta profundidad, demostrando una estabilidad y rendimiento excepcionales. Su diseño curvado reduce la vibración y mejora la longevidad de la herramienta, haciéndolas ideales para tareas de fresado desafiantes.

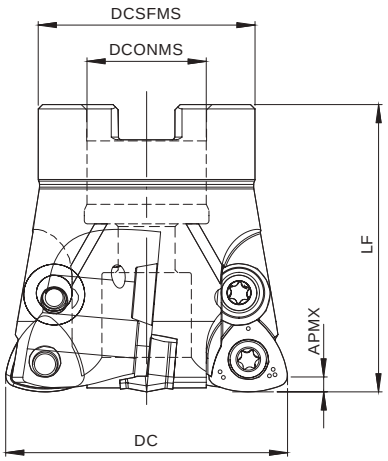
HIFEED 50560 > page 114

- From DC 52mm to 80mm
  De DC 52mm a 80mm | Desde DC 52mm hasta 80mm
- Available in arbor mounting
  Disponível em montagem tipo árvore | Disponible en fijación con tornillo central
- Screw and Washer
  Parafuso e Anilha | Tornillo y Arandela

HIFEED 50060 > page 118

- From DC 35mm to 80mm
  De DC 35mm a 80mm | Desde DC 35mm hasta 80mm
- Available in arbor mounting and threaded coupling
  Disponível em montagem tipo árvore e acoplamento roscado | Disponible en fijación con tornillo central y roscada
- Excellent in high overhang aplications
  Excelente em aplicações de elevada profundidade | Excelente en aplicaciones con una gran longitud

HIFEED 50560



Arbor Mounting

KAPR=45° | GAMP=+20°~+21°

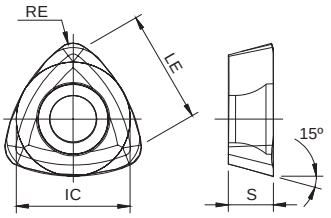
Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications		Insert Pastilha Inserto	Stock
			DC	DCONMS	DCSFMS	LF		Arbor Type	APMX (mm)		
181020800	052C50560-04-05-022053	4	52	22	40	53	0,390	A	1,5	WD... 1204...	◈
181172400	063C50560-05-05-027053	5	63	27	48	53	0,590	A	1,5	WD... 1204...	◈
181020200	066C50560-05-05-027053	5	66	27	48	53	0,640	A	1,5	WD... 1204...	◈
181020300	080C50560-06-05-027053	6	80	27	60	53	1,060	A	1,5	WD... 1204...	◈

◈ Stock item | Produto de stock | Itens de stock

◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

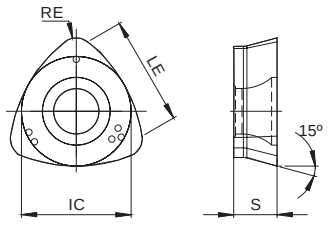
WD... 1204... Inserts | Pastilhas | Plaquitas

WDET



WDET

WDMW



WDMW

		P			M		K		S		Dimensions Dimensões Dimensiones (mm)			
		PVD			PVD		PVD		PVD					
	(2) Grade code	G4	P3	G6	P3	G6	G4	G6	P3	G6				
(1) Geometry code	ISO Reference	PH7920	PH7930	PH7740	PH7930	PH7740	PH7920	PH7740	PH7930	PH7740	IC	S	LE	RE
1112148	WDET 120420-MS		◈	◈	◈	◈			◈	◈	12,00	4,76	11,9	2,00
1111123	WDMW 120420-T	◈		◈			◈	◈			12,00	4,76	11,9	2,00

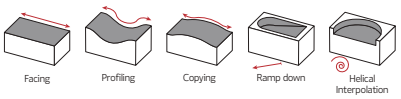
◈ First choice | 1ª Escolha | 1ª Opción

◈ Stock Itens | Itens de stock

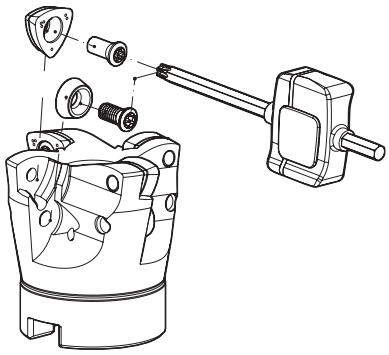
◬ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

◯ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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



SPARE PARTS Acessórios | Repuestos



Cutter DC	Insert Screw	Key (Torx)	Key (Torx - Nm) *Order separately*	Torque Value	Washer *Order separately*	Washer Screw
A50560 – 52 - 80	P0451001	XT20	DT2050	5,0	HC01200	P0451001

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.

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

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

Good Conditions Average Conditions Difficult Conditions

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

ISO	PSM	Material	HB (Brinell)	Chip breaker application 1st choice	Dificult Operations
P	1	Unalloyed Steel	125-220	WDET 12...	WDMW 12...
	2	Low-Alloyed Steel	220-280	WDMW 12...	-
	3	High-Alloyed Steel	280-380	WDMW 12...	-
M	4	SS - Ferritic / Martensitic	200-330	WDET 12...	-
	5	SS - Austenitic	200-330	WDET 12...	-
	6	SS - Austenitic-ferritic (Duplex)	230-260	WDET 12...	-
K	7	Malleable Cast Iron	130-230	WDMW 12...	-
	8	Grey Cast Iron	180-245	WDMW 12...	-
	9	Nodular Cast iron	160-250	WDMW 12...	-
S	11	Heat Resistant Super Alloys	200-320	WDET 12...	-

HIFEED 50560

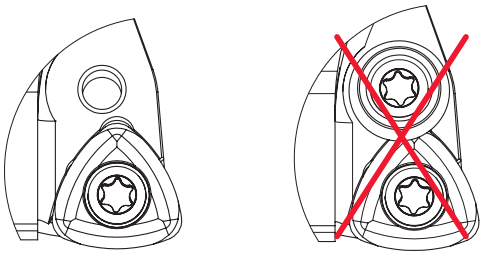
RECOMMENDED CUTTING CONDITIONS Condições de corte recomendadas | Condiciones de corte recomendables

ISO	PSM	Material	HB (Brinell)	Vc (m/min) ← Wear Resistance Toughness →				Feed fz (mm/t)	
				PH7910	PH7920	PH7930	PH7740	WDMW 12...	WDET 12...
P	1	Unalloyed Steel	125-220	180-250	180-240	160-220	140-200	0,30-1,50	0,30-1,30
	2	Low-Alloyed Steel	220-280	160-230	160-220	140-200	130-180	0,30-1,50	0,30-1,30
	3	High-Alloyed Steel	280-380	140-220	140-210	120-190	100-170	0,30-1,30	0,30-1,00
M	4	SS - Ferritic / Martensitic	200-330			140-200	130-180	-	0,30-1,30
	5	SS - Austenitic	200-330			120-160	110-160	-	0,30-1,30
	6	SS - Austenitic-ferritic (Duplex)	230-260			100-140	90-150	-	0,30-1,00
K	7	Malleable Cast Iron	130-230	180-300	160-260		140-220	0,30-1,50	-
	8	Grey Cast Iron	180-245	160-250	140-240		120-210	0,30-1,50	-
	9	Nodular Cast iron	160-250	150-200	120-200		100-190	0,30-1,40	-
S	11	Heat Resistant Super Alloys	200-320	-	-	30-100	30-100	-	0,30-1,00

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

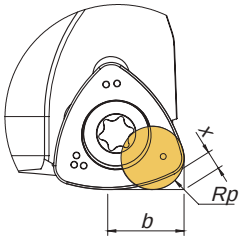
(Note 2) It's possible to occur vibrations in certain cases. Please reduce depth of cut and / or reduce cutting conditions in following cases:
- When using long shank;
- When using long tool overhang with arbor type;
- When application has poor clamping rigidity or when using a low rigidity machine.

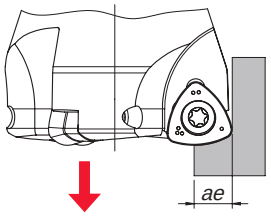
When using WDET insert, please remove the washer and the washer screw, otherwise it will break the insert.

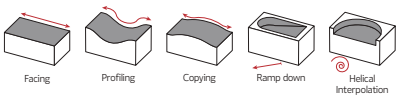


PROGRAMMING DATA Dados para programação | Datos para la programación

Insert	Programming Data			
	Rp	x	b	a_e
WD... 1204	3,2	0,7	7,2	7,0



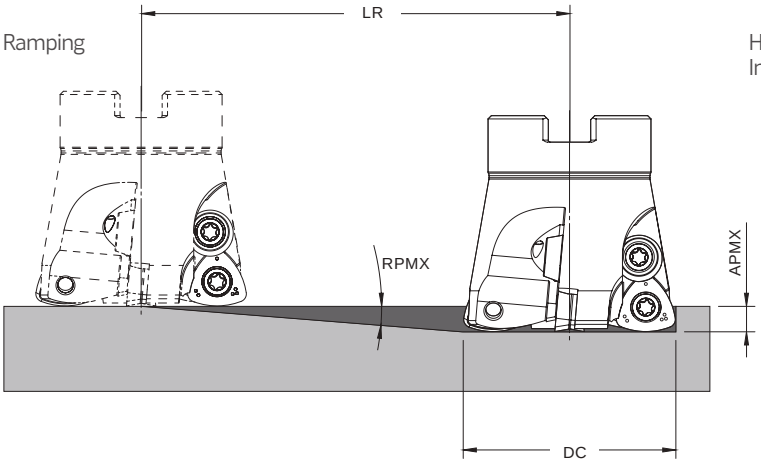




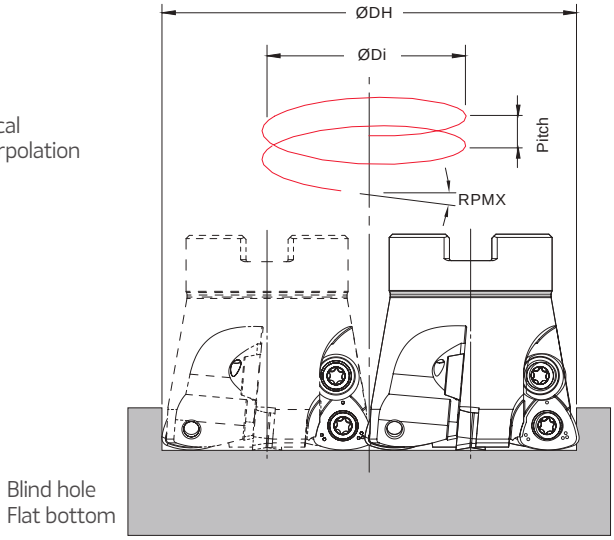
RAMPING AND HELICAL INTERPOLATION

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

Ramping



Helical Interpolation



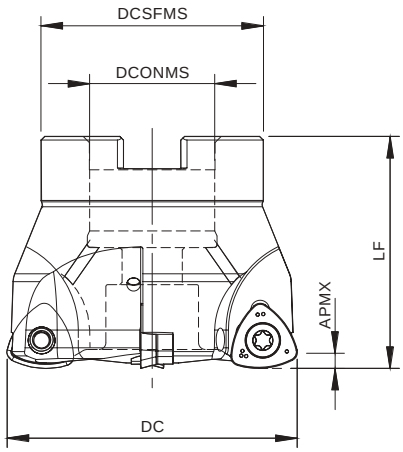
Blind hole
Flat bottom

ØDi = ØDH - DC

DC	Ramping			Helical Interpolation		
	RPMX	APMX	Min LR	ØDHmin	ØDHmax	Max Pitch/Rev.
52	0,8	1,5	107,4	89,6 -	- 102,0	1 2
66	0,4	1,5	214,9	117,6 -	- 130,0	1 1
80	0,3	1,5	286,5	145,6 -	- 158,0	1 1

Note: During helical interpolation do not exceed APMX.

HIFEED 50060

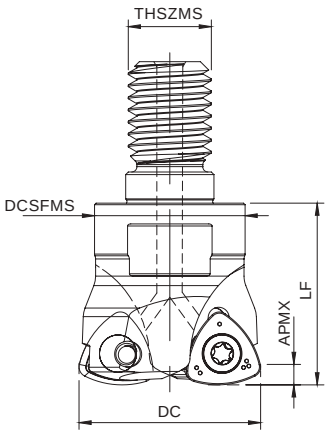


Arbor Mounting

GAMP=0° | RP=3,5

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications		Insert Pastilha Inserto	Stock
			DC	DCONMS	DCSFMS	LF		Arbor Type	APMX (mm)		
181020400	052A50060-03-022045	3	52	22	40	45	0,320	A	1,8	WN... 1207	◈
181033900	063A50060-04-027050	4	63	27	48	50	0,547	A	1,8	WN... 1207	◈
181028700	066A50060-04-027050	4	66	27	48	50	0,597	A	1,8	WN... 1207	◈
181035900	066A50060-05-027050	5	66	27	48	50	0,610	A	1,8	WN... 1207	◈
181020100	080A50060-05-027050	5	80	27	60	50	1,000	A	1,8	WN... 1207	◈

◈ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

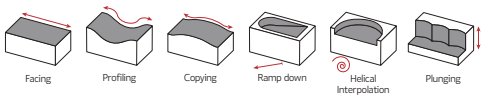


Threaded Coupling

GAMP=0° | RP=3,5

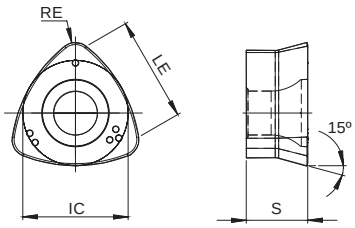
Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications	Insert Pastilha Inserto	Stock
			DC	THSZMS	DCSFMS	LF		APMX (mm)		
181039000	035R50060-02-M16035	2	35	M16	29	35	0,166	1,8	WN... 1207	◈

◈ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)



WNMW 1207 Inserts | Pastilhas | Plaquitas

WNMW



WNMW

		P				K		Dimensions Dimensões Dimensiones (mm)			
		PVD				PVD					
	(2) Grade code	G1	G4	78	86	G1	G4				
(1) Geometry code	ISO Reference	PH7910	PH7920	PH6125	PH6135	PH7910	PH7920	IC	S	LE	RE
1121148	WNMW 1207-SP	◉	◉	◉	◉	◉	◉	12,00	7,00	11,90	2,00

◉ First choice | Primeira opção | 1ª opción ◉ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

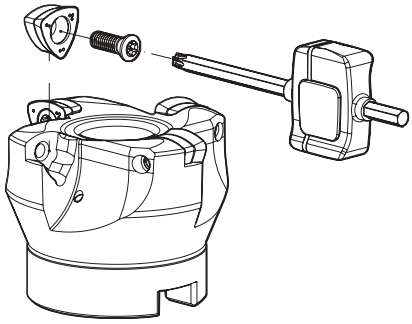
Insert order code = (1) Geometry Code + (2) Grade Code

SPARE PARTS Acessórios | Repuestos

Order separately

Cutter DC	Insert Screw	Key (Torx)	Key (Torx - Nm)	Torque Value
				Nm
R50060 – 35	P0451400	XT20	DT2050	5,0
A50060 – 52 - 80	P0451400	XT20	DT2050	5,0

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.



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

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance — Toughness → PH7910	PH7920	PH6125	PH6135
P	1	Unalloyed Steel	125-220	✓	✓	✓	✓
	2	Low-Alloyed Steel	220-280	✓	✓	✓	✓
	3	High-Alloyed Steel	280-380	✓	✓	✓	✓
K	7	Malleable Cast Iron	130-230	✓	✓		
	8	Grey Cast Iron	180-245	✓	✓		
	9	Nodular Cast iron	160-250	✓	✓		

● Good Conditions ◉ Average Conditions ✱ Difficult Conditions

HIFEED 50060

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

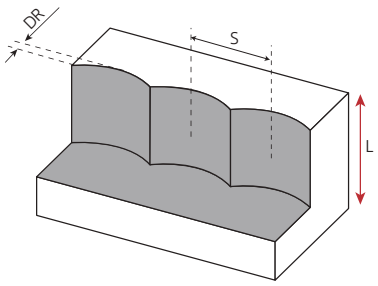
ISO	PSM	Material	HB (Brinell)	Vc (m/min) ← Wear Resistance			Toughness →	Feed fz (mm/t)
				PH7910	PH7920	PH6125	PH6135	WNMW 12...
P	1	Unalloyed Steel	125-220	180-250	180-240	160-190	150-180	0,30-1,50
	2	Low-Alloyed Steel	220-280	160-230	160-220	140-180	140-170	0,30-1,50
	3	High-Alloyed Steel	280-380	140-220	140-210	130-160	120-150	0,30-1,30
K	7	Malleable Cast Iron	130-230	180-300	160-260	-	-	0,30-1,50
	8	Grey Cast Iron	180-245	160-250	140-240	-	-	0,30-1,50
	9	Nodular Cast iron	160-250	150-200	120-200	-	-	0,30-1,40

(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.

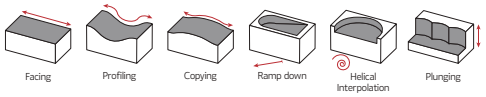
PLUNGING Mergulho | Plunge

L≤3DC	L>3DC	S max.
f_z (mm/t)		
0,10-0,20	0,07-0,14	$Smax = \sqrt{DC.DR-DR^2}$



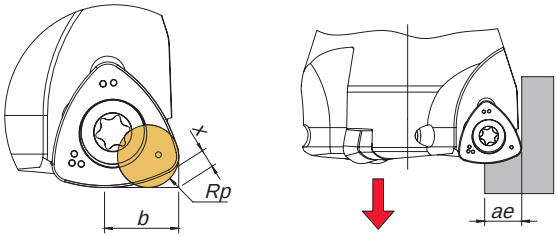
S max and DR corresponding cutting diameter DC (mm)					
DR (mm)	DC (mm)				
	35	52	63	66	80
1,0	5,8	7,1	7,9	8,1	8,9
2,0	8,1	10,0	11,0	11,3	12,5
3,0	9,8	12,1	13,4	13,7	15,2
4,0	11,1	13,9	15,4	15,7	17,4
5,0	12,2	15,3	17,0	17,5	19,4
6,0	13,2	16,6	18,5	19,0	21,1
7,0	14,0	17,7	19,8	20,3	22,6
8,0	14,7	18,8	21,0	21,5	24,0

Note: Recommended for L ≤ 4 Dc, forL > 4DC steps must be reduced to 40%.



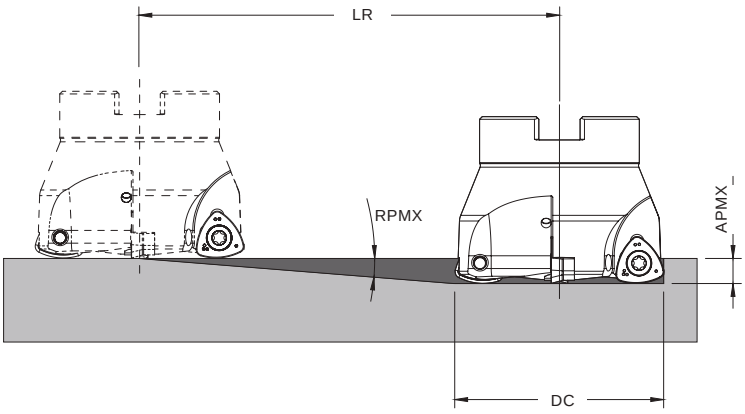
PROGRAMMING DATA Dados para programação | Datos para la programación

Insert	Programming Data			
	Rp	X	b	a_e
WNMW 12	3,5	0,9	8,4	8,0

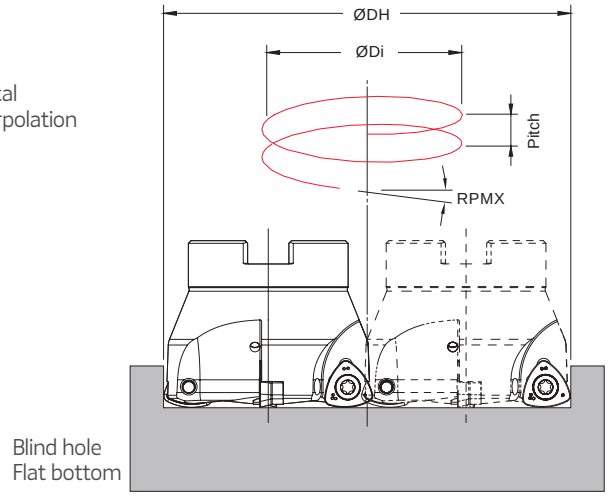


RAMPING AND HELICAL INTERPOLATION

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



Helical Interpolation

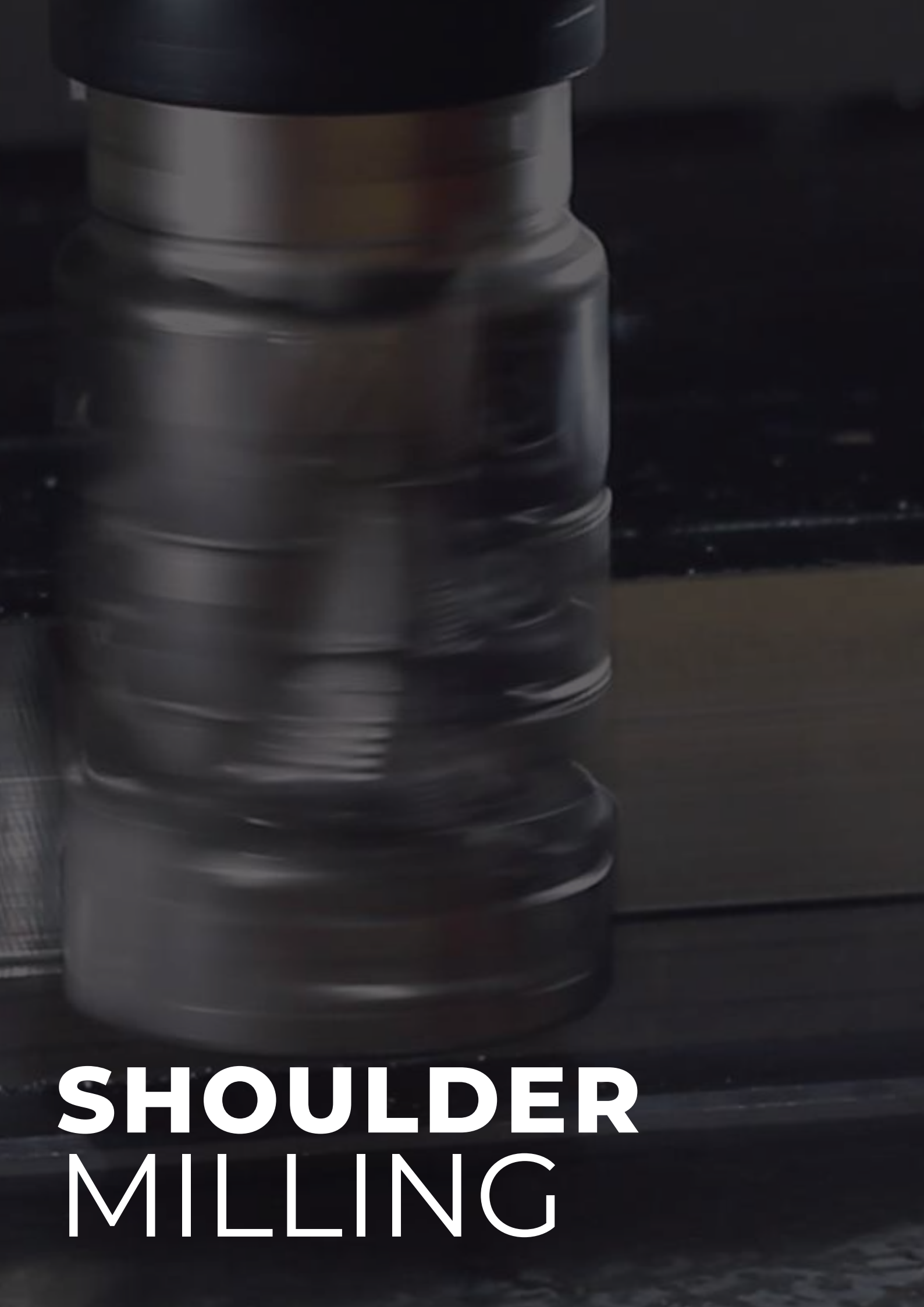


Blind hole
Flat bottom

ØDi = ØDH - DC

DC	Ramping			Helical Interpolation		
	RPMX	APMX	Min LR	ØDHmin	ØDHmax	Max Pitch/Rev.
35	3,0	1,8	34,3	53,2 -	- 68,0	2 5
52	1,8	1,8	57,3	87,2 -	- 102,0	3 4
63	1,2	1,8	85,9	109,2 -	- 124,0	3 4
66	1,0	1,8	114,6	115,2 -	- 130,0	3 3
80	0,9	1,8	114,6	143,0 -	- 158,0	3 3

Note: During helical interpolation do not exceed APMX.



SHOULDER MILLING

SHOULDER MILLING

1 HEXAPLUS 49490 | 49590

> Suitable for machining **P K**

> See page A - 124

2 PLUS 49090

> Suitable for machining **P K**

> See page A - 136

3 PLUS 17190 | 17590 | 18190

> Suitable for machining **P M K N S**

> See page A - 140

4 LINEPRO 20090 | 20190 | 20290

> Suitable for machining **P M K N S H**

> See page A - 154

5 HELIPRO 20290

> Suitable for machining **P M K N S H**

> See page A - 178

6 TGPLUS 90090 | 90190 | 90390

> Suitable for machining **P M K S**

> See page A - 154

7 ALUPRO 76090 | 77090

> Suitable for machining **N**

> See page A - 198

8 LINEPRO 06290

> Suitable for machining **P M K S**

> See page A - 208

9 LINEPRO 17090 | 18090

> Suitable for machining **P M K N**

> See page A - 212

49490 | 49590

HEXAPLUS

The HEXAPLUS line ensures a precise 90° square in a single milling operation, thus saving considerable production time by eliminating secondary operations. Additionally, it features a wiper edge on the secondary cutting edge, ensuring an excellent finish on the base surface. The new HEXAPLUS 49490 introduces expanded cutting diameters and a new geometry tailored for machining stainless steels and achieving ramps of up to 2.5º.

A linha HEXAPLUS garante um quadrado preciso de 90° em uma única operação de fresagem, economizando assim considerável tempo de produção ao eliminar operações secundárias. Além disso, apresenta uma aresta de limpeza na aresta de corte secundária, garantindo um acabamento excelente na superfície base. A nova HEXAPLUS 49590 introduz diâmetros de corte expandidos e uma nova geometria adaptada para fresagem de aços inoxidáveis e para alcançar rampas de até 2,5º.

La línea HEXAPLUS asegura un cuadrado preciso de 90° en una sola operación de fresado, ahorrando considerable tiempo de producción al eliminar operaciones secundarias. Además, presenta un filo limpiador en el filo de corte secundario, garantizando un excelente acabado en la superficie base. La nueva HEXAPLUS 49590 introduce diámetros de corte expandidos y una nueva geometría adaptada para el fresado de aceros inoxidables y para lograr rampas de hasta 2,5º.

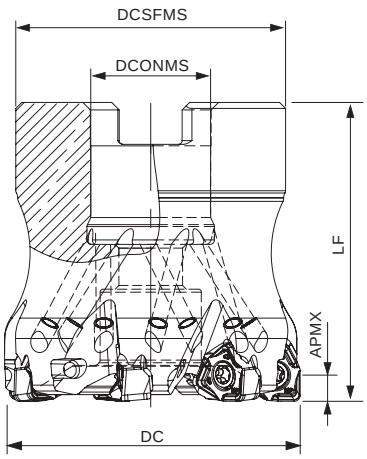
NEW HEXAPLUS 49490 > page 126

- From DC 18mm to 63mm
  De DC 18mm a 63mm | Desde DC 18mm hasta 63mm
- Available in arbor mounting, threaded coupling and weldon shank
  Disponível em montagem tipo árvore, acoplamento roscado e haste weldon | Disponible en montage tipo tornillo, fijación roscada y mango tipo weldon
- Strong and high positive geometry
  Geometria forte e altamente positiva | Geometría fuerte y altamente positiva
- Suitable for ramp milling operations
  Adequado para operações de fresagem em rampa | Adecuado para operaciones de fresado en rampa

HEXAPLUS 49590 > page 132

- From DC 32mm to 160mm
  De DC 32mm a 160mm | Desde DC 32mm hasta 160mm
- Available in arbor mounting and weldon shank
  Disponível em montagem tipo árvore e haste weldon | Disponible en fijación con tornillo central y mango tipo weldon
- Negative inserts with 6 cutting-edges
  Pastilhas negativas com 6 arestas de corte | Insertos negativos con 6 filos de corte
- Full 90º main cutting edge
  Aresta de corte a 90º | Filo de corte a 90º

NEW HEXAPLUS 49490



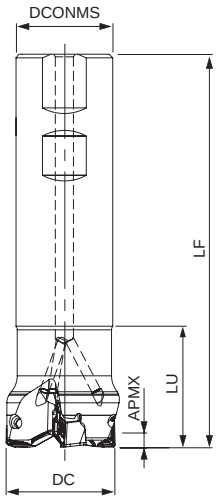
Arbor Mounting

KAPR=90° | GAMP=-5°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications		Insert Pastilha Inserto	Stock
			DC	DCONMS	DCSFMS	LF		Arbor Type	APMX (mm)		
181192200	032A49490-06-05-016040	6	32	16	30	40	0,124	A	3,5	WNXT 04 | WOXT 04	◎
181192300	040A49490-07-05-016040	7	40	16	36	40	0,204	A	3,5	WNXT 04 | WOXT 04	◎
181192400	050A49490-08-05-022040	8	50	22	42	40	0,285	A	3,5	WNXT 04 | WOXT 04	◎
181192500	050A49490-09-05-022040	9	50	22	42	40	0,280	A	3,5	WNXT 04 | WOXT 04	◎
181192600	063A49490-10-05-022040	10	63	22	48	40	0,555	A	3,5	WNXT 04 | WOXT 04	◎

◎ Stock item | Produto de stock | Itens de stock

○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)



Weldon Shank

KAPR=90° | GAMP=-5°

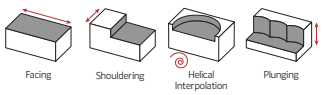
Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications	Insert Pastilha Inserto	Stock
			DC	DCONMS	LF	LU		APMX (mm)		
181218900	020W49490-03-05-020090	3	20	20	90	29	0,310	3,5	WNXT 04 | WOXT 04	◎
181193300	020W49490-03-05-020150	3	20	20	150	29	0,310	3,5	WNXT 04 | WOXT 04	△
181219000	025W49490-04-05-025100	4	25	20	100	29	0,565	3,5	WNXT 04 | WOXT 04	◎
181193400	025W49490-05-05-025100	4	25	20	170	29	0,565	3,5	WNXT 04 | WOXT 04	△
181219100	025W49490-05-05-025170	5	25	20	100	29	0,591	3,5	WNXT 04 | WOXT 04	◎
181193500	025W49490-05-05-025170	5	25	20	170	29	0,591	3,5	WNXT 04 | WOXT 04	△
181193600	032W49490-05-05-032110	5	32	32	110	31	1,185	3,5	WNXT 04 | WOXT 04	○
181193700	032W49490-06-05-032110	6	32	32	110	31	1,132	3,5	WNXT 04 | WOXT 04	○

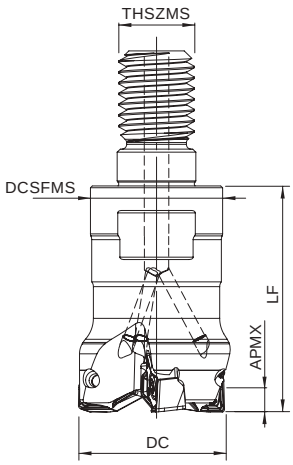
◎ Stock item | Produto de stock | Itens de stock

○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

△ Stock available until sold out | Stock disponível até acabar o stock
Stock disponible hasta acabar el stock

HEXAPLUS 49490
WNXT 04 | WOXT 04





Threaded Coupling

KAPR=90° | GAMP=-5°

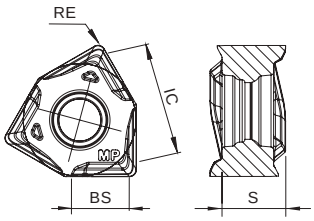
Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications	Insert Pastilha Inserto	Stock
			DC	THSZMS	DCSFMS	LF		APMX (mm)		
181192700	018R49490-02-05-M10028	2	18	M10	18,3	28	0,050	3,5	WNXT 04 | WOXT 04	○
181192800	020R49490-03-05-M10028	3	20	M10	18,3	28	0,045	3,5	WNXT 04 | WOXT 04	○
181192900	025R49490-04-05-M12030	4	25	M12	23	30	0,078	3,5	WNXT 04 | WOXT 04	○
181193000	025R49490-05-05-M12030	5	25	M12	23	30	0,070	3,5	WNXT 04 | WOXT 04	◈
181193100	032R49490-05-05-M16040	5	32	M16	30	40	0,160	3,5	WNXT 04 | WOXT 04	◈
181193200	032R49490-06-05-M16040	6	32	M16	30	40	0,150	3,5	WNXT 04 | WOXT 04	○

◈ Stock item | Produto de stock | Itens de stock

○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

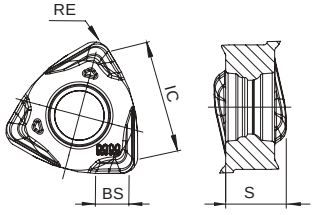
W..XT 0403... Inserts | Pastilhas | Plaquitas

WNXT-MP



WNXT

WOXT-MM



WOXT

		P		M			K	S		Dimensions Dimensões Dimensiones (mm)			
		PVD		PVD			PVD	PVD					
	(2) Grade code	T1	P4	P4	X9	4H	T1	X9	4H				
(1) Geometry code	ISO Reference	PHP920	PHP930	PHP930	PHH930	PHF530	PHP920	PHH930	PHF530	IC	S	RE	BS
1113158	WNXT 040308 PNSR-MP	◈	◈				◈			6,70	3,36	0,80	1,80
1113494	WOXT 040308 PNSR-MM	◈	◈	◈	◈	◈	◈	◈	◈	6,70	3,36	0,80	0,80

◈ First choice | Primeira opção | 1ª opción ◈ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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

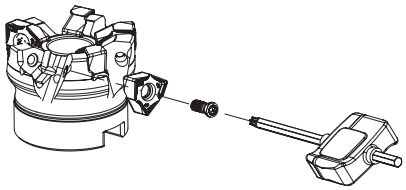
NEW HEXAPLUS 49490

SPARE PARTS Acessórios | Repuestos

Order separately

Cutter DC	Insert Screw	Key (Torx)	Key (Torx - Nm)	Torque Value
				Nm
A49490 - 32-63	P0250503	XT08	DT0812	1,20
W49490 - 20-32	P0250503	XT08	DT0812	1,20
R49490 - 18-32	P0250503	XT08	DT0812	1,20

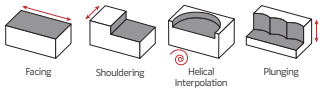
Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.



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

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance — Toughness → PHP920	PHP930	PHH930	PHF530
P	1	Unalloyed Steel	125-220	✓	✓		
	2	Low-Alloyed Steel	220-280	✓	✓		
	3	High-Alloyed Steel	280-380	✓	✓		
M	4	SS - Ferritic / Martensitic	200-330		✓	✓	✓
	5	SS - Austenitic	200-330		✓	✓	✓
	6	SS - Austenitic-ferritic (Duplex)	220-260		✓	✓	✓
K	7	Malleable Cast Iron	130-230	✓			
	8	Grey Cast Iron	180-245	✓			
	9	Nodular Cast iron	160-250	✓			
S	11	Heat Resistant Super Alloys	200-320			✓	✓

Good Conditions Average Conditions Difficult Conditions



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

ISO	PSM	Material	HB (Brinell)	Vc (m/min) ← Wear Resistance			Toughness →	Feed fz (mm/t)	
				PHP920	PHP930	PHH930	PHF530	WNXT 04	WOXT 04
P	1	Unalloyed Steel	125-220	180-250	160-230	-	-	0,08-0,25	0,05-0,25
	2	Low-Alloyed Steel	220-280	170-210	150-190	-	-	0,08-0,25	0,05-0,25
	3	High-Alloyed Steel	280-380	160-200	140-180	-	-	0,08-0,20	0,05-0,20
M	4	SS - Ferritic / Martensitic	200-330	-	130-170	140-210	140-250	-	0,05-0,20
	5	SS - Austenitic	200-330	-	100-160	120-170	130-240	-	0,05-0,20
	6	SS - Austenitic-ferritic (Duplex)	220-260	-	80-140	100-150	120-220	-	0,05-0,15
K	7	Malleable Cast Iron	130-230	170-300	-	-	-	0,08-0,25	0,05-0,25
	8	Grey Cast Iron	180-245	150-250	-	-	-	0,08-0,25	0,05-0,25
	9	Nodular Cast iron	160-250	90-210	-	-	-	0,08-0,20	0,05-0,20
S	11	Heat Resistant Super Alloys	200-320	-	-	30-110	30-150	-	0,05-0,15

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

ISO	PSM	Material	HB (Brinell)	Chip breaker application
				1st choice
P	1	Unalloyed Steel	125-220	WNXT 04... -MP
	2	Low-Alloyed Steel	220-280	WNXT 04... -MP
	3	High-Alloyed Steel	280-380	WNXT 04... -MP
M	4	SS - Ferritic / Martensitic	200-330	WOXT 04.. -MM
	5	SS - Austenitic	200-330	WOXT 04.. -MM
	6	SS - Austenitic-ferritic (Duplex)	230-260	WOXT 04.. -MM
K	7	Malleable Cast Iron	130-230	WNXT 04... -MP
	8	Grey Cast Iron	180-245	WNXT 04... -MP
	9	Nodular Cast iron	160-250	WNXT 04... -MP
S	11	Heat Resistant Super Alloys	200-320	WOXT 04.. -MM

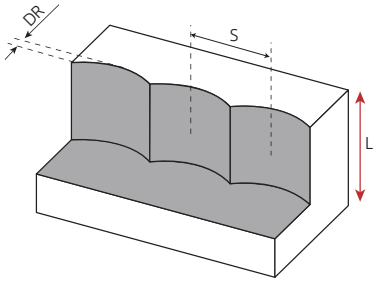
NEW HEXAPLUS 49490

PROGRAMMING DATA Dados para programação | Datos para la programación

Insert	Programming Data		
	Insert radius (mm)	Wiper edge (mm)	APMX (mm)
WNXT 040308 PNSR-MP	0,8	1,8	3,5
WOXT 040308 PNSR-MM	0,8	0,8	3,5

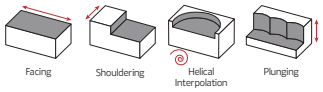
PLUNGING Mergulho | Plunge

L≤3DC	L>3DC	S max.
f_z (mm/t)		
0,10-0,30	0,08-0,25	$Smax = \sqrt{DC.Dr - Dr^2}$



S max and DR corresponding cutting diameter DC (mm)							
DR (mm)	DC (mm)						
	18	20	25	32	40	50	60
1,0	4,1	4,4	4,9	5,6	6,2	7,0	7,9
1,5	5,0	5,3	5,9	6,8	7,6	8,5	9,6
2,0	5,7	6,0	6,8	7,7	8,7	9,8	11,0
2,5	6,2	6,6	7,5	8,6	9,7	10,9	12,3

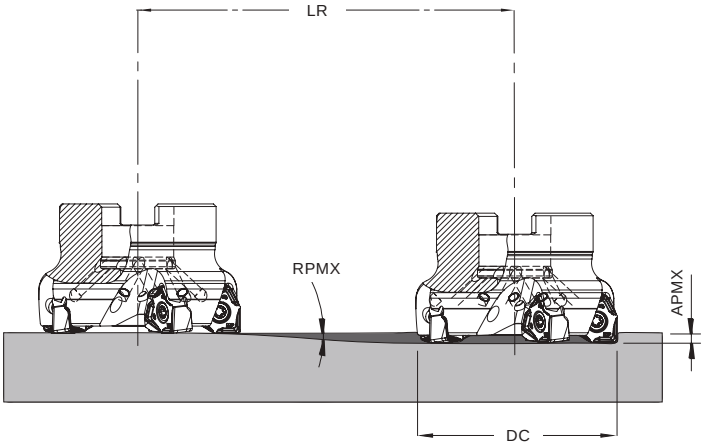
Note: This values are only for WNXT inserts.



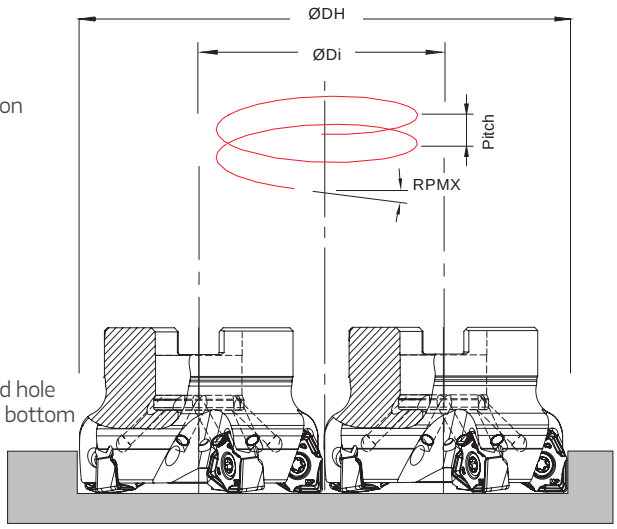
RAMPING AND HELICAL INTERPOLATION

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

Ramping



Helical Interpolation

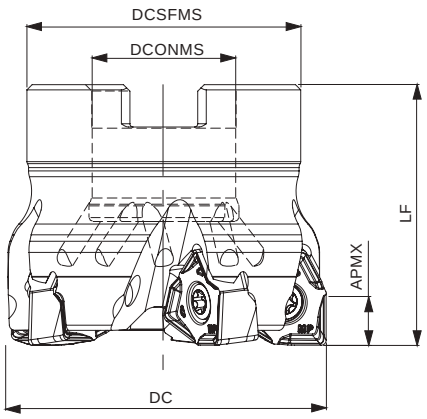


ØDi = ØDH - DC

DC	Ramping			Helical Interpolation		
	RPMX	APMX	Min LR	ØDHmin	ØDHmax	Max Pitch/Rev.
18	2,40	3,5	83,5	31,2 -	- 34,4	1,70 2,10
20	2,00	3,5	100,2	35,2 -	- 38,4	1,60 2,00
25	1,50	3,5	133,7	45,2 -	- 48,4	1,60 1,90
32	1,15	3,5	174,4	59,2 -	- 62,4	1,70 1,90
40	0,85	3,5	235,9	75,2 -	- 78,4	1,60 1,70
50	0,65	3,5	308,5	95,2 -	- 98,4	1,60 1,70
63	0,50	3,5	401,1	121,2 -	- 124,4	1,50 1,60

Note: This values are only for WOXT inserts.
During helical interpolation do not exceed APMX.
(*) Down cutting is recommended, tool pass rotation should be counter-clockwise.
(*) In case of ramping and helical interpolation, apply 70% or less feed (fz) from recommended cutting conditions table.

HEXAPLUS 49590

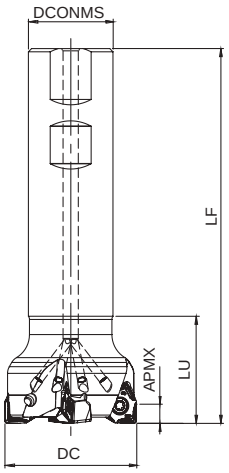


Arbor Mounting

KAPR=90° | GAMP=-6°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications		Insert Pastilha Inserto	Stock
			DC	DCONMS	DCSFMS	LF		Arbor Type	APMX (mm)		
181174900	040A49590-03-06-016040	3	40	16	32	40	0,150	A	7,5	WNXT 0806...	◉
181175000	040A49590-04-06-016040	4	40	16	32	40	0,130	A	7,5	WNXT 0806...	○
181173400	050A49590-04-06-022040	4	50	22	42	40	0,390	A	7,5	WNXT 0806...	◉
181165600	050A49590-05-06-022040	5	50	22	42	40	0,380	A	7,5	WNXT 0806...	◉
181173500	063A49590-05-06-022040	5	63	22	48	40	0,500	A	7,5	WNXT 0806...	◉
181173600	063A49590-06-06-022040	6	63	22	48	40	0,490	A	7,5	WNXT 0806...	◉
181173700	080A49590-07-06-027050	7	80	27	60	50	1,180	B	7,5	WNXT 0806...	◉
181173800	080A49590-09-06-027050	9	80	27	60	50	1,160	B	7,5	WNXT 0806...	○
181173900	100A49590-08-06-032050	8	100	32	80	50	1,620	B	7,5	WNXT 0806...	◉
181174000	100A49590-11-06-032050	11	100	32	80	50	1,550	B	7,5	WNXT 0806...	○
181174100	125A49590-11-06-040063	11	125	40	90	63	2,820	B	7,5	WNXT 0806...	◉
181174200	125A49590-14-06-040063	14	125	40	90	63	2,760	B	7,5	WNXT 0806...	○
181204200	160A49590-12-06-040063	12	160	40	90	63	3,800	B	7,5	WNXT 0806...	◉

◉ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

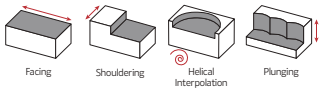


Weldon Shank

KAPR=90° | GAMP=-6°

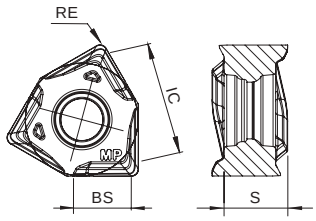
Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications	Insert Pastilha Inserto	Stock
			DC	DCONMS	LF	LU		APMX (mm)		
181174300	032W49590-02-06-032125	2	32	32	125	40	0,650	7,5	WNXT 0806...	◉
181174500	040W49590-03-06-032130	3	40	32	130	40	0,700	7,5	WNXT 0806...	◉
181174600	040W49590-04-06-032130	4	40	32	130	40	0,650	7,5	WNXT 0806...	○
181174700	050W49590-04-06-032140	4	50	32	140	45	0,860	7,5	WNXT 0806...	○
181174800	050W49590-05-06-032140	5	50	32	140	45	0,810	7,5	WNXT 0806...	○

◉ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)



WNXT 0806... Inserts | Pastilhas | Plaquitas

WNXT



WNXT

		P		K		Dimensions Dimensões Dimensiones (mm)			
		PVD		PVD					
	(2) Grade code	T1	P4	T1	P4				
(1) Geometry code	ISO Reference	PHP920	PHP930	PHP920	PHP930	IC	S	RE	BS
1113000	WNXT 080608 PNSR-MP	◉	◉	◉	◉	12,70	6,30	0,80	4,10

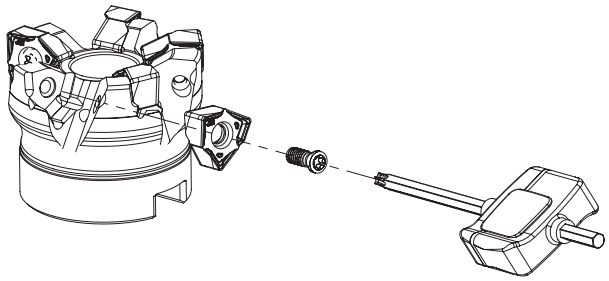
◉ First choice | Primeira opção | 1ª opción ◉ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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

SPARE PARTS Acessórios | Repuestos

Cutter DC	Insert Screw	Key (Torx)	Key (Torx - Nm)	Torque Value	Order separately: Screw	Order separately: DIN 6368 Wrench	Order separately: Retaining Screw
W49590 - 32 - 50	P0401200	XT15	DT1530	3,0	-	-	-
A49590 - 40	P0401200	XT15	DT1530	3,0	-	-	290087600
A49590 - 50 - 63	P0401200	XT15	DT1530	3,0	-	-	-
A49590 - 80	P0401200	XT15	DT1530	3,0	J0123510	SD6368-12	-
A49590 - 100	P0401200	PT15	DT1530	3,0	J0164110	SD6368-16	-
A49590 - 125 -160	P0401200	PT15	DT1530	3,0	J0204610	SD6368-20	-

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.



HEXAPLUS 49590

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

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance Toughness → PHP920	PHP930
P	1	Unalloyed Steel	125-220	✓	✓
	2	Low-Alloyed Steel	220-280	✓	✓
	3	High-Alloyed Steel	280-380	✓	✓
K	7	Malleable Cast Iron	130-230	✓	✓
	8	Grey Cast Iron	180-245	✓	✓
	9	Nodular Cast iron	160-250	✓	✓

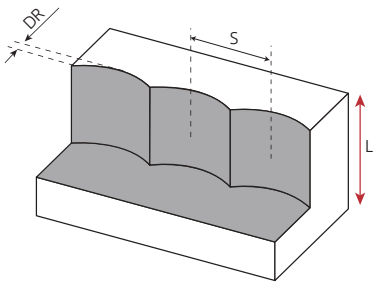
Good Conditions Average Conditions Difficult Conditions

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

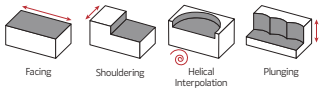
ISO	PSM	Material	HB (Brinell)	Vc (m/min) ← Wear Resistance Toughness → PHP920	PHP930	Feed fz (mm/t) WNXT 0806
P	1	Unalloyed Steel	125-220	180-250	160-230	0,08 - 0,25
	2	Low-Alloyed Steel	220-280	160-230	140-210	0,08 - 0,25
	3	High-Alloyed Steel	280-380	140-220	120-200	0,08 - 0,20
K	7	Malleable Cast Iron	130-230	130-230	150-250	0,08 - 0,25
	8	Grey Cast Iron	180-245	180-245	140-230	0,08 - 0,25
	9	Nodular Cast iron	160-250	120-210	100-200	0,08 - 0,20

PLUNGING Mergulho | Plunge

L≤3DC	L>3DC	S max.
f_z (mm/t)		
0,10-0,30	0,08-0,25	$Smax = \sqrt{DC.Dr - Dr^2}$



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



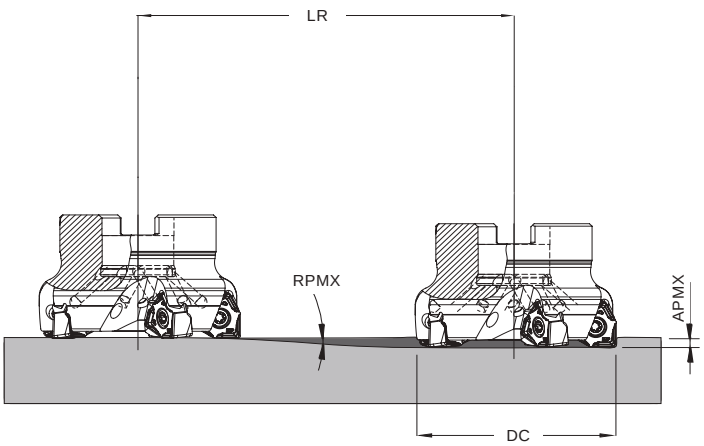
PROGRAMMING DATA Dados para programação | Datos para la programación

Insert	Programming Data		
	Insert radius (mm)	Wiper edge (mm)	APMX (mm)
WNXT 080308 PNSR-MM	0,8	4,1	7,5

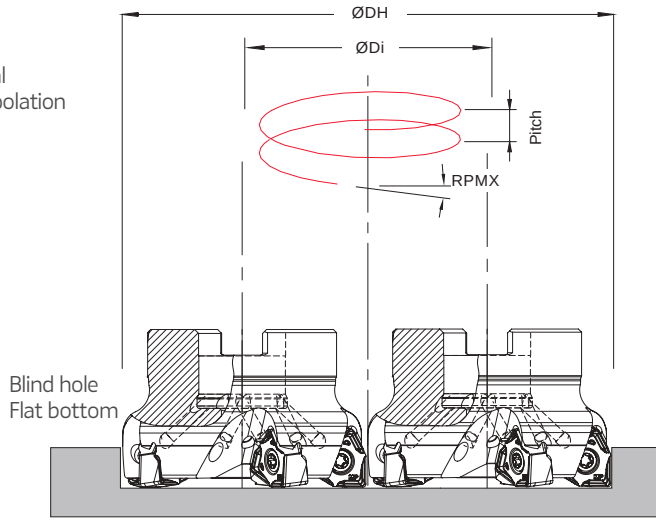
RAMPING AND HELICAL INTERPOLATION

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

Ramping



Helical Interpolation



DC	Ramping			Helical Interpolation		
	RPMX	APMX	Min LR	ØDHmin	ØDHmax	Max Pitch/Rev.
32	0,45	7,5	954,9	54,2 -	- 62,4	0,54 0,75
40	0,30	7,5	1432,4	70,2 -	- 78,4	0,49 0,63
50	0,20	7,5	2148,6	90,2 -	- 98,4	0,44 0,53
63	0,14	7,5	3069,4	116,2 -	- 124,4	0,40 0,47
80	0,10	7,5	4297,2	150,2 -	- 158,4	0,38 0,42
100	0,07	7,5	6138,8	190,2 -	- 198,4	0,34 0,37
125	0,05	7,5	8594,4	240,2 -	- 248,4	0,31 0,33
160	0,04	7,5	10743,0	310,2 -	- 318,4	0,32 0,34

Note: During helical interpolation do not exceed APMX.
(*) Down cutting is recommended, tool pass rotation should be counter-clockwise.
(*) In case of ramping and helical interpolation, apply 70% or less feed (fz) from recommended cutting conditions table.

49090

PLUS

The PLUS 49090 is an ideal shoulder milling tool suited for small pieces or applications with high overhang. Additionally, a chip breaker is available for aluminum applications.

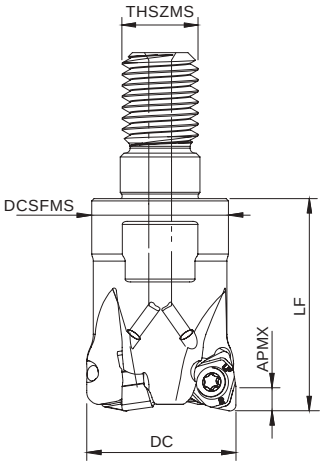
A PLUS 49090 é uma ferramenta de fresagem a 90º para peças pequenas ou aplicações com grande balanço. Além disso, tem um quebra-aparas disponível para aplicações em alumínio.

El PLUS 49090 es una herramienta de fresado de 90º ideal para piezas pequeñas o aplicaciones con gran voladizo. Además, hay disponible un rompevirutas para aplicaciones de aluminio.

PLUS 49090 > page 138

- From DC 16mm to 32mm
  De DC 16mm a 32mm | Desde DC 16mm hasta 32mm
- Available in threaded coupling and cylindrical shank
  Disponível em acoplamento roscado e haste cilíndrica | Disponible en fijación roscada y mango cilíndrico
- Negative inserts with 6 cutting-edges
  Pastilhas negativas com 6 arestas de corte | Insertos negativos con 6 filos de corte
- Chip breaker for aluminium application
  Quebra-aparas para aplicação em alumínio | Rompevirutas para aplicación en aluminio

PLUS 49090

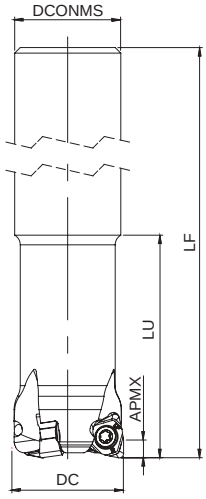


Threaded Coupling

KAPR=90° | GAMP=-7°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specification	Insert Pastilha Inserto	Stock
			DC	THSZMS	DCSFMS	LF		APMX (mm)		
181136000	016R49090-02-07-M08023	2	16	M08	13	23	0,023	3,00	WNHU 04T3..	◉
181128300	020R49090-03-07-M10028	3	20	M10	18	28	0,052	3,00	WNHU 04T3..	◉
181110900	025R49090-04-07-M12030	4	25	M12	21	30	0,078	3,00	WNHU 04T3..	◉
181128400	032R49090-05-07-M16035	5	32	M16	29	35	0,150	3,00	WNHU 04T3..	◉

◉ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)



Cylindrical Shank

KAPR=90° | GAMP=-7°

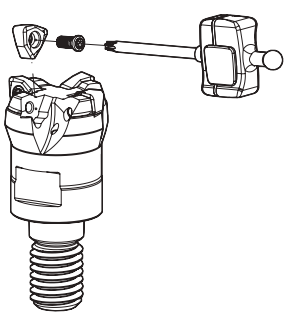
Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specification	Insert Pastilha Inserto	Stock
			DC	DCONMS	LF	LU		APMX (mm)		
181136100	016E49090-02-07-U015150	2	16	15	150	32	0,185	3,00	WNHU 04T3..	◉
181136200	020E49090-03-07-U019150	3	20	19	150	40	0,292	3,00	WNHU 04T3..	◉
181136300	025E49090-04-07-U024150	4	25	24	150	50	0,471	3,00	WNHU 04T3..	◉

◉ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

SPARE PARTS Acessórios | Repuestos

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

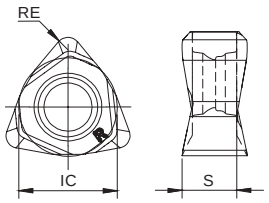
Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.



WNHU 04T3.. Inserts | Pastilhas | Plaquitas

WNHU-LP

WNHU-LN



WNHU-LP | LN

		P			K			N	Dimensions Dimensões Dimensiones (mm)		
		PVD			PVD			UNC			
	(2) Grade code	X5	T1	P4	X5	T1	P4	10			
(1) Geometry code	ISO Reference	PHP910	PHP920	PHP930	PHP910	PHP920	PHP930	PH0910	IC	S	RE
1112277	WNHU 04T308 PNER-LP	◉	◉	◉	◉	◉	◉		6,35	3,50	0,80
1113167	WNHU 04T316 PNER-LP		◉			◉			6,35	3,40	1,60
1112988	WNHU 04T308 PNFR-LN							◉	6,35	3,50	0,80

◉ First choice | Primeira opção | 1ª opción ◉ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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	PHP910	PHP920	PHP930
P	1	Unalloyed Steel	125-220		✓	✓	✓
	2	Low-Alloyed Steel	220-280		✓	✓	✓
	3	High-Alloyed Steel	280-380		✓	✓	✓
K	7	Malleable Cast Iron	130-230		✓	✓	✓
	8	Grey Cast Iron	180-245		✓	✓	✓
	9	Nodular Cast iron	160-250		✓	✓	✓
N	10	Aluminium and Non Ferrous	30-130	✓			

◉ 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	PHP910	PHP920	PHP930	WNHU 04T3..-LP	WNHU 04T3..-LN
P	1	Unalloyed Steel	125-220	-	180-250	180-250	160-230	0,10-0,30	-
	2	Low-Alloyed Steel	220-280	-	160-240	160-230	140-210	0,10-0,30	-
	3	High-Alloyed Steel	280-380	-	140-230	140-220	120-200	0,10-0,25	-
K	7	Malleable Cast Iron	130-230	-	180-300	160-270	150-250	0,10-0,30	-
	8	Grey Cast Iron	180-245	-	160-250	140-250	140-230	0,10-0,30	-
	9	Nodular Cast iron	160-250	-	150-210	120-210	100-200	0,10-0,25	-
N	10	Aluminium and Non Ferrous	30-130	100-2000	-	-	-	-	0,10-0,30

Insert	Feed f_z (mm/t)		AP Rec.
	Roughing	Finishing	
WNHU 04T3..	0,15-0,30	0,10-0,25	0,50-3,00

17190 | 17590 | 18190

PLUS

The PLUS Line features strong and smooth cutting edges with exceptional wear resistance, ensuring longevity and consistent performance. Through optimized cutting edge integrity, it enhances productivity and sustains tool reliability. Committed to maximum machining efficiency and stability, this line stands as a guarantee for precision operations.

A Linha PLUS apresenta arestas de corte fortes e suaves com resistência excepcional ao desgaste, garantindo longevidade e desempenho consistente. Através da integridade otimizada da aresta de corte, ela melhora a produtividade e mantém a fiabilidade da ferramenta. Comprometida com a máxima eficiência e estabilidade na fresagem, esta linha se destaca como uma garantia para operações de precisão.

La línea PLUS presenta bordes de corte fuertes y suaves con resistencia excepcional al desgaste, garantizando longevidad y rendimiento consistente. A través de la integridad optimizada del borde de corte, mejora la productividad y mantiene la fiabilidad de la herramienta. Comprometida con la máxima eficiencia y estabilidad en el fresado, esta línea se destaca como una garantía para operaciones de precisión.

PLUS 17190 > page 142

- From DC 14mm to 100mm
  De DC 14mm a 100mm | Desde DC 14mm hasta 100mm
- Available in arbor mounting and weldon shank
  Disponível em montagem tipo árvore e haste weldon | Disponible en fijación con tornillo central y mango tipo weldon
- Small negative insert with 4 cutting edges (ANHX 1004..)
  Pastilha negativa pequena com 4 arestas de corte (ANHX 1004..) | Plaquita negativa pequeña con 4 filos de corte (ANHX 1004..)
- Helical cutting edge for high wall accuracy
  Aresta de corte helicoidal para alta precisão a 90º | Filo de corte helicoidal para alta precisión a 90º

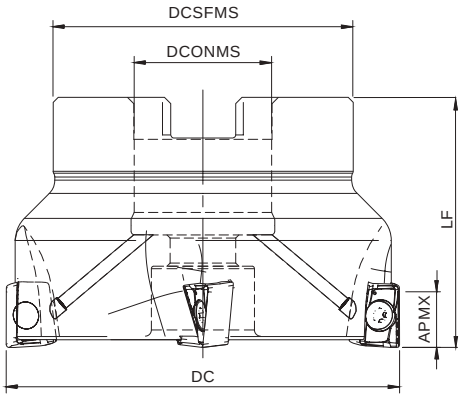
PLUS 17590 > page 146

- From DC 25mm to 125mm
  De DC 25mm a 125mm | Desde DC 25mm hasta 125mm
- Available in arbor, threaded, weldon and cylindrical shank
  Disponível em montagem tipo árvore, acoplamento roscado, haste weldon e cilíndrica | Disponible en fijación con tornillo central, fijación roscada, mango tipo weldon y cilindrico
- Medium negative insert with 4 cutting edges (ANHX 1206..)
  Pastilha negativa média com 4 arestas de corte (ANHX 1206..) | Plaquita negativa media con 4 filos de corte (ANHX 1206..)
- Reinforced cutting edges
  Arestas de corte reforçadas | Filos de corte reforzados

PLUS 18190 > page 150

- From DC 32mm to 160mm
  De DC 32mm a 160mm | Desde DC 32mm hasta 160mm
- Available in arbor mounting, threaded coupling and weldon shank
  Disponível em montagem tipo árvore, acoplamento roscado e haste weldon | Disponible en fijación con tornillo central, fijación roscada y mango tipo weldon
- Large negative insert with 4 cutting edges (ANHX 1607..)
  Pastilha negativa grande com 4 arestas de corte (ANHX 1607..) | Plaquita negativa grande con 4 filos de corte (ANHX 1607..)
- Resistant insert for high productivity and smooth cutting
  Pastilha resistente para alta produtividade e corte suave | Pastilla resistente para alta productividad y corte suave

PLUS 17190



Arbor Mounting

KAPR=90° | GAMP=-7°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications		Insert Pastilha Inserto	Stock
			DC	DCONMS	DCSFMS	LF		Arbor Type	APMX (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...	◈

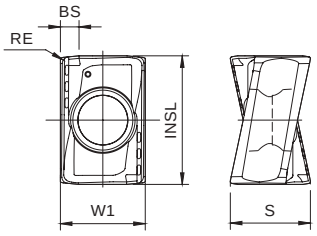
◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

ANHX 1004 Inserts | Pastilhas | Plaquitas

ANHX-LP

ANHX-LM

ANHX-LN



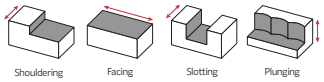
ANHX-LP | LM | LN

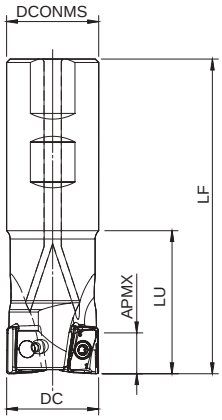
		P						M		K						N	S		Dimensions Dimensões Dimensiones (mm)				
		CVD	PVD					PVD		CVD	PVD					UNC	PVD						
	(2) Grade code	T9	G1	X5	T1	P4	G6	X9	G6	T9	G1	X5	T1	P4	G6	10	X9	G6					
(1) Geometry code	ISO Reference	PHS740	PH7910	PHP910	PHP920	PHP930	PH7740	PHH930	PH7740	PHS740	PH7910	PHP910	PHP920	PHP930	PH7740	PH0910	PHH930	PH7740	W1	S	INSL	RE	BS
1111652	ANHX 100405 PNR-LP			◈	◈	◈		◯				◈	◈	◈			◯		6,60	6,20	10,00	0,50	0,85
1112106	ANHX 100408 PNR-LP				◈	◈	◯		◯				◈	◈	◯			◯	6,60	6,20	10,00	0,80	0,60
1111908	ANHX 100412 PNR-LP				◈	◈							◈	◈					6,60	6,20	10,00	1,20	0,30
1112021	ANHX 100416 PNER-LP				◯								◯						6,60	6,20	10,00	1,60	0,20
1112513	ANHX 100402 PNER-LM				◯			◯					◯				◯		6,60	6,20	10,00	0,20	1,10
1112005	ANHX 100405 PNER-LM				◈	◈	◈	◈	◈				◈	◈	◈		◈	◈	6,60	6,20	10,00	0,50	0,85
1112162	ANHX 100408 PNER-LM	◯			◈	◈	◈	◈	◈	◯			◈	◈	◈		◈	◈	6,60	6,20	10,00	0,80	0,60
1112103	ANHX 100412 PNER-LM				◈	◈	◈	◈	◈				◈	◈	◈		◈	◈	6,60	6,20	10,00	1,20	0,30
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

◈ First choice | Primeira opção | 1ª opción ◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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

PLUS 17190
ANHX 10





Weldon Shank

KAPR=90° | GAMP=-7° (-6°*)

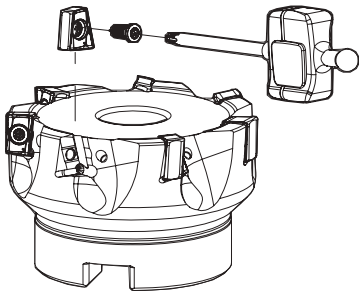
Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications	Insert Pastilha Inserto	Stock
			DC	DCONMS	LF	LU		APMX (mm)		
181075000	014W17190-01-06-016090*	1	14	16	90	23	0,188	9,00	ANHX 1004...	◎
181101400	016W17190-02-06-016090*	2	16	16	90	25	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 | Produto de stock | Itens de stock

○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

SPARE PARTS Acessórios | Repuestos

Cutter DC	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



Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.

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	PHP910	PHP920	PHP930	PHH930	PHS740	PH7740
P	1	Unalloyed Steel	125-220		✓	✓	✓		✓	✓
	2	Low-Alloyed Steel	220-280		✓	✓	✓		✓	✓
	3	High-Alloyed Steel	280-380		✓	✓	✓		✓	✓
M	4	SS - Ferritic / Martensitic	200-330					✓		✓
	5	SS - Austenitic	200-330					✓		✓
	6	SS - Austenitic-ferritic (Duplex)	230-260					✓		✓
K	7	Malleable Cast Iron	130-230		✓	✓	✓		✓	✓
	8	Grey Cast Iron	180-245		✓	✓	✓		✓	✓
	9	Nodular Cast iron	160-250		✓	✓	✓		✓	✓
N	10	Aluminium and Non Ferrous	30-130	✓						
S	11	Heat Resistant Super Alloys	200-320					✓		✓

Good Conditions Average Conditions Difficult Conditions

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

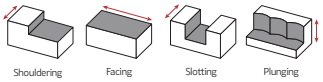
ISO	PSM	Material	HB (Brinell)	Vc (m/min) ← Wear Resistance						Toughness →	Feed fz (mm/t)		
				PH0910	PHP910	PHP920	PHP930	PHH930	PHS740	PH7740	ANHX... LP	ANHX... LM	ANHX... LN
P	1	Unalloyed Steel	125-220	-	180-250	180-250	160-230	-	140-220	140-200	0,08-0,20	0,08-0,20	-
	2	Low-Alloyed Steel	220-280	-	160-240	160-230	140-210	-	120-200	130-180	0,08-0,20	0,08-0,15	-
	3	High-Alloyed Steel	280-380	-	140-230	140-220	120-200	-	100-190	100-170	0,08-0,15	0,08-0,15	-
M	4	SS - Ferritic / Martensitic	200-330	-	-	-	-	140-210	-	130-180	-	0,08-0,20	-
	5	SS - Austenitic	200-330	-	-	-	-	120-170	-	110-160	-	0,08-0,15	-
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	-	-	-	100-150	-	90-150	-	0,08-0,15	-
K	7	Malleable Cast Iron	130-230	-	180-300	160-270	150-250	-	160-300	140-220	0,08-0,25	0,08-0,20	-
	8	Grey Cast Iron	180-245	-	160-250	140-250	140-230	-	150-260	120-210	0,08-0,20	0,08-0,20	-
	9	Nodular Cast iron	160-250	-	150-210	120-210	100-200	-	80-220	100-190	0,08-0,20	0,08-0,15	-
N	10	Aluminium and Non Ferrous	30-130	100-2000	-	-	-	-	-	-	-	-	0,08-0,20
S	11	Heat Resistant Super Alloys	200-320	-	-	-	-	30-110	-	30-100	-	0,08-0,15	-

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

(Note 2)

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

(Note 3)
It's possible to occur vibrations in certain cases. Please reduce depth of cut and / or reduce cutting conditions in following cases:
- When using long shank;
- When using long tool overhang with arbor type;
- When application has poor clamping rigidity or when using a low rigidity machine.

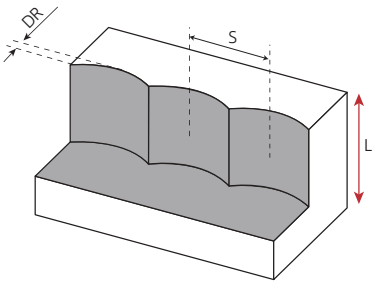


CHIP BREAKER SELECTION GUIDE Guia para aplicações do quebra-aparas | Guía para aplicación del rompevirutas

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

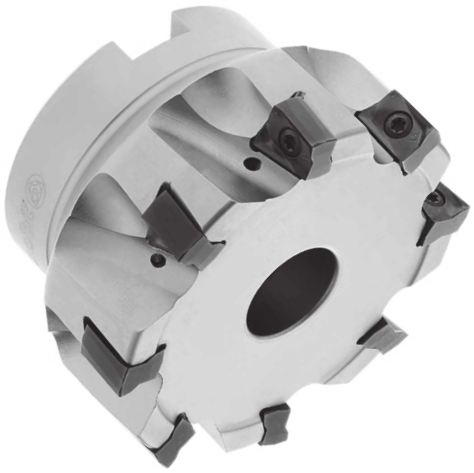
PLUNGING Mergulho | Plunge

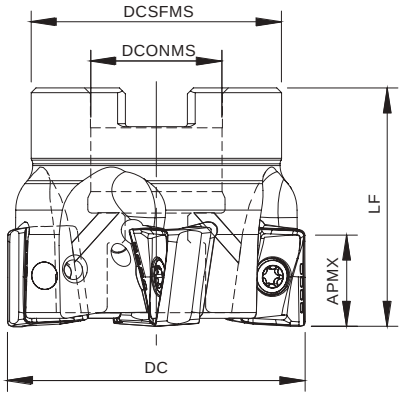
L≤3DC	L>3DC	S max.
f_z (mm/t)		
0,10-0,20	0,10-0,14	$Smax = \sqrt{DC.Dr - Dr^2}$



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

PLUS 17590



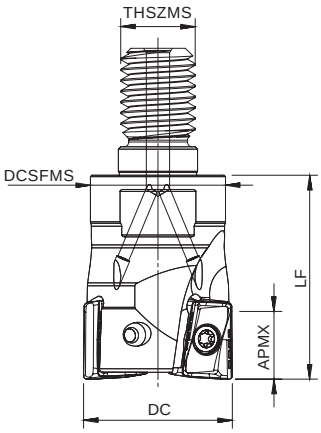


Arbor Mounting

KAPR=90° | GAMP=-6°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications		Insert Pastilha Inserto	Stock
			DC	DCONMS	DCSFMS	LF		Arbor Type	APMX (mm)		
181116400	040A17590-04-06-016040	4	40	16	32	40	0,17	A	11,00	ANHX 1206...	◈
181114500	050A17590-05-06-022040	5	50	22	42	40	0,30	A	11,00	ANHX 1206...	◈
181115900	050A17590-06-06-022040	6	50	22	42	40	0,30	A	11,00	ANHX 1206...	◈
181116500	063A17590-05-06-022040	5	63	22	52	40	0,55	A	11,00	ANHX 1206...	◈
181116600	063A17590-07-06-022040	7	63	22	52	40	0,52	A	11,00	ANHX 1206...	◈
181116700	080A17590-08-06-027050	8	80	27	60	50	1,10	A	11,00	ANHX 1206...	◈
181116800	080A17590-10-06-027050	10	80	27	60	50	1,10	A	11,00	ANHX 1206...	○
181116900	100A17590-12-06-032050	12	100	32	80	50	1,65	B	11,00	ANHX 1206...	◈
181117000	125A17590-14-06-040063	14	125	40	90	63	3,16	B	11,00	ANHX 1206...	◈

◈ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

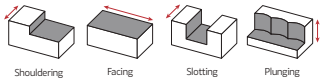


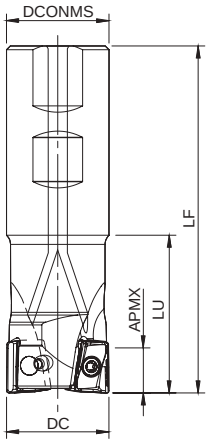
Threaded Coupling

KAPR=90° | GAMP=-6°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications	Insert Pastilha Inserto	Stock
			DC	THSZMS	DCSFMS	LF		APMX (mm)		
181117100	025R17590-02-06-M12035	2	25	M12	21	35	0,09	11,00	ANHX 1206...	◈
181117200	032R17590-03-06-M16043	3	32	M16	29	43	0,20	11,00	ANHX 1206...	◈
181117300	042R17590-04-06-M16043	4	42	M16	29	43	0,26	11,00	ANHX 1206...	○

◈ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)





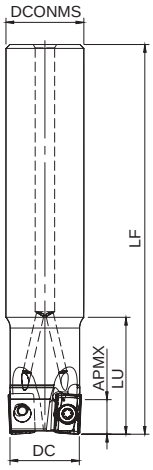
Weldon Shank

KAPR=90° | GAMP=-6°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications	Insert Pastilha Inserto	Stock
			DC	DCONMS	LF	LU		APMX (mm)		
181116000	025W17590-02-06-025110	2	25	25	110	35	0,37	11,00	ANHX 1206...	⬡
181120600	032W17590-03-06-032150	3	32	32	150	35	0,84	11,00	ANHX 1206...	⬡
181116100	040W17590-04-06-032150	4	40	32	150	40	0,88	11,00	ANHX 1206...	⬡

⬡ Stock item | Produto de stock | Itens de stock

◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)



Cylindrical Shank

KAPR=90° | GAMP=-6°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications	Insert Pastilha Inserto	Stock
			DC	DCONMS	LF	LU		APMX (mm)		
181116300	026E17590-02-06-025200	2	26	25	200	40	0,66	11,00	ANHX 1206...	⬡
181116200	033E17590-03-06-032250	3	33	32	250	40	1,40	11,00	ANHX 1206...	⬡

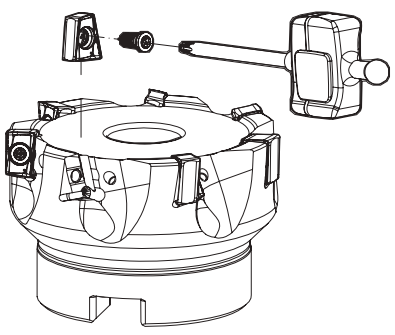
⬡ Stock item | Produto de stock | Itens de stock

◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

SPARE PARTS Acessórios | Repuestos

Cutter DC	Insert Screw	Key (Torx)	Order separately Key (Torx - Nm)	Torque Value
			Nm	Nm
A17590 - 40 - 100	P0350904	XT10	DT1020	2,0
A17590 - 125	P0350904	PT10	DT1020	2,0
R17590 - 25 - 42	P0350904	XT10	DT1020	2,0
W17590 - 25-40	P0350904	XT10	DT1020	2,0
E17590 - 26 - 33	P0350904	XT10	DT1020	2,0

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.

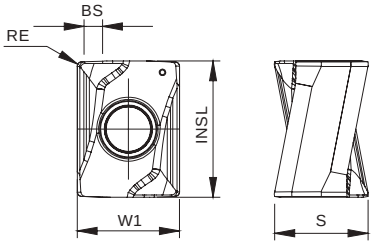


PLUS 17590

ANHX 1206... Inserts | Pastilhas | Plaquitas

ANHX-LS

ANHX-MP



ANHX-LS | MP

		P					M			K						S			Dimensions Dimensões Dimensiones (mm)				
		CVD	PVD				PVD			CVD	PVD					PVD							
	(2) Grade code	T9	T1	P3	P4	G6	P3	X9	G6	T9	L6	T1	P3	P4	G6	P3	X9	G6					
(1) Geometry code	ISO Reference	PHS740	PHP920	PH7930	PHP930	PH7740	PH7930	PHH930	PH7740	PHS740	PH5320	PHP920	PH7930	PHP930	PH7740	PH7930	PHH930	PH7740	W1	S	INSL	RE	BS
1112474	ANHX 120604 PNER-LS		◈		○	◈		◈	◈			◈		◈	◈		◈	◈	9,00	8,30	12,00	0,40	1,60
1112237	ANHX 120608 PNER-LS		◈		◈	◈		◈	◈			◈		◈	◈		◈	◈	9,00	8,30	12,00	0,80	1,20
1112429	ANHX 120616 PNER-LS		◈		○	◈		◈	◈			◈		○	◈		◈	◈	9,00	8,30	12,00	1,60	0,40
1112473	ANHX 120604 PNSR-MP		◈			◈			◈		◈	◈			◈			◈	9,00	8,30	12,00	0,40	1,60
1112238	ANHX 120608 PNSR-MP	◈	◈			◈			◈	◈	◈	◈			◈			◈	9,00	8,30	12,00	0,80	1,20
1112430	ANHX 120616 PNSR-MP		◈			◈			◈		◈	◈			◈			◈	9,00	8,30	12,00	1,60	0,40
1113476	ANHX 120620 PNSR-MP		○									○							9,00	8,30	12,00	2,00	-

◈ First choice | Primeira opção | 1ª opción ◈ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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

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

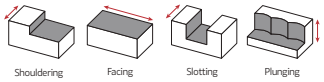
ISO	PSM	Material	HB (Brinell)	Vc (m/min) ← Wear Resistance Toughness →							Feed f_z (mm/t)	
				PH5320	PHP920	PHH930	PHP930	PH7930	PHS740	PH7740	ANHX 12... LS	ANHX 12... MP
P	1	Unalloyed Steel	125-220	-	180-250	-	160-220	160-220	140-220	140-200	0,08-0,20	0,08-0,30
	2	Low-Alloyed Steel	220-280	-	160-230	-	140-200	140-200	120-200	130-180	0,08-0,20	0,08-0,25
	3	High-Alloyed Steel	280-380	-	140-220	-	120-190	120-190	100-190	100-170	0,08-0,15	0,08-0,20
M	4	SS - Ferritic / Martensitic	200-330	-	-	140-210	-	140-200	-	130-180	0,08-0,20	-
	5	SS - Austenitic	200-330	-	-	120-170	-	120-160	-	110-160	0,08-0,15	-
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	-	100-150	-	100-140	-	90-150	0,08-0,15	-
K	7	Malleable Cast Iron	130-230	150-280	160-270	-	150-240	150-240	160-300	140-220	0,08-0,20	0,08-0,30
	8	Grey Cast Iron	180-245	160-320	140-250	-	140-230	140-230	150-260	120-210	0,08-0,20	0,08-0,25
	9	Nodular Cast iron	160-250	100-190	120-210	-	100-190	100-190	80-220	100-190	0,08-0,20	0,08-0,20
S	11	Heat Resistant Super Alloys	200-320	-	-	30-110	-	30-100	-	30-100	0,07-0,10	-

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

(Note 2)

Operation	a_e	Vc & fz	AP (mm)
Slotting	100%	<20%	2,5-4,0
Shouldering	<50%	>8%	4,0-7,0
	≤25%	>12%	7,0-10,0

(Note 3)
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.



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

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance — Toughness →					
				PH5320	PHP920	PHH930	PH7930	PHS740	PH7740
P	1	Unalloyed Steel	125-220		✓		✓	✓	✓
	2	Low-Alloyed Steel	220-280		✓		✓	✓	✓
	3	High-Alloyed Steel	280-380		✓		✓	✓	✓
M	4	SS - Ferritic / Martensitic	200-330			✓	✓		✓
	5	SS - Austenitic	200-330			✓	✓		✓
	6	SS - Austenitic-ferritic (Duplex)	230-260			✓	✓		✓
K	7	Malleable Cast Iron	130-230	✓	✓		✓	✓	✓
	8	Grey Cast Iron	180-245	✓	✓		✓	✓	✓
	9	Nodular Cast iron	160-250	✓	✓		✓	✓	✓
S	11	Heat Resistant Super Alloys	200-320				✓		✓

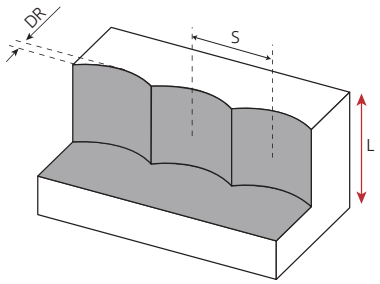
Good Conditions Average Conditions Difficult Conditions

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

ISO	PSM	Material	HB (Brinell)	Chip breaker application	
				1st choice	Difficult Operations
P	1	Unalloyed Steel	125-220	ANHX 12... LS	ANHX 12... MP
	2	Low-Alloyed Steel	220-280	ANHX 12... MP	-
	3	High-Alloyed Steel	280-380	ANHX 12... MP	-
M	4	SS - Ferritic / Martensitic	200-330	ANHX 12... LS	-
	5	SS - Austenitic	200-330	ANHX 12... LS	-
	6	SS - Austenitic-ferritic (Duplex)	220-260	ANHX 12... LS	-
K	7	Malleable Cast Iron	130-230	ANHX 12... LS	ANHX 12... MP
	8	Grey Cast Iron	180-245	ANHX 12... MP	-
	9	Nodular Cast iron	160-250	ANHX 12... MP	-
S	11	Heat Resistant Super Alloys	200-320	ANHX 12... LS	-

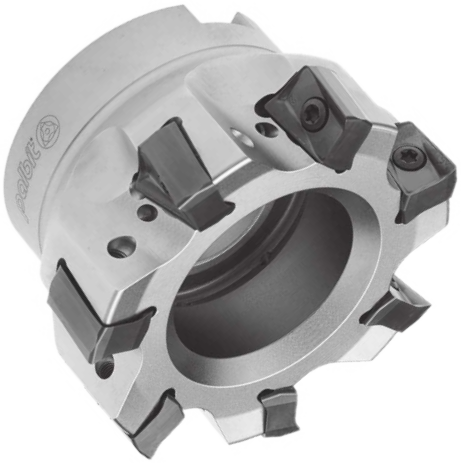
PLUNGING Mergulho | Plunge

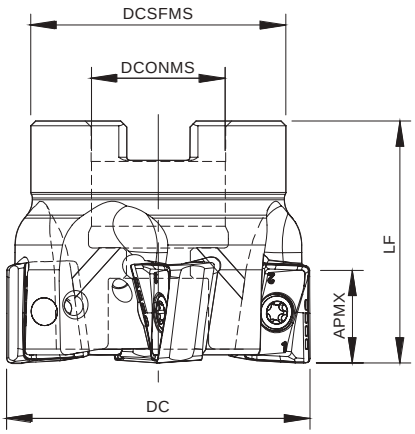
L≤3DC	L>3DC	S max.
f_z (mm/t)		
0,10-0,20	0,10-0,14	$Smax = \sqrt{DC.Dr - Dr^2}$



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

PLUS 18190



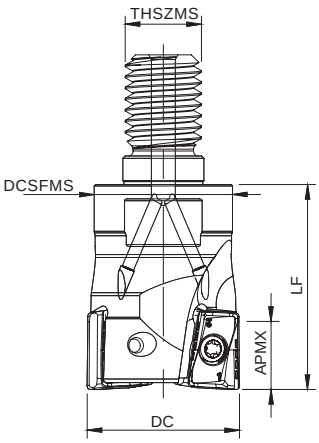


Arbor Mounting

KAPR=90° | GAMP=-4°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications		Insert Pastilha Inserto	Stock
			DC	DCONMS	DCSFMS	LF		Arbor Type	APMX (mm)		
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 | Produto de stock | Itens de stock ◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)



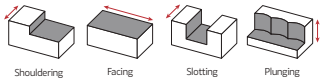
Threaded Coupling

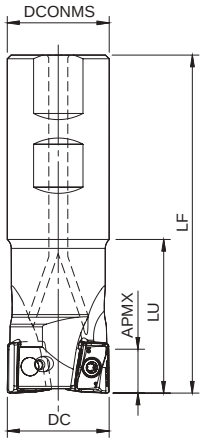
KAPR=90° | GAMP=-4°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications	Insert Pastilha Inserto	Stock
			DC	THSZMS	DCSFMS	LF		APMX (mm)		
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 | Produto de stock | Itens de stock ◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

PLUS 18190
ANHX 16





Weldon Shank

KAPR=90° | GAMP=-4°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications	Insert Pastilha Inserto	Stock
			DC	DCONMS	LF	LU		APMX (mm)		
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...	◈

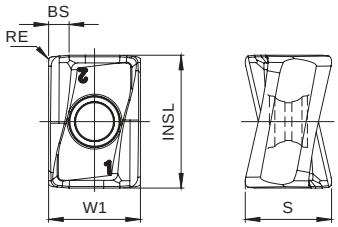
◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

ANHX 1607... Inserts | Pastilhas | Plaquitas

ANHX-LP

ANHX-MP

ANHX-LN



ANHX-LP | MP | LN

		P							K							N	Dimensions Dimensões Dimensiones (mm)				
		CVD	PVD						CVD	PVD						UNC					
	(2) Grade code	T9	G1	X5	G4	T1	P3	P4	T9	G1	X5	G4	T1	P3	P4	10					
(1) Geometry code	ISO Reference	PHS740	PH7910	PHP910	PH7920	PHP920	PH7930	PHP930	PHS740	PH7910	PHP910	PH7920	PHP920	PH7930	PHP930	PH0910	W1	S	INSL	RE	BS
1111519	ANHX 160708 PNR-LP		◇	◯		◈	◇	◈		◇	◯		◈	◇	◈		11,20	10,80	16,00	0,80	1,40
1111596	ANHX 160712 PNER-LP			◯		◈		◈			◯		◈		◈		11,20	10,50	16,00	1,20	1,20
1111595	ANHX 160708 PNER-MP	◈	◇	◯		◈		◈	◈	◇	◯		◈		◈		11,20	10,80	16,00	0,80	1,40
1111598	ANHX 160712 PNER-MP			◯		◈		◈			◯		◈		◈		11,20	10,50	16,00	1,20	1,20
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

◈ First choice | Primeira opção | 1ª opción ◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

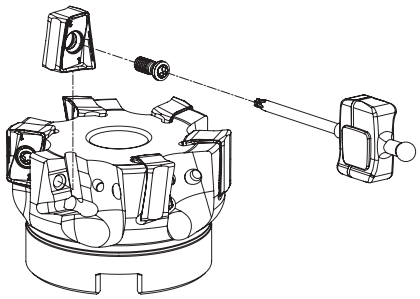
Insert order code = (1) Geometry Code + (2) Grade Code

◇ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

PLUS 18190

SPARE PARTS Acessórios | Repuestos

Cutter DC	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	-	-



Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.

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

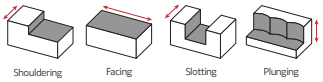
ISO	PSM	Material	HB (Brinell)	Vc (m/min) ← Wear Resistance						Toughness →	Feed f_Z (mm/t)		
				PH0910	PH7910	PHP920	PH7920	PHP930	PH7930	PHS740	ANHX 12.. LP	ANHX 12.. MP	ANHX 12.. LN
P	1	Unalloyed Steel	125-220	-	180-250	180-250	180-240	160-230	160-220	140-220	0,10-0,25	0,10-0,25	-
	2	Low-Alloyed Steel	220-280	-	160-230	160-230	160-220	140-210	140-200	120-200	0,10-0,25	0,10-0,25	-
	3	High-Alloyed Steel	280-380	-	140-220	140-220	140-210	120-200	120-190	100-190	0,10-0,20	0,10-0,20	-
K	7	Malleable Cast Iron	130-230	-	180-300	160-270	160-260	150-250	150-240	160-300	0,10-0,25	0,10-0,25	-
	8	Grey Cast Iron	180-245	-	160-250	140-250	140-240	140-230	140-230	150-260	0,10-0,25	0,10-0,25	-
	9	Nodular Cast iron	160-250	-	150-200	120-210	120-200	100-200	100-190	80-220	0,10-0,20	0,10-0,25	-
N	10	Aluminium and Non Ferrous	30-130	100-2000	-	-	-	-	-	-	-	-	0,10-0,40

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

(Note 2)

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

(Note 3)
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.



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

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance — Toughness →						
				PH0910	PH7910	PHP920	PH7920	PHP930	PH7930	PHS740
P	1	Unalloyed Steel	125-220		✓	✓	✓	✓	✓	✓
	2	Low-Alloyed Steel	220-280		✓	✓	✓	✓	✓	✓
	3	High-Alloyed Steel	280-380		✓	✓	✓	✓	✓	✓
K	7	Malleable Cast Iron	130-230		✓	✓	✓	✓	✓	✓
	8	Grey Cast Iron	180-245		✓	✓	✓	✓	✓	✓
	9	Nodular Cast iron	160-250		✓	✓	✓	✓	✓	✓
N	10	Aluminium and Non Ferrous	30-130	✓						

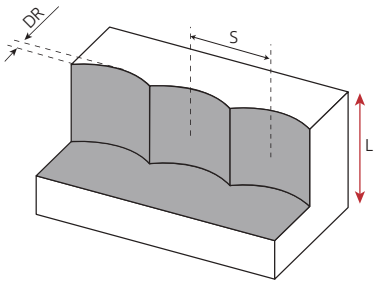
Good Conditions Average Conditions Difficult Conditions

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

ISO	PSM	Material	HB (Brinell)	Chip breaker application	
				1st choice	Difficult Operations
P	1	Unalloyed Steel	125-220	ANHX 16... LP	ANHX 16... MP
	2	Low-Alloyed Steel	220-280	ANHX 16... LP	ANHX 16... MP
	3	High-Alloyed Steel	280-380	ANHX 16... LP	ANHX 16... MP
K	7	Malleable Cast Iron	130-230	ANHX 16... LP	ANHX 16... MP
	8	Grey Cast Iron	180-245	ANHX 16... LP	ANHX 16... MP
	9	Nodular Cast iron	160-250	ANHX 16... LP	ANHX 16... MP
N	10	Aluminium and Non Ferrous	30-130	ANHX 16... 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

20090 | 20190 | 20290

LINEPRO

The LINEPRO series comprises highly versatile tools designed for roughing, semi-finishing, and finishing operations, boasting extended tool life and high performance machining capabilities. Their design ensures efficient chip evacuation, while a wide array of chip breaker options, carbide grades, and corner radii enhance their adaptability and reliability across various materials.

A série LINEPRO é composta por ferramentas altamente versáteis projetadas para operações de desbaste, semi-acabamento e acabamento, proporcionando uma vida útil prolongada e capacidades de fresagem de alto desempenho. O seu design garante uma evacuação eficiente de aparas, enquanto uma ampla variedade de opções de quebra-aparas, graus de metal duro e raios de canto aumentam sua adaptabilidade e fiabilidade em diversos materiais.

La serie LINEPRO está compuesta por herramientas altamente versátiles diseñadas para operaciones de desbaste, semiacabado y acabado, proporcionando una vida útil prolongada y capacidades de fresado de alto rendimiento. Su diseño garantiza una evacuación eficiente de virutas, mientras que una amplia variedad de opciones de rompevirutas, grados de carburo y radios de esquina aumentan su adaptabilidad y fiabilidad en diversos materiales.

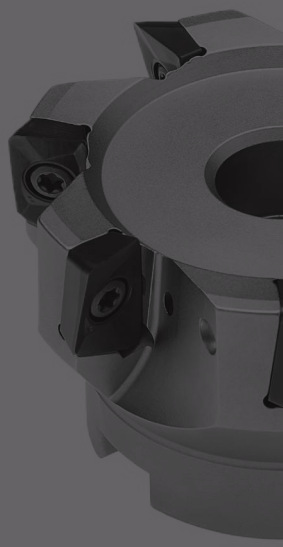
LINEPRO 20090 > page 156

- From DC 10mm to 32mm
  De DC 10mm a 32mm | Desde DC 10mm hasta 32mm
- Available in threaded coupling and cylindrical shank
  Disponível em acoplamento roscado e haste cilíndrica | Disponible en fijación roscada y mango cilíndrico
- Small positive insert with 2 cutting edges (XP.. 0602..)
  Pastilha positiva pequena com 2 arestas de corte (XP.. 0602..) | Plaquita positiva pequeña con 2 filos de corte (XP.. 0602..)
- Wiper edge for excellent surface finish
  Face alisadora para excelente acabamento superficial | Faceta alisadora para un excelente acabado superficial

LINEPRO 20190 > page 162

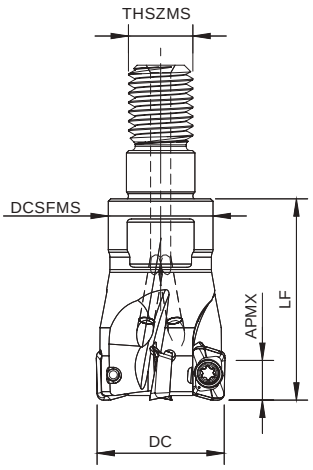
- From DC 16mm to 63mm
  De DC 16mm a 63mm | Desde DC 16mm hasta 63mm
- Available in arbor, threaded, weldon and cylindrical shank
  Disponível em montagem tipo árvore, acoplamento roscado, haste weldon e cilíndrica | Disponible en fijación con tornillo central, fijación roscada, mango tipo weldon y cilindrico
- Medium positive insert with 2 cutting edges (XP.. 1003..)
  Pastilha positiva média com 2 arestas de corte (XP.. 1003..) | Plaquita positiva media con 2 filos de corte (XP.. 1003..)
- Radius from 0,8mm to 3,2mm
  Raio de 0,8mm a 3,2mm | Radio de 0,8 mm a 3,2mm

LINEPRO 20290 > page 172



- From DC 32mm to 125mm
  De DC 32mm a 125mm | Desde DC 32mm hasta 125mm
- Available in arbor mounting and weldon shank
  Disponível em montagem tipo árvore e haste weldon | Disponible en fijación con tornillo central y mango tipo weldon
- Large positive insert with 2 cutting edges (XP.. 1706..)
  Pastilha positiva grande com 2 arestas de corte (XP.. 1706..) | Plaquita positiva grande con 2 filos de corte (XP.. 1706..)
- Radius from 0,2mm to 4,0mm
  Raio de 0,8mm a 4,0mm | Radio de 0,2mm a 4,0mm

LINEPRO 20090

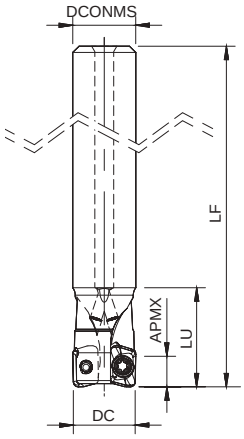


Threaded Coupling

KAPR=90° | GAMP=+4°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	APMX (mm)			Insert Pastilha Inserto	Stock
			DC	THSZMS	DCSFMS	LF		LP|LN	HF	MH		
181120400	010R20090-02-04-M06020	2	10	M6	9,8	20	0,01	4,00	0,30	2,00	XP.. 0602...	◈
181112800	011R20090-02-04-M06020	2	11	M6	9,8	20	0,01	4,00	0,30	2,00	XP.. 0602...	◈
181120500	012R20090-03-04-M06020	3	12	M6	9,8	20	0,02	4,00	0,30	2,00	XP.. 0602...	◈
181112900	013R20090-03-04-M06020	3	13	M6	9,8	20	0,02	4,00	0,30	2,00	XP.. 0602...	◈
181087500	016R20090-04-04-M08025	4	16	M8	13,0	25	0,03	4,00	0,30	2,00	XP.. 0602...	◈
181113000	017R20090-04-04-M08025	4	17	M8	13,0	25	0,04	4,00	0,30	2,00	XP.. 0602...	◈
181087600	020R20090-05-04-M10030	5	20	M10	18,0	30	0,06	4,00	0,30	2,00	XP.. 0602...	◈
181087700	025R20090-07-04-M12030	7	25	M12	21,0	30	0,09	4,00	0,30	2,00	XP.. 0602...	◈
181087800	032R20090-08-04-M16035	8	32	M16	29,0	35	0,19	4,00	0,30	2,00	XP.. 0602...	◈

◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

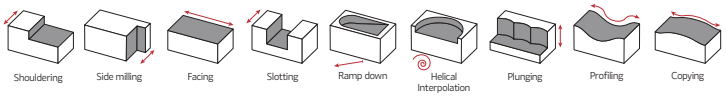


Cylindrical Shank

KAPR=90° | GAMP=+4°

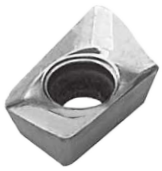
Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	APMX (mm)			Insert Pastilha Inserto	Stock
			DC	DCONMS	LF	LU		LP|LN	HF	MH		
181087100	010E20090-02-04-010055	2	10	10	55	16	0,03	4,00	0,30	2,00	XP.. 0602...	◈
181108300	010E20090-02-04-010100	2	10	10	100	25	0,03	4,00	0,30	2,00	XP.. 0602...	◈
181087200	012E20090-02-04-012080	2	12	12	80	17	0,06	4,00	0,30	2,00	XP.. 0602...	◈
181109900	012E20090-03-04-012120	3	12	12	120	30	0,06	4,00	0,30	2,00	XP.. 0602...	◈
181087300	016E20090-03-04-016090	3	16	16	90	20	0,12	4,00	0,30	2,00	XP.. 0602...	◈
181087400	016E20090-04-04-016090	4	16	16	90	20	0,11	4,00	0,30	2,00	XP.. 0602...	◈
181097100	017E20090-05-04-016090	5	17	16	90	35	0,11	4,00	0,30	2,00	XP.. 0602...	◈
181097200	021E20090-05-04-020090	5	21	20	90	35	0,13	4,00	0,30	2,00	XP.. 0602...	◈

◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8))

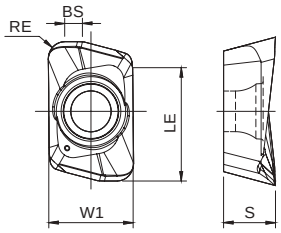


XP.. 0602... Inserts | Pastilhas | Plaquitas

XPET-LP

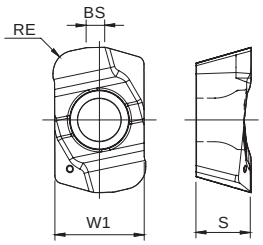


XPET-LN



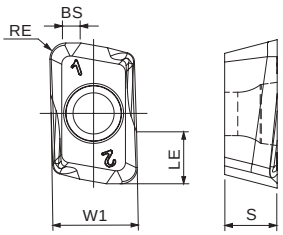
XPET-LP | LN

XPET-HF
(HiFeed geometry)



XPET-HF

XPHW-MH
(finishing geometry)



XPHW-MH

		P				M	K		N	S	H		Dimensions Dimensões Dimensiones (mm)				
		PVD				PVD	PVD		UNC	PVD	PVD						
	(2) Grade code	X4	X6	T1	P4	X9	T1	P4	10	X9	X4	X6					
(1) Geometry code	ISO Reference	PHH603	PHH910	PHP920	PHP930	PHH930	PHP920	PHP930	PH0910	PHH930	PHH603	PHH910	W1	S	LE	RE	BS
1112520	XPET 060202 PDER-LP			○		○	○			○			3,90	2,40	5,10	0,20	1,00
1112002	XPET 060204 PDER-LP			◬	◬	◬	◬	◬		◬			3,90	2,40	5,30	0,40	0,80
1112003	XPET 060208 PDER-LP			◬	◬	◬	◬	◬		◬			3,90	2,40	5,30	0,80	0,60
1112004	XPET 060216 PDER-LP			◬	◬		◬	◬					3,90	2,40	5,30	1,60	0,50
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
1112581	XPET 060208 PDFR-LN								○				3,90	2,40	5,10	0,80	0,92
1112716	XPET 060212 PDFR-LN								○				3,90	2,40	5,10	1,20	0,58
1112049	XPET 060210 ZER-HF			◬	◬	◬	◬	◬		◬			3,90	2,40	-	1,00	0,80
1112259	XPHW 060208 ZER-MH	◬	◬								◬	◬	3,90	2,40	2,40	0,80	0,70

◬ First choice | Primeira opção | 1ª opción ◬ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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

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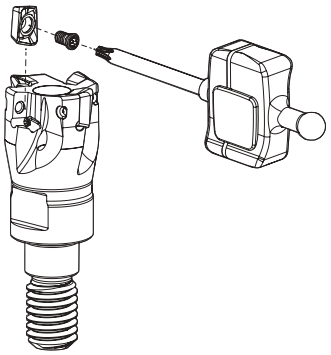
SPARE PARTS Acessórios | Repuestos

Order separately

Cutter DC	Insert Screw	Key (Torx)	Key (Torx - Nm)	Torque Value
E20090 - 10	P0180300	XT06IP	DT0606IP	0,6
E20090 - 12-21	P0180400	XT06IP	DT0606IP	0,6
R20090 - 10	P0180300	XT06IP	DT0606IP	0,6
R20090 - 12-32	P0180400	XT06IP	DT0606IP	0,6

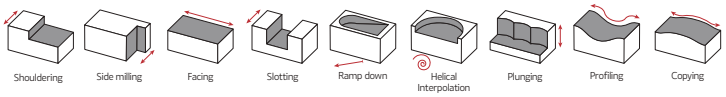
Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.



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

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance					Toughness →
				PH0910	PHH603	PHH910	PHP920	PHP930	PHH930
P	1	Unalloyed Steel	125-220				✓	✓	
	2	Low-Alloyed Steel	220-280			✓	✓	✓	
	3	High-Alloyed Steel	280-380		✓	✓	✓	✓	
M	4	SS - Ferritic / Martensitic	200-330						✓
	5	SS - Austenitic	200-330						✓
	6	SS - Austenitic-ferritic (Duplex)	230-260						✓
K	7	Malleable Cast Iron	130-230				✓	✓	
	8	Grey Cast Iron	180-245				✓	✓	
	9	Nodular Cast iron	160-250				✓	✓	
N	10	Aluminium and Non Ferrous	30-130	✓					
S	11	Heat Resistant Super Alloys	200-320						✓
H	12	Hardened Steels	40-55 HRC		✓	✓			

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	PHH603	PHH910	PHP920	PHP930	PHH930
P	1	Unalloyed Steel	125-220	-	-	-	180-250	160-230	-
	2	Low-Alloyed Steel	220-280	-	-	160-270	160-230	140-210	-
	3	High-Alloyed Steel	280-380	-	180-310	140-230	140-220	120-200	-
M	4	SS - Ferritic / Martensitic	200-330	-	-	-	-	-	140-210
	5	SS - Austenitic	200-330	-	-	-	-	-	120-170
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	-	-	-	-	100-150
K	7	Malleable Cast Iron	130-230	-	-	-	160-270	150-250	-
	8	Grey Cast Iron	180-245	-	-	-	140-250	140-230	-
	9	Nodular Cast iron	160-250	-	-	-	120-210	100-200	-
N	10	Aluminium and Non Ferrous	30-130	100-2000	-	-	-	-	-
S	11	Heat Resistant Super Alloys	200-320	-	-	-	-	-	30-110
H	12	Hardened Steels	40-55 HRC	-	70-270	70-260	-	-	-

ISO	PSM	Material	HB (Brinell)	Feed fz (mm/t)			
				XPET 06...LP	XPET 06...LN	XPET 06...HF	XPHW 06...MH
P	1	Unalloyed Steel	125-220	0,05-0,07	-	0,40-0,80	-
	2	Low-Alloyed Steel	220-280	0,05-0,07	-	0,40-0,80	0,05-0,12
	3	High-Alloyed Steel	280-380	0,05-0,07	-	0,40-0,60	0,05-0,12
M	4	SS - Ferritic / Martensitic	200-330	0,05-0,07	-	0,40-0,80	-
	5	SS - Austenitic	200-330	0,05-0,07	-	0,40-0,60	-
	6	SS - Austenitic-ferritic (Duplex)	230-260	0,05-0,07	-	0,40-0,60	-
K	7	Malleable Cast Iron	130-230	0,05-0,07	-	0,40-0,80	-
	8	Grey Cast Iron	180-245	0,05-0,07	-	0,40-0,80	-
	9	Nodular Cast iron	160-250	0,05-0,07	-	0,40-0,80	-
N	10	Aluminium and Non Ferrous	30-130	-	0,05-0,07	-	-
S	11	Heat Resistant Super Alloys	200-320	0,05-0,07	-	0,40-0,60	-
H	12	Hardened Steels	40-55 HRC	-	-	-	0,03-0,10

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

(Note 2)

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

(Note 3) 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.

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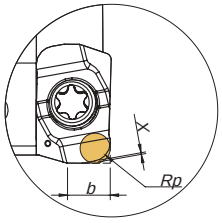
CHIP BREAKER SELECTION GUIDE Guia para aplicações do quebra-aparas | Guía para aplicación del rompevirutas

ISO	PSM	Material	HB (Brinell)	Chip breaker application	
				1st choice	Dificult Operations
P	1	Unalloyed Steel	125-220	XPET 06... LP/HF	-
	2	Low-Alloyed Steel	220-280	XPET 06... LP/HF	XPHW 06... MH
	3	High-Alloyed Steel	280-380	XPET 06... LP/HF	XPHW 06... MH
M	4	SS - Ferritic / Martensitic	200-330	XPET 06... LP/HF	-
	5	SS - Austenitic	200-330	XPET 06... LP/HF	-
	6	SS - Austenitic-ferritic (Duplex)	230-260	XPET 06... LP/HF	-
K	7	Malleable Cast Iron	130-230	XPET 06... LP/HF	-
	8	Grey Cast Iron	180-245	XPET 06... LP/HF	-
	9	Nodular Cast iron	160-250	XPET 06... LP/HF	-
N	10	Aluminium and Non Ferrous	30-130	XPET 06... LN	-
S	11	Heat Resistant Super Alloys	200-320	XPET 06... LP/HF	-
H	12	Hardened Steels	40-55 HRC	XPHW 06... MH	-

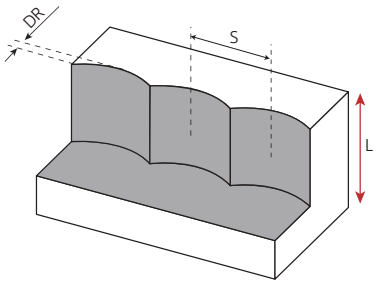
PROGRAMMING DATA Dados para programação | Datos para la programación

Insert	Programming Data		
	Rp	X	b
XPET 06 HF	1,1	0,84	2,3



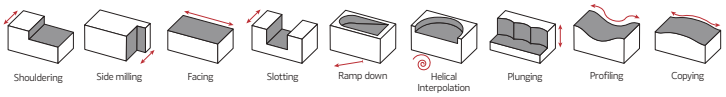
PLUNGING Mergulho | Plunge

L≤3DC	L>3DC	S max.
f_z (mm/t)		
0,04-0,07	0,03-0,05	$Smax = \sqrt{DC.DR - DR^2}$



S max and DR corresponding cutting diameter DC (mm)								
DR (mm)	DC (mm)							
	10	12	16	17	20	21	25	32
0,5	2,2	2,4	2,8	2,9	3,1	3,2	3,5	4,0
1	3,0	3,3	3,9	4,0	4,4	4,5	4,9	5,6
2*	4,0	4,5	5,3	5,5	6,0	6,2	6,8	7,7

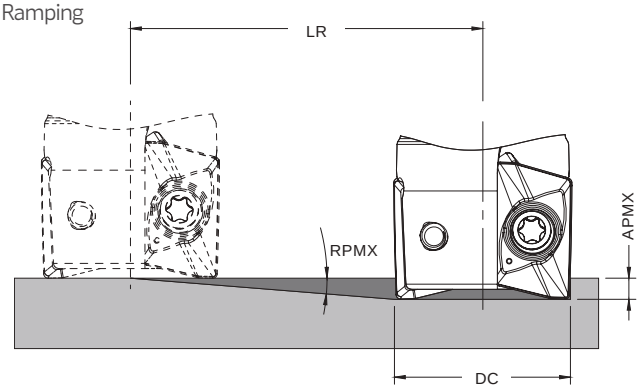
* only for radius above 1,6mm



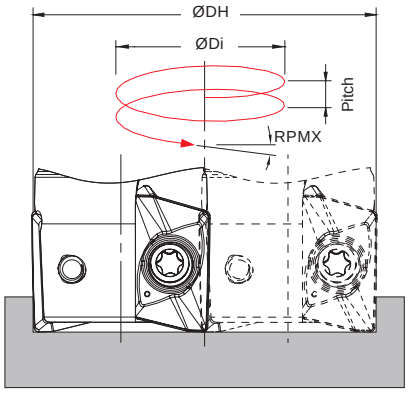
RAMPING AND HELICAL INTERPOLATION

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

Ramping



Helical Interpolation



Blind hole
Flat bottom

ØDi = ØDH - DC

DC	Ramping			Helical Interpolation		
				Diameter for Blind Hole, Flat Bottom Face (1)		Max Pitch/Rev.
	RPMX	APMX	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 LP insert with radius 0,8 mm

Note: During helical interpolation do not exceed maximum pitch

When using HF insert or other different insert radius to calculate the ØDHmin and ØDHmax use the equation below:
- Minimum Diameter: ØDHmin = 2 x (DC - (R corner radius + F width of edge wiper)
- Maximum Diameter: ØDHmax = 2 x (DC - R corner radius)
(On HF insert the corner radius should be corner radius programming)

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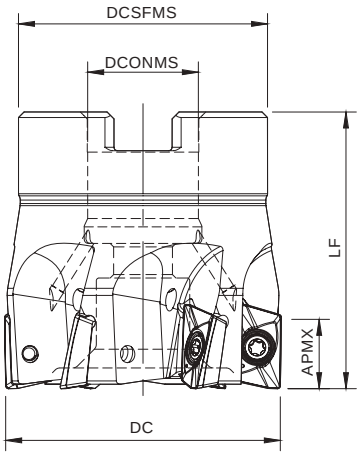


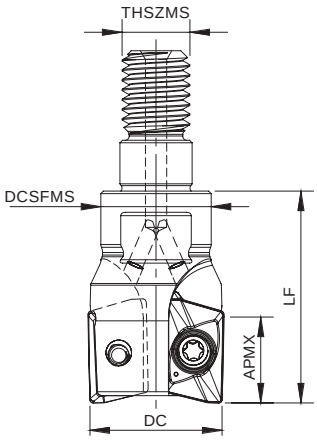
Arbor Mounting

KAPR=90° | GAMP=+8°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Arbor Type	APMX (mm)				Insert Pastilha Inserto	Stock
			DC	DCONMS	DCSFMS	LF			LP/MP/LN	LS	HF	MH		
181088600	040A20190-06-08-016040	6	40	16	36	40	0,22	A	10,0	10,0	0,80	3,00	XP.. 1003...	◎
181088700	050A20190-07-08-022040	7	50	22	42	40	0,31	A	10,0	10,0	0,80	3,00	XP.. 1003...	◎
181088800	063A20190-08-08-022040	8	63	22	52	40	0,43	A	10,0	10,0	0,80	3,00	XP.. 1003...	◎
181216500	080A20190-10-08-027050	10	80	27	60	40	1,00	A	10,0	10,0	0,80	3,00	XP.. 1003...	◎
181216600	100A20190-12-08-032050	12	100	32	80	50	1,00	A	10,0	10,0	0,80	3,00	XP.. 1003...	◎
181201900	040A20190-06-08-016040-B*	6	40	16	36	40	0,22	A	-	10,0	-	3,00	XP.. 1003...	◎
181202100	050A20190-07-08-022040-B*	7	50	22	42	40	0,31	A	-	10,0	-	3,00	XP.. 1003...	◎
181202300	060A20190-08-08-022040-B*	8	60	22	52	40	0,48	A	-	10,0	-	3,00	XP.. 1003...	◎
181202200	063A20190-08-08-022040-B*	8	63	22	52	40	0,43	A	-	10,0	-	3,00	XP.. 1003...	◎

◎ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

Note: Type -B* cutters can only assemble inserts with a radius between 2,0 and 4,0.



Threaded Coupling

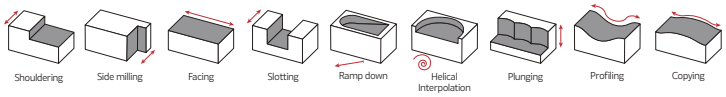
KAPR=90° | GAMP=+5°~+6°

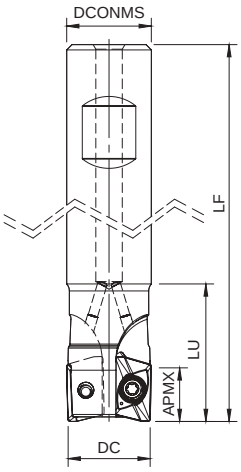
Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	APMX (mm)				Insert Pastilha Inserto	Stock
			DC	THSZMS	DCSFMS	LF		LP/MP/LN	LS	HF	MH		
181088200	016R20190-02-05-M08025	2	16	M8	14	25	0,03	10,0	10,0	0,80	3,00	XP.. 1003...	◎
181088300	020R20190-03-05-M10030	3	20	M10	18	30	0,06	10,0	10,0	0,80	3,00	XP.. 1003...	◎
181088400	025R20190-04-05-M12035	4	25	M12	21	35	0,12	10,0	10,0	0,80	3,00	XP.. 1003...	◎
181088500	032R20190-05-06-M16035	5	32	M16	29	35	0,15	10,0	10,0	0,80	3,00	XP.. 1003...	◎
181210300	035R20190-05-06-M16035	5	35	M16	29	35	0,18	10,0	10,0	0,80	3,00	XP.. 1003...	◎
181149100	040R20190-06-08-M16043	6	40	M16	29	43	0,25	10,0	10,0	0,80	3,00	XP.. 1003...	◎
181200100	016R20190-02-05-M08025-B*	2	16	M8	14	25	0,03	-	10,0	-	3,00	XP.. 1003...	◎
181200700	020R20190-03-05-M10030-B*	3	20	M10	18	30	0,06	-	10,0	-	3,00	XP.. 1003...	◎
181201300	025R20190-04-05-M12035-B*	4	25	M12	21	35	0,12	-	10,0	-	3,00	XP.. 1003...	◎
181201700	032R20190-05-06-M16035-B*	5	32	M16	29	35	0,15	-	10,0	-	3,00	XP.. 1003...	◎
181202000	040R20190-06-08-M16043-B*	6	40	M16	29	43	0,25	-	10,0	-	3,00	XP.. 1003...	◎

◎ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

Note: Type -B* cutters can only assemble inserts with a radius between 2,0 and 4,0.

LINEPRO 20190
XPET 10 | XPHW 10





Weldon Shank

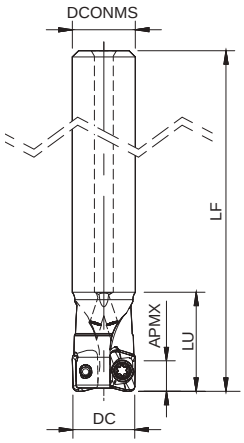
KAPR=90° | GAMP=+5°~+8°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	APMX (mm)				Insert Pastilha Inserto	Stock
			DC	DCONMS	LF	LU		LP/MP/LN	LS	HF	MH		
181087900	016W20190-02-05-016085	2	16	16	85	32	0,10	10,0	10,0	0,80	3,00	XP.. 1003...	⚙
181100600	016W20190-02-05-016150	2	16	16	150	70	0,13	10,0	10,0	0,80	3,00	XP.. 1003...	⚙
181108600	017W20190-02-05-016150	2	17	16	150	36	0,14	10,0	10,0	0,80	3,00	XP.. 1003...	⚙
181088000	020W20190-03-05-020090	3	20	20	90	28	0,21	10,0	10,0	0,80	3,00	XP.. 1003...	⚙
181100700	020W20190-03-05-020150	3	20	20	150	70	0,26	10,0	10,0	0,80	3,00	XP.. 1003...	⚙
181108700	022W20190-03-05-020150	3	22	20	150	70	0,30	10,0	10,0	0,80	3,00	XP.. 1003...	⚙
181088100	025W20190-04-05-025095	4	25	25	95	30	0,33	10,0	10,0	0,80	3,00	XP.. 1003...	⚙
181100800	025W20190-04-05-025150	4	25	25	150	80	0,36	10,0	10,0	0,80	3,00	XP.. 1003...	⚙
181108800	027W20190-04-05-025150	4	27	25	150	80	0,38	10,0	10,0	0,80	3,00	XP.. 1003...	⚙
181085400	032W20190-04-08-032110	4	32	32	110	50	0,55	10,0	10,0	0,80	3,00	XP.. 1003...	⚙
181200200	016W20190-02-05-016085-B*	2	16	16	85	32	0,10	-	10,0	-	3,00	XP.. 1003...	⚙
181200300	016W20190-02-05-016150-B*	2	16	16	150	70	0,13	-	10,0	-	3,00	XP.. 1003...	⚙
181200400	017W20190-02-05-016150-B*	2	17	16	150	36	0,14	-	10,0	-	3,00	XP.. 1003...	○
181200800	020W20190-03-05-020090-B*	3	20	20	90	28	0,21	-	10,0	-	3,00	XP.. 1003...	⚙
181200900	020W20190-03-05-020150-B*	3	20	20	150	70	0,26	-	10,0	-	3,00	XP.. 1003...	⚙
181201000	022W20190-03-05-020150-B*	3	22	20	150	70	0,30	-	10,0	-	3,00	XP.. 1003...	⚙
181201400	025W20190-04-05-025095-B*	4	25	25	95	30	0,33	-	10,0	-	3,00	XP.. 1003...	○
181201500	025W20190-04-05-025150-B*	4	25	25	150	80	0,36	-	10,0	-	3,00	XP.. 1003...	⚙
181201600	027W20190-04-05-025150-B*	4	27	25	150	80	0,38	-	10,0	-	3,00	XP.. 1003...	○
181201800	032W20190-04-08-032110-B*	4	32	32	110	50	0,55	-	10,0	-	3,00	XP.. 1003...	⚙

⚙ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

Note: Type -B* cutters can only assemble inserts with a radius between 2,0 and 4,0.

LINEPRO 20190



Cylindrical Shank

KAPR=90° | GAMP=+4°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	APMX (mm)				Insert Pastilha Inserto	Stock
			DC	DCONMS	LF	LU		LP/MP/LN	LS	HF	MH		
181171700	016E20190-02-05-016085	2	16	16	85	32	0,10	10,0	10,0	0,80	3,00	XP.. 1003...	◎
181173000	016E20190-02-05-016150	2	16	16	150	70	0,13	10,0	10,0	0,80	3,00	XP.. 1003...	◎
181171600	020E20190-03-05-020090	3	20	20	90	28	0,14	10,0	10,0	0,80	3,00	XP.. 1003...	◎
181171800	020E20190-03-05-020150	3	20	20	150	70	0,21	10,0	10,0	0,80	3,00	XP.. 1003...	◎
181171400	025E20190-04-05-025095	4	25	25	95	30	0,26	10,0	10,0	0,80	3,00	XP.. 1003...	◎
181172900	025E20190-04-05-025150	4	25	25	150	80	0,30	10,0	10,0	0,80	3,00	XP.. 1003...	◎
181199900	016E20190-02-05-016085-B*	2	16	16	85	32	0,10	-	10,0	-	3,00	XP.. 1003...	◎
181200000	016E20190-02-05-016150-B*	2	16	16	150	70	0,13	-	10,0	-	3,00	XP.. 1003...	◎
181200500	020E20190-03-05-020090-B*	3	20	20	90	28	0,14	-	10,0	-	3,00	XP.. 1003...	◎
181200600	020E20190-03-05-020150-B*	3	20	20	150	70	0,21	-	10,0	-	3,00	XP.. 1003...	◎
181201100	025E20190-04-05-025095-B*	4	25	25	95	30	0,26	-	10,0	-	3,00	XP.. 1003...	◎
181201200	025E20190-04-05-025150-B*	4	25	25	150	80	0,30	-	10,0	-	3,00	XP.. 1003...	◎

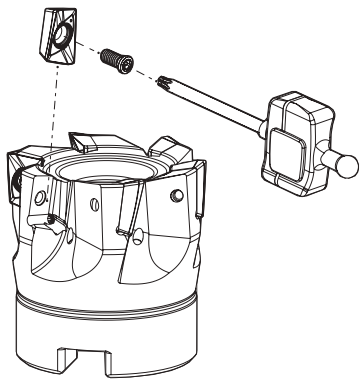
◎ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

Note: Type -B* cutters can only assemble inserts with a radius between 2,0 and 4,0.

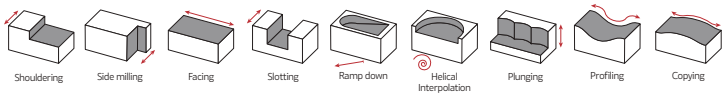
SPARE PARTS Acessórios | Repuestos

Order separately

Cutter DC	Insert Screw	Key (Torx)	Key (Torx - Nm)	Torque Value
			Nm	Nm
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



Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.



TOOLHOLDER TYPES: A VS. B

Radius	
0,4	Type A (the reference “-A” is hidden by default)
0,8	
1,2	
1,6	
2,0	Type B
3,2	
4,0	

Toolholders are designed to accommodate inserts with various radius.
On the LinePro 20190 toolholders, there are two types that can be distinguished by their specific features.

Toolholder Types: A vs. B

> **Type A Toolholders,** denoted by the "-A" reference, are tailored for inserts with radius of 0.4, 0.8, 1.2, and 1.6 mm. It's important to note that the "-A" reference is hidden by default. These toolholders are characterized by a more streamlined and less pronounced radius support, making them suitable for smaller insert radius.

> **Type B Toolholders,** denoted by the "-B" reference, are intended for inserts with larger radius of 2.0, 3.2, and 4.0 mm. They stand out with a pronounced radius support, which allows for a more secure fit and excellent performance when used with inserts of these sizes.

When distinguishing between the two, look for the degree of rounding in the supports; Type B toolholders, indicated by the "-B" reference, feature more substantial radius supports, making them easily identifiable.

LINEPRO 20190

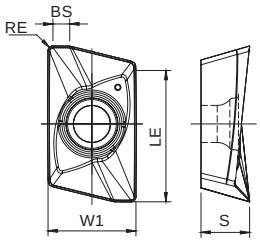
XPET 1003... Inserts | Pastilhas | Plaquitas

XPET-LP

XPET-LS

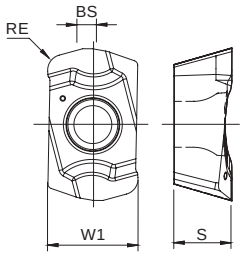
XPET-MP

XPET-LN



XPET-LP | LS | MP | LN

XPET-HF
(HiFeed geometry)

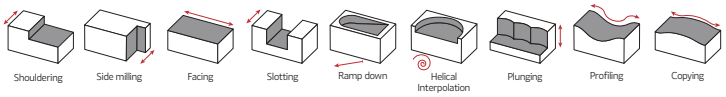


XPET-HF

		P					M		K					N		S		H		Dimensions Dimensões Dimensiones (mm)				
		CVD	PVD				PVD		CVD		PVD			UNC	PCD	PVD		PVD						
	(2) Grade code	T9	G1	X5	T1	P4	X9	4H	L5	L9	X5	T1	P4	10	D6	X9	4H	X4	X6					
(1) Geometry code	ISO Reference	PHS740	PH7910	PHP910	PHP920	PHP930	PHH930	PHF530	PH5705	PH5740	PHP910	PHP920	PHP930	PH0910	PDP410	PHH930	PHF530	PHH1603	PHH1910	W1	S	LE	RE	BS
1113132	XPET 100302 PDER-LP					◬	◭									◭				6,95	3,96	10,50	0,20	1,50
1111980	XPET 100304 PDER-LP				◭	◬	◭					◭	◬			◭				6,95	3,96	10,50	0,40	1,30
1111981	XPET 100308 PDER-LP	◬			◭	◬	◭					◭	◬			◭				6,95	3,96	10,50	0,80	1,40
1112022	XPET 100316 PDER-LP				◭	◬	◭					◭	◬			◭				6,95	3,96	10,50	1,60	0,80
1113365	XPET 100304 PDER-LS				◭		◭					◭				◭				6,95	3,96	10,50	0,40	1,90
1112197	XPET 100308 PDER-LS				◭		◬	◭				◭				◬	◭			6,95	3,96	10,50	0,80	1,50
1113358	XPET 100312 PDER-LS				◭		◭					◭				◭				6,95	3,96	10,50	1,20	1,00
1113366	XPET 100316 PDER-LS				◭		◭					◭				◭				6,95	3,96	10,50	1,60	0,80
1113359	XPET 100320 PDER-LS				◭		◭					◭				◭				6,95	3,96	10,50	2,00	1,60
1113360	XPET 100332 PDER-LS				◭		◭					◭				◭				6,95	3,96	10,50	3,20	0,50
1113394	XPET 100340 PDER-LS				○		○					○				○				6,95	3,96	10,50	4,00	0,20
1111982	XPET 100304 PDSR-MP			○	◭	◬			◭	◭	○	◬	◬							6,95	3,96	10,50	0,40	1,10
1111983	XPET 100308 PDSR-MP	◬		◬	◭	◬			◭	◭	◬	◬	◬							6,95	3,96	10,50	0,80	1,35
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
1112376	XPET 100312 ZDR-HF			◬	◭	◬	◭				◬	◭	◬			◭				6,95	3,96	-	1,20	1,50

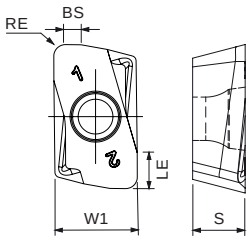
◭ First choice | Primeira opção | 1ª opción ◬ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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

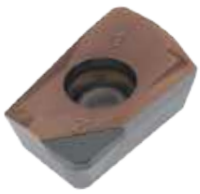


XPHW 1003... Inserts | Pastilhas | Plaquitas

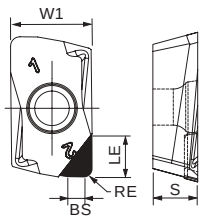
XPHW-MH
(finishing geometry)



XPHW-MH



XPHW-R Z1



XPHW-R Z1

		P					M	K					N		S	H		Dimensions Dimensões Dimensiones (mm)				
		CVD	PVD				PVD	CVD		PVD			UNC	PCD	PVD	PVD						
	(2) Grade code	T9	G1	X5	T1	P4	X9	L5	L9	X5	T1	P4	10	D6	X9	X4	X6					
(1) Geometry code	ISO Reference	PHS740	PH7910	PHP910	PHP920	PHP930	PHH930	PH5705	PH5740	PHP910	PHP920	PHP930	PH0910	PDP410	PHH930	PHH603	PHH910	W1	S	LE	RE	BS
1112500	XPHW 100308 ZER-MH															◉	⊛	6,95	3,60	3,00	0,80	1,50
1112736	XPHW 100310 ZER-MH															◉		6,95	3,60	3,00	1,00	1,30
1112735	XPHW 100320 ZER-MH															◉		6,95	3,60	3,00	1,20	0,30
1112556	XPHW 100308 R Z1													⊛				6,95	3,60	3,80	0,80	1,50

◉ First choice | Primeira opção | 1ª opción ⊛ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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

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
				PH0910	PH5705	PHH603	PHP910	PHP920	PHP930	PHH930	PHF530	PH5740	PHS740	PDP410
P	1	Unalloyed Steel	125-220	-	-	-	180-250	180-250	160-230	-	-	-	140-220	-
	2	Low-Alloyed Steel	220-280	-	-	-	160-240	160-230	140-210	-	-	-	120-200	-
	3	High-Alloyed Steel	280-380	-	-	180-310	140-230	140-220	120-200	-	-	-	100-190	-
M	4	SS - Ferritic / Martensitic	200-330	-	-	-	-	-	-	140-210	140-250	-	-	-
	5	SS - Austenitic	200-330	-	-	-	-	-	-	120-170	130-240	-	-	-
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	-	-	-	-	-	100-150	120-220	-	-	-
K	7	Malleable Cast Iron	130-230	-	160-290	-	180-300	160-270	150-250	-		160-260	-	-
	8	Grey Cast Iron	180-245	-	170-320	-	160-250	140-250	140-230	-		140-240	-	-
	9	Nodular Cast iron	160-250	-	140-200	-	150-210	120-210	100-200	-		120-200	-	-
N	10	Aluminium and Non Ferrous	30-130	100-2000	-	-	-	-	-	-		-	-	800-3000
S	11	Heat Resistant Super Alloys	200-320	-	-	-	-	-	-	30-110		-	-	-
H	12	Hardened Steels	40-55 HRC	-	-	70-270	-	-	-	-	30-150	-	-	-

ISO	PSM	Material	HB (Brinell)	Feed fz (mm/t)						
				XPET 10... LP	XPET 10... LS	XPET 10... MP	XPET 10... LN	XPET 10... HF	XPHW 10... R Z1	XPHW 10... MH
P	1	Unalloyed Steel	125-220	0,08-0,20	-	0,10-0,25	-	0,40-0,80	-	0,10-0,25
	2	Low-Alloyed Steel	220-280	0,08-0,20	-	0,10-0,20	-	0,40-0,80	-	0,10-0,25
	3	High-Alloyed Steel	280-380	0,08-0,15	-	0,10-0,20	-	0,40-0,60	-	0,10-0,25
M	4	SS - Ferritic / Martensitic	200-330	0,08-0,20	0,08-0,20	0,10-0,20	-	0,40-0,70	-	-
	5	SS - Austenitic	200-330	0,08-0,20	0,08-0,20	0,10-0,20	-	0,40-0,70	-	-
	6	SS - Austenitic-ferritic (Duplex)	230-260	0,08-0,15	0,08-0,15	0,10-0,20	-	0,40-0,60	-	-
K	7	Malleable Cast Iron	130-230	0,08-0,20	-	0,10-0,25	-	0,50-0,80	-	-
	8	Grey Cast Iron	180-245	0,08-0,20	-	0,10-0,25	-	0,50-0,80	-	-
	9	Nodular Cast iron	160-250	0,08-0,20	-	0,10-0,20	-	0,50-0,60	-	-
N	10	Aluminium and Non Ferrous	30-130	-	-	-	0,07-0,25	-	0,10-0,25	-
S	11	Heat Resistant Super Alloys	200-320	0,05-0,07	0,05-0,07	-	-	0,40-0,60	-	-
H	12	Hardened Steels	40-55 HRC	-	-	-	-	-	-	0,08-0,15

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

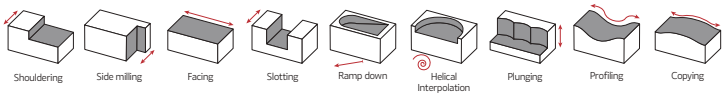
(Note 2)

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

(Note 3) 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.

Spare Parts: A - 292 Technical Data: A - 302

palbit



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

ISO	PSM	Material	HB (Brinell)	Chip breaker application	
				1st choice	Dificult Operations
P	1	Unalloyed Steel	125-220	XPET 10 ... LP/HF	XPET 10 ... MP
	2	Low-Alloyed Steel	220-280	XPET 10 ... LP/HF	XPET 10 ... MP
	3	High-Alloyed Steel	280-380	XPET 10 ... MP/HF	-
M	4	SS - Ferritic / Martensitic	200-330	XPET 10 ... LS	XPET 10 ... LP/HF
	5	SS - Austenitic	200-330	XPET 10 ... LS	XPET 10 ... LP/HF
	6	SS - Austenitic-ferritic (Duplex)	230-260	XPET 10 ... LS	XPET 10 ... LP/HF
K	7	Malleable Cast Iron	130-230	XPET 10 ... LP/HF	XPET 10 ... MP
	8	Grey Cast Iron	180-245	XPET 10 ... MP/HF	-
	9	Nodular Cast iron	160-250	XPET 10 ... MP/HF	-
N	10	Aluminium and Non Ferrous	30-130	XPET 10 ... LN/R Z1	-
S	11	Heat Resistant Super Alloys	200-320	XPET 10 ... LS	XPET 10 ... LP/HF
H	12	Hardened Steels	40-55 HRC	XPHW 10 ... MH	-

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

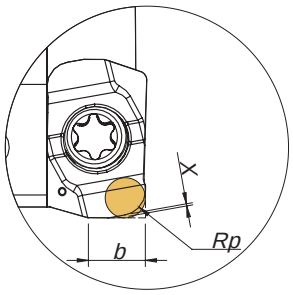
ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance						Toughness →			PCD
				PH0910	PH5705	PHH603	PHP910	PHP920	PHP930	PHH930	PHF530	PH5740	PHS740	PDP410
P	1	Unalloyed Steel	125-220				✓	✓	✓				✓	
	2	Low-Alloyed Steel	220-280				✓	✓	✓				✓	
	3	High-Alloyed Steel	280-380			✓	✓	✓	✓				✓	
M	4	SS - Ferritic / Martensitic	200-330							✓	✓			
	5	SS - Austenitic	200-330							✓	✓			
	6	SS - Austenitic-ferritic (Duplex)	230-260							✓	✓			
K	7	Malleable Cast Iron	130-230		✓		✓	✓	✓			✓		
	8	Grey Cast Iron	180-245		✓		✓	✓	✓			✓		
	9	Nodular Cast iron	160-250		✓		✓	✓	✓			✓		
N	10	Aluminium and Non Ferrous	30-130	✓										✓
S	11	Heat Resistant Super Alloys	200-320							✓	✓			
H	12	Hardened Steels	40-55 HRC			✓								

Good Conditions Average Conditions Difficult Conditions

LINEPRO 20190

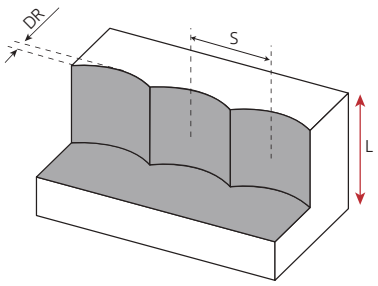
PROGRAMMING DATA Dados para programação | Datos para la programación

Insert	Programming Data		
	Rp	X	b
XPET 10 HF	1,6	0,33	3,45



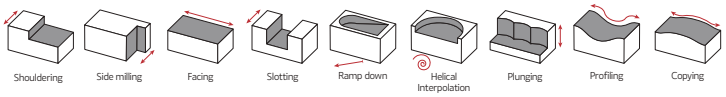
PLUNGING Mergulho | Plunge

L≤3DC	L>3DC	S max.
f_z (mm/t)		
0,08-0,20	0,06-0,15	$Smax = \sqrt{DC.DR - DR^2}$



S max and DR corresponding cutting diameter DC (mm)												
DR (mm)	DC (mm)											
	16	17	20	22	25	27	32	40	50	63	80	100
1	3,9	4,0	4,4	4,6	4,9	5,1	5,6	6,2	7,0	7,9	8,9	9,9
2	5,3	5,5	6,0	6,3	6,8	7,1	7,7	8,7	9,8	11,0	12,5	14,0
3*	6,2	6,5	7,1	7,5	8,1	8,5	9,3	10,5	11,9	13,4	15,2	17,1
4**	6,9	7,2	8,0	8,5	9,2	9,6	10,6	12,0	13,6	15,4	17,4	19,6

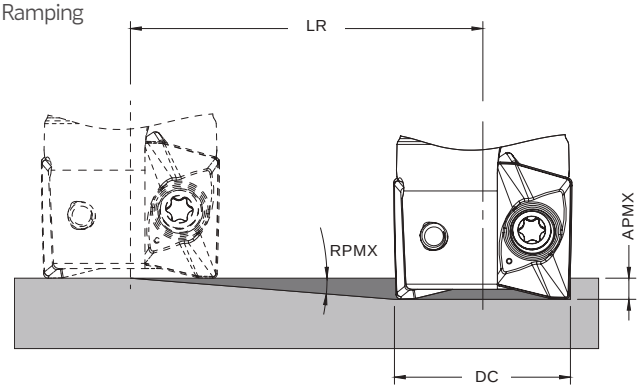
* only for radius above 2,0mm
** only for radius 4,0mm



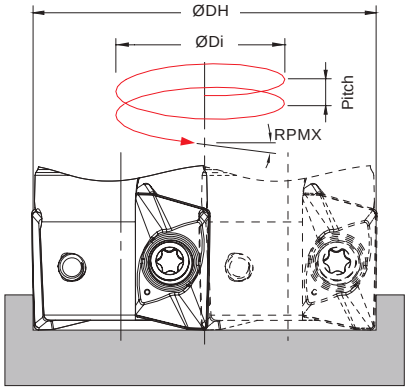
RAMPING AND HELICAL INTERPOLATION

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

Ramping



Helical Interpolation



Blind hole
Flat bottom

ØDi = ØDH - DC

DC	Ramping			Helical Interpolation		
				Diameter for Blind Hole, Flat Bottom Face (1)		Max Pitch/Rev.
	RPMX	APMX	Min LR	ØDHmin	ØDHmax	
16	7,5	10	76,0	27,6 -	- 30,4	4,8 6,0
17	7	10	81,4	29,6 -	- 32,4	4,9 5,9
20	5	10	114,3	35,6 -	- 38,4	4,3 5,1
22	4,5	10	127,1	39,6 -	- 42,4	4,4 5,0
25	3,5	10	163,5	45,6 -	- 48,4	4,0 4,5
27	3	10	190,8	49,6 -	- 52,4	3,7 4,2
32	2,5	10	229,0	59,6 -	- 62,4	3,8 4,2
40	1,7	10	336,9	75,6 -	- 78,4	3,3 3,6
50	1,3	10	440,7	95,6 -	- 98,4	3,3 3,5
63	1	10	572,9	121,6 -	- 124,4	3,2 3,4
80	0,8	10	716,2	155,6 -	- 158,4	3,3 3,4
100	0,6	10	954,9	195,6 -	- 198,4	3,1 3,2

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

Note: During helical interpolation do not exceed maximum pitch
When using HF insert or other different insert radius to calculate the ØDHmin and ØDHmax use the equation below:
- Minimum Diameter: ØDHmin = 2 x (DC - (R corner radius + F width of edge wiper))
- Maximum Diameter: ØDHmax = 2 x (DC - R corner radius)

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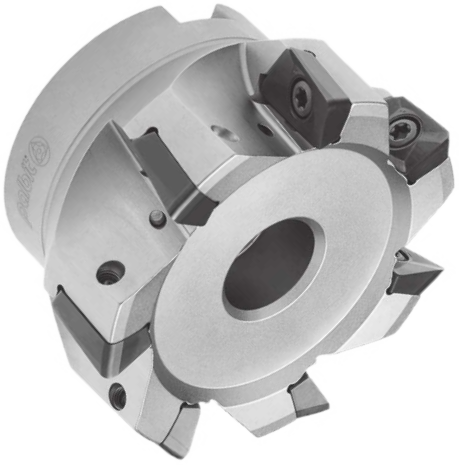
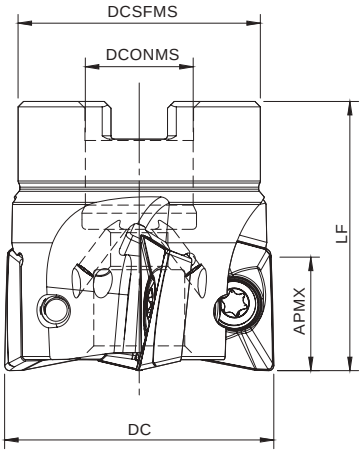


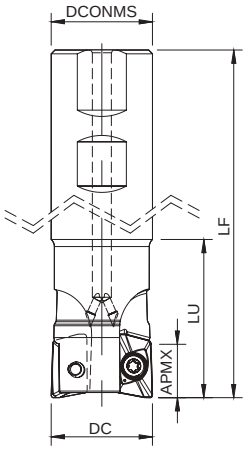


Arbor Mounting

KAPR=90° | GAMP=+7°~+8°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Arbor Type	APMX (mm)		Insert Pastilha Inserto	Stock
			DC	DCONMS	DCSFMS	LF			LP | MP | LS | LN	LN Z1|Z1W		
181090900	040A20290-04-07-016040	4	40	16	36	40	0,18	A	17,0	8,0	XPET 1706...	◎
181091000	050A20290-05-08-022040	5	50	22	40	40	0,29	A	17,0	8,0	XPET 1706...	◎
181196800	063A20290-06-08-022040	6	63	22	48	40	0,44	A	17,0	8,0	XPET 1706...	◎
181091200	080A20290-07-08-027050	7	80	27	60	50	0,92	A	17,0	8,0	XPET 1706...	◎
181091300	100A20290-08-08-032050	8	100	32	80	50	1,68	A	17,0	8,0	XPET 1706...	◎
181091400	125A20290-09-08-040063	9	125	40	90	63	3,01	A	17,0	8,0	XPET 1706...	◎

◎ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

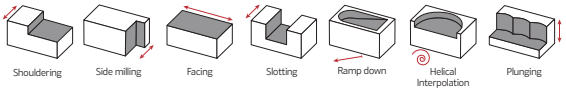


Weldon Shank

KAPR=90° | GAMP=+6°~+7°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	APMX (mm)		Insert Pastilha Inserto	Stock
			DC	DCONMS	LF	LU		LP | MP | LS | LN	LN Z1|Z1W		
181090500	032W20290-02-06-032110	2	32	32	110	50	0,56	17,0	8,0	XPET 1706...	◎
181090600	032W20290-02-06-032200	2	32	32	200	60	1,10	17,0	8,0	XPET 1706...	◎
181090700	040W20290-03-07-032115	3	40	32	115	50	0,67	17,0	8,0	XPET 1706...	◎
181090800	040W20290-03-07-032200	3	40	32	200	60	1,19	17,0	8,0	XPET 1706...	◎

◎ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)



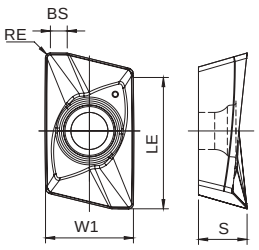
XPET 1706... Inserts | Pastilhas | Plaquitas

XPET-LP

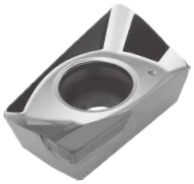
XPET-LS

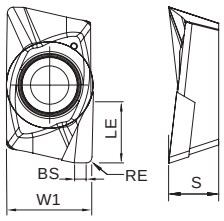
XPET-MP

XPET-LN

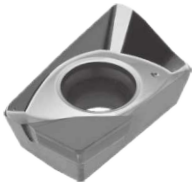


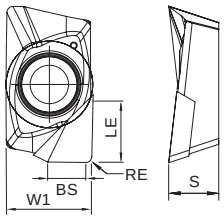
XPET-LP | LS | MP | LN


XPET-LN Z1



XPET-LN Z1


XPET-LN Z1W



XPET-LN Z1W

		P			M			K				N		S			Dimensions Dimensões Dimensiones (mm)				
		CVD	PVD		PVD			CVD		PVD		UNC	PCD	PVD							
	(2) Grade code	T9	T1	G6	X9	4H	G6	L5	L9	T1	G6	10	D6	X9		G6					
(1) Geometry code	ISO Reference	PHS740	PHP920	PH7740	PHH930	PHF530	PH7740	PH5705	PH5740	PHP920	PH7740	PH0910	PDP410	PHH930		PH7740	W1	S	LE	RE	BS
1111986	XPET 170608 PDER-LP		◬	◭			◬			◬	◭					◬	11,30	6,35	17,50	0,80	1,80
1111987	XPET 170616 PDER-LP		◬	◭			◬			◬	◭					◬	11,30	6,35	17,50	1,60	1,20
1112223	XPET 170608 PDER-LS				◭	◬	◭							◭	◬	◭	11,30	6,35	17,50	0,80	1,80
1113373	XPET 170612 PDER-LS				○									○			11,30	6,35	17,50	1,20	1,56
1113361	XPET 170616 PDER-LS				◬									◬			11,30	6,35	17,50	1,60	1,19
1113362	XPET 170620 PDER-LS				◬									◬			11,30	6,35	17,50	2,00	2,10
1113363	XPET 170632 PDER-LS				◬									◬			11,30	6,35	17,50	3,20	0,96
1111988	XPET 170608 PDSR-MP	◭	◬	◭				◬	◭	◬	◭						11,30	6,35	17,50	0,80	1,80
1111989	XPET 170616 PDSR-MP		◬	◭				◬	◭	◬	◭						11,30	6,35	17,50	1,60	1,00
1111990	XPET 170608 PDFR-LN											◬					11,30	6,35	17,50	0,80	1,20
1111991	XPET 170620 PDFR-LN											◬					11,30	6,35	17,50	2,00	1,00
1111992	XPET 170632 PDFR-LN											◬					11,30	6,35	17,50	3,20	0,80
1113085	XPET 170608 PDFR-LN Z1												◬				11,20	6,50	8,00	0,80	1,51
1113086	XPET 170608 PDFR-LN Z1W												◬				11,20	6,50	8,00	0,80	4,91

◬ First choice | Primeira opção | 1ª opción ◭ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

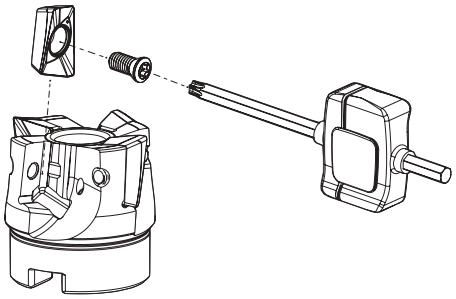
Insert order code = (1) Geometry Code + (2) Grade Code

LINEPRO 20290

SPARE PARTS Acessórios | Repuestos

Order separately

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



Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.

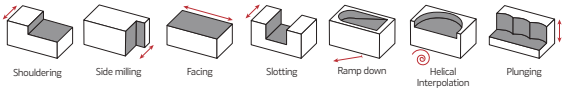
GRADES SELECTION GUIDE Guia para selecção de graus | Tabla para selección de calidades

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance … Toughness → PH0910	PH5705	PHP920	PHP930	PHH930	PHF530	PH5740	PHS740	PH7740	PCD PDP410
P	1	Unalloyed Steel	125-220			✓	✓				✓	✓	
	2	Low-Alloyed Steel	220-280			✓	✓				✓	✓	
	3	High-Alloyed Steel	280-380			✓	✓				✓	✓	
M	4	SS - Ferritic / Martensitic	200-330					✓	✓			✓	
	5	SS - Austenitic	200-330					✓	✓			✓	
	6	SS - Austenitic-ferritic (Duplex)	230-260					✓	✓			✓	
K	7	Malleable Cast Iron	130-230		✓	✓	✓			✓		✓	
	8	Grey Cast Iron	180-245		✓	✓	✓			✓		✓	
	9	Nodular Cast iron	160-250		✓	✓	✓			✓		✓	
N	10	Aluminium and Non Ferrous	30-130	✓									✓
S	11	Heat Resistant Super Alloys	200-320					✓	✓			✓	

Good Conditions Average Conditions Difficult Conditions

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

ISO	PSM	Material	HB (Brinell)	Chip breaker application 1st choice	Dificult Operations
P	1	Unalloyed Steel	125-220	XPET 17... LP	XPET 17... MP
	2	Low-Alloyed Steel	220-280	XPET 17... LP	XPET 17... MP
	3	High-Alloyed Steel	280-380	XPET 17... MP	-
M	4	SS - Ferritic / Martensitic	200-330	XPET 17... LS	XPET 17... LP
	5	SS - Austenitic	200-330	XPET 17... LS	XPET 17... LP
	6	SS - Austenitic-ferritic (Duplex)	230-260	XPET 17... LS	XPET 17... LP
K	7	Malleable Cast Iron	130-230	XPET 17... LP	XPET 17... MP
	8	Grey Cast Iron	180-245	XPET 17... MP	-
	9	Nodular Cast iron	160-250	XPET 17... MP	-
N	10	Aluminium and Non Ferrous	30-130	XPET 17... LN | LN Z1 | LN Z1W	-
S	11	Heat Resistant Super Alloys	200-320	XPET 17... LS	XPET 17... LP



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

ISO	PSM	Material	HB (Brinell)	Vc (m/min) ← Wear Resistance						Toughness →			PCD
				PH0910	PH5705	PHP920	PHP930	PHH930	PHF530	PH5740	PHS740	PH7740	PDP410
P	1	Unalloyed Steel	125-220	-	-	180-250	160-230	-	-	-	140-220	140-200	-
	2	Low-Alloyed Steel	220-280	-	-	160-230	140-210	-	-	-	120-200	130-180	-
	3	High-Alloyed Steel	280-380	-	-	140-220	120-200	-	-	-	100-190	100-170	-
M	4	SS - Ferritic / Martensitic	200-330	-	-	-	-	140-210	140-250	-	-	130-180	-
	5	SS - Austenitic	200-330	-	-	-	-	120-170	130-240	-	-	110-160	-
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	-	-	-	100-150	120-220	-	-	90-150	-
K	7	Malleable Cast Iron	130-230	-	160-290	160-270	-	-	-	160-260	-	140-220	-
	8	Grey Cast Iron	180-245	-	170-320	140-250	-	-	-	140-240	-	120-210	-
	9	Nodular Cast iron	160-250	-	140-200	120-210	-	-	-	120-200	-	100-190	-
N	10	Aluminium and Non Ferrous	30-130	100-2000	-	-	-	-	-	-	-	-	800-3000
S	11	Heat Resistant Super Alloys	200-320	-	-	-	-	30-110	30-150	-	-	30-100	-

ISO	PSM	Material	HB (Brinell)	Feed fz (mm/t)					
				XPET 17... LP	XPET 17... LS	XPET 17... MP	XPET 17... LN	XPET 17... LN Z1	XPET 17... LN Z1W
P	1	Unalloyed Steel	125-220	0,10-0,35	-	0,10-0,35	-	-	-
	2	Low-Alloyed Steel	220-280	0,10-0,35	-	0,10-0,35	-	-	-
	3	High-Alloyed Steel	280-380	0,10-0,30	-	0,10-0,30	-	-	-
M	4	SS - Ferritic / Martensitic	200-330	0,10-0,30	0,10-0,35	-	-	-	-
	5	SS - Austenitic	200-330	0,10-0,30	0,10-0,30	-	-	-	-
	6	SS - Austenitic-ferritic (Duplex)	230-260	0,10-0,25	010-0,25	-	-	-	-
K	7	Malleable Cast Iron	130-230	0,10-0,35	-	0,10-0,35	-	-	-
	8	Grey Cast Iron	180-245	0,10-0,35	-	0,10-0,35	-	-	-
	9	Nodular Cast iron	160-250	0,10-0,30	-	0,10-0,30	-	-	-
N	10	Aluminium and Non Ferrous	30-130	-	-	-	0,10-0,35	0,10-0,35	0,10-0,35
S	11	Heat Resistant Super Alloys	200-320	0,10-0,20	0,10-0,20	-	-	-	-

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

(Note 2)

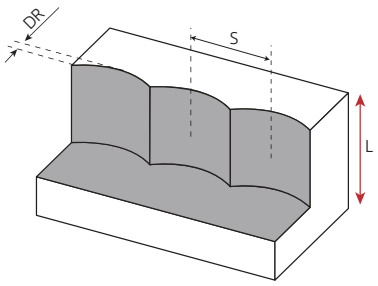
Operation	a_e	Vc & fz	AP (mm)
Slotting	100%	<20%	2,0-6,0
Shouldering	<50%	>8%	7,0-13,0
	≤25%	>12%	13,0-16,0

(Note 3) 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.

LINEPRO 20290

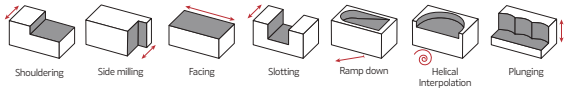
PLUNGING Mergulho | Plunge

L≤3DC	L>3DC	S max.
f_z (mm/t)		
0,10-0,30	0,08-0,25	$Smax = \sqrt{DC.DR - DR^2}$



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

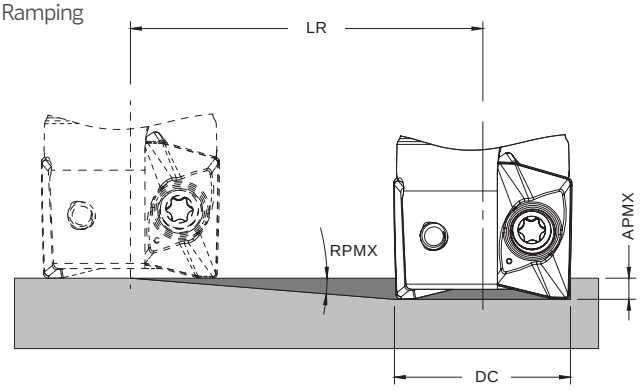
* only for radius above 2,0mm



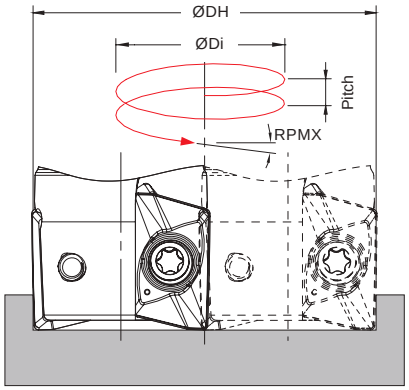
RAMPING AND HELICAL INTERPOLATION

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

Ramping



Helical Interpolation



Blind hole
Flat bottom

ØDi = ØDH - DC

DC	Ramping			Helical Interpolation		
				Diameter for Blind Hole, Flat Bottom Face (1)		Max Pitch/Rev.
	RPMX	APMX	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 LP insert with radius 0,8 mm
Note: During helical interpolation do not exceed maximum pitch
When using HF insert or other different insert radius to calculate the ØDHmin and ØDHmax use the equation below:
- Minimum Diameter: ØDHmin = 2 x (DC - (R corner radius + F width of edge wiper))
- Maximum Diameter: ØDHmax = 2 x (DC - R corner radius)

NEW 20290

HELIPRO

The HELIPRO 20290 delivers large depths of cut, and high metal removal rates in shouldering and profiling applications. Engineered to outperform in large and heavy machining operations, due to high durability and cutting stability.

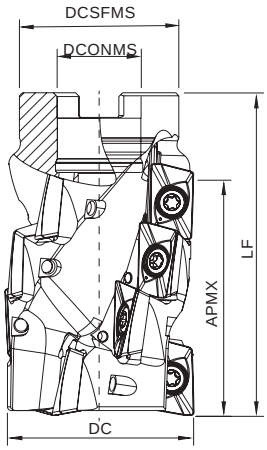
A HELIPRO 20290 proporciona grandes profundidades de corte e elevadas taxas de remoção de metal em aplicações de corte e perfilagem. Concebida para ter um desempenho superior em operações de maquinação grandes e pesadas, devido à elevada durabilidade e estabilidade de corte.

La HELIPRO 20290 proporciona grandes profundidades de corte y altas velocidades de arranque de metal en aplicaciones de corte y perfilado. Diseñada para un rendimiento superior en operaciones de mecanizado grandes y pesadas gracias a su gran durabilidad y estabilidad de corte.

NEW HELIPRO 20290 > page 180

- From DC 12mm to 30mm
  De DC 12mm a 30mm | Desde DC 12mm hasta 30mm
- Available in arbor mounting
  Disponível em montagem tipo árvore | Disponible en fijación con tornillo central
- High material removal rate
  Alta taxa de remoção de material | Alta tasa de remoción de material
- Superior stability
  Estabilidade superior | Estabilidad superior

NEW HELIPRO 20290



Arbor Mounting

KAPR=90º | GAMP=+8º

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

◈ Stock item | Produto de stock | Itens de stock

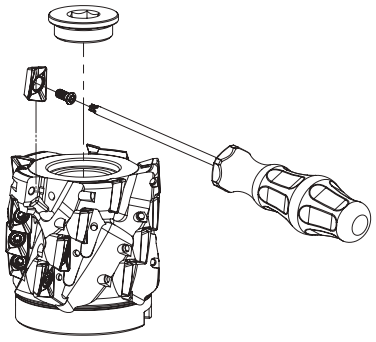
○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

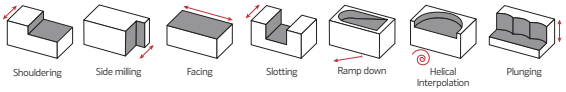
SPARE PARTS Acessórios | Repuestos

Order separately

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

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.





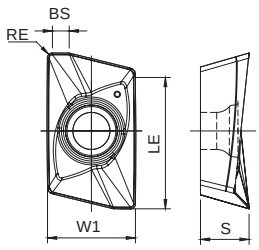
XPET 1706... Inserts | Pastilhas | Plaquitas

XPET-LP

XPET-LS

XPET-MP

XPET-LN



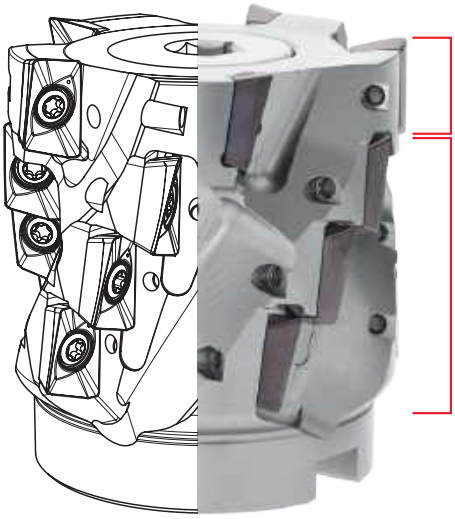
XPET-LP | LS | MP | LN

		P			M		K				N	S		Dimensions Dimensões Dimensiones (mm)				
		CVD	PVD		PVD		CVD		PVD		UNC	PVD						
	(2) Grade code	T9	T1	G6	X9	G6	L5	L9	T1	G6	10	X9	G6					
(1) Geometry code	ISO Reference	PHS740	PHP920	PH7740	PHH930	PH7740	PH5705	PH5740	PHP920	PH7740	PH0910	PHH930	PH7740	W1	S	LE	RE	BS
1111986	XPET 170608 PDER-LP		●	◈		●			●	◈			●	11,30	6,35	17,50	0,80	1,80
1111987	XPET 170616 PDER-LP		●	◈		●			●	◈			●	11,30	6,35	17,50	1,60	1,20
1112223	XPET 170608 PDER-LS				●	◈						●	◈	11,30	6,35	17,50	0,80	1,94
1113373	XPET 170612 PDER-LS				○							○		11,30	6,35	17,50	1,20	1,56
1113361	XPET 170616 PDER-LS				●							●		11,30	6,35	17,50	1,60	1,19
1113362	XPET 170620 PDER-LS				●							●		11,30	6,35	17,50	2,00	2,10
1113363	XPET 170632 PDER-LS				●							●		11,30	6,35	17,50	3,20	0,96
1111988	XPET 170608 PDSR-MP	◈	●	◈			●	◈	◈	◈				11,30	6,35	17,50	0,80	1,80
1111989	XPET 170616 PDSR-MP		●	◈			●	◈	◈	◈				11,30	6,35	17,50	1,60	1,00
1111990	XPET 170608 PDFR-LN										●			11,30	6,35	17,50	0,80	1,20
1111991	XPET 170620 PDFR-LN										●			11,30	6,35	17,50	2,00	1,00
1111992	XPET 170632 PDFR-LN										●			11,30	6,35	17,50	3,20	0,80

● First choice | Primeira opção | 1ª opción ◈ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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

PROCEDURES FOR MOUNTING INSERTS Procedimentos para pastilhas | Procedimientos para plaquitas



Radius from 0,8 to 3,2 mm

To minimize scallop only radius 0,8mm can be applied

NEW HELIPRO 20290

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

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

Good Conditions Average Conditions Difficult Conditions

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

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

ISO	PSM	Material	HB (Brinell)	Feed fz (mm/t) XPET 17... LP	XPET 17... MP	XPET 17... LN	XPET 17... LS
P	1	Unalloyed Steel	125-220	0,10-0,35	0,10-0,35	-	-
P	2	Low-Alloyed Steel	220-280	0,10-0,35	0,10-0,35	-	-
P	3	High-Alloyed Steel	280-380	0,10-0,30	0,10-0,30	-	-
M	4	SS - Ferritic / Martensitic	200-330	0,10-0,30	-	-	0,10-0,35
M	5	SS - Austenitic	200-330	0,10-0,30	-	-	0,10-0,30
M	6	SS - Austenitic-ferritic (Duplex)	230-260	0,10-0,25	-	-	010-0,25
K	7	Malleable Cast Iron	130-230	0,10-0,35	0,10-0,35	-	-
K	8	Grey Cast Iron	180-245	0,10-0,35	0,10-0,35	-	-
K	9	Nodular Cast iron	160-250	0,10-0,30	0,10-0,30	-	-
N	10	Aluminium and Non Ferrous	30-130	-	-	0,10-0,35	-
S	11	Heat Resistant Super Alloys	200-320	0,10-0,20	-	-	0,10-0,20

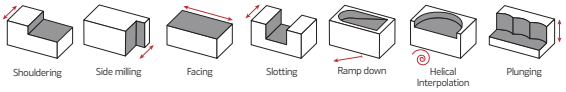
(Note 1) Cutting conditions ae/DC=70%
(Note 2) Cutting conditions should be ajusted according to the machine and work rigidity.
(Note 3):

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

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

Spare Parts: A - 292 Technical Data: A - 302

palbit



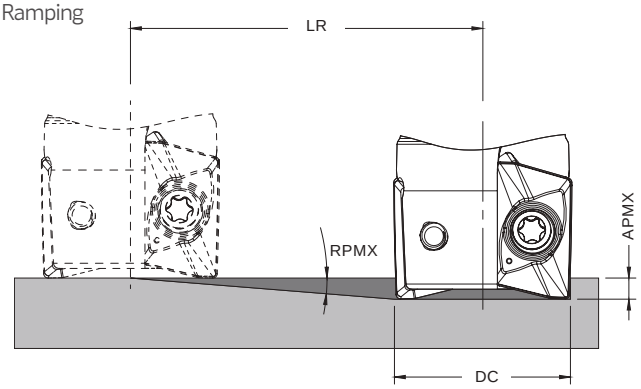
CHIP BREAKER SELECTION GUIDE Guia para aplicações do quebra-aparas | Guía para aplicación del rompevirutas

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

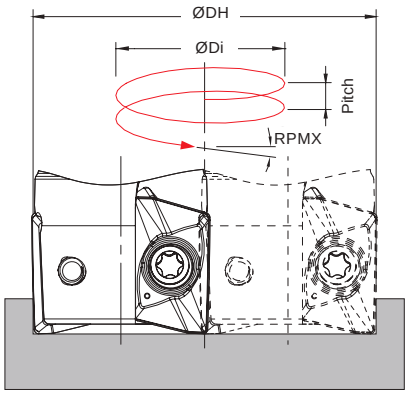
RAMPING AND HELICAL INTERPOLATION

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

Ramping



Helical Interpolation



Blind hole
Flat bottom

ØDi = ØDH - DC

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

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

90090 | 90190 | 90390

TGPLUS

The TGPLUS series offers unparalleled reliability in rough shoulder milling, thanks to robust cutting edges and thicker cross-sections, complemented by a highly rigid cutter featuring a thicker core.The TGPLUS series design optimizes stability and surface area contact between the insert and the cutter body, promoting excellent surface finishes and clean 90-degree walls.

A série TGPLUS oferece uma fiabilidade incomparável no desbaste em fresagem a 90º, graças a arestas de corte robustas e seções transversais mais espessas, complementadas por uma ferramenta altamente rígida com núcleo mais espesso. O design da série TGPLUS otimiza a estabilidade e a área de contato superficial entre a pastilha e o corpo da ferramenta, promovendo excelentes acabamentos de superfície e paredes a 90º.

La serie TGPLUS ofrece una fiabilidad incomparable en el desbaste en fresado a 90º, gracias a sus robustos filos de corte y secciones transversales más gruesas, complementadas por una herramienta altamente rígida con un núcleo más grueso. El diseño de la serie TGPLUS optimiza la estabilidad y el área de contacto superficial entre la plaquita y el cuerpo de la herramienta, promoviendo excelentes acabados de superficie y paredes a 90º.

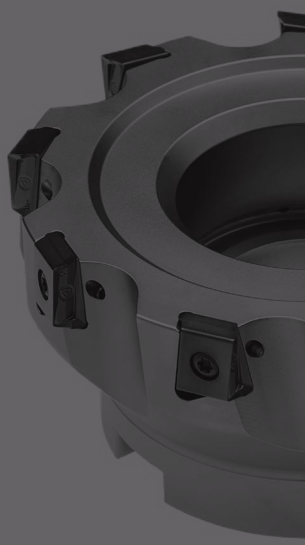
TGPLUS 90090 > page 186

- From DC 16mm to 63mm
  De DC 16mm a 63mm | Desde DC 16mm hasta 63mm
- Available in arbor, threaded, weldon and cylindrical shank
  Disponível em montagem tipo árvore, acoplamento roscado, haste weldon e cilíndrica | Disponible en fijación con tornillo central, fijación roscada, mango tipo weldon y cilindrico
- Small tangential insert with 4 cutting edges (LNXT 0904..)
  Pastilha tangencial pequena com 4 arestas de corte (LNXT 0904..) | Plaquita tangencial pequeña con 4 filos de corte (LNXT 0904..)
- Excellent machining stability
  Excelente estabilidade de maquinação | Excelente estabilidad de mecanizado

TGPLUS 90190 > page 190

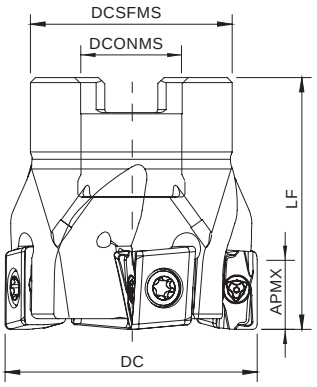
- From DC 25mm to 125mm
  De DC 25mm a 125mm | Desde DC 25mm hasta 125mm
- Available in arbor mounting, weldon and cylindrical shank
  Disponível em montagem tipo árvore, haste weldon e cilíndrica | Disponible en fijación con tornillo central, mango tipo weldon y cilindrico
- Medium tangential insert with 4 cutting edges (LNXT 1306..)
  Pastilha tangencial média com 4 arestas de corte (LNXT 1306..) | Plaquita tangencial media con 4 filos de corte (LNXT 1306..)
- High rake angle insert reduces cutting force
  Pastilha de alto ângulo de inclinação que reduz a força de corte | Plaquita de alto ángulo de incidencia que reduce la fuerza de corte

TGPLUS 90390 > page 194



- From DC 50mm to 160mm
  De DC 50mm a 160mm | Desde DC 50mm hasta 160mm
- Available in arbor mounting
  Disponível em montagem tipo árvore | Disponible en fijación con tornillo central
- Large tangential insert with 2 cutting edges (LNXT 1506..)
  Pastilha tangencial grande com 4 arestas de corte (LNXT 1506..) | Plaquita tangencial grande con 4 filos de corte (LNXT 1506..)
- Heavy duty milling
  Fresagem pesada | Fresado pesado

TGPLUS 90090

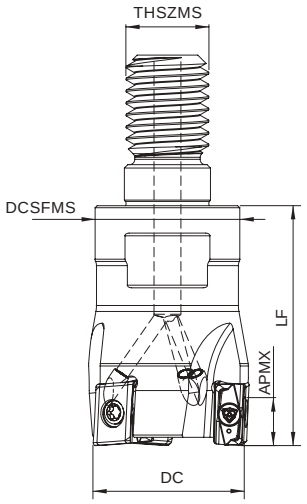


Arbor Mounting

KAPR=90° | GAMP=-4°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications		Insert Pastilha Inserto	Stock
			DC	DCONMS	DCSFMS	LF		Arbor Type	APMX (mm)		
181144400	040A90090-04-04-016040	4	40	16	36	40	0,24	A	7,0	LNXT 0904...	◈
181144500	050A90090-05-04-022040	5	50	22	40	40	0,32	A	7,0	LNXT 0904...	◈
181144600	063A90090-07-04-022040	7	63	22	48	40	0,54	A	7,0	LNXT 0904...	◈
181146600	063A90090-10-04-022040	10	63	22	48	40	0,54	A	7,0	LNXT 0904...	◈

◈ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)



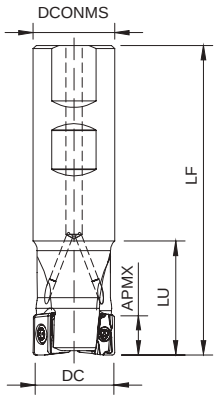
Threaded Coupling

KAPR=90° | GAMP=-4°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications	Insert Pastilha Inserto	Stock
			DC	THSZMS	DCSFMS	LF		APMX (mm)		
181144200	025R90090-03-04-M12035	3	25	12	21	35	0,10	7,0	LNXT 0904...	◈
181144300	032R90090-04-04-M16040	4	32	16	29	40	0,21	7,0	LNXT 0904...	◈

◈ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

TGPLUS 90090
LNXT 09



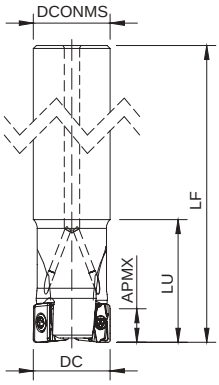
Weldon Shank

KAPR=90° | GAMP=-4°(*-6°)

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications	Insert Pastilha Inserto	Stock
			DC	DCONMS	LF	LU		APMX (mm)		
181109400	016W90090-02-06-016090*	2	16	16	90	25	0,12	7,0	LNXT 0904...	⚙
181109500	025W90090-03-04-025095	3	25	25	95	30	0,31	7,0	LNXT 0904...	⚙
181144100	032W90090-04-04-032110	4	32	32	110	30	0,61	7,0	LNXT 0904...	⚙

⚙ Stock item | Produto de stock | Itens de stock

◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)



Cylindrical Shank

KAPR=90° | GAMP=-4°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications	Insert Pastilha Inserto	Stock
			DC	DCONMS	LF	LU		APMX (mm)		
181158800	020E90090-02-04-020150	2	20	20	150	30	0,15	7,0	LNXT 0904...	⚙
181148100	025E90090-03-04-025200	3	25	25	200	30	0,31	7,0	LNXT 0904...	◯
181148200	032E90090-04-04-032250	4	32	32	250	30	0,78	7,0	LNXT 0904...	◯

⚙ Stock item | Produto de stock | Itens de stock

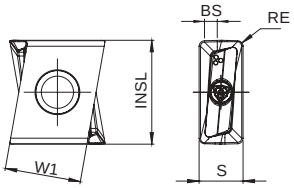
◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

TGPLUS 90090

LNXT 0904... Inserts | Pastilhas | Plaquitas

LNXT-MP

LNXT-LS



LNXT-MP | LS

		P			M	K			S	Dimensions Dimensões Dimensiones (mm)				
		CVD	PVD		PVD	CVD	PVD		PVD					
	(2) Grade code	T9	T1	G6	X9	L6	T1	G6	X9					
(1) Geometry code	ISO Reference	PHS740	PHP920	PH7740	PHH930	PH5320	PHP920	PH7740	PHH930	W1	S	INSL	RE	BS
1112225	LNXT 090404 PNER-MP	◉	◉	◉		◉	◉	◉		9,40	4,50	9,00	0,40	-
1112226	LNXT 090408 PNER-MP	◉	◉	◉		◉	◉	◉		9,40	4,50	9,00	0,80	-
1112868	LNXT 090404 PNER-LS				◉				◉	9,40	4,50	9,00	0,80	-

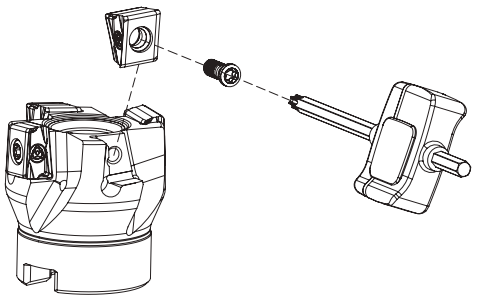
◉ First choice | Primeira opção | 1ª opción ◉ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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

SPARE PARTS Acessórios | Repuestos

Order separately

Cutter DC	Insert Screw	Key (Torx)	Key (Torx - Nm)	Torque Value
			Nm	Nm
A90090 - 40-63	P0250700	XT07	DT0709	1,2
R90090 - 25-32	P0250700	XT07	DT0709	1,2
W90090 - 16-32	P0250700	XT07	DT0709	1,2
E90090 - 25-32	P0250700	XT07	DT0709	1,2

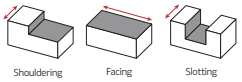


Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.

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

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance				Toughness →
				PH5320 ◉	PHP920 ◉	PHH930 ✱	PHS740 ✱	PH7740 ✱
P	1	Unalloyed Steel	125-220		✓		✓	✓
	2	Low-Alloyed Steel	220-280		✓		✓	✓
	3	High-Alloyed Steel	280-380		✓		✓	✓
M	4	SS - Ferritic / Martensitic	200-330			✓		
	5	SS - Austenitic	200-330			✓		
	6	SS - Austenitic-ferritic (Duplex)	230-260			✓		
K	7	Malleable Cast Iron	130-230	✓	✓			✓
	8	Grey Cast Iron	180-245	✓	✓			✓
	9	Nodular Cast iron	160-250	✓	✓			✓
S	11	Heat Resistant Super Alloys	200-320			✓		

◉ Good Conditions ✱ Average Conditions ✱ Difficult Conditions



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

ISO	PSM	Material	HB (Brinell)	Vc (m/min) ← Wear Resistance			Toughness →		Feed fz (mm/t)	
				PH5320	PHP920	PHH930	PHS740	PH7740	LNXT 09... MP	LNXT 09... LS
P	1	Unalloyed Steel	125-220	-	180-250	-	140-220	140-200	0,08-0,25	-
	2	Low-Alloyed Steel	220-280	-	160-230	-	120-200	130-180	0,08-0,25	-
	3	High-Alloyed Steel	280-380	-	140-220	-	100-190	100-170	0,08-0,15	-
M	4	SS - Ferritic / Martensitic	200-330	-	-	140-210	-	-	0,08-0,25	0,08-025
	5	SS - Austenitic	200-330	-	-	120-170	-	-	0,08-0,20	0,08-0,20
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	-	100-150	-	-	0,08-0,15	0,08-0,20
K	7	Malleable Cast Iron	130-230	150-280	160-270	-	-	140-220	0,08-0,30	-
	8	Grey Cast Iron	180-245	160-320	140-250	-	-	120-210	0,08-0,25	-
	9	Nodular Cast iron	160-250	100-190	120-210	-	-	100-190	0,08-0,20	-
S	11	Heat Resistant Super Alloys	200-320	-	-	30-110	-	-	-	-

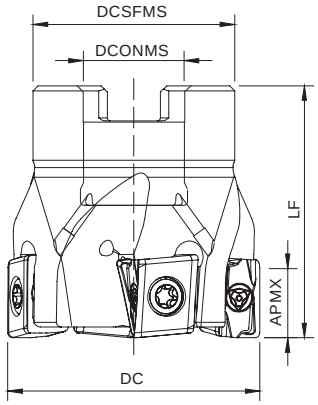
(Note 1) Cutting conditions $a_e/Dc=70\%$.

(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 choice
P	1	Unalloyed Steel	125-220	MP
	2	Low-Alloyed Steel	220-280	MP
	3	High-Alloyed Steel	280-380	MP
M	4	SS - Ferritic / Martensitic	200-330	LS
	5	SS - Austenitic	200-330	LS
	6	SS - Austenitic-ferritic (Duplex)	230-260	LS
K	7	Malleable Cast Iron	130-230	MP
	8	Grey Cast Iron	180-245	MP
	9	Nodular Cast iron	160-250	MP
S	11	Heat Resistant Super Alloys	200-320	LS

TGPLUS 90190

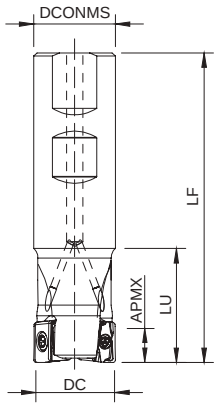


Arbor Mounting

KAPR=90° | GAMP=-4°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications		Insert Pastilha Inserto	Stock
			DC	DCONMS	DCSFMS	LF		Arbor Type	APMX (mm)		
181118800	040A90190-04-04-016040	4	40	16	32	40	0,17	A	11	LNXT 1306...	◎
181118900	040A90190-05-04-016040	5	40	16	32	40	0,18	A	11	LNXT 1306...	◎
181111200	050A90190-05-04-022040	5	50	22	40	40	0,27	A	11	LNXT 1306...	◎
181111300	050A90190-06-04-022040	6	50	22	40	40	0,28	A	11	LNXT 1306...	◎
181119000	063A90190-06-04-022040	6	63	22	52	40	0,52	A	11	LNXT 1306...	◎
181119100	063A90190-08-04-022040	8	63	22	52	40	0,52	A	11	LNXT 1306...	◎
181119200	080A90190-07-04-027050	7	80	27	60	50	0,88	B	11	LNXT 1306...	◎
181119300	080A90190-10-04-027050	10	80	27	60	50	0,86	B	11	LNXT 1306...	◎
181119400	100A90190-09-04-032050	9	100	32	80	50	1,56	B	11	LNXT 1306...	◎
181119500	100A90190-13-04-032050	13	100	32	80	50	1,56	B	11	LNXT 1306...	◎
181119600	125A90190-11-04-040063	11	125	40	90	63	2,87	B	11	LNXT 1306...	◎
181119700	125A90190-16-04-040063	16	125	40	90	63	2,86	B	11	LNXT 1306...	◎

◎ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)



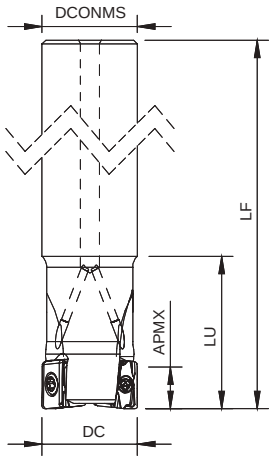
Weldon Shank

KAPR=90° | GAMP=-4°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications	Insert Pastilha Inserto	Stock
			DC	DCONMS	LF	LU		APMX (mm)		
181118300	025W90190-02-04-025095	2	25	25	95	45	0,29	11	LNXT 1306...	◎
181109800	032W90190-03-04-032110	3	32	32	110	50	0,55	11	LNXT 1306...	◎
181118400	040W90190-04-04-032110	4	40	32	110	50	0,60	11	LNXT 1306...	◎

◎ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

TGPLUS 90190
LNXT 13



Cylindrical Shank

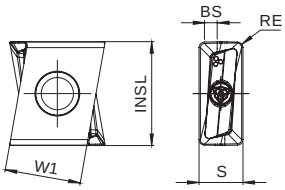
KAPR=90° | GAMP=-4°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications	Insert Pastilha Inserto	Stock
			DC	DCONMS	LF	LU		APMX (mm)		
181118500	025E90190-02-04-025200	2	25	25	200	40	0,66	11	LNXT 1306...	◈
181118600	032E90190-03-04-032250	3	32	32	250	50	1,37	11	LNXT 1306...	◈
181118700	040E90190-04-04-032250	4	40	32	250	50	1,42	11	LNXT 1306...	◈

◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

LNXT 1306... Inserts | Pastilhas | Plaquitas

LNXT-MP



LNXT-MP

		P			M	K			Dimensions Dimensões Dimensiones (mm)				
		CVD	PVD		PVD	CVD	PVD						
	(2) Grade code	T9	T1	G6	G6	L6	T1	G6					
(1) Geometry code	ISO Reference	PHS740	PHP920	PH7740	PH7740	PH5320	PHP920	PH7740	W1	S	INSL	RE	BS
1112242	LNXT 130604 PNER-MP	◈	◈	◈	◈	◈	◈	◈	9,80	6,80	13,00	0,40	0,90
1112243	LNXT 130608 PNER-MP	◈	◈	◈	◈	◈	◈	◈	9,80	6,80	13,00	0,80	0,90

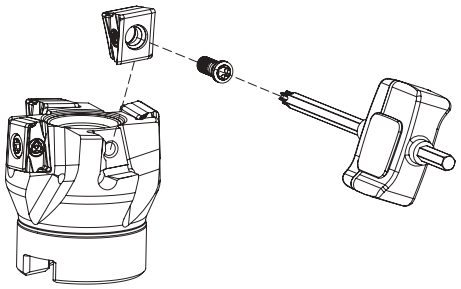
◈ First choice | Primeira opção | 1ª opción ◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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

TGPLUS 90190

SPARE PARTS Acessórios | Repuestos

Cutter DC	Insert Screw	Key (Torx)	Order separately Key (Torx - Nm)	Torque Value	Order separately Screw	DIN 6368 Wrench
E90190 - 25	P0400900	XT15	DT1530	3,0	-	-
E90190 - 32-40	P0401200	XT15	DT1530	3,0	-	-
W90190 - 25	P0400900	XT15	DT1530	3,0	-	-
W90190 - 32-40	P0401200	XT15	DT1530	3,0	-	-
A90190 - 40-63	P0401200	XT15	DT1530	3,0	-	-
A90190 - 80	P0401200	XT15	DT1530	3,0	J0123510	SD6368-12
A90190 - 100	P0401200	XT15	DT1530	3,0	J0164110	SD6368-16
A90190 -125	P0401200	XT15	DT1530	3,0	J0204610	SD6368-20



Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.

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

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance — Toughness → PH5320	PHP920	PHS740	PH7740
P	1	Unalloyed Steel	125-220		✓	✓	✓
	2	Low-Alloyed Steel	220-280		✓	✓	✓
	3	High-Alloyed Steel	280-380		✓	✓	✓
M	4	SS - Ferritic / Martensitic	200-330				✓
	5	SS - Austenitic	200-330				✓
	6	SS - Austenitic-ferritic (Duplex)	230-260				✓
K	7	Malleable Cast Iron	130-230	✓	✓		✓
	8	Grey Cast Iron	180-245	✓	✓		✓
	9	Nodular Cast iron	160-250	✓	✓		✓

Good Conditions Average Conditions Difficult Conditions

Spare Parts: A - 292 Technical Data: A - 302

palbit

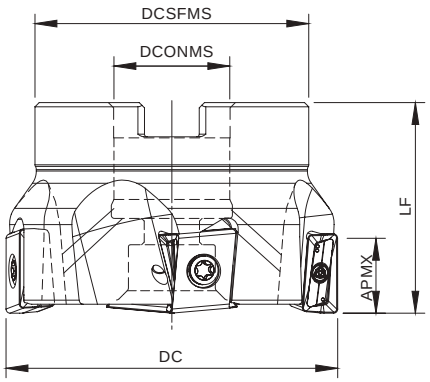
RECOMMENDED CUTTING CONDITIONS Condições de corte recomendadas | Condiciones de corte recomendables

ISO	PSM	Material	HB (Brinell)	Vc (m/min) ← Wear Resistance			Toughness →	Feed fz (mm/t)
				PH5320	PHP920	PHS740	PH7740	LNXT 09... MP
P	1	Unalloyed Steel	125-220	-	180-250	140-220	140-200	0,08-0,25
	2	Low-Alloyed Steel	220-280	-	160-230	120-200	130-180	0,08-0,25
	3	High-Alloyed Steel	280-380	-	140-220	100-190	100-170	0,08-0,15
M	4	SS - Ferritic / Martensitic	200-330	-	-	-	130-180	0,08-0,25
	5	SS - Austenitic	200-330	-	-	-	110-160	0,08-0,20
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	-	-	90-150	0,08-0,15
K	7	Malleable Cast Iron	130-230	150-280	160-270	-	140-220	0,08-0,30
	8	Grey Cast Iron	180-245	160-320	140-250	-	120-210	0,08-0,25
	9	Nodular Cast iron	160-250	100-190	120-210	-	100-190	0,08-0,20

(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.

TGPLUS 90390



Arbor Mounting

KAPR=90° | GAMP=-5°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications		Insert Pastilha Inserto	Stock
			DC	DCONMS	DCSFMS	LF		Arbor Type	APMX (mm)		
181069200	050A90390-05-05-022040	5	50	22	40	40	0,315	A	14,0	LNXT 1506...	◈
181066400	063A90390-05-05-022040	5	63	22	52	40	0,524	A	14,0	LNXT 1506...	◈
181051000	063A90390-08-05-022040	8	63	22	52	40	0,550	A	14,0	LNXT 1506...	◈
181066500	080A90390-07-05-027050	7	80	27	60	50	0,936	A	14,0	LNXT 1506...	◈
181052000	080A90390-10-05-027050	10	80	27	60	50	0,939	B	14,0	LNXT 1506...	◈
181066600	100A90390-08-05-032050	8	100	32	80	50	1,586	B	14,0	LNXT 1506...	◈
181051100	100A90390-12-05-032050	12	100	32	80	50	1,690	B	14,0	LNXT 1506...	◈
181066700	125A90390-09-05-040063	9	125	40	90	63	3,001	B	14,0	LNXT 1506...	◈
181051200	125A90390-15-05-040063	15	125	40	90	63	3,113	B	14,0	LNXT 1506...	◈
181051300	160A90390-10-05-U040063	10	160	40	110	63	4,470	C	14,0	LNXT 1506...	◈
181066800	160A90390-20-05-U040063	20	160	40	110	63	4,580	C	14,0	LNXT 1506...	◈

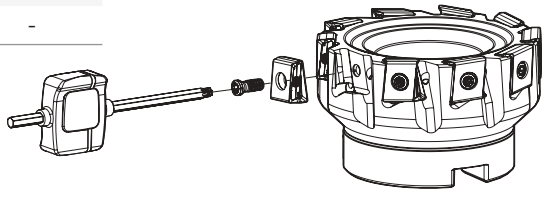
◈ Stock item | Produto de stock | Itens de stock

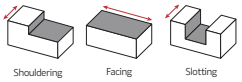
◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

SPARE PARTS Acessórios | Repuestos

Cutter DC	Insert Screw	Key (Torx)	Order separately Key (Torx - Nm)	Torque Value	Order separately Screw	DIN 6368 Wrench
A90390 – 50 - 80	P0401200	XT15	DT1530	3,0	-	-
A90390 – 80	P0401200	XT15	DT1530	3,0	J0123510	SD6368-12
A90390 – 100	P0401200	XT15	DT1530	3,0	J0164110	SD6368-16
A90390 – 125	P0401200	XT15	DT1530	3,0	J0204610	SD6368-20
A90390 – 160	P0401200	XT15	DT1530	3,0	-	-

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.

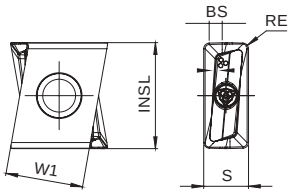




LNXT 1506... Inserts | Pastilhas | Plaquitas

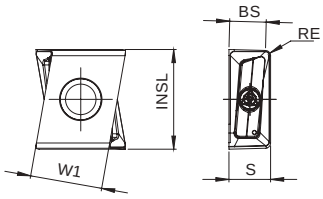
LNXT-HP

LNXT-MP



LNXT - MP | HP

LNXT-W



LNXT-W

		P					K						Dimensions Dimensões Dimensiones (mm)				
		CVD	PVD				CVD		PVD								
	(2) Grade code	T9	G1	G4	T1	G6	L5	L9	G1	G4	T1	G6					
(1) Geometry code	ISO Reference	PHS740	PH7910	PH7920	PHP920	PH7740	PH5705	PH5740	PH7910	PH7920	PHP920	PH7740	W1	S	INSL	RE	BS
1111313	LNXT 150608 PNER-MP	◉	◉	◉	◉	◉	◉	◉	◉	◉	◉	◉	11,00	6,35	15,00	0,80	1,80
1111590	LNXT 150612 PNER-MP			◉	◉	◉	◉	◉		◉	◉	◉	11,00	6,35	15,00	1,20	1,80
1111591	LNXT 150608 PNSR-HP			◉		◉				◉		◉	11,00	6,35	15,00	0,80	1,80
1111524	LNXT 150608 PNER-W		◉				◉		◉				11,00	6,35	15,20	0,80	5,50

◉ First choice | Primeira opção | 1ª opción ◉ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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 →						
				PH5705 ●	PH7910 ●	PHP920 ◐	PH7920 ◐	PH5740 ✱	PHS740 ✱	PH7740 ✱
P	1	Unalloyed Steel	125-220		✓	✓	✓		✓	✓
	2	Low-Alloyed Steel	220-280		✓	✓	✓		✓	✓
	3	High-Alloyed Steel	280-380		✓	✓	✓		✓	✓
K	7	Malleable Cast Iron	130-230	✓	✓	✓	✓	✓		✓
	8	Grey Cast Iron	180-245	✓	✓	✓	✓	✓		✓
	9	Nodular Cast iron	160-250	✓	✓	✓	✓	✓		✓

● Good Conditions ◐ Average Conditions ✱ Difficult Conditions

TGPLUS 90390

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

ISO	PSM	Material	HB (Brinell)	Vc (m/min) ← Wear Resistance						Toughness →
				PH5705	PH7910	PHP920	PH7920	PH5740	PHS740	PH7740
P	1	Unalloyed Steel	125-220	-	180-250	180-250	180-240	-	140-220	140-200
	2	Low-Alloyed Steel	220-280	-	160-230	160-230	160-220	-	120-200	130-180
	3	High-Alloyed Steel	280-380	-	140-220	140-220	140-210	-	100-190	100-170
K	7	Malleable Cast Iron	130-230	160-290	180-300	160-270	160-260	160-260	-	140-220
	8	Grey Cast Iron	180-245	170-320	160-250	140-250	140-240	140-240	-	120-210
	9	Nodular Cast iron	160-250	140-200	150-200	120-210	120-200	120-200	-	100-190

ISO	PSM	Material	HB (Brinell)	Feed fz (mm/t)		
				LNXT 15... MP	LNXT 15... HP	LNXT 15... W
P	1	Unalloyed Steel	125-220	0,10-0,30	0,10-0,30	0,10-0,35
	2	Low-Alloyed Steel	220-280	0,10-0,30	0,10-0,30	0,10-0,35
	3	High-Alloyed Steel	280-380	0,10-0,25	0,10-0,25	0,10-0,35
K	7	Malleable Cast Iron	130-230	0,10-0,40	0,10-0,40	0,10-0,50
	8	Grey Cast Iron	180-245	0,10-0,35	0,10-0,35	0,10-0,50
	9	Nodular Cast iron	160-250	0,10-0,30	0,10-0,30	0,10-0,50

(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 choice	Dificult Operations
P	1	Unalloyed Steel	125-220	LNXT 15... MP	LNXT 15... HP
	2	Low-Alloyed Steel	220-280	LNXT 15... MP	LNXT 15... HP
	3	High-Alloyed Steel	280-380	LNXT 15... MP	LNXT 15... HP
K	7	Malleable Cast Iron	130-230	LNXT 15... MP	LNXT 15... HP
	8	Grey Cast Iron	180-245	LNXT 15... MP	LNXT 15... HP
	9	Nodular Cast iron	160-250	LNXT 15... MP	LNXT 15... HP

Spare Parts: A - 292 Technical Data: A - 302

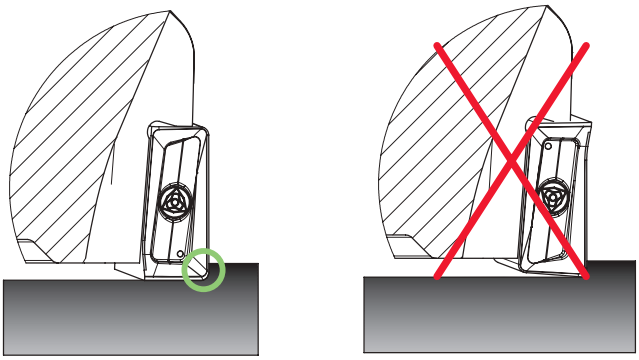
palbit

WIPER INSERTS

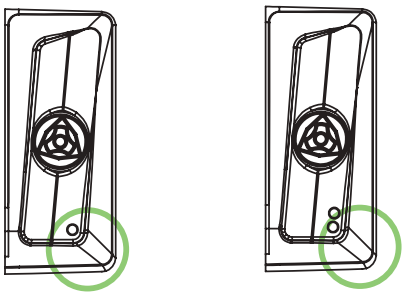
Rec. Cutting Conditions
- F_W at least 40% larger than f_n (f_n-f_2xZ);
- Axial depth of cut is 0,5 - 0,8mm.

Example:
- The width of the parallel land (F) of the insert is 1,8mm
- With a cutter of 10 inserts and using a feed per tooth (f_z) of 0,3mm, the feed per revolution (f_n) will be 3mm, i.e. 40% bigger than the parallel land.
- To obtain a good surface finish, the feed per revolution should be a maximum of 80% of 1,8mm = 1,44mm.
- The wiper insert will have a parallel land (F_W) with a width of approximately 5,5mm.
- Result: Feed per revolution (f_n) could be increased from 0,8mm to 60% of 5,5mm = 3,3mm.

Note: Other limitations, such as machine power, must be taken into consideration.



The points on the insert indicates the side that should be parallel to the workspace material.



Wiper insert with 2 Right-hand cutting edges.
The side work of the insert it's indicated by points.

76090 | 77090

ALUPRO

The ALUPRO lines are precision-engineered tools designed specifically for machining aluminum components. These tools feature specialized geometries optimized for the unique properties of aluminum, allowing for efficient material removal and extended tool life. With sharp cutting edges and low cutting forces, these tools deliver high-performance results in milling operations on aluminum workpieces.

As linhas ALUPRO são ferramentas de precisão projetadas especificamente para fresagem de componentes de alumínio. Essas ferramentas apresentam geometrias especializadas otimizadas para as propriedades únicas do alumínio, permitindo remoção eficiente de material e vida útil prolongada da ferramenta. Com arestas de corte afiadas e baixas forças de corte, essas ferramentas oferecem resultados de alto desempenho em operações de fresagem em peças de alumínio.

As linhas ALUPRO son herramientas de precisión diseñadas específicamente para el fresado de componentes de aluminio. Estas herramientas cuentan con geometrías especializadas optimizadas para las propiedades únicas del aluminio, lo que permite una remoción eficiente de material y una vida útil prolongada de la herramienta. Con bordes de corte afilados y bajas fuerzas de corte, estas herramientas ofrecen resultados de alto rendimiento en operaciones de fresado en piezas de aluminio.

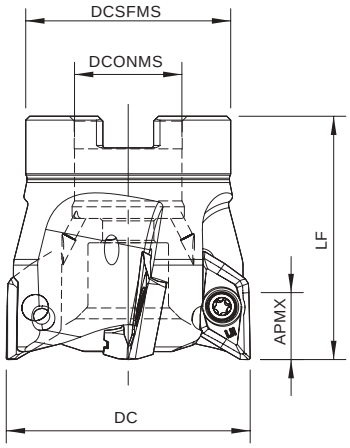
ALUPRO 76090 > page 200

- From DC 20mm to 100mm
  De DC 20mm a 100mm | Desde DC 20mm hasta 100mm
- Available in arbor mounting, threaded coupling and cylindrical shank
  Disponível em montagem tipo árvore, acoplamento roscado e haste cilíndrica | Disponible en fijación con tornillo central, fijación roscada y mango cilíndrico
- Small positive XDGX 15M5 insert with 2 cutting edges
  Pastilha positiva pequena XDGX 15M5 com 2 arestas de corte | Plaquita positiva pequeña XDGX 15M5 con 2 filos de corte
- Stable clamping conditions (Anti-fly)
  Condições de fixação estáveis (anti-voo) | Condiciones de sujeción estables (antivuelo)

ALUPRO 77090 > page 204

- From DC 32mm to 125mm
  De DC 32mm a 125mm | Desde DC 32mm hasta 125mm
- Available in arbor mounting and cylindrical shank
  Disponível em montagem tipo árvore e haste cilíndrica | Disponible en fijación con tornillo central y mango cilíndrico
- Large positive XDGX 22M7 insert with 2 cutting edges
  Pastilha positiva pequena XDGX 22M7 com 2 arestas de corte | Plaquita positiva pequeña XDGX 22M7 con 2 filos de corte
- High speed conditions with high metal remove rate
  Condições de alta velocidade com alta taxa de remoção de metal | Condiciones de alta velocidad con alta tasa de remoción de metal

ALUPRO 76090



Arbor Mounting

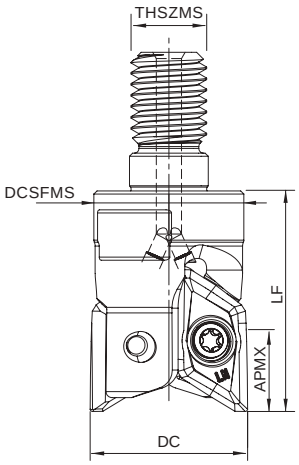
KAPR=90° | GAMP=+11°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications			Insert radius Raio da pastilha Rayo del Inserto	Stock
			DC	DCONMS	DCSFMS	LF		Cutter Type	APMX (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 (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

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.

NEW



Threaded Coupling

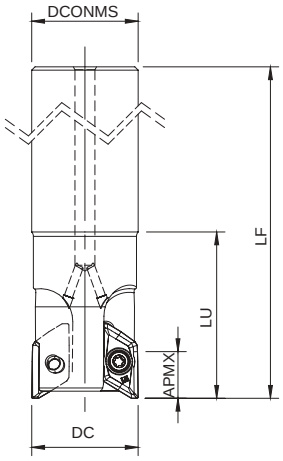
KAPR=90° | GAMP=+6°~+11°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications			Insert radius Raio da pastilha Rayo del Inserto	Stock
			DC	THSZMS	DCSFMS	LF		Cutter Type	APMX (mm)	rpm max		
181202400	025R76090-02-06-M12035-A	2	25	M12	21	35	0,07	A	14,0	38 000	0,4~3,2	◈
181202500	032R76090-03-09-M16040-A	3	32	M16	29	40	0,14	A	14,0	33 000	0,4~3,2	◈
181202600	040R76090-03-11-M16045-A	3	40	M16	29	45	0,20	A	14,0	29 000	0,4~3,2	◈
181202700	025R76090-02-06-M12035-B	2	25	M12	21	35	0,07	B	14,0	38 000	4,0~5,0	◯
181202800	032R76090-03-09-M16040-B	3	32	M16	29	40	0,14	B	14,0	33 000	4,0~5,0	◯
181202900	040R76090-03-11-M16045-B	3	40	M16	29	45	0,20	B	14,0	29 000	4,0~5,0	◯

◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

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.

ALUPRO 76090
XDGX 15



Cylindrical Shank

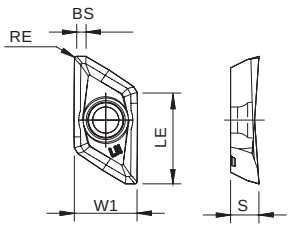
KAPR=90° | GAMP=+6°~+11°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications			Insert radius Raio da pastilha Rayo del Inserto	Stock
			DC	DCONMS	LF	LU		Cutter Type	APMX (mm)	rpm max		
181095000	020E76090-01-06-020150-A	1	20	20	150	60	0,2	A	14,0	40 000	0,4~3,2	◈
181095100	025E76090-02-09-025180-A	2	25	25	180	90	0,4	A	14,0	38 000	0,4~3,2	◈
181095200	032E76090-02-09-032200-A	2	32	32	200	120	0,7	A	14,0	33 000	0,4~3,2	◈
181095300	040E76090-03-11-032250-A	3	40	32	250	65	1,4	A	14,0	29 000	0,4~3,2	◈
181095400	020E76090-01-06-020150-B	1	20	20	150	60	0,2	B	14,0	40 000	4,0~5,0	◈
181095500	025E76090-02-09-025180-B	2	25	25	180	90	0,4	B	14,0	38 000	4,0~5,0	◈
181095600	032E76090-02-09-032200-B	2	32	32	200	120	0,7	B	14,0	33 000	4,0~5,0	○
181095700	040E76090-03-11-032250-B	3	40	32	250	65	1,4	B	14,0	29 000	4,0~5,0	◈

◈ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

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



(1) Geometry code	ISO Reference	N / UNC / (2) Grade code 10 / PH0910	Dimensions Dimensões Dimensiones (mm) W1	S	LE	RE	BS	Cutter Type
1111624	XDGX 15M504 PDFR-LN	◈	11,20	5,00	16,0	0,40	1,70	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

◈ First choice | Primeira opção | 1ª opción ◈ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

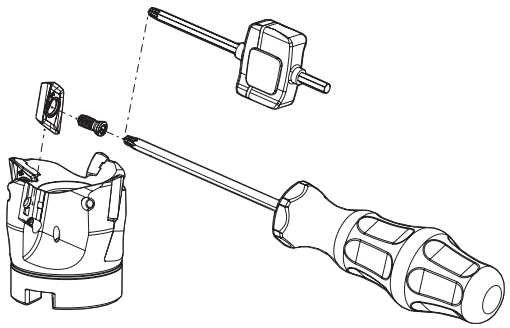
Insert order code = (1) Geometry Code + (2) Grade Code

ALUPRO 76090

SPARE PARTS Acessórios | Repuestos

Order separately

Cutter DC	Insert Screw	Key (Torx)	Key (Torx - Nm)	Torque Value
A76090- 40-80	P0400900	XT15	DT1530	3,0
A76090 - 100	P0400900	PT15	DT1530	3,0
R76090 - 25	P0400803	XT15	DT1530	3,0
R76090 - 32-40	P0400900	XT15	DT1530	3,0
E76090 - 20-25	P0400803	XT15	DT1530	3,0
E76090 - 32-40	P0400900	XT15	DT1530	3,0



Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.

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% DC	≤5,0	0,35 - 0,40
						5,0 - 10,0	0,30 - 0,35
						10,0 - 15,0	0,25 - 0,30
					< 50% DC	≤5,0	0,35 - 0,40
						5,0 - 10,0	0,30 - 0,35
						10,0 - 15,0	0,25 - 0,30
					≤ 75% DC	≤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% DC	≤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:

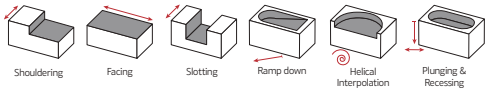
DC	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
RPM (min^{-1})	40000	38000	33000	29000	24000	21000	19000	16000

- 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:

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

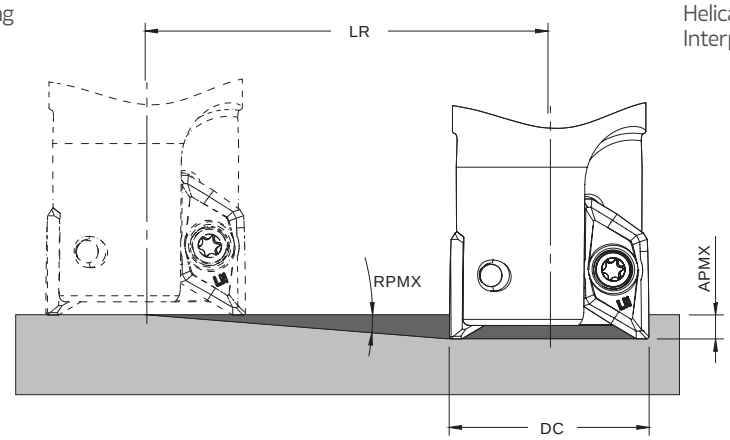
- When setting the spindle speed, take into consideration the maximum allowable revolutions of arbor or chuck.
- Use the specified set bolt when using the arbor type with internal coolant supply.



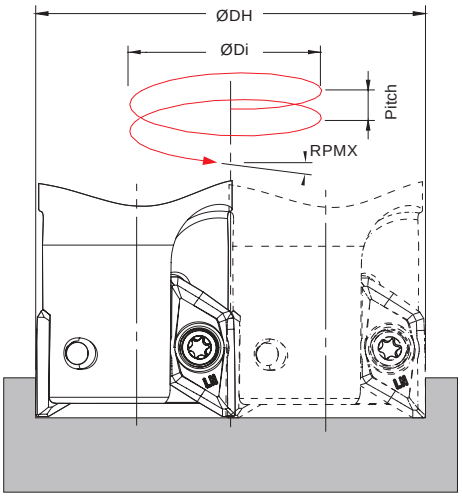
RAMPING AND HELICAL INTERPOLATION

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

Ramping



Helical Interpolation



Blind hole
Flat bottom

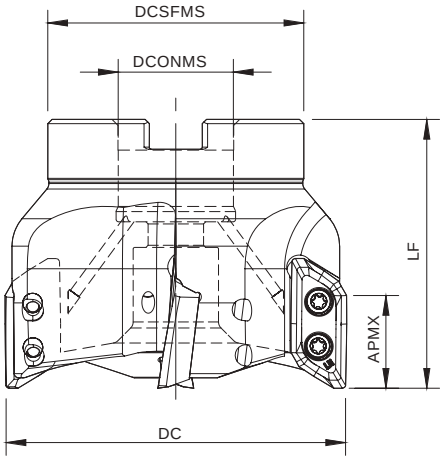
ØDi = ØDH - DC

Cutter Type	DC	Ramping			Helical Interpolation		
					Diameter for Blind Hole, Flat Bottom Face (1)		Max Pitch/Rev.
		RPMX	APMX	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 equation below:
- Minimum Diameter: ØDHmin = 2 x (DC - (R corner radius + F width of edge wiper)
- Maximum Diameter: ØDHmax = 2 x (DC - R corner radius)

ALUPRO 77090



Arbor Mounting

KAPR=90° | GAMP=+7°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications			Insert radius Raio da pastilha Rayo del Inserto	Stock
			DC	DCONMS	DCSFMS	LF		Cutter Type	APMX (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	◈

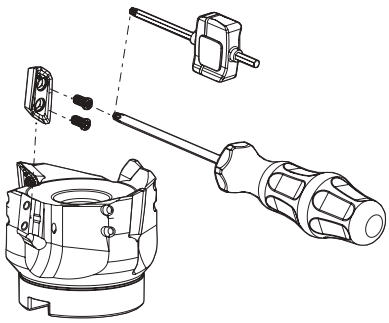
◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

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.

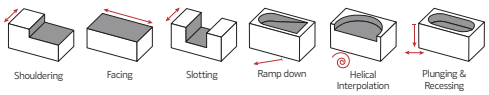
SPARE PARTS Acessórios | Repuestos

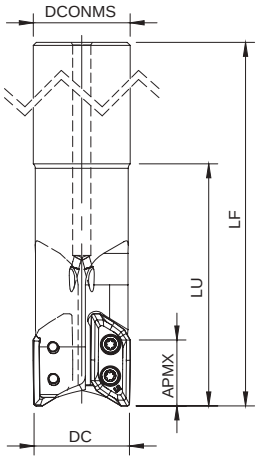
Cutter DC	Insert Screw	Key (Torx)	Order separately Key (Torx - Nm)	Torque Value	Order separately Screw	DIN 6368 Wrench
A77090 - 50-80	P0401200	XT15	DT1530	3,0	-	-
A77090 - 100	P0401200	PT15	DT1530	3,0	J0164110	SD6368-16
A77090 - 125	P0401200	PT15	DT1530	3,0	J0204610	SD6368-20
E77090 - 32-40	P0401200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

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.



ALUPRO 77090
XDGX 22





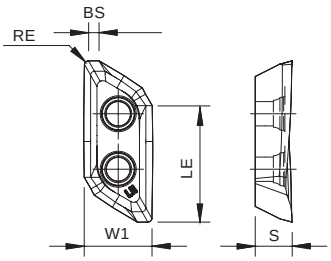
Cylindrical Shank
KAPR=90° | GAMP=+6°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications			Insert radius Raio da pastilha Rayo del Inserto	Stock
			DC	DCONMS	LF	LU		Cutter Type	APMX (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 (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

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 22M7... Inserts | Pastilhas | Plaquitas



		N	Dimensions Dimensões Dimensiones (mm)					Cutter Type
		UNC						
	(2) Grade code	10						
(1) Geometry code	ISO Reference	PH0910	W1	S	LE	RE	BS	
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

◈ First choice | Primeira opção | 1ª opción ◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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% DC	≤5,0	0,35 - 0,40
						5,0 - 10,0	0,30 - 0,35
						10,0 - 15,0	0,25 - 0,30
					< 50% DC	≤5,0	0,35 - 0,40
						5,0 - 10,0	0,30 - 0,35
						10,0 - 15,0	0,25 - 0,30
					≤ 75% DC	≤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% DC	≤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

- 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).

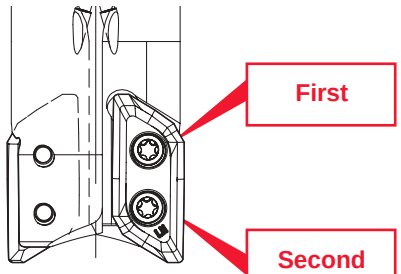


Figure 1

Table 1 - Maximum allowable revolutions:

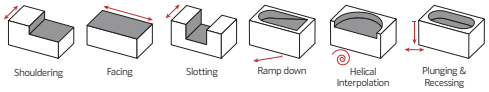
DC	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100	Ø125
RPM (min^{-1})	41000	36000	30000	25000	23000	19000	16000

- 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:

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

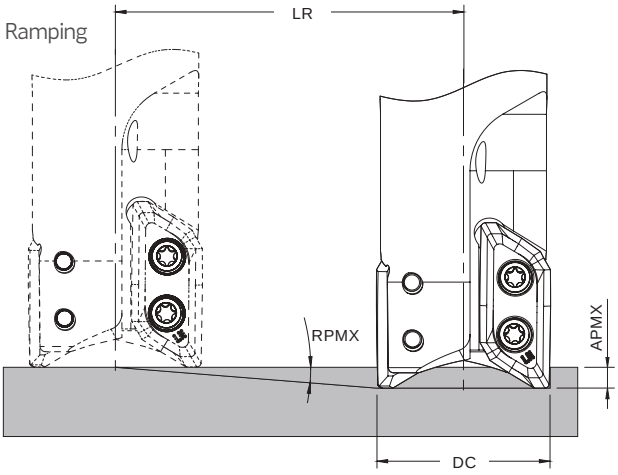
- When setting the spindle speed, take into consideration the maximum allowable revolutions of arbor or chuck.
- Use the specified set bolt when using the arbor type with internal coolant supply.



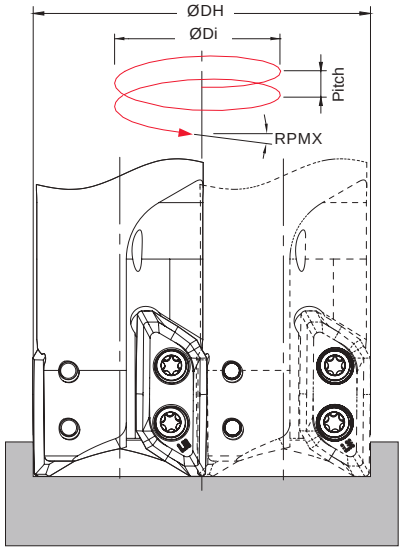
RAMPING AND HELICAL INTERPOLATION

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

Ramping



Helical Interpolation



Blind hole
Flat bottom

ØDi = ØDH - DC

Cutter Type	DC	Ramping			Helical Interpolation		
					Diameter for Blind Hole, Flat Bottom Face (1)		Max Pitch/Rev.
		RPMX	APMX	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 equation below:
- Minimum Diameter: ØDHmin = 2 x (DC - (R corner radius + F width of edge wiper)
- Maximum Diameter: ØDHmax = 2 x (DC - R corner radius)

06290

LINEPRO

The LINEPRO 06290 is designed for general-purpose shoulder milling operations. Featuring a positive insert with four cutting edges, it ensures versatile and efficient performance across diverse material applications.

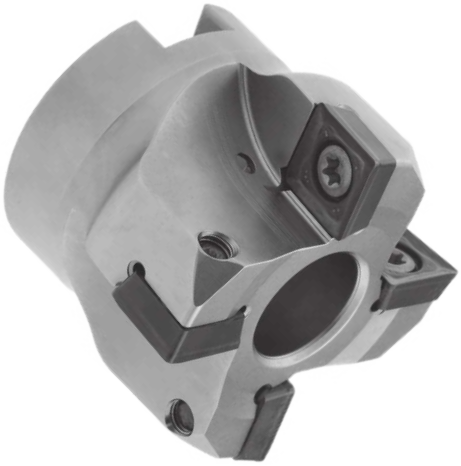
A LINEPRO 06290 é projetada para operações de fresagem a 90º de aplicação geral. Apresentando uma pastilha positiva com quatro arestas de corte, garante um desempenho versátil e eficiente em diversas aplicações de materiais.

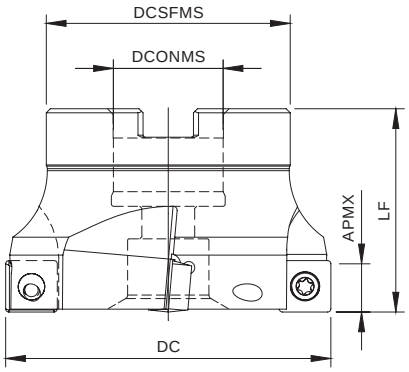
La LINEPRO 06290 está diseñada para operaciones de fresado a 90º de aplicación general. Presentando una plaquita positiva con cuatro filos de corte, garantiza un rendimiento versátil y eficiente en diversas aplicaciones de materiales.

LINEPRO 06290 > page 210

- From DC 40mm to 160mm
  De DC 40mm a 160mm | Desde DC 40mm hasta 160mm
- Available in arbor mounting
  Disponível em montagem tipo árvore | Disponible en fijación con tornillo central
- Positive inserts with 4 cutting edges
  Pastilhas positivas com 4 arestas de corte | Palquitas positivas con 4 filos de corte
- General application
  Aplicação geral | Aplicación general

LINEPRO 06290





Arbor Mounting

KAPR=90° | GAMP=+6°

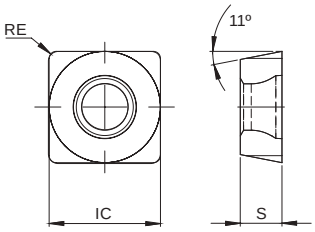
Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications		Insert Pastilha Inserto	Stock
			DC	DCONMS	DCSFMS	LF		Arbor Type	APMX (mm)		
181167700	040A06290-03-06-016040	3	40	16	39	40	0,2	A	11	SP... 1204	◈
181167800	050A06290-04-06-022040	4	50	22	49	40	0,35	A	11	SP... 1204	◈
181167900	063A06290-05-06-027050	5	63	27	60	50	0,7	A	11	SP... 1204	◈
181168000	080A06290-06-06-027050	6	80	27	60	50	1,15	A	11	SP... 1204	◈
181168100	100A06290-08-06-032050	8	100	32	80	50	1,75	A	11	SP... 1204	◈
181168200	125A06290-08-06-040063	8	125	40	96	63	3,05	B	11	SP... 1204	◈
181065600	160A06290-10-06-U040063	10	160	40	100	63	4,2	C	11	SP... 1204	◈

◈ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

SP.. 1204... Inserts | Pastilhas | Plaquitas

SPG(M)X-MP

SPG(M)X-MS



SPG(M)X-MP | MS

(1) Geometry code	ISO Reference	(2) Grade code	P PVD T1 PHP920	M PVD X9 PHH930	K PVD T1 PHP920	S PVD X9 PHH930	Dimensions Dimensões Dimensiones (mm) IC	S	RE
1113002	SPGX 120408 PDSR-MP		◈		◈		12,70	4,76	0,80
1113003	SPGX 120408 PDSR-MS			◈		◈	12,70	4,76	0,80
1112916	SPMX 120408 PDSR-MP		◈		◈		12,70	4,76	0,80
1112999	SPMX 120408 PDSR-MS			◈		◈	12,70	4,76	0,80

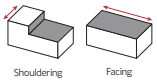
◈ First choice | Primeira opção | 1ª opción ◈ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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

Note: It is possible to use other inserts - Page A - 30

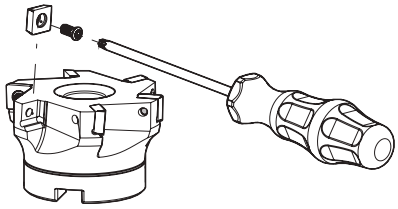
SPMT 120408-MP	SPMW 120408

Page A - 30



SPARE PARTS Acessórios | Repuestos

Cutter DC	Insert Screw	Key (Torx)	Key (Torx - Nm) *Order separately*	Torque Value	Screw *Order separately*	DIN 6368 Wrench
A06290 – 40 - 160	P0501100	PT20	DT2050	5,00	J0204610	SD6368-20



Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.

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

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance	Grades Toughness →
				PHP920	PHH930
P	1	Unalloyed Steel	125-220	✓	
P	2	Low-Alloyed Steel	220-280	✓	
P	3	High-Alloyed Steel	280-380	✓	
M	4	SS - Ferritic / Martensitic	200-330		✓
M	5	SS - Austenitic	200-330		✓
M	6	SS - Austenitic-ferritic (Duplex)	230-260		✓
K	7	Malleable Cast Iron	130-230	✓	
K	8	Grey Cast Iron	180-245	✓	
K	9	Nodular Cast iron	160-250	✓	
S	11	Heat Resistant Super Alloys	200-320		✓

Good Conditions
Average Conditions
Difficult Conditions

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

ISO	PSM	Material	HB (Brinell)	Vc (m/min) ← Wear Resistance	Vc (m/min) Toughness →	Feed fz (mm/t)	
				PHP920	PHH930	SPG(M)X... MP	SPM(M)X ...MS
P	1	Unalloyed Steel	125-220	180-250	-	0,08-0,20	-
P	2	Low-Alloyed Steel	220-280	170-210	-	0,08-0,20	-
P	3	High-Alloyed Steel	280-380	160-200	-	0,08-0,20	-
M	4	SS - Ferritic / Martensitic	200-330	-	120-180	-	0,08-0,20
M	5	SS - Austenitic	200-330	-	100-160	-	0,08-0,20
M	6	SS - Austenitic-ferritic (Duplex)	230-260	-	70-140	-	0,08-0,20
K	7	Malleable Cast Iron	130-230	170-300	-	0,10-0,30	-
K	8	Grey Cast Iron	180-245	150-250	-	0,10-0,30	-
K	9	Nodular Cast iron	160-250	90-210	-	0,10-0,30	-
S	11	Heat Resistant Super Alloys	200-320	-	30-75	-	0,08-0,15

(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 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 choice
P	1	Unalloyed Steel	125-220	... MP
P	2	Low-Alloyed Steel	220-280	... MP
P	3	High-Alloyed Steel	280-380	... MP
M	4	SS - Ferritic / Martensitic	200-330	... MS
M	5	SS - Austenitic	200-330	... MS
M	6	SS - Austenitic-ferritic (Duplex)	230-260	... MS
K	7	Malleable Cast Iron	130-230	... MP
K	8	Grey Cast Iron	180-245	... MP
K	9	Nodular Cast iron	160-250	... MP
S	11	Heat Resistant Super Alloys	200-320	... MS

17090 | 18090

LINEPRO

The LINEPRO excels in shoulder milling, featuring thicker inserts with reinforced cutting edges for enhanced tool longevity. Its high helix angle reduces cutting load, ensuring stable, smooth cutting performance, delivering consistent results in machining operations.

A LINEPRO destaca-se na fresagem a 90º, apresentando pastilhas mais espessas com arestas de corte reforçadas para uma vida útil da ferramenta prolongada. A sua elevada inclinação da hélice reduz o esforço de corte, garantindo um desempenho de corte estável e suave, proporcionando resultados consistentes em operações de fresagem.

La LINEPRO destaca en el fresado a 90º, presentando plaquitas más gruesas con filos de corte reforzados para una vida útil de la herramienta prolongada. Su alta inclinación de hélice reduce el esfuerzo de corte, garantizando un rendimiento de corte estable y suave, proporcionando resultados consistentes en operaciones de fresado.

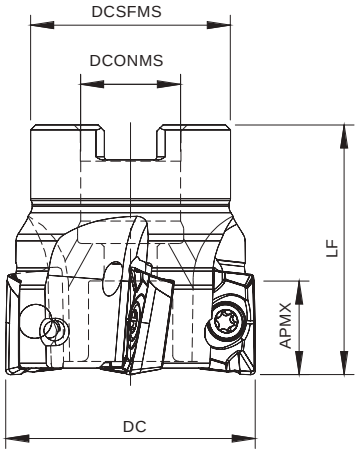
LINEPRO 17090 > page 214

- From DC 16mm to 63mm
  De DC 16mm a 63mm | Desde DC 16mm hasta 63mm
- Available in arbor mounting, threaded coupling and weldon shank
  Disponível em montagem tipo árvore, acoplamento roscado e haste weldon | Disponible en fijación con tornillo central, fijación roscada y mango tipo weldon
- Small positive insert with 2 cutting edges (AP.. 1003..)
  Pastilha positiva pequena com 2 arestas de corte (AP.. 1003..) | Plaquita positiva pequeña con 2 filos de corte (AP.. 1003..)
- Low cutting force
  Baixas forças de corte | Bajas fuerza de corte

LINEPRO 18090 > page 220

- From DC 25mm to 125mm
  De DC 25mm a 125mm | Desde DC 25mm hasta 125mm
- Available in arbor mounting and weldon shank
  Disponível em montagem tipo árvore e haste weldon | Disponible en fijación con tornillo central y mango tipo weldon
- Large positive insert with 2 cutting edges (AP.. 1604..)
  Pastilha positiva grande com 2 arestas de corte (AP.. 1604..) | Plaquita positiva grande con 2 filos de corte (AP.. 1604..)
- Strong insert
  Pastilha forte | Plaquita fuerte

LINEPRO 17090

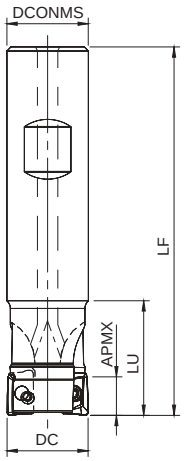


Arbor Mounting

KAPR=90° | GAMP=+9°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications		Insert Pastilha Inserto	Stock
			DC	DCONMS	DCSFMS	LF		Arbor Type	APMX (mm)		
181010200	040A17090-06-09-022040	6	40	22	39	40	0,210	A	9,0	AP.. 1003...	◈
181010300	050A17090-07-09-022040	7	50	22	40	40	0,320	A	9,0	AP.. 1003...	◈
181014300	063A17090-08-09-022040	8	63	22	48	40	0,560	A	9,0	AP.. 1003...	◈

◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)



Weldon Shank

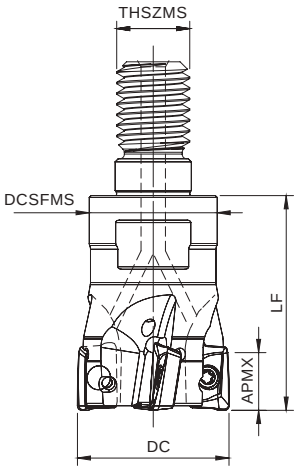
KAPR=90° | GAMP=+7°~+9°

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

◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

LINEPRO 17090

APET 10 | APKT 10



Threaded Coupling

KAPR=90° | GAMP=+7°~+9°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications	Insert Pastilha Inserto	Stock
			DC	THSZMS	DCSFMS	LF		APMX (mm)		
181015100	016R17090-02-07-M08025	2	16	M8	13	25	0,030	9,0	AP.. 1003...	◈
181015200	020R17090-03-09-M10030	3	20	M10	18	30	0,058	9,0	AP.. 1003...	◈
181015300	025R17090-04-09-M12035	4	25	M12	21	35	0,110	9,0	AP.. 1003...	◈

◈ Stock item | Produto de stock | Itens de stock

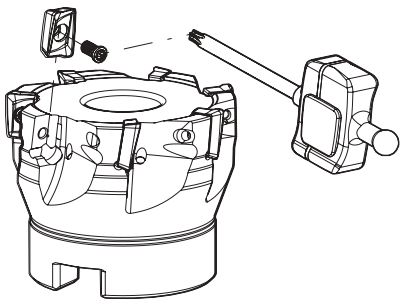
◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

SPARE PARTS Acessórios | Repuestos

Order separately

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

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.



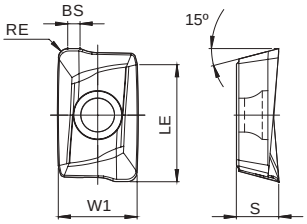
LINEPRO 17090

AP.. 1003... Inserts | Pastilhas | Plaquitas

APET - LN

APKT - X

APKT - X1

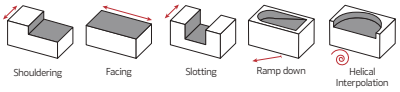


APET-LN | APKT-X | APKT-X1

		P		M	K		N	Dimensions Dimensões Dimensiones (mm)				
		PVD		PVD	PVD		UNC					
	(2) Grade code	68	66	66	68	66	10					
(1) Geometry code	ISO Reference	PH6920	PH6930	PH6930	PH6920	PH6930	PH0910	W1	S	LE	RE	BS
1112043	APET 100305 PDFR-LN						●	6,70	3,50	10,00	0,50	1,20
1112168	APKT 100305 PDER-X1	●	○	●	●	○		6,70	3,50	10,00	0,50	1,20
1112167	APKT 100305 PDSR-X1	●	○		●	○		6,70	3,50	10,00	0,50	1,20
1111071	APKT 100308 PDER-X	●	○	●	●	○		6,70	3,50	10,00	0,80	0,90
1111044	APKT 100308 PDSR-X	●			●			6,70	3,50	10,00	0,80	0,90
1111042	APKT 100308 PDTR-X	●	○		●	○		6,70	3,50	10,00	0,80	0,90
1111072	APKT 100312 PDER-X	●	○	●	●	○		6,70	3,50	10,00	1,20	-
1110987	APKT 100312 PDSR-X	●			●			6,70	3,50	10,00	1,20	-
1111045	APKT 100312 PDTR-X	●	○		●	○		6,70	3,50	10,00	1,20	-

● First choice | Primeira opção | 1ª opción ○ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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	PH6920	PH6930
P	1	Unalloyed Steel	125-220		✓	✓
	2	Low-Alloyed Steel	220-280		✓	✓
	3	High-Alloyed Steel	280-380		✓	✓
M	4	SS - Ferritic / Martensitic	200-330			✓
	5	SS - Austenitic	200-330			✓
	6	SS - Austenitic-ferritic (Duplex)	230-260			✓
K	7	Malleable Cast Iron	130-230		✓	✓
	8	Grey Cast Iron	180-245		✓	✓
	9	Nodular Cast iron	160-250		✓	✓
N	10	Aluminium and Non Ferrous	30-130	✓		

Good Conditions Average Conditions Difficult Conditions

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

ISO	PSM	Material	HB (Brinell)	Chip breaker application	
				1st choice	Dificult Operations
P	1	Unalloyed Steel	125-220	APKT 10... PDER-X	APKT 10... PDTR-X
	2	Low-Alloyed Steel	220-280	APKT 10... PDSR-X	APKT 10... PDSR-X
	3	High-Alloyed Steel	280-380	APKT 10... PDSR-X	-
M	4	SS - Ferritic / Martensitic	200-330	APKT 10... PDER-X	-
	5	SS - Austenitic	200-330	APKT 10... PDER-X	-
	6	SS - Austenitic-ferritic (Duplex)	230-260	APKT 10... PDER-X	-
K	7	Malleable Cast Iron	130-230	APKT 10... PDER-X	APKT 10... PDSR-X
	8	Grey Cast Iron	180-245	APKT 10... PDSR-X	-
	9	Nodular Cast iron	160-250	APKT 10... PDSR-X	-
N	10	Aluminium and Non Ferrous	30-130	APET 10... PDFR-LN	-

LINEPRO 17090

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

ISO	PSM	Material	HB (Brinell)	Vc (m/min) ← Wear Resistance		Toughness →
				PH0910	PH6920	PH6930
P	1	Unalloyed Steel	125-220	-	180-240	160-220
	2	Low-Alloyed Steel	220-280	-	160-220	140-200
	3	High-Alloyed Steel	280-380	-	140-210	120-190
M	4	SS - Ferritic / Martensitic	200-330	-	140-220	140-200
	5	SS - Austenitic	200-330	-	130-180	120-160
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	120-160	100-140
K	7	Malleable Cast Iron	130-230	-	160-260	150-240
	8	Grey Cast Iron	180-245	-	140-240	140-230
	9	Nodular Cast iron	160-250	-	120-200	100-190
N	10	Aluminium and Non Ferrous	30-130	100-2000	-	-

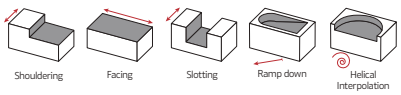
ISO	PSM	Material	HB (Brinell)	Feed fz (mm/t)		
				APKT 10... PDER-X/X1	APKT 10... PDS(T)R-X/X1	APET 10... PDFR-LN
P	1	Unalloyed Steel	125-220	0,07-0,15	0,10-0,25	-
	2	Low-Alloyed Steel	220-280	0,07-0,10	0,10-0,20	-
	3	High-Alloyed Steel	280-380	0,07-0,10	0,10-0,20	-
M	4	SS - Ferritic / Martensitic	200-330	0,07-0,10	-	-
	5	SS - Austenitic	200-330	0,07-0,10	-	-
	6	SS - Austenitic-ferritic (Duplex)	230-260	0,07-0,10	-	-
K	7	Malleable Cast Iron	130-230	0,07-0,15	0,10-0,25	-
	8	Grey Cast Iron	180-245	0,07-0,15	0,10-0,25	-
	9	Nodular Cast iron	160-250	-	0,10-0,20	-
N	10	Aluminium and Non Ferrous	30-130	-	-	0,07-0,20

(Note 1) Cutting conditions a_e/Dc=70%.
(Note 2) Cutting conditions for slotting and shouldering operations:

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

(Note 3) Cutting conditions should be adjusted according to the machine and work rigidity.
(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.

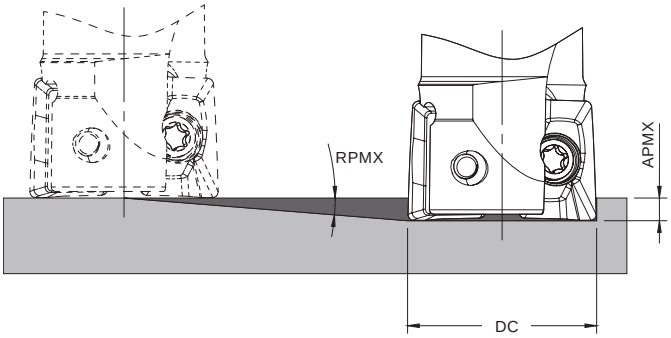
(Note 5) If chattering occurs, reduce ap and Vc by 30% and keep the same fz per tooth.



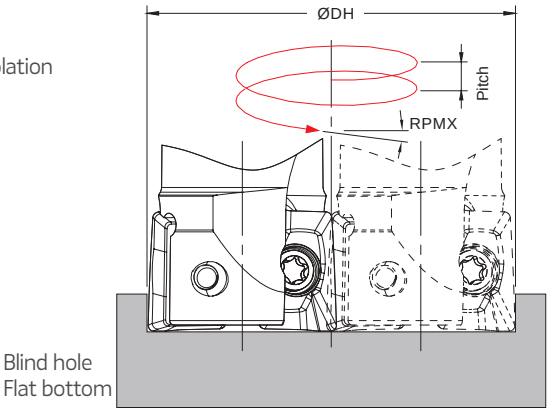
RAMPING AND HELICAL INTERPOLATION

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

Ramping



Helical Interpolation

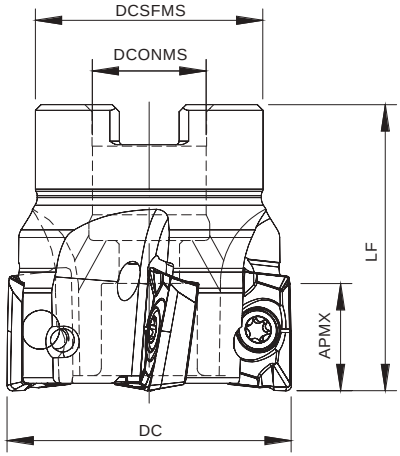


$$ØDi = ØDH - DC$$

DC	Ramping			Helical Interpolation		
				Diameter for Blind Hole, Flat Bottom Face (1)		Max Pitch/Rev.
	RPMX	APMX	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 LP insert with radius 0,8 mm
Note: During helical interpolation do not exceed maximum pitch
When using HF insert or other different insert radius to calculate the ØDHmin and ØDHmax use the equation below:
- Minimum Diameter: ØDHmin = 2 x (DC - (R corner radius + F width of edge wiper))
- Maximum Diameter: ØDHmax = 2 x (DC - R corner radius)

LINEPRO 18090

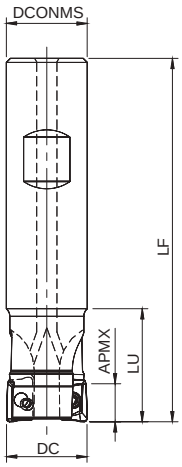


Arbor Mounting

KAPR=90° | GAMP=+8°~+10°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications		Insert Pastilha Inserto	Stock
			DC	DCONMS	DCSFMS	LF		Arbor Type	APMX (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 (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

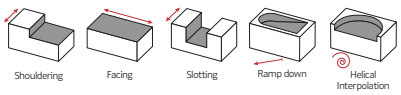


Weldon Shank

KAPR=90° | GAMP=+6°~+8°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications	Insert Pastilha Inserto	Stock
			DC	DCONMS	LF	LU		APMX (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	◎

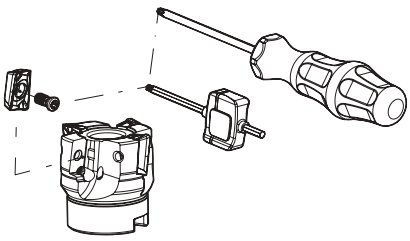
◎ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)



SPARE PARTS Acessórios | Repuestos

Order separately

Cutter DC	Insert Screw	Key (Torx)	Key (Torx - Nm)	Torque Value	Screw	DIN 6368 Wrench
A18090 - 40-63	P0400900	XT15	DT1530	3,0	-	-
A18090 - 80	P0400900	XT15	DT1530	3,0	J0123510	SD6368-12
A18090 - 100	P0400900	PT15	DT1530	3,0	J0164110	SD6368-16
A18090 - 125	P0400900	PT15	DT1530	3,0	J0204610	SD6368-20
W18090 - 25-40	P0400900	XT15	DT1530	3,0	-	-



Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.

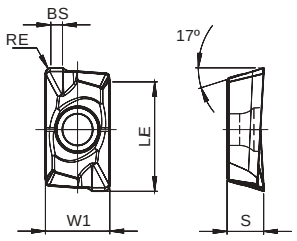
AP.. 1604... Inserts | Pastilhas | Plaquitas

APKT - X

APKT - X1

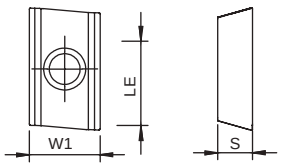
APKT - X2

APKT - LN



APKT-X | X1 | X2 | LN

APHT - LN



APHT-LN

		P				M		K				N	Dimensions Dimensões Dimensiones (mm)				
		PVD				PVD		PVD				UNC					
	(2) Grade code	68	G4	66	P3	66	P3	68	G4	66	P3	10					
(1) Geometry code	ISO Reference	PH6920	PH7920	PH6930	PH7930	PH6930	PH7930	PH6920	PH7920	PH6930	PH7930	PH0910	W1	S	LE	RE	BS
1112159	APKT 160408 PDER-X1	◎		◎		◎		◎		◎			9,45	5,35	16,00	0,80	1,80
1112464	APKT 160408 PDER-X2		◎		◎		◎		◎		◎		9,45	5,35	16,00	0,80	1,80
1112158	APKT 160408 PDSR-X1	◎		◎				◎		◎			9,45	5,35	16,00	0,80	1,80
1112367	APKT 160408 PDSR-X2		◎		◎				◎		◎		9,45	5,35	16,00	0,80	1,80
1111923	APKT 160408 PDFR-LN											◎	9,45	5,35	16,00	0,80	0,80
1111074	APKT 160416 PDER-X	◎						◎					9,45	5,35	16,00	1,60	1,20
1111050	APKT 160416 PDSR-X	◎		◎				◎		◎			9,45	5,35	16,00	1,60	1,20
1111075	APKT 160432 PDER-X	◎						◎					9,45	5,35	16,00	3,20	-
1111052	APKT 160432 PDSR-X	◎						◎					9,45	5,35	16,00	3,20	-
1111924	APHT 1604 PDFR-LN											◎	9,45	5,35	16,00	-	-

◎ First choice | Primeira opção | 1ª opción ◎ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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

*For inserts with radius above 2.0 mm, the cutter must be adjusted

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	PH7(6)920	PH7 (6)30
P	1	Unalloyed Steel	125-220		✓	✓
	2	Low-Alloyed Steel	220-280		✓	✓
	3	High-Alloyed Steel	280-380		✓	✓
M	4	SS - Ferritic / Martensitic	200-330			✓
	5	SS - Austenitic	200-330			✓
	6	SS - Austenitic-ferritic (Duplex)	230-260			✓
K	7	Malleable Cast Iron	130-230		✓	✓
	8	Grey Cast Iron	180-245		✓	✓
	9	Nodular Cast iron	160-250		✓	✓
N	10	Aluminium and Non Ferrous	30-130	✓		

Good Conditions Average Conditions Difficult Conditions

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

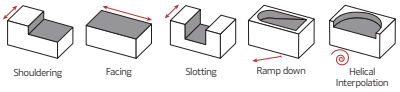
ISO	PSM	Material	HB (Brinell)	Vc (m/min) ← Wear Resistance — Toughness → PH0910	PH7(6)920	PH7(6)930
P	1	Unalloyed Steel	125-220	-	180-240	160-220
	2	Low-Alloyed Steel	220-280	-	160-220	140-200
	3	High-Alloyed Steel	280-380	-	140-210	120-190
M	4	SS - Ferritic / Martensitic	200-330	-	-	140-200
	5	SS - Austenitic	200-330	-	-	120-160
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	-	100-140
K	7	Malleable Cast Iron	130-230	-	160-260	150-240
	8	Grey Cast Iron	180-245	-	140-240	140-230
	9	Nodular Cast iron	160-250	-	120-200	100-190
N	10	Aluminium and Non Ferrous	30-130	100-2000	-	-

ISO	PSM	Material	HB (Brinell)	Feed fz (mm/t) APKT 16... PDER-X/X2	APKT 16... PDS(T)R-X/X2	AP..T 16... PDFR-LN
P	1	Unalloyed Steel	125-220	0,07-0,15	0,10-0,25	-
	2	Low-Alloyed Steel	220-280	0,07-0,10	0,10-0,20	-
	3	High-Alloyed Steel	280-380	0,07-0,10	0,10-0,20	-
M	4	SS - Ferritic / Martensitic	200-330	0,07-0,10	-	-
	5	SS - Austenitic	200-330	0,07-0,10	-	-
	6	SS - Austenitic-ferritic (Duplex)	230-260	0,07-0,10	-	-
K	7	Malleable Cast Iron	130-230	0,07-0,15	0,10-0,25	-
	8	Grey Cast Iron	180-245	0,07-0,15	0,10-0,25	-
	9	Nodular Cast iron	160-250	-	0,10-0,20	-
N	10	Aluminium and Non Ferrous	30-130	-	-	0,07-0,20

(Note 1) Cutting conditions a_e/Dc=70%.
(Note 2) Cutting conditions for slotting and shouldering operations:

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

(Note 3) Cutting conditions should be adjusted according to the machine and work rigidity.
(Note 4) It's possible to occur vibrations in certain cases. Please reduce depth of cut and / or reduce cutting conditions in following cases:
- When using long shank;
- When using long tool overhang with arbor type;
- When application has poor clamping rigidity or when using a low rigidity machine.



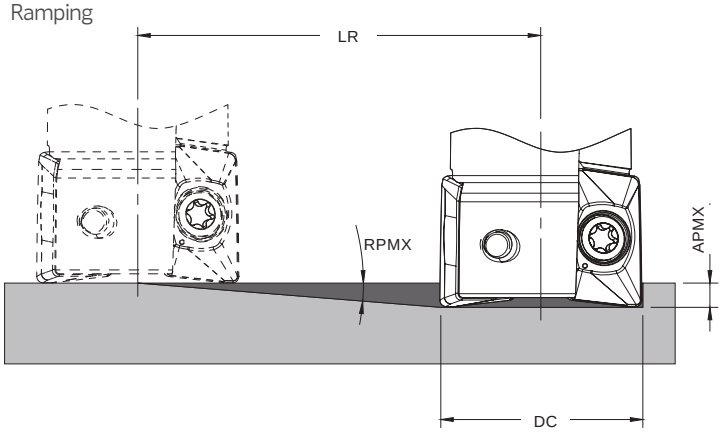
CHIP BREAKER SELECTION GUIDE Guia para aplicações do quebra-aparas | Guía para aplicación del rompevirutas

ISO	PSM	Material	HB (Brinell)	Chip breaker application	
				1st choice	Dificult Operations
P	1	Unalloyed Steel	125-220	APKT 16... PDER-X(X2)	APKT 16... PDSR-X(-X2)
	2	Low-Alloyed Steel	220-280	APKT 16... PDSR-X(X2)	-
	3	High-Alloyed Steel	280-380	APKT 16... PDSR-X(X2)	-
M	4	SS - Ferritic / Martensitic	200-330	APKT 16... PDER-X(X2)	-
	5	SS - Austenitic	200-330	APKT 16... PDER-X(X2)	-
	6	SS - Austenitic-ferritic (Duplex)	230-260	APKT 16... PDSR-X(X2)	-
K	7	Malleable Cast Iron	130-230	APKT 16... PDSR-X(X2)	APKT 16... PDSR-X(X2)
	8	Grey Cast Iron	180-245	APKT 16... PDSR-X(X2)	-
	9	Nodular Cast iron	160-250	APKT 16... PDSR-X(X2)	-
N	10	Aluminium and Non Ferrous	30-130	AP..T 16... PDFR-LN	APHT 16.... PDFR-LN

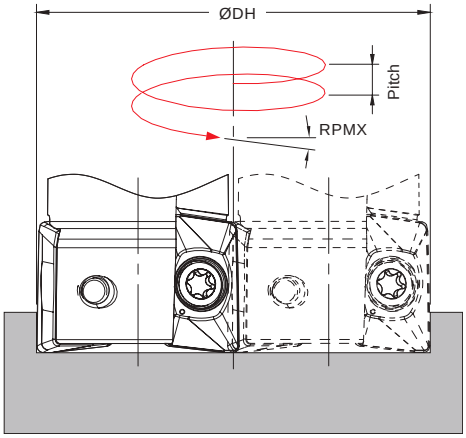
RAMPING AND HELICAL INTERPOLATION

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

Ramping



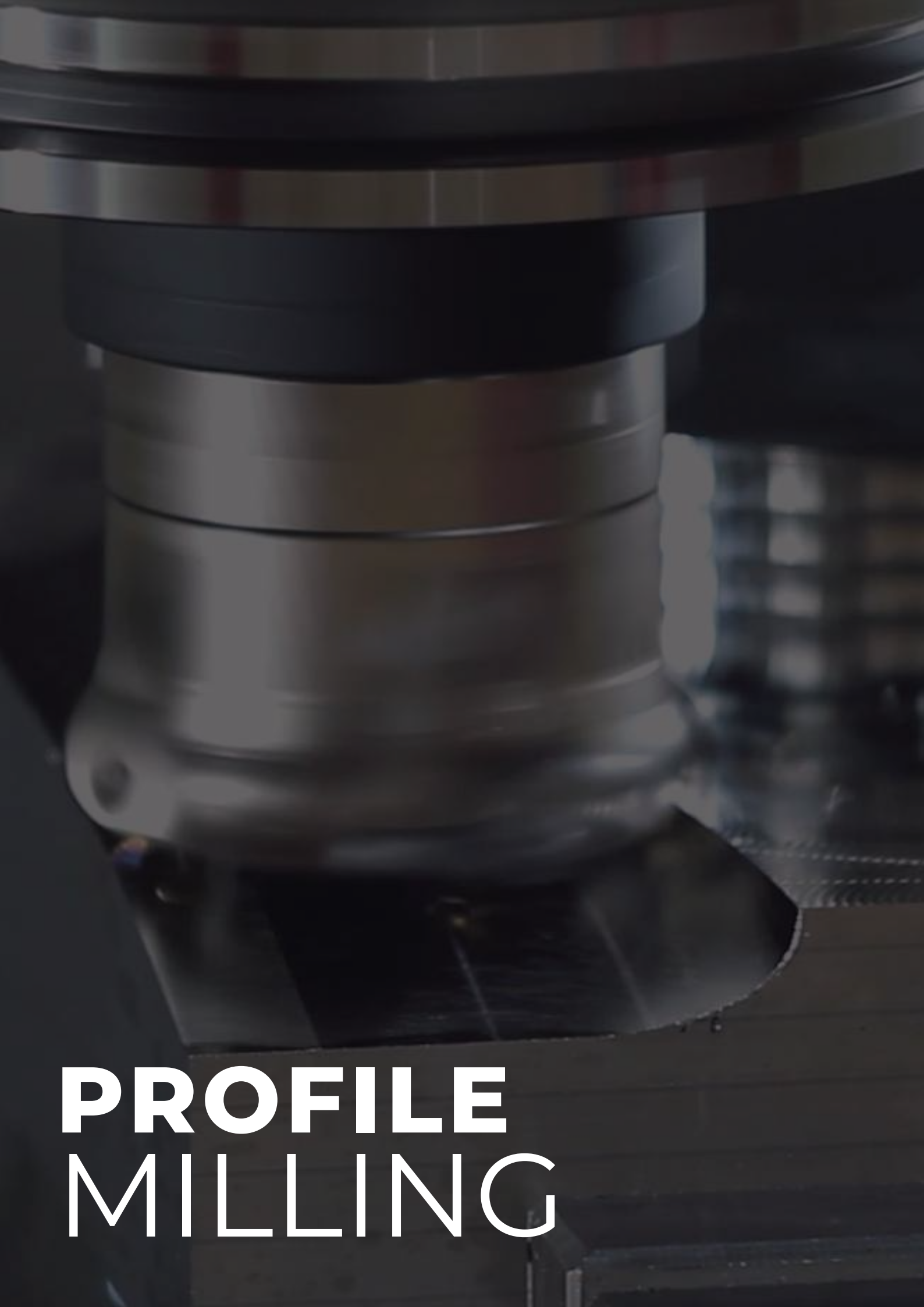
Helical Interpolation



ØDi = ØDH - DC

DC	Ramping			Helical Interpolation		
				Diameter for Blind Hole, Flat Bottom Face (1)		Max Pitch/Rev.
	RPMX	APMX	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 equation below:
- Minimum Diameter: ØDHmin = 2 x (DC - (R corner radius + F width of edge wiper))
- Maximum Diameter: ØDHmax = 2 x (DC - R corner radius)



PROFILE MILLING

1 W-PRO 62090

> Suitable for machining **P M K S H**

> See page A - 226

2 PLUS 49095 | 45095

> Suitable for machining **P K H**

> See page A - 232

3 TOROMILL 33590 | 33690 | 33790 | 33890 | 33990

> Suitable for machining **P M S**

> See page A - 238

4 TURBOMILL 34190 | 34290

> Suitable for machining **P M S**

> See page A - 242

5 TOROMILL X2 35190

> Suitable for machining **P M K S**

> See page A - 252

6 TOROMILL 24590 | 25090 | 25190 | 25290 | 25390

> Suitable for machining **P K H**

> See page A - 260

7 LINEPRO 40095 | 41095 | 40595

> Suitable for machining **P K N H**

> See page A - 268

62090

W-PRO

W-PRO is a high precision finishing tool featuring a variety of shank options and two types of inserts, allowing each shank to accommodate either insert type. Its unique pocket design ensures secure insert clamping, precise edge positioning, and runout accuracy of 0.02mm or less.

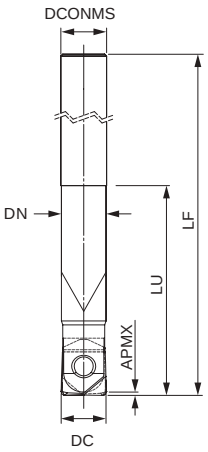
A W-PRO é uma ferramenta de acabamento de alta precisão que apresenta uma variedade de opções de haste e dois tipos de pastilhas, permitindo que cada haste acomode qualquer tipo de pastilha. O seu design de alojamento garante fixação segura da pastilha, posicionamento preciso da aresta e precisão de concentricidade de 0,02 mm ou menos.

A W-PRO es una herramienta de acabado de alta precisión que presenta una variedad de opciones de vástago y dos tipos de plaquitas, permitiendo que cada vástago pueda alojar cualquier tipo de plaquita. Su diseño de alojamiento garantiza una sujeción segura de la plaquita, un posicionamiento preciso del filo y una precisión de concentricidad de 0,02 mm o menos.

W-PRO 62090 > page 228

- From DC 8mm to 20mm
  De DC 8mm a 20mm | Desde DC 8mm hasta 20mm
- Available in threaded steel coupling and cylindrical carbide shank
  Disponível em acoplamento roscado e haste cilíndrica | Disponible en fijación roscada y mango cilíndrico
- One toolholder for two types of inserts
  Um suporte para dois tipos de pastilhas | Un portaherramientas para dos tipos de plaquitas
- Ideal for finishing operations on hardened steels
  Ideal para operações de acabamento em aços endurecidos | Ideal para operaciones de acabado en aceros endurecidos

W-PRO 62090



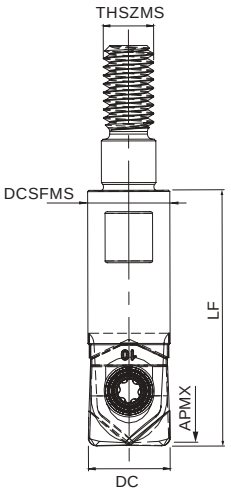
Cylindrical Carbide Shank

Tolerance R	Runout Tolerance
± 0,015	R 0,02

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)					WT	Specifications				Insert Pastilha Inserto	Stock
			DC	DCONMS	DN	LF	LU		APMX (mm)		Ae max (mm)			
181156600	008E62090-02-U008140	2	8	8	7,7	140	35	0,09	4,0	2,5	0,8	0,8	WCR 08../WCL 08...	◈
181156700	010E62090-02-U010150	2	10	10	9,7	150	45	0,15	5,0	3,0	1,0	1,0	WCR 10.../WCL 10...	◈
181156800	010E62090-02-U010180	2	10	10	9,7	180	45	0,18	5,0	3,0	1,0	1,0	WCR 10.../WCL 10...	◈
181155700	012E62090-02-U012165	2	12	12	11,7	165	55	0,24	6,0	4,0	1,2	1,2	WCR 12.../WCL 12...	◈
181156900	012E62090-02-U012200	2	12	12	11,7	200	55	0,29	6,0	4,0	1,2	1,2	WCR 12.../WCL 12...	◈
181157000	016E62090-02-U016200	2	16	16	15,7	200	65	0,51	8,0	5,0	1,6	1,6	WCR 16.../WCL 16...	◈
181157100	016E62090-02-U016250	2	16	16	15,7	250	65	0,67	8,0	5,0	1,6	1,6	WCR 16.../WCL 16...	◈
181157200	020E62090-02-U020220	2	20	20	19,7	220	70	0,87	10,0	6,0	2,0	2,0	WCR 20.../WCL 20...	◈
181157300	020E62090-02-U020250	2	20	20	19,7	250	70	1,00	10,0	6,0	2,0	2,0	WCR 20.../WCL 20...	◈
181157400	020E62090-02-U020300	2	20	20	19,7	300	70	1,23	10,0	6,0	2,0	2,0	WCR 20.../WCL 20...	◈

◈ Stock item | Produto de stock | Itens de stock

◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)



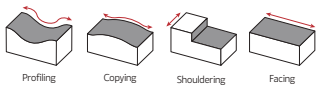
Threaded Steel Shank

Tolerance R	Runout Tolerance
± 0,015	R 0,05

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications				Insert Pastilha Inserto	Stock
			DC	THSZMS	DCSFMS	LF		APMX (mm)		Ae max (mm)			
181167000	010R62090-02-UM06030	2	10	M6	9,8	30	0,011	5	3,0	1,0	1,0	WCR 10.../WCL 10...	◈
181167100	012R62090-02-UM06030	2	12	M6	9,8	30	0,016	6	4,0	1,2	1,2	WCR 12.../WCL 12...	◈
181167200	016R62090-02-UM08030	2	16	M8	12,8	30	0,028	8	5,0	1,6	1,6	WCR 16.../WCL 16...	◈
181167300	020R62090-02-UM10035	2	20	M10	17,8	35	0,058	10	6,0	2,0	2,0	WCR 20.../WCL 20...	◈

◈ Stock item | Produto de stock | Itens de stock

◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

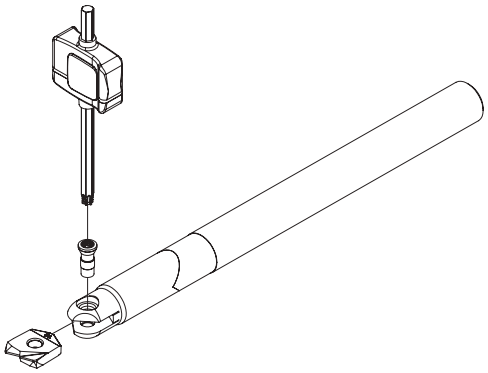


SPARE PARTS Acessórios | Repuestos

Order separately

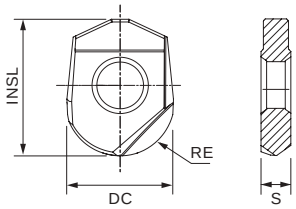
Cutter DC	Insert Screw	Key (Torx)	Key (Torx - Nm)	Torque Value
8	P0300726	XT08	DT0812	1,2
10	P0350825	XT10	DT1020	2,0
12	P0501025	XT20	DT2050	5,0
16	P0501326	XT20	DT2050	5,0
20	P0601725	XT25	-	6,9

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.



WCR Inserts | Pastilhas | Plaquitas

WCR



WCR

		P				M				K				H				Dimensions Dimensões Dimensiones (mm)			
		PVD				PVD				PVD				PVD							
	(2) Grade code	X4	8F	X6	4F	X4	8F	X6	4F	X4	8F	X6	4F	X4	8F	X6	4F				
(1) Geometry code	ISO Reference	PHH603	PHF603	PHH910	PHF910	PHH603	PHF603	PHH910	PHF910	PHH603	PHF603	PHH910	PHF910	PHH603	PHF603	PHH910	PHF910	INSL	RE	S	DC
1112900	WCR 08	◬	◍	◬	◍	◬	◍	◬	◍	◬	◍	◬	◍	◬	◍	◬	◍	9,7	4,0	2,1	8,0
1111914	WCR 10		◍	◬	◍		◍	◬	◍		◍	◬	◍		◍	◬	◍	12,0	5,0	2,7	10,0
1112099	WCR 12	◬	◍	◬	◍	◬	◍	◬	◍	◬	◍	◬	◍	◬	◍	◬	◍	14,6	6,0	3,2	12,0
1112100	WCR 16	◬	◍		◍	◬	◍		◍	◬	◍		◍	◬	◍		◍	16,6	8,0	4,2	16,0
1112101	WCR 20		◍		◍		◍		◍		◍		◍		◍		◍	20,0	10,0	5,2	20,0

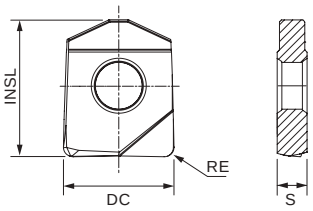
◍ First choice | 1ª Escolha | 1ª Opción
◍ Stock Itens | Itens de stock
◬ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock
◯ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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

W-PRO 62090

WCL Inserts | Pastilhas | Plaquitas

WCL

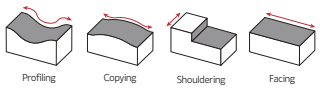


WCL

		P				M				K				H				Dimensions Dimensões Dimensiones (mm)			
		PVD				PVD				PVD				PVD							
	(2) Grade code	X4	8F	X6	4F	X4	8F	X6	4F	X4	8F	X6	4F	X4	8F	X6	4F				
(1) Geometry code	ISO Reference	PHH603	PHF603	PHH910	PHF910	PHH603	PHF603	PHH910	PHF910	PHH603	PHF603	PHH910	PHF910	PHH603	PHF603	PHH910	PHF910	INSL	RE	S	DC
1112879	WCL-08 R0.3		●		●		●		●		●		●		●		●	9,7	0,3	2,1	8,0
1112880	WCL-08 R0.5		●		●		●		●		●		●		●		●	9,7	0,5	2,1	8,0
1112853	WCL-08 R1.0		●	○	●		●	○	●		●	○	●		●	○	●	9,7	1,0	2,1	8,0
1112881	WCL-10 R0.3	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	12,0	0,3	2,7	10,0
1112882	WCL-10 R0.5		●		●		●		●		●		●		●		●	12,0	0,5	2,7	10,0
1112848	WCL-10 R1.0	○	●		●	○	●		●	○	●		●	○	●		●	12,0	1,0	2,7	10,0
1112883	WCL-10 R1.5		●		●		●		●		●		●		●		●	12,0	1,5	2,7	10,0
1112884	WCL-10 R2.0		●	○	●		●	○	●		●	○	●		●	○	●	12,0	2,0	2,7	10,0
1112885	WCL-12 R0.3		●		●		●		●		●		●		●		●	14,6	0,3	3,2	12,0
1112886	WCL-12 R0.5		●		●		●		●		●		●		●		●	14,6	0,5	3,2	12,0
1112096	WCL-12 R1.0		●	○	●		●	○	●		●	○	●		●	○	●	14,6	1,0	3,2	12,0
1112887	WCL-12 R1.5	○	●		●	○	●		●	○	●		●	○	●		●	14,6	1,5	3,2	12,0
1112888	WCL-12 R2.0		●		●		●		●		●		●		●		●	14,6	2,0	3,2	12,0
1112889	WCL-12 R3.0		●		●		●		●		●		●		●		●	14,6	3,0	3,2	12,0
1112890	WCL-16 R0.3	○	●		●	○	●		●	○	●		●	○	●		●	16,6	0,3	4,2	16,0
1112891	WCL-16 R0.5		●		●		●		●		●		●		●		●	16,6	0,5	4,2	16,0
1112097	WCL-16 R1.0	○	●		●	○	●		●	○	●		●	○	●		●	16,6	1,0	4,2	16,0
1112892	WCL-16 R1.5		●		●		●		●		●		●		●		●	16,6	1,5	4,2	16,0
1112893	WCL-16 R2.0	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	16,6	2,0	4,2	16,0
1112894	WCL-16 R3.0	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	16,6	3,0	4,2	16,0
1112895	WCL-20 R0.3		●		●		●		●		●		●		●		●	20,0	0,3	5,2	20,0
1112896	WCL-20 R0.5		●		●		●		●		●		●		●		●	20,0	0,5	5,2	20,0
1112098	WCL-20 R1.0	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	20,0	1,0	5,2	20,0
1112897	WCL-20 R1.5		●	○	●		●	○	●		●	○	●		●	○	●	20,0	1,5	5,2	20,0
1112898	WCL-20 R2.0		●		●		●		●		●		●		●		●	20,0	2,0	5,2	20,0
1112899	WCL-20 R3.0	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	20,0	3,0	5,2	20,0

● First choice | Primeira opção | 1ª opción ● Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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 → PHH603	PHF603	PHH910	PHF910
P	1	Unalloyed Steel	125-220	✓	✓	✓	✓
	2	Low-Alloyed Steel	220-280	✓	✓	✓	✓
	3	High-Alloyed Steel	280-380	✓	✓	✓	✓
M	4	SS - Ferritic / Martensitic	200-330	✓	✓	✓	✓
	5	SS - Austenitic	200-330	✓	✓	✓	✓
	6	SS - Austenitic-ferritic (Duplex)	230-260	✓	✓	✓	✓
K	7	Malleable Cast Iron	130-230	✓	✓	✓	✓
	8	Grey Cast Iron	180-245	✓	✓	✓	✓
	9	Nodular Cast iron	160-250	✓	✓	✓	✓
H	12	Hardened Steels	40-55 HRC	✓	✓	✓	✓

Good Conditions Average Conditions Difficult Conditions

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

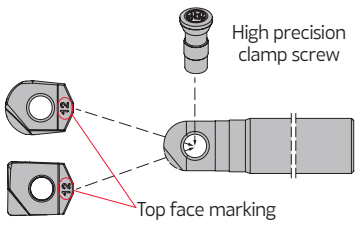
ISO	PSM	Material	HB (Brinell)	Vc (m/min) ← Wear Resistance — Toughness → PHH603	PHF603	PHH910	PHF910	Feed fz (mm/t) WCR	WCL
P	1	Unalloyed Steel	125-220	180-310	180-310	140-270	140-270	0,15-0,45	0,10-0,30
	2	Low-Alloyed Steel	220-280	180-300	180-300	140- 260	140- 260	0,15-0,40	0,10-0,25
	3	High-Alloyed Steel	280-380	180-280	180-280	140-220	140-220	0,10-0,40	0,10-0,25
M	4	SS - Ferritic / Martensitic	200-330	170-300	170-300	130-260	130-260	0,15-0,35	0,10-0,25
	5	SS - Austenitic	200-330	160-290	160-290	120-250	120-250	0,15-0,35	0,10-0,25
	6	SS - Austenitic-ferritic (Duplex)	230-260	150-270	150-270	110-230	110-230	0,15-0,30	0,08-0,20
K	7	Malleable Cast Iron	130-230	200-380	200-380	180-370	180-370	0,10-0,50	0,10-0,35
	8	Grey Cast Iron	180-245	180-360	180-360	180-350	180-350	0,10-0,45	0,10-0,30
	9	Nodular Cast iron	160-250	160-310	160-310	160-290	160-290	0,10-0,40	0,10-0,30
H	12	Hardened Steels	46-54 HRC	90-270	90-270	80-260	80-260	0,05-0,20	0,05-0,15
	13	Hardened Steels	55-62 HRC	80-200	80-200	70-180	70-180	0,05-0,15	0,04-0,12
	14	Hardened Steels	63-70 HRC	70-180	70-180	70-160	70-160	0,04-0,12	0,04-0,10

PROCEDURES FOR CLAMPING SCREWS Procedimentos para parafusos de aperto | Procedimientos para sujetar tornillos

1. Check the insert seat.
Before assembly cutter it is important to ensure that the insert seat has not been damaged during machining or handling.

2. Clean the insert seat.
Make sure that the insert seat is free from dust or chips from previous machining. If necessary, clean the insert seat with pressurised air.

3. Position the insert.
Position the insert with the top face marking in the direction of screw placement and couple the insert into the cutter.



4. Lubricate the insert screw.
Apply sufficient screw lubrication to prevent seizure. Lubricant should be applied in small quantity to the screw threads.

5. Always use a torque wrench to ensure that screws are correctly tightened (please confirm torque data). Excessive torque will negatively affect the performance of the tool and can cause screw and insert breakage. Unsufficient torque leads to insert movement, vibration and degrade the cutting result. Dedicated adjustable torque wrench can be ordered separately. Please do not press down the insert during tightening process.

Note: Always replace worn or damaged screws.

CAUTION	To avoid affecting tolerances do not tighten the screw without assembling the insert in the toolholder.

49095 | 45095

PLUS

The PLUS line is designed for semi-finishing to finishing operations, featuring double-sided positive inserts. The PLUS line offers the advantage of an economical insert with six positive cutting edges. This makes it ideal for profile applications in the mold and die industry.

A linha PLUS é projetada para operações de semi-acabamento a acabamento, apresentando pastilhas positivas de dois lados. Oferece a vantagem de uma pastilha económica com seis arestas de corte positivas. Isso torna-a ideal para aplicações de perfil na indústria de moldes e matrizes.

La línea PLUS está diseñada para operaciones de semiacabado a acabado, presentando plaquitas positivas de dos lados. Ofrece la ventaja de una plaquita económica con seis filos de corte positivos. Esto la hace ideal para aplicaciones de perfil en la industria de moldes y matrices.

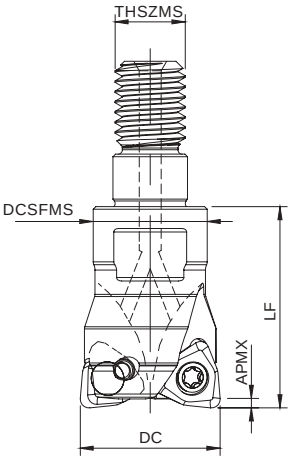
LINEPRO 49095 > page 234

- From DC 16mm to 35mm
  De DC 16mm a 35mm | Desde DC 16mm hasta 35mm
- Available in threaded coupling
  Disponível em acoplamento roscado | Disponible en fijación roscada
- Negative inserts with 6 cutting-edges
  Pastilhas negativas com 6 arestas de corte | Insertos negativos con 6 filos de corte

LINEPRO 45095 > page 236

- From DC 25mm to 42mm
  De DC 25mm a 42mm | Desde DC 25mm hasta 42mm
- Available in threaded coupling
  Disponível em acoplamento roscado | Disponible en fijación roscada
- Designed for finishing and profile miling
  Projetado para acabamento e fresagem de perfil | Diseñado para acabado y fresado de perfil

PLUS 49095



Threaded Coupling

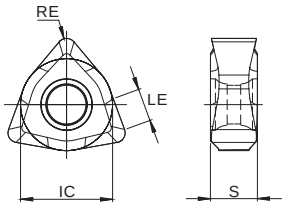
KAPR=95° | GAMP=-7°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications	Insert Pastilha Inserto	Stock
			DC	THSZMS	DCSFMS	LF		APMX (mm)		
181030400	016R49095-02-07-M08023	2	16	M8	13	23	0,024	0,30	WNHU 04T310	◈
181028600	020R49095-03-07-M10028	3	20	M10	18	28	0,052	0,30	WNHU 04T310	◈
181030500	025R49095-04-07-M12030	4	25	M12	21	30	0,082	0,30	WNHU 04T310	◈
181030600	035R49095-05-07-M16035	5	35	M16	29	35	0,190	0,30	WNHU 04T310	◈

◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

WNHU 04T310 Inserts | Pastilhas | Plaquitas

WNHU



WNHU

		P			K		H		Dimensions Dimensões Dimensiones (mm)			
		PVD			PVD		PVD					
	(2) Grade code	X5	T1	P4	X5	T1	X4	X5				
(1) Geometry code	ISO Reference	PHP910	PHP920	PHP930	PHP910	PHP920	PHH603	PHP910	iC	S	I	R
1110783	WNHU 04T310	◈	◈	◈	◈	◈	◈	◈	6,35	3,50	2,80	1,00

◈ First choice | Primeira opção | 1ª opción ◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

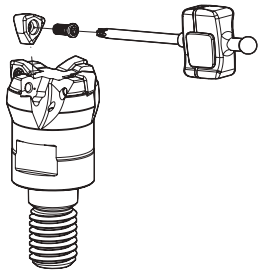
Insert order code = (1) Geometry Code + (2) Grade Code

SPARE PARTS Acessórios | Repuestos

Order separately

Cutter DC	Insert Screw	Key (Torx)	Key (Torx - Nm)	Torque Value
R49095 - 16-35	P0250704	XT08	DT0812	1,2

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.



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

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance — Toughness → PHH603	PHP910	PHP920	PHP930
P	1	Unalloyed Steel	125-220		✓	✓	✓
	2	Low-Alloyed Steel	220-280		✓	✓	✓
	3	High-Alloyed Steel	280-380	✓	✓	✓	✓
K	7	Malleable Cast Iron	130-230		✓	✓	
	8	Grey Cast Iron	180-245		✓	✓	
	9	Nodular Cast iron	160-250		✓	✓	
H	12	Hardened Steels	40-55 HRC	✓	✓		

(Note 1) Grade PHH603 must be used only on finishing operations.

Good Conditions Average Conditions Difficult Conditions

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

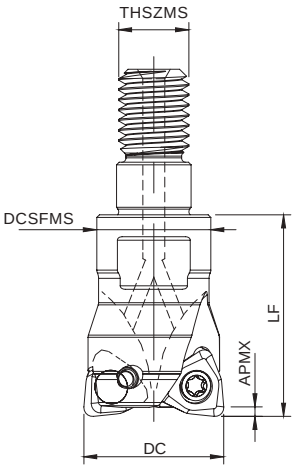
ISO	PSM	Material	HB (Brinell)	Vc (m/min) ← Wear Resistance — Toughness → PHH603	PHP910	PHP920	PHP930
P	1	Unalloyed Steel	125-220	-	180-250	180-240	160-220
	2	Low-Alloyed Steel	220-280	-	160-240	160-220	140-200
	3	High-Alloyed Steel	280-380	180-310	140-230	140-210	120-190
K	7	Malleable Cast Iron	130-230	-	180-300	160-260	150-240
	8	Grey Cast Iron	180-245	-	160-250	140-240	140-230
	9	Nodular Cast iron	160-250	-	150-210	120-200	100-190
H	12	Hardened Steels	40-55 HRC	70-270	60-250	-	-

(Note 1) Grade PHH603 must be used only on finishing operations.
(Note 2)

Insert	Feed f_z (mm/t) Roughing	Finishing	AP Rec.
WNHU 04T310	0,15-0,25	0,10-0,20	0,10-0,50

(Note 3) Cutting conditions should be adjusted according to the machine and work rigidity.
(Note 4) If chattering occurs, reduce a_p and V_c by 30% and keep the same f_z per tooth.

PLUS 45095



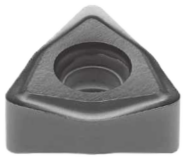
Threaded Coupling

KAPR=95° | GAMP=-6°

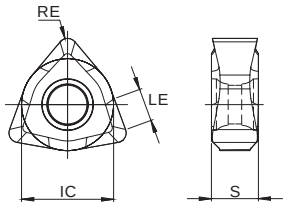
Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications	Insert Pastilha Inserto	Stock
			DC	THSZMS	DCSFMS	LF		APMX (mm)		
181037500	025R45095-02-06-M12030	2	25	M12	21	30	0,079	0,50	WNHU 060410	◈
181037600	035R45095-03-06-M16035	3	35	M16	29	35	0,185	0,50	WNHU 060410	◈
181037700	042R45095-04-06-M16035	4	42	M16	29	35	0,219	0,50	WNHU 060410	◈

◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

WNHU 060410 Inserts | Pastilhas | Plaquitas



WNHU



WNHU

		P	K	H		Dimensions Dimensões Dimensiones (mm)			
		PVD	PVD	PVD					
	(2) Grade code	X5	X5	X4	X5				
(1) Geometry code	ISO Reference	PHP910	PHP910	PHH903	PHP910	IC	S	LE	RE
1111424	WNHU 060410	◈	◈	◈	◈	9,53	4,76	3,40	1,00

◈ First choice | Primeira opção | 1ª opción ◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

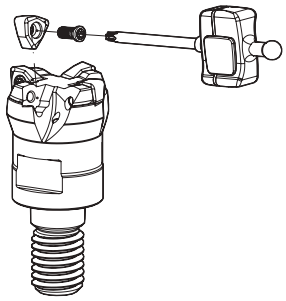
Insert order code = (1) Geometry Code + (2) Grade Code

SPARE PARTS Acessórios | Repuestos

Order separately

Cutter DC	Insert Screw	Key (Torx)	Key (Torx - Nm)	Torque Value
R45095 - 25-42	P0350902	XT10	DT1020	2,0

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.



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

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance — Toughness → PHH603	PHP910
P	1	Unalloyed Steel	125-220		✓
	2	Low-Alloyed Steel	220-280		✓
	3	High-Alloyed Steel	280-380	✓	✓
K	7	Malleable Cast Iron	130-230		✓
	8	Grey Cast Iron	180-245		✓
	9	Nodular Cast iron	160-250		✓
H	12	Hardened Steels	40-55 HRC	✓	✓

(Note 1) Grade PHH603 must be used only on finishing operations.

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 → PHH603	PHP910
P	1	Unalloyed Steel	125-220	-	180-250
	2	Low-Alloyed Steel	220-280	-	160-240
	3	High-Alloyed Steel	280-380	180-310	140-230
K	7	Malleable Cast Iron	130-230	-	180-300
	8	Grey Cast Iron	180-245	-	160-250
	9	Nodular Cast iron	160-250	-	150-210
H	12	Hardened Steels	40-55 HRC	70-270	60-250

(Note 1) Grade PHH603 must be used only on finishing operations.
(Note 2)

Insert	Feed f_z (mm/t) Roughing	Finishing	AP Rec.
WNHU 060410	0,15-0,30	0,10-0,25	0,10-0,50

(Note 3) Cutting conditions should be adjusted according to the machine and work rigidity.
(Note 4) If chattering occurs, reduce a_p and V_c by 30% and keep the same f_z per tooth.

33590 | 33690 | 33790 | 33890 | 33990

TOROMILL

34190 | 34290

TURBOMILL

The TOROMILL and TURBOMILL lines are designed for rough machining in challenging cutting materials. The innovative TURBOMILL round insert copy mill features a unique anti-rotation system. This system effectively secures the inserts in place, preventing any movement within the pockets during machining. As a result, it ensures tool reliability and precise indexing when machining difficult cutting materials.

As linhas TOROMILL e TURBOMILL são projetadas para fresagem de desbaste em materiais de corte desafiadores. A inovadora fresa de cópia com pastilha redonda TURBOMILL apresenta um sistema único de anti-rotação. Esse sistema garante efetivamente que as pastilhas permaneçam no lugar, evitando qualquer movimento dentro dos alojamentos durante a fresagem. Como resultado, garante a fiabilidade da ferramenta e a indexação precisa ao maquinar materiais de corte difíceis.

Las líneas TOROMILL y TURBOMILL están diseñadas para fresado de desbaste en materiales de corte desafiantes. La innovadora fresa de copia con plaquita redonda TURBOMILL presenta un sistema único de anti-rotación. Este sistema garantiza efectivamente que las plaquitas permanezcan en su lugar, evitando cualquier movimiento dentro de los alojamientos durante el fresado. Como resultado, asegura la fiabilidad de la herramienta y la indexación precisa al mecanizar materiales de corte difíciles.

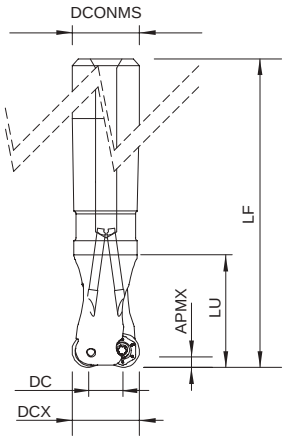
TOROMILL 33590 | 33690 | 33790 | 33890 | 33990 > page 240

- From DC 16mm to 125mm
  De DC 16mm a 125mm | Desde DC 16mm hasta 125mm
- Available in arbor, threaded, weldon and cylindrical shank
  Disponível em montagem tipo árvore, acoplamento roscado e haste cilíndrica | Disponible en fijación con tornillo central, fijación roscada y mango cilíndrico
- Smooth cutting and low power requirement
  Corte suave e baixa potência requerida | Corte suave y bajo requisito de potencia
- For stainleess and HRSA applications
  Para aplicações em aço inoxidável e HRSA | Para aplicaciones de acero inoxidable y HRSA

TURBOMILL 34190 | 34290 > page 244

- From DC 20mm to 80mm
  De DC 20mm a 80mm | Desde DC 20mm hasta 80mm
- Available in arbor mounting, threaded coupling and cylindrical shank
  Disponível em montagem tipo árvore, acoplamento roscado e haste cilíndrica | Disponible en fijación con tornillo central, fijación roscada y mango cilíndrico
- Unique anti-rotation system
  Sistema único de anti-rotação | Sistema único de anti-rotación
- Round positive insert with 4 or 6 cutting edges
  Pastilha positiva redonda com 4 ou 6 arestas de corte | Plaquita positiva redonda con 4 o 6 filos de corte

TOROMILL 33590 | 33690 | 33790



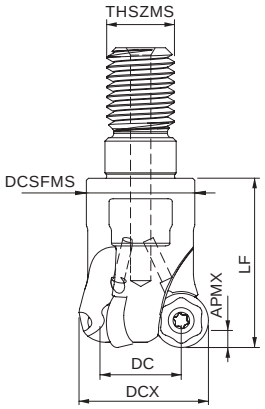
Cylindrical Shank

GAMP=+5º

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)					WT	Specifications	Insert Pastilha Inserto	Stock
			DCX	DC	DCONMS	LF	LU		APMX (mm)		
					33590						
181122500	016E33590-02-04-016160	2	16	8	16	160	59	0,19	4,0	RD...0802 M0E	◈
181122600	020E33590-03-05-020180	3	20	12	20	180	59	0,35	4,0	RD...0802 M0E	◈
181122700	025E33590-04-05-025200	4	25	17	25	200	59	0,76	4,0	RD...0802 M0E	◈
					33690						
181123400	020E33690-02-05-020180	2	20	10	20	180	50	0,40	5,0	RP...10T3 M0E	◈
181123500	025E33690-03-05-025200	3	25	15	25	200	60	0,76	5,0	RP...10T3 M0E	◈
181123600	032E33690-04-05-032200	4	32	22	32	200	60	1,10	5,0	RP...10T3 M0E	◈

◈ Stock item | Produto de stock | Itens de stock

◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)



Threaded Coupling

GAMP=+5º

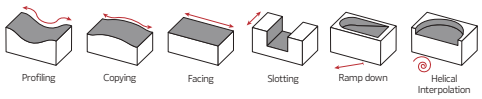
Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)					WT	Specifications	Insert Pastilha Inserto	Stock
			DCX	DC	THSZMS	DCSFMS	LF		APMX (mm)		
					33590						
181098600	016R33590-02-04-M08020	2	16	8	M8	13	20	0,02	4,0	RD...0802 M0E	◈
181122800	020R33590-03-05-M10025	3	20	12	M10	16	25	0,07	4,0	RD...0802 M0E	◈
181122900	025R33590-04-05-M12030	4	25	17	M12	21	30	0,10	4,0	RD...0802 M0E	◈
181123000	032R33590-05-05-M16043	5	32	24	M16	29	43	0,25	4,0	RD...0802 M0E	◯
					33690						
181110600	020R33690-02-05-M10032	2	20	10	M10	16	32	0,12	5,0	RP...10T3 M0E	◯
181110700	025R33690-03-05-M12035	3	25	15	M12	21	35	0,09	5,0	RP...10T3 M0E	◈
181110800	032R33690-04-05-M16035	4	32	22	M16	29	35	0,31	5,0	RP...10T3 M0E	◈
181120700	035R33690-05-05-M16045	5	35	25	M16	29	45	0,22	5,0	RP...10T3 M0E	◈

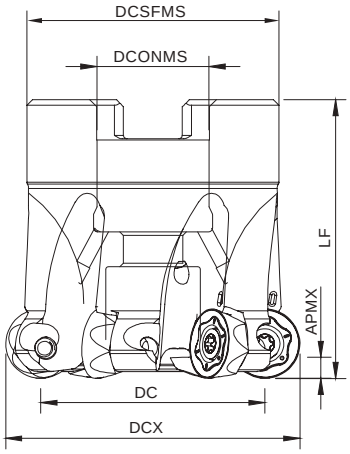
◈ Stock item | Produto de stock | Itens de stock

◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

TOROMILL 33590 | 33690 | 33790

RDHT | RPHT





Arbor Mounting

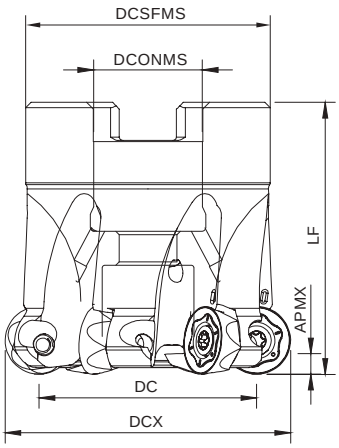
GAMP=+5°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)					WT	Specifications		Insert Pastilha Inserto	Stock
			DCX	DC	DCONMS	DCSFMS	LF		Arbor Type	APMX (mm)		
						33690						
181123700	042A33690-06-05-016040	6	42	32	16	36	40	0,18	A	5,0	RP...10T3 M0E	◈
181123800	050A33690-06-05-022040	6	50	40	22	42	40	0,26	A	5,0	RP...10T3 M0E	◈
181123900	052A33690-07-05-022040	7	52	42	22	42	40	0,25	A	5,0	RP...10T3 M0E	○
						33790						
181098700	040A33790-04-05-016040	4	40	28	16	36	40	0,18	A	6,0	RP...1204 M0E	◈
181111500	050A33790-04-05-022040	4	50	38	22	42	40	0,24	A	6,0	RP...1204 M0E	◈
181124200	052A33790-05-05-022040	5	52	40	22	42	40	0,25	A	6,0	RP...1204 M0E	◈
181122100	063A33790-06-05-022040	6	63	51	22	48	40	0,38	A	6,0	RP...1204 M0E	◈
181124300	066A33790-06-05-027050	6	66	54	27	48	50	0,46	A	6,0	RP...1204 M0E	○
181124400	080A33790-07-05-027050	7	80	68	27	60	50	0,88	A	6,0	RP...1204 M0E	○

◈ Stock item | Produto de stock | Itens de stock

○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

TOROMILL 33890 | 33990



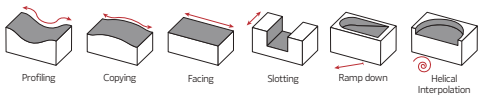
Arbor Mounting

GAMP=+5º

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)					WT	Specifications		Insert Pastilha Inserto	Stock
			DCX	DC	DCONMS	DCSFMS	LF		Arbor Type	APMX (mm)		
						33890						
181124500	050A33890-04-05-022040	4	50	34	22	42	40	0,23	A	8,0	RP...1605 M0E	⛁
181124600	052A33890-04-05-022040	4	52	36	22	42	40	0,245	A	8,0	RP...1605 M0E	⛁
181114900	063A33890-05-05-022040	5	63	47	22	48	40	0,369	A	8,0	RP...1605 M0E	⛁
181124700	066A33890-05-05-027050	5	66	54	27	48	50	0,46	A	8,0	RP...1605 M0E	⛁
181124800	080A33890-06-05-027052	6	80	64	27	60	52	0,93	A	8,0	RP...1605 M0E	⛁
181124900	100A33890-07-05-032052	7	100	84	32	80	52	1,57	A	8,0	RP...1605 M0E	⛁
181122200	125A33890-08-05-040052	8	125	109	40	90	52	2,64	A	8,0	RP...1605 M0E	⛁
						33990						
181112200	080A33990-05-05-027050	5	80	60	27	60	50	0,70	A	10,0	RP...2006 M0E	⛁
181099800	100A33990-06-05-032063	6	100	80	32	80	63	1,62	A	10,0	RP...2006 M0E	⛁
181099900	125A33990-06-05-040063	6	125	105	40	90	63	2,53	A	10,0	RP...2006 M0E	⛁

⛁ Stock item | Produto de stock | Itens de stock

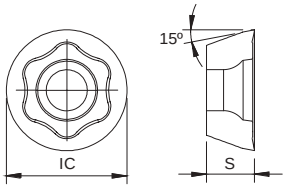
◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)



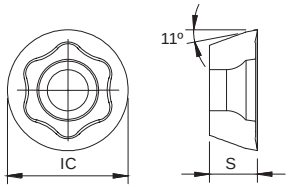
RDHT | RPHT Inserts | Pastilhas | Plaquitas

RDHT

RPHT



RDHT



RPHT

		P				M				S			Dimensions Dimensões Dimensiones (mm)	
		CVD	PVD			PVD				PVD				
	(2) Grade code	T9	T1	Z1	Z2	X9	Y2	Z2	Z3	X9	Y2	Z3		
(1) Geometry code	ISO Reference	PHS740	PHP920	PHP808	PHP530	PHH930	PHH808	PHP530	PHH530	PHH930	PHH808	PHH530	IC	S
1112152	RDHT 0802 M0E-LS				◉			◉	◉			◉	8,00	2,38
1112253	RPHT 10T3 M0E-MS		◉			◉				◉			10,00	3,97
1112772	RPHT 10T3 M0E-LS	◉		◉	◉		◉	◉	◉		◉	◉	10,00	3,97
1112186	RPHT 1204 M0E-MS		◉			◉				◉			12,00	4,76
1112766	RPHT 1204 M0E-LS	◉		◉	◉		◉	◉	◉		◉	◉	12,00	4,76
1112254	RPHT 1605 M0E-MS		◉			◉				◉			16,00	5,56
1112951	RPHT 1605 M0E-LS			◉	◉		◉	◉	◉		◉	◉	16,00	5,56
1112958	RPHT 2006 M0E-LS				◉		◉	◉	◉		◉	◉	20,00	6,35

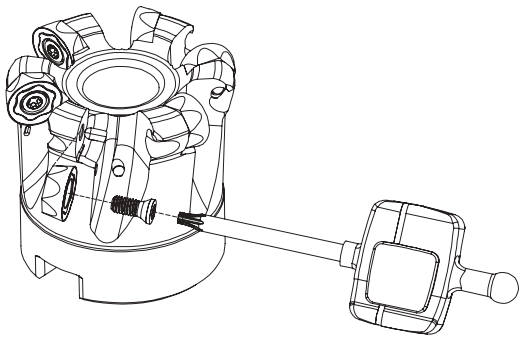
◉ First choice | Primeira opção | 1ª opción ◉ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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

SPARE PARTS Acessórios | Repuestos

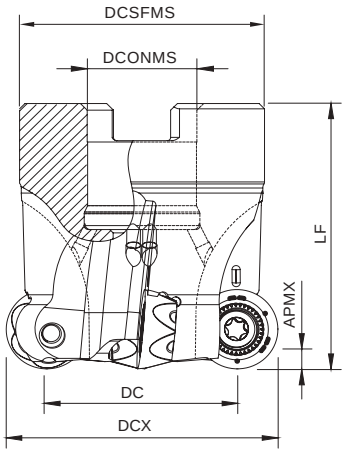
Order separately

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



Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.

TURBOMILL 34190



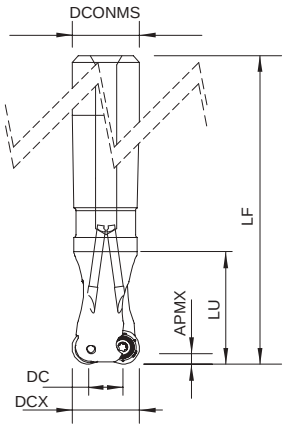
Arbor Mounting

GAMP=+5º

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)					WT	Specifications		Insert Pastilha Inserto	Stock
			DCX	DC	DCONMS	DCSFMS	LF		Arbor Type	APMX (mm)		
181160100	042A34190-06-05-016040	6	42	32	16	36	40	0,16	A	5	RPHT 10T3M0E-LS(4)	⛭
181160200	050A34190-06-05-022039	6	50	40	22	42	40	0,26	A	5	RPHT 10T3M0E-LS(4)	⛭
181160700	052A34190-07-05-022040	7	52	42	22	42	40	0,30	A	5	RPHT 10T3M0E-LS(4)	⛭

⛭ Stock item | Produto de stock | Itens de stock

◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)



Cylindrical Shank

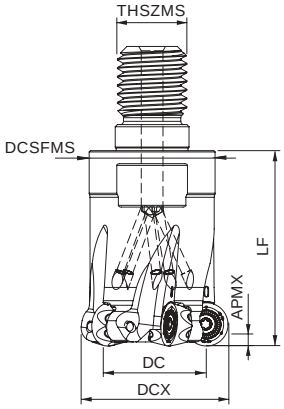
GAMP=+5º

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)					WT	Specifications	Insert Pastilha Inserto	Stock
			DCX	DC	DCONMS	LF	LU		APMX (mm)		
181187200	020E34190-02-05-020180	2	20	10	20	180	50	0,40	5,0	RPHT 10T3M0E-LS(4)	⛭
181183300	025E34190-03-05-025200	3	25	15	25	200	60	0,76	5,0	RPHT 10T3M0E-LS(4)	⛭
181191500	032E34190-04-05-032200	4	32	22	32	200	60	0,98	5,0	RPHT 10T3M0E-LS(4)	◯

⛭ Stock item | Produto de stock | Itens de stock

◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

TURBOMILL 34190
RPHT



Threaded Coupling

GAMP=+5º

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)					WT	Specifications	Insert Pastilha Inserto	Stock
			DCX	DC	THSZMS	DCSFMS	LF		APMX (mm)		
181191600	020R34190-02-05-M10032	2	20	10	M10	16	32	0,10	5,0	RPHT 10T3M0E-LS(4)	○
181191700	025R34190-03-05-M12035	3	25	15	M12	21	35	0,19	5,0	RPHT 10T3M0E-LS(4)	○
181191800	032R34190-04-05-M16035	4	32	22	M16	29	35	0,31	5,0	RPHT 10T3M0E-LS(4)	○
181182300	035R34190-05-05-M16045	5	35	25	M16	29	45	0,40	5,0	RPHT 10T3M0E-LS(4)	◈

◈ Stock item | Produto de stock | Itens de stock

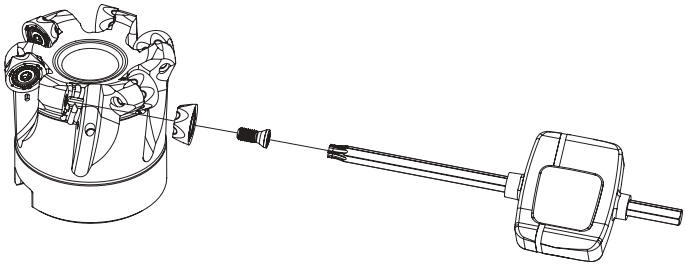
○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

SPARE PARTS Acessórios | Repuestos

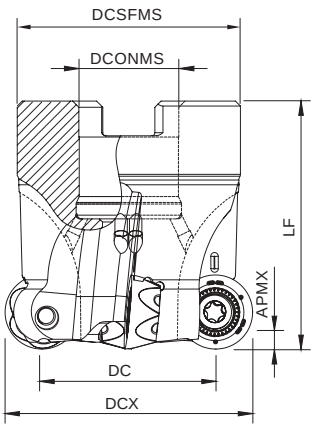
Order separately

Cutter DC	Insert Screw	Key (Torx)	Key (Torx - Nm)	Torque Value
A34190 - 42-52	P0300800	XT09	DT0914	1,40
E34190 - 20-32	P0300800	XT09	DT0914	1,40
R34190 - 20-35	P0300800	XT09	DT0914	1,40

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.



TURBOMILL 34290



Arbor Mounting

GAMP=+5º

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)					WT	Specifications		Insert Pastilha Inserto	Stock
			DCX	DC	DCONMS	DCSFMS	LF		Arbor Type	APMX (mm)		
181159600	040A34290-04-05-016040	4	40	28	16	36	40	0,15	A	6	RPHT 1204 M0E-LS(4)	◈
181186300	050A34290-05-05-022040	5	50	38	22	42	40	0,24	A	6	RPHT 1204 M0E-LS(4)	◈
181159500	052A34290-05-05-022040	5	52	40	22	42	40	0,25	A	6	RPHT 1204 M0E-LS(4)	◈
181160400	063A34290-06-05-022040	6	63	51	22	48	40	0,36	A	6	RPHT 1204 M0E-LS(4)	◈
181160500	066A34290-06-05-027050	6	66	54	27	48	50	0,40	A	6	RPHT 1204 M0E-LS(4)	◈
181160600	080A34290-07-05-027050	7	80	68	27	60	50	0,68	A	6	RPHT 1204 M0E-LS(4)	◈

◈ Stock item | Produto de stock | Itens de stock

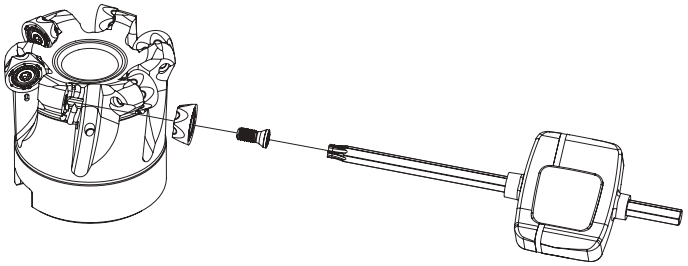
◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

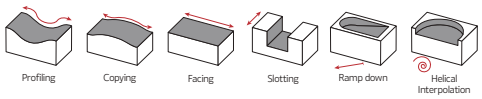
SPARE PARTS Acessórios | Repuestos

Order separately

Cutter DC	Insert Screw	Key (Torx)	Key (Torx - Nm)	Torque Value
A34290 - 40	P0350800	XT15	DT1530	3,00
A34290 - 50	P0351000	XT15	DT1530	3,00
A34290 - 52-80	P0350800	XT15	DT1530	3,00

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.

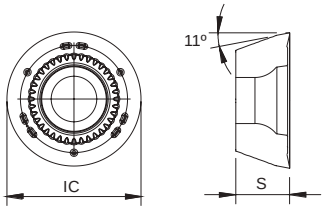




RPHT-LS Inserts | Pastilhas | Plaquitas

RPHT-LS

RPHT-LS4



RPHT-LS | LS4

		P			M			S		Dimensions Dimensões Dimensiones (mm)	
		CVD	PVD		PVD			PVD			
	(2) Grade code	T9	Z1	Z2	Y2	Z2	Z3	Y2	Z3		
(1) Geometry code	ISO Reference	PHS740	PHP808	PHP530	PHH808	PHP530	PHH530	PHH808	PHH530	IC	S
1112772	RPHT 10T3 M0E-LS	◈	◈	◈	◈	◈	◈	◈	◈	10,00	3,97
1113021	RPHT 10T3 M0E-LS4			◈		◈	◈		◈	10,00	3,97
1112766	RPHT 1204 M0E-LS	◈	◈	◈	◈	◈	◈	◈	◈	12,00	4,76
1113020	RPHT 1204 M0E-LS4			◈		◈	◈		◈	12,00	4,76

◈ First choice | Primeira opção | 1ª opción ◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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

TOROMILL 33590 | 33690 | 33790 | 33890 | 33990 | TURBOMILL 34190 | 34290

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

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance — Toughness → PHP920	PHH930	PHP530	PHH530	PHP808	PHH808	PHS740
P	1	Unalloyed Steel	125-220	✓		✓		✓		✓
P	2	Low-Alloyed Steel	220-280	✓		✓		✓		✓
P	3	High-Alloyed Steel	280-380	✓		✓		✓		✓
M	4	SS - Ferritic / Martensitic	200-330		✓	✓	✓		✓	
M	5	SS - Austenitic	200-330		✓		✓		✓	
M	6	SS - Austenitic-ferritic (Duplex)	230-260		✓		✓		✓	
S	11	Heat Resistant Super Alloys	200-320		✓		✓		✓	

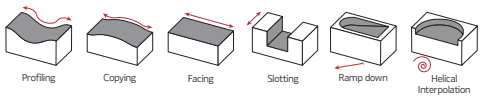
Good Conditions Average Conditions Difficult Conditions

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

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

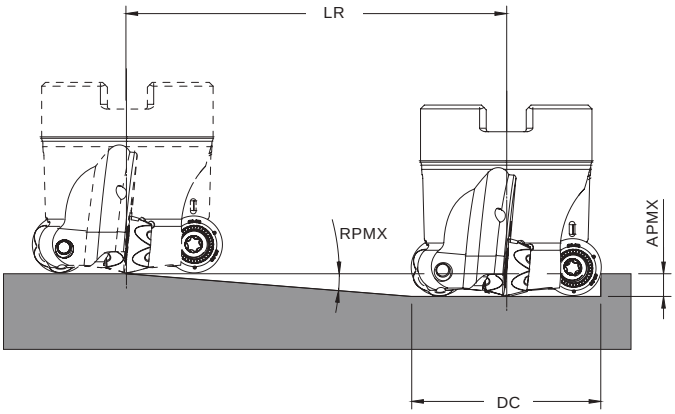
ISO	PSM	Material	HB (Brinell)	Feed fz (mm/t) RDHT 08..	RPHT 10...	RPHT 12...	RPHT 16...	RPHT 20...
P	1	Unalloyed Steel	125-220	0,05-0,35	0,05-0,40	0,05-0,45	0,08-0,55	0,10-0,55
P	2	Low-Alloyed Steel	220-280	0,05-0,35	0,05-0,40	0,05-0,45	0,08-0,55	0,10-0,55
P	3	High-Alloyed Steel	280-380	0,05-0,30	0,05-0,35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

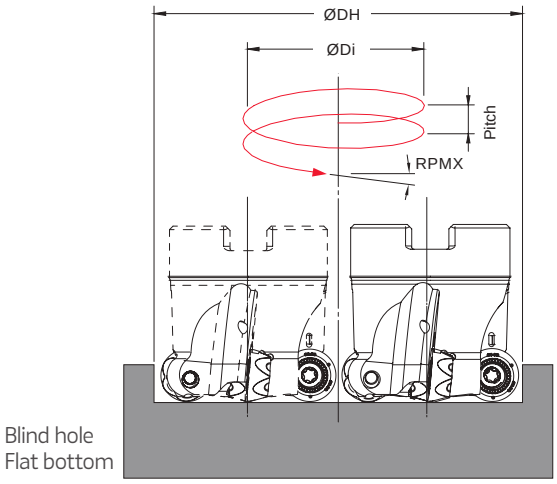
(Note 1) Cutting conditions a_e/DC=70%.



RAMPING AND HELICAL INTERPOLATION

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





ØDi = ØDH - DC

Insert	DC	Ramping			Helical Interpolation		
		RPMX	APMX	Min LR	ØDHmin	ØDHmax	Max Pitch/Rev.
				33590			
RD... 08	16	10,0	4,0	22,7	24 - 32	-	4 8
	20	8,0	4,0	28,5	32 - 40	-	5 8
	25	10,0	4,0	22,7	42 - 50	-	9 13
	32	8,0	4,0	28,5	56 - 64	-	10 14
				33690 | 34190			
RP.. 10	20	7,0	5,0	40,7	30 - 40	-	3 7
	25	6,0	5,0	47,6	40 - 50	-	4 8
	32	6,0	5,0	47,6	54 - 64	-	7 10
	35	5,0	5,0	57,2	60 - 70	-	6 9
	42	5,0	5,0	57,2	74 - 84	-	8 11
	50	4,0	5,0	71,5	90 - 100	-	8 10
	52	3,0	5,0	95,4	94 - 104	-	6 8
				33790 | 34290			
RP.. 12	40	8,0	6,0	42,7	68 - 80	-	12 17
	50	3,5	6,0	98,1	88 - 100	-	7 9
	52	3,0	6,0	114,5	92 - 104	-	6 8
	63	2,5	6,0	137,4	114 - 126	-	6 8
	66	2,5	6,0	137,4	120 - 132	-	7 9
	80	2,0	6,0	171,8	148 - 160	-	7 8
				33890			
RP.. 16	50	7,0	8,0	65,2	84 - 100	-	13 19
	52	7,0	8,0	65,2	88 - 104	-	13 20
	63	7,0	8,0	65,2	110 - 126	-	18 24
	66	3,0	8,0	152,6	116 - 132	-	8 10
	80	3,0	8,0	152,6	144 - 160	-	10 13
	100	3,0	8,0	152,6	184 - 200	-	13 16
	125	2,5	8,0	183,2	234 - 250	-	14 17
				33990			
RP.. 20	80	4,0	10,0	143,0	140 - 160	-	13 17
	100	3,0	10,0	190,8	180 - 200	-	13 16
	125	2,5	10,0	229,0	230 - 250	-	14 17

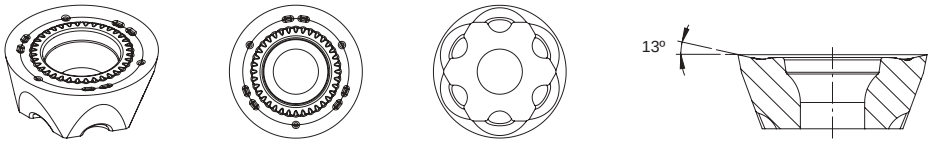
Note: During helical interpolation do not exceed APMX.

TOROMILL 33590 | 33690 | 33790 | 33890 | 33990 | TURBOMILL 34190 | 34290

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

P M S

RPHT-LS



RPHT 10 | 12 16 | 20

RPHT-LS

6 cutting edges insert

- Insert with 6 cutting edges for a higher productivity.

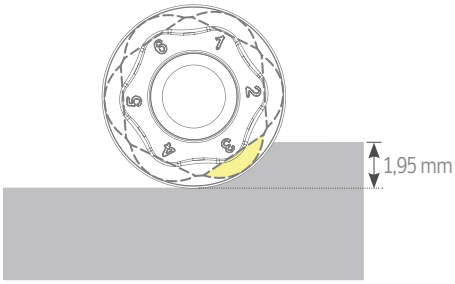
Insert Geometry

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

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

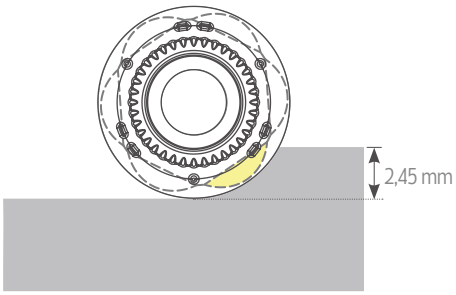
TOROMILL 33590

RDHT 0802 M0E-LS



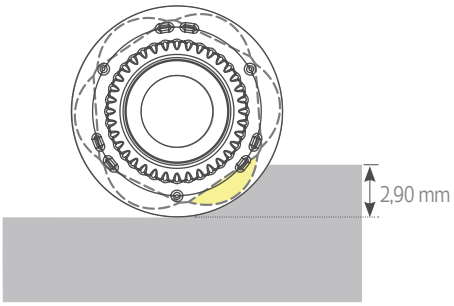
TOROMILL 33690
TURBOMILL 34190

RPHT 10T3 M0E-LS



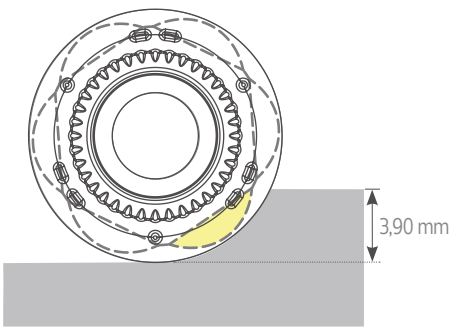
TOROMILL 33690
TURBOMILL 34290

RPHT 1204 M0E-LS



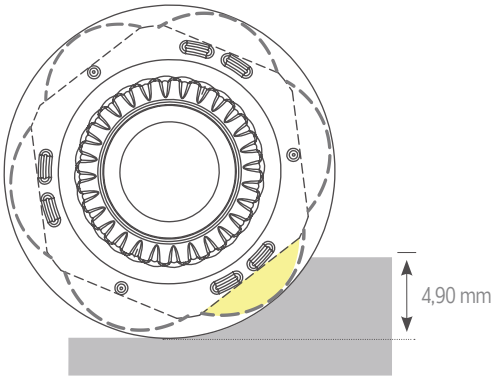
TOROMILL 33890

RPHT 1605 M0E-LS

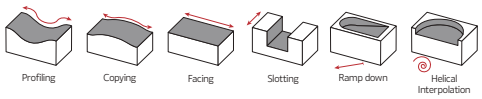


TOROMILL 33990

RPHT 2006...



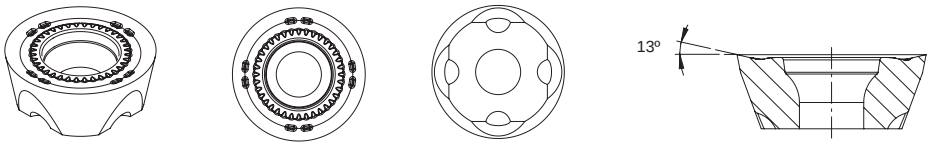
palbit



INSERT INFORMATION RPHT-LS4 Informação de pastilha RPHT-LS | Información del inserto RPHT-LS

P M S

RPHT-LS4



RPHT 10 | 12

RPHT-LS

4 cutting edges insert

- Insert with 4 cutting edges for higher depth of cut.

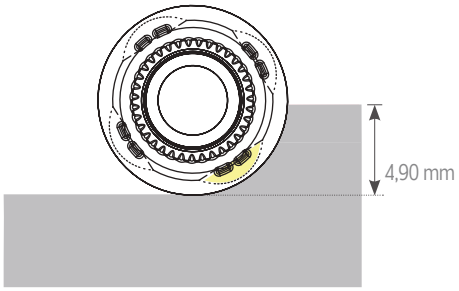
Insert Geometry

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

The maximum depth of cut using 4 cutting edges (LS4)

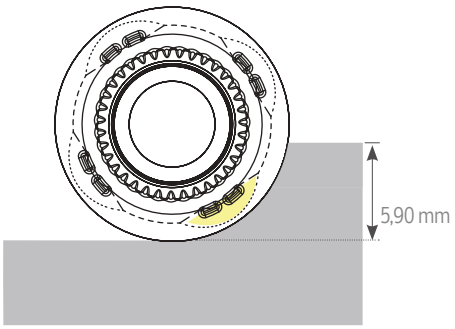
TURBOMILL 34190

RPHT 10T3 M0E-LS4



TURBOMILL 34290

RPHT 1204 M0E-LS4



GEOMETRY FEATURES Características geométricas | Características geométricas

Geometry	Features | Características | Características
Geometry **LS** General machining	Optimized geometry for stainless steel and HRSA. Suitable for alloy steel machining.
Geometry **LS4** General machining	Optimized geometry for stainless steel and HRSA. Suitable for alloy steel machining. 4 Cutting edges version.

35190

TOROMILL X2

The TOROMILL X2 line is a double-sided inserts offer double the cost-effectiveness, boasting machining with high metal removal rates. With twice the number of cutting edges and an optimal depth of cut, they ensure efficient performance. This design not only enhances productivity but also reduces downtime for insert changes.

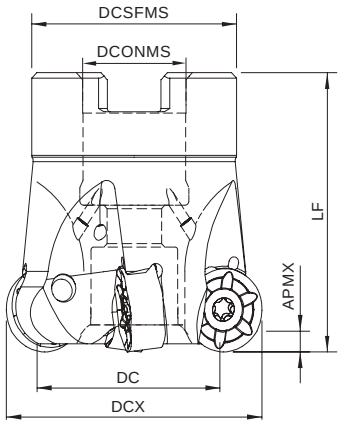
A linha TOROMILL X2 é composta por pastilhas de dois lados que oferecem o dobro de economia, proporcionando fresagem com altas taxas de remoção de metal. Com o dobro de arestas de corte e uma profundidade de corte otimizada, elas garantem um desempenho eficiente. Esse design não apenas aumenta a produtividade, mas também reduz o tempo de troca de pastilhas.

La línea TOROMILL X2 está compuesta por plaquitas de doble cara que ofrecen el doble de economía, permitiendo el fresado con altas tasas de remoción de metal. Con el doble de filos de corte y una profundidad de corte óptima, garantizan un rendimiento eficiente. Este diseño no solo aumenta la productividad, sino que también reduce el tiempo de cambio de plaquitas.

TOROMILL X2 35190 > page 254

- From DC 32mm to 100mm
  De DC 32mm a 100mm | Desde DC 32mm hasta 100mm
- Available in arbor mounting, threaded coupling and weldon shank
  Disponível em montagem tipo árvore, acoplamento roscado e haste weldon | Disponible en fijación con tornillo central, fijación roscada y mango tipo weldon
- Round negative insert with 12 cutting edges
  Pastilha negativa redonda com 12 arestas de corte | Pastilla negativa redonda con 12 filos de corte

TOROMILL X2 35190

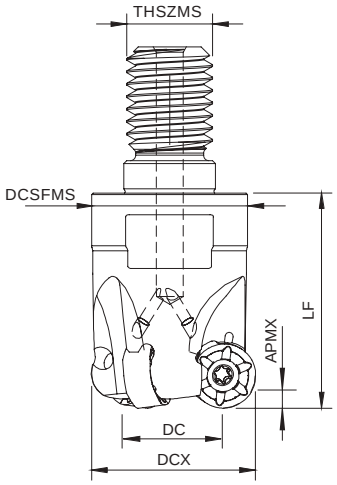


Arbor Mounting

GAMP=-7º

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)					WT	Specifications		Insert Pastilha Inserto	Stock
			DCX	DC	DCONMS	DCSFMS	LF		Arbor Type	APMX (mm)		
181111600	040A35190-04-07-016040	4	40	28	16	32	40	0,20	A	3,0	RNHX 1204 M0E...	◈
181100200	050A35190-05-07-022040	5	50	38	22	40	40	0,24	A	3,0	RNHX 1204 M0E...	◈
181128800	063A35190-06-07-022050	6	63	51	22	48	50	0,55	A	3,0	RNHX 1204 M0E...	◈
181128900	080A35190-07-07-027050	7	80	68	27	60	50	0,78	A	3,0	RNHX 1204 M0E...	◈
181175600	100A35190-09-07-032050	9	100	82	32	70	50	1,00	B	3,0	RNHX 1204 M0E...	◈

◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)



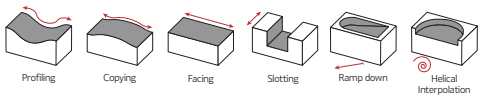
Threaded Coupling

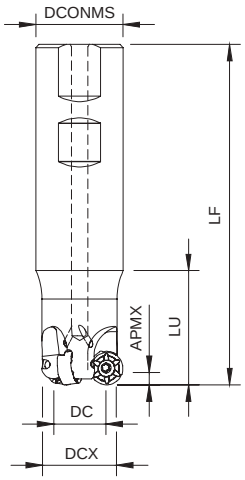
GAMP=-7º

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)					WT	Specifications	Insert Pastilha Inserto	Stock
			DCX	DC	THSZMS	DCSFMS	LF		APMX (mm)		
181128500	032R35190-03-07-M16040	3	32	20	M16	29	40	0,16	3,0	RNHX 1204 M0E...	◈
181128700	042R35190-04-07-M16040	4	42	30	M16	29	40	0,20	3,0	RNHX 1204 M0E...	◯

◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

TOROMILL X2 35190
RNHX 12





Weldon Shank
GAMP=-7°

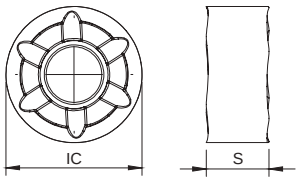
Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)					WT	Specifications	Insert Pastilha Inserto	Stock
			DCX	DC	DCONMS	LF	LU		APMX (mm)		
181087000	032W35190-03-07-032125	3	32	20	32	125	42	0,98	3,0	RNHX 1204 M0E...	◈

◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

RNHX 1204... Inserts | Pastilhas | Plaquitas

RNHX-LP

RNHX-MP



RNHX-LP | MP

		P			M			K		S		Dimensions Dimensões Dimensiones (mm)	
		PVD			PVD			PVD		PVD			
	(2) Grade code	T1	P4	Z2	X9	Z2	Z3	T1	P4	X9	Z3		
(1) Geometry code	ISO Reference	PHP920	PHP930	PHP530	PHH930	PHP530	PHH530	PHP920	PHP930	PHH930	PHH530	IC	S
1112030	RNHX 1204 M0E-LP	◈		◈	◈	◈	◈			◈	◈	12,00	4,76
1112052	RNHX 1204 M0E-MP	◈	◈					◈	◈			12,00	4,76

◈ First choice | Primeira opção | 1ª opción ◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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

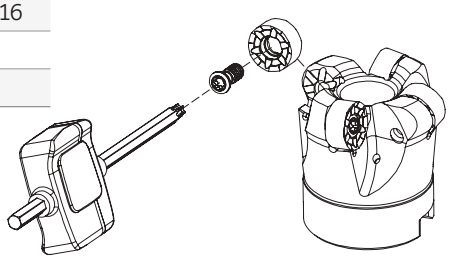
TOROMILL X2 35190

SPARE PARTS Acessórios | Repuestos

Order separately

Cutter DC	Insert Screw	Key (Torx)	Key (Torx - Nm)	Torque Value	Screw	DIN 6368 Wrench
A35190 - 40-80	P0401065	XT15	DT1530	3,00	-	-
A35190 - 100	P0401065	XT15	DT1530	3,00	J0164110	SD6368-16
R35190 - 32-42	P0401065	XT15	DT1530	3,00	-	-
W35190 - 32	P0401065	XT15	DT1530	3,00	-	-

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.



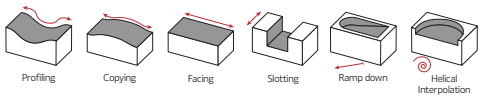
GRADES SELECTION GUIDE Guia para selecção de graus | Tabla para selección de calidades

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance				Toughness →
				PHP920	PHP930	PHH930	PHP530	PHH530
P	1	Unalloyed Steel	125-220	✓	✓		✓	
	2	Low-Alloyed Steel	220-280	✓	✓		✓	
	3	High-Alloyed Steel	280-380	✓	✓		✓	
M	4	SS - Ferritic / Martensitic	200-330			✓	✓	✓
	5	SS - Austenitic	200-330			✓		✓
	6	SS - Austenitic-ferritic (Duplex)	230-260			✓		✓
K	7	Malleable Cast Iron	130-230	✓	✓			
	8	Grey Cast Iron	180-245	✓	✓			
	9	Nodular Cast iron	160-250	✓	✓			
S	11	Heat Resistant Super Alloys	200-320			✓		✓

Good Conditions Average Conditions Difficult Conditions

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

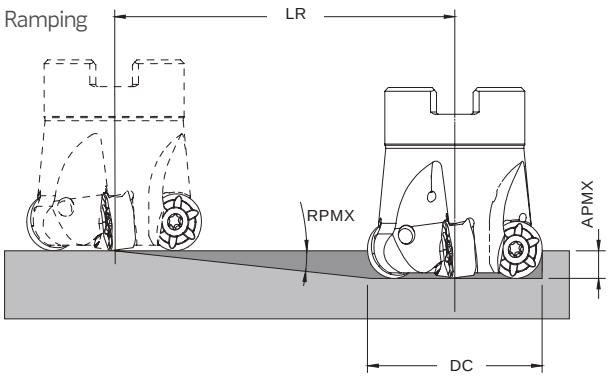
ISO	PSM	Material	HB (Brinell)	Vc (m/min) ← Wear Resistance				Toughness →	Feed fz (mm/t)	
				PHP920	PHP930	PHH930	PHP530	PHH530	RNHX 12... LP	RNHX 12... MP
P	1	Unalloyed Steel	125-220	180-250	160-230	-	180-340	-	0,15-0,45	0,15-0,50
	2	Low-Alloyed Steel	220-280	160-230	140-210	-	180-340	-	0,15-0,45	0,15-0,50
	3	High-Alloyed Steel	280-380	140-220	120-200	-	180-330	-	0,15-0,45	0,15-0,45
M	4	SS - Ferritic / Martensitic	200-330	-	-	140-210	150-270	170-280	0,10-0,35	-
	5	SS - Austenitic	200-330	-	-	120-170	-	160-280	0,10-0,35	-
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	-	100-150	-	150-260	0,10-0,35	-
K	7	Malleable Cast Iron	130-230	-	150-280	-	-	-	-	0,15-0,55
	8	Grey Cast Iron	180-245	-	130-230	-	-	-	-	0,15-0,55
	9	Nodular Cast iron	160-250	-	80-190	-	-	-	-	0,15-0,50
S	11	Heat Resistant Super Alloys	200-320	-	-	30-110	-	30-150	0,05-0,30	-



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

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

RAMPING Descida em rampa | Bajada en rampa



Insert	DC	Ramping		
		RPMX	APMX	Min LR
RNHX 1204	32	1	3	171,9
	40	0,8	3	214,8
	42	0,8	3	214,8
	50	0,8	3	214,8
	63	0,6	3	286,5
	80	0,5	3	343,8

24590 | 25090 | 25190 | 25290 | 25390

TOROMILL

The TOROMILL is a standard profile milling tool designed for steel applications.

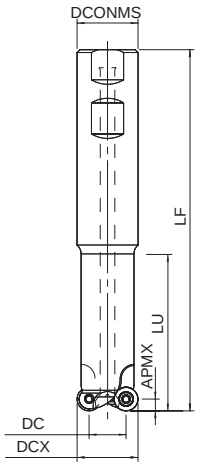
A TOROMILL é uma ferramenta standard de fresagem de perfil projetada para aplicações em aço.

El TOROMILL es una herramienta estándar de fresado de perfil diseñada para aplicaciones en acero.

TOROMILL 24590 | 25090 | 25190 | 25290 | 25390 > page 260

- From DC 15mm to 160mm
  De DC 15mm a 160mm | Desde DC 15mm hasta 160mm
- Available in arbor mounting, threaded coupling and weldon shank
  Disponível em montagem tipo árvore, acoplamento roscado e haste weldon | Disponible en fijación con tornillo central, fijación roscada y mango tipo weldon
- From sizes 07 to 20
  De tamanhos 07 a 20 | Desde el tamaño 07 hasta el 20
- Lower power requirement
  Menor necessidade de potência | Menor necesidad de potencia

TOROMILL 24590 | 25090 | 25190 | 25290 | 25390



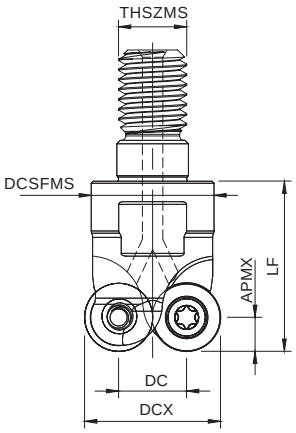
Weldon Shank

GAMP=0°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)					WT	Specifications	Insert Pastilha Inserto	Stock
			DCX	DC	DCONMS	LF	LU		APMX (mm)		
					24590						
181047000	015W24590-02-U016160	2	15	8	16	160	40	0,220	3,5	RD... 0702...	⚙
181047100	015W24590-02-U025220	2	15	8	25	220	40	0,600	3,5	RD... 0702...	⚙
					25090						
181047200	020W25090-02-020160	2	20	10	20	160	-	0,322	5,0	RD... 1003...	⚙
181047300	020W25090-02-025220	2	20	10	25	220	60	0,610	5,0	RD... 1003...	⚙
					25190						
181047400	025W25190-02-025220	2	25	13	25	220	-	0,678	6,0	RD... 12T3...	⚙
181047500	025W25190-02-032230	2	25	13	32	230	80	1,015	6,0	RD... 12T3...	⚙

⚙ Stock item | Produto de stock | Itens de stock

◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)



Threaded Coupling

GAMP=0°

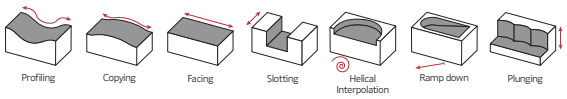
Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)					WT	Specifications	Insert Pastilha Inserto	Stock
			DCX	DC	THSZMS	DCSFMS	LF		APMX (mm)		
					24590						
181015400	015R24590-03-M08020	3	15	8	M8	13	20	0,019	3,5	RD... 0702...	⚙
181019100	016R24590-02-M08020	2	16	9	M8	13	20	0,019	3,5	RD... 0702...	⚙
181037900	016R24590-03-M08020	3	16	9	M8	13	20	0,019	3,5	RD... 0702...	⚙
181011400	020R24590-04-M10025	4	20	13	M10	18	25	0,047	3,5	RD... 0702...	⚙
					25090						
181011500	020R25090-02-M10025	2	20	10	M10	18	25	0,041	5,0	RD... 1003...	⚙
181011600	025R25090-03-M12030	3	25	15	M12	21	30	0,075	5,0	RD... 1003...	⚙
181011700	030R25090-04-M16035	4	30	20	M16	29	35	0,190	5,0	RD... 1003...	◯
181015500	035R25090-05-M16043	5	35	25	M16	29	43	0,240	5,0	RD... 1003...	⚙
181049900	042R25090-05-M16040	5	42	32	M16	29	40	0,243	5,0	RD... 1003...	⚙
					25190						
181011800	024R25190-02-M12032	2	24	12	M12	21	32	0,072	6,0	RD... 12T3...	⚙
181011900	035R25190-03-M16042	3	35	23	M16	29	42	0,205	6,0	RD... 12T3...	⚙
181012000	042R25190-04-M16042	4	42	30	M16	29	42	0,232	6,0	RD... 12T3...	⚙

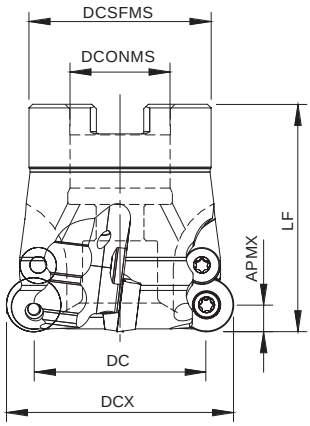
⚙ Stock item | Produto de stock | Itens de stock

◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

TOROMILL 24590 | 25090 | 25190 | 25290 | 25390

RDHW | RDHT | RDMW | RDMT





Arbor Mounting

GAMP=0° (*+7°)

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)					WT	Specifications		Insert Pastilha Inserto	Stock
			DCX	DC	DCONMS	DCSFMS	LF		Arbor Type	APMX (mm)		
					25090							
181010600	042A25090-06-016044	6	42	32	16	36	44	0,254	A	5,0	RD... 1003...	⬡
181017500	052A25090-07-022050	7	52	42	22	40	50	0,395	A	5,0	RD... 1003...	⬡
					25190							
181051900	050C25190-05-07-022050*	5	50	38	22	40	50	0,312	A	6,0	RD... 12T3...	⬡
181010700	052C25190-05-022050	5	52	40	22	40	50	0,337	A	6,0	RD... 12T3...	⬡
181010800	052C25190-05-07-022050*	5	52	40	22	40	50	0,335	A	6,0	RD... 12T3...	⬡
181016100	066C25190-06-027050	6	66	54	27	48	50	0,550	A	6,0	RD... 12T3...	⬡
181010900	066C25190-06-07-027050*	6	66	54	27	48	50	0,600	A	6,0	RD... 12T3...	⬡
181016500	080C25190-07-027050	7	80	68	27	60	50	1,000	A	6,0	RD... 12T3...	⬡
181016600	080C25190-07-07-027052*	7	80	68	27	60	52,5	1,000	A	6,0	RD... 12T3...	⬡

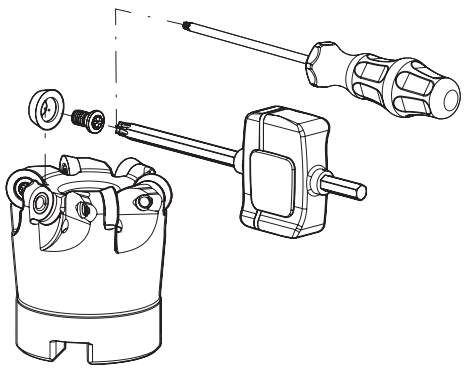
⬡ Stock item | Produto de stock | Itens de stock

◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

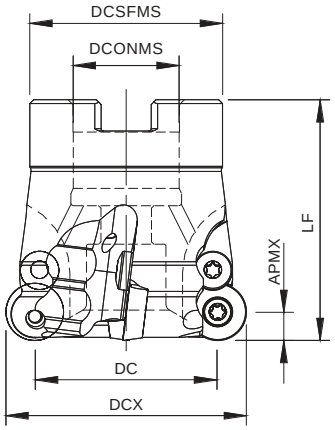
SPARE PARTS Acessórios | Repuestos

Cutter DC	Insert Screw	Key (Torx)	Order separately Key (Torx - Nm)	Torque Value	Order separately Screw Clamp
W24590 - 15	P0250503	XT08	DT0812	1,2	-
R24590 - 15-20	P0250503	XT08	DT0812	1,2	-
W25090 - 20	P0350800	XT15	DT1530	3,0	-
R25090 - 20-42	P0350800	XT15	DT1530	3,0	-
A25090 - 42-52	P0350800	XT15	DT1530	3,0	-
W25190 - 25	P0350800	XT15	DT1530	3,0	-
R25190 - 24-42	P0350800	XT15	DT1530	3,0	-
C25190 - 50-80	P0350800	XT15	DT1530	3,0	P0350750

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.



TOROMILL 24590 | 25090 | 25190 | 25290 | 25390



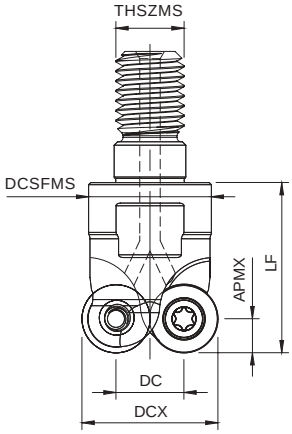
Arbor Mounting

GAMP=0° (*+7°)

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)					WT	Specifications		Insert Pastilha Inserto	Stock
			DCX	DC	DCONMS	DCSFMS	LF		Arbor Type	APMX (mm)		
						25290						
181017900	052C25290-04-022050	4	52	36	22	40	50	0,305	A	8,0	RD... 1604...	ⓢ
181018000	052C25290-04-07-022050*	4	52	36	22	40	50	0,324	A	8,0	RD... 1604...	ⓢ
181011000	066C25290-05-027050	5	66	50	27	48	50	0,550	A	8,0	RD... 1604...	ⓢ
181016700	066C25290-05-07-027050*	5	66	50	27	48	50	0,550	A	8,0	RD... 1604...	ⓢ
181016200	080C25290-06-027052	6	80	64	27	60	52	0,910	A	8,0	RD... 1604...	ⓢ
181011100	080C25290-06-07-027052*	6	80	64	27	60	52	0,934	A	8,0	RD... 1604...	ⓢ
181017300	125C25290-08-07-U040052*	8	125	109	40	90	52	2,340	B	8,0	RD... 1604...	ⓢ
181017400	160C25290-09-07-U040052*	9	160	144	40	120	52	4,750	B	8,0	RD... 1604...	ⓢ
						25390						
181026400	080C25390-05-07-027050*	5	80	60	27	60	50	0,840	A	10,0	RD... 2006...	ⓢ
181016800	100C25390-06-07-U032052*	6	100	80	32	70	52	1,180	B	10,0	RD... 2006...	ⓢ
181020500	125C25390-07-07-U040052*	7	125	105	40	90	52	2,030	B	10,0	RD... 2006...	ⓢ
181020600	160C25390-08-07-U040052*	8	160	140	40	120	52	4,320	B	10,0	RD... 2006...	ⓢ

ⓢ Stock item | Produto de stock | Itens de stock

◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)



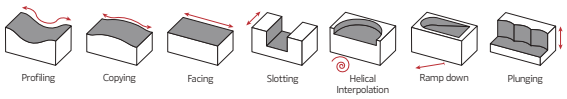
Threaded Coupling

GAMP=0°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)					WT	Specifications	Insert Pastilha Inserto	Stock
			DCX	DC	THSZMS	DCSFMS	LF		APMX (mm)		
						25290					
181002600	032R25290-02-M16040	2	32	16	M16	29	40	0,162	8,0	RD... 1604...	ⓢ
181034800	035R25290-03-M16042	3	35	19	M16	29	42	0,230	8,0	RD... 1604...	◯

ⓢ Stock item | Produto de stock | Itens de stock

◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)



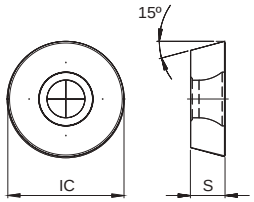
RDHW | RDHT | RDMW | RDMT Inserts | Pastilhas | Plaquitas

RDHT

RDHW

RDMT

RDMW



RDHT | RDHW | RDMT | RDMW

		P						K			H	Dimensions Dimensões Dimensiones (mm)	
		PVD						PVD			PVD		
	(2) Grade code	M6	54	68	78	86	I5	54	68	I5	M6		
(1) Geometry code	ISO Reference	PH6103	PH6910	PH6920	PH6125	PH6135	PH6740	PH6910	PH6920	PH6740	PH6103	IC	S
1110548	RDHW 0702 M0T	◎	◎	◎				◎	◎		◎	7,00	2,38
1110087	RDHW 1003 M0T	◎	◎	◎		◎		◎	◎		◎	10,00	3,18
1110082	RDHT 1003 M0T				◎	◎						10,00	3,18
1110583	RDMT 1003 M0T				◎	◎						10,00	3,18
1110549	RDMW 1003 M0T			◎	◎	◎						10,00	3,18
1110090	RDHW 12T3 M0T	◎	◎	◎		◎		◎	◎		◎	12,00	3,97
1112040	RDHT 12T3 M0S-MP			◎			◎		◎	◎		12,00	3,97
1110083	RDHT 12T3 M0T				◎	◎						12,00	3,97
1110558	RDMT 12T3 M0T				◎	◎						12,00	3,97
1110096	RDMW 12T3 M0T			◎	◎	◎			◎			12,00	3,97
1110092	RDHW 1604 M0T	◎	◎	◎		◎		◎	◎		◎	16,00	4,76
1112039	RDHT 1604 M0S-MP			◎			◎		◎	◎		16,00	4,76
1110084	RDHT 1604 M0T				◎	◎						16,00	4,76
1110556	RDMT 1604 M0T				◇	◇						16,00	4,76
1110097	RDMW 1604 M0T			◎	◎	◎			◎			16,00	4,76
1110869	RDMW 2006 M0T				◎							20,00	6,35

◎ First choice | 1ª Escolha | 1ª Opción
◎ Stock Itens | Itens de stock
◇ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock
○ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

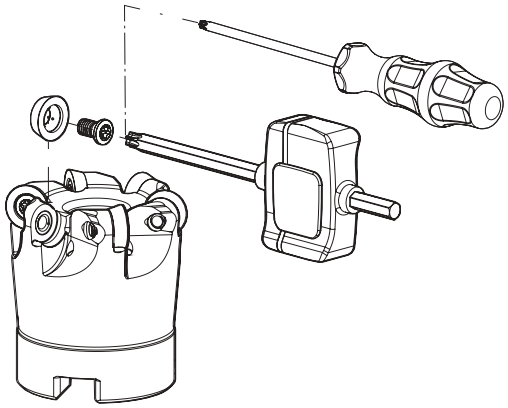
Insert Order Code: (1) Geometry code + (2) Grade code

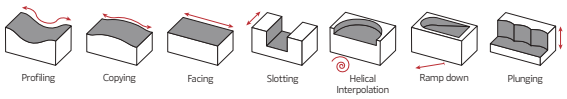
TOROMILL 24590 | 25090 | 25190 | 25290 | 25390

SPARE PARTS Acessórios | Repuestos

Cutter DC	Insert Screw	Key (Torx)	Key (Torx - Nm) (Order separately)	Torque Value	Screw Clamp (Order separately)	Washer (Order separately)	Washer Screw (Order separately)
			24590				
W24590 - 15	P0250503	XT08	DT0812	1,2	-	-	-
R24590 - 15-20	P0250503	XT08	DT0812	1,2	-	-	-
			25090				
W25090 - 20	P0350800	XT15	DT1530	3,0	-	-	-
R25090 - 20-42	P0350800	XT15	DT1530	3,0	-	-	-
A25090 - 42-52	P0350800	XT15	DT1530	3,0	-	-	-
			25190				
W25190 - 25	P0350800	XT15	DT1530	3,0	-	-	-
R25190 - 24-42	P0350800	XT15	DT1530	3,0	-	-	-
C25190 - 50-80	P0350800	XT15	DT1530	3,0	P0350750	-	-
			25290				
R25290 - 32-35	P0451001	XT20	DT2050	5,0	-	-	-
C25290 - 52-80	P0451001	XT20	DT2050	5,0	-	HC01200	P0451001
C25290 - 125-160	P0451001	XT20	DT2050	5,0	-	HC01200	P0451001
			25390				
C25390 - 80-160	P0601402	TT20	-	10,0	-	HC01200	P0451001

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.





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

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance — Toughness →					
				PH6103	PH6910	PH6920	PH6125	PH6135	PH6740
P	1	Unalloyed Steel	125-220	✓	✓	✓	✓	✓	✓
	2	Low-Alloyed Steel	220-280	✓	✓	✓	✓	✓	✓
	3	High-Alloyed Steel	280-380	✓	✓	✓	✓	✓	✓
K	7	Malleable Cast Iron	130-230		✓	✓			✓
	8	Grey Cast Iron	180-245		✓	✓			✓
	9	Nodular Cast iron	160-250		✓	✓			✓
H	12	Hardened Steels	40-55 HRC	✓					

Good Conditions Average Conditions Difficult Conditions

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

ISO	PSM	Material	HB (Brinell)	Chip breaker application	
				1st choice	Dificult Operations
P	1	Unalloyed Steel	125-220	RD...T ...	RD...W ...
	2	Low-Alloyed Steel	220-280	RD...T ...	-
	3	High-Alloyed Steel	280-380	RD...W ...	-
K	7	Malleable Cast Iron	130-230	RD...T ...	RD...W ...
	8	Grey Cast Iron	180-245	RD...W ...	-
	9	Nodular Cast iron	160-250	RD...W ...	-
H	12	Hardened Steels	40-55 HRC	RD...W ...	-

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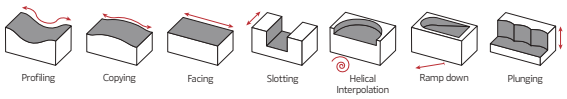
RECOMMENDED CUTTING CONDITIONS Condições de corte recomendadas | Condiciones de corte recomendables

ISO	PSM	Material	HB (Brinell)	Vc (m/min) ← Wear Resistance — Toughness →					
				PH6103	PH6910	PH6920	PH6125	PH6135	PH6740
P	1	Unalloyed Steel	125-220	180-300	180-250	150-230	160-190	150-180	130-160
	2	Low-Alloyed Steel	220-280	180-250	170-210	140-220	140-180	140-170	120-150
	3	High-Alloyed Steel	280-380	180-230	160-200	130-180	130-160	120-150	100-130
K	7	Malleable Cast Iron	130-230	-	170-300	150-280	-	-	130-250
	8	Grey Cast Iron	180-245	-	150-250	130-230	-	-	110-220
	9	Nodular Cast iron	160-250	-	90-210	80-190	-	-	80-170
H	12	Hardened Steels	40-55 HRC	120-240	-	-	-	-	-

ISO	PSM	Material	HB (Brinell)	RD... 07		RD... 10		RD... 12	
				fz (mm/t)	AP (mm)	fz (mm/t)	AP (mm)	fz (mm/t)	AP (mm)
P	1	Unalloyed Steel	125-220	≤0,18	≤1,50	≤0,24	≤2,50	≤0,27	≤2,50
	2	Low-Alloyed Steel	220-280	≤0,18	≤1,50	≤0,24	≤2,50	≤0,25	≤2,50
	3	High-Alloyed Steel	280-380	≤0,15	≤1,50	≤0,21	≤2,50	≤0,20	≤2,50
K	7	Malleable Cast Iron	130-230	≤0,20	≤1,50	≤0,25	≤2,50	≤0,24	≤2,50
	8	Grey Cast Iron	180-245	≤0,20	≤1,50	≤0,25	≤2,50	≤0,24	≤2,50
	9	Nodular Cast iron	160-250	≤0,18	≤1,50	≤0,22	≤2,50	≤0,22	≤2,50
H	12	Hardened Steels	40-55 HRC	≤0,12	≤1,50	≤0,18	≤2,50	≤0,18	≤2,50

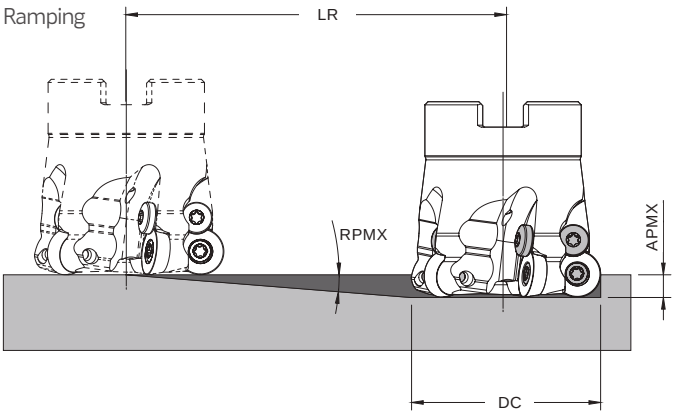
ISO	PSM	Material	HB (Brinell)	RD... 16		RD... 20	
				fz (mm/t)	AP (mm)	fz (mm/t)	AP (mm)
P	1	Unalloyed Steel	125-220	≤0,33	≤3,50	≤0,33	≤5,00
	2	Low-Alloyed Steel	220-280	≤0,33	≤3,50	≤0,33	≤5,00
	3	High-Alloyed Steel	280-380	≤0,27	≤3,50	≤0,27	≤5,00
K	7	Malleable Cast Iron	130-230	≤0,35	≤3,50	≤0,35	≤5,00
	8	Grey Cast Iron	180-245	≤0,35	≤3,50	≤0,35	≤5,00
	9	Nodular Cast iron	160-250	≤0,32	≤3,50	≤0,32	≤5,00
H	12	Hardened Steels	40-55 HRC	≤0,25	≤3,50	≤0,20	≤5,00

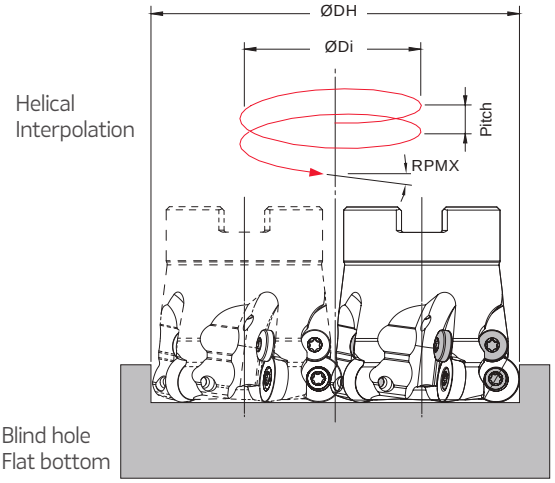
(Note 1) Cutting conditions $a_e/Dc=70\%$.
(Note 2) Cutting conditions should be adjusted according to the machine and work rigidity.
(Note 3) It's possible to occur vibrations in certain cases. Please reduce depth of cut and / or reduce cutting conditions in following cases:
- When using long shank;
- When using long tool overhang with arbor type;
- When application has poor clamping rigidity or when using a low rigidity machine.



RAMPING AND HELICAL INTERPOLATION

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





ØDi = ØDH - DC

Insert	DC	Ramping			Helical Interpolation		
		RPMX	APMX	Min LR	ØDHmin	ØDHmax	Max Pitch/Rev.
RD... 07	15	9,4	3,5	21,1	23,0 -	- 30,0	4,0 7,0
	16	8	3,5	24,9	25,0 -	- 32,0	3,0 7,0
	20	6	3,5	33,3	33,0 -	- 40,0	4,0 6,0
RD... 10	20	25,0	5,0	10,7	30,0 -	- 40,0	14,0 29,0
	25	22,0	5,0	12,4	40,0 -	- 50,0	19,0 31,0
	30	13,5	5,0	20,8	50,0 -	- 60,0	15,0 22,0
	35	12,0	5,0	23,5	60,0 -	- 70,0	16,0 23,0
	42	10,0	5,0	28,4	74,0 -	- 84,0	17,0 23,0
	52	7,0	5,0	40,7	94,0 -	- 104,0	16,0 20,0
RD... 12	24	17,0	6,0	19,6	36,0 -	- 48,0	11,1 23,0
	25	16,2	6,0	20,7	38,0 -	- 50,0	11,0 22,0
	35	12,0	6,0	28,2	58,0 -	- 70,0	15,0 23,0
	42	10,3	6,0	33,0	72,0 -	- 84,0	17,0 23,0
	50	6,4	6,0	53,5	88,0 -	- 100,0	13,0 17,0
	52	6,0	6,0	57,1	92,0 -	- 104,0	13,0 17,0
	66	3,5	6,0	79,8	120,0 -	- 132,0	12,0 15,0
	80	2,5	6,0	104,1	148,0 -	- 160,0	12,0 14,0
RD... 16	32	20,0	8,0	22,0	48,0 -	- 64,0	18,0 36,0
	35	18,0	8,0	24,6	54,0 -	- 70,0	19,0 35,0
	52	13,0	8,0	34,7	88,0 -	- 104,0	26,0 37,0
	66	8,5	8,0	53,5	116,0 -	- 132,0	23,0 30,0
	80	6,0	8,0	76,1	144,0 -	- 160,0	21,0 26,0
	125	3,5	8,0	130,8	234,0 -	- 250,0	20,0 24,0
	160	2,5	8,0	183,2	304,0 -	- 320,0	19,0 21,0
RD... 20	80	6,0	10,0	76,1	140,0 -	- 160,0	19,0 26,0
	100	5,0	10,0	91,4	180,0 -	- 200,0	21,0 27,0
	125	4,5	10,0	101,6	230,0 -	- 250,0	25,0 30,0
	160	3,0	10,0	152,6	300,0 -	- 320,0	23,0 26,0

Note: During helical interpolation do not exceed APMX.

41095 | 40095 | 40595

LINEPRO

The LINEPRO is a versatile profile milling tool equipped with carbide inserts suitable for steel, cast iron, and hardened steel operation, while offering carbide inserts with PCD tips for aluminum applications.

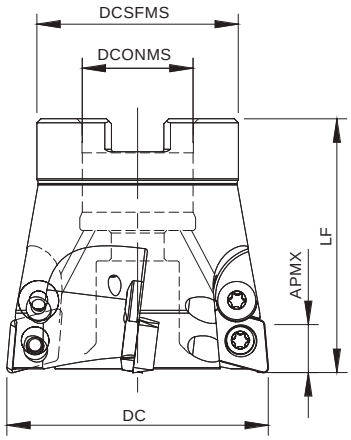
A LINEPRO é uma ferramenta versátil de fresagem de perfil equipada com pastilhas de metal duro adequadas para operações em aço, ferro fundido e aço temperado, enquanto oferece pastilhas de metal duro com pontas de PCD para aplicações em alumínio.

La LINEPRO es una herramienta versátil de fresado de perfil equipada con plaquitas de metal duro adecuadas para operaciones en acero, hierro fundido y acero endurecido, mientras que ofrece plaquitas de metal duro con puntas de PCD para aplicaciones en aluminio.

LINEPRO 41095 | 40095 | 40595 > page 270

- From DC 16mm to 80mm
  De DC 16mm a 80mm | Desde DC 16mm hasta 80mm
- Available in arbor mounting and threaded coupling
  Disponível em montagem tipo árvore e acoplamento roscado | Disponible en fijación con tornillo central y fijación roscada
- Screw clamp
  Parafuso de grampo | Tornillo de brida
- PCD tipped insert for aluminium application
  Pastilhas com pontas de PCD para aplicação em alumínio | Plaquitas con puntas de PCD para aplicación en aluminio

LINEPRO 41095 | 40095 | 40595

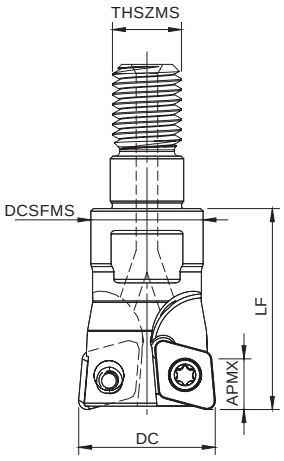


Arbor Mounting

KAPR=95° | GAMP=+7°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications		Insert Pastilha Inserto	Stock
			DC	DCONMS	DCSFMS	LF		Arbor Type	APMX (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 (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

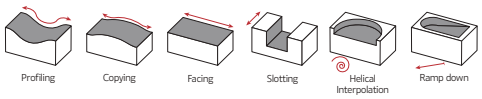


Threaded Coupling

KAPR=95° | GAMP=+7° (*+9°)

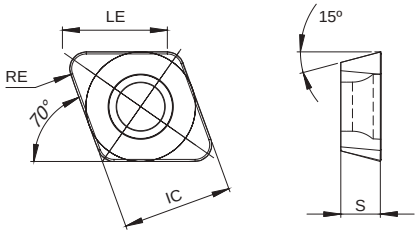
Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications	Insert Pastilha Inserto	Stock
			DC	THSZMS	DCSFMS	LF		APMX (mm)		
					41095					
181012400	010R41095-02-09-M06020*	2	10	M6	9,8	20	0,010	0,8	XD... 0401...	◎
181016300	012R41095-02-09-M06020*	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 (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)



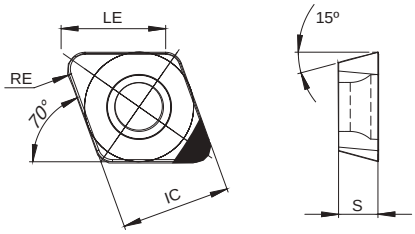
XDHW Inserts | Pastilhas | Plaquitas

XDHW



XDHW

XDHW - PCD & PCBN (HARDMILL)



XDHW FN | XDHW SN

		P				K		N		H		Dimensions Dimensões Dimensiones (mm)			
		PVD				PVD		CVD	PCD	PVD	PCBN				
	(2) Grade code	M6	54	78	86	54	78	P2	D6	M6	S4				
(1) Geometry code	ISO Reference	PH6103	PH6910	PH6125	PH6135	PH6910	PH6125	PHD103	PDP410	PH6103	PBH920	IC	S	LE	RE
1110905	XDHW 040105	○	○	○		○		◈		○		4,00	1,59	4,00	0,50
1110573	XDHW 040110	◈	◈	◈		◈	◈	◈		◈		4,00	1,59	4,00	1,00
1112316	XDHW 040110 FN								◈			4,00	1,59	4,00	1,00
1112317	XDHW 040110 SN										◈	4,00	1,59	4,00	1,00
1110532	XDHW 060210	◈	◈	◈	◈	◈	◈	◈		◈		6,50	2,38	6,20	1,00
1112318	XDHW 060210 FN								◈			6,50	2,38	6,20	1,00
1111875	XDHW 060210 SN										◈	6,50	2,38	6,20	1,00
1110565	XDHW 10T310	◈	◈	◈	◈	◈	◈	○		◈		10,00	3,97	9,90	1,00
1112320	XDHW 10T310 FN								◈			10,00	3,97	9,90	1,00
1112321	XDHW 10T310 SN										◈	10,00	3,97	9,90	1,00

◈ First choice | Primeira opção | 1ª opción ◈ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

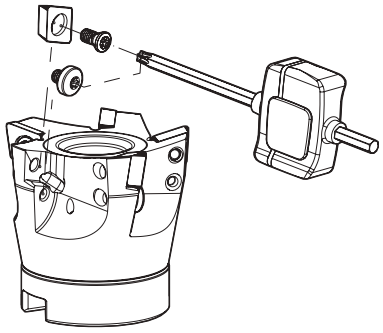
Insert order code = (1) Geometry Code + (2) Grade Code

LINEPRO 41095 | 40095 | 40595

SPARE PARTS Acessórios | Repuestos

Cutter DC	Insert Screw	Key (Torx)	Key (Torx - Nm) Order separately	Torque Value	Screw Clamp Order separately
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

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.



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

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance				Toughness →	PCD	PCBN
				PHD103	PH6103	PH6910	PH6125	PH6135	PDP410	PBH920
P	1	Unalloyed Steel	125-220		✓	✓	✓	✓		
	2	Low-Alloyed Steel	220-280		✓	✓	✓	✓		
	3	High-Alloyed Steel	280-380		✓	✓	✓	✓		
K	7	Malleable Cast Iron	130-230				✓			
	8	Grey Cast Iron	180-245				✓			
	9	Nodular Cast iron	160-250				✓			
N	10	Aluminium and Non Ferrous	30-130	✓					✓	
H	12	Hardened Steels	40-55 HRC		✓					✓

Good Conditions Average Conditions Difficult Conditions

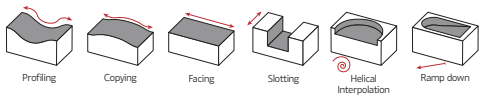
RECOMMENDED CUTTING CONDITIONS Condições de corte recomendadas | Condiciones de corte recomendables

ISO	PSM	Material	HB (Brinell)	Vc (m/min) ← Wear Resistance				Toughness →	PCD	PCBN
				PHD103	PH6103	PH6910	PH6125	PH6135	PDP410	PBH920
P	1	Unalloyed Steel	125-220	-	180-300	180-250	160-190	150-180	-	-
	2	Low-Alloyed Steel	220-280	-	180-250	170-210	140-180	140-170	-	-
	3	High-Alloyed Steel	280-380	-	180-230	160-200	130-160	120-150	-	-
K	7	Malleable Cast Iron	130-230	-	-	170-300	160-290	-	-	-
	8	Grey Cast Iron	180-245	-	-	150-250	140-240	-	-	-
	9	Nodular Cast iron	160-250	-	-	90-210	80-200	-	-	-
N	10	Aluminium and Non Ferrous	30-130	300-1000	-	-	-	-	800-3000	-
H	12	Hardened Steels	40-55 HRC	-	120-260	-	-	-	-	200-600

(Note 1)

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

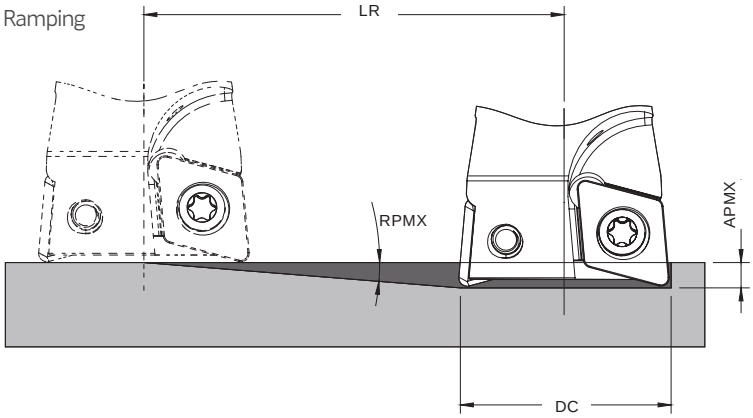
(Note 2) Cutting conditions should be ajusted according to the machine and work rigidity.
(Note 3) If chattering occurs, reduce ap and Vc by 30% and keep the same fz per tooth.



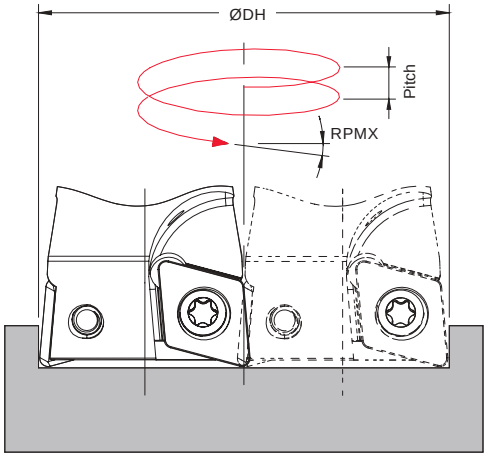
RAMPING AND HELICAL INTERPOLATION

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

Ramping



Helical Interpolation



Blind hole
Flat bottom

ØDi = ØDH - DC

Insert	DC	Ramping			Helical Interpolation		
		RPMX	APMX	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 APMX.

SPECIALTY MILLING

1 HARDMILL 72090

> Suitable for machining **N**

> See page A - 276

2 CENTER & CHAMFER

> Suitable for machining **P M K**

> See page A - 280

3 ENGRAVING 64067

> Suitable for machining **P M N S**

> See page A - 284

4 SPOT FACE

> Suitable for machining **P M K S**

> See page A - 288

72090

HARDMILL

The HARDMILL 72090 is a specialized tool designed for specific applications in the automobile industry, such as gearbox housings. It features adjustment wedges for precise face milling on aluminum components.

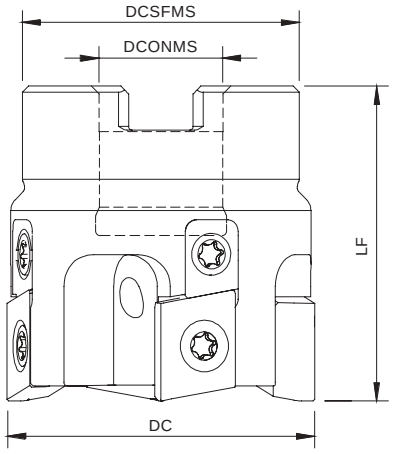
A HARDMILL 72090 é uma ferramenta especializada projetada para aplicações específicas na indústria automóvel, como caixas de velocidades. Apresenta cunhas de ajuste de parafuso para fresagem frontal precisa em componentes de alumínio.

La HARDMILL 72090 es una herramienta especializada diseñada para aplicaciones específicas en la industria automotriz, como cajas de cambios. Presenta cuñas de ajuste de tornillo para fresado frontal preciso en componentes de aluminio.

HARDMILL 72090 > page 278

- From DC 40mm to 160mm
  De DC 40mm a 160mm | Desde DC 40mm hasta 160mm
- Available in arbor mounting
  Disponível em montagem tipo árvore | Disponible en fijación con tornillo central
- Excellent solution for aluminium
  Excelente solução para alumínio | Excelente solución para aluminio
- PCD tipped insert
  Pastilha com ponta de PCD | Inserto con punta de PCD

HARDMILL 72090



Arbor Mounting

KAPR=90° | GAMP=0°

Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Specifications		Insert Pastilha Inserto	Stock
			DC	DCONMS	DCSFMS	LF		Arbor Type	RPM max		
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

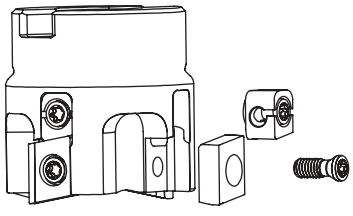
○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

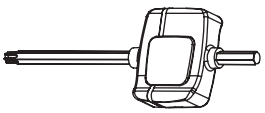
SPARE PARTS Acessórios | Repuestos

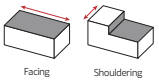
Order separately

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

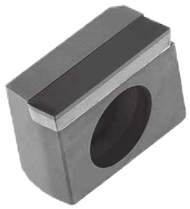
Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.



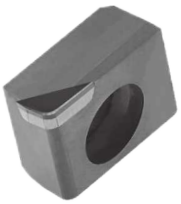


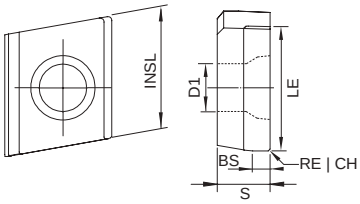


XNHW 1205... Inserts | Pastilhas | Plaquitas


XNHW 1205 PZFR-020120

XNHW 120508 PZTR-000080


XNHW 120508 PZTR-015045



XNHW

		N		Dimensions Dimensões Dimensiones (mm)							
		PCD									
	(2) Grade code	I3	D6								
(1) Geometry code	ISO Reference	PDP403	PDP410	INSL	S	LE	D1	RE	CHW	KCH	BS
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	-	0,20	45º	2,00
1112567	XNHW 1205 PZFR-030045	○	○	12,25	5,40	4,50	4,80	-	0,20	45º	3,00
1112568	XNHW 1205 PZTR-030045	○	○	12,25	5,40	4,50	4,80	-	0,20	45º	3,00

◎ First choice | Primeira opção | 1ª opción ◎ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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

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

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

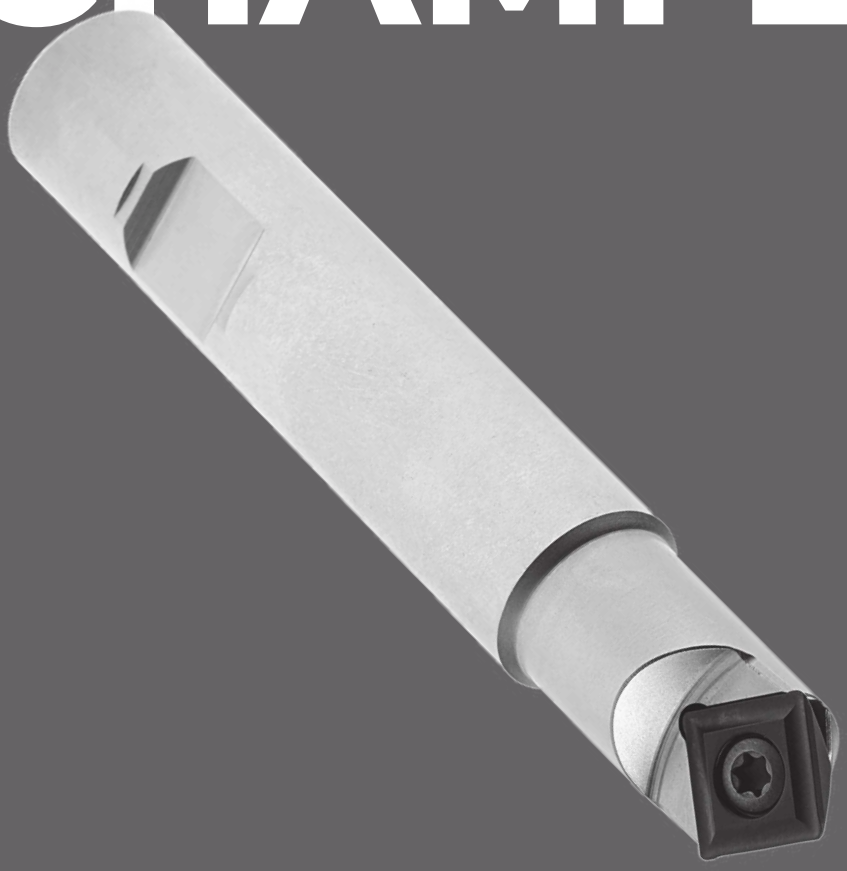
XNHW 1205 PZTR-030045

Cutting edge Type (radius, chamfer) Wiper cutting edge Edge Preparation (F, T)

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	
	Non-ferrous materials	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	

CENTER & CHAMFER



The CENTER & CHAMFER line are versatile tool suitable for a variety of milling applications, including chamfering, spot drilling, engraving, and even grooving.

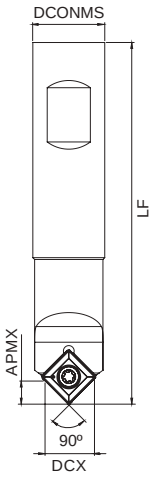
A CENTER & CHAMFER é uma ferramenta versátil adequada para uma variedade de aplicações de fresagem, incluindo chanfragem, furação de ponto, gravação e até mesmo ranhuras.

La línea CENTER & CHAMFER es una herramienta versátil adecuada para una variedad de aplicaciones de fresado, incluyendo chaflanado, taladrado puntual, grabado e incluso ranurado.

CENTER & CHAMFER > page 282

- Chamfering
  Chanfragem | Chaflanado
- Spot Drilling
  Furação de ponto| Taladrado puntual
- Grooving
  Ranhuras | Ranurado
- Engraving
  Gravação | Grabado

CENTER & CHAMFER



Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)						WT	Insert Pastilha Inserto	Stock
			DCX	APMX	APMN	DCONMS	LF	KAPR			
181147400	CHT S16H N11-45	1	13	6,5	1,0	16	100	45º	0,146	SO..T 11T3..	◈
181147500	CHT S16M N11-45	1	13	6,5	1,0	16	150	45º	0,180	SO..T 11T3..	◈

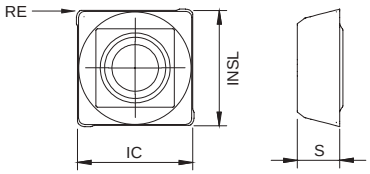
Order code Código	Reference Referência Referencia	Nº Toolholder	Holder designation	Nº inserts	Insert Pastilha Inserto	Stock
1410286G4	PK SOMT 11T308 CHTS16H	1	CHT S16H N11-45	10	SOMT 11T308	◈
1410287G4	PK SOMT 11T308 CHTS16M	1	CHT S16M N11-45	10	SOMT 11T308	◈
1410318G4	PK SOGT 11T303 CHTS16H	1	CHT S16H N11-45	10	SOGT 11T303	◈
1410317G4	PK SOGT 11T303 CHTS16M	1	CHT S16M N11-45	10	SOGT 11T303	◈

◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

SO...T 11T3... Inserts | Pastilhas | Plaquitas

SOMT

SOGT



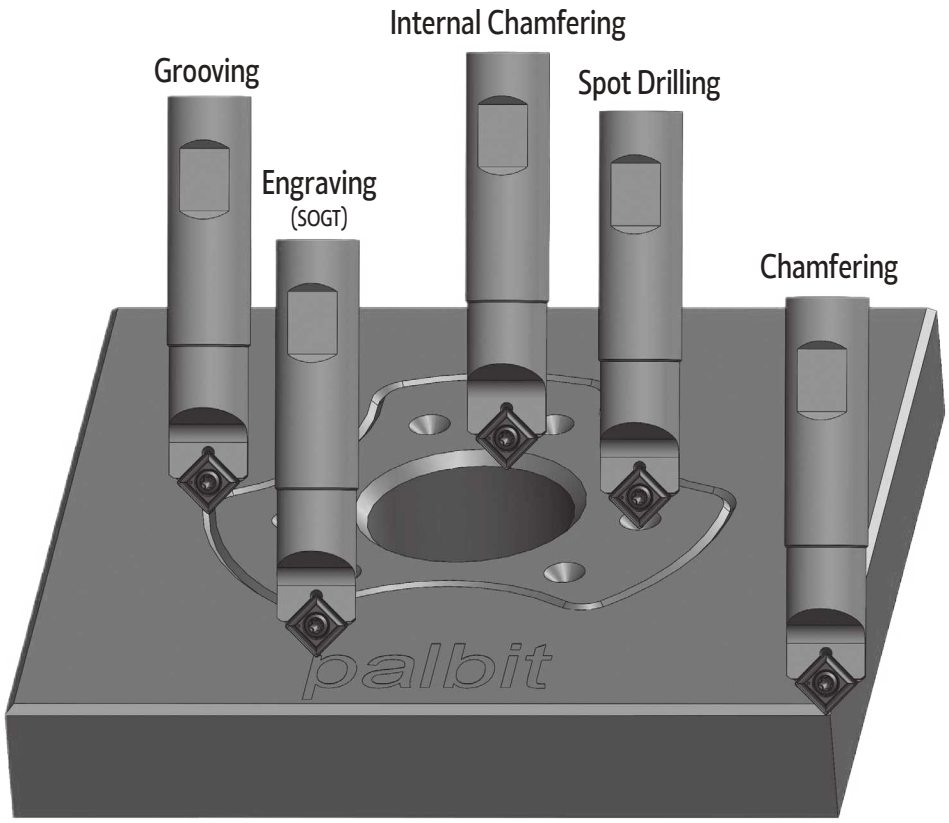
SOMT | SOGT

		P	M	K	Dimensions Dimensões Dimensiones (mm)			
		PVD	PVD	PVD				
	(2) Grade code	G4	G4	G4				
(1) Geometry code	ISO Reference	PH7920	PH7920	PH7920	IC	S	INSL	RE
1112425	SOMT 11T308	◈	◈	◈	10,85	4,02	11,00	0,80
1112973	SOGT 11T303	◈	◈	◈	10,85	4,00	11,00	(0,30)

◈ First choice | Primeira opção | 1ª opción ◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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

TOOL SELECTION Selecção de ferramenta | Selección de herramienta

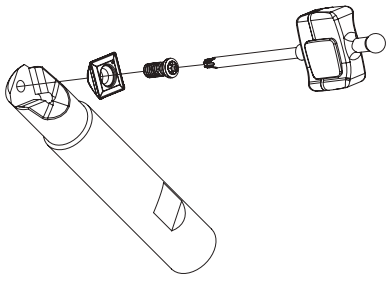


SPARE PARTS Acessórios | Repuestos

Order separately

Cutter DC	Insert Screw	Key (Torx)	Key (Torx - Nm)	Torque Value
CHT S16...	P0350800	XT15	DT1530	3,0

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.



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

ISO	PSM	Material	HB (Brinell)	Vc (m/min)	Feed fz (mm/t)	
				PH7920	SOMT 11T308	SOGT 11T303
P	1	Unalloyed Steel	125-220	120-150	0,04-0,08	0,05-0,10
	2	Low-Alloyed Steel	220-280	100-120	0,03-0,07	0,05-0,10
	3	High-Alloyed Steel	280-380	60-100	0,03-0,06	0,04-0,08
M	4	SS - Ferritic / Martensitic	200-330	100-150	0,04-0,07	0,03-0,06
	5	SS - Austenitic	200-330	80-120	0,03-0,06	0,03-0,06
	6	SS - Austenitic-ferritic (Duplex)	230-260	50-90	0,03-0,06	0,03-0,08
K	7	Malleable Cast Iron	130-230	90-150	0,05-0,10	0,05-0,10
	8	Grey Cast Iron	180-245	80-120	0,05-0,08	0,05-0,08
	9	Nodular Cast iron	160-250	70-110	0,04-0,08	0,04-0,08

NEW 64067

ENGRAVING

The ENGRAVING 64047 features an indexable carbide insert, ensuring excellent repeatability while drastically reducing presetting time, and eliminates the need for resharpening. The high positive rake angle facilitates faster cutting and enhanced durability compared to traditional engravers, revolutionizing the engraving process with unmatched efficiency and longevity.

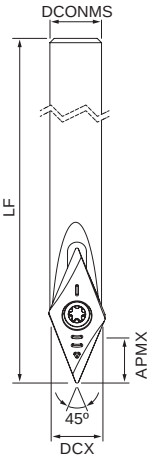
A ENGRAVING 64047 apresenta uma pastilha de metal duro indexável, garantindo excelente repetibilidade enquanto reduz drasticamente o tempo de pré-ajuste e elimina a necessidade de afiação. O alto ângulo de inclinação positivo facilita o corte mais rápido e aumenta a durabilidade em comparação com as ferramentas de gravação tradicionais, revolucionando o processo de gravação com eficiência e longevidade incomparáveis.

La ENGRAVING 64047 presenta una pastilla de metal duro indexable, garantizando una excelente repetibilidad al tiempo que reduce drásticamente el tiempo de ajuste previo y elimina la necesidad de afilado. El alto ángulo de inclinación positiva facilita el corte más rápido y aumenta la durabilidad en comparación con las herramientas de grabado tradicionales, revolucionando el proceso de grabado con eficiencia y longevidad incomparables.

NEW ENGRAVING 64067 > page 286

- 45º Engraving tool
  Ferramenta de gravação a 45º | Herramienta de grabado a 45º
- Fine engraving with 0,2mm bottom width
  Gravação fina com largura de fundo de 0,2mm | Grabado fino con un ancho de fondo de 0,2mm
- Suitable for engraving on steel, stainless steel, superalloys and aluminium
  Adequado para gravação em aço, aço inoxidável, superligas e alumínio | Adecuado para grabado en acero, acero inoxidable, superaleaciones y aluminio

NEW ENGRAVING 64067



Type A: Steel Shank
Type B: Carbide Shank

Order code Código	Reference Referência Referencia	CICT	Type	Dimensions | Dimensões | Dimensiones (mm)							WT	Insert Pastilha Inserto	Stock
				DCN	DCX	APMN	APMX	DCONMS	LF	KAPR			
181168500	002E64067-01-10-U006040	1	A	0,45~0,65	2,10	0,05~0,20	2,00	6	40	67,5º	0,011	VPGT 0602...	◈
181191300	002E64067-01-10-U006065	1	B	0,45~0,65	2,10	0,05~0,20	2,00	6	65	67,5º	0,024	VPGT 0602...	◈
181168700	002E64067-01-10-U006100*	1	B	0,45~0,65	2,10	0,05~0,20	2,00	6	100	67,5º	0,050	VPGT 0602...	◈

Order code Código	Reference Referência Referencia	Nº Toolholder	Holder designation	Nº inserts	Insert Pastilha Inserto	Stock
1410321Y3	PK VPGT 060202-45LM E64067-006040	1	002E64067-01-10-U006040	10	VPGT 060202-45LM	◈
1410322Y3	PK VPGT 060202-45LM E64067-006065	1	002E64067-01-10-U006065	10	VPGT 060202-45LM	◈
1410324Z5	PK VPGT 060202-45LN E64067-006040	1	002E64067-01-10-U006040	10	VPGT 060202-45LN	◈
1410325Z5	PK VPGT 060202-45LN E64067-006065	1	002E64067-01-10-U006065	10	VPGT 060202-45LN	◈
1410326Z5	PK VPGT 060202-45LN E64067-006100	1	002E64067-01-10-U006100*	10	VPGT 060202-45LN	◈

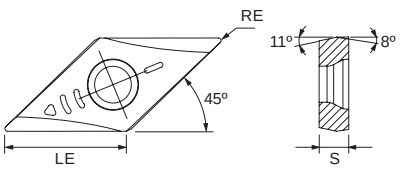
◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

***Note:** Recommended only for non-ferrous materials machinning

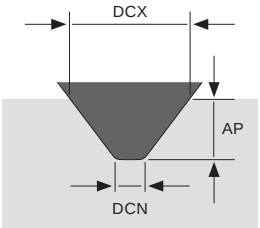
VPGT 0602... Inserts | Pastilhas | Plaquitas

VPGT-45LM

VPGT-45LN



VPGT-45LM | 45LN

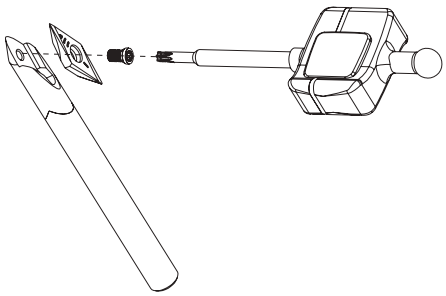


(1) Geometry code	ISO Reference	P PVD (2) Grade code Y3 PHH920	M PVD Y3 PHH920	N UNC Z5 PH0610	S PVD Y3 PHH920	Dimensions Dimensões Dimensiones (mm) LE	S	RE	DCN	DCX	APMN	APMX
1113054	VPGT 060202-45LM	◈	◈		◈	6,35	2,00	0,20	0,65	2,10	0,20	2,00
1113055	VPGT 060202-45LN			◈	◯	6,35	2,00	0,20	0,45	2,10	0,05	2,00

◈ First choice | Primeira opção | 1ª opción ◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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

ENGRAVING 64067
VPGT 06



SPARE PARTS Acessórios | Repuestos

Order separately

Cutter DC	Insert Screw	Key (Torx)	Key (Torx - Nm)	Torque Value
002E64067	P0220401	XT06	DT0606	0,6

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

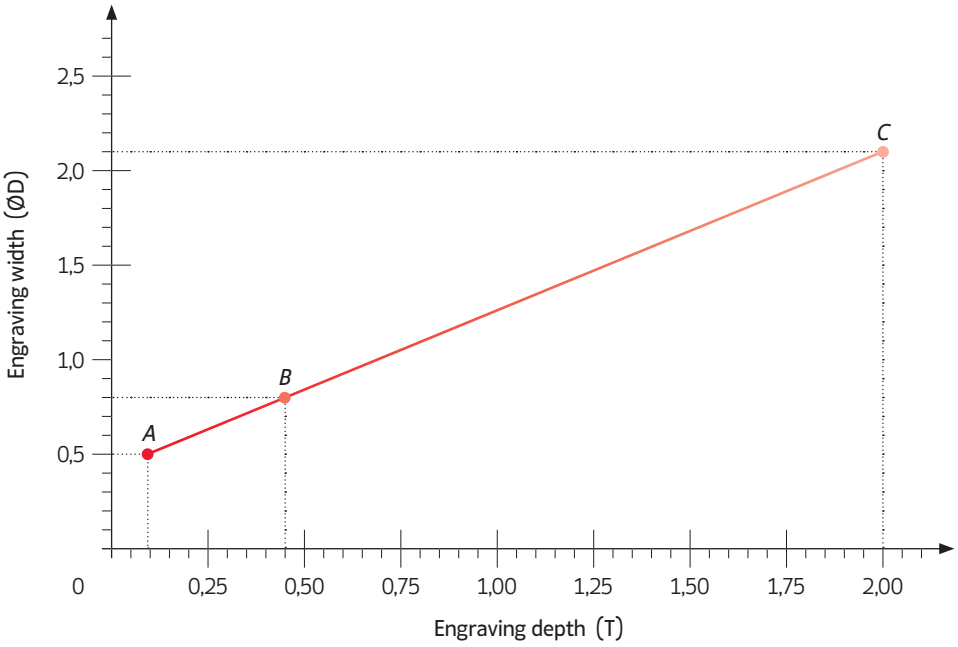
ISO	PSM	Material	n (RPM)	f (mm/rev)	
				VPGT 060602-45LM	VPGT 060602-45LN
P	1	Carbon Steel	5 000 - 40 000	0,008 - 0,05	-
	3	Alloy Steel	5 000 - 40 000	0,008 - 0,03	-
M	5	SS - Austenitic	5 000 - 40 000	0,008 - 0,05	-
N	10	Aluminium and Non Ferrous	5 000 - 40 000	-	0,008 - 0,05
S	11	Heat Resistant Super Alloys	5 000 - 30 000	0,005 - 0,03	-

a_p per step:

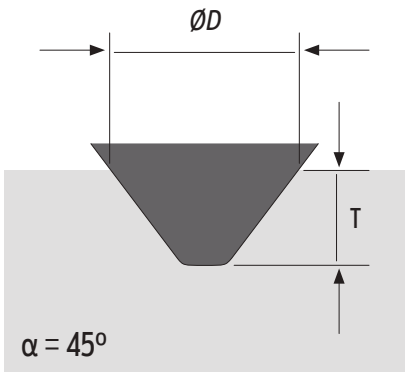
ISO	PSM	Material	AP (mm) Tmax: 2mm							
			1st	2nd	3rd	4th	5th	6th	Next steps	Fine finishing
P	1	Carbon Steel	0,70	0,70	0,30	0,20	0,10	-	-	0,10
	3	Alloy Steel	0,50	0,40	0,30	0,30	0,20	0,20	0,10	0,10
M	5	SS - Austenitic	0,50	0,40	0,20	0,30	0,20	0,20	0,10	0,05
N	10	Aluminium and Non Ferrous	1,00	0,80	0,20	-	-	-	-	0,10
S	11	Heat Resistant Super Alloys	0,50	0,40	0,20	0,30	0,20	0,20	0,10	0,05

(Note 1) It is recommended to start engraving by steps according to the parameters on the table above.
(Note 2) Whenever possible, infeed should be done starting outside the workpiece being machined.

REFERENCE CHART Gráfico de referência | Tabla de referencia



- *Point A:* Width= 0,5 mm x Depth = 0,08 mm
- *Point B:* Width= 0,8 mm x Depth = 0,45 mm
- *Point C:* Width= 2,1 mm x Depth = 2,00 mm



SPOT FACE

Spot face milling is a precision machining process crucial in crafting components for high-performance applications, particularly in the automotive and aerospace industries.

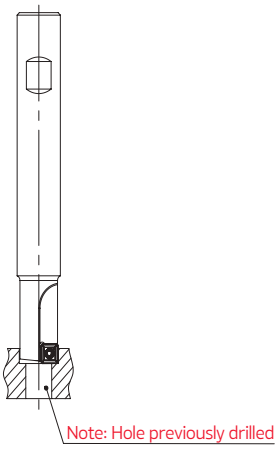
A fresagem de caixa é um processo de maquinação de precisão crucial nao fabrico de componentes para aplicações de alto desempenho, especialmente nas indústrias automóvel e aeroespacial.

El fresado de caja es un proceso de mecanizado de precisión crucial en la fabricación de componentes para aplicaciones de alto rendimiento, especialmente en las industrias automotriz y aeroespacial.

SPOT FACE > page 290

- From DC 10mm to 25mm
  De DC 10mm a 25mm | Desde DC 10mm hasta 25mm
- Counterbore hole
  Furo de rebaixo | Orificio avellanado
- Smooth cutting
  Corte suave | Corte suave

SPOT FACE

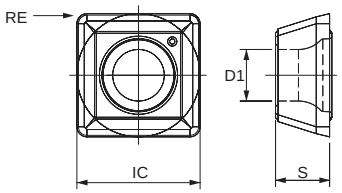


Order code Código	Reference Referência Referencia	CICT	Dimensions | Dimensões | Dimensiones (mm)				WT	Insert Pastilha Inserto	Stock
			DC	DCONMS	LF	LU			
181150100	SP91 D10-W10/100-01-05	1	10	10	100	30	0,048	SPKX 05T104	◈
181150200	SP91 D11-W12/100-01-05	1	11	12	100	30	0,070	SPKX 05T104	◈
181150300	SP91 D13-W16/100-01-06	1	13	16	100	30	0,116	SPKX 060204	◈
181150400	SP91 D14-W16/120-01-06	1	14	16	120	30	0,123	SPKX 060204	◈
181150500	SP91 D17-W20/120-01-07	1	17	20	120	35	0,224	SPKX 070308	◈
181150600	SP91 D18-W20/140-01-07	1	18	20	140	35	0,272	SPKX 070308	◈
181150700	SP91 D20-W20/140-01-09	1	20	20	140	40	0,303	SPKX 090308	◈
181150800	SP91 D21-W25/150-01-09	1	21	25	150	40	0,449	SPKX 090308	◈
181150900	SP91 D25-W25/150-01-11	1	25	25	150	40	0,473	SPKX 110408	◈

◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

SPKX Inserts | Pastilhas | Plaquitas

(PHL grade)



SPKX

		P			M			K			S			Dimensions Dimensões Dimensiones (mm)			
		PVD			PVD			PVD			PVD						
	(2) Grade code	68	66	3B	68	66	3B	68	66	3B	68	66	3B				
(1) Geometry code	ISO Reference	PH6920	PH6930	PHL930	PH6920	PH6930	PHL930	PH6920	PH6930	PHL930	PH6920	PH6930	PHL930	IC	S	D1	RE
1111635	SPKX 05T104	◈			◈			◈			◈			5,00	1,98	2,20	0,40
1111282	SPKX 060204	◈	◈	◈	◈	◈	◈	◈	◈	◈	◈	◈	◈	6,00	2,38	2,55	0,40
1111636	SPKX 070308	◈			◈			◈			◈			7,94	3,18	2,85	0,80
1111637	SPKX 090308	◈			◈			◈			◈			9,80	3,18	4,10	0,80
1111282	SPKX 110408	◈	◈	◈	◈	◈	◈	◈	◈	◈	◈	◈	◈	11,50	4,80	4,40	0,80

◈ First choice | Primeira opção | 1ª opción ◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

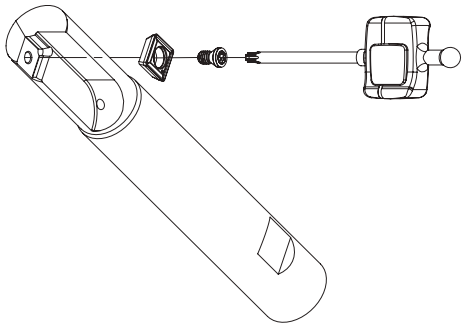
◈ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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

SPARE PARTS Acessórios | Repuestos

Order separately

Cutter DC	Insert Screw	Key (Torx)	Key (Torx - Nm)	Torque Value
10-11	P0200400	XT06	DT0606	0,6
13-14	P0220500	XT07	DT0709	0,9
17-18	P0250704	XT08	DT0812	1,2
20-21	P0350702	XT15	DT1530	3,0
25	P0400900	XT15	DT1530	3,0



Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.

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

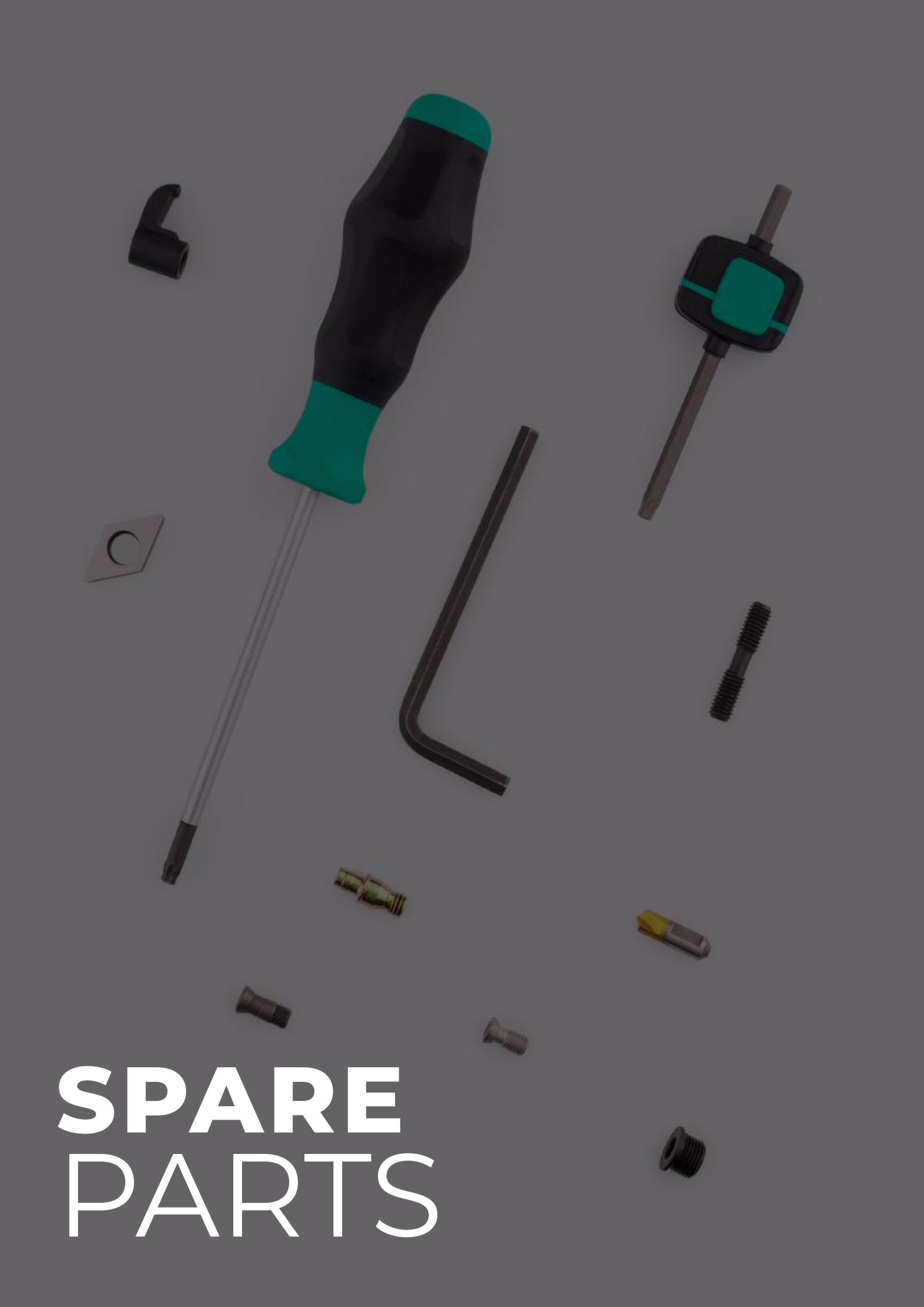
ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance / Toughness → PH6920	PH6930	PHC930	PHL930
P	1	Unalloyed Steel	125-220	✓	✓	✓	✓
	2	Low-Alloyed Steel	220-280	✓	✓	✓	✓
	3	High-Alloyed Steel	280-380	✓	✓	✓	✓
M	4	SS - Ferritic / Martensitic	200-330	✓	✓	✓	✓
	5	SS - Austenitic	200-330	✓	✓	✓	✓
	6	SS - Austenitic-ferritic (Duplex)	230-260	✓	✓	✓	✓
K	8	Grey Cast Iron	180-245	✓	✓	✓	✓
	9	Nodular Cast iron	160-250	✓	✓	✓	✓
S	11	Heat Resistant Super Alloys	200-320	✓	✓	✓	✓

Good Conditions Average Conditions Difficult Conditions

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

ISO	PSM	Material	HB (Brinell)	Vc (m/min) ← Wear Resistance / Toughness → PH6920	PH6930	PHC930	PHC930
P	1	Unalloyed Steel	125-220	180-250	160-240	160-240	160-240
	2	Low-Alloyed Steel	220-280	160-220	140-200	140-200	140-200
	3	High-Alloyed Steel	280-380	130-180	110-160	110-160	110-160
M	4	SS - Ferritic / Martensitic	200-330	170-230	140-210	140-210	140-210
	5	SS - Austenitic	200-330	160-200	130-200	130-200	130-200
	6	SS - Austenitic-ferritic (Duplex)	230-260	140-180	120-190	120-190	120-190
K	8	Grey Cast Iron	180-245	180-250	150-220	150-220	150-220
	9	Nodular Cast iron	160-250	130-200	110-180	110-180	110-180
S	11	Heat Resistant Super Alloys	200-320	40-120	30-100	30-100	30-100

ISO	PSM	Material	HB (Brinell)	Feed fz (mm/t) SPKX 05...	SPKX 06...	SPKX 07...	SPKX 09...	SPKX 11...
P	1	Unalloyed Steel	125-220	0,05-0,08	0,06-0,10	0,06-0,12	0,07-0,13	0,08-0,15
	2	Low-Alloyed Steel	220-280	0,06-0,12	0,08-0,15	0,10-0,18	0,12-0,22	0,12-0,25
	3	High-Alloyed Steel	280-380	0,06-0,10	0,08-0,15	0,10-0,20	0,12-0,23	0,12-0,26
M	4	SS - Ferritic / Martensitic	200-330	0,05-0,10	0,06-0,12	0,08-0,15	0,09-0,16	0,10-0,20
	5	SS - Austenitic	200-330	0,04-0,08	0,05-0,10	0,06-0,12	0,07-0,13	0,08-0,18
	6	SS - Austenitic-ferritic (Duplex)	230-260	0,04-0,08	0,05-0,11	0,06-0,13	0,07-0,14	0,08-0,19
K	8	Grey Cast Iron	180-245	0,06-0,12	0,08-0,16	0,12-0,20	0,15-0,25	0,15-0,30
	9	Nodular Cast iron	160-250	0,06-0,10	0,08-0,15	0,10-0,18	0,12-0,20	0,15-0,25
S	11	Heat Resistant Super Alloys	200-320	0,04-0,08	0,05-0,10	0,06-0,12	0,07-0,13	0,08-0,18



SPARE PARTS

SPARE PARTS

1 SHANKS

> See page A - 294

2 SCREWS

> See page A - 298

3 KEYS

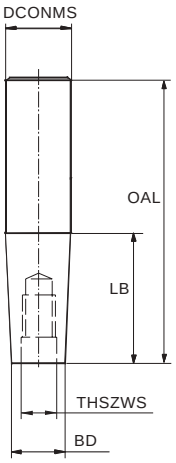
> See page A - 300

4 OTHERS

> See page A - 300

SPARE PARTS

MULTIFIT DENSIMET ANTI-VIBRATION Shank | Adaptador | Fijación



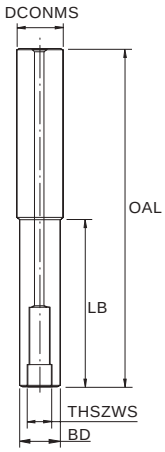
Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)					Stock
		DCONMS	LB	OAL	BD	THSZWS	
1191008A0	AC-RI-D12-M06-L040-AV	12	40	90	9,8	M6	◈
1191009A0	AC-RI-D12-M06-L060-AV	12	60	110	9,8	M6	◈
1191021A0	AC-RI-D12-M06-L080-AV	12	80	130	9,8	M6	◈
1191010A0	AC-RI-D16-M08-L040-AV	16	40	95	12,8	M8	◈
1191011A0	AC-RI-D16-M08-L060-AV	16	60	115	12,8	M8	◈
1191012A0	AC-RI-D16-M08-L080-AV	16	80	135	12,8	M8	◈
1191013A0	AC-RI-D16-M08-L100-AV	16	100	155	12,8	M8	◈
1191022A0	AC-RI-D16-M08-L120-AV	16	120	175	12,8	M8	◈
1191014A0	AC-RI-D20-M10-L040-AV	20	40	100	15,8	M10	◈
1191015A0	AC-RI-D20-M10-L060-AV	20	60	120	15,8	M10	◈
1191016A0	AC-RI-D20-M10-L080-AV	20	80	140	15,8	M10	○
1191017A0	AC-RI-D20-M10-L100-AV	20	100	160	15,8	M10	○
1191018A0	AC-RI-D20-M10-L120-AV	20	120	180	15,8	M10	○
1191026A0	AC-RI-D20-M10-L080-D17,8-AV	20	80	140	17,8	M10	◈
1191027A0	AC-RI-D20-M10-L100-D17,8-AV	20	100	160	17,8	M10	◈
1191028A0	AC-RI-D20-M10-L120-D17,8-AV	20	120	180	17,8	M10	◈
1191023A0	AC-RI-D25-M12-L060-AV	25	60	125	20,8	M12	◈
1191024A0	AC-RI-D25-M12-L080-AV	25	80	145	20,8	M12	◈
1191025A0	AC-RI-D25-M12-L100-AV	25	100	165	20,8	M12	◈

◈ Stock item | Produto de stock | Itens de stock

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

MULTIFIT CARBIDE ANTI-VIBRATION Shank | Adaptador | Fijación

Standard Version



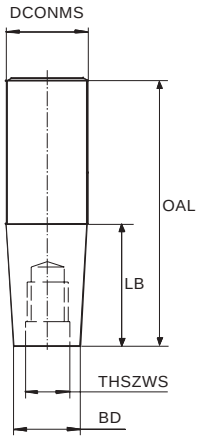
Customized Version

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)					Stock
		DCONMS	OAL	THSZWS	BD*	LB*	
219102600	AC-RI-D12-M06-L100-HW	12	100	M6	-	-	◈
219102700	AC-RI-D12-M06-L150-HW	12	150	M6	-	-	◈
219102800	AC-RI-D16-M08-L100-HW	16	100	M8	-	-	◈
219102900	AC-RI-D16-M08-L150-HW	16	150	M8	-	-	◈
219103000	AC-RI-D20-M10-L150-HW	20	150	M10	-	-	◈
219103100	AC-RI-D20-M10-L200-HW	20	200	M10	-	-	◈
219103200	AC-RI-D25-M12-L150-HW	25	150	M12	-	-	◈
219103300	AC-RI-D25-M12-L200-HW	25	200	M12	-	-	◈
219103400	AC-RI-D32-M16-L250-HW	32	250	M16	-	-	◈

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

SPARE PARTS

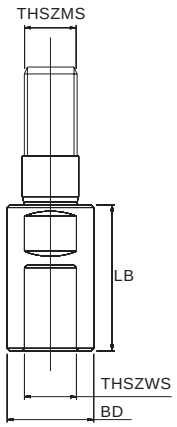
MULTIFIT CYLINDRICAL IN STEEL Shank | Adaptador | Fijación



Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)					Stock
		DCONMS	LB	OAL	BD	THSZWS	
181179000	AC-RI-D12-M06-L020	12	20	65	9,8	M6	◎
181179100	AC-RI-D16-M08-L040	16	40	88	12,8	M8	◎
181179200	AC-RI-D20-M10-L045	20	45	95	17,8	M10	◎
181179300	AC-RI-D25-M12-L050	25	50	106	20,8	M12	◎
181179400	AC-RI-D32-M16-L050	32	50	110	28,8	M16	◎

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

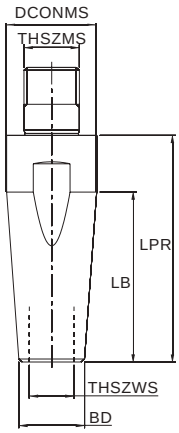
MULTIFIT EXTENSIONS FOR THREADED TYPE CUTTER Shank | Adaptador | Fijación



Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)				Stock
		BD	THSZMS	THSZWS	LB	
181186100	AL-M08-L040-M08	13,8	M8	M8	40	◎
181182900	AL-M10-L060-M10	18,0	M10	M10	60	◎
181191000	AL-M12-L060-M12	21,0	M12	M12	60	◎
181191100	AL-M16-L060-M16	29,0	M16	M16	60	◎

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

MULTIFIT REDUCERS FOR THREADED TYPE CUTTER Shank | Adaptador | Fijación



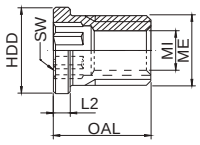
Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)						Stock
		THSZMS	THSZWS	DCONMS	BD	LPR	LB	
181186200	AL-M08-L040-M06	M8	M6	13,8	10,0	40	25	⚙
181190700	AL-M10-L040-M08	M10	M8	18,0	13,8	40	25	⚙
181190800	AL-M12-L040-M10	M12	M10	21,0	18,0	40	15	⚙
181190900	AL-M16-L040-M12	M16	M12	29,0	21,0	40	19	⚙

⚙ Stock item | Produto de stock | Itens de stock

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

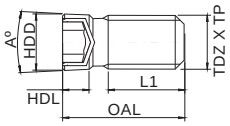
SPARE PARTS

SHIM SCREW



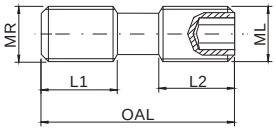
Order code Código	Screw Parafuso Tornillo	Dimensions | Dimensões | Dimensiones (mm)					
		SW	MI	ME	HDD	OAL	L2
290030400	T0503509	3,5	M3,5 x 0,6	M5,0 x 0,5	6,3	7	1,2

ADJUSTMENT SCREW



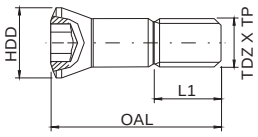
Order code Código	Screw Parafuso Tornillo	T (torx)	Dimensions | Dimensões | Dimensiones (mm)					
			TDZ x TP	HDD	Aº	OAL	L1	HDL
290051500	F0601441	T-20	M6 x 1,0	6,3	5º	13,6	8,5	3,2

DIFFERENTIAL SCREW



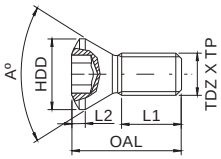
Order code Código	Screw Parafuso Tornillo	T (torx)	Dimensions (mm)				
			MR	ML	OAL	L1	L2
290016300	F0701800	T-20	M7 x 0,75	M7 x 0,75	18	7,5	7,5

INSERT SCREW



Order code Código	Screw Parafuso Tornillo	T (torx)	Dimensions | Dimensões | Dimensiones (mm)			
			TDZ x TP	HDD	OAL	L1
290013900	P0400925	T-15	M4 x 0,5	5,80	8,6	3,5
290010600	P0500925	T-20	M5 x 0,5	6,70	9,5	3,4
290014400	P0501325	T-20	M5 x 0,5	7,50	12,8	4,5
290014000	P0501525	T-20	M5 x 0,5	7,50	15,5	4,5

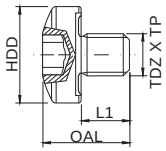
INSERT SCREW



Order code Código	Screw Parafuso Tornillo	T (torx)	Dimensions | Dimensões | Dimensiones (mm)					
			TDZ x TP	HDD	A°	OAL	L1	L2
290078800	P0180300	T-GIP	M1,8 x 0,35	2,45	60°	3,4	1,5	0,5
290058400	P0180400	T-GIP	M1,8 x 0,35	2,45	60°	3,7	1,8	0,5
290011300	P0180401	T-6	M1,8 x 0,35	2,75	55°	3,6	1,9	0,4
290031400	P0200500	T-6	M2 x 0,4	2,80	60°	4,7	2,9	0,6
290030600	P0220500	T-7	M2,2 x 0,45	3,20	60°	5,0	3,0	0,6
290033100	P0250503	T-8	M2,5 x 0,45	3,45	60°	5,5	2,8	0,7
290048900	P0250601	T-8	M2,5 x 0,45	3,45	60°	6,0	3,5	0,8
290013400	P0250700	T-8	M2,5 x 0,45	3,3	55°	7	4	0,8
290031300	P0250704	T-8	M2,5 x 0,45	3,45	60°	6,5	4,0	0,7
290084200	P0300726	T-8	M3 x 0,35	4,40	60°	6,7	1,7	0,7
290009100	P0300800	T-9	M3 x 0,5	4,4	60°	7,4	4,2	0,8
290081700	P0350702	T-15	M3,5	5,3	55°	7	3,1	2
290019900	P0350800	T-15	M3,5 x 0,6	5,5	60°	7,7	3,7	1
290084300	P0350825	T-10	M3,5 x 0,35	5,70	54°	8,4	2,8	1
290027100	P0350902	T-10	M3,5 x 0,6	4,7	60°	9	5,5	0,4
290030900	P0350903	T-15	M3,5 x 0,6	5,45	60°	9	6	0,6
290075200	P0350904	T-10	M3,5 x 0,6	4,8	60°	9	5	0,8
290005800	P0351200	T-15	M3,5 x 0,6	5,30	60°	12	8	1,4
290094600	P0400803	T-15	M4 x 0,7	5,5	60°	8	5,5	1
290048200	P0400900	T-15	M4 x 0,7	5,5	60°	9	5,5	1
290075600	P0401065	T-15	M4 x 0,7	5,7	60°	10	6	1
290007000	P0401100	T-15	M4 x 0,7	5,3	55°	11	8	2
290047500	P0401200	T-15	M4 x 0,7	5,5	60°	11	6	1,2
290026900	P0451001	T-20	M4,5 x 0,75	6,6	55°	10,5	5,5	1
290017600	P0451100	T-20	M4,5 x 0,75	6,85	55°	11	6,6	0,7
290006700	P0451400	T-20	M4,5 x 0,75	7,2	60°	14	9	1
290084400	P0501025	T-20	M5 x 0,5	7,00	60°	9,9	2,6	0,9
290084500	P0501326	T-20	M5 x 0,5	6,70	42°	13,3	3,8	1,15
290017500	P0501100	T-20	M5 x 0,8	6,4	43°	11	5,9	0,5
290031700	P0501300	T-20	M5 x 0,8	7	60°	12,8	8	1,3
290078900	P0501302	T-20	M5 x 0,8	7	60°	13	8,2	0,8
290048300	P0601402	T-20	M6 x 1,0	8,4	60°	14	9	0,9
290084600	P0601725	T-25	M6 x 0,75	7,96	44°	16,8	5,7	1,15

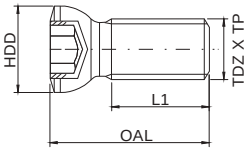
SPARE PARTS

ADJUSTMENT SCREW



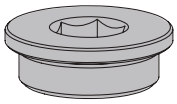
Order code Código	Screw Parafuso Tornillo	T (torx)	Dimensions | Dimensões | Dimensiones (mm)			
			TDZ x TP	HDD	OAL	L1
290014200	P0350750	T-15	M3,5 x 0,6	8,00	7,2	4,0

WASHER SCREW

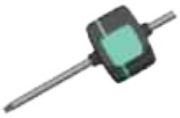
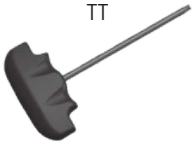


Order code Código	Screw Parafuso Tornillo	Dimensions | Dimensões | Dimensiones (mm)			
		TDZ x TP	HDD	OAL	L1
290075600	P0401065	M4 x 0,7	5,7	10,0	6,0
290018500	P0601265	M6 x 1,0	9,00	12,4	6,5
290011000	P0601765	M6 x 1,0	9,00	17,0	11,0
290028400	P0802265	M8 x 1,25	11,0	22,0	15,0

OTHERS

Sealing Cap	Order Code	Reference
	119236000	TRM2009S8
	119237600	TRM2411S10
	119235900	TRM3012S14
	119236600	TRM3615S17

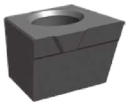
Washer	Order Code	Reference
	290012100	HC01200
	290060200	HC01400
	290002900	HC01800

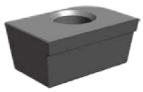
Torx Keys	Order Code	Reference
XT 	290058600	XT 06IP
	290011400	XT 06
	290012900	XT07
PT	290011700	XT 08
	290025700	XT 09
	290013100	XT 10
TT 	290012400	XT 15
	290013200	XT 20
	290014800	PT 15
LT	290014900	PT 20
	290089000	TT 20
	290059500	LT 30

Cartridge Screw	Order Code	Reference
	119169600	D0602096

Shim	Order Code	Reference
	116022223	CS130300
	290060400	CT160300
	290060300	CT220300

Spring Pin	Order Code	Reference
	290060600	BE02500
	290060500	BE04000

Wedge (Insert)	Order Code	Reference
	290060900	WA7001
	290061100	WA7003
	119200100	SETDEV AS 04 00

Wedge (Cartridge)	Order Code	Reference
	290061000	WA7002
	290061200	WA7004

Hex Key	Order Code	Reference
SS	290021200	SS40
TS	290021300	SS50
	290058700	TS40

Screw for Coolant Supply	Order Code	Reference	TDZ	HDD
	119163000	J0123510	12	37,9
	119163100	J0164110	16	45,0
	119163200	J0204610	20	54,8

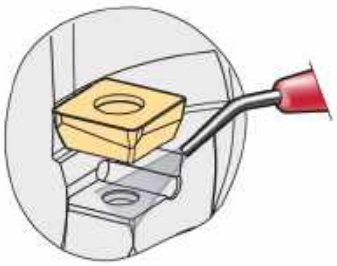
Dynamometric Torque Key	Order Code	Reference	Torx	Nm
	290078300	DT0606IP	6IP	0,6
	290059600	DT0606	6	0,6
	290059700	DT0709	7	0,9
	290059800	DT0812	8	1,2
	290059900	DT0914	9	1,4
(Predefined torque)	290060000	DT1020	10	2,0
	290047800	DT1530	15	3,0
	290078400	DT2050	20	5,0

DIN 6368 Wrench	Order Code	Reference
	290058000	SD6368-12
	290058100	SD6368-16
	290058200	SD6368-20

Retaining Screw	Order Code	Reference
	290087700	D1603500
	290087800	D2004000

PROCEDURES FOR CLAMPING SCREWS

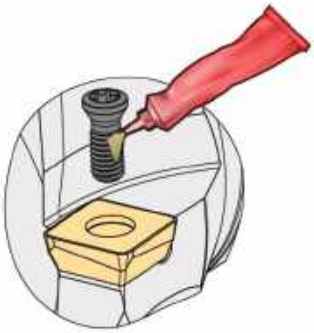
1. Always use a torque wrench to ensure that screws are correctly tightened (please confirm torques data on catalogue). Torque that is too high will negatively affect the performance of the tool and can cause screw and insert breakage. Torque that is too low will cause insert movement, vibration and degrade the cutting result. Dedicated adjustable torque wrench can be ordered separately (please see above).



2. Clean the insert seat.
Make sure that the insert seat is free from dust or chips from the machining. If necessary, clean the insert seat with compressed air.

3. Check the insert seat.
Before assembly cutter it is important to ensure that the insert seat has not been damaged during machining or handling.

4. Apply sufficient screw lubrication to prevent seizure. Lubricant should be applied to the screw threads as well as to the screw head face.



5. Replace worn or damaged screws.

TECHNICAL DATA

TECHNICAL DATA

1 MILLING GRADES

> See page A - 304

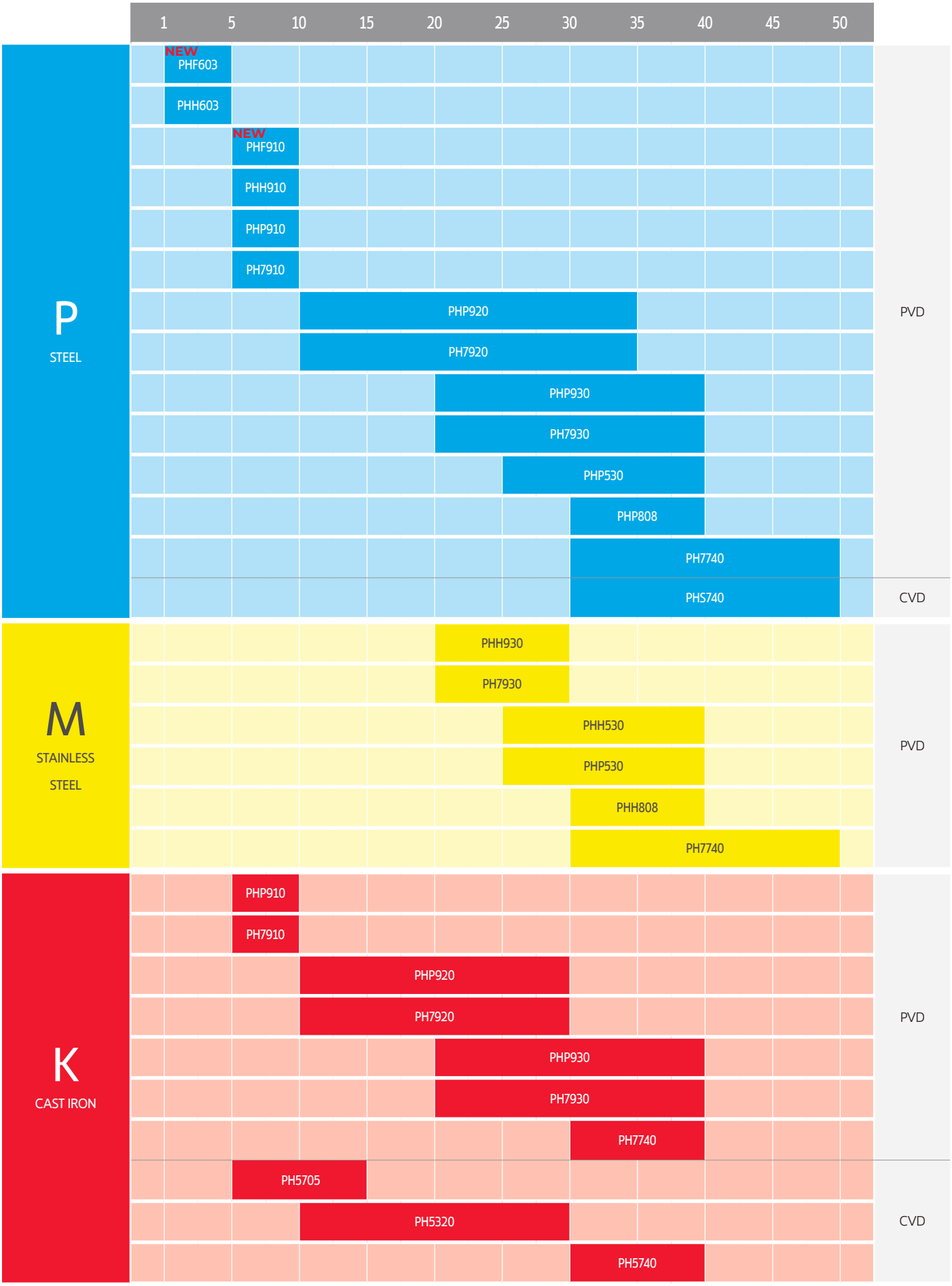
2 CUTTING DATA CALCULATION

> See page A - 308

3 POWER REQUIREMENT CALCULATION

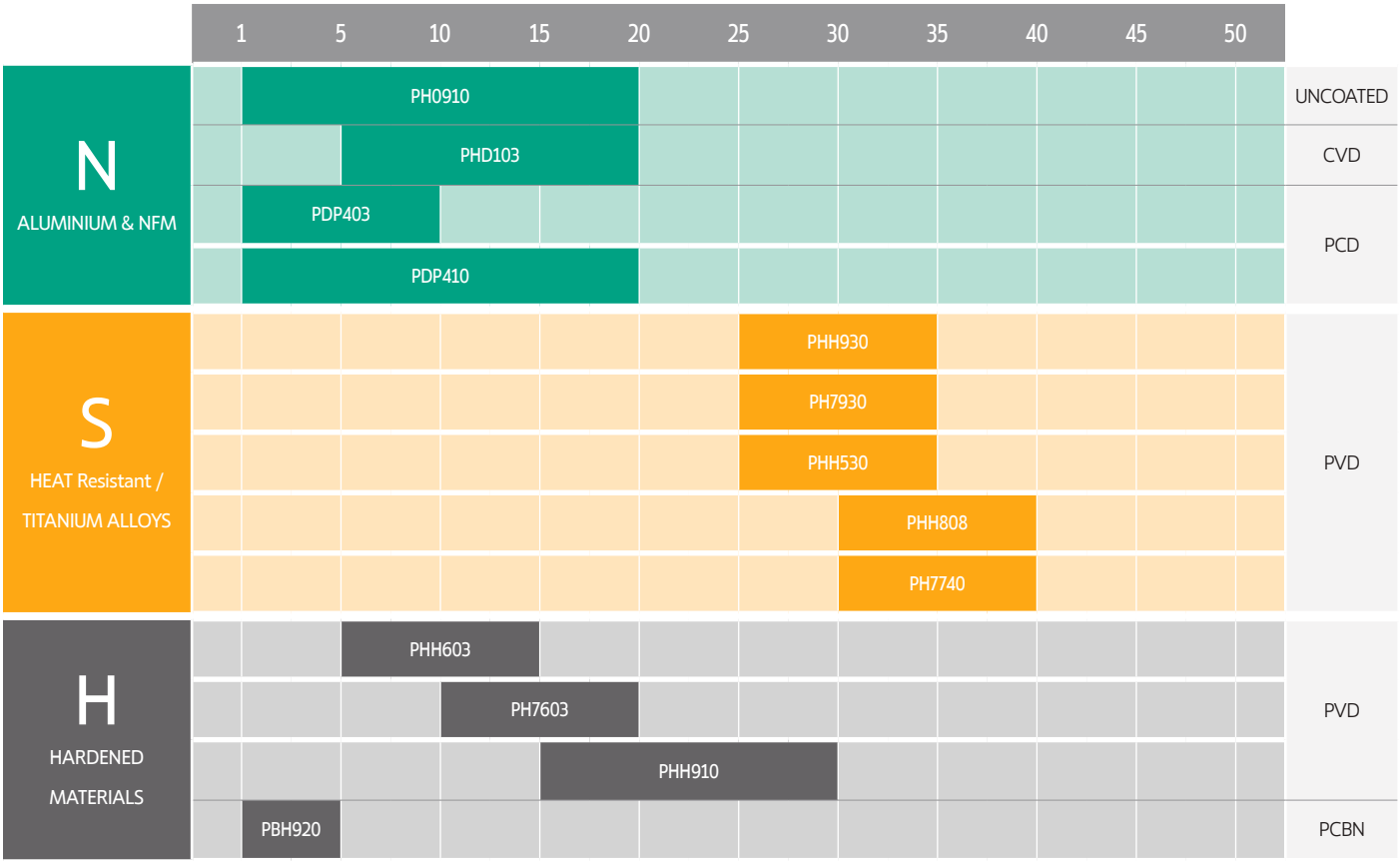
> See page A - 309

MILLING GRADES



palbit

MILLING GRADES
Graus para fresagem | Calidades para fresado



MILLING GRADES DESCRIPTION

PVD GRADES

PHP..

Product of the latest coating technology, the new PHP coating comes to revolutionize the milling of Steel and Cast Iron.
PHP is a balanced PVD coating that combines high hardness and high cracking resistance.
It's composition and structure ensure an optimal adhesion which results in a very smooth surface preventing built-up edge, coating worn-out and keeps the insert in a lubricated-like condition.

WEAR RESISTANCE ⟷ TOUGHNESS

PHP910	PHP920	PHP930	PHP530	PHP808
P05-P10 K05-K10	P10-P35 K10-K30	P20-P40 K20-K40	P25-P40 M25-M40	P30-P40
Recommended for light operations in steels.	Recommended for General Steel & Cast Iron Milling.	Recommended for medium to roughing operations in steels and cast irons.	Extremely heat resistant grade. First choice in cold-section turbine blade milling.	High heat resistance grade. Economic choice for cold-section turbine blade milling.

PHH...

Product of the latest coating technology, the new PHH coating comes to revolutionize the milling of stainless steel, HRSA as well and hardened steel.
PHH is a stable PVD coating that merges both high hardness and an uncomparable heat resistance.
It's structure contains refractory materials which allows it to work at the highest temperature and the hardest conditions.

WEAR RESISTANCE ⟷ TOUGHNESS

PHH603	NEW PHF603	PHH910	NEW PHF910	PHH930	PHH530	PHH808
P01-P05 H05-H15	P01-P05 H05-H15	P05-P10 H15-H30	P05-P10 H15-H30	M20-M40 S20-S30	M25-M40 S25-S35	M30-M40 S30-S40
Recommended for finishing operations in steels and hardened steels.	Recommended for finishing operations in steels and hardened steels. First choice for finishing applications.	Recommended for finishing operations in steels and hardened steels in unstable conditions.	Recommended for finishing operations in hardened steels ensuring superior surface quality, wear resistance, and thermal stability.	Recommended for general purpose milling of stainless steels and HRSA.	Extremely heat resistant grade. First choice in hot-section turbine blade milling.	High heat resistance grade. Economic choice in hot-section turbine blade milling

PH7... | PH6...

A medium thickness PVD coating with good compatibility with steels, stainless steels, cast irons and HRSA.

WEAR RESISTANCE ⟷ TOUGHNESS

PH7603 (PH6103)	PH7910 (PH6910)	PH7920 (PH6920)	PH7930 (PH6930)	PH7740 (PH6740)
H01-H20	P05-P10 K05-K10	P10-P35 K10-K30	P20-P40 M20-M30 K20-K40 S25-S35	P30-P50 M30-M50 K30-K40 S30-S40

Note: PH6... grades are very similar to PH7... The difference being that PH7 is mostly used in proprietary milling lines while PH6... is used on interchangeable inserts.

CVD GRADES

PHS740...

A though substract combined with a thin CVD coating with excellent thermical resistance and hardness at high temperature. 1st choice solution for removal of oxide layer from workpiece surface and for unstable conditions where a lot of heat is generated (ex: heavy duty aplications).

PHS740
P30-P50

PH5...

A thick CVD coating with very smooth surface. Can be used wet or dry. Ideal for machining cast irons.

WEAR RESISTANCE → TOUGHNESS

PH5705
K05-K10

PH5320
K10-K30

PH5740
K20-K40

PHD103

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

PCBN GRADE

PBH920

Carbide insert with Polycrystaline Cubic Boron Nitride tip for finishing operations on hardened steels.

PBH920
H01-N05

PCBN

PCD GRADE

PDP4...

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

PDP403
N01-N10

PDP410
N01-N20

PCD

CUTTING DATA CALCULATION

Cálculo de condições de corte | Cálculo de datos de corte

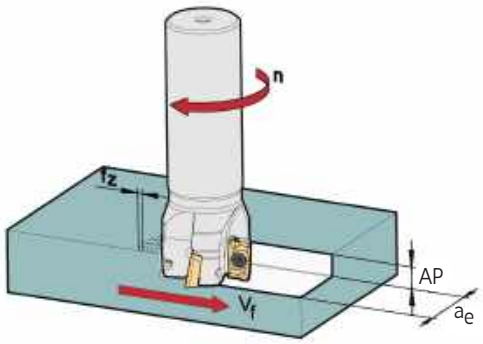
> Formulas

Spindle Speed (rev/min)

$$n = \frac{v_c \cdot 1000}{\pi \cdot D_c}$$

Cutting Speed (m/min)

$$v_c = \frac{n \cdot \pi \cdot DC}{1000}$$



Feed Speed (mm/min)

$$v_f = n \cdot Z_n \cdot f_z$$

Feed per Revolution (mm/rev)

$$f = Z_n \cdot f_z$$

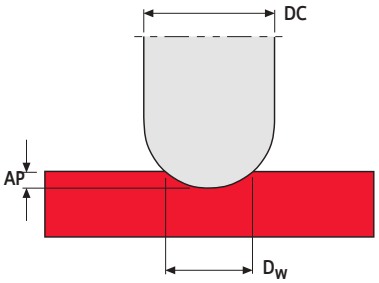
Feed per Tooth (mm/tooth)

$$f_z = \frac{v_f}{n \cdot Z_n}$$

Metal removal Rate (cm³/min)

$$Q = \frac{a_e \cdot AP \cdot v_f}{1000}$$

> Cutting Speed and Spindle Speed for Copying



$$v_c = \frac{n \cdot \pi \cdot D_w}{1000} \quad \text{(m/min)}$$

$$n = \frac{v_c \cdot 1000}{\pi \cdot D_w} \quad \text{(RPM)}$$

$$D_w = 2 \cdot \sqrt{a_p\,(DC\text{-}AP)} \quad \text{(mm)}$$

NOMENCLATURE

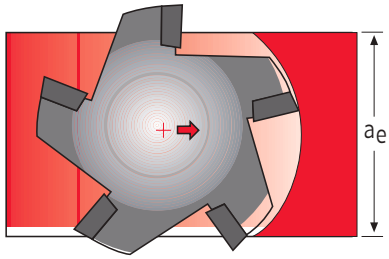
a_e	- Width of cut mm/radial depth of cut	(mm)
AP	- Depth of cut mm/axial depth of cut	(mm)
DC	- Cutter diameter	(mm)
D_W	- Effective diameter in cut	(mm)
f	- Feed per Revolution	(mm/rev)
f_z	- Feed per Tooth	(mm/tooth)
n	- Spindle Speed	(rev/min)
Q	- Material removal Rate	(cm³/min)
V_c	- Cutting Speed	(m/min)
V_f	- Feed Speed	(mm/min)
Z_n	- Nº of teeth	

POWER REQUIREMENT CALCULATION

Cálculo de potência requerida | Cálculo del requerimiento de potencia

> Calculating the power demand

$$P_c = \frac{AP \times a_e \times v_f}{60\,000\,000 \times \eta} \times k_c$$



P_c - Power (kW)
AP - Depth of cut (mm)
a_e - Width of cut (mm)
v_f - Feed speed (mm/min)
η - Efficiency
k_c - Cutting force per mm²

> Calculating average chip thickness (h_m) and cutting force per mm² (k_c)

$$h_m = \frac{360 \times f_z \times a_e}{\pi \times DC \times \omega_e} \times \sin k_r$$

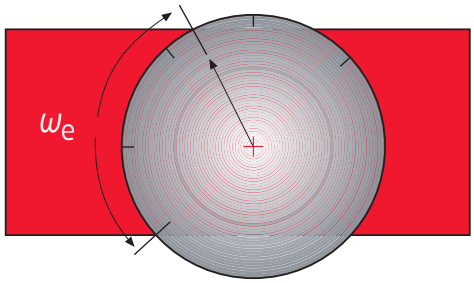
h_m - Average chip thickness (mm)
f_z - Feed per tooth (mm/tooth)
DC - Cutter diameter (mm)
ω_e - Engagement angle
k_r - Lead angle

$$k_c = \frac{1}{h_m^{m_c}} \times k_c x$$

m_c* - Exponent
$k_c x$* - Cutting force for 1 mm chip thickness (N/mm²)

* Please see these values on page 1023.

> Engagement angle



Engagement a_e / DC	Engagement angle ω_e
70%	89°
100%	180°

Engagement a_e / DC	Engagement angle ω_e
5%	26°
10%	37°
75%	60°

LOOKING FOR MORE TROUBLESHOOTING OR COMPARATIVE GRADES CHART?

Check the qrcode for more information.

SOLID CARBIDE
END MILLS

SOLID CARBIDE END MILLS

1 PCD TIPPED END MILLS

> See page A - 312

2 CHOOSE BY MATERIAL

> See page A - 318

3 CHOOSE BY APPLICATION

> See page A - 336

4 GENERAL INTEG

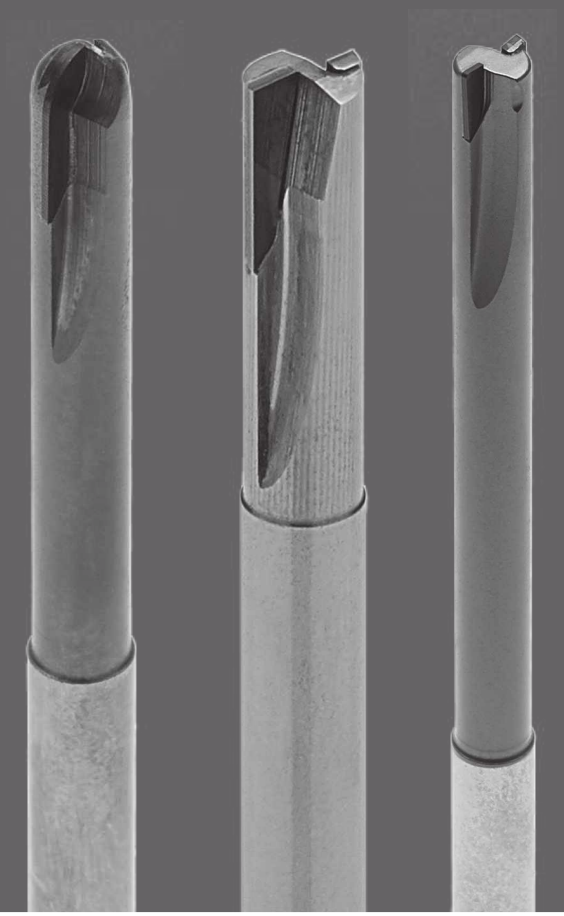
> See page A - 352

5 INTEG GRADES

> See page A - 364

END MILLS

PCD TIPPED

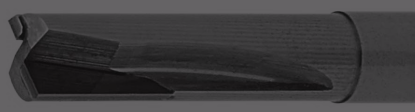


PCD end mills are brazed-tipped tools specifically designed for non-ferrous applications. PCD withstands abrasion wear, significantly prolonging tool life. PCD end mills operate at higher speeds than traditional carbide end mills, resulting in improved surface finish and extended tool life.

Fresas de topo PCD são ferramentas com ponta brasada especificamente projetadas para aplicações não ferrosas. O PCD suporta desgaste por abrasão, prolongando significativamente a vida útil da ferramenta. As fresas de topo PCD operam em velocidades mais altas do que as fresas de metal duro integral de topo tradicionais, resultando em melhor acabamento de superfície e vida útil estendida

Las fresas de punta PCD son herramientas con punta soldada diseñadas específicamente para aplicaciones no ferrosas. El PCD soporta el desgaste por abrasión, prolongando significativamente la vida útil de la herramienta. Las fresas de punta PCD operan a velocidades más altas que las fresas de punta de carburo tradicionales, lo que resulta en un mejor acabado superficial y una vida útil prolongada.

STRAIGHT EDGE > page 315



- From DC 4mm to 16mm
  De DC 4mm a 16mm | Desde DC 4mm hasta 16mm
- 2 or 3 cutting edges
  2 ou 3 arestas de corte | 2 o 3 aristas de corte
- Flat top geometry
  Dísponivel com geometria em topo raso | Disponible con geometría en topo plano
- Short version
  Disponível em versão curta | Disponible en versión corta

BULL NOSE > page 316

- From DC 3mm to 12mm
  De DC 4mm a 16mm | Desde DC 4mm hasta 16mm
- 1 or 2 cutting edges
  1 ou 2 arestas de corte | 1 o 2 aristas de corte
- 5º dish angle
  Ângulo de topo de 5º | Ángulo de la punta de 5º
- Short and long version
  Disponível em versão curta e longa | Disponible en versión corta y larga

BALL NOSE > page 317

- From DC 3mm to 12mm
  De DC 3mm a 12mm | Desde DC 3mm hasta 12mm
- 1 or 2 cutting edges
  1 ou 2 arestas de corte | 1 o 2 aristas de corte
- Spheric geometry
  Dísponivel com geometria esférica | Disponible con geometría esférica
- Short version
  Disponível em versão curta | Disponible en versión corta

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 (NOF)

Example: NOF = 1 ; NOF = 2 ; NOF = 3

6 - Cutting diameter (DC)

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

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

060 = 6 mm ; 080 = 8 mm

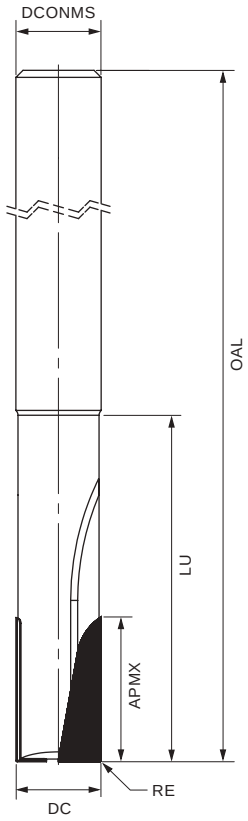
8 - Corner radius (Suppressed when it doesn't exist)

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

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

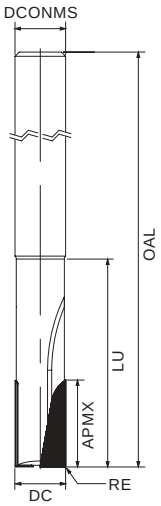
Example: 060 = 6 mm

Straight Flute
technical drawing example



DC	Tool diameter
DCONMS	Shank diameter
OAL	Overall length
LU	Neck length
APMX	Tip length
RE	Corner form (radius or chamfer)

HARDMILL STRAIGHT EDGE



(1) Geometry code	(2) Grade code: Reference / Referência / Referencia	NOF	N PCD D6 PDP410	Dimensions | Dimensões | Dimensiones (mm) DC	DCONMS	OAL	LU	APMX	RE
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

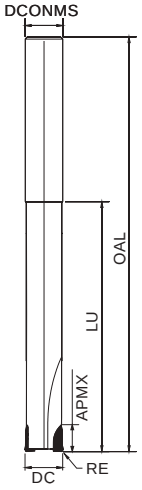
ISO	Workpiece Material	Vc (m/min) min	Vc (m/min) max	fz (mm/t) min	fz (mm/t) max	Coolant
N	Aluminium <6%Si	200	6000	0,05	0,30	Emulsion / MQL
	Aluminium <12%Si	200	4000	0,05	0,25	
	Aluminium >12%Si	200	2000	0,05	0,20	
	Cooper/Cooper Alloys	250	3000	0,03	0,30	

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.

HARDMILL BULL NOSE

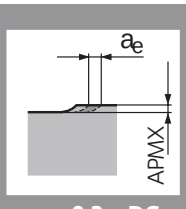
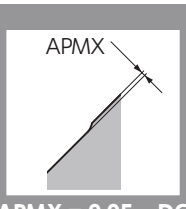


(1) Geometry code	(2) Grade code Reference Referência Referencia	NOF	N PCD D6 PDP410	Dimensions | Dimensões | Dimensiones (mm) DC	DCONMS	OAL	LU	APMX	RE
1180073	DSNS 1 030 050 030 040	1	◈	3	4	60	30	5	0,30
1180075	DSNL 2 040 050 030 040	2	◈	4	4	75	45	5	0,30
1180076	DSNL 2 060 060 030 060	2	◈	6	6	100	60	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

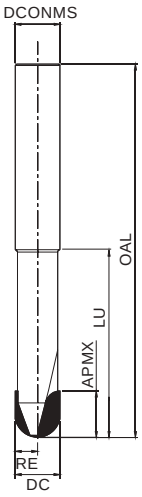
Order code = (1) Geometry Code + (2) Grade Code

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

DC	 a_e = 0,2 x DC APMX = 0,1 x DC	 APMX = 0,05 x DC
	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 BALL NOSE

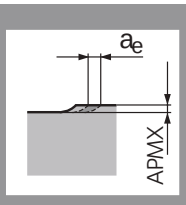
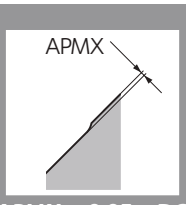


(1) Geometry code	(2) Grade code Reference Referência Referencia	NOF	N PCD D6 PDP410	Dimensions | Dimensões | Dimensiones (mm) DC	DCONMS	OAL	LU	APMX	RE
1180079	DBNS 1 030 050 150 060	1	⏣	3	3	60	30	5	1,50
1180080	DBNS 1 040 100 200 040	1	⏣	4	4	60	30	10	2,00
1180081	DBNS 2 060 100 300 060	2	⏣	6	6	80	40	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

DC	 a_e = 0,2 x DC APMX = 0,1 x DC	 APMX = 0,05 x DC
	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.

CHOOSE BY

MATERIAL

A high-performance solid carbide end mills designed for specific workpiece materials, offering improved productivity, extended tool life, and providing high process security for demanding parts production in industries such as aerospace, automotive, mold and die, and power generation.

Fresas de metal duro integral de alto desempenho projetadas para materiais de peças específicas, oferecendo produtividade aprimorada, vida útil estendida e alta segurança de processo para produção de peças exigentes em indústrias como aeroespacial, automóvel, moldes e matrizes e geração de energia.

Fresas de carburo integral de alto rendimiento diseñadas para materiales específicos de piezas, ofreciendo productividad mejorada, vida útil prolongada y alta seguridad del proceso para la producción de piezas exigentes en industrias como aeroespacial, automotriz, moldes y matrices, y generación de energía.

NEW

STEEL INTEG > page 323

- Steel specialized end mills
  Fresas especiais para aço | Fresas especiales para acero
- From DC 2mm to 25mm
  De DC 2mm a 25mm | Desde DC 2mm hasta 25mm
- Chamfer or radius geometry
  Dísponivel com geometria em chanfro ou raio | Disponible con geometría en chaflán o radio
- Short and long version
  Disponível em versão curta e longa | Disponible en versión corta y larga

NEW

INOX INTEG > page 326

- Stainless steel specialized end mills
  Fresas especiais para aço inox | Fresas especiales para acero inoxidable
- From DC 2mm to 20mm
  De DC 2mm a 20mm | Desde DC 2mm hasta 20mm
- Chamfer or radius geometry
  Dísponivel com geometria em chanfro ou raio | Disponible con geometría en chaflán o radio
- Short version
  Disponível em versão curta | Disponible en versión corta

NEW

AL INTEG > page 329

- Aluminium specialized end mills
  Fresas especiais para alumínio | Fresas especiales para aluminio
- From DC 2mm to 20mm
  De DC 2mm a 20mm | Desde DC 2mm hasta 20mm
- Chamfer, radius, ball nose or flat top geometry
  Dísponivel com geometria em chanfro, raio, topo redondo ou topo raso | Disponible con geometría en chaflán, radio, topo redondeado o plano
- Short version
  Disponível em versão curta | Disponible en versión corta

HARD INTEG > page 334

- Hardened steel specialized end mills
  Fresas especiais para aço | Fresas especiales para acero
- From DC 2mm to 12mm
  De DC 2mm a 12mm | Desde DC 2mm hasta 12mm
- Ball nose or flat top geometry
  Dísponivel com geometria redonda ou topo raso | Disponible con geometría redondeada o plano
- Short and long version
  Disponível em versão curta e longa | Disponible en versión corta y larga

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

Integral Solid Carbide example:

H	C	35	-	P	S	4	090	22	XR100	90	-	W
1	2	3	4	5	6	7	8	9	10	11		12

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
XR - Special Radius
RO - Rougher

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

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

4 - Machining Method (Suppressed when it doesn't exist)

HF - High Feed
HP - High Performance
TS - Trochoidal miling

5 - Application

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

6 - Length of Shank

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

7 - Flutes number (NOF)

Example: NOF = 1 ; NOF = 2 ; NOF = 3

8 - Cutting diameter (DC)

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

9 - Max cutting depth (APMX)

Example for APMX ≥ 1 mm: 04 = 4 mm ; 06 = 6 mm
Example for APMX < 1 mm: 002 = 0,2 mm ; 005 = 0,5 mm

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

Example for corner radius: R150 = 1,5 mm ; R015 = 0,15 mm
Example for special radius : XR100 = 1,0 mm
Example for conical segment: 18RM120 - α/2 = 18° , RM = 1200 mm
Example for tangential segment: RM090 - RM = 90 mm

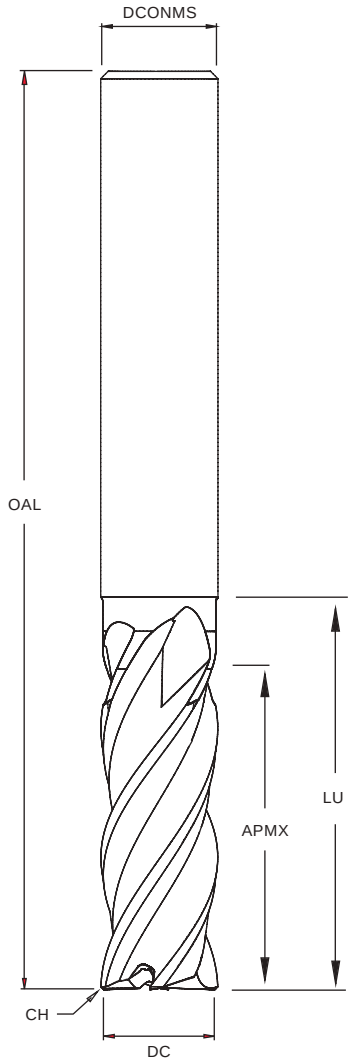
11 - Angle (Only for chamfering end mills)

Example: 90 = 90°

12 - Shank (Suppressed when cylindrical)

W - Weldon

Integral Solid Carbide technical drawing example



SELECTION GUIDE FOR SOLID CARBIDE END MILLS

Guia de seleção para fresas de metal duro integral | Guía para fresas en carburo monobloque

	DC	NOF	HELIX ANGLE	GEOMETRY	FINISHING	ROUGHING	MATERIAL	DESCRIPTION	PAGE
STEEL INTEG HC35PS NEW	2-25	4	35° 38°	Corner chamfer	■■□□□	■■■■■	P K	Steel Specialized End mills	A-323
STEEL INTEG HC35ML	1-20	4	35° 38°	Corner chamfer	■■□□□	■■■■□	P K		A-324
STEEL INTEG HR35GL	12-20	4	35° 38°	Corner radius	■■□□□	■■■■□	P M K S		A-325
INOX INTEG HR37SS NEW	2-20	4	38° 39°	Corner radius	■■□□□	■■■■□	M	Stainless Steel Specialized End mills	A-326
INOX INTEG HC40SS	3-20	4	40° 41°	Corner chamfer	■■■□□	■■■■□	M		A-327
INOX INTEG HRO40SS	3-20	4	39° 41°	Corner chamfer	■□□□□	■■■■■	M		A-328

SELECTION GUIDE FOR SOLID CARBIDE END MILLS

Guia de seleção para fresas de metal duro integral | Guía para fresas en carburo monobloque

	DC	NOF	HELIX ANGLE	GEOMETRY	FINISHING	ROUGHING	MATERIAL	DESCRIPTION	PAGE
AL INTEG HR35HPAS NEW	2-20	3	35°	Corner radius	■■■□□	■■■■□	N	Aluminium Specialized End mills	A-329
AL INTEG HF45HPAS NEW	2-20	3	45°	Square	■■■■□	■■■□□	N		A-330
AL INTEG HB50HPAS NEW	2-20	2	50°	Ball nose	■■■■■	■■■□□	N		A-331
AL INTEG HC38AS	3-20	3	38°	Corner chamfer	■■■□□	■■■□□	N		A-332
AL INTEG HF30AS	2-12	1	30°	Square	■■■□□	■■■■□	N		A-333
HARD INTEG HF30HL	4-12	4	30°	Square	■■■□□	■■■□□	H	Hardened Materials Specialized End mills	A-334
HARD INTEG HB30HL	2-12	2	30°	Ball nose	■■■□□	■■■□□	H		A-335

palbit

STEEL INTEG Steel Specialized End mills

NEW HC35PS Corner chamfer

P K

45°
Corner chamfer

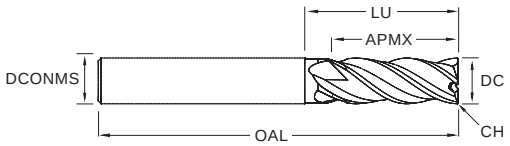
Variable helix
35° | 38°

Short

Reduced
neck

Variable Pitch
4

< 48 HRC



[1] Order code		[2] Grade code		2A	Dimensions | Dimensões | Dimensiones (mm)						
HA (Cylindrical)	HB (Weldon)	Reference Referência Referencia	NOF	PHU910	DC	DCONMS	APMX	CHW	KCH	LU	OAL
1182241	1182240	HC35PS 4 020 05	4	◈	2	6	5	0,08	45º	8	57
1182242	1181829	HC35PS 4 030 08	4	◈	3	6	8	0,1	45º	12	57
1182243	1181749	HC35PS 4 040 08	4	◈	4	6	8	0,1	45º	12	57
1182244	1181750	HC35PS 4 050 10	4	◈	5	6	10	0,15	45º	15	57
1182245	1181751	HC35PS 4 060 13	4	◈	6	6	13	0,2	45º	21	57
1182246	1181834	HC35PS 4 070 19	4	◈	7	8	19	0,2	45º	27	63
1182247	1181752	HC35PS 4 080 19	4	◈	8	8	19	0,2	45º	27	63
1182248	1181830	HC35PS 4 090 22	4	◈	9	10	22	0,2	45º	32	72
1182249	1181753	HC35PS 4 100 22	4	◈	10	10	22	0,2	45º	32	72
1182250	1181831	HC35PS 4 110 26	4	○	11	12	26	0,2	45º	38	83
1182180	1181828	HC35PS 4 120 26	4	◈	12	12	26	0,2	45º	38	83
1182251	1181832	HC35PS 4 130 26	4	○	13	14	26	0,3	45º	38	83
1182252	1181754	HC35PS 4 140 26	4	◈	14	14	26	0,3	45º	38	83
1182253	1181755	HC35PS 4 160 32	4	◈	16	16	32	0,3	45º	44	92
1182254	1181756	HC35PS 4 180 32	4	◈	18	18	32	0,3	45º	44	92
1182255	1181757	HC35PS 4 200 38	4	◈	20	20	38	0,3	45º	50	104
1182256	1181833	HC35PS 4 250 42	4	○	25	25	42	0,3	45º	56	121

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

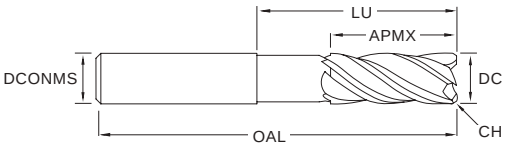
End mill order code = (1) Geometry Code + (2) Grade Code

Note: For HB (Weldon) end mills, the reference ends with "-W "
Example: "HC35PS 4 030 08-W"

STEEL INTEG Steel Specialized End mills

HC35ML Corner chamfer

P K



(1) Order code		(2) Grade code		T1	Dimensions | Dimensões | Dimensiones (mm)						
HA (Cylindrical)	HB (Weldon)	Reference Referência Referencia	NOF	PHP920	DC	DCONMS	APMX	CHW	KCH	LU	OAL
1180480	-	HF35ML 4 010 03	4	○	1	6	2,5	-		5	57
1180482	1180483	HC35ML 4 020 05	4	⊛	2	6	5	0,07	45°	10	57
1180466	1180467	HC35ML 4 030 08	4	⊛	3	6	8	0,15	45°	15	57
1180137	1180468	HC35ML 4 040 11	4	⊛	4	6	11	0,15	45°	17	57
1180469	1180521	HC35ML 4 050 13	4	⊛	5	6	13	0,15	45°	19	57
1180138	1180470	HC35ML 4 060 13	4	⊛	6	6	13	0,15	45°	21	57
1180052	1180471	HC35ML 4 080 19	4	⊛	8	8	19	0,15	45°	27	63
1180053	1180472	HC35ML 4 100 22	4	⊛	10	10	22	0,20	45°	32	72
1180139	1180473	HC35ML 4 120 26	4	⊛	12	12	26	0,20	45°	38	83
1180474	1180475	HC35ML 4 140 26	4	⊛	14	14	26	0,25	45°	38	83
1180153	1180476	HC35ML 4 160 32	4	⊛	16	16	32	0,35	45°	44	92
1180477	1180478	HC35ML 4 180 32	4	⊛	18	18	32	0,45	45°	44	92
1180140	1180479	HC35ML 4 200 38	4	⊛	20	20	38	0,60	45°	54	104

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

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

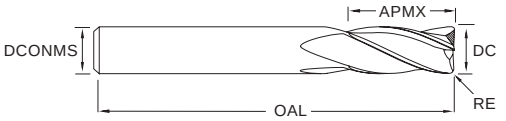
Note: For HB (Weldon) end mills, the reference ends with "-W "
Example: "HC35ML 4 030 08-W"

STEEL INTEG Steel Specialized End mills

HR35GL Corner radius

P K

Corner radius | Variable helix 35° | 38° | Long | Reduced neck | 4 | < 52 HRC



All order codes are cylindrical shank,
Weldon shank available under request.

(1) Geometry code	(2) Grade code		T1	Dimensions | Dimensões | Dimensiones (mm)				
	Reference Referência Referencia	NOF	PHP920	DC	DCONMS	APMX	RE	OAL
1180042	HR35GL 4 120 26 R100	4	◎	12	12	26	1	81
1180043	HR35GL 4 120 26 R200	4	◎	12	12	26	2	81
1180044	HR35GL 4 120 26 R300	4	◎	12	12	26	3	81
1180187	HR35GL 4 160 24 R100	4	◎	16	16	24	1	100
1180188	HR35GL 4 160 24 R200	4	◎	16	16	24	2	100
1180189	HR35GL 4 200 40 R100	4	◎	20	20	40	1	100
1180190	HR35GL 4 200 40 R200	4	◎	20	20	40	2	100

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

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

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

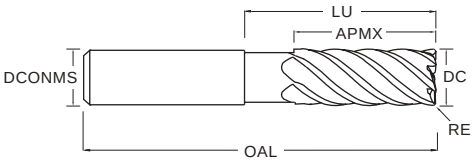
ISO	Material	f_z (mm/t)			Vc (m/min)		
		a_e = 25%	a_e = 40%	a_e = 100%	a_e = 25%	a_e = 40%	a_e = 100%
P	Unalloyed Steel	0,008 x DC	0,005 x DC	0,004 x DC	190	180	150
	Low-Alloyed Steel	0,007 x DC	0,004 x DC	0,003 x DC	180	160	130
	High-Alloyed Steel	0,006 x DC	0,004 x DC	0,003 x DC	160	150	120
K	Malleable Cast Iron	0,008 x DC	0,005 x DC	0,004 x DC	230	210	180
	Grey Cast Iron	0,008 x DC	0,005 x DC	0,004 x DC	230	210	170
	Nodular Cast Iron	0,008 x DC	0,004 x DC	0,004 x DC	210	190	160

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%.

INOX INTEG Stainless Steel Specialized End mills

NEW HR37SS Corner radius

M



(1) Order code		(2) Grade code		1F	Dimensions | Dimensões | Dimensiones (mm)					
HA (Cylindrical)	HB (Weldon)	Reference Referência Referencia	NOF	PHF920	DC	DCONMS	APMX	RE	LU	OAL
-	1182351	HR37SS 4 020 05 R020-W	4	◎	2	6	5	0,2	11	57
-	1182352	HR37SS 4 030 08 R020-W	4	◎	3	6	8	0,2	16	57
-	1182353	HR37SS 4 040 08 R020-W	4	◎	4	6	8	0,2	19	57
-	1182354	HR37SS 4 050 10 R020-W	4	◎	5	6	10	0,2	21	57
-	1182355	HR37SS 4 060 13 R030-W	4	◎	6	6	13	0,3	23	57
-	1182356	HR37SS 4 080 19 R050-W	4	◎	8	8	19	0,5	31	63
-	1181510	HR37SS 4 100 22 R050-W	4	◎	10	10	22	0,5	33	72
-	1182357	HR37SS 4 120 26 R100-W	4	◎	12	12	26	1,0	37	83
-	1182358	HR37SS 4 160 32 R100-W	4	◎	16	16	32	1,0	44	92
-	1182359	HR37SS 4 200 38 R100-W	4	◎	20	20	38	1,0	55	104

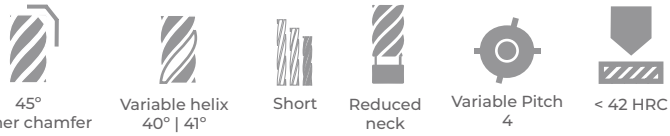
◎ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

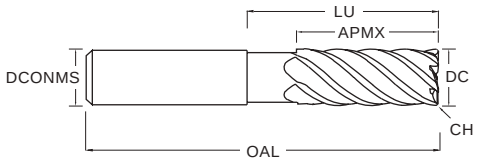
End mill order code = (1) Geometry Code + (2) Grade Code

INOX INTEG Stainless Steel Specialized End mills

HC40SS Corner chamfer

M





(1) Order code		(2) Grade code		Z9	Dimensions | Dimensões | Dimensiones (mm)						
HA (Cylindrical)	HB (Weldon)	Reference Referência Referencia	NOF	PHU920	DC	DCONMS	APMX	CHW	KCH	LU	OAL
1180484	1180485	HF40SS 4 010 03	4	◎	1	6	2,5	-	-	5	57
1180380	1180487	HF40SS 4 020 05	4	◎	2	6	5	-	-	10	57
1180381	1180488	HC40SS 4 030 08	4	◎	3	6	8	0,15	45°	15	57
1180382	1180489	HC40SS 4 040 11	4	◎	4	6	11	0,15	45°	17	57
1180383	1180490	HC40SS 4 050 13	4	◎	5	6	13	0,15	45°	19	57
1180384	1180389	HC40SS 4 060 13	4	◎	6	6	13	0,15	45°	21	57
1180329	1180491	HC40SS 4 080 19	4	◎	8	8	19	0,15	45°	27	63
1180385	1180492	HC40SS 4 100 22	4	◎	10	10	22	0,20	45°	32	72
1180386	1180493	HC40SS 4 120 26	4	◎	12	12	26	0,20	45°	38	83
1180436	1180494	HC40SS 4 140 26	4	◎	14	14	26	0,25	45°	38	83
1180387	1180390	HC40SS 4 160 32	4	◎	16	16	32	0,35	45°	44	92
1180555	1180556	HC40SS 4 180 32	4	◎	18	18	32	0,45	45°	44	92
1180388	1180455	HC40SS 4 200 38	4	◎	20	20	38	0,60	45°	54	104

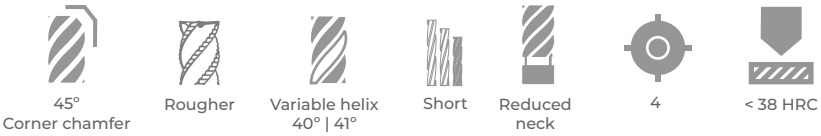
◎ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

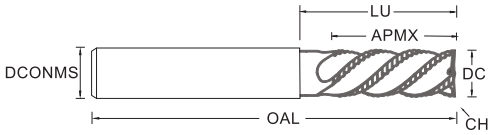
End mill order code = (1) Geometry Code + (2) Grade Code

INOX INTEG Stainless Steel Specialized End mills

HRO40SS Rougher

M





(1) Order code		(2) Grade code		Z9	Dimensions | Dimensões | Dimensiones (mm)						
HA (Cylindrical)	HB (Weldon)	Reference Referência Referencia	NOF	PHU920	DC	DCONMS	APMX	CHW	KCH	LU	OAL
1180701	1180702	HRO40SS 4 030 08	4	◎	3	6	8	0,15	45°	24	57
1180445	1180392	HRO40SS 4 040 11	4	◎	4	6	11	0,15	45°	17	57
1180446	1180393	HRO40SS 4 050 13	4	◎	5	6	13	0,15	45°	19	57
1180447	1180394	HRO40SS 4 060 13	4	◎	6	6	13	0,15	45°	21	57
1180448	1180395	HRO40SS 4 080 19	4	◎	8	8	19	0,15	45°	27	63
1180391	1180396	HRO40SS 4 100 22	4	◎	10	10	22	0,20	45°	32	72
1180449	1180397	HRO40SS 4 120 26	4	◎	12	12	26	0,20	45°	38	83
1180450	1180398	HRO40SS 4 140 26	4	◎	14	14	26	0,25	45°	38	83
1180451	1180399	HRO40SS 4 160 32	4	◎	16	16	32	0,35	45°	44	92
1180452	1180400	HRO40SS 4 180 32	4	◎	18	18	32	0,45	45°	44	92
1180453	1180454	HRO40SS 4 200 38	4	◎	20	20	38	0,60	45°	54	104

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

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

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

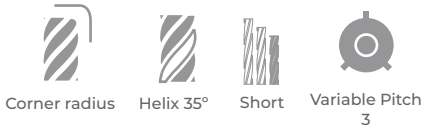
ISO	Material	f_z (mm/t)			Vc (m/min)		
		a_e = 25%	a_e = 40%	a_e = 100%	a_e = 25%	a_e = 40%	a_e = 100%
M	SS - Ferritic / Martensitic	0,006 x DC	0,005 x DC	0,004 x DC	140	130	110
	SS – Austenitic	0,006 x DC	0,005 x DC	0,003 x DC	130	120	110
	SS - Austenitic-ferritic (Duplex)	0,005 x DC	0,004 x DC	0,003 x DC	120	110	100

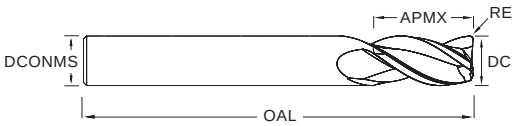
Note[1]: Feed valid for when the end mill works with its whole ap, for when the end mill is working with lower depths of cut consider increasing the feed up to 25%.
Note[2]: Cutting speeds selected for an economic use of the tool, for higher productivity consider increasing up to 70%.

AL INTEG Aluminium Specialized End mills

NEW HR35HPAS Corner radius

N





(1) Order code		(2) Grade code		H3	Dimensions | Dimensões | Dimensiones (mm)				
HA (Cylindrical)	HB (Weldon)	Reference Referência Referencia	NOF	PHT910	DC	APMX	RE	DCONMS	OAL
1182443	-	HR35HPAS 3 020 04 R050	3	○	2	4	0,5	6	57
1182444	-	HR35HPAS 3 030 06 R050	3	◈	3	6	0,5	6	57
1182445	-	HR35HPAS 3 040 08 R050	3	◈	4	8	0,5	6	57
1182446	-	HR35HPAS 3 050 10 R050	3	○	5	10	0,5	6	57
1182182	-	HR35HPAS 3 060 13 R050	3	◈	6	13	0,5	6	57
1181710	-	HR35HPAS 3 080 19 R050	3	◈	8	19	0,5	8	63
1182183	-	HR35HPAS 3 100 22 R050	3	◈	10	22	0,5	10	72
1182184	-	HR35HPAS 3 120 26 R050	3	◈	12	26	0,5	12	83
1182447	-	HR35HPAS 3 140 28 R050	3	○	14	28	0,5	14	83
1182292	-	HR35HPAS 3 160 32 R050	3	◈	16	32	0,5	16	92
1182448	-	HR35HPAS 3 180 36 R050	3	○	18	36	0,5	18	92
1182449	-	HR35HPAS 3 200 40 R050	3	◈	20	40	0,5	20	104

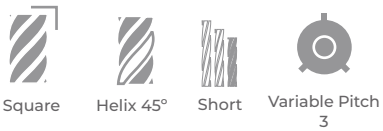
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

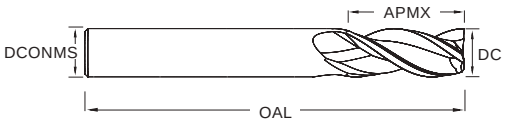
End mill order code = (1) Geometry Code + (2) Grade Code

AL INTEG Aluminium Specialized End mills

NEW HF45HPAS Flat top

N





(1) Order code		(2) Grade code		H3	Dimensions | Dimensões | Dimensiones (mm)			
HA (Cylindrical)	HB (Weldon)	Reference Referência Referencia	NOF	PHT910	DC	APMX	DCONMS	OAL
1182450	-	HF45HPAS 3 020 04	3	●	2	4	6	57
1182451	-	HF45HPAS 3 030 06	3	●	3	6	6	57
1182333	-	HF45HPAS 3 040 08	3	●	4	8	6	57
1182452	-	HF45HPAS 3 050 08	3	●	5	10	6	57
1182334	-	HF45HPAS 3 060 13	3	●	6	13	6	57
1182335	-	HF45HPAS 3 080 19	3	●	8	19	8	63
1182336	-	HF45HPAS 3 100 22	3	●	10	22	10	72
1182337	-	HF45HPAS 3 120 26	3	●	12	26	12	83
1182453	-	HF45HPAS 3 140 28	3	○	14	28	14	83
1182338	-	HF45HPAS 3 160 32	3	●	16	32	16	92
1182454	-	HF45HPAS 3 180 36	3	○	18	36	18	92
1182455	-	HF45HPAS 3 200 40	3	●	20	40	20	104

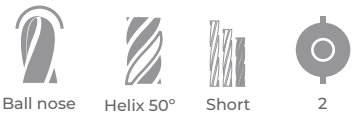
● Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

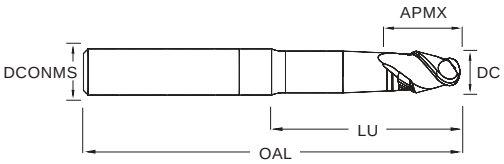
End mill order code = (1) Geometry Code + (2) Grade Code

AL INTEG Aluminium Specialized End mills

NEW HB50HPAS Ball nose

N





(1) Order code		(2) Grade code		H3	Dimensions | Dimensões | Dimensiones (mm)				
HA (Cylindrical)	HB (Weldon)	Reference Referência Referencia	NOF	PHT910	DC	APMX	DCONMS	LU	OAL
1182456	-	HB50HPAS 2 020 02	2	◈	2	2	6	10	57
1182457	-	HB50HPAS 2 030 03	2	○	3	3	6	12	57
1182339	-	HB50HPAS 2 040 04	2	◈	4	4	6	20	57
1182458	-	HB50HPAS 2 050 05	2	○	5	5	6	25	57
1182340	-	HB50HPAS 2 060 06	2	◈	6	6	6	25	57
1182341	-	HB50HPAS 2 080 08	2	◈	8	8	8	30	63
1182342	-	HB50HPAS 2 100 10	2	◈	10	10	10	35	72
1182343	-	HB50HPAS 2 120 12	2	◈	12	12	12	40	83
1182459	-	HB50HPAS 2 140 14	2	○	14	14	14	40	83
1182460	-	HB50HPAS 2 160 16	2	○	16	16	16	50	92
1182461	-	HB50HPAS 2 180 18	2	○	18	18	18	50	92
1182462	-	HB50HPAS 2 200 20	2	○	20	20	20	50	104

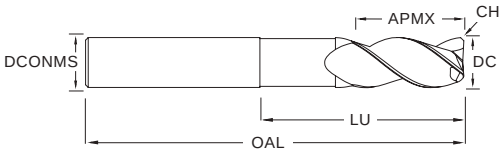
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

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

AL INTEG Aluminium Specialized End mills

HC38AS Corner chamfer

N



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

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

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

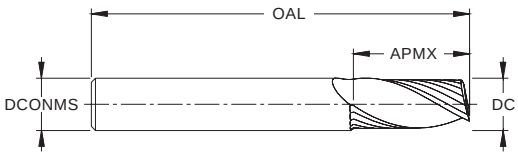
Note: For HB (Weldon) end mills, the reference ends with "-W "
Example: "HC38AS 3 030 07-W PH0920"

AL INTEG Aluminium Specialized End mills

HF30AS Single flute

All order codes are cylindrical shank,
Weldon shank available under request.

N



(1) Geometry code	(2) Grade code Reference Referência Referencia	NOF	12 PH0920	Dimensions | Dimensões | Dimensiones (mm) DC	DCONMS	APMX	OAL
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

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

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

ISO	Material	f_z (mm/t) a_e = 25%	a_e = 40%	a_e = 100%	Vc (m/min) a_e = 25%	a_e = 40%	a_e = 100%
N	Aluminium <6%Si	0,011 x DC	0,009 x DC	0,006 x DC	230	220	190
	Aluminium <12%Si	0,009 x DC	0,008 x DC	0,005 x DC	210	200	180
	Aluminium >12%Si	0,008 x DC	0,007 x DC	0,005 x DC	200	190	170

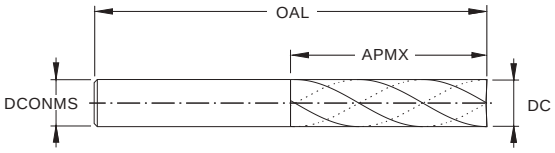
Note[1]: Recommended feed values for maximum a_p. For reduced a_p, consider increasing f_z up to 25%.
Note[2]: Cutting speeds selected for an economic use of the tool, for higher productivity consider increasing up to 70%.

HARD INTEG Hardened Materials Specialized End mills

HF30HL Flat top

All order codes are cylindrical shank,
Weldon shank available under request.

H



(1) Geometry code	(2) Grade code Reference Referência Referencia	NOF	X4 PHH603	Dimensions | Dimensões | Dimensiones (mm) DC	DCONSMS	APMX	OAL
1180112	HF30HL 4 040 20	4	●	4	6	20	75
1180358	HF30HL 4 050 20	4	●	5	6	20	75
1180196	HF30HL 4 060 30	4	●	6	6	30	75
1180113	HF30HL 4 080 35	4	●	8	8	35	100
1180359	HF30HL 4 100 40	4	●	10	10	40	100
1180111	HF30HL 4 120 50	4	●	12	12	50	100

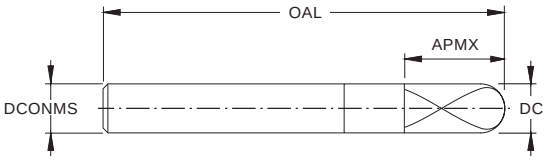
● Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

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

HARD INTEG Hardened Materials Specialized End mills

HB30HL Ball nose

H



All order codes are cylindrical shank,
Weldon shank available under request.

	(2) Grade code		X4	Dimensions | Dimensões | Dimensiones (mm)			
(1) Geometry code	Reference Referência Referencia	NOF	PHH03	DC	DCONMS	APMX	OAL
1180356	HB30HL 2 020 04	2	◎	2	6	4	75
1180357	HB30HL 2 030 06	2	◎	3	6	6	75
1180093	HB30HL 2 040 08	2	◎	4	6	8	75
1180109	HB30HL 2 050 10	2	◎	5	6	10	75
1180130	HB30HL 2 060 12	2	◎	6	6	12	75
1180131	HB30HL 2 080 16	2	◎	8	8	16	75
1180132	HB30HL 2 100 20	2	◎	10	10	20	100
1180141	HB30HL 2 120 24	2	◎	12	12	24	100

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

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

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

ISO	Material	f_z (mm/t)		Vc (m/min)	
		ae = 10%	ae = 30%	ae = 10%	ae = 30%
H	Hardened Steels	0,006 x DC	0,005 x DC	120	110

CHOOSE BY

APPLICATION

Exceptional performance solid carbide end mills designed for specific applications. The high quality is a direct outcome of specialized end mill geometry for each type of application, including optimized flute design, specialized edge honing, and wear-resistant coatings.

Fresas de metal duro integral de alto desempenho projetadas para aplicações específicas. A alta qualidade é resultado direto da geometria especializada da fresa para cada tipo de aplicação, incluindo design de flutes otimizado, afiação de aresta especializada e revestimentos resistentes ao desgaste.

Fresas de carburo integral de alto rendimiento diseñadas para aplicaciones específicas. La alta calidad es el resultado directo de la geometría especializada de la fresa para cada tipo de aplicación, incluido el diseño optimizado de las ranuras, el afilado especializado de los bordes y los recubrimientos resistentes al desgaste.

HIFEED INTEG > page 340

> High feed milling
Fresagem de alto avanço | Fresado de alta avance

> Special radius roughing end mills
Fresas especiais de raio para desbaste | Fresas especiales de radio para desbaste

NEW

DYN INTEG > page 342

> Trochoidal milling
Fresagem trocoidal | Fresado trocoidal

> For steel, stainless steel and superalloys aplications
Para aço, aço inoxidável e aplicações em superligas | Para acero, acero inoxidable y aplicaciones en superaleaciones

NEW

RAD INTEG > page 344

> 5-Axis milling
Fresagem a 5 eixos | Fresado de 5 ejes

> Conical or tangential end mills
Fresas cónicas e tangenciais | Fresas cónicas ou tangenciais

FIN INTEG > page 346

> Finishing milling
Dresagem de acabamento | Fresado de acabado

> Long end mill with corner chamfer
Fresas longas com chanfro nos cantos | Fresa larga con chaflán en las esquinas

MIN INTEG > page 348

> Micro milling
Microfresagem | Microfresado

> Ball nose end mills
Fresas de topo redondo | Fresas de topo redondeado

CHAMF INTEG > page 351

> Chamfer Milling
Fresagem de chanfro | Fresado de chaflán

> 45º chamfers
Chanfros a 45º | Chaflanes a 45º

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

Integral Solid Carbide example:

H	C	40	TS	P	L	5	120	41	XR100	90	-	W
1	2	3	4	5	6	7	8	9	10	11		12

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
XR - Special Radius
RO - Rougher

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

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

4 - Machining Method (Suppressed when it doesn't exist)

HF - High Feed
TS - Trochoidal miling
HP - High Performance

5 - Application

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

6 - Length of Shank

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

7 - Flutes number (NOF)

Example: NOF = 1 ; NOF = 2 ; NOF = 3

8 - Cutting diameter (DC)

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

9 - Max cutting depth (APMX)

Example for APMX ≥ 1 mm: 04 = 4 mm ; 06 = 6 mm
Example for APMX < 1 mm: 002 = 0,2 mm ; 005 = 0,5 mm

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

Example for corner radius: R150 = 1,5 mm ; R015 = 0,15 mm
Example for special radius : XR100 = 1,0 mm
Example for conical segment: 18RM120 - α/2 = 18° , RM = 1200 mm
Example for tangential segment: RM090 - RM = 90 mm

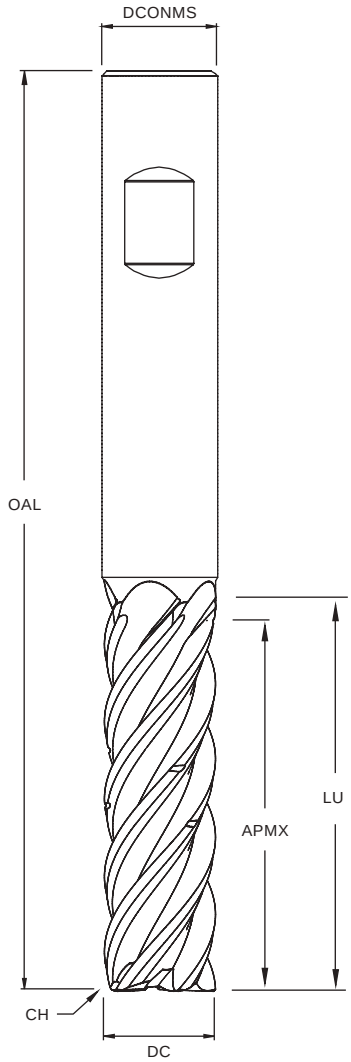
11 - Angle (Only for chamfering end mills)

Example: 90 = 90°

12 - Shank (Suppressed when cylindrical)

W - Weldon

Integral Solid Carbide technical drawing example



SELECTION GUIDE FOR SOLID CARBIDE END MILLS

Guia de seleção para fresas de metal duro integral | Guía para fresas en carburo monobloque

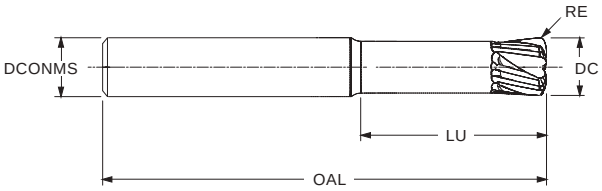
	DC	NOF	HELIX ANGLE	GEOMETRY	FINISHING	ROUGHING	MATERIAL	DESCRIPTION	PAGE
HIFEED INTEG HXR30HFGS NEW	3-12	4-5	-	Special radius	■□□□□	■■■■■	P M K S H	Special radius Roughing End mills	A-340
DYN INTEG HR38TSM NEW	6-20	5	38°	Corner radius	■■■□□	■■■■□	M S	Trochoidal Milling	A-342
DYN INTEG HC40TSP	6-20	5	40° 41° 42°	Corner chamfer	■■■□□	■■■■□	P K		A-343
RAD INTEG HXC30GL	8-16	4	30°	Radial segment	■■■■■	■□□□□	P M K S	Radial Segment End mills	A-344
RAD INTEG HXT30GL	6-16	4	30°	Radial segment	■■■■■	■□□□□	P M K S		A-344
FIN INTEG HC45FL	3-20	6	43° 45°	Corner chamfer	■■■■■	■□□□□	P M K H	Finishing End mills	A-346
MIN INTEG HB30MINS	0,4-3,3,0	2	30°	Ball nose	■■■■■	■□□□□	P M K S H	Micro Machining End mills	A-348
CHAMF INTEG HCHGS	3-20	4	0°	Conical Top	■■■□□	■■■□□	P M K	Chamferings End mills	A-351

HIFEED INTEG High Feed End mills

NEW HXR30HFGS Special radius roughing

P | M | K | S | H

Special radius | Short | 4 - 5 | < 60 HRC



All order codes are cylindrical shank,
Weldon shank available under request.

	(2) Grade code		2A	Dimensions | Dimensões | Dimensiones (mm)						
(1) Geometry code	Reference Referência Referencia	NOF	PHU910	DC	DCONMS	APMX	RE	PR*	LU	OAL
1181449	HXR30HFGS 4 030 002 XR020	4	◎	3	6	0,20	0,20	0,40	9	63
1181450	HXR30HFGS 4 040 003 XR030	4	◎	4	6	0,30	0,30	0,50	12	63
1181451	HXR30HFGS 4 050 003 XR040	4	◎	5	6	0,30	0,40	0,60	15	63
1181452	HXR30HFGS 4 060 004 XR050	4	◎	6	6	0,40	0,50	0,80	24	63
1181453	HXR30HFGS 5 080 004 XR060	5	◎	8	8	0,40	0,60	0,90	32	75
1181430	HXR30HFGS 5 100 005 XR080	5	◎	10	10	0,50	0,80	1,20	32	75
1181454	HXR30HFGS 5 120 005 XR100	5	◎	12	12	0,50	1,00	1,40	36	83

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

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

*Programming radius

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

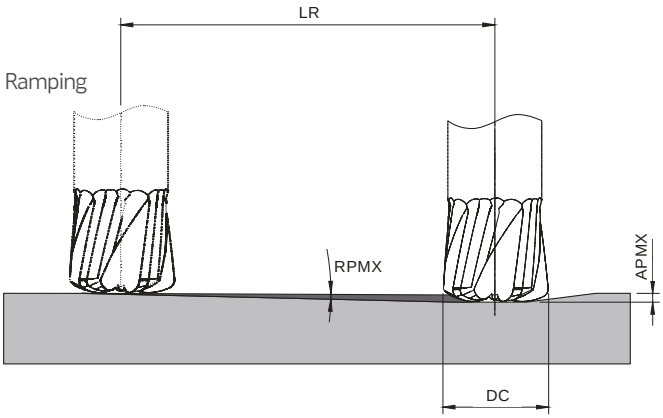
ISO	Workpiece Material	f_z (mm/t)			v_c (m/min)			Plunging	
		a_e = 25%	a_e = 50%	a_e = 100%	a_e = 25%	a_e = 50%	a_e = 100%	f_z (mm/t)	v_c (m/min)
P	Unalloyed Steel	0,044 x DC	0,038 x DC	0,023 x DC	300	280	270	0,004 x DC	160
	Low-Alloyed Steel	0,044 x DC	0,038 x DC	0,023 x DC	280	250	230	0,004 x DC	140
	High-Alloyed Steel	0,040 x DC	0,036 x DC	0,020 x DC	200	180	150	0,004 x DC	120
M	Stainless Steel (Ferritic / Martensitic)	0,035 x DC	0,035 x DC	0,018 x DC	180	160	150	0,003 x DC	110
	Stainless Steel (Austenitic)	0,035 x DC	0,033 x DC	0,018 x DC	120	110	100	0,003 x DC	100
	Stainless Steel (Austenitic/Ferritic/Duplex)	0,033 x DC	0,031 x DC	0,018 x DC	80	70	60	0,003 x DC	60
K	Malleable Cast Iron	0,034 x DC	0,032 x DC	0,021 x DC	170	150	130	0,003 x DC	110
	Grey Cast Iron	0,035 x DC	0,035 x DC	0,021 x DC	220	200	180	0,003 x DC	120
	Nodular Cast Iron	0,034 x DC	0,032 x DC	0,021 x DC	160	140	120	0,003 x DC	110
S	Heat Resistant Super Alloys	0,022 x DC	0,017 x DC	0,014 x DC	40	35	30	0,002 x DC	30
H	Hardened Steels	0,026 x DC	0,021 x DC	0,014 x DC	90	85	70	0,002 x DC	70

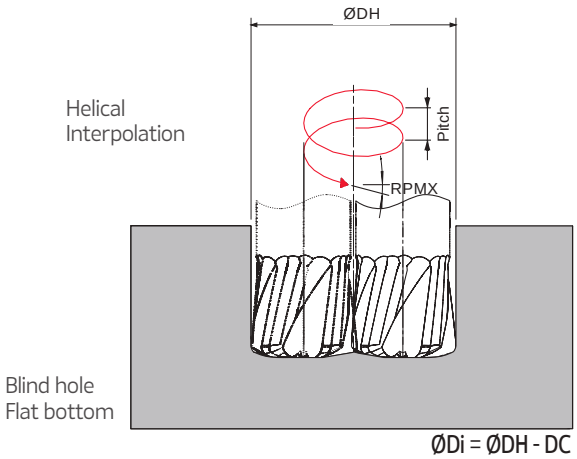
Note: Plunge Depth = 2 x DC
Ae Stepover = 0,2 x DC

HIFEED INTEG High Feed End mills

RAMPING AND HELICAL INTERPOLATION

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





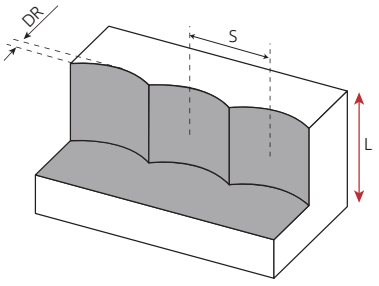
ØDi = ØDH - DC

DC	Ramping			Helical Interpolation			Max Angle (°)
	RPMX	APMX	Min LR	ØDHmin	ØDHmax	Max Pitch/Rev.	
3	1,5	0,2	7,6	4,0 -	- 6,0	0,07 0,20	1,5 1,5
4	1,5	0,3	11,5	5,3 -	- 8,0	0,10 0,30	1,5 1,3
5	1,5	0,3	11,5	6,7 -	- 10,0	0,10 0,30	1,5 1,0
6	1,5	0,4	15,3	8,0 -	- 12,0	0,15 0,40	1,5 1,2
8	1,5	0,4	15,3	10,7 -	- 16,0	0,20 0,40	1,5 0,9
10	1,5	0,5	19,1	13,3 -	- 20,0	0,25 0,50	1,5 0,9
12	1,5	0,5	19,1	16,0 -	- 24,0	0,30 0,50	1,5 0,7

Note: During helical interpolation do not exceed APMX.

PLUNGING Mergulho | Plunge

Cutting Conditions	
Vc (m/min)	fz (mm/t)
70%	35%

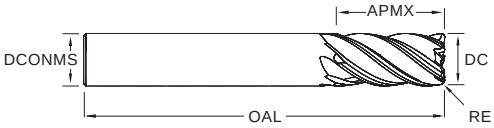


S max and DR corresponding cutting diameter DC (mm)							
DR (mm)	DC (mm)						
	3	4	5	6	8	10	12
0,5	1,1	1,3	1,5	1,7	1,9	2,2	2,4
1,0	1,4	1,7	2,0	2,2	2,6	3,0	3,3
1,5	-	-	2,3	2,6	3,1	3,6	4,0
2,0	-	-	-	-	3,5	4,0	4,5
3,0	-	-	-	-	-	4,6	5,2

DYN INTEG Trochoidal Milling

NEW HR38TSM Corner radius

M S



(1) Order code		(2) Grade code		4F	Dimensions | Dimensões | Dimensiones (mm)				
HA (Cylindrical)	HB (Weldon)	Reference Referência Referencia	NOF	PHF910	DC	DCONMS	APMX	RE	OAL
		HR38TSMS							
1182476	1182501	HR38TSMS 5 060 12 R100	5	○	6	6	12	1,00	57
1182477	1182502	HR38TSMS 5 060 12 R050	5	◈	6	6	12	0,50	57
1182478	1182503	HR38TSMS 5 080 16 R100	5	○	8	8	16	1,00	63
1182479	1182504	HR38TSMS 5 080 16 R050	5	◈	8	8	16	0,50	63
1182480	1182505	HR38TSMS 5 100 20 R100	5	◈	10	10	20	1,00	72
1182481	1182506	HR38TSMS 5 100 20 R050	5	○	10	10	20	0,50	72
1182332	1182507	HR38TSMS 5 120 24 R100	5	◈	12	12	24	1,00	83
1182482	1182508	HR38TSMS 5 120 24 R050	5	○	12	12	24	0,50	83
1182331	1182509	HR38TSMS 5 160 32 R100	5	◈	16	16	32	1,00	92
1182483	1182510	HR38TSMS 5 160 32 R200	5	○	16	16	32	2,00	92
1182484	1182511	HR38TSMS 5 180 36 R100	5	○	18	18	36	1,00	92
1182485	1182512	HR38TSMS 5 180 36 R200	5	○	18	18	36	2,00	92
1182486	1182513	HR38TSMS 5 200 40 R100	5	○	20	20	40	1,00	104
1182487	1182514	HR38TSMS 5 200 40 R200	5	○	20	20	40	2,00	104
		HR38TSML							
1182488	1182515	HR38TSML 5 060 18 R100	5	○	6	6	18	1,00	57
1182489	1182516	HR38TSML 5 060 18 R050	5	◈	6	6	18	0,50	57
1182490	1182517	HR38TSML 5 080 24 R100	5	○	8	8	24	1,00	63
1182491	1182518	HR38TSML 5 080 24 R050	5	◈	8	8	24	0,50	63
1182492	1182519	HR38TSML 5 100 30 R100	5	◈	10	10	30	1,00	72
1182493	1182520	HR38TSML 5 100 30 R050	5	◈	10	10	30	0,50	72
1182494	1182521	HR38TSML 5 120 36 R100	5	◈	12	12	36	1,00	83
1182495	1182522	HR38TSML 5 120 36 R050	5	◈	12	12	36	0,50	83
1182390	1182523	HR38TSML 5 160 48 R100	5	◈	16	16	48	1,00	100
1182496	1182524	HR38TSML 5 160 48 R200	5	○	16	16	48	2,00	100
1182497	1182525	HR38TSML 5 180 54 R100	5	○	18	18	54	1,00	104
1182498	1182526	HR38TSML 5 180 54 R200	5	○	18	18	54	2,00	104
1182499	1182527	HR38TSML 5 200 60 R100	5	○	20	20	60	1,00	110
1182500	1182528	HR38TSML 5 200 60 R200	5	○	20	20	60	2,00	110

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

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

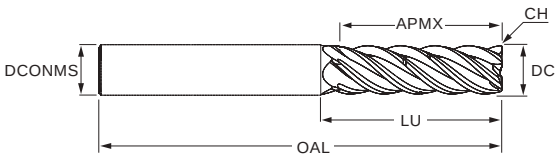
Note: For HB (Weldon) end mills, the reference ends with "-W "

Example: "HR38TSMS 5 080 16 R100-W"

DYN INTEG Trochoidal Milling

HC40TSP Corner chamfer

P K



(1) Order code		(2) Grade code		T1	Dimensions | Dimensões | Dimensiones (mm)						
HA (Cylindrical)	HB (Weldon)	Reference Referência Referencia	NOF	PHP920	DC	DCONMS	APMX	CHW	KCH	LU	OAL
				HC40TSPL							
1180118	1180456	HC40TSPL 5 060 20	5	◈	6	6	20	0,15	45°	26	63
1180119	1180457	HC40TSPL 5 080 25	5	◈	8	8	25	0,15	45°	32	70
1180225	1180458	HC40TSPL 5 100 32	5	◈	10	10	32	0,20	45°	38	79
1180690	1180689	HC40TSPL 5 120 41	5	◈	12	12	41	0,20	45°	48	100
1180226	1180460	HC40TSPL 5 160 50	5	◈	16	16	50	0,25	45°	60	110
1180123	1180461	HC40TSPL 5 180 60	5	◈	18	18	60	0,30	45°	66	130
1180462	1180463	HC40TSPL 5 200 64	5	◈	20	20	64	0,35	45°	70	130
				HC40TSPXL							
-	1180514	HC40TSPXL 5 060 30	5	◇	6	6	30	0,15	45°	36	75
1180508	1180515	HC40TSPXL 5 080 40	5	◇	8	8	40	0,15	45°	46	81
-	1180516	HC40TSPXL 5 100 50	5	◇	10	10	50	0,20	45°	59	100
-	1180517	HC40TSPXL 5 120 60	5	◇	12	12	60	0,20	45°	67	120
-	1180520	HC40TSPXL 5 200 100	5	◇	20	20	100	0,35	45°	104	162

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

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

◇ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

Note: For HB (weldon) end mills, the reference ends with "-W"

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

ISO	Workpiece Material	fz (mm/t)			Vc (m/min)		
		ae = 5,0%	ae = 15%	ae = 30%	ae = 5,0%	ae = 15%	ae = 30%
P	Unalloyed Steel	0,009 x DC	0,009 x DC	0,008 x DC	180	170	170
	Low-Alloyed Steel	0,008 x DC	0,007 x DC	0,007 x DC	160	160	150
	High-Alloyed Steel	0,007 x DC	0,007 x DC	0,006 x DC	140	140	140
M	SS - Ferritic / Martensitic	0,010xDC	0,008xDC	0,006xDC	160	150	120
	SS – Austenitic	0,009xDC	0,007xDC	0,005xDC	150	140	110
	SS - Austenitic-ferritic (Duplex)	0,008xDC	0,005xDC	0,004xDC	130	120	100
K	Malleable Cast Iron	0,009 x DC	0,009 x DC	0,008 x DC	210	210	200
	Grey Cast Iron	0,009 x DC	0,009 x DC	0,008 x DC	210	200	200
	Nodular Cast Iron	0,009 x DC	0,008 x DC	0,007 x DC	190	190	180
S	Heat Resistant Super Alloys	0,005xDC	0,004xDC	0,003xDC	80	60	40

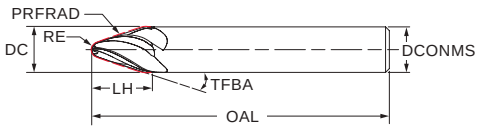
Note[1]: Feed valid for when the end mill works with its whole ap, for when the end mill is working with lower depths of cut consider increasing the feed up to 25%.
Note[2]: Cutting speeds selected for an economic use of the tool, for higher productivity consider increasing up to 70%.

RAD INTEG Conical and Tangential Segment End mills

HXC30GL Conical

P M K S

All order codes are cylindrical shank.
Weldon shank available under request.



(1) Geometry code	(2) Grade code: Reference Referência Referencia	NOF	T1 PHP920	Y3 PHH920	Dimensions | Dimensões | Dimensiones (mm) DC	DCONMS	TFBA	PRFRAD	RE	LH	OAL
1180046	HXC30GL 4 080 10 18RM030	4	◉	◉	8	8	18	300	1	10	75
1180047	HXC30GL 4 120 14 18RM045	4	◉	◉	12	12	18	450	2	14	83
1180048	HXC30GL 4 160 18 18RM120	4	◉	◉	16	16	18	1200	3	18	95
1180049	HXC30GL 4 160 12 28RM080	4	◉	◉	16	16	28	800	3	12	95
1180050	HXC30GL 4 160 16 18RM120	4	◉	◉	16	16	18	1200	4	16	110
1180051	HXC30GL 4 160 11 28RM080	4	◉	◉	16	16	28	800	4	11	110

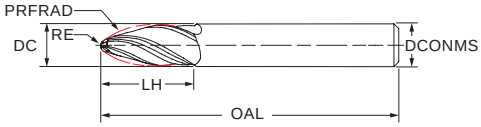
◉ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

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

HXT30GL Tangential

P M K S

All order codes are cylindrical shank.
Weldon shank available under request.



(1) Geometry code	(2) Grade code: Reference Referência Referencia	NOF	T1 PHP920	Y3 PHH920	Dimensions | Dimensões | Dimensiones (mm) DC	DCONMS	PRFRAD	RE	LH	OAL
1180045	HXT30GL 4 060 22 RM095	4	◉	◉	6	6	95	1	22	63
1180037	HXT30GL 4 080 24 RM095	4	◉	◉	8	8	95	1	24	70
1180038	HXT30GL 4 100 28 RM085	4	◉	◉	10	10	85	2	28	72
1180039	HXT30GL 4 120 28 RM090	4	◉	◉	12	12	90	2	28	83
1180691	HXT30GL 4 160 30 RM080	4	◉	◉	16	16	80	3	30	110

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

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

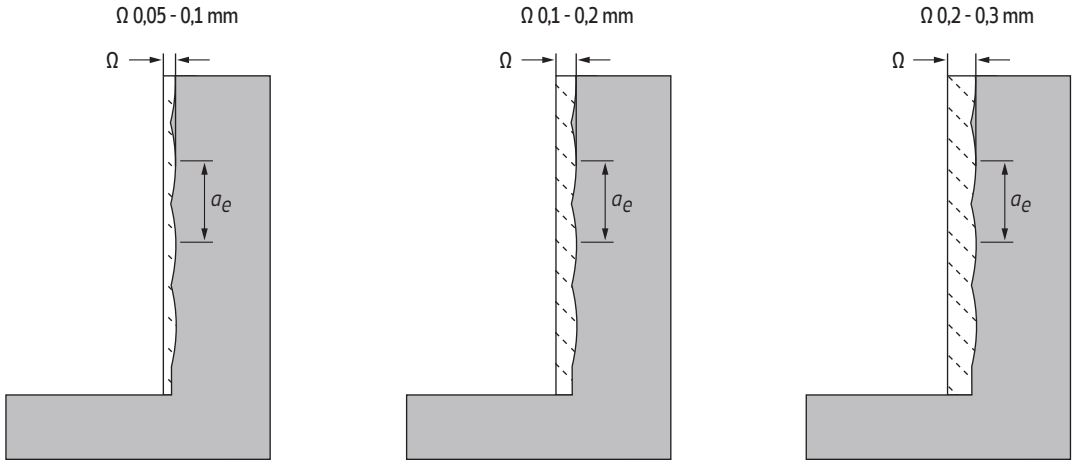
RAD INTEG Conical and Tangential Segment End mills

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

ISO	Material	Grades	
		PHP920	PHH920
P	Unalloyed Steel	✓	
	Low-Alloyed Steel	✓	
	High-Alloyed Steel	✓	
M	Stainless Steel (Ferritic / Martensitic)		✓
	Stainless Steel (Austenitic)		✓
	Stainless Steel (Austenitic/Ferritic/Duplex)		✓
K	Malleable Cast Iron	✓	
	Grey Cast Iron	✓	
	Nodular Cast Iron	✓	
S	Heat Resistant Super Alloys		✓

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

Ω - Allowance
a_e - Stepover



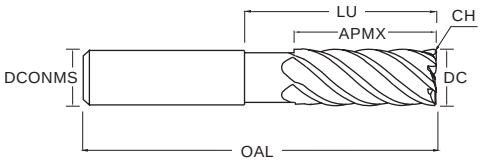
Fine Finishing | **Finishing** | **Semi-Finishing**

ISO	Workpiece Material	Vc (m/min)	fz (mm/t)				
			HXC30GL - Conical		HXT30GL - Tangential		
			Ω 0,05 - 0,1 mm	Ω 0,1 - 0,2 mm	Ω 0,05 - 0,1 mm	Ω 0,1 - 0,2 mm	Ω 0,2 - 0,3 mm
P	Unalloyed Steel	180	0,007 x DC	0,006 x DC	0,007 x DC	0,006 x DC	0,005 x DC
	Low-Alloyed Steel	160	0,006 x DC	0,005 x DC	0,006 x DC	0,005 x DC	0,004 x DC
	High-Alloyed Steel	150	0,005 x DC	0,004 x DC	0,005 x DC	0,004 x DC	0,004 x DC
M	Stainless Steel (Ferritic / Martensitic)	120	0,005 x DC	0,004 x DC	0,005 x DC	0,004 x DC	0,004 x DC
	Stainless Steel (Austenitic)	120	0,004 x DC	0,003 x DC	0,004 x DC	0,003 x DC	0,003 x DC
	Stainless Steel (Austenitic/Ferritic/Duplex)	110	0,003 x DC	0,003 x DC	0,003 x DC	0,003 x DC	0,002 x DC
K	Malleable Cast Iron	220	0,007 x DC	0,006 x DC	0,007 x DC	0,006 x DC	0,005 x DC
	Grey Cast Iron	210	0,007 x DC	0,006 x DC	0,007 x DC	0,006 x DC	0,005 x DC
	Nodular Cast Iron	190	0,006 x DC	0,005 x DC	0,006 x DC	0,005 x DC	0,005 x DC
S	Heat Resistant Super Alloys	60	0,003 x DC	0,003 x DC	0,003 x DC	0,003 x DC	0,002 x DC

FIN INTEG Finishing End mills

HC45FL Corner chamfer

P M K H



All order codes are cylindrical shank.
Weldon shank available under request.

	(2) Grade code		T1	X7	Dimensions | Dimensões | Dimensiones (mm)						
(1) Geometry code	Reference Referência Referencia	NOF	PHP920	PHP603	DC	DCONMS	APMX	CHW	KCH	LU	OAL
1180845	HC45FL 6 030 08	6	○	◈	3	6	8	0,15	45°	15	57
1180846	HC45FL 6 040 11	6	○	◈	4	6	11	0,15	45°	17	57
1180847	HC45FL 6 050 13	6	○	◈	5	6	13	0,15	45°	19	57
1180342	HC45FL 6 060 13	6	◈	◈	6	6	13	0,15	45°	21	57
1180062	HC45FL 6 080 19	6	◈	◈	8	8	19	0,15	45°	28	63
1180344	HC45FL 6 100 22	6	◈	◈	10	10	22	0,20	45°	30	72
1180343	HC45FL 6 120 26	6	◈	◈	12	12	26	0,20	45°	34	83
1180848	HC45FL 6 160 32	6	○	○	16	16	32	0,35	45°	44	92
1180849	HC45FL 6 200 38	6	○	○	20	20	38	0,60	45°	54	104

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

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

FIN INTEG Finishing End mills

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

ISO	Material	Grades	
		PHP603	PHP920
P	Unalloyed Steel	◇	◉
	Low-Alloyed Steel	◉	◇
	High-Alloyed Steel	◉	◇
M	Stainless Steel (Ferritic / Martensitic)	◇	◉
	Stainless Steel (Austenitic)	◇	◉
	Stainless Steel (Austenitic/Ferritic/Duplex)	◇	◉
K	Malleable Cast Iron	◇	◉
	Grey Cast Iron	◉	◇
	Nodular Cast Iron	◉	◇
H	Hardened Steels	◉	-

◉ First choice | 1ª Escolha | 1ª Opción ◇ Suitable | Adequado | Adecuado

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

ISO	Material	Vc (m/min)		fz (mm/t)
		PHP603	PHP920	
P	Unalloyed Steel	200	190	0,009 x DC
	Low-Alloyed Steel	170	160	0,007 x DC
	High-Alloyed Steel	140	130	0,005 x DC
M	Stainless Steel (Ferritic / Martensitic)	130	120	0,006 x DC
	Stainless Steel (Austenitic)	120	110	0,005 x DC
	Stainless Steel (Austenitic/Ferritic/Duplex)	90	90	0,004 x DC
K	Malleable Cast Iron	240	230	0,009 x DC
	Grey Cast Iron	240	230	0,009 x DC
	Nodular Cast Iron	200	190	0,008 x DC
H	Hardened Steels	80	-	0,004 x DC

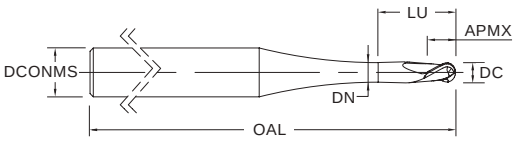
Note[1]: Feed valid for when the end mill works with its whole ap, for when the end mill is working with lower depths of cut consider increasing the feed up to 25%.
Note[2]: Cutting speeds selected for an economic use of the tool, for higher productivity consider increasing up to 70%.

MIN INTEG Micro Machining End mills

HB30MINS Short neck

P M K S H

All order codes are cylindrical shank.
Weldon shank available under request.



(1) Geometry code	(2) Grade code: Reference Referência Referencia	NOF	X4 PHH603	Dimensions | Dimensões | Dimensiones (mm) DC	DCONMS	DN	APMX	LU	OAL
1180769	HB30MINS 2 004 01 010	2	●	0,4	4	0,37	0,4	1,0	50
1180297	HB30MINS 2 005 01 015	2	●	0,5	4	0,45	0,6	1,5	50
1180288	HB30MINS 2 006 01 020	2	●	0,6	4	0,58	0,6	2,0	50
1180289	HB30MINS 2 008 01 020	2	●	0,8	4	0,78	0,8	2,0	50
1180298	HB30MINS 2 010 02 025	2	●	1,0	4	0,95	1,3	2,5	50
1180290	HB30MINS 2 010 01 030	2	●	1,0	4	0,95	1,0	3,0	50
1180291	HB30MINS 2 012 02 030	2	●	1,2	4	1,15	1,2	3,0	50
1180292	HB30MINS 2 016 02 040	2	●	1,6	4	1,55	1,6	4,0	50
1180293	HB30MINS 2 020 02 040	2	●	2,0	4	1,94	2,0	4,0	50
1180307	HB30MINS 2 020 03 050	2	●	2,0	4	1,95	2,5	5,0	50
1180299	HB30MINS 2 025 03 060	2	●	2,5	6	2,45	3,0	6,0	60
1180309	HB30MINS 2 030 04 075	2	●	3,0	6	2,95	4,0	7,5	60

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

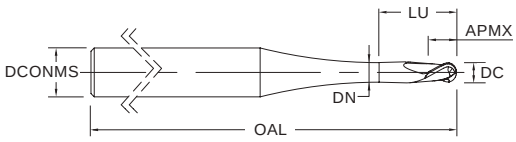
End mill order code = (1) Geometry Code + (2) Grade Code

MIN INTEG Micro Machining End mills

HB30MINS Medium neck

P M K S H

All order codes are cylindrical shank.
Weldon shank available under request.



(1) Geometry code	(2) Grade code: Reference Referência Referencia	NOF	X4 PHH603	Dimensions | Dimensões | Dimensiones (mm) DC	DCONMS	DN	APMX	LU	OAL
1180305	HB30MINS 2 005 01 025	2	●	0,5	4	0,45	0,4	2,5	50
1180308	HB30MINS 2 010 02 050	2	●	1,0	4	0,95	1,3	5,0	50
1180336	HB30MINS 2 016 02 080	2	●	1,6	4	1,55	1,6	8,0	50
1180310	HB30MINS 2 020 03 100	2	●	2,0	4	1,95	2,5	10,0	50
1180311	HB30MINS 2 025 03 125	2	●	2,5	6	2,45	3,0	12,5	60
1180301	HB30MINS 2 030 04 150	2	●	3,0	6	2,95	4,0	15,0	60

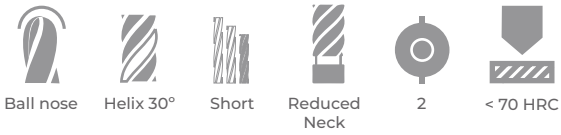
● Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

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

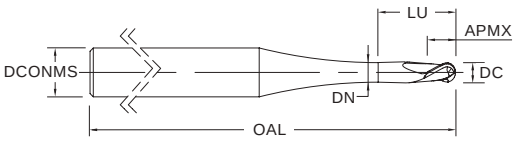
MIN INTEG Micro Machining End mills

HB30MINS Long neck

P M K S H



All order codes are cylindrical shank.
Weldon shank available under request.



(1) Geometry code	(2) Grade code: Reference Referência Referencia	NOF	X4 PHH603	Dimensions | Dimensões | Dimensiones (mm) DC	DCONMS	DN	APMX	LU	OAL
1180306	HB30MINS 2 005 01 040	2	◈	0,5	4	0,45	0,6	4,0	50
1180300	HB30MINS 2 010 02 080	2	◈	1,0	4	0,95	1,3	8,0	50
1180337	HB30MINS 2 016 02 128	2	◈	1,6	4	1,55	1,6	12,8	50
1180302	HB30MINS 2 020 03 160	2	◈	2,0	4	1,95	2,5	16,0	50
1180312	HB30MINS 2 025 03 200	2	◈	2,5	6	2,45	3,0	20,0	60
1180313	HB30MINS 2 030 04 240	2	◈	3,0	6	2,95	4,0	24,0	60

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

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

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

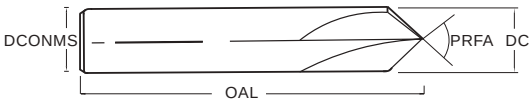
ISO	Material	Copying fz (mm/t) α < 15°	fz (mm/t) α > 15°	Vc (m/min) AP = 0,05 DC α < 15°	AP = 0,25 DC α < 15°	AP = 0,05 DC α > 15°	AP = 0,25 DC α > 15°
P	Unalloyed Steel	0,010 x DC	0,003 x DC	700	340	460	220
	Low-Alloyed Steel	0,009 x DC	0,003 x DC	650	320	430	210
	High-Alloyed Steel	0,008 x DC	0,003 x DC	590	290	390	190
M	Stainless Steel (Ferritic / Martensitic)	0,009 x DC	0,003 x DC	600	300	400	200
	Stainless Steel (Austenitic)	0,008 x DC	0,003 x DC	560	280	370	190
	Stainless Steel (Austenitic/Ferritic/Duplex)	0,007 x DC	0,002 x DC	540	270	360	180
K	Malleable Cast Iron	0,008 x DC	0,003 x DC	650	320	430	210
	Grey Cast Iron	0,008 x DC	0,003 x DC	640	310	420	200
	Nodular Cast Iron	0,007 x DC	0,002 x DC	600	300	400	190
S	Heat Resistant Super Alloys	0,007 x DC	0,002 x DC	230	110	150	80
H	Hardened Steels	0,008 x DC	0,003 x DC	460	230	310	150

Note: Since some of the end mills have low DC the above Vc cannot be achieved by any conventional machining center. The end mills still work at much lower Vc.

CHAMF INTEG Chamfering End mills

HCHGS

P M K



(1) Order code		(2) Grade code		Z9	Dimensions | Dimensões | Dimensiones (mm)			
HA (Cylindrical)	HB (Weldon)	Reference Referência Referencia	NOF	PHU920	DC	DCONMS	PRFA	OAL
1180366	-	HCHGS 4 030 02 90	4	◈	3	3	90º	38
1180367	-	HCHGS 4 040 02 90	4	◈	4	4	90º	50
1180368	1180496	HCHGS 4 060 03 90	4	◈	6	6	90º	57
1180369	1180497	HCHGS 4 080 04 90	4	◈	8	8	90º	63
1180370	1180498	HCHGS 4 100 05 90	4	◈	10	10	90º	72
1180371	1180499	HCHGS 4 120 06 90	4	◈	12	12	90º	83
1180372	1180500	HCHGS 4 160 08 90	4	◈	16	16	90º	92
1180373	1180553	HCHGS 4 200 10 90	4	◈	20	20	90º	104

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

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

Note: For HB (weldon) end mills, the reference ends with "-W "

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

ISO	Material	Chamfering	
		fz (mm/t)	Vc (m/min)
P	Unalloyed Steel	0,008 x DC	180
	Low-Alloyed Steel	0,007 x DC	160
	High-Alloyed Steel	0,006 x DC	140
M	Stainless Steel (Ferritic / Martensitic)	0,007 x DC	150
	Stainless Steel (Austenitic)	0,006 x DC	130
	Stainless Steel (Austenitic/Ferritic/Duplex)	0,004 x DC	110
K	Malleable Cast Iron	0,008 x DC	210
	Grey Cast Iron	0,008 x DC	210
	Nodular Cast Iron	0,008 x DC	190

GENERAL

INTEG

Solid carbide end mills for a general industrial applications, from roughing to finishing operations.

Fresas de metal duro integral para aplicações industriais gerais, desde operações de desbaste até acabamento.

Fresas de carburo integral para aplicaciones industriales generales, desde operaciones de desbaste hasta acabado.

HF30G > page 356

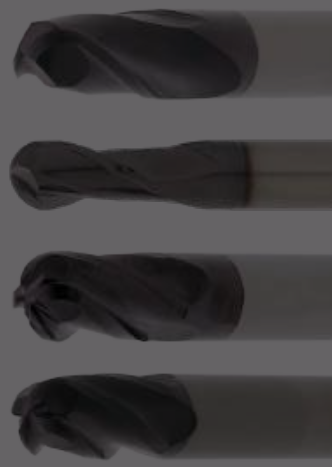
- Flat top end mills
  Fresas de topo raso | Fresas de topo plano
- 2 or 4 flutes
  2 ou 4 flutes | 2 o 4 ranuras
- Short and extra long version
  Disponível em versão curta e extra longa | Disponible en versión corta y extra larga

HR30G > page 359

- Corner radius end mills
  Fresas de raio de canto | Fresas de radio de esquina
- 4 flutes
  4 flutes | 4 ranuras
- Short version
  Disponível em versão curta | Disponible en versión corta

HB30G > page 360

- Ball nose end mills
  Fresas de topo redondo | Fresas de topo redondeado
- 2 or 4 flutes
  2 ou 4 flutes | 2 o 4 ranuras
- Short and long version
  Disponível em versão curta e longa | Disponible en versión corta y larga



HRO45G > page 362

- Rougher end mills
  Fresas para desbaste | Fresas para desbaste
- From 3 to 6 flutes
  De 3 a 6 flutes | De 3 a 6 ranuras
- Short version
  Disponível em versão curta | Disponible en versión corta

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

Integral Solid Carbide example:

H	F	30	-	G	S	2	080	19	XR100	90	-	W
1	2	3	4	5	6	7	8	9	10	11		12

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
XR - Special Radius
RO - Rougher

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

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

4 - Machining Method (Suppressed when it doesn't exist)

HF - High Feed
HP - High Performance
TS - Trochoidal miling

5 - Application

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

6 - Length of Shank

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

7 - Flutes number (NOF)

Example: NOF = 1 ; NOF = 2 ; NOF = 3

8 - Cutting diameter (DC)

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

9 - Max cutting depth (APMX)

Example for APMX ≥ 1 mm: 04 = 4 mm ; 06 = 6 mm
Example for APMX < 1 mm: 002 = 0,2 mm ; 005 = 0,5 mm

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

Example for corner radius: R150 = 1,5 mm ; R015 = 0,15 mm
Example for special radius : XR100 = 1,0 mm
Example for conical segment: 18RM120 - α/2 = 18° , RM = 1200 mm
Example for tangential segment: RM090 - RM = 90 mm

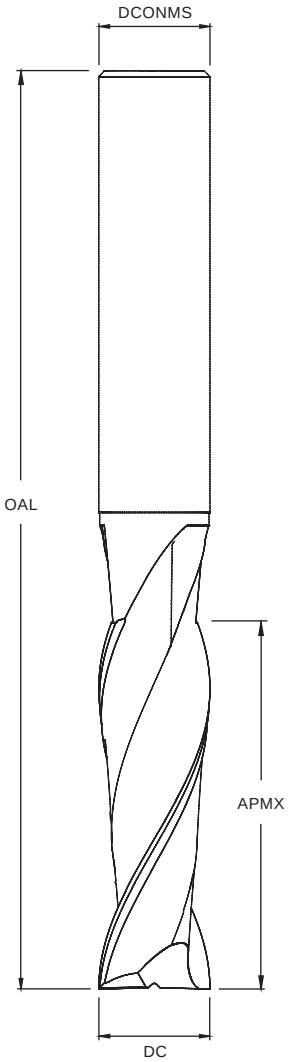
11 - Angle (Only for chamfering end mills)

Example: 90 = 90°

12 - Shank (Suppressed when cylindrical)

W - Weldon

Integral Solid Carbide technical drawing example



palbit

SELECTION GUIDE FOR SOLID CARBIDE END MILLS

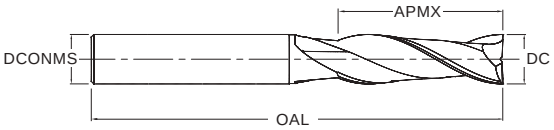
Guia de seleção para fresas de metal duro integral | Guía para fresas en carburo monobloque

	DC		HELIX ANGLE	GEOMETRY	FINISHING	ROUGHING	MATERIAL	DESCRIPTION	PAGE
INTEG HF30GS 2	2-20	2	30°	Square	■■■□□	■■■□□	P M K	Flat Top End mills	A-356
INTEG HF30GS 4	2-20	4	30°	Square	■■■■□	■■□□□	P M K		A-357
INTEG HF30GXL 4	2-12	4	30°	Square	■■■■□	■■□□□	P M K		A-358
INTEG HR30GS 4	3-20	4	30°	Corner radius	■■■■□	■■□□□	P M K	Round Corner End mills	A-359
INTEG HB30GS 2	2-12	2	30°	Ball nose	■■■□□	■■■□□	P M K	Ball Nose End mills	A-360
INTEG HB30GL 2	4-12	2	30°	Ball nose	■■■□□	■■■□□	P M K		A-360
INTEG HB30GS 4	2-12	4	30°	Ball nose	■■■■□	■■□□□	P M K		A-361
INTEG HB30GL 4	2-20	4	30°	Ball nose	■■■■□	■■□□□	P M K		A-361
INTEG HRO45GS	3-20	4 | 6	45°	Corner chamfer	■□□□□	■■■■■	P M K	Rougher End mills	A-362

INTEG General Purpose End mills

HF30GS 2 Flat top

P M K



(1) Order code		(2) Grade code		T1	Dimensions | Dimensões | Dimensiones (mm)			
HA (Cylindrical)	HB (Weldon)	Reference Referência Referencia	NOF	PHP920	DC	DCONMS	APMX	OAL
1180587	-	HF30GS 2 020 06	2	◎	2	4	6	38
1180588	-	HF30GS 2 030 12	2	◎	3	4	12	38
1180589	-	HF30GS 2 040 14	2	◎	4	4	14	50
1180590	-	HF30GS 2 050 16	2	◎	5	6	16	50
1180591	-	HF30GS 2 060 19	2	◎	6	6	19	50
1180592	1180532	HF30GS 2 080 20	2	◎	8	8	20	63
1180593	1180533	HF30GS 2 100 22	2	◎	10	10	22	75
1180594	1180534	HF30GS 2 120 25	2	◎	12	12	25	75
1180595	1180535	HF30GS 2 140 26	2	◎	14	14	26	83
1180596	1180536	HF30GS 2 160 32	2	◎	16	16	32	89
1180597	1180537	HF30GS 2 180 32	2	◎	18	18	32	92
1180598	1180538	HF30GS 2 200 38	2	◎	20	20	38	104

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

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

INTEG General Purpose End mills

HF30GS 4 Flat top

P M K

(1) Order code		(2) Grade code		T1	Dimensions | Dimensões | Dimensiones (mm)			
HA (Cylindrical)	HB (Weldon)	Reference Referência Referencia	NOF	PHP920	DC	DCONMS	APMX	OAL
1180262	-	HF30GS 4 020 06	4	◎	2	4	6	38
1180219	-	HF30GS 4 030 12	4	◎	3	4	12	38
1180215	-	HF30GS 4 040 14	4	◎	4	4	14	50
1180195	-	HF30GS 4 050 16	4	◎	5	6	16	50
1180263	-	HF30GS 4 060 19	4	◎	6	6	19	50
1180223	1180605	HF30GS 4 070 19	4	◎	7	8	19	63
1180202	1180544	HF30GS 4 080 20	4	◎	8	8	20	63
1180224	1180606	HF30GS 4 090 22	4	◎	9	10	22	75
1180216	1180545	HF30GS 4 100 22	4	◎	10	10	22	75
1180264	1180546	HF30GS 4 120 25	4	◎	12	12	25	75
1180220	1180547	HF30GS 4 140 26	4	◎	14	14	26	83
1180129	1180548	HF30GS 4 160 32	4	◎	16	16	32	89
1180221	1180549	HF30GS 4 180 32	4	◎	18	18	32	92
1180222	1180550	HF30GS 4 200 38	4	◎	20	20	38	104

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

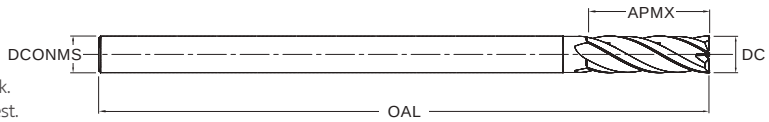
End mill order code = (1) Geometry Code + (2) Grade Code

INTEG General Purpose End mills

HF30GXL 4 Flat top

P M K

All order codes are cylindrical shank.
Weldon shank available under request.



(1) Geometry code	(2) Grade code Reference Referência Referencia	NOF	T1 PHP920	G4 PH7920	Dimensions | Dimensões | Dimensiones (mm) DC	DCONMS	APMX	OAL
1180708	HF30GXL 4 020 09	4	◯	◬	2	4	9	100
1180265	HF30GXL 4 030 12	4	◯		3	6	12	100
1180266	HF30GXL 4 040 16	4	◯	◬	4	6	16	100
1180267	HF30GXL 4 050 20	4	⟁		5	6	20	100
1180268	HF30GXL 4 060 20	4	⟁		6	6	20	100
1180269	HF30GXL 4 080 20	4	⟁		8	8	20	120
1180270	HF30GXL 4 100 25	4	⟁		10	10	25	120
1180057	HF30GXL 4 120 30	4	⟁		12	12	30	120

⟁ Stock item | Produto de stock | Ítens de stock

◬ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

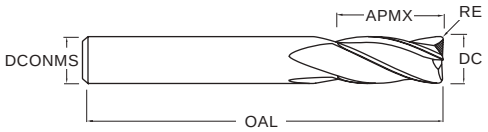
◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

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

INTEG General Purpose End mills

HR30GS 4 Corner radius

P M K



All order codes are cylindrical shank.
Weldon shank available under request.

(1) Geometry code	(2) Grade code: Reference / Referência / Referencia	NOF	T1: PHP920	Dimensions | Dimensões | Dimensiones (mm): DC	DCONMS	APMX	RE	OAL
1180231	HR30GS 4 030 12 R025	4	○	3	4	12	0,25	50
1180232	HR30GS 4 030 12 R050	4	○	3	4	12	0,50	50
1180233	HR30GS 4 040 14 R025	4	○	4	4	14	0,25	50
1180234	HR30GS 4 040 14 R050	4	○	4	4	14	0,50	50
1180235	HR30GS 4 050 16 R025	4	○	5	6	16	0,25	50
1180236	HR30GS 4 050 16 R050	4	○	5	6	16	0,50	50
1180237	HR30GS 4 060 19 R050	4	◈	6	6	19	0,5,0	50
1180238	HR30GS 4 060 19 R100	4	◈	6	6	19	1,00	50
1180239	HR30GS 4 070 19 R050	4	○	7	8	19	0,50	63
1180240	HR30GS 4 070 19 R100	4	○	7	8	19	1,00	63
1180241	HR30GS 4 080 20 R050	4	◈	8	8	20	0,50	63
1180242	HR30GS 4 080 20 R100	4	◈	8	8	20	1,00	63
1180243	HR30GS 4 090 22 R050	4	○	9	10	22	0,50	75
1180244	HR30GS 4 090 22 R100	4	○	9	10	22	1,00	75
1180245	HR30GS 4 100 22 R100	4	◈	10	10	22	1,00	75
1180246	HR30GS 4 100 22 R200	4	◈	10	10	22	2,00	75
1180247	HR30GS 4 120 25 R100	4	◈	12	12	25	1,00	75
1180248	HR30GS 4 120 25 R200	4	◈	12	12	25	2,00	75
1180249	HR30GS 4 140 26 R100	4	○	14	14	26	1,00	83
1180250	HR30GS 4 140 26 R200	4	○	14	14	26	2,00	83
1180251	HR30GS 4 160 32 R100	4	◈	16	16	32	1,00	89
1180252	HR30GS 4 160 32 R200	4	◈	16	16	32	2,00	89
1180253	HR30GS 4 180 32 R100	4	○	18	18	32	1,00	92
1180254	HR30GS 4 180 32 R200	4	○	18	18	32	2,00	92
1180255	HR30GS 4 200 38 R100	4	◈	20	20	38	1,00	104
1180256	HR30GS 4 200 38 R200	4	◈	20	20	38	2,00	104

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

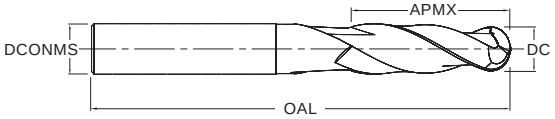
End mill order code = (1) Geometry Code + (2) Grade Code

INTEG General Purpose End mills

HB30GS 2 Ball nose

P M K

All order codes are cylindrical shank.
Weldon shank available under request.



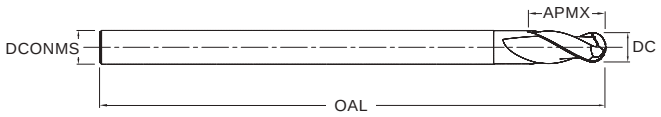
(1) Geometry code	(2) Grade code: Reference Referência Referencia	NOF	T1: PHP920	G4: PH7920	Dimensions | Dimensões | Dimensiones (mm): DC	DCONMS	APMX	OAL
1180278	HB30GS 2 020 06	2	○	◈	2	3	6	38
1180279	HB30GS 2 030 12	2	◈		3	3	12	38
1180280	HB30GS 2 040 14	2	○	◈	4	4	14	50
1180281	HB30GS 2 050 16	2	◈		5	6	16	50
1180282	HB30GS 2 060 19	2	○	◈	6	6	19	50
1180283	HB30GS 2 080 20	2	◈		8	8	20	63
1180284	HB30GS 2 100 22	2	◈		10	10	22	75
1180285	HB30GS 2 120 25	2	◈		12	12	25	75

◈ Stock item | Produto de stock | Ítens de stock
◈ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock
○ Available under request | Disponível sobre consulta | Disponible bajo consulta
End mill order code = (1) Geometry Code + (2) Grade Code

HB30GL 2 Ball nose

P M K

All order codes are cylindrical shank.
Weldon shank available under request.



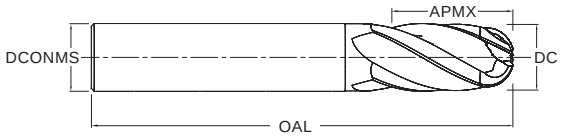
(1) Geometry code	(2) Grade code: Reference Referência Referencia	NOF	T1: PHP920	Dimensions | Dimensões | Dimensiones (mm): DC	DCONMS	APMX	OAL
1180688	HB30GL 2 040 08	2	◈	4	6	8	75
1180128	HB30GL 2 060 12	2	◈	6	6	12	75
1180029	HB30GL 2 080 14	2	◈	8	8	14	100
1180030	HB30GL 2 100 18	2	◈	10	10	18	100
1180031	HB30GL 2 120 22	2	◈	12	12	22	100

◈ Stock item | Produto de stock | Ítens de stock
◈ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock
○ Available under request | Disponível sobre consulta | Disponible bajo consulta
End mill order code = (1) Geometry Code + (2) Grade Code

INTEG General Purpose End mills

HB30GS 4 Ball nose

P M K



All order codes are cylindrical shank.
Weldon shank available under request.

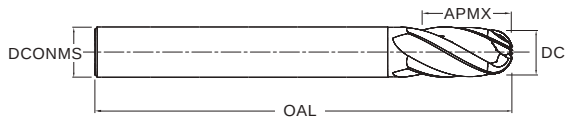
(1) Geometry code	(2) Grade code: Reference Referência Referencia	NOF	T1: PHP920	Dimensions | Dimensões | Dimensiones (mm): DC	DCONMS	APMX	OAL
1180156	HB30GS 4 020 03	4	◉	2	4	3	50
1180157	HB30GS 4 030 05	4	◉	3	4	5	50
1180068	HB30GS 4 040 06	4	◉	4	6	6	60
1181837	HB30GS 4 050 08	4	◉	5	6	8	60
1180272	HB30GS 4 060 09	4	◉	6	6	9	60
1180066	HB30GS 4 080 16	4	◉	8	8	16	63
1180432	HB30GS 4 100 20	4	◉	10	10	20	75
1180287	HB30GS 4 120 25	4	◉	12	12	25	75

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

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

HB30GL 4 Ball nose

P M K



All order codes are cylindrical shank.
Weldon shank available under request.

(1) Geometry code	(2) Grade code: Reference Referência Referencia	NOF	T1: PHP920	Dimensions | Dimensões | Dimensiones (mm): DC	DCONMS	APMX	OAL
1180273	HB30GL 4 020 04	4	◉	2	4	4	75
1180274	HB30GL 4 030 08	4	◉	3	4	8	75
1180275	HB30GL 4 040 11	4	○	4	4	11	75
1180150	HB30GL 4 050 13	4	◉	5	6	13	75
1180032	HB30GL 4 060 13	4	◉	6	6	13	75
1180064	HB30GL 4 080 16	4	◉	8	8	16	100
1180065	HB30GL 4 100 16	4	◉	10	10	16	100
1180071	HB30GL 4 120 25	4	◉	12	12	25	100
1180276	HB30GL 4 160 32	4	◉	16	16	32	120
1180277	HB30GL 4 200 38	4	◉	20	20	38	120

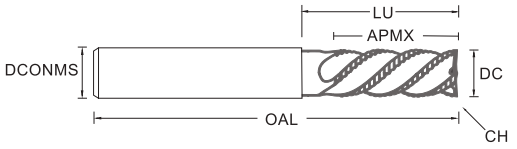
◉ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

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

INTEG General Purpose End mills

HRO45GS Rougher

P M K



(1) Order code		(2) Grade code		Z9	Dimensions | Dimensões | Dimensiones (mm)						
HA (Cylindrical)	HB (Weldon)	Reference Referência Referencia	NOF	PHU920	DC	DCONMS	APMX	CHW	KCH	LU	OAL
1180557	1180558	HRO45GS 3 030 08	3	○	3	6	8	0,15	45º	15	57
1180559	1180560	HRO45GS 4 040 11	4	○	4	6	11	0,15	45º	17	57
1180561	1180562	HRO45GS 4 050 13	4	○	5	6	13	0,15	45º	19	57
1180439	1180563	HRO45GS 4 060 13	4	◈	6	6	13	0,15	45º	21	57
1180440	1180564	HRO45GS 4 080 19	4	◈	8	8	19	0,15	45º	27	63
1180441	1180565	HRO45GS 4 100 22	4	◈	10	10	22	0,20	45º	32	72
1180374	1180465	HRO45GS 4 120 26	4	◈	12	12	26	0,20	45º	38	83
1180566	1180567	HRO45GS 5 160 32	5	◈	16	16	32	0,35	45º	44	92
1180568	1180569	HRO45GS 6 200 38	6	◈	20	20	38	0,60	45º	54	104

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

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

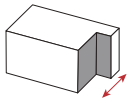
RECOMMENDED CUTTING CONDITIONS Condições de corte recomendadas | Condiciones de corte recomendables

ISO	Material	f_z (mm/t)			Vc (m/min)		
		a_e = 25%	a_e = 40%	a_e = 100%	a_e = 25%	a_e = 40%	a_e = 100%
P	Unalloyed Steel	0,008 x DC	0,007 x DC	0,005 x DC	170	160	140
	Low-Alloyed Steel	0,007 x DC	0,006 x DC	0,004 x DC	150	140	120
	High-Alloyed Steel	0,006 x DC	0,005 x DC	0,004 x DC	130	120	100
M	Stainless Steel (Ferritic / Martensitic)	0,006 x DC	0,005 x DC	0,004 x DC	110	110	90
	Stainless Steel (Austenitic)	0,005 x DC	0,004 x DC	0,003 x DC	100	90	80
	Stainless Steel (Austenitic/Ferritic/Duplex)	0,004 x DC	0,003 x DC	0,002 x DC	80	80	70
K	Malleable Cast Iron	0,008 x DC	0,007 x DC	0,005 x DC	200	190	170
	Grey Cast Iron	0,008 x DC	0,007 x DC	0,005 x DC	200	190	160
	Nodular Cast Iron	0,008 x DC	0,007 x DC	0,004 x DC	180	170	150

INTEG General Purpose End mills

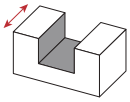
CUTTING PARAMETERS Parâmetros de corte | Parámetros de corte

Side milling



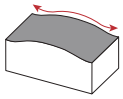
Finishing: $a_e < 0,15 \times Dc$
Semi-finishing: $0,15 \times Dc < a_e < 0,3 \times Dc$
Roughing: $a_e > 0,3 \times Dc$

Slotting



$a_e = 100\% \times Dc$

Copying



Finishing: $a_e < 0,20 \times Dc$
$a_p < 0,03 \times Dc$
Semi-finishing: $0,20 \times Dc < a_e < 0,40 \times Dc$
$0,03 \times Dc < a_p < 0,10 \times Dc$
Roughing: $a_e > 0,40 \times Dc$
$a_p > 0,10 \times Dc$

α: Surface inclination angle.

ISO	Material	fz (mm/t)					
		Side Milling			Slotting	Copying	
		$a_e = 12,5\%$	$a_e = 25\%$	$a_e = 40\%$	$a_e = 100\%$	α < 15º	α > 15º
P	Unalloyed Steel	0,009 x Dc	0,008 x Dc	0,005 x Dc	0,004 x Dc	0,012 x Dc	0,004 x Dc
	Low-Alloyed Steel	0,008 x Dc	0,007 x Dc	0,004 x Dc	0,003 x Dc	0,010 x Dc	0,003 x Dc
	High-Alloyed Steel	0,007 x Dc	0,006 x Dc	0,004 x Dc	0,003 x Dc	0,009 x Dc	0,003 x Dc
M	Stainless Steel (Ferritic / Martensitic)	0,007 x Dc	0,006 x Dc	0,004 x Dc	0,003 x Dc	0,009 x Dc	0,003 x Dc
	Stainless Steel (Austenitic)	0,005 x Dc	0,005 x Dc	0,003 x Dc	0,002 x Dc	0,007 x Dc	0,002 x Dc
	Stainless Steel (Austenitic/Ferritic/Duplex)	0,004 x Dc	0,004 x Dc	0,002 x Dc	0,002 x Dc	0,006 x Dc	0,002 x Dc
K	Malleable Cast Iron	0,009 x Dc	0,008 x Dc	0,005 x Dc	0,004 x Dc	0,012 x Dc	0,004 x Dc
	Grey Cast Iron	0,009 x Dc	0,008 x Dc	0,005 x Dc	0,004 x Dc	0,012 x Dc	0,004 x Dc
	Nodular Cast Iron	0,008 x Dc	0,008 x Dc	0,004 x Dc	0,004 x Dc	0,011 x Dc	0,004 x Dc

(Note 1) Side milling and slotting feed valid for when the end mill works with its whole a_p, for when the end mill is working with lower depths of cut consider increasing the feed up to 25%.
(Note 2) Copying feed valid for low a_p (a_p / D < 0,1), for higher a_p consider decreasing the feed by 50%.

ISO	Material	Vc (m/min)							
		Side Milling			Slotting	Copying			
		$a_e = 12,5\%$	$a_e = 25\%$	$a_e = 40\%$	$a_e = 100\%$	AP = 0,05 DC α < 15º	AP = 0,25 DC α < 15º	AP = 0,05 DC α > 15º	AP = 0,25 DC α > 15º
P	Unalloyed Steel	200	190	180	150	480	240	320	160
	Low-Alloyed Steel	190	180	160	130	440	220	290	150
	High-Alloyed Steel	170	160	150	120	400	200	260	130
M	Stainless Steel (Ferritic / Martensitic)	150	140	130	110	360	180	240	120
	Stainless Steel (Austenitic)	120	110	100	80	290	140	190	100
	Stainless Steel (Austenitic/Ferritic/Duplex)	100	100	80	70	250	120	160	80
K	Malleable Cast Iron	240	230	220	170	580	290	380	190
	Grey Cast Iron	230	230	210	170	560	280	380	190
	Nodular Cast Iron	220	210	190	160	520	260	350	170

(Note 3) Table valid for PHP920 grade, for PH7920 consider reducing the cutting velocity by 10 m/min.
(Note 4) Cutting speeds selected for an economic use of the tool, for higher productivity consider increasing up to 70%.
(Note 5) For copying, spindle speed is calculated as follows: $n = \frac{Vc \times 1000}{\pi \times 2 \sqrt{a_p(Dc - a_p)}}$

INTEG GRADES

COATINGS

PHP

- Perfect coating adhesion;
- Smoothest surface;
- Suitable for dry and wet machining;
- Color: Black;

The PHP is the recommended coating for general machining on steel and cast iron.
Because of its smoothness at medium temperatures, the chips are able to flow effortlessly, maintaining the flutes clean and a long tool life even in dry conditions.

PHH

- Highest thermal stability;
- Smooth surface;
- High performance in dry machining;
- Color: Light brown;

The PHH is the recommended coating for Hardened steels, as well as stainless steels and HRSA.
Because of its high performance at high temperatures the coating successfully protect the cutting edges allowing the tool to work for long periods of time.

PHU

- High thermal shock resistance;
- Carefully engineered surface quality;
- Suitable for dry and wet machining;
- Color: Grey;

Combining both excellent thermal resistance and excellent surface quality, the PHU coating is recommended for stainless steels, while also being suitable for steels and cast iron.
Because of its surface quality and thermal resistance it is able to prevent built-up-edge in both low-alloy steels and stainless steels, making it a very versatile coating.

PHF

- High resistance wear and thermal stability;
- Superior surface quality;
- Suitable for dry and wet machining;
- Color: Red gold;

PHF boasts high resistance to wear, combining this with exceptional adhesion and very homogeneous wear behavior. Additionally, its dense layer structure and high silicon doping contribute to its superior thermal stability, facilitating heat dissipation in the chip and consequently increasing process stability.

PHT

- Optimum chip removal;
- Excellent protection against built-up edges;
- Top performance on aluminum applications;
- Color: Silver;

PHT is a unique nanocrystalline coating, exceptionally dense yet smooth, with maximum adhesion even on sharp cutting edges. It effectively prevents the formation of built-up edges and ensures excellent machining results in non-ferrous metals, even at high operating temperatures.

SUBSTRATE

PH0910

A micrograin substrate that combines wear resistance and toughness.
Higher rigidity contributes to a longer tool life.
Recommended for semi-finishing to roughing on stable to slightly unstable conditions.

PH0920

Universal substrate with great balance between toughness and wear resistance.
Outstanding heat dissipation properties.
Recommended for semi-finishing to roughing on most materials.

PH0603

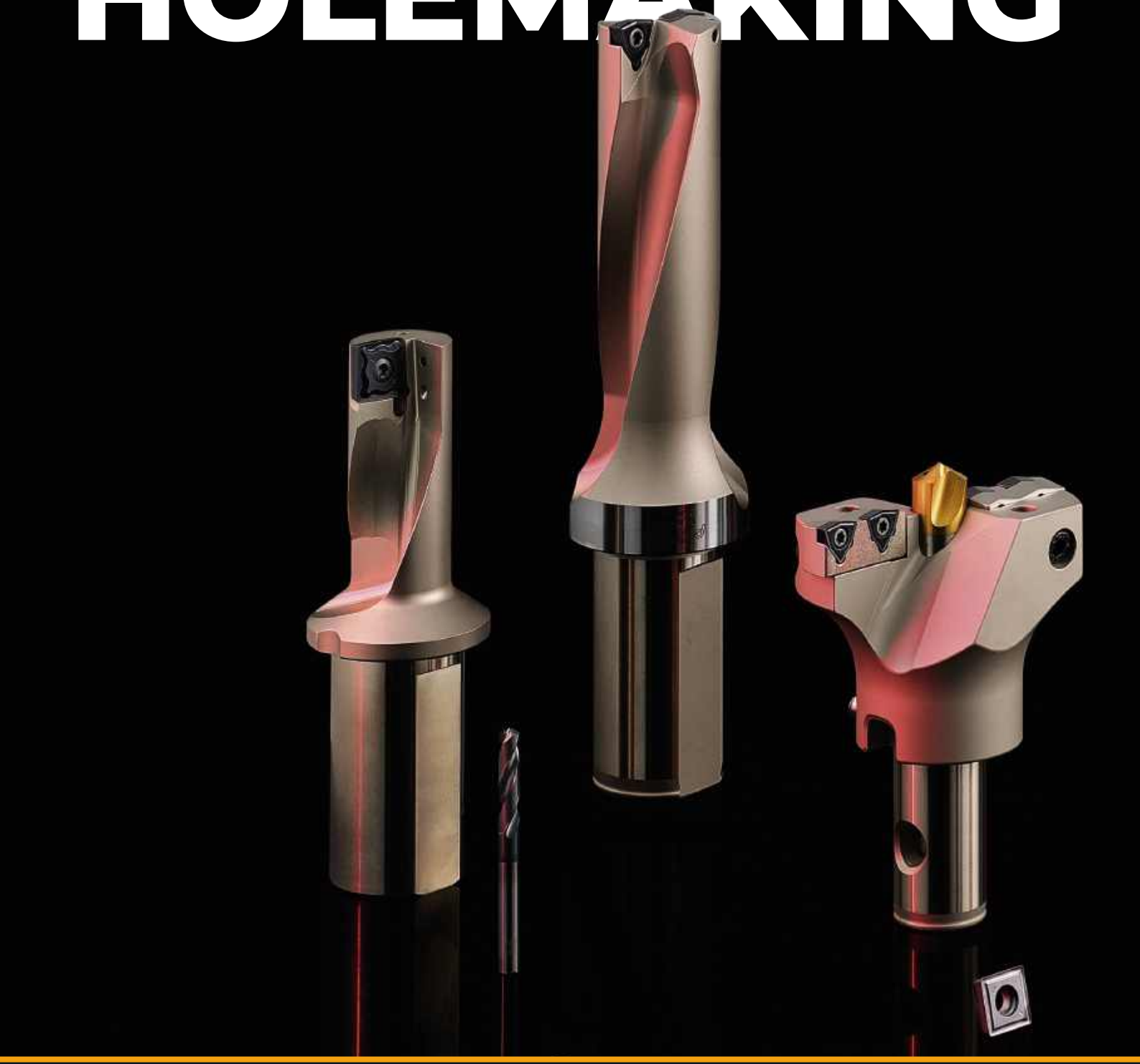
Harder grade with extreme wear resistance.
Excellent thermal stability.
Recommended for finishing applications and hardened steels.

LOOKING FOR MORE TROUBLESHOOTING?

Check the qrcode for more information.

CUTTING TOOLS FOR

HOLEMAKING



B

B - HOLEMAKING

B - 368 | Drills code key

B - 370 | Nomenclature

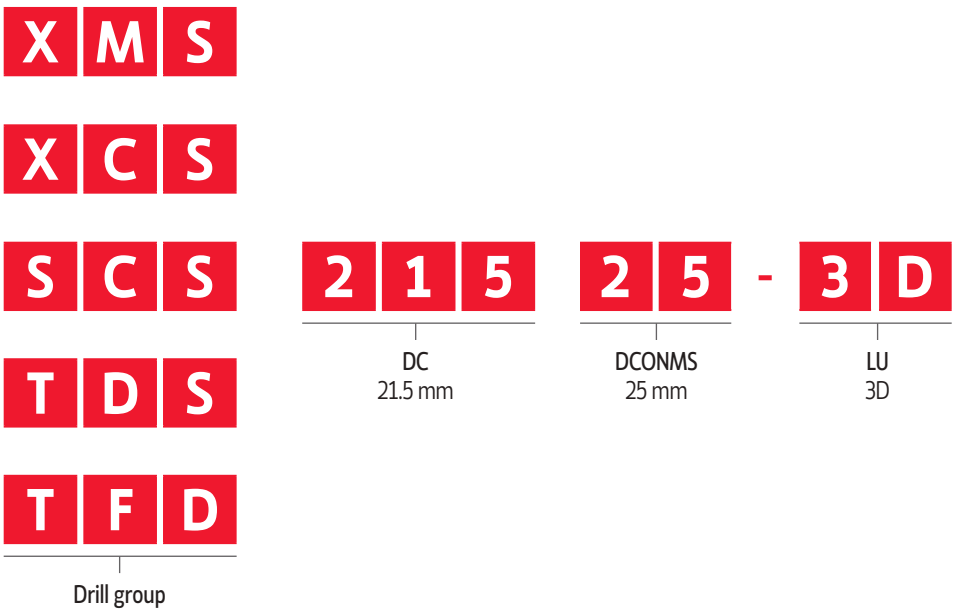
B - 371 | Overview

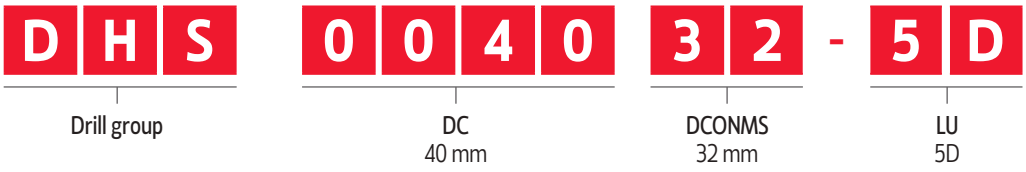
B - 372 | **NEW** Multicut

B - 378 | Jet drills
B - 380 | **NEW** XCS drills
B - 404 | Integrex drills
B - 412 | Vortex drills
B - 418 | Trepanning drills
B - 422 | Inserts
B - 424 | Inserts code key
B - 428 | Spare Parts
B - 440 | Technical Data
B - 452 | Solid carbide drills

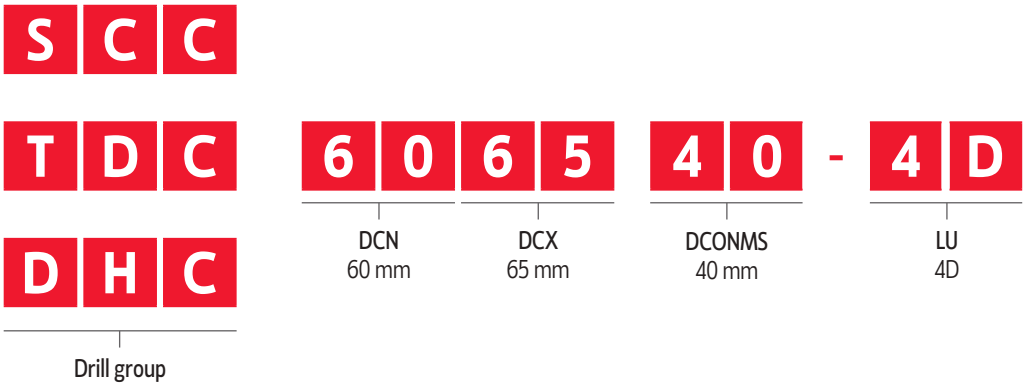
DRILLS CODE KEY Sistema de codificação para brocas | Sistema de codificación para brocas

DRILLS WITHOUT CARTRIDGE Brocas sem Cartucho | Brocas sin Cartucho



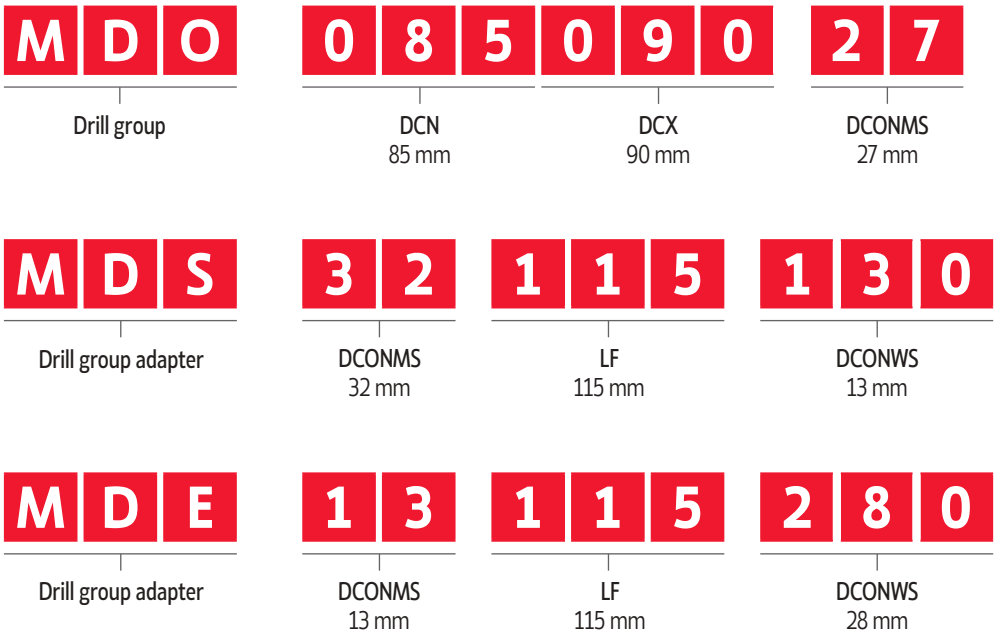


DRILLS WITH CARTRIDGE Brocas com Cartucho | Brocas con Cartucho



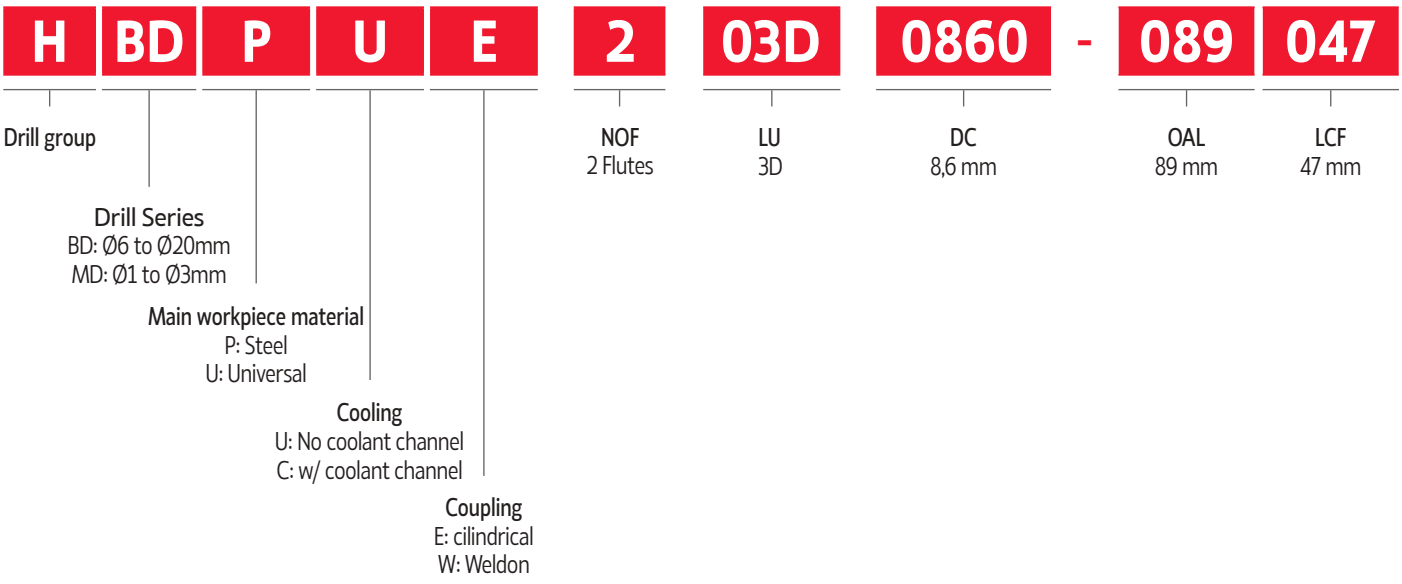
DRILLS CODE KEY
Sistema de codificação para brocas | Sistema de codificación para brocas

VORTEX DRILLS Brocas Vortex | Brocas Vortex

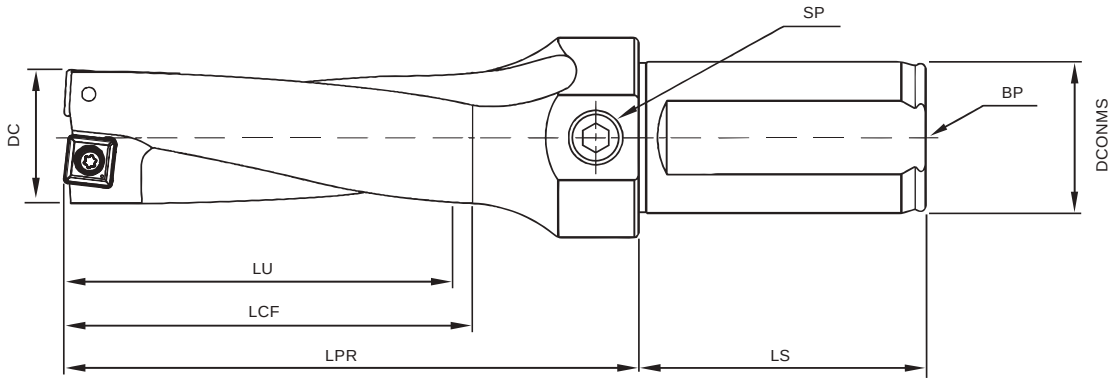


TREPANNING DRILLS Brocas de Trepanação | Brocas de Trepanación

SOLID CARBIDE DRILLS Brocas de Metal Duro | Brocas en Metal Duro



NOMENCLATURE Nomenclatura | Nomenclatura



DC - Drill diameter
LPR - Length
LU - Cut length
SP - Side plug
DCONMS - Shank diameter
LS - Shank Length
LCF - Safety cut length
BP - Back plug

COOLANT SUPPLY Furos de refrigeração | Agujeros de refrigeración

New version / Standard version*

Type	BP	SP
TDS	✓ / ✓	✗ / ✓
TDC	✓ / ✓	✓ / ✓
SCS	✓ / ✓	✗ / ✓
SCC	✓ / ✓	✓ / ✓
DHS	✓ / ✓	✗ / ✓
DHC	✓ / ✓	✗ / ✓
TFD	✓ / ✓	✓ / ✓
MDO	✓ / ✓	✓ / ✓
PND	✓ / ✓	✓ / ✓

BP - Back Plug

SP - Side Plug

✓ - Available

✗ - Not Available

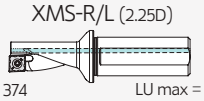
* The new Drill version will replace the standard version when this type will be sold out.

OVERVIEW Vista genérica | Información general

Diameter (mm)

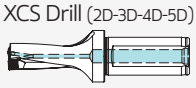
	01	03	12	20	32	50	60	70	80	110	... 180
Multicut											
Jet Drills											
Integrex Drills											
Vortex Drills											
Trepanning Drills											
Solid Carbide Drills											

NEW XMS-R/L (2.25D)



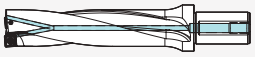
Page B - 374 LU max = 72mm

NEW XCS Drill (2D-3D-4D-5D)



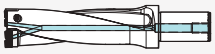
Page B - 380 LU max = 302mm

SCS Drill (3D-4D)



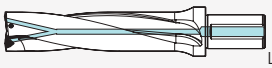
Page B - 394 LU max = 200mm

SCC Drill (3D-4D)



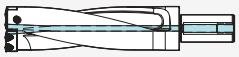
Page B - 398 LU max = 320mm

TDS 3D Drill



Page B - 401 LU max = 174mm

TDC 3D Drill

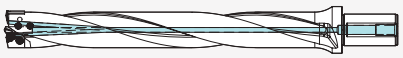


Page B - 403 LU max = 240mm

DHS Drill (5D-8D)

Page B - 406 LU max = 300mm

DHC Drill (5D-8D)

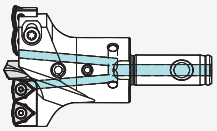


Page B - 408 LU max = 640mm

TFD Drill (6D-8D)

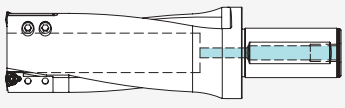
Page B - 410 LU max = 240mm

MDO 10D - Vortex Drill



Page B - 414 LU max = 900mm

PND Drill

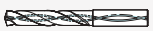


Page B - 420 LU max = 250mm

NEW HMDU ... Micro Drill (3D-5D)

Page B - 454 LU max = 21mm

HBDP ... SC Drill (3D-5D)



Page B - 456 LU max = 101mm

HBDP ... SC Drill (8D)

Page B - 462 LU max = 162mm

MULTICUT

NEW ALL-IN-ONE

A multipurpose tool designed to enhance productivity and reduce setup times is capable of executing internal, external, and face turning, as well as drilling with either a stationary or rotating tool.

Uma ferramenta multifuncional projetada para aumentar a produtividade e reduzir os tempos de configuração. Capaz de executar torneamento interno, externo e facejamento, e até mesmo furação com uma ferramenta estacionária ou giratória.

Una herramienta multifuncional diseñada para aumentar la productividad y reducir los tiempos de configuración. Capaz de realizar torneado interno, externo y frontal, e incluso perforación con una herramienta estacionaria o giratoria.

NEW XMS-R > page 374

- From DC 8mm to 32mm
  De DC 8mm a 32mm | Desde DC 8mm hasta 32mm
- Available in 2.25D
  Disponível em 2.25D | Disponible en 2.25D

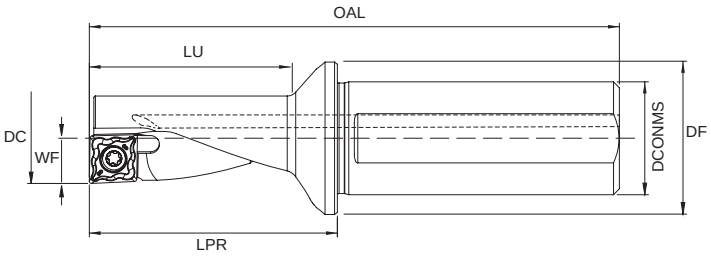
NEW XMS-L > page 374

- From DC 8mm to 32mm
  De DC de 8mm a 32mm | Desde DC 8mm hasta 32mm
- Available in 2.25D
  Disponível em 2.25D | Disponible en 2.25D

NEW XCMT INSERTS > page 375

- From sizes 04 to 17
  De tamanhos de 04 a 17 | De tamaños de 04 a 17
- Available in grades PH7920 and PHS225
  Disponível nos graus PH7920 e PHS225 | Disponible en las calidades PH7920 y PHS225
- Suitable for machining steels, stainless steels and HRSA
  Adequado para maquinação de aços, aços inoxidáveis e HRSA | Adecuado para el mecanizado de aceros, aceros inoxidables y HRSA

NEW MULTICUT



*Right hand style show

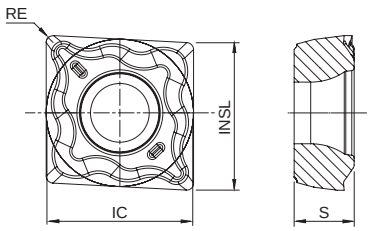
Order code Código	Reference Referência Referencia	Hand		Dimensions | Dimensões | Dimensiones (mm)							WT	Insert	Stock
				DC	DCONMS	DF	WF	OAL	LU	LPR			
182021200	XMS-R 08010-2.25D	Right	1	8,0	10	15	4	60,0	18,0	22,0	0,027	XCMT 0401.. ER	◉
182021300	XMS-R 10012-2.25D	Right	1	10,0	12	18	5	69,5	22,5	27,5	0,046	XCMT 0502..	◉
182021400	XMS-R 12016-2.25D	Right	1	12,0	16	22	6	78,0	27,0	33,0	0,089	XCMT 0602..	◉
182021500	XMS-R 14016-2.25D	Right	1	14,0	16	22	7	83,5	31,5	38,5	0,094	XCMT 0703..	◉
182021600	XMS-R 16020-2.25D	Right	1	16,0	20	28	8	94,0	36,0	44,0	0,154	XCMT 0803..	◉
182021700	XMS-R 18025-2.25D	Right	1	18,0	25	36	9	109,5	40,5	53,5	0,293	XCMT 09T3..	◉
182021800	XMS-R 20025-2.25D	Right	1	20,0	25	36	10	111,0	45,0	55,0	0,311	XCMT 10T3..	◉
182021900	XMS-R 25032-2.25D	Right	1	25,0	32	44	12,5	129,0	56,5	69,0	0,563	XCMT 1304..	◉
182022000	XMS-R 32040-2.25D	Right	1	32,0	40	54	16	158,0	72,0	88,0	1,117	XCMT 1705..	◉
182022100	XMS-L 08010-2.25D	Left	1	8,0	10	15	4	60,0	18,0	22,0	0,027	XCMT 0401.. EL	◉
182022200	XMS-L 10012-2.25D	Left	1	10,0	12	18	5	69,5	22,5	27,5	0,046	XCMT 0502..	◉
182022300	XMS-L 12016-2.25D	Left	1	12,0	16	22	6	78,0	27,0	33,0	0,089	XCMT 0602..	○
182022400	XMS-L 14016-2.25D	Left	1	14,0	16	22	7	83,5	31,5	38,5	0,094	XCMT 0703..	○
182022500	XMS-L 16020-2.25D	Left	1	16,0	20	28	8	94,0	36,0	44,0	0,154	XCMT 0803..	○
182022600	XMS-L 18025-2.25D	Left	1	18,0	25	36	9	109,5	40,5	53,5	0,293	XCMT 09T3..	○
182022700	XMS-L 20025-2.25D	Left	1	20,0	25	36	10	111,0	45,0	55,0	0,311	XCMT 10T3..	○
182022800	XMS-L 25032-2.25D	Left	1	25,0	32	44	12,5	129,0	56,5	69,0	0,563	XCMT 1304..	○
182022900	XMS-L 32040-2.25D	Left	1	32,0	40	54	16	158,0	72,0	88,0	1,117	XCMT 1705..	◉

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

XCMT Inserts | Pastilhas | Plaquitas

XCMT-MP
(PH7 grade)

XCMT-MP
(PHS grade)



XCMT-MP

		P	M		S	Dimensions | Dimensões | Dimensiones (mm)				Hand
		PVD	CVD	PVD	PVD					
	(2) Grade code	G4	U5	G4	G4					
(1) Geometry code	ISO Reference	PH7920	PHS225	PH7920	PH7920	IC	S	INSL	RE	
1124790	XCMT 040104-MP ER	◉	◉	◉	◉	4,40	1,89	4,00	0,40	Right
1124791	XCMT 040104-MP EL	◉	◉	◉	◉	4,40	1,89	4,00	0,40	Left
1124792	XCMT 050204-MP EN	◉	◉	◉	◉	5,65	2,14	5,00	0,40	Neutral
1123788	XCMT 060204-MP EN	◉	◉	◉	◉	6,40	2,47	6,00	0,40	Neutral
1124784	XCMT 070304-MP EN	◉	◉	◉	◉	7,50	3,25	7,00	0,40	Neutral
1124785	XCMT 080304-MP EN	◉	◉	◉	◉	8,40	3,26	8,00	0,40	Neutral
1124786	XCMT 09T304-MP EN	◉	◉	◉	◉	9,45	4,00	9,00	0,40	Neutral
1124787	XCMT 10T308-MP EN	◉	◉	◉	◉	10,40	4,00	10,00	0,80	Neutral
1124788	XCMT 130408-MP EN	◉	◉	◉	◉	13,35	4,85	12,50	0,80	Neutral
1124789	XCMT 170508-MP EN	◉	◉	◉	◉	17,30	5,58	16,00	0,80	Neutral

◉ First choice | Primeira opção | 1ª opción ◉ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

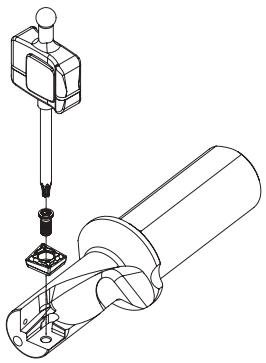
Insert order code = (1) Geometry Code + (2) Grade Code

NEW MULTICUT

SPARE PARTS Acessórios | Repuestos

Order separately

Cutter ØDc	Insert Screw	Key (Torx)	Key (Torx - Nm)	Torque Value
				Nm
XMS-R/L 08010-2.25D	P0180400	XT06IP	DT0606IP	0,60
XMS-R/L 10012-2.25D	P0200500	XT06	DT0606	0,60
XMS-R/L 12016-2.25D	P0220500	XT07	DT0709	0,90
XMS-R/L 14016-2.25D	P0250704	XT08	DT0812	1,20
XMS-R/L 16020-2.25D	P0300701	XT08	DT0812	1,20
XMS-R/L 18025-2.25D	P0300701	XT08	DT0812	1,20
XMS-R/L 20025-2.25D	P0350800	PT15	DT1530	3,00
XMS-R/L 25032-2.25D	P0500900	PT20	DT2050	4,00
XMS-R/L 32040-2.25D	P0501302	PT20	DT2050	4,00



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

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance	Toughness →
				PH7920	PHS225
P	1	Unalloyed Steel	125-170	✓	
	2	Low-Alloyed Steel	180-350	✓	
	3	High-Alloyed Steel	200-325	✓	
M	4	SS - Ferritic / Martensitic	200-330	✓	✓
	5	SS - Austenitic	180-330	✓	✓
	6	SS - Austenitic-ferritic (Duplex)	230-260	✓	✓
S	11	Heat Resistant Super Alloys	200-320	✓	

Good Conditions Average Conditions Difficult Conditions

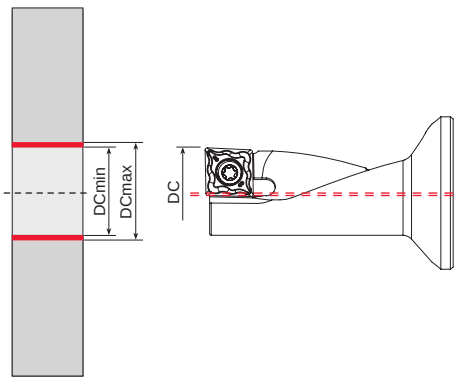
RECOMMENDED CUTTING CONDITIONS Condições de corte recomendadas | Condiciones de corte recomendables

ISO	PSM	Material	HB (Brinell)	Vc (m/min) ← Wear Resistance — Toughness →	
				PH7920	PHS225
P	1	Unalloyed Steel	125-170	110-220	-
	2	Low-Alloyed Steel	180-350	100-210	-
	3	High-Alloyed Steel	200-325	85-190	-
M	4	SS - Ferritic / Martensitic	200-330	95-210	70-230
	5	SS - Austenitic	180-330	85-205	65-225
	6	SS - Austenitic-ferritic (Duplex)	230-260	80-195	55-215
S	11	Heat Resistant Super Alloys	200-320	25-210	-

Reference	FN (mm/rev)			AP (mm)	
	Face Turning	Int/Ext Turning	Holemaking	Face Turning	Int/Ext Turning
XCMT 040104-MP ER/L	0,02-0,09	0,02-0,13	0,01-0,04	0,50-1,90	0,50-2,70
XCMT 050204-MP EN	0,02-0,12	0,02-0,15	0,01-0,05	0,50-2,20	0,50-3,20
XCMT 060204-MP EN	0,02-0,14	0,02-0,16	0,01-0,06	0,70-2,70	0,70-3,70
XCMT 070304-MP EN	0,02-0,16	0,02-0,18	0,01-0,08	0,80-3,00	0,80-4,00
XCMT 080304-MP EN	0,03-0,18	0,03-0,20	0,02-0,08	0,90-3,40	0,90-4,20
XCMT 09T304-MP EN	0,03-0,20	0,03-0,22	0,03-0,09	0,90-3,80	0,90-4,70
XCMT 10T308-MP EN	0,03-0,22	0,03-0,24	0,03-0,10	1,00-4,20	1,00-5,30
XCMT 130408-MP EN	0,03-0,24	0,03-0,26	0,04-0,12	1,00-5,00	1,00-6,50
XCMT 170508-MP EN	0,03-0,27	0,03-0,30	0,04-0,15	1,00-6,00	1,00-7,00

Off-center drilling:

Thanks to MultiCut's unique geometry, it is possible to perform off-center drilling. Therefore, with slight deviations from the center of the workpiece, it is possible to make holes with diameters different from the nominal diameter, as shown in the table below.



Reference	Drilling (mm)		
	DC nominal	DCmin	DCmax
XMS-R/L 08010-2.25D	8	7,85	8,30
XMS-R/L 10012-2.25D	10	9,85	10,50
XMS-R/L 12016-2.25D	12	11,85	12,50
XMS-R/L 14016-2.25D	14	13,80	14,50
XMS-R/L 16020-2.25D	16	15,80	16,50
XMS-R/L 18025-2.25D	18	17,80	18,50
XMS-R/L 20025-2.25D	20	19,75	20,50
XMS-R/L 25032-2.25D	25	24,75	25,80
XMS-R/L 32040-2.25D	32	31,75	33,00

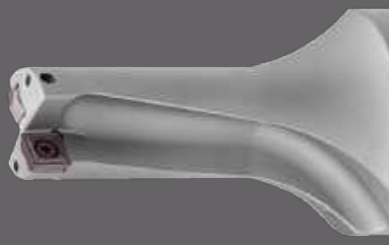
JET DRILLS

Jet drills provide an indexable insert solution for drilling across a wide range of diameters and cutting lengths, with or without cartridges. The innovative XCS drill demonstrates its versatility in drilling on any surface type, featuring dedicated chip breakers specially designed for steel, cast iron, stainless steel, and super alloys.

As brocas Jet oferecem uma solução de inserção indexável para perfurar numa ampla gama de diâmetros e comprimentos de corte, com ou sem cartuchos. A broca XCS demonstra versatilidade em qualquer tipo de superfície, apresentando quebra-aparas especialmente projetados para aço, ferro fundido, aço inoxidável e superligas.

Las brocas Jet proporcionan una solución de inserción indexable para la perforación en una amplia gama de diámetros y longitudes de corte, con o sin cartuchos. La broca XCS demuestra versatilidad en cualquier tipo de superficie, con rompevirutas especialmente diseñados para acero, hierro fundido, acero inoxidable y superaleaciones.

NEW XCS DRILL > page 380

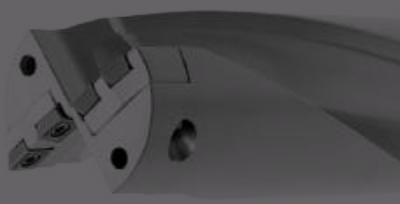


- From DC 14,0mm to 60,0mm
  De DC 14mm a 60mm | Desde DC 14mm hasta 60mm
- Available in 2D, 3D, 4D and 5D
  Disponível em 2D, 3D, 4D e 5D | Disponible en 2D, 3D, 4D y 5D
- Inserts XOKX and SOKX
  Pastilhas XOKX e SOKX | Plaquitas XOKX y SOKX

SCS DRILL > page 394

- From DC 13,0mm to 50,0mm
  De DC 13,0mm a 50,0mm | Desde DC 13,0mm hasta 50,0mm
- Available in 3D and 4D
  Disponível em 3D e 4D | Disponible en 3D y 4D
- Insert SPKX
  Pastilha SPKX | Plaquita SPKX

SCC DRILL > page 398

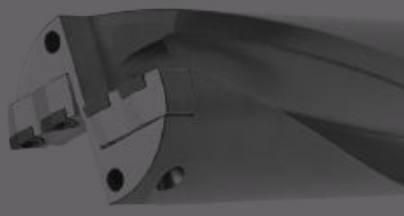


- From DC 50mm to 80mm
  De DC 50mm a 80mm | Desde DC 50mm hasta 80mm
- Available in 3D and 4D
  Disponível em 3D e 4D | Disponible en 3D y 4D
- 2 SPKX inserts per cartridge
  2 pastilhas SPKX por cartucho | 2 plaquitas SPKX por cartucho

TDS DRILL > page 401

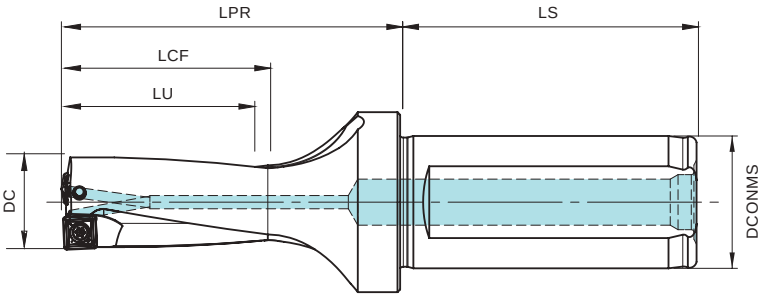
- From DC 13,0mm to 58,0mm
  De DC 13,0mm a 58,0mm | Desde DC 13,0mm hasta 58,0mm
- Available in 3D
  Disponível em 3D | Disponible en 3D
- Insert WCKX
  Pastilha WCKX | Plaquita WCKX

TDC DRILL > page 403



- From DC 59mm to 80mm
  De DC 59mm a 80mm | Desde DC 59mm hasta 80mm
- Available in 3D
  Disponível em 3D | Disponible en 3D
- 2 WCKX inserts per cartridge
  2 pastilhas WCKX por cartucho | 2 plaquitas WCKX por cartucho

NEW XCS 2D Jet drills | Brocas jet | Brocas jet



DCONMS	LS	BP / SP
20	50	PT - 1/8
25	56	PT - 1/8
32	60	PT - 1/4
40	70	PT - 1/4

2D		
DC	Drill tolerance	Hole tolerance
14-29,5	0/-0,15	-0,10/+0,20
30-42	0/-0,15	-0,10/+0,25
43-60	0/-0,15	-0,10/+0,28

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)					Inner Insert	Outer Insert	Insert Screw	Torx key	Stock
		DC	DCONMS	LU	LCF	LPR					
184316800	XCS 14020-2D	14,0	20	28	31	51	XOKX 050204	SOKX 050204	P02004IP	XT06IP	◎
184316900	XCS 14520-2D	14,5	20	29	32	52	XOKX 050204	SOKX 050204	P02004IP	XT06IP	◎
184317000	XCS 15020-2D	15,0	20	30	33	53	XOKX 050204	SOKX 050204	P02004IP	XT06IP	◎
184317100	XCS 15520-2D	15,5	20	31	34	54	XOKX 050204	SOKX 050204	P02004IP	XT06IP	◎
184317200	XCS 16020-2D	16,0	20	32	35	55	XOKX 050204	SOKX 050204	P02004IP	XT06IP	◎
184317300	XCS 16525-2D	16,5	25	33	36	61	XOKX 060204	SOKX 060205	P02205IP	XT06IP	◎
184317400	XCS 17025-2D	17,0	25	34	37	62	XOKX 060204	SOKX 060205	P02205IP	XT06IP	◎
184317500	XCS 17525-2D	17,5	25	35	38	63	XOKX 060204	SOKX 060205	P02205IP	XT06IP	◎
184317600	XCS 18025-2D	18,0	25	36	39	64	XOKX 060204	SOKX 060205	P02205IP	XT06IP	◎
184317700	XCS 18525-2D	18,5	25	37	40	65	XOKX 060204	SOKX 060205	P02205IP	XT06IP	◎
184317800	XCS 19025-2D	19,0	25	38	41	66	XOKX 060204	SOKX 060205	P02205IP	XT06IP	◎
184317900	XCS 19525-2D	19,5	25	39	42	67	XOKX 060204	SOKX 060205	P02205IP	XT06IP	◎
184318000	XCS 20025-2D	20,0	25	40	43	68	XOKX 07T205	SOKX 07T208	P02507IP	XT08IP	◎
184318100	XCS 20525-2D	20,5	25	41	44	69	XOKX 07T205	SOKX 07T208	P02507IP	XT08IP	◎
184318200	XCS 21025-2D	21,0	25	42	45	70	XOKX 07T205	SOKX 07T208	P02507IP	XT08IP	◎
184318300	XCS 21525-2D	21,5	25	43	46	71	XOKX 07T205	SOKX 07T208	P02507IP	XT08IP	◎
184318400	XCS 22025-2D	22,0	25	44	47	72	XOKX 07T205	SOKX 07T208	P02507IP	XT08IP	◎
184318500	XCS 22525-2D	22,5	25	45	48	73	XOKX 07T205	SOKX 07T208	P02507IP	XT08IP	◎
184318600	XCS 23025-2D	23,0	25	46	49	74	XOKX 07T205	SOKX 07T208	P02507IP	XT08IP	◎
184318700	XCS 23525-2D	23,5	25	47	50	75	XOKX 07T205	SOKX 07T208	P02507IP	XT08IP	◎

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

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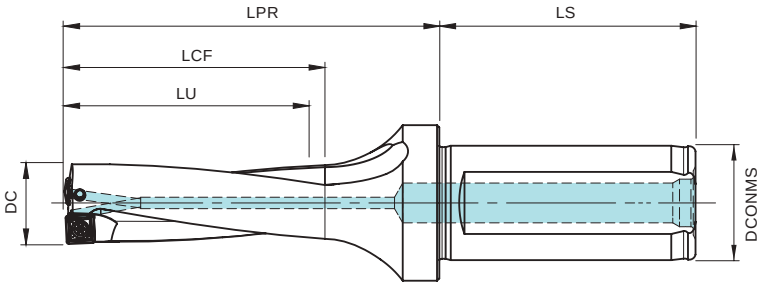
Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)					Inner Insert	Outer Insert	Insert Screw	Torx key	Stock
		DC	DCONMS	LU	LCF	LPR					
184318800	XCS 24032-2D	24,0	32	48	51	81	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184318900	XCS 24532-2D	24,5	32	49	52	82	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184319000	XCS 25032-2D	25,0	32	50	53	83	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184319100	XCS 25532-2D	25,5	32	51	54	84	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184319200	XCS 26032-2D	26,0	32	52	55	85	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184319300	XCS 26532-2D	26,5	32	53	56	86	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184319400	XCS 27032-2D	27,0	32	54	57	87	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184319500	XCS 27532-2D	27,5	32	55	58	88	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184319600	XCS 28032-2D	28,0	32	56	59	89	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184319700	XCS 28532-2D	28,5	32	57	60	90	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184319800	XCS 29032-2D	29,0	32	58	61	91	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184319900	XCS 29532-2D	29,5	32	59	62	92	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184320000	XCS 30032-2D	30,0	32	62	65	95	XOKX 11T306	SOKX 11T308	P03508IP	XT15IP-S35	●
184320100	XCS 31032-2D	31,0	32	64	67	97	XOKX 11T306	SOKX 11T308	P03508IP	XT15IP-S35	●
184320200	XCS 32032-2D	32,0	32	66	69	99	XOKX 11T306	SOKX 11T308	P03508IP	XT15IP-S35	●
184320300	XCS 33032-2D	33,0	32	68	71	101	XOKX 11T306	SOKX 11T308	P03508IP	XT15IP-S35	●
184320400	XCS 34032-2D	34,0	32	70	73	103	XOKX 11T306	SOKX 11T308	P03508IP	XT15IP-S35	●
184320500	XCS 35032-2D	35,0	32	72	75	105	XOKX 11T306	SOKX 11T308	P03508IP	XT15IP-S35	●
184320600	XCS 36040-2D	36,0	40	74	77	112	XOKX 130406	SOKX 130410	P04010IP	XT15IP-S35	●
184320700	XCS 37040-2D	37,0	40	76	79	114	XOKX 130406	SOKX 130410	P04010IP	XT15IP-S35	●
184320800	XCS 38040-2D	38,0	40	78	81	116	XOKX 130406	SOKX 130410	P04010IP	XT15IP-S35	●
184320900	XCS 39040-2D	39,0	40	80	83	118	XOKX 130406	SOKX 130410	P04010IP	XT15IP-S35	●
184321000	XCS 40040-2D	40,0	40	82	85	120	XOKX 130406	SOKX 130410	P04010IP	XT15IP-S35	●
184321100	XCS 41040-2D	41,0	40	84	87	122	XOKX 130406	SOKX 130410	P04010IP	XT15IP-S35	●
184321200	XCS 42040-2D	42,0	40	86	89	124	XOKX 130406	SOKX 130410	P04010IP	XT15IP-S35	●
184321300	XCS 43040-2D	43,0	40	88	91	126	XOKX 150508	SOKX 150510	P05013IP	XT20IP-S40	●
184321400	XCS 44040-2D	44,0	40	90	93	128	XOKX 150508	SOKX 150510	P05013IP	XT20IP-S40	●
184321500	XCS 45040-2D	45,0	40	92	95	130	XOKX 150508	SOKX 150510	P05013IP	XT20IP-S40	●
184321600	XCS 46040-2D	46,0	40	94	97	132	XOKX 150508	SOKX 150510	P05013IP	XT20IP-S40	●
184321700	XCS 47040-2D	47,0	40	96	99	134	XOKX 150508	SOKX 150510	P05013IP	XT20IP-S40	●
184321800	XCS 48040-2D	48,0	40	98	101	136	XOKX 150508	SOKX 150510	P05013IP	XT20IP-S40	●
184321900	XCS 49040-2D	49,0	40	100	103	138	XOKX 150508	SOKX 150510	P05013IP	XT20IP-S40	●
184322000	XCS 50040-2D	50,0	40	102	105	140	XOKX 150508	SOKX 150510	P05013IP	XT20IP-S40	●
184340200	XCS 51040-2D	51,0	40	104	107	142	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●
184340300	XCS 52040-2D	52,0	40	106	109	144	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●
184340400	XCS 53040-2D	53,0	40	108	111	146	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●
184340500	XCS 54040-2D	54,0	40	110	113	148	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●
184340600	XCS 55040-2D	55,0	40	112	115	150	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●
184340700	XCS 56040-2D	56,0	40	114	117	152	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●
184340800	XCS 57040-2D	57,0	40	116	119	154	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●
184340900	XCS 58040-2D	58,0	40	118	121	156	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●
184341000	XCS 59040-2D	59,0	40	120	123	158	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●
184341100	XCS 60040-2D	60,00	40	122	125	160	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●

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

NEW XCS 3D Jet drills | Brocas jet | Brocas jet



DCONMS	LS	BP / SP
20	50	PT - 1/8
25	56	PT - 1/8
32	60	PT - 1/4
40	70	PT - 1/4

3D		
DC	Drill tolerance	Hole tolerance
14-29,5	0/-0,15	-0,10/+0,20
30-42	0/-0,15	-0,10/+0,25
43-60	0/-0,15	-0,10/+0,28

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)					Inner Insert	Outer Insert	Insert Screw	Torx key	Stock
		DC	DCONMS	LU	LCF	LPR					
184322100	XCS 14020-3D	14,0	20	42	45	65	XOKX 050204	SOKX 050204	P02004IP	XT06IP	●
184322200	XCS 14520-3D	14,5	20	44	47	67	XOKX 050204	SOKX 050204	P02004IP	XT06IP	●
184322300	XCS 15020-3D	15,0	20	45	48	68	XOKX 050204	SOKX 050204	P02004IP	XT06IP	●
184322400	XCS 15520-3D	15,5	20	47	50	70	XOKX 050204	SOKX 050204	P02004IP	XT06IP	●
184322500	XCS 16020-3D	16,0	20	48	51	71	XOKX 050204	SOKX 050204	P02004IP	XT06IP	●
184322600	XCS 16525-3D	16,5	25	50	53	78	XOKX 060204	SOKX 060205	P02205IP	XT06IP	●
184322700	XCS 17025-3D	17,0	25	51	54	79	XOKX 060204	SOKX 060205	P02205IP	XT06IP	●
184322800	XCS 17525-3D	17,5	25	53	56	81	XOKX 060204	SOKX 060205	P02205IP	XT06IP	●
184322900	XCS 18025-3D	18,0	25	54	57	82	XOKX 060204	SOKX 060205	P02205IP	XT06IP	●
184323000	XCS 18525-3D	18,5	25	56	59	84	XOKX 060204	SOKX 060205	P02205IP	XT06IP	●
184323100	XCS 19025-3D	19,0	25	57	60	85	XOKX 060204	SOKX 060205	P02205IP	XT06IP	●
184323200	XCS 19525-3D	19,5	25	59	62	87	XOKX 060204	SOKX 060205	P02205IP	XT06IP	●
184323300	XCS 20025-3D	20,0	25	60	63	88	XOKX 07T205	SOKX 07T208	P02507IP	XT08IP	●
184323400	XCS 20525-3D	20,5	25	62	65	90	XOKX 07T205	SOKX 07T208	P02507IP	XT08IP	●
184323500	XCS 21025-3D	21,0	25	63	66	91	XOKX 07T205	SOKX 07T208	P02507IP	XT08IP	●
184323600	XCS 21525-3D	21,5	25	65	68	93	XOKX 07T205	SOKX 07T208	P02507IP	XT08IP	●
184323700	XCS 22025-3D	22,0	25	66	69	94	XOKX 07T205	SOKX 07T208	P02507IP	XT08IP	●
184323800	XCS 22525-3D	22,5	25	68	71	96	XOKX 07T205	SOKX 07T208	P02507IP	XT08IP	●
184323900	XCS 23025-3D	23,0	25	69	72	97	XOKX 07T205	SOKX 07T208	P02507IP	XT08IP	●
184324000	XCS 23525-3D	23,5	25	71	74	99	XOKX 07T205	SOKX 07T208	P02507IP	XT08IP	●

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

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XCS 3D

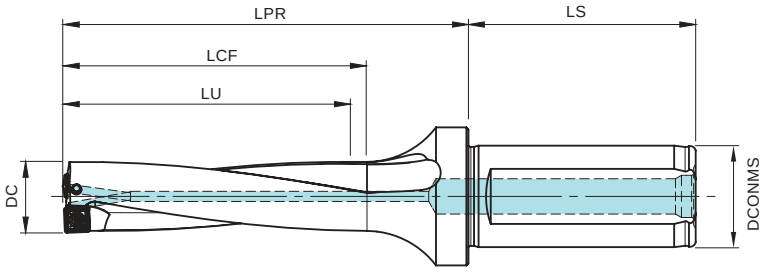
Jet drills | Brocas jet | Brocas jet

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)					Inner Insert	Outer Insert	Insert Screw	Torx key	Stock
		DC	DCONMS	LU	LCF	LPR					
184324100	XCS 24032-3D	24,0	32	72	75	105	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184324200	XCS 24532-3D	24,5	32	74	77	107	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184324300	XCS 25032-3D	25,0	32	75	78	108	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184324400	XCS 25532-3D	25,5	32	77	80	110	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184324500	XCS 26032-3D	26,0	32	78	81	111	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184324600	XCS 26532-3D	26,5	32	80	83	113	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184324700	XCS 27032-3D	27,0	32	81	84	114	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184324800	XCS 27532-3D	27,5	32	83	86	116	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184324900	XCS 28032-3D	28,0	32	84	87	117	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184325000	XCS 28532-3D	28,5	32	86	89	119	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184325100	XCS 29032-3D	29,0	32	87	90	120	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184325200	XCS 29532-3D	29,5	32	89	92	122	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184325300	XCS 30032-3D	30,0	32	92	95	125	XOKX 11T306	SOKX 11T308	P03508IP	XT15IP-S35	●
184325400	XCS 31032-3D	31,0	32	95	98	128	XOKX 11T306	SOKX 11T308	P03508IP	XT15IP-S35	●
184325500	XCS 32032-3D	32,0	32	98	101	131	XOKX 11T306	SOKX 11T308	P03508IP	XT15IP-S35	●
184325600	XCS 33032-3D	33,0	32	101	104	134	XOKX 11T306	SOKX 11T308	P03508IP	XT15IP-S35	●
184325700	XCS 34032-3D	34,0	32	104	107	137	XOKX 11T306	SOKX 11T308	P03508IP	XT15IP-S35	●
184325800	XCS 35032-3D	35,0	32	107	110	140	XOKX 11T306	SOKX 11T308	P03508IP	XT15IP-S35	●
184325900	XCS 36040-3D	36,0	40	110	113	148	XOKX 130406	SOKX 130410	P04010IP	XT15IP-S35	●
184326000	XCS 37040-3D	37,0	40	113	116	151	XOKX 130406	SOKX 130410	P04010IP	XT15IP-S35	●
184326100	XCS 38040-3D	38,0	40	116	119	154	XOKX 130406	SOKX 130410	P04010IP	XT15IP-S35	●
184326200	XCS 39040-3D	39,0	40	119	122	157	XOKX 130406	SOKX 130410	P04010IP	XT15IP-S35	●
184326300	XCS 40040-3D	40,0	40	122	125	160	XOKX 130406	SOKX 130410	P04010IP	XT15IP-S35	●
184326400	XCS 41040-3D	41,0	40	125	128	163	XOKX 130406	SOKX 130410	P04010IP	XT15IP-S35	●
184326500	XCS 42040-3D	42,0	40	128	131	166	XOKX 130406	SOKX 130410	P04010IP	XT15IP-S35	●
184326600	XCS 43040-3D	43,0	40	131	134	169	XOKX 150508	SOKX 150510	P05013IP	XT20IP-S40	●
184326700	XCS 44040-3D	44,0	40	134	137	172	XOKX 150508	SOKX 150510	P05013IP	XT20IP-S40	●
184310700	XCS 45040-3D	45,0	40	137	140	175	XOKX 150508	SOKX 150510	P05013IP	XT20IP-S40	●
184310800	XCS 46040-3D	46,0	40	140	143	178	XOKX 150508	SOKX 150510	P05013IP	XT20IP-S40	●
184326800	XCS 47040-3D	47,0	40	143	146	181	XOKX 150508	SOKX 150510	P05013IP	XT20IP-S40	●
184326900	XCS 48040-3D	48,0	40	146	149	184	XOKX 150508	SOKX 150510	P05013IP	XT20IP-S40	●
184327000	XCS 49040-3D	49,0	40	149	152	187	XOKX 150508	SOKX 150510	P05013IP	XT20IP-S40	●
184327100	XCS 50040-3D	50,0	40	152	155	190	XOKX 150508	SOKX 150510	P05013IP	XT20IP-S40	●
184341200	XCS 51040-3D	51,0	40	155	158	193	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●
184341300	XCS 52040-3D	52,0	40	158	161	196	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●
184341400	XCS 53040-3D	53,0	40	161	164	199	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●
184341500	XCS 54040-3D	54,0	40	164	167	202	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●
184341600	XCS 55040-3D	55,0	40	167	170	205	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●
184341700	XCS 56040-3D	56,0	40	170	173	208	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●
184341800	XCS 57040-3D	57,0	40	173	176	211	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●
184341900	XCS 58040-3D	58,0	40	176	179	214	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●
184342000	XCS 59040-3D	59,0	40	179	182	217	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●
184342100	XCS 60040-3D	60,0	40	182	185	220	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●

● Stock item | Produto de stock | Itens de stock

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

NEW XCS 4D Jet drills | Brocas jet | Brocas jet



DCONMS	LS	BP / SP
20	50	PT - 1/8
25	56	PT - 1/8
32	60	PT - 1/4
40	70	PT - 1/4

4D		
DC	Drill tolerance	Hole tolerance
14-29,5	0/-0,15	-0,05/+0,25
30-42	0/-0,15	-0,05/+0,30
43-60	0/-0,15	-0,05/+0,33

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)					Inner Insert	Outer Insert	Insert Screw	Torx key	Stock
		DC	DCONMS	LU	LCF	LPR					
184327200	XCS 14020-4D	14,0	20	56	59	79	XOKX 050204	SOKX 050204	P02004IP	XT06IP	◎
184327300	XCS 14520-4D	14,5	20	58	61	81	XOKX 050204	SOKX 050204	P02004IP	XT06IP	◎
184327400	XCS 15020-4D	15,0	20	60	63	83	XOKX 050204	SOKX 050204	P02004IP	XT06IP	◎
184327500	XCS 15520-4D	15,5	20	62	65	85	XOKX 050204	SOKX 050204	P02004IP	XT06IP	◎
184327600	XCS 16020-4D	16,0	20	64	67	87	XOKX 050204	SOKX 050204	P02004IP	XT06IP	◎
184327700	XCS 16525-4D	16,5	25	66	69	94	XOKX 060204	SOKX 060205	P02205IP	XT06IP	◎
184327800	XCS 17025-4D	17,0	25	68	71	96	XOKX 060204	SOKX 060205	P02205IP	XT06IP	◎
184327900	XCS 17525-4D	17,5	25	70	73	98	XOKX 060204	SOKX 060205	P02205IP	XT06IP	◎
184328000	XCS 18025-4D	18,0	25	72	75	100	XOKX 060204	SOKX 060205	P02205IP	XT06IP	◎
184328100	XCS 18525-4D	18,5	25	74	77	102	XOKX 060204	SOKX 060205	P02205IP	XT06IP	◎
184328200	XCS 19025-4D	19,0	25	76	79	104	XOKX 060204	SOKX 060205	P02205IP	XT06IP	◎
184328300	XCS 19525-4D	19,5	25	78	81	106	XOKX 060204	SOKX 060205	P02205IP	XT06IP	◎
184328400	XCS 20025-4D	20,0	25	80	83	108	XOKX 07T205	SOKX 07T208	P02507IP	XT08IP	◎
184328500	XCS 20525-4D	20,5	25	82	85	110	XOKX 07T205	SOKX 07T208	P02507IP	XT08IP	◎
184328600	XCS 21025-4D	21,0	25	84	87	112	XOKX 07T205	SOKX 07T208	P02507IP	XT08IP	◎
184328700	XCS 21525-4D	21,5	25	86	89	114	XOKX 07T205	SOKX 07T208	P02507IP	XT08IP	◎
184328800	XCS 22025-4D	22,0	25	88	91	116	XOKX 07T205	SOKX 07T208	P02507IP	XT08IP	◎
184328900	XCS 22525-4D	22,5	25	90	93	118	XOKX 07T205	SOKX 07T208	P02507IP	XT08IP	◎
184329000	XCS 23025-4D	23,0	25	92	95	120	XOKX 07T205	SOKX 07T208	P02507IP	XT08IP	◎
184329100	XCS 23525-4D	23,5	25	94	97	122	XOKX 07T205	SOKX 07T208	P02507IP	XT08IP	◎

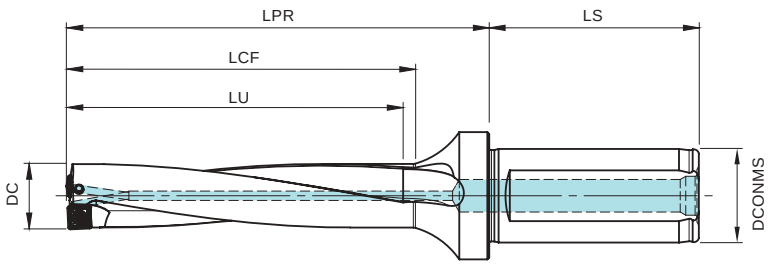
◎ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Continue next page

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)					Inner Insert	Outer Insert	Insert Screw	Torx key	Stock
		DC	DCONMS	LU	LCF	LPR					
184329200	XCS 24032-4D	24,0	32	96	99	129	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184329300	XCS 24532-4D	24,5	32	98	101	131	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184329400	XCS 25032-4D	25,0	32	100	103	133	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184329500	XCS 25532-4D	25,5	32	102	105	135	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184329600	XCS 26032-4D	26,0	32	104	107	137	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184329700	XCS 26532-4D	26,5	32	106	109	139	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184329800	XCS 27032-4D	27,0	32	108	111	141	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184329900	XCS 27532-4D	27,5	32	110	113	143	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184330000	XCS 28032-4D	28,0	32	112	115	145	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184330100	XCS 28532-4D	28,5	32	114	117	147	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184330200	XCS 29032-4D	29,0	32	116	119	149	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184330300	XCS 29532-4D	29,5	32	118	121	151	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184330400	XCS 30032-4D	30,0	32	122	125	155	XOKX 11T306	SOKX 11T308	P03508IP	XT15IP-S35	●
184330500	XCS 31032-4D	31,0	32	126	129	159	XOKX 11T306	SOKX 11T308	P03508IP	XT15IP-S35	●
184330600	XCS 32032-4D	32,0	32	130	133	163	XOKX 11T306	SOKX 11T308	P03508IP	XT15IP-S35	●
184330700	XCS 33032-4D	33,0	32	134	137	167	XOKX 11T306	SOKX 11T308	P03508IP	XT15IP-S35	●
184330800	XCS 34032-4D	34,0	32	138	141	171	XOKX 11T306	SOKX 11T308	P03508IP	XT15IP-S35	●
184330900	XCS 35032-4D	35,0	32	142	145	175	XOKX 11T306	SOKX 11T308	P03508IP	XT15IP-S35	●
184331000	XCS 36040-4D	36,0	40	146	149	184	XOKX 130406	SOKX 130410	P04010IP	XT15IP-S35	●
184331100	XCS 37040-4D	37,0	40	150	153	188	XOKX 130406	SOKX 130410	P04010IP	XT15IP-S35	●
184331200	XCS 38040-4D	38,0	40	154	157	192	XOKX 130406	SOKX 130410	P04010IP	XT15IP-S35	●
184331300	XCS 39040-4D	39,0	40	158	161	196	XOKX 130406	SOKX 130410	P04010IP	XT15IP-S35	●
184331400	XCS 40040-4D	40,0	40	162	165	200	XOKX 130406	SOKX 130410	P04010IP	XT15IP-S35	●
184331500	XCS 41040-4D	41,0	40	166	169	204	XOKX 130406	SOKX 130410	P04010IP	XT15IP-S35	●
184331600	XCS 42040-4D	42,0	40	170	173	208	XOKX 130406	SOKX 130410	P04010IP	XT15IP-S35	●
184331700	XCS 43040-4D	43,0	40	174	177	212	XOKX 150508	SOKX 150510	P05013IP	XT20IP-S40	●
184331800	XCS 44040-4D	44,0	40	178	181	216	XOKX 150508	SOKX 150510	P05013IP	XT20IP-S40	●
184331900	XCS 45040-4D	45,0	40	182	185	220	XOKX 150508	SOKX 150510	P05013IP	XT20IP-S40	●
184332000	XCS 46040-4D	46,0	40	186	189	224	XOKX 150508	SOKX 150510	P05013IP	XT20IP-S40	●
184332100	XCS 47040-4D	47,0	40	190	193	228	XOKX 150508	SOKX 150510	P05013IP	XT20IP-S40	●
184332200	XCS 48040-4D	48,0	40	194	197	232	XOKX 150508	SOKX 150510	P05013IP	XT20IP-S40	●
184332300	XCS 49040-4D	49,0	40	198	201	236	XOKX 150508	SOKX 150510	P05013IP	XT20IP-S40	●
184332400	XCS 50040-4D	50,0	40	202	205	240	XOKX 150508	SOKX 150510	P05013IP	XT20IP-S40	●
184342200	XCS 51040-4D	51,0	40	204	209	244	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●
184342300	XCS 52040-4D	52,0	40	208	213	248	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●
184342400	XCS 53040-4D	53,0	40	212	217	252	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●
184342500	XCS 54040-4D	54,0	40	216	221	256	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●
184342600	XCS 55040-4D	55,0	40	220	225	260	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●
184342700	XCS 56040-4D	56,0	40	224	229	264	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●
184342800	XCS 57040-4D	57,0	40	228	233	264	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●
184342900	XCS 58040-4D	58,0	40	232	237	272	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●
184343000	XCS 59040-4D	59,0	40	236	241	276	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●
184343100	XCS 60040-4D	60,0	40	240	245	280	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●

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

NEW XCS 5D Jet drills | Brocas jet | Brocas jet



DCONMS	LS	BP / SP
20	50	PT - 1/8
25	56	PT - 1/8
32	60	PT - 1/4
40	70	PT - 1/4

5D		
DC	Drill tolerance	Hole tolerance
14-29,5	0/-0,15	-0,05/+0,25
30-42	0/-0,15	-0,05/+0,30
43-60	0/-0,15	-0,05/+0,33

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)					Inner Insert	Outer Insert	Insert Screw	Torx key	Stock
		DC	DCONMS	LU	LCF	LPR					
184332500	XCS 14020-5D	14,0	20	70	73	88	XOKX 050204	SOKX 050204	P02004IP	XT06IP	●
184332600	XCS 14520-5D	14,5	20	73	76	91	XOKX 050204	SOKX 050204	P02004IP	XT06IP	●
184332700	XCS 15020-5D	15,0	20	75	78	93	XOKX 050204	SOKX 050204	P02004IP	XT06IP	●
184332800	XCS 15520-5D	15,5	20	78	81	96	XOKX 050204	SOKX 050204	P02004IP	XT06IP	●
184332900	XCS 16020-5D	16,0	20	80	83	98	XOKX 050204	SOKX 050204	P02004IP	XT06IP	●
184333000	XCS 16525-5D	16,5	25	83	86	106	XOKX 060204	SOKX 060205	P02205IP	XT06IP	●
184333100	XCS 17025-5D	17,0	25	85	88	108	XOKX 060204	SOKX 060205	P02205IP	XT06IP	●
184333200	XCS 17525-5D	17,5	25	88	91	111	XOKX 060204	SOKX 060205	P02205IP	XT06IP	●
184333300	XCS 18025-5D	18,0	25	90	93	113	XOKX 060204	SOKX 060205	P02205IP	XT06IP	●
184333400	XCS 18525-5D	18,5	25	93	96	116	XOKX 060204	SOKX 060205	P02205IP	XT06IP	●
184333500	XCS 19025-5D	19,0	25	95	98	118	XOKX 060204	SOKX 060205	P02205IP	XT06IP	●
184333600	XCS 19525-5D	19,5	25	98	101	121	XOKX 060204	SOKX 060205	P02205IP	XT06IP	●
184333700	XCS 20025-5D	20,0	25	100	103	123	XOKX 07T205	SOKX 07T208	P02507IP	XT08IP	●
184333800	XCS 20525-5D	20,5	25	103	106	126	XOKX 07T205	SOKX 07T208	P02507IP	XT08IP	●
184333900	XCS 21025-5D	21,0	25	105	108	128	XOKX 07T205	SOKX 07T208	P02507IP	XT08IP	●
184334000	XCS 21525-5D	21,5	25	108	111	131	XOKX 07T205	SOKX 07T208	P02507IP	XT08IP	●
184334100	XCS 22025-5D	22,0	25	110	113	133	XOKX 07T205	SOKX 07T208	P02507IP	XT08IP	●
184334200	XCS 22525-5D	22,5	25	113	116	136	XOKX 07T205	SOKX 07T208	P02507IP	XT08IP	●
184334300	XCS 23025-5D	23,0	25	115	118	138	XOKX 07T205	SOKX 07T208	P02507IP	XT08IP	●
184334400	XCS 23525-5D	23,5	25	118	121	141	XOKX 07T205	SOKX 07T208	P02507IP	XT08IP	●

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

Continue next page

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)					Inner Insert	Outer Insert	Insert Screw	Torx key	Stock
		DC	DCONMS	LU	LCF	LPR					
184334500	XCS 24032-5D	24,0	32	120	123	148	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184334600	XCS 24532-5D	24,5	32	123	126	151	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184334700	XCS 25032-5D	25,0	32	125	128	153	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184334800	XCS 25532-5D	25,5	32	128	131	156	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184334900	XCS 26032-5D	26,0	32	130	133	158	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184335000	XCS 26532-5D	26,5	32	133	136	161	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184335100	XCS 27032-5D	27,0	32	135	138	163	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184335200	XCS 27532-5D	27,5	32	138	141	176	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184335300	XCS 28032-5D	28,0	32	140	143	168	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184335400	XCS 28532-5D	28,5	32	143	146	171	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184335500	XCS 29032-5D	29,0	32	145	148	173	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184335600	XCS 29532-5D	29,5	32	148	151	176	XOKX 090305	SOKX 090308	P03007IP	XT08IP	●
184335700	XCS 30032-5D	30,0	32	152	155	180	XOKX 11T306	SOKX 11T308	P03508IP	XT15IP-S35	●
184335800	XCS 31032-5D	31,0	32	157	160	185	XOKX 11T306	SOKX 11T308	P03508IP	XT15IP-S35	●
184335900	XCS 32032-5D	32,0	32	162	165	190	XOKX 11T306	SOKX 11T308	P03508IP	XT15IP-S35	●
184336000	XCS 33032-5D	33,0	32	167	170	195	XOKX 11T306	SOKX 11T308	P03508IP	XT15IP-S35	●
184336100	XCS 34032-5D	34,0	32	172	175	200	XOKX 11T306	SOKX 11T308	P03508IP	XT15IP-S35	●
184336200	XCS 35032-5D	35,0	32	177	180	205	XOKX 11T306	SOKX 11T308	P03508IP	XT15IP-S35	●
184336300	XCS 36040-5D	36,0	40	182	185	215	XOKX 130406	SOKX 130410	P04010IP	XT15IP-S35	●
184336400	XCS 37040-5D	37,0	40	187	190	220	XOKX 130406	SOKX 130410	P04010IP	XT15IP-S35	●
184336500	XCS 38040-5D	38,0	40	192	195	225	XOKX 130406	SOKX 130410	P04010IP	XT15IP-S35	●
184336600	XCS 39040-5D	39,0	40	197	200	230	XOKX 130406	SOKX 130410	P04010IP	XT15IP-S35	●
184336700	XCS 40040-5D	40,0	40	202	205	235	XOKX 130406	SOKX 130410	P04010IP	XT15IP-S35	●
184336800	XCS 41040-5D	41,0	40	207	210	240	XOKX 130406	SOKX 130410	P04010IP	XT15IP-S35	●
184336900	XCS 42040-5D	42,0	40	212	215	245	XOKX 130406	SOKX 130410	P04010IP	XT15IP-S35	●
184337000	XCS 43040-5D	43,0	40	217	220	250	XOKX 150508	SOKX 150510	P05013IP	XT20IP-S40	●
184337100	XCS 44040-5D	44,0	40	222	225	255	XOKX 150508	SOKX 150510	P05013IP	XT20IP-S40	●
184337200	XCS 45040-5D	45,0	40	227	230	260	XOKX 150508	SOKX 150510	P05013IP	XT20IP-S40	●
184337300	XCS 46040-5D	46,0	40	232	235	265	XOKX 150508	SOKX 150510	P05013IP	XT20IP-S40	●
184337400	XCS 47040-5D	47,0	40	237	240	270	XOKX 150508	SOKX 150510	P05013IP	XT20IP-S40	●
184337500	XCS 48040-5D	48,0	40	242	245	275	XOKX 150508	SOKX 150510	P05013IP	XT20IP-S40	●
184337600	XCS 49040-5D	49,0	40	247	250	280	XOKX 150508	SOKX 150510	P05013IP	XT20IP-S40	●
184337700	XCS 50040-5D	50,0	40	252	255	285	XOKX 150508	SOKX 150510	P05013IP	XT20IP-S40	●
184343200	XCS 51040-5D	51,0	40	257	260	290	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●
184343300	XCS 52040-5D	52,0	40	262	265	295	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●
184343400	XCS 53040-5D	53,0	40	267	270	300	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●
184343500	XCS 54040-5D	54,0	40	272	275	305	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●
184343600	XCS 55040-5D	55,0	40	277	280	310	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●
184343700	XCS 56040-5D	56,0	40	282	285	315	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●
184343800	XCS 57040-5D	57,0	40	287	290	320	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●
184343900	XCS 58040-5D	58,0	40	292	295	325	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●
184344000	XCS 59040-5D	59,0	40	297	300	330	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●
184344100	XCS 60040-5D	60,0	40	302	305	335	XOKX 180508	SOKX 180510	P05013IP	XT20IP-S40	●

● Stock item | Produto de stock | Itens de stock

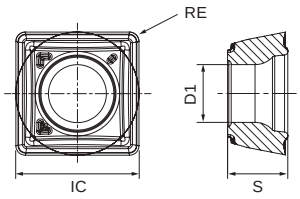
○ Available under request | Disponível sobre consulta | Disponible bajo consulta

NEW INSERTS Pastilhas | Plaquitas

SOKX OUTER INSERT

SOKX-MP

SOKX-MS



SOKX-MP | MS

		P			M		K			S		Dimensions | Dimensões | Dimensiones (mm)			
		PVD		CVD	PVD		PVD		CVD	PVD					
	(2) Grade code	T1	P4	2C	Y3	X9	T1	P4	2C	Y3	X9				
(1) Geometry code	ISO Reference	PHP920	PHP930	PHS130	PHH920	PHH930	PHP920	PHP930	PHS130	PHH920	PHH930	IC	S	D1	RE
1142113	SOKX 050204-MP	●		●			●		●			5,10	2,50	2,40	0,40
1142115	SOKX 060205-MP	●		●			●		●			6,20	2,60	2,60	0,50
1142117	SOKX 07T208-MP	●		●			●		●			7,50	2,90	2,90	0,80
1142119	SOKX 090308-MP	●		●			●		●			9,20	3,50	3,50	0,80
1142121	SOKX 11T308-MP	●		●			●		●			11,00	4,20	4,10	0,80
1142123	SOKX 130410-MP	●		●			●		●			13,00	4,73	4,60	1,00
1142125	SOKX 150510-MP	●		●			●		●			15,20	5,30	5,60	1,00
1142160	SOKX 180510-MP	●		●			●		●			18,20	5,30	5,60	1,00
1142127	SOKX 050204-MS				●					●		5,10	2,50	2,40	0,40
1142129	SOKX 060205-MS				●					●		6,20	2,60	2,60	0,50
1142131	SOKX 07T208-MS				●					●		7,50	2,90	2,90	0,80
1142133	SOKX 090308-MS				●					●		9,20	3,50	3,50	0,80
1142135	SOKX 11T308-MS				●					●		11,00	4,20	4,10	0,80
1142137	SOKX 130410-MS				●					●		13,00	4,73	4,60	1,00
1142139	SOKX 150510-MS				●					●		15,20	5,30	5,60	1,00
1142162	SOKX 180510-MS				●					●		18,20	5,30	5,60	1,00

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

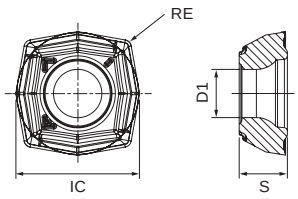
Insert order code = (1) Geometry code + (2) Grade code

palbit

XOKX INNER INSERT

XOKX-MP

XOKX-MS



XOKX-MP | MS

		P		M		K		S		Dimensions | Dimensões | Dimensiones (mm)			
		PVD		PVD		PVD		PVD					
	(2) Grade code	T1	P4	Y3	X9	T1	P4	Y3	X9				
(1) Geometry code	ISO Reference	PHP920	PHP930	PHH920	PHH930	PHP920	PHP930	PHH920	PHH930	IC	S	D1	RE
1142112	XOKX 050204-MP		●				●			5,40	2,50	2,40	0,40
1142114	XOKX 060204-MP		●				●			6,56	2,50	2,60	0,40
1142116	XOKX 07T205-MP		●				●			7,80	2,90	2,90	0,50
1142118	XOKX 090305-MP		●				●			9,60	3,50	3,50	0,50
1142120	XOKX 11T306-MP		●				●			11,38	4,15	4,10	0,60
1142122	XOKX 130406-MP		●				●			13,60	4,68	4,60	0,60
1142124	XOKX 150508-MP		●				●			15,90	5,30	5,60	0,80
1142159	XOKX 180508-MP		●				●			18,20	5,30	5,60	0,80
1142126	XOKX 050204-MS				●				●	5,40	2,50	2,40	0,40
1142128	XOKX 060204-MS				●				●	6,60	2,60	2,60	0,40
1142130	XOKX 07T205-MS				●				●	7,80	2,90	2,90	0,50
1142132	XOKX 090305-MS				●				●	9,60	3,50	3,50	0,50
1142134	XOKX 11T306-MS				●				●	11,38	4,20	4,10	0,60
1142136	XOKX 130406-MS				●				●	13,60	4,68	4,60	0,60
1142138	XOKX 150508-MS				●				●	15,90	5,30	5,60	0,80
1142161	XOKX 180508-MS				●				●	18,20	5,30	5,60	0,80

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

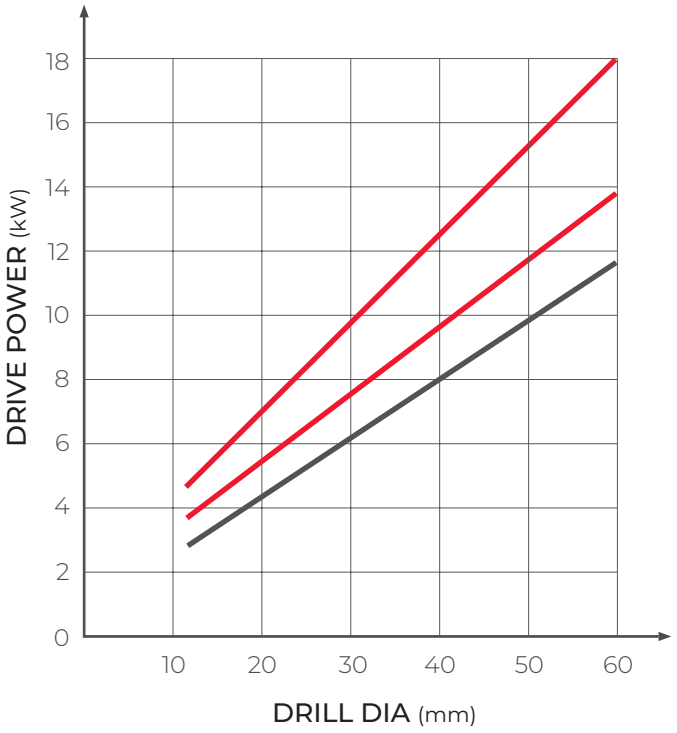
Insert order code = (1) Geometry code + (2) Grade code

NEW CUTTING CONDITIONS Condições de corte | Condiciones de corte

ISO	Material Group	Vc (m/min)	fn (mm/rev)				
			Ø14~Ø16	Ø16,5~Ø23,5	Ø24~Ø29,5	Ø30~Ø42	Ø43~Ø60
P	Unalloyed steel (-0,25%)	160-250	0,04-0,08	0,04-0,08	0,04-0,10	0,05-0,12	0,05-0,14
	Low-alloy steel	120-220	0,04-0,10	0,04-0,12	0,05-0,15	0,06-0,18	0,06-0,20
	High-alloy steel	120-180	0,04-0,12	0,05-0,12	0,07-0,16	0,08-0,18	0,08-0,20
M	Stainless steel	130-220	0,04-0,10	0,04-0,12	0,05-0,14	0,06-0,16	0,06-0,18
K	Grey cast iron	150-250	0,04-0,10	0,05-0,14	0,05-0,17	0,08-0,20	0,08-0,25
	Cast iron with nodular cast	100-200	0,04-0,12	0,04-0,12	0,05-0,14	0,06-0,15	0,06-0,18
S	Super-alloys and titanium	30-90	0,04-0,08	0,04-0,08	0,04-0,11	0,07-0,12	0,08-0,15

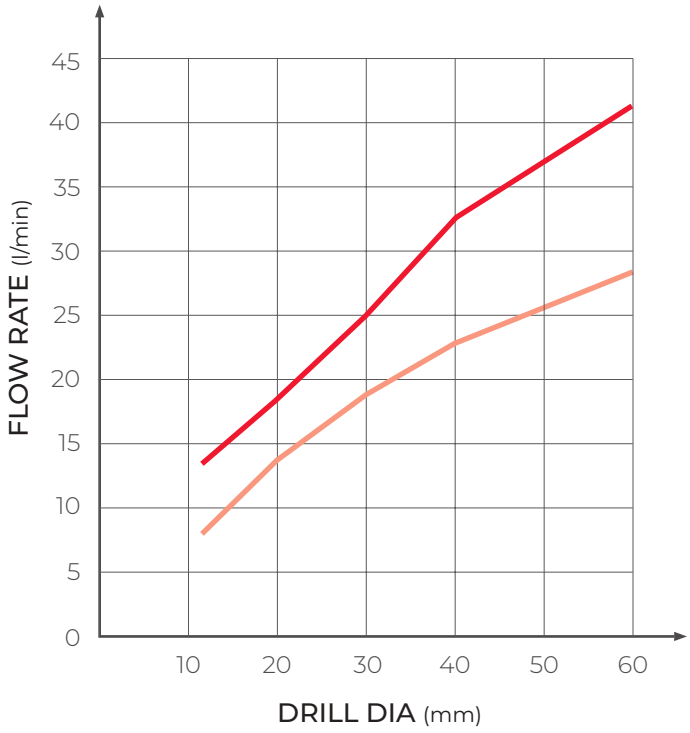
NOTES
When working on irregular surfaces, please reduce the feed rate by 30%~50%. To ensure the best performance, make sure to use the proper oil pressure (over 5kg/cm2) and follow the cutting data parameters.

Power requirements



F = 0,13 mm/r
F = 0,10 mm/r
F = 0,07 mm/r

Cutting oil quantity



Recommended cutting oil quantity
Min. cutting oil quantity

NOTES
Minimum pressure coolant: 5bar

GRADE SELECTION INNER INSERT

PVD

Due to the reduced cutting speed in the central area of the drill, a tougher grade is recommended for the inner insert.

PHP930
P20-P40
K10-K30

PHH930
M20-M40
S20-S30

GRADE SELECTION OUTER INSERT

PVD

First choice for stable machining and improved surface finish. Recommended for outer edge if chattering occurs.

PHP920
P10-P35
K10-K30

PHH920
M10-M25
S15-S30

CVD

First choice for high speeds and high efficiency machining, abrasion resistance and longer tool life.

PHS130
P10-P35
K20-K40

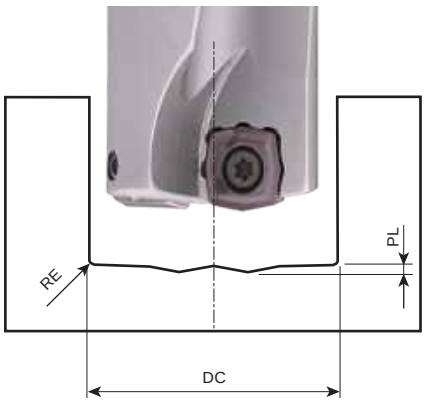
NEW RADIAL ADJUSTMENT Ajuste radial | Ajuste radial

Drill diameter (Ø)	Diameter range (Ø)
Ø14,0	13,6~14,5
Ø14,5	14,1~15,0
Ø15,0	14,6~15,5
Ø15,5	15,1~16,0
Ø16,0	15,6~16,5
Ø16,5	16,0~17,0
Ø17,0	16,5~17,5
Ø17,5	17,0~18,0
Ø18,0	17,5~18,5
Ø18,5	18,0~19,0
Ø19,0	18,5~19,5
Ø19,5	19,0~20,0
Ø20,0	19,4~20,6
Ø20,5	19,9~21,1
Ø21,0	20,4~21,6
Ø21,5	20,9~22,1
Ø22,0	21,4~22,6
Ø22,5	21,9~23,1
Ø23,0	22,4~23,6
Ø23,5	22,9~24,1
Ø24,0	23,4~24,6
Ø24,5	23,9~25,1
Ø25,0	24,4~25,6
Ø25,5	24,9~26,1
Ø26,0	25,4~26,6
Ø26,5	25,9~27,1
Ø27,0	26,4~27,6
Ø27,5	26,9~28,1

Drill diameter (Ø)	Diameter range (Ø)
Ø28,0	27,4~28,6
Ø28,5	27,9~29,1
Ø29,0	28,4~29,6
Ø29,5	28,9~30,1
Ø30,0	29,3~30,7
Ø30,5	29,8~31,2
Ø31,0	30,3~31,7
Ø31,5	30,8~32,2
Ø32,0	31,3~32,7
Ø32,5	31,8~33,2
Ø33,0	32,3~33,7
Ø33,5	32,8~34,2
Ø34,0	33,3~34,7
Ø34,5	33,8~35,2
Ø35,0	34,3~35,7
Ø35,5	34,8~36,2
Ø36,0	35,3~36,7
Ø36,5	35,8~37,2
Ø37,0	36,3~37,7
Ø37,5	36,8~38,2
Ø38,0	37,3~38,7
Ø38,5	37,8~39,2
Ø39,0	38,3~39,7
Ø39,5	38,8~40,2
Ø40,0	39,3~40,7
Ø40,5	39,8~41,2
Ø41,0	40,3~41,7
Ø41,5	40,8~42,2

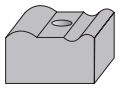
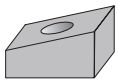
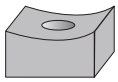
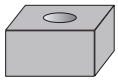
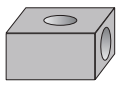
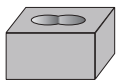
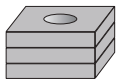
Drill diameter (Ø)	Diameter range (Ø)
Ø42,0	41,3~42,7
Ø42,5	41,8~43,2
Ø43,0	42,2~43,7
Ø43,5	42,7~44,2
Ø44,0	43,2~44,7
Ø44,5	43,7~45,2
Ø45,0	44,2~45,7
Ø45,5	44,7~46,2
Ø46,0	45,2~46,7
Ø46,5	45,7~47,2
Ø47,0	46,2~47,7
Ø47,5	46,7~48,2
Ø48,0	47,2~48,7
Ø48,5	47,7~49,2
Ø49,0	48,2~49,7
Ø49,5	48,7~50,2
Ø50,0	49,2~50,7
Ø51,0	50,2~51,7
Ø52,0	51,2~52,7
Ø53,0	52,2~53,7
Ø54,0	53,2~54,7
Ø55,0	54,2~55,7
Ø56,0	55,2~56,7
Ø57,0	56,2~57,7
Ø58,0	57,2~58,7
Ø59,0	58,2~59,7
Ø60,0	59,2~60,7

BOTTOM OF BLIND HOLE Fundo do furo cego | Fondo del agujero ciego

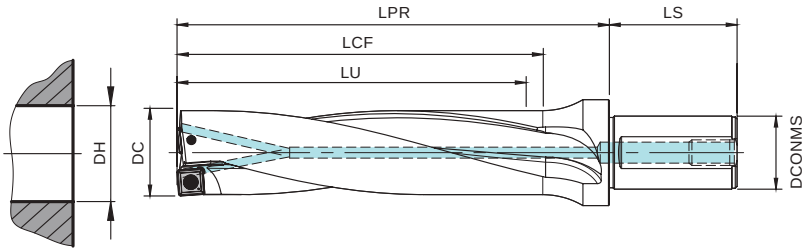


Drill diameter (mm)	Outer insert	Inner insert	PL	RE
Ø14,0-16,0	SOKX 050204	XOKX 050204	0,4	0,4
Ø16,5-19,5	SOKX 060205	XOKX 060205	0,5	0,5
Ø20,0-24,0	SOKX 07T208	XOKX 07T208	0,5	0,8
Ø24,5-30,0	SOKX 090308	XOKX 090308	0,7	0,8
Ø31,0-35,0	SOKX 11T308	XOKX 11T308	0,8	0,8
Ø36,0-42,0	SOKX 130410	XOKX 130410	1,0	1,0
Ø43,0-50,0	SOKX 150510	XOKX 150508	1,1	1,0
Ø51,0-60,0	SOKX 180510	XOKX 180508	1,2	1,0

RULES & TIPS Regras e dicas | Reglas y consejos

Workpiece	Machining
 **Irregular surface**	· Decrease the feed by 25%; · Potential chipping and fracture;
 **Inclined surface**	· Decrease the feed by 50%.
 **Convex / Concave surface**	· Decrease the feed by 50% until both inserts are engaged; · Potential initial contact with the central insert identified (convex surface);
 **Boring**	· Decrease the feed by 50%.
 **Crossing holes**	· Decrease the feed by 50% in the overlapped section.
 **Chain holemaking**	· Decrease the feed by 50%.
 **Stack holemaking**	· Decrease the feed by 25%; · Potential chipping and fracture;

SCS 3D Jet drills | Brocas jet | Brocas jet



DCONMS	LS	BP / SP
20	50	PT - 1/8
25	56	PT - 1/8
32	60	PT - 1/4
40	70	PT - 1/4

ØDH tolerance (mm)	
DC	3D
13,0 - 21,5	-0,10 / +0,15
22,0 - 50,0	-0,12 / +0,20

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)					Insert	Insert Screw	Torx key	Stock
		DC	DCONMS	LU	LCF	LPR				
184041400	SCS 13020-3D	13,0	20	39	42	62	SPKX 050204	P0200500	XT06	●
184041500	SCS 13520-3D	13,5	20	41	44	64	SPKX 050204	P0200500	XT06	●
184041600	SCS 14020-3D	14,0	20	42	45	65	SPKX 050204	P0200500	XT06	●
184041700	SCS 14520-3D	14,5	20	44	47	67	SPKX 050204	P0200500	XT06	●
184041800	SCS 15020-3D	15,0	20	45	48	68	SPKX 050204	P0200500	XT06	●
184041900	SCS 15525-3D	15,5	25	47	50	75	SP..X 060204	P0220500	XT07	●
184042000	SCS 16025-3D	16,0	25	48	51	76	SP..X 060204	P0220500	XT07	●
184042100	SCS 16525-3D	16,5	25	50	53	78	SP..X 060204	P0220500	XT07	●
184042200	SCS 17025-3D	17,0	25	51	54	79	SP..X 060204	P0220500	XT07	●
184042300	SCS 17525-3D	17,5	25	53	56	81	SP..X 060204	P0220500	XT07	●
184042400	SCS 18025-3D	18,0	25	54	57	82	SP..X 060204	P0220500	XT07	●
184042500	SCS 18525-3D	18,5	25	56	59	84	SP..X 060204	P0220500	XT07	●
184042600	SCS 19025-3D	19,0	25	57	60	85	SP..X 060204	P0220500	XT07	●
184042700	SCS 19525-3D	19,5	25	59	62	87	SP..X 060204	P0220500	XT07	●
184042800	SCS 20025-3D	20,0	25	60	63	88	SP..X 060204	P0220500	XT07	●
184042900	SCS 20525-3D	20,5	25	62	65	90	SP..X 060204	P0220500	XT07	●
184043000	SCS 21025-3D	21,0	25	63	66	91	SP..X 060204	P0220500	XT07	●
184043100	SCS 21525-3D	21,5	25	65	68	93	SP..X 060204	P0220500	XT07	●
184043200	SCS 22032-3D	22,0	32	66	69	99	SPKX 07T308	P0250704	XT08	●
184043300	SCS 22532-3D	22,5	32	68	71	101	SPKX 07T308	P0250704	XT08	●
184043400	SCS 23032-3D	23,0	32	69	72	102	SPKX 07T308	P0250704	XT08	●
184043500	SCS 23532-3D	23,5	32	71	74	104	SPKX 07T308	P0250704	XT08	●
184043600	SCS 24032-3D	24,0	32	72	75	105	SPKX 07T308	P0250704	XT08	●
184043700	SCS 24532-3D	24,5	32	74	77	107	SPKX 07T308	P0250704	XT08	●
184043800	SCS 25032-3D	25,0	32	75	78	108	SPKX 07T308	P0250704	XT08	●
184043900	SCS 25532-3D	25,5	32	77	80	110	SPKX 07T308	P0250704	XT08	●
184044000	SCS 26032-3D	26,0	32	78	81	111	SPKX 07T308	P0250704	XT08	●

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

Continue next page

SCS 3D

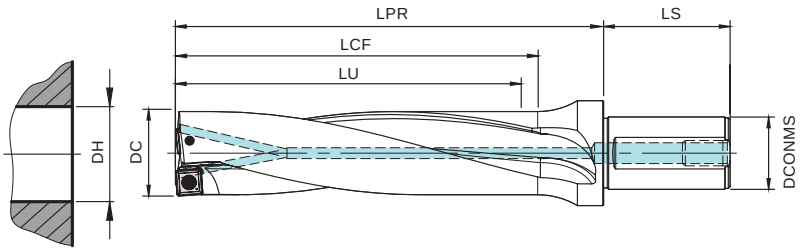
Jet drills | Brocas jet | Brocas jet

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)					Insert	Insert Screw	Torx key	Stock
		DC	DCONMS	LU	LCF	LPR				
184044100	SCS 26532-3D	26,5	32	80	83	113	SPKX 07T308	P0250704	XT08	●
184044200	SCS 27032-3D	27,0	32	81	84	114	SPKX 07T308	P0250704	XT08	●
184044400	SCS 27532-3D	27,5	32	83	86	116	SPKX 07T308	P0250704	XT08	●
184044500	SCS 28032-3D	28,0	32	84	87	117	SPKX 090408	P0350903	XT15	●
184044600	SCS 28532-3D	28,5	32	86	89	119	SPKX 090408	P0350903	XT15	●
184044700	SCS 29032-3D	29,0	32	87	90	120	SPKX 090408	P0350903	XT15	●
184044800	SCS 29532-3D	29,5	32	89	93	123	SPKX 090408	P0350903	XT15	●
184044900	SCS 30032-3D	30,0	32	90	95	125	SPKX 090408	P0350903	XT15	●
184045000	SCS 31032-3D	31,0	32	93	98	128	SPKX 090408	P0350903	XT15	●
184045100	SCS 32032-3D	32,0	32	96	101	131	SPKX 090408	P0350903	XT15	●
184045200	SCS 33032-3D	33,0	32	99	104	134	SPKX 090408	P0350903	XT15	●
184045300	SCS 34040-3D	34,0	40	102	107	142	SPKX 110408	P0401200	XT15	●
184045400	SCS 35040-3D	35,0	40	105	110	145	SPKX 110408	P0401200	XT15	●
184045500	SCS 36040-3D	36,0	40	108	113	148	SPKX 110408	P0401200	XT15	●
184045600	SCS 37040-3D	37,0	40	111	116	151	SPKX 110408	P0401200	XT15	●
184045700	SCS 38040-3D	38,0	40	114	119	154	SPKX 110408	P0401200	XT15	●
184045800	SCS 39040-3D	39,0	40	117	122	157	SPKX 110408	P0401200	XT15	●
184045900	SCS 40040-3D	40,0	40	120	125	160	SPKX 110408	P0401200	XT15	●
184046000	SCS 41040-3D	41,0	40	123	128	163	SPKX 110408	P0401200	XT15	●
184046100	SCS 42040-3D	42,0	40	126	131	166	SPKX 140512	P0501300	XT20	●
184046200	SCS 43040-3D	43,0	40	129	134	169	SPKX 140512	P0501300	XT20	●
184046300	SCS 44040-3D	44,0	40	132	137	172	SPKX 140512	P0501300	XT20	●
184046400	SCS 45040-3D	45,0	40	135	140	175	SPKX 140512	P0501300	XT20	●
184046500	SCS 46040-3D	46,0	40	138	143	178	SPKX 140512	P0501300	XT20	●
184046600	SCS 47040-3D	47,0	40	141	146	181	SPKX 140512	P0501300	XT20	●
184046700	SCS 48040-3D	48,0	40	144	149	184	SPKX 140512	P0501300	XT20	●
184046800	SCS 49040-3D	49,0	40	147	152	187	SPKX 140512	P0501300	XT20	●
184046900	SCS 50040-3D	50,0	40	150	155	190	SPKX 140512	P0501300	XT20	●

● Stock item | Produto de stock | Itens de stock

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

SCS 4D Jet drills | Brocas jet | Brocas jet



DCONMS	LS	BP / SP
20	50	PT - 1/8
25	56	PT - 1/8
32	60	PT - 1/4
40	70	PT - 1/4

ØDH tolerance (mm)	
DC	3D
13,0 - 21,5	-0,15 / +0,20
22,0 - 50,0	-0,15 / +0,25

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)					Insert	Insert Screw	Torx key	Stock
		DC	DCONMS	LU	LCF	LPR				
184047100	SCS 13020-4D	13,0	20	52	55	75	SPKX 050204	P0200500	XT06	●
184047200	SCS 13520-4D	13,5	20	54	57	77	SPKX 050204	P0200500	XT06	●
184047300	SCS 14020-4D	14,0	20	56	59	79	SPKX 050204	P0200500	XT06	●
184047400	SCS 14520-4D	14,5	20	58	61	81	SPKX 050204	P0200500	XT06	●
184047500	SCS 15020-4D	15,0	20	60	63	83	SPKX 050204	P0200500	XT06	●
184047600	SCS 15525-4D	15,5	25	62	65	90	SP..X 060204	P0220500	XT07	●
184047700	SCS 16025-4D	16,0	25	64	67	92	SP..X 060204	P0220500	XT07	●
184047800	SCS 16525-4D	16,5	25	66	69	94	SP..X 060204	P0220500	XT07	●
184047900	SCS 17025-4D	17,0	25	68	71	96	SP..X 060204	P0220500	XT07	●
184048000	SCS 17525-4D	17,5	25	70	73	98	SP..X 060204	P0220500	XT07	●
184048100	SCS 18025-4D	18,0	25	72	75	100	SP..X 060204	P0220500	XT07	●
184048200	SCS 18525-4D	18,5	25	74	77	102	SP..X 060204	P0220500	XT07	●
184048300	SCS 19025-4D	19,0	25	76	79	104	SP..X 060204	P0220500	XT07	●
184048400	SCS 19525-4D	19,5	25	78	81	106	SP..X 060204	P0220500	XT07	●
184048500	SCS 20025-4D	20,0	25	80	83	108	SP..X 060204	P0220500	XT07	●
184048600	SCS 20525-4D	20,5	25	82	85	110	SP..X 060204	P0220500	XT07	●
184048700	SCS 21025-4D	21,0	25	84	87	112	SP..X 060204	P0220500	XT07	●
184048800	SCS 21525-4D	21,5	25	86	89	114	SP..X 060204	P0220500	XT07	●
184048900	SCS 22032-4D	22,0	32	88	91	121	SPKX 07T308	P0250704	XT08	●
184049000	SCS 22532-4D	22,5	32	90	93	123	SPKX 07T308	P0250704	XT08	●
184049100	SCS 23032-4D	23,0	32	92	95	125	SPKX 07T308	P0250704	XT08	●
184049200	SCS 23532-4D	23,5	32	94	97	127	SPKX 07T308	P0250704	XT08	●
184049300	SCS 24032-4D	24,0	32	96	99	129	SPKX 07T308	P0250704	XT08	●
184049400	SCS 24532-4D	24,5	32	98	101	131	SPKX 07T308	P0250704	XT08	●
184049500	SCS 25032-4D	25,0	32	100	103	133	SPKX 07T308	P0250704	XT08	●
184049600	SCS 25532-4D	25,5	32	102	105	135	SPKX 07T308	P0250704	XT08	●
184049700	SCS 26032-4D	26,0	32	104	107	137	SPKX 07T308	P0250704	XT08	●

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

Continue next page

SCS 4D

Jet drills | Brocas jet | Brocas jet

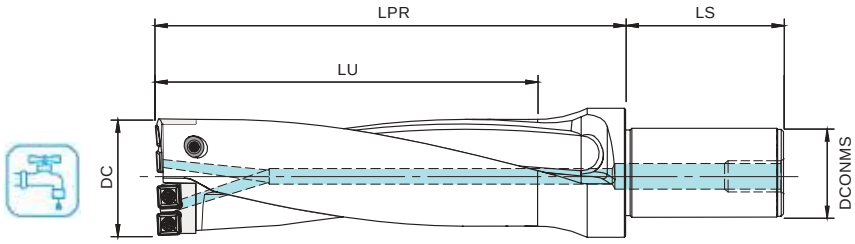
Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)					Insert	Insert Screw	Torx key	Stock
		DC	DCONMS	LU	LCF	LPR				
184049800	SCS 26532-4D	26,5	32	106	109	139	SPKX 07T308	P0250704	XT08	●
184049900	SCS 27032-4D	27,0	32	108	111	141	SPKX 07T308	P0250704	XT08	●
184050000	SCS 27532-4D	27,5	32	110	113	143	SPKX 07T308	P0250704	XT08	●
184050100	SCS 28032-4D	28,0	32	112	115	145	SPKX 090408	P0350903	XT15	●
184050200	SCS 28532-4D	28,5	32	114	117	147	SPKX 090408	P0350903	XT15	●
184050300	SCS 29032-4D	29,0	32	116	120	150	SPKX 090408	P0350903	XT15	●
184050400	SCS 29532-4D	29,5	32	118	123	153	SPKX 090408	P0350903	XT15	●
184050500	SCS 30032-4D	30,0	32	120	125	155	SPKX 090408	P0350903	XT15	●
184050600	SCS 31032-4D	31,0	32	124	129	159	SPKX 090408	P0350903	XT15	●
184050700	SCS 32032-4D	32,0	32	128	133	163	SPKX 090408	P0350903	XT15	●
184050800	SCS 33032-4D	33,0	32	132	137	167	SPKX 090408	P0350903	XT15	●
184050900	SCS 34040-4D	34,0	40	136	141	176	SPKX 110408	P0401200	XT15	●
184051000	SCS 35040-4D	35,0	40	140	145	180	SPKX 110408	P0401200	XT15	●
184051100	SCS 36040-4D	36,0	40	144	149	184	SPKX 110408	P0401200	XT15	●
184051200	SCS 37040-4D	37,0	40	148	153	188	SPKX 110408	P0401200	XT15	●
184051300	SCS 38040-4D	38,0	40	152	157	192	SPKX 110408	P0401200	XT15	●
184051400	SCS 39040-4D	39,0	40	156	161	196	SPKX 110408	P0401200	XT15	●
184051500	SCS 40040-4D	40,0	40	160	165	200	SPKX 110408	P0401200	XT15	●
184051600	SCS 41040-4D	41,0	40	164	169	204	SPKX 110408	P0401200	XT15	●
184051700	SCS 42040-4D	42,0	40	168	173	208	SPKX 140512	P0501300	XT20	●
184051800	SCS 43040-4D	43,0	40	172	177	212	SPKX 140512	P0501300	XT20	●
184051900	SCS 44040-4D	44,0	40	176	181	216	SPKX 140512	P0501300	XT20	●
184052000	SCS 45040-4D	45,0	40	180	185	220	SPKX 140512	P0501300	XT20	●
184052100	SCS 46040-4D	46,0	40	184	189	224	SPKX 140512	P0501300	XT20	●
184052200	SCS 47040-4D	47,0	40	188	193	228	SPKX 140512	P0501300	XT20	●
184052300	SCS 48040-4D	48,0	40	192	197	232	SPKX 140512	P0501300	XT20	●
184052400	SCS 49040-4D	49,0	40	196	201	236	SPKX 140512	P0501300	XT20	●
184052500	SCS 50040-4D	50,0	40	200	205	240	SPKX 140512	P0501300	XT20	●

● Stock item | Produto de stock | Itens de stock

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

SCC 3D CARTRIDGE TYPE (DOUBLE INSERT) Jet drills | Brocas jet | Brocas jet

SIZE ADAPTABLE CARTRIDGE (5MM)



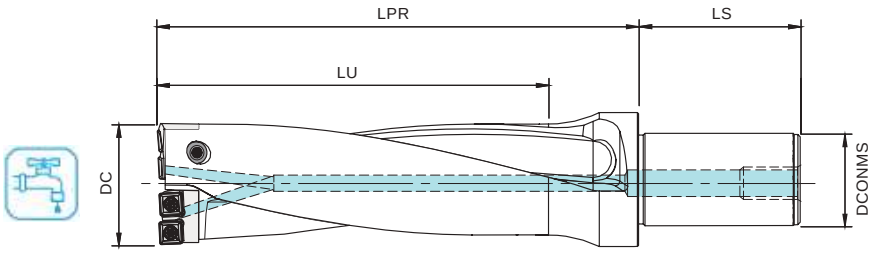
DCONMS	LS	BP / SP
40	70	PT - 1/4

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)				Cartridge	Insert	Insert Screw	Torx key	Stock
		DC	DCONMS	LU	LPR					
184231800	SCC 505540-3D	50-55	40	165	205	SCC 050055-I/O	SPKX 090408	P0350903	XT15	●
184231900	SCC 556040-3D	55-60	40	180	220	SCC 055060-I/O	SPKX 090408	P0350903	XT15	●
184232000	SCC 606540-3D	60-65	40	195	235	SCC 060065-I/O	SPKX 110408	P0401200	XT15	●
184232100	SCC 657040-3D	65-70	40	210	250	SCC 065070-I/O	SPKX 110408	P0401200	XT15	●
184232200	SCC 707540-3D	70-75	40	225	265	SCC 070075-I/O	SPKX 110408	P0401200	XT15	●
184232300	SCC 758040-3D	75-80	40	240	278	SCC 075080-I/O	SPKX 140512	P0501300	XT20	●

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

SCC 4D CARTRIDGE TYPE (DOUBLE INSERT) Jet drills | Brocas jet | Brocas jet

SIZE ADAPTABLE CARTRIDGE (5MM)



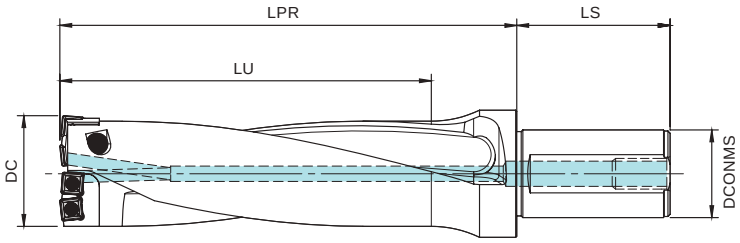
DCONMS	LS	BP / SP
40	70	PT - 1/4

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)				Cartridge	Insert	Insert Screw	Torx key	Stock
		DC	DCONMS	LU	LPR					
184232400	SCC 505540-4D	50-55	40	220	260	SCC 050055-I/O	SPKX 090408	P0350903	XT15	●
184232500	SCC 556040-4D	55-60	40	240	280	SCC 055060-I/O	SPKX 090408	P0350903	XT15	●
184232600	SCC 606540-4D	60-65	40	260	300	SCC 060065-I/O	SPKX 110408	P0401200	XT15	●
184232700	SCC 657040-4D	65-70	40	280	320	SCC 065070-I/O	SPKX 110408	P0401200	XT15	●
184232800	SCC 707540-4D	70-75	40	300	340	SCC 070075-I/O	SPKX 110408	P0401200	XT15	●
184232900	SCC 758040-4D	75-80	40	320	358	SCC 075080-I/O	SPKX 140512	P0501300	XT20	●

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

SCC 4D CARTRIDGE TYPE (DOUBLE INSERT) Jet drills | Brocas jet | Brocas jet

SIZE ADJUSTMENT CARTRIDGE (1MM) *



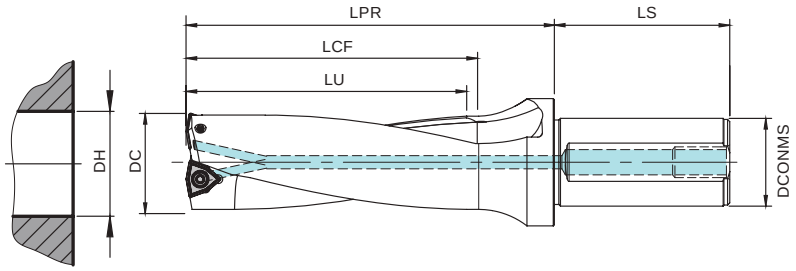
DCONMS	LS	BP / SP
40	70	PT - 1/4

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)				Cartridge	Insert	Insert Screw	Torx key	Stock
		DC	DCONMS	LU	LPR					
184056300	SCC 575840-4D	57-58	40	235	275	CISP 5560 / COSP 5758	SPKX 090408	P0350903	XT15	◬
184056400	SCC 585940-4D	58-59	40	235	275	CISP 5560 / COSP 5859	SPKX 090408	P0350903	XT15	◬
184056500	SCC 596040-4D	59-60	40	235	275	CISP 5560 / COSP 5960	SPKX 090408	P0350903	XT15	◬
184057400	SCC 686940-4D	68-69	40	275	315	CISP 6570 / COSP 6869	SPKX 110408	P0401200	XT15	◬

Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta ◬ Available until sold out | Disponível até acabar o stock | Disponible hasta acabar el stock

* The 1mm size adjustment cartridge will be replaced by the 5mm adaptable cartridge when this type is sold out. See previous page for the new Drill version.

TDS 3D Jet drills | Brocas jet | Brocas jet



DCONMS	LS	BP / SP
20	50	PT-1/8
25	56	PT-1/8
32	60	PT-1/4
40	70	PT-1/4

ØDH tolerance (mm)	
DC	3D
13,0 - 21,5	-0,10 / +0,15
22,0 - 50,0	-0,12 / +0,20
50,0 - 58,0	-0,15 / +0,25

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)					Insert	Insert Screw	Torx key	Stock
		DC	DCONMS	LU	LCF	LPR				
184034600	TDS 13020-3D	13,0	20	39	42	62	WCKX 02T104	P0180500	XT06	●
184034700	TDS 13520-3D	13,5	20	41	44	64	WCKX 02T104	P0180500	XT06	●
184034800	TDS 14020-3D	14,0	20	42	45	65	WCKX 02T104	P0180500	XT06	●
184034900	TDS 14520-3D	14,5	20	44	47	67	WCKX 02T104	P0180500	XT06	●
184035000	TDS 15020-3D	15,0	20	45	48	68	WCKX 02T104	P0180500	XT06	●
184035100	TDS 15520-3D	15,5	20	47	50	70	WCKX 02T104	P0180500	XT06	●
184035200	TDS 16025-3D	16,0	25	48	51	76	WCKX 030204	P0220500	XT07	●
184035300	TDS 16525-3D	16,5	25	50	53	78	WCKX 030204	P0220500	XT07	●
184035400	TDS 17025-3D	17,0	25	51	54	79	WCKX 030204	P0220500	XT07	●
184035500	TDS 17525-3D	17,5	25	53	56	81	WCKX 030204	P0220500	XT07	●
184035600	TDS 18025-3D	18,0	25	54	57	82	WCKX 030204	P0220500	XT07	●
184035700	TDS 18525-3D	18,5	25	56	59	84	WCKX 030204	P0220500	XT07	●
184035800	TDS 19025-3D	19,0	25	57	60	85	WCKX 030204	P0220500	XT07	●
184035900	TDS 19525-3D	19,5	25	59	62	87	WCKX 030204	P0220500	XT07	●
184036000	TDS 20025-3D	20,0	25	60	63	88	WCKX 030204	P0220500	XT07	●
184036100	TDS 20525-3D	20,5	25	62	65	90	WCKX 040204	P0250503	XT08	●
184036200	TDS 21025-3D	21,0	25	63	66	91	WCKX 040204	P0250503	XT08	●
184036300	TDS 21525-3D	21,5	25	65	68	93	WCKX 040204	P0250503	XT08	●
184036400	TDS 22025-3D	22,0	25	66	69	94	WCKX 040204	P0250503	XT08	●
184036500	TDS 22525-3D	22,5	25	68	71	96	WCKX 040204	P0250503	XT08	●
184036600	TDS 23025-3D	23,0	25	69	72	97	WCKX 040204	P0250503	XT08	●
184036700	TDS 23525-3D	23,5	25	71	74	99	WCKX 040204	P0250503	XT08	●
184036800	TDS 24025-3D	24,0	25	72	75	100	WCKX 040204	P0250503	XT08	●
184036900	TDS 24525-3D	24,5	25	74	77	102	WCKX 040204	P0250503	XT08	●
184037000	TDS 25025-3D	25,0	25	75	78	103	WCKX 040204	P0250503	XT08	●
184037100	TDS 25532-3D	25,5	32	77	80	110	WCKX 050308	P0300701	XT08	●
184037200	TDS 26032-3D	26,0	32	78	81	111	WCKX 050308	P0300701	XT08	●

● Stock item | Produto de stock | Ítens de stock

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

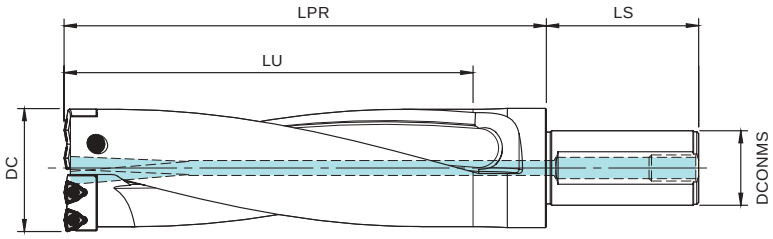
Continue next page

TDS 3D Jet drills | Brocas jet | Brocas jet

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)					Insert	Insert Screw	Torx key	Stock
		DC	DCONMS	LU	LCF	LPR				
184037300	TDS 26532-3D	26,5	32	80	83	113	WCKX 050308	P0300701	XT08	●
184037400	TDS 27032-3D	27,0	32	81	84	114	WCKX 050308	P0300701	XT08	●
184037500	TDS 27532-3D	27,5	32	83	86	116	WCKX 050308	P0300701	XT08	●
184037600	TDS 28032-3D	28,0	32	84	87	117	WCKX 050308	P0300701	XT08	●
184037700	TDS 28532-3D	28,5	32	86	89	119	WCKX 050308	P0300701	XT08	●
184037800	TDS 29032-3D	29,0	32	87	90	120	WCKX 050308	P0300701	XT08	●
184037900	TDS 29532-3D	29,5	32	89	92	122	WCKX 050308	P0300701	XT08	●
184038000	TDS 30032-3D	30,0	32	90	93	123	WCKX 050308	P0300701	XT08	●
184038100	TDS 31032-3D	31,0	32	93	96	126	WCKX 06T308	P0350903	XT15	●
184038200	TDS 32032-3D	32,0	32	96	99	129	WCKX 06T308	P0350903	XT15	●
184038300	TDS 33032-3D	33,0	32	99	102	132	WCKX 06T308	P0350903	XT15	●
184038400	TDS 34032-3D	34,0	32	102	105	135	WCKX 06T308	P0350903	XT15	●
184038500	TDS 35032-3D	35,0	32	105	108	138	WCKX 06T308	P0350903	XT15	●
184038600	TDS 36032-3D	36,0	32	108	111	141	WCKX 06T308	P0350903	XT15	●
184038700	TDS 37032-3D	37,0	32	111	114	144	WCKX 06T308	P0350903	XT15	●
184038800	TDS 38032-3D	38,0	32	114	117	147	WCKX 06T308	P0350903	XT15	●
184038900	TDS 39032-3D	39,0	32	117	120	150	WCKX 06T308	P0350903	XT15	●
184039000	TDS 40032-3D	40,0	32	120	123	153	WCKX 06T308	P0350903	XT15	●
184039100	TDS 41032-3D	41,0	32	123	126	156	WCKX 06T308	P0350903	XT15	●
184039200	TDS 42040-3D	42,0	40	126	129	164	WCKX 080408	P0401101	XT15	●
184039300	TDS 43040-3D	43,0	40	129	132	167	WCKX 080408	P0401101	XT15	●
184039400	TDS 44040-3D	44,0	40	132	135	170	WCKX 080408	P0401101	XT15	●
184039500	TDS 45040-3D	45,0	40	135	138	173	WCKX 080408	P0401101	XT15	●
184039600	TDS 46040-3D	46,0	40	138	141	176	WCKX 080408	P0401101	XT15	●
184039700	TDS 47040-3D	47,0	40	141	144	179	WCKX 080408	P0401101	XT15	●
184039800	TDS 48040-3D	48,0	40	144	147	182	WCKX 080408	P0401101	XT15	●
184039900	TDS 49040-3D	49,0	40	147	150	185	WCKX 080408	P0401101	XT15	●
184040000	TDS 50040-3D	50,0	40	150	153	188	WCKX 080408	P0401101	XT15	●
184040100	TDS 51040-3D	51,0	40	153	156	191	WCKX 080408	P0401101	XT15	●
184040200	TDS 52040-3D	52,0	40	156	159	194	WCKX 080408	P0401101	XT15	●
184040300	TDS 53040-3D	53,0	40	159	162	197	WCKX 080408	P0401101	XT15	●
184040400	TDS 54040-3D	54,0	40	162	165	200	WCKX 080408	P0401101	XT15	●
184040500	TDS 55040-3D	55,0	40	165	168	203	WCKX 080408	P0401101	XT15	●
184040600	TDS 56040-3D	56,0	40	168	171	206	WCKX 080408	P0401101	XT15	●
184040700	TDS 57040-3D	57,0	40	171	174	209	WCKX 080408	P0401101	XT15	●
184040800	TDS 58040-3D	58,0	40	174	177	212	WCKX 080408	P0401101	XT15	●

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

TDC 3D CARTRIDGE TYPE (DOUBLE INSERT) Jet drills | Brocas jet | Brocas jet



DCONMS	LS	BP / SP
40	70	PT - 1/4

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)					Insert	Insert Screw	Torx key	Stock
		DC	DCONMS	LU	LPR	Cartridge				
184040900	TDC 596540-3D	59-65	40	195	235	TDC 059065-I/O	WCKX 06T308	P0350903	XT15	⛭
184041000	TDC 657040-3D	65-70	40	210	250	TDC 065070-I/O	WCKX 06T308	P0350903	XT15	⛭
184041100	TDC 707540-3D	70-75	40	225	265	TDC 070075-I/O	WCKX 06T308	P0350903	XT15	⛭
184041200	TDC 758040-3D	75-80	40	240	280	TDC 075080-I/O	WCKX 06T308	P0350903	XT15	⛭

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

INTEGREX

DRILLS

Integrex drills offer an indexable insert solution that includes a pilot drill, making them highly effective for drilling holes with considerable cutting lengths. The pilot drill functions to create a clean and consistent working surface, enabling the subsequent drill to enter the workpiece smoothly and also acting as a guide throughout the drilling operation.

As brocas Integrex oferecem uma solução de inserção indexável que inclui uma broca piloto, tornando-as eficazes para perfurar com comprimentos de corte consideráveis. A broca piloto funciona para criar uma superfície de trabalho limpa e consistente, permitindo que a broca subsequente entre na peça suavemente e também atuando como um guia durante toda a operação de perfuração.

Las brocas Integrex ofrecen una solución de inserción indexable que incluye una broca piloto, lo que las hace efectivas para perforar con longitudes de corte considerable. La broca piloto funciona para crear una superficie de trabajo limpia y consistente, permitiendo que la broca posterior entre en la pieza suavemente y también actuando como guía durante toda la operación de perforación.

DHS > page 406

- From DC 25mm to 40mm
  De DC 25mm a 40mm | Desde DC 25mm hasta 40mm
- Available in 5D and 8D
  Disponível em 5D e 8D | Disponible en 5D y 8D
- Insert WCKX
  Pastilha WCKX | Plaquita WCKX
- Pilot drill
  Broca piloto | Taladro piloto

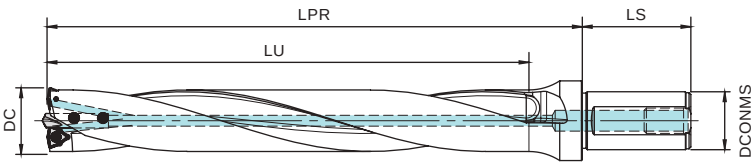
DHC > page 408

- From DC 41mm to 80mm
  De DC 41mm a 80mm | Desde DC 41mm hasta 80mm
- Available in 5D and 8D
  Disponível em 5D e 8D | Disponible en 5D y 8D
- 1 or 2 WCKX inserts per cartridge
  1 ou 2 pastilhas WCKX por cartucho | 1 o 2 plaquitas WCKX por cartucho
- Pilot drill
  Broca piloto | Taladro piloto

TFD > page 410

- From DC 18,0mm to 30,0mm
  De DC 18,0mm a 30,0mm | Desde DC 18,0mm hasta 30,0mm
- Available in 6D and 8D
  Disponível em 6D e 8D | Disponible en 6D y 8D
- Insert SPKX
  Pastilha SPKX | Plaquita SPKX
- Pilot drill
  Broca piloto | Taladro piloto

DHS 5D Integrex drills | Brocas integrex | Brocas integrex



New version / Standard version*

DCONMS	LS	BP / SP
32	60 / 70	PT - 1/4

*Order seperately

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)				Insert	Insert Screw	Torx key	Pilot drill*	Stock
		DC	DCONMS	LU	LPR					
184058600	DHS 002532-5D	25	32	150	180	WCKX 030204	P0220500	XT07	MDP 3006	○
184058700	DHS 002632-5D	26	32	150	180	WCKX 040204	P0250503	XT08	MDP 3006	○
184058800	DHS 002732-5D	27	32	150	180	WCKX 040204	P0250503	XT08	MDP 3006	○
184058900	DHS 002832-5D	28	32	150	180	WCKX 040204	P0250503	XT08	MDP 3006	○
184059000	DHS 002932-5D	29	32	150	180	WCKX 040204	P0250503	XT08	MDP 3006	○
184059100	DHS 003032-5D	30	32	150	180	WCKX 040204	P0250503	XT08	MDP 3006	○
184059200	DHS 003132-5D	31	32	175	205	WCKX 050308	P0300701	XT08	MDP 3508	○
184059300	DHS 003232-5D	32	32	175	205	WCKX 050308	P0300701	XT08	MDP 3508	○
184059400	DHS 003332-5D	33	32	175	205	WCKX 050308	P0300701	XT08	MDP 3508	○
184059500	DHS 003432-5D	34	32	175	205	WCKX 050308	P0300701	XT08	MDP 3508	○
184059600	DHS 003532-5D	35	32	175	205	WCKX 050308	P0300701	XT08	MDP 3508	○
184059700	DHS 003632-5D	36	32	200	230	WCKX 050308	P0300701	XT08	MDP 3508	○
184059800	DHS 003732-5D	37	32	200	230	WCKX 050308	P0300701	XT08	MDP 3508	○
184059900	DHS 003832-5D	38	32	200	230	WCKX 050308	P0300701	XT08	MDP 3508	○
184060000	DHS 003932-5D	39	32	200	230	WCKX 050308	P0300701	XT08	MDP 3508	○
184060100	DHS 004032-5D	40	32	200	230	WCKX 050308	P0300701	XT08	MDP 3508	○

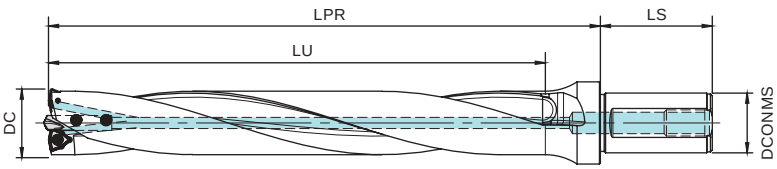
Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

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

Please see Page B - 449 for setting pilot drill.

Pilot Drill mounting procedure

DHS 8D Integrex drills | Brocas integrex | Brocas integrex



New version / Standard version*

DCONMS	LS	BP / SP
32	60 / 70	PT - 1/4

*Order seperately

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)				Insert	Insert Screw	Torx key	Pilot drill*	Stock
		DC	DCONMS	LU	LPR					
184062100	DHS 002532-8D	25	32	220	250	WCKX 030204	P0220500	XT07	MDP 3006	◉
184062200	DHS 002632-8D	26	32	220	250	WCKX 040204	P0250503	XT08	MDP 3006	○
184062300	DHS 002732-8D	27	32	220	250	WCKX 040204	P0250503	XT08	MDP 3006	○
184062400	DHS 002832-8D	28	32	220	250	WCKX 040204	P0250503	XT08	MDP 3006	○
184062500	DHS 002932-8D	29	32	220	250	WCKX 040204	P0250503	XT08	MDP 3006	○
184062600	DHS 003032-8D	30	32	220	250	WCKX 040204	P0250503	XT08	MDP 3006	◉
184062700	DHS 003132-8D	31	32	260	290	WCKX 050308	P0300701	XT08	MDP 3508	○
184062800	DHS 003232-8D	32	32	260	290	WCKX 050308	P0300701	XT08	MDP 3508	○
184062900	DHS 003332-8D	33	32	260	290	WCKX 050308	P0300701	XT08	MDP 3508	○
184063000	DHS 003432-8D	34	32	260	290	WCKX 050308	P0300701	XT08	MDP 3508	◉
184063100	DHS 003532-8D	35	32	260	290	WCKX 050308	P0300701	XT08	MDP 3508	◉
184063200	DHS 003632-8D	36	32	300	330	WCKX 050308	P0300701	XT08	MDP 3508	○
184063300	DHS 003732-8D	37	32	300	330	WCKX 050308	P0300701	XT08	MDP 3508	○
184063400	DHS 003832-8D	38	32	300	330	WCKX 050308	P0300701	XT08	MDP 3508	○
184063500	DHS 003932-8D	39	32	300	330	WCKX 050308	P0300701	XT08	MDP 3508	○
184063600	DHS 004032-8D	40	32	300	330	WCKX 050308	P0300701	XT08	MDP 3508	◉

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

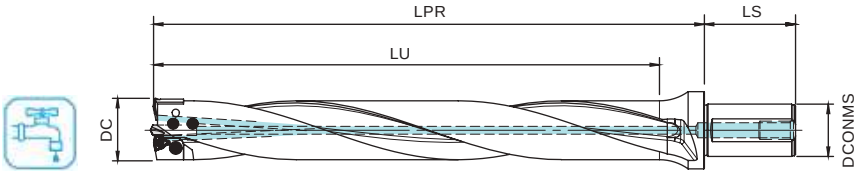
Note:This type of drills are supplied without pilot drills. Please order them separately.

Please see Page B - 449 for setting pilot drill.

Pilot Drill mounting procedure

DHC 5D CARTRIDGE TYPE (SINGLE & DOUBLE INSERT)

Integrex drills | Brocas integrex | Brocas integrex



New version / Standard version*

DCONMS	LS	BP / SP
40	70 / 80	PT - 1/4

*Order seperately

Order code Código	Reference Referência Referencia	Dimensions Dimensões Dimensiones (mm)				Cartridge	Insert	Insert Screw	Torx key	Pilot drill*	Stock
		DC	DCONMS	LU	LPR						
1 INSERT PER CARTRIDGE											
184192500	DHC 004140-5D	41	40	225	260	CWC 041045-I / CWC 000041-O	WCKX 06T308	P0350903	XT15	MDP 3510	○
184192600	DHC 004240-5D	42	40	225	260	CWC 041045-I / CWC 000042-O	WCKX 06T308	P0350903	XT15	MDP 3510	○
184192700	DHC 004340-5D	43	40	225	260	CWC 041045-I / CWC 000043-O	WCKX 06T308	P0350903	XT15	MDP 3510	○
184192800	DHC 004440-5D	44	40	225	260	CWC 041045-I / CWC 000044-O	WCKX 06T308	P0350903	XT15	MDP 3510	○
184192900	DHC 004540-5D	45	40	225	260	CWC 041045-I / CWC 000045-O	WCKX 06T308	P0350903	XT15	MDP 3510	○
184193000	DHC 004640-5D	46	40	250	285	CWC 046050-I / CWC 000046-O	WCKX 06T308	P0350903	XT15	MDP 3510	○
184193100	DHC 004740-5D	47	40	250	285	CWC 046050-I / CWC 000047-O	WCKX 06T308	P0350903	XT15	MDP 3510	○
184193200	DHC 004840-5D	48	40	250	285	CWC 046050-I / CWC 000048-O	WCKX 06T308	P0350903	XT15	MDP 3510	○
184193300	DHC 004940-5D	49	40	250	285	CWC 046050-I / CWC 000049-O	WCKX 06T308	P0350903	XT15	MDP 3510	○
184193400	DHC 005040-5D	50	40	250	285	CWC 046050-I / CWC 000050-O	WCKX 06T308	P0350903	XT15	MDP 3510	○
184193500	DHC 005140-5D	51	40	275	310	CWC 051055-I / CWC 000051-O	WCKX 080408	P0401101	XT15	MDP 3812	○
184193600	DHC 005240-5D	52	40	275	310	CWC 051055-I / CWC 000052-O	WCKX 080408	P0401101	XT15	MDP 3812	○
184193700	DHC 005340-5D	53	40	275	310	CWC 051055-I / CWC 000053-O	WCKX 080408	P0401101	XT15	MDP 3812	○
184193800	DHC 005440-5D	54	40	275	310	CWC 051055-I / CWC 000054-O	WCKX 080408	P0401101	XT15	MDP 3812	○
184193900	DHC 005540-5D	55	40	275	310	CWC 051055-I / CWC 000055-O	WCKX 080408	P0401101	XT15	MDP 3812	○
184194000	DHC 005640-5D	56	40	300	335	CWC 056059-I / CWC 000056-O	WCKX 080408	P0401101	XT15	MDP 3812	○
184194100	DHC 005740-5D	57	40	300	335	CWC 056059-I / CWC 000057-O	WCKX 080408	P0401101	XT15	MDP 3812	○
184194200	DHC 005840-5D	58	40	300	335	CWC 056059-I / CWC 000058-O	WCKX 080408	P0401101	XT15	MDP 3812	○
184194300	DHC 005940-5D	59	40	300	335	CWC 056059-I / CWC 000059-O	WCKX 080408	P0401101	XT15	MDP 3812	○
2 INSERTS PER CARTRIDGE											
184065600	DHC 606540-5D	60-65	40	325	360	MDC 060065-I/O	WCKX 050308	P0300701	XT08	MDP 3812	○
184065700	DHC 657040-5D	65-70	40	350	385	MDC 065070-I/O	WCKX 050308	P0300701	XT08	MDP 3812	○
184065800	DHC 707540-5D	70-75	40	375	410	MDC 070075-I/O	WCKX 050308	P0300701	XT08	MDP 3812	○
184065900	DHC 758040-5D	75-80	40	400	435	MDC 075080-I/O	WCKX 06T308	P0350903	XT15	MDP 4516	○

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

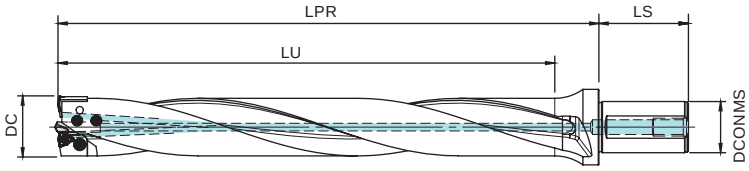
Note:This type of drills are supplied without pilot drills. Please order them separately.

Please see Page B - 449 for setting pilot drill.

Pilot Drill mounting procedure

DHC 8D CARTRIDGE TYPE (SINGLE & DOUBLE INSERT)

Integrex drills | Brocas integrex | Brocas integrex



New version / Standard version*

DCONMS	LS	BP / SP
40	70 / 80	PT - 1/4

*Order seperately

Order code Código	Reference Referência Referencia	Dimensions Dimensões Dimensiones (mm)				Cartridge	Insert	Insert Screw	Torx key	Pilot drill*	Stock
		DC	DCONMS	LU	LPR						
1 INSERT PER CARTRIDGE											
184194400	DHC 004140-8D	41	40	340	375	CWC 041045-I / CWC 000041-O	WCKX 06T308	P0350903	XT15	MDP 3510	○
184194500	DHC 004240-8D	42	40	340	375	CWC 041045-I / CWC 000042-O	WCKX 06T308	P0350903	XT15	MDP 3510	○
184194600	DHC 004340-8D	43	40	340	375	CWC 041045-I / CWC 000043-O	WCKX 06T308	P0350903	XT15	MDP 3510	○
184194700	DHC 004440-8D	44	40	340	375	CWC 041045-I / CWC 000044-O	WCKX 06T308	P0350903	XT15	MDP 3510	○
184194800	DHC 004540-8D	45	40	340	375	CWC 041045-I / CWC 000045-O	WCKX 06T308	P0350903	XT15	MDP 3510	○
184194900	DHC 004640-8D	46	40	380	415	CWC 046050-I / CWC 000046-O	WCKX 06T308	P0350903	XT15	MDP 3510	○
184195000	DHC 004740-8D	47	40	380	415	CWC 046050-I / CWC 000047-O	WCKX 06T308	P0350903	XT15	MDP 3510	○
184195100	DHC 004840-8D	48	40	380	415	CWC 046050-I / CWC 000048-O	WCKX 06T308	P0350903	XT15	MDP 3510	○
184195200	DHC 004940-8D	49	40	380	415	CWC 046050-I / CWC 000049-O	WCKX 06T308	P0350903	XT15	MDP 3510	○
184195300	DHC 005040-8D	50	40	380	415	CWC 046050-I / CWC 000050-O	WCKX 06T308	P0350903	XT15	MDP 3510	○
184195400	DHC 005140-8D	51	40	420	455	CWC 051055-I / CWC 000051-O	WCKX 080408	P0401101	XT15	MDP 3812	○
184195500	DHC 005240-8D	52	40	420	455	CWC 051055-I / CWC 000052-O	WCKX 080408	P0401101	XT15	MDP 3812	○
184195600	DHC 005340-8D	53	40	420	455	CWC 051055-I / CWC 000053-O	WCKX 080408	P0401101	XT15	MDP 3812	○
184195700	DHC 005440-8D	54	40	420	455	CWC 051055-I / CWC 000054-O	WCKX 080408	P0401101	XT15	MDP 3812	○
184195800	DHC 005540-8D	55	40	420	455	CWC 051055-I / CWC 000055-O	WCKX 080408	P0401101	XT15	MDP 3812	○
184195900	DHC 005640-8D	56	40	460	495	CWC 056059-I / CWC 000056-O	WCKX 080408	P0401101	XT15	MDP 3812	○
184196000	DHC 005740-8D	57	40	460	495	CWC 056059-I / CWC 000057-O	WCKX 080408	P0401101	XT15	MDP 3812	○
184196100	DHC 005840-8D	58	40	460	495	CWC 056059-I / CWC 000058-O	WCKX 080408	P0401101	XT15	MDP 3812	○
184196200	DHC 005940-8D	59	40	460	495	CWC 056059-I / CWC 000059-O	WCKX 080408	P0401101	XT15	MDP 3812	○
2 INSERTS PER CARTRIDGE											
184066000	DHC 606540-8D	60-65	40	520	555	MDC 060065-I/O	WCKX 050308	P0300701	XT08	MDP 3812	○
184066100	DHC 657040-8D	65-70	40	560	595	MDC 065070-I/O	WCKX 050308	P0300701	XT08	MDP 3812	○
184066200	DHC 707540-8D	70-75	40	600	635	MDC 070075-I/O	WCKX 050308	P0300701	XT08	MDP 3812	○
184066300	DHC 758040-8D	75-80	40	640	675	MDC 075080-I/O	WCKX 06T308	P0350903	XT15	MDP 4516	○

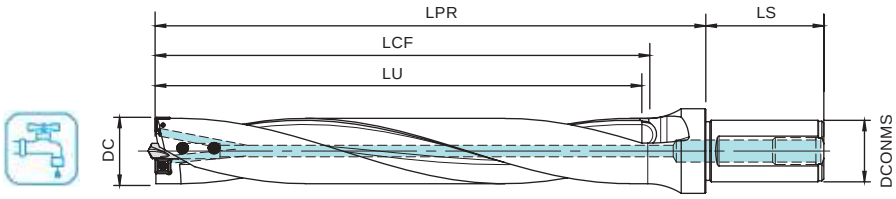
Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

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

Please see Page B - 449 for setting pilot drill.

Pilot Drill mounting procedure

TFD 6D Integrex drills | Brocas integrex | Brocas integrex



DCONMS	LS	BP / SP
25	56	PT - 1/8
32	60	PT - 1/4

*Order seperately

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)					Insert	Insert Screw	Torx key	Pilot drill*	Stock
		DC	DCONMS	LU	LCF	LPR					
184154300	TFD 18025-6D	18,0	25	108	112	142	SPKX 050204	P0200500	XT06	MDP 2006	◉
184154400	TFD 18525-6D	18,5	25	111	115	145	SPKX 050204	P0200500	XT06	MDP 2006	○
184154500	TFD 19025-6D	19,0	25	114	118	148	SPKX 050204	P0200500	XT06	MDP 2006	○
184154600	TFD 19525-6D	19,5	25	117	121	151	SPKX 050204	P0200500	XT06	MDP 2006	○
184154700	TFD 20025-6D	20,0	25	120	124	154	SP..X 060204	P0220500	XT07	MDP 2006	◉
184154800	TFD 20525-6D	20,5	25	123	127	157	SP..X 060204	P0220500	XT07	MDP 2006	○
184154900	TFD 21025-6D	21,0	25	126	130	160	SP..X 060204	P0220500	XT07	MDP 2006	◉
184155000	TFD 21525-6D	21,5	25	129	133	163	SP..X 060204	P0220500	XT07	MDP 2006	○
184155100	TFD 22025-6D	22,0	25	132	136	166	SP..X 060204	P0220500	XT07	MDP 2006	◉
184155200	TFD 22525-6D	22,5	25	135	139	169	SP..X 060204	P0220500	XT07	MDP 2006	○
184155300	TFD 23025-6D	23,0	25	138	142	172	SP..X 060204	P0220500	XT07	MDP 2006	○
184155400	TFD 23525-6D	23,5	25	141	145	175	SP..X 060204	P0220500	XT07	MDP 2006	○
184155500	TFD 24025-6D	24,0	25	144	148	178	SP..X 060204	P0220500	XT07	MDP 2006	○
184155600	TFD 24525-6D	24,5	25	147	151	181	SP..X 060204	P0220500	XT07	MDP 2006	○
184155700	TFD 25025-6D	25,0	25	150	154	184	SP..X 060204	P0220500	XT07	MDP 2006	○
184155800	TFD 25532-6D	25,5	32	153	157	192	SPKX 07T308	P0250704	XT08	MDP 2508	○
184155900	TFD 26032-6D	26,0	32	156	160	195	SPKX 07T308	P0250704	XT08	MDP 2508	◉
184156000	TFD 26532-6D	26,5	32	159	163	198	SPKX 07T308	P0250704	XT08	MDP 2508	○
184156100	TFD 27032-6D	27,0	32	162	166	201	SPKX 07T308	P0250704	XT08	MDP 2508	○
184156200	TFD 27532-6D	27,5	32	165	169	204	SPKX 07T308	P0250704	XT08	MDP 2508	○
184156300	TFD 28032-6D	28,0	32	168	172	207	SPKX 07T308	P0250704	XT08	MDP 2508	○
184156400	TFD 28532-6D	28,5	32	171	175	210	SPKX 07T308	P0250704	XT08	MDP 2508	○
184156500	TFD 29032-6D	29,0	32	174	178	213	SPKX 07T308	P0250704	XT08	MDP 2508	○
184156600	TFD 29532-6D	29,5	32	177	181	216	SPKX 07T308	P0250704	XT08	MDP 2508	○
184156700	TFD 30032-6D	30,0	32	180	184	219	SPKX 07T308	P0250704	XT08	MDP 2508	◉

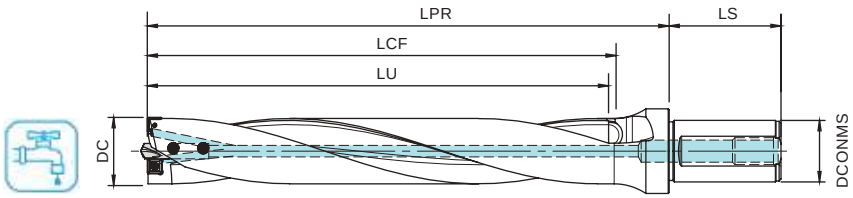
◉ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

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

Please see Page B - 449 for setting pilot drill.

Pilot Drill mounting procedure

TFD 8D Integrex drills | Brocas integrex | Brocas integrex



DCONMS	LS	BP / SP
25	56	PT - 1/8
32	60	PT - 1/4

*Order seperately

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)					Insert	Insert Screw	Torx key	Pilot drill*	Stock
		DC	DCONMS	LU	LCF	LPR					
184151800	TFD 18025-8D	18,0	25	144	149	179	SPKX 050204	P0200500	XT06	MDP 2006	◈
184151900	TFD 18525-8D	18,5	25	148	153	183	SPKX 050204	P0200500	XT06	MDP 2006	◈
184152000	TFD 19025-8D	19,0	25	152	157	187	SPKX 050204	P0200500	XT06	MDP 2006	○
184152100	TFD 19525-8D	19,5	25	156	161	191	SPKX 050204	P0200500	XT06	MDP 2006	○
184152200	TFD 20025-8D	20,0	25	160	165	195	SP..X 060204	P0220500	XT07	MDP 2006	◈
184152300	TFD 20525-8D	20,5	25	164	169	199	SP..X 060204	P0220500	XT07	MDP 2006	○
184152400	TFD 21025-8D	21,0	25	168	173	203	SP..X 060204	P0220500	XT07	MDP 2006	◈
184152500	TFD 21525-8D	21,5	25	172	177	207	SP..X 060204	P0220500	XT07	MDP 2006	○
184151200	TFD 22025-8D	22,0	25	176	181	211	SP..X 060204	P0220500	XT07	MDP 2006	○
184152700	TFD 22525-8D	22,5	25	180	185	215	SP..X 060204	P0220500	XT07	MDP 2006	○
184152800	TFD 23025-8D	23,0	25	184	189	219	SP..X 060204	P0220500	XT07	MDP 2006	○
184152900	TFD 23525-8D	23,5	25	188	193	223	SP..X 060204	P0220500	XT07	MDP 2006	○
184153000	TFD 24025-8D	24,0	25	192	197	227	SP..X 060204	P0220500	XT07	MDP 2006	◈
184153100	TFD 24525-8D	24,5	25	196	201	231	SP..X 060204	P0220500	XT07	MDP 2006	○
184151300	TFD 25025-8D	25,0	25	200	205	235	SP..X 060204	P0220500	XT07	MDP 2006	◈
184153300	TFD 25532-8D	25,5	32	204	209	244	SPKX 07T308	P0250704	XT08	MDP 2508	○
184153400	TFD 26032-8D	26,0	32	208	213	248	SPKX 07T308	P0250704	XT08	MDP 2508	◈
184153500	TFD 26532-8D	26,5	32	212	217	252	SPKX 07T308	P0250704	XT08	MDP 2508	○
184153600	TFD 27032-8D	27,0	32	216	221	256	SPKX 07T308	P0250704	XT08	MDP 2508	○
184153700	TFD 27532-8D	27,5	32	220	225	260	SPKX 07T308	P0250704	XT08	MDP 2508	○
184153800	TFD 28032-8D	28,0	32	224	229	264	SPKX 07T308	P0250704	XT08	MDP 2508	○
184153900	TFD 28532-8D	28,5	32	228	233	268	SPKX 07T308	P0250704	XT08	MDP 2508	○
184154000	TFD 29032-8D	29,0	32	232	237	272	SPKX 07T308	P0250704	XT08	MDP 2508	◈
184154100	TFD 29532-8D	29,5	32	236	241	276	SPKX 07T308	P0250704	XT08	MDP 2508	○
184154200	TFD 30032-8D	30,0	32	240	245	280	SPKX 07T308	P0250704	XT08	MDP 2508	◈

◈ 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.

Please see Page B - 449 for setting pilot drill.

Pilot Drill mounting procedure

VORTEX

DRILLS

Vortex drills offer the best solution for drilling extensive dimensions in both diameter and length. The drilling depth can be adjusted using extensions and reducers, while the diameter adjustment is accomplished by shortening the outer cartridge.

As brocas Vortex oferecem a melhor solução para perfurar dimensões extensas tanto em diâmetro quanto em comprimento. A profundidade de perfuração pode ser ajustada usando extensões e redutores, enquanto o ajuste de diâmetro é realizado encurtando o cartucho externo.

Las brocas Vortex ofrecen la mejor solución para perforar dimensiones extensas tanto en diámetro como en longitud. La profundidad de perforación puede ajustarse utilizando extensiones y reductores, mientras que el ajuste de diámetro se logra acortando el cartucho exterior.

MDO > page 414

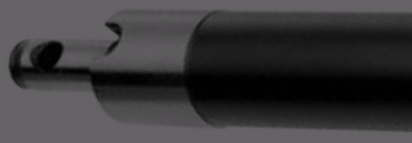
- From DC 45,0mm to 180,0mm
  De DC 45,0mm a 180,0mm | Desde DC 45,0mm hasta 180,0mm
- 2 or 3 WCKX inserts per cartridge
  2 ou 3 pastilhas WCKX por cartucho | 2 o 3 plaquitas WCKX por cartucho
- Pilot drill
  Broca piloto | Taladro piloto

MDS > page 416

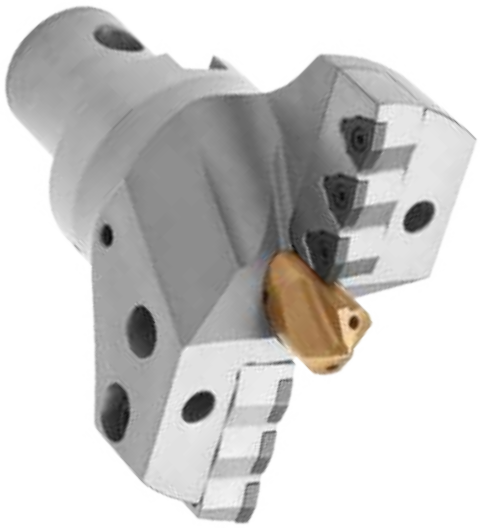
- Shank
  Encabadouro | Caña

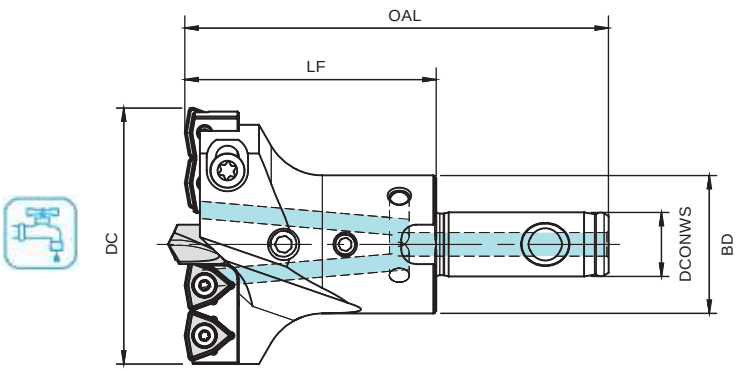
MDE > page 417

- Extension
  Extensor | Extensor



MDO 10D Vortex drills | Brocas vortex | Brocas vortex





*Order seperately

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)					Cartridge	Insert	Insert Screw	Torx key	Pilot drill*	Stock
		DC	DCONWS	LF	OAL	BD						
2 INSERTS PER CARTRIDGE												
184031000	MDO 04505013	45-50	13	50	85	28	MDC 045050-I/O	WCKX 030204	P0220500	XT07	MDP 3510	●
184031100	MDO 05005513	50-55	13	50	85	28	MDC 050055-I/O	WCKX 030204	P0220500	XT07	MDP 3510	●
184031200	MDO 05506016	55-60	16	60	100	32	MDC 055060-I/O	WCKX 040204	P0250503	XT08	MDP 3812	●
184031300	MDO 06006516	60-65	16	60	100	32	MDC 060065-I/O	WCKX 050308	P0300701	XT08	MDP 3812	●
184031500	MDO 06507016	65-70	16	60	100	32	MDC 065070-I/O	WCKX 050308	P0300701	XT08	MDP 3812	●
184032400	MDO 07007522	70-75	22	70	115	40	MDC 070075-I/O	WCKX 050308	P0300701	XT08	MDP 3812	●
184032500	MDO 07508022	75-80	22	70	115	40	MDC 075080-I/O	WCKX 06T308	P0350903	XT15	MDP 4516	●
184032600	MDO 08008522	80-85	22	70	115	40	MDC 080085-I/O	WCKX 06T308	P0350903	XT15	MDP 4516	●
184032700	MDO 08509027	85-90	27	70	120	48	MDC 085090-I/O	WCKX 06T308	P0350903	XT15	MDP 4516	●
184032800	MDO 09009527	90-95	27	70	120	48	MDC 090095-I/O	WCKX 06T308	P0350903	XT15	MDP 4516	●
184032900	MDO 09510027	95-100	27	70	120	48	MDC 095100-I/O	WCKX 06T308	P0350903	XT15	MDP 4516	●

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

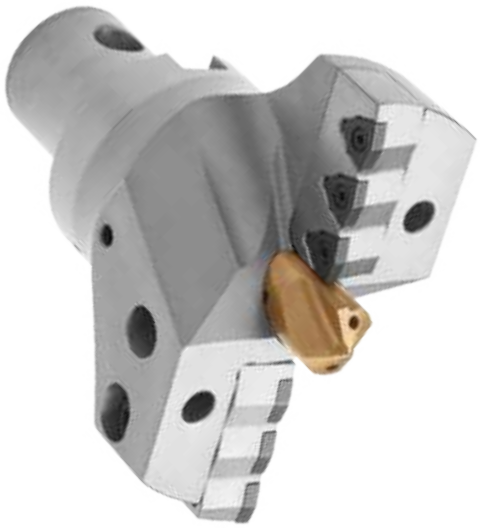
Drills with larger diameter available under request with a minimum order quantity.

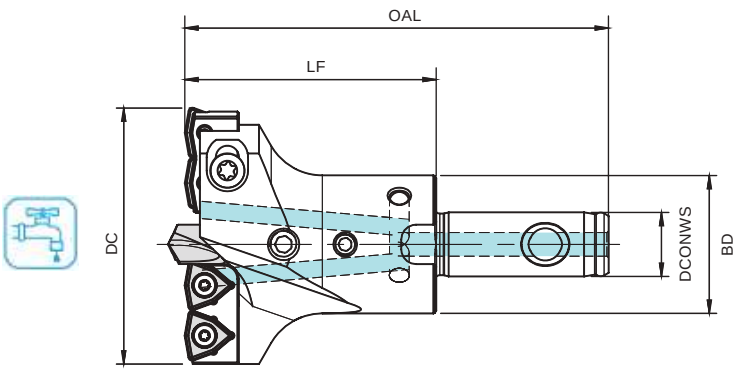
Note:This type of drills are supplied without pilot drills. Please order them separately.

Please see Page B - 450 for setting pilot drill.

Pilot Drill mounting procedure

MDO 10D Vortex drills | Brocas vortex | Brocas vortex





*Order seperately

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)					Cartridge	Insert	Insert Screw	Torx key	Pilot drill*	Stock
		DC	DCONWS	LF	OAL	BD						
3 INSERTS PER CARTRIDGE												
184033000	MDO 10010532	100-105	32	80	130	58	MDC 100105-I/O	WCKX 050308	P0300701	XT08	MDP 4520	◎
184066400	MDO 10511032	105-110	32	80	130	58	MDC 105110-I/O	WCKX 06T308	P0350903	XT15	MDP 4520	◎
184066500	MDO 11011532	110-115	32	80	130	58	MDC 110115-I/O	WCKX 06T308	P0350903	XT15	MDP 4520	◎
184066600	MDO 11512040	115-120	40	90	145	70	MDC 115120-I/O	WCKX 06T308	P0350903	XT15	MDP 4520	◎
184066700	MDO 12012540	120-125	40	90	145	70	MDC 120125-I/O	WCKX 06T308	P0350903	XT15	MDP 5625	◎
184066800	MDO 12513040	125-130	40	90	145	70	MDC 125130-I/O	WCKX 06T308	P0350903	XT15	MDP 5625	◎
184066900	MDO 13013540	130-135	40	90	145	70	MDC 130135-I/O	WCKX 06T308	P0350903	XT15	MDP 5625	◎
184067000	MDO 13514040	135-140	40	90	145	70	MDC 135140-I/O	WCKX 06T308	P0350903	XT15	MDP 5625	◎
184067100	MDO 14015050	140-150	50	100	160	80	MDC 140150-I/O	WCKX 080408	P0401101	XT15	MDP 5625	◎
184067200	MDO 15016050	150-160	50	100	160	80	MDC 150160-I/O	WCKX 080408	P0401101	XT15	MDP 5625	◎
184067300	MDO 16017050	160-170	50	100	160	80	MDC 160170-I/O	WCKX 080408	P0401101	XT15	MDP 6830	◎
184067400	MDO 17018050	170-180	50	100	160	80	MDC 170180-I/O	WCKX 080408	P0401101	XT15	MDP 6830	◎

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

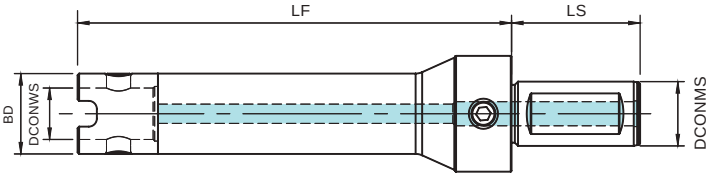
Drills with larger diameter available under request with a minimum order quantity.

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

Please see Page B - 450 for setting pilot drill.

Pilot Drill mounting procedure

MDS SHANK Vortex drills accessories | Acessórios de brocas vortex | Accesorios de brocas vortex



New version / Standard version*

DCONWS	LS	BP / SP
32	70	PT - 1/4
40	80	PT - 1/4
50	80 / 100	PT - 1/4

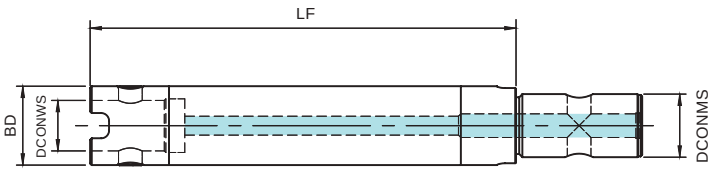
*Order seperately

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)				Drive Ring*	Stock
		DCONMS	DCONWS	BD	LF		
184121900	MDS 32115130	32	13	28	115	MDR 1028	⛭
184253700	MDS 32200130	32	13	28	200	MDR 1028	⛭
184255400	MDS 32300130	32	13	28	300	MDR 1028	⛭
184122100	MDS 40125160	40	16	32	125	MDR 1032	⛭
184253800	MDS 40200160	40	16	32	200	MDR 1032	⛭
184255500	MDS 40300160	40	16	32	300	MDR 1032	⛭
184122300	MDS 40148220	40	22	40	148	MDR 1240	⛭
184122400	MDS 40200220	40	22	40	200	MDR 1240	⛭
184122500	MDS 40300220	40	22	40	300	MDR 1240	⛭
184122600	MDS 40168270	40	27	48	168	MDR 1248	⛭
184122700	MDS 40300270	40	27	48	300	MDR 1248	⛭
184122800	MDS 40186320	40	32	58	186	MDR 1458	⛭
184122900	MDS 40300320	40	32	58	300	MDR 1458	⛭
184123000	MDS 50186400	50	40	70	186	MDR 1470	⛭
184123100	MDS 50300400	50	40	70	300	MDR 1470	⛭
184123200	MDS 50184500	50	50	80	184	MDR 1680	⛭
184123300	MDS 50300500	50	50	80	300	MDR 1680	⛭

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

Note: This type of shank are supplied without drive ring. Please order them separately.

MDE EXTENSION Vortex drills accessories | Acessórios de brocas vortex | Accesorios de brocas vortex



*Order seperately

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)				Drive Ring*	Stock
		DCONMS	DCONWS	BD	LF		
184023500	MDE 13115280	13	13	28	115	MDR 1028	◎
184023600	MDE 13150280	13	13	28	150	MDR 1028	◎
184023700	MDE 13200280	13	13	28	200	MDR 1028	◎
184021800	MDE 13300280	13	13	28	300	MDR 1028	◎
184023800	MDE 16115320	16	16	32	115	MDR 1032	◎
184021900	MDE 16200320	16	16	32	200	MDR 1032	◎
184023900	MDE 16300320	16	16	32	300	MDR 1032	◎
184024000	MDE 22113400	22	22	40	113	MDR 1240	◎
184024100	MDE 22200400	22	22	40	200	MDR 1240	◎
184024200	MDE 22300400	22	22	40	300	MDR 1240	◎
184024300	MDE 27113480	27	27	48	113	MDR 1248	◎
184024400	MDE 27200480	27	27	48	200	MDR 1248	◎
184024500	MDE 27300480	27	27	48	300	MDR 1248	◎
184024600	MDE 32186580	32	32	58	186	MDR 1458	◎
184024700	MDE 32300580	32	32	58	300	MDR 1458	◎
184024800	MDE 40186700	40	40	70	186	MDR 1470	◎
184024900	MDE 40300700	40	40	70	300	MDR 1470	◎
184025000	MDE 40500700	40	40	70	500	MDR 1470	◎
184025100	MDE 50204800	50	50	80	204	MDR 1680	◎
184025200	MDE 50300800	50	50	80	300	MDR 1680	◎
184025300	MDE 50500800	50	50	80	500	MDR 1680	◎

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

Note: This type of shank are supplied without drive ring. Please order them separately.

TREPANNING

DRILLS

Trepanning drills are ideal for drilling larger hole diameters in situations where machine power is restricted, as they consume less power compared to conventional drilling methods. Instead of machining the entire hole, only a peripheral ring is created. Consequently, this method is for through-hole applications.

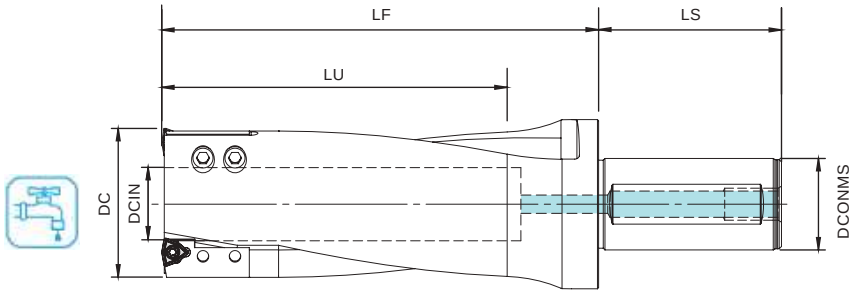
As brocas de furação são ideais para perfurar diâmetros grandes em situações em que a potência da máquina é restrita, pois consomem menos energia em comparação com os métodos de perfuração convencionais. Na vez de maquinar todo o furo, é criado apenas um anel periférico. Consequentemente, este método é indicado para aplicações de furos passantes.

Las brocas de trepanación son ideales para perforar diámetros grandes en situaciones donde la potencia de la máquina está restringida, ya que consumen menos energía en comparación con los métodos de perforación convencionales. En lugar de mecanizar todo el agujero, solo se crea un anillo periférico. En consecuencia, este método es para aplicaciones de agujeros pasantes.

PND > page 420

- From DC 40,0mm to 110,0mm
  De DC 40,0mm a 110,0mm | Desde DC 40,0mm hasta 110,0mm
- Available in 2D
  Disponível em 2D | Disponible en 2D

PND 2D Trepanning drills | Brocas de trepanação | Brocas de trepanación



DCONMS	LS	BP / SP
32	70	PT - 1/4
40	80	PT - 1/4
50	100	PT - 1/4

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)					Cartridge	Insert	Insert Screw	Torx key	Stock
		DC	DCIN	DCONMS	LU	LF					
184067500	PND 04032-2D	40,0	10,0	32	100	140	PNC 040055-I/O	WCKX 050308	P0300701	XT08	○
184067600	PND 04540-2D	45,0	15,0	40	100	130	PNC 040055-I/O	WCKX 050308	P0300701	XT08	○
184067700	PND 05040-2D	50,0	21,0	40	120	150	PNC 040055-I/O	WCKX 050308	P0300701	XT08	○
184067800	PND 05540-2D	55,0	26,0	40	120	150	PNC 040055-I/O	WCKX 050308	P0300701	XT08	○
184067900	PND 06040-2D	60,0	24,5	40	150	190	PNC 060110-I/O	WCKX 06T308	P0350903	XT15	○
184068000	PND 06540-2D	65,0	30,5	40	150	190	PNC 060110-I/O	WCKX 06T308	P0350903	XT15	○
184068100	PND 07040-2D	70,0	35,5	40	170	210	PNC 060110-I/O	WCKX 06T308	P0350903	XT15	○
184068200	PND 07540-2D	75,0	40,5	40	170	210	PNC 060110-I/O	WCKX 06T308	P0350903	XT15	○
184068300	PND 08040-2D	80,0	45,5	40	190	230	PNC 060110-I/O	WCKX 06T308	P0350903	XT15	○
184068400	PND 08550-2D	85,0	50,5	50	190	230	PNC 060110-I/O	WCKX 06T308	P0350903	XT15	○
184068500	PND 09050-2D	90,0	55,0	50	210	250	PNC 060110-I/O	WCKX 06T308	P0350903	XT15	○
184068600	PND 09550-2D	95,0	60,0	50	210	250	PNC 060110-I/O	WCKX 06T308	P0350903	XT15	○
184068700	PND 10050-2D	100,0	66,0	50	250	290	PNC 060110-I/O	WCKX 06T308	P0350903	XT15	○
184068800	PND 11050-2D	110,0	76,0	50	250	290	PNC 060110-I/O	WCKX 06T308	P0350903	XT15	○

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

Inserts: B - 426 Spare Parts: B - 428

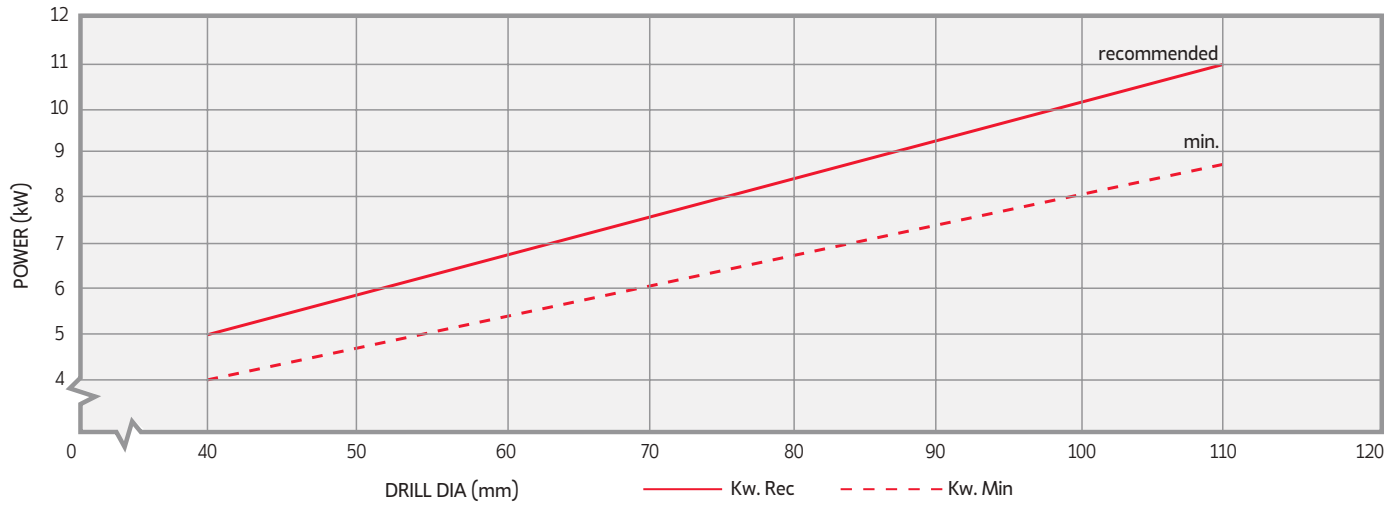
CUTTING PARAMETERS AND ADJUSTMENTS

Parâmetros de corte e ajustes | Condiciones de corte y ajustes

RECOMMENDED SPEEDS AND FEEDS

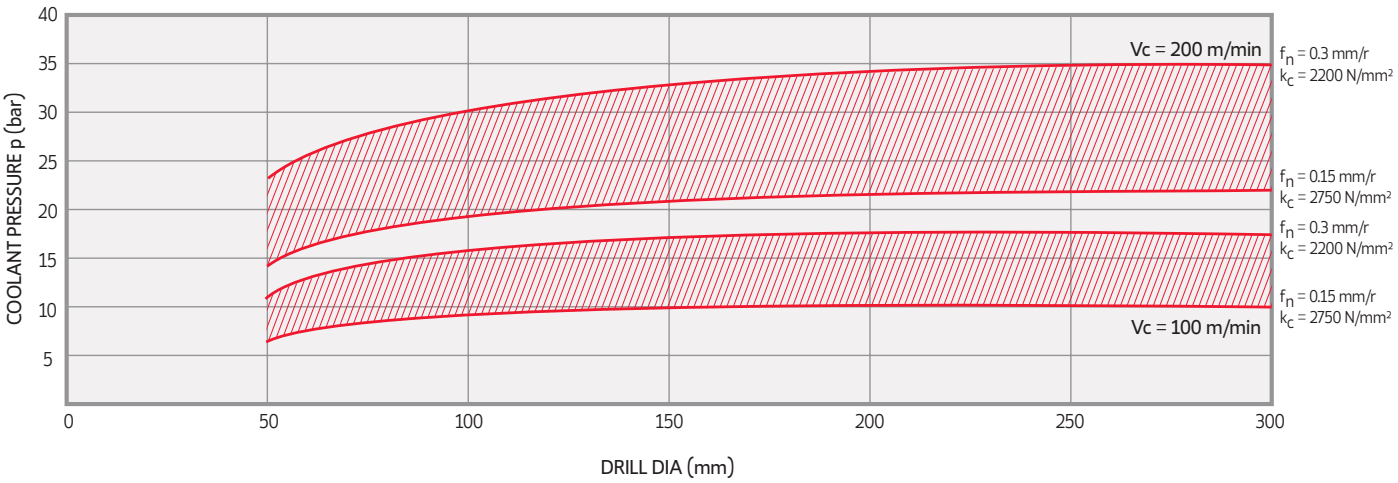
ISO	Material Group Grupo Materiais Grupo Materiales	DC (mm)	Fn (mm/r)	Vc (m/min)
P	Unalloyed steel (-0,25%)	60-110	0,07-0,20	130-345
	Low-alloy steel (0,25%-)	60-110	0,10-0,20	100-210
	Low-alloy steel	60-110	0,10-0,20	90-200
	Steel casting	60-110	0,06-0,18	120-280
M	Stainless steel	60-110	0,10-0,20	100-240
K	Grey cast iron	60-110	0,14-0,26	105-280
	Cast iron with nodular cast	60-110	0,14-0,20	110-195
N	Aluminium forging alloys	60-110	0,12-0,22	250-400
	Copper and copper alloys	60-110	0,12-0,22	180-350

POWER REQUIREMENTS



• The cutting fluid quantity is measured at the cutting edge of the drill

COOLANT APPLICATION CHART



INSERTS

Drilling inserts, specialized for various applications and materials, optimize cutting processes by providing precise geometries and coatings, resulting in improved chip evacuation, surface finish, and overall tool performance.

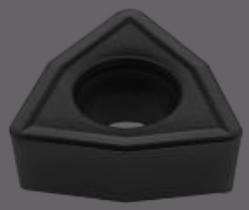
As pastilhas de furação, especializadas para diversas aplicações e materiais, otimizam os processos de corte fornecendo geometrias e revestimentos precisos, resultando numa melhor evacuação de aparas, acabamento de superfície e desempenho geral da ferramenta.

Las plaquitas de furacción, especializadas para diversas aplicaciones y materiales, optimizan los procesos de corte al proporcionar geometrías y recubrimientos precisos, lo que resulta en una mejor evacuación de rompevirutas, acabado superficial y rendimiento general de la herramienta.

SP...X > page 426

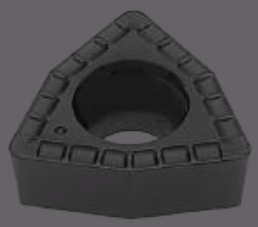
- From sizes 05 to 14
  De tamanhos de 05 a 14 | De tamaños de 05 a 14
- Available in grades PH6920, PH6930, PHC930, PHL930 and PH0910
  Disponível nos graus PH6920, PH6930, PHC930, PHL930 e PH0910 | Disponible en las calidades PH6920, PH6930, PHC930, PHL930 y PH0910
- Suitable for machining steels, stainless steels, cast iron, HRSA and non-ferrous
  Adequado para maquinação de aços, aços inoxidáveis, ferro fundido, HRSA e não ferrosos | Adecuado para el mecanizado de aceros, aceros inoxidables, hierro fundido, HRSA y no ferrosos

WCKX > page 426



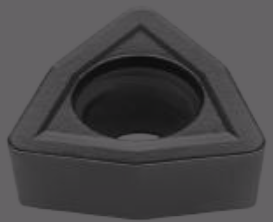
- From sizes 02 to 08
  De tamanhos de 02 a 08 | De tamaños de 02 a 08
- Available in grades PH6920 and PH6930
  Disponível nos graus PH6920 e PH6930 | Disponible en las calidades PH6920 y PH6930
- Suitable for machining steels, stainless steels, cast iron and HRSA
  Adequado para maquinação de aços, aços inoxidáveis, ferro fundido e HRSA | Adecuado para el mecanizado de aceros, aceros inoxidables, hierro fundido y HRSA

WCKX-LC > page 427



- From sizes 05 to 06
  De tamanhos de 05 a 06 | De tamaños de 05 a 06
- Available in grades PH6920 and PH6930
  Disponível nos graus PH6920 e PH6930 | Disponible en las calidades PH6920 y PH6930
- Suitable for machining steels
  Adequado para maquinação de aços | Adecuado para el mecanizado de aceros

WCMX > page 427



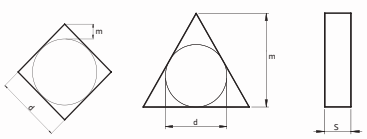
- From sizes 03 to 08
  De tamanhos de 03 a 08 | De tamaños de 03 a 08
- Available in grades PH6920, PHC930 and PHL930
  Disponível nos graus PH6920, PHC930 e PHL930 | Disponible en las calidades PH6920, PHC930 y PHL930
- Suitable for machining steels, stainless steels, cast iron and HRSA
  Adequado para maquinação de aços, aços inoxidáveis, ferro fundido e HRSA | Adecuado para el mecanizado de aceros, aceros inoxidables, hierro fundido y HRSA

ISO HOLEMAKING INSERTS CODE KEY

Sistema de codificação para pastilhas de furação ISO | Codificación para plaquitas de furacción ISO

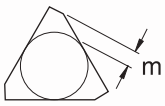
H	120°	M	86°
O	135°	V	35°
P	108°	W	80°
S	90°	L	90°
T	60°	A	85°
C	80°	B	82°
D	55°	K	55°
E	75°	R	
F	50°	X	Special

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 **W** **C** **K** **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

palbit

ISO HOLEMAKING INSERTS CODE KEY

Sistema de codificação para pastilhas de furação ISO | Codificación para plaquitas de furacción ISO

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

06 T3 08/AN E - LC

10 - Chipbreaker geometries

LC

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.		

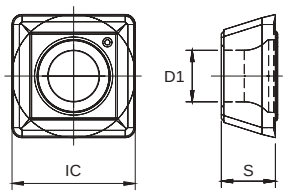
INSERTS Pastilhas | Plaquitas

SP..X Inserts | Pastilhas | Plaquitas

SPKX

SPKX
(PHC | PHL grade)

SPHX-LN

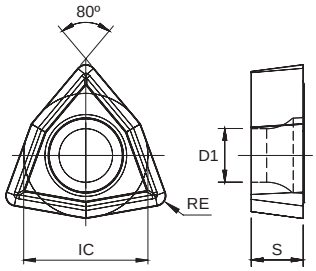


		P				M				K			S				N	Dimensions Dimensões Dimensiones (mm)			
		PVD				PVD				PVD			PVD				UNC				
	(2) Grade code	68	66	J3	3B	68	66	J3	3B	68	66	3B	68	66	J3	3B	10				
(1) Geometry code	ISO Reference	PH6920	PH6930	PHC930	PHL930	PH6920	PH6930	PHC930	PHL930	PH6920	PH6930	PHL930	PH6920	PH6930	PHC930	PHL930	PH0910	IC	S	D1	RE
1111281	SPKX 050204	●	●	◇		●	●	◇		●	●		●	●	◇			5,00	2,38	2,20	0,40
1111282	SPKX 060204	●	●		●	●	●		●	●	●	●	●	●		●		6,00	2,38	2,55	0,40
1142099	SPHX 060204-LN																●	6,00	2,38	2,55	0,40
1111283	SPKX 07T308	●	●		●	●	●		●	●	●	●	●	●		●		7,94	3,97	2,85	0,80
1111284	SPKX 090408	●	●	◇	●	●	●	◇	●	●	●	●	●	●	◇	●		9,80	4,30	4,10	0,80
1111285	SPKX 110408	●	●		●	●	●		●	●	●	●	●	●		●		11,50	4,80	4,40	0,80
1111286	SPKX 140512	●	●		●	●	●		●	●	●	●	●	●		●		14,30	5,20	5,75	1,20

● Stock item | Produto de stock | Itens de stock
○ Available under request | Disponível sobre consulta | Disponible bajo consulta
◇ Available until sold out | Disponível até acabar o stock | Disponible hasta acabar el stock

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

WCKX Inserts | Pastilhas | Plaquitas

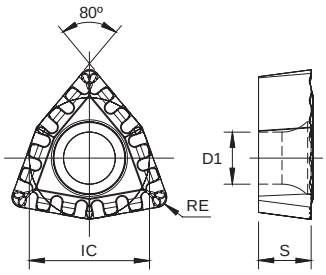


		P				M		K		S		Dimensions Dimensões Dimensiones (mm)			
		PVD				PVD		CVD		PVD					
	(2) Grade code	68	66	I5	78	68	66	68	66	68	66				
(1) Geometry code	ISO Reference	PH6920	PH6930	PH6740	PH6125	PH6920	PH6930	PH6920	PH6930	PH6920	PH6930	IC	S	D1	RE
1140300	WCKX 02T104	●	●	○	○	●	●	●	●	●	●	4,76	1,98	2,00	0,40
1140276	WCKX 030204	●	●	○	○	●	●	●	●	●	●	5,56	2,38	2,55	0,40
1140277	WCKX 040204	●	●	○	○	●	●	●	●	●	●	6,35	2,38	2,85	0,40
1140278	WCKX 050308	●	●	○	○	●	●	●	●	●	●	7,94	3,18	3,50	0,80
1140279	WCKX 06T308	●	●	○	○	●	●	●	●	●	●	9,55	3,97	4,10	0,80
1140280	WCKX 080408	●	●	○	○	●	●	●	●	●	●	12,70	4,76	5,60	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

WCKX-LC FOR LOW CARBON STEELS Inserts | Pastilhas | Plaquitas



(1) Geometry code	ISO Reference	P PVD (2) Grade code 68 PH6920	P PVD (2) Grade code 66 PH6930	Dimensions Dimensões Dimensiones (mm) IC	S	D1	RE
1142068	WCKX 050308-LC	◈	◈	7,94	3,18	3,50	0,80
1142069	WCKX 06T308-LC	◈	◈	9,55	3,97	4,10	0,80

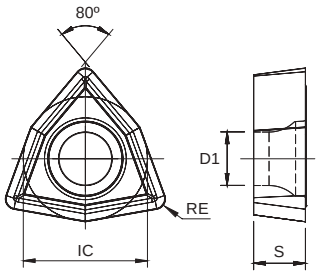
◈ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

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

WCMX Inserts | Pastilhas | Plaquitas

ISO references for other holemaking systems

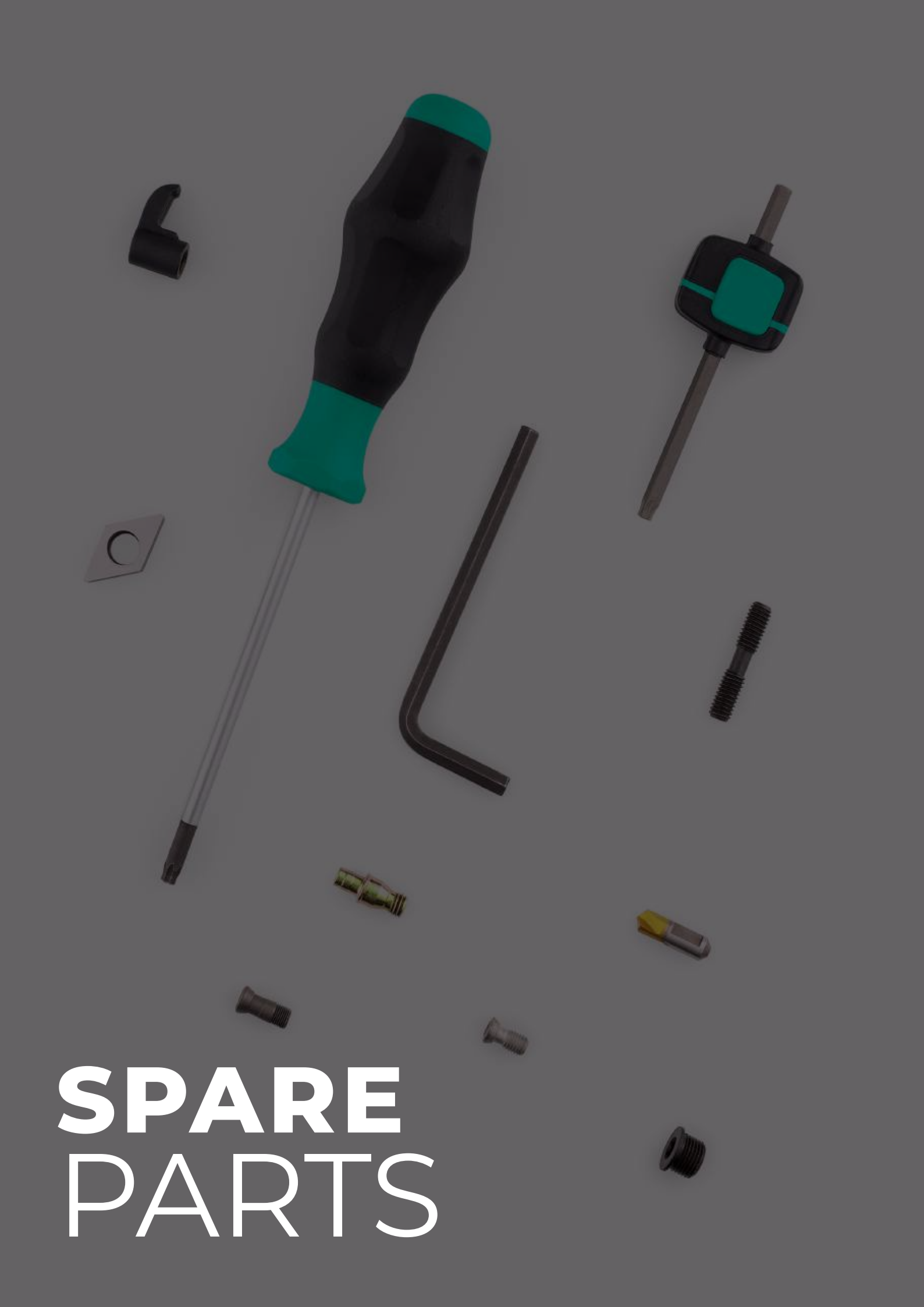
(PHC | PHL grade)



(1) Geometry code	ISO Reference	P PVD (2) Grade code 68 PH6920	P PVD J3 PHC930	P PVD 3B PHL930	M PVD 68 PH6920	M PVD J3 PHC930	M PVD 3B PHL930	K PVD 68 PH6920	K PVD J3 PHC930	K PVD 3B PHL930	S PVD 68 PH6920	S PVD J3 PHC930	S PVD 3B PHL930	Dimensions Dimensões Dimensiones (mm) IC	S	D1	RE
1120827	WCMX 030204	◯		◯	◯		◯	◯		◯	◯		◯	5,56	2,38	2,80	0,40
1120828	WCMX 030208	◈		◈	◈		◈	◈		◈	◈		◈	5,56	2,38	2,80	0,80
1120829	WCMX 040208	◈	◬		◈	◬		◈	◬		◈	◬		6,35	2,38	3,10	0,80
1120830	WCMX 050308	◈		◈	◈		◈	◈		◈	◈		◈	7,94	3,18	3,20	0,80
1120831	WCMX 06T308	◈	◬	◈	◈	◬	◈	◈	◬	◈	◈	◬	◈	9,55	3,97	3,70	0,80
1120832	WCMX 080408	◈	◬	◈	◈	◬	◈	◈	◬	◈	◈	◬	◈	12,70	4,76	4,30	0,80
1120833	WCMX 080412	◈		◈	◈		◈	◈		◈	◈		◈	12,70	4,76	4,30	1,20

◈ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta Disponible bajo consulta ◬ Available until sold out | Disponível até acabar o stock Disponible hasta acabar el stock

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



SPARE PARTS

SPARE PARTS

1 CARTRIDGES

> See page B - 430

2 PILOT DRILL AND RDS

> See page B - 434

3 SCREWS AND KEYS

> See page B - 435

4 MDO CARTRIDGE

> See page B - 436

5 VORTEX SCREWS

> See page B - 437

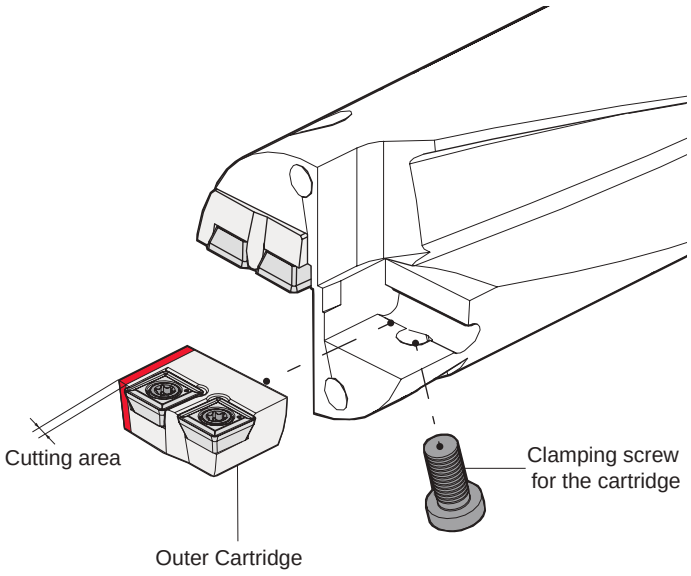
5 MDM AND DRIVE RING

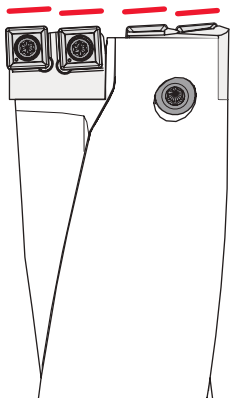
> See page B - 439

SPARE PARTS

SIZE ADAPTABLE CARTRIDGE (5mm)

- Unlock the clamping screw of the outer cartridge and move out the cartridge from the body.
- Cut off the outer cartridge's inside contacted part after calculation of the diameter that you want to drill.
- Slick the rough corner surface of the cut cartridge.
- Adhere closely the cartridge to the body not to make chink and fix it with the clamping screw firmly.





SCC CARTRIDGE (5mm)

ØD	Inner Cartridge		Outer Cartridge		Insert	Insert Screw	Torx key	For Drill	Stock
	Order Code	Reference	Order Code	Reference					
50-55	184230600	SCC 050055-I	184230700	SCC 050055-O	SP... 090408	P0350903	XT15	SCC 505540-3D & 4D	○
55-60	184230800	SCC 055060-I	184230900	SCC 055060-O	SP... 090408	P0350903	XT15	SCC 556040-3D & 4D	○
60-65	184231000	SCC 060065-I	184231100	SCC 060065-O	SP... 110408	P0401200	XT15	SCC 606540-3D & 4D	○
65-70	184231200	SCC 065070-I	184231300	SCC 065070-O	SP... 110408	P0401200	XT15	SCC 657040-3D & 4D	○
70-75	184231400	SCC 070075-I	184231500	SCC 070075-O	SP... 110408	P0401200	XT15	SCC 707540-3D & 4D	○
75-80	184231600	SCC 075080-I	184231700	SCC 075080-O	SP... 140512	P0501300	XT20	SCC 758040-3D & 4D	○

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

SCC CARTRIDGE (1mm)

ØD	Inner Cartridge		Outer Cartridge		Insert	Insert Screw	Torx key	For Drill	Stock
	Order Code	Reference	Order Code	Reference					
50-51	184069500	CISP 5055	184070100	COSP 5051	SP... 090408	P0350903	XT15	SCC 505140-3D & 4D	○
51-52	184069500	CISP 5055	184070200	COSP 5152	SP... 090408	P0350903	XT15	SCC 515240-3D & 4D	○
52-53	184069500	CISP 5055	184070300	COSP 5253	SP... 090408	P0350903	XT15	SCC 525340-3D & 4D	○
53-54	184069500	CISP 5055	184070400	COSP 5354	SP... 090408	P0350903	XT15	SCC 535440-3D & 4D	○
54-55	184069500	CISP 5055	184070500	COSP 5455	SP... 090408	P0350903	XT15	SCC 545540-3D & 4D	○
55-56	184069600	CISP 5560	184070600	COSP 5556	SP... 090408	P0350903	XT15	SCC 555640-3D & 4D	○
56-57	184069600	CISP 5560	184070700	COSP 5657	SP... 090408	P0350903	XT15	SCC 565740-3D & 4D	○
57-58	184069600	CISP 5560	184070800	COSP 5758	SP... 090408	P0350903	XT15	SCC 575840-3D & 4D	○
58-59	184069600	CISP 5560	184070900	COSP 5859	SP... 090408	P0350903	XT15	SCC 585940-3D & 4D	○
59-60	184069600	CISP 5560	184071000	COSP 5960	SP... 090408	P0350903	XT15	SCC 596040-3D & 4D	○
60-61	184069700	CISP 6065	184071100	COSP 6061	SP... 110408	P0401200	XT15	SCC 606140-3D & 4D	○
61-62	184069700	CISP 6065	184071200	COSP 6162	SP... 110408	P0401200	XT15	SCC 616240-3D & 4D	○
62-63	184069700	CISP 6065	184071300	COSP 6263	SP... 110408	P0401200	XT15	SCC 626340-3D & 4D	○
63-64	184069700	CISP 6065	184071400	COSP 6364	SP... 110408	P0401200	XT15	SCC 636440-3D & 4D	○
64-65	184069700	CISP 6065	184071500	COSP 6465	SP... 110408	P0401200	XT15	SCC 646540-3D & 4D	○
65-66	184069800	CISP 6570	184071600	COSP 6566	SP... 110408	P0401200	XT15	SCC 656640-3D & 4D	○
66-67	184069800	CISP 6570	184071700	COSP 6667	SP... 110408	P0401200	XT15	SCC 666740-3D & 4D	○
67-68	184069800	CISP 6570	184071800	COSP 6768	SP... 110408	P0401200	XT15	SCC 676840-3D & 4D	○
68-69	184069800	CISP 6570	184071900	COSP 6869	SP... 110408	P0401200	XT15	SCC 686940-3D & 4D	○
69-70	184069800	CISP 6570	184072000	COSP 6970	SP... 110408	P0401200	XT15	SCC 697040-3D & 4D	○
70-71	184069900	CISP 7075	184250100	COSP 7071	SP... 110408	P0401200	XT15	SCC 707140-3D & 4D	○
71-72	184069900	CISP 7075	184072200	COSP 7172	SP... 110408	P0401200	XT15	SCC 717240-3D & 4D	○
72-73	184069900	CISP 7075	184072300	COSP 7273	SP... 110408	P0401200	XT15	SCC 727340-3D & 4D	○
73-74	184069900	CISP 7075	184072400	COSP 7374	SP... 110408	P0401200	XT15	SCC 737440-3D & 4D	○
74-75	184069900	CISP 7075	184072500	COSP 7475	SP... 110408	P0401200	XT15	SCC 747540-3D & 4D	○
75-76	184070000	CISP 7580	184072600	COSP 7576	SP... 140512	P0501300	XT20	SCC 757640-3D & 4D	○
76-77	184070000	CISP 7580	184072700	COSP 7677	SP... 140512	P0501300	XT20	SCC 767740-3D & 4D	○
77-78	184070000	CISP 7580	184072800	COSP 7778	SP... 140512	P0501300	XT20	SCC 777840-3D & 4D	○
78-79	184070000	CISP 7580	184072900	COSP 7879	SP... 140512	P0501300	XT20	SCC 787940-3D & 4D	○
79-80	184070000	CISP 7580	184073000	COSP 7980	SP... 140512	P0501300	XT20	SCC 798040-3D & 4D	○

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

SPARE PARTS

DHC CARTRIDGE

ØD	Inner Cartridge		Outer Cartridge		Insert	Insert Screw	Torx key	For Drill	Stock
	Order Code	Reference	Order Code	Reference					
1 INSERT PER CARTRIDGE									
41	184250300	CWC 041045-I	184226700	CWC 000041-O	WC... 06T308	P0350903	XT15	DHC 004140-5D & 8D	○
42	184250300	CWC 041045-I	184226800	CWC 000042-O	WC... 06T308	P0350903	XT15	DHC 004240-5D & 8D	○
43	184250300	CWC 041045-I	184226900	CWC 000043-O	WC... 06T308	P0350903	XT15	DHC 004340-5D & 8D	○
44	184250300	CWC 041045-I	184227000	CWC 000044-O	WC... 06T308	P0350903	XT15	DHC 004440-5D & 8D	○
45	184250300	CWC 041045-I	184227100	CWC 000045-O	WC... 06T308	P0350903	XT15	DHC 004540-5D & 8D	○
46	184226400	CWC 046050-I	184227200	CWC 000046-O	WC... 06T308	P0350903	XT15	DHC 004640-5D & 8D	○
47	184226400	CWC 046050-I	184227300	CWC 000047-O	WC... 06T308	P0350903	XT15	DHC 004740-5D & 8D	○
48	184226400	CWC 046050-I	184227400	CWC 000048-O	WC... 06T308	P0350903	XT15	DHC 004840-5D & 8D	○
49	184226400	CWC 046050-I	184227500	CWC 000049-O	WC... 06T308	P0350903	XT15	DHC 004940-5D & 8D	○
50	184226400	CWC 046050-I	184227600	CWC 000050-O	WC... 06T308	P0350903	XT15	DHC 005040-5D & 8D	○
51	184226500	CWC 051055-I	184227700	CWC 000051-O	WC... 080408	P0401101	XT15	DHC 005140-5D & 8D	○
52	184226500	CWC 051055-I	184227800	CWC 000052-O	WC... 080408	P0401101	XT15	DHC 005240-5D & 8D	○
53	184226500	CWC 051055-I	184227900	CWC 000053-O	WC... 080408	P0401101	XT15	DHC 005340-5D & 8D	○
54	184226500	CWC 051055-I	184228000	CWC 000054-O	WC... 080408	P0401101	XT15	DHC 005440-5D & 8D	○
55	184226500	CWC 051055-I	184228100	CWC 000055-O	WC... 080408	P0401101	XT15	DHC 005540-5D & 8D	○
56	184226600	CWC 056059-I	184228200	CWC 000056-O	WC... 080408	P0401101	XT15	DHC 005640-5D & 8D	○
57	184226600	CWC 056059-I	184228300	CWC 000057-O	WC... 080408	P0401101	XT15	DHC 005740-5D & 8D	○
58	184226600	CWC 056059-I	184228400	CWC 000058-O	WC... 080408	P0401101	XT15	DHC 005840-5D & 8D	○
59	184226600	CWC 056059-I	184228500	CWC 000059-O	WC... 080408	P0401101	XT15	DHC 005940-5D & 8D	○
2 INSERTS PER CARTRIDGE									
60-65	184250600	MDC 060065-I	184252900	MDC 060065-O	WC... 050308	P0300701	XT08	DHC 606540-5D & 8D	○
65-70	184250700	MDC 065070-I	184253000	MDC 065070-O	WC... 050308	P0300701	XT08	DHC 657040-5D & 8D	○
70-75	184250800	MDC 070075-I	184063700	MDC 070075-O	WC... 050308	P0300701	XT08	DHC 707540-5D & 8D	○
75-80	184250900	MDC 075080-I	184063800	MDC 075080-O	WC... 06T308	P0350903	XT15	DHC 758040-5D & 8D	○

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

TDC CARTRIDGE

ØD	Inner Cartridge		Outer Cartridge		Insert	Insert Screw	Torx key	For Drill	Stock
	Order Code	Reference	Order Code	Reference					
59-65	184109200	TDC 059065-I	184109300	TDC 059065-O	WC... 06T308	P0350903	XT15	TDC 596540-3D	○
65-70	184109400	TDC 065070-I	184109500	TDC 065070-O	WC... 06T308	P0350903	XT15	TDC 657040-3D	○
70-75	184109600	TDC 070075-I	184109700	TDC 070075-O	WC... 06T308	P0350903	XT15	TDC 707540-3D	○
75-80	184109800	TDC 075080-I	184109900	TDC 075080-O	WC... 06T308	P0350903	XT15	TDC 758040-3D	○

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

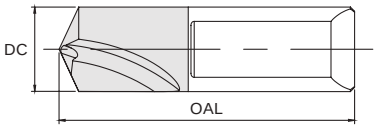
PND CARTRIDGE

ØD	Inner Cartridge		Outer Cartridge		Insert	Insert Screw	Torx key	For Drill	Stock
	Order Code	Reference	Order Code	Reference					
40-55	184110000	PNC 040055-I	184128700	PNC 040055-O	WC... 050308	P0300701	XT08	PND 04032-2D ~ PND 05540-2D	○
60-110	184110100	PNC 060110-I	184128800	PNC 060110-O	WC... 06T308	P0350903	XT15	PND 06040-2D ~ PND 11050-2D	○

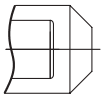
Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

SPARE PARTS

PILOT DRILL

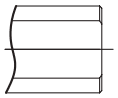


Shank Type



A (with cone)

B (with chamfer)



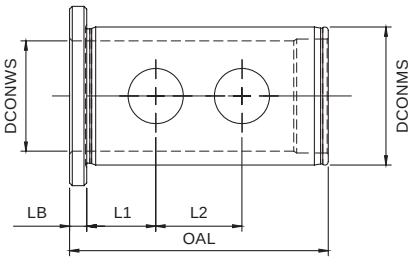
C

Order Code	Reference	Dimensions | Dimensões | Dimensiones (mm)		Type	Oil Hole	For Drill	Stock
		DC	OAL				
184150900	MDP 2006	6	20	A	-	TFD (Ø18,0 - Ø25,0)	◈
184151000	MDP 2508	8	25	A	-	TFD (Ø25,5 - Ø30,0)	◈
184104100	MDP 3006	6	30	B	-	DHS (Ø25 - Ø30)	◈
184104400	MDP 3508	8	35	B	-	DHS (Ø31 - Ø40)	◈
184033100	MDP 3510	10	35	B	✓	DHC (Ø41 - Ø50) , MDO (Ø45-Ø55)	◈
184033200	MDP 3812	12	38	B	✓	DHC (Ø51 - Ø75) , MDO (Ø55-Ø75)	◈
184033300	MDP 4516	16	45	B	✓	DHC (Ø75 - Ø80) , MDO (Ø75-Ø100)	◈
184033400	MDP 4520	20	45	C	✓	MDO (Ø100-Ø120)	◈
184033500	MDP 5625	25	56	C	✓	MDO (Ø120-Ø160)	◈
184033600	MDP 6830	30	68	C	✓	MDO (Ø160-Ø180)	◈

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

Pilot Drill mounting procedure

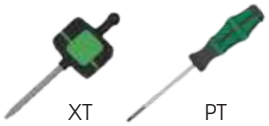
RDS - DRILL SLEEVE



Order Code	Reference	Dimensions | Dimensões | Dimensiones (mm)						Stock
		DCONMS	DCONWS	OAL	L1	L2	LB	
184258900	RDS 203265	32	20	65	20	-	5	◯
184259000	RDS 253265	32	25	65	20	20	5	◯
184259100	RDS 204075	40	20	75	20	-	5	◯
184259200	RDS 254075	40	25	75	20	25	5	◯
184259300	RDS 324075	40	32	75	20	25	5	◯
184259400	RDS 205095	50	20	95	35	-	5	◯
184259500	RDS 255095	50	25	95	35	-	5	◯
184259600	RDS 325095	50	32	95	35	35	5	◯
184259700	RDS 405095	50	40	95	35	35	5	◯

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

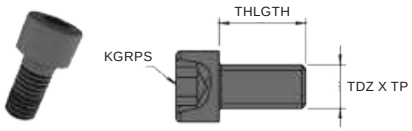
SCREWS & KEYS



Order Code Código	Reference Referência Referencia
290058400	P0180400
290025800	P0180500
290095800	P02004IP
290031400	P0200500
290095900	P02205IP
290030600	P0220500
290033100	P0250503
290096000	P02507IP
290031300	P0250704
290096100	P03007IP
290030800	P0300701
290096200	P03508IP
290030900	P0350903
290096300	P04010IP
290031000	P0401101
290047500	P0401200
290095600	P0500900
290096400	P05013IP
290031700	P0501300
290078900	P0501302

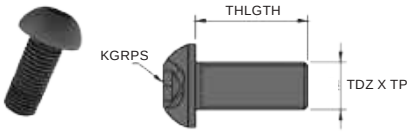
Order Code	Reference Referência Referencia
290058600	XT06IP
290011400	XT06
290012900	XT07
290096500	XT08IP
290011700	XT08
290025700	XT09
290097300	XT15IP-S35
290012400	XT15
290097400	XT20IP-S40
290013200	XT20
290014800	PT15
290014900	PT20

Screw for Cartridge (DIN 912)



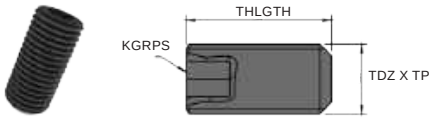
Order Code Código	Screw	Dimensions | Dimensões | Dimensiones (mm)		
		TDZ x TP	THLGTH	KGRPS
290042800	P0501079	M4 x 0,7	10,0	2,0
290042900	P0501279	M5 x 0,8	12,0	2,5
290043000	P0601279	M6 x 1,0	12,0	2,5
290043100	P0601479	M6 x 1,0	14,0	3,0
290043600	P0601679	M6 x 1,0	16,0	3,0
290043300	P0801879	M8 x 1,25	18,0	4,0
290043400	P0802079	M8 x 1,25	20,0	4,0
290043500	P0802579	M8 x 1,25	25,0	4,0

Screw for Cartridge (ISO 7380)



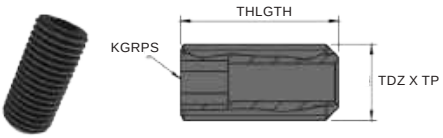
Order Code Código	Screw	Dimensions | Dimensões | Dimensiones (mm)		
		TDZ x TP	THLGTH	KGRPS
290042500	P0401078	M4 x 0,7	10,0	2,0
290042600	P0501078	M5 x 0,8	10,0	2,5
290042700	P0501278	M5 x 0,8	12,0	2,5

Fixing Screw and Clamping Bolt for Pilot Drill (DIN 916)



Order Code Código	Screw	Dimensions | Dimensões | Dimensiones (mm)		
		TDZ x TP	THLGTH	KGRPS
290040100	P0400875	M4 x 0,7	8,0	2,0
290040200	P0500875	M5 x 0,8	8,0	2,5
290040300	P0501075	M5 x 0,8	10,0	2,5
290040400	P0601075	M6 x 1,0	10,0	3,0
290040500	P0601275	M6 x 1,0	12,0	3,0
290040600	P0801275	M8 x 1,25	12,0	4,0
290040700	P0801575	M8 x 1,25	15,0	4,0
290040800	P1001575	M10 x 1,5	15,0	5,0
290040900	P1002075	M10 x 1,5	20,0	5,0
290041000	P1202075	M12 x 1,75	20,0	6,0
290041100	P1202575	M12 x 1,75	25,0	6,0
290041200	P1402575	M14 x 2,0	25,0	6,0
290041300	P1602575	M16 x 2,0	25,0	8,0

Adjustment Screw for Pilot Drill (DIN 916 w/ hole)



Order Code Código	Screw	Dimensions | Dimensões | Dimensiones (mm)		
		TDZ x TP	THLGTH	KGRPS
290041400	P0601076	M6 x 1,0	10,0	3,0
290041500	P0801576	M8 x 1,25	15,0	4,0
290097100	P1001576	M10 x 1,5	15,0	5,0
290041800	P1202076	M12 x 1,75	20,0	6,0
290041900	P1402076	M14 x 2,0	20,0	6,0

SPARE PARTS

VORTEX SPARE PARTS - MDO CARTRIDGE

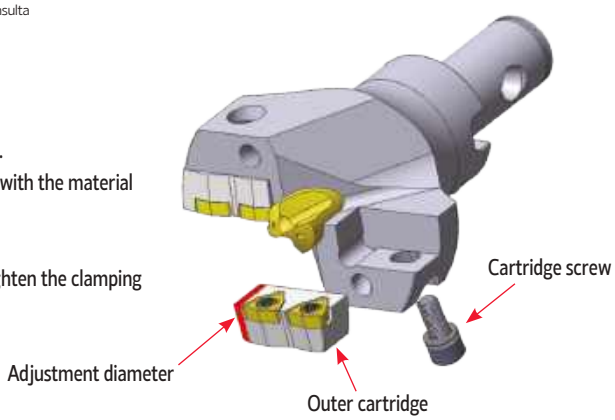
ØD	Inner Cartridge		Outer Cartridge		Insert	Insert Screw	Torx key	For Drill	Stock
	Order Code	Reference	Order Code	Reference					
2 INSERTS PER CARTRIDGE									
45-50	184062000	MDC 045050-I	184252600	MDC 045050-O	WC... 030204	P0220500	XT07	MDO 04505013	◎
50-55	184250400	MDC 050055-I	184252700	MDC 050055-O	WC... 030204	P0220500	XT07	MDO 05005513	◎
55-60	184250500	MDC 055060-I	184252800	MDC 055060-O	WC... 040204	P0250503	XT08	MDO 05506016	◎
60-65	184250600	MDC 060065-I	184252900	MDC 060065-O	WC... 050308	P0300701	XT08	MDO 06006516	◎
65-70	184250700	MDC 065070-I	184253000	MDC 065070-O	WC... 050308	P0300701	XT08	MDO 06507016	◎
70-75	184250800	MDC 070075-I	184063700	MDC 070075-O	WC... 050308	P0300701	XT08	MDO 07007522	◎
75-80	184250900	MDC 075080-I	184063800	MDC 075080-O	WC... 06T308	P0350903	XT15	MDO 07508022	◎
80-85	184251000	MDC 080085-I	184063900	MDC 080085-O	WC... 06T308	P0350903	XT15	MDO 08008522	◎
85-90	184251100	MDC 085090-I	184064000	MDC 085090-O	WC... 06T308	P0350903	XT15	MDO 08509027	◎
90-95	184251200	MDC 090095-I	184064100	MDC 090095-O	WC... 06T308	P0350903	XT15	MDO 09009527	◎
95-100	184251300	MDC 095100-I	184064200	MDC 095100-O	WC... 06T308	P0350903	XT15	MDO 09510027	◎
3 INSERTS PER CARTRIDGE									
100-105	184251400	MDC 100105-I	184064300	MDC 100105-O	WC... 050308	P0300701	XT08	MDO 10010532	◎
105-110	184251500	MDC 105110-I	184253100	MDC 105110-O	WC... 06T308	P0350903	XT15	MDO 10511032	◎
110-115	184251600	MDC 110115-I	184253200	MDC 110115-O	WC... 06T308	P0350903	XT15	MDO 11011532	◎
115-120	184251700	MDC 115120-I	184253300	MDC 115120-O	WC... 06T308	P0350903	XT15	MDO 11512040	◎
120-125	184251800	MDC 120125-I	184253400	MDC 120125-O	WC... 06T308	P0350903	XT15	MDO 12012540	◎
125-130	184251900	MDC 125130-I	184253500	MDC 125130-O	WC... 06T308	P0350903	XT15	MDO 12513040	◎
130-135	184252000	MDC 130135-I	184068900	MDC 130135-O	WC... 06T308	P0350903	XT15	MDO 13013540	◎
135-140	184252100	MDC 135140-I	184069000	MDC 135140-O	WC... 06T308	P0350903	XT15	MDO 13514040	◎
140-150	184252200	MDC 140150-I	184253600	MDC 140150-O	WC... 080408	P0401101	XT15	MDO 14015050	◎
150-160	184252300	MDC 150160-I	184069200	MDC 150160-O	WC... 080408	P0401101	XT15	MDO 15016050	◎
160-170	184252400	MDC 160170-I	184069300	MDC 160170-O	WC... 080408	P0401101	XT15	MDO 16017050	◎
170-180	184252500	MDC 170180-I	184069400	MDC 170180-O	WC... 080408	P0401101	XT15	MDO 17018050	◎

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

Adjusting the cutting diameter of Vortex MDO 10D

1 - Unscrew the clamping bolt that holds the outer cartridge in place and remove it from the drill body.
2 - Use a milling tool to carefully cut out the section of the outer cartridge that will come into contact with the material being drilled, making sure to calculate the correct diameter beforehand.
3 - Smooth out any sharp edges on the cartridge.
4 - Attach the cartridge securely to the drill body, ensuring there are no gaps between the two, and tighten the clamping bolt firmly to keep it in place.

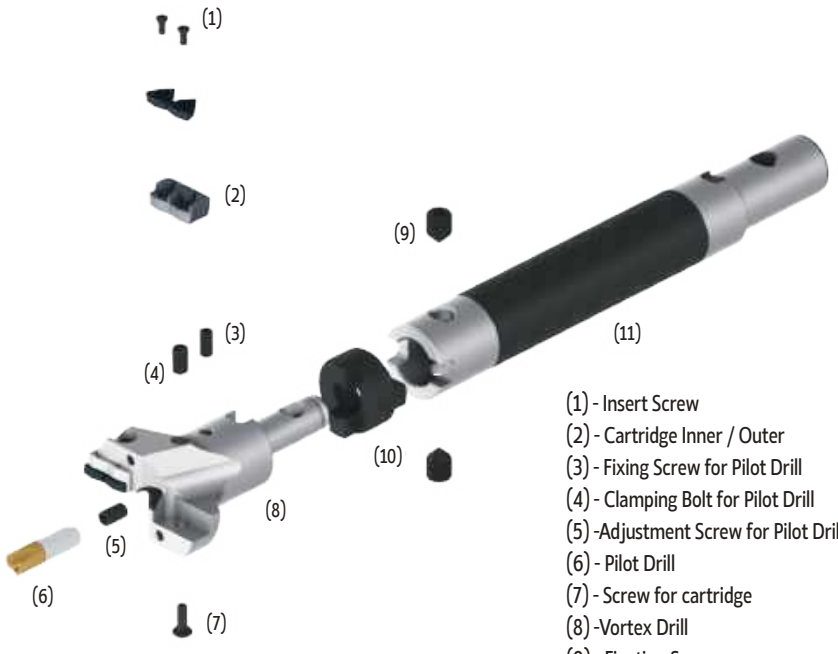
Example: for a standard diameter of Ø120mm and you want Ø116mm you should cut 2mm.



VORTEX SPARE PARTS - SCREWS

Vortex Drill	(3) Fixing Screw for Pilot Drill		(4) Clamping Bolt for Pilot Drill		(5) Adjustment Screw for Pilot Drill		(7) Screw for Cartridge	
	Order Code	Screw	Order Code	Screw	Order Code	Screw	Order Code	Screw
MDO 04505013	290040100	P0400875	290040400	P0601075	290041400	P0601076	290042500	P0401078
MDO 05005513	290040100	P0400875	290040400	P0601075	290041400	P0601076	290042500	P0401078
MDO 05506016	290040100	P0400875	290040600	P0801275	290041500	P0801576	290042700	P0501278
MDO 06006516	290040200	P0500875	290040600	P0801275	290041500	P0801576	290042700	P0501278
MDO 06507016	290040200	P0500875	290040600	P0801275	290041500	P0801576	290042700	P0501278
MDO 07007522	290040200	P0500875	290040700	P0801575	290041500	P0801576	290042700	P0501278
MDO 07508022	290040400	P0601075	290040900	P1002075	290097100	P1001676	290043000	P0601279
MDO 08008522	290040400	P0601075	290040900	P1002075	290097100	P1001676	290043100	P0601479
MDO 08509027	290040400	P0601075	290040900	P1002075	290097100	P1001876	290043600	P0601679
MDO 09009527	290040400	P0601075	290040900	P1002075	290097100	P1001876	290043600	P0601679
MDO 09510027	290040400	P0601075	290040900	P1002075	290097100	P1001876	290043600	P0601679
MDO 10010532	290040400	P0601075	290041000	P1202075	290041800	P1202076	290043300	P0801879
MDO 10511032	290040400	P0601075	290041000	P1202075	290041800	P1202076	290043300	P0801879
MDO 11011532	290040400	P0601075	290041000	P1202075	290041800	P1202076	290043300	P0801879
MDO 11512040	290040400	P0601075	290041100	P1202575	290041900	P1402076	290043400	P0802079
MDO 12012540	290040400	P0601075	290041200	P1402575	290041900	P1402076	290043500	P0802579
MDO 12513040	290040400	P0601075	290041200	P1402575	290041900	P1402076	290043500	P0802579
MDO 13013540	290040400	P0601075	290041200	P1402575	290041900	P1402076	290043500	P0802579
MDO 13514040	290040400	P0601075	290041200	P1402575	290041900	P1402076	290043500	P0802579
MDO 14015050	290040400	P0601075	290041200	P1402575	290041900	P1402076	290043500	P0802579
MDO 15016050	290040400	P0601075	290041200	P1402575	290041900	P1402076	290043500	P0802579
MDO 16017050	290040400	P0601075	290041300	P1602575	290041900	P1402076	290043500	P0802579
MDO 17018050	290040400	P0601075	290041300	P1602575	290041900	P1402076	290043500	P0802579

(9) Fixation Screw for MDS Shank, MDE Extension, MDM Reducer		
DC / BD	Order Code Código	Screw
28	290032400	P0801280
32	290032400	P0801280
40	290032500	P1001580
48	290032600	P1201880
58	290039600	P1202080
70	290032800	P1602780
80	290032800	P1602780

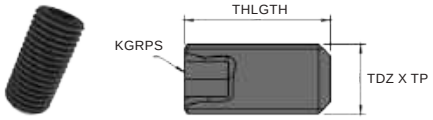


(1) - Insert Screw
(2) - Cartridge Inner / Outer
(3) - Fixing Screw for Pilot Drill
(4) - Clamping Bolt for Pilot Drill
(5) -Adjustment Screw for Pilot Drill
(6) - Pilot Drill
(7) - Screw for cartridge
(8) -Vortex Drill
(9) - Fixation Screw
(10) - Drive Ring
(11) - MDS Shank or MDE Extension

SPARE PARTS

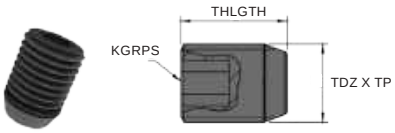
VORTEX SPARE PARTS - SCREWS

Fixing Screw and Clamping Bolt for Pilot Drill (DIN 916)



Order Code Código	Screw	Dimensions | Dimensões | Dimensiones (mm)		
		TDZ x TP	THLGTH	KGRPS
290040100	P0400875	M4 x 0,7	8,0	2,0
290040200	P0500875	M5 x 0,8	8,0	2,5
290040400	P0601075	M6 x 1,0	10,0	3,0
290040500	P0601275	M6 x 1,0	12,0	3,0
290040700	P0801575	M8 x 1,25	15,0	4,0
290040900	P1002075	M10 x 1,5	20,0	5,0
290041000	P1202075	M12 x 1,75	20,0	6,0
290041100	P1202575	M12 x 1,75	25,0	6,0
290041200	P1402575	M14 x 2,0	25,0	6,0
290041300	P1602575	M16 x 2,0	25,0	8,0

Fixation Screw for MDS Shank, MDE Extension, MDM Reducer

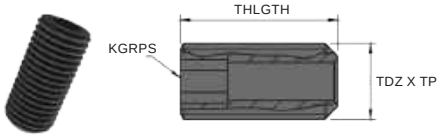


Order Code Código	Screw	Dimensions | Dimensões | Dimensiones (mm)		
		TDZ x TP	THLGTH	KGRPS
290032400	P0801280	M8	12,0	4,0
290032500	P1001580	M10	15,0	5,0
290032600	P1201880	M12	18,0	6,0
290039600	P1202080	M12	20,0	6,0
290032800	P1602780	M16	27,0	8,0

Insert Screw

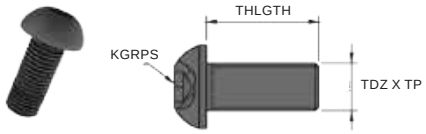
Order Code	Screw
290030600	P0220500
290033100	P0250503
290030800	P0300701
290030900	P0350903
290031000	P0401101

Adjustment Screw for Pilot Drill (DIN 916 w/ hole)



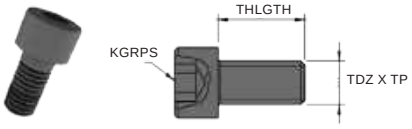
Order Code Código	Screw	Dimensions | Dimensões | Dimensiones (mm)		
		TDZ x TP	THLGTH	KGRPS
290041400	P0601076	M6 x 1,0	10,0	3,0
290041500	P0801576	M8 x 1,25	15,0	4,0
290097100	P1001676	M10 x 1,5	16,0	5,0
290097100	P1001876	M10 x 1,5	18,0	5,0
290041800	P1202076	M12 x 1,75	20,0	6,0
290041900	P1402076	M14 x 2,0	20,0	6,0

Screw for Cartridge (ISO 7380)



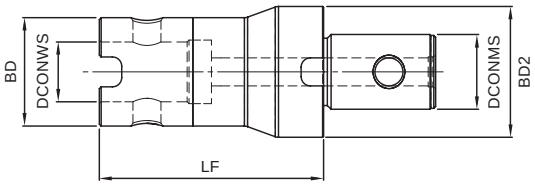
Order Code Código	Screw	Dimensions | Dimensões | Dimensiones (mm)		
		TDZ x TP	THLGTH	KGRPS
290042500	P0401078	M4 x 0,7	10,0	2,0
290042700	P0501278	M5 x 0,8	12,0	2,5

Screw for Cartridge (DIN 912)



Order Code Código	Screw	Dimensions | Dimensões | Dimensiones (mm)		
		TDZ x TP	THLGTH	KGRPS
290043000	P0601279	M6 x 1,0	12,0	2,5
290043100	P0601479	M6 x 1,0	14,0	3,0
290043600	P0601679	M6 x 1,0	16,0	3,0
290043300	P0801879	M8 x 1,25	18,0	4,0
290043400	P0802079	M8 x 1,25	20,0	4,0
290043500	P0802579	M8 x 1,25	25,0	4,0

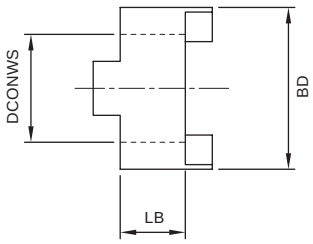
MDM - REDUCER



Order Code	Reference	Dimensions | Dimensões | Dimensiones (mm)					Drive Ring D1	Drive Ring D2	Stock
		DCONWS	DCONMS	BD	BD2	LF			
184253900	MDM 16100130	13	16	28	32	100	MDR 1028	MDR 1032	◈
184254000	MDM 22100160	16	22	32	40	100	MDR 1032	MDR 1240	◈
184254100	MDM 27100220	22	27	40	48	100	MDR 1240	MDR 1248	◈
184254200	MDM 32100130	13	32	28	58	100	MDR 1028	MDR 1458	○
184254300	MDM 32100160	16	32	32	58	100	MDR 1032	MDR 1458	◈
184254400	MDM 32100220	22	32	40	58	100	MDR 1240	MDR 1458	○
184254500	MDM 32100270	27	32	48	58	100	MDR 1248	MDR 1458	○
184254600	MDM 40100320	32	40	58	70	100	MDR 1458	MDR 1470	◈
184254700	MDM 50080130	13	50	28	80	80	MDR 1028	MDR 1680	○
184254800	MDM 50080160	16	50	32	80	80	MDR 1032	MDR 1680	○
184254900	MDM 50080220	22	50	40	80	80	MDR 1240	MDR 1680	○
184255000	MDM 50080270	27	50	48	80	80	MDR 1248	MDR 1680	◈
184255100	MDM 50080320	32	50	58	80	80	MDR 1458	MDR 1680	○
184250200	MDM 50150400	40	50	70	80	150	MDR 1470	MDR 1680	◈

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

DRIVE RING



Order Code	Reference	Dimensions | Dimensões | Dimensiones (mm)			Stock
		BD	DCONWS	LB	
184021600	MDR 1028	28	13	10	○
184021700	MDR 1032	32	16	10	○
184022100	MDR 1240	40	22	12	○
184022200	MDR 1248	48	27	12	○
184022300	MDR 1458	58	32	14	○
184022400	MDR 1470	70	40	14	○
184022500	MDR 1680	80	50	16	○

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

TECHNICAL DATA

1 HOLEMAKING GRADES

> See page B - 442

2 TDS AND TDC DRILL TYPE

> See page B - 445

3 SCS AND SCC DRILL TYPE

> See page B - 448

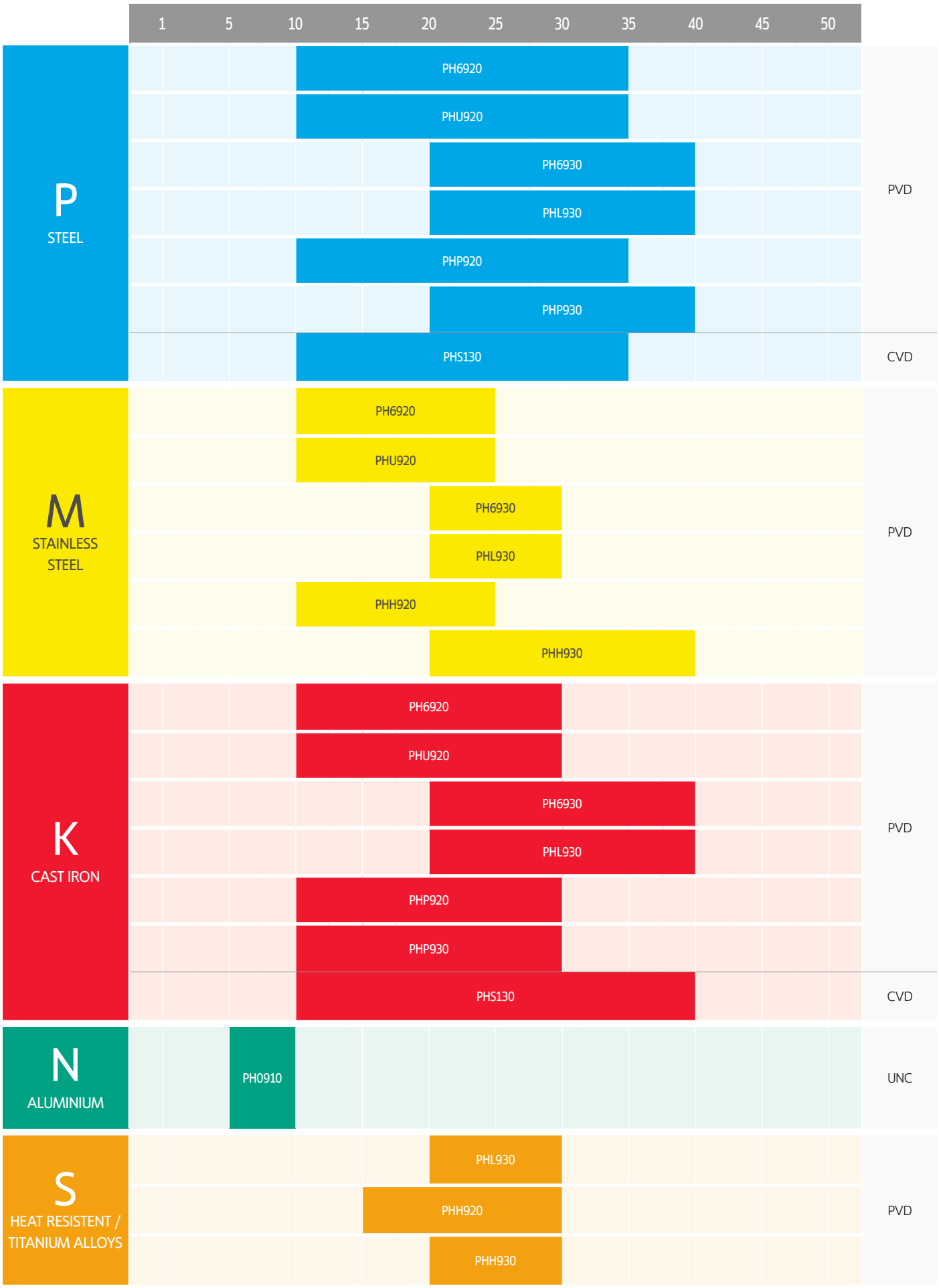
4 DHS, DHC AND TFD DRILL TYPE

> See page B - 449

5 VORTEX DRILL - CUTTING PARAMETERS AND ADJUSTMENTS

> See page B - 450

TECHNICAL DATA Dados técnicos | Datos técnicos



palbit

PVD GRADES

PH6920
P10-P35
M10-M25
K10-K30

Coated grade over a tough wear resistance substrate for general purpose machining.

PHU920
P10-P35
M10-M25
K10-K30

With high thermal shock resistance and suitable for dry and wet machining, the PHU920 grade is recommended for steels, stainless steels and cast iron.

PH6930
P20-P40
M20-M30
K20-K40

Grade suitable for applications with instability conditions. Excellent solution for medium cutting speed applications.

PHL930
P20-P40
M20-M30
K20-K40
S20-S30

Grade suitable for applications with instability conditions. Excellent solution for medium cutting speed applications. Coated in Yellow to be visually distinguishable.

PHP930
P20-P40
K10-K30

PHH930
M20-M40
S20-S30

Due to the reduced cutting speed in the central area of the drill, a tougher grade is recommended for the inner insert.
(Inner Insert)

PHP920
P10-P35
K10-K30

PHH920
M10-M25
S15-S30

First choice for stable machining and improved surface finish. Recommended for outer edge if chattering occurs.
(Outer Insert)

PH0910
N05-N10

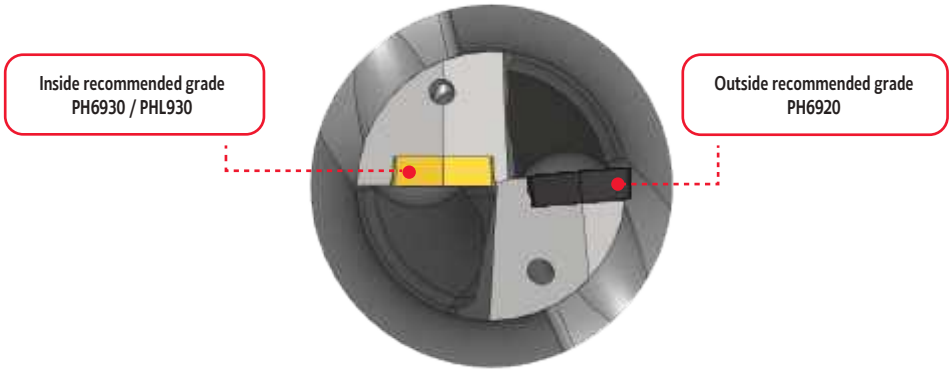
Uncoated carbide micro-grain grade combining a good abrasive wear resistance and toughness. Suitable for rough to finish operations of aluminum alloys.

CVD GRADE

PHS130
P10-P35
K20-K40

First choice for high speeds and high efficiency machining, abrasion resistance and longer tool life.
(Outer Insert)

GRADES RECOMMENDATION FOR HOLEMAKING SYSTEMS



Note: This recommendation should be applied on High Alloy Steels, Stainless Steels and HRSA materials.

PHU920

Combining both excellent thermal resistance and excellent surface quality, the PHU920 grade is recommended for steels ,stainless steels and cast iron.

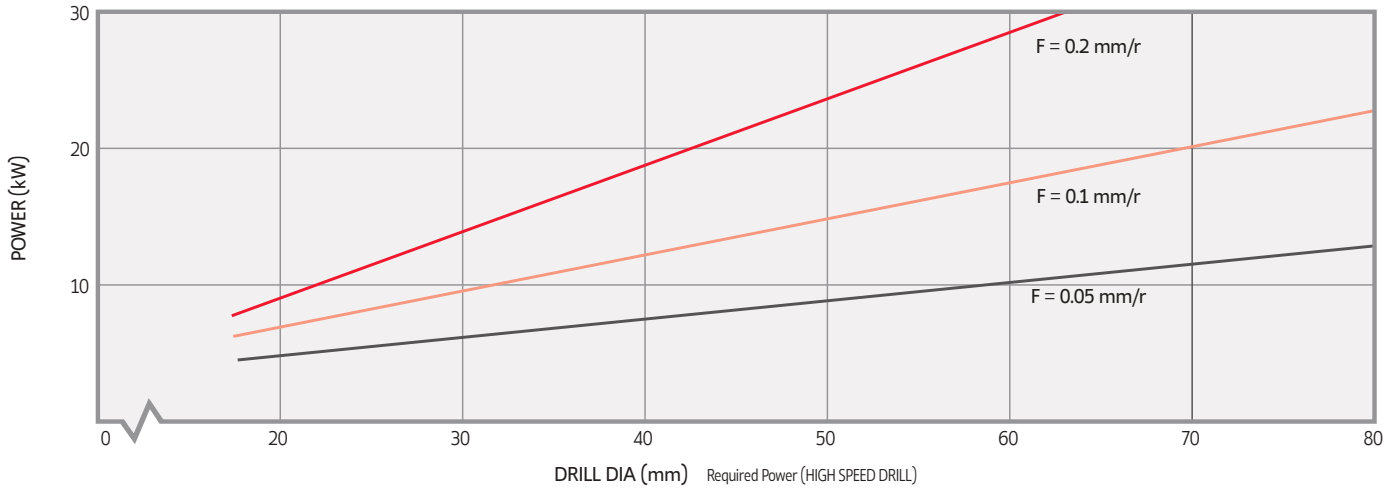
Because of its surface quality and thermal resistance it is able to prevent built-up-edge in both low-alloy steels and stainless steels, making it a very versatile grade.

- **High thermal shock resistance**
- **Carefully engineered surface quality**
- **Suitable for dry and wet machining**
- **Color: Grey**

RECOMMENDED SPEEDS AND FEEDS

ISO	Material Group Grupo Materiais Grupo Materiales	Vc (m/min)	f (mm/rev)						
			Ø13~15,5	Ø16~20	Ø20,5~25	Ø25,5~30	Ø31~41	Ø42~58	Ø59~80
P	Unalloyed steel (-0,25%)	180-260	0,05-0,08	0,06-0,10	0,07-0,12	0,09-0,15	0,11-0,18	0,15-0,28	0,11-0,18
	Low-alloy steel (0,25%-)	150-240	0,05-0,08	0,06-0,10	0,07-0,12	0,09-0,15	0,11-0,18	0,15-0,28	0,11-0,18
	Low-alloy steel	120-240	0,05-0,08	0,06-0,10	0,07-0,12	0,09-0,15	0,11-0,18	0,15-0,28	0,11-0,18
	High-alloy steel	130-220	0,05-0,08	0,06-0,10	0,07-0,12	0,09-0,15	0,11-0,18	0,15-0,28	0,11-0,18
M	Stainless steel	150-220	0,04-0,08	0,05-0,09	0,06-0,12	0,07-0,13	0,08-0,16	0,10-0,20	0,08-0,16
K	Grey cast iron	150-250	0,05-0,11	0,07-0,13	0,08-0,12	0,10-0,18	0,14-0,26	0,18-0,35	0,14-0,26
	Cast iron with nodular cast	120-200	0,05-0,11	0,06-0,13	0,07-0,12	0,08-0,18	0,14-0,26	0,18-0,35	0,14-0,26
N	Aluminium forging alloys	180-280	0,04-0,06	0,07-0,12	0,08-0,13	0,09-0,15	0,12-0,20	0,08-0,13	0,09-0,15
	Aluminium cast alloys	120-270	0,04-0,06	0,06-0,12	0,08-0,13	0,09-0,15	0,12-0,20	0,08-0,13	0,09-0,15

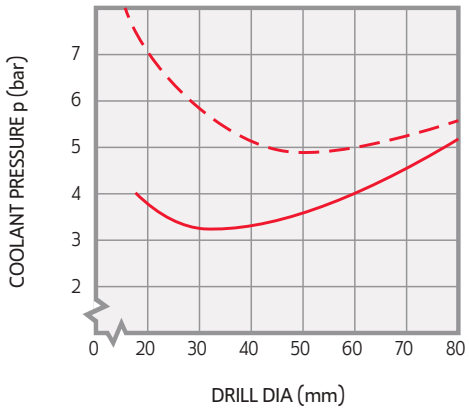
POWER REQUIREMENTS



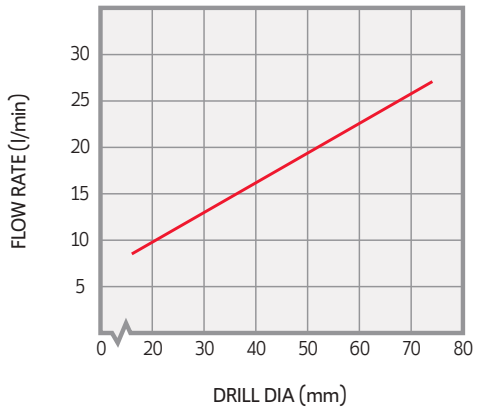
• These chart is based on machining experiences using steels with a hardness of 200-250HB and cutting speed of 100m/min.
• For cast iron the effective power requirement is around 30% lower.

COOLANT APPLICATION CHART

Coolant pressure



Flow rate



JET DRILLS TDS & TDC DRILL TYPE

HOLE TOLERANCE AND MAXIMUM HOLE SIZE WITH RADIAL ADJUSTMENT

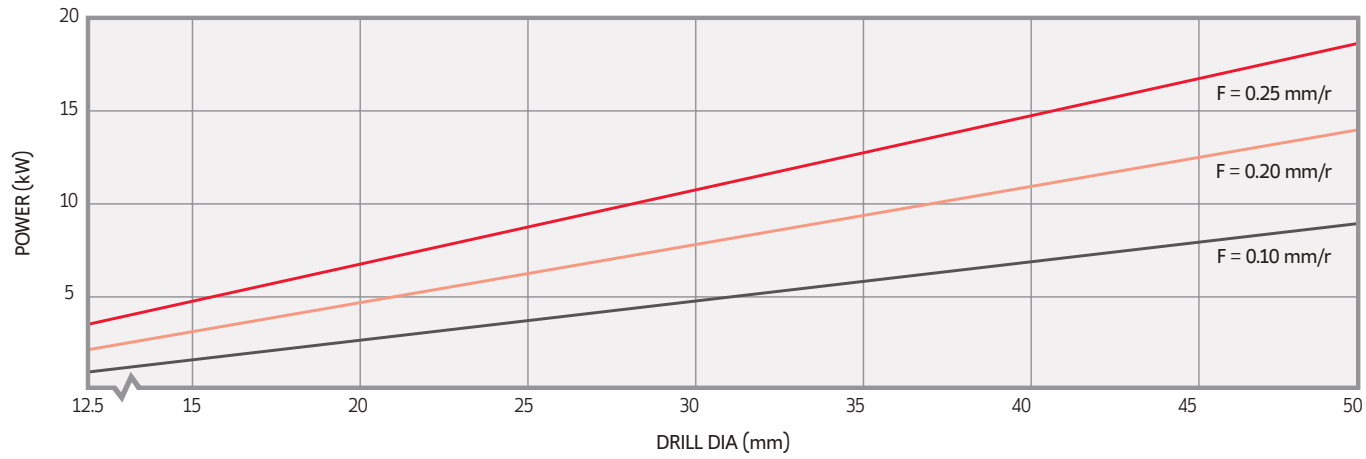
Drill D	Radial Adjust	Max Hole D
13.00	1.50	16.00
13.50	1.50	16.50
14.00	1.50	17.00
14.50	1.50	17.50
15.00	1.50	18.00
15.50	1.50	18.50
16.00	1.50	19.00
16.50	1.50	19.50
17.00	1.50	20.00
17.50	1.50	20.50
18.00	1.40	20.80
18.50	1.30	21.10
19.00	1.20	21.40
20.00	1.00	22.00
21.00	1.60	24.20
22.00	1.50	25.00
23.00	1.25	25.50
24.00	1.00	26.00
25.00	0.80	26.60
26.00	2.50	31.00
27.00	2.20	31.40
28.00	2.10	32.20
29.00	1.80	32.60
30.00	1.50	33.00
31.00	3.50	38.00
32.00	3.20	38.40

Drill D	Radial Adjust	Max Hole D
33.00	3.00	39.00
34.00	2.80	39.60
35.00	2.50	40.00
36.00	2.30	40.60
37.00	2.00	41.00
38.00	1.80	41.60
39.00	1.50	42.00
40.00	1.20	42.40
41.00	1.00	43.00
42.00	4.20	50.40
43.00	4.00	51.00
44.00	3.70	51.40
45.00	3.50	52.00
46.00	3.30	52.60
47.00	3.00	53.00
48.00	2.70	53.40
49.00	2.50	54.00
50.00	2.20	54.40
51.00	2.00	55.00
52.00	1.80	55.60
53.00	1.50	56.00
54.00	1.20	56.40
55.00	0.80	56.60
56.00	0.60	57.20
58.00	0.40	58.80

RECOMMENDED SPEEDS AND FEEDS

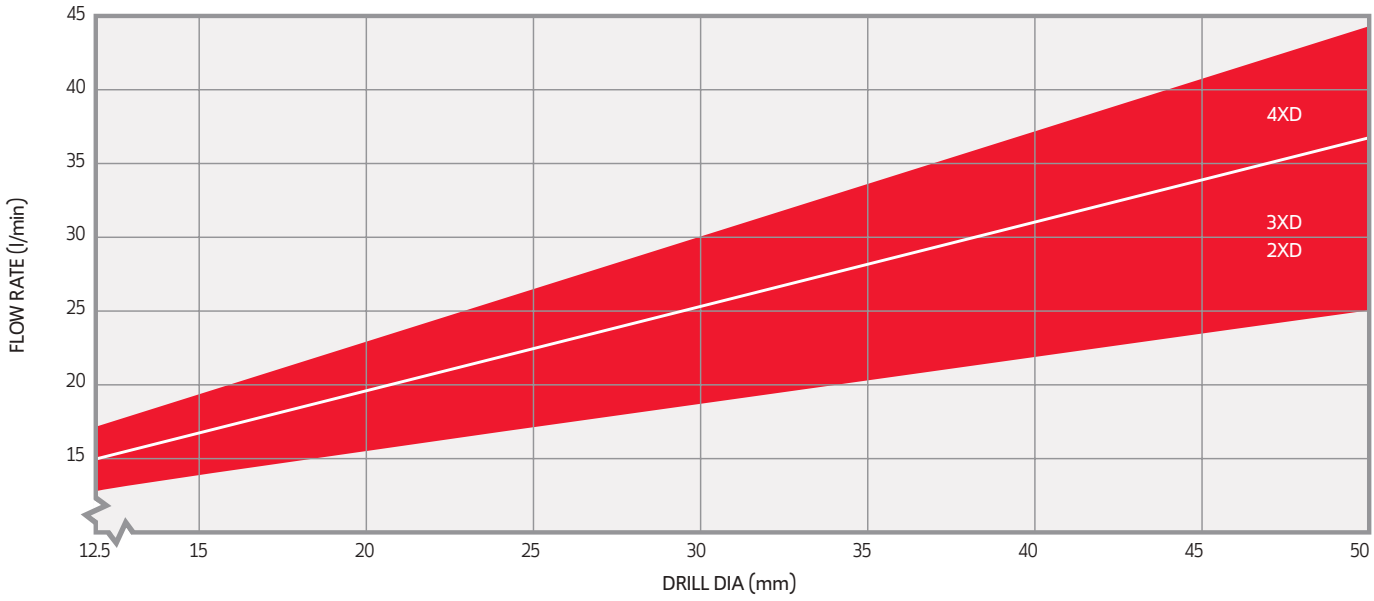
ISO	Material Group Grupo Materiais Grupo Materiales	Vc (m/min)	f (mm/rev)								
			Ø12,5~15	Ø15,5~21,5	Ø22~27,5	Ø28~33	Ø34~41	Ø42~50	Ø50~60	Ø60~75	Ø75~80
P	Unalloyed steel (-0,25%)	180-250	0,05-0,08	0,06-0,10	0,06-0,12	0,07-0,13	0,08-0,15	0,08-0,16	0,06-0,12	0,08-0,12	0,08-0,12
	Low-alloy steel (0,25%-)	160-220	0,06-0,12	0,08-0,15	0,10-0,18	0,12-0,22	0,12-0,24	0,13-0,25	0,10-0,14	0,12-0,18	0,11-0,18
	Low-alloy steel	150-220	0,06-0,12	0,08-0,14	0,10-0,18	0,12-0,22	0,12-0,23	0,13-0,24	0,08-0,15	0,10-0,18	0,10-0,18
	High-alloy steel	130-180	0,06-0,10	0,08-0,15	0,10-0,20	0,12-0,23	0,12-0,24	0,13-0,25	0,08-0,14	0,09-0,15	0,09-0,14
M	Stainless steel	170-240	0,05-0,10	0,06-0,12	0,08-0,15	0,09-0,16	0,10-0,17	0,11-0,19	0,06-0,13	0,08-0,15	0,08-0,14
K	Grey cast iron	180-250	0,06-0,12	0,08-0,16	0,12-0,20	0,15-0,25	0,16-0,28	0,18-0,30	0,12-0,20	0,15-0,20	0,15-0,20
	Cast iron with nodular cast	130-200	0,06-0,10	0,08-0,15	0,10-0,18	0,12-0,20	0,15-0,23	0,16-0,25	0,10-0,15	0,09-0,18	0,10-0,18

POWER REQUIREMENTS



• These chart is based on machining experiences using steels with a hardness of 200-250HB and cutting speed of 100m/min.
• For cast iron the effective power requirement is around 30% lower.

COOLANT APPLICATION CHART



JET DRILLS SCS & SCC DRILL TYPE

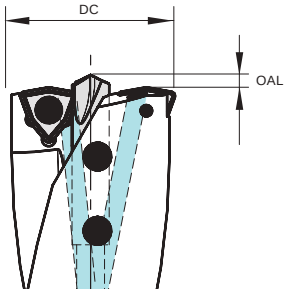
HOLE TOLERANCE AND MAXIMUM HOLE SIZE WITH RADIAL ADJUSTMENT

Drill D	3xD		
	Normal	Radial Adjust	Max. Hole D
13	13.16	0.50	14.0
14	14.10	0.50	15.0
15	15.10	0.50	16.0
16	16.07	0.50	17.0
17	17.08	0.50	18.0
18	18.05	0.50	19.0
19	19.08	0.50	20.0
20	20.06	0.50	21.0
21	20.97	0.25	21.5
22	21.94	0.50	23.0
23	23.10	0.50	24.0
24	24.10	0.50	25.0
25	25.06	0.50	26.0
26	26.03	0.25	26.5
27	27.05	0.25	27.5
28	28.11	0.50	29.0
29	28.54	0.50	30.0
30	30.23	0.50	31.0
31	31.07	0.25	31.5
32	32.06	0.25	32.5
33	33.12	0.25	33.5
34	34.10	0.50	35.0
35	35.07	0.50	36.0
36	36.03	0.50	37.0
37	37.14	0.50	38.0
38	38.05	0.50	39.0
39	39.03	0.50	40.0
40	40.00	0.25	40.5
41	40.99	0.25	41.5
42	42.03	0.50	43.0
43	42.99	0.50	44.0
44	44.17	0.50	45.0
45	45.21	0.50	46.0
46	46.17	0.50	47.0
47	47.15	0.50	48.0
48	48.12	0.25	48.5
49	49.00	0.25	49.5
50	50.02	0.25	50.5

Drill D	4xD		
	Normal	Radial Adjust	Max. Hole D
13	13.22	0.50	14.0
14	14.15	0.50	15.0
15	15.17	0.50	16.0
16	16.09	0.50	17.0
17	17.13	0.50	18.0
18	18.20	0.50	19.0
19	19.18	0.50	20.0
20	20.05	0.50	21.0
21	21.00	0.25	21.5
22	22.01	0.50	23.0
23	23.10	0.50	24.0
24	24.15	0.50	25.0
25	25.13	0.50	26.0
26	26.09	0.25	26.5
27	26.96	0.25	27.5
28	27.97	0.50	29.0
29	29.07	0.50	30.0
30	30.13	0.50	31.0
31	31.12	0.25	31.5
32	32.11	0.25	32.5
33	33.17	0.25	33.5
34	34.15	0.50	35.0
35	35.12	0.50	36.0
36	36.08	0.50	37.0
37	37.19	0.50	38.0
38	38.08	0.50	39.0
39	39.08	0.50	40.0
40	40.05	0.25	40.5
41	41.04	0.25	41.5
42	42.08	0.50	43.0
43	43.04	0.50	44.0
44	44.22	0.50	45.0
45	45.26	0.50	46.0
46	46.23	0.50	47.0
47	47.20	0.50	48.0
48	48.17	0.25	48.5
49	49.05	0.25	49.5
50	50.07	0.25	50.5

INTEGREX DRILLS DHS, DHC, TFD DRILL TYPE

PILOT DRILL ADJUSTEMENT

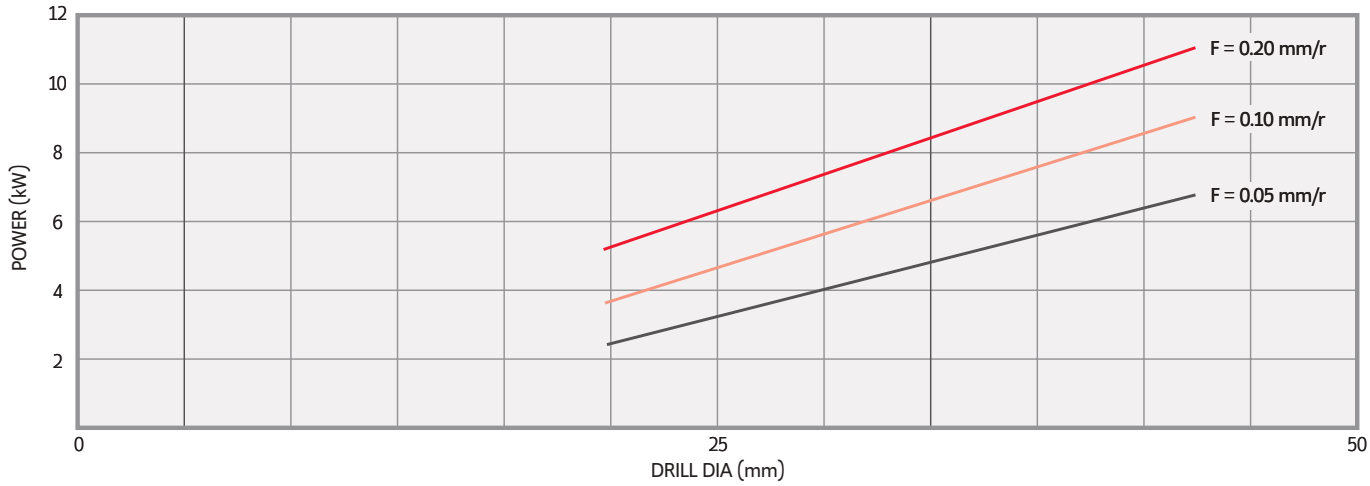


DC	OAL
18-24	2,5
25-30	3,0
31-39	4,0
40-59	4,5
60-80	5,0

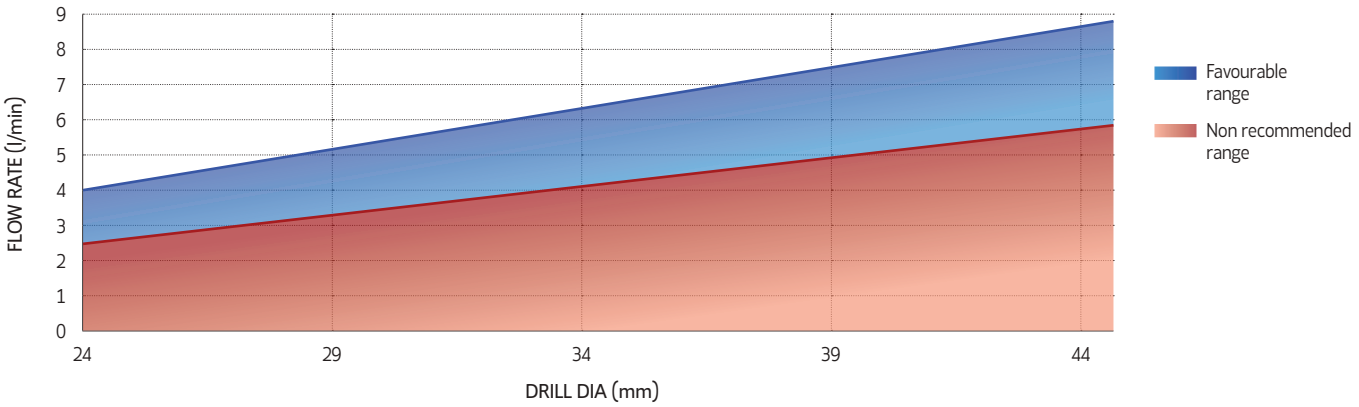
RECOMMENDED SPEEDS AND FEEDS

ISO	Material Group Grupo Materiais Grupo Materiales	Vc (m/min)	f (mm/rev)						
			Ø25	Ø26~30	Ø31~40	Ø41~50	Ø51~59	Ø60~75	Ø75~80
P	Unalloyed steel (-0,25%)	130-190	0,06-0,10	0,07-0,11	0,08-0,12	0,10-0,14	0,14-0,20	0,08-0,12	0,10-0,14
	Low-alloy steel (0,25%-)	130-190	0,06-0,10	0,07-0,11	0,08-0,12	0,10-0,14	0,12-0,18	0,08-0,12	0,10-0,14
	Low-alloy steel (-HB300)	100-140	0,06-0,10	0,07-0,11	0,08-0,12	0,10-0,14	0,12-0,18	0,08-0,12	0,10-0,14
	High-alloy steel (HB300-)	60-100	0,05-0,07	0,05-0,07	0,06-0,08	0,06-0,10	0,09-0,13	0,06-0,08	0,06-0,10
M	Stainless steel	60-110	0,04-0,07	0,04-0,11	0,06-0,12	0,08-0,14	0,10-0,18	0,06-0,12	0,08-0,14
K	Grey cast iron	130-190	0,07-0,13	0,07-0,15	0,08-0,16	0,10-0,18	0,12-0,22	0,08-0,16	0,10-0,18
	Cast iron with nodular cast	110-190	0,04-0,13	0,07-0,15	0,08-0,16	0,10-0,25	0,12-0,26	0,08-0,16	0,10-0,25

POWER REQUIREMENTS



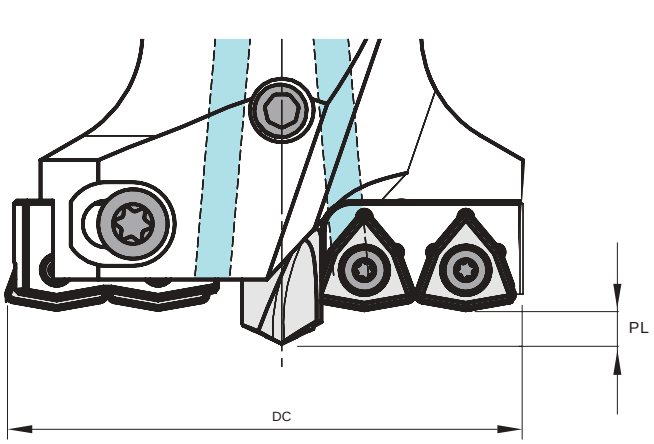
COOLANT APPLICATION CHART

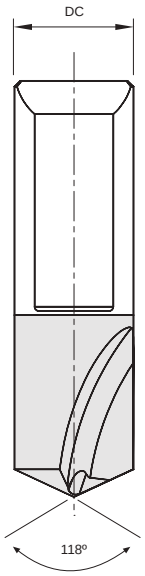


VORTEX DRILLS CUTTING PARAMETERS AND ADJUSTMENTS

Parâmetros de corte e ajustes | Condiciones de corte y ajustes

PILOT DRILL ADJUSTEMENT



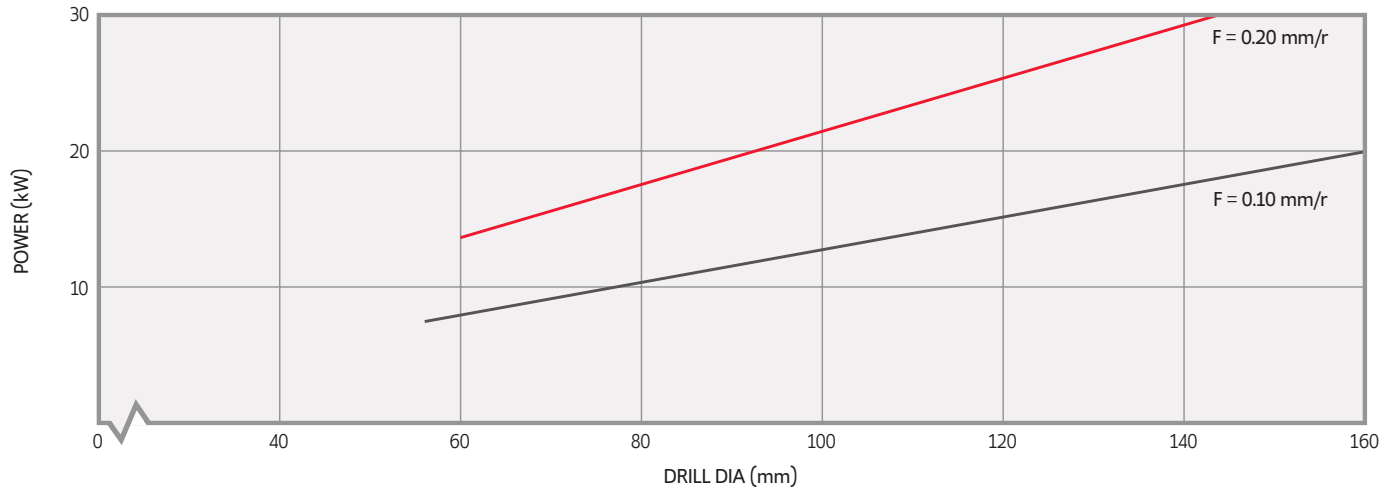


DC (mm)	2D to 4D	4D to 6D	> 6D
	PL	PL	PL
45-55	4,0	4,2	4,4
55-75	5,4	5,6	5,8
75-100	6,5	6,8	7,1
100-120	7,7	8,1	8,5
120-170	9,9	10,3	10,7
170-180	12,2	12,6	13,0

RECOMMENDED SPEEDS AND FEEDS

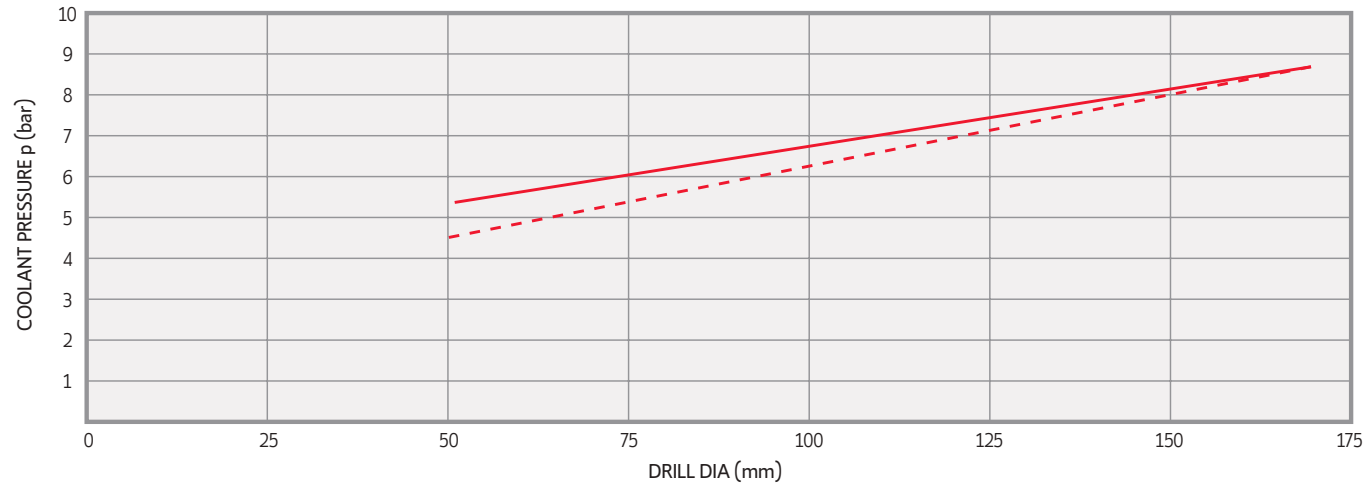
ISO	Material Group Grupo Materiais Grupo Materiales	Vc (m/min)	f (mm/rev)						
			Ø45~55	Ø55~60	Ø60~75	Ø75~100	Ø100~105	Ø105~150	Ø150~180
P	Unalloyed steel (-0,25%)	120-180	0,06-0,10	0,07-0,11	0,08-0,12	0,10-0,14	0,14-0,20	0,08-0,12	0,10-0,14
	Low-alloy steel (0,25%-)	110-170	0,06-0,10	0,07-0,11	0,08-0,12	0,10-0,14	0,12-0,18	0,08-0,12	0,10-0,14
	Low-alloy steel (-HB300)	90-130	0,06-0,10	0,07-0,11	0,08-0,12	0,10-0,14	0,12-0,18	0,08-0,12	0,10-0,14
	High-alloy steel (HB300-)	60-100	0,05-0,07	0,05-0,07	0,06-0,08	0,06-0,10	0,09-0,13	0,06-0,08	0,06-0,10
M	Stainless steel	60-110	0,04-0,07	0,04-0,11	0,06-0,12	0,08-0,14	0,10-0,18	0,06-0,12	0,08-0,14
K	Grey cast iron	120-180	0,07-0,13	0,07-0,15	0,08-0,16	0,10-0,18	0,12-0,22	0,08-0,16	0,10-0,18
	Cast iron with nodular cast	100-180	0,04-0,13	0,07-0,15	0,08-0,16	0,10-0,25	0,12-0,26	0,08-0,16	0,10-0,25

POWER REQUIREMENTS



• These chart is based on machining experiences using steels with a hardness of 200-250HB and cutting speed of 100m/min.

COOLANT APPLICATION CHART



SOLID CARBIDE

DRILLS

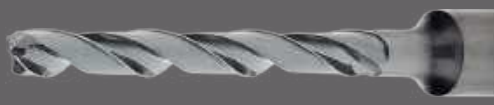
Solid carbide drills represent an excellent choice for ensuring excellent process security and achieving high-quality holes. They offer an optimal combination of feed rate and precision. This includes micro drills and optimized drills.

As brocas de metal duro representam uma excelente escolha para garantir segurança no processo e alcançar furos de alta qualidade. Oferecem uma combinação ideal de taxa de avanço e precisão. Inclui microbrocas e brocas otimizadas.

Las brocas de carburo sólido representan una excelente opción para garantizar seguridad del proceso y lograr orificios de alta calidad. Ofrecen una combinación óptima de velocidad de avance y precisión. Incluye microbrocas y brocas optimizadas.

NEW HMDUUE > page 454

- From DC 1,0mm to 2,9mm
  De DC 1,0mm a 2,9mm | Desde DC 1,0mm hasta 2,9mm
- Available in 3D
  Disponível em 3D | Disponible en 3D
- Without coolant
  Sem refrigeração | Sin refrigeración

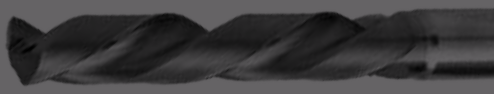


NEW HMDUCE > page 455

- From DC 1,0mm to 2,9mm
  De DC 1,0mm a 2,9mm | Desde DC 1,0mm hasta 2,9mm
- Available in 5D
  Disponível em 5D | Disponible en 5D
- With coolant
  Com refrigeração | Con refrigeración

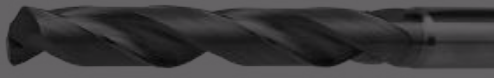
HBDPCE/W > page 456

- From DC 3,0mm to 20,0mm
  De DC 3,0mm a 20,0mm | Desde DC 3,0mm hasta 20,0mm
- Available in 3D, 5D and 8D
  Disponível em 3D, 5D e 8D | Disponible en 3D, 5D y 8D
- With coolant
  Com refrigeração | Con refrigeración



HBDPUE/W > page 465

- From DC 3,0mm to 20,0mm
  De DC 3,0mm a 20,0mm | Desde DC 3,0mm hasta 20,0mm
- Available in 3D and 5D
  Disponível em 3D e 5D | Disponible en 3D y 5D
- Without coolant
  Sem refrigeração | Sin refrigeración

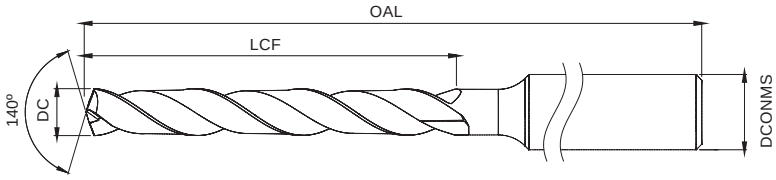


NEW HMDUUE 2 03D Solid carbide drills | Brocas de metal duro | Brocas en metal duro

P K

HRC ≤ 60

IT8~9 IT class



Order code	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)				NOF	Stock PHU920
HA (Cylindrical)		DC	DCONMS	LCF	OAL		HA (Cylindrical)
118230Z9	HMDUUE 2 03D 0100-045005	1,00	4	5	45	2	◎
118179Z9	HMDUUE 2 03D 0110-045007	1,10	4	7	45	2	◎
118179Z9	HMDUUE 2 03D 0120-045007	1,20	4	7	45	2	◎
118179Z9	HMDUUE 2 03D 0130-045007	1,30	4	7	45	2	◎
118180Z9	HMDUUE 2 03D 0140-045007	1,40	4	7	45	2	◎
118180Z9	HMDUUE 2 03D 0150-045007	1,50	4	7	45	2	◎
118180Z9	HMDUUE 2 03D 0160-055014	1,60	4	14	55	2	◎
118180Z9	HMDUUE 2 03D 0170-055014	1,70	4	14	55	2	◎
118180Z9	HMDUUE 2 03D 0180-055014	1,80	4	14	55	2	◎
118181Z9	HMDUUE 2 03D 0190-055014	1,90	4	14	55	2	◎
118150Z9	HMDUUE 2 03D 0200-055020	2,00	4	20	55	2	◎
118230Z9	HMDUUE 2 03D 0210-055020	2,10	4	20	55	2	◎
118181Z9	HMDUUE 2 03D 0220-055020	2,20	4	20	55	2	◎
118181Z9	HMDUUE 2 03D 0230-055020	2,30	4	20	55	2	◎
118181Z9	HMDUUE 2 03D 0240-055020	2,40	4	20	55	2	◎
118230Z9	HMDUUE 2 03D 0250-055020	2,50	4	20	55	2	◎
118182Z9	HMDUUE 2 03D 0260-055020	2,60	4	20	55	2	◎
118182Z9	HMDUUE 2 03D 0270-055020	2,70	4	20	55	2	◎
118230Z9	HMDUUE 2 03D 0280-055020	2,80	4	20	55	2	◎
118231Z9	HMDUUE 2 03D 0290-055020	2,90	4	20	55	2	◎

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

Technical Data: B - 471

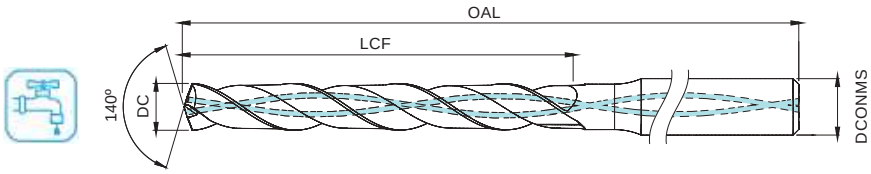
palbit

NEW HMDUCE 2 05D Solid carbide drills | Brocas de metal duro | Brocas en metal duro

P K

HRC ≤ 60

IT8~9 IT class



Order code	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)				NOF	Stock PHU920
HA (Cylindrical)		DC	DCONMS	LCF	OAL		HA (Cylindrical)
1181838Z9	HMDUCE 2 05D 0100-055010	1,00	3	10	55	2	◈
1181839Z9	HMDUCE 2 05D 0110-055012	1,10	3	12	55	2	◈
1181840Z9	HMDUCE 2 05D 0120-055012	1,20	3	12	55	2	◈
1181841Z9	HMDUCE 2 05D 0130-055012	1,30	3	12	55	2	◈
1181842Z9	HMDUCE 2 05D 0140-055012	1,40	3	12	55	2	◈
1181843Z9	HMDUCE 2 05D 0150-055012	1,50	3	12	55	2	◈
1181844Z9	HMDUCE 2 05D 0160-055016	1,60	3	16	55	2	◈
1181845Z9	HMDUCE 2 05D 0170-055016	1,70	3	16	55	2	◈
1181846Z9	HMDUCE 2 05D 0180-055016	1,80	3	16	55	2	◈
1181847Z9	HMDUCE 2 05D 0190-055016	1,90	3	16	55	2	◈
1181848Z9	HMDUCE 2 05D 0200-055016	2,00	3	16	55	2	◈
1181849Z9	HMDUCE 2 05D 0210-055021	2,10	3	21	55	2	◈
1181850Z9	HMDUCE 2 05D 0220-055021	2,20	3	21	55	2	◈
1182311Z9	HMDUCE 2 05D 0230-055021	2,30	3	21	55	2	◈
1182312Z9	HMDUCE 2 05D 0240-055021	2,40	3	21	55	2	◈
1182313Z9	HMDUCE 2 05D 0250-055021	2,50	3	21	55	2	◈
1182314Z9	HMDUCE 2 05D 0260-055021	2,60	3	21	55	2	◈
1181855Z9	HMDUCE 2 05D 0270-055021	2,70	3	21	55	2	◈
1182315Z9	HMDUCE 2 05D 0280-055021	2,80	3	21	55	2	◈
1182316Z9	HMDUCE 2 05D 0290-055021	2,90	3	21	55	2	◈

◈ Stock item | Produto de stock | Itens de stock

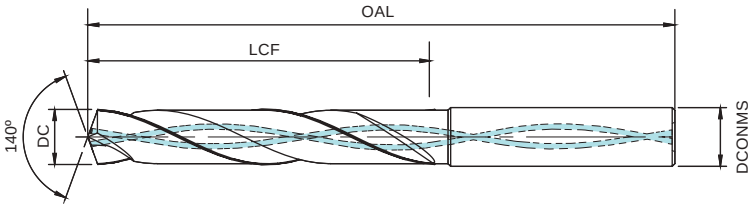
◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

HBDPCE/W 2 03D Solid carbide drills | Brocas de metal duro | Brocas en metal duro

P K

HRC ≤ 60

IT8~9 IT class



Drill Dia. DC	DC3,0	3,0<DC≤6,0	6,0<DC≤10,0	10,0<DC≤18,0	18,0<DC≤20,0
Hole Tolerances	+0,002	+0,004	+0,006	+0,007	+0,008
	+0,012	+0,016	+0,021	+0,025	+0,028

Order code		Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)				NOF	Stock PHU920	
HA (Cylindrical)	HB (Weldon)		DC	DCONMS	LCF	OAL		HA	HB
1180956Z9	1181963Z9	HBDPCE/W 2 03D 0300-062020	3,00	6	20	62	2	●	●
1180957Z9	1181964Z9	HBDPCE/W 2 03D 0310-062020	3,10	6	20	62	2	●	●
1180958Z9	1181965Z9	HBDPCE/W 2 03D 0320-062020	3,20	6	20	62	2	●	●
1181791Z9	1181966Z9	HBDPCE/W 2 03D 0325-062020	3,25	6	20	62	2	●	○
1180959Z9	1181967Z9	HBDPCE/W 2 03D 0330-062020	3,30	6	20	62	2	●	●
1180960Z9	1181968Z9	HBDPCE/W 2 03D 0340-062020	3,40	6	20	62	2	●	○
1180961Z9	1181969Z9	HBDPCE/W 2 03D 0350-062020	3,50	6	20	62	2	●	●
1180962Z9	1181970Z9	HBDPCE/W 2 03D 0360-062020	3,60	6	20	62	2	●	●
1180963Z9	1181971Z9	HBDPCE/W 2 03D 0370-062020	3,70	6	20	62	2	●	○
1180964Z9	1181972Z9	HBDPCE/W 2 03D 0380-066024	3,80	6	24	66	2	●	○
1180965Z9	1181973Z9	HBDPCE/W 2 03D 0390-066024	3,90	6	24	66	2	●	●
1180966Z9	1181974Z9	HBDPCE/W 2 03D 0400-066024	4,00	6	24	66	2	●	○
1180967Z9	1181975Z9	HBDPCE/W 2 03D 0410-066024	4,10	6	24	66	2	●	●
1180968Z9	1181976Z9	HBDPCE/W 2 03D 0420-066024	4,20	6	24	66	2	●	●
1180969Z9	1181977Z9	HBDPCE/W 2 03D 0430-066024	4,30	6	24	66	2	●	●
1180970Z9	1181978Z9	HBDPCE/W 2 03D 0440-066024	4,40	6	24	66	2	●	●
1180971Z9	1181979Z9	HBDPCE/W 2 03D 0450-066024	4,50	6	24	66	2	●	○
1180972Z9	1181980Z9	HBDPCE/W 2 03D 0460-066024	4,60	6	24	66	2	●	○
1181793Z9	1181981Z9	HBDPCE/W 2 03D 0465-066024	4,65	6	24	66	2	●	○
1180973Z9	1181982Z9	HBDPCE/W 2 03D 0470-066024	4,70	6	24	66	2	●	●
1180974Z9	1181983Z9	HBDPCE/W 2 03D 0480-066028	4,80	6	28	66	2	●	○
1180975Z9	1181984Z9	HBDPCE/W 2 03D 0490-066028	4,90	6	28	66	2	●	●
1180976Z9	1181985Z9	HBDPCE/W 2 03D 0500-066028	5,00	6	28	66	2	●	○
1180977Z9	1181986Z9	HBDPCE/W 2 03D 0510-066028	5,10	6	28	66	2	●	○
1180978Z9	1181987Z9	HBDPCE/W 2 03D 0520-066028	5,20	6	28	66	2	●	○
1180979Z9	1181988Z9	HBDPCE/W 2 03D 0530-066028	5,30	6	28	66	2	●	●

● Stock item | Produto de stock | Itens de stock

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

Continue next page

HBDPCE/W 2 03D

Solid carbide drills | Brocas de metal duro | Brocas en metal duro

Order code		Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)				NOF	Stock PHU920	
HA (Cylindrical)	HB (Weldon)		DC	DCONMS	LCF	OAL		HA	HB
1180980Z9	1181989Z9	HBDPCE/W 2 03D 0540-066028	5,40	6	28	66	2	●	●
1180981Z9	1181990Z9	HBDPCE/W 2 03D 0550-066028	5,50	6	28	66	2	●	○
1181795Z9	1181991Z9	HBDPCE/W 2 03D 0555-066028	5,55	6	28	66	2	●	●
1180982Z9	1181992Z9	HBDPCE/W 2 03D 0560-066028	5,60	6	28	66	2	●	○
1180983Z9	1181993Z9	HBDPCE/W 2 03D 0570-066028	5,70	6	28	66	2	●	●
1180984Z9	1181994Z9	HBDPCE/W 2 03D 0580-066028	5,80	6	28	66	2	●	○
1180985Z9	1181995Z9	HBDPCE/W 2 03D 0590-066028	5,90	6	28	66	2	●	●
1180986Z9	1181996Z9	HBDPCE/W 2 03D 0600-066028	6,00	6	28	66	2	●	○
1180987Z9	1181997Z9	HBDPCE/W 2 03D 0610-079034	6,10	8	34	79	2	●	○
1180988Z9	1181998Z9	HBDPCE/W 2 03D 0620-079034	6,20	8	34	79	2	●	●
1180989Z9	1181999Z9	HBDPCE/W 2 03D 0630-079034	6,30	8	34	79	2	●	●
1180990Z9	1182000Z9	HBDPCE/W 2 03D 0640-079034	6,40	8	34	79	2	●	●
1180991Z9	1182001Z9	HBDPCE/W 2 03D 0650-079034	6,50	8	34	79	2	●	○
1180792Z9	1182002Z9	HBDPCE/W 2 03D 0660-079034	6,60	8	34	79	2	●	●
1180992Z9	1182003Z9	HBDPCE/W 2 03D 0670-079034	6,70	8	34	79	2	●	●
1180993Z9	1182004Z9	HBDPCE/W 2 03D 0680-079034	6,80	8	34	79	2	●	●
1180994Z9	1182005Z9	HBDPCE/W 2 03D 0690-079034	6,90	8	34	79	2	●	●
1180995Z9	1182006Z9	HBDPCE/W 2 03D 0700-079034	7,00	8	34	79	2	●	●
1180996Z9	1182007Z9	HBDPCE/W 2 03D 0710-079041	7,10	8	41	79	2	●	●
1180997Z9	1182008Z9	HBDPCE/W 2 03D 0720-079041	7,20	8	41	79	2	●	●
1180998Z9	1182009Z9	HBDPCE/W 2 03D 0730-079041	7,30	8	41	79	2	●	●
1180999Z9	1182010Z9	HBDPCE/W 2 03D 0740-079041	7,40	8	41	79	2	●	●
1181000Z9	1182011Z9	HBDPCE/W 2 03D 0750-079041	7,50	8	41	79	2	●	●
1181001Z9	1182012Z9	HBDPCE/W 2 03D 0760-079041	7,60	8	41	79	2	●	●
1181002Z9	1182013Z9	HBDPCE/W 2 03D 0770-079041	7,70	8	41	79	2	●	●
1181003Z9	1182014Z9	HBDPCE/W 2 03D 0780-079041	7,80	8	41	79	2	●	●
1181004Z9	1182015Z9	HBDPCE/W 2 03D 0790-079041	7,90	8	41	79	2	●	○
1181005Z9	1182016Z9	HBDPCE/W 2 03D 0800-079041	8,00	8	41	79	2	●	○
1181006Z9	1182017Z9	HBDPCE/W 2 03D 0810-089047	8,10	10	47	89	2	●	●
1181007Z9	1182018Z9	HBDPCE/W 2 03D 0820-089047	8,20	10	47	89	2	●	○
1181008Z9	1182019Z9	HBDPCE/W 2 03D 0830-089047	8,30	10	47	89	2	●	●
1181009Z9	1182020Z9	HBDPCE/W 2 03D 0840-089047	8,40	10	47	89	2	●	●
1181010Z9	1182021Z9	HBDPCE/W 2 03D 0850-089047	8,50	10	47	89	2	●	○
1181011Z9	1182022Z9	HBDPCE/W 2 03D 0860-089047	8,60	10	47	89	2	●	○
1181012Z9	1182023Z9	HBDPCE/W 2 03D 0870-089047	8,70	10	47	89	2	●	●
1181013Z9	1182024Z9	HBDPCE/W 2 03D 0880-089047	8,80	10	47	89	2	●	●
1181014Z9	1182025Z9	HBDPCE/W 2 03D 0890-089047	8,90	10	47	89	2	●	●
1181015Z9	1182026Z9	HBDPCE/W 2 03D 0900-089047	9,00	10	47	89	2	●	●
1181016Z9	1182027Z9	HBDPCE/W 2 03D 0910-089047	9,10	10	47	89	2	●	○
1181017Z9	1182028Z9	HBDPCE/W 2 03D 0920-089047	9,20	10	47	89	2	●	●
1181018Z9	1182029Z9	HBDPCE/W 2 03D 0930-089047	9,30	10	47	89	2	●	○
1181019Z9	1182030Z9	HBDPCE/W 2 03D 0940-089047	9,40	10	47	89	2	●	●
1181020Z9	1182031Z9	HBDPCE/W 2 03D 0950-089047	9,50	10	47	89	2	●	●
1181021Z9	1182032Z9	HBDPCE/W 2 03D 0960-089047	9,60	10	47	89	2	●	●
1181022Z9	1182033Z9	HBDPCE/W 2 03D 0970-089047	9,70	10	47	89	2	●	●
1181023Z9	1182034Z9	HBDPCE/W 2 03D 0980-089047	9,80	10	47	89	2	●	○

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

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HBDPCE/W 2 03D

Solid carbide drills | Brocas de metal duro | Brocas en metal duro

Order code		Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)				NOF	Stock PHU920	
HA (Cylindrical)	HB (Weldon)		DC	DCONMS	LCF	OAL		HA	HB
1181024Z9	1182035Z9	HBDPCE/W 2 03D 0990-089047	9,90	10	47	89	2	◉	◉
1181025Z9	1182036Z9	HBDPCE/W 2 03D 1000-089047	10,00	10	47	89	2	◉	○
1181026Z9	-	HBDPCE/W 2 03D 1010-102055	10,10	12	55	102	2	◉	-
1181027Z9	1182037Z9	HBDPCE/W 2 03D 1020-102055	10,20	12	55	102	2	◉	◉
1181028Z9	1182038Z9	HBDPCE/W 2 03D 1030-102055	10,30	12	55	102	2	◉	◉
1181029Z9	-	HBDPCE/W 2 03D 1040-102055	10,40	12	55	102	2	◉	-
1181030Z9	1182039Z9	HBDPCE/W 2 03D 1050-102055	10,50	12	55	102	2	○	○
1181031Z9	-	HBDPCE/W 2 03D 1060-102055	10,60	12	55	102	2	◉	-
1181032Z9	-	HBDPCE/W 2 03D 1070-102055	10,70	12	55	102	2	○	-
1181033Z9	1182040Z9	HBDPCE/W 2 03D 1080-102055	10,80	12	55	102	2	○	◉
1181034Z9	-	HBDPCE/W 2 03D 1090-102055	10,90	12	55	102	2	◉	-
1181035Z9	1182041Z9	HBDPCE/W 2 03D 1100-102055	11,00	12	55	102	2	○	○
1181036Z9	-	HBDPCE/W 2 03D 1110-102055	11,10	12	55	102	2	◉	-
1181037Z9	1182042Z9	HBDPCE/W 2 03D 1120-102055	11,20	12	55	102	2	○	◉
1181038Z9	-	HBDPCE/W 2 03D 1130-102055	11,30	12	55	102	2	◉	-
1181039Z9	-	HBDPCE/W 2 03D 1140-102055	11,40	12	55	102	2	○	-
1181040Z9	1182043Z9	HBDPCE/W 2 03D 1150-102055	11,50	12	55	102	2	◉	◉
1181041Z9	-	HBDPCE/W 2 03D 1160-102055	11,60	12	55	102	2	○	-
1181042Z9	-	HBDPCE/W 2 03D 1170-102055	11,70	12	55	102	2	○	-
1181043Z9	1182044Z9	HBDPCE/W 2 03D 1180-102055	11,80	12	55	102	2	◉	○
1181044Z9	-	HBDPCE/W 2 03D 1190-102055	11,90	12	55	102	2	○	-
1181045Z9	1182045Z9	HBDPCE/W 2 03D 1200-102055	12,00	12	55	102	2	◉	○
1181046Z9	1182046Z9	HBDPCE/W 2 03D 1250-107060	12,50	14	60	107	2	◉	○
1181770Z9	1182047Z9	HBDPCE/W 2 03D 1280-107060	12,80	14	60	107	2	◉	○
1181047Z9	1182048Z9	HBDPCE/W 2 03D 1300-107060	13,00	14	60	107	2	◉	◉
1182399Z9	1182402Z9	HBDPCE/W 2 03D 1320-107060	13,20	14	60	107	2	◉	○
1181048Z9	1182049Z9	HBDPCE/W 2 03D 1350-107060	13,50	14	60	107	2	◉	○
1181772Z9	1182050Z9	HBDPCE/W 2 03D 1380-107060	13,80	14	60	107	2	◉	◉
1181049Z9	1182051Z9	HBDPCE/W 2 03D 1400-107060	14,00	14	60	107	2	◉	◉
1181774Z9	1182052Z9	HBDPCE/W 2 03D 1420-115065	14,20	16	65	115	2	◉	○
1181050Z9	1182053Z9	HBDPCE/W 2 03D 1450-115065	14,50	16	65	115	2	◉	○
1181776Z9	1182054Z9	HBDPCE/W 2 03D 1480-115065	14,80	16	65	115	2	◉	◉
1181051Z9	1182055Z9	HBDPCE/W 2 03D 1500-115065	15,00	16	65	115	2	◉	◉
1181052Z9	1182056Z9	HBDPCE/W 2 03D 1550-115065	15,50	16	65	115	2	◉	◉
1181778Z9	1182057Z9	HBDPCE/W 2 03D 1580-115065	15,80	16	65	115	2	◉	◉
1181053Z9	1182058Z9	HBDPCE/W 2 03D 1600-115065	16,00	16	65	115	2	◉	○
1181054Z9	1182059Z9	HBDPCE/W 2 03D 1650-123073	16,50	18	73	123	2	◉	◉
1181055Z9	1182060Z9	HBDPCE/W 2 03D 1700-123073	17,00	18	73	123	2	◉	○
1181056Z9	1182061Z9	HBDPCE/W 2 03D 1750-123073	17,50	18	73	123	2	◉	○
1181057Z9	1182062Z9	HBDPCE/W 2 03D 1800-123073	18,00	18	73	123	2	◉	○
1181058Z9	1182063Z9	HBDPCE/W 2 03D 1850-131079	18,50	20	79	131	2	◉	◉
1181059Z9	1182064Z9	HBDPCE/W 2 03D 1900-131079	19,00	20	79	131	2	◉	◉
1181060Z9	1182065Z9	HBDPCE/W 2 03D 1950-131079	19,50	20	79	131	2	◉	◉
1181061Z9	1182066Z9	HBDPCE/W 2 03D 2000-131079	20,00	20	79	131	2	◉	○

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

Technical Data: B - 471

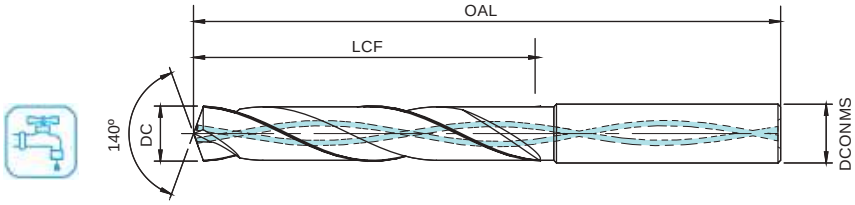
palbit

HBDPCE/W 2 05D Solid carbide drills | Brocas de metal duro | Brocas en metal duro

P K

HRC ≤ 60

IT8~9 IT class



Drill Dia. DC	DC3,0	3,0<DC≤6,0	6,0<DC≤10,0	10,0<DC≤18,0	18,0<DC≤20,0
Hole Tolerances	+0,002	+0,004	+0,006	+0,007	+0,008
	+0,012	+0,016	+0,021	+0,025	+0,028

Order code		Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)				NOF	Stock PHU920	
HA (Cylindrical)	HB (Weldon)		DC	DCONMS	LCF	OAL		HA	HB
118078Z9	118206Z9	HBDPCE/W 2 05D 0300-066028	3,00	6	28	66	2	●	●
118116Z9	118206Z9	HBDPCE/W 2 05D 0310-066028	3,10	6	28	66	2	●	○
118116Z9	118206Z9	HBDPCE/W 2 05D 0320-066028	3,20	6	28	66	2	●	○
118182Z9	118207Z9	HBDPCE/W 2 05D 0325-066028	3,25	6	28	66	2	●	●
118116Z9	118207Z9	HBDPCE/W 2 05D 0330-066028	3,30	6	28	66	2	●	●
118079Z9	118207Z9	HBDPCE/W 2 05D 0340-066028	3,40	6	28	66	2	●	○
118116Z9	118207Z9	HBDPCE/W 2 05D 0350-066028	3,50	6	28	66	2	●	●
118116Z9	118207Z9	HBDPCE/W 2 05D 0360-066028	3,60	6	28	66	2	●	○
118079Z9	118207Z9	HBDPCE/W 2 05D 0370-066028	3,70	6	28	66	2	●	●
118116Z9	118207Z9	HBDPCE/W 2 05D 0380-074036	3,80	6	36	74	2	●	○
118116Z9	118207Z9	HBDPCE/W 2 05D 0390-074036	3,90	6	36	74	2	●	○
118116Z9	118207Z9	HBDPCE/W 2 05D 0400-074036	4,00	6	36	74	2	●	●
118116Z9	118207Z9	HBDPCE/W 2 05D 0410-074036	4,10	6	36	74	2	●	●
118079Z9	118208Z9	HBDPCE/W 2 05D 0420-074036	4,20	6	36	74	2	●	●
118080Z9	118208Z9	HBDPCE/W 2 05D 0430-074036	4,30	6	36	74	2	●	●
118116Z9	118208Z9	HBDPCE/W 2 05D 0440-074036	4,40	6	36	74	2	●	●
118117Z9	118208Z9	HBDPCE/W 2 05D 0450-074036	4,50	6	36	74	2	●	●
118117Z9	118208Z9	HBDPCE/W 2 05D 0460-074036	4,60	6	36	74	2	●	●
118153Z9	118208Z9	HBDPCE/W 2 05D 0465-074036	4,65	6	36	74	2	●	●
118117Z9	118208Z9	HBDPCE/W 2 05D 0470-074036	4,70	6	36	74	2	●	●
118117Z9	118208Z9	HBDPCE/W 2 05D 0480-082044	4,80	6	44	82	2	●	○
118117Z9	118208Z9	HBDPCE/W 2 05D 0490-082044	4,90	6	44	82	2	●	●
118080Z9	118208Z9	HBDPCE/W 2 05D 0500-082044	5,00	6	44	82	2	●	●
118117Z9	118209Z9	HBDPCE/W 2 05D 0510-082044	5,10	6	44	82	2	●	●
118117Z9	118209Z9	HBDPCE/W 2 05D 0520-082044	5,20	6	44	82	2	●	●
118117Z9	118209Z9	HBDPCE/W 2 05D 0530-082044	5,30	6	44	82	2	●	●

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

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HBDPCE/W 2 05D

Solid carbide drills | Brocas de metal duro | Brocas en metal duro

Order code		Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)				NOF	Stock PHU920	
HA (Cylindrical)	HB (Weldon)		DC	DCONMS	LCF	OAL		HA	HB
1181178Z9	1182093Z9	HBDPCE/W 2 05D 0540-082044	5,40	6	44	82	2	●	●
1181179Z9	1182094Z9	HBDPCE/W 2 05D 0550-082044	5,50	6	44	82	2	●	●
1181536Z9	1182095Z9	HBDPCE/W 2 05D 0555-082044	5,55	6	44	82	2	●	●
1181180Z9	1182096Z9	HBDPCE/W 2 05D 0560-082044	5,60	6	44	82	2	●	●
1181181Z9	1182097Z9	HBDPCE/W 2 05D 0570-082044	5,70	6	44	82	2	●	○
1180802Z9	1182098Z9	HBDPCE/W 2 05D 0580-082044	5,80	6	44	82	2	●	●
1181182Z9	1182099Z9	HBDPCE/W 2 05D 0590-082044	5,90	6	44	82	2	●	○
1181183Z9	1182100Z9	HBDPCE/W 2 05D 0600-082044	6,00	6	44	82	2	●	●
1181184Z9	1182101Z9	HBDPCE/W 2 05D 0610-091053	6,10	8	53	91	2	●	●
1181185Z9	1182102Z9	HBDPCE/W 2 05D 0620-091053	6,20	8	53	91	2	●	●
1181186Z9	1182103Z9	HBDPCE/W 2 05D 0630-091053	6,30	8	53	91	2	●	○
1181187Z9	1182104Z9	HBDPCE/W 2 05D 0640-091053	6,40	8	53	91	2	●	○
1180787Z9	1182105Z9	HBDPCE/W 2 05D 0650-091053	6,50	8	53	91	2	●	●
1181188Z9	1182106Z9	HBDPCE/W 2 05D 0660-091053	6,60	8	53	91	2	●	●
1181189Z9	1182107Z9	HBDPCE/W 2 05D 0670-091053	6,70	8	53	91	2	●	●
1180803Z9	1182108Z9	HBDPCE/W 2 05D 0680-091053	6,80	8	53	91	2	●	●
1181190Z9	1182109Z9	HBDPCE/W 2 05D 0690-091053	6,90	8	53	91	2	●	●
1180804Z9	1182110Z9	HBDPCE/W 2 05D 0700-091053	7,00	8	53	91	2	●	●
1181191Z9	1182111Z9	HBDPCE/W 2 05D 0710-091053	7,10	8	53	91	2	●	●
1181192Z9	1182112Z9	HBDPCE/W 2 05D 0720-091053	7,20	8	53	91	2	●	●
1181193Z9	1182113Z9	HBDPCE/W 2 05D 0730-091053	7,30	8	53	91	2	●	●
1180805Z9	1182114Z9	HBDPCE/W 2 05D 0740-091053	7,40	8	53	91	2	●	●
1181194Z9	1182115Z9	HBDPCE/W 2 05D 0750-091053	7,50	8	53	91	2	●	●
1181195Z9	1182116Z9	HBDPCE/W 2 05D 0760-091053	7,60	8	53	91	2	●	●
1181196Z9	1182117Z9	HBDPCE/W 2 05D 0770-091053	7,70	8	53	91	2	●	●
1181197Z9	1182118Z9	HBDPCE/W 2 05D 0780-091053	7,80	8	53	91	2	●	●
1181198Z9	1182119Z9	HBDPCE/W 2 05D 0790-091053	7,90	8	53	91	2	●	●
1181199Z9	1182120Z9	HBDPCE/W 2 05D 0800-091053	8,00	8	53	91	2	●	●
1181200Z9	1182121Z9	HBDPCE/W 2 05D 0810-103061	8,10	10	61	103	2	●	○
1181201Z9	1182122Z9	HBDPCE/W 2 05D 0820-103061	8,20	10	61	103	2	●	●
1181202Z9	1182123Z9	HBDPCE/W 2 05D 0830-103061	8,30	10	61	103	2	●	○
1181203Z9	1182124Z9	HBDPCE/W 2 05D 0840-103061	8,40	10	61	103	2	●	●
1180806Z9	1182125Z9	HBDPCE/W 2 05D 0850-103061	8,50	10	61	103	2	●	●
1181204Z9	1182126Z9	HBDPCE/W 2 05D 0860-103061	8,60	10	61	103	2	●	●
1181205Z9	1182127Z9	HBDPCE/W 2 05D 0870-103061	8,70	10	61	103	2	●	●
1181206Z9	1182128Z9	HBDPCE/W 2 05D 0880-103061	8,80	10	61	103	2	●	●
1181207Z9	1182129Z9	HBDPCE/W 2 05D 0890-103061	8,90	10	61	103	2	●	○
1180807Z9	1182130Z9	HBDPCE/W 2 05D 0900-103061	9,00	10	61	103	2	●	●
1181208Z9	1182131Z9	HBDPCE/W 2 05D 0910-103061	9,10	10	61	103	2	●	●
1181209Z9	1182132Z9	HBDPCE/W 2 05D 0920-103061	9,20	10	61	103	2	●	○
1181210Z9	1182133Z9	HBDPCE/W 2 05D 0930-103061	9,30	10	61	103	2	●	●
1181211Z9	1182134Z9	HBDPCE/W 2 05D 0940-103061	9,40	10	61	103	2	●	●
1181212Z9	1182135Z9	HBDPCE/W 2 05D 0950-103061	9,50	10	61	103	2	●	●
1181213Z9	1182136Z9	HBDPCE/W 2 05D 0960-103061	9,60	10	61	103	2	●	●
1181214Z9	1182137Z9	HBDPCE/W 2 05D 0970-103061	9,70	10	61	103	2	●	●
1181215Z9	1182138Z9	HBDPCE/W 2 05D 0980-103061	9,80	10	61	103	2	●	●

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

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HBDPCE/W 2 05D

Solid carbide drills | Brocas de metal duro | Brocas en metal duro

Order code		Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)				NOF	Stock PHU920	
HA (Cylindrical)	HB (Weldon)		DC	DCONMS	LCF	OAL		HA	HB
1181216Z9	1182139Z9	HBDPCE/W 2 05D 0990-103061	9,90	10	61	103	2	◉	○
1181217Z9	1182140Z9	HBDPCE/W 2 05D 1000-103061	10,00	10	61	103	2	◉	◉
1181218Z9	1182141Z9	HBDPCE/W 2 05D 1010-118071	10,10	12	71	118	2	◉	◉
1180808Z9	1182142Z9	HBDPCE/W 2 05D 1020-118071	10,20	12	71	118	2	◉	○
1181219Z9	1182143Z9	HBDPCE/W 2 05D 1030-118071	10,30	12	71	118	2	◉	◉
1181220Z9	1182144Z9	HBDPCE/W 2 05D 1040-118071	10,40	12	71	118	2	◉	○
1180809Z9	1182145Z9	HBDPCE/W 2 05D 1050-118071	10,50	12	71	118	2	◉	◉
1180810Z9	-	HBDPCE/W 2 05D 1060-118071	10,60	12	71	118	2	◉	-
1181221Z9	-	HBDPCE/W 2 05D 1070-118071	10,70	12	71	118	2	◉	-
1181222Z9	1182146Z9	HBDPCE/W 2 05D 1080-118071	10,80	12	71	118	2	◉	◉
1181223Z9	-	HBDPCE/W 2 05D 1090-118071	10,90	12	71	118	2	◉	-
1180811Z9	1182147Z9	HBDPCE/W 2 05D 1100-118071	11,00	12	71	118	2	◉	◉
1181224Z9	1182148Z9	HBDPCE/W 2 05D 1110-118071	11,10	12	71	118	2	◉	◉
1181225Z9	1182149Z9	HBDPCE/W 2 05D 1120-118071	11,20	12	71	118	2	◉	◉
1181226Z9	1182150Z9	HBDPCE/W 2 05D 1130-118071	11,30	12	71	118	2	◉	◉
1181227Z9	-	HBDPCE/W 2 05D 1140-118071	11,40	12	71	118	2	◉	-
1180812Z9	1182151Z9	HBDPCE/W 2 05D 1150-118071	11,50	12	71	118	2	◉	○
1181228Z9	-	HBDPCE/W 2 05D 1160-118071	11,60	12	71	118	2	◉	-
1181229Z9	-	HBDPCE/W 2 05D 1170-118071	11,70	12	71	118	2	◉	-
1181230Z9	1182152Z9	HBDPCE/W 2 05D 1180-118071	11,80	12	71	118	2	◉	◉
1181231Z9	-	HBDPCE/W 2 05D 1190-118071	11,90	12	71	118	2	◉	-
1180813Z9	1182153Z9	HBDPCE/W 2 05D 1200-118071	12,00	12	71	118	2	◉	○
1181805Z9	1182154Z9	HBDPCE/W 2 05D 1220-124077	12,20	14	77	124	2	◉	○
1181232Z9	1182155Z9	HBDPCE/W 2 05D 1250-124077	12,50	14	77	124	2	◉	○
1181806Z9	1182156Z9	HBDPCE/W 2 05D 1280-124077	12,80	14	77	124	2	◉	○
1180814Z9	1182157Z9	HBDPCE/W 2 05D 1300-124077	13,00	14	77	124	2	◉	◉
1182267Z9	-	HBDPCE/W 2 05D 1320-124077	13,20	14	77	124	2	◉	-
1181233Z9	1182158Z9	HBDPCE/W 2 05D 1350-124077	13,50	14	77	124	2	◉	◉
1181807Z9	1182159Z9	HBDPCE/W 2 05D 1380-124077	13,80	14	77	124	2	◉	◉
1181808Z9	1182160Z9	HBDPCE/W 2 05D 1390-124077	13,90	14	77	124	2	◉	◉
1181234Z9	1182161Z9	HBDPCE/W 2 05D 1400-124077	14,00	14	77	124	2	◉	◉
1181809Z9	1182162Z9	HBDPCE/W 2 05D 1420-133083	14,20	16	83	133	2	◉	○
1181235Z9	1182163Z9	HBDPCE/W 2 05D 1450-133083	14,50	16	83	133	2	◉	◉
1181810Z9	1182164Z9	HBDPCE/W 2 05D 1480-133083	14,80	16	83	133	2	◉	◉
1181236Z9	1182165Z9	HBDPCE/W 2 05D 1500-133083	15,00	16	83	133	2	◉	◉
1181811Z9	1182166Z9	HBDPCE/W 2 05D 1520-133083	15,20	16	83	133	2	◉	○
1181237Z9	1182167Z9	HBDPCE/W 2 05D 1550-133083	15,50	16	83	133	2	◉	◉
1181812Z9	1182168Z9	HBDPCE/W 2 05D 1570-133083	15,70	16	83	133	2	◉	◉
1180815Z9	1182169Z9	HBDPCE/W 2 05D 1580-133083	15,80	16	83	133	2	◉	◉
1181238Z9	1182170Z9	HBDPCE/W 2 05D 1600-133083	16,00	16	83	133	2	◉	◉
1181239Z9	1182171Z9	HBDPCE/W 2 05D 1650-143093	16,50	18	93	143	2	◉	◉
1181240Z9	1182172Z9	HBDPCE/W 2 05D 1700-143093	17,00	18	93	143	2	◉	◉
1180816Z9	1182173Z9	HBDPCE/W 2 05D 1750-143093	17,50	18	93	143	2	◉	○
1181241Z9	1182174Z9	HBDPCE/W 2 05D 1800-143093	18,00	18	93	143	2	◉	○
1181242Z9	1182175Z9	HBDPCE/W 2 05D 1850-153101	18,50	20	101	153	2	◉	○
1181243Z9	1182176Z9	HBDPCE/W 2 05D 1900-153101	19,00	20	101	153	2	◉	◉
1181244Z9	1182177Z9	HBDPCE/W 2 05D 1950-153101	19,50	20	101	153	2	◉	◉
1181245Z9	1182178Z9	HBDPCE/W 2 05D 2000-153101	20,00	20	101	153	2	◉	◉

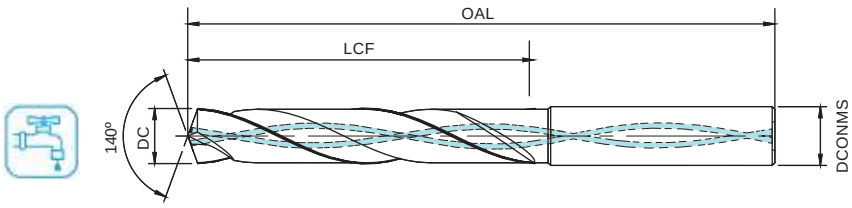
◉ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

HBDPCE/W 2 08D Solid carbide drills | Brocas de metal duro | Brocas en metal duro

P K

HRC ≤ 48

IT8~9 IT class



Drill Dia. DC	3,0≤DC≤5,0	5,0<DC≤6,0	6,0<DC≤10,0	10,0<DC≤12,0
Hole Tolerances	+0,002	+0,004	+0,006	+0,007
	+0,012	+0,016	+0,021	+0,025

Order code		Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)				NOF	Stock PHU920	
HA (Cylindrical)	HB (Weldon)		DC	DCONMS	LCF	OAL		HA	HB
1181246Z9	-	HBDPCE/W 2 08D 0300-072034	3,00	6	34	72	2	◎	-
1181247Z9	-	HBDPCE/W 2 08D 0310-072034	3,10	6	34	72	2	○	-
1181248Z9	-	HBDPCE/W 2 08D 0320-072034	3,20	6	34	72	2	○	-
1181249Z9	-	HBDPCE/W 2 08D 0330-072034	3,30	6	34	72	2	◎	-
1181250Z9	-	HBDPCE/W 2 08D 0340-072034	3,40	6	34	72	2	◎	-
1181251Z9	-	HBDPCE/W 2 08D 0350-072034	3,50	6	34	72	2	○	-
1181252Z9	-	HBDPCE/W 2 08D 0360-072034	3,60	6	34	72	2	○	-
1181253Z9	-	HBDPCE/W 2 08D 0370-072034	3,70	6	34	72	2	◎	-
1181254Z9	-	HBDPCE/W 2 08D 0380-081043	3,80	6	43	81	2	○	-
1181255Z9	-	HBDPCE/W 2 08D 0390-081043	3,90	6	43	81	2	○	-
1181256Z9	-	HBDPCE/W 2 08D 0400-081043	4,00	6	43	81	2	◎	-
1181257Z9	-	HBDPCE/W 2 08D 0410-081043	4,10	6	43	81	2	○	-
1181258Z9	-	HBDPCE/W 2 08D 0420-081043	4,20	6	43	81	2	◎	-
1181259Z9	-	HBDPCE/W 2 08D 0430-081043	4,30	6	43	81	2	◎	-
1181260Z9	-	HBDPCE/W 2 08D 0440-081043	4,40	6	43	81	2	○	-
1181261Z9	-	HBDPCE/W 2 08D 0450-081043	4,50	6	43	81	2	○	-
1181262Z9	-	HBDPCE/W 2 08D 0460-081043	4,60	6	43	81	2	○	-
1181263Z9	-	HBDPCE/W 2 08D 0470-081043	4,70	6	43	81	2	○	-
1181264Z9	-	HBDPCE/W 2 08D 0480-095057	4,80	6	57	95	2	◎	-
1181265Z9	-	HBDPCE/W 2 08D 0490-095057	4,90	6	57	95	2	○	-
1181266Z9	-	HBDPCE/W 2 08D 0500-095057	5,00	6	57	95	2	◎	-
1181267Z9	-	HBDPCE/W 2 08D 0510-095057	5,10	6	57	95	2	◎	-
1181268Z9	-	HBDPCE/W 2 08D 0520-095057	5,20	6	57	95	2	○	-
1181269Z9	-	HBDPCE/W 2 08D 0530-095057	5,30	6	57	95	2	○	-
1181270Z9	-	HBDPCE/W 2 08D 0540-095057	5,40	6	57	95	2	○	-
1181271Z9	-	HBDPCE/W 2 08D 0550-095057	5,50	6	57	95	2	◎	-

◎ Stock item | Produto de stock | Itens de stock

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

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HBDPCE/W 2 08D

Solid carbide drills | Brocas de metal duro | Brocas en metal duro

Order code		Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)				NOF	Stock PHU920	
HA (Cylindrical)	HB (Weldon)		DC	DCONMS	LCF	OAL		HA	HB
1181272Z9	-	HBDPCE/W 2 08D 0560-095057	5,60	6	57	95	2	○	-
1181273Z9	-	HBDPCE/W 2 08D 0570-095057	5,70	6	57	95	2	○	-
1181274Z9	-	HBDPCE/W 2 08D 0580-095057	5,80	6	57	95	2	○	-
1181275Z9	-	HBDPCE/W 2 08D 0590-095057	5,90	6	57	95	2	○	-
1181276Z9	-	HBDPCE/W 2 08D 0600-095057	6,00	6	57	95	2	◈	-
1181277Z9	-	HBDPCE/W 2 08D 0610-114076	6,10	8	76	114	2	○	-
1181278Z9	-	HBDPCE/W 2 08D 0620-114076	6,20	8	76	114	2	○	-
1181279Z9	-	HBDPCE/W 2 08D 0630-114076	6,30	8	76	114	2	○	-
1181280Z9	-	HBDPCE/W 2 08D 0640-114076	6,40	8	76	114	2	○	-
1181281Z9	-	HBDPCE/W 2 08D 0650-114076	6,50	8	76	114	2	◈	-
1181282Z9	-	HBDPCE/W 2 08D 0660-114076	6,60	8	76	114	2	○	-
1181283Z9	-	HBDPCE/W 2 08D 0670-114076	6,70	8	76	114	2	○	-
1181284Z9	-	HBDPCE/W 2 08D 0680-114076	6,80	8	76	114	2	◈	-
1181285Z9	-	HBDPCE/W 2 08D 0690-114076	6,90	8	76	114	2	○	-
1181286Z9	-	HBDPCE/W 2 08D 0700-114076	7,00	8	76	114	2	◈	-
1181287Z9	-	HBDPCE/W 2 08D 0710-114076	7,10	8	76	114	2	○	-
1181288Z9	-	HBDPCE/W 2 08D 0720-114076	7,20	8	76	114	2	○	-
1181289Z9	-	HBDPCE/W 2 08D 0730-114076	7,30	8	76	114	2	○	-
1181290Z9	-	HBDPCE/W 2 08D 0740-114076	7,40	8	76	114	2	○	-
1181291Z9	-	HBDPCE/W 2 08D 0750-114076	7,50	8	76	114	2	○	-
1181292Z9	-	HBDPCE/W 2 08D 0760-114076	7,60	8	76	114	2	○	-
1181293Z9	-	HBDPCE/W 2 08D 0770-114076	7,70	8	76	114	2	○	-
1181294Z9	-	HBDPCE/W 2 08D 0780-114076	7,80	8	76	114	2	◈	-
1181295Z9	-	HBDPCE/W 2 08D 0790-114076	7,90	8	76	114	2	○	-
1181296Z9	-	HBDPCE/W 2 08D 0800-114076	8,00	8	76	114	2	◈	-
1181297Z9	-	HBDPCE/W 2 08D 0810-142095	8,10	10	95	142	2	○	-
1181298Z9	-	HBDPCE/W 2 08D 0820-142095	8,20	10	95	142	2	○	-
1181299Z9	-	HBDPCE/W 2 08D 0830-142095	8,30	10	95	142	2	○	-
1181300Z9	-	HBDPCE/W 2 08D 0840-142095	8,40	10	95	142	2	○	-
1181301Z9	-	HBDPCE/W 2 08D 0850-142095	8,50	10	95	142	2	◈	-
1181302Z9	-	HBDPCE/W 2 08D 0860-142095	8,60	10	95	142	2	○	-
1181303Z9	-	HBDPCE/W 2 08D 0870-142095	8,70	10	95	142	2	◈	-
1181304Z9	-	HBDPCE/W 2 08D 0880-142095	8,80	10	95	142	2	◈	-
1181305Z9	-	HBDPCE/W 2 08D 0890-142095	8,90	10	95	142	2	○	-
1181306Z9	-	HBDPCE/W 2 08D 0900-142095	9,00	10	95	142	2	○	-
1181307Z9	-	HBDPCE/W 2 08D 0910-142095	9,10	10	95	142	2	○	-
1181308Z9	-	HBDPCE/W 2 08D 0920-142095	9,20	10	95	142	2	○	-
1181309Z9	-	HBDPCE/W 2 08D 0930-142095	9,30	10	95	142	2	○	-
1181310Z9	-	HBDPCE/W 2 08D 0940-142095	9,40	10	95	142	2	○	-
1181311Z9	-	HBDPCE/W 2 08D 0950-142095	9,50	10	95	142	2	○	-
1181312Z9	-	HBDPCE/W 2 08D 0960-142095	9,60	10	95	142	2	○	-
1181313Z9	-	HBDPCE/W 2 08D 0970-142095	9,70	10	95	142	2	○	-
1181314Z9	-	HBDPCE/W 2 08D 0980-142095	9,80	10	95	142	2	○	-
1181315Z9	-	HBDPCE/W 2 08D 0990-142095	9,90	10	95	142	2	○	-
1181316Z9	-	HBDPCE/W 2 08D 1000-142095	10,00	10	95	142	2	○	-
1181317Z9	-	HBDPCE/W 2 08D 1010-162114	10,10	12	114	162	2	○	-

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

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HBDPCE/W 2 08D

Solid carbide drills | Brocas de metal duro | Brocas en metal duro

Order code		Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)				NOF	Stock PHU920	
HA (Cylindrical)	HB (Weldon)		DC	DCONMS	LCF	OAL		HA	HB
1181318Z9	-	HBDPCE/W 2 08D 1020-162114	10,20	12	114	162	2	◈	-
1181319Z9	-	HBDPCE/W 2 08D 1030-162114	10,30	12	114	162	2	○	-
1181320Z9	-	HBDPCE/W 2 08D 1040-162114	10,40	12	114	162	2	○	-
1181321Z9	-	HBDPCE/W 2 08D 1050-162114	10,50	12	114	162	2	◈	-
1181322Z9	-	HBDPCE/W 2 08D 1060-162114	10,60	12	114	162	2	○	-
1181323Z9	-	HBDPCE/W 2 08D 1070-162114	10,70	12	114	162	2	○	-
1181324Z9	-	HBDPCE/W 2 08D 1080-162114	10,80	12	114	162	2	○	-
1181325Z9	-	HBDPCE/W 2 08D 1090-162114	10,90	12	114	162	2	○	-
1181326Z9	-	HBDPCE/W 2 08D 1100-162114	11,00	12	114	162	2	○	-
1181327Z9	-	HBDPCE/W 2 08D 1110-162114	11,10	12	114	162	2	○	-
1181328Z9	-	HBDPCE/W 2 08D 1120-162114	11,20	12	114	162	2	○	-
1181329Z9	-	HBDPCE/W 2 08D 1130-162114	11,30	12	114	162	2	○	-
1181330Z9	-	HBDPCE/W 2 08D 1140-162114	11,40	12	114	162	2	○	-
1181331Z9	-	HBDPCE/W 2 08D 1150-162114	11,50	12	114	162	2	○	-
1181332Z9	-	HBDPCE/W 2 08D 1160-162114	11,60	12	114	162	2	○	-
1181333Z9	-	HBDPCE/W 2 08D 1170-162114	11,70	12	114	162	2	○	-
1181334Z9	-	HBDPCE/W 2 08D 1180-162114	11,80	12	114	162	2	◈	-
1181335Z9	-	HBDPCE/W 2 08D 1190-162114	11,90	12	114	162	2	○	-
1181336Z9	-	HBDPCE/W 2 08D 1200-162114	12,00	12	114	162	2	○	-

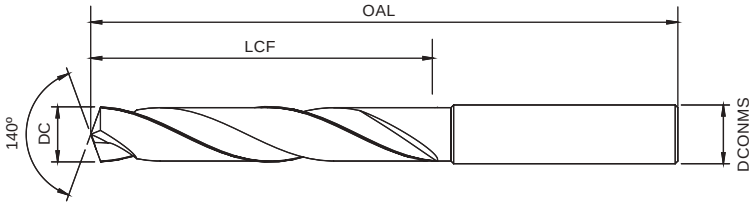
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

HBDPUE/W 2 03D Solid carbide drills | Brocas de metal duro | Brocas en metal duro

P K

HRC ≤ 60

IT8~9 IT class



Drill Dia. DC	DC3,0	3,0<DC≤6,0	6,0<DC≤10,0	10,0<DC≤18,0	18,0<DC≤20,0
Hole Tolerances	+0,002	+0,004	+0,006	+0,007	+0,008
	+0,012	+0,016	+0,021	+0,025	+0,028

Order code		Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)				NOF	Stock PHU920	
HA (Cylindrical)	HB (Weldon)		DC	DCONMS	LCF	OAL		HA	HB
1180784Z9	1181859Z9	HBDPUE/W 2 03D 0300-062020	3,00	6	20	62	2	●	●
1180852Z9	1181860Z9	HBDPUE/W 2 03D 0310-062020	3,10	6	20	62	2	●	●
1180853Z9	1181861Z9	HBDPUE/W 2 03D 0320-062020	3,20	6	20	62	2	●	●
1181790Z9	1181862Z9	HBDPUE/W 2 03D 0325-062020	3,25	6	20	62	2	●	●
1180854Z9	1181863Z9	HBDPUE/W 2 03D 0330-062020	3,30	6	20	62	2	●	○
1180790Z9	1181864Z9	HBDPUE/W 2 03D 0340-062020	3,40	6	20	62	2	●	○
1180855Z9	1181865Z9	HBDPUE/W 2 03D 0350-062020	3,50	6	20	62	2	●	○
1180856Z9	1181866Z9	HBDPUE/W 2 03D 0360-062020	3,60	6	20	62	2	●	●
1180857Z9	1181867Z9	HBDPUE/W 2 03D 0370-062020	3,70	6	20	62	2	●	●
1180858Z9	1181868Z9	HBDPUE/W 2 03D 0380-066024	3,80	6	24	66	2	●	○
1180859Z9	1181869Z9	HBDPUE/W 2 03D 0390-066024	3,90	6	24	66	2	●	○
1180860Z9	1181870Z9	HBDPUE/W 2 03D 0400-066024	4,00	6	24	66	2	●	●
1180861Z9	1181871Z9	HBDPUE/W 2 03D 0410-066024	4,10	6	24	66	2	●	●
1180862Z9	1181872Z9	HBDPUE/W 2 03D 0420-066024	4,20	6	24	66	2	●	●
1180863Z9	1181873Z9	HBDPUE/W 2 03D 0430-066024	4,30	6	24	66	2	●	●
1180864Z9	1181874Z9	HBDPUE/W 2 03D 0440-066024	4,40	6	24	66	2	●	●
1180865Z9	1181875Z9	HBDPUE/W 2 03D 0450-066024	4,50	6	24	66	2	●	○
1180866Z9	1181876Z9	HBDPUE/W 2 03D 0460-066024	4,60	6	24	66	2	●	○
1181792Z9	1181877Z9	HBDPUE/W 2 03D 0465-066024	4,65	6	24	66	2	○	●
1180867Z9	1181878Z9	HBDPUE/W 2 03D 0470-066024	4,70	6	24	66	2	●	○
1180868Z9	1181879Z9	HBDPUE/W 2 03D 0480-066028	4,80	6	28	66	2	●	●
1180869Z9	1181880Z9	HBDPUE/W 2 03D 0490-066028	4,90	6	28	66	2	●	●
1180870Z9	1181881Z9	HBDPUE/W 2 03D 0500-066028	5,00	6	28	66	2	●	○
1180871Z9	1181882Z9	HBDPUE/W 2 03D 0510-066028	5,10	6	28	66	2	●	●
1180872Z9	1181883Z9	HBDPUE/W 2 03D 0520-066028	5,20	6	28	66	2	●	○
1180873Z9	1181884Z9	HBDPUE/W 2 03D 0530-066028	5,30	6	28	66	2	●	○

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

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HBDPUE/W 2 03D

Solid carbide drills | Brocas de metal duro | Brocas en metal duro

Order code		Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)				NOF	Stock PHU920	
HA (Cylindrical)	HB (Weldon)		DC	DCONMS	LCF	OAL		HA	HB
1180874Z9	1181885Z9	HBDPUE/W 2 03D 0540-066028	5,40	6	28	66	2	●	●
1180875Z9	1181886Z9	HBDPUE/W 2 03D 0550-066028	5,50	6	28	66	2	●	○
1181794Z9	1181887Z9	HBDPUE/W 2 03D 0555-066028	5,55	6	28	66	2	●	●
1180791Z9	1181888Z9	HBDPUE/W 2 03D 0560-066028	5,60	6	28	66	2	●	●
1180876Z9	1181889Z9	HBDPUE/W 2 03D 0570-066028	5,70	6	28	66	2	●	●
1180877Z9	1181890Z9	HBDPUE/W 2 03D 0580-066028	5,80	6	28	66	2	●	●
1180878Z9	1181891Z9	HBDPUE/W 2 03D 0590-066028	5,90	6	28	66	2	●	○
1180879Z9	1181892Z9	HBDPUE/W 2 03D 0600-066028	6,00	6	28	66	2	●	●
1180880Z9	1181893Z9	HBDPUE/W 2 03D 0610-079034	6,10	8	34	79	2	●	●
1180881Z9	1181894Z9	HBDPUE/W 2 03D 0620-079034	6,20	8	34	79	2	●	○
1180882Z9	1181895Z9	HBDPUE/W 2 03D 0630-079034	6,30	8	34	79	2	●	○
1180883Z9	1181896Z9	HBDPUE/W 2 03D 0640-079034	6,40	8	34	79	2	●	○
1180884Z9	1181897Z9	HBDPUE/W 2 03D 0650-079034	6,50	8	34	79	2	●	●
1180885Z9	1181898Z9	HBDPUE/W 2 03D 0660-079034	6,60	8	34	79	2	●	○
1180886Z9	1181899Z9	HBDPUE/W 2 03D 0670-079034	6,70	8	34	79	2	●	●
1180887Z9	1181900Z9	HBDPUE/W 2 03D 0680-079034	6,80	8	34	79	2	●	○
1180888Z9	1181901Z9	HBDPUE/W 2 03D 0690-079034	6,90	8	34	79	2	●	○
1180889Z9	1181902Z9	HBDPUE/W 2 03D 0700-079034	7,00	8	34	79	2	●	●
1180890Z9	1181903Z9	HBDPUE/W 2 03D 0710-079041	7,10	8	41	79	2	●	○
1180891Z9	1181904Z9	HBDPUE/W 2 03D 0720-079041	7,20	8	41	79	2	●	●
1180892Z9	1181905Z9	HBDPUE/W 2 03D 0730-079041	7,30	8	41	79	2	●	●
1180893Z9	1181906Z9	HBDPUE/W 2 03D 0740-079041	7,40	8	41	79	2	●	○
1180894Z9	1181907Z9	HBDPUE/W 2 03D 0750-079041	7,50	8	41	79	2	●	○
1180895Z9	1181908Z9	HBDPUE/W 2 03D 0760-079041	7,60	8	41	79	2	●	○
1180896Z9	1181909Z9	HBDPUE/W 2 03D 0770-079041	7,70	8	41	79	2	●	●
1180897Z9	1181910Z9	HBDPUE/W 2 03D 0780-079041	7,80	8	41	79	2	●	●
1180898Z9	1181911Z9	HBDPUE/W 2 03D 0790-079041	7,90	8	41	79	2	●	●
1180899Z9	1181912Z9	HBDPUE/W 2 03D 0800-079041	8,00	8	41	79	2	●	●
1180900Z9	1181913Z9	HBDPUE/W 2 03D 0810-089047	8,10	10	47	89	2	●	●
1180901Z9	1181914Z9	HBDPUE/W 2 03D 0820-089047	8,20	10	47	89	2	●	○
1180902Z9	1181915Z9	HBDPUE/W 2 03D 0830-089047	8,30	10	47	89	2	●	○
1180903Z9	1181916Z9	HBDPUE/W 2 03D 0840-089047	8,40	10	47	89	2	●	●
1180904Z9	1181917Z9	HBDPUE/W 2 03D 0850-089047	8,50	10	47	89	2	●	○
1180905Z9	1181918Z9	HBDPUE/W 2 03D 0860-089047	8,60	10	47	89	2	●	●
1180906Z9	1181919Z9	HBDPUE/W 2 03D 0870-089047	8,70	10	47	89	2	●	○
1180907Z9	1181920Z9	HBDPUE/W 2 03D 0880-089047	8,80	10	47	89	2	●	○
1180908Z9	1181921Z9	HBDPUE/W 2 03D 0890-089047	8,90	10	47	89	2	○	●
1180909Z9	1181922Z9	HBDPUE/W 2 03D 0900-089047	9,00	10	47	89	2	●	●
1180910Z9	1181923Z9	HBDPUE/W 2 03D 0910-089047	9,10	10	47	89	2	●	○
1180911Z9	1181924Z9	HBDPUE/W 2 03D 0920-089047	9,20	10	47	89	2	●	●
1180912Z9	1181925Z9	HBDPUE/W 2 03D 0930-089047	9,30	10	47	89	2	●	●
1180913Z9	1181926Z9	HBDPUE/W 2 03D 0940-089047	9,40	10	47	89	2	●	●
1180914Z9	1181927Z9	HBDPUE/W 2 03D 0950-089047	9,50	10	47	89	2	●	○
1180915Z9	1181928Z9	HBDPUE/W 2 03D 0960-089047	9,60	10	47	89	2	●	●
1180916Z9	1181929Z9	HBDPUE/W 2 03D 0970-089047	9,70	10	47	89	2	●	●
1180917Z9	1181930Z9	HBDPUE/W 2 03D 0980-089047	9,80	10	47	89	2	●	●
1180918Z9	1181931Z9	HBDPUE/W 2 03D 0990-089047	9,90	10	47	89	2	●	○
1180919Z9	1181932Z9	HBDPUE/W 2 03D 1000-089047	10,00	10	47	89	2	●	●

● Stock item | Produto de stock | Itens de stock

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

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HBDPUE/W 2 03D

Solid carbide drills | Brocas de metal duro | Brocas en metal duro

Order code		Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)				NOF	Stock PHU920	
HA (Cylindrical)	HB (Weldon)		DC	DCONMS	LCF	OAL		HA	HB
1180920Z9	-	HBDPUE/W 2 03D 1010-102055	10,10	12	55	102	2	◉	-
1180921Z9	1181933Z9	HBDPUE/W 2 03D 1020-102055	10,20	12	55	102	2	◉	◉
1180922Z9	1181934Z9	HBDPUE/W 2 03D 1030-102055	10,30	12	55	102	2	◉	○
1180923Z9	-	HBDPUE/W 2 03D 1040-102055	10,40	12	55	102	2	◉	-
1180924Z9	1181935Z9	HBDPUE/W 2 03D 1050-102055	10,50	12	55	102	2	◉	◉
1180925Z9	-	HBDPUE/W 2 03D 1060-102055	10,60	12	55	102	2	○	-
1180926Z9	-	HBDPUE/W 2 03D 1070-102055	10,70	12	55	102	2	○	-
1180927Z9	1181936Z9	HBDPUE/W 2 03D 1080-102055	10,80	12	55	102	2	◉	◉
1180928Z9	-	HBDPUE/W 2 03D 1090-102055	10,90	12	55	102	2	○	-
1180929Z9	1181937Z9	HBDPUE/W 2 03D 1100-102055	11,00	12	55	102	2	◉	◉
1180930Z9	-	HBDPUE/W 2 03D 1110-102055	11,10	12	55	102	2	◉	-
1180931Z9	1181938Z9	HBDPUE/W 2 03D 1120-102055	11,20	12	55	102	2	◉	◉
1180932Z9	-	HBDPUE/W 2 03D 1130-102055	11,30	12	55	102	2	○	-
1180933Z9	-	HBDPUE/W 2 03D 1140-102055	11,40	12	55	102	2	○	-
1180934Z9	1181939Z9	HBDPUE/W 2 03D 1150-102055	11,50	12	55	102	2	◉	◉
1180935Z9	-	HBDPUE/W 2 03D 1160-102055	11,60	12	55	102	2	○	-
1180936Z9	-	HBDPUE/W 2 03D 1170-102055	11,70	12	55	102	2	○	-
1180937Z9	1181940Z9	HBDPUE/W 2 03D 1180-102055	11,80	12	55	102	2	◉	◉
1180938Z9	-	HBDPUE/W 2 03D 1190-102055	11,90	12	55	102	2	◉	-
1180939Z9	1181941Z9	HBDPUE/W 2 03D 1200-102055	12,00	12	55	102	2	◉	◉
1180940Z9	1181942Z9	HBDPUE/W 2 03D 1250-107060	12,50	14	60	107	2	◉	○
1181769Z9	1181943Z9	HBDPUE/W 2 03D 1280-107060	12,80	14	60	107	2	◉	◉
1180941Z9	1181944Z9	HBDPUE/W 2 03D 1300-107060	13,00	14	60	107	2	◉	◉
1182437Z9	-	HBDPUE/W 2 03D 1310-107060	13,10	14	60	107	2	○	-
1182400Z9	1182401Z9	HBDPUE/W 2 03D 1320-107060	13,20	14	60	107	2	◉	○
1180942Z9	1181945Z9	HBDPUE/W 2 03D 1350-107060	13,50	14	60	107	2	◉	○
1181771Z9	1181946Z9	HBDPUE/W 2 03D 1380-107060	13,80	14	60	107	2	◉	◉
1180943Z9	1181947Z9	HBDPUE/W 2 03D 1400-107060	14,00	14	60	107	2	◉	◉
1181773Z9	1181948Z9	HBDPUE/W 2 03D 1420-115065	14,20	16	65	115	2	◉	◉
1180944Z9	1181949Z9	HBDPUE/W 2 03D 1450-115065	14,50	16	65	115	2	◉	○
1181775Z9	1181950Z9	HBDPUE/W 2 03D 1480-115065	14,80	16	65	115	2	◉	◉
1180945Z9	1181951Z9	HBDPUE/W 2 03D 1500-115065	15,00	16	65	115	2	◉	○
1180946Z9	1181952Z9	HBDPUE/W 2 03D 1550-115065	15,50	16	65	115	2	◉	◉
1181777Z9	1181953Z9	HBDPUE/W 2 03D 1580-115065	15,80	16	65	115	2	◉	◉
1180947Z9	1181954Z9	HBDPUE/W 2 03D 1600-115065	16,00	16	65	115	2	◉	◉
1180948Z9	1181955Z9	HBDPUE/W 2 03D 1650-123073	16,50	18	73	123	2	◉	○
1180949Z9	1181956Z9	HBDPUE/W 2 03D 1700-123073	17,00	18	73	123	2	◉	◉
1180950Z9	1181957Z9	HBDPUE/W 2 03D 1750-123073	17,50	18	73	123	2	◉	○
1180951Z9	1181958Z9	HBDPUE/W 2 03D 1800-123073	18,00	18	73	123	2	◉	◉
1180952Z9	1181959Z9	HBDPUE/W 2 03D 1850-131079	18,50	20	79	131	2	◉	◉
1180953Z9	1181960Z9	HBDPUE/W 2 03D 1900-131079	19,00	20	79	131	2	◉	◉
1180954Z9	1181961Z9	HBDPUE/W 2 03D 1950-131079	19,50	20	79	131	2	◉	◉
1180955Z9	1181962Z9	HBDPUE/W 2 03D 2000-131079	20,00	20	79	131	2	◉	◉

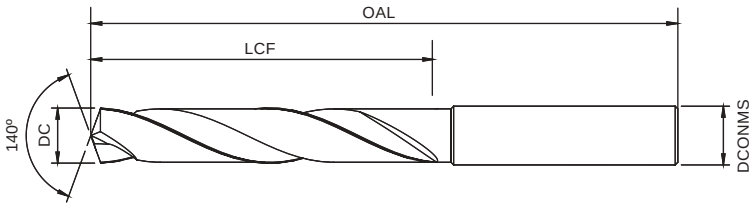
◉ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

HBDPUE/W 2 05D Solid carbide drills | Brocas de metal duro | Brocas en metal duro

P K

HRC ≤ 60

IT8~9 IT class



Drill Dia. DC	DC3,0	3,0<DC≤6,0	6,0<DC≤10,0	10,0<DC≤18,0	18,0<DC≤20,0
Hole Tolerances	+0,002	+0,004	+0,006	+0,007	+0,008
	+0,012	+0,016	+0,021	+0,025	+0,028

Order code		Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)				NOF	Stock PHU920	
HA (Cylindrical)	HB (Weldon)		DC	DCONMS	LCF	OAL		HA	HB
118079Z9	-	HBDPUE/W 2 05D 0300-066028	3,00	6	28	66	2	◎	-
118079Z9	-	HBDPUE/W 2 05D 0310-066028	3,10	6	28	66	2	◎	-
118106Z9	-	HBDPUE/W 2 05D 0320-066028	3,20	6	28	66	2	◎	-
118106Z9	-	HBDPUE/W 2 05D 0330-066028	3,30	6	28	66	2	◎	-
118078Z9	-	HBDPUE/W 2 05D 0340-066028	3,40	6	28	66	2	◎	-
118106Z9	-	HBDPUE/W 2 05D 0350-066028	3,50	6	28	66	2	○	-
118106Z9	-	HBDPUE/W 2 05D 0360-066028	3,60	6	28	66	2	○	-
118106Z9	-	HBDPUE/W 2 05D 0370-066028	3,70	6	28	66	2	○	-
118106Z9	-	HBDPUE/W 2 05D 0380-074036	3,80	6	36	74	2	◎	-
118079Z9	-	HBDPUE/W 2 05D 0390-074036	3,90	6	36	74	2	○	-
118106Z9	-	HBDPUE/W 2 05D 0400-074036	4,00	6	36	74	2	◎	-
118106Z9	-	HBDPUE/W 2 05D 0410-074036	4,10	6	36	74	2	◎	-
118078Z9	-	HBDPUE/W 2 05D 0420-074036	4,20	6	36	74	2	◎	-
118107Z9	-	HBDPUE/W 2 05D 0430-074036	4,30	6	36	74	2	◎	-
118107Z9	-	HBDPUE/W 2 05D 0440-074036	4,40	6	36	74	2	○	-
118107Z9	-	HBDPUE/W 2 05D 0450-074036	4,50	6	36	74	2	◎	-
118107Z9	-	HBDPUE/W 2 05D 0460-074036	4,60	6	36	74	2	○	-
118153Z9	-	HBDPUE/W 2 05D 0465-074036	4,65	6	36	74	2	○	-
118078Z9	-	HBDPUE/W 2 05D 0470-074036	4,70	6	36	74	2	◎	-
118107Z9	-	HBDPUE/W 2 05D 0480-082044	4,80	6	44	82	2	◎	-
118107Z9	-	HBDPUE/W 2 05D 0490-082044	4,90	6	44	82	2	○	-
118078Z9	-	HBDPUE/W 2 05D 0500-082044	5,00	6	44	82	2	◎	-
118107Z9	-	HBDPUE/W 2 05D 0510-082044	5,10	6	44	82	2	◎	-
118107Z9	-	HBDPUE/W 2 05D 0520-082044	5,20	6	44	82	2	◎	-
118107Z9	-	HBDPUE/W 2 05D 0530-082044	5,30	6	44	82	2	○	-
118107Z9	-	HBDPUE/W 2 05D 0540-082044	5,40	6	44	82	2	○	-

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

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HBDPUE/W 2 05D

Solid carbide drills | Brocas de metal duro | Brocas en metal duro

Order code		Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)				NOF	Stock PHU920	
HA (Cylindrical)	HB (Weldon)		DC	DCONMS	LCF	OAL		HA	HB
1181080Z9	-	HBDPUE/W 2 05D 0550-082044	5,50	6	44	82	2	○	-
1181081Z9	-	HBDPUE/W 2 05D 0560-082044	5,60	6	44	82	2	◎	-
1181082Z9	-	HBDPUE/W 2 05D 0570-082044	5,70	6	44	82	2	○	-
1181083Z9	-	HBDPUE/W 2 05D 0580-082044	5,80	6	44	82	2	◎	-
1181084Z9	-	HBDPUE/W 2 05D 0590-082044	5,90	6	44	82	2	○	-
1181085Z9	-	HBDPUE/W 2 05D 0600-082044	6,00	6	44	82	2	◎	-
1181086Z9	-	HBDPUE/W 2 05D 0610-091053	6,10	8	53	91	2	○	-
1181087Z9	-	HBDPUE/W 2 05D 0620-091053	6,20	8	53	91	2	○	-
1181088Z9	-	HBDPUE/W 2 05D 0630-091053	6,30	8	53	91	2	○	-
1181089Z9	-	HBDPUE/W 2 05D 0640-091053	6,40	8	53	91	2	◎	-
1181090Z9	-	HBDPUE/W 2 05D 0650-091053	6,50	8	53	91	2	◎	-
1181091Z9	-	HBDPUE/W 2 05D 0660-091053	6,60	8	53	91	2	○	-
1181092Z9	-	HBDPUE/W 2 05D 0670-091053	6,70	8	53	91	2	○	-
1180781Z9	-	HBDPUE/W 2 05D 0680-091053	6,80	8	53	91	2	◎	-
1181093Z9	-	HBDPUE/W 2 05D 0690-091053	6,90	8	53	91	2	◎	-
1181094Z9	-	HBDPUE/W 2 05D 0700-091053	7,00	8	53	91	2	◎	-
1181095Z9	-	HBDPUE/W 2 05D 0710-091053	7,10	8	53	91	2	○	-
1181096Z9	-	HBDPUE/W 2 05D 0720-091053	7,20	8	53	91	2	◎	-
1181097Z9	-	HBDPUE/W 2 05D 0730-091053	7,30	8	53	91	2	○	-
1181098Z9	-	HBDPUE/W 2 05D 0740-091053	7,40	8	53	91	2	○	-
1181099Z9	-	HBDPUE/W 2 05D 0750-091053	7,50	8	53	91	2	○	-
1181100Z9	-	HBDPUE/W 2 05D 0760-091053	7,60	8	53	91	2	○	-
1181101Z9	-	HBDPUE/W 2 05D 0770-091053	7,70	8	53	91	2	○	-
1181102Z9	-	HBDPUE/W 2 05D 0780-091053	7,80	8	53	91	2	◎	-
1181103Z9	-	HBDPUE/W 2 05D 0790-091053	7,90	8	53	91	2	○	-
1181104Z9	-	HBDPUE/W 2 05D 0800-091053	8,00	8	53	91	2	○	-
1181105Z9	-	HBDPUE/W 2 05D 0810-103061	8,10	10	61	103	2	○	-
1181106Z9	-	HBDPUE/W 2 05D 0820-103061	8,20	10	61	103	2	○	-
1181107Z9	-	HBDPUE/W 2 05D 0830-103061	8,30	10	61	103	2	◎	-
1181108Z9	-	HBDPUE/W 2 05D 0840-103061	8,40	10	61	103	2	○	-
1181109Z9	-	HBDPUE/W 2 05D 0850-103061	8,50	10	61	103	2	◎	-
1181110Z9	-	HBDPUE/W 2 05D 0860-103061	8,60	10	61	103	2	○	-
1181111Z9	-	HBDPUE/W 2 05D 0870-103061	8,70	10	61	103	2	○	-
1181112Z9	-	HBDPUE/W 2 05D 0880-103061	8,80	10	61	103	2	○	-
1181113Z9	-	HBDPUE/W 2 05D 0890-103061	8,90	10	61	103	2	○	-
1181114Z9	-	HBDPUE/W 2 05D 0900-103061	9,00	10	61	103	2	◎	-
1181115Z9	-	HBDPUE/W 2 05D 0910-103061	9,10	10	61	103	2	○	-
1181116Z9	-	HBDPUE/W 2 05D 0920-103061	9,20	10	61	103	2	○	-
1181117Z9	-	HBDPUE/W 2 05D 0930-103061	9,30	10	61	103	2	○	-
1181118Z9	-	HBDPUE/W 2 05D 0940-103061	9,40	10	61	103	2	○	-
1181119Z9	-	HBDPUE/W 2 05D 0950-103061	9,50	10	61	103	2	◎	-
1181120Z9	-	HBDPUE/W 2 05D 0960-103061	9,60	10	61	103	2	○	-
1181121Z9	-	HBDPUE/W 2 05D 0970-103061	9,70	10	61	103	2	○	-
1181122Z9	-	HBDPUE/W 2 05D 0980-103061	9,80	10	61	103	2	◎	-
1181123Z9	-	HBDPUE/W 2 05D 0990-103061	9,90	10	61	103	2	○	-
1181124Z9	-	HBDPUE/W 2 05D 1000-103061	10,00	10	61	103	2	○	-
1181125Z9	-	HBDPUE/W 2 05D 1010-118071	10,10	12	71	118	2	○	-
1181126Z9	-	HBDPUE/W 2 05D 1020-118071	10,20	12	71	118	2	◎	-

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

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HBDPUE/W 2 05D

Solid carbide drills | Brocas de metal duro | Brocas en metal duro

Order code		Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)				NOF	Stock PHU920	
HA (Cylindrical)	HB (Weldon)		DC	DCONMS	LCF	OAL		HA	HB
1181127Z9	-	HBDPUE/W 2 05D 1030-118071	10,30	12	71	118	2	○	-
1181128Z9	-	HBDPUE/W 2 05D 1040-118071	10,40	12	71	118	2	○	-
1180796Z9	-	HBDPUE/W 2 05D 1050-118071	10,50	12	71	118	2	◎	-
1181129Z9	-	HBDPUE/W 2 05D 1060-118071	10,60	12	71	118	2	○	-
1181130Z9	-	HBDPUE/W 2 05D 1070-118071	10,70	12	71	118	2	○	-
1181131Z9	-	HBDPUE/W 2 05D 1080-118071	10,80	12	71	118	2	○	-
1181132Z9	-	HBDPUE/W 2 05D 1090-118071	10,90	12	71	118	2	○	-
1181133Z9	-	HBDPUE/W 2 05D 1100-118071	11,00	12	71	118	2	◎	-
1181134Z9	-	HBDPUE/W 2 05D 1110-118071	11,10	12	71	118	2	○	-
1181135Z9	-	HBDPUE/W 2 05D 1120-118071	11,20	12	71	118	2	○	-
1181136Z9	-	HBDPUE/W 2 05D 1130-118071	11,30	12	71	118	2	○	-
1181137Z9	-	HBDPUE/W 2 05D 1140-118071	11,40	12	71	118	2	○	-
1181138Z9	-	HBDPUE/W 2 05D 1150-118071	11,50	12	71	118	2	◎	-
1181139Z9	-	HBDPUE/W 2 05D 1160-118071	11,60	12	71	118	2	○	-
1181140Z9	-	HBDPUE/W 2 05D 1170-118071	11,70	12	71	118	2	○	-
1181141Z9	-	HBDPUE/W 2 05D 1180-118071	11,80	12	71	118	2	○	-
1181142Z9	-	HBDPUE/W 2 05D 1190-118071	11,90	12	71	118	2	○	-
1181143Z9	-	HBDPUE/W 2 05D 1200-118071	12,00	12	71	118	2	◎	-
1181144Z9	-	HBDPUE/W 2 05D 1250-124077	12,50	14	77	124	2	○	-
1181145Z9	-	HBDPUE/W 2 05D 1300-124077	13,00	14	77	124	2	◎	-
1181146Z9	-	HBDPUE/W 2 05D 1350-124077	13,50	14	77	124	2	○	-
1181147Z9	-	HBDPUE/W 2 05D 1400-124077	14,00	14	77	124	2	◎	-
1181148Z9	-	HBDPUE/W 2 05D 1450-133083	14,50	16	83	133	2	◎	-
1181149Z9	-	HBDPUE/W 2 05D 1500-133083	15,00	16	83	133	2	○	-
1181150Z9	-	HBDPUE/W 2 05D 1550-133083	15,50	16	83	133	2	○	-
1181151Z9	-	HBDPUE/W 2 05D 1600-133083	16,00	16	83	133	2	○	-
1181152Z9	-	HBDPUE/W 2 05D 1650-143093	16,50	18	93	143	2	○	-
1181153Z9	-	HBDPUE/W 2 05D 1700-143093	17,00	18	93	143	2	○	-
1181154Z9	-	HBDPUE/W 2 05D 1750-143093	17,50	18	93	143	2	○	-
1181155Z9	-	HBDPUE/W 2 05D 1800-143093	18,00	18	93	143	2	○	-
1181156Z9	-	HBDPUE/W 2 05D 1850-153101	18,50	20	101	153	2	○	-
1181157Z9	-	HBDPUE/W 2 05D 1900-153101	19,00	20	101	153	2	○	-
1181158Z9	-	HBDPUE/W 2 05D 1950-153101	19,50	20	101	153	2	○	-
1181159Z9	-	HBDPUE/W 2 05D 2000-153101	20,00	20	101	153	2	○	-

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

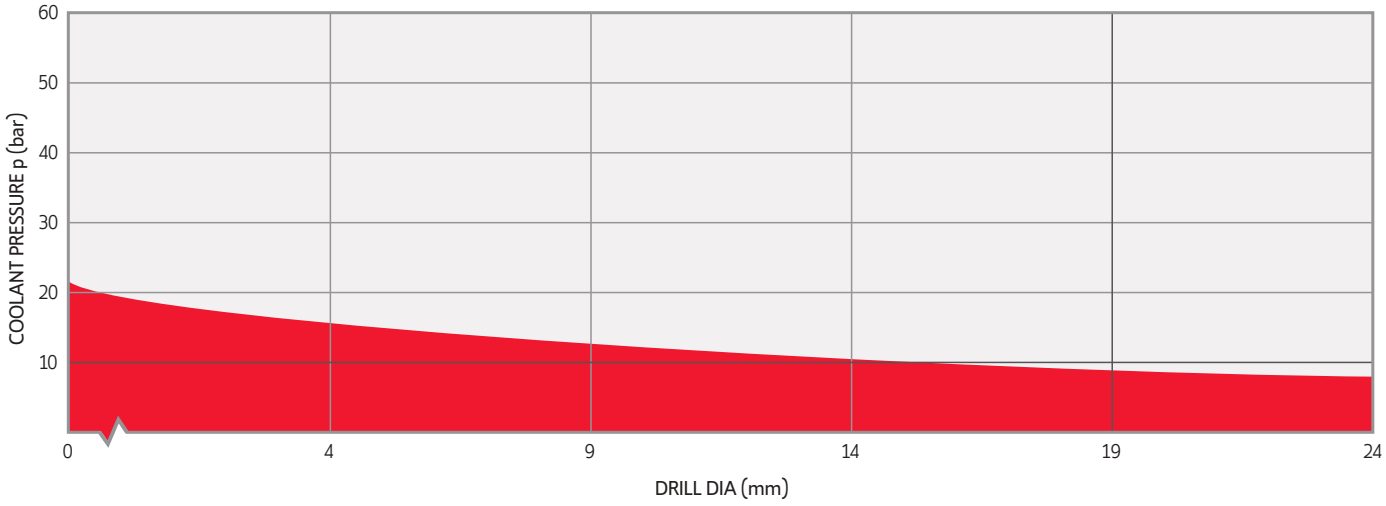
SOLID CARBIDE DRILLS CUTTING PARAMETERS AND ADJUSTMENTS

Parâmetros de corte e ajustes | Condiciones de corte y ajustes

RECOMMENDED SPEEDS AND FEEDS

ISO	Material Group Grupo Materiais Grupo Materiales	Vc (m/min)	f (mm/rev)			
			Ø3~8mm	Ø8~12mm	Ø12~16mm	Ø16~20mm
P	Unalloyed steel (-0,25%)	80-100	0,10-0,20	0,15-0,25	0,20-0,40	0,25-0,50
	Low-alloy steel (0,25%-)	70-100	0,10-0,20	0,20-0,30	0,20-0,35	0,25-0,40
	High-alloy steel	40-70	0,08-0,15	0,12-0,22	0,20-0,40	0,25-0,40
M	Stainless steel	35-50	0,08-0,15	0,12-0,25	0,15-0,30	0,20-0,35
K	Maleable cast iron	70-100	0,10-0,30	0,20-0,40	0,25-0,40	0,25-0,50
	Grey cast iron	70-100	0,10-0,25	0,20-0,35	0,30-0,45	0,35-0,55

COOLANT APPLICATION CHART

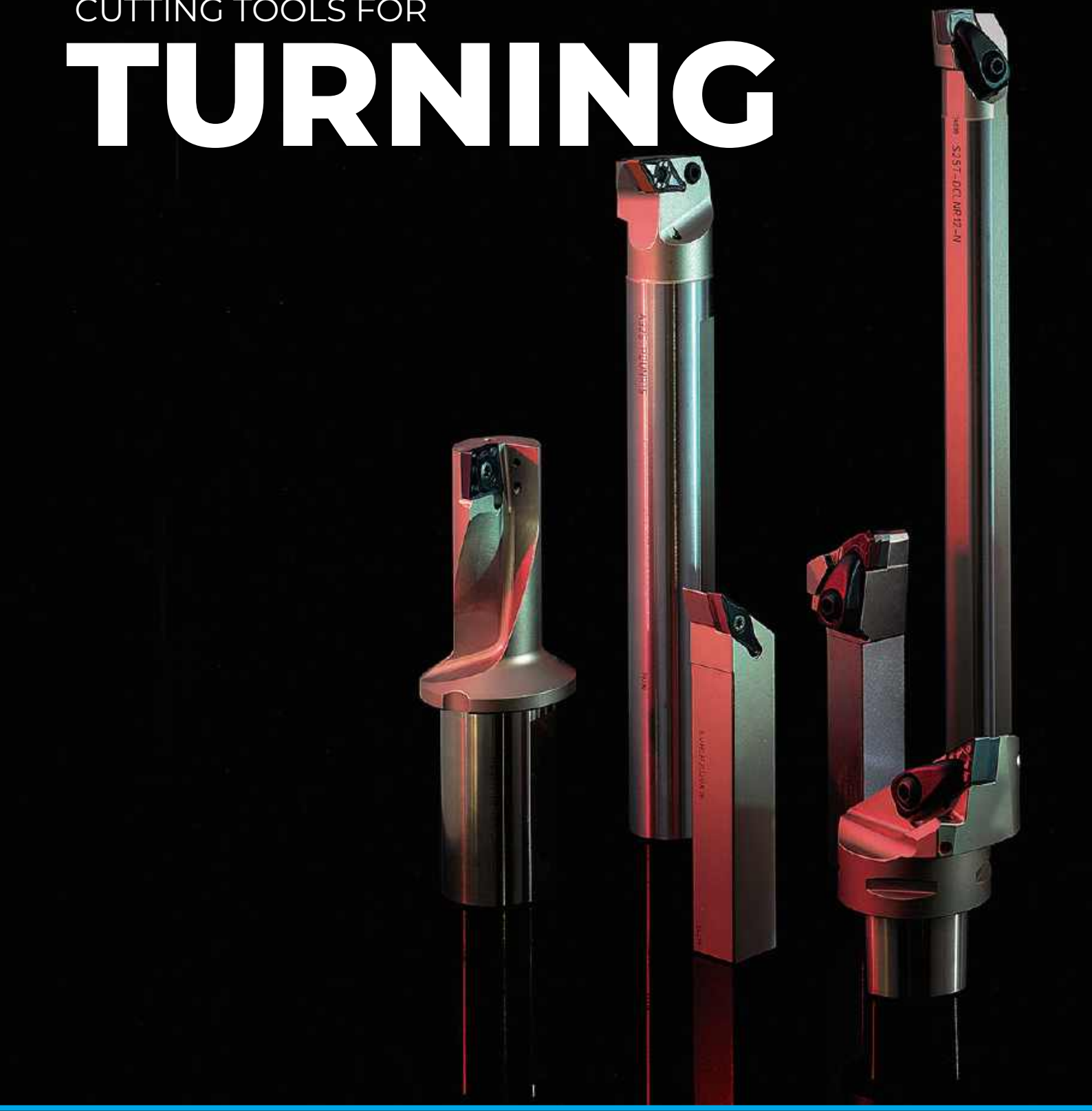


LOOKING FOR MORE TROUBLESHOOTING?

Check the qrcode for more information

CUTTING TOOLS FOR

TURNING



C

C - TURNING

C - 474 | **NEW** Phoenix Shield

C - 476 | DOMX® HRSA turning

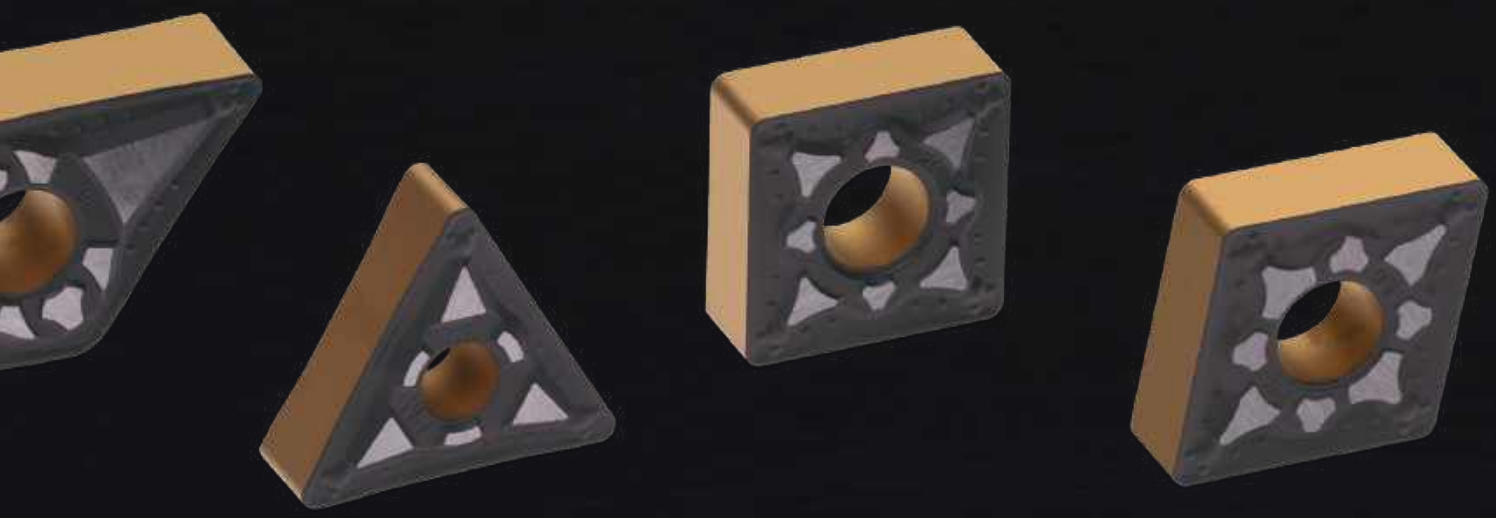
C - 482 | **NEW** All-in-one Multicut

C - 488 | Turning overview

C - 490 | ISO turning inserts code key

C - 500 | Inserts overview

C - 504 | Negative turning inserts
C - 542 | Positive turning inserts
C - 576 | PCBN inserts
C - 600 | PCD inserts
C - 622 | Heavy turning inserts
C - 646 | External Toolholders
C - 754 | Internal Toolholders
C - 832 | Automatic Lathes
C - 846 | Spare Parts
C - 856 | Technical Data



Why
Phoenix Shield

Palbit's Phoenix Shield series offers you cutting edge performance across the board in every steel turning operation.

PH2G grade series is an innovative combination of a highly dense and hard nanostructured coating base material, including new Al_2O_3 layer with improved wear resistance which provides superior performance during high-speed turning operations.

This new grade series features nanolayer optimization and cutting edge stability, achieved with pre- and post-coating process technologies, designed to improve adhesion between layers and fine-tune tensile stress within coating.

Despite the high wear resistance, the new grades also display enhanced performance on chipping prevention throughout instabilities. This greatly boosts strength, wear and heat resistance as well as tool life when compared to the previous generation coating.

The ultimate goal is machining process optimization, in order to address market demand for greater efficiency and higher cutting speeds. In addition, the increased use of high-strength materials in automotive components also demands for cutting tools with greater wear resistance.

Longer lasting and more reliable, the new Phoenix Shield series are sure to give you a step up in productivity and process security.

Unleash the power of your turning operations with **Phoenix**

WEBSITE PAGE

BROCHURE DOWNLOAD

TECHNICAL VIDEO

HRSA TURNING

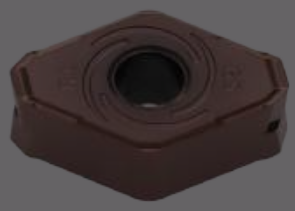
DOMX

Designed specifically for the turning of HRSA, the DOMX insert offers exceptional performance when working with these difficult to machine materials. This novel geometry, combined with the advanced PHH coating, is sure to improve your productivity even in the toughest of challenges.

Desenvolvido especificamente para a maquinação de HRSA, a pastilha DOMX oferece um desempenho excepcional ao trabalhar com estes materiais de difícil maquinação. Esta geometria inovadora, combinada com o revestimento avançado PHH, certamente irá melhorar a sua produtividade mesmo nos desafios mais difíceis.

Diseñado específicamente para el torneado de HRSA, el plaquita DOMX ofrece un rendimiento excepcional al trabajar con estos materiales difíciles de mecanizar. Esta geometría novedosa, combinada con el avanzado recubrimiento PHH, seguramente mejorará su productividad incluso en los desafíos más difíciles.

DOMX 1506 > page 479



- Available in size 15 and right or left
  Disponível no tamanho 15 e para mãos direita ou esquerda | Disponible en talla 15 y para manos derecha o izquierda.
- Available in PHH910 and PHH920
  Disponivel nos graus PHH910 e PHH920 |Disponible en las calidades PHH910 y PHH920
- First choice for HRSA medium to rough turning
  Primeira escolha para torneamento médio a desbaste de superligas | Primera elección para torneado medio a desbaste de superaleaciones

A - DDJN-DX1 45° > page 480

- External toolholder with internal coolant
  Suporte de torneamento externo com refrigeração interna | Porta-herramienta de torneado externo con refrigeración interna
- With length from 125 mm to 170 mm
  Com comprimento de 125 mm até 170 mm | Con longitud de 125 mm hasta 170 mm

PSC-DDJN-DX1 45° > page 481

- PSC toolholder with internal coolant
  Suporte PSC com refrigeração interna | Porta-herramienta PSC con refrigeración interna
- With PSC size from 40 mm to 80 mm
  Com tamanho de PSC de 40 mm até 80 mm | Con talla de PSC de 40 mm hasta 80 mm

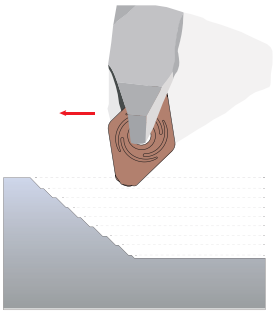
DOMX® - the revolution in HRSA medium to rough turning

Proprietary turning line

Designed especially for HRSA, the DOMX® combined with PHH technology, offers exceptional performance in exotic materials machining. When your material has high Ni or Co content DOMX® is the choice!

- First choice for HRSA medium to rough turning;
- **4 positive cutting edges on double sided negative insert.**

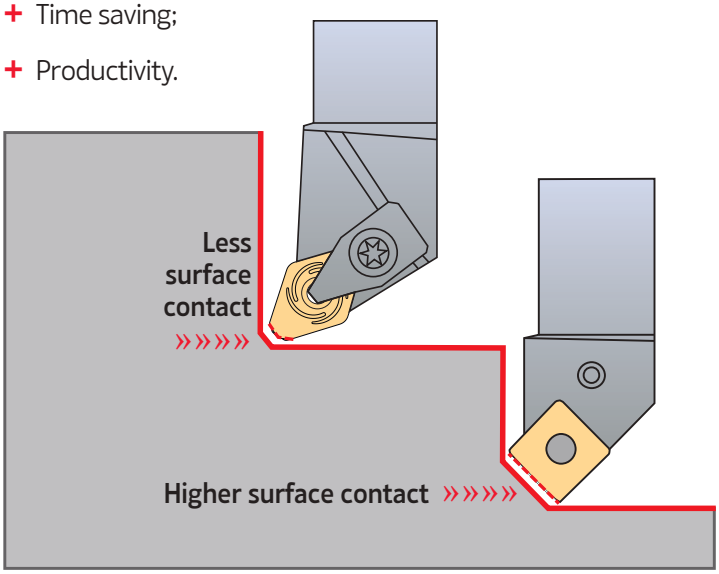
DOMX®



- Machine at 45º with a 93º holder;
- **Up to + 140% tool life improvement.**

DOMX VS SNMG

- Surface contact;
- Heating;
- Vibration;
- Cutting effort;
- \+ Time saving;
- \+ Productivity.



COMERCIAL VIDEO

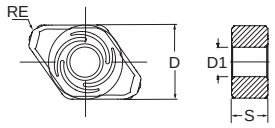
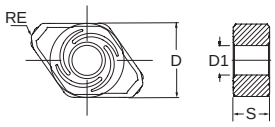
TECHNICAL VIDEO

APPLICATION GUIDE

palbit

INSERTS | Pastilhas | Plaquitas

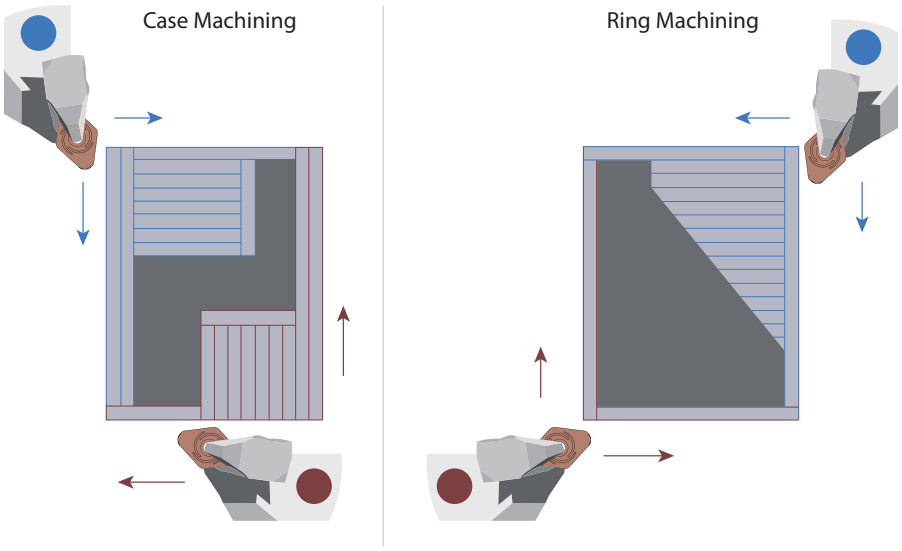
Proprietary turning line

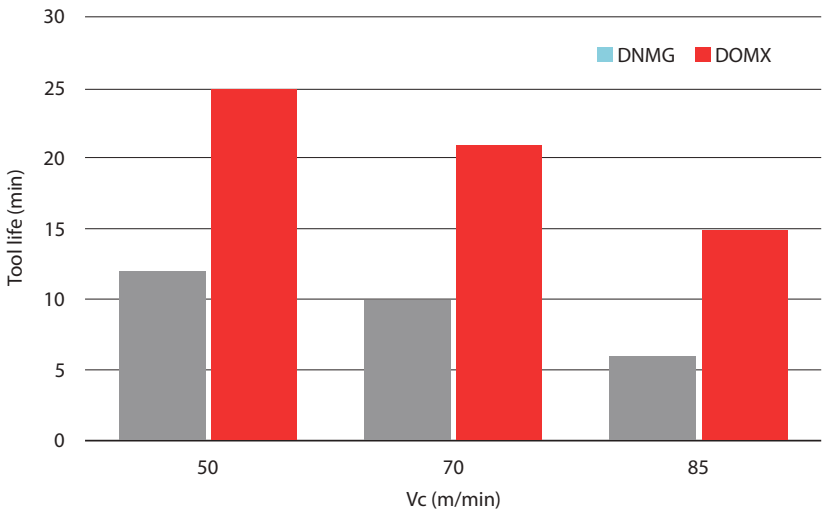
Inserts Pastilhas Plaquitas	(1) Geometry code	(2) Grade code ISO Reference	S PVD X6 PHH910	S PVD Y3 PHH920	Dimensions (mm) Dimensões (mm) Dimensiones (mm) D	S	RE	D1	Cutting Conditions Condições de Corte Condiciones de Corte AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX	Technical drawing Desenho técnico Dibujo técnico
DOMX-GS	1124595	DOMX 1506R1-GS	●	◎	12,70	6,35	0,80	5,16	1,50	0,30	1,50	0,30	0,20	0,50	
DOMX-GS	1124493	DOMX 1506L1-GS	●	◎	12,70	6,35	0,80	5,16	1,50	0,30	1,50	0,30	0,20	0,50	

● First choice | 1ª Escolha | 1ª Opción ◎ Stock Itens | Itens de stock

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

DOMX® can be used in several types of turning operations, from facing, external/internal turning to case and ring machining as seen in the examples below:





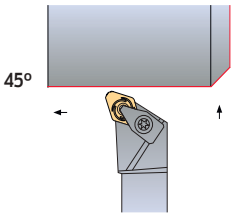
Tool life test – Inconel 625, AP 1,5mm, FN 0.15mm/r

A - DDJN-DX1 45° Toolholders

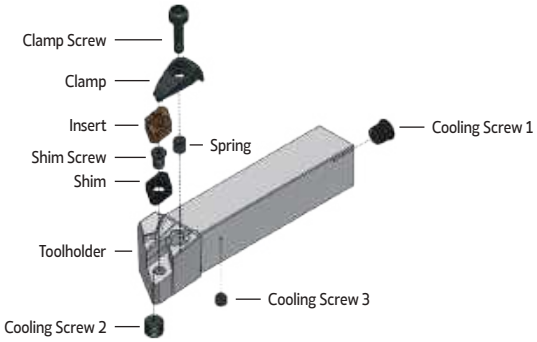
Proprietary turning line

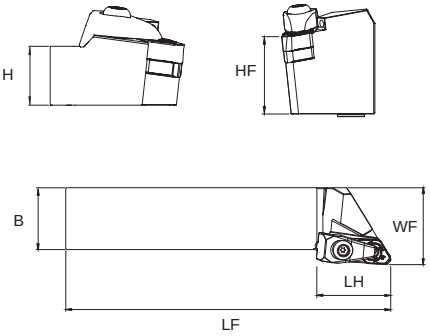
(D) Dimple lock toolholders

Roughing to Heavy Roughing	Roughing to Heavy Roughing
DOMX (L1)	DOMX (R1)
(15)	(15)



Axial: -6,25°
Radial: -6,75°





Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)					Insert Pastilha Inserto	WT	Stock
		HF = H	B	LF	LH	WF			
Right toolholder									
182000900	DDJN R 2020 K15-A-DX1	20	20	125	42	25	DOMX 1506R1	0,40	⛭
182001000	DDJN R 2525 M15-A-DX1	25	25	150	42	32	DOMX 1506R1	0,75	⛭
182001100	DDJN R 3232 P15-A-DX1	32	32	170	42	40	DOMX 1506R1	1,30	⛭
Left toolholder									
182001200	DDJN L 2020 K15-A-DX1	20	20	125	42	25	DOMX 1506L1	0,40	⛭
182001300	DDJN L 2525 M15-A-DX1	25	25	150	42	32	DOMX 1506L1	0,75	⛭
182001400	DDJN L 3232 P15-A-DX1	32	32	170	42	40	DOMX 1506L1	1,30	⛭

⛭ Stock item | Produto de stock | Itens de stock

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

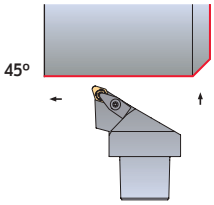
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim R	Shim L	Shim Screw	Spring	Clamp	Clamp Screw	Wrench	Coolant Screw 1	Coolant Screw 2	Coolant Screw 3
DDJN R/L 2020 K15-A-DX1	CD150503	CD150502	T06010000	M09513	GA07002	D0602900	SS40	H0600475	H1000875	T1000875
DDJN R/L 2525 M15-A-DX1	CD150503	CD150502	T06010000	M09513	GA07002	D0602900	SS40	H0600475	H1000875	T1000875
DDJN R/L 3232 P15-A-DX1	CD150503	CD150502	T06010000	M09513	GA07002	D0602900	SS40	-	H1000875	-

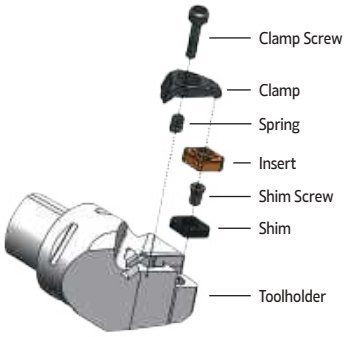
PSC - DDJN-DX1 45° Toolholders

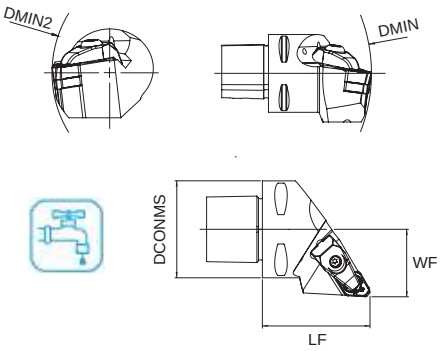
(D) Dimple lock toolholders

Roughing to Heavy Roughing	Roughing to Heavy Roughing
DOMX (L1)	DOMX (R1)
(15)	(15)



Axial: -6°
Radial: -7°





Order code Código	Reference Referência Referencia	Dimensions (mm)					Insert Pastilha Inserto	WT	Stock
		DCONMS	DMIN	DMIN2	WF	LF			
				Right toolholder					
182000100	PSC40-DDJN R 27055-15-DX1	40	110	145	27	55	DOMX 1506R1	0,42	⚙
182000200	PSC50-DDJN R 35060-15-DX1	50	110	165	35	60	DOMX 1506R1	0,80	⚙
182000300	PSC63-DDJN R 45065-15-DX1	63	110	190	45	65	DOMX 1506R1	1,10	⚙
182000400	PSC80-DDJN R 55080-15-DX1	80	110	250	55	80	DOMX 1506R1	2,74	⚙
				Left toolholder					
182000500	PSC40-DDJN L 27055-15-DX1	40	110	145	27	55	DOMX 1506L1	0,42	⚙
182000600	PSC50-DDJN L 35060-15-DX1	50	110	165	35	60	DOMX 1506L1	0,80	⚙
182000700	PSC63-DDJN L 45065-15-DX1	63	110	190	45	65	DOMX 1506L1	1,10	⚙
182000800	PSC80-DDJN L 55080-15-DX1	80	110	250	55	80	DOMX 1506L1	2,74	⚙

⚙ Stock item | Produto de stock | Itens de stock

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

SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim R	Shim L	Shim Screw	Spring	Clamp	Clamp Screw	Wrench
PSC40-DDJNR/L27055-15-DX1	CD150503	CD150502	T06010000	M09513	GA07002	D0602900	SS40
PSC50-DDJNR/L35060-15-DX1	CD150503	CD150502	T06010000	M09513	GA07002	D0602900	SS40
PSC63-DDJNR/L45065-15-DX1	CD150503	CD150502	T06010000	M09513	GA07002	D0602900	SS40
PSC80-DDJNR/L55080-15-DX1	CD150503	CD150502	T06010000	M09513	GA07002	D0602900	SS40

NEW ALL-IN-ONE

MULTICUT

A multipurpose tool designed to enhance productivity and reduce setup times is capable of executing internal, external, and face turning, as well as drilling with either a stationary or rotating tool.

Uma ferramenta multifuncional projetada para aumentar a produtividade e reduzir os tempos de configuração. Capaz de executar torneamento interno, externo e facejamento, e até mesmo furação com uma ferramenta estacionária ou giratória.

Una herramienta multifuncional diseñada para aumentar la productividad y reducir los tiempos de configuración. Capaz de realizar torneado interno, externo y frontal, e incluso perforación con una herramienta estacionaria o giratoria.

NEW XMS-R > page 484

- From DC 8mm to 32mm
  De DC 8mm a 32mm | Desde DC 8mm hasta 32mm
- With length of 2,25xDC
  Com comprimento de 2,25xDC | Con longitud de 2,25 x DC

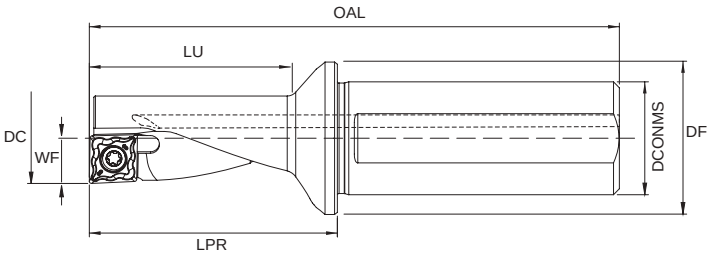
NEW XMS-L > page 484

- From DC 8mm to 32mm
  De DC de 8mm a 32mm | Desde DC 8mm hasta 32mm
- With length of 2,25xDC
  Com comprimento de 2,25xDC | Con longitud de 2,25 x DC

NEW XCMT INSERTS > page 485

- From sizes 04 to 17
  De tamanhos de 04 a 17 | De tamaños de 04 a 17
- Available in grades PH7920 and PHS225
  Disponível nos graus PH7920 e PHS225 | Disponible en las calidades PH7920 y PHS225
- Suitable for machining steels, stainless steels and HRSA
  Adequado para maquinação de aços, aços inoxidáveis e HRSA | Adecuado para el mecanizado de aceros, aceros inoxidables y HRSA

NEW MULTICUT



*Right hand style show

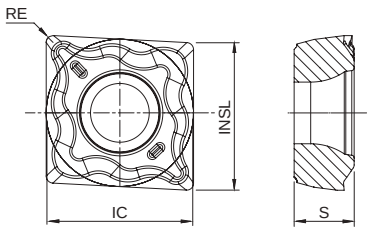
Order code Código	Reference Referência Referencia	Hand		Dimensions | Dimensões | Dimensiones (mm)							WT	Insert	Stock
				DC	DCONMS	DF	WF	OAL	LU	LPR			
182021200	XMS-R 08010-2,25D	Right	1	8,0	10	15	4	60,0	18,0	22,0	0,027	XCMT 0401.. ER	◉
182021300	XMS-R 10012-2,25D	Right	1	10,0	12	18	5	69,5	22,5	27,5	0,046	XCMT 0502..	◉
182021400	XMS-R 12016-2,25D	Right	1	12,0	16	22	6	78,0	27,0	33,0	0,089	XCMT 0602..	◉
182021500	XMS-R 14016-2,25D	Right	1	14,0	16	22	7	83,5	31,5	38,5	0,094	XCMT 0703..	◉
182021600	XMS-R 16020-2,25D	Right	1	16,0	20	28	8	94,0	36,0	44,0	0,154	XCMT 0803..	◉
182021700	XMS-R 18025-2,25D	Right	1	18,0	25	36	9	109,5	40,5	53,5	0,293	XCMT 09T3..	◉
182021800	XMS-R 20025-2,25D	Right	1	20,0	25	36	10	111,0	45,0	55,0	0,311	XCMT 10T3..	◉
182021900	XMS-R 25032-2,25D	Right	1	25,0	32	44	12,5	129,0	56,5	69,0	0,563	XCMT 1304..	◉
182022000	XMS-R 32040-2,25D	Right	1	32,0	40	54	16	158,0	72,0	88,0	1,117	XCMT 1705..	◉
182022100	XMS-L 08010-2,25D	Left	1	8,0	10	15	4	60,0	18,0	22,0	0,027	XCMT 0401.. EL	◉
182022200	XMS-L 10012-2,25D	Left	1	10,0	12	18	5	69,5	22,5	27,5	0,046	XCMT 0502..	◉
182022300	XMS-L 12016-2,25D	Left	1	12,0	16	22	6	78,0	27,0	33,0	0,089	XCMT 0602..	○
182022400	XMS-L 14016-2,25D	Left	1	14,0	16	22	7	83,5	31,5	38,5	0,094	XCMT 0703..	○
182022500	XMS-L 16020-2,25D	Left	1	16,0	20	28	8	94,0	36,0	44,0	0,154	XCMT 0803..	○
182022600	XMS-L 18025-2,25D	Left	1	18,0	25	36	9	109,5	40,5	53,5	0,293	XCMT 09T3..	○
182022700	XMS-L 20025-2,25D	Left	1	20,0	25	36	10	111,0	45,0	55,0	0,311	XCMT 10T3..	○
182022800	XMS-L 25032-2,25D	Left	1	25,0	32	44	12,5	129,0	56,5	69,0	0,563	XCMT 1304..	○
182022900	XMS-L 32040-2,25D	Left	1	32,0	40	54	16	158,0	72,0	88,0	1,117	XCMT 1705..	◉

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

XCMT Inserts | Pastilhas | Plaquitas

XCMT-MP
(PH7 grade)

XCMT-MP
(PHS grade)



XCMT-MP

		P	M		S	Dimensions | Dimensões | Dimensiones (mm)				Hand
		PVD	CVD	PVD	PVD					
	(2) Grade code	G4	U5	G4	G4					
(1) Geometry code	ISO Reference	PH7920	PHS225	PH7920	PH7920	IC	S	INSL	RE	
1124790	XCMT 040104-MP ER	◎	◎	◎	◎	4,40	1,89	4,00	0,40	Right
1124791	XCMT 040104-MP EL	◎	◎	◎	◎	4,40	1,89	4,00	0,40	Left
1124792	XCMT 050204-MP EN	◎	◎	◎	◎	5,65	2,14	5,00	0,40	Neutral
1123788	XCMT 060204-MP EN	◎	◎	◎	◎	6,40	2,47	6,00	0,40	Neutral
1124784	XCMT 070304-MP EN	◎	◎	◎	◎	7,50	3,25	7,00	0,40	Neutral
1124785	XCMT 080304-MP EN	◎	◎	◎	◎	8,40	3,26	8,00	0,40	Neutral
1124786	XCMT 09T304-MP EN	◎	◎	◎	◎	9,45	4,00	9,00	0,40	Neutral
1124787	XCMT 10T308-MP EN	◎	◎	◎	◎	10,40	4,00	10,00	0,80	Neutral
1124788	XCMT 130408-MP EN	◎	◎	◎	◎	13,35	4,85	12,50	0,80	Neutral
1124789	XCMT 170508-MP EN	◎	◎	◎	◎	17,30	5,58	16,00	0,80	Neutral

◎ First choice | Primeira opção | 1ª opción ◎ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

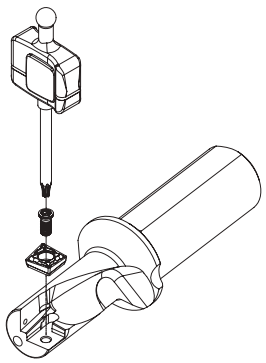
Insert order code = (1) Geometry Code + (2) Grade Code

NEW MULTICUT

SPARE PARTS Acessórios | Repuestos

Order separately

Cutter ØDc	Insert Screw	Key (Torx)	Key (Torx - Nm)	Torque Value
XMS-R/L 08010-2,25D	P0180400	XT06IP	DT0606IP	0,60
XMS-R/L 10012-2,25D	P0200500	XT06	DT0606	0,60
XMS-R/L 12016-2,25D	P0220500	XT07	DT0709	0,90
XMS-R/L 14016-2,25D	P0250704	XT08	DT0812	1,20
XMS-R/L 16020-2,25D	P0300701	XT08	DT0812	1,20
XMS-R/L 18025-2,25D	P0300701	XT08	DT0812	1,20
XMS-R/L 20025-2,25D	P0350800	PT15	DT1530	3,00
XMS-R/L 25032-2,25D	P0500900	PT20	DT2050	4,00
XMS-R/L 32040-2,25D	P0501302	PT20	DT2050	4,00



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

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance	Toughness →
				PH7920	PHS225
P	1	Unalloyed Steel	125-170	✓	
	2	Low-Alloyed Steel	180-350	✓	
	3	High-Alloyed Steel	200-325	✓	
M	4	SS - Ferritic / Martensitic	200-330	✓	✓
	5	SS - Austenitic	180-330	✓	✓
	6	SS - Austenitic-ferritic (Duplex)	230-260	✓	✓
S	11	Heat Resistant Super Alloys	200-320	✓	

Good Conditions Average Conditions Difficult Conditions

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

ISO	PSM	Material	HB (Brinell)	Vc (m/min) ← Wear Resistance Toughness →	
				PH7920	PHS225
P	1	Unalloyed Steel	125-170	110-220	-
	2	Low-Alloyed Steel	180-350	100-210	-
	3	High-Alloyed Steel	200-325	85-190	-
M	4	SS - Ferritic / Martensitic	200-330	95-210	70-230
	5	SS - Austenitic	180-330	85-205	65-225
	6	SS - Austenitic-ferritic (Duplex)	230-260	80-195	55-215
S	11	Heat Resistant Super Alloys	200-320	25-210	-

Reference	FN (mm/rev)			AP (mm)	
	Face Turning	Int/Ext Turning	Holemaking	Face Turning	Int/Ext Turning
XCMT 040104-MP ER/L	0,02-0,09	0,02-0,13	0,01-0,04	0,50-1,90	0,50-2,70
XCMT 050204-MP EN	0,02-0,12	0,02-0,15	0,01-0,05	0,50-2,20	0,50-3,20
XCMT 060204-MP EN	0,02-0,14	0,02-0,16	0,01-0,06	0,70-2,70	0,70-3,70
XCMT 070304-MP EN	0,02-0,16	0,02-0,18	0,01-0,08	0,80-3,00	0,80-4,00
XCMT 080304-MP EN	0,03-0,18	0,03-0,20	0,02-0,08	0,90-3,40	0,90-4,20
XCMT 09T304-MP EN	0,03-0,20	0,03-0,22	0,03-0,09	0,90-3,80	0,90-4,70
XCMT 10T308-MP EN	0,03-0,22	0,03-0,24	0,03-0,10	1,00-4,20	1,00-5,30
XCMT 130408-MP EN	0,03-0,24	0,03-0,26	0,04-0,12	1,00-5,00	1,00-6,50
XCMT 170508-MP EN	0,03-0,27	0,03-0,30	0,04-0,15	1,00-6,00	1,00-7,00

Note: For additional details on drilling operations check the page B-377.

TURNING
OVERVIEW

TURNING OVERVIEW

1 NEGATIVE INSERTS
> See page C-504

2 POSITIVE INSERTS
> See page C-542

3 PCBN INSERTS
> See page C-576

4 PCD INSERTS
> See page C-600

5 HEAVY TURNING
> See page C-622

6 EXTERNAL TOOLHOLDERS
> See page C-646

7 INTERNAL TOOLHOLDERS
> See page C-754

8 AUTOMATIC LATHES
> See page C-832

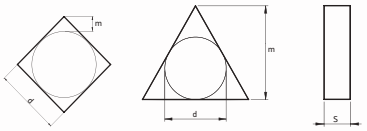
9 SPARE PARTS
> See page C-846

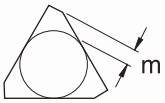
10 TECNHICAL DATA
> See page C-856

TURNING 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





Triangular inserts with a facet (secondary cutting edge)

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.

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

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TURNING INSERTS ISO IDENTIFICATION SYSTEM

Sistema de identificação ISO para pastilhas | Codificación ISO para plaquitas

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

16	03	08 / AN	E	N	-	ST
3	2	2	E	N	-	ST

10 - Chip breaker geometries

	FLAT	ST	MA	
NEGATIVE Chip breakers				(...)

	FLAT	GS	RR	
POSITIVE Chip breakers				(...)

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

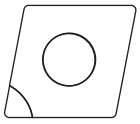
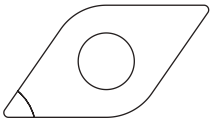
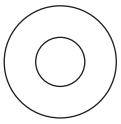
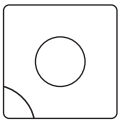
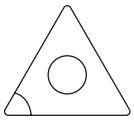
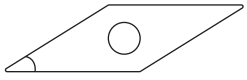
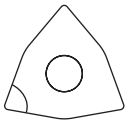
*only when required.

INSERTS RECOMENDATION

EXTERNAL MACHINING Maquinação externa | Maquinación externa

General Recommendation:

1. The choice of the insert shape depends of the operation
2. The insert shape should be selected to the required lead angle and the accessibility or versatility required of the tool.
3. Select the largest suitable point angle on the insert for strenght and economy.

Operation / Insert Shape		Longitudinal turning	Profiling	Facing	Plunging
	Rhombic 80º	●●		●	
	Rhombic 55º	●	●●	●	
	Parallelogram 55º	●	●		●
	Round	●	●	●	●●
	Square 90º	●		●●	
	Triangular 60º	●	●	●	●
	Rhombic 35º		●		
	Trigon 80º	●		●	

●● Recomended Insert Shape ● Alternative Insert Shape

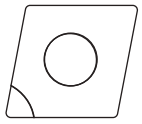
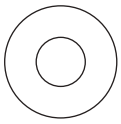
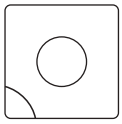
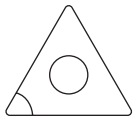
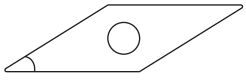
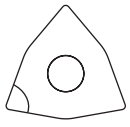
palbit

INSERTS RECOMENDATION
Recomendações de maquinação | Recomendaciones de maquinación

INTERNAL MACHINING Maquinação interna | Maquinación interna

General Recommendation:

1. The choice of the insert shape depends of the operation
2. The insert shape should be selected to the required lead angle and the accessibility or versatility required of the tool.
3. Select the largest suitable point angle on the insert for strenght and economy.

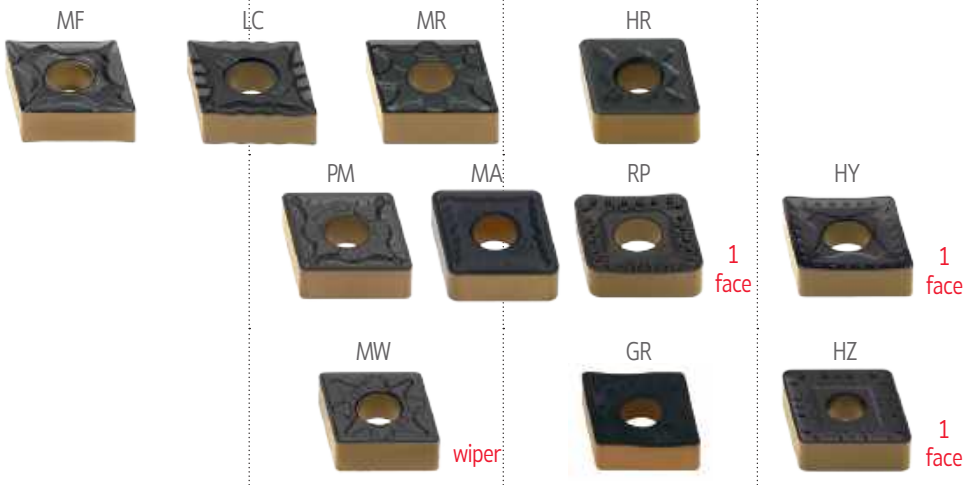
Operation / Insert Shape	Longitudinal turning	Profiling	Facing
 Rhombic 80º	●		●●
Rhombic 55º	●	●●	●
Parallelogram 55º	●●		
 Round	●		●
 Square 90º	●		
 Triangular 60º	●●	●	●
 Rhombic 35º		●	
 Trigon 80º	●		●

●● Recomended Insert Shape ● Alternative Insert Shape

NEGATIVE TURNING Application Range Overview

P

Fine finishing	Finishing	Medium	Roughing	Heavy roughing
	MF, LC	MR	HR	
		PM, MA	RP (1 face)	HY (1 face)
		MW (wiper)	GR	HZ (1 face)



CVD Grades

PHG105	PHG115	PHG125	PHG140
P05-P10	P10-P25	P20-P35	P25-P45

NEW **PH2G115** P10-P25

NEW **PH2G125** P20-P35

PVD Grades

PH7910
P05-P10

Continuous cut ⟷ Interrupted cut

M

Fine finishing	Finishing	Medium	Roughing	Heavy roughing
NEW GSF	GS	SF	SS	
	MS		RP (1 face)	HY (1 face)

CVD Grades

PHS215	PHS225	PHS240
M10-M25	M15-M30	M25-M45

PVD Grades

PH7910	PHH910	PH7920	PHH920
M05-M10	M05-M10	M10-M25	M10-M25

Continuous cut ⟷ Interrupted cut

palbit

NEGATIVE TURNING APPLICATION RANGE OVERVIEW

Vista geral de aplicações | Vista general de aplicaciones

K

Fine finishing	Finishing	Medium	Roughing	Heavy roughing
		ST	FLAT HR	
		MW wiper		HZ 1 face
CVD Grades				
	PH5705 K05-K15		PH5320 K10-K25	PH5740 K20-K40
Continuous cut ⟷ Interrupted cut				

N

Fine finishing	Finishing	Medium	Roughing	Heavy roughing
		MS		
Uncoated Grades				
		PH0910 N01-N20		
Continuous cut ⟷ Interrupted cut				

S

Fine finishing	Finishing	Medium	Roughing	Heavy roughing
NEW GSF	GS	SF	SS	
		MS		DOMX
PVD Grades				
	PH7910 S05-S10	PHH910 S10-S25	PH7920 S10-S25	PHH920 S10-S25
Continuous cut ⟷ Interrupted cut				

POSITIVE TURNING Application Range Overview

P 5° & 7°

Fine finishing	Finishing	Medium	Roughing	Heavy roughing
	FP	MP	RF, RM	
BO	FW wiper	MW wiper	ST, RR	

CVD Grades

Finishing	Medium	Roughing
PHG115 P10-P25	**PHG125** P20-P35	**PHG140** P25-P45
NEW **PH2G115** P10-P25	NEW **PH2G125** P20-P35	

PVD Grades

Fine finishing	Medium
PH7910 P05-P10	**PH7920** P10-P35

Continuous cut ⟷ Interrupted cut

P 11°

Fine finishing	Finishing	Medium	Roughing	Heavy roughing
	12	13	FLAT	

CVD Grades

Medium	Roughing
PH5115 P05-P20	**PH5125** P20-P35

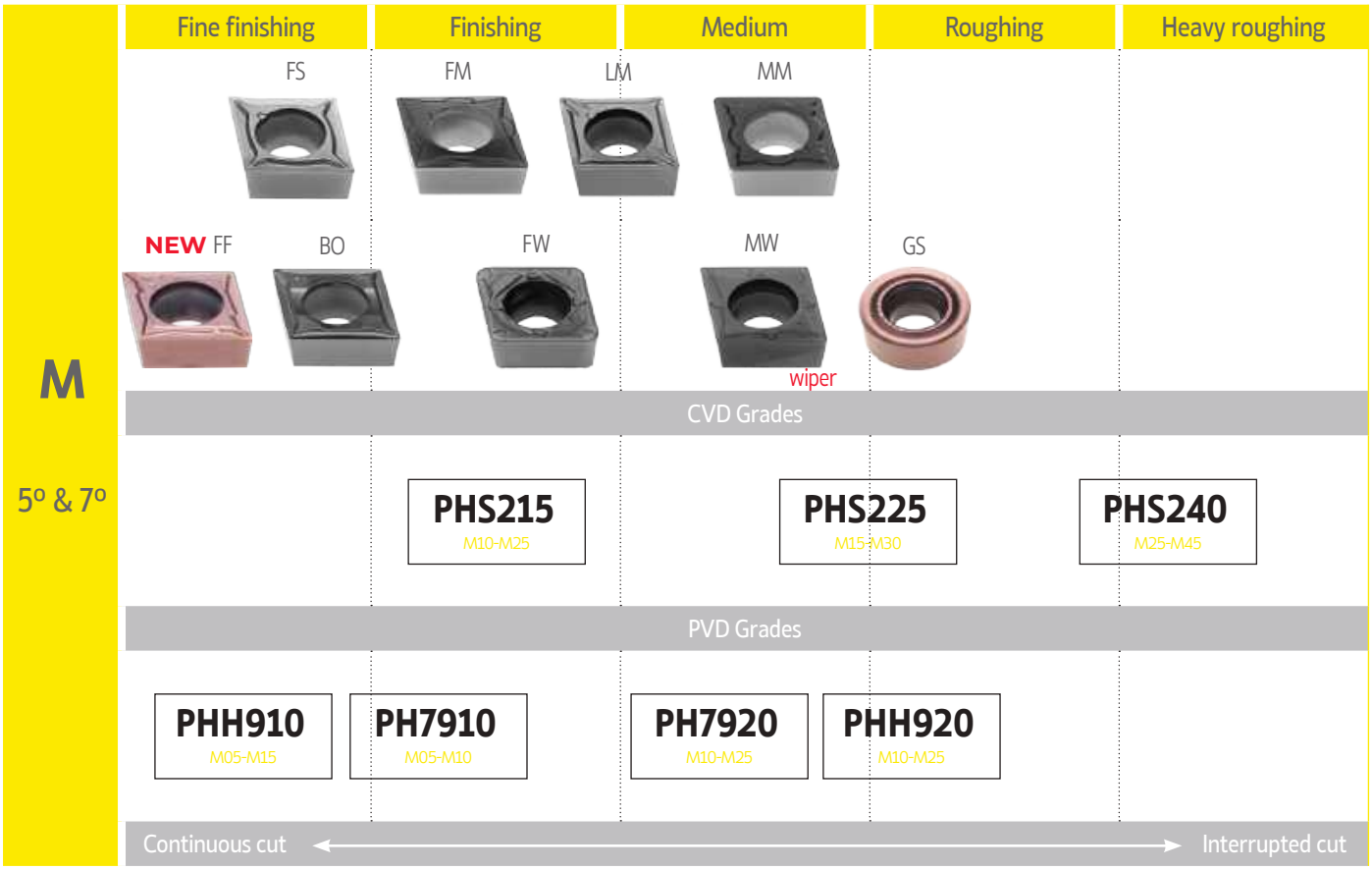
PVD Grades

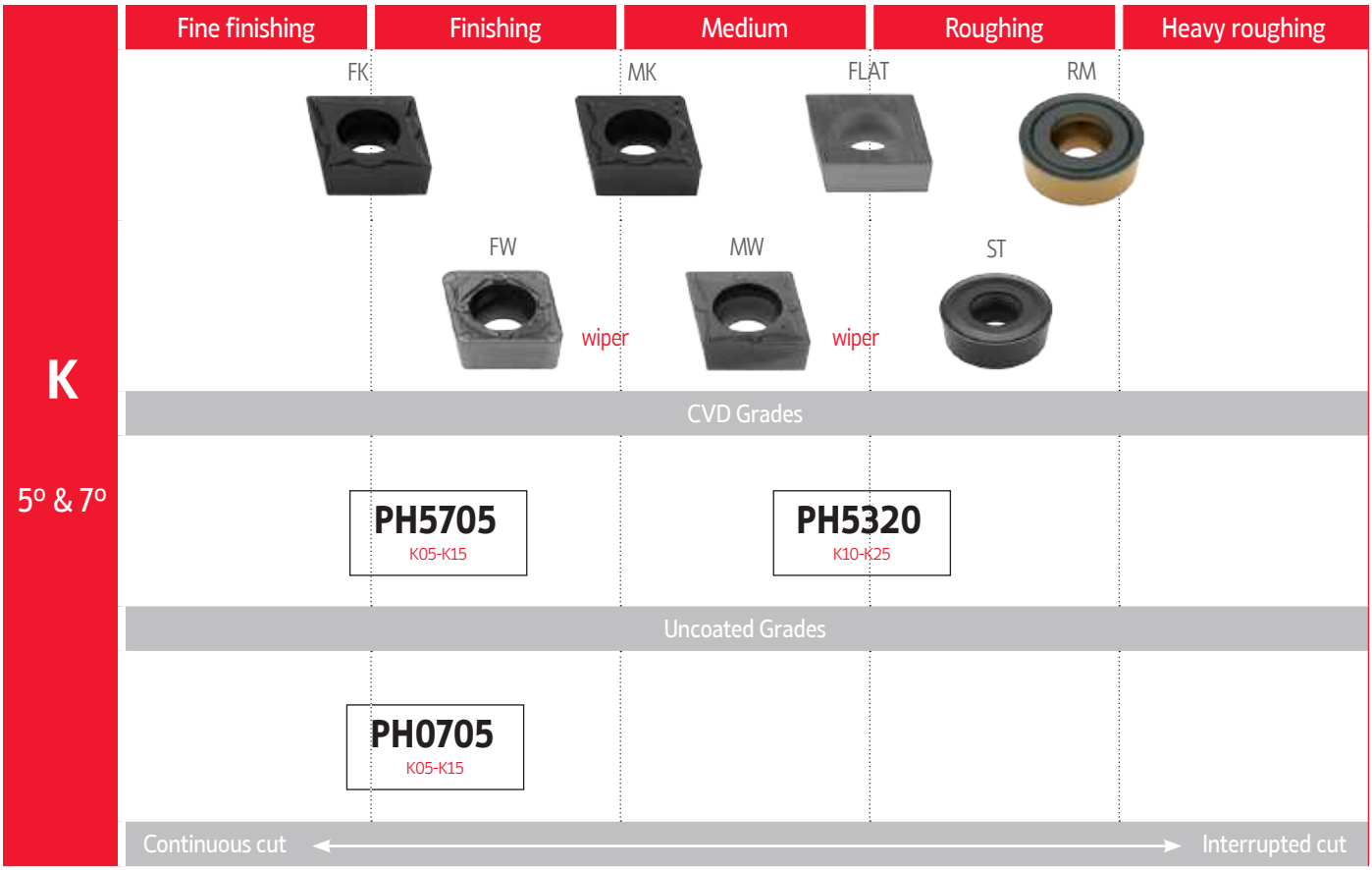
Continuous cut ⟷ Interrupted cut

palbit

POSITIVE TURNING APPLICATION RANGE OVERVIEW

Vista geral de aplicações | Vista general de aplicaciones





POSITIVE TURNING Application Range Overview

N

7°

Fine finishing	Finishing	Medium	Roughing	Heavy roughing
	LN			
Uncoated Grades				
	PH0910 N01-N20			
Continuous cut ⟷ Interrupted cut				

S

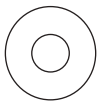
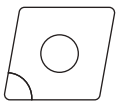
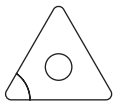
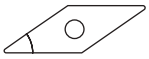
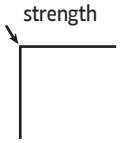
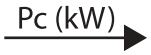
5° & 7°

Fine finishing	Finishing	Medium	Roughing	Heavy roughing
FS	FM LM	MM	GS	
NEW FF	BO	FW wiper	MW wiper	
PVD Grades				
PHH910 S05-S15	**PH7910** S05-S10	**PH7920** S10-S25	**PHH920** S10-S25	
Continuous cut ⟷ Interrupted cut				

palbit

INSERT SHAPE SELECTION

Selecção de geometria para pastilha | Selección de geometria para plaquita

Shape angle		90°	80°	80°	60°	55°	35°
Geometry shape code	R	S	C	W	T	D	V
Geometry shape design							
Cutting edge strength							Accessibility
Vibration tendency							Less power consumption 

INSERT SHAPE

The insert shape should be selected relative to the entering angle accessibility from tools requirements.

The largest possible nose angle should be selected to provide insert strength and reliability, however, this has to be balanced against the cut variation need to be performed.

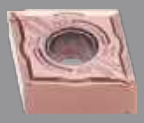
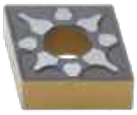
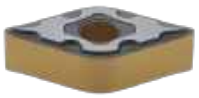
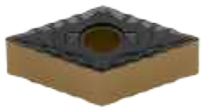
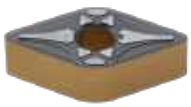
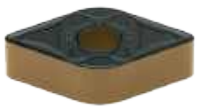
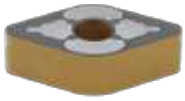
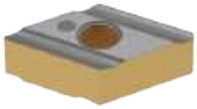
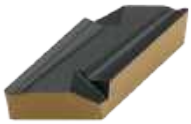
A large nose angle is strong, but requires more machine power and has a higher tendency for vibration.

A small nose angle is weaker and has a small cutting edge engagement, both of which can make it more sensitive to the heat effects.

Scale 1: indicates the cutting edge strength. The inserts to the left have larger nose angles and are correspondingly stronger. The right hand inserts have better versatility and accessibility.

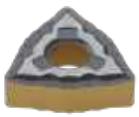
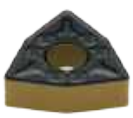
Scale 2: indicates that vibration tendencies increase to the left side, while power requirements decrease to the right.

NEGATIVE TURNING INSERTS OVERVIEW

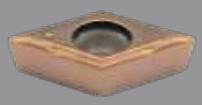
CNMA Roughing Page C - 506 Rhombic 80°	**NEW CNMG-GSF**  Fine Finishing Page C - 506 Rhombic 80°	**CNMG-MF** Finishing Page C - 506 Rhombic 80°	**CNMG-MS** Medium to Finishing Page C - 506 Rhombic 80°	**CNMG-SF** Medium to Finishing Page C - 506 Rhombic 80°	**CNMG-LC** Medium to Finishing Page C - 506 Rhombic 80°
CNMG-GS Medium Page C - 506 Rhombic 80°	**CNMG-MR**  Medium Page C - 508 Rhombic 80°	**CNMG-PM** Medium Page C - 508 Rhombic 80°	**CNMG-ST** Medium Page C - 508 Rhombic 80°	**CNMG-MW** Medium wiper Page C - 508 Rhombic 80°	**CNMG-MA** Medium to Roughing Page C - 510 Rhombic 80°
CNMG-SS Roughing to Medium Page C - 510 Rhombic 80°	**CNMG-HR** Roughing Page C - 510 Rhombic 80°	**CNMM-RP** Roughing Page C - 512 Rhombic 80°	**CNMM-GR** Roughing Page C - 512 Rhombic 80°	**CNMM-HY** Heavy to Roughing Page C - 512 Rhombic 80°	**CNMM-HZ** Heavy to Roughing Page C - 512 Rhombic 80°
DNMA Roughing Page C - 514 Rhombic 55°	**DNMG-MF**  Finishing Page C - 514 Rhombic 55°	**DNMG-MS** Medium to Finishing Page C - 514 Rhombic 55°	**DNMG-SF** Medium to Finishing Page C - 514 Rhombic 55°	**DNMG-LC**  Medium to Finishing Page C - 516 Rhombic 55°	**DNMG-GS** Medium Page C - 516 Rhombic 55°
DNMG-MR  Medium Page C - 516 Rhombic 55°	**DNMG-PM** Medium Page C - 516 Rhombic 55°	**DNMG-ST** Medium Page C - 518 Rhombic 55°	**DNMG-MW**  Medium wiper Page C - 518 Rhombic 55°	**DNMG-SS** Roughing to Medium Page C - 518 Rhombic 55°	**DOMX-GS** Roughing Page C - 518 Rhombic 55°
DNMG-HR  Roughing Page C - 518 Rhombic 55°	**DNMM-RP** Roughing Page C - 518 Rhombic 55°	**DNMX-02** Medium to Finishing Page C - 520 Rhombic 55°	**DNMX-03**  Medium Page C - 520 Rhombic 55°	**DNMX-01** Roughing to Medium Page C - 520 Rhombic 55°	
KNUX-01  Finishing Page C - 522 Parallelogram 55°	**KNUX-02** Medium Page C - 522 Parallelogram 55°		**RNMG-ST** Medium Page C - 522 Round R°		
SNMA Roughing Page C - 524 Square 90°	**SNMG-MF** Finishing Page C - 524 Square 90°	**SNMG-SF** Medium to Finishing Page C - 524 Square 90°	**SNMG-GS** Medium to Finishing Page C - 524 Square 90°	**SNMG-MR** Medium Page C - 524 Square 90°	**SNMG-PM** Medium Page C - 524 Square 90°

NEGATIVE TURNING INSERTS OVERVIEW

Vista genérica de pastilhas de torneamento negativas | Vista general de plaquitas de torneado negativas

SNMG-ST Medium Page C - 526 Square 90°	**SNMG-SS** Roughing to Medium Page C - 526 Square 90°	**SNMG-HR** Roughing Page C - 526 Square 90°	**SNMM-RP** Roughing Page C - 528 Square 90°	**SNMM-HY** Heavy to Roughing Page C - 528 Square 90°	**SNMM-HZ** Heavy to Roughing Page C - 528 Square 90°
TNMA Roughing Page C - 530 Triangular 60°	**NEW TNMG-GSF** Fine Finishing Page C - 530 Triangular 60°	**TNMG-MF** Finishing Page C - 530 Triangular 60°	**TNMG-MS** Medium to Finishing Page C - 530 Triangular 60°	**TNMG-SF** Medium to Finishing Page C - 530 Triangular 60°	**TNMG-LC** Medium to Finishing Page C - 530 Triangular 60°
TNMG-GS Medium Page C - 532 Triangular 60°	**TNMG-MR** Medium Page C - 532 Triangular 60°	**TNMG-PM** Medium Page C - 532 Triangular 60°	**TNMG-ST** Medium Page C - 532 Triangular 60°	**TNMG-MW** Medium wiper Page C - 534 Triangular 60°	**TNMG-SS** Roughing to Medium Page C - 534 Triangular 60°
TNMG-HR Roughing Page C - 534 Triangular 60°	**TNMX-01** Medium to Finishing Page C - 534 Triangular 60°		**VNMA** Roughing Page C - 536 Rhombic 35°	**NEW VNMG-GSF** Fine Finishing Page C - 536 Rhombic 35°	**VNMG-MF** Finishing Page C - 536 Rhombic 35°
VNMG-MS Medium to Finishing Page C - 536 Rhombic 35°	**VNMG-SF** Medium to Finishing Page C - 536 Rhombic 35°	**VNMG-LC** Medium to Finishing Page C - 536 Rhombic 35°	**VNMG-GS** Medium Page C - 536 Rhombic 35°	**VNMG-MR** Medium Page C - 536 Rhombic 35°	**VNMG-PM** Medium Page C - 536 Rhombic 35°
VNMG-ST Medium Page C - 536 Rhombic 35°	**VNMG-SS** Roughing to Medium Page C - 536 Rhombic 35°	**WNMA** Roughing Page C - 538 Trigon 80°	**NEW WNMG-GSF** Fine Finishing Page C - 538 Trigon 80°	**WNMG-MF** Finishing Page C - 538 Trigon 80°	**WNMG-MS** Medium Page C - 538 Trigon 80°
WNMG-SF Medium to Finishing Page C - 538 Trigon 80°	**WNMG-LC**  Medium to Finishing Page C - 538 Trigon 80°	**WNMG-GS** Medium Page C - 538 Trigon 80°	**WNMG-MR** Medium Page C - 540 Trigon 80°	**WNMG-PM** Medium Page C - 540 Trigon 80°	**WNMG-ST** Medium Page C - 540 Trigon 80°
WNMG-MW  Medium wiper Page C - 540 Trigon 80°	**WNMG-SS** Roughing to Medium Page C - 540 Trigon 80°	**NEW WNMG-PR** Roughing Page C - 538 Trigon 80°	**WNMG-HR** Roughing Page C - 540 Trigon 80°		

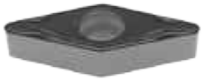
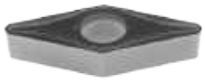
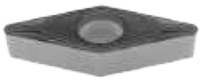
POSITIVE TURNING INSERTS OVERVIEW

CCMW Finishing Page C - 544 Rhombic 80°	**NEW CCMT-FF** Fine Finishing Page C - 544 Rhombic 80°	**CCMT-FP** Finishing Page C - 544 Rhombic 80°	**CCMT-BO** Finishing Page C - 544 Rhombic 80°	**CCMT-FM** Finishing Page C - 544 Rhombic 80°	**CCMT-FK** Finishing Page C - 544 Rhombic 80°
CCMT-FW Finishing wiper Page C - 546 Rhombic 80°	**CCMT-LM** Medium to Finishing Page C - 546 Rhombic 80°	**CCMT-MW** Medium to Finishing wiper Page C - 546 Rhombic 80°	**CCMT-MP** Medium Page C - 546 Rhombic 80°	**CCMT-MM** Medium Page C - 546 Rhombic 80°	**CCMT-MK** Medium Page C - 546 Rhombic 80°
CCGT-FS Finishing to Fine finishing Page C - 548 Rhombic 80°	**CCGT-LN** Medium to Finishing Page C - 548 Rhombic 80°				
DCMW Finishing Page C - 550 Rhombic 55°	**NEW DCMT-FF**  Fine Finishing Page C - 550 Rhombic 55°	**DCMT-FP** Finishing Page C - 550 Rhombic 55°	**DCMT-FM** Finishing Page C - 550 Rhombic 55°	**DCMT-FK** Finishing Page C - 550 Rhombic 55°	**DCMT-FW** Finishing wiper Page C - 550 Rhombic 55°
DCMT-LM Medium to Finishing Page C - 550 Rhombic 55°	**DCMT-MW** Medium to Finishing wiper Page C - 550 Rhombic 55°	**DCMT-MP** Medium Page C - 552 Rhombic 55°	**DCMT-MM** Medium Page C - 552 Rhombic 55°	**DCMT-MK** Medium Page C - 552 Rhombic 55°	**DCGT-FS** Finishing to Fine finishing Page C - 552 Rhombic 55°
DCGT-LN Medium to Finishing Page C - 552 Rhombic 55°		**RCGT-LN** Finishing to Fine finishing Page C - 554 Round R°	**RCMT-GS** Medium Page C - 554 Round R°	**RCMT-CP** Medium Page C - 554 Round R°	**RCMT-ST** Roughing to Medium Page C - 554 Round R°
RCMT-RF Roughing to Medium Page C - 554 Round R°	**RCMT-RM** Roughing to Medium Page C - 554 Round R°	**RCMX-ST** Roughing to Medium Page C - 554 Round R°	**RCMX-RM** Roughing to Medium Page C - 554 Round R°	**RCMX-RR** Roughing to Medium Page C - 554 Round R°	
SCMW Finishing Page C - 556 Square 90°	**SCMT-FP** Finishing Page C - 556 Square 90°	**SCMT-FM** Finishing Page C - 556 Square 90°	**SCMT-FK** Finishing Page C - 556 Square 90°	**SCMT-MP** Medium Page C - 556 Square 90°	**SCMT-MM** Medium Page C - 556 Square 90°

palbit

POSITIVE TURNING INSERTS OVERVIEW

Vista genérica de pastilhas de torneamento positivas | Vista general de plaquitas de torneado positivas

SCMT-MK Medium Page C - 556 Square 90°	**SCGT-LN** Medium to Finishing Page C - 556 Square 90°		**SPUN** Medium to Finishing Page C - 558 Square 90°	**SPMR-12** Finishing to Fine finishing Page C - 558 Square 90°	**SPMR-13** Medium Page C - 558 Square 90°
TCMW Finishing Page C - 560 Triangular 60°	**TCMT-FP** Finishing Page C - 560 Triangular 60°	**TCMT-FM** Finishing Page C - 560 Triangular 60°	**TCMT-FK** Finishing Page C - 562 Triangular 60°	**TCMT-FW** Finishing wiper Page C - 562 Triangular 60°	**TCMT-MW** Medium to Finishing wiper Page C - 562 Triangular 60°
TCMT-MP Medium Page C - 564 Triangular 60°	**TCMT-MM** Medium Page C - 564 Triangular 60°	**TCMT-MK** Medium Page C - 564 Triangular 60°	**TCGT-FS** Finishing to Fine finishing Page C - 566 Triangular 60°	**TCGT-LN** Medium to Finishing Page C - 566 Triangular 60°	
TPUN Medium to Finishing Page C - 568 Triangular 60°	**TPMR-12** Finishing to Fine finishing Page C - 568 Triangular 60°	**TPMR-13** Medium Page C - 568 Triangular 60°			
VBMW Finishing Page C - 570 Rhombic 35°	**NEW VBMT-FF** Finishing Page C - 570 Rhombic 35°	**VBMT-FP** Finishing Page C - 570 Rhombic 35°	**VBMT-FM**  Finishing Page C - 570 Rhombic 35°	**VBMT-FK** Finishing Page C - 570 Rhombic 35°	**VBMT-MP** Medium Page C - 570 Rhombic 35°
VBMT-MM  Medium Page C - 570 Rhombic 35°	**VBMT-MK** Medium Page C - 570 Rhombic 35°				
VCMW Finishing Page C - 572 Rhombic 35°	**VCMT-FP** Finishing Page C - 572 Rhombic 35°	**VCMT-FM**  Finishing Page C - 572 Rhombic 35°	**VCMT-FK** Finishing Page C - 572 Rhombic 35°	**VCMT-MP** Medium Page C - 572 Rhombic 35°	**VCMT-MM** Medium Page C - 572 Rhombic 35°
VCMT-MK Medium Page C - 572 Rhombic 35°	**VCGT-FS** Finishing to Fine finishing Page C - 574 Rhombic 35°	**VCGT-LN** Medium to Finishing Page C - 574 Rhombic 35°			

INSERTS

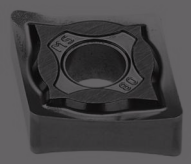
NEGATIVE

Negative inserts have a 0° clearance angle, lending them increased strength and durability. They are ideal for external turning, or any time heavy cutting conditions are required. Additionally, they are often double-sided, making them a more economical choice.

Pastilhas negativas têm um ângulo de folga de 0°, conferindo-lhes maior resistência e durabilidade. São ideais para torneamento externo, ou sempre que são necessárias condições de corte pesadas. Além disso, são frequentemente de dupla face, tornando-as uma escolha mais económica.

Plaquitas negativas tienen un ángulo de despeje de 0°, lo que les confiere mayor resistencia y durabilidad. Son ideales para el torneado externo, o en cualquier momento que se requieran condiciones de corte pesadas. Además, a menudo son de doble cara, lo que las convierte en una opción más económica.

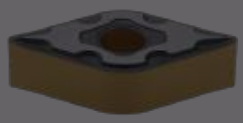
CN.. > page 506



> Rhombic 80° inserts are very popular thanks to their versatility

Rhombic 80° inserts são muito populares devido à sua versatilidade | Las plaquitas de 80° rómbicas son muy populares gracias a su versatilidad

DN.. > page 514



> Rhombic 55° inserts offer balanced roughing and finishing capabilities

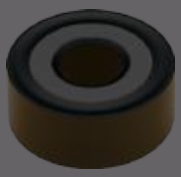
Pastilhas rômbicas de 55° oferecem capacidades equilibradas de desbaste e acabamento | Las plaquitas rómbicas de 55° ofrecen capacidades equilibradas para desbaste y acabado

KN.. > page 522

> Parallelogram 55º inserts for profile turning

Pastilhas em paralelogramo de 55º para torneamento de perfil | Plaquitas en paralelogramo de 55º para torneado de perfil

RN.. > page 522



> Round inserts are extremely tough, and well suited for high feed turning

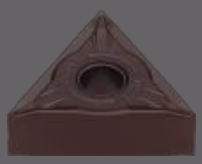
Pastilhas redondas são extremamente resistentes e adequadas para tornear em alto avanço | Las plaquitas redondas son extremadamente resistentes y adecuadas para el torneado de alto avance

SN.. > page 524

> Square inserts excel in roughing, especially at a shallow angle

Pastilhas quadradas destacam-se no desbaste, especialmente a um ângulo raso | Plaquitas cuadradas destacan en el desbaste, especialmente a un ángulo bajo

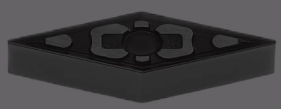
TN.. > page 530



> Triangular inserts are versatile, suitable for both finishing and roughing

As pastilhas triangulares são versáteis, adequadas tanto para acabamento quanto para desbaste | Las plaquitas triangulares son versátiles, adecuadas tanto para acabado como para desbaste

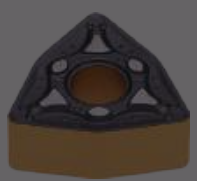
VN.. > page 536



> Rhombic 35° inserts are best suited for finishing operations

Pastilhas rômbicass de 35° são mais adequadas para operações de acabamento | Las plaquitas rómbicas de 35° son más adecuadas para operaciones de acabado

WN.. > page 538



> Trigon 80° inserts perform like rhombic 80° inserts, with extra edges

Pastilhas em formato W de 80° têm desempenho semelhante às pastilhas rômbicas de 80° mas com arestas adicionais | Las plaquitas formato W de 80° tienen un rendimiento similar a las plaquitas rómbicas de 80°, con bordes adicionales

CN - RHOMBIC 80° NEGATIVE

RÔMBICA 80° NEGATIVA | RÓMBICA 80° NEGATIVA

Inserts Pastilhas Plaquitas	(1) Geometry code	(2) Grade code	P								M							K				N	S			
			CVD							PVD	CVD			PVD				UNC	CVD			UNC	PVD			
			T6	R2	5D	R3	1D	S9	V5	G1	U4	U5	V6	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
		ISO Reference	PHG105	PHG115	PH2G115	PHG125	PH2G125	PHG135	PHG140	PH7910	PHS215	PHS225	PHS240	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
CNMA Roughing	1120219	CNMA 120404																	◉	◉						
	1120220	CNMA 120408																	◉	◉						
	1120221	CNMA 120412																	◉	◉						
	1120223	CNMA 120416																	◉	◉						
	1120224	CNMA 160608																	◉	◉						
	1120225	CNMA 160612																	◉	◉						
	1121470	CNMA 160616																	◉	◉						
	1120226	CNMA 190612																	◉	◉						
	1120227	CNMA 190616																	◉	◉						
	1121471	CNMA 190624																		◉						
NEW CNMG-GSF Fine Finishing	1124855	CNMG 120402-GSF													◉		◈							◉		◈
CNMG-MF Finishing	1121472	CNMG 090304-MF		◉	○	◈	○																			
	1121318	CNMG 090308-MF			◈		◉																			
	1121320	CNMG 09T304-MF		◉	○																					
	1121317	CNMG 09T308-MF		◉	○																					
	1121478	CNMG 120404-MF	◈	◈	◉	◈	◈																			
	1121480	CNMG 120408-MF		◈	◉	◈	◈																			
	1121482	CNMG 120412-MF		◉	○	◈	○																			
CNMG-MS Medium to Finishing	1124854	CNMG 120402-MS													◈		◈							◉		◈
	1121479	CNMG 120404-MS													◈		◈					◉		◉		◈
	1121481	CNMG 120408-MS													◈		◈					◉		◉		◈
	1121483	CNMG 120412-MS													◈		◈					◉		◉		◈
	1121486	CNMG 120416-MS															◈					○				◈
CNMG-SF Medium to Finishing	1123747	CNMG 120404-SF									◈	◉			◈	◈	◈							◉		◈
	1123717	CNMG 120408-SF									◈	◉			◈	◈	◈							◉		◈
	1123748	CNMG 120412-SF									◈	◉			◈	◈	◈							◉		◈
CNMG-LC Medium to Finishing	1122024	CNMG 120404-LC		◈	◉		◈																			
	1122021	CNMG 120408-LC	◈	◈	◉	◈	◈																			
	1124029	CNMG 120412-LC			◉	◈	○																			
CNMG-GS Medium to Finishing	1124514	CNMG 120404-GS													◈		◈							◉		◈
	1124502	CNMG 120408-GS													◈		◈							◉		◈
	1124515	CNMG 120412-GS													◈		◈							◉		◈

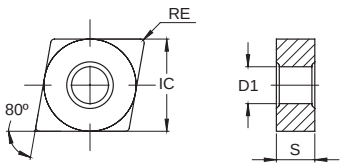
◉ First choice | 1ª Escolha | 1ª Opción

◈ Stock Itens | Itens de stock

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

◬ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		IC	S	RE	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
CNMA 120404	CNMA 431	12,700	4,76	0,40	5,16	2,50	0,20	5,00	0,20	0,10	0,30
CNMA 120408	CNMA 432	12,700	4,76	0,80	5,16	4,00	0,20	8,00	0,35	0,15	0,60
CNMA 120412	CNMA 433	12,700	4,76	1,20	5,16	4,00	0,30	8,00	0,45	0,20	0,80
CNMA 120416	CNMA 434	12,700	4,76	1,60	5,16	4,00	0,30	8,00	0,55	0,20	1,00
CNMA 160608	CNMA 542	15,875	6,35	0,80	6,35	5,00	0,30	10,00	0,45	0,20	0,80
CNMA 160612	CNMA 543	15,875	6,35	1,20	6,35	5,00	0,30	10,00	0,45	0,20	0,80
CNMA 160616	CNMA 544	15,875	6,35	1,60	6,35	5,00	0,30	10,00	0,55	0,20	1,00
CNMA 190612	CNMA 643	19,050	6,35	1,20	7,94	6,00	0,30	12,00	0,45	0,20	0,80
CNMA 190616	CNMA 644	19,050	6,35	1,60	7,94	6,00	0,30	12,00	0,55	0,20	1,00
CNMA 190624	CNMA 646	19,050	6,35	2,40	7,94	6,00	0,40	12,00	0,60	0,20	1,40
CNMG 120402-GSF	CNMG 430.5-GSF	12,700	4,76	0,20	5,16	1,30	0,10	2,50	0,12	0,08	0,15
CNMG 090304-MF	CNMG 321-MF	9,525	3,18	0,40	3,81	0,50	0,10	1,50	0,15	0,05	0,25
CNMG 090308-MF	CNMG 322-MF	9,525	3,18	0,80	3,81	0,55	0,10	1,50	0,20	0,10	0,40
CNMG 09T304-MF	CNMG 32.51-MF	9,525	3,97	0,40	3,81	0,50	0,10	1,50	0,15	0,05	0,25
CNMG 09T308-MF	CNMG 32.52-MF	9,525	3,97	0,80	3,81	0,55	0,10	1,50	0,20	0,10	0,40
CNMG 120404-MF	CNMG 431-MF	12,700	4,76	0,40	5,16	0,80	0,20	1,50	0,15	0,05	0,25
CNMG 120408-MF	CNMG 432-MF	12,700	4,76	0,80	5,16	1,00	0,25	1,50	0,20	0,10	0,40
CNMG 120412-MF	CNMG 433-MF	12,700	4,76	1,20	5,16	1,25	0,50	2,50	0,25	0,15	0,50
CNMG 120402-MS	CCGT 430.5-MS	12,700	4,76	0,20	5,16	1,00	0,10	3,60	0,10	0,08	0,15
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
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
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
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
CNMG 120404-SF	CNMG 431-SF	12,700	4,76	0,40	5,16	1,50	0,60	3,00	0,15	0,10	0,23
CNMG 120408-SF	CNMG 432-SF	12,700	4,76	0,80	5,16	1,50	0,60	3,00	0,25	0,12	0,38
CNMG 120412-SF	CNMG 433-SF	12,700	4,76	1,20	5,16	1,50	0,60	3,00	0,35	0,15	0,55
CNMG 120404-LC	CNMG 431-LC	12,700	4,76	0,40	5,16	1,00	0,40	2,50	0,10	0,07	0,30
CNMG 120408-LC	CNMG 432-LC	12,700	4,76	0,80	5,16	1,50	0,40	2,50	0,15	0,10	0,40
CNMG 120412-LC	CNMG 433-LC	12,700	4,76	1,20	5,16	1,50	0,40	2,50	0,20	0,15	0,40
CNMG 120404-GS	CNMG 431-GS	12,700	4,76	0,40	5,16	1,50	0,15	2,50	0,20	0,10	0,30
CNMG 120408-GS	CNMG 432-GS	12,700	4,76	0,80	5,16	2,00	0,20	3,00	0,25	0,10	0,35
CNMG 120412-GS	CNMG 433-GS	12,700	4,76	1,20	5,16	2,50	0,30	4,00	0,30	0,10	0,45

CN - RHOMBIC 80° NEGATIVE

RÔMBICA 80° NEGATIVA | RÓMBICA 80° NEGATIVA

			P								M							K				N	S				
			CVD							PVD	CVD			PVD				UNC	CVD			UNC	PVD				
		(2) Grade code	T6	R2	5D	R3	1D	S9	V5	G1	U4	U5	V6	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3	
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	PHG105	PHG115	PH2G115	PHG125	PH2G125	PHG135	PHG140	PH7910	PHS215	PHS225	PHS240	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920	
CNMG-MR	1121473	CNMG 090304-MR			○	◈	◈																				
	1121293	CNMG 090308-MR			○	◈	○																				
Medium	1121180	CNMG 120404-MR		◈	◈	◈	◈		◈											◈							
	1121174	CNMG 120408-MR		◈	◈	◈	◈		◈											◈							
	1121198	CNMG 120412-MR			○	◈	◈		◈											◈							
	1121485	CNMG 120416-MR			○		○																				
	1121239	CNMG 160608-MR		◈	○	◈	◈		◈											◈							
	1121355	CNMG 160612-MR		◈	◈	◈	◈		◈											◈							
	1121490	CNMG 160616-MR		◈	○		○														◈						
	1121302	CNMG 190612-MR		◈	◈	◈	◈		◈											◈							
	1121301	CNMG 190616-MR		◈	○	◈	○														◈						
CNMG-PM	1123919	CNMG 120404-PM	◈	◈	◈	◈	◈																				
	1123790	CNMG 120408-PM	◈	◈	◈	◈	◈																				
Medium	1123920	CNMG 120412-PM	◈	◈	◈	◈	◈																				
	1123921	CNMG 120416-PM		◇	◈	◇	◈																				
CNMG-ST	1121344	CNMG 120404-ST																	◈	◈							
	1121165	CNMG 120408-ST																	◈	◈							
Medium	1121166	CNMG 120412-ST																	◈	◈							
	1121488	CNMG 120416-ST																	◈	◈							
	1121335	CNMG 160608-ST																	◈	◈							
	1121303	CNMG 160612-ST																	◈	◈							
	1121491	CNMG 160616-ST																	◈	◈							
	1121336	CNMG 190612-ST																	◈	◈							
	1121345	CNMG 190616-ST																	◈	◈							
CNMG-MW	1121339	CNMG 120408-MW		◇	◈	◈	○													◈	◈						
	1121191	CNMG 120412-MW			◈	◈	○													◈	◈						
Medium Wiper	1125061	CNMG 120612-MW			◈		◈																				

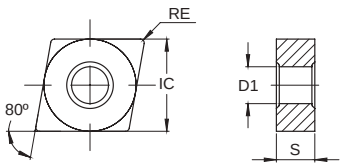
◈ First choice | 1ª Escolha | 1ª Opción

◈ Stock Itens | Itens de stock

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

◇ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		IC	S	RE	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
CNMG 090304-MR	CNMG 321-MR	9,525	3,18	0,40	3,81	2,00	0,40	4,00	0,20	0,10	0,30
CNMG 090308-MR	CNMG 322-MR	9,525	3,18	0,80	3,81	2,00	0,50	4,00	0,30	0,15	0,50
CNMG 120404-MR	CNMG 431-MR	12,700	4,76	0,40	5,16	3,00	0,40	5,50	0,20	0,10	0,30
CNMG 120408-MR	CNMG 432-MR	12,700	4,76	0,80	5,16	3,00	0,50	5,50	0,30	0,15	0,50
CNMG 120412-MR	CNMG 433-MR	12,700	4,76	1,20	5,16	3,00	0,80	5,50	0,35	0,18	0,60
CNMG 120416-MR	CNMG 434-MR	12,700	4,76	1,60	5,16	3,00	1,00	5,50	0,40	0,23	0,65
CNMG 160608-MR	CNMG 542-MR	15,875	6,35	0,80	6,35	4,00	0,50	7,20	0,30	0,15	0,50
CNMG 160612-MR	CNMG 543-MR	15,875	6,35	1,20	6,35	4,00	0,80	7,20	0,35	0,18	0,60
CNMG 160616-MR	CNMG 544-MR	15,875	6,35	1,60	6,35	4,00	1,00	7,20	0,40	0,23	0,65
CNMG 190612-MR	CNMG 643-MR	19,050	6,35	1,20	7,94	4,00	0,80	8,60	0,35	0,18	0,60
CNMG 190616-MR	CNMG 644-MR	19,050	6,35	1,60	7,94	4,00	1,00	8,60	0,40	0,23	0,65
CNMG 120404-PM	CNMG 431-PM	12,700	4,76	0,40	5,16	3,00	0,40	5,50	0,20	0,10	0,30
CNMG 120408-PM	CNMG 432-PM	12,700	4,76	0,80	5,16	3,00	0,50	5,50	0,30	0,15	0,50
CNMG 120412-PM	CNMG 433-PM	12,700	4,76	1,20	5,16	3,00	0,80	5,50	0,35	0,18	0,60
CNMG 120416-PM	CNMG 434-PM	12,700	4,76	1,60	5,16	3,00	1,00	5,50	0,40	0,23	0,65
CNMG 120404-ST	CNMG 431-ST	12,700	4,76	0,40	5,16	2,50	0,20	5,00	0,22	0,15	0,26
CNMG 120408-ST	CNMG 432-ST	12,700	4,76	0,80	5,16	3,00	0,20	6,00	0,35	0,15	0,50
CNMG 120412-ST	CNMG 433-ST	12,700	4,76	1,20	5,16	3,00	0,30	6,00	0,40	0,15	0,60
CNMG 120416-ST	CNMG 434-ST	12,700	4,76	1,60	5,16	3,00	0,30	6,00	0,45	0,20	0,70
CNMG 160608-ST	CNMG 542-ST	15,875	6,35	0,80	6,35	4,00	0,20	8,00	0,35	0,15	0,50
CNMG 160612-ST	CNMG 543-ST	15,875	6,35	1,20	6,35	4,00	0,30	8,00	0,40	0,15	0,60
CNMG 160616-ST	CNMG 544-ST	15,875	6,35	1,60	6,35	4,00	0,30	8,00	0,45	0,20	0,70
CNMG 190612-ST	CNMG 643-ST	19,050	6,35	1,20	7,94	4,50	0,30	9,00	0,40	0,15	0,60
CNMG 190616-ST	CNMG 644-ST	19,050	6,35	1,60	7,94	4,50	0,30	9,00	0,45	0,20	0,70
CNMG 120408-MW	CNMG 432-MW	12,700	4,76	0,80	5,16	3,00	0,50	5,00	0,30	0,15	0,60
CNMG 120412-MW	CNMG 433-MW	12,700	4,76	1,20	5,16	3,50	0,80	6,00	0,50	0,20	0,90
CNMG 120612-MW	CNMG 443-MW	12,700	6,35	1,20	5,16	3,50	0,80	6,00	0,50	0,20	0,90

CN - RHOMBIC 80° NEGATIVE

RÔMBICA 80° NEGATIVA | RÓMBICA 80° NEGATIVA

			P								M							K				N	S			
			CVD							PVD	CVD			PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	5D	R3	1D	S9	V5	G1	U4	U5	V6	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	PHG105	PHG115	PH2G115	PHG125	PH2G125	PHG135	PHG140	PH7910	PHS215	PHS225	PHS240	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
CNMG-MA Medium to Roughing	1124504	CNMG 160612-MA		◬	●	●	●																			
	1123785	CNMG 160616-MA	○	◬	●	●	●																			
CNMG-SS Roughing to Medium	1121474	CNMG 090304-SS										●		◬		●							◬		●	
	1121476	CNMG 090308-SS										●		◬		●							◬		●	
	1121243	CNMG 120404-SS									●	●	●	◬		●							◬		●	
	1121201	CNMG 120408-SS									●	●	●			●									●	
	1121202	CNMG 120412-SS									●	●	●	◬		●							◬		●	
	1121487	CNMG 120416-SS										●				●									●	
	1121332	CNMG 160608-SS										●				●									●	
	1121333	CNMG 160612-SS										●				●									●	
	1121363	CNMG 190612-SS										●				●									●	
	1121364	CNMG 190616-SS										●				●									●	
CNMG-HR Roughing	1121193	CNMG 120408-HR	●	●	●		●		●										●	●						
	1121192	CNMG 120412-HR	●		●		●		●										●	●						
	1121484	CNMG 120416-HR			●	◬	●												●	●	●					
	1121331	CNMG 160608-HR		●	●	●	○		●										●	●						
	1121358	CNMG 160612-HR		●	●		●		●										●	●						
	1121489	CNMG 160616-HR		●	●	◬	●												●	●	●					
	1121359	CNMG 190612-HR		●	○	●	○		●										●	●						
	1121360	CNMG 190616-HR			○	●	●		●										●	●						
	1121636	CNMG 250924-HR					○		●																	

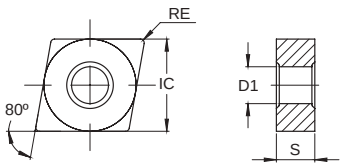
● First choice | 1ª Escolha | 1ª Opción

● Stock Itens | Itens de stock

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

◬ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		IC	S	RE	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
CNMG 160612-MA	CNMG 543-MA	15,875	6,35	1,20	6,35	4,00	1,50	8,00	0,40	0,20	0,65
CNMG 160616-MA	CNMG 544-MA	15,875	6,35	1,60	6,35	5,00	1,60	8,00	0,50	0,25	0,70
CNMG 090304-SS	CNMG 321-SS	9,525	3,18	0,40	3,81	2,00	0,50	2,50	0,20	0,10	0,25
CNMG 090308-SS	CNMG 322-SS	9,525	3,18	0,80	3,81	2,00	0,50	2,50	0,25	0,12	0,45
CNMG 120404-SS	CNMG 431-SS	12,700	4,76	0,40	5,16	3,00	0,50	5,70	0,20	0,10	0,25
CNMG 120408-SS	CNMG 432-SS	12,700	4,76	0,80	5,16	3,00	0,50	5,70	0,25	0,12	0,45
CNMG 120412-SS	CNMG 433-SS	12,700	4,76	1,20	5,16	3,00	0,50	5,70	0,30	0,15	0,60
CNMG 120416-SS	CNMG 434-SS	12,700	4,76	1,60	5,16	3,00	0,50	5,70	0,37	0,18	0,65
CNMG 160608-SS	CNMG 542-SS	15,875	6,35	0,80	6,35	4,00	0,50	7,20	0,25	0,12	0,45
CNMG 160612-SS	CNMG 543-SS	15,875	6,35	1,20	6,35	4,00	0,50	7,20	0,30	0,15	0,60
CNMG 190612-SS	CNMG 643-SS	19,050	6,35	1,20	7,94	4,00	0,50	8,50	0,30	0,15	0,60
CNMG 190616-SS	CNMG 644-SS	19,050	6,35	1,60	7,94	4,00	0,50	8,50	0,37	0,18	0,65
CNMG 120408-HR	CNMG 432-HR	12,700	4,76	0,80	5,16	4,00	1,00	7,00	0,35	0,20	0,55
CNMG 120412-HR	CNMG 433-HR	12,700	4,76	1,20	5,16	4,00	1,00	7,00	0,40	0,25	0,60
CNMG 120416-HR	CNMG 434-HR	12,700	4,76	1,60	5,16	4,00	1,50	7,00	0,50	0,32	0,75
CNMG 160608-HR	CNMG 542-HR	15,875	6,35	0,80	6,35	5,00	1,00	8,00	0,35	0,20	0,55
CNMG 160612-HR	CNMG 543-HR	15,875	6,35	1,20	6,35	5,00	1,00	8,00	0,40	0,25	0,60
CNMG 160616-HR	CNMG 544-HR	15,875	6,35	1,60	6,35	5,00	1,50	8,00	0,50	0,32	0,75
CNMG 190612-HR	CNMG 643-HR	19,050	6,35	1,20	7,94	5,50	2,00	10,00	0,40	0,25	0,70
CNMG 190616-HR	CNMG 644-HR	19,050	6,35	1,60	7,94	5,50	2,00	10,00	0,50	0,32	0,80
CNMG 250924-HR	CNMG 866-HR	25,400	9,52	2,40	9,12	6,00	2,00	15,00	0,60	0,40	1,00

CN - RHOMBIC 80° NEGATIVE

RÔMBICA 80° NEGATIVA | RÓMBICA 80° NEGATIVA

			P								M							K					N	S			
			CVD						PVD	CVD		PVD					UNC	CVD			UNC	PVD				
		(2) Grade code	T6	R2	5D	R3	1D	S9	V5	G1	U4	U5	V6	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	PHG105	PHG115	PH2G115	PHG125	PH2G125	PHG135	PHG140	PH7910	PHS215	PHS225	PHS240	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
CNMM-RP Roughing	1124054	CNMM 160608-RP		◈	○	◈	○																			
	1124055	CNMM 160612-RP		◈	◈	◈	◈																			
	1124056	CNMM 160616-RP	○	◈	○	◈	◈					◈														
	1124000	CNMM 190612-RP		◈	○	◈	○																			
	1123999	CNMM 190616-RP		◈	○	◈	◈																			
	1123676	CNMM 190624-RP			○	◈	○																			
CNMM-GR Roughing	1124597	CNMM 120408-GR			◈	◈	◈										◈									◈
	1124596	CNMM 120412-GR			◈	◈	◈																			
CNMM-HY Heavy to Roughing	1121608	CNMM 190612-HY			○		◈						◈													
	1121252	CNMM 190616-HY		◈	○		○						◈													
	1121434	CNMM 190624-HY			○	◈	○		◈																	
	1121248	CNMM 250924-HY		◈	○	◈	○																			
CNMM-HZ Heavy to Roughing	1121607	CNMM 190612-HZ			○	◈	○													◈	◈					
	1121251	CNMM 190616-HZ		◈	○	◈	○													◈	◈					
	1121435	CNMM 190624-HZ		◈	○	◈	○		◈											◈						
	1121247	CNMM 250924-HZ		◇	○		◈		◈											◈						

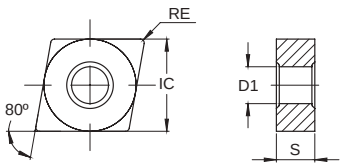
◈ First choice | 1ª Escolha | 1ª Opción

◈ Stock Itens | Itens de stock

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

◇ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		IC	S	RE	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
CNMM 160608-RP	CNMM 542-RP	15,875	6,35	0,80	6,35	3,50	1,00	8,00	0,35	0,20	0,55
CNMM 160612-RP	CNMM 543-RP	15,875	6,35	1,20	6,35	3,50	1,00	8,00	0,25	0,25	0,60
CNMM 160616-RP	CNMM 544-RP	15,875	6,35	1,60	6,35	3,50	1,50	8,00	0,50	0,32	0,75
CNMM 190612-RP	CNMM 643-RP	19,050	6,35	1,20	7,94	5,50	2,00	10,00	0,40	0,25	0,70
CNMM 190616-RP	CNMM 644-RP	19,050	6,35	1,60	7,94	5,50	2,00	10,00	0,50	0,32	0,80
CNMM 190624-RP	CNMM 646-RP	19,050	6,35	2,40	7,94	6,00	2,00	12,00	0,60	0,35	1,20
CNMM 120408-GR	CNMM 432-GR	12,700	4,76	0,80	5,16	4,00	1,00	8,00	0,40	0,25	0,65
CNMM 120412-GR	CNMM 433-GR	12,700	4,76	1,20	5,16	5,00	1,50	8,50	0,50	0,30	0,70
CNMM 190612-HY	CNMM 643-HY	19,050	6,35	1,20	7,94	6,00	2,00	12,00	0,50	0,35	0,80
CNMM 190616-HY	CNMM 644-HY	19,050	6,35	1,60	7,94	6,00	2,00	12,00	0,60	0,35	1,00
CNMM 190624-HY	CNMM 646-HY	19,050	6,35	2,40	7,94	6,00	2,00	12,00	0,60	0,35	1,20
CNMM 250924-HY	CNMM 866-HY	25,400	9,52	2,40	9,12	8,00	2,50	15,00	0,70	0,40	1,40
CNMM 190612-HZ	CNMM 643-HZ	19,050	6,35	1,20	7,94	10.00	2.40	12,00	0,65	0,50	0,80
CNMM 190616-HZ	CNMM 644-HZ	19,050	6,35	1,60	7,94	10,00	2,40	12,00	0,80	0,50	1,10
CNMM 190624-HZ	CNMM 646-HZ	19,050	6,35	2,40	7,94	10,00	3,20	12,00	1,00	0,60	1,60
CNMM 250924-HZ	CNMM 866-HZ	25,400	9,52	2,40	9,12	10,00	3,20	17,00	1,00	0,60	1,60

DN - RHOMBIC 55° NEGATIVE

RÔMBICA 55° NEGATIVA | RÓMBICA 55° NEGATIVA

Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	P								M							K				N	S			
			CVD							PVD	CVD			PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	5D	R3	1D	S9	V5	G1	U4	U5	V6	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
			PHG105	PHG115	PH2G115	PHG125	PH2G125	PHG135	PHG140	PH7910	PHS215	PHS225	PHS240	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
DNMA Roughing	1120975	DNMA 110404																	●	◆						
	1120312	DNMA 150404																	●	◆						
	1121178	DNMA 150412																	●	◆						
	1121496	DNMA 150416																	●	◆						
	1120314	DNMA 150604																	●	◆						
	1120315	DNMA 150608																	●	◆						
	1120316	DNMA 150612																	●	◆						
	1120317	DNMA 150616																	●	◆						
DNMG-MF Finishing	1121497	DNMG 110404-MF		◆	●		◆																			
	1121499	DNMG 110408-MF	◆		●	◆	◆																			
	1121502	DNMG 150404-MF		●	○	◆	◆			△											△					
	1121504	DNMG 150408-MF		●	○	◆	○			△											△					
	1121507	DNMG 150412-MF		●	○	◆	○																			
	1121515	DNMG 150604-MF		△	●	◆	◆																			
	1121516	DNMG 150608-MF		△	●	◆	◆			△																
	1121517	DNMG 150612-MF		○	●	◆	◆																			
DNMG-MF1 Finishing	1125073	DNMG 110412-MF1			●		◆																			
DNMG-MS Medium to Finishing	1121503	DNMG 150404-MS															●					●				●
	1121505	DNMG 150408-MS															●					●				●
	1121509	DNMG 150412-MS															○					○				○
	1121513	DNMG 150416-MS															○					○				○
	1121927	DNMG 150604-MS													◆		●					●		◆		●
	1121928	DNMG 150608-MS													◆		●					●		◆		●
	1122030	DNMG 150612-MS													◆		●					○		◆		●
DNMG-SF Medium to Finishing	1123749	DNMG 110404-SF									●	◆			◆	◆	◆							●	◆	◆
	1123750	DNMG 110408-SF									●	◆			◆	◆	◆							●	◆	◆
	1123751	DNMG 150404-SF									●	◆			◆	◆	◆							●	◆	◆
	1123752	DNMG 150408-SF									●	◆			◆	◆	◆							●	◆	◆
	1123753	DNMG 150412-SF									●	◆			◆	◆	◆							●	◆	◆
	1123754	DNMG 150604-SF									●	◆			◆	◆	◆							●	◆	◆
	1123755	DNMG 150608-SF									●	◆			◆	◆	◆							●	◆	◆
	1123756	DNMG 150612-SF									●	◆			◆	◆	◆							●	◆	◆

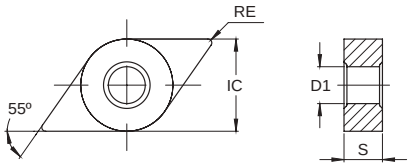
● First choice | 1ª Escolha | 1ª Opción

◆ Stock Itens | Itens de stock

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

△ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		IC	S	RE	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
DNMA 110404	DNMA 331	9,525	4,76	0,40	3,81	2,00	0,20	3,50	0,15	0,10	0,30
DNMA 150404	DNMA 431	12,700	4,76	0,40	5,16	3,00	0,20	4,00	0,15	0,10	0,30
DNMA 150412	DNMA 433	12,700	4,76	1,20	5,16	3,00	0,30	6,00	0,45	0,20	0,80
DNMA 150416	DNMA 434	12,700	4,76	1,60	5,16	3,00	0,30	6,00	0,55	0,20	1,00
DNMA 150604	DNMA 441	12,700	6,35	0,40	5,16	3,00	0,20	4,00	0,15	0,10	0,30
DNMA 150608	DNMA 442	12,700	6,35	0,80	5,16	3,00	0,20	6,00	0,35	0,15	0,60
DNMA 150612	DNMA 443	12,700	6,35	1,20	5,16	3,00	0,30	6,00	0,45	0,20	0,80
DNMA 150616	DNMA 444	12,700	6,35	1,60	5,16	3,00	0,30	6,00	0,55	0,20	1,00
DNMG 110404-MF	DNMG 331-MF	9,525	4,76	0,40	3,81	0,40	0,10	1,50	0,15	0,05	0,25
DNMG 110408-MF	DNMG 332-MF	9,525	4,76	0,80	3,81	0,40	0,10	1,50	0,20	0,10	0,40
DNMG 150404-MF	DNMG 431-MF	12,700	4,76	0,40	5,16	0,40	0,15	1,50	0,15	0,05	0,25
DNMG 150408-MF	DNMG 432-MF	12,700	4,76	0,80	5,16	0,40	0,20	1,50	0,20	0,10	0,40
DNMG 150412-MF	DNMG 433-MF	12,700	4,76	1,20	5,16	0,80	0,25	2,50	0,25	0,15	0,50
DNMG 150604-MF	DNMG 441-MF	12,700	6,35	0,40	5,16	0,40	0,10	1,50	0,15	0,05	0,25
DNMG 150608-MF	DNMG 442-MF	12,700	6,35	0,80	5,16	0,40	0,10	1,50	0,20	0,10	0,40
DNMG 150612-MF	DNMG 443-MF	12,700	6,35	1,20	5,16	0,80	0,20	2,50	0,25	0,15	0,50
DNMG 110412-MF1	DNMG 333-MF1	9,525	4,76	1,20	3,81	0,80	0,30	2,50	0,20	0,10	0,30
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
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
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
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
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
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
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
DNMG 110404-SF	DNMG 331-SF	9,525	4,76	0,40	3,81	1,50	0,60	3,00	0,15	0,10	0,23
DNMG 110408-SF	DNMG 332-SF	9,525	4,76	0,80	3,81	1,50	0,60	3,00	0,25	0,12	0,38
DNMG 150404-SF	DNMG 431-SF	12,700	4,76	0,40	5,16	1,50	0,60	3,00	0,15	0,10	0,23
DNMG 150408-SF	DNMG 432-SF	12,700	4,76	0,80	5,16	1,50	0,60	3,00	0,25	0,12	0,38
DNMG 150412-SF	DNMG 433-SF	12,700	4,76	1,20	5,16	1,50	0,60	3,00	0,35	0,15	0,55
DNMG 150604-SF	DNMG 441-SF	12,700	6,35	0,40	5,16	1,50	0,60	3,00	0,15	0,10	0,23
DNMG 150608-SF	DNMG 442-SF	12,700	6,35	0,80	5,16	1,50	0,60	3,00	0,25	0,12	0,38
DNMG 150612-SF	DNMG 443-SF	12,700	6,35	1,20	5,16	1,50	0,60	3,00	0,35	0,15	0,55

DN - RHOMBIC 55° NEGATIVE

RÔMBICA 55° NEGATIVA | RÓMBICA 55° NEGATIVA

			P								M							K				N	S			
			CVD							PVD	CVD			PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	5D	R3	1D	S9	V5	G1	U4	U5	V6	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	PHG105	PHG115	PH2G115	PHG125	PH2G125	PHG135	PHG140	PH7910	PHS215	PHS225	PHS240	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
DNMG-LC Medium to Finishing	1123662	DNMG 150404-LC		●	○	◈	○																			
	1123663	DNMG 150408-LC		◈	●		◈																			
	1123664	DNMG 150412-LC		●	○	◈	○																			
	1122020	DNMG 150604-LC	◈		●	◈	◈																			
	1122007	DNMG 150608-LC	◈	◈	●	◈	◈																			
	1123655	DNMG 150612-LC		●	○	◈	○																			
DNMG-GS Medium to Finishing	1124688	DNMG 110404-GS													◈		●							●		◈
	1124689	DNMG 110408-GS													◈		●							●		◈
	1124511	DNMG 150404-GS													◈		●							●		◈
	1124512	DNMG 150408-GS													◈		●							●		◈
	1124513	DNMG 150412-GS													◈		●							●		◈
	1124682	DNMG 150604-GS													◈		●							●		◈
	1124683	DNMG 150608-GS													◈		●							●		◈
	1124684	DNMG 150612-GS													◈		●							●		◈
DNMG-MR Medium	1121498	DNMG 110404-MR		◈	◈		●																			
	1121500	DNMG 110408-MR			◈		●																			
	1121218	DNMG 150404-MR			◈		●		◈													●				
	1121219	DNMG 150408-MR		◈	◈	◈	●		◈																	
	1121508	DNMG 150412-MR			○		○															●				
	1121224	DNMG 150604-MR		◈	◈		●															●				
	1121328	DNMG 150608-MR			○	◈	●		◈																	
	1121518	DNMG 150612-MR		◈	○	◈	●															●				
	1121522	DNMG 150616-MR					○																			
DNMG-PM Medium	1123924	DNMG 150404-PM	◈	◈	◈	◈	●																			
	1123916	DNMG 150408-PM	◈		◈		●																			
	1123925	DNMG 150412-PM	◈	◈	◈	△	●																			
	1123926	DNMG 150416-PM		◈	◈	◈	●																			
	1124065	DNMG 150604-PM	◈	◈	◈	◈	●																			
	1123777	DNMG 150608-PM	◈	◈	◈	◈	●																			
	1124066	DNMG 150612-PM	◈	◈	◈	◈	●																			
	1124082	DNMG 150616-PM		◈	◈	◈	●																			

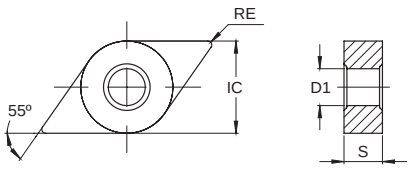
● First choice | 1ª Escolha | 1ª Opción

◈ Stock Itens | Itens de stock

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

△ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		IC	S	RE	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
DNMG 150404-LC	DNMG 431-LC	12,700	4,76	0,40	5,16	1,00	0,40	2,50	0,15	0,07	0,30
DNMG 150408-LC	DNMG 432-LC	12,700	4,76	0,80	5,16	1,50	0,40	2,50	0,20	0,10	0,40
DNMG 150412-LC	DNMG 433-LC	12,700	4,76	1,20	5,16	2,00	0,80	3,00	0,25	0,15	0,50
DNMG 150604-LC	DNMG 441-LC	12,700	6,35	0,40	5,16	1,50	0,40	3,00	0,15	0,07	0,30
DNMG 150608-LC	DNMG 442-LC	12,700	6,35	0,80	5,16	2,00	0,40	3,00	0,20	0,10	0,40
DNMG 150612-LC	DNMG 443-LC	12,700	6,35	1,20	5,16	2,50	0,80	3,50	0,25	0,15	0,50
DNMG 110404-GS	DNMG 331-GS	9,525	4,76	0,40	3,81	1,50	0,15	2,00	0,20	0,10	0,25
DNMG 110408-GS	DNMG 332-GS	9,525	4,76	0,80	3,81	2,00	0,20	2,50	0,25	0,10	0,30
DNMG 150404-GS	DNMG 431-GS	12,700	4,76	0,40	5,16	1,50	0,15	2,00	0,20	0,10	0,25
DNMG 150408-GS	DNMG 432-GS	12,700	4,76	0,80	5,16	2,00	0,20	2,50	0,25	0,10	0,30
DNMG 150412-GS	DNMG 433-GS	12,700	4,76	1,20	5,16	2,50	0,30	3,00	0,30	0,10	0,35
DNMG 150604-GS	DNMG 441-GS	12,700	6,35	0,40	5,16	1,50	0,15	2,00	0,20	0,10	0,25
DNMG 150608-GS	DNMG 442-GS	12,700	6,35	0,80	5,16	2,00	0,20	2,50	0,25	0,10	0,30
DNMG 150612-GS	DNMG 443-GS	12,700	6,35	1,20	5,16	2,50	0,30	3,00	0,30	0,10	0,35
DNMG 110404-MR	DNMG 331-MR	9,525	4,76	0,40	3,81	2,00	0,40	5,00	0,20	0,10	0,30
DNMG 110408-MR	DNMG 332-MR	9,525	4,76	0,80	3,81	2,00	0,50	5,00	0,30	0,15	0,50
DNMG 150404-MR	DNMG 431-MR	12,700	4,76	0,40	5,16	3,00	0,40	6,00	0,20	0,10	0,30
DNMG 150408-MR	DNMG 432-MR	12,700	4,76	0,80	5,16	3,00	0,50	6,00	0,30	0,15	0,50
DNMG 150412-MR	DNMG 433-MR	12,700	4,76	1,20	5,16	3,00	0,80	6,00	0,35	0,18	0,60
DNMG 150604-MR	DNMG 441-MR	12,700	6,35	0,40	5,16	3,00	0,40	6,00	0,20	0,10	0,30
DNMG 150608-MR	DNMG 442-MR	12,700	6,35	0,80	5,16	3,00	0,50	6,00	0,30	0,15	0,50
DNMG 150612-MR	DNMG 443-MR	12,700	6,35	1,20	5,16	3,00	0,80	6,00	0,35	0,18	0,60
DNMG 150616-MR	DNMG 444-MR	12,700	6,35	1,60	5,16	3,00	1,00	6,00	0,40	0,23	0,65
DNMG 150404-PM	DNMG 431-PM	12,700	4,76	0,40	5,16	3,00	0,40	6,00	0,20	0,10	0,30
DNMG 150408-PM	DNMG 432-PM	12,700	4,76	0,80	5,16	3,00	0,50	6,00	0,30	0,15	0,50
DNMG 150412-PM	DNMG 433-PM	12,700	4,76	1,20	5,16	3,00	0,80	6,00	0,35	0,18	0,60
DNMG 150416-PM	DNMG 434-PM	12,700	4,76	1,60	5,16	3,00	1,00	6,00	0,40	0,23	0,65
DNMG 150604-PM	DNMG 441-PM	12,700	6,35	0,40	5,16	2,50	0,50	5,00	0,25	0,15	0,40
DNMG 150608-PM	DNMG 442-PM	12,700	6,35	0,80	5,16	3,00	0,50	6,00	0,30	0,15	0,50
DNMG 150612-PM	DNMG 443-PM	12,700	6,35	1,20	5,16	3,50	0,50	7,00	0,35	0,20	0,60
DNMG 150616-PM	DNMG 444-PM	12,70	6,35	1,60	5,16	3,00	1,00	6,00	0,40	0,23	0,65

DN - RHOMBIC 55° NEGATIVE

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			P								M							K				N	S			
			CVD							PVD	CVD			PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	5D	R3	1D	S9	V5	G1	U4	U5	V6	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	PHG105	PHG115	PH2G115	PHG125	PH2G125	PHG135	PHG140	PH7910	PHS215	PHS225	PHS240	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
DNMG-ST Medium	1121346	DNMG 110404-ST																	◈	◈						
	1121347	DNMG 110408-ST																	◈	◈						
	1121255	DNMG 150404-ST																	◈	◈						
	1121256	DNMG 150408-ST																	◈	◈						
	1121512	DNMG 150412-ST																	◈	◈						
	1121514	DNMG 150416-ST																	◈	◈						
	1121257	DNMG 150604-ST																	◈	◈						
	1121258	DNMG 150608-ST																	◈	◈						
	1121521	DNMG 150612-ST																	◈	◈						
	1121523	DNMG 150616-ST																	◈	◈						
DNMG-MW Medium Wiper	1121374	DNMG 150408-MW			○		○													◈	◈					
	1121510	DNMG 150412-MW			○		○													◈	◈					
	1121375	DNMG 150608-MW		◈	○	◈	◈													◈	◈					
	1121519	DNMG 150612-MW		◈	○		○													◈	◈					
DNMG-SS Roughing to Medium	1121501	DNMG 110408-SS										◈		◇		◈							◇		◈	◈
	1121291	DNMG 150404-SS									◈	◈	◈	◇		◈							◇		◈	◈
	1121292	DNMG 150408-SS									◈	◈	◈	◇		◈							◇		◈	◈
	1121511	DNMG 150412-SS									◈	◈	◈	◇		◈							◇		◈	○
	1121284	DNMG 150604-SS									◈	◈	◈	◇		◈							◇		◈	◈
	1121285	DNMG 150608-SS									◈	◈	◈	◇		◈							◇		◈	◈
	1121520	DNMG 150612-SS									◈	◈	◈	◇		◈							◇		◈	◈
	1121287	DNMG 150616-SS										◈				◈									◈	○
DOMX-GS Roughing	1124595	DOMX 1506R1-GS	See our complete solution on pages C-478 to C-481																					◈		◈
	1124493	DOMX 1506L1-GS																						◈		◈
DNMG-HR Roughing	1121253	DNMG 150408-HR		◈	○	◇	○		◈										◈	◈						
	1121506	DNMG 150412-HR		◈	○	◈	○		○										◈	◈	◈					
	1121254	DNMG 150608-HR		◈	◈	◈	◈		◈										◈	◈						
	1121362	DNMG 150612-HR		◈	○	◈	◈		◈										◈	◈						
	1121340	DNMG 150616-HR			○	◈	◈		◈										◈	◈	◇					
DNMM-RP Roughing	1124205	DNMM 150612-RP		◈	○	◈	○																			

◈ First choice | 1ª Escolha | 1ª Opción

◈ Stock Itens | Itens de stock

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

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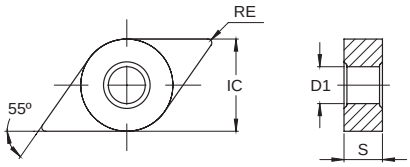
Insert Order Code: (1) Geometry code + (2) Grade code



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		IC	S	RE	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
DNMG 110404-ST	DNMG 331-ST	9,525	4,76	0,40	3,81	2,00	0,20	3,50	0,20	0,15	0,30
DNMG 110408-ST	DNMG 332-ST	9,525	4,76	0,80	3,81	2,00	0,20	3,50	0,35	0,15	0,50
DNMG 150404-ST	DNMG 431-ST	12,700	4,76	0,40	5,16	2,50	0,20	5,00	0,20	0,15	0,30
DNMG 150408-ST	DNMG 432-ST	12,700	4,76	0,80	5,16	2,50	0,50	5,00	0,35	0,15	0,50
DNMG 150412-ST	DNMG 433-ST	12,700	4,76	1,20	5,16	3,00	0,50	6,00	0,50	0,25	0,70
DNMG 150416-ST	DNMG 434-ST	12,700	4,76	1,60	5,16	3,00	0,30	6,00	0,60	0,25	1,00
DNMG 150604-ST	DNMG 441-ST	12,700	6,35	0,40	5,16	2,50	0,20	5,00	0,20	0,15	0,30
DNMG 150608-ST	DNMG 442-ST	12,700	6,35	0,80	5,16	2,50	0,20	5,00	0,35	0,15	0,50
DNMG 150612-ST	DNMG 443-ST	12,700	6,35	1,20	5,16	3,00	0,30	6,00	0,50	0,15	0,70
DNMG 150616-ST	DNMG 444-ST	12,700	6,35	1,60	5,16	3,00	0,30	6,00	0,60	0,25	1,00
DNMG 150408-MW	DNMG 432-MW	12,700	4,76	0,80	5,16	2,50	0,30	4,00	0,35	0,15	0,60
DNMG 150412-MW	DNMG 433-MW	12,700	4,76	1,20	5,16	3,00	0,50	5,00	0,50	0,25	0,90
DNMG 150608-MW	DNMG 442-MW	12,700	6,35	0,80	5,16	3,00	0,30	4,50	0,35	0,15	0,60
DNMG 150612-MW	DNMG 443-MW	12,700	6,35	1,20	5,16	3,50	0,50	5,50	0,50	0,25	0,90
DNMG 110408-SS	DNMG 332-SS	12,700	4,76	0,80	3,81	2,00	0,50	4,40	0,25	0,12	0,45
DNMG 150404-SS	DNMG 431-SS	12,700	4,76	0,40	5,16	3,00	0,30	6,00	0,25	0,10	0,30
DNMG 150408-SS	DNMG 432-SS	12,700	4,76	0,80	5,16	3,00	0,50	6,40	0,25	0,12	0,45
DNMG 150412-SS	DNMG 433-SS	12,700	4,76	1,20	5,16	3,00	0,50	6,40	0,30	0,15	0,60
DNMG 150604-SS	DNMG 441-SS	12,700	6,35	0,40	5,16	3,00	0,30	6,00	0,25	0,10	0,30
DNMG 150608-SS	DNMG 442-SS	12,700	6,35	0,80	5,16	3,00	0,50	6,40	0,25	0,12	0,45
DNMG 150612-SS	DNMG 443-SS	12,700	6,35	1,20	5,16	3,00	0,50	6,40	0,30	0,15	0,60
DNMG 150616-SS	DNMG 444-SS	12,700	6,35	1,60	5,16	3,00	0,50	6,40	0,50	0,20	1,00
DOMX 1506R1-GS	DOMX44R1-GS	12,70	6,35	0,80	5,16	1,50	0,30	1,50	0,30	0,20	0,50
DOMX 1506L1-GS	DOMX 44L1-GS	12,70	6,35	0,80	5,16	1,50	0,30	1,50	0,30	0,20	0,50
DNMG 150408-HR	DNMG 432-HR	12,700	4,76	0,80	5,16	4,00	0,80	6,00	0,35	0,20	0,55
DNMG 150412-HR	DNMG 433-HR	12,700	4,76	1,20	5,16	4,00	1,00	6,00	0,40	0,25	0,70
DNMG 150608-HR	DNMG 442-HR	12,700	6,35	0,80	5,16	4,00	0,80	6,00	0,35	0,20	0,55
DNMG 150612-HR	DNMG 443-HR	12,700	6,35	1,20	5,16	4,00	1,00	6,00	0,40	0,25	0,70
DNMG 150616-HR	DNMG 444-HR	12,700	6,35	1,60	5,16	4,00	1,50	6,00	0,50	0,30	0,80
DNMM 150612-RP	DNMM 443-RP	12,700	6,35	1,20	5,16	4,00	1,00	6,00	0,40	0,25	0,70

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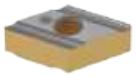
			P								M							K				N	S			
			CVD						PVD	CVD			PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	5D	R3	1D	S9	V5	G1	U4	U5	V6	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	PHG105	PHG115	PH2G115	PHG125	PH2G125	PHG135	PHG140	PH7910	PHS215	PHS225	PHS240	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
DNMX-02 Medium to Finishing	1120351	DNMX 150604-L02			◉	◉	◉																			
	1120353	DNMX 150604-R02		◉	◉	◉	◉																			
	1120355	DNMX 150608-L02		◉	○	◉	◉																			
	1120357	DNMX 150608-R02		◉	◉	◉	◉																			
DNMX-03  Medium	1123983	DNMX 150604-L03		◉	○		○																			
	1123815	DNMX 150604-R03		◉	○	◉	○																			
	1123796	DNMX 150608-L03			○	◉	○																			
	1123795	DNMX 150608-R03		◇	◉	◉	◉																			
DNMX-01 Roughing to Medium	1120348	DNMX 150408-L01			○		○																			
	1120349	DNMX 150408-R01			○		○																			
	1120350	DNMX 150604-L01			○		○																			
	1120352	DNMX 150604-R01		◉	○	◉	○																			
	1120354	DNMX 150608-L01			○	◉	○																			
	1120356	DNMX 150608-R01			○	◉	○																			

◉ First choice | 1ª Escolha | 1ª Opción

◉ Stock Itens | Itens de stock

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

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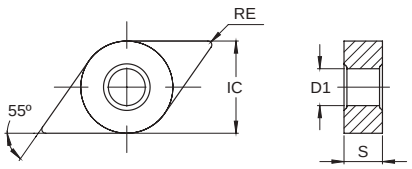
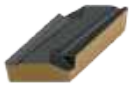
Insert Order Code: (1) Geometry code + (2) Grade code



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		IC	S	RE	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
DNMX 150604-L02	DNMX 441-L02	12,700	6,35	0,40	5,16	2,50	0,70	5,00	0,20	0,14	0,25
DNMX 150604-R02	DNMX 441-R02	12,700	6,35	0,40	5,16	2,50	0,70	5,00	0,20	0,14	0,25
DNMX 150608-L02	DNMX 442-L02	12,700	6,35	0,80	5,16	3,00	0,80	5,00	0,35	0,14	0,50
DNMX 150608-R02	DNMX 442-R02	12,700	6,35	0,80	5,16	3,00	0,80	5,00	0,35	0,14	0,50
DNMX 150604-L03	DNMX 441-L03	12,700	6,35	0,40	5,16	2,70	0,80	5,50	0,20	0,15	0,25
DNMX 150604-R03	DNMX 441-R03	12,700	6,35	0,40	5,16	2,70	0,80	5,50	0,20	0,15	0,25
DNMX 150608-L03	DNMX 442-L03	12,700	6,35	0,80	5,16	3,20	1,00	6,00	0,35	0,16	0,50
DNMX 150608-R03	DNMX 442-R03	12,700	6,35	0,80	5,16	3,20	1,00	6,00	0,35	0,16	0,50
DNMX 150408-L01	DNMX 432-L01	12,700	4,76	0,80	5,16	2,50	1,00	5,00	0,35	0,20	0,50
DNMX 150408-R01	DNMX 432-R01	12,700	4,76	0,80	5,16	2,50	1,00	5,00	0,35	0,20	0,50
DNMX 150604-L01	DNMX 441-L01	12,700	6,35	0,40	5,16	3,00	1,50	6,00	0,25	0,15	0,30
DNMX 150604-R01	DNMX 441-R01	12,700	6,35	0,40	5,16	3,00	1,50	6,00	0,25	0,15	0,30
DNMX 150608-L01	DNMX 442-L01	12,700	6,35	0,80	5,16	3,50	2,00	6,50	0,35	0,20	0,50
DNMX 150608-R01	DNMX 442-R01	12,700	6,35	0,80	5,16	3,50	2,00	6,50	0,35	0,20	0,50

KN - PARALLELOGRAM 55° NEGATIVE

PARALELOGRAMA 55° NEGATIVA | PARALELOGRAMO 55° NEGATIVA

			P								M							K				N	S			
			CVD							PVD	CVD			PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	5D	R3	1D	S9	V5	G1	U4	U5	V6	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	PHG105	PHG115	PH2G115	PHG125	PH2G125	PHG135	PHG140	PH7910	PHS215	PHS225	PHS240	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
KNUX-01  Finishing	1120368	KNUX 160405-L01-PD			◉	⚠	○																			
	1120371	KNUX 160405-R01-PD		⚠	◉	⚠	⚠	○																		
KNUX-02 Medium	1120374	KNUX 160410-L02		⚠	○	⚠	◉																			
	1120376	KNUX 160410-R02		⚠	○	⚠	◉																			

◉ First choice | 1ª Escolha | 1ª Opción
⚠ Stock Itens | Itens de stock
○ Available under request | Disponível sob consulta | Disponible bajo consulta
⚠ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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

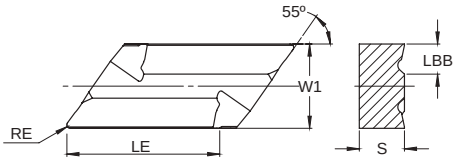
RN - ROUND NEGATIVE

REDONDA NEGATIVA | REDONDA NEGATIVA

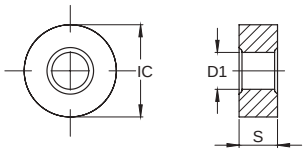
			P								M							K				N	S			
			CVD							PVD	CVD			PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	5D	R3	1D	S9	V5	G1	U4	U5	V6	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	PHG105	PHG115	PH2G115	PHG125	PH2G125	PHG135	PHG140	PH7910	PHS215	PHS225	PHS240	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
RNMG-ST Medium	1120439	RNMG 090300-ST				⚠	◉																			
	1120440	RNMG 120400-ST					◉																			
	1120441	RNMG 150600-ST					○																			
	1120442	RNMG 190600-ST				⚠	○																			
	1120443	RNMG 250900-ST					○													⚠						

◉ First choice | 1ª Escolha | 1ª Opción
⚠ Stock Itens | Itens de stock
○ Available under request | Disponível sob consulta | Disponible bajo consulta
⚠ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)					Cutting Conditions Condições de Corte Condiciones de Corte					
		LE	W1	RE	S	LBB	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
KNUX 160405-L01	KNUX 160405-L01	16,50	9,525	0,5	4,76	2,5	3,00	1,00	6,00	0,30	0,20	0,35
KNUX 160405-R01	KNUX 160405-R01	16,50	9,525	0,5	4,76	2,5	3,00	1,00	6,00	0,30	0,20	0,35
KNUX 160410-L02	KNUX 160410-L02	16,50	9,525	1,0	4,76	3,2	4,00	1,50	6,00	0,50	0,40	0,70
KNUX 160410-R02	KNUX 160410-R02	16,50	9,525	1,0	4,76	3,2	4,00	1,50	6,00	0,50	0,40	0,70



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		IC	S	RE	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
RNMG 090300-ST	RNMG 320-ST	9,525	3,18	-	3,81	2,30	0,90	4,50	0,30	0,10	0,90
RNMG 120400-ST	RNMG 430-ST	12,700	4,76	-	5,16	3,00	1,20	4,80	0,40	0,12	1,20
RNMG 150600-ST	RNMG 540-ST	15,875	6,35	-	6,35	3,80	1,50	7,50	0,50	0,15	1,50
RNMG 190600-ST	RNMG 640-ST	19,050	6,35	-	7,94	4,50	1,90	7,60	0,65	0,20	1,90
RNMG 250900-ST	RNMG 860-ST	25,400	9,52	-	9,12	6,30	2,50	10,00	0,80	0,25	2,50

SN - SQUARE 90° NEGATIVE

QUADRADA 90° NEGATIVA | ESQUADRA 90° NEGATIVA

			P								M							K				N	S				
			CVD							PVD	CVD			PVD				UNC	CVD			UNC	PVD				
		(2) Grade code	T6	R2	5D	R3	1D	S9	V5	G1	U4	U5	V6	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3	
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	PHG105	PHG115	PH2G115	PHG125	PH2G125	PHG135	PHG140	PH7910	PHS215	PHS225	PHS240	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920	
SNMA	1121070	SNMA 090304																	◈	◈							
	1120474	SNMA 090308																	◈	◈							
	1120475	SNMA 120404																	◇	◇							
	1120476	SNMA 120408																	◈	◈							
	1120478	SNMA 120412																	◈	◈							
	1120479	SNMA 120416																	◈	◈							
	1120481	SNMA 150412																	◈	◈							
	1121525	SNMA 150612																	◈	◈							
	1120482	SNMA 190612																	◈	◈							
	1120483	SNMA 190616																	◈	◈							
	1120485	SNMA 190624																	◈	◈							
	1120486	SNMA 250724																○	◈	◈							
SNMG-MF	1121528	SNMG 120404-MF		◈	○	◈	◈																				
	1121530	SNMG 120408-MF		◈	○	◈	○																				
Finishing	1121531	SNMG 120412-MF		◈	◈	◈	○																				
SNMG-SF	1123874	SNMG 120404-SF									◈	◈		◇	◈		◈						◇	◈		◈	
	1123875	SNMG 120408-SF									◈	◈		◇	◈	◈	◈						◇	◈	◈	◈	
Medium to Finishing	1123876	SNMG 120412-SF									◈	◈		◈	◈	◈	◈						◈	◈	◈	◈	
SNMG-GS	1124556	SNMG 120408-GS													◈		◈							◈		◈	
	1124557	SNMG 120412-GS													◈		◈							◈		◈	
Medium to Finishing	1124558	SNMG 120416-GS													◈		◈							◈		◈	
SNMG-MR	1121529	SNMG 120404-MR		◈	○	◇	◈														◈						
	1121179	SNMG 120408-MR		◈	◈	◈	◈		◈												◇						
	1121311	SNMG 120412-MR		◈	◈	◇	◈		◈																		
Medium	1121357	SNMG 120416-MR			○	◈	◈														◈						
	1121533	SNMG 150608-MR		◈	○	◈	○		◈																		
	1121536	SNMG 150612-MR		◈	◈	◈	◈		◈																		
	1121540	SNMG 150616-MR					○																				
	1121543	SNMG 190612-MR			○		◈		◈												◇						
	1121546	SNMG 190616-MR			○	◇	◈		◈																		
SNMG-PM	1124083	SNMG 120404-PM	◈		◈	◈	◈																				
	1124084	SNMG 120408-PM	◈	◈	◈	◈	◈																				
Medium	1124085	SNMG 120412-PM	◈	◈	◈	◈	◈																				

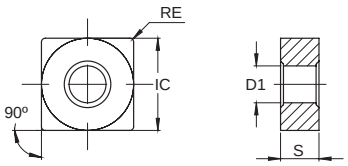
◈ First choice | 1ª Escolha | 1ª Opción

◈ Stock Itens | Itens de stock

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

◇ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		IC	S	RE	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
SNMA 090304	SNMA 321	9,525	3,18	0,40	3,81	2,50	0,20	4,50	0,20	0,15	0,30
SNMA 090308	SNMA 322	9,525	3,18	0,80	3,81	2,50	0,40	4,50	0,40	0,20	0,60
SNMA 120404	SNMA 431	12,700	4,76	0,40	5,16	4,00	0,20	8,00	0,20	0,15	0,30
SNMA 120408	SNMA 432	12,700	4,76	0,80	5,16	4,00	0,20	8,00	0,40	0,20	0,60
SNMA 120412	SNMA 433	12,700	4,76	1,20	5,16	4,00	0,30	8,00	0,45	0,20	0,80
SNMA 120416	SNMA 434	12,700	4,76	1,60	5,16	4,00	0,30	8,00	0,55	0,20	1,00
SNMA 150412	SNMA 533	15,875	4,76	1,20	6,35	5,00	0,30	9,00	0,45	0,20	0,80
SNMA 150612	SNMA 543	15,875	6,35	1,20	6,35	5,00	0,30	10,00	0,45	0,20	0,80
SNMA 190612	SNMA 643	19,050	6,35	1,20	7,94	6,00	0,30	12,00	0,45	0,20	0,80
SNMA 190616	SNMA 644	19,050	6,35	1,60	7,94	6,00	0,30	12,00	0,55	0,20	1,00
SNMA 190624	SNMA 646	19,050	6,35	2,40	7,94	6,00	0,30	12,00	0,60	0,20	1,20
SNMA 250724	SNMA 856	25,400	7,94	2,40	9,12	6,00	0,40	12,00	0,60	0,20	1,40
SNMG 120404-MF	SNMG 431-MF	12,700	4,76	0,40	5,16	0,40	0,15	1,50	0,10	0,05	0,25
SNMG 120408-MF	SNMG 432-MF	12,700	4,76	0,80	5,16	0,50	0,20	1,50	0,20	0,10	0,40
SNMG 120412-MF	SNMG 433-MF	12,700	4,76	1,20	5,16	0,80	0,25	2,50	0,30	0,20	0,60
SNMG 120404-SF	SNMG 431-SF	12,700	4,76	0,40	5,16	2,00	1,00	4,00	0,15	0,10	0,23
SNMG 120408-SF	SNMG 432-SF	12,700	4,76	0,80	5,16	2,00	1,00	4,00	0,20	0,12	0,38
SNMG 120412-SF	SNMG 433-SF	12,700	4,76	1,20	5,16	2,50	1,00	4,00	0,25	0,15	0,55
SNMG 120408-GS	SNMG 432-GS	12,700	4,76	0,80	5,16	2,00	0,20	3,00	0,30	0,15	0,40
SNMG 120412-GS	SNMG 433-GS	12,700	4,76	1,20	5,16	2,50	0,50	3,50	0,35	0,20	0,50
SNMG 120416-GS	SNMG 434-GS	12,700	4,76	1,60	5,16	3,00	0,50	4,00	0,40	0,20	0,50
SNMG 120404-MR	SNMG 431-MR	12,700	4,76	0,40	5,16	3,00	0,40	6,00	0,20	0,10	0,30
SNMG 120408-MR	SNMG 432-MR	12,700	4,76	0,80	5,16	3,00	0,50	6,00	0,30	0,15	0,50
SNMG 120412-MR	SNMG 433-MR	12,700	4,76	1,20	5,16	3,00	0,80	6,00	0,35	0,18	0,60
SNMG 120416-MR	SNMG 434-MR	12,700	4,76	1,60	5,16	3,00	1,00	6,00	0,40	0,23	0,65
SNMG 150608-MR	SNMG 542-MR	15,875	6,35	0,80	6,35	4,00	0,60	7,50	0,30	0,15	0,50
SNMG 150612-MR	SNMG 543-MR	15,875	6,35	1,20	6,35	4,00	0,80	7,50	0,35	0,18	0,60
SNMG 150616-MR	SNMG 534-MR	15,875	6,35	1,60	6,35	4,00	1,00	7,50	0,40	0,20	0,70
SNMG 190612-MR	SNMG 643-MR	19,050	6,35	1,20	7,94	5,00	0,80	9,00	0,35	0,18	0,60
SNMG 190616-MR	SNMG 644-MR	19,050	6,35	1,60	7,94	5,00	1,00	9,00	0,40	0,23	0,65
SNMG 120404-PM	SNMG 431-PM	12,70	4,76	0,40	5,16	3,00	0,40	6,00	0,20	0,10	0,30
SNMG 120408-PM	SNMG 432-PM	12,70	4,76	0,80	5,16	3,00	0,50	6,00	0,30	0,15	0,50
SNMG 120412-PM	SNMG 433-PM	12,70	4,76	1,20	5,16	3,00	0,80	6,00	0,35	0,18	0,60

SN - SQUARE 90° NEGATIVE

QUADRADA 90° NEGATIVA | ESQUADRA 90° NEGATIVA

			P								M							K				N	S			
			CVD							PVD	CVD			PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	5D	R3	1D	S9	V5	G1	U4	U5	V6	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	PHG105	PHG115	PH2G115	PHG125	PH2G125	PHG135	PHG140	PH7910	PHS215	PHS225	PHS240	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
SNMG-ST Medium	1121338	SNMG 090308-ST																	◈	◈						
	1121241	SNMG 120404-ST																	○	◈						
	1121181	SNMG 120408-ST																	◈	◈						
	1121310	SNMG 120412-ST																	◈	◈	○					
	1121242	SNMG 120416-ST																	◈	◈						
	1121538	SNMG 150612-ST																	○	○						
	1121541	SNMG 150616-ST																	○	◈						
	1121544	SNMG 190612-ST																	◈	◈						
	1121548	SNMG 190616-ST																○	◈	◈						
SNMG-SS Roughing to Medium	1121526	SNMG 090304-SS														◈									◈	
	1121527	SNMG 090308-SS														◈									◈	
	1121365	SNMG 120404-SS										◈				◈									◈	
	1121315	SNMG 120408-SS										◈	◈			◈									◈	
	1121366	SNMG 120412-SS										◈				◈									◈	
	1121532	SNMG 120416-SS										◈														
	1121534	SNMG 150608-SS										◈														
	1121537	SNMG 150612-SS										◈														
	1121547	SNMG 190616-SS										◈														
SNMG-HR Roughing	1121194	SNMG 120408-HR		◈	○	◈	◈		◈										◬	◈	◬					
	1121195	SNMG 120412-HR		◈	○	◬	◈		◈										◬	◈						
	1121361	SNMG 120416-HR		◈	○		◈													◈	◈					
	1121535	SNMG 150612-HR				◈	◈		◈												◬					
	1121539	SNMG 150616-HR				◈	○		◈												◬					
	1121542	SNMG 190612-HR		◈	◈	◈	○														◬					
	1121545	SNMG 190616-HR		◈	○		◈		◈												○					
	1124184	SNMG 250724-HR				◈	○																			
	1121638	SNMG 250924-HR				◈	○		◈												○					

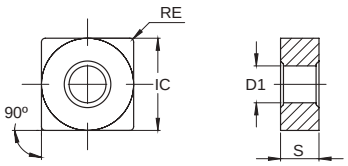
◈ First choice | 1ª Escolha | 1ª Opción

◈ Stock Itens | Itens de stock

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

◬ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		IC	S	RE	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
SNMG 090308-ST	SNMG 322-ST	9,525	3,18	0,80	3,81	2,50	0,20	4,50	0,35	0,15	0,50
SNMG 120404-ST	SNMG 431-ST	12,700	4,76	0,40	5,16	3,00	0,20	6,00	0,20	0,15	0,30
SNMG 120408-ST	SNMG 432-ST	12,700	4,76	0,80	5,16	3,00	0,20	6,00	0,35	0,15	0,50
SNMG 120412-ST	SNMG 433-ST	12,700	4,76	1,20	5,16	3,00	0,30	6,00	0,40	0,15	0,60
SNMG 120416-ST	SNMG 434-ST	12,700	4,76	1,60	5,16	3,00	0,30	6,00	0,45	0,20	0,70
SNMG 150612-ST	SNMG 543-ST	15,875	6,35	1,20	6,35	4,00	0,30	8,00	0,40	0,15	0,64
SNMG 150616-ST	SNMG 544-ST	15,875	6,35	1,60	6,35	4,00	0,30	8,00	0,50	0,20	0,76
SNMG 190612-ST	SNMG 643-ST	19,050	6,35	1,20	7,94	4,50	0,30	9,00	0,40	0,15	0,60
SNMG 190616-ST	SNMG 644-ST	19,050	6,35	1,60	7,94	4,50	0,30	9,00	0,45	0,20	0,70
SNMG 090304-SS	SNMG 321-SS	9,525	3,18	0,40	3,81	2,00	0,50	4,50	0,20	0,10	0,30
SNMG 090308-SS	SNMG 322-SS	9,525	3,18	0,80	3,81	2,00	0,50	4,50	0,25	0,12	0,45
SNMG 120404-SS	SNMG 431-SS	12,700	4,76	0,40	5,16	3,00	0,50	6,40	0,20	0,12	0,30
SNMG 120408-SS	SNMG 432-SS	12,700	4,76	0,80	5,16	3,00	0,50	6,40	0,25	0,12	0,45
SNMG 120412-SS	SNMG 433-SS	12,700	4,76	1,20	5,16	3,00	0,50	6,40	0,30	0,15	0,60
SNMG 120416-SS	SNMG 434-SS	12,700	4,76	1,60	5,16	3,00	0,50	6,40	0,45	0,15	0,80
SNMG 150608-SS	SNMG 542-SS	15,875	6,35	0,80	6,35	4,00	0,50	8,00	0,25	0,12	0,45
SNMG 150612-SS	SNMG 543-SS	15,875	6,35	1,20	6,35	4,00	0,50	8,00	0,30	0,15	0,60
SNMG 190616-SS	SNMG 644-SS	19,050	6,35	1,60	7,94	4,00	0,50	8,00	0,45	0,15	0,80
SNMG 120408-HR	SNMG 432-HR	12,700	4,76	0,80	5,16	4,00	0,80	7,00	0,35	0,20	0,55
SNMG 120412-HR	SNMG 433-HR	12,700	4,76	1,20	5,16	4,00	1,00	7,00	0,40	0,25	0,70
SNMG 120416-HR	SNMG 434-HR	12,700	4,76	1,60	5,16	4,00	1,50	7,00	0,50	0,32	0,80
SNMG 150612-HR	SNMG 543-HR	15,875	6,35	1,20	6,35	4,00	1,00	8,00	0,40	0,25	0,70
SNMG 150616-HR	SNMG 544-HR	15,875	6,35	1,60	6,35	4,00	1,50	8,00	0,50	0,32	0,80
SNMG 190612-HR	SNMG 643-HR	19,050	6,35	1,20	7,94	5,00	1,00	10,00	0,40	0,25	0,70
SNMG 190616-HR	SNMG 644-HR	19,050	6,35	1,60	7,94	5,00	1,50	10,00	0,50	0,32	0,80
SNMG 250724-HR	SNMG 856-HR	25,400	7,94	2,40	9,12	6,00	2,00	15,00	1,00	0,40	1,20
SNMG 250924-HR	SNMG 866-HR	25,400	9,52	2,40	9,12	6,00	2,00	15,00	1,00	0,40	1,20

SN - SQUARE 90° NEGATIVE

QUADRADA 90° NEGATIVA | ESQUADRA 90° NEGATIVA

			P								M							K				N	S			
			CVD							PVD	CVD			PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	5D	R3	1D	S9	V5	G1	U4	U5	V6	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	PHG105	PHG115	PH2G115	PHG125	PH2G125	PHG135	PHG140	PH7910	PHS215	PHS225	PHS240	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
SNMM-RP Roughing	1124057	SNMM 150608-RP		◉	○	◉	○																			
	1124058	SNMM 150612-RP		◉	○		◉																			
	1124059	SNMM 150616-RP		◉	◉		◉																			
	1124001	SNMM 190612-RP		◉	○	◉	○																			
	1124002	SNMM 190616-RP		△	◉	◉	○																			
	1124003	SNMM 190624-RP			○	◉	○	△																		
SNMM-HY Heavy to Roughing	1121606	SNMM 190612-HY		◉	○	◉	○		◉				◉								△					
	1121250	SNMM 190616-HY		◉	○	◉	○						○													
	1121452	SNMM 190624-HY			○		○						○													
	1121160	SNMM 250724-HY			◉	◉	○		◉				◉													
	1121161	SNMM 250924-HY			○		○		◉				◉													
SNMM-HZ Heavy to Roughing	1121605	SNMM 190612-HZ		◉	○		○													◉	◉					
	1121249	SNMM 190616-HZ			○	◉	○		◉											◉	○					
	1121440	SNMM 190624-HZ			○	◉	○	○												◉	◉					
	1121158	SNMM 250724-HZ		◉	○	◉	◉		◉											◉	○					
	1123786	SNMM 250732-HZ			○	◉	○																			
	1121159	SNMM 250924-HZ		◉	○	◉	○		◉											◉	○					

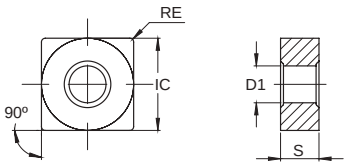
◉ First choice | 1ª Escolha | 1ª Opción

◉ Stock Itens | Itens de stock

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

△ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		IC	S	RE	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
SNMM 150608-RP	SNMG 542-RP	15,875	6,35	0,80	6,35	4,00	1,00	8,00	0,30	0,15	0,50
SNMM 150612-RP	SNMG 543-RP	15,875	6,35	1,20	6,35	4,00	1,00	8,00	0,40	0,25	0,70
SNMM 150616-RP	SNMG 544-RP	15,875	6,35	1,60	6,35	4,00	1,00	8,00	0,50	0,35	0,90
SNMM 190612-RP	SNMM 643-RP	19,05	6,35	1,20	7,94	5,50	2,00	12,00	0,60	0,30	0,85
SNMM 190616-RP	SNMM 644-RP	19,05	6,35	1,60	7,94	6,00	2,00	12,00	0,60	0,35	1,00
SNMM 190624-RP	SNMM 646-RP	19,05	6,35	2,40	7,94	6,00	2,00	12,00	0,80	0,50	1,50
SNMM 190612-HY	SNMM 643-HY	19,050	6,35	1,20	7,94	6,00	2,00	12,00	0,60	0,35	0,90
SNMM 190616-HY	SNMM 644-HY	19,050	6,35	1,60	7,94	6,00	2,00	12,00	0,60	0,35	1,20
SNMM 190624-HY	SNMM 646-HY	19,050	6,35	2,40	7,94	6,00	2,00	12,00	1,00	0,60	1,60
SNMM 250724-HY	SNMM 856-HY	25,400	7,94	2,40	9,12	8,50	2,50	15,00	1,00	0,60	1,60
SNMM 250924-HY	SNMM 866-HY	25,400	9,52	2,40	9,12	8,50	3,00	15,00	1,00	0,60	1,60
SNMM 190612-HZ	SNMM 643-HZ	19,050	6,35	1,20	7,94	10,00	2,40	13,00	0,60	0,35	0,90
SNMM 190616-HZ	SNMM 644-HZ	19,050	6,35	1,60	7,94	10,00	2,40	13,00	0,60	0,35	1,20
SNMM 190624-HZ	SNMM 646-HZ	19,050	6,35	2,40	7,94	10,00	3,20	13,00	1,00	0,60	1,60
SNMM 250724-HZ	SNMM 856-HZ	25,400	7,94	2,40	9,12	10,00	3,20	17,00	1,00	0,60	1,60
SNMM 250732-HZ	SNMM 858-HZ	25,400	7,94	3,20	9,12	10,00	3,20	17,00	1,20	0,80	1,80
SNMM 250924-HZ	SNMM 866-HZ	25,400	9,52	2,40	9,12	10,00	3,20	17,00	1,00	0,60	1,60

TN - TRIANGULAR 60° NEGATIVE

TRIANGULAR 60° NEGATIVA | TRIANGULAR 60° NEGATIVA

			P								M							K				N	S			
			CVD							PVD	CVD			PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	5D	R3	1D	S9	V5	G1	U4	U5	V6	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	PHG105	PHG115	PH2G115	PHG125	PH2G125	PHG135	PHG140	PH7910	PHS215	PHS225	PHS240	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
TNMA Roughing	1120624	TNMA 110304																	●	◈						
	1120625	TNMA 110308																	●	◈						
	1120626	TNMA 160304																	●	◈						
	1120627	TNMA 160308																	●	◈						
	1120629	TNMA 160404																	●	◈						
	1120630	TNMA 160408																	●	◈						
	1120632	TNMA 160412																	●	◈						
	1121921	TNMA 160416																	●	◈						
	1120634	TNMA 220404																	●	◈						
	1120635	TNMA 220408																	●	◈						
	1120636	TNMA 220412																	●	◈						
	1120637	TNMA 220416																	●	◈						
	1121554	TNMA 270608																	●	◈						
	1121555	TNMA 270612																	●	◈						
	1120639	TNMA 270616																	●	◈						
	1120640	TNMA 330724																	●	◈						
NEW TNMG-GSF Fine Finishing	1124857	TNMG 160402-GSF													◈		◈							◈		◈
TNMG-MF Finishing	1121556	TNMG 160404-MF	◈		●	◇	◈			◇																
	1121558	TNMG 160408-MF	◈		●	◇	◈			◇																
	1121560	TNMG 160412-MF		●	○	◈	○																			
	1121369	TNMG 220408-MF			○																					
TNMG-MS Medium to Finishing	1124856	TNMG 160402-MS													◈		◈							◈		◈
	1121557	TNMG 160404-MS													◈		◈					●		◈		◈
	1121559	TNMG 160408-MS													◈		◈					●		◈		◈
	1121561	TNMG 160412-MS													◈		◈					●		◈		◈
TNMG-SF Medium to Finishing	1123757	TNMG 160404-SF									●	◈			◈	◈	◈							◈	◈	◈
	1123719	TNMG 160408-SF									●	◈			◈	◈	◈							◈	◈	◈
	1123758	TNMG 160412-SF									●	◈		◇	◈	◈	◈						◇	◈	◈	◈
	1124070	TNMG 220404-SF									●	◈			◈	◈	◈							◈	◈	◈
	1123759	TNMG 220408-SF									●	◈			◈	◈	◈							◈	◈	◈
	1124028	TNMG 220412-SF									●	◈			◈	◈	◈							◈	◈	◈
TNMG-LC Medium to Finishing	1123638	TNMG 160404-LC	◈	◈	●	◇	◈																			
	1122025	TNMG 160408-LC		◇	●		◈																			
	1123656	TNMG 160412-LC		●	○	◈	○																			
	1123660	TNMG 220408-LC		●	○		○																			
	1123657	TNMG 220412-LC			○		○																			

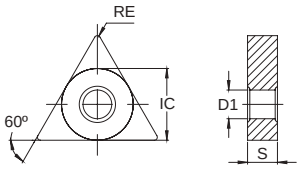
● First choice | 1ª Escolha | 1ª Opción

◈ Stock Itens | Itens de stock

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

◇ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		IC	S	RE	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
TNMA 110304	TNMA 221	6,350	3,18	0,40	2,26	2,00	0,15	4,00	0,20	0,10	0,30
TNMA 110308	TNMA 222	6,350	3,18	0,80	2,26	2,00	0,15	4,00	0,35	0,15	0,60
TNMA 160304	TNMA 321	9,525	3,18	0,40	3,81	2,50	0,20	5,00	0,20	0,10	0,30
TNMA 160308	TNMA 322	9,525	3,18	0,80	3,81	2,50	0,20	5,00	0,35	0,15	0,60
TNMA 160404	TNMA 331	9,525	4,76	0,40	3,81	2,50	0,20	5,00	0,20	0,10	0,30
TNMA 160408	TNMA 332	9,525	4,76	0,80	3,81	3,50	0,20	7,00	0,35	0,15	0,60
TNMA 160412	TNMA 333	9,525	4,76	1,20	3,81	3,50	0,30	7,00	0,45	0,20	0,80
TNMA 160416	TNMA 334	9,525	4,76	1,60	3,81	3,50	0,30	7,00	0,55	0,20	1,00
TNMA 220404	TNMA 431	12,700	4,76	0,40	5,16	4,00	0,20	10,00	0,20	0,10	0,30
TNMA 220408	TNMA 432	12,700	4,76	0,80	5,16	5,00	0,20	10,00	0,35	0,15	0,60
TNMA 220412	TNMA 433	12,700	4,76	1,20	5,16	5,00	0,30	10,00	0,45	0,20	0,80
TNMA 220416	TNMA 434	12,700	4,76	1,60	5,16	5,00	0,30	10,00	0,55	0,20	1,00
TNMA 270608	TNMA 542	15,875	6,35	0,80	6,35	5,00	0,30	12,00	0,35	0,15	0,60
TNMA 270612	TNMA 543	15,875	6,35	1,20	6,35	5,00	0,30	12,00	0,45	0,20	0,80
TNMA 270616	TNMA 544	15,875	6,35	1,60	6,35	5,00	0,30	12,00	0,55	0,20	1,00
TNMA 330724	TNMA 656	19,050	7,94	2,40	7,94	6,50	0,30	15,00	0,60	0,30	2,00
TNMG 160402-GSF	TNMG 330.5-GSF	9,525	4,76	0,20	3,81	1,55	0,10	3,00	0,19	0,08	0,30
TNMG 160404-MF	TNMG 331-MF	9,525	4,76	0,40	3,81	0,40	0,10	1,50	0,15	0,05	0,25
TNMG 160408-MF	TNMG 332-MF	9,525	4,76	0,80	3,81	0,40	0,10	1,50	0,20	0,10	0,40
TNMG 160412-MF	TNMG 333-MF	9,525	4,76	1,20	3,81	1,00	0,20	2,50	0,30	0,15	0,60
TNMG 220408-MF	TNMG 432-MF	12,700	4,76	0,80	5,16	1,50	0,25	2,50	0,20	0,10	0,40
TNMG 160402-MS	TNMG 330.5-MS	9,525	4,76	0,20	3,81	1,50	0,20	3,80	0,10	0,08	0,15
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
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
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
TNMG 160404-SF	TNMG 331-SF	9,525	4,76	0,40	3,81	1,50	0,60	3,00	0,15	0,10	0,23
TNMG 160408-SF	TNMG 332-SF	9,525	4,76	0,80	3,81	1,50	0,60	3,00	0,25	0,12	0,38
TNMG 160412-SF	TNMG 333-SF	9,525	4,76	1,20	3,81	1,50	0,60	3,00	0,35	0,15	0,55
TNMG 220404-SF	TNMG 431-SF	12,700	4,76	0,40	5,16	1,50	0,60	3,00	0,20	0,10	0,35
TNMG 220408-SF	TNMG 432-SF	12,700	4,76	0,80	5,16	1,50	0,60	3,00	0,25	0,12	0,40
TNMG 220412-SF	TNMG 433-SF	12,700	4,76	1,20	5,16	1,50	0,60	3,00	0,35	0,15	0,55
TNMG 160404-LC	TNMG 331-LC	9,525	4,76	0,40	3,81	1,00	0,40	2,50	0,15	0,07	0,30
TNMG 160408-LC	TNMG 332-LC	9,525	4,76	0,80	3,81	1,50	0,40	2,50	0,20	0,10	0,40
TNMG 160412-LC	TNMG 333-LC	9,525	4,76	1,20	3,81	2,00	0,80	3,00	0,25	0,15	0,50
TNMG 220408-LC	TNMG 432-LC	12,700	4,76	0,80	5,16	2,00	0,40	3,00	0,20	0,10	0,40
TNMG 220412-LC	TNMG 433-LC	12,700	4,76	1,20	5,16	2,50	0,80	3,50	0,25	0,15	0,50

TN - TRIANGULAR 60° NEGATIVE

TRIANGULAR 60° NEGATIVA | TRIANGULAR 60° NEGATIVA

			P								M							K				N	S			
			CVD							PVD	CVD			PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	5D	R3	1D	S9	V5	G1	U4	U5	V6	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	PHG105	PHG115	PH2G115	PHG125	PH2G125	PHG135	PHG140	PH7910	PHS215	PHS225	PHS240	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
TNMG-GS Medium to Finishing	1124508	TNMG 160404-GS													●		●							●		●
	1124509	TNMG 160408-GS													●		●							●		●
	1124510	TNMG 160412-GS													●		●							●		●
TNMG-MR Medium	1122000	TNMG 160308-MR		◉	○	◉	○																			
	1121281	TNMG 160404-MR		◉	◉	△	●		◉																	
	1121269	TNMG 160408-MR		◉	◉	◉	●		◉																	
	1121282	TNMG 160412-MR			○	●	○		◉																	
	1121562	TNMG 160416-MR					○																			
	1121625	TNMG 220404-MR			○	◉	●		◉																	
	1121305	TNMG 220408-MR		△		◉	●		◉																	
	1121307	TNMG 220412-MR			○	◉	●														●					
	1121564	TNMG 220416-MR					○														●					
TNMG-PM Medium	1123991	TNMG 160404-PM	◉	◉	◉	◉	●																			
	1123917	TNMG 160408-PM	◉	◉	◉	◉	●																			
	1123992	TNMG 160412-PM	◉	◉	◉	◉	●																			
	1123993	TNMG 160416-PM		◉	◉	◉	●																			
	1123922	TNMG 220404-PM		◉	◉	◉	●																			
	1123923	TNMG 220408-PM		◉	◉	◉	●																			
	1123994	TNMG 220412-PM		◉	◉	◉	●																			
	1123995	TNMG 220416-PM		◉	◉	◉	●																			
TNMG-ST Medium	1121210	TNMG 110308-ST																		●						
	1121211	TNMG 160304-ST																		●						
	1121212	TNMG 160308-ST																		●						
	1121294	TNMG 160404-ST																	◉	●						
	1121268	TNMG 160408-ST																	◉	●						
	1121348	TNMG 160412-ST																	◉	●						
	1121563	TNMG 160416-ST																	◉	●						
	1121349	TNMG 220404-ST																	◉	●						
	1121350	TNMG 220408-ST																	◉	●						
	1121354	TNMG 220412-ST																	◉	●						
	1121351	TNMG 220416-ST																	◉	●						

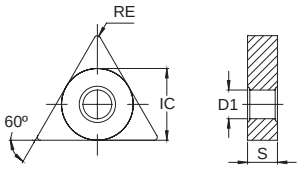
● First choice | 1ª Escolha | 1ª Opción

◉ Stock Itens | Itens de stock

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

△ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		IC	S	RE	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
TNMG 160404-GS	TNMG 331-GS	9,525	4,76	0,40	3,81	2,00	0,15	3,00	0,20	0,10	0,30
TNMG 160408-GS	TNMG 332-GS	9,525	4,76	0,80	3,81	2,50	0,20	3,00	0,25	0,10	0,30
TNMG 160412-GS	TNMG 333-GS	9,525	4,76	1,20	3,81	3,00	0,30	3,50	0,30	0,15	0,35
TNMG 160308-MR	TNMG 322-MR	9,525	3,18	0,80	3,81	2,80	0,30	5,00	0,30	0,15	0,50
TNMG 160404-MR	TNMG 331-MR	9,525	4,76	0,40	3,81	3,00	0,40	5,00	0,20	0,10	0,30
TNMG 160408-MR	TNMG 332-MR	9,525	4,76	0,80	3,81	3,00	0,50	5,00	0,30	0,15	0,50
TNMG 160412-MR	TNMG 333-MR	9,525	4,76	1,20	3,81	3,00	0,80	5,00	0,35	0,18	0,60
TNMG 160416-MR	TNMG 334-MR	9,525	4,76	1,20	3,81	3,05	0,82	5,08	0,40	0,22	0,64
TNMG 220404-MR	TNMG 431-MR	12,700	4,76	0,40	5,16	4,00	0,40	6,60	0,20	0,10	0,30
TNMG 220408-MR	TNMG 432-MR	12,700	4,76	0,80	5,16	4,00	0,50	6,60	0,30	0,15	0,50
TNMG 220412-MR	TNMG 433-MR	12,700	4,76	1,20	5,16	4,00	0,80	6,60	0,35	0,18	0,60
TNMG 220416-MR	TNMG 434-MR	12,700	4,76	1,60	5,16	4,00	1,00	6,60	0,40	0,23	0,70
TNMG 160404-PM	TNMG 331-PM	9,525	4,76	0,40	3,81	3,00	0,40	5,00	0,20	0,10	0,30
TNMG 160408-PM	TNMG 332-PM	9,525	4,76	0,80	3,81	3,00	0,50	5,00	0,30	0,15	0,50
TNMG 160412-PM	TNMG 333-PM	9,525	4,76	1,20	3,81	3,00	0,80	5,00	0,35	0,18	0,60
TNMG 160416-PM	TNMG 334-PM	9,525	4,76	1,60	3,81	3,00	1,00	5,00	0,40	0,23	0,65
TNMG 220404-PM	TNMG 431-PM	12,700	4,76	0,40	5,16	4,00	0,40	6,60	0,20	0,10	0,30
TNMG 220408-PM	TNMG 432-PM	12,700	4,76	0,80	5,16	4,00	0,50	6,60	0,30	0,15	0,50
TNMG 220412-PM	TNMG 433-PM	12,700	4,76	1,20	5,16	4,00	0,80	6,60	0,35	0,18	0,60
TNMG 220416-PM	TNMG 434-PM	12,700	4,76	1,60	5,16	4,00	1,00	6,60	0,40	0,23	0,60
TNMG 110308-ST	TNMG 222-ST	6,350	3,18	0,80	2,26	2,00	0,15	4,50	0,35	0,15	0,50
TNMG 160304-ST	TNMG 321-ST	9,525	3,18	0,40	3,81	3,00	0,20	5,50	0,22	0,15	0,30
TNMG 160308-ST	TNMG 322-ST	9,525	3,18	0,80	3,81	3,00	0,20	5,50	0,35	0,15	0,50
TNMG 160404-ST	TNMG 331-ST	9,525	4,76	0,40	3,81	3,00	0,20	5,50	0,22	0,15	0,30
TNMG 160408-ST	TNMG 332-ST	9,525	4,76	0,80	3,81	3,00	0,20	5,50	0,35	0,15	0,50
TNMG 160412-ST	TNMG 333-ST	9,525	4,76	1,20	3,81	3,00	0,30	5,50	0,40	0,15	0,60
TNMG 160416-ST	TNMG 334-ST	9,525	4,76	1,60	3,81	3,00	0,30	5,50	0,40	0,15	0,60
TNMG 220404-ST	TNMG 431-ST	12,700	4,76	0,40	5,16	4,00	0,20	8,00	0,22	0,15	0,30
TNMG 220408-ST	TNMG 432-ST	12,700	4,76	0,80	5,16	4,00	0,20	8,00	0,35	0,15	0,50
TNMG 220412-ST	TNMG 433-ST	12,700	4,76	1,20	5,16	4,00	0,30	8,00	0,40	0,15	0,60
TNMG 220416-ST	TNMG 434-ST	12,700	4,76	1,60	5,16	4,00	0,30	8,00	0,45	0,20	0,70

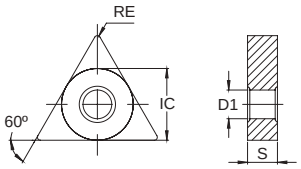
TN - TRIANGULAR 60° NEGATIVE

TRIANGULAR 60° NEGATIVA | TRIANGULAR 60° NEGATIVA

			P								M							K				N	S			
			CVD							PVD	CVD			PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	5D	R3	1D	S9	V5	G1	U4	U5	V6	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	PHG105	PHG115	PH2G115	PHG125	PH2G125	PHG135	PHG140	PH7910	PHS215	PHS225	PHS240	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
TNMG-MW Medium Wiper	1121376	TNMG 160408-MW		◎	●	◎	○													●	◎					
	1121343	TNMG 160412-MW			○		○													●	◎					
TNMG-SS Roughing to Medium	1121289	TNMG 160404-SS									◎	●	◎	△		◎							△		●	
	1121271	TNMG 160408-SS									◎	●	◎			◎									●	
	1121290	TNMG 160412-SS									◎	●	◎			◎									●	
	1121330	TNMG 220408-SS									◎	●	◎			◎									●	
	1121368	TNMG 220412-SS										●				◎									●	
TNMG-HR Roughing	1121270	TNMG 160408-HR	△	△	◎	△	●		◎										◎	●						
	1121283	TNMG 160412-HR		◎	○	◎	●		◎										◎	●						
	1121306	TNMG 220408-HR		◎	◎	△	●		○										◎	●	◎					
	1121308	TNMG 220412-HR		◎	○	◎	●		◎										◎	●						
	1121309	TNMG 220416-HR		◎	○	●	○												◎	●	◎					
	1121567	TNMG 270612-HR					●		◎																	
	1121570	TNMG 270616-HR					○		◎																	
	1121631	TNMG 330924-HR				△	○		●																	
TNMX-01 Medium to Finishing	1121004	TNMX 160404-L01		◎	○	◎	●					○									○					
	1120713	TNMX 160404-R01		◎	○	◎	●					○							○		○					
	1121005	TNMX 160408-L01			◎	◎	●	○													○					
	1121006	TNMX 160408-R01			◎	◎	●	○													○					
	1123822	TNMX 220404-R01					●																			
	1123823	TNMX 220404-L01					●																			
	1123824	TNMX 220408-R01					●																			
	1123825	TNMX 220408-L01					●																			

● First choice | 1ª Escolha | 1ª Opción
◎ Stock Itens | Itens de stock
○ Available under request | Disponível sob consulta | Disponible bajo consulta
△ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		IC	S	RE	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
TNMG 160408-MW	TNMG 332-MW	9,525	4,76	0,80	3,81	2,00	0,50	4,50	0,35	0,15	0,60
TNMG 160412-MW	TNMG 333-MW	9,525	4,76	1,20	3,81	2,50	0,50	5,00	0,50	0,25	0,90
TNMG 160404-SS	TNMG 331-SS	9,525	4,76	0,40	3,81	2,00	0,50	4,00	0,20	0,10	0,30
TNMG 160408-SS	TNMG 332-SS	9,525	4,76	0,80	3,81	3,00	0,50	4,80	0,25	0,12	0,45
TNMG 160412-SS	TNMG 333-SS	9,525	4,76	1,20	3,81	3,00	0,50	4,80	0,30	0,15	0,60
TNMG 220408-SS	TNMG 432-SS	12,700	4,76	0,80	5,16	4,00	0,50	6,60	0,25	0,12	0,45
TNMG 220412-SS	TNMG 433-SS	12,700	4,76	1,20	5,16	4,00	0,50	6,60	0,30	0,15	0,60
TNMG 160408-HR	TNMG 332-HR	9,525	4,76	0,80	3,81	3,00	0,80	6,00	0,35	0,20	0,55
TNMG 160412-HR	TNMG 333-HR	9,525	4,76	1,20	3,81	3,00	1,00	6,00	0,40	0,25	0,70
TNMG 220408-HR	TNMG 432-HR	12,700	4,76	0,80	5,16	4,00	0,80	6,50	0,35	0,20	0,55
TNMG 220412-HR	TNMG 433-HR	12,700	4,76	1,20	5,16	4,00	1,00	7,00	0,40	0,25	0,70
TNMG 220416-HR	TNMG 434-HR	12,700	4,76	1,60	5,16	4,00	1,50	7,00	0,60	0,25	0,90
TNMG 270612-HR	TNMG 543-HR	15,875	6,35	1,20	6,35	6,00	2,00	10,00	0,40	0,25	0,70
TNMG 270616-HR	TNMG 544-HR	15,875	6,35	1,60	6,35	6,00	2,00	10,00	0,60	0,35	0,90
TNMG 330924-HR	TNMG 666-HR	19,050	9,52	2,40	7,94	7,00	2,00	12,00	0,80	0,40	1,20
TNMX 160404-L01	TNMX 331-L01	9,525	4,76	0,40	3,81	2,50	1,00	3,50	0,15	0,12	0,30
TNMX 160404-R01	TNMX 331-R01	9,525	4,76	0,40	3,81	2,50	1,00	3,50	0,15	0,12	0,30
TNMX 160408-L01	TNMX 332-L01	9,525	4,76	0,80	3,81	2,50	1,30	3,50	0,30	0,15	0,50
TNMX 160408-R01	TNMX 332-R01	9,525	4,76	0,80	3,81	2,50	1,30	3,50	0,30	0,15	0,50
TNMX 220404-R01	TNMX 431-R01	12,700	4,76	0,40	5,16	4,00	1,50	7,00	0,20	0,15	0,30
TNMX 220404-L01	TNMX 431-L01	12,700	4,76	0,40	5,16	4,00	1,50	7,00	0,20	0,15	0,30
TNMX 220408-R01	TNMX 432-R01	12,700	4,76	0,80	5,16	4,00	1,50	7,00	0,30	0,18	0,55
TNMX 220408-L01	TNMX 432-L01	12,700	4,76	0,80	5,16	4,00	1,50	7,00	0,30	0,18	0,55

VN - RHOMBIC 35° NEGATIVE

RÔMBICA 35° NEGATIVA | RÓMBICA 35° NEGATIVA

Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	P								M							K				N	S			
			CVD							PVD	CVD			PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	5D	R3	1D	S9	V5	G1	U4	U5	V6	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
			PHG105	PHG115	PH2G115	PHG125	PH2G125	PHG135	PHG140	PH7910	PHS215	PHS225	PHS240	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
VNMA Roughing	1120819	VNMA 160404																	●	◈						
	1121077	VNMA 160408																	●	◈						
NEW VNMG-GSF Fine Finishing	1124861	VNMG 160402-GSF													●		◈							●		◈
VNMG-MF Finishing	1123635	VNMG 160404-MF		◈	●	◈	◈				○															
	1123636	VNMG 160408-MF	◈	◈	●	◈	◈				○															
VNMG-MS Medium to Finishing	1124860	VNMG 160402-MS													◈		◈							●		◈
	1121579	VNMG 160404-MS													◈		◈					●		●		◈
	1121580	VNMG 160408-MS													◈		◈					●		●		◈
VNMG-SF Medium to Finishing	1123760	VNMG 160404-SF									●	◈			◈	◈	◈							●	◈	◈
	1123761	VNMG 160408-SF									●	◈			◈	◈	◈							●	◈	◈
	1123762	VNMG 160412-SF									●	◈			◈	◈	◈							●	◈	◈
VNMG-LC Medium to Finishing	1123659	VNMG 160408-LC		◈	●	△	◈																			
VNMG-GS Medium to Finishing	1124562	VNMG 160404-GS													◈		◈							●		◈
	1124563	VNMG 160408-GS													◈		◈							●		◈
	1124564	VNMG 160412-GS													◈		◈							●		◈
VNMG-MR Medium	1121278	VNMG 160404-MR		◈	◈	△	●		◈																	
	1121279	VNMG 160408-MR		◈	◈	◈	●		◈																	
	1121581	VNMG 220408-MR		◈	○	◈	●		△												△					
VNMG-PM Medium	1124086	VNMG 160404-PM	◈	◈	◈	◈	●																			
	1124087	VNMG 160408-PM	◈		◈	◈	●																			
	1124600	VNMG 160412-PM			◈		●																			
VNMG-ST Medium	1121276	VNMG 160404-ST																	◈	◈						
	1121277	VNMG 160408-ST																	◈	◈						
VNMG-SS Roughing to Medium	1121367	VNMG 160404-SS										●		△		◈							△		●	
	1121295	VNMG 160408-SS										●		△		◈							△		●	

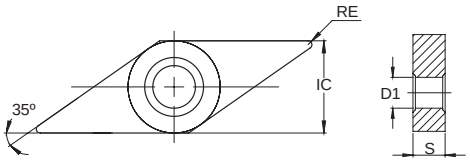
● First choice | 1ª Escolha | 1ª Opción

◈ Stock Itens | Itens de stock

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

△ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		IC	S	RE	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
VNMA 160404	VNMA 331	9,525	4,76	0,40	3,81	0,20	0,10	3,30	0,15	0,08	0,25
VNMA 160408	VNMA 332	9,525	4,76	0,80	3,81	0,20	0,10	3,30	0,30	0,10	0,50
VNMG 160402-GSF	VNMG 330.5-GSF	9,525	4,76	0,20	3,81	1,10	0,20	2,00	0,15	0,05	0,25
VNMG 160404-MF	VNMG 331-MF	9,525	4,76	0,40	3,81	0,50	0,15	1,50	0,15	0,05	0,25
VNMG 160408-MF	VNMG 332-MF	9,525	4,76	0,80	3,81	0,80	0,20	1,50	0,20	0,10	0,40
VNMG 160404-MS	VNMG 330.5-MS	9,525	4,76	0,20	3,81	1,50	0,20	4,00	0,10	0,08	0,15
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
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
VNMG 160404-SF	VNMG 331-SF	9,525	4,76	0,40	3,81	1,50	0,60	3,00	0,15	0,10	0,23
VNMG 160408-SF	VNMG 332-SF	9,525	4,76	0,80	3,81	1,50	0,60	3,00	0,25	0,12	0,38
VNMG 160412-SF	VNMG 333-SF	9,525	4,76	1,20	3,81	1,50	0,60	3,00	0,35	0,15	0,55
VNMG 160408-LC	VNMG 332-LC	9,525	4,76	0,80	3,81	1,00	0,35	2,00	0,12	0,08	0,35
VNMG 160404-GS	VNMG 331-GS	9,525	4,76	0,40	3,81	1,50	0,15	2,00	0,20	0,08	0,25
VNMG 160408-GS	VNMG 332-GS	9,525	4,76	0,80	3,81	2,00	0,20	2,50	0,25	0,10	0,30
VNMG 160412-GS	VNMG 333-GS	9,525	4,76	1,20	3,81	2,50	0,30	3,00	0,30	0,12	0,35
VNMG 160404-MR	VNMG 331-MR	9,525	4,76	0,40	3,81	3,00	1,00	4,00	0,25	0,10	0,30
VNMG 160408-MR	VNMG 332-MR	9,525	4,76	0,80	3,81	3,00	1,00	4,00	0,30	0,15	0,50
VNMG 220408-MR	VNMG 432-MR	12,700	4,76	0,80	5,16	4,00	1,50	5,00	0,35	0,15	0,50
VNMG 160404-PM	VNMG 331-PM	9,525	4,76	0,40	3,81	3,00	1,00	4,00	0,25	0,10	0,30
VNMG 160408-PM	VNMG 332-PM	9,525	4,76	0,80	3,81	3,00	1,00	4,00	0,30	0,15	0,50
VNMG 160412-PM	VNMG 333-PM	9,525	4,76	1,20	3,81	3,00	1,00	4,00	0,35	0,20	0,50
VNMG 160404-ST	VNMG 331-ST	9,525	4,76	0,40	3,81	2,00	0,20	3,50	0,30	0,15	0,40
VNMG 160408-ST	VNMG 332-ST	9,525	4,76	0,80	3,81	2,00	0,30	3,50	0,35	0,15	0,50
VNMG 160404-SS	VNMG 331-SS	9,525	4,76	0,40	3,81	1,50	0,50	4,00	0,20	0,10	0,30
VNMG 160408-SS	VNMG 332-SS	9,525	4,76	0,80	3,81	2,00	0,50	4,00	0,25	0,12	0,45

WN - TRIGON 80° NEGATIVE

TRIGONAL 80° NEGATIVA | TRIGONA 80° NEGATIVA

			P								M							K				N	S			
			CVD							PVD	CVD			PVD				UNC	CVD				UNC	PVD			
		(2) Grade code	T6	R2	5D	R3	1D	S9	V5	G1	U4	U5	V6	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	PHG105	PHG115	PH2G115	PHG125	PH2G125	PHG135	PHG140	PH7910	PHS215	PHS225	PHS240	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
WNMA Roughing	1122002	WNMA 060408																	●	●						
	1120834	WNMA 080404																	●	●						
	1120835	WNMA 080408																	●	●						
	1121076	WNMA 080412																	●	●						
	1121582	WNMA 080416																	●	●						
NEW WNMG-GSF Fine Finishing	1124859	WNMG 080402-GSF													●		◆							●		◆
WNMG-MF Finishing	1121205	WNMG 06T304-MF			○		○																			
	1121206	WNMG 06T308-MF			○	●	○																			
	1121586	WNMG 06T312-MF			○		○																			
	1121207	WNMG 060404-MF		◆	●	◆	○																			
	1121208	WNMG 060408-MF			◆		●																			
	1121583	WNMG 060412-MF		●	○	◆	○																			
	1121213	WNMG 080404-MF		◆	●	◆	◆																			
	1121214	WNMG 080408-MF	◆		●	◆	◆																			
	1121589	WNMG 080412-MF		●	○	◆	○																			
WNMG-MS Medium to Finishing	1121910	WNMG 060404-MS															◆									◆
	1121911	WNMG 060408-MS															◆									◆
	1124858	WNMG 080402-MS													●		◆							●		◆
	1124574	WNMG 080404-MS													◆		●					●		●		◆
	1121588	WNMG 080408-MS													◆		●					●		●		◆
	1121590	WNMG 080412-MS													◆	◇	●					●		●	◇	◆
WNMG-SF Medium to Finishing	1123763	WNMG 060404-SF									●	◆		◇	◆	◆	◆						◇	●	◆	◆
	1123764	WNMG 060408-SF									●	◆		◇	○	◆	◆						◇	●	◆	◆
	1123765	WNMG 060412-SF									●	◆			○		◆							●		◆
	1123766	WNMG 080404-SF									●	◆			◆		◆							●		◆
	1123721	WNMG 080408-SF									●	◆			◆		◆							●		◆
	1123767	WNMG 080412-SF									●	◆			◆		◆							●		◆
WNMG-LC Medium to Finishing	1123658	WNMG 080408-LC	◆	●		◆																				
WNMG-GS Medium to Finishing	1124690	WNMG 060404-GS													◆		●							●		◆
	1124691	WNMG 060408-GS													◆		●							●		◆
	1124559	WNMG 080404-GS													◆		●							●		◆
	1124560	WNMG 080408-GS													◆		●							●		◆
	1124561	WNMG 080412-GS													◆		●							●		◆

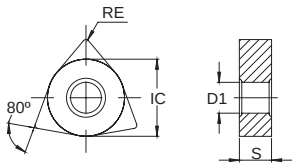
● First choice | 1ª Escolha | 1ª Opción

◆ Stock Itens | Itens de stock

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

◇ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		IC	S	RE	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
WNMA 060408	WNMA 332	9,525	4,76	0,80	3,81	2,50	0,20	4,00	0,35	0,15	0,60
WNMA 080404	WNMA 431	12,700	4,76	0,40	5,16	2,80	0,20	5,00	0,22	0,15	0,30
WNMA 080408	WNMA 432	12,700	4,76	0,80	5,16	3,00	0,20	5,00	0,35	0,15	0,60
WNMA 080412	WNMA 433	12,700	4,76	1,20	5,16	3,00	0,30	5,00	0,45	0,20	0,80
WNMA 080416	WNMA 434	12,700	4,76	1,60	5,16	3,00	0,30	5,00	0,55	0,20	1,00
WNMG 080402-GSF	WNMG 430.5-GSF	12,700	4,76	0,20	5,16	1,30	0,10	2,50	0,17	0,08	0,25
WNMG 06T304-MF	WNMG 32.51-MF	9,525	3,97	0,40	3,81	0,40	0,10	1,50	0,15	0,05	0,30
WNMG 06T308-MF	WNMG 32.52-MF	9,525	3,97	0,80	3,81	0,40	0,10	1,50	0,20	0,10	0,40
WNMG 06T312-MF	WNMG 32.53-MF	9,525	3,97	1,20	3,81	0,40	0,15	1,50	0,30	0,15	0,60
WNMG 060404-MF	WNMG 331-MF	9,525	4,76	0,40	3,81	0,40	0,10	1,50	0,15	0,05	0,30
WNMG 060408-MF	WNMG 332-MF	9,525	4,76	0,80	3,81	0,40	0,10	1,50	0,20	0,10	0,40
WNMG 060412-MF	WNMG 333-MF	9,525	4,76	1,20	3,81	0,40	0,15	1,50	0,30	0,15	0,60
WNMG 080404-MF	WNMG 431-MF	12,700	4,76	0,40	5,16	0,60	0,10	2,00	0,15	0,05	0,30
WNMG 080408-MF	WNMG 432-MF	12,700	4,76	0,80	5,16	0,60	0,10	2,00	0,20	0,10	0,40
WNMG 080412-MF	WNMG 433-MF	12,700	4,76	1,20	5,16	0,60	0,15	2,00	0,30	0,15	0,60
WNMG 060404-MS	WNMG 331-MS	9,525	4,76	0,40	3,81	1,20	0,30	2,20	0,15	0,10	0,20
WNMG 060408-MS	WNMG 332-MS	9,525	4,76	0,80	3,81	1,20	0,30	2,20	0,25	0,20	0,40
WNMG 080402-MS	WNMG 430.5-MS	12,700	4,76	0,20	5,16	2,00	0,20	4,00	0,10	0,08	0,20
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
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
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
WNMG 060404-SF	WNMG 331-SF	9,525	4,76	0,40	3,81	1,50	0,60	3,00	0,15	0,10	0,23
WNMG 060408-SF	WNMG 332-SF	9,525	4,76	0,80	3,81	1,50	0,60	3,00	0,25	0,12	0,38
WNMG 060412-SF	WNMG 333-SF	9,525	4,76	1,20	3,81	1,50	0,60	3,00	0,35	0,15	0,55
WNMG 080404-SF	WNMG 431-SF	12,700	4,76	0,40	5,16	1,50	0,60	3,00	0,15	0,10	0,23
WNMG 080408-SF	WNMG 432-SF	12,700	4,76	0,80	5,16	1,50	0,60	3,00	0,25	0,12	0,38
WNMG 080412-SF	WNMG 433-SF	12,700	4,76	1,20	5,16	1,50	0,60	3,00	0,35	0,15	0,55
WNMG 080408-LC	WNMG 432-LC	12,700	4,76	0,40	5,16	1,50	0,40	2,50	0,15	0,10	0,35
WNMG 060404-GS	WNMG 331-GS	9,525	4,76	0,40	3,81	2,00	0,15	2,50	0,20	0,10	0,30
WNMG 060408-GS	WNMG 332-GS	9,525	4,76	0,80	3,81	2,50	0,25	3,00	0,25	0,10	0,35
WNMG 080404-GS	WNMG 431-GS	12,700	4,76	0,40	5,16	2,00	0,15	2,50	0,20	0,10	0,30
WNMG 080408-GS	WNMG 432-GS	12,700	4,76	0,80	5,16	2,50	0,25	3,00	0,25	0,10	0,35
WNMG 080412-GS	WNMG 433-GS	12,700	4,76	1,20	5,16	3,00	0,30	3,50	0,30	0,15	0,40

WN - TRIGON 80° NEGATIVE

TRIGONAL 80° NEGATIVA | TRIGONA 80° NEGATIVA

			P								M							K				N	S				
			CVD							PVD	CVD			PVD				UNC	CVD			UNC	PVD				
		(2) Grade code	T6	R2	5D	R3	1D	S9	V5	G1	U4	U5	V6	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3	
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	PHG105	PHG115	PH2G115	PHG125	PH2G125	PHG135	PHG140	PH7910	PHS215	PHS225	PHS240	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920	
WNMG-MR Medium	1121262	WNMG 06T304-MR			○	◈	◉																				
	1121167	WNMG 06T308-MR			○	△	◉																				
	1121587	WNMG 06T312-MR			○		○																				
	1121240	WNMG 060404-MR			○	◉	○																				
	1121168	WNMG 060408-MR		◈	○	◈	◉																				
	1121584	WNMG 060412-MR		◈	○	◈	◉																				
	1121356	WNMG 080404-MR		△	◈	◈	◉														◉						
	1121327	WNMG 080408-MR		◈	◈	◈	◉		◈										◈	◉							
	1121261	WNMG 080412-MR		◈	○	◉	○		◈																		
	1121592	WNMG 080416-MR		◈	○		○														◉						
WNMG-PM Medium	1124088	WNMG 060404-PM	◈	△	◈	◈	◉																				
	1124089	WNMG 060408-PM	◈	◈	◈	◈	◉																				
	1123988	WNMG 080404-PM	◈	◈	◈	◈	◉																				
	1123918	WNMG 080408-PM	◈	◈	◈	◈	◉																				
	1123989	WNMG 080412-PM	◈	◈	◈	◈	◉		◈																		
	1123990	WNMG 080416-PM	◈	◈	◈	◈	◉																				
WNMG-ST Medium	1121162	WNMG 080404-ST																	◈	◉							
	1121163	WNMG 080408-ST																	◈	◉							
	1121164	WNMG 080412-ST																	◈	◉							
	1121593	WNMG 080416-ST																	◈	◉							
WNMG-MW Medium Wiper	1121370	WNMG 060408-MW		○		◉			◈											◉	○						
	1121585	WNMG 060412-MW		○		○														◉	◈						
	1121372	WNMG 080408-MW		◉		◈														◉	◈						
	1121371	WNMG 080412-MW		◉		◈														◉	◈						
WNMG-SS Roughing to Medium	1121321	WNMG 06T304-SS									◈	◉				◈									◉		
	1121324	WNMG 06T308-SS									◈	◉	◈			◈									◉		
	1121322	WNMG 060404-SS												△		◈							△		◉		
	1121325	WNMG 060408-SS												△		◈							△		◉		
	1121323	WNMG 080404-SS									◈	◉	◈	△		◈							△		◉		
	1121326	WNMG 080408-SS									◈	◉	◈			◈									◉		
	1121591	WNMG 080412-SS									◈	◉	◈			◈									◉		
NEW WNMG-PR Roughing	1124741	WNMG 080416-PR		○		◉																					
WNMG-HR Roughing	1121127	WNMG 080408-HR	◈	◈	◈	◈	◉		◈										◈	◉							
	1121128	WNMG 080412-HR		◈	◈	◈	◉		◈										◈	◉							

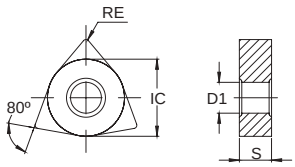
◉ First choice | 1ª Escolha | 1ª Opción

◈ Stock Itens | Itens de stock

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

△ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		IC	S	RE	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
WNMG 06T304-MR	WNMG 32.51-MR	9,525	3,97	0,40	3,81	2,00	0,50	3,00	0,22	0,10	0,30
WNMG 06T308-MR	WNMG 32.52-MR	9,525	3,97	0,80	3,81	2,00	0,50	3,00	0,30	0,15	0,50
WNMG 06T312-MR	WNMG 32.53-MR	9,525	3,97	1,20	3,81	2,00	0,80	3,00	0,35	0,18	0,60
WNMG 060404-MR	WNMG 331-MR	9,525	4,76	0,40	3,81	2,00	0,50	3,00	0,22	0,10	0,30
WNMG 060408-MR	WNMG 332-MR	9,525	4,76	0,80	3,81	2,00	0,50	3,00	0,30	0,15	0,50
WNMG 060412-MR	WNMG 333-MR	9,525	4,76	1,20	3,81	2,00	0,80	3,00	0,35	0,18	0,60
WNMG 080404-MR	WNMG 431-MR	12,700	4,76	0,40	5,16	2,50	0,50	4,00	0,22	0,10	0,30
WNMG 080408-MR	WNMG 432-MR	12,700	4,76	0,80	5,16	2,50	0,50	4,00	0,30	0,15	0,50
WNMG 080412-MR	WNMG 433-MR	12,700	4,76	1,20	5,16	2,50	0,80	4,00	0,35	0,18	0,60
WNMG 080416-MR	WNMG 434-MR	12,700	4,76	1,60	5,16	3,00	1,00	4,00	0,40	0,23	0,65
WNMG 060404-PM	WNMG 331-PM	9,525	4,76	0,40	3,81	2,50	0,50	3,00	0,22	0,10	0,30
WNMG 060408-PM	WNMG 332-PM	9,525	4,76	0,80	3,81	2,50	0,50	3,00	0,30	0,15	0,50
WNMG 080404-PM	WNMG 431-PM	12,700	4,76	0,40	5,16	2,50	0,50	4,00	0,22	0,10	0,30
WNMG 080408-PM	WNMG 432-PM	12,700	4,76	0,80	5,16	2,50	0,50	4,00	0,30	0,15	0,50
WNMG 080412-PM	WNMG 433-PM	12,700	4,76	1,20	5,16	2,50	0,80	4,00	0,35	0,18	0,60
WNMG 080416-PM	WNMG 434-PM	12,700	4,76	1,60	5,16	3,00	1,00	4,50	0,35	0,20	0,65
WNMG 080404-ST	WNMG 431-ST	12,700	4,76	0,40	5,16	2,50	0,20	5,00	0,22	0,15	0,30
WNMG 080408-ST	WNMG 432-ST	12,700	4,76	0,80	5,16	2,50	0,20	5,00	0,35	0,15	0,50
WNMG 080412-ST	WNMG 433-ST	12,700	4,76	1,20	5,16	2,50	0,30	5,00	0,40	0,15	0,60
WNMG 080416-ST	WNMG 434-ST	12,700	4,76	1,60	5,16	2,50	0,30	5,00	0,45	0,20	0,70
WNMG 060408-MW	WNMG 332-MW	9,525	4,76	0,80	3,81	1,50	0,50	3,50	0,30	0,15	0,60
WNMG 060412-MW	WNMG 333-MW	9,525	4,76	1,20	3,81	1,50	0,80	3,50	0,50	0,20	0,90
WNMG 080408-MW	WNMG 432-MW	12,700	4,76	0,80	5,16	3,00	0,50	5,00	0,30	0,15	0,60
WNMG 080412-MW	WNMG 433-MW	12,700	4,76	1,20	5,16	3,50	0,80	6,00	0,50	0,20	0,90
WNMG 06T304-SS	WNMG 32.51-SS	9,525	3,97	0,40	3,81	2,00	0,50	3,00	0,20	0,12	0,30
WNMG 06T308-SS	WNMG 32.52-SS	9,525	3,97	0,80	3,81	2,00	0,50	3,00	0,25	0,12	0,45
WNMG 060404-SS	WNMG 331-SS	9,525	4,76	0,40	3,81	2,00	0,50	3,00	0,20	0,12	0,30
WNMG 060408-SS	WNMG 332-SS	9,525	4,76	0,80	3,81	2,00	0,50	3,00	0,25	0,12	0,45
WNMG 080404-SS	WNMG 431-SS	12,700	4,76	0,40	5,16	2,00	0,50	3,00	0,20	0,12	0,30
WNMG 080408-SS	WNMG 432-SS	12,700	4,76	0,80	5,16	2,50	0,50	4,00	0,25	0,12	0,45
WNMG 080412-SS	WNMG 433-SS	12,700	4,76	1,20	5,16	2,50	0,50	4,00	0,30	0,15	0,60
WNMG 080416-PR	WNMG 434-PR	12,700	4,76	1,60	5,16	3,00	0,50	4,00	0,35	0,12	0,50
WNMG 080408-HR	WNMG 432-HR	12,700	4,76	0,80	5,16	4,00	0,80	5,00	0,35	0,20	0,55
WNMG 080412-HR	WNMG 433-HR	12,700	4,76	1,20	5,16	4,00	1,50	5,00	0,40	0,25	0,70

INSERTS

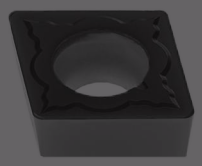
POSITIVE

Positive inserts feature positive clearance angles. Their significant advantage lies in the lower cutting forces they generate, consequently reducing vibration compared to negative inserts. This makes them ideal for internal turning, external turning of slender parts, and general finishing operations.

As pastilhas positivas possuem ângulos de alívio positivos. A sua vantagem significativa reside nas menores forças de corte que geram, reduzindo consequentemente a vibração em comparação com as pastilhas negativas. Isso torna-as ideais para torneamento interno, torneamento externo de peças delgadas e operações gerais de acabamento.

Las plaquitas positivas cuentan con ángulos de despeje positivos. Su ventaja significativa radica en las menores fuerzas de corte que generan, reduciendo así la vibración en comparación con las plaquitas negativas. Esto las hace ideales para el torneado interno, torneado externo de piezas delgadas y operaciones generales de acabado.

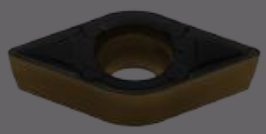
CC.. > page 544



> Rhombic 80° inserts are very popular thanks to their versatility

Rhombic 80° inserts são muito populares devido à sua versatilidade | Las plaquitas de 80° rómbicas son muy populares gracias a su versatilidad

DC.. > page 550



> Rhombic 55° inserts offer balanced roughing and finishing capabilities

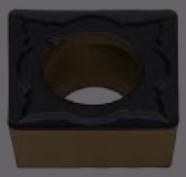
Pastilhas rômbicas de 55° oferecem capacidades equilibradas de desbaste e acabamento | Las plaquitas rómbicas de 55° ofrecen capacidades equilibradas para desbaste y acabado

RC.. > page 554

> Round inserts are extremely tough, and well suited for high feed turning

Pastilhas redondas são extremamente resistentes e adequadas para tornear em alto avanço | Las plaquitas redondas son extremadamente resistentes y adecuadas para el torneado de alto avance

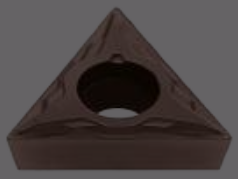
SC.. | SP.. > page 556 | 558



> Square inserts excel in roughing, especially at a shallow angle

Pastilhas quadradas destacam-se no desbaste, especialmente a um ângulo raso | Plaquitas cuadradas destacan en el desbaste, especialmente a un ángulo bajo

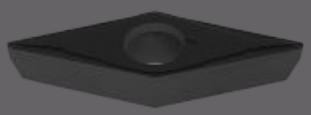
TC.. | TP.. > page 560 | 568



> Triangular inserts are versatile, suitable for both finishing and roughing

As pastilhas triangulares são versáteis, adequadas tanto para acabamento quanto para desbaste | Las plaquitas triangulares son versátiles, adecuadas tanto para acabado como para desbaste

VB.. | VC.. > page 570 | 572



> Rhombic 35° inserts are best suited for finishing operations

Pastilhas rômbicass de 35° são mais adequadas para operações de acabamento | Las plaquitas rómbicas de 35° son más adecuadas para operaciones de acabado

CC - RHOMBIC 80° POSITIVE

RÔMBICA 80° POSITIVA | RÓMBICA 80° POSITIVA

Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	P											M						K				N	S			
			CVD							PVD				CVD		PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	5D	R3	1D	S9	V5	G1	X5	G4	T1	U4	U5	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
			PHG105	PHG115	PH2G115	PHG125	PH2G125	PHG135	PHG140	PH7910	PHP910	PH7920	PHP920	PHS215	PHS225	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
CCMW Finishing	1120206	CCMW 060204																			◉							
	1120212	CCMW 09T304																			◉							
	1120214	CCMW 120404																				◉						
NEW CCMT-FF Fine Finishing	1124850	CCMT 09T302-FF															◉		◉							◉		◉
	1124669	CCMT 09T304-FF															◉		◉							◉		◉
	1124851	CCMT 09T308-FF															◉		◉							◉		◉
CCMT-FP Finishing	1121655	CCMT 060202-FP				◉	◉																					
	1121658	CCMT 060204-FP		◉	◉	◉	◉																					
	1121690	CCMT 09T302-FP					◉																					
	1121666	CCMT 09T304-FP			◉		◉					◉																
	1121652	CCMT 09T308-FP			◉	◉	◉					◉																
	1121665	CCMT 120404-FP		◉	◉	◉	◉																					
CCMT-BO Finishing	1121620	CCMT 060202-BO								◉		◉				◉		◉							◉		◉	
	1121621	CCMT 060204-BO								◉		◉				◉		◉							◉		◉	
	1124090	CCMT 060208-BO										◉						◉									◉	
	1124091	CCMT 09T302-BO										◉						◉									◉	
	1121601	CCMT 09T304-BO								◉		◉				◉		◉							◉		◉	
	1121622	CCMT 09T308-BO								◉		◉				◉		◉							◉		◉	
	1121624	CCMT 120404-BO								◉		◉				◉		◉							◉		◉	
	1121623	CCMT 120408-BO								◉		◉				◉		◉							◉		◉	
CCMT-FM Finishing	1121654	CCMT 060202-FM															◉		◉							◉		◉
	1121657	CCMT 060204-FM													◉		◉		◉							◉		◉
	1121689	CCMT 09T302-FM															◉		◉							◉		◉
	1121692	CCMT 09T304-FM													◉		◉		◉							◉		◉
	1121651	CCMT 09T308-FM													◉		◉		◉							◉		◉
	1121664	CCMT 120404-FM													◉		○		◉							○		◉
CCMT-FK Finishing	1121653	CCMT 060202-FK																			◉							
	1121656	CCMT 060204-FK																			◉							
	1121688	CCMT 09T302-FK																			◉							
	1121691	CCMT 09T304-FK																			◉							
	1121663	CCMT 120404-FK																			◉							

◉ First choice | 1ª Escolha | 1ª Opción

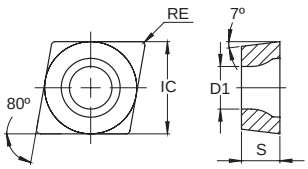
◉ Stock Itens | Itens de stock

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

◬ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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

RELIEF ANGLE 7°



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		IC	S	RE	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
CCMW 060204	CCMW 21.51	6,350	2,38	0,40	2,80	1,50	0,05	3,00	0,20	0,08	0,26
CCMW 09T304	CCMW 32.51	9,525	3,97	0,40	4,40	2,30	0,05	4,50	0,20	0,08	0,26
CCMW 120404	CCMW 431	12,700	4,76	0,40	5,50	3,10	0,05	6,00	0,20	0,08	0,26
CCMT 09T302-FF	CCMT 32.50.5-FF	9,525	3,97	0,20	4,40	1,00	0,08	2,00	0,09	0,04	0,13
CCMT 09T304-FF	CCMT 32.51-FF	9,525	3,97	0,40	4,40	1,25	0,08	2,00	0,13	0,02	0,23
CCMT 09T308-FF	CCMT 32.52-FF	9,525	3,97	0,80	4,40	1,50	0,15	2,00	0,27	0,08	0,45
CCMT 060202-FP	CCMT 21.50.5-FP	6,350	2,38	0,20	2,80	0,30	0,06	1,70	0,06	0,03	0,11
CCMT 060204-FP	CCMT 21.51-FP	6,350	2,38	0,40	2,80	0,30	0,10	1,70	0,08	0,05	0,17
CCMT 09T302-FP	CCMT 32.50.5-FP	9,525	3,97	0,20	4,40	0,35	0,08	2,00	0,08	0,04	0,13
CCMT 09T304-FP	CCMT 32.51-FP	9,525	3,97	0,40	4,40	0,35	0,11	2,00	0,11	0,06	0,23
CCMT 09T308-FP	CCMT 32.52-FP	9,525	3,97	0,80	4,40	0,35	0,15	2,00	0,20	0,08	0,45
CCMT 120404-FP	CCMT 431-FP	12,700	4,76	0,40	5,50	0,42	0,14	2,40	0,14	0,07	0,27
CCMT 060202-BO	CCMT 21.50.5-BO	6,350	2,38	0,20	2,80	0,50	0,30	1,00	0,08	0,05	0,13
CCMT 060204-BO	CCMT 21.51-BO	6,350	2,38	0,40	2,80	0,50	0,30	1,00	0,13	0,08	0,20
CCMT 060208-BO	CCMT 21.52-BO	6,350	2,38	0,80	2,80	0,50	0,30	1,00	0,20	0,10	0,30
CCMT 09T302-BO	CCMT 21.50.5-BO	9,525	3,97	0,20	4,40	0,80	0,40	1,20	0,12	0,07	0,20
CCMT 09T304-BO	CCMT 32.51-BO	9,525	3,97	0,40	4,40	0,80	0,50	1,20	0,13	0,08	0,20
CCMT 09T308-BO	CCMT 32.52-BO	9,525	3,97	0,80	4,40	0,80	0,50	1,20	0,20	0,10	0,30
CCMT 120404-BO	CCMT 431-BO	12,700	4,76	0,40	5,50	1,00	0,50	1,50	0,13	0,08	0,20
CCMT 120408-BO	CCMT 432-BO	12,700	4,76	0,80	5,50	1,00	0,50	1,50	0,20	0,10	0,30
CCMT 060202-FM	CCMT 21.50.5-FM	6,350	2,38	0,20	2,80	0,30	0,06	1,70	0,06	0,03	0,11
CCMT 060204-FM	CCMT 21.51-FM	6,350	2,38	0,40	2,80	0,30	0,10	1,70	0,08	0,05	0,17
CCMT 09T302-FM	CCMT 32.50.5-FM	9,525	3,97	0,20	4,40	0,35	0,08	2,00	0,08	0,04	0,13
CCMT 09T304-FM	CCMT 32.51-FM	9,525	3,97	0,40	4,40	0,35	0,11	2,00	0,11	0,06	0,23
CCMT 09T308-FM	CCMT 32.52-FM	9,525	3,97	0,80	4,40	0,35	0,15	2,00	0,20	0,08	0,45
CCMT 120404-FM	CCMT 431-FM	12,700	4,76	0,40	5,50	0,42	0,14	2,40	0,14	0,07	0,27
CCMT 060202-FK	CCMT 21.50.5-FK	6,350	2,38	0,20	2,80	0,30	0,06	1,70	0,06	0,03	0,11
CCMT 060204-FK	CCMT 21.51-FK	6,350	2,38	0,40	2,80	0,30	0,10	1,70	0,08	0,05	0,17
CCMT 09T302-FK	CCMT 32.50.5-FK	9,525	3,97	0,20	4,40	0,35	0,08	2,00	0,08	0,04	0,13
CCMT 09T304-FK	CCMT 32.51-FK	9,525	3,97	0,40	4,40	0,35	0,11	2,00	0,11	0,06	0,23
CCMT 120404-FK	CCMT 431-FK	12,700	4,76	0,40	5,50	0,42	0,14	2,40	0,14	0,07	0,27

CC - RHOMBIC 80° POSITIVE

RÔMBICA 80° POSITIVA | RÓMBICA 80° POSITIVA

			P												M						K				N	S				
			CVD							PVD					CVD		PVD				UNC	CVD			UNC	PVD				
		(2) Grade code	T6	R2	5D	R3	1D	S9	V5	G1	X5	G4	T1		U4	U5	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3		
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	PHG105	PHG115	PH2G115	PHG125	PH2G125	PHG135	PHG140	PH7910	PHP910	PH7920	PHP920		PHS215	PHS225	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920		
CCMT-FW	1121398	CCMT 060204-FW		●	○							◈							●			●						●		
	1121743	CCMT 060208-FW		●	○							◈							●			○						●		
	1121399	CCMT 09T304-FW			○							●							●			●						◈		
Finishing Wiper	1121744	CCMT 09T308-FW			○							●							●			●						●		
CCMT-LM	1123801	CCMT 060204-LM																◈		●							●		◈		
	1123773	CCMT 09T304-LM																◈		●							●		◈		
Medium to Finishing	1123804	CCMT 120404-LM																◈		●							●		◈		
CCMT-MW	1121462	CCMT 060208-MW			○							●							●				●					●		
	1121400	CCMT 09T304-MW			○							●							●				●					●		
	1121411	CCMT 09T308-MW			○							●							●				●					●		
	1121412	CCMT 120404-MW			○																		●							
Medium to Finishing Wiper	1121413	CCMT 120408-MW		●	○																		●							
CCMT-MP	1121697	CCMT 060204-MP		◈	○	◈	●					◈																		
	1121661	CCMT 060208-MP			◈	◈	●																							
	1121700	CCMT 09T304-MP		◈	◈	◈	●					◈																		
	1121687	CCMT 09T308-MP		◈	◈	◈	●					◈																		
Medium	1121719	CCMT 120404-MP			◈		●																							
	1121722	CCMT 120408-MP		◈	◈	◈	●					◈																		
	1121724	CCMT 120412-MP		◈	○	●	○																							
CCMT-MM	1121696	CCMT 060204-MM													●			◈	◈	◈							●	◈	◈		
	1121660	CCMT 060208-MM													●			◈		◈							●		◈		
	1121699	CCMT 09T304-MM													●			◈	◈	◈							●	◈	◈		
Medium	1121686	CCMT 09T308-MM													●			◈	◈	◈							●	◈	◈		
	1121718	CCMT 120404-MM													●			◈	◈	◈							●	◈	◈		
	1121721	CCMT 120408-MM													●			◈	◈	◈							●	◈	◈		
	1121723	CCMT 120412-MM													●			◈	◈	◈							●	◈	◈		
CCMT-MK	1121695	CCMT 060204-MK																				◈	●							
	1121659	CCMT 060208-MK																				◈	●							
	1121698	CCMT 09T304-MK																				◈	●							
Medium	1121685	CCMT 09T308-MK																				◈	●							
	1121717	CCMT 120404-MK																				◈	●							
	1121720	CCMT 120408-MK																				◈	●							

● First choice | 1ª Escolha | 1ª Opción

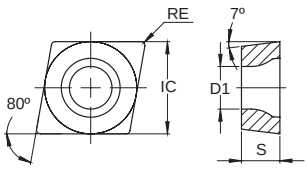
○ Available under request | Disponível sob consulta | Disponible bajo consulta

◈ Stock Itens | Itens de stock

◬ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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

RELIEF ANGLE 7°



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		IC	S	RE	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
CCMT 060204-FW	CCMT 21.51-FW	6,350	2,38	0,40	2,80	0,80	0,30	2,00	0,12	0,05	0,30
CCMT 060208-FW	CCMT 21.52-FW	6,350	2,38	0,80	2,80	0,80	0,30	2,00	0,15	0,09	0,35
CCMT 09T304-FW	CCMT 32.51-FW	9,525	3,97	0,40	4,40	1,00	0,30	3,00	0,20	0,07	0,30
CCMT 09T308-FW	CCMT 32.52-FW	9,525	3,97	0,80	4,40	1,00	0,30	3,00	0,25	0,12	0,50
CCMT 060204-LM	CCMT 21.51-LM	6,350	2,38	0,40	2,80	0,50	0,20	2,00	0,10	0,08	0,20
CCMT 09T304-LM	CCMT 32.51-LM	9,525	3,97	0,40	4,40	0,50	0,25	2,50	0,15	0,10	0,30
CCMT 120404-LM	CCMT 431-LM	12,700	4,76	0,40	5,50	0,80	0,30	3,00	0,18	0,12	0,35
CCMT 060208-MW	CCMT 21.52-MW	6,350	2,38	0,80	2,80	1,20	0,50	2,50	0,20	0,10	0,40
CCMT 09T304-MW	CCMT 32.51-MW	9,525	3,97	0,40	4,40	1,50	0,50	4,00	0,25	0,12	0,40
CCMT 09T308-MW	CCMT 32.52-MW	9,525	3,97	0,80	4,40	1,50	0,70	4,00	0,30	0,15	0,50
CCMT 120404-MW	CCMT 431-MW	12,700	4,76	0,40	5,50	2,00	0,50	4,00	0,25	0,15	0,40
CCMT 120408-MW	CCMT 432-MW	12,700	4,76	0,80	5,50	2,00	0,70	4,00	0,30	0,15	0,50
CCMT 060204-MP	CCMT 21.51-MP	6,350	2,38	0,40	2,80	0,64	0,20	2,40	0,11	0,06	0,17
CCMT 060208-MP	CCMT 21.52-MP	6,350	2,38	0,80	2,80	0,64	0,40	2,40	0,18	0,08	0,35
CCMT 09T304-MP	CCMT 32.51-MP	9,525	3,97	0,40	4,40	0,64	0,25	3,00	0,15	0,08	0,23
CCMT 09T308-MP	CCMT 32.52-MP	9,525	3,97	0,80	4,40	0,80	0,50	3,00	0,20	0,10	0,40
CCMT 120404-MP	CCMT 431-MP	12,700	4,76	0,40	5,50	0,96	0,30	3,60	0,18	0,09	0,27
CCMT 120408-MP	CCMT 432-MP	12,700	4,76	0,80	5,50	0,96	0,60	3,60	0,24	0,12	0,45
CCMT 120412-MP	CCMT 433-MP	12,700	4,76	1,20	5,50	0,96	0,72	3,60	0,35	0,14	0,60
CCMT 060204-MM	CCMT 21.51-MM	6,350	2,38	0,40	2,80	0,64	0,20	2,40	0,11	0,06	0,17
CCMT 060208-MM	CCMT 21.52-MM	6,350	2,38	0,80	2,80	0,64	0,40	2,40	0,18	0,08	0,35
CCMT 09T304-MM	CCMT 32.51-MM	9,525	3,97	0,40	4,40	0,64	0,25	3,00	0,15	0,08	0,23
CCMT 09T308-MM	CCMT 32.52-MM	9,525	3,97	0,80	4,40	0,80	0,50	3,00	0,20	0,10	0,40
CCMT 120404-MM	CCMT 431-MM	12,700	4,76	0,40	5,50	0,96	0,30	3,60	0,18	0,09	0,27
CCMT 120408-MM	CCMT 432-MM	12,700	4,76	0,80	5,50	0,96	0,60	3,60	0,24	0,12	0,45
CCMT 120412-MM	CCMT 433-MM	12,700	4,76	1,20	5,50	0,96	0,72	3,60	0,35	0,14	0,60
CCMT 060204-MK	CCMT 21.51-MK	6,350	2,38	0,40	2,80	0,64	0,20	2,40	0,11	0,06	0,17
CCMT 060208-MK	CCMT 21.52-MK	6,350	2,38	0,80	2,80	0,64	0,40	2,40	0,18	0,08	0,35
CCMT 09T304-MK	CCMT 32.51-MK	9,525	3,97	0,40	4,40	0,64	0,25	3,00	0,15	0,08	0,23
CCMT 09T308-MK	CCMT 32.52-MK	9,525	3,97	0,80	4,40	0,80	0,50	3,00	0,20	0,10	0,40
CCMT 120404-MK	CCMT 431-MK	12,700	4,76	0,40	5,50	0,96	0,30	3,60	0,18	0,09	0,27
CCMT 120408-MK	CCMT 432-MK	12,700	4,76	0,80	5,50	0,96	0,60	3,60	0,24	0,12	0,45

CC - RHOMBIC 80° POSITIVE

RÔMBICA 80° POSITIVA | RÓMBICA 80° POSITIVA

			P											M						K				N	S			
			CVD							PVD				CVD		PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	5D	R3	1D	S9	V5	G1	X5	G4	T1	U4	U5	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	PHG105	PHG115	PH2G115	PHG125	PH2G125	PHG135	PHG140	PH7910	PHP910	PH7920	PHP920	PHS215	PHS225	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
CCGT-FS Finishing to Fine Finishing	1121725	CCGT 060201-FS															●		●							●		●
	1121726	CCGT 060202-FS															●		●							●		●
	1121727	CCGT 060204-FS															●		●							●		●
	1121455	CCGT 09T301-FS								◇						◇	●		●						◇	●		●
	1121456	CCGT 09T302-FS								◇						◇	●		●						◇	●		●
	1121457	CCGT 09T304-FS															●		●							●		●
CCGT-LN Medium to Finishing	1121884	CCGT 060202-LN														◇	●							●	◇	●		
	1121885	CCGT 060204-LN															●							●		●		
	1121886	CCGT 09T302-LN																						●				
	1121887	CCGT 09T304-LN														◇	●							●	◇	●		
	1121888	CCGT 09T308-LN																						●				
	1123679	CCGT 120402-LN																						●				
	1123681	CCGT 120404-LN																						●				
	1123682	CCGT 120408-LN																						●				

● First choice | 1ª Escolha | 1ª Opción

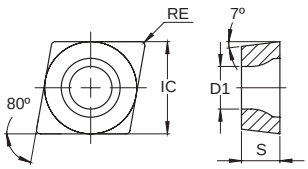
◇ Stock Itens | Itens de stock

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

◇ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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

RELIEF ANGLE 7°



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		IC	S	RE	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
CCGT 060201-FS	CCGT 21.50.2-FS	6,350	2,38	0,10	2,80	0,30	0,10	1,00	0,03	0,01	0,06
CCGT 060202-FS	CCGT 21.50.5-FS	6,350	2,38	0,20	2,80	0,50	0,10	1,50	0,07	0,02	0,12
CCGT 060204-FS	CCGT 21.51-FS	6,350	2,38	0,40	2,80	0,80	0,15	1,50	0,20	0,08	0,25
CCGT 09T301-FS	CCGT 32.50.2-FS	9,525	3,97	0,10	4,40	0,50	0,10	1,50	0,03	0,01	0,06
CCGT 09T302-FS	CCGT 32.50.5-FS	9,525	3,97	0,20	4,40	1,00	0,10	2,00	0,07	0,02	0,12
CCGT 09T304-FS	CCGT 32.51-FS	9,525	3,97	0,40	4,40	1,25	0,15	2,50	0,15	0,08	0,25
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
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
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
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
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
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
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
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

DC - RHOMBIC 55° POSITIVE

RÔMBICA 55° POSITIVA | RÓMBICA 55° POSITIVA

Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	P											M						K				N	S			
			CVD							PVD				CVD		PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	5D	R3	1D	S9	V5	G1	X5	G4	T1	U4	U5	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
			PHG105	PHG115	PH2G115	PHG125	PH2G125	PHG135	PHG140	PH7910	PHP910	PH7920	PHP920	PHS215	PHS225	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
DCMW Finishing	1120302	DCMW 070202																			◉							
	1120303	DCMW 070204																			◉							
	1121422	DCMW 070208																			◉							
	1120304	DCMW 11T302																			◉							
	1120305	DCMW 11T304																			◉							
	1120306	DCMW 11T308																			◉							
	1120878	DCMW 150404																			◉							
NEW DCMT-FF Fine Finishing	1121389	DCMT 11T302-FF															◉		◉							◉		◉
	1121390	DCMT 11T304-FF															◉		◉							◉		◉
	1121391	DCMT 11T308-FF															◉		◉							◉		◉
DCMT-FP Finishing	1121675	DCMT 070202-FP			○		◉																					
	1121678	DCMT 070204-FP		◉	◉	◉	◉																					
	1121668	DCMT 11T302-FP					◉					◉																
	1121711	DCMT 11T304-FP		◉	◉		◉																					
	1121713	DCMT 11T308-FP	△	◉	◉	◉	◉																					
DCMT-FM Finishing	1121674	DCMT 070202-FM															◉		◉							◉		◉
	1121677	DCMT 070204-FM													◉		◉		◉							◉		◉
	1121667	DCMT 11T302-FM															◉		◉							◉		◉
	1121710	DCMT 11T304-FM													◉		◉		◉							◉		◉
	1121712	DCMT 11T308-FM													◉	△	◉		◉						△	◉		◉
DCMT-FK Finishing	1121673	DCMT 070202-FK																			◉							
	1121676	DCMT 070204-FK																			◉							
	1121714	DCMT 11T302-FK																			◉							
	1121709	DCMT 11T304-FK																			◉							
DCMT-FW Finishing Wiper	1121749	DCMT 070204-FW			○							◉						◉			◉						◉	
	1121750	DCMT 070208-FW		◉	○							◉						◉			◉						◉	
	1121745	DCMT 11T304-FW			◉							◉						◉			◉						◉	
	1121755	DCMT 11T308-FW			◉							◉						◉			◉						◉	
DCMT-LM Medium to Finishing	1123802	DCMT 11T304-LM															◉		◉							◉		◉
	1123803	DCMT 11T308-LM															◉		◉							◉		◉
DCMT-MW Medium to Finishing Wiper	1121414	DCMT 11T304-MW			○							◉						◉				◉					◉	
	1121756	DCMT 11T308-MW		◉	○							◉						◉				◉					◉	

◉ First choice | 1ª Escolha | 1ª Opción

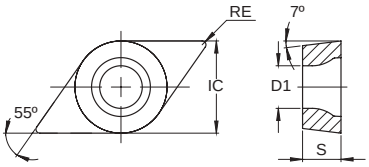
◉ Stock Itens | Itens de stock

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

△ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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

RELIEF ANGLE 7°



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		IC	S	RE	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
DCMW 070202	DCMW 21.50.5	6,350	2,38	0,20	2,80	1,60	0,05	3,20	0,10	0,04	0,13
DCMW 070204	DCMW 21.51	6,350	2,38	0,40	2,80	1,60	0,05	3,20	0,20	0,08	0,26
DCMW 070208	DCMW 21.52	6,350	2,38	0,80	2,80	1,60	0,05	3,20	0,40	0,16	0,53
DCMW 11T302	DCMW 32.50.5	9,525	3,97	0,20	4,40	2,40	0,05	4,80	0,10	0,04	0,13
DCMW 11T304	DCMW 32.51	9,525	3,97	0,40	4,40	2,40	0,05	4,80	0,20	0,08	0,26
DCMW 11T308	DCMW 32.52	9,525	3,97	0,80	4,40	2,40	0,05	4,80	0,40	0,16	0,53
DCMW 150404	DCMW 431	12,700	4,76	0,40	5,50	2,80	0,10	5,50	0,20	0,10	0,26
DCMT 11T302-FF	DCMT 32.50.5-FF	9,525	3,97	0,20	4,40	0,30	0,08	2,00	0,08	0,04	0,15
DCMT 11T304-FF	DCMT 32.51-FF	9,525	3,97	0,40	4,40	0,50	0,11	2,00	0,11	0,06	0,23
DCMT 11T308-FF	DCMT 32.52-FF	9,525	3,97	0,80	4,40	0,80	0,15	2,00	0,15	0,08	0,30
DCMT 070202-FP	DCMT 21.50.5-FP	6,350	2,38	0,20	2,80	0,26	0,06	1,50	0,06	0,03	0,11
DCMT 070204-FP	DCMT 21.51-FP	6,350	2,38	0,40	2,80	0,26	0,08	1,50	0,08	0,05	0,17
DCMT 11T302-FP	DCMT 32.50.5-FP	9,525	3,97	0,20	4,40	0,35	0,08	2,00	0,08	0,04	0,15
DCMT 11T304-FP	DCMT 32.51-FP	9,525	3,97	0,40	4,40	0,35	0,11	2,00	0,11	0,06	0,23
DCMT 11T308-FP	DCMT 32.52-FP	9,525	3,97	0,80	4,40	0,35	0,15	2,00	0,15	0,08	0,30
DCMT 070202-FM	DCMT 21.50.5-FM	6,350	2,38	0,20	2,80	0,26	0,06	1,50	0,06	0,03	0,11
DCMT 070204-FM	DCMT 21.51-FM	6,350	2,38	0,40	2,80	0,26	0,08	1,50	0,08	0,05	0,17
DCMT 11T302-FM	DCMT 32.50.5-FM	9,525	3,97	0,20	4,40	0,35	0,08	2,00	0,08	0,04	0,15
DCMT 11T304-FM	DCMT 32.51-FM	9,525	3,97	0,40	4,40	0,35	0,11	2,00	0,11	0,06	0,23
DCMT 11T308-FM	DCMT 32.52-FM	9,525	3,97	0,80	4,40	0,35	0,15	2,00	0,15	0,08	0,30
DCMT 070202-FK	DCMT 21.50.5-FK	6,350	2,38	0,20	2,80	0,26	0,06	1,50	0,06	0,03	0,11
DCMT 070204-FK	DCMT 21.51-FK	6,350	2,38	0,40	2,80	0,26	0,08	1,50	0,08	0,05	0,17
DCMT 11T302-FK	DCMT 32.50.5-FK	9,525	3,97	0,20	4,40	0,35	0,08	2,00	0,08	0,04	0,15
DCMT 11T304-FK	DCMT 32.51-FK	9,525	3,97	0,40	4,40	0,35	0,11	2,00	0,11	0,06	0,23
DCMT 070204-FW	DCMT 21.51-FW	6,350	2,38	0,40	2,80	0,70	0,30	2,00	0,12	0,05	0,25
DCMT 070208-FW	DCMT 21.52-FW	6,350	2,38	0,80	2,80	0,70	0,30	2,00	0,15	0,09	0,35
DCMT 11T304-FW	DCMT 32.51-FW	9,525	3,97	0,40	4,40	1,00	0,30	3,00	0,20	0,07	0,30
DCMT 11T308-FW	DCMT 32.52-FW	9,525	3,97	0,80	4,40	1,00	0,30	3,00	0,25	0,12	0,40
DCMT 11T304-LM	DCMT 32.51-LM	9,525	3,97	0,40	4,40	0,50	0,15	2,50	0,15	0,08	0,25
DCMT 11T308-LM	DCMT 32.52-LM	9,525	3,97	0,80	4,40	0,50	0,20	2,50	0,20	0,10	0,35
DCMT 11T304-MW	DCMT 32.51-MW	9,525	3,97	0,40	4,40	1,50	0,50	4,00	0,25	0,12	0,40
DCMT 11T308-MW	DCMT 32.52-MW	9,525	3,97	0,80	4,40	1,50	0,50	4,00	0,30	0,15	0,50

DC - RHOMBIC 55° POSITIVE

RÔMBICA 55° POSITIVA | RÓMBICA 55° POSITIVA

			P											M						K				N	S			
			CVD							PVD				CVD		PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	5D	R3	1D	S9	V5	G1	X5	G4	T1	U4	U5	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	PHG105	PHG115	PH2G115	PHG125	PH2G125	PHG135	PHG140	PH7910	PHP910	PH7920	PHP920	PHS215	PHS225	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
DCMT-MP Medium	1121681	DCMT 070204-MP		◉	◉	◉	◉					◉																	
	1121684	DCMT 070208-MP			◉	◉	◉																						
	1121648	DCMT 11T304-MP			◉		◉					◉																	
	1121706	DCMT 11T308-MP		◉	◉	◉	◉					◉																	
	1121708	DCMT 11T312-MP		◉	○		◉																						
	1124783	DCMT 11T312-MP1			○		◉																						
DCMT-MM Medium	1121680	DCMT 070204-MM												◉			◉	◉	◉							◉	◉	◉
	1121683	DCMT 070208-MM												◉			◉	◉	◉							◉	◉	◉
	1121647	DCMT 11T304-MM												◉			◉	◉	◉							◉	◉	◉
	1121705	DCMT 11T308-MM												◉			◉	◉	◉							◉	◉	◉
	1121707	DCMT 11T312-MM												◉			◉	◉	◉							◉	◉	◉
DCMT-MK Medium	1121679	DCMT 070204-MK																			◉	◉						
	1121682	DCMT 070208-MK																			◉	◉						
	1121646	DCMT 11T304-MK																			◉	◉						
	1121704	DCMT 11T308-MK																			◉	◉						
	1121955	DCMT 11T312-MK																			◉	◉						
DCGT-FS Finishing to Fine Finishing	1121747	DCGT 070201-FS															◉		◉							◉		◉
	1121748	DCGT 070202-FS															◉		◉							◉		◉
	1121872	DCGT 070204-FS															◉		◉							◉		◉
	1121873	DCGT 11T301-FS															◉		◉							◉		◉
	1121874	DCGT 11T302-FS															◉		◉							◉		◉
	1121875	DCGT 11T304-FS															◉		◉							◉		◉
	1124101	DCGT 11T308-FS															◉		◉							◉		◉
DCGT-LN Medium to Finishing	1121900	DCGT 070202-LN															◉							◉		◉		
	1121901	DCGT 070204-LN															◉							◉		◉		
	1111540	DCGT 11T302-LN															◉							◉		◉		
	1111534	DCGT 11T304-LN															◉							◉		◉		
	1121904	DCGT 11T308-LN															◉							◉		◉		
	1124004	DCGT 11T312-LN																						◉				

◉ First choice | 1ª Escolha | 1ª Opción

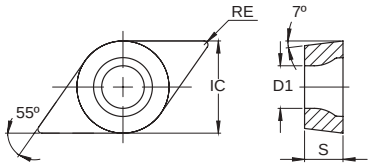
◉ Stock Itens | Itens de stock

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

◬ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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

RELIEF ANGLE 7°



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		IC	S	RE	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
DCMT 070204-MP	DCMT 21.51-MP	6,350	2,38	0,40	2,80	0,60	0,19	2,25	0,11	0,06	0,17
DCMT 070208-MP	DCMT 21.52-MP	6,350	2,38	0,80	2,80	0,60	0,38	2,25	0,20	0,08	0,35
DCMT 11T304-MP	DCMT 32.51-MP	9,525	3,97	0,40	4,40	0,80	0,25	3,00	0,15	0,08	0,23
DCMT 11T308-MP	DCMT 32.52-MP	9,525	3,97	0,80	4,40	0,80	0,50	3,00	0,25	0,10	0,40
DCMT 11T312-MP	DCMT 32.53-MP	9,525	3,97	1,20	4,40	0,80	0,60	3,00	0,35	0,12	0,60
DCMT 11T312-MP1	DCMT 32.53-MP1	9,525	3,97	1,20	4,40	0,80	0,60	3,00	0,35	0,12	0,60
DCMT 070204-MM	DCMT 21.51-MM	6,350	2,38	0,40	2,80	0,60	0,19	2,25	0,11	0,06	0,17
DCMT 070208-MM	DCMT 21.52-MM	6,350	2,38	0,80	2,80	0,60	0,38	2,25	0,20	0,08	0,35
DCMT 11T304-MM	DCMT 32.51-MM	9,525	3,97	0,40	4,40	0,80	0,25	3,00	0,15	0,08	0,23
DCMT 11T308-MM	DCMT 32.52-MM	9,525	3,97	0,80	4,40	0,80	0,50	3,00	0,25	0,10	0,40
DCMT 11T312-MM	DCMT 32.53-MM	9,525	3,97	1,20	4,40	0,80	0,60	3,00	0,35	0,12	0,60
DCMT 070204-MK	DCMT 21.51-MK	6,350	2,38	0,40	2,80	0,60	0,19	2,25	0,11	0,06	0,17
DCMT 070208-MK	DCMT 21.52-MK	6,350	2,38	0,80	2,80	0,60	0,38	2,25	0,20	0,08	0,35
DCMT 11T304-MK	DCMT 32.51-MK	9,525	3,97	0,40	4,40	0,80	0,25	3,00	0,15	0,08	0,23
DCMT 11T308-MK	DCMT 32.52-MK	9,525	3,97	0,80	4,40	0,80	0,50	3,00	0,25	0,10	0,40
DCMT 11T312-MK	DCMT 32.53-MK	9,525	3,97	1,20	4,40	0,80	0,50	3,00	0,35	0,12	0,60
DCGT 070201-FS	DCGT 21.50.2-FS	6,350	2,38	0,10	2,80	0,30	0,10	1,00	0,03	0,01	0,06
DCGT 070202-FS	DCGT 21.50.5-FS	6,350	2,38	0,20	2,80	0,50	0,10	1,50	0,07	0,02	0,12
DCGT 070204-FS	DCGT 21.51-FS	6,350	2,38	0,40	2,80	0,80	0,15	1,50	0,15	0,08	0,25
DCGT 11T301-FS	DCGT 32.50.2-FS	9,525	3,97	0,10	4,40	0,50	0,10	1,50	0,03	0,01	0,06
DCGT 11T302-FS	DCGT 32.50.5-FS	9,525	3,97	0,20	4,40	1,00	0,10	2,00	0,07	0,02	0,12
DCGT 11T304-FS	DCGT 32.51-FS	9,525	3,97	0,40	4,40	1,50	0,15	3,00	0,15	0,08	0,25
DCGT 11T308-FS	DCGT 32.52-FS	9,525	3,97	0,80	4,40	2,00	0,20	3,50	0,18	0,10	0,30
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
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
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
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
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
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

RC - ROUND Rº POSITIVE

REDONDA Rº POSITIVA | REDONDA Rº POSITIVA

			P											M							K				N	S			
			CVD							PVD				CVD		PVD				UNC	CVD			UNC	PVD				
		(2) Grade code	T6	R2	5D	R3	1D	S9	V5	G1	X5	G4	T1	U4	U5	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	PHG105	PHG115	PH2G115	PHG125	PH2G125	PHG135	PHG140	PH7910	PHP910	PH7920	PHP920	PHS215	PHS225	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
RCGT-LN Finishing to Fine Finishing	1124005	RCGT 0602M0-LN																						●				
	1124006	RCGT 0803M0-LN																						●				
	1124007	RCGT 1003M0-LN																						●				
	1123684	RCGT 1204M0-LN																						●				
RCMT-GS Medium to Finishing	1125011	RCMT 0602M0-GS															●									●		
	1124495	RCMT 0803M0-GS															●									●		
	1124496	RCMT 1003M0-GS															●									●		
	1125010	RCMT 1204M0-GS															●									●		
RCMT-CP Medium	1120384	RCMT 0602M0-CP		◈	○	◈	●	△													●							
RCMT-ST Roughing to Medium	1120385	RCMT 0803M0-ST		◈	○	●	○														●							
	1120386	RCMT 1003M0-ST		◈	○	◈	●														●							
	1120387	RCMT 10T3M0-ST		◈	○	◈	●														●							
	1120388	RCMT 1204M0-ST		◈	○	◈	●														●							
	1120389	RCMT 1606M0-ST			◈	◈	●														●							
	1120390	RCMT 2006M0-ST		○	○		●														●	◈						
RCMT-RF Roughing to Medium	1123848	RCMT 2507M0-RF		◈	○		●																					
RCMT-RM Roughing to Medium	1123856	RCMT 2006M0-RM		◈	◈	◈	●															○						
RCMX-ST Roughing to Medium	1121425	RCMX 1003M0-ST				○	●																					
	1121426	RCMX 1204M0-ST					●																					
	1121427	RCMX 1606M0-ST					●														●							
	1121428	RCMX 2006M0-ST		◈	○	●	○	◈	◈												●							
	1121429	RCMX 2507M0-ST			◈	●	○																					
	1123910	RCMX 3009M0-ST			○		○																					
	1121430	RCMX 3209M0-ST			○		●																					
RCMX-RM Roughing to Medium	1123678	RCMX 3209M0-RM		△	○		●														●							
RCMX-RR Roughing to Medium	1123667	RCMX 2507M0-RR		◈	○	△	○																					
	1123666	RCMX 3209M0-RR				◈	●		◈																				

● First choice | 1ª Escolha | 1ª Opción

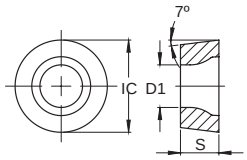
◈ Stock Itens | Itens de stock

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

△ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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

RELIEF ANGLE 7°



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		IC	S	RE	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
RCGT 0602M0-LN	RCGT 0602M0-LN	6,00	2,38	-	2,80	1,25	0,50	2,00	0,13	0,05	0,20
RCGT 0803M0-LN	RCGT 0803M0-LN	8,00	3,18	-	3,40	1,50	0,50	2,50	0,15	0,05	0,25
RCGT 1003M0-LN	RCGT 1003M0-LN	10,00	3,18	-	4,40	2,00	1,00	3,00	0,20	0,10	0,30
RCGT 1204M0-LN	RCGT 1204M0-LN	12,00	4,76	-	4,40	2,25	1,00	3,50	0,23	0,10	0,35
RCMT 0602M0-GS	RCMT 0602M0-GS	6,00	2,38	-	2,80	0,90	0,30	1,50	0,25	0,15	0,40
RCMT 0803M0-GS	RCMT 0803M0-GS	8,00	3,18	-	3,40	1,20	0,40	2,00	0,28	0,15	0,40
RCMT 1003M0-GS	RCMT 1003M0-GS	10,00	3,18	-	4,40	1,50	0,50	2,50	0,3	0,15	0,45
RCMT 1204M0-GS	RCMT 1204M0-GS	12,00	4,76	-	4,40	1,80	0,60	3,00	0,35	0,15	0,50
RCMT 0602M0-CP	RCMT 0602M0-CP	6,00	2,38	-	2,80	1,50	0,50	2,40	0,15	0,04	0,17
RCMT 0803M0-ST	RCMT 0803M0-ST	8,00	3,18	-	3,40	2,00	0,80	3,20	0,20	0,10	0,80
RCMT 1003M0-ST	RCMT 1003M0-ST	10,00	3,18	-	3,40	2,50	1,00	4,00	0,25	0,12	1,00
RCMT 10T3M0-ST	RCMT 10T3M0-ST	10,00	3,97	-	4,40	2,50	1,00	4,00	0,25	0,16	1,40
RCMT 1204M0-ST	RCMT 1204M0-ST	12,00	4,76	-	4,40	3,00	1,20	4,80	0,30	0,20	1,80
RCMT 1606M0-ST	RCMT 1606M0-ST	16,00	6,35	-	5,50	3,50	1,60	6,40	0,37	0,25	2,30
RCMT 2006M0-ST	RCMT 2006M0-ST	20,00	6,35	-	6,50	4,00	2,00	8,00	0,45	0,30	3,00
RCMT 2507M0-RF	RCMT 2507M0-RF	25,00	7,94	-	7,20	6,30	2,50	10,00	0,79	0,25	2,50
RCMT 2006M0-RM	RCMT 2006M0-RM	20,00	6,35	-	6,50	4,00	2,00	8,00	0,45	0,13	0,63
RCMX 1003M0-ST	RCMX 1003M0-ST	10,00	3,18	-	3,60	2,50	1,00	4,00	0,32	0,10	1,00
RCMX 1204M0-ST	RCMX 1204M0-ST	12,00	4,76	-	4,20	3,00	1,20	4,80	0,38	0,12	1,20
RCMX 1606M0-ST	RCMX 1606M0-ST	16,00	6,35	-	5,20	4,00	1,60	6,40	0,51	0,16	1,60
RCMX 2006M0-ST	RCMX 2006M0-ST	20,00	6,35	-	6,50	5,00	2,00	8,00	0,63	0,20	2,00
RCMX 2507M0-ST	RCMX 2507M0-ST	25,00	7,94	-	7,20	6,30	2,50	10,00	0,79	0,25	2,50
RCMX 3209M0-ST	RCMX 3209M0-ST	30,00	9,55	-	10,00	7,00	3,00	11,00	0,85	0,30	2,80
RCMX 3209M0-ST	RCMX 3209M0-ST	32,00	9,52	-	9,50	8,00	3,20	12,80	1,01	0,32	3,20
RCMX 3209M0-RM	RCMX 3209M0-RM	32,00	9,52	-	9,50	6,50	3,20	13,00	1,80	0,80	2,50
RCMX 2507M0-RR	RCMX 2507M0-RR	25,00	7,94	-	7,20	5,00	3,20	8,00	1,80	0,80	2,50
RCMX 3209M0-RR	RCMX 3209M0-RR	32,00	9,52	-	9,50	6,50	3,20	13,00	1,80	0,80	2,50

SC - SQUARE 90° POSITIVE

QUADRADA 90° POSITIVA | ESCUADRA 90° POSITIVA

			P											M						K				N	S			
			CVD							PVD				CVD		PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	5D	R3	1D	S9	V5	G1	X5	G4	T1	U4	U5	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	PHG105	PHG115	PH2G115	PHG125	PH2G125	PHG135	PHG140	PH7910	PHP910	PH7920	PHP920	PHS215	PHS225	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
SCMW Finishing	1120469	SCMW 09T304																			●							
	1120470	SCMW 09T308																			●							
	1120472	SCMW 120408																			●							
SCMT-FP Finishing	1121759	SCMT 09T304-FP		●	○		◈																					
	1121765	SCMT 09T308-FP			●	◈	○																					
SCMT-FM Finishing	1121758	SCMT 09T304-FM													◈				●									●
	1121764	SCMT 09T308-FM													●				◈									●
SCMT-FK Finishing	1121757	SCMT 09T304-FK																			●							
	1121763	SCMT 09T308-FK																			●							
SCMT-MP Medium	1121762	SCMT 09T304-MP			●	◈	◈																					
	1121768	SCMT 09T308-MP		●	○	◈	◈																					
	1121770	SCMT 120404-MP		●	○	◈	○																					
	1121783	SCMT 120408-MP		●	○		◈																					
	1121785	SCMT 120412-MP		●	○	◈	○																					
SCMT-MM Medium	1121761	SCMT 09T304-MM										●		●				◈	◈								◈	●
	1121767	SCMT 09T308-MM										●		●				◈	◈								◈	●
	1121769	SCMT 120404-MM										●		●				◈	◈								◈	●
	1121782	SCMT 120408-MM										●		●				◈	◈								◈	●
	1121784	SCMT 120412-MM												●					◈									●
SCMT-MK Medium	1121760	SCMT 09T304-MK																			●	◈						
	1121766	SCMT 09T308-MK																			●	◈						
	1121781	SCMT 120408-MK																			◈	●	◈					
SCGT-LN Medium to Finishing	1124008	SCGT 09T304-LN																						●				
	1124009	SCGT 09T308-LN																						●				
	1124743	SCGT 120402-LN																						○				
	1124010	SCGT 120404-LN																						●				
	1123685	SCGT 120408-LN																						●				

● First choice | 1ª Escolha | 1ª Opción

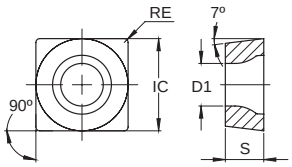
◈ Stock Itens | Itens de stock

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

◬ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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

RELIEF ANGLE 7°



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		IC	S	RE	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
SCMW 09T304	SCMW 32.51	9,525	3,97	0,40	4,40	2,40	0,05	4,70	0,20	0,08	0,26
SCMW 09T308	SCMW 32.52	9,525	3,97	0,80	4,40	2,40	0,05	4,70	0,40	0,16	0,53
SCMW 120408	SCMW 432	12,700	4,76	0,80	5,50	3,20	0,05	6,30	0,40	0,16	0,53
SCMT 09T304-FP	SCMT 32.51-FP	9,525	3,97	0,40	4,40	0,35	0,11	2,00	0,11	0,06	0,23
SCMT 09T308-FP	SCMT 32.52-FP	9,525	3,97	0,80	4,40	0,35	0,15	2,00	0,15	0,08	0,30
SCMT 09T304-FM	SCMT 32.51-FM	9,525	3,97	0,40	4,40	0,35	0,11	2,00	0,11	0,06	0,23
SCMT 09T308-FM	SCMT 32.52-FM	9,525	3,97	0,80	4,40	0,35	0,15	2,00	0,15	0,08	0,30
SCMT 09T304-FK	SCMT 32.51-FK	9,525	3,97	0,40	4,40	0,35	0,11	2,00	0,11	0,06	0,23
SCMT 09T308-FK	SCMT 32.52-FK	9,525	3,97	0,80	4,40	0,35	0,15	2,00	0,15	0,08	0,30
SCMT 09T304-MP	SCMT 32.51-MP	9,525	3,97	0,40	4,40	0,80	0,25	3,00	0,15	0,08	0,23
SCMT 09T308-MP	SCMT 32.52-MP	9,525	3,97	0,80	4,40	0,80	0,50	3,00	0,25	0,10	0,40
SCMT 120404-MP	SCMT 431-MP	12,700	4,76	0,40	5,50	0,96	0,30	3,60	0,18	0,09	0,27
SCMT 120408-MP	SCMT 432-MP	12,700	4,76	0,80	5,50	0,96	0,60	3,60	0,25	0,12	0,45
SCMT 120412-MP	SCMT 433-MP	12,700	4,76	1,20	5,50	0,96	0,72	3,60	0,35	0,14	0,60
SCMT 09T304-MM	SCMT 32.51-MM	9,525	3,97	0,40	4,40	0,80	0,25	3,00	0,15	0,08	0,23
SCMT 09T308-MM	SCMT 32.52-MM	9,525	3,97	0,80	4,40	0,80	0,50	3,00	0,25	0,10	0,40
SCMT 120404-MM	SCMT 431-MM	12,700	4,76	0,40	5,50	0,96	0,30	3,60	0,18	0,09	0,27
SCMT 120408-MM	SCMT 432-MM	12,700	4,76	0,80	5,50	0,96	0,60	3,60	0,25	0,12	0,45
SCMT 120412-MM	SCMT 433-MM	12,700	4,76	1,20	5,50	0,96	0,72	3,60	0,35	0,14	0,60
SCMT 09T304-MK	SCMT 32.51-MK	9,525	3,97	0,40	4,40	0,80	0,25	3,00	0,15	0,08	0,23
SCMT 09T308-MK	SCMT 32.52-MK	9,525	3,97	0,80	4,40	0,80	0,50	3,00	0,25	0,10	0,40
SCMT 120408-MK	SCMT 432-MK	12,700	4,76	0,80	5,50	0,96	0,60	3,60	0,25	0,12	0,45
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
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
SCGT 120402-LN	SCGT 430.5-LN	12,700	4,76	0,20	5,50	2,50	0,10	4,50	0,15	0,08	0,25
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
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

SP - SQUARE 90° POSITIVE

QUADRADA 90° POSITIVA | ESCUADRA 90° POSITIVA

			P								M						K				N	S			
			CVD				PVD				CVD		PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	L7	R2	L8	R3	G1	X5	G4	T1	U4	U5	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	PH5115	PHG115	PH5125	PHG125	PH7910	PHP910	PH7920	PHP920	PHS215	PHS225	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
SPUN Medium to Finishing	1120580	SPUN 120304			◉																				
	1120581	SPUN 120308	◈		◉																				
	1120583	SPUN 120312			◉																				
SPMR-12 Finishing to Fine Finishing	1120561	SPMR 090308-12	◉		◈																				
	1120563	SPMR 120304-12	◉																						
	1120565	SPMR 120308-12	◇																						
SPMR-13 Medium	1120562	SPMR 090308-13	◉																						
	1120564	SPMR 120304-13	◇		◉																				
	1120566	SPMR 120308-13	◇		◉																				
	1120567	SPMR 120312-13	◈		◉																				

◉ First choice | 1ª Escolha | 1ª Opción

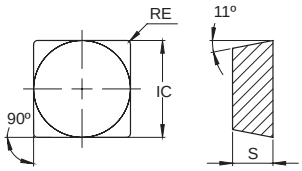
◈ Stock Itens | Itens de stock

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

◇ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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

RELIEF ANGLE 11°



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		IC	S	RE	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
SPUN 120304	SPUN 421	12,700	3,18	0,40	-	3,00	1,00	5,00	0,20	0,10	0,30
SPUN 120308	SPUN 422	12,700	3,18	0,80	-	3,00	1,00	5,00	0,25	0,15	0,40
SPUN 120312	SPUN 423	12,700	3,18	1,20	-	3,00	1,00	5,00	0,35	0,20	0,50
SPMR 090308-12	SPMR 322-12	9,525	3,18	0,80	-	1,00	0,30	2,00	0,20	0,10	0,30
SPMR 120304-12	SPMR 421-12	12,700	3,18	0,40	-	1,30	0,50	2,00	0,15	0,08	0,25
SPMR 120308-12	SPMR 422-12	12,700	3,18	0,80	-	1,30	0,50	2,00	0,22	0,10	0,30
SPMR 090308-13	SPMR 322-13	9,525	3,18	0,80	-	2,20	1,00	3,50	0,25	0,10	0,40
SPMR 120304-13	SPMR 421-13	12,700	3,18	0,40	-	2,60	1,50	4,00	0,10	0,07	0,20
SPMR 120308-13	SPMR 422-13	12,700	3,18	0,80	-	2,60	1,50	4,00	0,30	0,20	0,40
SPMR 120312-13	SPMR-423-13	12,700	3,18	1,20	-	2,60	1,50	4,00	0,40	0,25	0,55

TC - TRIANGULAR 60° POSITIVE

TRIANGULAR 60° POSITIVA | TRIANGULAR 60° POSITIVA

			P											M						K				N	S			
			CVD							PVD				CVD		PVD				UNC	CVD				UNC	PVD			
		(2) Grade code	T6	R2	5D	R3	1D	S9	V5	G1	X5	G4	T1	U4	U5	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	PHG105	PHG115	PH2G115	PHG125	PH2G125	PHG135	PHG140	PH7910	PHP910	PH7920	PHP920	PHS215	PHS225	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
TCMW Finishing	1120620	TCMW 110204																			●			○				
	1120622	TCMW 16T304																			●			○				
	1120623	TCMW 16T308																			●			○				
	1121846	TCMT 220408																		◬	○							
TCMT-FP Finishing	1121788	TCMT 06T102-FP				◉	●																					
	1121798	TCMT 06T104-FP		●	○	◉	○																					
	1121801	TCMT 06T108-FP		●	○	◉	○																					
	1121804	TCMT 090202-FP				●	○																					
	1121807	TCMT 090204-FP		●	○	◉	○																					
	1121961	TCMT 110202-FP				◬	●																					
	1121962	TCMT 110204-FP			●																							
	1121963	TCMT 110208-FP		●	○	◉	○																					
	1121669	TCMT 110302-FP					○																					
	1121816	TCMT 110304-FP		◬	○	◉	●																					
	1121823	TCMT 110308-FP			○	◉	●																					
	1121832	TCMT 16T304-FP		◉	○	◉	●																					
TCMT-FM Finishing	1121787	TCMT 06T102-FM													●				◉									●
	1121797	TCMT 06T104-FM													●				◉									●
	1123637	TCMT 06T108-FM													●				◉									●
	1121803	TCMT 090202-FM													●		◉		◉								●	◉
	1121806	TCMT 090204-FM													●		◉		◉								●	◉
	1121960	TCMT 110202-FM													●		◉		◉								●	◉
	1121958	TCMT 110204-FM													●		◉		◉								●	◉
	1121959	TCMT 110208-FM													●				◉									●
	1121881	TCMT 110302-FM													●				◉									●
	1121815	TCMT 110304-FM													●			◬	◉								◬	●
	1121822	TCMT 110308-FM													●			◬	◉								◬	●
	1121831	TCMT 16T304-FM													●		◉		◉								●	◉

● First choice | 1ª Escolha | 1ª Opción

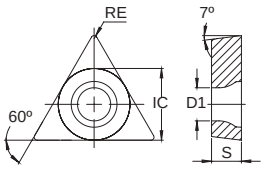
◉ Stock Itens | Itens de stock

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

◬ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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

RELIEF ANGLE 7°



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		IC	S	RE	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
TCMW 110204	TCMW 21.51	6,350	2,38	0,40	2,80	1,50	0,05	3,10	0,20	0,08	0,26
TCMW 16T304	TCMW 32.51	9,525	3,97	0,40	4,40	2,30	0,05	4,70	0,20	0,08	0,26
TCMW 16T308	TCMW 32.52	9,525	3,97	0,80	4,40	2,30	0,05	4,70	0,40	0,16	0,53
TCMT 220408	TCMT 432	12,700	4,76	0,80	5,50	2,30	0,05	6,30	0,33	0,15	0,53
TCMT 06T102-FP	TCMT 1.21.20.5-FP	3,970	1,98	0,20	2,15	0,26	0,06	1,50	0,06	0,03	0,11
TCMT 06T104-FP	TCMT 1.21.21-FP	3,970	1,98	0,40	2,15	0,26	0,08	1,50	0,08	0,05	0,17
TCMT 06T108-FP	TCMT 1.21.22-FP	3,970	1,98	0,80	2,15	0,26	0,11	1,50	0,11	0,06	0,23
TCMT 090202-FP	TCMT 1.81.50.5-FP	5,560	2,38	0,20	2,50	0,30	0,06	1,70	0,06	0,03	0,13
TCMT 090204-FP	TCMT 1.81.51-FP	5,560	2,38	0,40	2,50	0,30	0,10	1,70	0,10	0,05	0,19
TCMT 110202-FP	TCMT 21.50.5-FP	6,350	2,38	0,20	2,80	0,30	0,06	1,70	0,06	0,03	0,13
TCMT 110204-FP	TCMT 21.51-FP	6,350	2,38	0,40	2,80	0,30	0,10	1,70	0,10	0,05	0,19
TCMT 110208-FP	TCMT 21.52-FP	6,350	2,38	0,80	2,80	0,30	0,13	1,70	0,13	0,07	0,26
TCMT 110302-FP	TCMT 220.5-FP	6,350	3,18	0,20	2,80	0,30	0,06	1,70	0,06	0,03	0,13
TCMT 110304-FP	TCMT 221-FP	6,350	3,18	0,40	2,80	0,30	0,10	1,70	0,10	0,05	0,19
TCMT 110308-FP	TCMT 222-FP	6,350	3,18	0,80	2,80	0,30	0,13	1,70	0,13	0,07	0,26
TCMT 16T304-FP	TCMT 32.51-FP	9,525	3,97	0,40	4,40	0,35	0,11	2,00	0,11	0,06	0,23
TCMT 06T102-FM	TCMT 1.21.20.5-FM	3,970	1,98	0,20	2,15	0,26	0,06	1,50	0,06	0,03	0,11
TCMT 06T104-FM	TCMT 1.21.21-FM	3,970	1,98	0,40	2,15	0,26	0,08	1,50	0,08	0,05	0,17
TCMT 06T108-FM	TCMT 1.21.22-FM	3,970	1,98	0,80	2,15	0,26	0,11	1,50	0,11	0,06	0,23
TCMT 090202-FM	TCMT 1.81.50.5-FM	5,560	2,38	0,20	2,50	0,30	0,06	1,70	0,06	0,03	0,13
TCMT 090204-FM	TCMT 1.81.51-FM	5,560	2,38	0,40	2,50	0,30	0,10	1,70	0,10	0,05	0,19
TCMT 110202-FM	TCMT 21.50.5-FM	6,350	2,38	0,20	2,80	0,30	0,06	1,70	0,06	0,03	0,13
TCMT 110204-FM	TCMT 21.51-FM	6,350	2,38	0,40	2,80	0,30	0,10	1,70	0,10	0,05	0,19
TCMT 110208-FM	TCMT 21.52-FM	6,350	2,38	0,80	2,80	0,30	0,13	1,70	0,13	0,07	0,26
TCMT 110302-FM	TCMT 220.5-FM	6,350	3,18	0,20	2,80	0,30	0,06	1,70	0,06	0,03	0,13
TCMT 110304-FM	TCMT 221-FM	6,350	3,18	0,40	2,80	0,30	0,10	1,70	0,10	0,05	0,19
TCMT 110308-FM	TCMT 222-FM	6,350	3,18	0,80	2,80	0,30	0,13	1,70	0,13	0,07	0,26
TCMT 16T304-FM	TCMT 32.51-FM	9,525	3,97	0,40	4,40	0,35	0,11	2,00	0,11	0,06	0,23

TC - TRIANGULAR 60° POSITIVE

TRIANGULAR 60° POSITIVA | TRIANGULAR 60° POSITIVA

			P											M						K				N	S			
			CVD							PVD				CVD		PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	5D	R3	1D	S9	V5	G1	X5	G4	T1	U4	U5	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	PHG105	PHG115	PH2G115	PHG125	PH2G125	PHG135	PHG140	PH7910	PHP910	PH7920	PHP920	PHS215	PHS225	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
TCMT-FK	1121786	TCMT 06T102-FK																			●							
	1121789	TCMT 06T104-FK																			●							
Finishing	1121800	TCMT 06T108-FK																			●							
	1123668	TCMT 090202-FK																			●							
	1121805	TCMT 090204-FK																			●							
	1121956	TCMT 110202-FK																			●							
	1121957	TCMT 110204-FK																			●							
	1121813	TCMT 110302-FK																			●							
	1121814	TCMT 110304-FK																			●							
	1121830	TCMT 16T304-FK																			●							
TCMT-FW	1121808	TCMT 090204-FW		△	●							◉						●			●						●	
	1121809	TCMT 090208-FW		○								●						●			●						●	
Finishing Wiper	1121964	TCMT 110204-FW		○								●						●			●						●	
	1121965	TCMT 110208-FW		○								●						●			●						●	
	1121817	TCMT 110304-FW		●	○							◉						●			●						●	
	1121824	TCMT 110308-FW		△	●							◉						●			●						●	
	1121833	TCMT 16T304-FW		●	○							◉						●			●						●	
	1121837	TCMT 16T308-FW		△	●							◉						●			●						●	
TCMT-MW	1121974	TCMT 110208-MW		○								●						●				●					●	
	1121828	TCMT 110308-MW		○								●						●				●					●	
Medium to Finishing Wiper	1121841	TCMT 16T308-MW		○								●						●				●					●	

● First choice | 1ª Escolha | 1ª Opción

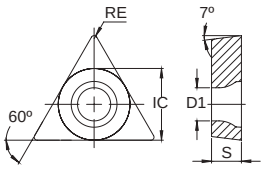
◉ Stock Itens | Itens de stock

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

△ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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

RELIEF ANGLE 7°



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		IC	S	RE	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
TCMT 06T102-FK	TCMT 1.21.20.5-FK	3,970	1,98	0,20	2,15	0,26	0,06	1,50	0,06	0,03	0,11
TCMT 06T104-FK	TCMT 1.21.21-FK	3,970	1,98	0,40	2,15	0,26	0,08	1,50	0,08	0,05	0,17
TCMT 06T108-FK	TCMT 1.21.22-FK	3,970	1,98	0,80	2,15	0,26	0,11	1,50	0,11	0,06	0,23
TCMT 090202-FK	TCMT 1.81.50.5-FK	5,560	2,38	0,20	2,50	0,30	0,06	1,70	0,06	0,03	0,13
TCMT 090204-FK	TCMT 1.81.51-FK	5,560	2,38	0,40	2,50	0,30	0,10	1,70	0,10	0,05	0,19
TCMT 110202-FK	TCMT 21.50.5-FK	6,350	2,38	0,20	2,80	0,30	0,06	1,70	0,06	0,03	0,13
TCMT 110204-FK	TCMT 21.51-FK	6,350	2,38	0,40	2,80	0,30	0,10	1,70	0,10	0,05	0,19
TCMT 110302-FK	TCMT 220.5-FK	6,350	3,18	0,20	2,80	0,30	0,06	1,70	0,06	0,03	0,13
TCMT 110304-FK	TCMT 221-FK	6,350	3,18	0,40	2,80	0,30	0,10	1,70	0,10	0,05	0,19
TCMT 16T304-FK	TCMT 32.51-FK	9,525	3,97	0,40	4,40	0,35	0,11	2,00	0,11	0,06	0,23
TCMT 090204-FW	TCMT 1.81.51-FW	5,560	2,38	0,40	2,50	0,70	0,30	2,00	0,12	0,05	0,30
TCMT 090208-FW	TCMT 1.81.52-FW	5,560	2,38	0,80	2,50	0,70	0,30	2,00	0,25	0,10	0,35
TCMT 110204-FW	TCMT 21.51-FW	6,350	2,38	0,40	2,80	1,00	0,30	2,50	0,20	0,07	0,30
TCMT 110208-FW	TCMT 21.52-FW	6,350	2,38	0,80	2,80	1,00	0,30	2,50	0,25	0,12	0,40
TCMT 110304-FW	TCMT 221-FW	6,350	3,18	0,40	2,80	1,00	0,30	2,50	0,20	0,07	0,30
TCMT 110308-FW	TCMT 222-FW	6,350	3,18	0,80	2,80	1,00	0,30	2,50	0,25	0,12	0,40
TCMT 16T304-FW	TCMT 32.51-FW	9,525	3,97	0,40	4,40	1,20	0,30	3,50	0,20	0,07	0,35
TCMT 16T308-FW	TCMT 32.52-FW	9,525	3,97	0,80	4,40	1,20	0,30	3,50	0,25	0,12	0,50
TCMT 110208-MW	TCMT 21.52-MW	6,350	2,38	0,80	2,80	1,20	0,50	3,00	0,30	0,15	0,50
TCMT 110308-MW	TCMT 222-MW	6,350	3,18	0,80	2,80	1,20	0,50	3,00	0,30	0,15	0,50
TCMT 16T308-MW	TCMT 32.52-MW	9,525	3,97	0,80	4,40	1,50	0,50	4,00	0,30	0,15	0,50

TC - TRIANGULAR 60° POSITIVE

TRIANGULAR 60° POSITIVA | TRIANGULAR 60° POSITIVA

			P											M						K				N	S				
			CVD							PVD				CVD		PVD				UNC	CVD			UNC	PVD				
		(2) Grade code	T6	R2	5D	R3	1D	S9	V5	G1	X5	G4	T1	U4	U5	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	PHG105	PHG115	PH2G115	PHG125	PH2G125	PHG135	PHG140	PH7910	PHP910	PH7920	PHP920	PHS215	PHS225	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
TCMT-MP Medium	1121703	TCMT 090204-MP		△	◉	◉	●																						
	1121812	TCMT 090208-MP			○		●																						
	1121970	TCMT 110204-MP			◉	◉	●					◉																	
	1121971	TCMT 110208-MP		△	◉	◉	●																						
	1121972	TCMT 110212-MP		◉	○	●	○																						
	1121820	TCMT 110304-MP			○		●																						
	1121827	TCMT 110308-MP		△	○	◉	●																						
	1121829	TCMT 110312-MP			○		○																						
	1121836	TCMT 16T304-MP		◉	○	◉	●																						
	1121840	TCMT 16T308-MP		◉	◉	◉	●					◉																	
	1121844	TCMT 16T312-MP		◉	○	●	○																						
	1121849	TCMT 220408-MP		◉	○	●	○		◉																				
TCMT-MM Medium	1121702	TCMT 090204-MM												●			◉	◉	◉							●	◉	◉
	1121811	TCMT 090208-MM												●			◉	◉	◉							●	◉	◉
	1121968	TCMT 110204-MM												●		△	◉	◉	◉						△	●	◉	◉
	1121969	TCMT 110208-MM												●			◉	◉	◉							●	◉	◉
	1121819	TCMT 110304-MM												●				△	◉								△	◉
	1121826	TCMT 110308-MM												●				◉	◉								◉	●
	1121835	TCMT 16T304-MM												●			◉	◉	◉							●	◉	◉
	1121839	TCMT 16T308-MM												●			◉	◉	◉							●	◉	◉
	1121843	TCMT 16T312-MM												●			◉	◉	◉							●	◉	◉
	1121848	TCMT 220408-MM												●				◉	◉								◉	●
TCMT-MK Medium	1121701	TCMT 090204-MK																			◉	●						
	1121810	TCMT 090208-MK																			◉	●						
	1121966	TCMT 110204-MK																			◉	●						
	1121967	TCMT 110208-MK																			◉	●						
	1121818	TCMT 110304-MK																			◉	●						
	1121825	TCMT 110308-MK																			◉	●						
	1121834	TCMT 16T304-MK																			◉	●						
	1121838	TCMT 16T308-MK																			◉	●						
	1121842	TCMT 16T312-MK																			◉	●						
	1121847	TCMT 220408-MK																			◉	●						

● First choice | 1ª Escolha | 1ª Opción

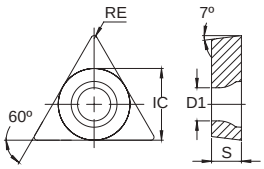
◉ Stock Itens | Itens de stock

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

△ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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

RELIEF ANGLE 7°



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		IC	S	RE	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
TCMT 090204-MP	TCMT 1.81.51-MP	5,560	2,38	0,40	2,50	0,60	0,19	2,25	0,11	0,06	0,17
TCMT 090208-MP	TCMT 1.81.52-MP	5,560	2,38	0,80	2,50	0,60	0,38	2,25	0,15	0,08	0,23
TCMT 110204-MP	TCMT 21.51-MP	6,350	2,38	0,40	2,80	0,67	0,21	2,50	0,13	0,06	0,19
TCMT 110208-MP	TCMT 21.52-MP	6,350	2,38	0,80	2,80	0,67	0,42	2,50	0,17	0,09	0,26
TCMT 110212-MP	TCMT 21.53-MP	6,350	2,38	1,20	2,80	0,67	0,50	2,50	0,20	0,10	0,40
TCMT 110304-MP	TCMT 221-MP	6,350	3,18	0,40	2,80	0,67	0,21	2,50	0,13	0,06	0,19
TCMT 110308-MP	TCMT 222-MP	6,350	3,18	0,80	2,80	0,67	0,42	2,50	0,20	0,09	0,40
TCMT 110312-MP	TCMT 223-MP	6,350	3,18	1,20	2,80	0,67	0,50	2,50	0,30	0,10	0,50
TCMT 16T304-MP	TCMT 32.51-MP	9,525	3,97	0,40	4,40	0,80	0,25	3,00	0,15	0,08	0,25
TCMT 16T308-MP	TCMT 32.52-MP	9,525	3,97	0,80	4,40	0,80	0,50	3,00	0,22	0,10	0,45
TCMT 16T312-MP	TCMT 32.53-MP	9,525	3,97	1,20	4,40	0,80	0,60	3,00	0,35	0,12	0,60
TCMT 220408-MP	TCMT 432-MP	12,700	4,76	0,80	5,50	0,96	0,60	3,60	0,25	0,12	0,45
TCMT 090204-MM	TCMT 1.81.51-MM	5,560	2,38	0,40	2,50	0,60	0,19	2,25	0,11	0,06	0,17
TCMT 090208-MM	TCMT 1.81.52-MM	5,560	2,38	0,80	2,50	0,60	0,38	2,25	0,15	0,08	0,23
TCMT 110204-MM	TCMT 21.51-MM	6,350	2,38	0,40	2,80	0,67	0,21	2,50	0,13	0,06	0,19
TCMT 110208-MM	TCMT 21.52-MM	6,350	2,38	0,80	2,80	0,67	0,42	2,50	0,17	0,09	0,26
TCMT 110304-MM	TCMT 221-MM	6,350	3,18	0,40	2,80	0,67	0,21	2,50	0,13	0,06	0,19
TCMT 110308-MM	TCMT 222-MM	6,350	3,18	0,80	2,80	0,67	0,42	2,50	0,20	0,09	0,40
TCMT 16T304-MM	TCMT 32.51-MM	9,525	3,97	0,40	4,40	0,80	0,25	3,00	0,15	0,08	0,23
TCMT 16T308-MM	TCMT 32.52-MM	9,525	3,97	0,80	4,40	0,80	0,50	3,00	0,22	0,10	0,45
TCMT 16T312-MM	TCMT 32.53-MM	9,525	3,97	1,20	4,40	0,80	0,60	3,00	0,35	0,12	0,60
TCMT 220408-MM	TCMT 432-MM	12,700	4,76	0,80	5,50	0,96	0,60	3,60	0,25	0,12	0,45
TCMT 090204-MK	TCMT 1.81.51-MK	5,560	2,38	0,40	2,50	0,60	0,19	2,25	0,11	0,06	0,17
TCMT 090208-MK	TCMT 1.81.52-MK	5,560	2,38	0,80	2,50	0,60	0,38	2,25	0,15	0,08	0,23
TCMT 110204-MK	TCMT 21.51-MK	6,350	2,38	0,40	2,80	0,67	0,21	2,50	0,13	0,06	0,19
TCMT 110208-MK	TCMT 21.52-MK	6,350	2,38	0,80	2,80	0,67	0,42	2,50	0,17	0,09	0,26
TCMT 110304-MK	TCMT 221-MK	6,350	3,18	0,40	2,80	0,67	0,21	2,50	0,13	0,06	0,19
TCMT 110308-MK	TCMT 222-MK	6,350	3,18	0,80	2,80	0,67	0,42	2,50	0,20	0,09	0,40
TCMT 16T304-MK	TCMT 32.51-MK	9,525	3,97	0,40	4,40	0,80	0,25	3,00	0,15	0,08	0,23
TCMT 16T308-MK	TCMT 32.52-MK	9,525	3,97	0,80	4,40	0,80	0,50	3,00	0,22	0,10	0,45
TCMT 16T312-MK	TCMT 32.53-MK	9,525	3,97	1,20	4,40	0,80	0,60	3,00	0,35	0,12	0,60
TCMT 220408-MK	TCMT 432-MK	12,700	4,76	0,80	5,50	0,96	0,60	3,60	0,25	0,12	0,45

TC - TRIANGULAR 60° POSITIVE

TRIANGULAR 60° POSITIVA | TRIANGULAR 60° POSITIVA

			P											M						K				N	S			
			CVD							PVD				CVD		PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	5D	R3	1D	S9	V5	G1	X5	G4	T1	U4	U5	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	PHG105	PHG115	PH2G115	PHG125	PH2G125	PHG135	PHG140	PH7910	PHP910	PH7920	PHP920	PHS215	PHS225	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
TCGT-FS Finishing to Fine Finishing	1123865	TCGT 090202-FS														◬	●		●						◬	●		●
	1123866	TCGT 090204-FS														◬	●		●						◬	●		●
	1123867	TCGT 110201-FS														◬	●	◬	●						◬	●	◬	●
	1123868	TCGT 110202-FS														◬	●	◬	●						◬	●	◬	●
	1123869	TCGT 110204-FS															●	◬	●							●	◬	●
	1123870	TCGT 110301-FS															●		●							●		●
	1123871	TCGT 110302-FS															●		●							●		●
	1123872	TCGT 110304-FS														◬	●	◬	●						◬	●	◬	●
TCGT-LN Medium to Finishing	1124011	TCGT 090202-LN																						●				
	1123683	TCGT 090204-LN																						●				
	1121895	TCGT 110202-LN																						●				
	1121896	TCGT 110204-LN														◬	○							●	◬	○		
	1124012	TCGT 110208-LN																						●				
	1121897	TCGT 16T302-LN																						●				
	1121898	TCGT 16T304-LN															●							●		●		
	1121899	TCGT 16T308-LN																						●				
	1124013	TCGT 16T312-LN																						●				
	1124014	TCGT 16T316-LN																						●				

● First choice | 1ª Escolha | 1ª Opción

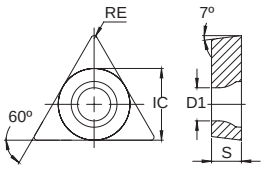
● Stock Itens | Itens de stock

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

◬ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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

RELIEF ANGLE 7°



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		IC	S	RE	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
TCGT 090202-FS	TCGT 1.81.50.5-FS	5,560	2,38	0,20	2,50	0,50	0,10	1,50	0,07	0,02	0,12
TCGT 090204-FS	TCGT 1.81.51-FS	5,560	2,38	0,40	2,50	1,00	0,50	2,00	0,15	0,08	0,25
TCGT 110201-FS	TCGT 21.50.2-FS	6,350	2,38	0,10	2,80	0,30	0,10	1,00	0,03	0,01	0,08
TCGT 110202-FS	TCGT 21.50.5-FS	6,350	2,38	0,20	2,80	0,50	0,10	1,50	0,07	0,02	0,12
TCGT 110204-FS	TCGT 21.51-FS	6,350	2,38	0,40	2,80	1,30	0,30	2,50	0,15	0,08	0,25
TCGT 110301-FS	TCGT 220.2-FS	9,525	3,18	0,10	2,80	0,30	0,10	1,00	0,03	0,01	0,08
TCGT 110302-FS	TCGT 220.5-FS	9,525	3,18	0,20	2,80	0,50	0,10	1,50	0,07	0,02	0,12
TCGT 110304-FS	TCGT 221-FS	9,525	3,18	0,40	2,80	1,30	0,50	2,50	0,15	0,08	0,25
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
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
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
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
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
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
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
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
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
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

TP - TRIANGULAR 60° POSITIVE

TRIANGULAR 60° POSITIVA | TRIANGULAR 60° POSITIVA

			P									M					K				N	S			
			CVD					PVD				CVD		PVD				UNC	CVD				UNC	PVD			
		(2) Grade code	L7	R2	L8	R3	L9	G1	X5	G4	T1	U4	U5	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	PH5115	PHG115	PH5125	PHG125	PH5740	PH7910	PHP910	PH7920	PHP920	PHS215	PHS225	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
TPUN Medium to Finishing	1120765	TPUN 160304			●		●			●																
	1120766	TPUN 160308			●		●			●																
	1120770	TPUN 160312			●		●																			
	1120777	TPUN 220404			●		●																			
	1120779	TPUN 220408			●		●																			
	1120783	TPUN 220412			●		●			●																
TPMR-12 Finishing to Fine Finishing	1120740	TPMR 110304-12	●		●																					
	1120743	TPMR 110308-12	●		●																					
	1120745	TPMR 160304-12	●		●	●																				
	1120748	TPMR 160308-12	●		●	○																				
TPMR-13 Medium	1120734	TPMR 090204-13	◈		●																					
	1120741	TPMR 110304-13	◈		●																					
	1120744	TPMR 110308-13	◈		●																					
	1120746	TPMR 160304-13	◈		●																					
	1120749	TPMR 160308-13	◈		●																○					
	1120752	TPMR 160312-13	◇		◇																					
	1120753	TPMR 220408-13	◈		●																○					

● First choice | 1ª Escolha | 1ª Opción

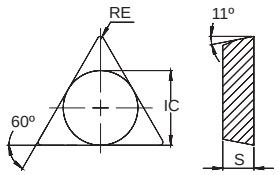
◈ Stock Itens | Itens de stock

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

◇ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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

RELIEF ANGLE 11°



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		IC	S	RE	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
TPUN 160304	TPUN 321	9,525	3,18	0,40	-	3,50	1,00	5,00	0,15	0,10	0,30
TPUN 160308	TPUN 322	9,525	3,18	0,80	-	3,50	1,00	5,00	0,30	0,15	0,40
TPUN 160312	TPUN 323	9,525	3,18	1,20	-	3,50	1,50	5,00	0,35	0,20	0,50
TPUN 220404	TPUN 431	12,700	4,76	0,40	-	4,50	1,50	7,00	0,15	0,10	0,30
TPUN 220408	TPUN 432	12,700	4,76	0,80	-	4,50	1,50	7,00	0,30	0,15	0,40
TPUN 220412	TPUN 433	12,700	4,76	1,20	-	4,50	1,50	7,00	0,35	0,20	0,50
TPMR 110304-12	TPMR 221-12	6,350	3,18	0,40	-	0,90	0,30	1,50	0,10	0,05	0,20
TPMR 110308-12	TPMR 222-12	6,350	3,18	0,80	-	0,90	0,30	1,50	0,20	0,05	0,35
TPMR 160304-12	TPMR 321-12	9,525	3,18	0,40	-	1,30	0,50	2,00	0,12	0,08	0,20
TPMR 160308-12	TPMR 322-12	9,525	3,18	0,80	-	1,50	0,50	3,00	0,22	0,08	0,35
TPMR 090204-13	TPMR 1.81.51-13	5,560	2,38	0,40	-	1,00	0,20	1,50	0,10	0,08	0,20
TPMR 110304-13	TPMR 221-13	6,350	3,18	0,40	-	2,00	1,00	3,00	0,12	0,10	0,20
TPMR 110308-13	TPMR 222-13	6,350	3,18	0,80	-	2,00	1,00	3,00	0,25	0,13	0,40
TPMR 160304-13	TPMR 321-13	9,525	3,18	0,40	-	3,00	1,00	5,00	0,15	0,10	0,20
TPMR 160308-13	TPMR 322-13	9,525	3,18	0,80	-	3,00	1,00	5,00	0,30	0,13	0,40
TPMR 160312-13	TPMR 323-13	9,525	3,18	1,20	-	3,00	1,00	5,00	0,40	0,15	0,55
TPMR 220408-13	TPMR 432-13	12,700	4,76	0,80	-	5,00	1,50	7,00	0,30	0,15	0,40

VB - RHOMBIC 35° POSITIVE

RÔMBICA 35° POSITIVA | RÓMBICA 35° POSITIVA

			P											M						K				N	S				
			CVD							PVD				CVD		PVD				UNC	CVD			UNC	PVD				
		(2) Grade code	T6	R2	5D	R3	1D	S9	V5	G1	X5	G4	T1	U4	U5	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	PHG105	PHG115	PH2G115	PHG125	PH2G125	PHG135	PHG140	PH7910	PHP910	PH7920	PHP920	PHS215	PHS225	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
VBMW	1120804	VBMW 160404																			●							
Finishing	1120805	VBMW 160408																			●							
NEW VBMT-FF	1124852	VBMT 160402-FF																										
	1124672	VBMT 160404-FF															●		◉							●		◉
Fine Finishing	1124853	VBMT 160408 -FF																										
VBMT-FP	1121852	VBMT 110302-FP					●																					
	1121855	VBMT 110304-FP			●	◉	◉																					
Finishing	1121858	VBMT 110308-FP		◉	●	◉	◉																					
	1121859	VBMT 110312-FP			○		○																					
	1121862	VBMT 160402-FP				◉	●																					
	1121865	VBMT 160404-FP			●	◉	◉																					
	1121670	VBMT 160408-FP		◬	●	◉	◉																					
	1121793	VBMT 160412-FP		◉	○		○																					
VBMT-FM	1121851	VBMT 110302-FM													◉		◉		◉							●		◉
	1121854	VBMT 110304-FM													◉		◉		◉							●		◉
Finishing	1121857	VBMT 110308-FM													◉	◬	◉	◬	◉						◬	●	◬	◉
	1121861	VBMT 160402-FM													◉		◉		◉							●		◉
	1121864	VBMT 160404-FM													◉		◉		◉							●		◉
	1121870	VBMT 160408-FM													◉		◉		◉							●		◉
	1121792	VBMT 160412-FM													◉		◉		◉							●		◉
VBMT-FK	1121850	VBMT 110302-FK																			●							
	1121853	VBMT 110304-FK																			●							
Finishing	1121856	VBMT 110308-FK																			●							
	1121860	VBMT 160402-FK																			●							
	1121863	VBMT 160404-FK																			●							
	1121869	VBMT 160408-FK																			●							
VBMT-MP	1121868	VBMT 160404-MP		◉	◉	◉	●			◉		◉																
	1121791	VBMT 160408-MP		◉	◉	◉	●			◉		◉																
Medium	1121796	VBMT 160412-MP		◉	◉	◉	●																					
VBMT-MM	1121867	VBMT 160404-MM												◉				◉	◉							◬	●		
	1121790	VBMT 160408-MM												◉				◉	◉							◬	●		
Medium	1121795	VBMT 160412-MM												◉				◉	◉								●		
VBMT-MK	1121866	VBMT 160404-MK																			◉	●						
	1121871	VBMT 160408-MK																			◉	●						
Medium	1121794	VBMT 160412-MK																			◉	●						

● First choice | 1ª Escolha | 1ª Opción

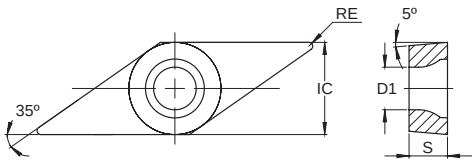
◉ Stock Itens | Itens de stock

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

◬ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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

RELIEF ANGLE 5°



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		IC	S	RE	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
VBMW 160404	VBMW 331	9,525	4,76	0,40	4,40	2,30	0,05	4,70	0,20	0,10	0,26
VBMW 160408	VBMW 332	9,525	4,76	0,80	4,40	2,30	0,05	4,70	0,40	0,16	0,53
VBMT 160402-FF	VBMT 330.5-FF	9,525	4,76	0,20	4,40	1,00	0,07	1,80	0,09	0,04	0,14
VBMT 160404-FF	VBMT 331-FF	9,525	4,76	0,40	4,40	1,20	0,10	1,80	0,13	0,05	0,20
VBMT 160408 -FF	VBMT 332-FF	9,525	4,76	0,80	4,40	1,60	0,14	1,80	0,17	0,07	0,27
VBMT 110302-FP	VBMT 220.5-FP	6,350	3,18	0,20	2,80	0,30	0,06	1,70	0,06	0,03	0,13
VBMT 110304-FP	VBMT 221-FP	6,350	3,18	0,40	2,80	0,30	0,10	1,70	0,10	0,05	0,19
VBMT 110308-FP	VBMT 222-FP	6,350	3,18	0,80	2,80	0,30	0,13	1,70	0,13	0,07	0,26
VBMT 110312-FP	VBMT 223-FP	6,350	3,18	1,20	2,80	0,30	0,13	1,70	0,15	0,08	0,31
VBMT 160402-FP	VBMT 330.5-FP	9,525	4,76	0,20	4,40	0,32	0,07	1,80	0,07	0,04	0,14
VBMT 160404-FP	VBMT 331-FP	9,525	4,76	0,40	4,40	0,32	0,10	1,80	0,10	0,05	0,20
VBMT 160408-FP	VBMT 332-FP	9,525	4,76	0,80	4,40	0,32	0,14	1,80	0,14	0,07	0,27
VBMT 160412-FP	VBMT 333-FP	9,525	4,76	1,20	4,40	0,32	0,14	1,80	0,16	0,09	0,32
VBMT 110302-FM	VBMT 220.5-FM	6,350	3,18	0,20	2,80	0,30	0,06	1,70	0,06	0,03	0,13
VBMT 110304-FM	VBMT 221-FM	6,350	3,18	0,40	2,80	0,30	0,10	1,70	0,10	0,05	0,19
VBMT 110308-FM	VBMT 222-FM	6,350	3,18	0,80	2,80	0,30	0,13	1,70	0,13	0,07	0,26
VBMT 160402-FM	VBMT 330.5-FM	9,525	4,76	0,20	4,40	0,32	0,07	1,80	0,07	0,04	0,14
VBMT 160404-FM	VBMT 331-FM	9,525	4,76	0,40	4,40	0,32	0,10	1,80	0,10	0,05	0,20
VBMT 160408-FM	VBMT 332-FM	9,525	4,76	0,80	4,40	0,32	0,14	1,80	0,14	0,07	0,27
VBMT 160412-FM	VBMT 333-FM	9,525	4,76	1,20	4,40	0,32	0,14	1,80	0,16	0,09	0,32
VBMT 110302-FK	VBMT 220.5-FK	6,350	3,18	0,20	2,80	0,30	0,06	1,70	0,06	0,03	0,13
VBMT 110304-FK	VBMT 221-FK	6,350	3,18	0,40	2,80	0,30	0,10	1,70	0,10	0,05	0,19
VBMT 110308-FK	VBMT 222-FK	6,350	3,18	0,80	2,80	0,30	0,13	1,70	0,13	0,07	0,26
VBMT 160402-FK	VBMT 330.5-FK	9,525	4,76	0,20	4,40	0,32	0,07	1,80	0,07	0,04	0,14
VBMT 160404-FK	VBMT 331-FK	9,525	4,76	0,40	4,40	0,32	0,10	1,80	0,10	0,05	0,20
VBMT 160408-FK	VBMT 332-FK	9,525	4,76	0,80	4,40	0,32	0,14	1,80	0,14	0,07	0,27
VBMT 160404-MP	VBMT 331-MP	9,525	4,76	0,40	4,40	0,72	0,23	2,70	0,14	0,07	0,20
VBMT 160408-MP	VBMT 332-MP	9,525	4,76	0,80	4,40	0,72	0,45	2,70	0,18	0,09	0,27
VBMT 160412-MP	VBMT 333-MP	9,525	4,76	1,20	4,40	0,72	0,54	2,70	0,22	0,11	0,32
VBMT 160404-MM	VBMT 331-MM	9,525	4,76	0,40	4,40	0,72	0,23	2,70	0,14	0,07	0,20
VBMT 160408-MM	VBMT 332-MM	9,525	4,76	0,80	4,40	0,72	0,45	2,70	0,18	0,09	0,27
VBMT 160412-MM	VBMT 333-MM	9,525	4,76	1,20	4,40	0,72	0,54	2,70	0,22	0,11	0,32
VBMT 160404-MK	VBMT 331-MK	9,525	4,76	0,40	4,40	0,72	0,23	2,70	0,14	0,07	0,20
VBMT 160408-MK	VBMT 332-MK	9,525	4,76	0,80	4,40	0,72	0,45	2,70	0,18	0,09	0,27
VBMT 160412-MK	VBMT 333-MK	9,525	4,76	1,20	4,40	0,72	0,54	2,70	0,22	0,11	0,32

VC - RHOMBIC 35° POSITIVE

RÔMBICA 35° POSITIVA | RÓMBICA 35° POSITIVA

			P											M						K				N	S				
			CVD							PVD				CVD		PVD				UNC	CVD			UNC	PVD				
		(2) Grade code	T6	R2	5D	R3	1D	S9	V5	G1	X5	G4	T1	U4	U5	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	PHG105	PHG115	PH2G115	PHG125	PH2G125	PHG135	PHG140	PH7910	PHP910	PH7920	PHP920	PHS215	PHS225	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
VCMW Finishing	1120816	VCMW 160404																			●							
VCMT-FP Finishing	1121776	VCMT 110302-FP				◉	○																					
	1121779	VCMT 110304-FP		◉	◉	◉	◉																					
	1121977	VCMT 160402-FP				◉	○																					
	1121978	VCMT 160404-FP			◉	◉	◉																					
	1121979	VCMT 160408-FP	◉	◉	○	◉	◉																					
	1121980	VCMT 160412-FP			○																							
VCMT-FM Finishing	1121775	VCMT 110302-FM													◉		◉		◉							◉		◉
	1121778	VCMT 110304-FM													◉		◉		◉							◉		◉
	1121981	VCMT 160402-FM													◉		◉		◉							◉		◉
	1121982	VCMT 160404-FM													◉		◉		◉							◉		◉
	1121983	VCMT 160408-FM													◉		◉	△	◉						○	◉	△	◉
	1121984	VCMT 160412-FM													◉		◉		◉						○	◉		◉
VCMT-FK Finishing	1121777	VCMT 110304-FK																			●							
	1121985	VCMT 160402-FK																			●							
	1121986	VCMT 160404-FK																			●							
	1121987	VCMT 160408-FK																			●							
VCMT-MP Medium	1121754	VCMT 110304-MP		◉	◉		○																					
	1121752	VCMT 110308-MP		◉	○	◉	◉																					
	1121988	VCMT 160404-MP		△	◉	◉	◉																					
	1121989	VCMT 160408-MP		◉	◉	◉	◉																					
	1121990	VCMT 160412-MP			○		◉																					
VCMT-MM Medium	1121780	VCMT 110304-MM												◉			◉	◉	◉							◉	◉	◉
	1121751	VCMT 110308-MM												◉			◉	◉	◉							◉	◉	◉
	1121991	VCMT 160404-MM												◉			◉	◉	◉							◉	◉	◉
	1121992	VCMT 160408-MM												◉			◉	◉	◉							◉	◉	◉
	1121993	VCMT 160412-MM												◉			◉	◉	◉							◉	◉	◉
VCMT-MK Medium	1121753	VCMT 110308-MK																			●	●						
	1121994	VCMT 160404-MK																			●	●						
	1121995	VCMT 160408-MK																			●	●						
	1121996	VCMT 160412-MK																			●	●						

◉ First choice | 1ª Escolha | 1ª Opción

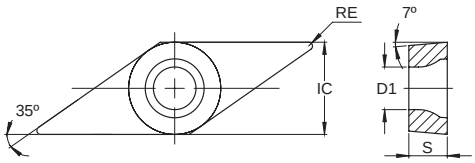
◉ Stock Itens | Itens de stock

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

△ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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

RELIEF ANGLE 7°



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		IC	S	RE	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
VCMW 160404	VCMW 331	9,525	4,76	0,40	4,40	2,30	0,05	4,70	0,20	0,08	0,26
VCMT 110302-FP	VCMT 220.5-FP	6,350	3,18	0,20	2,80	0,30	0,07	1,50	0,07	0,03	0,13
VCMT 110304-FP	VCMT 221-FP	6,350	3,18	0,40	2,80	0,30	0,10	1,50	0,10	0,05	0,20
VCMT 160402-FP	VCMT 330.5-FP	9,525	4,76	0,20	4,40	0,32	0,07	1,80	0,07	0,04	0,14
VCMT 160404-FP	VCMT 331-FP	9,525	4,76	0,40	4,40	0,32	0,10	1,80	0,10	0,05	0,20
VCMT 160408-FP	VCMT 332-FP	9,525	4,76	0,80	4,40	0,32	0,14	1,80	0,14	0,07	0,27
VCMT 160412-FP	VCMT 333-FP	9,525	4,76	1,20	4,40	0,32	0,14	1,80	0,16	0,09	0,32
VCMT 110302-FM	VCMT 220.5-FM	6,350	3,18	0,20	2,80	0,30	0,07	1,50	0,07	0,03	0,13
VCMT 110304-FM	VCMT 221-FM	6,350	3,18	0,40	2,80	0,30	0,10	1,50	0,10	0,05	0,20
VCMT 160402-FM	VCMT 330.5-FM	9,525	4,76	0,20	4,40	0,32	0,07	1,80	0,07	0,04	0,14
VCMT 160404-FM	VCMT 331-FM	9,525	4,76	0,40	4,40	0,32	0,10	1,80	0,10	0,05	0,20
VCMT 160408-FM	VCMT 332-FM	9,525	4,76	0,80	4,40	0,32	0,14	1,80	0,14	0,07	0,27
VCMT 160412-FM	VCMT 333-FM	9,525	4,76	1,20	4,40	0,32	0,14	1,80	0,16	0,09	0,32
VCMT 110304-FK	VCMT 221-FK	6,350	3,18	0,40	2,80	0,30	0,10	1,50	0,10	0,05	0,20
VCMT 160402-FK	VCMT 330.5-FK	9,525	4,76	0,20	4,40	0,32	0,07	1,80	0,07	0,04	0,14
VCMT 160404-FK	VCMT 331-FK	9,525	4,76	0,40	4,40	0,32	0,10	1,80	0,10	0,05	0,20
VCMT 160408-FK	VCMT 332-FK	9,525	4,76	0,80	4,40	0,32	0,14	1,80	0,14	0,07	0,27
VCMT 110304-MP	VCMT 221-MP	6,350	3,18	0,40	2,80	0,77	0,31	2,55	0,15	0,10	0,25
VCMT 110308-MP	VCMT 222-MP	6,350	3,18	0,80	2,80	0,77	0,61	2,55	0,20	0,13	0,33
VCMT 160404-MP	VCMT 331-MP	9,525	4,76	0,40	4,40	0,72	0,23	2,70	0,14	0,07	0,20
VCMT 160408-MP	VCMT 332-MP	9,525	4,76	0,80	4,40	0,72	0,45	2,70	0,18	0,09	0,27
VCMT 160412-MP	VCMT 333-MP	9,525	4,76	1,20	4,40	0,72	0,54	2,70	0,22	0,11	0,32
VCMT 110304-MM	VCMT 221-MM	6,350	3,18	0,40	2,80	0,77	0,31	2,55	0,15	0,10	0,25
VCMT 110308-MM	VCMT 222-MM	6,350	3,18	0,80	2,80	0,77	0,61	2,55	0,20	0,13	0,33
VCMT 160404-MM	VCMT 331-MM	9,525	4,76	0,40	4,40	0,72	0,23	2,70	0,14	0,07	0,20
VCMT 160408-MM	VCMT 332-MM	9,525	4,76	0,80	4,40	0,72	0,45	2,70	0,18	0,09	0,27
VCMT 160412-MM	VCMT 333-MM	9,525	4,76	1,20	4,40	0,72	0,54	2,70	0,22	0,11	0,32
VCMT 110308-MK	VCMT 222-MK	6,350	3,18	0,80	2,80	0,77	0,61	2,55	0,20	0,13	0,33
VCMT 160404-MK	VCMT 331-MK	9,525	4,76	0,40	4,40	0,72	0,23	2,70	0,14	0,07	0,20
VCMT 160408-MK	VCMT 332-MK	9,525	4,76	0,80	4,40	0,72	0,45	2,70	0,18	0,09	0,27
VCMT 160412-MK	VCMT 333-MK	9,525	4,76	1,20	4,40	0,72	0,54	2,70	0,22	0,11	0,32

VC - RHOMBIC 35° POSITIVE

RÔMBICA 35° POSITIVA | RÓMBICA 35° POSITIVA

			P											M						K				N	S			
			CVD							PVD				CVD		PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	5D	R3	1D	S9	V5	G1	X5	G4	T1	U4	U5	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	PHG105	PHG115	PH2G115	PHG125	PH2G125	PHG135	PHG140	PH7910	PHP910	PH7920	PHP920	PHS215	PHS225	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
VCGT-FS Finishing to Fine Finishing	1123861	VCGT 110301-FS								◇						◇	◈		◉						◇	◈		◈
	1123862	VCGT 110302-FS															◈		◉							◈		◈
	1123863	VCGT 110304-FS								◇						◇	◈		◉						◇	◈		◈
VCGT-LN Medium to Finishing	1124779	VCGT 110204-LN																						◈				
	1123689	VCGT 110301-LN																						◈				
	1121889	VCGT 110302-LN																						◈				
	1121890	VCGT 110304-LN																						◈				
	1121891	VCGT 110308-LN																						◈				
	1124015	VCGT 130302-LN																						◈				
	1124016	VCGT 130304-LN																						◈				
	1124677	VCGT 130308-LN																						◈				
	1111878	VCGT 160402-LN																						◈		◈		
	1111533	VCGT 160404-LN																						◈		◈		
	1121893	VCGT 160408-LN																						◈	◇	◈		
	1121894	VCGT 160412-LN																						◈		○		
	1121929	VCGT 220530-LN																						◈				

◈ First choice | 1ª Escolha | 1ª Opción

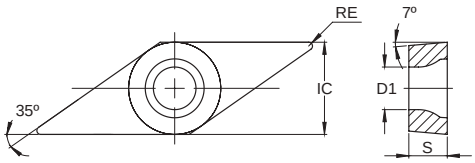
◈ Stock Itens | Itens de stock

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

◇ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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

RELIEF ANGLE 7°



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		IC	S	RE	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
VCGT 110301-FS	VCGT 220.2-FS	6,350	3,18	0,10	2,80	0,30	0,10	1,00	0,03	0,01	0,08
VCGT 110302-FS	VCGT 220.5-FS	6,350	3,18	0,20	2,80	0,50	0,10	1,50	0,07	0,02	0,12
VCGT 110304-FS	VCGT 221-FS	6,350	3,18	0,40	2,80	1,00	0,30	2,50	0,15	0,08	0,25
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
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
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
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
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
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
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
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
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
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
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
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
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

INSERTS

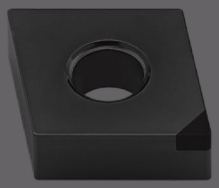
PCBN

Polycrystalline Cubic Boron Nitride (PCBN) is extremely hard, surpassed only by diamond. However, unlike PCD, PCBN can safely be used for machining ferrous alloys. This material is unrivaled for finishing hardened steels and cast irons and can also be used for turning powder metal alloys and HRSA components.

O Nitreto de Boro Cúbico Policristalino (PCBN) é extremamente duro, apenas superado pelo diamante. No entanto, ao contrário do Diamante Policristalino (PCD), o PCBN pode ser usado com segurança para maquinar ligas ferrosas. Este material é incomparável para o acabamento de aços endurecidos e ferros fundidos, e também pode ser usado para torneamento de ligas de metal em pó e componentes de HRSA.

El Nitruro de Boro Cúbico Policristalino (PCBN) es extremadamente duro, solo superado por el diamante. Sin embargo, a diferencia del Diamante Policristalino (PCD), el PCBN se puede utilizar de manera segura para mecanizar aleaciones ferrosas. Este material es incomparable para el acabado de aceros endurecidos y hierros fundidos, y también se puede utilizar para el torneado de aleaciones de metal en polvo y componentes de HRSA.

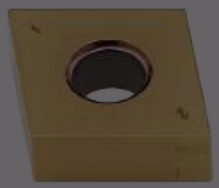
SINGLE TIP > page 586



> 1 cutting edge
1 aresta de corte | 1 arista de corte

> Available in negative and positive inserts
Disponível em pastilhas negativas e positivas | Disponible en plaquitas negativas y positivas

MULTIPLE TIPS > page 586 | 596



> 2, 3, 4 or 6 cutting edges
2, 3, 4 ou 6 arestas de corte | 2, 3, 4 o 6 aristas de corte

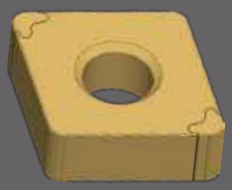
> Available in negative and positive inserts
Disponível em pastilhas negativas e positivas | Disponible en plaquitas negativas y positivas

NEW INTEGRAL TIPS > under request

> 2, 3, 4 or 6 CBN tips without carbide base cutting edges
2, 3, 4 ou 6 arestas de corte em CBN sem base de metal duro | 2, 3, 4 o 6 aristas de corte en CBN sin base de metal duro

> Available in negative and positive inserts
Disponível em pastilhas negativas e positivas | Disponible en plaquitas negativas y positivas

NEW SOLID TIPS > page 590



> 2, 3, 4 or 6 cutting edges
2, 3, 4 ou 6 arestas de corte | 2, 3, 4 o 6 aristas de corte

> Available in negative and positive inserts
Disponível apenas em pastilhas negativas | Disponible solo en plaquitas negativas

SOLID CBN > page 592

> Round inserts from size 06 to 12
Pastilhas redondas de tamanho 06 a 12 | Plaquitas redondas de talla 06 hasta 12

> Possibility of regrinding
Possibilidade de retificação | Posibilidad de rectificación

PCBN GRADES SELECTION

Selecção de graus | Selección de calidades

PCBN (Polycristaline-Cubic-Boron-Nitride) is not found in nature, it is a synthetic material which is the result of an high temperature and high pressure process (HTHP). When PCBN tips are brazed to a carbide insert a powerful cutting tool is born.

PCBN inserts excel in the finishing and semi-finishing process of hardened steels (45-68 HRc) as well as hard cast iron and heat-resistant super alloys (HRSA).

Grades description Descrição de graus | Descripción de calidades

Grade	Code	Characteristics	Application
PBY603	Y5	Low PCBN content grade with medium grain size and ceramic binder. Great wear and abrasion resistance.	· For continuously and lightly interrupted cutting of Hardened Steel (H01-H10); · Finishing abrasive high strength cast irons; · Can also be used to machine HRSA (S01-S10);
PBY620	Y4	Low PCBN content grade with medium grain size which provides enhanced crater and flank wear resistance with an excellent balance of toughness.	· For moderately to heavily interrupted turning of all hardened steels (H10-H20).
PBY625	4C	Low PCBN content grade with very fine grain size for improved toughness.	NEW · Heavily interrupted machining of hardened steels.
PBH920	S4	High PCBN content with excellent abrasion resistance.	· For machining all types of cast iron (K01-K30); · First choice for machining ferrous powder metals; · Can also be used to machine HRSA (S20-S30);
PBY930	W3	High abrasive wear resistance; High impact toughness;	· For Cast Iron with high Niquel and Chrome content (pumps and engine blocks).
PBY940	W4	High fracture toughness; High thermal conductivity;	· For Alloy steels with high content of Cr, grey cast irons and hardened steels with Ni.

NEW

PBY603 H01 - H10

PBY620 H01 - H20

PBY625 H01 - H20

PBY930 K10-K30 H05-H15

PBY940 K10-K30 H10-H20

PBH920 K01-K30 H20-H40

GEOMETRY SELECTION

Selecção da geometria | Selección de la geometria

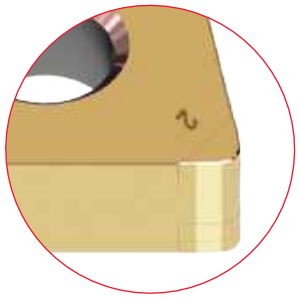
The insert geometry and edge preparation are extremely important in hard part turning since they have a significant influence on tool life and productivity. Palbit product range includes standard and wiper inserts. The standard nose radius generates the lowest cutting forces and has the lowest stability requirements while wiper gives an unbeatable combination of high productivity and excellent surface finish.

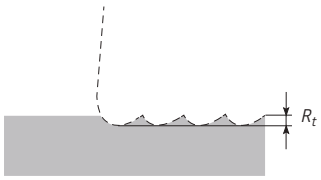
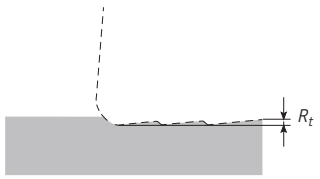
A large nose radius provides a greater edge strength and therefore extended tool life. For this reason, it is advised to use the largest allowed nose radius to each process requirements.

Wiper insert Pastilha wiper | Plaquita wiper

Wiper inserts provide two possibilities for process improvement:

- Improved surface finish with standard cutting data;
- Maintained surface finish at substantially higher feed rate;



	Standard (RE = 0,8mm)	**Wiper** (RE= 0,8mm)
Insert type		
Surface Roughness (R_a)	0,81 µm	0,42 µm

Note

This values were achieved with the next cutting conditions:

H Steel HRC60 | v_c = 130 m/min | f_n = 0,12 mm/rev | a_p = 0,2 mm | λ = 2,5 mm / ISO 4287

Formulas for surface roughness calculation

Fórmulas para calculo da rugosidade da superfície | Fórmulas para calcular la rugosidad de la superficie

$$R_a = 0{,}032 \times \frac{f_n^2}{r_\varepsilon} \times 1000 \ \mu m$$

$$R_t = 3{,}91 \times R_a \ \mu m$$

R_a	- Mean Surface Roughness	(µm)
R_t	- Roughness Total Height	(µm)
f_n	- Feed Rate	(mm/rev)
r_ε	- Insert Radius	(mm)

EDGE PREPARATION SELECTION

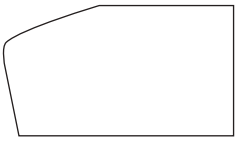
Selecção da preparação de aresta | Selección de la preparación del filo

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 Preparação de aresta | Preparación del filo

Cutting forces
edge strength
+
-

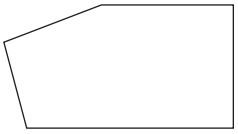
S - Land



S | Preparation with chamfer and honing - Standard

- First choice for hard part turning;
- Stronger edge than T - land, with more resistance to chipping and fracture, resulting in more predictable tool life;
- Generates consistent surface finish;
- Critical in interrupted cutting and when using large depth of cut;
- Feed rate must be greater than hone size;

T - Land



T | Preparation with chamfer

- T - land is a common edge preparation for PCBN;
- Preferred choice for cast iron;
- Good alternative to S - land in hard part turning when reduced cutting forces and tighter tolerances are required;

E - Land

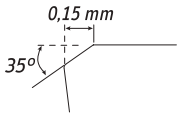
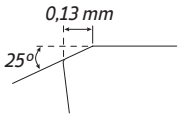
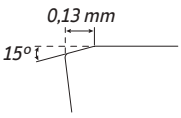
E | Preparation with edge honing

- Recommended for HRSA finishing operation;
- Honing helps strengthen the edge, giving resistance to chipping and fracturing;
- Feed rates must be greater than the hone size to allow actual cutting action to take place and prevent rubbing;

F - Land

F | Preparation without honing

- Sharp cutting edge;
- F - Standard is a common edge preparation for PCD;
- Recommended for aluminium or other non-ferrous materials;

Honing Types	Specifications	
S3515 For interrupted machining		Difficult Conditions
S2513 For general purpose machining		Average Conditions
S1513 For stable continuous machining		Good Conditions

Note

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

CHIP BREAKER TAILOR-MADE

Quebra-aparas personalizados | Rompevirutas personalizados

Our laser machining and grinding machining technology can reach a wide range of tailor-made solutions. The chip breakers can be customized according to our customer's needs and still remain with a high cutting edge quality.

PCBN recommended cutting data

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

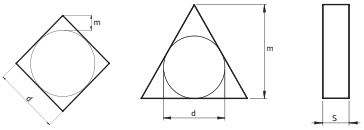
Workpiece material	Recommend grade for PCBN				VC (m/min)	
	PBH920	PBY603	PBY620	PBY625		
Hardened Steel (HRC 45-68) Tool-Steel, Case Hardened Steel, Continuous Cut (recommended without Coolants)		◉			Semi-finish Finish	80 - 200 80 - 180
Hardened Steel (HRC 45-68) Tool-Steel, Case Hardened Steel, Interrupted Cut (recommended without Coolants)	○		◉	NEW ◉	Semi-finish Finish	70 - 180 70 - 160
Grey Cast Iron	◉				Semi-finish Finish	500 - 1000 600 - 2000
High Temperature Alloys (Inconel, Waspoloy, Hasteloy) Exotic and High Nickel + Cobalt basis	◉	◉			Finish	50 - 300

◉ Recommended ○ Second choice

TURNING PCBN INSERTS ISO IDENTIFICATION SYSTEM

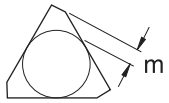
H	120°	M	86°
O	135°	V	35°
P	108°	W	80°
S	90°	L	90°
T	60°	A	85°
C	80°	B	82°
D	55°	K	55°
E	75°	R	
F	50°	X	Special

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	C	N	G	A
ANSI	C	N	G	A

4 - Insert symbol

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

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

palbit

TURNING PCBN INSERTS ISO IDENTIFICATION SYSTEM

Sistema de identificação ISO para pastilhas de PCBN | Codificación ISO para plaquitas de PCBN

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

12	04	08	-	S	25	13		WG		Z4
4	3	2	-	S	25	13		WG		Z4

12 - Tip type	
Z1 (1 tip)	Z4S (2 solid tips)
Z2 (2 tips)	Z6S (3 solid tips)
Z3 (3 tips)	S - Solid CBN
Z4 (4 tips)	Z2I (2 integral tips)
Z5 (5 tips)	Z3I (3 integral tips)
Z6 (6 tips)	Z4I (4 integral tips)
Z8 (8 tips)	Z6I (6 integral tips)

*11 - Wiper	
WG	General Wiper
*Used only when required	

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

8 - Cutting edge information		
Shape	Honing	Symbol
	No honing	F
	With honing	E
	Chamfered No honing	T
	Chamfered with honing	S

9 - Angle of Chamfer (α)	
05	05º
10	10º
15	15º
20	20º
25	25º
30	30º
35	35º

10 - Width of Chamfer	
05	0,05 mm
10	0,10 mm
13	0,13 mm
15	0,15 mm
20	0,20 mm
25	0,25 mm
30	0,30 mm
35	0,35 mm
40	0,40 mm

NEGATIVE PCBN INSERTS OVERVIEW

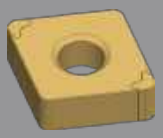
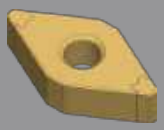
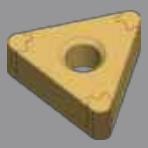
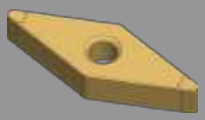
CNGA Z1 Single Tip	DNGA Z1 Single Tip
Size 12	Size 15
Page C - 586	Page C - 586

CNGA Z2 | Z4 Multiple Tips	DNGA Z2 | Z4 Multiple Tips	SNGA Z4 Multiple Tips
Size 12	Size 11 | 15	Size 12
Page C - 586	Page C - 586	Page C - 588

TNGA Z3 | Z6 Multiple Tips	VNGA Z2 Multiple Tips	WNGA Z3 | Z6 Multiple Tips
Size 16	Size 16	Size 08
Page C - 588	Page C - 588	Page C - 588

NEGATIVE PCBN INSERTS OVERVIEW

Vista genérica de pastilhas negativas PCBN | Visión general de plaquitas negativas de PCBN

CNGA Z4S Solid Tips	DNGA Z4S Solid Tips	TNGA Z6S Solid Tips	VNGA Z4S Solid Tips
NEW	NEW	NEW	NEW
			
Size 12	Size 11 | 15	Size 16	Size 16
Page C - 590	Page C - 590	Page C - 590	Page C - 590

RNGN S Solid CBN
Size 06 | 09 | 12
Page C - 592

PCBN NEGATIVE INSERTS

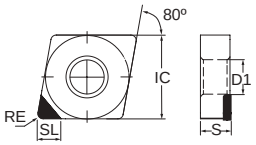
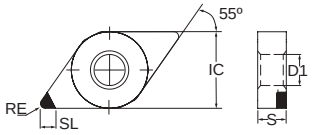
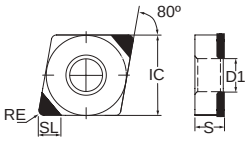
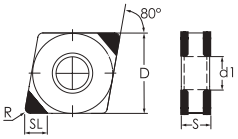
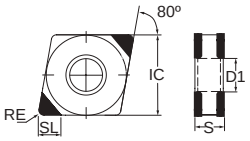
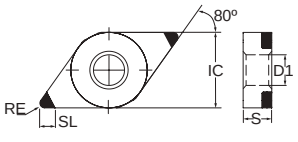
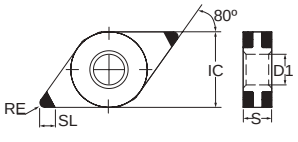
				K	H	
		(2) Grade code		S4	Y5	Y4
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	ANSI Reference	PBH920	PBY603	PBY620
		SINGLE TIP				
CNGA Z1	1124300	CNGA 120404-S2513 Z1	CNGA 431-S2513 Z1	○		
	1124111	CNGA 120408-S2513 Z1	CNGA 432-S2513 Z1	◎		
	1124301	CNGA 120412-S2513 Z1	CNGA 433-S2513 Z1	○		
	1124302	CNGA 120416-S2513 Z1	CNGA 434-S2513 Z1	○		
DNGA Z1	1124306	DNGA 150404-S2513 Z1	DNGA 431-S2513 Z1	○		○
	1124112	DNGA 150408-S2513 Z1	DNGA 432-S2513 Z1	◎		○
	1124536	DNGA 150412-S2513 Z1	DNGA 433-S2513 Z1	○		○
	1124307	DNGA 150608-S2513 Z1	DNGA 442-S2513 Z1	○		
	1124308	DNGA 150612-S2513 Z1	DNGA 443-S2513 Z1	○		
		MULTIPLE TIP				
CNGA Z2	1124343	CNGA 120402-S2513 Z2	CNGA 431.5-S2513 Z2	○		
	1124344	CNGA 120404-S2513 Z2	CNGA 431-S2513 Z2	◎	◎	◎
	1124175	CNGA 120408-S2513 Z2	CNGA 432-S2513 Z2	◎	◎	◎
	1124568	CNGA 120408-S3515 Z2	CNGA 432-S3515 Z2			◎
	1124468	CNGA 120412-S2513 Z2	CNGA 433-S2513 Z2	◎	◎	◎
	1124569	CNGA 120412-S3515 Z2	CNGA 433-S3515 Z2			○
CNGA Z4	1124474	CNGA 120404-S2513 Z4	CNGA 431-S2513 Z4		◎	○
	1124692	CNGA 120408-S1513 Z4	CNGA 432-S1513 Z4		○	
	1124134	CNGA 120408-S2513 Z4	CNGA 432-S2513 Z4	○	◎	○
	1124570	CNGA 120408-S3515 Z4	CNGA 432-S3515 Z4			○
	1124475	CNGA 120412-S2513 Z4	CNGA 433-S2513 Z4		◎	○
	1124571	CNGA 120412-S3515 Z4	CNGA 433-S3515 Z4			○
CNGA WG Z4 Wiper	1124534	CNGA 120404-S1513 WG Z4	CNGA 431-S1513 WG Z4		○	○
	1124535	CNGA 120404-S2513 WG Z4	CNGA 431-S2513 WG Z4		○	◎
	1124517	CNGA 120408-S1513 WG Z4	CNGA 432-S1513 WG Z4		◎	○
	1124518	CNGA 120408-S2513 WG Z4	CNGA 432-S2513 WG Z4		◎	◎
	1125024	CNGA 120412-S1513 WG Z4	CNGA 433-S1513 WG Z4		◎	
DNGA Z2	1124616	DNGA 110404-S2513 Z2	DNGA 331-S2513 Z2		◎	◎
	1124615	DNGA 110408-S2513 Z2	DNGA 332-S2513 Z2		◎	◎
	1124617	DNGA 110412-S2513 Z2	DNGA 333-S2513 Z2		◎	◎
	1124482	DNGA 150404-S2513 Z2	DNGA 431-S2513 Z2		◎	◎
	1124483	DNGA 150408-S2513 Z2	DNGA 432-S2513 Z2		◎	◎
	1124537	DNGA 150412-S2513 Z2	DNGA 433-S2513 Z2		○	◎
	1124348	DNGA 150604-S2513 Z2	DNGA 441-S2513 Z2	◎	◎	◎
	1124177	DNGA 150608-S2513 Z2	DNGA 442-S2513 Z2	◎	◎	◎
	1124572	DNGA 150608-S3515 Z2	DNGA 442-S3515 Z2			○
	1124377	DNGA 150612-S2513 Z2	DNGA 443-S2513 Z2	◎	◎	◎
	1124573	DNGA 150612-S3515 Z2	DNGA 443-S3515 Z2			○
DNGA Z4	1124479	DNGA 150604-S2513 Z4	DNGA 441-S2513 Z4		◎	○
	1124133	DNGA 150608-S2513 Z4	DNGA 442-S2513 Z4	○	◎	○
	1124575	DNGA 150608-S3515 Z4	DNGA 442-S3515 Z4			○
	1124480	DNGA 150612-S2513 Z4	DNGA 443-S2513 Z4		◎	○
	1124576	DNGA 150612-S3515 Z4	DNGA 443-S3515 Z4			○

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

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

PCBN NEGATIVE INSERTS

Single tip | Multiple tips

Dimensions (mm) Dimensões (mm) Dimensiones (mm)						Cutting conditions Condições de corte Condiciones de corte						Technical drawing Desenho técnico Dibujo técnico
CDEC	IC	S	RE	D1	SL	AP (mm)	MIN	MAX	FN (mm/r)	MIN	MAX	
SINGLE TIP												
1	12,70	4,76	0,40	5,16	2,50	0,15	0,08	0,50	0,08	0,05	0,20	
1	12,70	4,76	0,80	5,16	2,00	0,20	0,08	0,50	0,10	0,08	0,30	
1	12,70	4,76	1,20	5,16	2,30	0,25	0,08	0,50	0,12	0,08	0,30	
1	12,70	4,76	1,60	5,16	2,20	0,30	0,05	0,50	0,15	0,08	0,30	
1	12,70	4,76	0,40	5,16	2,50	0,15	0,08	0,50	0,08	0,05	0,20	
1	12,70	4,76	0,80	5,16	2,50	0,20	0,08	0,50	0,10	0,08	0,30	
1	12,70	4,76	1,20	5,16	2,20	0,25	0,08	0,50	0,12	0,08	0,30	
1	12,70	6,35	0,80	5,16	2,50	0,20	0,08	0,50	0,10	0,08	0,30	
1	12,70	6,35	1,20	5,16	2,20	0,25	0,08	0,50	0,12	0,08	0,30	
MULTIPLE TIP												
2	12,70	4,76	0,20	5,16	2,60	0,15	0,08	0,38	0,05	0,05	0,20	
2	12,70	4,76	0,40	5,16	2,50	0,15	0,08	0,40	0,08	0,05	0,20	
2	12,70	4,76	0,80	5,16	2,40	0,20	0,08	0,50	0,10	0,08	0,30	
2	12,70	4,76	0,80	5,16	2,40	0,20	0,08	0,50	0,10	0,08	0,30	
2	12,70	4,76	1,20	5,16	2,30	0,25	0,08	0,50	0,12	0,08	0,30	
2	12,70	4,76	1,20	5,16	2,30	0,25	0,08	0,50	0,12	0,08	0,30	
4	12,70	4,76	0,40	5,16	2,50	0,15	0,08	0,40	0,08	0,05	0,20	
4	12,70	4,76	0,80	5,16	2,40	0,20	0,08	0,50	0,10	0,08	0,30	
4	12,70	4,76	0,80	5,16	2,40	0,20	0,08	0,50	0,10	0,08	0,30	
4	12,70	4,76	0,80	5,16	2,40	0,20	0,08	0,50	0,10	0,08	0,30	
4	12,70	4,76	1,20	5,16	2,30	0,25	0,08	0,50	0,12	0,08	0,30	
4	12,70	4,76	1,20	5,16	2,30	0,25	0,08	0,50	0,12	0,08	0,30	
4	12,70	4,76	0,40	5,16	2,40	0,15	0,08	0,50	0,08	0,05	0,20	
4	12,70	4,76	0,40	5,16	2,40	0,15	0,08	0,50	0,08	0,05	0,20	
4	12,70	4,76	0,80	5,16	2,40	0,20	0,08	0,50	0,10	0,08	0,30	
4	12,70	4,76	0,80	5,16	2,40	0,20	0,08	0,50	0,10	0,08	0,30	
4	12,70	4,76	0,80	5,16	2,40	0,25	0,08	0,50	0,12	0,08	0,30	
2	9,525	4,76	0,40	3,81	2,50	0,10	0,08	0,40	0,08	0,05	0,20	
2	9,525	4,76	0,80	3,81	2,00	0,15	0,08	0,40	0,10	0,08	0,30	
2	9,525	4,76	1,20	3,81	2,00	0,20	0,08	0,40	0,15	0,08	0,30	
2	12,700	4,76	0,40	5,16	2,50	0,15	0,08	0,50	0,08	0,05	0,20	
2	12,700	4,76	0,80	5,16	2,10	0,20	0,08	0,50	0,10	0,08	0,30	
2	12,700	4,76	1,20	5,16	2,20	0,25	0,08	0,50	0,12	0,08	0,30	
2	12,700	6,35	0,40	5,16	2,50	0,15	0,08	0,50	0,08	0,05	0,20	
2	12,700	6,35	0,80	5,16	2,10	0,20	0,08	0,50	0,10	0,08	0,30	
2	12,700	6,35	0,80	5,16	2,10	0,20	0,08	0,50	0,10	0,08	0,30	
2	12,700	6,35	1,20	5,16	2,00	0,25	0,08	0,50	0,12	0,08	0,30	
2	12,700	6,35	1,20	5,16	2,00	0,25	0,08	0,50	0,12	0,08	0,30	
4	12,700	6,35	0,40	5,16	2,50	0,15	0,08	0,40	0,08	0,05	0,20	
4	12,700	6,35	0,80	5,16	2,10	0,20	0,08	0,50	0,10	0,08	0,30	
4	12,700	6,35	0,80	5,16	2,10	0,20	0,08	0,50	0,10	0,08	0,30	
4	12,700	6,35	1,20	5,16	1,70	0,25	0,08	0,50	0,12	0,08	0,30	
4	12,700	6,35	1,20	5,16	1,70	0,25	0,08	0,50	0,12	0,08	0,30	

PCBN NEGATIVE INSERTS

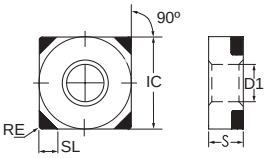
				K	H	
		(2) Grade code		S4	Y5	Y4
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	ANSI Reference	PBH920	PBY603	PBY620
		MULTIPLE TIP				
SNGA Z4	1124178	SNGA 120404-S2513 Z4	SNGA 431-S2513 Z4	○	○	◈
	1124538	SNGA 120404-T2513 Z4	SNGA 431-T2513 Z4	○		
	1124354	SNGA 120408-S2513 Z4	SNGA 432-S2513 Z4	○	○	◈
	1124577	SNGA 120408-S3515 Z4	SNGA 432-S3515 Z4			○
	1124433	SNGA 120408-T2513 Z4	SNGA 432-T2513 Z4	◈		
	1124539	SNGA 120412-S2513 Z4	SNGA 433-S2513 Z4		○	◈
	1124578	SNGA 120412-S3515 Z4	SNGA 433-S3515 Z4			○
	1124540	SNGA 120412-T2513 Z4	SNGA 433-T2513 Z4	○		
TNGA Z3	1124357	TNGA 160404-S2513 Z3	TNGA 331-S2513 Z3	○	◈	◈
	1124179	TNGA 160408-S2513 Z3	TNGA 332-S2513 Z3	○	◈	◈
	1124579	TNGA 160408-S3515 Z3	TNGA 332-S3515 Z3			○
	1124469	TNGA 160412-S2513 Z3	TNGA 333-S2513 Z3	○	◈	◈
	1124746	TNGA 160412-S3515 Z3	TNGA 333-S3515 Z3			◈
	1124603	TNGA 160416-S2513 Z3	TNGA 334-S2513 Z3		◈	◈
	1124604	TNGA 160420-S2513 Z3	TNGA 335-S2513 Z3		◈	◈
TNGA Z6	1124477	TNGA 160404-S2513 Z6	TNGA 331-S2513 Z6	◈	◈	○
	1124097	TNGA 160408-S2513 Z6	TNGA 332-S2513 Z6	◈	◈	○
	1124581	TNGA 160408-S3515 Z6	TNGA 332-S3515 Z6			○
	1125023	TNGA 160412-S1513 Z6	TNGA 333-S1513 Z6		◈	
	1124478	TNGA 160412-S2513 Z6	TNGA 333-S2513 Z6		◈	○
	1124582	TNGA 160412-S3515 Z6	TNGA 333-S3515 Z6			○
VNGA Z2	1124361	VNGA 160402-S2513 Z2	VNGA 331.5-S2513 Z2	○		
	1124163	VNGA 160404-S2513 Z2	VNGA 331-S2513 Z2	○	◈	◈
	1124098	VNGA 160408-S2513 Z2	VNGA 332-S2513 Z2	○	◈	◈
	1124470	VNGA 160412-S2513 Z2	VNGA 333-S2513 Z2	○	◈	◈
WNGA Z3	1124471	WNGA 080404-S2513 Z3	WNGA 431-S2513 Z3	○	◈	◈
	1124472	WNGA 080408-S2513 Z3	WNGA 432-S2513 Z3	○	◈	◈
	1124583	WNGA 080408-S3515 Z3	WNGA 432-S3515 Z3			○
	1124473	WNGA 080412-S2513 Z3	WNGA 433-S2513 Z3	○	◈	◈
	1124584	WNGA 080412-S3515 Z3	WNGA 433-S3515 Z3			○
WNGA Z6	1124589	WNGA 080404-S2513 Z6	WNGA 431-S2513 Z6		○	○
	1124588	WNGA 080408-S2513 Z6	WNGA 432-S2513 Z6		○	○
	1124585	WNGA 080408-S3515 Z6	WNGA 432-S3515 Z6			○
	1124587	WNGA 080412-S2513 Z6	WNGA 433-S2513 Z6		○	○
	1124586	WNGA 080412-S3515 Z6	WNGA 433-S3515 Z6			○

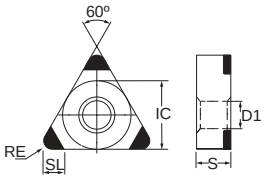
◈ Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

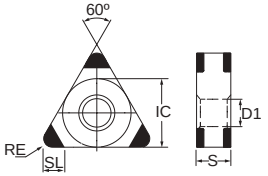
Insert Order Code: (1) Geometry code + (2) Grade code

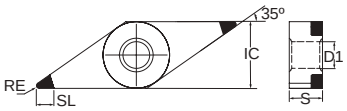
PCBN NEGATIVE INSERTS
Multiple tips

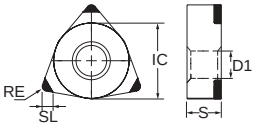
Dimensions (mm) Dimensões (mm) Dimensiones (mm)						Cutting conditions Condições de corte Condiciones de corte						Technical drawing Desenho técnico Dibujo técnico
CDEC	IC	S	RE	D1	SL	AP (mm)	MIN	MAX	FN (mm/r)	MIN	MAX	
MULTIPLE TIP												
4	12,700	4,76	0,40	5,16	2,40	0,15	0,08	0,40	0,08	0,05	0,20	
4	12,700	4,76	0,40	5,16	2,40	0,15	0,08	0,40	0,08	0,05	0,20	
4	12,700	4,76	0,80	5,16	2,00	0,20	0,08	0,50	0,10	0,08	0,30	
4	12,700	4,76	0,80	5,16	2,00	0,20	0,08	0,50	0,10	0,08	0,30	
4	12,700	4,76	0,80	5,16	2,00	0,20	0,08	0,50	0,10	0,08	0,30	
4	12,700	4,76	1,20	5,16	2,30	0,25	0,08	0,50	0,12	0,08	0,30	
4	12,700	4,76	1,20	5,16	2,30	0,25	0,08	0,50	0,12	0,08	0,30	
4	12,700	4,76	1,20	5,16	2,30	0,25	0,08	0,50	0,12	0,08	0,30	
3	9,525	4,76	0,40	3,81	2,30	0,15	0,08	0,50	0,08	0,05	0,20	
3	9,525	4,76	0,80	3,81	2,00	0,20	0,08	0,50	0,10	0,08	0,30	
3	9,525	4,76	0,80	3,81	2,00	0,20	0,08	0,50	0,10	0,08	0,30	
3	9,525	4,76	1,20	3,81	2,00	0,25	0,08	0,60	0,12	0,08	0,30	
3	9,525	4,76	1,20	3,81	2,00	0,25	0,08	0,60	0,12	0,08	0,30	
3	9,525	4,76	1,60	3,81	3,00	0,30	0,08	0,70	0,14	0,10	0,35	
3	9,525	4,73	2,00	3,81	3,00	0,35	0,10	0,55	0,16	0,10	0,40	
6	9,525	4,76	0,40	3,81	2,30	0,15	0,08	0,50	0,08	0,05	0,20	
6	9,525	4,76	0,80	3,81	2,00	0,20	0,08	0,50	0,10	0,08	0,30	
6	9,525	4,76	0,80	3,81	2,00	0,20	0,08	0,50	0,10	0,08	0,30	
6	9,525	4,76	1,20	3,81	2,00	0,25	0,08	0,60	0,12	0,08	0,30	
6	9,525	4,76	1,20	3,81	2,00	0,25	0,08	0,60	0,12	0,08	0,30	
6	9,525	4,76	1,20	3,81	2,00	0,25	0,08	0,60	0,12	0,08	0,30	
2	9,525	4,76	20,00	3,81	3,00	0,13	0,08	0,50	0,05	0,05	0,20	
2	9,525	4,76	0,40	3,81	2,80	0,15	0,08	0,50	0,08	0,05	0,20	
2	9,525	4,76	0,80	3,81	2,00	0,20	0,08	0,50	0,10	0,08	0,30	
2	9,525	4,76	1,20	3,81	1,90	0,25	0,08	0,50	0,12	0,08	0,30	
3	12,700	4,76	0,40	5,16	2,30	0,15	0,08	0,40	0,08	0,05	0,20	
3	12,700	4,76	0,80	5,16	2,00	0,20	0,08	0,50	0,10	0,08	0,30	
3	12,700	4,76	0,80	5,16	2,00	0,20	0,08	0,50	0,10	0,08	0,30	
3	12,700	4,76	1,20	5,16	2,00	0,25	0,08	0,60	0,12	0,08	0,30	
3	12,700	4,76	1,20	5,16	2,00	0,25	0,08	0,60	0,12	0,08	0,30	
6	12,700	4,76	1,20	5,16	2,00	0,25	0,08	0,40	0,12	0,08	0,30	
6	12,700	4,76	0,80	5,16	2,00	0,20	0,08	0,50	0,10	0,08	0,30	
6	12,700	4,76	0,80	5,16	2,00	0,20	0,08	0,50	0,10	0,08	0,30	
6	12,700	4,76	0,40	5,16	2,30	0,15	0,08	0,60	0,08	0,05	0,20	
6	12,700	4,76	1,20	5,16	2,00	0,25	0,08	0,60	0,12	0,08	0,30	

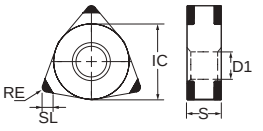






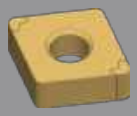
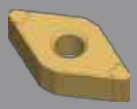
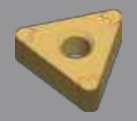
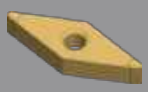






NEW PCBN NEGATIVE INSERTS

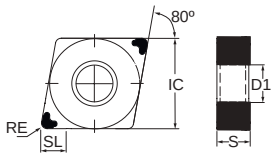
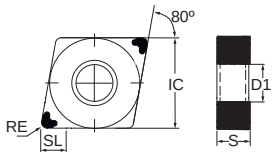
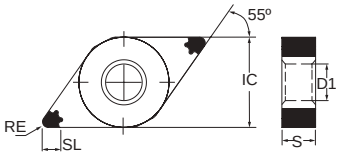
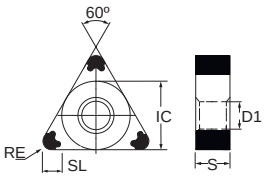
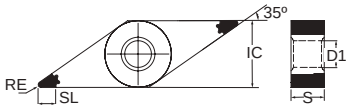
Solid tips

				H		
		(2) Grade code		Y5	Y4	4C
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	ANSI Reference	PBY603	PBY620	PBY625
SOLID TIPS						
NEW CNGA Z4S 	1124982	CNGA 120404-S2515 Z4S	CNGA 431-S2515 Z4S			○
	1124983	CNGA 120408-S2515 Z4S	CNGA 432-S2515 Z4S			⊛
	1124804	CNGA 120412-S2513 Z4S	CNGA 433-S2513 Z4S			⊛
NEW CNGA WG Z4S Wiper	1125025	CNGA 120412-S1513 WG Z4S	CNGA 433-S1513 WG Z4S	○		
NEW DNGA Z4S 	1124992	DNGA 110404-S2515 Z4S	DNGA 331-S2515 Z4S			○
	1124993	DNGA 110408-S2515 Z4S	DNGA 332-S2515 Z4S			⊛
	1124994	DNGA 110412-S2515 Z4S	DNGA 333-S2515 Z4S			⊛
	1124986	DNGA 150404-S2515 Z4S	DNGA 431-S2515 Z4S			○
	1124987	DNGA 150408-S2515 Z4S	DNGA 432-S2515 Z4S			⊛
	1124988	DNGA 150412-S2515 Z4S	DNGA 433-S2515 Z4S			⊛
NEW TNGA Z6S 	1124984	TNGA 160404-S2515 Z6S	TNGA 331-S2515 Z6S			○
	1124985	TNGA 160408-S2515 Z6S	TNGA 332-S2515 Z6S			⊛
	1124960	TNGA 160412-S1513 Z6S	TNGA 333-S1513 Z6S	⊛		
	1124836	TNGA 160412-S2513 Z6S	TNGA 333-S2513 Z6S			⊛
	1125026	TNGA 160420-S2513 Z6S	TNGA 335-S2513 Z6S	⊛	⊛	
NEW VNGA Z4S 	1124995	VNGA 160404-S2515 Z4S	VNGA 331-S2515 Z4S			○
	1124996	VNGA 160408-S2515 Z4S	VNGA 332-S2515 Z4S			⊛
	1124997	VNGA 160412-S2515 Z4S	VNGA 333-S2515 Z4S			⊛

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

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

PCBN NEGATIVE INSERTS
Solid tips

Dimensions (mm) Dimensões (mm) Dimensiones (mm)						Cutting conditions Condições de corte Condiciones de corte						Technical drawing Desenho técnico Dibujo técnico
CDEC	IC	S	RE	D1	SL	AP (mm)	MIN	MAX	FN (mm/r)	MIN	MAX	
SOLID TIPS												
4	12,700	4,76	0,40	5,16	2,20	0,15	0,08	0,50	0,08	0,05	0,20	
4	12,700	4,76	0,80	5,16	2,10	0,20	0,08	0,50	0,10	0,08	0,30	
4	12,700	4,76	1,20	5,16	2,00	0,25	0,08	0,50	0,12	0,08	0,30	
4	12,700	4,76	1,20	5,16	2,10	0,25	0,08	0,50	0,12	0,08	0,30	
4	9,525	4,76	0,40	3,81	2,20	0,10	0,08	0,40	0,08	0,05	0,20	
4	9,525	4,76	0,80	3,81	2,10	0,15	0,08	0,40	0,10	0,08	0,30	
4	9,525	4,76	1,20	3,81	2,00	0,20	0,08	0,40	0,15	0,08	0,30	
4	12,700	4,76	0,40	5,16	2,20	0,15	0,08	0,50	0,08	0,05	0,20	
4	12,700	4,76	0,80	5,16	2,10	0,20	0,08	0,50	0,10	0,08	0,30	
4	12,700	4,76	1,20	5,16	2,00	0,25	0,08	0,50	0,12	0,08	0,30	
6	9,525	4,76	0,40	3,81	2,20	0,15	0,08	0,50	0,08	0,05	0,20	
6	9,525	4,76	0,80	3,81	2,10	0,20	0,08	0,50	0,10	0,08	0,30	
6	9,525	4,76	1,20	3,81	2,00	0,25	0,08	0,60	0,12	0,08	0,30	
6	9,525	4,76	1,20	3,81	2,00	0,25	0,08	0,60	0,12	0,08	0,30	
6	9,525	4,76	2,00	3,81	2,50	0,35	0,10	0,70	0,16	0,10	0,40	
4	9,525	4,76	0,40	3,81	2,20	0,15	0,08	0,50	0,08	0,05	0,20	
4	9,525	4,76	0,80	3,81	2,10	0,20	0,08	0,50	0,10	0,08	0,30	
4	9,525	4,76	1,20	3,81	2,00	0,25	0,08	0,50	0,12	0,08	0,30	

CBN SOLID INSERTS

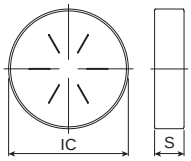
				H	
		(2) Grade code		W3	W4
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	ANSI Reference	PBY930	PBY940
SOLID INSERT					
RNGN S	1124631	RNGN 060300-S2020 S	RNGN 220-S2020 S	○	ⓢ
	1124630	RNGN 090300-S2020 S	RNGN 320-S2020 S	○	ⓢ
	1124629	RNGN 120300-S2020 S	RNGN 420-S2020 S	○	ⓢ
	1124699	RNGN 120400-S2020 S	RNGN 430-S2020 S	○	ⓢ

ⓢ Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta **Insert Order Code:** (1) Repair code + (2) Grade code

	H	
(2) Grade code	W3	W4
(1) Repair code	Reference Referência Referencia	PBY930	PBY940
3120072	RNGN 06 (2.18) 00-S2020S (0603)	○	○
3120058	RNGN 060200-S2020 S (0903)	○	○
3120068	RNGN 060300-S2020 S (0903)	○	○
3120071	RNGN 060300-S2020 S (1203)	○	○
3120057	RNGN 090300-S2020 S (1203)	○	○
3120070	RNGN 090400-S2020 S (1204)	○	○
3120056	RNGN 120300-S2020 S (1204)	○	○

ⓢ Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta **Insert Order Code:** (1) Repair code + (2) Grade code

CBN SOLID INSERTS
Reground Inserts

Dimensions (mm) Dimensões (mm) Dimensiones (mm)		Cutting conditions Condições de corte Condiciones de corte						Technical drawing Desenho técnico Dibujo técnico
IC	S	AP (mm)	MIN	MAX	FN (mm/r)	MIN	MAX	
SOLID INSERT								
4	2,40	0,15	0,08	0,40	0,08	0,05	0,20	
4	2,40	0,15	0,08	0,40	0,08	0,05	0,20	
4	2,00	0,20	0,08	0,50	0,10	0,08	0,30	
6	2,00	0,25	0,08	0,60	0,12	0,08	0,30	

Final Dimensions (mm) Dimensões Finais (mm) Dimensiones Finales (mm)		Raw Material Matéria-prima Materia prima
IC	S	
6,35	2,18	RNGN 060300-S2020 S
6,35	2,38	RNGN 090300-S2020 S
6,35	3,18	RNGN 090300-S2020 S
6,35	3,18	RNGN 120300-S2020 S
9,53	3,18	RNGN 120300-S2020 S
9,53	4,76	RNGN 120400-S2020 S
12,7	3,18	RNGN 120400-S2020 S

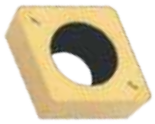
POSITIVE PCBN INSERTS OVERVIEW

TPGW Z1
Single Tip

Size 11

Page C- 598

CCGW Z2
Multiple Tips



Size 06 | 09

Page C- 596

DCGW Z2
Multiple Tips

Size 07 | 11

Page C- 596

TCGW | TPGW Z3
Multiple Tips

Size 09 | 11

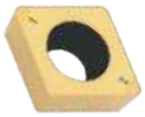
Page C- 598

POSITIVE PCBN INSERTS OVERVIEW

Vista genérica de pastilhas positivas PCBN | Visión general de plaquitas positivas de PCBN

VBGW Z2 Multiple Tips	VCGW Z2 Multiple Tips
Size 11 | 16	Size 16
Page C- 598	Page C- 598

PCBN POSITIVE INSERTS

				H	
		(2) Grade code		Y5	Y4
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	ANSI Reference	PBY603	PBY620
CCGW Z2 	1124605	CCGW 060202-S1513 Z2	CCGW 21.50.5-S1513 Z2	●	●
	1124635	CCGW 060202-S2513 Z2	CCGW 21.50.5-S2513 Z2	●	●
	1124606	CCGW 060204-S1513 Z2	CCGW 21.51-S1513 Z2	●	●
	1124555	CCGW 060204-S2513 Z2	CCGW 21.51-S2513 Z2	●	●
	1124607	CCGW 060208-S1513 Z2	CCGW 21.52-S1513 Z2	●	●
	1124636	CCGW 060208-S2513 Z2	CCGW 21.52-S2513 Z2	●	●
	1124638	CCGW 09T302-S2513 Z2	CCGW 32.50.5-S2513 Z2	●	●
	1124640	CCGW 09T304-S2513 Z2	CCGW 32.51-S2513 Z2	●	●
	1124632	CCGW 09T308-S2513 Z2	CCGW 32.52-S2513 Z2	●	●
	1124637	CCGW 09T302-S2513 WG Z2	CCGW 32.50.5-S2513 WG Z2	○	○
	1124639	CCGW 09T304-S2513 WG Z2	CCGW 32.51-S2513 WG Z2	●	●
	1124641	CCGW 09T308-S2513 WG Z2	CCGW 32.52-S2513 WG Z2	●	●
	1124608	CCGW 09T302-S1513 Z2	CCGW 32.50.5-S1513 Z2	●	●
	1124609	CCGW 09T304-S1513 Z2	CCGW 32.51-S1513 Z2	●	●
	1124610	CCGW 09T308-S1513 Z2	CCGW 32.52-S1513 Z2	●	●
DCGW Z2	1124642	DCGW 070202-S1513 Z2	DCGW 21.50.5-S1513 Z2	●	○
	1124611	DCGW 070202-S2513 Z2	DCGW 21.50.5-S2513 Z2	●	●
	1124643	DCGW 070204-S1513 Z2	DCGW 21.51-S1513 Z2	●	○
	1124436	DCGW 070204-S2513 Z2	DCGW 21.51-S2513 Z2	●	●
	1124644	DCGW 070208-S1513 Z2	DCGW 21.52-S1513 Z2	○	○
	1124612	DCGW 070208-S2513 Z2	DCGW 21.52-S2513 Z2	●	●
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	1124554	DCGW 11T304-S2513 Z2	DCGW 32.51-S2513 Z2	●	●
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	1124614	DCGW 11T308-S2513 Z2	DCGW 32.52-S2513 Z2	●	●
	1124745	DCGW 11T308-S3515 Z2	DCGW 32.52-S3515 Z2		●
	1124645	DCGW 11T302-S1513 Z2	DCGW 32.50.5-S1513 Z2	●	○
	1124647	DCGW 11T304-S1513 Z2	DCGW 32.51-S1513 Z2	●	●
	1124649	DCGW 11T308-S1513 Z2	DCGW 32.52-S1513 Z2	●	○

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

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

PCBN POSITIVE INSERTS
Multiple tips

Dimensions (mm) Dimensões (mm) Dimensiones (mm)						Cutting conditions Condições de corte Condiciones de corte						Technical drawing Desenho técnico Dibujo técnico
CDEC	IC	S	RE	D1	SL	AP (mm)	MIN	MAX	FN (mm/r)	MIN	MAX	
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2	6,350	2,38	0,40	2,80	2,00	0,15	0,05	0,40	0,08	0,05	0,25	
2	6,350	2,38	0,40	2,80	2,00	0,15	0,05	0,40	0,08	0,05	0,25	
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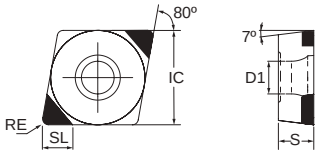
2	9,525	3,97	0,20	4,40	2,50	0,15	0,05	0,20	0,08	0,05	0,20	
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2	9,525	3,97	0,80	4,40	2,50	0,20	0,08	0,50	0,10	0,08	0,30	
2	9,525	3,97	0,20	4,40	2,40	0,15	0,05	0,20	0,08	0,05	0,20	
2	9,525	3,97	0,40	4,40	2,40	0,20	0,08	0,40	0,10	0,05	0,25	
2	9,525	3,97	0,80	4,40	2,40	0,20	0,08	0,50	0,10	0,08	0,30	
2	9,525	3,97	0,20	4,40	2,00	0,15	0,05	0,20	0,08	0,05	0,20	
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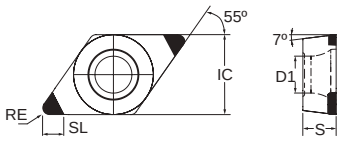
2	9,525	3,97	0,80	4,40	2,00	0,20	0,08	0,50	0,10	0,08	0,30	
2	6,350	2,38	0,20	2,80	2,50	0,15	0,08	0,20	0,08	0,05	0,20	
2	6,350	2,38	0,20	2,80	2,00	0,15	0,08	0,20	0,08	0,05	0,20	
2	6,350	2,38	0,40	2,80	2,50	0,15	0,08	0,40	0,08	0,05	0,25	
2	6,350	2,38	0,40	2,80	2,40	0,15	0,08	0,40	0,08	0,05	0,25	
2	6,350	2,38	0,80	2,80	2,00	0,20	0,08	0,50	0,10	0,08	0,30	
2	6,350	2,38	0,80	2,80	2,50	0,20	0,08	0,50	0,10	0,08	0,30	
2	9,525	3,97	0,20	4,40	2,70	0,15	0,08	0,20	0,08	0,05	0,20	
2	9,525	3,97	0,40	4,40	2,50	0,20	0,08	0,40	0,10	0,05	0,25	
2	9,525	3,97	0,40	4,40	2,50	0,20	0,08	0,40	0,10	0,05	0,25	
2	9,525	3,97	0,80	4,40	2,00	0,20	0,08	0,50	0,10	0,08	0,30	
2	9,525	3,97	0,80	4,40	2,00	0,20	0,08	0,50	0,10	0,08	0,30	
2	9,525	3,97	0,20	4,40	2,70	0,15	0,08	0,20	0,08	0,05	0,20	
2	9,525	3,97	0,40	4,40	2,50	0,20	0,08	0,40	0,10	0,05	0,25	
2	9,525	3,97	0,80	4,40	2,00	0,20	0,08	0,50	0,10	0,08	0,30	

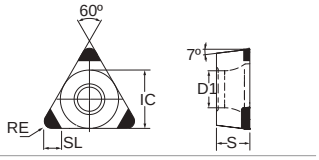
PCBN POSITIVE INSERTS

				H	
		(2) Grade code		Y5	Y4
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	ANSI Reference	PBY603	PBY620
TCGW Z3	1124715	TCGW 110204-S2513 Z3	TCGW 21.51-S2513 Z3	○	
	1124434	TCGW 16T304-S2513 Z3	TCGW 32.51-S2513 Z3	◎	◎
	1124651	TCGW 16T308-S2513 Z3	TCGW 32.52-S2513 Z3	◎	◎
TPGW Z1	1124657	TPGW 110302-S2513 Z1	TPGW 220.5-S2513 Z1	○	○
	1124660	TPGW 110304-S2513 Z1	TPGW 221-S2513 Z1	◎	○
	1124598	TPGW 110308-S2513 Z1	TPGW 222-S2513 Z1	◎	◎
TPGW Z3	1124653	TPGW 090202-S2513 Z3	TPGW 1.81.50.5-S2513 Z3	◎	○
	1124655	TPGW 090204-S2513 Z3	TPGW 1.81.51-S2513 Z3	◎	◎
	1124652	TPGW 090202-S1513 Z3	TPGW 1.81.50.5-S1513 Z3	◎	○
	1124654	TPGW 090204-S1513 Z3	TPGW 1.81.51-S1513 Z3	◎	○
	1124658	TPGW 110302-S2513 Z3	TPGW 220.5-S2513 Z3	◎	◎
	1124661	TPGW 110304-S2513 Z3	TPGW 221-S2513 Z3	◎	◎
	1124663	TPGW 110308-S2513 Z3	TPGW 222-S2513 Z3	○	◎
	1124656	TPGW 110302-S1513 Z3	TPGW 220.5-S1513 Z3	◎	○
	1124659	TPGW 110304-S1513 Z3	TPGW 221-S1513 Z3	◎	○
	1124662	TPGW 110308-S1513 Z3	TPGW 222-S1513 Z3	○	○
VBGW Z2	1124664	VBGW 110302-S2513 Z2	VBGW 220.5-S2513 Z2	◎	◎
	1124665	VBGW 110304-S2513 Z2	VBGW 221-S2513 Z2	◎	◎
	1124666	VBGW 110308-S2513 Z2	VBGW 222-S2513 Z2	○	◎
	1124618	VBGW 160402-S2513 Z2	VBGW 330.5-S2513 Z2	◎	◎
	1124619	VBGW 160404-S2513 Z2	VBGW 331-S2513 Z2	◎	◎
	1124620	VBGW 160408-S2513 Z2	VBGW 332-S2513 Z2	◎	◎
	1124621	VBGW 160402-S1513 Z2	VBGW 330.5-S1513 Z2	◎	◎
	1124622	VBGW 160404-S1513 Z2	VBGW 331-S1513 Z2	◎	◎
	1124623	VBGW 160408-S1513 Z2	VBGW 332-S1513 Z2	◎	◎
VBGW Z2	1124667	VCGW 160404-S2513 Z2	VCGW 331-S2513 Z2	◎	◎
	1124668	VCGW 160408-S2513 Z2	VCGW 332-S2513 Z2	◎	◎

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

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

PCBN POSITIVE INSERTS
Multiple tips

Dimensions (mm) Dimensões (mm) Dimensiones (mm)						Cutting conditions Condições de corte Condiciones de corte						Technical drawing Desenho técnico Dibujo técnico
CDEC	IC	S	RE	D1	SL	AP (mm)	MIN	MAX	FN (mm/r)	MIN	MAX	
3	6,350	2,38	0,20	4,40	2,50	0,15	0,08	0,40	0,08	0,05	0,20	
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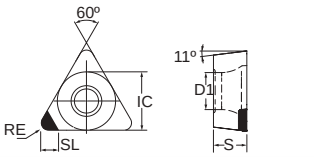
1	6,350	3,18	0,20	2,80	2,40	0,15	0,08	0,20	0,08	0,05	0,15	
1	6,350	3,18	0,40	2,80	2,30	0,15	0,08	0,40	0,08	0,05	0,20	
1	6,350	3,18	0,80	2,80	2,40	0,20	0,08	0,45	0,10	0,08	0,20	
3	5,560	2,38	0,20	2,50	2,50	0,10	0,05	0,20	0,08	0,05	0,15	
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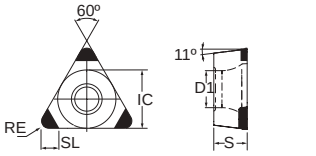
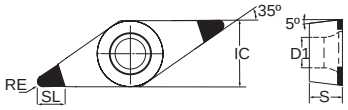
3	5,560	2,38	0,20	2,50	2,50	0,10	0,08	0,20	0,08	0,05	0,15	
3	5,560	2,38	0,40	2,50	2,30	0,15	0,08	0,40	0,08	0,05	0,15	
3	6,350	3,18	0,20	2,80	2,40	0,15	0,08	0,20	0,08	0,05	0,15	
3	6,350	3,18	0,40	2,80	2,30	0,15	0,08	0,40	0,08	0,05	0,20	
3	6,350	3,18	0,80	2,80	2,00	0,20	0,08	0,50	0,10	0,08	0,20	
3	6,350	3,18	0,20	2,80	2,40	0,15	0,08	0,20	0,08	0,05	0,15	
3	6,350	3,18	0,40	2,80	2,30	0,15	0,08	0,40	0,08	0,05	0,20	
3	6,350	3,18	0,80	2,80	2,00	0,20	0,08	0,50	0,10	0,08	0,20	
2	6,350	3,18	0,20	2,80	3,20	0,10	0,08	0,20	0,05	0,05	0,15	
2	6,350	3,18	0,40	2,80	2,80	0,15	0,08	0,40	0,08	0,05	0,20	
2	6,350	3,18	0,80	2,80	2,00	0,15	0,08	0,50	0,10	0,08	0,25	
2	9,525	4,76	0,20	4,40	2,00	0,10	0,08	0,20	0,08	0,05	0,15	
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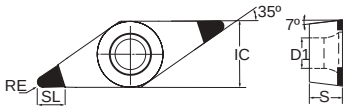
2	9,525	4,76	0,80	4,40	2,00	0,20	0,08	0,50	0,10	0,08	0,30	
2	9,525	4,76	0,20	4,40	2,00	0,10	0,08	0,20	0,08	0,05	0,15	
2	9,525	4,76	0,40	4,40	2,00	0,15	0,08	0,40	0,08	0,05	0,20	
2	9,525	4,76	0,80	4,40	2,00	0,20	0,08	0,50	0,10	0,08	0,30	
2	9,525	4,76	0,40	4,40	2,80	0,15	0,08	0,40	0,08	0,05	0,20	
2	9,525	4,76	0,80	4,40	2,00	0,20	0,08	0,50	0,10	0,08	0,30	

INSERTS

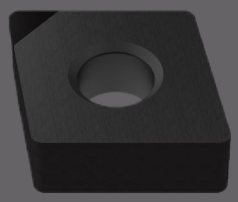
PCD

Polycrystalline Diamond is exceptionally hard and resistant to abrasion. It is most effective for machining non-ferrous materials, particularly aluminum and copper alloys, achieving unparalleled productivity and tool longevity. However, it is also the preferred option for machining composites and ceramics.

Polycrystalline Diamond é excepcionalmente duro e resistente à abrasão. É mais eficaz para a maquinação de materiais não ferrosos, especialmente ligas de alumínio e cobre, alcançando uma produtividade e longevidade da ferramenta incomparáveis. No entanto, também é a opção preferida para a maquinação de compósitos e cerâmicas.

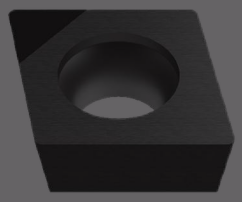
Polycrystalline Diamond es excepcionalmente duro y resistente a la abrasión. Es más efectivo para mecanizar materiales no ferrosos, especialmente aleaciones de aluminio y cobre, logrando una productividad y longevidad de herramienta incomparables. Sin embargo, también es la opción preferida para mecanizar compuestos y cerámicas.

NEGATIVE INSERTS > page 608



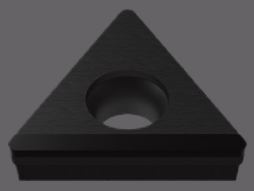
- 1 cutting edge
  1 aresta de corte | 1 arista de corte
- Neutral rake angle
  Ângulo de ataque neutro | Ángulo de ataque neutro

POSITIVE INSERTS > page 612



- 1 cutting edge
  1 aresta de corte | 1 arista de corte
- Neutral or high positive rake angle
  Ângulo de ataque neutro ou altamente positivo | Ángulo de ataque neutro o altamente positivo

FULL EDGE TIPS > page 620



- 1 cutting edge
  1 aresta de corte | 1 arista de corte
- Neutral or high positive rake angle
  Ângulo de ataque neutro ou altamente positivo | Ángulo de ataque neutro o altamente positivo
- For higher depth of cut
  Para uma maior profundidade de corte | Para mayor profundidad de corte

PCD GRADES SELECTION

Selecção de graus | Selección de calidades

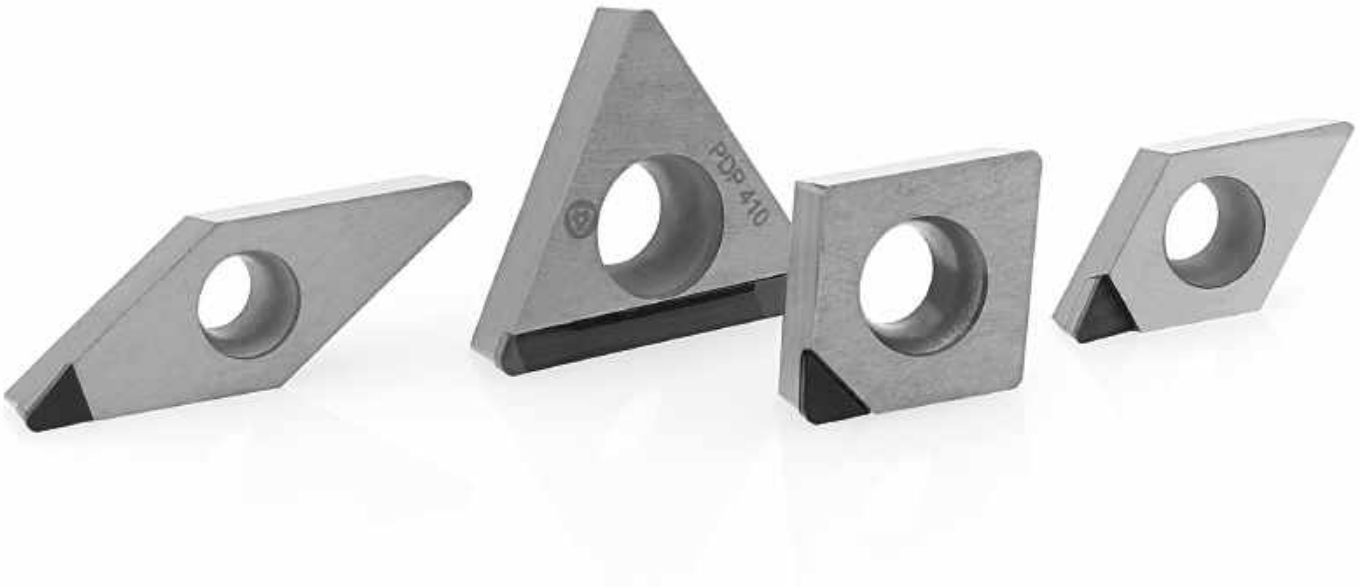
PCD (Polycristalline Diamond) is a composite of diamond particles that are sintered with a metallic binder creating the hardest and one of the most abrasion resistant materials used in cutting tools.
Its development achieved an extremely significance for the machining of Non-Ferrous Materials, such as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

Grades description Descrição de graus | Descripción de calidades

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



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..

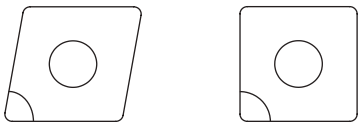
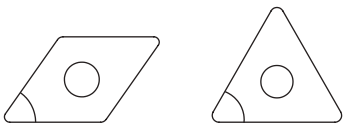
In general, a large nose radius provides greater edge strength and therefore extended tool life. For this reason, it is advised to use the largest and allowed nose radius based on the requirements of each process.

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.

PCD RECOMMENDED CUTTING DATA

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

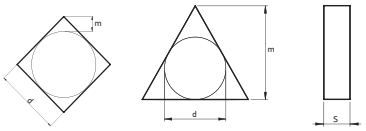
Workpiece material	VC (m/min)		Recommend grade for PCD	
			PDP 410	PDP 403
Aluminium alloys: Aluminium, Si<14%	Roughing Finishing	800-3000 800-3000	◉ ◉	
Aluminium: Aluminium, Si≥14%	Roughing Finishing	300-700 250-700	○ ○	◉ ◉
Copper alloys: Copper, Zinc, Brass	Roughing Finishing	600-1200 700-1500	◉ ◉	
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

TURNING PCD INSERTS ISO IDENTIFICATION SYSTEM

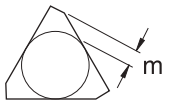
H	120°	M	86°
O	135°	V	35°
P	108°	W	80°
S	90°	L	90°
T	60°	A	85°
C	80°	B	82°
D	55°	K	55°
E	75°	R	
F	50°	X	Special

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	D	C	G	W
ANSI	D	C	G	W

4 - Insert symbol

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

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

palbit

TURNING PCD INSERTS ISO IDENTIFICATION SYSTEM

Sistema de identificação ISO para pastilhas de PCD | Codificación ISO para plaquitas de PCD

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 - Chip breaker geometries

NF	Finishing

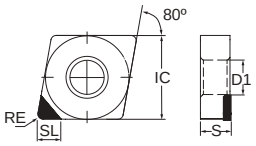
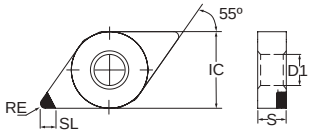
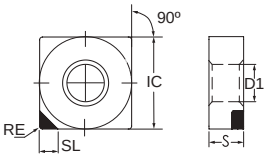
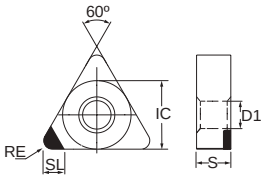
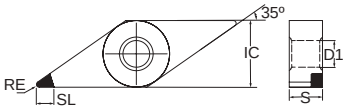
PCD NEGATIVE INSERTS

				N	
		(2) Grade code		D6	I3
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	ANSI Reference	PDP410	PDP403
		SINGLE TIP			
CNGA Z1	1124228	CNGA 120404 Z1	CNGA 431 Z1	◈	◈
	1124110	CNGA 120408 Z1	CNGA 432 Z1	◈	○
	1124229	CNGA 120412 Z1	CNGA 433 Z1	○	○
	1124230	CNGA 120416 Z1	CNGA 434 Z1	○	○
DNGA Z1	1124235	DNGA 150404 Z1	DNGA 431 Z1	○	○
	1124236	DNGA 150408 Z1	DNGA 432 Z1	○	○
	1124362	DNGA 150608 Z1	DNGA 442 Z1	○	○
	1124363	DNGA 150612 Z1	DNGA 443 Z1	○	○
SNGA Z1	1124243	SNGA 090304 Z1	SNGA 321 Z1	○	○
	1124244	SNGA 090308 Z1	SNGA 322 Z1	○	○
	1124245	SNGA 120404 Z1	SNGA 431 Z1	○	○
	1124246	SNGA 120408 Z1	SNGA 432 Z1	○	○
TNGA Z1	1124256	TNGA 110304 Z1	TNGA 221 Z1	○	○
	1124257	TNGA 110308 Z1	TNGA 222 Z1	○	○
	1124258	TNGA 160404 Z1	TNGA 331 Z1	◈	○
	1124259	TNGA 160408 Z1	TNGA 332 Z1	○	○
	1124385	TNGA 160412 Z1	TNGA 333 Z1	○	○
VNGA Z1	1124285	VNGA 160404 Z1	VNGA 331 Z1	○	○
	1124286	VNGA 160408 Z1	VNGA 332 Z1	○	○
	1124287	VNGA 160412 Z1	VNGA 333 Z1	○	○

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

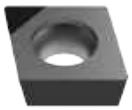
Insert Order Code: (1) Geometry code + (2) Grade code

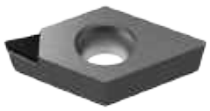
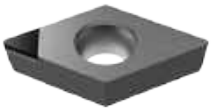
PCD NEGATIVE INSERTS
Single tip

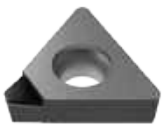
Dimensions (mm) Dimensões (mm) Dimensiones (mm)						Cutting conditions Condições de corte Condiciones de corte						Technical drawing Desenho técnico Dibujo técnico
IC	S	RE	D1	AN	SL	AP (mm)	MIN	MAX	FN (mm/r)	MIN	MAX	
SINGLE TIP												
12,700	4,76	0,40	5,16	-	3,50	0,10	0,07	0,40	0,10	0,06	0,20	
12,700	4,76	0,80	5,16	-	3,50	0,15	0,07	0,80	0,15	0,08	0,30	
12,700	4,76	1,20	5,16	-	3,50	0,25	0,08	1,20	0,30	0,10	0,40	
12,700	4,76	1,60	5,16	-	3,50	0,50	0,08	1,60	0,35	0,10	0,50	
12,700	4,76	0,40	5,16	-	3,50	0,10	0,07	0,40	0,10	0,05	0,20	
12,700	4,76	0,80	5,16	-	3,50	0,15	0,07	0,80	0,15	0,05	0,25	
12,700	6,35	0,80	5,16	-	3,50	0,15	0,07	0,80	0,15	0,05	0,25	
12,700	6,35	1,20	5,16	-	3,50	0,20	0,08	1,20	0,20	0,05	0,30	
9,525	3,18	0,40	3,81	-	3,50	0,10	0,07	0,40	0,10	0,07	0,20	
9,525	3,18	0,80	3,81	-	3,50	0,20	0,08	0,80	0,12	0,08	0,25	
12,700	4,76	0,40	5,16	-	3,50	0,10	0,07	0,40	0,12	0,07	0,25	
12,700	4,76	0,80	5,16	-	3,50	0,20	0,08	0,80	0,15	0,08	0,30	
6,350	3,18	0,40	2,26	-	3,50	0,10	0,08	0,40	0,08	0,03	0,15	
6,350	3,18	0,80	2,26	-	3,50	0,15	0,10	0,80	0,10	0,05	0,25	
9,525	4,76	0,40	3,81	-	3,50	0,10	0,08	0,40	0,10	0,05	0,20	
9,525	4,76	0,80	3,81	-	3,50	0,20	0,10	0,80	0,15	0,08	0,30	
9,525	4,76	1,20	3,81	-	3,50	0,20	0,10	0,80	0,15	0,08	0,30	
9,525	4,76	0,40	3,81	-	3,50	0,10	0,07	0,40	0,10	0,07	0,20	
9,525	4,76	0,80	3,81	-	3,50	0,20	0,08	0,80	0,15	0,08	0,30	
9,525	4,76	1,20	3,81	-	3,50	0,25	0,10	1,20	0,17	0,10	0,35	

PCD POSITIVE INSERTS OVERVIEW

SINGLE TIP

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 C- 612	Page C- 612	Page C- 612	Page C- 612

DCGT Z1	DCGW Z1	SCGT Z1	SCGW Z1
			
Size 07 | 11	Size 07 | 11 | 15	Size 06 | 09 | 12	Size 06 | 09 | 12
Page C- 614	Page C- 614	Page C- 614	Page C- 614

TCGT Z1	TCGW Z1	TPGT Z1	TPGW Z1
			
Size 09 | 11 | 16	Size 09 | 11 | 16	Size 11 | 16	Size 11 | 16
Page C- 616	Page C- 616	Page C- 616	Page C- 616

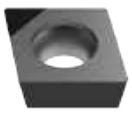
VCGT Z1	VCGW Z1
Size 07 | 11 | 16	Size 07 | 11 | 16
Page C- 618	Page C- 618

FULL EDGE

CCGT FR/FL	CCGW FR/FL
Size 06 | 09 | 12	Size 06 | 09 | 12
Page C- 620	Page C- 620

TCGT FL	TCGW FL
Size 11 | 16	Size 11 | 16 | 22
Page C- 620	Page C- 620

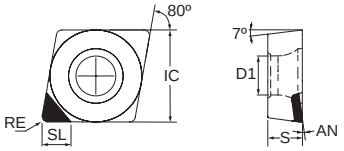
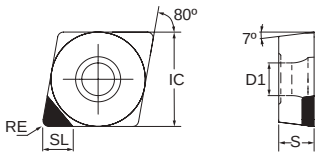
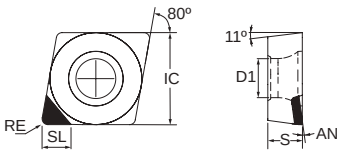
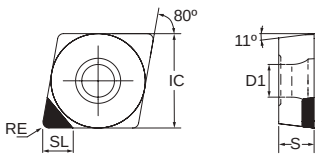
PCD POSITIVE INSERTS

				N	
		(2) Grade code		D6	I3
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	ANSI Reference	PDP410	PDP403
		SINGLE TIP			
CCGT Z1	1124113	CCGT 060202 Z1	CCGT 21.50.5 Z1	◈	○
	1124209	CCGT 060204 Z1	CCGT 21.51 Z1	○	○
	1124487	CCGT 060220 Z1	CCGT 21.55 Z1	○	○
	1112592	CCGT 09T304 Z1	CCGT 32.51 Z1	◈	○
	1124210	CCGT 09T308 Z1	CCGT 32.52 Z1	○	○
	1124211	CCGT 120404 Z1	CCGT 431 Z1	◈	○
	1112630	CCGT 120408 Z1	CCGT 432 Z1	◈	○
CCGT- NF Z1	1124465	CCGT 09T304-NF Z1	CCGT 32.51-NF Z1	◈	○
	1124726	CCGT 09T308-NF Z1	CCGT 32.52-NF Z1	◈	○
CCGW Z1	1124114	CCGW 060202 Z1	CCGW 21.50.5 Z1	◈	○
	1124218	CCGW 060204 Z1	CCGW 21.51 Z1	◈	○
	1124793	CCGW 060220 Z1	CCGW 21.55 Z1	◈	○
	1124219	CCGW 09T302 Z1	CCGW 32.50.5 Z1	○	○
	1112593	CCGW 09T304 Z1	CCGW 32.51 Z1	◈	○
	1124220	CCGW 09T308 Z1	CCGW 32.2 Z1	○	○
	1124221	CCGW 120404 Z1	CCGW 431 Z1	◈	○
	1112631	CCGW 120408 Z1	CCGW 432 Z1	◈	○
CPGT Z1	1124392	CPGT 060202 Z1	CCGT 21.50.5 Z1	○	○
	1124393	CPGT 060204 Z1	CCGT 21.51 Z1	○	○
	1124394	CPGT 09T304 Z1	CCGT 32.51 Z1	○	○
	1124395	CPGT 09T308 Z1	CCGT 32.52 Z1	○	○
	1124396	CPGT 120404 Z1	CCGT 431 Z1	○	○
	1124397	CPGT 120408 Z1	CCGT 432 Z1	○	○
CPGW Z1 	1124398	CPGW 060202 Z1	CPGW 21.50.5 Z1	○	○
	1124399	CPGW 060204 Z1	CPGW 21.51 Z1	○	○
	1124400	CPGW 09T302 Z1	CPGW 32.50.5 Z1	○	○
	1124401	CPGW 09T304 Z1	CPGW 32.51 Z1	◈	○
	1124402	CPGW 09T308 Z1	CPGW 32.52 Z1	○	○
	1124403	CPGW 120404 Z1	CPGW 431 Z1	○	○
	1124404	CPGW 120408 Z1	CPGW 432 Z1	○	○

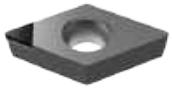
◈ Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

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

PCD POSITIVE INSERTS
Single tip

Dimensions (mm) Dimensões (mm) Dimensiones (mm)						Cutting conditions Condições de corte Condiciones de corte						Technical drawing Desenho técnico Dibujo técnico
IC	S	RE	D1	AN	SL	AP (mm)	MIN	MAX	FN (mm/r)	MIN	MAX	
SINGLE TIP												
6,350	2,38	0,20	2,80	7°	3,50	0,08	0,05	0,20	0,08	0,05	0,15	
6,350	2,38	0,40	2,80	7°	3,50	0,10	0,07	0,40	0,12	0,07	0,25	
6,350	2,38	2,00	2,80	10°	3,14	0,20	0,10	0,50	0,15	0,10	0,30	
9,525	3,97	0,40	4,40	10°	3,50	0,10	0,07	0,40	0,12	0,07	0,25	
9,525	3,97	0,80	4,40	10°	3,50	0,20	0,08	0,80	0,15	0,08	0,30	
12,700	4,76	0,40	5,50	10°	3,50	0,10	0,07	0,40	0,12	0,07	0,25	
12,700	4,76	0,80	5,50	10°	3,50	0,20	0,08	0,80	0,15	0,08	0,30	
9,525	3,97	0,40	4,40	-	4,00	0,12	0,07	0,40	0,15	0,07	0,25	
9,525	3,97	0,80	4,40	-	4,00	0,20	0,08	0,80	0,20	0,08	0,30	
6,350	2,38	0,20	2,80	-	3,50	0,08	0,05	0,20	0,08	0,05	0,13	
6,350	2,38	0,40	2,80	-	3,50	0,10	0,07	0,40	0,11	0,07	0,23	
6,350	2,38	2,00	2,80	-	3,20	0,80	0,40	2,00	0,15	0,10	0,40	
9,525	3,97	0,20	4,40	-	3,50	0,08	0,05	0,20	0,08	0,05	0,15	
9,525	3,97	0,40	4,40	-	3,50	0,10	0,07	0,40	0,12	0,06	0,25	
9,525	3,97	0,80	4,40	-	3,50	0,20	0,08	0,80	0,15	0,08	0,30	
12,700	4,76	0,40	5,50	-	3,50	0,10	0,07	0,40	0,12	0,06	0,25	
12,700	4,76	0,80	5,50	-	3,50	0,20	0,08	0,80	0,15	0,08	0,30	
6,350	2,38	0,20	2,80	7°	3,50	0,08	0,05	0,20	0,08	0,05	0,15	
6,350	2,38	0,40	2,80	7°	3,50	0,10	0,07	0,40	0,12	0,07	0,25	
9,525	3,97	0,40	4,40	10°	3,50	0,10	0,07	0,40	0,12	0,07	0,25	
9,525	3,97	0,80	4,40	10°	3,50	0,20	0,08	0,80	0,15	0,08	0,30	
12,700	4,76	0,40	5,50	10°	3,50	0,10	0,07	0,40	0,12	0,07	0,25	
12,700	4,76	0,80	5,50	10°	3,50	0,20	0,08	0,80	0,15	0,08	0,30	
6,350	2,38	0,20	2,80	-	3,50	0,08	0,05	0,20	0,08	0,05	0,13	
6,350	2,38	0,40	2,80	-	3,50	0,10	0,07	0,40	0,11	0,07	0,23	
9,525	3,97	0,20	4,40	-	3,50	0,08	0,05	0,20	0,08	0,05	0,15	
9,525	3,97	0,40	4,40	-	3,50	0,10	0,07	0,40	0,12	0,06	0,25	
9,525	3,97	0,80	4,40	-	3,50	0,20	0,08	0,80	0,15	0,08	0,30	
12,700	4,76	0,40	5,50	-	3,50	0,10	0,07	0,40	0,12	0,06	0,25	
12,700	4,76	0,80	5,50	-	3,50	0,20	0,08	0,80	0,15	0,08	0,30	

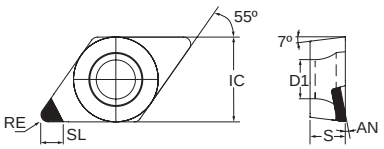
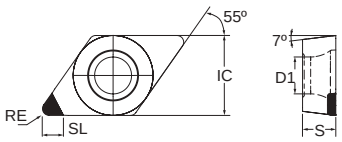
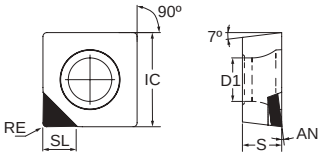
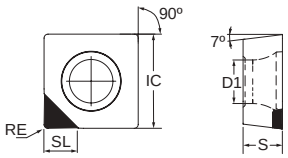
PCD POSITIVE INSERTS

				N	
		(2) Grade code		D6	I3
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	ANSI Reference	PDP410	PDP403
		SINGLE TIP			
DCGT Z1	1124116	DCGT 070202 Z1	DCGT 21.50.5 Z1	●	○
	1124231	DCGT 070204 Z1	DCGT 21.51 Z1	●	○
	1112634	DCGT 11T304 Z1	DCGT 32.501 Z1	●	○
	1124380	DCGT 11T308 Z1	DCGT 32.52 Z1	●	●
	1124529	DCGT 150408 Z1	DCGT 432 Z1	●	○
DCGW Z1 	1124232	DCGW 070202 Z1	DCGW 21.50.5 Z1	●	○
	1124233	DCGW 070204 Z1	DCGW 21.51 Z1	●	○
	1124458	DCGW 11T302 Z1	DCGW 32.50.5 Z1	●	○
	1112635	DCGW 11T304 Z1	DCGW 32.51 Z1	●	○
	1124168	DCGW 11T308 Z1	DCGW 32.52 Z1	●	○
	1124234	DCGW 150404 Z1	DCGW 431 Z1	○	○
	1124117	DCGW 150408 Z1	DCGW 432 Z1	●	○
SCGT Z1	1124386	SCGT 060202 Z1	SCGT 21.50.5 Z1	○	○
	1124387	SCGT 060204 Z1	SCGT 21.51 Z1	○	○
	1124388	SCGT 09T304 Z1	SCGT 32.51 Z1	○	○
	1124389	SCGT 09T308 Z1	SCGT 32.52 Z1	●	○
	1124390	SCGT 120404 Z1	SCGT 431 Z1	○	○
	1124391	SCGT 120408 Z1	SCGT 432 Z1	●	○
SCGW Z1	1124237	SCGW 060202 Z1	SCGW 21.50.5 Z1	○	○
	1124238	SCGW 060204 Z1	SCGW 21.51 Z1	○	○
	1124239	SCGW 09T304 Z1	SCGW 32.51 Z1	○	○
	1124240	SCGW 09T308 Z1	SCGW 32.52 Z1	○	○
	1124794	SCGW 09T312 Z1	SCGW 32.53 Z1	○	○
	1124241	SCGW 120404 Z1	SCGW 431 Z1	○	○
	1124242	SCGW 120408 Z1	SCGW 432 Z1	○	○

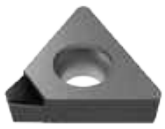
● Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

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

PCD POSITIVE INSERTS
Single tip

Dimensions (mm) Dimensões (mm) Dimensiones (mm)						Cutting conditions Condições de corte Condiciones de corte						Technical drawing Desenho técnico Dibujo técnico
IC	S	RE	D1	AN	SL	AP (mm)	MIN	MAX	FN (mm/r)	MIN	MAX	
SINGLE TIP												
6,350	2,38	0,20	2,80	7º	3,50	0,08	0,05	0,20	0,08	0,05	0,15	
6,350	2,38	0,40	2,80	7º	3,50	0,10	0,07	0,40	0,10	0,05	0,20	
9,525	3,97	0,40	4,40	10º	3,50	0,10	0,07	0,40	0,10	0,05	0,20	
9,525	3,97	0,80	4,40	10º	3,50	0,20	0,08	0,80	0,15	0,08	0,30	
12,700	4,76	0,80	5,50	10º	3,50	0,60	0,10	1,20	0,25	0,10	0,40	
6,350	2,38	0,20	2,80	-	3,50	0,08	0,05	0,20	0,08	0,05	0,15	
6,350	2,38	0,40	2,80	-	3,50	0,10	0,07	0,40	0,10	0,05	0,20	
9,525	3,97	0,20	4,40	-	3,50	0,10	0,05	0,35	0,10	0,05	0,15	
9,525	3,97	0,40	4,40	-	3,50	0,10	0,07	0,40	0,10	0,05	0,20	
9,525	3,97	0,80	4,40	-	3,50	0,20	0,08	0,80	0,15	0,08	0,30	
12,700	4,76	0,40	5,50	-	3,50	0,10	0,08	0,40	0,10	0,05	0,20	
12,700	4,76	0,80	5,50	-	3,50	0,20	0,10	0,80	0,15	0,08	0,30	
6,350	2,38	0,20	2,80	7º	3,50	0,08	0,05	0,20	0,07	0,05	0,15	
6,350	2,38	0,40	2,80	7º	3,50	0,10	0,05	0,40	0,09	0,05	0,20	
9,520	3,97	0,40	4,40	10º	3,50	0,10	0,07	0,40	0,10	0,05	0,20	
9,520	3,97	0,80	4,40	10º	3,50	0,20	0,08	0,80	0,15	0,07	0,30	
12,700	4,76	0,40	5,50	10º	3,50	0,12	0,07	0,40	0,10	0,05	0,20	
12,700	4,76	0,80	5,50	10º	3,50	0,22	0,08	0,80	0,15	0,08	0,30	
6,350	2,38	0,20	6,35	-	3,50	0,08	0,05	0,20	0,07	0,05	0,15	
6,350	2,38	0,40	6,35	-	3,50	0,10	0,05	0,40	0,09	0,05	0,20	
9,525	3,97	0,40	9,53	-	3,50	0,10	0,07	0,40	0,10	0,05	0,20	
9,525	3,97	0,80	9,53	-	3,50	0,20	0,08	0,80	0,15	0,07	0,30	
6,350	3,96	1,20	6,35	-	3,50	0,30	0,09	1,20	0,20	0,10	0,40	
12,700	4,76	0,40	12,70	-	3,50	0,12	0,07	0,40	0,10	0,05	0,20	
12,700	4,76	0,80	12,70	-	3,50	0,22	0,08	0,80	0,15	0,08	0,30	

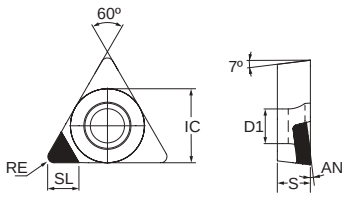
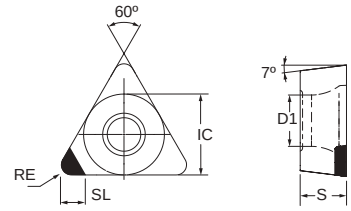
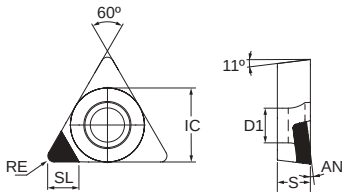
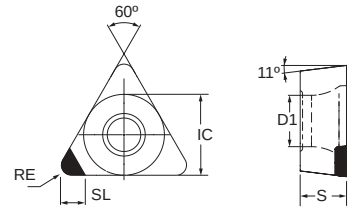
PCD POSITIVE INSERTS

				N	
		(2) Grade code		D6	I3
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	ANSI Reference	PDP410	PDP403
		SINGLE TIP			
TCGT Z1 	1124186	TCGT 090202 Z1	TCGT 1.81.50.5 Z1	◈	○
	1124188	TCGT 090204 Z1	TCGT 1.81.51 Z1	◈	○
	1124501	TCGT 090208 Z1	TCGT 1.81.52 Z1	◈	○
	1124119	TCGT 110204 Z1	TCGT 21.51 Z1	◈	○
	1124190	TCGT 110208 Z1	TCGT 21.52 Z1	◈	○
	1124247	TCGT 16T304 Z1	TCGT 32.51 Z1	◈	○
	1112637	TCGT 16T308 Z1	TCGT 32.52 Z1	◈	○
TCGW Z1	1124185	TCGW 090202 Z1	TCGW 1.81.50.5 Z1	◈	○
	1124187	TCGW 090204 Z1	TCGW 1.81.51 Z1	◈	○
	1124507	TCGW 110202 Z1	TCGW 21.50.5 Z1	◈	○
	1124192	TCGW 110204 Z1	TCGW 21.51 Z1	◈	○
	1124189	TCGW 110208 Z1	TCGW 21.52 Z1	◈	○
	1124251	TCGW 16T304 Z1	TCGW 32.51 Z1	◈	○
	1112638	TCGW 16T308 Z1	TCGW 32.52 Z1	◈	○
TPGT Z1	1124260	TPGT 110302 Z1	TPGT 220.5 Z1	○	○
	1124261	TPGT 110304 Z1	TPGT 221 Z1	○	○
	1124262	TPGT 110308 Z1	TPGT 222 Z1	○	○
	1124263	TPGT 16T304 Z1	TPGT 32.51 Z1	○	○
	1124174	TPGT 16T308 Z1	TPGT 32.52 Z1	○	○
	1124264	TPGT 160404 Z1	TPGT 331 Z1	○	○
	1124265	TPGT 160408 Z1	TPGT 332 Z1	○	○
TPGW Z1	1124266	TPGW 110202 Z1	TPGW 21.50.5 Z1	○	○
	1124267	TPGW 110204 Z1	TPGW 21.51 Z1	○	○
	1124268	TPGW 110208 Z1	TPGW 21.52 Z1	○	○
	1124269	TPGW 110302 Z1	TPGW 220.5 Z1	○	○
	1124270	TPGW 110304 Z1	TPGW 221 Z1	◈	○
	1124379	TPGW 110308 Z1	TPGW 222 Z1	◈	○
	1124271	TPGW 16T304 Z1	TPGW 32.51 Z1	○	○
	1124272	TPGW 16T308 Z1	TPGW 32.52 Z1	○	○
	1124273	TPGW 160404 Z1	TPGW 331 Z1	○	○
	1124274	TPGW 160408 Z1	TPGW 332 Z1	○	○

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

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

PCD POSITIVE INSERTS
Single tip

Dimensions (mm) Dimensões (mm) Dimensiones (mm)						Cutting conditions Condições de corte Condiciones de corte						Technical drawing Desenho técnico Dibujo técnico
IC	S	RE	D1	AN	SL	AP (mm)	MIN	MAX	FN (mm/r)	MIN	MAX	
SINGLE TIP												
5,560	2,38	0,20	2,50	7°	3,00	0,07	0,04	0,20	0,07	0,03	0,10	
5,560	2,38	0,40	2,50	7°	3,00	0,10	0,07	0,40	0,10	0,05	0,20	
7,540	2,38	0,80	2,50	7°	3,00	0,45	0,10	0,80	0,18	0,08	0,30	
6,350	2,38	0,40	2,80	7°	3,00	0,10	0,07	0,40	0,10	0,05	0,20	
6,350	2,38	0,80	2,80	7°	3,00	0,20	0,08	0,80	0,15	0,08	0,30	
9,525	3,97	0,40	4,40	10°	3,00	0,10	0,07	0,40	0,10	0,05	0,20	
9,525	3,97	0,80	4,40	10°	3,00	0,20	0,08	0,80	0,15	0,08	0,30	
5,560	2,38	0,20	2,50	-	3,00	0,07	0,04	0,20	0,07	0,03	0,10	
5,560	2,38	0,40	2,50	-	3,00	0,10	0,07	0,40	0,10	0,05	0,20	
6,350	2,38	0,20	2,80	-	3,00	0,07	0,04	0,20	0,07	0,03	0,10	
6,350	2,38	0,40	2,80	-	3,50	0,10	0,07	0,40	0,10	0,05	0,20	
6,350	2,38	0,80	2,80	-	3,50	0,20	0,08	0,80	0,15	0,08	0,30	
9,525	3,97	0,40	4,40	-	3,50	0,10	0,07	0,40	0,10	0,05	0,20	
9,525	3,97	0,80	4,40	-	3,50	0,20	0,08	0,80	0,15	0,08	0,30	
6,350	3,18	0,20	3,40	10°	3,50	0,07	0,04	0,20	0,07	0,05	0,10	
6,350	3,18	0,40	3,40	10°	3,50	0,10	0,07	0,40	0,10	0,05	0,20	
6,350	3,18	0,80	3,40	10°	3,50	0,20	0,08	0,80	0,15	0,08	0,30	
9,525	3,97	0,40	4,30	10°	3,50	0,10	0,07	0,40	0,10	0,05	0,20	
9,525	3,97	0,80	4,30	10°	3,50	0,20	0,08	0,80	0,15	0,08	0,30	
9,525	4,76	0,40	4,30	10°	3,50	0,10	0,07	0,40	0,10	0,05	0,20	
9,525	4,76	0,80	4,30	10°	3,50	0,20	0,08	0,80	0,15	0,08	0,30	
6,350	2,38	0,20	2,80	-	3,50	0,07	0,04	0,20	0,07	0,05	0,10	
6,350	2,38	0,40	2,80	-	3,50	0,10	0,07	0,40	0,10	0,05	0,20	
6,350	2,38	0,80	2,80	-	3,50	0,20	0,08	0,80	0,15	0,08	0,30	
6,350	3,18	0,20	2,80	-	3,50	0,07	0,04	0,20	0,07	0,05	0,10	
6,350	3,18	0,40	2,80	-	3,50	0,10	0,07	0,40	0,10	0,05	0,20	
6,350	3,18	0,80	2,80	-	3,50	0,20	0,08	0,80	0,15	0,08	0,30	
9,525	3,97	0,40	4,30	-	3,50	0,10	0,07	0,40	0,10	0,05	0,20	
9,525	3,97	0,80	4,30	-	3,50	0,20	0,08	0,80	0,15	0,08	0,30	
9,525	4,76	0,40	4,30	-	3,50	0,10	0,07	0,40	0,10	0,05	0,20	
9,525	4,76	0,80	4,30	-	3,50	0,20	0,08	0,80	0,15	0,08	0,30	

PCD POSITIVE INSERTS

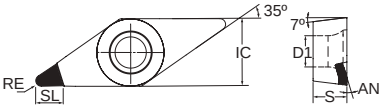
				N	
		(2) Grade code		D6	I3
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	ANSI Reference	PDP410	PDP403
		SINGLE TIP			
VCGT Z1	1124275	VCGT 070202 Z1	VCGT 1.31.50.5 Z1	○	○
	1124276	VCGT 070204 Z1	VCGT 1.31.51 Z1	○	○
	1124277	VCGT 110302 Z1	VCGT 220.5 Z1	◈	○
	1124071	VCGT 110304 Z1	VCGT 221 Z1	◈	○
	1124278	VCGT 160404 Z1	VCGT 331 Z1	◈	○
	1112640	VCGT 160408 Z1	VCGT 332 Z1	◈	○
	1124279	VCGT 160412 Z1	VCGT 333 Z1	○	○
VCGW Z1	1124280	VCGW 070202 Z1	VCGW 1.31.50.5 Z1	○	○
	1124281	VCGW 070204 Z1	VCGW 1.31.51 Z1	◈	○
	1124796	VCGW 110302 Z1	VCGW 220.5 Z1	◈	○
	1124378	VCGW 110304 Z1	VCGW 221 Z1	◈	○
	1124282	VCGW 110308 Z1	VCGW 222 Z1	◈	○
	1124795	VCGW 160402 Z1	VCGW 330.5 Z1	◈	○
	1124283	VCGW 160404 Z1	VCGW 331 Z1	◈	○
	1112641	VCGW 160408 Z1	VCGW 332 Z1	◈	○
	1124284	VCGW 160412 Z1	VCGW 333 Z1	◈	○

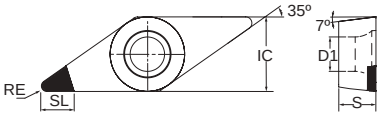
◈ Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

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

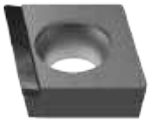
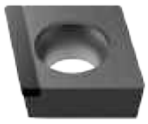
PCD POSITIVE INSERTS
Single tip

Dimensions (mm) Dimensões (mm) Dimensiones (mm)						Cutting conditions Condições de corte Condiciones de corte						Technical drawing Desenho técnico Dibujo técnico
IC	S	RE	D1	AN	SL	AP (mm)	MIN	MAX	FN (mm/r)	MIN	MAX	
SINGLE TIP												
3,970	2,38	0,20	2,20	7º	3,00	0,08	0,05	0,20	0,08	0,03	0,10	
3,970	2,38	0,40	2,20	7º	3,00	0,10	0,07	0,40	0,10	0,05	0,20	
6,350	3,18	0,20	2,80	10º	3,50	0,08	0,05	0,20	0,08	0,03	0,10	
6,350	3,18	0,40	2,80	10º	3,50	0,10	0,07	0,40	0,10	0,05	0,20	
9,525	4,76	0,40	4,40	10º	3,50	0,10	0,07	0,40	0,10	0,05	0,20	
9,525	4,76	0,80	4,40	10º	3,50	0,20	0,08	0,80	0,15	0,08	0,30	
9,525	4,76	1,20	4,40	10º	3,50	0,30	0,10	1,20	0,17	0,08	0,35	
3,970	2,38	0,20	2,20	-	3,00	0,08	0,05	0,20	0,08	0,03	0,10	
3,970	2,38	0,40	2,20	-	3,00	0,10	0,07	0,40	0,10	0,05	0,20	
6,350	3,18	0,20	2,80	-	3,50	0,13	0,05	0,20	0,10	0,05	0,15	
6,350	3,18	0,40	2,80	-	3,50	0,10	0,07	0,40	0,10	0,05	0,20	
6,350	3,18	0,80	2,80	-	3,50	0,20	0,08	0,80	0,15	0,08	0,30	
9,525	4,76	0,20	4,40	-	3,50	0,18	0,05	0,30	0,10	0,05	0,15	
9,525	4,76	0,40	4,40	-	3,50	0,10	0,07	0,40	0,10	0,05	0,20	
9,525	4,76	0,80	4,40	-	4,00	0,20	0,08	0,80	0,15	0,08	0,30	
9,525	4,76	1,20	4,40	-	3,50	0,30	0,10	1,20	0,17	0,08	0,35	





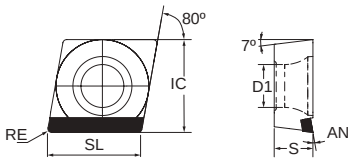
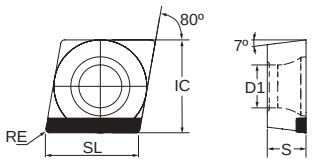
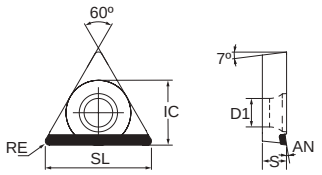
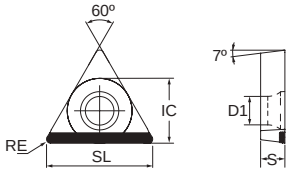
PCD POSITIVE INSERTS

				N	
		(2) Grade code		D6	I3
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	ANSI Reference	PDP410	PDP403
		FULL EDGE			
CCGT FR 	1124212	CCGT 09T302 FR	CCGT 32.50.5 FR	○	○
	1124165	CCGT 09T304 FR	CCGT 32.51 FR	◎	○
	1124213	CCGT 120404 FR	CCGT 431 FR	○	○
	1124214	CCGT 120408 FR	CCGT 432 FR	○	○
CCGT FL	1124215	CCGT 09T302 FL	CCGT 32.50.5 FL	○	○
	1124166	CCGT 09T304 FL	CCGT 32.51 FL	◎	○
	1124216	CCGT 120404 FL	CCGT 431 FL	◎	○
	1124217	CCGT 120408 FL	CCGT 432 FL	◎	○
CCGW FR 	1124547	CCGW 060204 FR	CCGW 21.51 FR	◎	○
	1124170	CCGW 09T304 FR	CCGW 32.51 FR	○	○
	1124222	CCGW 09T308 FR	CCGW 32.52 FR	○	○
	1124223	CCGW 120404 FR	CCGW 431 FR	○	○
	1124224	CCGW 120408 FR	CCGW 432 FR	○	○
CCGW FL	1124548	CCGW 060204 FL	CCGW 21.51 FL	◎	○
	1124171	CCGW 09T304 FL	CCGW 32.51 FL	○	○
	1124225	CCGW 09T308 FL	CCGW 32.52 FL	○	○
	1124226	CCGW 120404 FL	CCGW 431 FL	○	○
	1124227	CCGW 120408 FL	CCGW 432 FL	◎	○
TCGT FL	1124173	TCGT 110204 FL	TCGT 21.51 FL	◎	○
	1124248	TCGT 110208 FL	TCGT 21.52 FL	○	○
	1124249	TCGT 16T304 FL	TCGT 32.51 FL	◎	○
	1124250	TCGT 16T308 FL	TCGT 32.52 FL	◎	○
TCGW FL	1124252	TCGW 110202 FL	TCGW 21.50.5 FL	○	○
	1112777	TCGW 110204 FL	TCGW 21.51 FL	◎	○
	1124253	TCGW 16T304 FL	TCGW 32.51 FL	◎	○
	1124254	TCGW 16T308 FL	TCGW 32.52 FL	◎	○
	1124255	TCGW 220404 FL	TCGW 431 FL	○	○
	1124382	TCGW 220408 FL	TCGW 432 FL	◎	○

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

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

PCD POSITIVE INSERTS
Full edge

Dimensions (mm) Dimensões (mm) Dimensiones (mm)						Cutting conditions Condições de corte Condiciones de corte						Technical drawing Desenho técnico Dibujo técnico
IC	S	RE	D1	AN	SL	AP (mm)	MIN	MAX	FN (mm/r)	MIN	MAX	
FULL EDGE												
9,525	3,97	0,20	4,40	10º	9,70	4,85	0,20	6,40	0,08	0,05	0,15	
9,525	3,97	0,40	4,40	10º	9,70	4,85	0,40	6,40	0,12	0,07	0,25	
12,700	4,76	0,40	5,50	10º	12,90	6,45	0,40	8,50	0,15	0,08	0,30	
12,700	4,76	0,80	5,50	10º	12,90	6,45	0,80	8,50	0,30	0,10	0,40	
9,525	3,97	0,20	4,40	10º	9,70	4,85	0,20	6,40	0,08	0,05	0,15	
9,525	3,97	0,40	4,40	10º	9,70	4,85	0,40	6,40	0,12	0,07	0,25	
12,700	4,76	0,40	5,50	10º	12,90	6,45	0,40	8,50	0,15	0,08	0,30	
12,700	4,76	0,80	5,50	10º	12,90	6,45	0,80	8,50	0,30	0,10	0,40	
9,525	3,97	0,40	4,40	-	9,70	4,85	0,40	6,40	0,12	0,07	0,25	
9,525	3,97	0,40	4,40	-	9,70	4,85	0,40	6,40	0,12	0,07	0,25	
9,525	3,97	0,80	4,40	-	9,70	4,85	0,80	6,40	0,16	0,10	0,35	
12,700	4,76	0,40	5,50	-	12,90	6,45	0,40	8,50	0,15	0,08	0,30	
12,700	4,76	0,80	5,50	-	12,90	6,45	0,80	8,50	0,30	0,10	0,40	
6,350	2,38	0,40	2,80	-	6,50	3,25	0,40	4,20	0,08	0,07	0,25	
9,525	3,97	0,40	4,40	-	9,70	4,85	0,40	6,40	0,12	0,07	0,25	
9,525	3,97	0,80	4,40	-	9,70	4,85	0,80	6,40	0,16	0,10	0,35	
12,700	4,76	0,40	5,50	-	12,90	6,45	0,40	8,50	0,15	0,08	0,30	
12,700	4,76	0,80	5,50	-	12,90	6,45	0,80	8,50	0,30	0,10	0,40	
6,350	2,38	0,40	2,80	7º	10,41	5,20	0,40	6,90	0,10	0,05	0,20	
6,350	2,38	0,80	2,80	7º	9,83	4,92	0,80	6,50	0,15	0,08	0,30	
9,525	3,97	0,40	4,40	10º	15,91	7,96	0,40	10,50	0,10	0,05	0,20	
9,525	3,97	0,80	4,40	10º	15,33	7,67	0,80	10,15	0,15	0,08	0,30	
6,350	2,38	0,20	2,80	-	10,71	5,20	0,40	6,90	0,10	0,05	0,20	
6,350	2,38	0,40	2,80	-	10,41	5,21	0,80	6,50	0,15	0,08	0,30	
9,525	3,97	0,40	4,40	-	15,91	7,96	0,40	10,50	0,10	0,05	0,20	
9,525	3,97	0,80	4,40	-	15,33	7,67	0,80	10,15	0,15	0,08	0,30	
12,700	4,76	0,40	5,50	-	21,40	8,00	0,40	10,70	0,10	0,08	0,20	
12,700	4,76	0,80	5,50	-	20,83	7,84	0,80	10,45	0,15	0,10	0,30	

INSERTS FOR

HEAVY TURNING

Heavy turning entails precisely shaping large-scale components using robust machinery and specialized techniques. This process tackles formidable tasks such as shaping massive shafts, cylinders, and gears utilized in sectors like aerospace, energy, and transportation. It requires expertise, precision, and rigorous quality control.

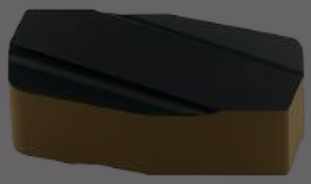
O torneamento pesado envolve a modelagem precisa de componentes em grande escala usando maquinaria robusta e técnicas especializadas. Este processo enfrenta tarefas formidáveis, como moldar eixos, cilindros e engrenagens maciças utilizadas em setores como aeroespacial, energia e transporte. Exige experiência, precisão e rigoroso controlo de qualidade.

El torneado pesado implica la modelación precisa de componentes a gran escala utilizando maquinaria robusta y técnicas especializadas. Este proceso aborda tareas formidables como la conformación de ejes, cilindros y engranajes masivos utilizados en sectores como el aeroespacial, energético y de transporte. Requiere experiencia, precisión y un riguroso control de calidad.

BAR PEELING > page 624

Inserts for refining blanks into polished bars, suitable for diverse applications. Versatile across materials, it streamlines production with specialized tools

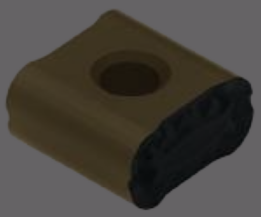
Pastilhas para refinar peças brutas em barras polidas, adequadas para diversas aplicações. Versátil em diferentes materiais, otimiza a produção com ferramentas especializadas | Plaquitas para refinar piezas en bruto en barras pulidas, adecuadas para diversas aplicaciones. Versátil en diferentes materiales, optimiza la producción con herramientas especializadas



RAILWAY > page 630

Inserts are designed to meet diverse railway machining needs, covering tasks such as handling new rails, re-profiling, managing crossings, joints, wheel-set production, and maintenance

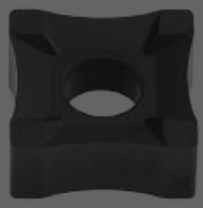
As pastilhas são projetadas para atender às diversas necessidades de maquinação ferroviária, abrangendo tarefas como o manuseio de carris novos, o reperfilamento, a gestão de cruzamentos, juntas, produção de conjuntos de rodas e manutenção | As pastilhas están diseñados para satisfacer las diversas necesidades de mecanizado ferroviario, cubriendo tareas como el manejo de rieles nuevos, el reperfilado, la gestión de cruces, juntas, la producción de conjuntos de ruedas y mantenimiento



SCARFING > page 640

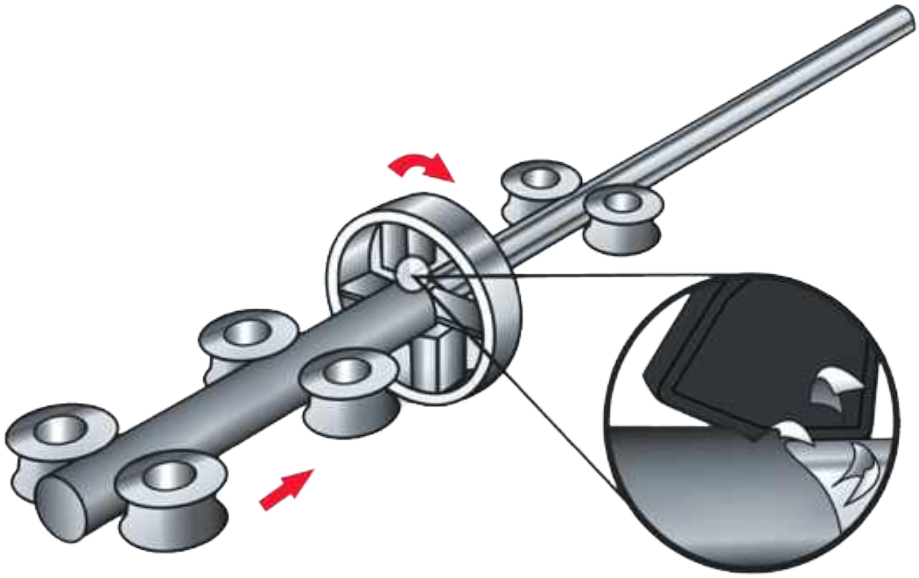
Scarfing is common in steel, pipeline, and metal industries for welded component quality. Inserts remove surface imperfections, ensuring smooth surfaces

Scarfing é comum nas indústrias de aço, tubulações e metalurgia para garantir a qualidade dos componentes soldados. As pastilhas removem imperfeições superficiais, garantindo superfícies lisas | Scarfing es común en las industrias del acero, tuberías y metalurgia para garantizar la calidad de los componentes soldados. Las pastillas eliminan imperfecciones superficiales, asegurando superficies lisas



BAR PEELING INSERTS

Bar Peeling is the machining process by which a raw forged blank is converted into a polished bar. During this peeling process, surface cracks and oxide layers are removed giving a perfect roundness with good surface and dimensional accuracy to the bar.
The range of materials that can be machined with these tools is vast and goes from all kind of Steels to Cast Iron parts.



The size of blank bar can go from 4 mm (157 inch) to over 400 mm (15.75 inch) in diameter.

The surface quality and dimensional tolerances are also high, which leads to less machining at later stages.

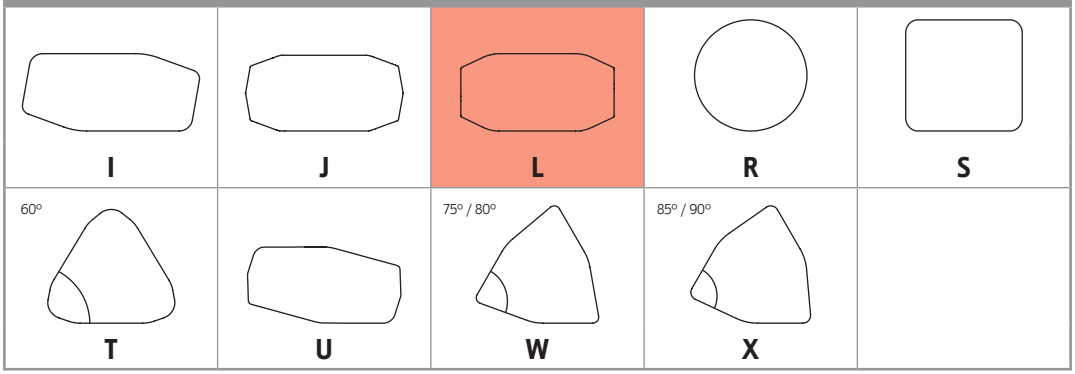
Our aim is at the same time improving your productivity (by removing maximal chips volume) and, at the same time, matching or surpassing your surface quality requirements. This is why our Bar Peeling program is vast, comprising both standard tools and also special custom-made solutions to every customer needs. Please don't hesitate to contact us regarding other possible geometries that we may have although not presented in this catalogue.

BAR PEELING INSERTS IDENTIFICATION SYSTEM

Sistema de identificação para pastilhas de torneamento de barra | Codificación para plaquitas de torneado de barra

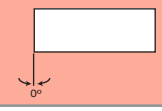
L	N	G	F	20	10	35	-	MP
1	2	3	4	5	6	7		8

1 - Insert Shape

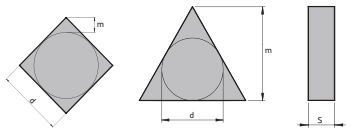


2 - Clearance Angle

N



3 - Tolerances



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.

4 - Insert type

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

5 - Length of Cutting Edge (LE)

The length of the secondary cutting edge is indicated in mm

13 mm	25 mm
14 mm	27 mm
15 mm	28 mm
17 mm	38 mm
20 mm	44 mm
22 mm	50 mm

6 - Thickness (S)

The length of the secondary cutting edge is indicated in mm

- 08 = 8,00 mm
- 09 = 9,52 mm
- 10 = 10,00 mm
- 12 = 12,00 mm
- 12 = 12,70 mm
- 13 = 13,00 mm
- 14 = 14,00 mm
- 18 = 18,00 mm

7 - Deph of Cut (AP)

Maximum depth of cut

- 20 = 2,00 mm
- 25 = 2,50 mm
- 35 = 3,50 mm
- 40 = 4,00 mm
- 80 = 8,00 mm

8 - Chip Breaker

Chip breaker according to Palbit geometries

FP	MH
ST	RP
MP	LH

BAR PEELING INSERTS RANGE

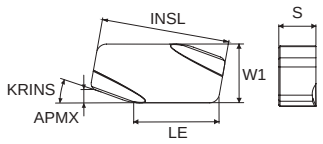
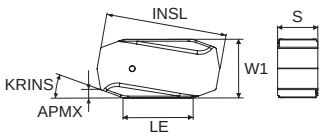
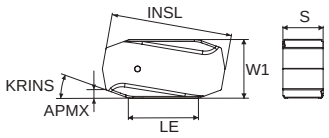
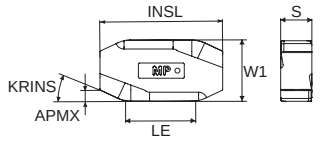
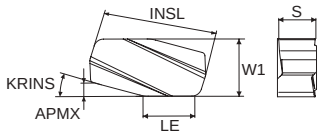
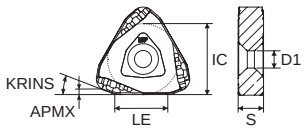
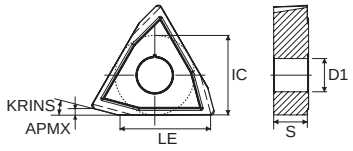
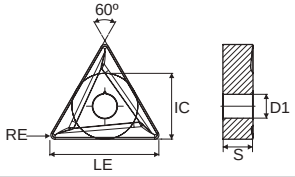
			P										M							K		
			CVD										CVD							CVD		
		(2) Grade code	L7	R2	L8	R3	U5	P1	V8	N2	S9	L9	U4	L8	U5	N2	P1	V8	V6	L5	L6	L9
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO / ANSI Reference	PH5115	PHG115	PH5125	PHG125	PHS225	PH5228	PHS228	PH5135	PHG135	PH5740	PHS215	PH5125	PHS225	PH5135	PH5228	PHS228	PHS240	PH5705	PH5320	PH5740
INGR-MP Rectangular 90º	1123828	INGR 221240-MP	◉	○	○									○								
JNGF-MP Rectangular 90º	1123830	JNGF 201220-MP	○		◉	○					○			◉								
	1123996	JNGF 201220-MP SP1			○									○								
	1123997	JNGF 201220-MP SP2	●		◉									◉							○	
	1124043	JNGF 271220-MP			◉							○		◉								○
JNGF-PM Rectangular 90º	1124452	JNGF 201220-PM		○									◉									
	1124567	JNGF 201220-PM SP		○																		
LNGF-MP Rectangular 90º	1123826	LNGF 201035-MP	○	◉	○			○						○			○				◉	
	1123827	LNGF 201235-MP	○	○	○									○								
UNGF-MP Rectangular 90º	1123829	UNGF 171240-MP	○		○	◉								○								
TNMJ-MP Triangular 60º	1123838	TNMJ 201025-MP	◬	●	◬	●	◉							◬	◉							
	1123843	TNMJ 201425-MP			◉	○								◉								
TNGM-MP Triangular 60º	1124104	TNGM 220812-MP			◉					◬				◉		◬						
TNMM-LH Triangular 60º	1124102	TNMM 441116-LH								○	◉					○						

◉ First choice | 1ª Escolha | 1ª Opción
○ Available under request | Disponível sob consulta | Disponible bajo consulta
● Stock Itens | Itens de stock
◬ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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

BAR PEELING INSERTS RANGE

Negative inserts | Pastilhas negativas | Plaquitas negativas

Dimensions (mm) Dimensões (mm) Dimensiones (mm)									Cutting Conditions Condições de Corte Condiciones de Corte						Technical Drawing Desenho Técnico Diseño Técnico
INSL	IC	LE	W1	S1	D1	RE	APMX	KRINS	AP (mm)	MIN	MAX	FN (mm/r)	MIN	MAX	
38,25	-	22,00	17,50	12,00	-	-	4,00	20	2,00	0,40	4,00	3,50	1,00	8,00	
36,90	-	20,00	18,00	12,35	-	-	2,00	20	1,50	1,00	2,00	3,50	1,50	6,00	
36,30	-	20,00	18,00	12,45	-	-	2,00	20	1,50	1,00	2,00	3,50	1,50	6,00	
36,50	-	20,00	18,00	12,45	-	-	2,00	20	1,50	1,00	2,00	3,50	1,50	6,00	
36,90	-	27,00	18,00	12,45	-	-	2,00	20	1,50	1,00	2,00	3,50	1,50	6,00	
37,52	-	21,00	18,00	12,45	-	-	3,00	20	1,50	1,00	2,00	4,00	2,00	6,00	
37,52	-	21,00	18,00	12,45	-	-	3,00	20	1,50	1,00	2,00	4,00	2,00	6,00	
40,00	-	20,00	20,00	10,00	-	-	3,50	25	2,00	0,80	3,50	2,50	1,00	6,50	
40,00	-	20,00	20,00	12,00	-	-	3,50	25	2,00	0,80	3,50	2,50	1,00	6,50	
36,50	-	17,00	18,00	12,00	-	-	4,00	15	1,50	0,35	4,00	2,00	1,00	5,00	
-	28,60	20,00	-	10,00	7,00	-	2,50	20	1,00	0,70	2,50	3,00	1,00	5,50	
-	28,60	20,00	-	14,00	7,00	-	2,50	20	1,00	0,70	2,50	3,00	1,00	5,50	
-	19,05	22,00	-	8,00	7,96	-	1,20	15	0,70	0,20	1,30	14,00	5,00	18,00	
-	25,40	41,70	-	11,50	9,20	1,60	-	-	12,00	2,00	25,00	0,80	0,50	1,60	

BAR PEELING INSERTS RANGE

			P										M							K		
			CVD										CVD							CVD		
		[2] Grade code	L7	R2	L8	R3	U5	P1	V8	N2	S9	L9	U4	L8	U5	N2	P1	V8	V6	L5	L6	L9
Inserts Pastilhas Plaquitas	[1] Geometry code	ISO / ANSI Reference	PH5115	PHG115	PH5125	PHG125	PHS225	PH5228	PHS228	PH5135	PHG135	PH5740	PHS215	PH5125	PHS225	PH5135	PH5228	PHS228	PHS240	PH5705	PH5320	PH5740
XNMJ-MP Special 85º	1123835	XNMJ 151380-MP	○		◉			◈		○				◉		○	◈					
XNMJ-MH Special 85º	1123836	XNMJ 151380-MH	○	○	◈			◉				○		◈			◉					○
XNGF-FP Special 85º	1123837	XNGF 150980-FP			○					○				○		○	◉					
XNGJ-RP Special 85º	1123834	XNGJ 151380-RP			○									○			◉					
WNGJ-MP Special 75º	1124041	WNGJ 130950-MP			◉	○		◈						◉			◈			○	◉	
RNMX-MP Round Rº	1123831	RNMX 381200-MP	○		○	◉			○					○			◉	○				
	1123832	RNMX 5018M0-MP	○		○				◉					○			○	◉				
RNMX-RP Round Rº	1123833	RNMX 5018M0-RP	○		○				○					○			◉	○				

◉ First choice | 1ª Escolha | 1ª Opción

◈ Stock Itens | Itens de stock

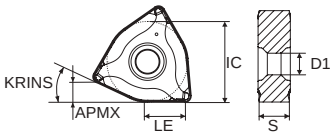
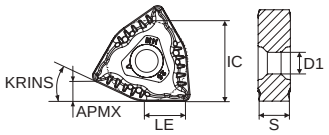
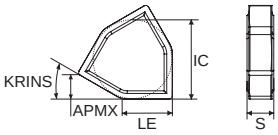
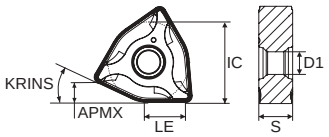
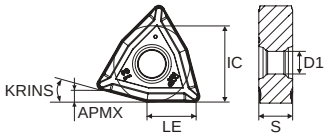
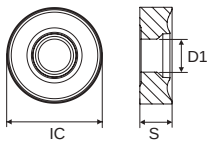
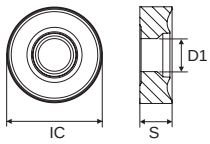
○ Available under request | Disponível sob consulta | Disponible bajo consulta

◬ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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

BAR PEELING INSERTS RANGE

Negative inserts | Pastilhas negativas | Plaquitas negativas

Dimensions (mm) Dimensões (mm) Dimensiones (mm)									Cutting Conditions Condições de Corte Condiciones de Corte						Technical Drawing Desenho Técnico Diseño Técnico
INSL	IC	LE	W1	S1	D1	RE	APMX	KRINS	AP (mm)	MIN	MAX	FN (mm/r)	MIN	MAX	
-	31,75	15,00	-	13,00	9,00	-	8,00	25,00	3,00	1,00	6,50	6,00	4,00	12,00	
-	31,75	15,00	-	13,00	9,00	-	8,00	25,00	3,00	1,00	6,50	6,00	4,00	12,00	
-	28,58	15,00	-	8,88	-	-	8,00	30,00	3,00	1,00	4,50	6,00	4,00	12,00	
-	31,75	15,00	-	13,00	9,00	-	8,00	25,00	3,00	1,00	6,50	6,00	4,00	12,00	
-	22,23	13,00	-	9,56	7,93	-	5,00	15,00	3,00	0,50	5,00	6,00	3,00	11,00	
-	38,10	-	-	12,70	13,00	-	-	-	4,00	2,00	8,00	2,00	1,00	4,00	
-	50,00	-	-	18,00	12,70	-	-	-	6,00	2,00	12,00	3,50	2,50	6,50	
-	50,00	-	-	18,00	12,70	-	-	-	6,00	2,00	12,00	6,00	4,00	10,50	

RAILWAY TURNING

Palbit is constantly investing in new technologies, research and development of cutting tools for the railway industry.

We supply a complete range of tooling solutions based on a wide experience and know-how to achieve high efficiency machining on new rails and weels as well as re-profiling, crossing rails, joints and more.

FACE TURNING

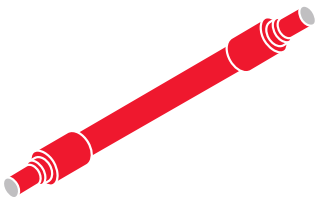
Inserts with MT-CVD coating grade and high wear resistance for the machining of forged steels providing longer tool file.

WHEEL TURNING

Inserts with special design geometry for wheel re-profiling providing productivity through a better chip evacuation. High built-up edge resistance and wear providing efficiency and increasing tool life.

EXTERNAL TURNING

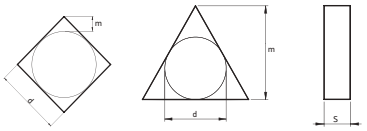
MT-CVD coating inserts with high wear resistance for turning long axle shafts.



RAILWAY INSERTS ISO IDENTIFICATION SYSTEM

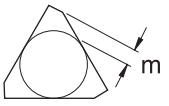
H	120°	M	86°
O	135°	V	35°
P	108°	W	80°
S	90°	L	90°
T	60°	A	85°
C	80°	B	82°
D	55°	K	55°
E	75°	R	
F	50°	X	Special

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	C	N	M	M
ANSI	C	N	M	M

4 - Insert symbol

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

palbit

RAILWAY INSERTS ISO IDENTIFICATION SYSTEM

Sistema de identificação ISO para pastilhas para a indústria ferroviária | Codificación ISO para plaquitas para ferrocarril

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

	1	2	3	4	5	6	7	8	9	10
	19	06	12 AN	E	N	-	HY	-	T	
	6	4	3	E	N	-	HY	-	T	

10 - Chip breaker geometries

	HY	HZ	RMM	RRM	RHR
NEGATIVE Chip breakers					
POSITIVE Chip breakers	RM	RR	ST		

T	Tangential

*only when required.

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.

CN - RHOMBIC 80° NEGATIVE

RÔMBICA 80° NEGATIVA | RÓMBICA 80° NEGATIVA

			P								M							K				N	S			
			CVD							PVD	CVD			PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	5D	R3	1D	S9	V5	G1	U4	U5	V6	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	PHG105	PHG115	PH2G115	PHG125	PH2G125	PHG135	PHG140	PH7910	PHS215	PHS225	PHS240	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
CNMM-HY Heavy to Roughing	1121608	CNMM 190612-HY			◯		🔶						🔶													
	1121252	CNMM 190616-HY		🔶	◯		◯						🔶													
	1121434	CNMM 190624-HY			◯	🔶	◯		🔶																	
	1121248	CNMM 250924-HY		🔶	◯	🔶	◯																			
CNMM-HZ Heavy to Roughing	1121607	CNMM 190612-HZ			◯	🔶	◯													🔶	🔶					
	1121251	CNMM 190616-HZ		🔶	◯	🔶	◯													🔶	🔶					
	1121435	CNMM 190624-HZ		🔶	◯	🔶	◯		🔶											🔶						
	1121247	CNMM 250924-HZ		△	◯		🔶		🔶											🔶						

🔶 First choice | 1ª Escolha | 1ª Opción
🔶 Stock Itens | Itens de stock
◯ Available under request | Disponível sob consulta | Disponible bajo consulta
△ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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

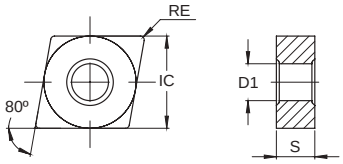
SN - SQUARE 90° NEGATIVE

QUADRADA 90° NEGATIVA | ESQUADRA 90° NEGATIVA

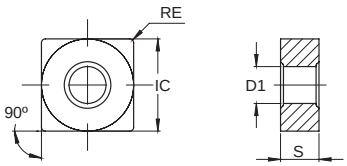
			P								M							K				N	S			
			CVD							PVD	CVD			PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	5D	R3	1D	S9	V5	G1	U4	U5	V6	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	PHG105	PHG115	PH2G115	PHG125	PH2G125	PHG135	PHG140	PH7910	PHS215	PHS225	PHS240	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
SNMM-HY Heavy to Roughing	1121606	SNMM 190612-HY		🔶	◯	🔶	◯		🔶				🔶								△					
	1121250	SNMM 190616-HY		🔶	◯	🔶	◯						◯													
	1121452	SNMM 190624-HY			◯		◯						◯													
	1121160	SNMM 250724-HY			🔶	🔶	◯		🔶				🔶													
	1121161	SNMM 250924-HY			◯		◯		🔶				🔶													
SNMM-HZ Heavy to Roughing	1121605	SNMM 190612-HZ		🔶	◯		◯													🔶	🔶					
	1121249	SNMM 190616-HZ			◯	🔶	◯		🔶											🔶	◯					
	1121440	SNMM 190624-HZ			◯	🔶	◯	◯												🔶	🔶					
	1121158	SNMM 250724-HZ		🔶	◯	🔶	🔶		🔶											🔶	◯					
	1123786	SNMM 250732-HZ			◯	🔶	◯																			
	1121159	SNMM 250924-HZ		🔶	◯	🔶	◯		🔶											🔶	◯					

🔶 First choice | 1ª Escolha | 1ª Opción
🔶 Stock Itens | Itens de stock
◯ Available under request | Disponível sob consulta | Disponible bajo consulta
△ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		IC	S	RE	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
CNMM 190612-HY	CNMM 643-HY	19,050	6,35	1,20	7,94	6,00	2,00	12,00	0,50	0,35	0,80
CNMM 190616-HY	CNMM 644-HY	19,050	6,35	1,60	7,94	6,00	2,00	12,00	0,60	0,35	1,00
CNMM 190624-HY	CNMM 646-HY	19,050	6,35	2,40	7,94	6,00	2,00	12,00	0,60	0,35	1,20
CNMM 250924-HY	CNMM 866-HY	25,400	9,52	2,40	9,12	8,00	2,50	15,00	0,70	0,40	1,40
CNMM 190612-HZ	CNMM 643-HZ	19,050	6,35	1,20	7,94	10.00	2.40	12,00	0,65	0,50	0,80
CNMM 190616-HZ	CNMM 644-HZ	19,050	6,35	1,60	7,94	10,00	2,40	12,00	0,80	0,50	1,10
CNMM 190624-HZ	CNMM 646-HZ	19,050	6,35	2,40	7,94	10,00	3,20	12,00	1,00	0,60	1,60
CNMM 250924-HZ	CNMM 866-HZ	25,400	9,52	2,40	9,12	10,00	3,20	17,00	1,00	0,60	1,60



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		IC	S	RE	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
SNMM 190612-HY	SNMM 643-HY	19,050	6,35	1,20	7,94	6,00	2,00	12,00	0,60	0,35	0,90
SNMM 190616-HY	SNMM 644-HY	19,050	6,35	1,60	7,94	6,00	2,00	12,00	0,60	0,35	1,20
SNMM 190624-HY	SNMM 646-HY	19,050	6,35	2,40	7,94	6,00	2,00	12,00	1,00	0,60	1,60
SNMM 250724-HY	SNMM 856-HY	25,400	7,94	2,40	9,12	8,50	2,50	15,00	1,00	0,60	1,60
SNMM 250924-HY	SNMM 866-HY	25,400	9,52	2,40	9,12	8,50	3,00	15,00	1,00	0,60	1,60
SNMM 190612-HZ	SNMM 643-HZ	19,050	6,35	1,20	7,94	10,00	2,40	13,00	0,60	0,35	0,90
SNMM 190616-HZ	SNMM 644-HZ	19,050	6,35	1,60	7,94	10,00	2,40	13,00	0,60	0,35	1,20
SNMM 190624-HZ	SNMM 646-HZ	19,050	6,35	2,40	7,94	10,00	3,20	13,00	1,00	0,60	1,60
SNMM 250724-HZ	SNMM 856-HZ	25,400	7,94	2,40	9,12	10,00	3,20	17,00	1,00	0,60	1,60
SNMM 250732-HZ	SNMM 858-HZ	25,400	7,94	3,20	9,12	10,00	3,20	17,00	1,20	0,80	1,80
SNMM 250924-HZ	SNMM 866-HZ	25,400	9,52	2,40	9,12	10,00	3,20	17,00	1,00	0,60	1,60

LNUX - RECTANGULAR 90° NEGATIVE

RECTANGULAR 90° NEGATIVA | RETANGULAR 90° NEGATIVA

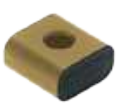
			P								M							K				N	S			
			CVD							PVD	CVD			PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	5D	R3	1D	S9	V5	G1	U4	U5	V6	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	PHG105	PHG115	PH2G115	PHG125	PH2G125	PHG135	PHG140	PH7910	PHS215	PHS225	PHS240	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
LNUX-RMM																										
	1123640	LNUX 321248-RMM			○		○																			
Medium																										
LNUX-RRM																										
	1123639	LNUX 321248-RRM		◈	○		○														○					
Roughing																										
LNUX-RHR																										
	1123643	LNUX 321248-RHR			○		○																			
Heavy Roughing																										

◈ First choice | 1ª Escolha | 1ª Opción
◈ Stock Itens | Itens de stock
○ Available under request | Disponível sob consulta | Disponible bajo consulta
△ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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

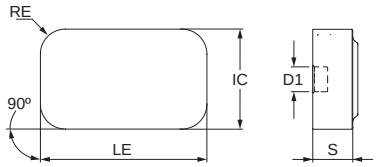
LNUX-T - TANGENTIAL 90° NEGATIVE

TANGENCIAL 90° NEGATIVA | TANGENCIAL 90° NEGATIVA

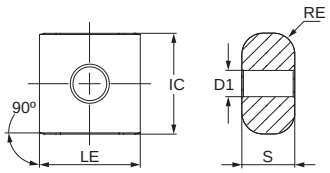
			P								M							K				N	S			
			CVD							PVD	CVD			PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	5D	R3	1D	S9	V5	G1	U4	U5	V6	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	PHG105	PHG115	PH2G115	PHG125	PH2G125	PHG135	PHG140	PH7910	PHS215	PHS225	PHS240	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
LNUX-RMM-T																										
	1121953	LNUX 191940-RMM-T		◈	○	◈	○																			
	1122005	LNUX 301940-RMM-T		◈	○	◈	◈																			
Medium																										
LNUX-RRM-T																										
	1120404	LNUX 191940-RRM-T		◈	○	◈	○																			
	1123985	LNUX 301940-RRM-T		◈	○	△	◈																			
Roughing																										
LNUX-RHR-T																										
	1191628	LNUX 191940-RHR-T		◈	○	◈	◈																			
	1191969	LNUX 301940-RHR-T		◈	○	◈	○																			
Heavy Roughing																										

◈ First choice | 1ª Escolha | 1ª Opción
◈ Stock Itens | Itens de stock
○ Available under request | Disponível sob consulta | Disponible bajo consulta
△ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)					Cutting Conditions Condições de Corte Condiciones de Corte					
		LE	IC	RE	S	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
LNUX 321248-RMM	LNUX 321248-RMM	31,75	19,05	4,76	12,70	7,87	3,00	1,50	18,00	0,80	0,30	1,50
LNUX 321248-RRM	LNUX 321248-RRM	31,75	19,05	4,76	12,70	7,87	3,00	1,50	18,00	1,00	0,80	1,50
LNUX 321248-RHR	LNUX 321248-RHR	31,75	19,05	4,76	12,70	7,87	3,00	1,50	18,00	1,20	0,50	1,80



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)					Cutting Conditions Condições de Corte Condiciones de Corte					
		LE	IC	RE	S	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
LNUX 191940-RMM-T	LNUX 191940-RMM-T	19,05	19,05	4,00	10,00	6,35	2,50	1,60	8,00	0,80	0,30	1,50
LNUX 301940-RMM-T	LNUX 301940-RMM-T	30,00	19,05	4,00	12,00	6,35	3,00	1,60	12,00	0,80	0,30	1,50
LNUX 191940-RRM-T	LNUX 191940-RRM-T	19,05	19,05	4,00	10,00	6,35	5,50	2,50	10,00	1,00	0,80	1,50
LNUX 301940-RRM-T	LNUX 301940-RRM-T	30,00	19,05	4,00	12,00	6,35	4,50	2,50	13,00	1,00	0,50	2,00
LNUX 191940-RHR-T	LNUX 191940-RHR-T	19,05	19,05	4,00	10,00	6,35	5,50	2,50	10,00	1,20	0,50	1,80
LNUX 301940-RHR-T	LNUX 301940-RHR-T	30,00	19,05	4,00	12,00	6,35	6,50	3,00	15,00	1,20	0,50	1,80

RC - ROUND Rº POSITIVE

REDONDA Rº POSITIVA | REDONDA Rº POSITIVA

			P											M						K				N	S			
			CVD							PVD				CVD		PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	L7	5D	L8	1D	S9	V5	G1	X5	G4	T1	U4	U5	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	PHG105	PH5115	PH2G115	PH5125	PH2G125	PHG135	PHG140	PH7910	PHP910	PH7920	PHP920	PHS215	PHS225	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
RCMR-RR Roughing to Medium	1122009	RCMR 2507M0-RR		◇		◇																						
	1122008	RCMR 3209M0-RR		◇		◇																						

First choice | 1ª Escolha | 1ª Opción
Stock Itens | Itens de stock
Available under request | Disponível sob consulta | Disponible bajo consulta
Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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

RC - ROUND Rº POSITIVE

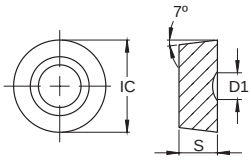
REDONDA Rº POSITIVA | REDONDA Rº POSITIVA

			P											M						K				N	S			
			CVD							PVD				CVD		PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	5D	R3	1D	S9	V5	G1	X5	G4	T1	U4	U5	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	PHG105	PHG115	PH2G115	PHG125	PH2G125	PHG135	PHG140	PH7910	PHP910	PH7920	PHP920	PHS215	PHS225	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
RCMX-ST Roughing to Medium	1121428	RCMX 2006M0-ST		◈	○	◈	○	◈	◈												◈							
	1121429	RCMX 2507M0-ST			◈	◈	○																					
	1123910	RCMX 3009M0-ST			○		○																					
	1121430	RCMX 3209M0-ST			○		◈																					
RCMX-RM Roughing to Medium	1123678	RCMX 3209M0-RM		◇	○		◈														◈							
RCMX-RR Roughing to Medium	1123667	RCMX 2507M0-RR		◈	○	◇	○																					
	1123666	RCMX 3209M0-RR				◈	◈		◈																			

First choice | 1ª Escolha | 1ª Opción
Stock Itens | Itens de stock
Available under request | Disponível sob consulta | Disponible bajo consulta
Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

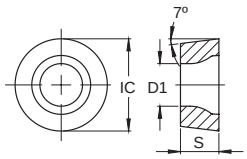
Insert Order Code: (1) Geometry code + (2) Grade code

RELIEF ANGLE 7°



ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		IC	S	RE	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
RCMR 2507M0-RR	RCMR 2507M0-RR	25,00	7,94	-	9,00	5,00	3,20	8,00	1,80	0,80	2,50
RCMR 3209M0-RR	RCMR 3209M0-RR	32,00	9,52	-	12,00	6,50	3,20	13,00	1,80	0,80	2,50

RELIEF ANGLE 7°

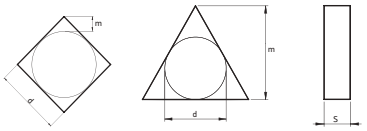


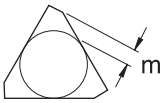
ISO Reference	ANSI Reference	Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte					
		IC	S	RE	D1	AP (mm)	MIN	MAX	FN (mm/rev)	MIN	MAX
RCMX 2006M0-ST	RCMX 2006M0-ST	20,00	6,35	-	6,50	5,00	2,00	8,00	0,63	0,20	2,00
RCMX 2507M0-ST	RCMX 2507M0-ST	25,00	7,94	-	7,20	6,30	2,50	10,00	0,79	0,25	2,50
RCMX 3209M0-ST	RCMX 3209M0-ST	30,00	9,55	-	10,00	7,00	3,00	11,00	0,85	0,30	2,80
RCMX 3209M0-ST	RCMX 3209M0-ST	32,00	9,52	-	9,50	8,00	3,20	12,80	1,01	0,32	3,20
RCMX 3209M0-RM	RCMX 3209M0-RM	32,00	9,52	-	9,50	6,50	3,20	13,00	1,80	0,80	2,50
RCMX 2507M0-RR	RCMX 2507M0-RR	25,00	7,94	-	7,20	5,00	3,20	8,00	1,80	0,80	2,50
RCMX 3209M0-RR	RCMX 3209M0-RR	32,00	9,52	-	9,50	6,50	3,20	13,00	1,80	0,80	2,50

SCARFING 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





Triangular inserts with a facet (secondary cutting edge)

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.

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	N	M	A
ANSI	S	N	M	A

4 - Insert symbol

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

palbit

SCARFING INSERTS ISO IDENTIFICATION SYSTEM

Sistema de identificação ISO para pastilhas de Scarfing | Codificación ISO para plaquitas de Scarfing

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

15	06	12 / AN	E	N	-	R025
5	4	3	E	N	-	R025

10 - Profiling Radius

Example: R025	PRFRAD = 25

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.

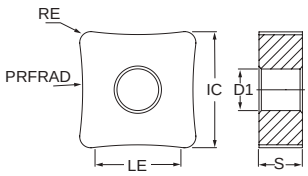
9* - Cutting direction

Shape	Hand	Symbol
	Right	R
	Left	L
	None	N

*only when required.

SCARFING - SNMA

NEGATIVE INSERTS | PASTILHAS NEGATIVAS | PLAQUITAS NEGATIVAS



				P	M	Dimensions (mm) Dimensões (mm) Dimensiones (mm)						Tube Diameter (mm)
				CVD	CVD							
		(2) Grade code		L8	L8							
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	ANSI Reference	PH5125	PH5125	IC	S	LE	RE	D1	PRFRAD	
SNMA Roughing	1123927	SNMA 150612-R020	SNMA 543-R020	○	○	15,88	6,35	10	1,2	6,35	20	23-29
	1123928	SNMA 150612-R022	SNMA 543-R022	○	○	15,88	6,35	10	1,2	6,35	22	25-32
	1123929	SNMA 150612-R025	SNMA 543-R025	○	○	15,88	6,35	10	1,2	6,35	25	29-36
	1123930	SNMA 150612-R027	SNMA 543-R027	○	○	15,88	6,35	10	1,2	6,35	27	31-39
	1123931	SNMA 150612-R030	SNMA 543-R030	○	○	15,88	6,35	10	1,2	6,35	30	35-44
	1123932	SNMA 150612-R035	SNMA 543-R035	○	○	15,88	6,35	10	1,2	6,35	35	40-51
	1123933	SNMA 150612-R040	SNMA 543-R040	○	○	15,88	6,35	10	1,2	6,35	40	46-58
	1123934	SNMA 150612-R050	SNMA 543-R050	○	○	15,88	6,35	10	1,2	6,35	50	58-73
	1123935	SNMA 150612-R060	SNMA 543-R060	○	○	15,88	6,35	10	1,2	6,35	60	69-87
	1123936	SNMA 150612-R070	SNMA 543-R070	○	○	15,88	6,35	10	1,2	6,35	70	80-95
	1123937	SNMA 190612-R030	SNMA 643-R030	○	○	19,05	6,35	12	1,2	7,94	30	35-44
	1123938	SNMA 190612-R040	SNMA 643-R040	○	○	19,05	6,35	12	1,2	7,94	40	46-58
	1123939	SNMA 190612-R050	SNMA 643-R050	○	○	19,05	6,35	12	1,2	7,94	50	58-73
	1123940	SNMA 190612-R060	SNMA 643-R060	○	○	19,05	6,35	12	1,2	7,94	60	69-87
	1123941	SNMA 190612-R070	SNMA 643-R070	○	○	19,05	6,35	12	1,2	7,94	70	80-95
	1123942	SNMA 190612-R080	SNMA 643-R080	○	○	19,05	6,35	12	1,2	7,94	80	92-116
	1123943	SNMA 190612-R090	SNMA 643-R090	○	○	19,05	6,35	12	1,2	7,94	90	104-131
	1123944	SNMA 250924-R000	SNMA 866-R000	○	○	25,40	9,52	17	2,4	9,12	0	-
	1123945	SNMA 250924-R060	SNMA 866-R060	○	○	25,40	9,52	17	2,4	9,12	60	69-87
	1123946	SNMA 250924-R070	SNMA 866-R070	○	○	25,40	9,52	17	2,4	9,12	70	80-95
	1123947	SNMA 250924-R080	SNMA 866-R080	○	○	25,40	9,52	17	2,4	9,12	80	92-116
	1123948	SNMA 250924-R100	SNMA 866-R100	○	○	25,40	9,52	17	2,4	9,12	100	115-145
	1123949	SNMA 250924-R150	SNMA 866-R150	○	○	25,40	9,52	17	2,4	9,12	150	165-215
	1123950	SNMA 250924-R200	SNMA 866-R200	○	○	25,40	9,52	17	2,4	9,12	200	230-290

First choice | 1ª Escolha | 1ª Opción

Stock Itens | Itens de stock

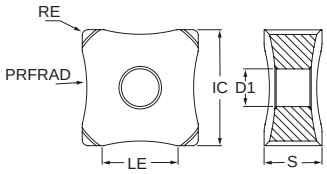
○ Available under request | Disponível sob consulta | Disponible bajo consulta

Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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

SCARFING - SNMX

NEGATIVE INSERTS | PASTILHAS NEGATIVAS | PLAQUITAS NEGATIVAS



				P	M	Dimensions (mm) Dimensões (mm) Dimensiones (mm)						Tube Diameter (mm)
				CVD	CVD							
		(2) Grade code		L8	L8							
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	ANSI Reference	PH5125	PH5125	IC	S	LE	RE	D1	PRFRAD	
	1123879	SNMX 150708-R000	SNMX 552-R000	○	○	15,88	7,94	10	0,8	5,16	0	-
	1123880	SNMX 150708-R007	SNMX 552-R007	○	○	15,88	7,94	10	0,8	5,16	7	08-10
	1123881	SNMX 150708-R009	SNMX 552-R009	○	○	15,88	7,94	10	0,8	5,16	9	10-13
	1123882	SNMX 150708-R011	SNMX 552-R011	○	○	15,88	7,94	10	0,8	5,16	11	13-16
	1123883	SNMX 150708-R013	SNMX 552-R013	○	○	15,88	7,94	10	0,8	5,16	13	15-19
	1123884	SNMX 150708-R015	SNMX 552-R015	○	○	15,88	7,94	10	0,8	5,16	15	17-22
	1123885	SNMX 150708-R018	SNMX 552-R018	○	○	15,88	7,94	10	0,8	5,16	18	21-26
	1123886	SNMX 150708-R020	SNMX 552-R020	◎	◎	15,88	7,94	10	0,8	5,16	20	23-29
	1123887	SNMX 150708-R022	SNMX 552-R022	○	○	15,88	7,94	10	0,8	5,16	22	25-32
	1123888	SNMX 150708-R025	SNMX 552-R025	○	○	15,88	7,94	10	0,8	5,16	25	29-36
	1123889	SNMX 150708-R027	SNMX 552-R027	○	○	15,88	7,94	10	0,8	5,16	27	31-39
	1123890	SNMX 150708-R030	SNMX 552-R030	○	○	15,88	7,94	10	0,8	5,16	30	35-44
	1123891	SNMX 150708-R035	SNMX 552-R035	○	○	15,88	7,94	10	0,8	5,16	35	40-51
	1123892	SNMX 150708-R040	SNMX 552-R040	○	○	15,88	7,94	10	0,8	5,16	40	46-58
	1123893	SNMX 150708-R045	SNMX 552-R045	○	○	15,88	7,94	10	0,8	5,16	45	52-65
	1123894	SNMX 150708-R050	SNMX 552-R050	○	○	15,88	7,94	10	0,8	5,16	50	58-73
	1123895	SNMX 150708-R060	SNMX 552-R060	○	○	15,88	7,94	10	0,8	5,16	60	69-87
SNMX	1124461	SNMX 150708-R070	SNMX 552-R070	○	○	15,88	7,94	10	0,8	5,16	70	80-95
	1124462	SNMX 150708-R075	SNMX 552-R075	○	○	15,88	7,94	10	0,8	5,16	75	86-102
	1123896	SNMX 190912-R000	SNMX 663-R000	○	○	19,05	9,12	12	1,2	6,35	0	-
Medium to Finishing	1122012	SNMX 190912-R020	SNMX 663-R020	◎	◎	19,05	9,12	12	1,2	6,35	20	23-29
	1123897	SNMX 190912-R030	SNMX 663-R030	◎	◎	19,05	9,12	12	1,2	6,35	30	35-44
	1123898	SNMX 190912-R040	SNMX 663-R040	◎	◎	19,05	9,12	12	1,2	6,35	40	46-58
	1123899	SNMX 190912-R050	SNMX 663-R050	◎	◎	19,05	9,12	12	1,2	6,35	50	58-73
	1122013	SNMX 190912-R060	SNMX 663-R060	○	○	19,05	9,12	12	1,2	6,35	60	69-87
	1123900	SNMX 190912-R070	SNMX 663-R070	○	○	19,05	9,12	12	1,2	6,35	70	80-95
	1123901	SNMX 190912-R080	SNMX 663-R080	○	○	19,05	9,12	12	1,2	6,35	80	92-116
	1123902	SNMX 190912-R090	SNMX 663-R090	○	○	19,05	9,12	12	1,2	6,35	90	104-131
	1123903	SNMX 190912-R100	SNMX 663-R100	○	○	19,05	9,12	12	1,2	6,35	100	115-145
	1123864	SNMX 251216-R000	SNMX 884-R000	◎	◎	25,40	12,70	17	1,6	9,12	0	-
	1123904	SNMX 251216-R050	SNMX 884-R050	◎	◎	25,40	12,70	17	1,6	9,12	50	58-73
	1122015	SNMX 251216-R080	SNMX 884-R080	◎	◎	25,40	12,70	17	1,6	9,12	80	92-116
	1123905	SNMX 251216-R090	SNMX 884-R090	◎	◎	25,40	12,70	17	1,6	9,12	90	104-131
	1123906	SNMX 251216-R100	SNMX 884-R100	◎	◎	25,40	12,70	17	1,6	9,12	100	115-145
	1122016	SNMX 251216-R120	SNMX 884-R120	◎	◎	25,40	12,70	17	1,6	9,12	120	138-174
	1123907	SNMX 251216-R150	SNMX 884-R150	◎	◎	25,40	12,70	17	1,6	9,12	150	165-215
	1123908	SNMX 251216-R200	SNMX 884-R200	◎	◎	25,40	12,70	17	1,6	9,12	200	230-290
	1123909	SNMX 251216-R250	SNMX 884-R250	◎	◎	25,40	12,70	17	1,6	9,12	250	275-315

◎ First choice | 1ª Escolha | 1ª Opción

◎ Stock Itens | Itens de stock

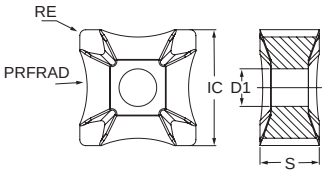
○ Available under request | Disponível sob consulta | Disponible bajo consulta

◬ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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

SCARFING - SNMG

NEGATIVE INSERTS | PASTILHAS NEGATIVAS | PLAQUITAS NEGATIVAS



				P	M	Dimensions (mm) Dimensões (mm) Dimensiones (mm)						Tube Diameter (mm)
				CVD	CVD							
		(2) Grade code		L7	L8							
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	ANSI Reference	PH5115	PH5125	IC	S	A	Re	D1	PRFRAD	
SNMG Finishing	1123951	SNMG 15M808-R000	SNMG 55.12-R000	○	○	15,88	8,15	10	0,8	5,16	0	-
	1123952	SNMG 15M808-R007	SNMG 55.12-R007	○	○	15,88	8,15	10	0,8	5,16	7	08-10
	1123953	SNMG 15M808-R009	SNMG 55.12-R009	○	○	15,88	8,15	10	0,8	5,16	9	10-13
	1123954	SNMG 15M808-R011	SNMG 55.12-R011	◈	○	15,88	8,15	10	0,8	5,16	11	13-16
	1123955	SNMG 15M808-R013	SNMG 55.12-R013	◈	○	15,88	8,15	10	0,8	5,16	13	15-19
	1123956	SNMG 15M808-R015	SNMG 55.12-R015	◈	○	15,88	8,15	10	0,8	5,16	15	17-22
	1123957	SNMG 15M808-R018	SNMG 55.12-R018	◈	○	15,88	8,15	10	0,8	5,16	18	21-26
	1123958	SNMG 15M808-R020	SNMG 55.12-R020	◈	○	15,88	8,15	10	0,8	5,16	20	23-29
	1123959	SNMG 15M808-R022	SNMG 55.12-R022	○	○	15,88	8,15	10	0,8	5,16	22	25-32
	1123960	SNMG 15M808-R025	SNMG 55.12-R025	◈	○	15,88	8,15	10	0,8	5,16	25	29-36
	1123961	SNMG 15M808-R027	SNMG 55.12-R027	◈	○	15,88	8,15	10	0,8	5,16	27	31-39
	1123962	SNMG 15M808-R030	SNMG 55.12-R030	◈	○	15,88	8,15	10	0,8	5,16	30	35-44
	1123963	SNMG 15M808-R035	SNMG 55.12-R035	◈	○	15,88	8,15	10	0,8	5,16	35	40-51
	1123964	SNMG 15M808-R040	SNMG 55.12-R040	◈	○	15,88	8,15	10	0,8	5,16	40	46-58
	1123965	SNMG 15M808-R045	SNMG 55.12-R045	◈	○	15,88	8,15	10	0,8	5,16	45	52-65
	1123966	SNMG 15M808-R050	SNMG 55.12-R050	○	○	15,88	8,15	10	0,8	5,16	50	58-73
	1123967	SNMG 15M808-R060	SNMG 55.12-R060	◈	○	15,88	8,15	10	0,8	5,16	60	69-87
	1123968	SNMG 19M808-R000	SNMG 65.13-R000	○	○	19,05	8,15	12	0,8	8,00	20	-
	1123969	SNMG 19M808-R010	SNMG 65.13-R010	○	○	19,05	8,15	12	0,8	8,00	10	12-15
	1123970	SNMG 19M808-R020	SNMG 65.13-R020	◈	○	19,05	8,15	12	0,8	8,00	20	23-29
	1123971	SNMG 19M808-R030	SNMG 65.13-R030	◈	○	19,05	8,15	12	0,8	8,00	30	35-44
	1123972	SNMG 19M808-R040	SNMG 65.13-R040	○	○	19,05	8,15	12	0,8	8,00	40	46-58
	1123973	SNMG 19M808-R050	SNMG 65.13-R050	○	○	19,05	8,15	12	0,8	8,00	50	58-73
	1123974	SNMG 19M808-R060	SNMG 65.13-R060	○	○	19,05	8,15	12	0,8	8,00	60	69-87
	1123975	SNMG 19M808-R070	SNMG 65.13-R070	○	○	19,05	8,15	12	0,8	8,00	70	80-95
	1123976	SNMG 19M808-R080	SNMG 65.13-R080	○	○	19,05	8,15	12	0,8	8,00	80	92-116
	1123977	SNMG 19M808-R090	SNMG 65.13-R090	○	○	19,05	8,15	12	0,8	8,00	90	104-131
	1123978	SNMG 19M808-R100	SNMG 65.13-R100	○	○	19,05	8,15	12	0,8	8,00	100	115-145

◈ First choice | 1ª Escolha | 1ª Opción

◈ Stock Itens | Itens de stock

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

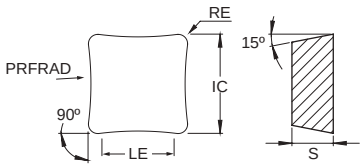
◈ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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

SCARFING - SDMX

POSITIVE INSERTS | PASTILHAS POSITIVAS | PLAQUITAS POSITIVAS

RELIEF ANGLE 15°



				P	M	Dimensions (mm) Dimensões (mm) Dimensiones (mm)						Tube Diameter (mm)
				CVD	CVD							
		(2) Grade code		L8	9B							
Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	ANSI Reference	PH5125	PHY125	IC	S	LE	RE	D1	PRFRAD	
SDMX Medium to Finishing	1124752	SDMX 250616-R000	SDMX 250616-R000	○	○	25,40	6,35	20	1,60	-	0	-
	1124822	SDMX 250616-R080	SDMX 250616-R080	○	◈	25,40	6,35	20	1,60	-	80	92-116
	1124753	SDMX 250616-R180	SDMX 250616-R180	○	○	25,40	6,35	20	1,60	-	180	210-270
	1124754	SDMX 250616-R300	SDMX 250616-R300	○	◈	25,40	6,35	20	1,60	-	300	340-410
	1124755	SDMX 250616-R400	SDMX 250616-R400	○	○	25,40	6,35	20	1,60	-	400	440-520
	1124756	SDMX 250616-R550	SDMX 250616-R550	○	○	25,40	6,35	20	1,60	-	550	600-700
	1124757	SDMX 350900-R000	SDMX 350900-R000	○	○	35,00	9,60	30	-	-	0	-
	1124758	SDMX 350900-R105	SDMX 350900-R105	○	○	35,00	9,60	30	-	-	105	115-145
	1124759	SDMX 350900-R145	SDMX 350900-R145	○	○	35,00	9,60	30	-	-	145	160-210
	1124760	SDMX 350900-R300	SDMX 350900-R300	○	○	35,00	9,60	30	-	-	300	340-410
	1124761	SDMX 350900-R400	SDMX 350900-R400	○	○	35,00	9,60	30	-	-	400	440-520
	1124762	SDMX 350900-R550	SDMX 350900-R550	○	○	35,00	9,60	30	-	-	550	600-700

◈ First choice | 1ª Escolha | 1ª Opción

◈ Stock Itens | Itens de stock

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

◈ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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

TOOLHOLDERS

EXTERNAL

These external turning toolholders offer various fixing styles to meet the diverse needs of the industry. Thanks to their robustness and versatility, they ensure reliability and high productivity. They enable precise finishes and tight tolerances, directly contributing to manufacturing efficiency.

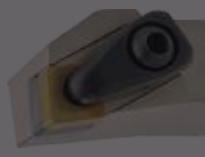
Estes suportes de torneamento externo oferecem estilos de fixação variados para as mais diversas necessidades da indústria. Graças à sua robustez e versatilidade, garantem fiabilidade e elevada produtividade. Permitem acabamentos precisos e tolerâncias apertadas, contribuindo diretamente para a eficiência dos processos de fabrico.

Estos porta herramienta de torneado externo ofrecen una variedad de estilos de fijación para satisfacer las diversas necesidades de la industria. Gracias a su robustez y versatilidad, garantizan confiabilidad y alta productividad. Permiten acabados precisos y tolerancias ajustadas, contribuyendo directamente a la eficiencia de los procesos de fabricación.

Top Clamp Toolholders (C) > page 652

> Highly rigid top clamp with shim
Grampo altamente rígido com calço | Brida altamente rígida con calzo

Dimple Lock Toolholders (D) > page 667



> Stable and rigid top clamp for negative inserts with a through hole
Grampo estável e rígido para pastilhas negativas com furo passante | Brida estable y rígida para plaquitas negativos con agujero pasante

> With or without directional coolant
Com ou sem refrigeração direcional | Con o sin refrigeración direccional

Wedge Clamp (M) & Double Lock (M-K) Toolholders > page 679

> Double security clamping with eccentric pin, common for negative inserts
Dupla fixação de segurança com pino excêntrico, comum para pastilhas negativas | Doble sujeción de seguridad con pasador excéntrico, común para plaquitas negativas

Lever Lock Toolholders (P) > page 694

> Locking design for negative inserts, avoiding chip interference
Design de bloqueio para pastilhas negativas, evitando interferência de aparas | Diseño de bloqueo para plaquitas negativas, evitando interferencia de virutas

Center Screw Toolholders (S) > page 717

> Solution for ensuring easy insert exchange without interference
Solução ideal para garantir a troca fácil da pastilha sem interferência | Solución para garantizar un intercambio fácil de la plaquita sin interferencias

> With or without directional coolant
Com ou sem refrigeração direcional | Con o sin refrigeración direccional

PSC System (PSC) > page 743

> Fast, easy tool changing
Troca rápida de ferramenta | Cambio rápido de herramienta

Enhance productivity
with external toolholders

CODE KEY FOR EXTERNAL TURNING TOOLHOLDERS

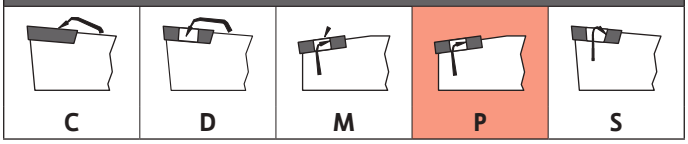
Sistema de codificação para suportes de torneamento externo (ISO) | Codificación de herramientas de torneado exterior (ISO)

PSC40	P	C	L	N	R	25	25	M	12	-	A
1	2	3	4	5	6	7	8	9	10		11

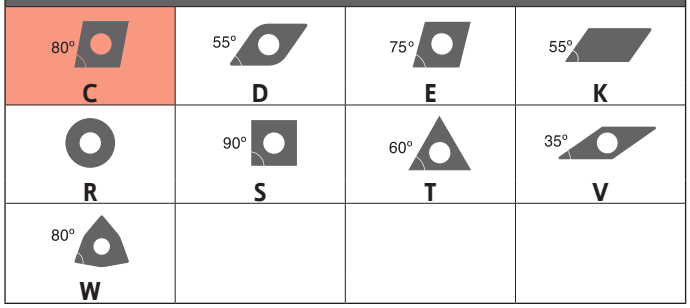
1 - Modular System and Size (Only for PSC system)

PSC - Polygonal Shank Coupling | **Size:** 32 - 40 - 50 - 63

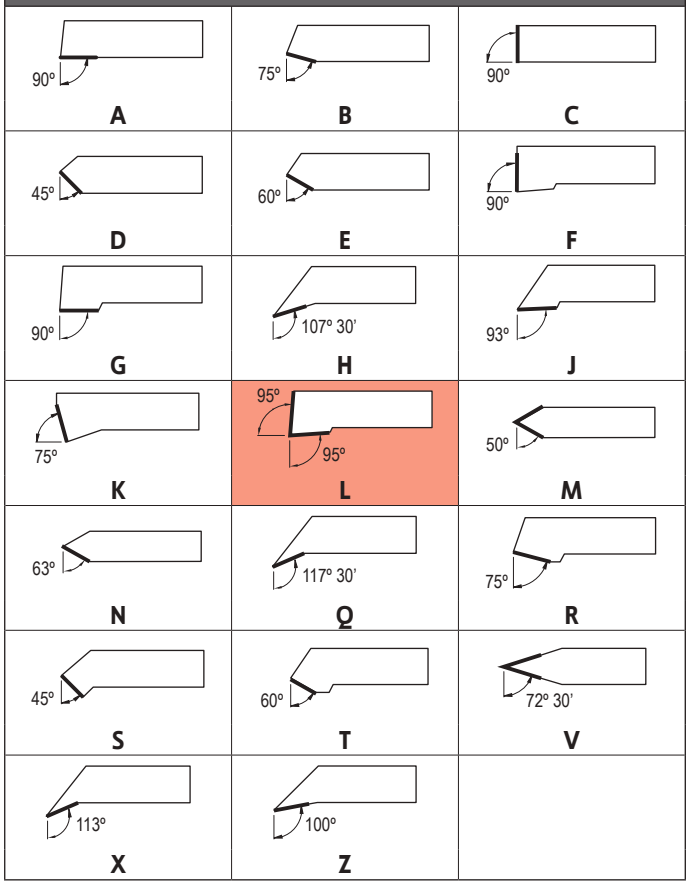
2 - Inserts Clamping System



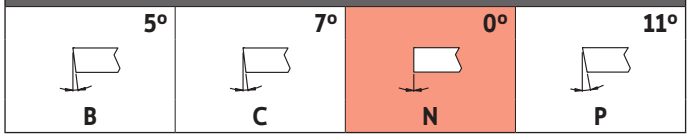
3 - Insert Shape



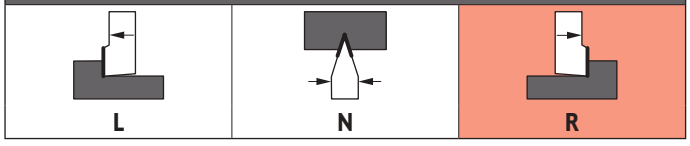
4 - Toolholder Leading Angle



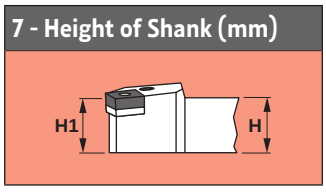
5 - Inserts Clearance Angle



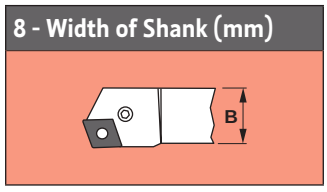
6 - Tool Hand



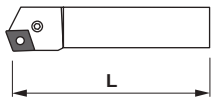
7 - Height of Shank (mm)



8 - Width of Shank (mm)

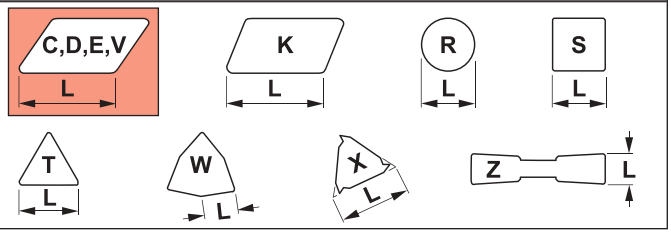


9 - Length of Holder (mm)



D	60	P	170
E	70	R	200
F	80	S	250
G	90	T	300
H	100	U	350
K	125	V	400
L	140	X	Special
M	150		

10 - Length of Inserts Cutting Edge (mm)



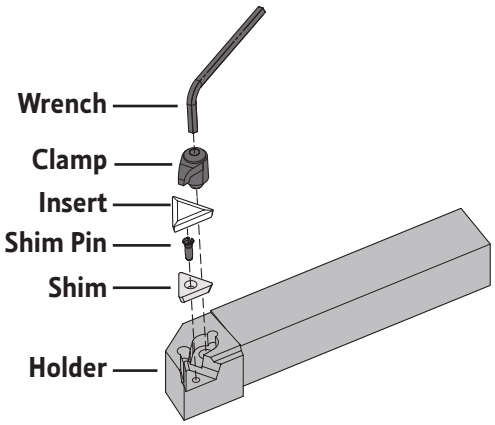
11 - Bar Type (Suppressed when without internal coolant)

A	Steel shank with internal coolant	

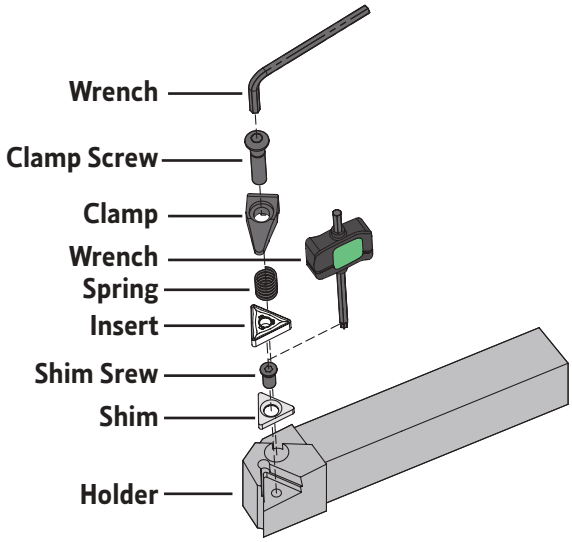
CLAMPING SYSTEMS FOR EXTERNAL TOOLHOLDERS

Sistemas de fixação para ferramentas de torneamento externo | Sistemas de fijación para herramientas de torneado exterior

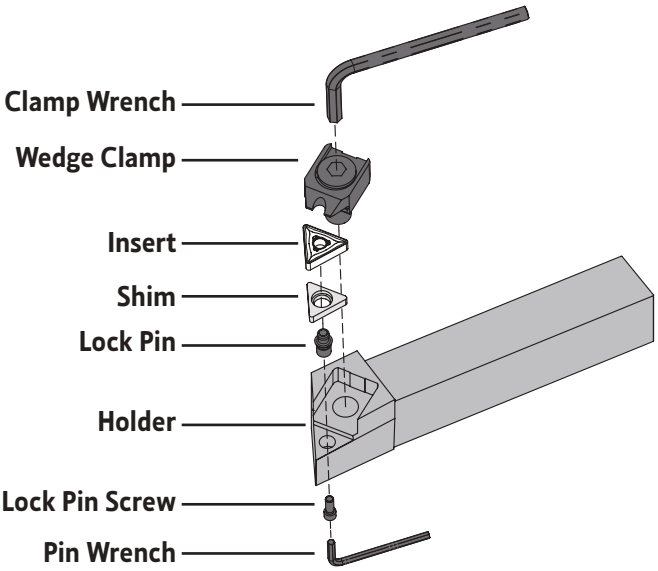
(C) TOP CLAMP SYSTEM



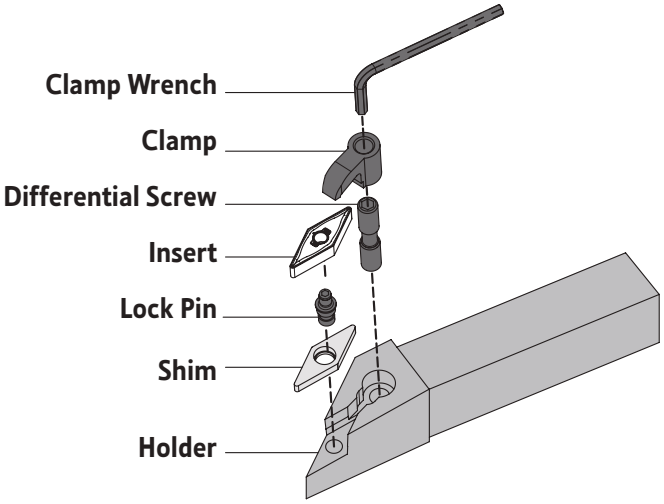
(D) DIMPLE LOCK SYSTEM



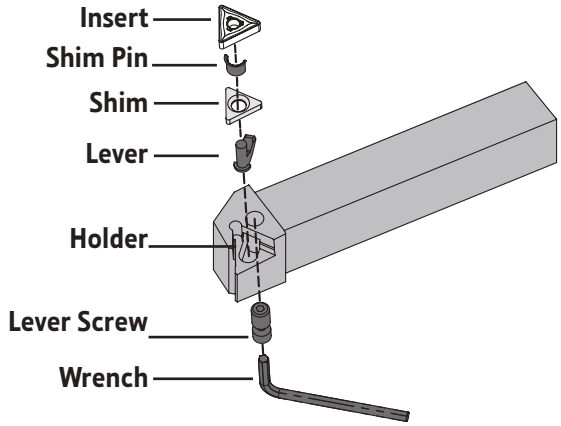
(M) WEDGE CLAMP SYSTEM



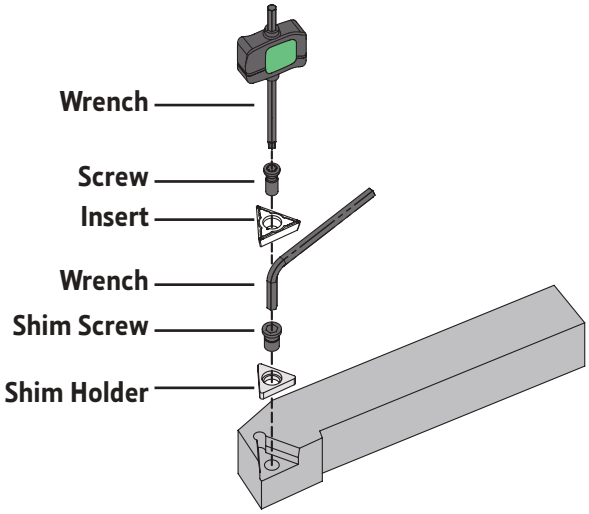
(M-K) DOUBLE LOCK SYSTEM



(P) LEVER LOCK SYSTEM

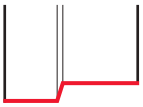
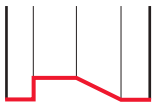
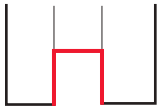


(S) CENTER SCREW SYSTEM



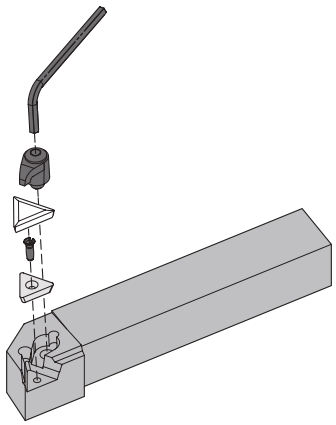
SUITABLE CLAMPING SYSTEM DEFINITION

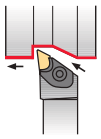
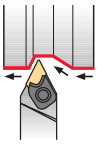
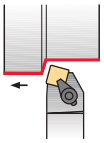
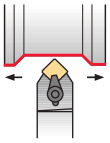
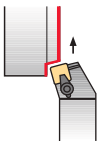
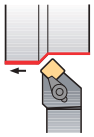
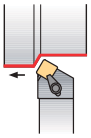
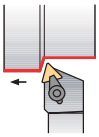
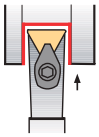
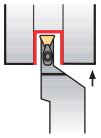
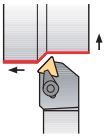
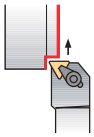
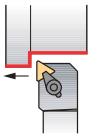
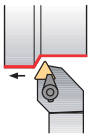
Definição do sistema de fixação | Definición del sistema de Fijación

External machining \ Operation		Longitudinal turning	Profiling	Facing	Plunging
					
Negative inserts	(C) TOP CLAMP SYSTEM	●	●	●	●
	(D) DIMPLE LOCK SYSTEM	●●	●●	●●	
	(M) WEDGE CLAMP SYSTEM - (M-K) DOUBLE LOCK SYSTEM	●	●	●	
	(P) LEVER LOCK SYSTEM	●	●	●	
Positive inserts	(C) TOP CLAMP SYSTEM	●	●	●	●
	(P) LEVER LOCK SYSTEM		●		
	(S) CENTER SCREW SYSTEM	●●	●●	●●	

●● Recomended Insert Shape ● Alternative Insert Shape

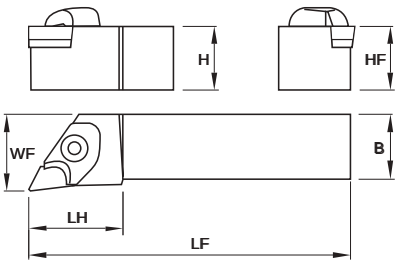
(C) TOP CLAMP SYSTEM

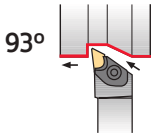


CKJN 93°  PAGE C - 653 KNUX 1604...	**CKNN 63°**  PAGE C - 654 KNUX 1604...	**CSBP 75°**  PAGE C - 655 SP.. 0903.. SP.. 1203.. SP.. 1904..	**CSDP 45°**  PAGE C - 656 SP.. 0903.. SP.. 1203..	**CSKP 75°**  PAGE C - 657 SP.. 0903.. SP.. 1203.. SP.. 1904..	**CSSP 45°**  PAGE C - 658 SP.. 0903.. SP.. 1203.. SP.. 1904..
CSTP 60°  PAGE C - 659 SP..0903.. SP..1203..	**CTBP 75°**  PAGE C - 660 TP.. 1103.. TP.. 1603.. TP.. 2204..	**CTCP N 90°**  PAGE C - 661 TP.. 1103.. TP.. 1603.. TP.. 2204..	**CTCP 90°**  PAGE C - 662 TP.. 1103.. TP.. 1603.. TP.. 2204..	**CTDP 45°**  PAGE C - 663 TP.. 1103.. TP.. 1603.. TP.. 2204..	**CTFP 90°**  PAGE C - 664 TP.. 1103.. TP.. 1603.. TP.. 2204..
CTGP 90°  PAGE C - 665 TP.. 1103.. TP.. 1603.. TP.. 2204..	**CTTP 60°**  PAGE C - 666 TP.. 0902.. TP.. 1103.. TP.. 2204..				

CKJN 93° Toolholders | Ferros de torno | Herramientas de torneado

(C) TOP CLAMP TOOLHOLDERS





Axial: 0°
Radial: -6°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212034800	212034900	CKJN R/L 2020 K16	20	20	125	34	30	KNUX 1604..	0,390	◈	◈
212026300	212035000	CKJN R/L 2525 M16	25	25	150	34	32	KNUX 1604..	0,700	◈	◈
212010300	212260400	CKJN R/L 3225 P16	32	25	170	34	32	KNUX 1604..	1,000	◈	◈
212260500	212260600	CKJN R/L 3232 P16	32	32	170	34	40	KNUX 1604..	1,250	◈	◈
212260700	212260800	CKJN R/L 4025 R16	40	25	200	34	32	KNUX 1604..	1,500	◈	◈

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

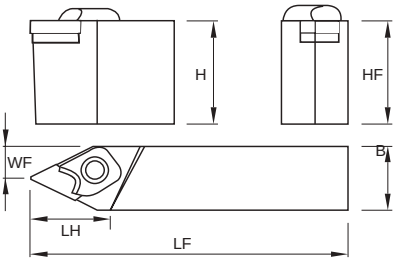
SPARE PARTS Acessórios | Repuestos

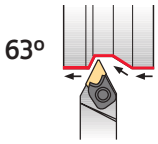
Order separately

Cutter Reference	Shim	Shim Pin	Shim Pin Punch	Spring	Clamp	Screw	Wrench
CKJN R 2020 K16	CK160500	BE03000	BF04813	M09513	GAW1400	DW142600	SS40
CKJN R 2525 M16	CK160500	BE03000	BF04815	M09513	GAW1400	DW142600	SS40
CKJN R 3225 P16	CK160500	BE03000	BF04815	M09513	GAW1400	DW142600	SS40
CKJN R 3232 P16	CK160500	BE03000	BF04815	M09513	GAW1400	DW142600	SS40
CKJN R 4025 R16	CK160500	BE03000	BF04815	M09513	GAW1400	DW142600	SS40
CKJN L 2020 K16	CK160501	BE03000	BF04813	M09513	GAW1401	DW142600	SS40
CKJN L 2525 M16	CK160501	BE03000	BF04815	M09513	GAW1401	DW142600	SS40
CKJN L 3225 P16	CK160501	BE03000	BF04815	M09513	GAW1401	DW142600	SS40
CKJN L 3232 P16	CK160501	BE03000	BF04815	M09513	GAW1401	DW142600	SS40
CKJN L 4025 R16	CK160501	BE03000	BF04815	M09513	GAW1401	DW142600	SS40

CKNN 63° Toolholders | Ferros de torno | Herramientas de torneado

(C) TOP CLAMP TOOLHOLDERS





Axial: -2,75°
Radial: -5,25°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212260900	212261000	CKNN R/L 4025 R16	40	25	200	37	14,3	KNUX 1604..	1,500	⚙	⚙
212261100	212261200	CKNN R/L 5032 S16	50	32	250	37	16,8	KNUX 1604..	3,000	⚙	⚙

⚙ Stock item | Produto de stock | Itens de stock

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

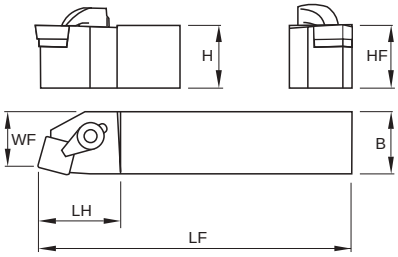
SPARE PARTS Acessórios | Repuestos

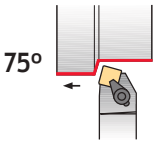
Order separately

Cutter Reference	Shim	Shim Pin	Shim Pin Punch	Spring	Clamp	Screw	Wrench
CKNN R 4025 R16	CK160500	BE03000	BF04815	M09513	GAW1400	DW142600	SS40
CKNN R 5032 S16	CK160500	BE03000	BF04815	M09513	GAW1400	DW142600	SS40
CKNN L 4025 R16	CK160501	BE03000	BF04815	M09513	GAW1401	DW142600	SS40
CKNN L 5032 S16	CK160501	BE03000	BF04815	M09513	GAW1401	DW142600	SS40

CSBP 75° Toolholders | Ferros de torno | Herramientas de torneado

(C) TOP CLAMP TOOLHOLDERS





Axial: 1,50°
Radial: 5,75°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212042000	212261300	CSBP R/L 1212 F09	12	12	80	22	11	SP..0903..	0,070	◈	◈
212261400	212261500	CSBP R/L 1616 H09	16	16	100	22	13	SP..0903..	0,200	◈	◈
212261600	212261700	CSBP R/L 2020 K09	20	20	125	22	17	SP..0903..	0,400	◈	◈
212261800	212033900	CSBP R/L 2020 K12	20	20	125	34	17	SP..1203..	0,400	◈	◈
212034000	212034100	CSBP R/L 2525 M12	25	25	150	34	22	SP..1203..	0,700	◈	◈
212261900	212262000	CSBP R/L 3225 P12	32	25	170	34	22	SP..1203..	1,000	◈	◈
212262100	212262200	CSBP R/L 3232 P19	32	32	170	40	27	SP..1904..	1,250	◈	◈
212262300	212262400	CSBP R/L 4040 S19	40	40	250	40	35	SP..1904..	3,000	◈	◈
212262500	212262600	CSBP R/L 5050 T19	50	50	300	40	43	SP..1904..	5,650	◈	◈

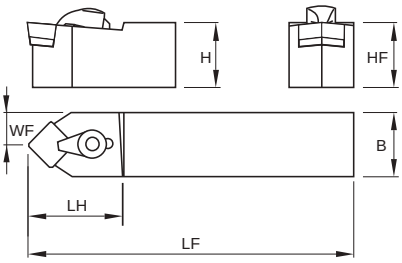
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

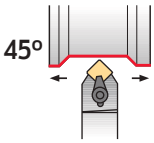
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Complementary Accessories - Flat Inserts						
	Shim	Shim Pin	Clamp	Wrench	Clamp	Chip Breaker 1	Chip Breaker 2
CSBP R/L 1212 F09	CS090300	BE02100	GS05001	SS25	GS05004	QCS0900	-
CSBP R/L 1616 H09	CS090300	BE02100	GS05001	SS25	GS05004	QCS0900	-
CSBP R/L 2020 K09	CS090300	BE02100	GS05001	SS25	GS05004	QCS0900	-
CSBP R/L 2020 K12	CS120300	BE02100	GS06000	SS30	GS05005	QCS1200	QCS1201
CSBP R/L 2525 M12	CS120300	BE02100	GS06000	SS30	GS05005	QCS1200	QCS1201
CSBP R/L 3225 P12	CS120300	BE02100	GS06000	SS30	GS05005	QCS1200	QCS1201
CSBP R/L 3232 P19	CS190300	BE03000	GS08000	SS40	GS08001	QCS1900	QCS1901
CSBP R/L 4040 S19	CS190300	BE03000	GS08000	SS40	GS08001	QCS1900	QCS1901
CSBP R/L 5050 T19	CS190300	BE03000	GS08000	SS40	GS08001	QCS1900	QCS1901

CSDP 45° Toolholders | Ferros de torno | Herramientas de torneado

(C) TOP CLAMP TOOLHOLDERS





Axial: 4,25°
Radial: 4,25°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212262700	212262800	CSDP R/L 1010 E09	10	10	70	22	5,6	SP.. 0903..	0,030	●	●
212262900	212263000	CSDP R/L 1212 F09	12	12	80	22	7,6	SP.. 0903..	0,070	●	●
212263100	212263200	CSDP R/L 1616 H09	16	16	100	22	11,6	SP.. 0903..	0,200	●	●
212263300	212263400	CSDP R/L 2020 K12	20	20	125	28	14,0	SP.. 1203..	0,400	●	●
212263500	212263600	CSDP R/L 2525 M12	25	25	150	28	19,0	SP.. 1203..	0,700	●	●
212263700		CSDP N 1010 E09	10	10	70	22	5,0	SP.. 0903..	0,030	●	
212263800		CSDP N 1212 F09	12	12	80	22	6,0	SP.. 0903..	0,070	●	
212263900		CSDP N 1616 H09	16	16	100	22	8,0	SP.. 0903..	0,200	●	
212018400		CSDP N 2020 K12	20	20	125	28	10,0	SP.. 1203..	0,400	●	
212264000		CSDP N 2525 M12	25	25	150	28	12,5	SP.. 1203..	0,700	●	

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

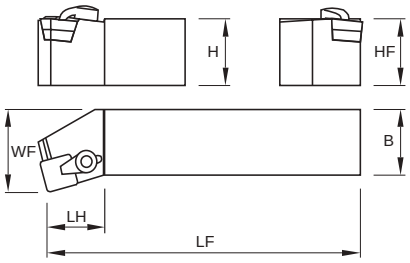
SPARE PARTS Acessórios | Repuestos

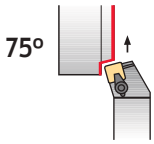
Complementary Accessories - Flat Inserts

Cutter Reference	Shim	Shim Pin	Clamp	Wrench	Clamp	Chip Breaker 1	Chip Breaker 2
CSDP R/L 1010 E09	-	-	GS05000	SS25	-	QCS0901	QCS0902
CSDP R/L 1212 F09	CS090300	BE02100	GS05001	SS25	GS05004	QCS0901	QCS0902
CSDP R/L 1616 H09	CS090300	BE02100	GS05001	SS25	GS05004	QCS0901	QCS0902
CSDP R/L 2020 K12	CS120300	BE02100	GS06000	SS30	GS05005	QCS1202	QCS1203
CSDP R/L 2525 M12	CS120300	BE02100	GS06000	SS30	GS05005	QCS1202	QCS1203
CSDP N 1010 E09	-	-	GS05000	SS25	-	QCS0901	QCS0902
CSDP N 1212 F09	CS090300	BE02100	GS05001	SS25	GS05004	QCS0901	QCS0902
CSDP N 1616 H09	CS090300	BE02100	GS05001	SS25	GS05004	QCS0901	QCS0902
CSDP N 2020 K12	CS120300	BE02100	GS06000	SS30	GS05005	QCS1202	QCS1203
CSDP N 2525 M12	CS120300	BE02100	GS06000	SS30	GS05005	QCS1202	QCS1203

CSKP 75° Toolholders | Ferros de torno | Herramientas de torneado

(C) TOP CLAMP TOOLHOLDERS





Axial: 5,75°
Radial: 1,5°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212042100	212264100	CSKP R/L 1212 F09	12	12	80	18	16	SP..0903..	0,070	◈	◈
212264200	212264300	CSKP R/L 1616 H09	16	16	100	22	20	SP..0903..	0,200	◈	◈
212264400	212264500	CSKP R/L 2020 K09	20	20	125	22	25	SP..0903..	0,400	◈	◈
212034200	212034300	CSKP R/L 2020 K12	20	20	125	28	25	SP..1203..	0,400	◈	◈
212036000	212034400	CSKP R/L 2525 M12	25	25	150	28	32	SP..1203..	0,700	◈	◈
212264600	212264700	CSKP R/L 3225 P12	32	25	170	28	32	SP..1203..	1,000	◈	◈
212264800	212264900	CSKP R/L 3232 P19	32	32	170	42	40	SP..1904..	1,250	◈	◈
212265000	212265100	CSKP R/L 4040 S19	40	40	250	42	50	SP..1904..	3,000	◈	◈
212265200	212265300	CSKP R/L 5050 T19	50	50	300	42	60	SP..1904..	5,650	◈	◈

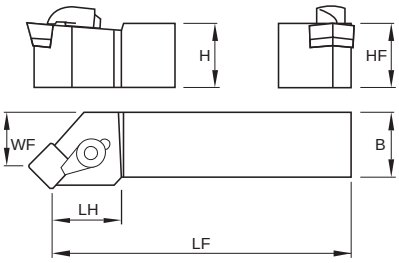
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

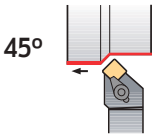
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Complementary Accessories - Flat Inserts						
	Shim	Shim Pin	Clamp	Wrench	Clamp	Chip Breaker 1	Chip Breaker 2
CSKP R/L 1212 F09	CS090300	BE02100	GS05001	SS25	GS05004	QCS0900	-
CSKP R/L 1616 H09	CS090300	BE02100	GS05001	SS25	GS05004	QCS0900	-
CSKP R/L 2020 K09	CS090300	BE02100	GS05001	SS25	GS05004	QCS0900	-
CSKP R/L 2020 K12	CS120300	BE02100	GS06000	SS30	GS05005	QCS1200	QCS1201
CSKP R/L 2525 M12	CS120300	BE02100	GS06000	SS30	GS05005	QCS1200	QCS1201
CSKP R/L 3225 P12	CS120300	BE02100	GS06000	SS30	GS05005	QCS1200	QCS1201
CSKP R/L 3232 P19	CS190300	BE03000	GS08000	SS40	GS08001	QCS1900	QCS1901
CSKP R/L 4040 S19	CS190300	BE03000	GS08000	SS40	GS08001	QCS1900	QCS1901
CSKP R/L 5050 T19	CS190300	BE03000	GS08000	SS40	GS08001	QCS1900	QCS1901

CSSP 45° Toolholders | Ferros de torno | Herramientas de torneado

(C) TOP CLAMP TOOLHOLDERS





Axial: 4,25°
Radial: 4,25°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212019000	212018800	CSSP R/L 1212 F09	12	12	80	22	16	SP.. 0903..	0,070	●	●
212265400	212265500	CSSP R/L 1616 H09	16	16	100	22	20	SP.. 0903..	0,200	●	●
212034500	212034600	CSSP R/L 2020 K12	20	20	125	22	25	SP.. 1203..	0,400	●	●
212036100	212034700	CSSP R/L 2525 M12	25	25	150	28	32	SP.. 1203..	0,700	●	●
212265600	212265700	CSSP R/L 3225 P12	32	25	170	28	32	SP.. 1203..	1,000	●	●
212265800	212265900	CSSP R/L 3232 P19	32	32	170	42	40	SP.. 1904..	1,250	●	●
212266000	212266100	CSSP R/L 4040 S19	40	40	250	42	50	SP.. 1904..	3,000	●	●

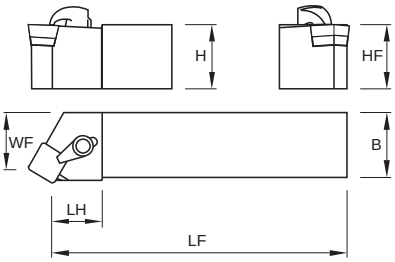
● Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

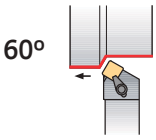
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Pin	Clamp	Wrench	Complementary Accessories - Flat Inserts: Clamp	Chip Breaker 1	Chip Breaker 2
CSSP R/L 1212 F09	CS090300	BE02100	GS05001	SS25	GS05004	QCS0901	QCS0902
CSSP R/L 1616 H09	CS090300	BE02100	GS05001	SS25	GS05004	QCS0901	QCS0902
CSSP R/L 2020 K12	CS120300	BE02100	GS06000	SS30	GS05005	QCS1202	QCS1203
CSSP R/L 2525 M12	CS120300	BE02100	GS06000	SS30	GS05005	QCS1202	QCS1203
CSSP R/L 3225 P12	CS120300	BE02100	GS06000	SS30	GS05005	QCS1202	QCS1203
CSSP R/L 3232 P19	CS190300	BE03000	GS08000	SS40	GS08001	QCS1902	QCS1903
CSSP R/L 4040 S19	CS190300	BE03000	GS08000	SS40	GS08001	QCS1902	QCS1903

CSTP 60° Toolholders | Ferros de torno | Herramientas de torneado

(C) TOP CLAMP TOOLHOLDERS





Axial: 3°
Radial: 5,25°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212266200	212266300	CSTP R/L 1616 H09	16	16	100	22	13	SP..0903..	0,200	⊛	⊛
212266400	212266500	CSTP R/L 2020 K09	20	20	125	22	17	SP..0903..	0,350	⊛	⊛
212266600	212266700	CSTP R/L 2020 K12	20	20	125	28	17	SP..1203..	0,400	⊛	⊛
212266800	212266900	CSTP R/L 2525 M12	25	25	150	28	22	SP..1203..	0,700	⊛	⊛

⊛ Stock item | Produto de stock | Itens de stock

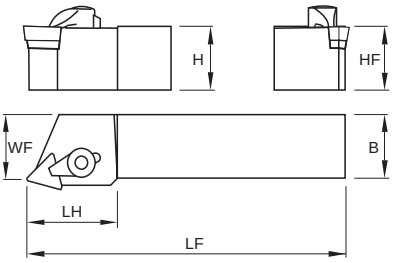
◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

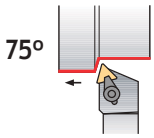
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Complementary Accessories - Flat Inserts						
	Shim	Shim Pin	Clamp	Wrench	Clamp	Chip Breaker 1	Chip Breaker 2
CSTP R/L 1616 H09	CS090300	BE02100	GS05001	SS25	GS05004	QCS0900	-
CSTP R/L 2020 K09	CS090300	BE02100	GS05001	SS25	GS05004	QCS0900	-
CSTP R/L 2020 K12	CS120300	BE02100	GS06000	SS30	GS05005	QCS1200	QCS1201
CSTP R/L 2525 M12	CS120300	BE02100	GS06000	SS30	GS05005	QCS1200	QCS1201

CTBP 75° Toolholders | Ferros de torno | Herramientas de torneado

(C) TOP CLAMP TOOLHOLDERS





Axial: 1,5°
Radial: 5,75°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212267000	212267100	CTBP R/L 1212 F11	12	12	80	18	11	TP.. 1103..	0,070	◉	◉
212267200	212267300	CTBP R/L 1616 H11	16	16	100	22	13	TP.. 1103..	0,200	◉	◉
212267400	212267500	CTBP R/L 2020 K16	20	20	125	28	17	TP.. 1603..	0,400	◉	◉
212267600	212267700	CTBP R/L 2525 M16	25	25	150	28	22	TP.. 1603..	0,700	◉	◉

◉ Stock item | Produto de stock | Itens de stock

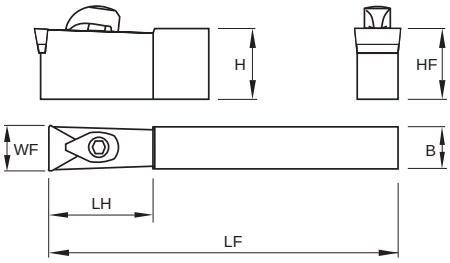
○ Available under request | Disponível sobre consulta | Disponible bajo consulta

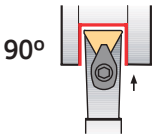
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Pin	Clamp	Wrench	Complementary Accessories - Flat Inserts: Clamp	Chip Breaker 1	Chip Breaker 2
CTBP R/L 1212 F11	-	-	GS05001	SS25	GS05004	QCT1100	-
CTBP R/L 1616 H11	-	-	GS05001	SS25	GS05004	QCT1100	-
CTBP R/L 2020 K16	CT160301	BE02100	GS06000	SS30	GS05005	QCT1600	QCT1601
CTBP R/L 2525 M16	CT160301	BE02100	GS06000	SS30	GS05005	QCT1600	QCT1601

CTCP N 90° Toolholders | Ferros de torno | Herramientas de torneado

(C) TOP CLAMP TOOLHOLDERS





Axial: 6°
Radial: 0°

Order Code	Reference	Dimensions (mm)					Insert	WT	Stock
		HF = H	B	LF	LH	WF			
212267800	CTCP N 1009 E11	10	9	70	22	11	TP.. 1103..	0,040	◈
212267900	CTCP N 2009 K11	20	9	125	22	11	TP.. 1103..	0,150	◈
212268000	CTCP N 2509 R11	25	9	200	22	11	TP.. 1103..	0,350	◈
212268100	CTCP N 2513 R16	25	13	200	28	16	TP.. 1603..	0,500	◈
212268200	CTCP N 2518 R22	25	18	200	34	22	TP.. 2204..	0,650	◈
212268300	CTCP N 4018 R22	40	18	200	34	22	TP.. 2204..	1,100	◈

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

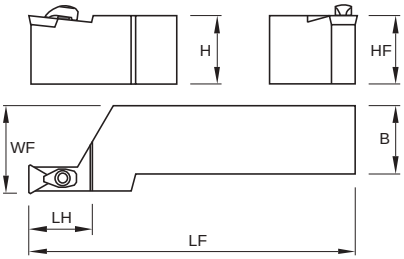
SPARE PARTS Acessórios | Repuestos

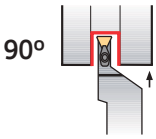
Complementary Accessories - Flat Inserts

Cutter Reference	Shim	Shim Pin	Clamp	Wrench	Chip Breaker 1	Chip Breaker 2
CTCP N 1009 E11	-	-	GS04000	SS25	QCT1100	QCT1101
CTCP N 2009 K11	-	-	GS04000	SS25	QCT1100	QCT1101
CTCP N 2509 R11	-	-	GS04000	SS25	QCT1100	QCT1101
CTCP N 2513 R16	CT160301	BE02100	GS05002	SS30	QCT1600	QCT1601
CTCP N 2518 R22	CT220301	BE03000	GS08000	SS40	QCT2200	QCT2201
CTCP N 4018 R22	CT220301	BE03000	GS08000	SS40	QCT2200	QCT2201

CTCP 90° Toolholders | Ferros de torno | Herramientas de torneado

(C) TOP CLAMP TOOLHOLDERS





Axial: 6º
Radial: 0º

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212268400	212268500	CTCP R/L 1212 F11	12	12	80	22	16	TP.. 1103..	0,070	◈	◈
212268600	212268700	CTCP R/L 1616 H11	16	16	100	22	20	TP.. 1103..	0,200	◈	◈
212268800	212268900	CTCP R/L 2020 K11	20	20	125	22	25	TP.. 1103..	0,400	◈	◈
212269000	212269100	CTCP R/L 2525 M11	25	25	150	22	32	TP.. 1103..	0,700	◈	◈
212269200	212269300	CTCP R/L 3225 P16	32	25	170	28	32	TP.. 1603..	1,000	◈	◈
212269400	212269500	CTCP R/L 3232 P16	32	32	170	28	40	TP.. 1603..	1,250	◈	◈
212269600	212269700	CTCP R/L 3225 P22	32	25	170	34	32	TP.. 2204..	1,000	◈	◈
212269800	212269900	CTCP R/L 3232 P22	32	32	170	34	40	TP.. 2204..	1,250	◈	◈

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

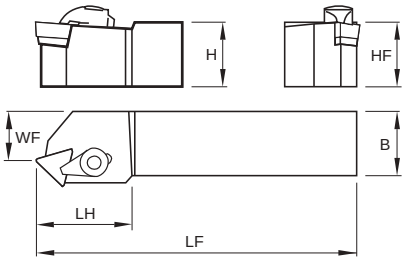
SPARE PARTS Acessórios | Repuestos

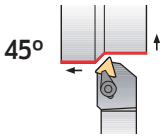
Complementary Accessories - Flat Inserts

Cutter Reference	Shim	Shim Pin	Clamp	Wrench	Chip Breaker 1	Chip Breaker 2
CTCP R/L 1212 F11	-	-	GS04000	SS25	QCT1100	QCT1101
CTCP R/L 1616 H11	-	-	GS04000	SS25	QCT1100	QCT1101
CTCP R/L 2020 K11	-	-	GS04000	SS25	QCT1100	QCT1101
CTCP R/L 2525 M11	-	-	GS04000	SS25	QCT1100	QCT1101
CTCP R/L 3225 P16	CT160301	BE02100	GS05002	SS30	QCT1600	QCT1601
CTCP R/L 3232 P16	CT160301	BE02100	GS05002	SS30	QCT1600	QCT1601
CTCP R/L 3225 P22	CT220301	BE03000	GS08000	SS40	QCT2200	QCT2201
CTCP R/L 3232 P22	CT220301	BE03000	GS08000	SS40	QCT2200	QCT2201

CTDP 45° Toolholders | Ferros de torno | Herramientas de torneado

(C) TOP CLAMP TOOLHOLDERS





Axial: 4,25°
Radial: 4,25°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212270000	212270100	CTDP R/L 1212 F11	12	12	80	20	6,3	TP.. 1103..	0,070	◈	◈
212019400	212270200	CTDP R/L 1616 H11	16	16	100	22	10,3	TP.. 1103..	0,200	◈	◈
212270300	212270400	CTDP R/L 2020 K16	20	20	125	28	12,2	TP.. 1603..	0,400	◈	◈
212270500	212019300	CTDP R/L 2525 M16	25	25	150	28	17,2	TP.. 1603..	0,700	◈	◈
212270600	212270700	CTDP R/L 3232 P16	32	32	170	28	23,5	TP.. 1603..	1,250	◈	◈
212270800	212270900	CTDP R/L 3232 P22	32	32	170	34	20,5	TP.. 2204..	1,250	◈	◈

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

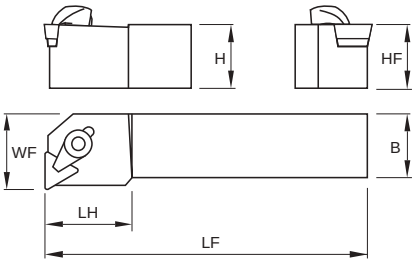
SPARE PARTS Acessórios | Repuestos

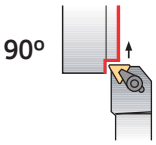
Complementary Accessories - Flat Inserts

Cutter Reference	Shim	Shim Pin	Clamp	Wrench	Clamp	Chip Breaker 1	Chip Breaker 2
CTDP R/L 1212 F11	-	-	GS05001	SS25	GS05004	QCT1100	QCT1101
CTDP R/L 1616 H11	-	-	GS05001	SS25	GS05004	QCT1100	QCT1101
CTDP R/L 2020 K16	CT160301	BE02100	GS06000	SS30	GS05005	QCT1600	QCT1601
CTDP R/L 2525 M16	CT160301	BE02100	GS06000	SS30	GS05005	QCT1600	QCT1601
CTDP R/L 3232 P16	CT160301	BE02100	GS06000	SS30	GS05005	QCT1600	QCT1601
CTDP R/L 3232 P22	CT220301	BE03000	GS08000	SS40	GS08001	QCT2200	QCT2201

CTFP 90° Toolholders | Ferros de torno | Herramientas de torneado

(C) TOP CLAMP TOOLHOLDERS





Axial: 6°
Radial: 0°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212271000	212271100	CTFP R/L 1010 E11	10	10	70	16	12	TP.. 1103..	0,030	◈	◈
212019800	212271200	CTFP R/L 1212 F11	12	12	80	18	16	TP.. 1103..	0,070	◈	◈
212019900	212271300	CTFP R/L 1616 H11	16	16	100	22	20	TP.. 1103..	0,200	◈	◈
212033600	212019500	CTFP R/L 2020 K11	20	20	125	22	25	TP.. 1103..	0,400	◈	◈
212033700	212024000	CTFP R/L 2020 K16	20	20	125	22	25	TP.. 1603..	0,400	◈	◈
212035900	212033800	CTFP R/L 2525 M16	25	25	150	22	32	TP.. 1603..	0,700	◈	◈
212271400	212271500	CTFP R/L 3225 P16	32	25	170	22	32	TP.. 1603..	1,000	◈	◈
212271600	212271700	CTFP R/L 3232 P16	32	32	170	28	40	TP.. 1603..	1,250	◈	◈
212271800	212271900	CTFP R/L 4040 S16	40	40	250	34	50	TP.. 1603..	3,000	◈	◈
212272000	212272100	CTFP R/L 5050 T16	50	50	300	34	60	TP.. 1603..	5,650	◈	◈
212272200	212272300	CTFP R/L 3232 P22	32	32	170	34	40	TP.. 2204..	1,250	◈	◈
212272400	212272500	CTFP R/L 4040 S22	40	40	250	34	50	TP.. 2204..	3,000	◈	◈
212272600	212272700	CTFP R/L 5050 T22	50	50	300	34	60	TP.. 2204..	5,650	◈	◈

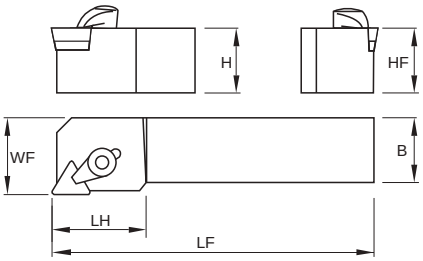
◈ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

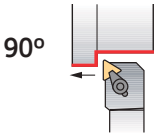
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Complementary Accessories - Flat Inserts						
	Shim	Shim Pin	Clamp	Wrench	Clamp	Chip Breaker 1	Chip Breaker 2
CTFP R/L 1010 E11	-	-	GS03000	SS15	-	-	-
CTFP R/L 1212 F11	-	-	GS05001	SS25	GS05004	QCT1100	QCT1101
CTFP R/L 1616 H11	-	-	GS05001	SS25	GS05004	QCT1100	QCT1101
CTFP R/L 2020 K11	-	-	GS05001	SS25	GS05004	QCT1100	QCT1101
CTFP R/L 2020 K16	CT160301	BE02100	GS06000	SS30	GS05005	QCT1600	QCT1601
CTFP R/L 2525 M16	CT160301	BE02100	GS06000	SS30	GS05005	QCT1600	QCT1601
CTFP R/L 3225 P16	CT160301	BE02100	GS06000	SS30	GS05005	QCT1600	QCT1601
CTFP R/L 3232 P16	CT160301	BE02100	GS06000	SS30	GS05005	QCT1600	QCT1601
CTFP R/L 4040 S16	CT160301	BE02100	GS06000	SS30	GS05005	QCT1600	QCT1601
CTFP R/L 5050 T16	CT160301	BE02100	GS06000	SS30	GS05005	QCT1600	QCT1601
CTFP R/L 3232 P22	CT220301	BE03000	GS08000	SS40	GS08001	QCT2200	QCT2201
CTFP R/L 4040 S22	CT220301	BE03000	GS08000	SS40	GS08001	QCT2200	QCT2201
CTFP R/L 5050 T22	CT220301	BE03000	GS08000	SS40	GS08001	QCT2200	QCT2201

CTGP 90° Toolholders | Ferros de torno | Herramientas de torneado

(C) TOP CLAMP TOOLHOLDERS





Axial: 0°
Radial: 6°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212272800	212272900	CTGP R/L 1010 E11	10	10	70	16	12	TP.. 1103..	0,030	◉	◉
212273000	212020200	CTGP R/L 1212 F11	12	12	80	18	16	TP.. 1103..	0,070	◉	◉
212273100	212273200	CTGP R/L 1616 H11	16	16	100	22	20	TP.. 1103..	0,200	◉	◉
212033100	212033200	CTGP R/L 2020 K11	20	20	125	22	25	TP.. 1103..	0,400	◉	◉
212033300	212033400	CTGP R/L 2020 K16	20	20	125	28	25	TP.. 1603..	0,400	◉	◉
212035800	212033500	CTGP R/L 2525 M16	25	25	150	28	32	TP.. 1603..	0,700	◉	◉
212273300	212273400	CTGP R/L 3225 P16	32	25	170	28	32	TP.. 1603..	1,000	◉	◉
212273500	212273600	CTGP R/L 3232 P22	32	32	170	34	40	TP.. 2204..	1,250	◉	◉
212273700	212273800	CTGP R/L 4040 S22	40	40	250	34	50	TP.. 2204..	3,000	◉	◉
212273900	212274000	CTGP R/L 5050 T22	50	50	300	34	60	TP.. 2204..	5,650	◉	◉

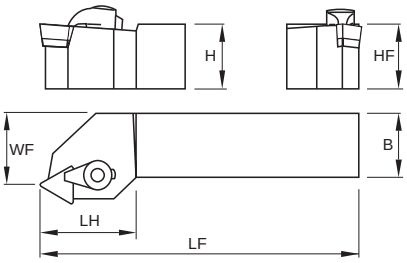
◉ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

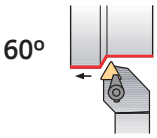
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Complementary Accessories - Flat Inserts						
	Shim	Shim Pin	Clamp	Wrench	Clamp	Chip Breaker 1	Chip Breaker 2
CTGP R/L 1010 E11	-	-	GS03000	SS15	-	-	-
CTGP R/L 1212 F11	-	-	GS05001	SS25	GS05004	QCT1100	QCT1101
CTGP R/L 1616 H11	-	-	GS05001	SS25	GS05004	QCT1100	QCT1101
CTGP R/L 2020 K11	-	-	GS05001	SS25	GS05004	QCT1100	QCT1101
CTGP R/L 2020 K16	CT160301	BE02100	GS06000	SS30	GS05005	QCT1600	QCT1601
CTGP R/L 2525 M16	CT160301	BE02100	GS06000	SS30	GS05005	QCT1600	QCT1601
CTGP R/L 3225 P16	CT160301	BE02100	GS06000	SS30	GS05005	QCT1600	QCT1601
CTGP R/L 3232 P22	CT220301	BE03000	GS08000	SS40	GS08001	QCT2200	QCT2201
CTGP R/L 4040 S22	CT220301	BE03000	GS08000	SS40	GS08001	QCT2200	QCT2201
CTGP R/L 5050 T22	CT220301	BE03000	GS08000	SS40	GS08001	QCT2200	QCT2201

CTTP 60° Toolholders | Ferros de torno | Herramientas de torneado

(C) TOP CLAMP TOOLHOLDERS





Axial: 3º
Radial: 5,25º

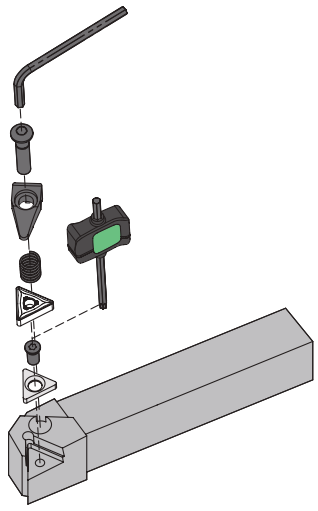
Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212249500	212274100	CTTP R/L 0808 D09	8	8	60	16	7	TP.. 0902..	0,020	◈	◈
212274200	212274300	CTTP R/L 1010 E09	10	10	70	16	9	TP.. 0902..	0,030	◈	◈
212274400	212274500	CTTP R/L 1010 E11	10	10	70	16	9	TP.. 1103..	0,030	◈	◈
212274600	212274700	CTTP R/L 1212 F11	12	12	80	18	11	TP.. 1103..	0,070	◈	◈
212274800	212274900	CTTP R/L 1616 H11	16	16	100	22	13	TP.. 1103..	0,200	◈	◈
212275000	212275100	CTTP R/L 2020 K11	20	20	125	22	17	TP.. 1103..	0,400	◈	◈
212275200	212275300	CTTP R/L 2020 K16	20	20	125	28	17	TP.. 1603..	0,400	◈	◈
212247400	212275400	CTTP R/L 2525 M16	25	25	150	28	22	TP.. 1603..	0,700	◈	◈

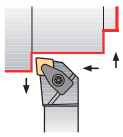
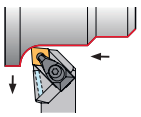
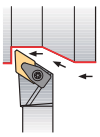
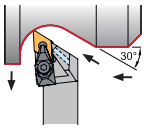
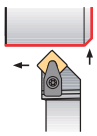
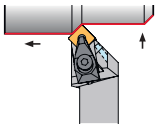
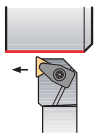
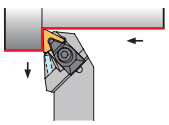
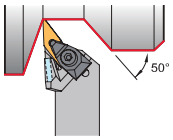
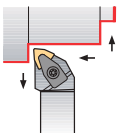
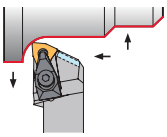
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

SPARE PARTS Acessórios | Repuestos

Cutter Reference	Complementary Accessories - Flat Inserts						
	Shim	Shim Pin	Clamp	Wrench	Clamp	Chip Breaker 1	Chip Breaker 2
CTTP R/L 0808 D09	-	-	GS03000	SS15	-	-	-
CTTP R/L 1010 E09	-	-	GS03000	SS15	-	-	-
CTTP R/L 1010 E11	-	-	GS03000	SS15	GS05004	QCT1100	QCT1101
CTTP R/L 1212 F11	-	-	GS05001	SS25	GS05004	QCT1100	QCT1101
CTTP R/L 1616 H11	-	-	GS05001	SS25	GS05004	QCT1100	QCT1101
CTTP R/L 2020 K11	-	-	GS05001	SS25	GS05004	QCT1100	QCT1101
CTTP R/L 2020 K16	CT160301	BE02100	GS06000	SS30	GS05005	QCT1600	QCT1601
CTTP R/L 2525 M16	CT160301	BE02100	GS06000	SS30	GS05005	QCT1600	QCT1601

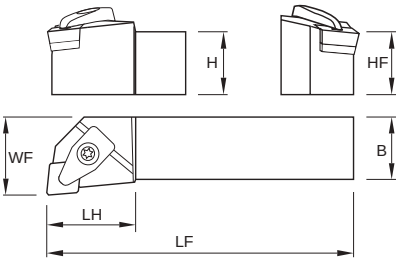
(D) DIMPLE LOCK SYSTEM

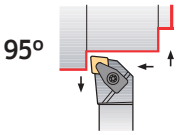


DCLN 95°	**NEW DCLN 95°-A**	**DDJN 93°**	**NEW DDJN 93°-A**	**DSSN 45°**	**NEW DSSN 45°-A**
					
PAGE C - 668 CN.. 1204.. CN.. 1906..	PAGE C - 669 CN.. 1204.. CN.. 1606..	PAGE C - 670 DN.. 1104.. DN.. 1506..	PAGE C - 671 DN.. 1104.. DN.. 1506..	PAGE C - 672 SN.. 1204.. SN.. 1906..	PAGE C - 673 SN.. 1204.. SN.. 1906..
DTGN 90°	**NEW DTJN 90°-A**	**NEW DVJN 93°-A**	**DWLN 95°**	**NEW DWLN 95°-A**	
					
PAGE C - 674 TN.. 1604.. TN.. 2204..	PAGE C - 675 TN.. 1604.. TN.. 2204..	PAGE C - 676 VN.. 1604..	PAGE C - 677 WN.. 0604.. WN.. 0804..	PAGE C - 678 WN.. 0604.. WN.. 0804..	

DCLN 95° Toolholders | Ferros de torno | Herramientas de torneado

(D) DIMPLE LOCK TOOLHOLDERS





Axial: -6,5°
Radial: -6,5°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212275500	212275600	DCLN R/L 2020 K12	20	20	125	28	25	CN.. 1204..	0,400	◈	◈
212219600	212246600	DCLN R/L 2525 M12	25	25	150	28	32	CN.. 1204..	0,750	◈	◈
212275700	212249200	DCLN R/L 3232 P12	32	32	170	28	40	CN.. 1204..	1,300	◈	◈
212275800	212275900	DCLN R/L 3232 P19	32	32	170	42	40	CN.. 1906..	1,300	◈	◈
212276000	212276100	DCLN R/L 4040 S19	40	40	250	45	50	CN.. 1906..	3,050	◈	◈

◈ Stock item | Produto de stock | Itens de stock

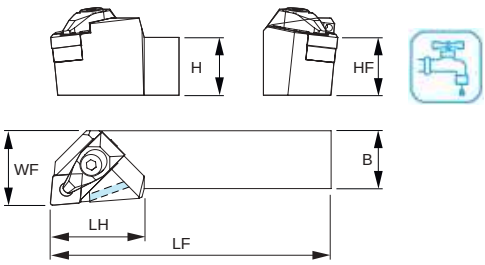
◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

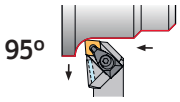
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Spring	Clamp	Clamp Screw	Wrench
DCLN R/L 2020 K12	CC120600	T06010000	M09513	GA07002	D0602900	SS40
DCLN R/L 2525 M12	CC120600	T06010000	M09513	GA07002	D0602900	SS40
DCLN R/L 3232 P12	CC120600	T06010000	M09513	GA07002	D0602900	SS40
DCLN R/L 3232 P19	CC190502	T06015000	M09513	GA07003	D0602900	SS40
DCLN R/L 4040 S19	CC190502	T06015000	M09513	GA07003	D0602900	SS40

NEW DCLN 95°-A Toolholders | Ferros de torno | Herramientas de torneado

(D) DIMPLE LOCK TOOLHOLDERS





Axial: -6,5°
Radial: -6,5°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212428600	212428700	DCLN R/L 2020 K12-A	20	20	125	34	25	CN.. 1204..	0,400	◯	◯
212428800	212428900	DCLN R/L 2525 M12-A	25	25	150	34	32	CN.. 1204..	0,750	◯	◯
212429000	212429100	DCLN R/L 3232 P12-A	32	32	170	34	40	CN.. 1204..	1,300	◯	◯
212429200	212429300	DCLN R/L 3232 P16-A	32	32	170	42	40	CN.. 1606..	1,250	◯	◯

Stock item | Produto de stock | Itens de stock

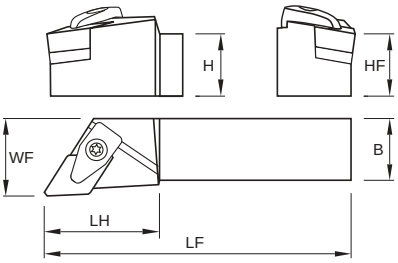
◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

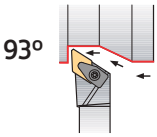
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Spring	Clamp	Clamp Screw	Wrench	Cooling Screw 1	Cooling Screw 2	Cooling Screw 3
DCLN R/L 2020 K12-A	CC120600	T06010000	M09513	GA07002	D0602900	SS40	H0600475	H1000875	T1000875
DCLN R/L 2525 M12-A	CC120600	T06010000	M09513	GA07002	D0602900	SS40	H0600475	H1000875	T1000875
DCLN R/L 3232 P12-A	CC120600	T06010000	M09513	GA07002	D0602900	SS40	-	H1000875	-
DCLN R/L 3232 P16-A	CC160501	T0601575	M09513	GA07004	D0602900	SS40	-	H1000875	-

DDJN 93° Toolholders | Ferros de torno | Herramientas de torneado

(D) DIMPLE LOCK TOOLHOLDERS





Axial: -6,25°
Radial: -6,75°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212422900	212423000	DDJN R/L 2020 K11	20	20	125	34	25	DN.. 1104..	0,400	◈	◈
212065900	212276200	DDJN R/L 2020 K15	20	20	125	34	25	DN.. 1506..	0,400	◈	◈
212219300	212168000	DDJN R/L 2525 M15	25	25	150	34	32	DN.. 1506..	0,750	◈	◈
212276300	212249400	DDJN R/L 3232 P15	32	32	170	34	40	DN.. 1506..	1,300	◈	◈

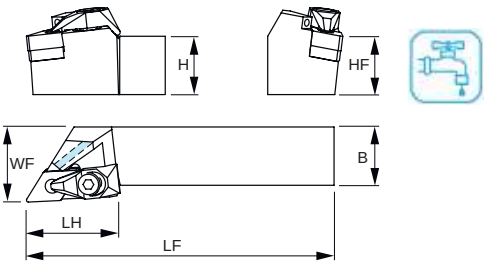
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

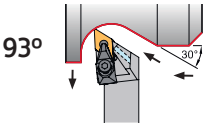
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Spring	Clamp	Clamp Screw	Wrench
DDJN R/L 2020 K11	CD110302	T05008000	M06511	GA05001	D0500801	SS40
DDJN R/L 2020 K15	CD150501	T06010000	M09513	GA07002	D0602900	SS40
DDJN R/L 2525 M15	CD150501	T06010000	M09513	GA07002	D0602900	SS40
DDJN R/L 3232 P15	CD150501	T06010000	M09513	GA07002	D0602900	SS40

NEW DDJN 93°-A Toolholders | Ferros de torno | Herramientas de torneado

(D) DIMPLE LOCK TOOLHOLDERS





Axial: -6,25°
Radial: -6,75°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212429400	212429500	DDJN R/L 2020 K11-A	20	20	125	34	25	DN.. 1104..	0,400	◯	◯
212429600	212429700	DDJN R/L 2020 K15-A	20	20	125	42	25	DN.. 1506..	0,400	ⓢ	ⓢ
212429800	212429900	DDJN R/L 2525 M15-A	25	25	150	42	32	DN.. 1506..	0,750	ⓢ	ⓢ
212430000	212430100	DDJN R/L 3232 P15-A	32	32	170	42	40	DN.. 1506..	1,300	ⓢ	ⓢ

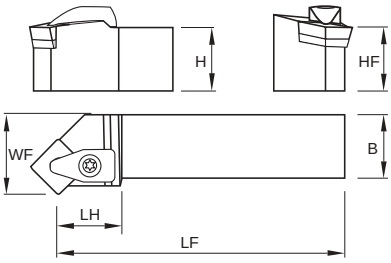
ⓢ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

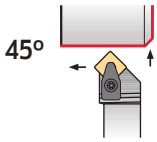
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Spring	Clamp	Clamp Screw	Wrench	Cooling Screw 1	Cooling Screw 2	Cooling Screw 3
DDJN R/L 2020 K11-A	CD110302	T05008000	M06511	GA05001	D0500801	SS40	H0600475	H1000875	T1000875
DDJN R/L 2020 K15-A	CD150501	T06010000	M09513	GA07002	D0602900	SS40	H0600475	H1000875	T1000875
DDJN R/L 2525 M15-A	CD150501	T06010000	M09513	GA07002	D0602900	SS40	H0600475	H1000875	T1000875
DDJN R/L 3232 P15-A	CD150501	T06010000	M09513	GA07002	D0602900	SS40	-	H1000875	-

DSSN 45° Toolholders | Ferros de torno | Herramientas de torneado

(D) DIMPLE LOCK TOOLHOLDERS





Axial: -5,75°
Radial: -5,75°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212066000	212276400	DSSN R/L 2020 K12	20	20	125	28	25	SN.. 1204..	0,400	●	●
212245800	212276500	DSSN R/L 2525 M12	25	25	150	28	32	SN.. 1204..	0,750	●	●
212276600	212276700	DSSN R/L 3225 P12	32	25	170	28	32	SN.. 1204..	1,050	○	△
212276800	212276900	DSSN R/L 3232 P19	32	32	170	42	40	SN.. 1906..	1,300	●	●
212277000	212277100	DSSN R/L 4040 S19	40	40	250	45	50	SN.. 1906..	3,050	○	○

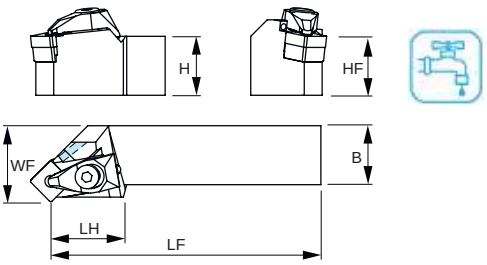
● Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta △ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

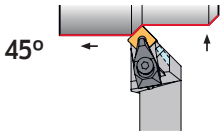
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Spring	Clamp	Clamp Screw	Wrench
DSSN R/L 2020 K12	CS120600	T06010000	M09513	GA07002	D0602900	SS40
DSSN R/L 2525 M12	CS120600	T06010000	M09513	GA07002	D0602900	SS40
DSSN R/L 3225 P12	CS120600	T06010000	M09513	GA07002	D0602900	SS40
DSSN R/L 3232 P19	CS190501	T06015000	M09513	GA07003	D0602900	SS40
DSSN R/L 4040 S19	CS190501	T06015000	M09513	GA07003	D0602900	SS40

NEW DSSN 45°-A Toolholders | Ferros de torno | Herramientas de torneado

(D) DIMPLE LOCK TOOLHOLDERS





Axial: -5,75°
Radial: -5,75°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212430200	212430300	DSSN R/L 2020 K12-A	20	20	125	28	25	SN.. 1204..	0,400	◯	◯
212430400	212430500	DSSN R/L 2525 M12-A	20	20	150	28	32	SN.. 1204..	0,750	◯	◯
212430600	212430700	DSSN R/L 3232 P19-A	32	32	170	38	40	SN.. 1906..	1,300	◯	◯

Stock item | Produto de stock | Itens de stock

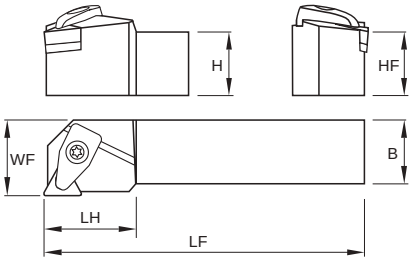
◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

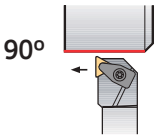
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Spring	Clamp	Clamp Screw	Wrench	Cooling Screw 1	Cooling Screw 2	Cooling Screw 3
DSSN R/L 2020 K12-A	CS120600	T06010000	M09513	GA07002	D0602900	SS40	H0600475	H1000875	T1000875
DSSN R/L 2525 M12-A	CS120600	T06010000	M09513	GA07002	D0602900	SS40	H0600475	H1000875	T1000875
DSSN R/L 3232 P19-A	CS190501	T06015000	M09513	GA07003	D0602900	SS40	-	H1000875	-

DTGN 90° Toolholders | Ferros de torno | Herramientas de torneado

(D) DIMPLE LOCK TOOLHOLDERS





Axial: -6°
Radial: -6°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212277200	212277300	DTGN R/L 2020 K16	20	20	125	28	25	TN.. 1604..	0,400	⊛	⊛
212219500	212277400	DTGN R/L 2525 M16	25	25	150	28	32	TN.. 1604..	0,750	⊛	⊛
212277500	212277600	DTGN R/L 2525 M22	25	25	150	34	32	TN.. 2204..	0,750	⊛	⊛
212277700	212277800	DTGN R/L 3232 P22	32	32	170	34	40	TN.. 2204..	1,300	⊛	⊛

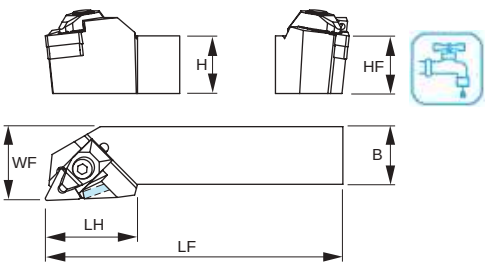
⊛ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

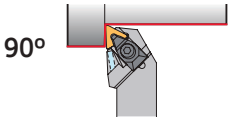
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Spring	Clamp	Clamp Screw	Wrench
DTGN R/L 2020 K16	CT160600	T05008000	M06511	GA05001	D0500801	SS40
DTGN R/L 2525 M16	CT160600	T05008000	M06511	GA05001	D0500801	SS40
DTGN R/L 2525 M22	CT220600	T06010000	M09513	GA07002	D0602900	SS40
DTGN R/L 3232 P22	CT220600	T06010000	M09513	GA07002	D0602900	SS40

NEW DTJN 90°-A Toolholders | Ferros de torno | Herramientas de torneado

(D) DIMPLE LOCK TOOLHOLDERS





Axial: -6°
Radial: -6°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212430800	212430900	DTJN R/L 2020 K16-A	20	20	125	32	25	TN.. 1604..	0,400	◯	◯
212431000	212431100	DTJN R/L 2525 M16-A	20	20	150	32	32	TN.. 1604..	0,700	◯	◯

Stock item | Produto de stock | Itens de stock

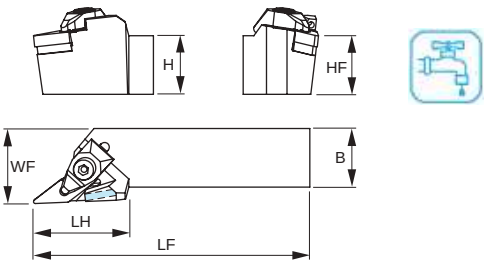
◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

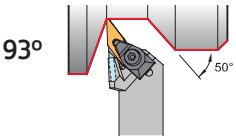
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Spring	Clamp	Clamp Screw	Wrench	Cooling Screw 1	Cooling Screw 2	Cooling Screw 3
DTJN R/L 2020 K16-A	CT160600	T05008000	M06511	GA05001	D0500801	SS40	H0600475	H1000875	T1000875
DTJN R/L 2525 M16-A	CT160600	T05008000	M06511	GA05001	D0500801	SS40	H0600475	H1000875	T1000875

NEW DVJN 93°-A Toolholders | Ferros de torno | Herramientas de torneado

(D) DIMPLE LOCK TOOLHOLDERS





Axial: -6°
Radial: -6°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212432000	212432100	DVJN R/L 2020 K16-A	20	20	125	34	25	VN.. 1604..	0,400	◯	◯
212432200	212432300	DVJN R/L 2525 M16-A	25	25	150	34	32	VN.. 1604..	0,700	◯	◯
212432400	212432500	DVJN R/L 3232 P16-A	32	32	170	34	40	VN.. 1604..	1,250	◯	◯

Stock item | Produto de stock | Itens de stock

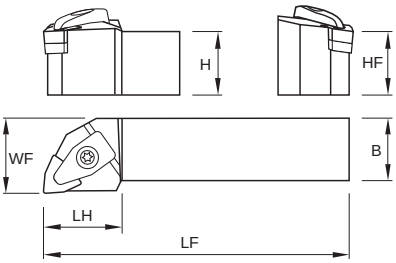
◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

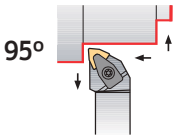
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Spring	Clamp	Clamp Screw	Wrench	Cooling Screw 1	Cooling Screw 2	Cooling Screw 3
DVJN R/L 2020 K16-A	CV160301	T05008000	M06511	GA05001	D0500801	SS40	H0600475	H1000875	T1000875
DVJN R/L 2525 M16-A	CV160301	T05008000	M06511	GA05001	D0500801	SS40	H0600475	H1000875	T1000875
DVJN R/L 3232 P16-A	CV160301	T05008000	M06511	GA05001	D0500801	SS40	-	H1000875	-

DWLN 95° Toolholders | Ferros de torno | Herramientas de torneado

(D) DIMPLE LOCK TOOLHOLDERS





Axial: -6°
Radial: -6°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212425100	212425200	DWLN R/L 2020 K06	20	20	125	34	25	WN.. 0604..	0,400	◈	◈
212425300	212425400	DWLN R/L 2525 M06	25	25	150	34	25	WN.. 0604..	0,400	◈	◈
212277900	212278000	DWLN R/L 2020 K08	20	20	125	34	25	WN.. 0804..	0,400	◈	◈
212219400	212246300	DWLN R/L 2525 M08	25	25	150	34	32	WN.. 0804..	0,750	◈	◈
212278100	212278200	DWLN R/L 3232 P08	32	32	170	34	40	WN.. 0804..	1,300	◈	◈

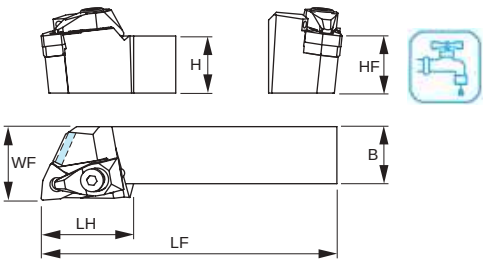
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

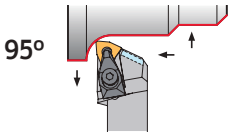
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Spring	Clamp	Clamp Screw	Wrench
DWLN R/L 2020 K06	CW060302	T05008000	M06511	GA05001	D0500801	SS40
DWLN R/L 2525 M06	CW060302	T05008000	M06511	GA05001	D0500801	SS40
DWLN R/L 2020 K08	CW080500	T06010000	M09513	GA07002	D0602900	SS40
DWLN R/L 2525 M08	CW080500	T06010000	M09513	GA07002	D0602900	SS40
DWLN R/L 3232 P08	CW080500	T06010000	M09513	GA07002	D0602900	SS40

NEW DWLN 95°-A Toolholders | Ferros de torno | Herramientas de torneado

(D) DIMPLE LOCK TOOLHOLDERS





Axial: -6°
Radial: -6°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212431200	212431300	DWLN R/L 2020 K06-A	20	20	125	32	25	WN.. 0604..	0,400	◯	◯
212431400	212431500	DWLN R/L 2020 K08-A	20	20	125	32	25	WN.. 0804..	0,400	◯	◯
212431600	212431700	DWLN R/L 2525 M08-A	25	25	150	32	32	WN.. 0804..	0,700	◯	◯
212431800	212431900	DWLN R/L 3232 P08-A	32	32	170	32	38	WN.. 0804..	1,250	◯	◯

Stock item | Produto de stock | Itens de stock

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

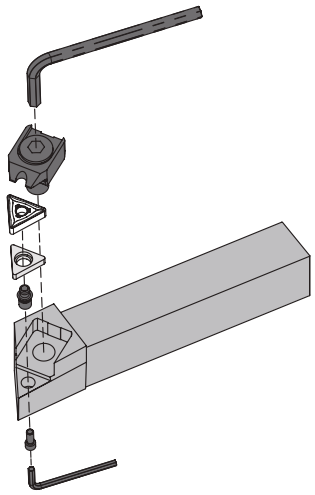
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Spring	Clamp	Clamp Screw	Wrench	Cooling Screw 1	Cooling Screw 2	Cooling Screw 3
DWLN R/L 2020 K06-A	CW060302	T05008000	M06511	GA05001	D0500801	SS40	H0600475	H1000875	T1000875
DWLN R/L 2020 K08-A	CW080500	T06010000	M09513	GA07002	D0602900	SS40	H0600475	H1000875	T1000875
DWLN R/L 2525 M08-A	CW080500	T06010000	M09513	GA07002	D0602900	SS40	H0600475	H1000875	T1000875
DWLN R/L 3232 P08-A	CW080500	T06010000	M09513	GA07002	D0602900	SS40	-	H1000875	-

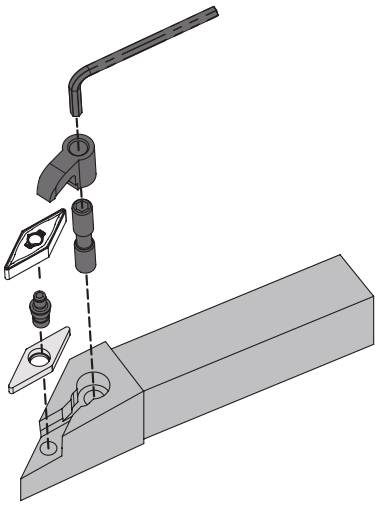
Spare Parts: C - 846 Technical Data: C - 856

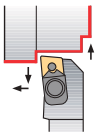
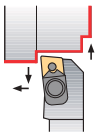
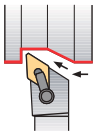
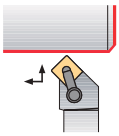
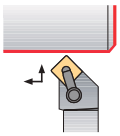
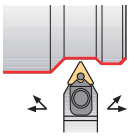
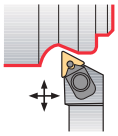
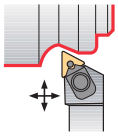
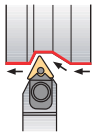
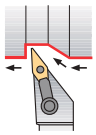
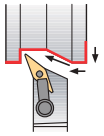
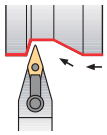
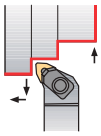
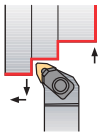
palbit

(M) WEDGE CLAMP SYSTEM



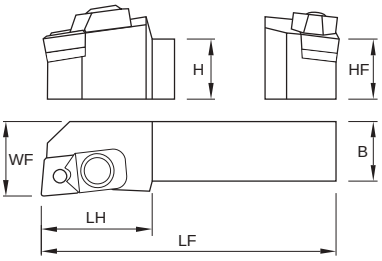
(M-K) DOUBLE LOCK SYSTEM

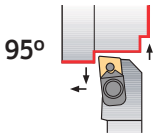


MCLN 95°  PAGE C - 680 CN.. 1204.. CN.. 1906..	**MCLN-K 95°**  PAGE C - 681 CN.. 1204.. CN.. 1906..	**MDJN-K 93°**  PAGE C - 682 DN.. 1506..	**MSSN-K 45°**  PAGE C - 683 SN.. 1204..	**MSSN 45°**  PAGE C - 684 SN.. 1204.. SN.. 1906..	**MTEN 60°**  PAGE C - 685 TN.. 1604.. TN.. 2204..
MTJN 93°  PAGE C - 686 TN.. 1604.. TN.. 2204..	**MTJN-K 93°**  PAGE C - 687 TN.. 1604.. TN.. 2204..	**MTNN 63°**  PAGE C - 688 TN.. 1604.. TN.. 2204..	**MVJN-K 93°**  PAGE C - 689 VN.. 1604..	**MVQN-K 117°30'**  PAGE C - 690 VN.. 1604..	**MVVN-K 72°30'**  PAGE C - 691 VN.. 1604..
MWLN 95°  PAGE C - 692 WN.. 0604.. WN.. 0804..	**MWLN-K 95°**  PAGE C - 693 WN.. 0804..				

MCLN 95° Toolholders | Ferros de torno | Herramientas de torneado

(M) WEDGE CLAMP SYSTEM





Axial: -8°
Radial: -6,5°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212245900	212278300	MCLN R/L 2020 K12	20	20	125	34	25	CN.. 1204..	0,450	ⓢ	ⓢ
212246000	212010500	MCLN R/L 2525 M12	25	25	150	34	32	CN.. 1204..	0,800	ⓢ	ⓢ
212278400	212278500	MCLN R/L 3225 P12	32	25	170	34	32	CN.. 1204..	1,200	ⓢ	ⓢ
212278600	212278700	MCLN R/L 2525 M19	25	25	150	42	32	CN.. 1906..	0,800	ⓢ	ⓢ
212278800	212278900	MCLN R/L 3225 P19	32	25	170	42	32	CN.. 1906..	1,200	ⓢ	ⓢ
212279000	212279100	MCLN R/L 4040 S19	40	40	250	42	50	CN.. 1906..	3,100	ⓢ	ⓢ

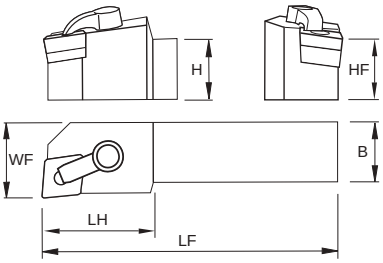
ⓢ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

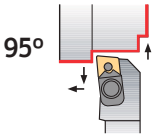
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Lock Pin	lock Pin Screw	Wedge Clamp	Wrench
MCLN R/L 2020 K12	CC120500	BC06000	D0400900	GW08002	SS50
MCLN R/L 2525 M12	CC120500	BC06000	D0400900	GW08002	SS50
MCLN R/L 3225 P12	CC120500	BC06000	D0400900	GW08002	SS50
MCLN R/L 2525 M19	CC190500	BC08000	D0602200	GW08003	SS50
MCLN R/L 3225 P19	CC190500	BC08000	D0602200	GW08003	SS50
MCLN R/L 4040 S19	CC190500	BC08000	D0602200	GW08003	SS50

MCLN-K 95° Toolholders | Ferros de torno | Herramientas de torneado

(M-K) DOUBLE LOCK SYSTEM





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Radial: -6,25°

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212286200	212286300	MCLN R/L 2020 K12-K	20	20	125	28	25	CN.. 1204..	0,450	●	●
212286400	212286500	MCLN R/L 2525 M12-K	25	25	150	28	32	CN.. 1204..	0,800	●	●
212286600	212286700	MCLN R/L 3225 P12-K	32	25	170	28	32	CN.. 1204..	1,200	●	●
212286800	212286900	MCLN R/L 2525 M19-K	25	25	150	42	32	CN.. 1906..	0,800	●	●
212287000	212287100	MCLN R/L 3232 P19-K	32	32	170	42	40	CN.. 1906..	1,400	●	●

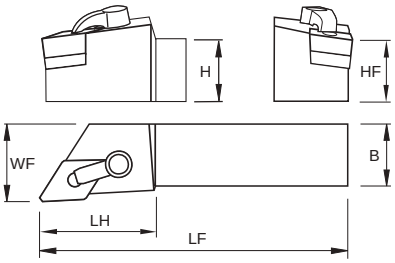
● Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

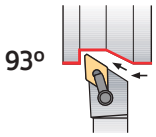
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Lock Pin	Lock Pin Wrench	Clamp	Differential Screw	Clamp Wrench
MCLN R/L 2020 K12-K	CC120500	BS1-400	SS25	GA06000	F0602900	SS30
MCLN R/L 2525 M12-K	CC120500	BS1-400	SS25	GA06000	F0602900	SS30
MCLN R/L 3225 P12-K	CC120500	BS1-400	SS25	GA06000	F0602900	SS30
MCLN R/L 2525 M19-K	CC190502	BS3-800	SS40	GA06003	F0802900	SS40
MCLN R/L 3232 P19-K	CC190502	BS3-800	SS40	GA06003	F0802900	SS40

MDJN-K 93° Toolholders | Ferros de torno | Herramientas de torneado

(M-K) DOUBLE LOCK SYSTEM





Axial: -6º
Radial: -7º

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
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212287400	212287500	MDJN R/L 2525 M15-K	25	25	150	34	32	DN.. 1506..	0,800	◈	◈
212287600	212287700	MDJN R/L 3225 P15-K	32	25	170	34	32	DN.. 1506..	1,200	◈	◈

◈ Stock item | Produto de stock | Itens de stock

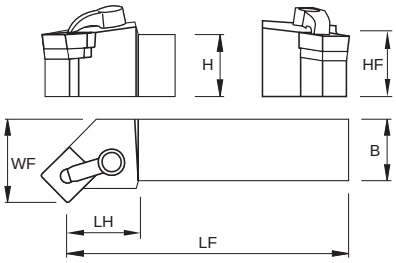
◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

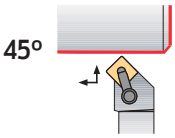
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Lock Pin	Lock Pin Wrench	Clamp	Differential Screw	Clamp Wrench
MDJN R/L 2020 K15-K	CD150501	BS1-401	SS25	GA06001	F0602900	SS30
MDJN R/L 2525 M15-K	CD150501	BS1-401	SS25	GA06001	F0602900	SS30
MDJN R/L 3225 P15-K	CD150501	BS1-401	SS25	GA06001	F0602900	SS30

MSSN-K 45° Toolholders | Ferros de torno | Herramientas de torneado

(M-K) DOUBLE LOCK SYSTEM





Axial: -6°
Radial: -6°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
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212288000	212288100	MSSN R/L 2525 M12-K	25	25	150	28	32	SN.. 1204..	0,800	◈	◈

◈ Stock item | Produto de stock | Itens de stock

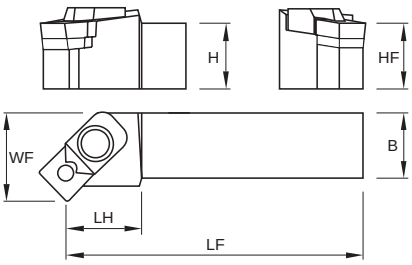
◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

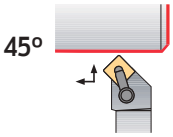
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Lock Pin	Lock Pin Wrench	Clamp	Differential Screw	Clamp Wrench
MSSN R/L 2020 K12-K	CS120500	BS1-400	SS25	GA06000	F0602900	SS30
MSSN R/L 2525 M12-K	CS120500	BS1-400	SS25	GA06000	F0602900	SS30

MSSN 45° Toolholders | Ferros de torno | Herramientas de torneado

(M) WEDGE CLAMP SYSTEM





Axial: -6°
Radial: -6°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
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212279200	212279300	MSSN R/L 2020 K12	20	20	125	34	27	SN.. 1204..	0,450	●	●
212279400	212279500	MSSN R/L 2525 M12	25	25	150	34	32	SN.. 1204..	0,800	●	●
212279600	212279700	MSSN R/L 3225 P12	32	25	170	34	32	SN.. 1204..	1,200	●	●
212279800	212279900	MSSN R/L 2525 M19	25	25	150	42	32	SN.. 1906..	0,800	●	●
212280000	212280100	MSSN R/L 3225 P19	32	25	170	42	32	SN.. 1906..	1,200	●	●
212280200	212280300	MSSN R/L 3232 P19	32	32	170	42	40	SN.. 1906..	1,400	●	●
212280400	212280500	MSSN R/L 4040 S19	40	40	250	42	50	SN.. 1906..	3,100	●	●

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

SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Lock Pin	Lock Pin Screw	Wedge Clamp	Wrench
MSSN R/L 2020 K12	CS120400	BC06000	D0400900	GW08001	SS50
MSSN R/L 2525 M12	CS120400	BC06000	D0400900	GW08001	SS50
MSSN R/L 3225 P12	CS120400	BC06000	D0400900	GW08001	SS50
MSSN R/L 2525 M19	CS190400	BC08000	D0601400	GW08003	SS50
MSSN R/L 3225 P19	CS190400	BC08000	D0601400	GW08003	SS50
MSSN R/L 3232 P19	CS190400	BC08000	D0601400	GW08003	SS50
MSSN R/L 4040 S19	CS190400	BC08000	D0601400	GW08003	SS50

Spare Parts: C - 846 Technical Data: C - 856
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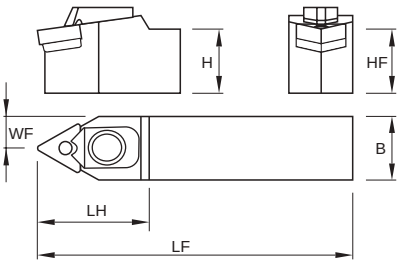
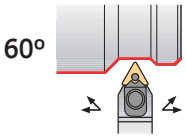
MTEN 60° Toolholders | Ferros de torno | Herramientas de torneado

(M) WEDGE CLAMP SYSTEM





Axial: -8,25°
Radial: -2,25°

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212054800	212280900	MTEN R/L 2525 M16	25	25	150	34	13,0	TN.. 1604..	0,800	●	●
212281000	212281100	MTEN R/L 3225 P16	32	25	170	34	13,0	TN.. 1604..	1,200	●	●
212168800	212281300	MTEN R/L 2525 M22	25	25	150	42	13,0	TN.. 2204..	0,800	●	●
212281500	212281600	MTEN R/L 3225 P22	32	25	170	42	13,0	TN.. 2204..	1,200	●	●
212281800	212281900	MTEN R/L 3232 P22	32	32	170	42	16,5	TN.. 2204..	1,400	●	●
212282100	212282200	MTEN R/L 4025 R22	40	25	200	42	13,0	TN.. 2204..	1,500	●	●
212282400	212282500	MTEN R/L 5032 S22	50	32	250	45	16,5	TN.. 2204..	2,950	●	●
212280800		MTEN N 2020 K16	20	20	125	34	10,5	TN.. 1604..	0,450	●	
212169700		MTEN N 2525 M16	25	25	150	34	13,0	TN.. 1604..	0,800	●	
212281200		MTEN N 3225 P16	32	25	170	34	13,0	TN.. 1604..	1,200	●	
212281400		MTEN N 2525 M22	25	25	150	42	13,0	TN.. 2204..	0,800	●	
212281700		MTEN N 3225 P22	32	25	170	42	13,0	TN.. 2204..	1,200	●	
212282000		MTEN N 3232 P22	32	32	170	42	16,5	TN.. 2204..	1,400	●	
212282300		MTEN N 4025 R22	40	25	200	42	13,0	TN.. 2204..	1,500	●	
212282600		MTEN N 5032 S22	50	32	250	45	16,5	TN.. 2204..	2,950	●	

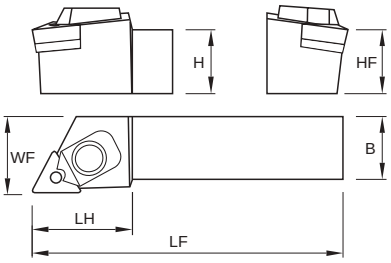
● Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

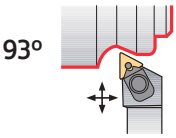
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Lock Pin	Lock Pin Screw	Wedge Clamp	Wrench
MTEN R/L/N 2020 K16	CT160302	BC04500	D0300700	GW08001	SS50
MTEN R/L/N 2525 M16	CT160302	BC04500	D0300700	GW08001	SS50
MTEN R/L/N 3225 P16	CT160302	BC04500	D0300700	GW08001	SS50
MTEN R/L/N 2525 M22	CT220500	BC06000	D0400900	GW08003	SS50
MTEN R/L/N 3225 P22	CT220500	BC06000	D0400900	GW08003	SS50
MTEN R/L/N 3232 P22	CT220500	BC06000	D0400900	GW08003	SS50
MTEN R/L/N 4025 R22	CT220500	BC06000	D0400900	GW08003	SS50
MTEN R/L/N 5032 S22	CT220500	BC06000	D0400900	GW08003	SS50

MTJN 93° Toolholders | Ferros de torno | Herramientas de torneado

(M) WEDGE CLAMP SYSTEM





Axial: -6°
Radial: -6°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212054100	212282700	MTJN R/L 2020 K16	20	20	125	34	25	TN.. 1604..	0,450	◈	◈
212026100	212047700	MTJN R/L 2525 M16	25	25	150	34	32	TN.. 1604..	0,800	◈	◈
212010600	212282800	MTJN R/L 3225 P16	32	25	170	34	32	TN.. 1604..	1,200	◈	◈
212282900	212283000	MTJN R/L 2525 M22	25	25	150	42	32	TN.. 2204..	0,800	◈	◈
212283100	212283200	MTJN R/L 3225 P22	32	25	170	42	32	TN.. 2204..	1,200	◈	◈
212283300	212283400	MTJN R/L 3232 P22	32	32	170	42	40	TN.. 2204..	1,400	◈	◈
212283500	212283600	MTJN R/L 4025 R22	40	25	200	42	32	TN.. 2204..	1,500	◈	◈
212010700	212283700	MTJN R/L 5032 S22	50	32	250	45	40	TN.. 2204..	2,950	◈	◈

◈ Stock item | Produto de stock | Itens de stock

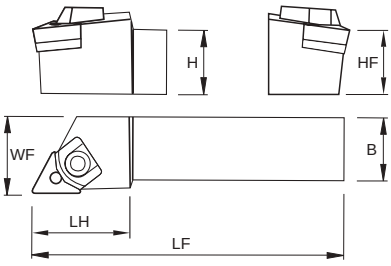
◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

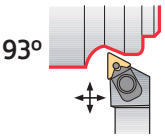
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Lock Pin	Lock Pin Screw	Wedge Clamp	Wrench
MTJN R/L 2020 K16	CT160302	BC04500	D0300700	GW08001	SS50
MTJN R/L 2525 M16	CT160302	BC04500	D0300700	GW08001	SS50
MTJN R/L 3225 P16	CT160302	BC04500	D0300700	GW08001	SS50
MTJN R/L 2525 M22	CT220500	BC06000	D0400900	GW08003	SS50
MTJN R/L 3225 P22	CT220500	BC06000	D0400900	GW08003	SS50
MTJN R/L 3232 P22	CT220500	BC06000	D0400900	GW08003	SS50
MTJN R/L 4025 R22	CT220500	BC06000	D0400900	GW08003	SS50
MTJN R/L 5032 S22	CT220500	BC06000	D0400900	GW08003	SS50

MTJN-K 93° Toolholders | Ferros de torno | Herramientas de torneado

(M-K) DOUBLE LOCK SYSTEM





Axial: -6°
Radial: -6°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212289300	212289400	MTJN R/L 2020 K16-K	20	20	125	22	25	TN.. 1604..	0,450	◈	◈
212228600	212289500	MTJN R/L 2525 M16-K	25	25	150	22	32	TN.. 1604..	0,800	◈	◈
212169600	212289600	MTJN R/L 2525 M22-K	25	25	150	28	32	TN.. 2204..	0,800	◈	◈
212289700	212289800	MTJN R/L 3225 P22-K	32	25	170	28	32	TN.. 2204..	1,200	◈	◈
212289900	212290000	MTJN R/L 3232 P22-K	32	32	170	28	40	TN.. 2204..	1,400	◈	◈
212290100	212290200	MTJN R/L 4025 R22-K	40	25	200	34	32	TN.. 2204..	1,500	◈	◈
212290300	212290400	MTJN R/L 5032 S22-K	50	32	250	34	40	TN.. 2204..	2,950	◈	◈

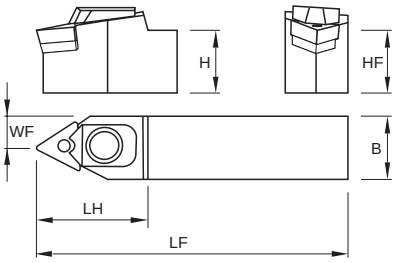
◈ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

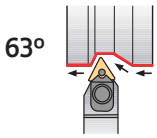
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Lock Pin	Lock Pin Screw	Wedge Clamp	Wrench
MTJN R/L 2020 K16-K	CT160302	BC04500	D0300700	GW05001	SS25
MTJN R/L 2525 M16-K	CT160302	BC04500	D0300700	GW05001	SS25
MTJN R/L 2525 M22-K	CT220500	BC06000	D0400900	GW06001	SS30
MTJN R/L 3225 P22-K	CT220500	BC06000	D0400900	GW06001	SS30
MTJN R/L 3232 P22-K	CT220500	BC06000	D0400900	GW06001	SS30
MTJN R/L 4025 R22-K	CT220500	BC06000	D0400900	GW06001	SS30
MTJN R/L 5032 S22-K	CT220500	BC06000	D0400900	GW06001	SS30

MTNN 63° Toolholders | Ferros de torno | Herramientas de torneado

(M) WEDGE CLAMP SYSTEM





Axial: -8°
Radial: -2,5°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212283800	212283900	MTNN R/L 2020 K16	20	20	125	34	10,0	TN.. 1604..	0,450	⊛	⊛
212284000	212043900	MTNN R/L 2525 M16	25	25	150	34	12,5	TN.. 1604..	0,800	⊛	⊛
212284100	212284200	MTNN R/L 3225 P16	32	25	170	34	12,5	TN.. 1604..	1,200	⊛	⊛
212284300	212284400	MTNN R/L 2525 M22	25	25	150	42	12,5	TN.. 2204..	0,800	⊛	⊛
212284500	212284600	MTNN R/L 3225 P22	32	25	170	42	12,5	TN.. 2204..	1,200	⊛	⊛
212284700	212284800	MTNN R/L 3232 P22	32	32	170	42	16,0	TN.. 2204..	1,400	⊛	⊛
212284900	212285000	MTNN R/L 4025 R22	40	25	200	42	12,5	TN.. 2204..	1,500	⊛	⊛
212285100	212285200	MTNN R/L 5032 S22	50	32	250	45	16,0	TN.. 2204..	2,950	⊛	⊛

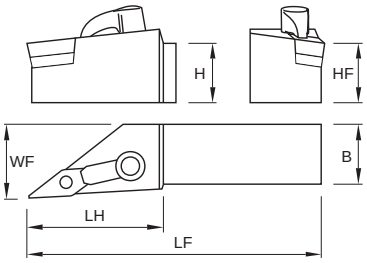
⊛ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

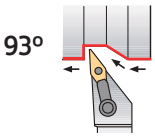
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Lock Pin	Lock Pin Screw	Wedge Clamp	Wrench
MTNN R/L 2020 K16	CT160302	BC04500	D0300700	GW08001	SS50
MTNN R/L 2525 M16	CT160302	BC04500	D0300700	GW08001	SS50
MTNN R/L 3225 P16	CT160302	BC04500	D0300700	GW08001	SS50
MTNN R/L 2525 M22	CT220500	BC06000	D0400900	GW08003	SS50
MTNN R/L 3225 P22	CT220500	BC06000	D0400900	GW08003	SS50
MTNN R/L 3232 P22	CT220500	BC06000	D0400900	GW08003	SS50
MTNN R/L 4025 R22	CT220500	BC06000	D0400900	GW08003	SS50
MTNN R/L 5032 S22	CT220500	BC06000	D0400900	GW08003	SS50

MVJN-K 93° Toolholders | Ferros de torno | Herramientas de torneado

(M-K) DOUBLE LOCK SYSTEM





Axial: -6º
Radial: -6º

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212050100	212057700	MVJN R/L 2020 K16-K	20	20	125	43	25	VN.. 1604..	0,450	ⓢ	ⓢ
212246100	212288200	MVJN R/L 2525 M16-K	25	25	150	43	32	VN.. 1604..	0,800	ⓢ	ⓢ
212288300	212288400	MVJN R/L 3225 P16-K	32	25	170	43	32	VN.. 1604..	1,200	ⓢ	ⓢ

ⓢ Stock item | Produto de stock | Itens de stock

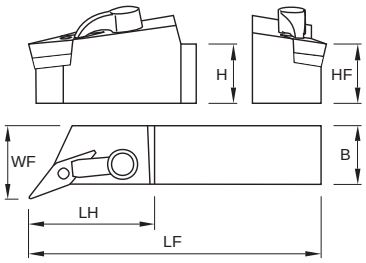
◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

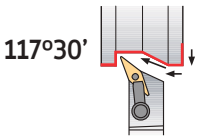
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Lock Pin	Lock Pin Wrench	Clamp	Differential Screw	Clamp Wrench
MVJN R/L 2020 K16-K	CV160301	BS05000	SS20	GA06002	F0602900	SS30
MVJN R/L 2525 M16-K	CV160301	BS05000	SS20	GA06002	F0602900	SS30
MVJN R/L 3225 P16-K	CV160301	BS05000	SS20	GA06002	F0602900	SS30

MVQN-K 117°30' Toolholders | Ferros de torno | Herramientas de torneado

(M-K) DOUBLE LOCK SYSTEM





Axial: -8°
Radial: -10°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212288500	212288600	MVQN R/L 2020 K16-K	20	20	125	43	25	VN.. 1604..	0,450	◈	◈
212288700	212288800	MVQN R/L 2525 M16-K	25	25	150	43	32	VN.. 1604..	0,800	◈	◈
212288900	212289000	MVQN R/L 3225 P16-K	32	25	170	43	32	VN.. 1604..	1,200	◈	◈

◈ Stock item | Produto de stock | Itens de stock

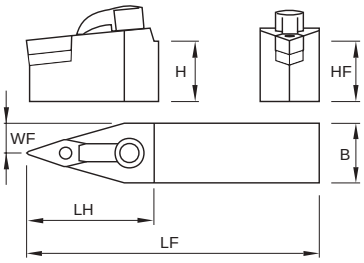
◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

SPARE PARTS Acessórios | Repuestos

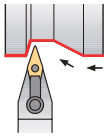
Cutter Reference	Shim	Lock Pin	Lock Pin Wrench	Clamp	Differential Screw	Clamp Wrench
MVQN R/L 2020 K16-K	CV160301	BS05000	SS20	GA06002	F0602900	SS30
MVQN R/L 2525 M16-K	CV160301	BS05000	SS20	GA06002	F0602900	SS30
MVQN R/L 3225 P16-K	CV160301	BS05000	SS20	GA06002	F0602900	SS30

MVVN-K 72°30' Toolholders | Ferros de torno | Herramientas de torneado

(M-K) DOUBLE LOCK SYSTEM



72°30'



Axial: -6°
Radial: 0°

Order Code	Reference	Dimensions (mm)					Insert	WT	Stock	
		HF = H	B	LF	LH	WF			R	L
212289100	MVVN N 2020 K16-K	20	20	125	43	10,0	VN.. 1604..	0,450	◈	◈
212289200	MVVN N 2525 M16-K	25	25	150	43	12,5	VN.. 1604..	0,800	◈	◈

◈ Stock item | Produto de stock | Itens de stock

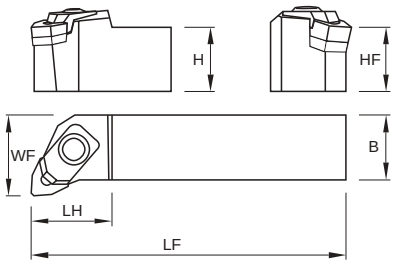
◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

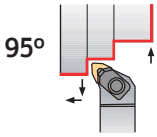
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Lock Pin	Lock Pin Wrench	Clamp	Differential Screw	Clamp Wrench
MVVN N 2020 K16-K	CV160301	BS05000	SS20	GA06002	F0602900	SS30
MVVN N 2525 M16-K	CV160301	BS05000	SS20	GA06002	F0602900	SS30

MWLN 95° Toolholders | Ferros de torno | Herramientas de torneado

(M) WEDGE CLAMP SYSTEM





Axial: -6,5°
Radial: -6,5°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212285300	212285400	MWLN R/L 1616 H06	16	16	100	15	20	WN.. 0604..	0,200	◈	◈
212048200	212285500	MWLN R/L 2020 K06	20	20	125	25	25	WN.. 0604..	0,450	◈	◈
212285600	212285700	MWLN R/L 2525 M06	25	25	150	25	32	WN.. 0604..	0,800	◈	◈
212246200	212285800	MWLN R/L 2020 K08	20	20	125	34	25	WN.. 0804..	0,450	◈	◈
212054000	212042400	MWLN R/L 2525 M08	25	25	150	34	32	WN.. 0804..	0,800	◈	◈
212285900	212286000	MWLN R/L 3225 P08	32	25	170	34	32	WN.. 0804..	1,200	◈	◈
212010800	212286100	MWLN R/L 3232 P08	32	32	170	34	40	WN.. 0804..	1,400	◈	◈

◈ Stock item | Produto de stock | Itens de stock

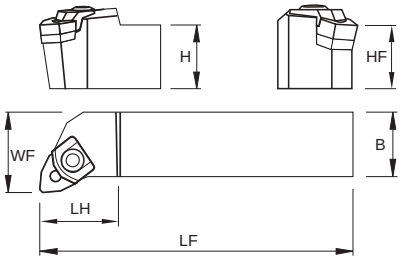
◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

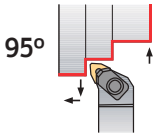
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Lock Pin	Lock Pin Screw	Wedge Clamp	Wrench
MWLN R/L 1616 H06	CW060300	BC04501	D0300700	GW05000	SS25
MWLN R/L 2020 K06	CW060300	BC04500	D0300700	GW05000	SS25
MWLN R/L 2525 M06	CW060300	BC04500	D0300700	GW05000	SS25
MWLN R/L 2020 K08	CW080500	BC06000	D0400900	GW08000	SS50
MWLN R/L 2525 M08	CW080500	BC06000	D0400900	GW08000	SS50
MWLN R/L 3225 P08	CW080500	BC06000	D0400900	GW08000	SS50
MWLN R/L 3232 P08	CW080500	BC06000	D0400900	GW08000	SS50

MWLN-K 95° Toolholders | Ferros de torno | Herramientas de torneado

(M-K) DOUBLE LOCK SYSTEM





Axial: -5,5°
Radial: -6,5°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212290500	212290600	MWLN R/L 2020 K08-K	20	20	125	34	25	WN.. 0804..	0,450	◉	◉
212250200	212290700	MWLN R/L 2525 M08-K	25	25	150	34	32	WN.. 0804..	0,800	◉	◉
212290800	212290900	MWLN R/L 3232 P08-K	32	32	170	34	40	WN.. 0804..	1,400	◉	◉

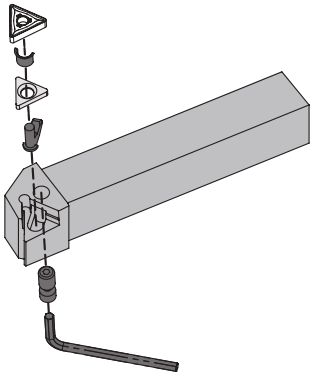
◉ Stock item | Produto de stock | Itens de stock

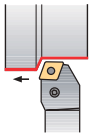
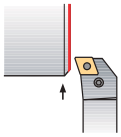
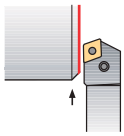
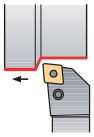
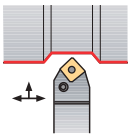
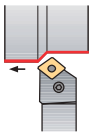
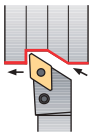
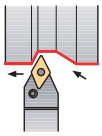
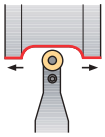
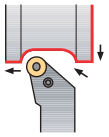
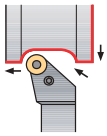
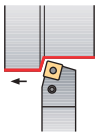
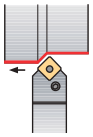
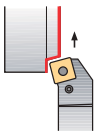
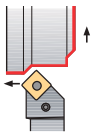
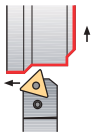
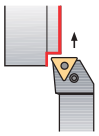
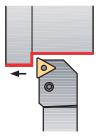
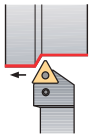
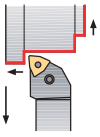
○ Available under request | Disponível sobre consulta | Disponible bajo consulta

SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Lock Pin	Lock Pin Screw	Wedge Clamp	Wrench
MWLN R/L 2020 K08-K	CW080500	BC06000	D0400900	GW06000	SS25
MWLN R/L 2525 M08-K	CW080500	BC06000	D0400900	GW06000	SS25
MWLN R/L 3232 P08-K	CW080500	BC06000	D0400900	GW06000	SS25

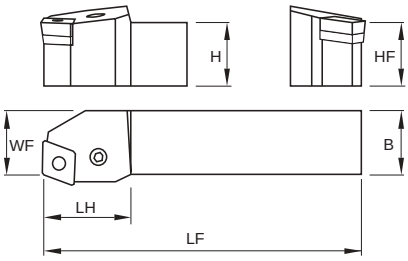
(P) LEVER LOCK SYSTEM

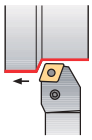


PCBN 75°  PAGE C - 695 CN.. 1204.. CN.. 1606.. CN.. 1906.. CN..2509..	**PCFN 90°**  PAGE C - 696 CN.. 1204. CN.. 1606.. CN.. 1906..	**PCKN 75°**  PAGE C - 697 CN.. 1204.... CN.. 1906.. CN.. 2506..	**PCLN 95°**  PAGE C - 698 CN..0903.. ... CN..2509..	**PCMN 50°**  PAGE C - 700 SN.. 1204.. SN.. 1906..	**PCSN 45°**  PAGE C - 701 CN.. 1204.. CN.. 1606.. CN.. 1906..
PDJN 93°  PAGE C - 702 DN.. 1104.. DN.. 1504.. DN.. 1506..	**PDNN 63°**  PAGE C - 703 DN.. 1504.. DN.. 1506..	**PRDC**  PAGE C - 704 RC.. 1003M0 ... RC.. 3209M0	**PRSC**  PAGE C - 706 RC.. 10..32	**PRSN**  PAGE C - 707 RN.. 09..25	**PSBN 75°**  PAGE C - 708 SN.. 0903.. ... SN.. 2507..
PSDN 45°  PAGE C - 709 SN.. 0903.. ... SN.. 2507..	**PSKN 75°**  PAGE C - 710 SN.. 0903.. ... SN.. 2507..	**PSSN 45°**  PAGE C - 711 SN.. 0903.. ... SN.. 2507..	**PTDN 45°**  PAGE C - 712 TN.. 2204..	**PTFN 90°**  PAGE C - 713 TN.. 1604.. TN.. 2204.. TN.. 2706..	**PTGN 90°**  PAGE C - 714 TN.. 1604.. ... TN.. 3307..
PTTN 60°  PAGE C - 715 TN.. 1604.. TN.. 2204..	**PWLN 95°**  PAGE C - 716 WN.. 0604.. WN.. 0804..				

PCBN 75° Toolholders | Ferros de torno | Herramientas de torneado

(P) LEVER LOCK TOOLHOLDERS





Axial: -7,25°
Radial: -4,25°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
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212011200	212010900	PCBN R/L 2525 M12	25	25	150	28	22	CN.. 1204..	0,750	◉	◉
212423100	212423200	PCBN R/L 3225 P12	32	25	170	34	22,0	CN.. 1204..	0,750	◉	◉
212291200	212291300	PCBN R/L 2525 M16	25	25	150	34	22	CN.. 1606..	0,750	◉	◉
212291400	212291500	PCBN R/L 3225 P16	32	25	170	34	22	CN.. 1606..	1,050	◉	◉
212291600	212291700	PCBN R/L 3232 P16	32	32	170	34	27	CN.. 1606..	1,300	◉	◉
212291800	212291900	PCBN R/L 3225 P19	32	25	170	42	22	CN.. 1906..	1,050	◉	◉
212011300	212011000	PCBN R/L 3232 P19	32	32	170	42	27	CN.. 1906..	1,300	◉	◉
212011400	212011100	PCBN R/L 4040 S19	40	40	250	45	35	CN.. 1906..	3,050	◉	◉
212387900	212388000	PCBN R/L 4040 P25	40	40	250	48	41	CN.. 2509..	3,100	◉	◉
212388100	212388200	PCBN R/L 5050 T25	50	50	300	50	51	CN.. 2509..	4,000	◉	◉

◉ Stock item | Produto de stock | Itens de stock

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

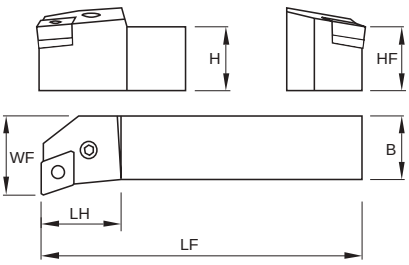
SPARE PARTS Acessórios | Repuestos

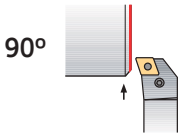
Order separately

Cutter Reference	Shim	Shim Pin	Shim Pin Punch	Lever	Lever Screw	Wrench
PCBN R/L 2020 K12	CC120301	BE05500	BF47509	AN13100	PA0802100	SS30
PCBN R/L 2525 M12	CC120301	BE05500	BF47509	AN13100	PA0802100	SS30
PCBN R/L 3225 P12	CC120301	BE05500	BF47509	AN13100	PA0802100	SS30
PCBN R/L 2525 M16	CC160500	BE07000	BF65012	AN17100	PA0802300	SS30
PCBN R/L 3225 P16	CC160500	BE07000	BF65012	AN17100	PA0802300	SS30
PCBN R/L 3232 P16	CC160500	BE07000	BF65012	AN17100	PA0802300	SS30
PCBN R/L 3225 P19	CC190500	BE08500	BF80012	AN20800	PA1002700	SS40
PCBN R/L 3232 P19	CC190500	BE08500	BF80012	AN20800	PA1002700	SS40
PCBN R/L 4040 S19	CC190500	BE08500	BF80012	AN20800	PA1002700	SS40
PCBN R/L 4040 S25	CC250700	BE10500	BF12520	AN25200	PA1203600	SS50
PCBN R/L 5050 T25	CC250700	BE10500	BF12520	AN25200	PA1203600	SS50

PCFN 90° Toolholders | Ferros de torno | Herramientas de torneado

(P) LEVER LOCK TOOLHOLDERS





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Radial: -6°

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212292200	212292300	PCFN R/L 2525 M16	25	25	150	34	32	CN.. 1606..	0,750	◈	◈
212292400	212292500	PCFN R/L 3225 P16	32	25	170	34	32	CN.. 1606..	1,050	◈	◈
212292600	212292700	PCFN R/L 3232 P16	32	32	170	34	40	CN.. 1606..	1,300	◈	◈
212292800	212292900	PCFN R/L 3225 P19	32	25	170	42	32	CN.. 1906..	1,050	◈	◈
212293000	212293100	PCFN R/L 3232 P19	32	32	170	42	40	CN.. 1906..	1,300	◈	◈
212293200	212293300	PCFN R/L 4040 S19	40	40	250	45	50	CN.. 1906..	3,050	◈	◈

◈ Stock item | Produto de stock | Itens de stock

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

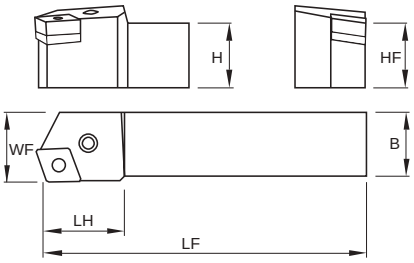
SPARE PARTS Acessórios | Repuestos

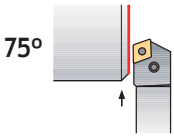
Order separately

Cutter Reference	Shim	Shim Pin	Shim Pin Punch	Lever	Lever Screw	Wrench
PCFN R/L 2525 M12	CC120301	BE05500	BF47509	AN13100	PA0802100	SS30
PCFN R/L 2525 M16	CC160500	BE07000	BF65012	AN17100	PA0802300	SS30
PCFN R/L 3225 P16	CC160500	BE07000	BF65012	AN17100	PA0802300	SS30
PCFN R/L 3232 P16	CC160500	BE07000	BF65012	AN17100	PA0802300	SS30
PCFN R/L 3225 P19	CC190500	BE08500	BF80012	AN20800	PA1002700	SS40
PCFN R/L 3232 P19	CC190500	BE08500	BF80012	AN20800	PA1002700	SS40
PCFN R/L 4040 S19	CC190500	BE08500	BF80012	AN20800	PA1002700	SS40

PCKN 75° Toolholders | Ferros de torno | Herramientas de torneado

(P) LEVER LOCK TOOLHOLDERS





Axial: -6,5°
Radial: -5,5°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
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212011700	212293500	PCKN R/L 2525 M12	25	25	150	28	32	CN.. 1204..	0,750	⊛	⊛
212293600	212011500	PCKN R/L 3225 P12	32	25	170	28	32	CN.. 1204..	1,050	⊛	⊛
212293800	212293900	PCKN R/L 3232 P19	32	32	170	34	40	CN.. 1906..	1,300	⊛	⊛
212294000	212294100	PCKN R/L 4040 S19	40	40	250	45	50	CN.. 1906..	3,050	⊛	⊛
212294200	212294300	PCKN R/L 4040 S25	40	40	250	45	50	CN.. 2509..	3,050	⊛	⊛
212294400	212294500	PCKN R/L 5050 T25	50	50	300	45	60	CN.. 2509..	5,850	⊛	⊛

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

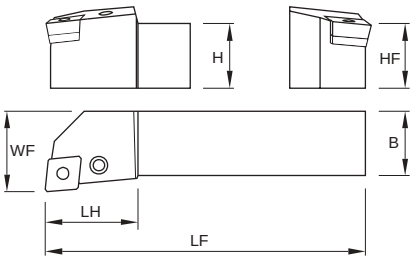
SPARE PARTS Acessórios | Repuestos

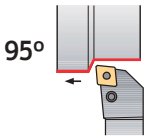
Order separately

Cutter Reference	Shim	Shim Pin	Shim Pin Punch	Lever	Lever Screw	Wrench
PCKN R/L 2020 K12	CC120301	BE05500	BF47509	AN13100	PA0802100	SS30
PCKN R/L 2525 M12	CC120301	BE05500	BF47509	AN13100	PA0802100	SS30
PCKN R/L 3225 P12	CC120301	BE05500	BF47509	AN13100	PA0802100	SS30
PCKN R/L 3232 P19	CC190500	BE08500	BF80012	AN20800	PA1002700	SS40
PCKN R/L 4040 S19	CC190500	BE08500	BF80012	AN20800	PA1002700	SS40
PCKN R/L 4040 S25	CC250700	BE10500	BF12520	AN25200	PA1203600	SS50
PCKN R/L 5050 T25	CC250700	BE10500	BF12520	AN25200	PA1203600	SS50

PCLN 95° Toolholders | Ferros de torno | Herramientas de torneado

(P) LEVER LOCK TOOLHOLDERS





Axial: -6,5°
Radial: -6,5°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
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212294800	212294900	PCLN R/L 2020 K09	20	20	125	27	25	CN.. 0903..	0,400	◉	◉
212295000	212295100	PCLN R/L 2525 M09	25	25	150	27	32	CN.. 0903..	0,750	◉	◉
212012300	212011800	PCLN R/L 1616 H12	16	16	100	26	20	CN.. 1204..	0,250	◉	◉
212012400	212011900	PCLN R/L 2020 K12	20	20	125	28	25	CN.. 1204..	0,400	◉	◉
212044800	212031500	PCLN R/L 2525 M12	25	25	150	28	32	CN.. 1204..	0,750	◉	◉
212295200	212295300	PCLN R/L 3225 P12	32	25	170	28	32	CN.. 1204..	1,050	◉	◉
212058200	212295400	PCLN R/L 3232 P12	32	32	170	28	40	CN.. 1204..	1,300	◉	◉
212036400	212168100	PCLN R/L 2525 M16	25	25	150	34	32	CN.. 1606..	0,750	◉	◉
212295500	212295600	PCLN R/L 3225 P16	32	25	170	34	32	CN.. 1606..	1,050	◉	◉
212295700	212012100	PCLN R/L 3232 P16	32	32	170	34	40	CN.. 1606..	1,300	◉	◉
212295800	212012200	PCLN R/L 4040 S16	40	40	250	34	50	CN.. 1606..	3,050	◉	◉
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212058300	212296200	PCLN R/L 3232 P19	32	32	170	42	40	CN.. 1906..	1,300	◉	◉
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212296400	212296500	PCLN R/L 4040 S25	40	40	250	45	50	CN.. 2509..	3,050	◉	◉
212296600	212296700	PCLN R/L 5050 T25	50	50	300	45	60	CN.. 2509..	5,850	◉	◉

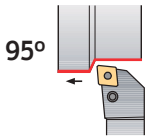
◉ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Spare Parts: C - 846 Technical Data: C - 856

palbit

PCLN 95° Toolholders | Ferros de torno | Herramientas de torneado

(P) LEVER LOCK TOOLHOLDERS



Axial: -6,5°
Radial: -6,5°

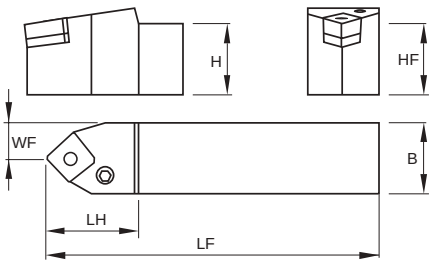
SPARE PARTS Acessórios | Repuestos

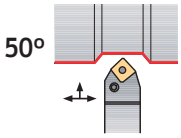
Order separately

Cutter Reference	Shim	Shim Pin	Shim Pin Punch	Lever	Lever Screw	Wrench
PCLN R/L 1616 H09	CC090300	BE04400	BF40009	AN01200	PA0601700	SS25
PCLN R/L 2020 K09	CC090300	BE04400	BF40009	AN01200	PA0601700	SS25
PCLN R/L 2525 M09	CC090300	BE04400	BF40009	AN01200	PA0601700	SS25
PCLN R/L 1616 H12	CC120301	BE05500	BF47509	AC13200	PA0801700	SS30
PCLN R/L 2020 K12	CC120301	BE05500	BF47509	AC13200	PA0802100	SS30
PCLN R/L 2525 M12	CC120301	BE05500	BF47509	AC13200	PA0802100	SS30
PCLN R/L 3225 P12	CC120301	BE05500	BF47509	AC13200	PA0802100	SS30
PCLN R/L 3232 P12	CC120301	BE05500	BF47509	AC13200	PA0802100	SS30
PCLN R/L 2525 M16	CC160500	BE07000	BF65012	AN17100	PA0802300	SS30
PCLN R/L 3225 P16	CC160500	BE07000	BF65012	AN17100	PA0802300	SS30
PCLN R/L 3232 P16	CC160500	BE07000	BF65012	AN17100	PA0802300	SS30
PCLN R/L 4040 S16	CC160500	BE07000	BF65012	AN17100	PA0802300	SS30
PCLN R/L 2525 M19	CC190500	BE08500	BF80012	AN20800	PA1002700	SS40
PCLN R/L 3225 P19	CC190500	BE08500	BF80012	AN20800	PA1002700	SS40
PCLN R/L 3232 P19	CC190500	BE08500	BF80012	AN20800	PA1002700	SS40
PCLN R/L 4040 S19	CC190500	BE08500	BF80012	AN20800	PA1002700	SS40
PCLN R/L 5050 T19	CC190500	BE08500	BF80012	AN20800	PA1002700	SS40
PCLN R/L 4040 S25	CC250700	BE10500	BF12520	AN25200	PA1203600	SS50
PCLN R/L 5050 T25	CC250700	BE10500	BF12520	AN25200	PA1203600	SS50

PCMN 50° Toolholders | Ferros de torno | Herramientas de torneado

(P) LEVER LOCK TOOLHOLDERS





Axial: -6°
Radial: 0°

Order Code	Reference	Dimensions (mm)					Insert	WT	Stock
		HF = H	B	LF	LH	WF			
212296800	PCMN N 2020 K12	20	20	125	34	10,0	CN.. 1204..	0,400	●
212296900	PCMN N 2525 M12	25	25	150	34	12,5	CN.. 1204..	0,750	●
212297000	PCMN N 3225 P12	32	25	170	34	12,5	CN.. 1204..	1,050	●
212297100	PCMN N 3232 P19	32	32	170	42	16,0	CN.. 1906..	1,300	●
212297200	PCMN N 4040 S19	40	40	250	42	20,0	CN.. 1906..	3,050	●

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

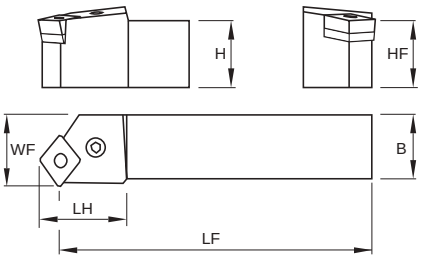
SPARE PARTS Acessórios | Repuestos

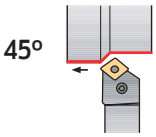
Order separately

Cutter Reference	Shim	Shim Pin	Shim Pin Punch	Lever	Lever Screw	Wrench
PCMN N 2020 K12	CC120301	BE05500	BF47509	AN13100	A0802100	SS30
PCMN N 2525 M12	CC120301	BE05500	BF47509	AN13100	A0802100	SS30
PCMN N 3225 P12	CC120301	BE05500	BF47509	AN13100	A0802100	SS30
PCMN N 3232 P19	CC190500	BE08500	BF80012	AN20800	A1002700	SS40
PCMN N 4040 S19	CC190500	BE08500	BF80012	AN20800	A1002700	SS40

PCSN 45° Toolholders | Ferros de torno | Herramientas de torneado

(P) LEVER LOCK TOOLHOLDERS





Axial: -5,75°
Radial: -5,75°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212297300	212297400	PCSN R/L 2020 K12	20	20	125	28	25	CN.. 1204..	0,400	⊛	⊛
212297500	212012800	PCSN R/L 2525 M12	25	25	150	28	32	CN.. 1204..	0,750	⊛	⊛
212297600	212297700	PCSN R/L 2525 M16	25	25	150	34	32	CN.. 1606..	0,750	⊛	⊛
212297800	212297900	PCSN R/L 3225 P16	32	25	170	34	32	CN.. 1606..	1,050	⊛	⊛
212013100	212298000	PCSN R/L 3232 P16	32	32	170	34	40	CN.. 1606..	1,300	⊛	⊛
212298100	212298200	PCSN R/L 3225 P19	32	25	170	42	32	CN.. 1906..	1,050	⊛	⊛
212298300	212298400	PCSN R/L 3232 P19	32	32	170	42	40	CN.. 1906..	1,300	⊛	⊛
212298500	212298600	PCSN R/L 4040 S19	40	40	250	45	50	CN.. 1906..	3,050	⊛	⊛

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

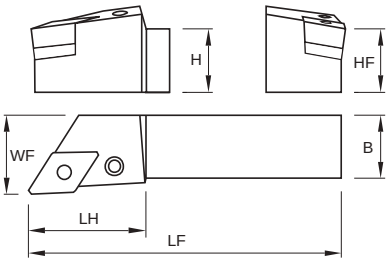
SPARE PARTS Acessórios | Repuestos

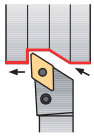
Order separately

Cutter Reference	Shim	Shim Pin	Shim Pin Punch	Lever	Lever Screw	Wrench
PCSN R/L 2020 K12	CC120301	BE05500	BF47509	AN13100	PA0802100	SS30
PCSN R/L 2525 M12	CC120301	BE05500	BF47509	AN13100	PA0802100	SS30
PCSN R/L 2525 M16	CC160500	BE07000	BF65012	AN17100	PA0802300	SS30
PCSN R/L 3225 P16	CC160500	BE07000	BF65012	AN17100	PA0802300	SS30
PCSN R/L 3232 P16	CC160500	BE07000	BF65012	AN17100	PA0802300	SS30
PCSN R/L 3225 P19	CC190500	BE08500	BF80012	AN20800	PA1002700	SS40
PCSN R/L 3232 P19	CC190500	BE08500	BF80012	AN20800	PA1002700	SS40
PCSN R/L 4040 S19	CC190500	BE08500	BF80012	AN20800	PA1002700	SS40

PDJN 93° Toolholders | Ferros de torno | Herramientas de torneado

(P) LEVER LOCK TOOLHOLDERS





Axial: 6,25°
Radial: -6,75°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212057800	212298700	PDJN R/L 1616 H11	16	16	100	28	20	DN.. 1104..	0,250	◈	◈
212246900	212246800	PDJN R/L 2020 K11	20	20	125	28	25	DN.. 1104..	0,400	◈	◈
212247500	212247600	PDJN R/L 2525 M11	25	25	150	28	32	DN.. 1104..	0,750	◈	◈
212298800	212298900	PDJN R/L 3225 P11	32	25	170	28	32	DN.. 1104..	1,050	◈	◈
212013600	212013200	PDJN R/L 2020 K15	20	20	125	34	25	DN.. 1506..	0,400	◈	◈
212037300	212031600	PDJN R/L 2525 M15	25	25	150	34	32	DN.. 1506..	0,750	◈	◈
212299000	212013400	PDJN R/L 3225 P15	32	25	170	34	32	DN.. 1506..	1,050	◈	◈
212013800	212013500	PDJN R/L 3232 P15	32	32	170	34	40	DN.. 1506..	1,300	◈	◈
212299100	212299200	PDJN R/L 4025 R15	40	25	200	34	32	DN.. 1506..	1,850	◈	◈
212299300	212299400	PDJN R/L 5032 S15	50	32	250	34	40	DN.. 1506..	2,900	◈	◈

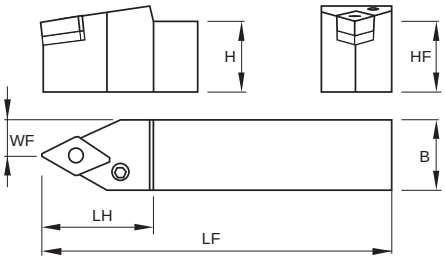
◈ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

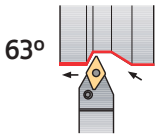
SPARE PARTS Acessórios | Repuestos

	Order separately						for inserts DN.. 1504..	
Cutter Reference	Shim	Shim Pin	Shim Pin Punch	Lever	Lever Screw	Wrench	Shim	Shim Pin
PDJN R/L 1616 H11	CD110300	BE04400	BF40009	AN01200	PA0601700	SS25	-	-
PDJN R/L 2020 K11	CD110300	BE04400	BF40009	AN01200	PA0601700	SS25	-	-
PDJN R/L 2525 M11	CD110300	BE04400	BF40009	AN01200	PA0601700	SS25	-	-
PDJN R/L 3225 P11	CD110300	BE04400	BF40009	AN01200	PA0601700	SS25	-	-
PDJN R/L 2020 K15	CD150300	BE05500	BF47509	AN14700	PA0802101	SS30	CD150500	BE05401
PDJN R/L 2525 M15	CD150300	BE05500	BF47509	AN14700	PA0802101	SS30	CD150500	BE05401
PDJN R/L 3225 P15	CD150300	BE05500	BF47509	AN14700	PA0802101	SS30	CD150500	BE05401
PDJN R/L 3232 P15	CD150300	BE05500	BF47509	AN14700	PA0802101	SS30	CD150500	BE05401
PDJN R/L 4025 R15	CD150300	BE05500	BF47509	AN14700	PA0802101	SS30	CD150500	BE05401
PDJN R/L 5032 S15	CD150300	BE05500	BF47509	AN14700	PA0802101	SS30	CD150500	BE05401

PDNN 63° Toolholders | Ferros de torno | Herramientas de torneado

(P) LEVER LOCK TOOLHOLDERS





Axial: -8°
Radial: -2,5°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212299500	212299600	PDNN R/L 2020 K15	20	20	125	34	10,0	DN.. 1506..	0,400	◈	◈
212299800	212299900	PDNN R/L 2525 M15	25	25	150	34	12,5	DN.. 1506..	0,750	◈	◈
212300100	212300200	PDNN R/L 3225 P15	32	25	170	34	12,5	DN.. 1506..	1,050	◈	◈
212300300	212300400	PDNN R/L 3232 P15	32	32	170	34	16,0	DN.. 1506..	1,300	◈	◈
212300600	212300700	PDNN R/L 4025 S15	40	25	250	34	12,5	DN.. 1506..	1,850	◈	◈
212300900	212301000	PDNN R/L 5032 S15	50	32	250	34	16,0	DN.. 1506..	2,900	◈	◈
212299700		PDNN N 2020 K15	20	20	125	34	10,0	DN.. 1506..	0,400	◈	
212300000		PDNN N 2525 M15	25	25	150	34	12,5	DN.. 1506..	0,750	◈	
212250000		PDNN N 3225 P15	32	25	170	34	12,5	DN.. 1506..	1,050	◈	
212300500		PDNN N 3232 P15	32	32	170	34	16,0	DN.. 1506..	1,300	◈	
212300800		PDNN N 4025 S15	40	25	250	34	12,5	DN.. 1506..	1,850	◈	
212301100		PDNN N 5032 S15	50	32	250	34	16,0	DN.. 1506..	2,900	◈	

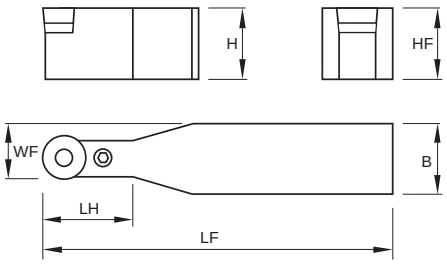
◈ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

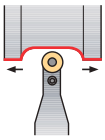
SPARE PARTS Acessórios | Repuestos

	Order separately						for inserts DN.. 1504..	
Cutter Reference	Shim	Shim Pin	Shim Pin Punch	Lever	Lever Screw	Wrench	Shim	Shim Pin
PDNN R/L/N 2020 K15	CD150300	BE05500	BF47509	AN14700	PA0802101	SS30	CD150500	BE05401
PDNN R/L/N 2525 M15	CD150300	BE05500	BF47509	AN14700	PA0802101	SS30	CD150500	BE05401
PDNN R/L/N 3225 P15	CD150300	BE05500	BF47509	AN14700	PA0802101	SS30	CD150500	BE05401
PDNN R/L/N 3232 P15	CD150300	BE05500	BF47509	AN14700	PA0802101	SS30	CD150500	BE05401
PDNN R/L/N 4025 S15	CD150300	BE05500	BF47509	AN14700	PA0802101	SS30	CD150500	BE05401
PDNN R/L/N 5032 S15	CD150300	BE05500	BF47509	AN14700	PA0802101	SS30	CD150500	BE05401

PRDC Toolholders | Ferros de torno | Herramientas de torneado

(P) LEVER LOCK TOOLHOLDERS



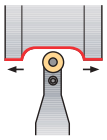


Axial: 0º
Radial: 0º

Order Code	Reference	Dimensions (mm)					Insert	WT	Stock
		HF = H	B	LF	LH	WF			
212051100	PRDC N 2020 K10	20	20	125	22	15,0	RC.. 1003M0	0,400	●
212169000	PRDC N 2525 M10	25	25	150	22	18,5	RC.. 1003M0	0,750	●
212301200	PRDC N 3225 P10	32	25	170	22	18,5	RC.. 1003M0	1,050	●
212301300	PRDC N 2020 K12	20	20	125	28	16,0	RC.. 1204M0	0,400	●
212042800	PRDC N 2525 M12	25	25	150	28	18,5	RC.. 1204M0	0,750	●
212301400	PRDC N 3225 P12	32	25	170	28	18,5	RC.. 1204M0	1,050	●
212422400	PRDC N 3232 P12	32	32	170	28	22,0	RC.. 1204M0	1,300	○
212301500	PRDC N 4025 S12	40	25	250	28	18,5	RC.. 1204M0	1,850	●
212020600	PRDC N 3225 P16	32	25	170	34	20,5	RC.. 1606M0	1,050	●
212301600	PRDC N 3232 P16	32	32	170	34	24,0	RC.. 1606M0	1,300	●
212301700	PRDC N 3232 P20	32	32	170	42	26,0	RC.. 2006M0	1,300	●
212301800	PRDC N 4040 S20	40	40	250	42	30,0	RC.. 2006M0	3,050	●
212301900	PRDC N 4040 S25	40	40	250	45	32,5	RC.. 2507M0	3,050	●
212293700	PRDC N 4040 U25	40	40	350	45	32,5	RC.. 2507M0	3,050	○
212302000	PRDC N 5050 U25	50	50	350	45	37,5	RC.. 2507M0	5,850	○
212302100	PRDC N 5050 V32	50	50	400	52	41,0	RC.. 3209M0	5,850	○

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

(P) LEVER LOCK TOOLHOLDERS



Axial: 0º
Radial: 0º

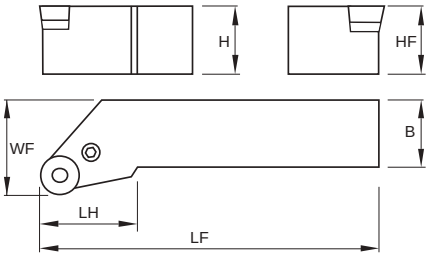
SPARE PARTS Acessórios | Repuestos

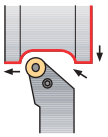
Order separately

Cutter Reference	Shim	Shim Pin	Shim Pin Punch	Lever	Lever Screw	Wrench
PRDC N 2020 K10	CR100300	BE03800	BF40009	AC11700	PA0501400	SS20
PRDC N 2525 M10	CR100300	BE03800	BF40009	AC11700	PA0501400	SS20
PRDC N 3225 P10	CR100300	BE03800	BF40009	AC11700	PA0501400	SS20
PRDC N 2020 K12	CR120300	BE03800	BF40009	AC13300	PA0601700	SS25
PRDC N 2525 M12	CR120300	BE03800	BF40009	AC13300	PA0601700	SS25
PRDC N 3225 P12	CR120300	BE03800	BF40009	AC13300	PA0601700	SS25
PRDC N 3232 P12	CR120300	BE03800	BF40009	AC13300	PA0601700	SS25
PRDC N 4025 S12	CR120300	BE03800	BF40009	AC13300	PA0601700	SS25
PRDC N 3225 P16	CR160500	BE05400	BF47509	AC18000	PA0602100	SS25
PRDC N 3232 P16	CR160500	BE05400	BF47509	AC18000	PA0602100	SS25
PRDC N 3232 P20	CR200500	BE07000	BF65012	AC18700	PA0802400	SS30
PRDC N 4040 S20	CR200500	BE07000	BF65012	AC18700	PA0802400	SS30
PRDC N 4040 S25	CR250600	BE08500	BF80012	AC23000	PA1003000	SS40
PRDC N 4040 U25	CR250600	BE08500	BF80012	AC23000	PA1003000	SS40
PRDC N 5050 U25	CR250600	BE08500	BF80012	AC23000	PA1003000	SS40
PRDC N 5050 V32	CR320600	BE10500	BF12520	AC26700	PA1203600	SS50

PRSC Toolholders | Ferros de torno | Herramientas de torneado

(P) LEVER LOCK TOOLHOLDERS





Axial: 0º
Radial: 0º

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212302200	212302300	PRSC R/L 2020 K10	20	20	125	28	25	RC.. 1003M0	0,400	◈	◈
212302400	212302500	PRSC R/L 2525 M10	25	25	150	28	32	RC.. 1003M0	0,750	◈	◈
212302600	212302700	PRSC R/L 3225 P10	32	25	170	28	32	RC.. 1003M0	1,050	◈	◈
212302800	212302900	PRSC R/L 2020 K12	20	20	125	28	25	RC.. 1204M0	0,400	◈	◈
212303000	212303100	PRSC R/L 2525 M12	25	25	150	28	32	RC.. 1204M0	0,750	◈	◈
212303200	212303300	PRSC R/L 3225 P12	32	25	170	28	32	RC.. 1204M0	1,050	◈	◈
212303500	212303400	PRSC R/L 2525 M16	25	25	150	34	32	RC.. 1606M0	0,750	◈	◈
212020800	212020700	PRSC R/L 3225 P16	32	25	170	34	32	RC.. 1606M0	1,050	◈	◈
212303700	212303600	PRSC R/L 3232 P20	32	32	170	42	40	RC.. 2006M0	1,300	◈	◈
212303900	212303800	PRSC R/L 4040 S20	40	40	250	42	50	RC.. 2006M0	3,050	◈	◈
212304100	212304000	PRSC R/L 4040 S25	40	40	250	45	50	RC.. 2507M0	3,050	◈	◈
212020900	212304200	PRSC R/L 5050 T32	50	50	300	45	63	RC.. 3209M0	5,850	◈	◈

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

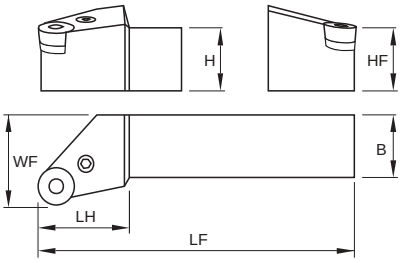
SPARE PARTS Acessórios | Repuestos

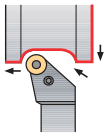
Order separately

Cutter Reference	Shim	Shim Pin	Shim Pin Punch	Lever	Lever Screw	Wrench
PRSC R/L 2020 K10	CR100300	BE03800	BF40009	AC11700	PA0501400	SS20
PRSC R/L 2525 M10	CR100300	BE03800	BF40009	AC11700	PA0501400	SS20
PRSC R/L 3225 P10	CR100300	BE03800	BF40009	AC11700	PA0501400	SS20
PRSC R/L 2020 K12	CR120300	BE03800	BF40009	AC13300	PA0601700	SS25
PRSC R/L 2525 M12	CR120300	BE03800	BF40009	AC13300	PA0601700	SS25
PRSC R/L 3225 P12	CR120300	BE03800	BF40009	AC13300	PA0601700	SS25
PRSC R/L 2525 M16	CR160500	BE05400	BF47509	AC18000	PA0602100	SS25
PRSC R/L 3225 P16	CR160500	BE05400	BF47509	AC18000	PA0602100	SS25
PRSC R/L 3232 P20	CR200500	BE07000	BF65012	AC18700	PA0802400	SS30
PRSC R/L 4040 S20	CR200500	BE07000	BF65012	AC18700	PA0802400	SS30
PRSC R/L 4040 S25	CR250600	BE08500	BF80012	AC23000	PA0802400	SS40
PRSC R/L 5050 T32	CR320600	BE10500	BF12520	AC26700	PA1203600	SS50

PRSN Toolholders | Ferros de torno | Herramientas de torneado

(P) LEVER LOCK TOOLHOLDERS





Axial: -6º
Radial: -6º

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212046800	212304300	PRSN R/L 2020 K09	20	20	125	22	25	RNMG 090300	0,400	◈	◈
212046900	212304400	PRSN R/L 2525 M12	25	25	150	28	32	RNMG 120400	0,750	◈	◈
212047000	212304500	PRSN R/L 3225 P15	32	25	170	34	32	RNMG 150600	1,050	◈	◈
212304600	212304700	PRSN R/L 3232 P19	32	32	170	42	40	RNMG 190600	1,300	◈	◈
212304800	212304900	PRSN R/L 4040 S25	40	40	250	45	50	RNMG 250900	3,050	◈	◈

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

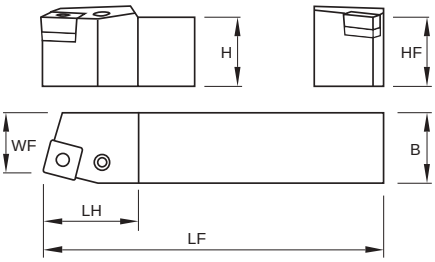
SPARE PARTS Acessórios | Repuestos

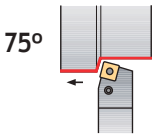
Order separately

Cutter Reference	Shim	Shim Pin	Shim Pin Punch	Lever	Lever Screw	Wrench
PRSN R/L 2020 K09	CR090300	BE03800	BF40009	AN01200	PA0601700	SS25
PRSN R/L 2525 M12	CR120302	BE05500	BF47509	AN13100	PA0802100	SS30
PRSN R/L 3225 P15	CR150500	BE07000	BF65012	AN17200	PA0802400	SS30
PRSN R/L 3232 P19	CR190500	BE08500	BF80012	AN20800	PA1002700	SS40
PRSN R/L 4040 S25	CR250601	BE10500	BF12520	AN25200	PA1203600	SS50

PSBN 75° Toolholders | Ferros de torno | Herramientas de torneado

(P) LEVER LOCK TOOLHOLDERS





Axial: -7,25°
Radial: -4,25°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212305000	212305100	PSBN R/L 1212 F09	12	12	80	18	11	SN.. 0903..	0,100	⚙	⚙
212305200	212305300	PSBN R/L 1616 H09	16	16	100	22	13	SN.. 0903..	0,250	⚙	⚙
212305400	212305500	PSBN R/L 2020 K09	20	20	125	22	17	SN.. 0903..	0,400	⚙	⚙
212032200	212032300	PSBN R/L 2020 K12	20	20	125	28	17	SN.. 1204..	0,400	⚙	⚙
212014300	212032400	PSBN R/L 2525 M12	25	25	150	28	22	SN.. 1204..	0,750	⚙	⚙
212305600	212305700	PSBN R/L 3225 P12	32	25	170	28	22	SN.. 1204..	1,050	⚙	⚙
212014400	212305800	PSBN R/L 2525 M15	25	25	150	34	22	SN.. 1506..	0,750	⚙	⚙
212305900	212306000	PSBN R/L 3232 P15	32	32	170	34	27	SN.. 1506..	1,300	⚙	⚙
212306100	212306200	PSBN R/L 3232 P19	32	32	170	42	27	SN.. 1906..	1,300	⚙	⚙
212306300	212306400	PSBN R/L 4040 S19	40	40	250	45	35	SN.. 1906..	3,050	⚙	⚙
212422500	212422600	PSBN R/L 5050 T19	50	50	300	50	43	SN.. 1906..	3,050	⚙	⚙
212306500	212014100	PSBN R/L 4040 S25	40	40	250	45	35	SN.. 2507..	3,050	⚙	⚙
212306600	212306700	PSBN R/L 5050 T25	50	50	300	45	43	SN.. 2507..	5,850	⚙	⚙

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

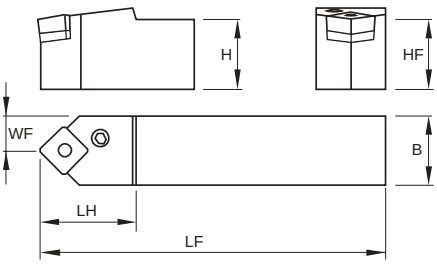
SPARE PARTS Acessórios | Repuestos

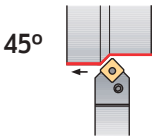
Order separately

Cutter Reference	Shim	Shim Pin	Shim Pin Punch	Lever	Lever Screw	Wrench
PSBN R/L 1212 F09	-	-	-	AN07800	PA0501000	SS20
PSBN R/L 1616 H09	CS090301	BE03800	-	AN01200	PA0601700	SS25
PSBN R/L 2020 K09	CS090301	BE03800	-	AN01200	PA0601700	SS25
PSBN R/L 2020 K12	CS120302	BE05500	BF47509	AN13100	PA0802100	SS30
PSBN R/L 2525 M12	CS120302	BE05500	BF47509	AN13100	PA0802100	SS30
PSBN R/L 3225 P12	CS120302	BE05500	BF47509	AN13100	PA0802100	SS30
PSBN R/L 2525 M15	CS150400	BE07000	BF65012	AN17100	PA0802300	SS30
PSBN R/L 3232 P15	CS150400	BE07000	BF65012	AN17100	PA0802300	SS30
PSBN R/L 3232 P19	CS190400	BE08500	BF80012	AN20800	PA1002700	SS40
PSBN R/L 4040 S19	CS190400	BE08500	BF80012	AN20800	PA1002700	SS40
PSBN R/L 5050 T19	CS190400	BE08500	BF80012	AN20800	PA1002700	SS40
PSBN R/L 4040 S25	CS250600	BE10500	BF12520	AN25200	PA1203600	SS50
PSBN R/L 5050 T25	CS250600	BE10500	BF12520	AN25200	PA1203600	SS50

PSDN 45° Toolholders | Ferros de torno | Herramientas de torneado

(P) LEVER LOCK TOOLHOLDERS





Axial: -7°
Radial: 0°

Order Code	Reference	Dimensions (mm)					Insert	WT	Stock
		HF = H	B	LF	LH	WF			
212306800	PSDN N 1010 E09	10	10	70	16	5,0	SN.. 0903..	0,070	◈
212306900	PSDN N 1212 F09	12	12	80	18	6,0	SN.. 0903..	0,100	◈
212307000	PSDN N 1616 H09	16	16	100	22	8,0	SN.. 0903..	0,250	◈
212056700	PSDN N 2020 K12	20	20	125	28	10,0	SN.. 1204..	0,400	◈
212307100	PSDN N 2525 M12	25	25	150	28	12,5	SN.. 1204..	0,750	◈
212307200	PSDN N 3225 P12	32	25	170	28	12,5	SN.. 1204..	1,050	◈
212307300	PSDN N 3232 P12	32	32	170	28	16,0	SN.. 1204..	1,300	◈
212307400	PSDN N 3225 P19	32	25	170	42	12,5	SN.. 1906..	1,050	◈
212249100	PSDN N 3232 P19	32	32	170	42	16,0	SN.. 1906..	1,300	◈
212307500	PSDN N 4040 S25	40	40	250	45	20,0	SN.. 2507..	3,050	◈
212307600	PSDN N 5050 T25	50	50	300	45	25,0	SN.. 2507..	5,850	◈

◈ Stock item | Produto de stock | Itens de stock

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

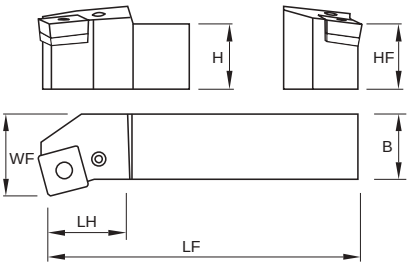
SPARE PARTS Acessórios | Repuestos

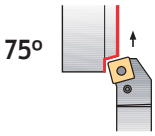
Order separately

Cutter Reference	Shim	Shim Pin	Shim Pin Punch	Lever	Lever Screw	Wrench
PSDN N 1010 E09	-	-	-	AN07800	PA0501000	SS20
PSDN N 1212 F09	-	-	-	AN07800	PA0501000	SS20
PSDN N 1616 H09	CS090301	BE03800	BF40009	AN01200	PA0601700	SS25
PSDN N 2020 K12	CS120302	BE05500	BF47509	AN13100	PA0802100	SS30
PSDN N 2525 M12	CS120302	BE05500	BF47509	AN13100	PA0802100	SS30
PSDN N 3225 P12	CS120302	BE05500	BF47509	AN13100	PA0802100	SS30
PSDN N 3232 P12	CS120302	BE05500	BF47509	AN13100	PA0802100	SS30
PSDN N 3225 P19	CS190400	BE08500	BF80012	AN20800	PA1002700	SS40
PSDN N 3232 P19	CS190400	BE08500	BF80012	AN20800	PA1002700	SS40
PSDN N 4040 S25	CS250600	BE10500	BF12520	AN25200	PA1203600	SS50
PSDN N 5050 T25	CS250600	BE10500	BF12520	AN25200	PA1203600	SS50

PSKN 75° Toolholders | Ferros de torno | Herramientas de torneado

(P) LEVER LOCK TOOLHOLDERS





Axial: -4,25°
Radial: -7,25°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212307700	212307800	PSKN R/L 1616 H09	16	16	100	22	20	SN.. 0903..	0,250	◈	◈
212307900	212308000	PSKN R/L 2020 K09	20	20	125	22	25	SN.. 0903..	0,400	◈	◈
212032500	212032600	PSKN R/L 2020 K12	20	20	125	28	25	SN.. 1204..	0,400	◈	◈
212032700	212032800	PSKN R/L 2525 M12	25	25	150	28	32	SN.. 1204..	0,750	◈	◈
212308100	212308200	PSKN R/L 3225 P12	32	25	170	28	32	SN.. 1204..	1,050	◈	◈
212308300	212308400	PSKN R/L 2525 M15	25	25	150	34	32	SN.. 1506..	0,750	◈	◈
212308500	212308600	PSKN R/L 3232 P15	32	32	170	34	40	SN.. 1506..	1,300	◈	◈
212308700	212308800	PSKN R/L 3232 P19	32	32	170	42	40	SN.. 1906..	1,300	◈	◈
212308900	212309000	PSKN R/L 4040 S19	40	40	250	45	50	SN.. 1906..	3,050	◈	◈
212309100	212309200	PSKN R/L 4040 S25	40	40	250	45	50	SN.. 2507..	3,050	◈	◈
212309300	212309400	PSKN R/L 5050 T25	50	50	300	45	60	SN.. 2507..	5,850	◈	◈

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

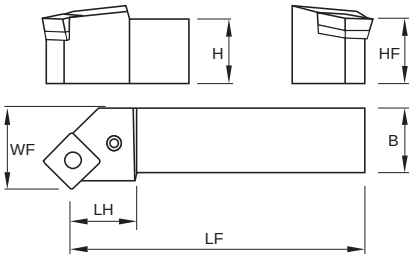
SPARE PARTS Acessórios | Repuestos

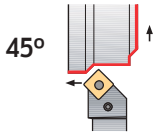
Order separately

Cutter Reference	Shim	Shim Pin	Shim Pin Punch	Lever	Lever Screw	Wrench
PSKN R/L 1616 H09	CS090301	BE03800	BF40009	AN01200	PA0601700	SS25
PSKN R/L 2020 K09	CS090301	BE03800	BF40009	AN01200	PA0601700	SS25
PSKN R/L 2020 K12	CS120302	BE05500	BF47509	AN13100	PA0802100	SS30
PSKN R/L 2525 M12	CS120302	BE05500	BF47509	AN13100	PA0802100	SS30
PSKN R/L 3225 P12	CS120302	BE05500	BF47509	AN13100	PA0802100	SS30
PSKN R/L 2525 M15	CS150400	BE07000	BF65012	AN17100	PA0802300	SS30
PSKN R/L 3232 P15	CS150400	BE07000	BF65012	AN17100	PA0802300	SS30
PSKN R/L 3232 P19	CS190400	BE08500	BF80012	AN20800	PA1002700	SS40
PSKN R/L 4040 S19	CS190400	BE08500	BF80012	AN20800	PA1002700	SS40
PSKN R/L 4040 S25	CS250600	BE10500	BF12520	AN25200	PA1203600	SS50
PSKN R/L 5050 T25	CS250600	BE10500	BF12520	AN25200	PA1203600	SS50

PSSN 45° Toolholders | Ferros de torno | Herramientas de torneado

(P) LEVER LOCK TOOLHOLDERS





Axial: -5,75°
Radial: -5,75°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212066500	212309500	PSSN R/L 1616 H09	16	16	100	22	20	SN.. 0903..	0,250	◈	◈
212066600	212309600	PSSN R/L 2020 K09	20	20	125	22	25	SN.. 0903..	0,400	◈	◈
212032900	212033000	PSSN R/L 2020 K12	20	20	125	28	25	SN.. 1204..	0,400	◈	◈
212026600	212026700	PSSN R/L 2525 M12	25	25	150	28	32	SN.. 1204..	0,750	◈	◈
212309700	212309800	PSSN R/L 3225 P12	32	25	170	28	32	SN.. 1204..	1,050	◈	◈
212066700	212309900	PSSN R/L 2525 M15	25	25	150	34	32	SN.. 1506..	0,750	◈	◈
212420500	212420600	PSSN R/L 3225 P15	32	25	170	42	32	SN.. 1506..	1,050	○	○
212066800	212015400	PSSN R/L 3232 P15	32	32	170	34	40	SN.. 1506..	1,300	◈	◈
212066900	212310000	PSSN R/L 3232 P19	32	32	170	42	40	SN.. 1906..	1,300	◈	◈
212067000	212310100	PSSN R/L 4040 S19	40	40	250	45	50	SN.. 1906..	3,050	◈	◈
212310200	212310300	PSSN R/L 5050 T19	50	50	300	45	60	SN.. 1906..	5,850	◈	◈
212310400	212310500	PSSN R/L 4040 S25	40	40	250	45	50	SN.. 2507..	3,050	◈	◈
212310600	212310700	PSSN R/L 5050 T25	50	50	300	45	60	SN.. 2507..	5,850	◈	◈

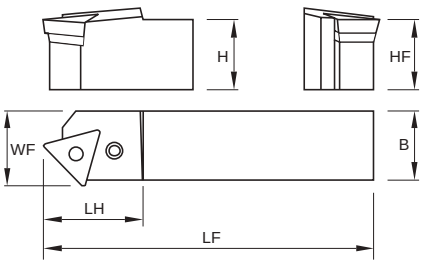
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

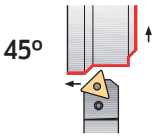
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Pin	Shim Pin Punch	Lever	Lever Screw	Wrench
			Order separately			
PSSN R/L 1616 H09	CS090301	BE03800	BF40009	AN01200	PA0601700	SS25
PSSN R/L 2020 K09	CS090301	BE03800	BF40009	AN01200	PA0601700	SS25
PSSN R/L 2020 K12	CS120302	BE05500	BF47509	AN13100	PA0802100	SS30
PSSN R/L 2525 M12	CS120302	BE05500	BF47509	AN13100	PA0802100	SS30
PSSN R/L 3225 P12	CS120302	BE05500	BF47509	AN13100	PA0802100	SS30
PSSN R/L 2525 M15	CS150400	BE07000	BF65012	AN17100	PA0802300	SS30
PSSN R/L 3225 P15	CS150400	BE07000	BF65012	AN17100	PA0802300	SS30
PSSN R/L 3232 P15	CS150400	BE07000	BF65012	AN17100	PA0802300	SS30
PSSN R/L 3232 P19	CS190400	BE08500	BF80012	AN20800	PA1002700	SS40
PSSN R/L 4040 S19	CS190400	BE08500	BF80012	AN20800	PA1002700	SS40
PSSN R/L 5050 T19	CS190400	BE08500	BF80012	AN20800	PA1002700	SS40
PSSN R/L 4040 S25	CS250600	BE10500	BF12520	AN25200	PA1203600	SS50
PSSN R/L 5050 T25	CS250600	BE10500	BF12520	AN25200	PA1203600	SS50

PTDN 45° Toolholders | Ferros de torno | Herramientas de torneado

(P) LEVER LOCK TOOLHOLDERS





Axial: -5°
Radial: -5°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212310800	212310900	PTDN R/L 2525 M22	25	25	150	34	27	TN.. 2204..	0,750	◈	◈
212311000	212311100	PTDN R/L 3225 P22	32	25	170	34	27	TN.. 2204..	1,050	◈	◈

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

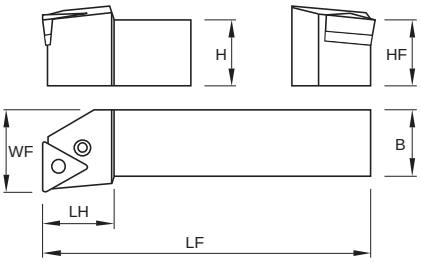
SPARE PARTS Acessórios | Repuestos

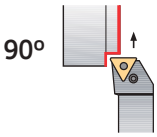
Order separately

Cutter Reference	Shim	Shim Pin	Shim Pin Punch	Lever	Lever Screw	Wrench
PTDN R/L 2525 M22	CT220302	BE05500	BF47509	AN13100	PA0802100	SS30
PTDN R/L 3225 P22	CT220302	BE05500	BF47509	AN13100	PA0802100	SS30

PTFN 90° Toolholders | Ferros de torno | Herramientas de torneado

(P) LEVER LOCK TOOLHOLDERS





Axial: -6°
Radial: -6°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212056500	212311200	PTFN R/L 1616 H16	16	16	100	22	20	TN.. 1604..	0,250	◈	◈
212031700	212015800	PTFN R/L 2020 K16	20	20	125	22	25	TN.. 1604..	0,400	◈	◈
212036500	212015900	PTFN R/L 2525 M16	25	25	150	22	32	TN.. 1604..	0,750	◈	◈
212311300	212311400	PTFN R/L 3225 P16	32	25	170	22	32	TN.. 1604..	1,050	◈	◈
212031800	212311500	PTFN R/L 2525 M22	25	25	150	28	32	TN.. 2204..	0,750	◈	◈
212016300	212311600	PTFN R/L 3225 P22	32	25	170	28	32	TN.. 2204..	1,050	◈	◈
212311700	212311800	PTFN R/L 3232 P22	32	32	170	28	40	TN.. 2204..	1,300	◈	◈
212311900	212312000	PTFN R/L 3232 P27	32	32	170	42	40	TN.. 2706..	1,300	◈	◈
212312100	212312200	PTFN R/L 4040 S27	40	40	250	45	50	TN.. 2706..	3,050	◈	◈

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

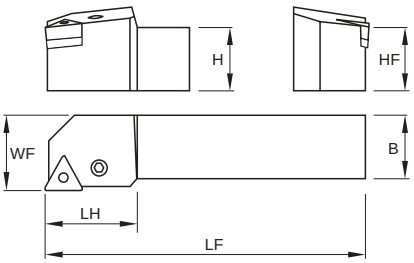
SPARE PARTS Acessórios | Repuestos

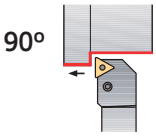
Order separately

Cutter Reference	Shim	Shim Pin	Shim Pin Punch	Lever	Lever Screw	Wrench
PTFN R/L 1616 H16	CT160303	BE04400	BF40009	AN01200	PA0601700	SS25
PTFN R/L 2020 K16	CT160303	BE04400	BF40009	AN01200	PA0601700	SS25
PTFN R/L 2525 M16	CT160303	BE04400	BF40009	AN01200	PA0601700	SS25
PTFN R/L 3225 P16	CT160303	BE04400	BF40009	AN01200	PA0601700	SS25
PTFN R/L 2525 M22	CT220302	BE05500	BF47509	AN13100	PA0802100	SS30
PTFN R/L 3225 P22	CT220302	BE05500	BF47509	AN13100	PA0802100	SS30
PTFN R/L 3232 P22	CT220302	BE05500	BF47509	AN13100	PA0802100	SS30
PTFN R/L 3232 P27	CT270500	BE05500	BF65012	AN17200	PA0802400	SS30
PTFN R/L 4040 S27	CT270500	BE05500	BF65012	AN17200	PA0802400	SS30

PTGN 90° Toolholders | Ferros de torno | Herramientas de torneado

(P) LEVER LOCK TOOLHOLDERS





Axial: -6°
Radial: -6°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212052700	212312300	PTGN R/L 1616 H16	16	16	100	22	20	TN.. 1604..	0,250	◈	◈
212031900	212016500	PTGN R/L 2020 K16	20	20	125	22	25	TN.. 1604..	0,400	◈	◈
212026500	212037400	PTGN R/L 2525 M16	25	25	150	22	32	TN.. 1604..	0,750	◈	◈
212312400	212312500	PTGN R/L 3225 P16	32	25	170	22	32	TN.. 1604..	1,050	◈	◈
212032000	212032100	PTGN R/L 2525 M22	25	25	150	28	32	TN.. 2204..	0,750	◈	◈
212312600	212312700	PTGN R/L 3225 P22	32	25	170	28	32	TN.. 2204..	1,050	◈	◈
212058500	212312800	PTGN R/L 3232 P22	32	32	170	28	40	TN.. 2204..	1,300	◈	◈
212058600	212312900	PTGN R/L 4040 S22	40	40	250	34	50	TN.. 2204..	3,050	◈	◈
212066100	212313000	PTGN R/L 3232 P27	32	32	170	42	40	TN.. 2706..	1,300	◈	◈
212313100	212313200	PTGN R/L 4040 S27	40	40	250	45	50	TN.. 2706..	3,050	◈	◈
212250300	212313300	PTGN R/L 5050 T33	50	50	300	45	60	TN.. 3307..	5,850	◈	◈

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

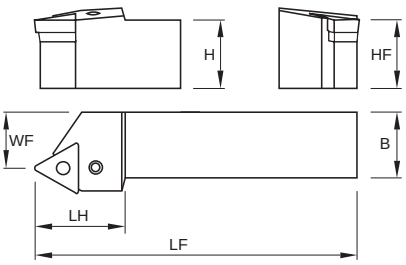
SPARE PARTS Acessórios | Repuestos

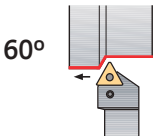
Order separately

Cutter Reference	Shim	Shim Pin	Shim Pin Punch	Lever	Lever Screw	Wrench
PTGN R/L 1616 H16	CT160303	BE04400	BF40009	AN01200	PA0601700	SS25
PTGN R/L 2020 K16	CT160303	BE04400	BF40009	AN01200	PA0601700	SS25
PTGN R/L 2525 M16	CT160303	BE04400	BF40009	AN01200	PA0601700	SS25
PTGN R/L 3225 P16	CT160303	BE04400	BF40009	AN01200	PA0601700	SS25
PTGN R/L 2525 M22	CT220302	BE05500	BF47509	AN13100	PA0802100	SS30
PTGN R/L 3225 P22	CT220302	BE05500	BF47509	AN13100	PA0802100	SS30
PTGN R/L 3232 P22	CT220302	BE05500	BF47509	AN13100	PA0802100	SS30
PTGN R/L 4040 S22	CT220302	BE05500	BF47509	AN13100	PA0802100	SS30
PTGN R/L 3232 P27	CT270500	BE07000	BF65012	AN17200	PA0802400	SS30
PTGN R/L 4040 S27	CT270500	BE07000	BF65012	AN17200	PA0802400	SS30
PTGN R/L 5050 T33	CT330500	BE08301	BF80012	AN20800	PA1002700	SS40

PTTN 60° Toolholders | Ferros de torno | Herramientas de torneado

(P) LEVER LOCK TOOLHOLDERS





Axial: -8°
Radial: -2,25°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212313400	212313500	PTTN R/L 1616 H16	16	16	100	25	13	TN.. 1604..	0,250	◎	◎
212313600	212313700	PTTN R/L 2020 K16	20	20	125	28	17	TN.. 1604..	0,400	◎	◎
212313800	212313900	PTTN R/L 2525 M16	25	25	150	28	22	TN.. 1604..	0,750	◎	◎
212314000	212314100	PTTN R/L 2525 M22	25	25	150	34	22	TN.. 2204..	0,750	◎	◎
212314200	212314300	PTTN R/L 3225 P22	32	25	170	34	22	TN.. 2204..	1,050	◎	◎

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

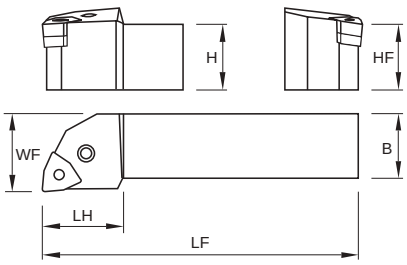
SPARE PARTS Acessórios | Repuestos

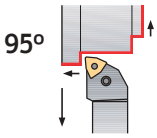
Order separately

Cutter Reference	Shim	Shim Pin	Shim Pin Punch	Lever	Lever Screw	Wrench
PTTN R/L 1616 H16	CT160303	BE04400	BF40009	AN01200	PA0601700	SS25
PTTN R/L 2020 K16	CT160303	BE04400	BF40009	AN01200	PA0601700	SS25
PTTN R/L 2525 M16	CT160303	BE04400	BF40009	AN01200	PA0601700	SS25
PTTN R/L 2525 M22	CT220302	BE05500	BF47509	AN13100	PA0802100	SS30
PTTN R/L 3225 P22	CT220302	BE05500	BF47509	AN13100	PA0802100	SS30

PWLN 95° Toolholders | Ferros de torno | Herramientas de torneado

(P) LEVER LOCK TOOLHOLDERS





Axial: -6°
Radial: -6°

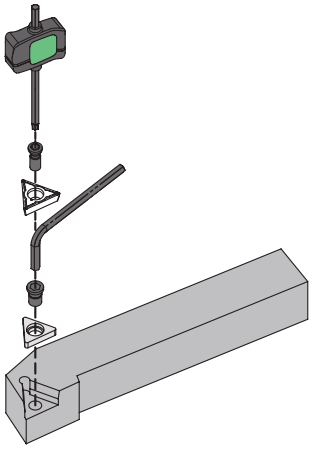
Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212314400	212314500	PWLN R/L 1616 H06	16	16	100	15	20	WN.. 0604..	0,250		
212314600	212046500	PWLN R/L 2020 K06	20	20	125	25	25	WN.. 0604..	0,400		
212314700	212314800	PWLN R/L 2525 M06	25	25	150	25	32	WN.. 0604..	0,750		
212049300	212314900	PWLN R/L 2020 K08	20	20	125	34	25	WN.. 0804..	0,400		
212052800	212079100	PWLN R/L 2525 M08	25	25	150	34	32	WN.. 0804..	0,750		
212046600	212315000	PWLN R/L 3225 P08	32	25	170	34	32	WN.. 0804..	1,050		
212058000	212315100	PWLN R/L 3232 P08	32	32	170	34	40	WN.. 0804..	1,300		

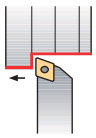
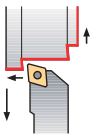
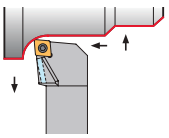
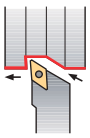
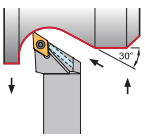
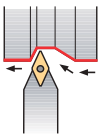
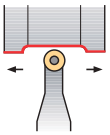
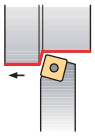
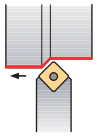
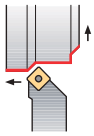
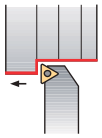
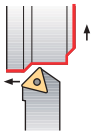
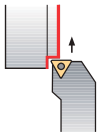
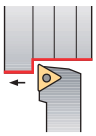
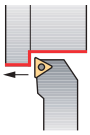
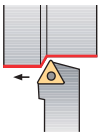
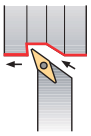
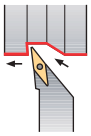
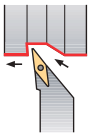
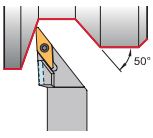
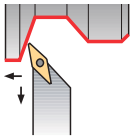
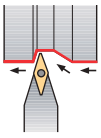
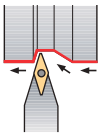
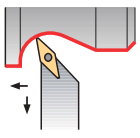
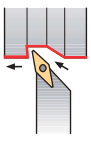
SPARE PARTS Acessórios | Repuestos

Order separately

Cutter Reference	Shim	Shim Pin	Shim Pin Punch	Lever	Lever Screw	Wrench
PWLN R/L 1616 H06	CW060301	BE04400	BF40009	AN01200	PA0601700	SS25
PWLN R/L 2020 K06	CW060301	BE04400	BF40009	AN01200	PA0601700	SS25
PWLN R/L 2525 M06	CW060301	BE04400	BF40009	AN01200	PA0601700	SS25
PWLN R/L 2020 K08	CW080300	BE05500	BF47509	AN13100	PA0802100	SS30
PWLN R/L 2525 M08	CW080300	BE05500	BF47509	AN13100	PA0802100	SS30
PWLN R/L 3225 P08	CW080300	BE05500	BF47509	AN13100	PA0802100	SS30
PWLN R/L 3232 P08	CW080300	BE05500	BF47509	AN13100	PA0802100	SS30

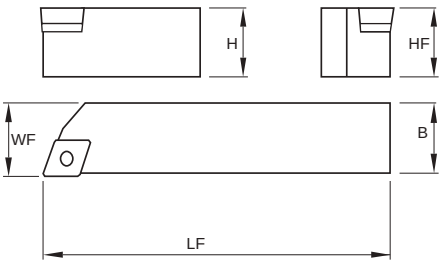
(S) CENTER SCREW SYSTEM

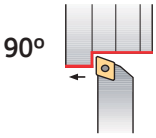


SCAC 90°  PAGE C - 718 CC.. 0602.. CC.. 09T3.. CC.. 1204..	**SCLC 95°**  PAGE C - 719 CC.. 0602.. CC.. 09T3.. CC.. 1204..	**NEW SCLC 95°-A**  PAGE C - 720 CC.. 09T3..	**SDJC 93°**  PAGE C - 721 DC.. 0702.. DC.. 11T3..	**NEW SDJC 93°-A**  PAGE C - 722 DC.. 11T3..	**SDNC 62°30'**  PAGE C - 723 DC.. 0702.. DC.. 11T3..
SRDC  PAGE C - 724 RC.. 0602M0.. ... RC.. 1204M0..	**SSBC 75°**  PAGE C - 725 SC.. 09T3.. SC.. 1204..	**SSDC 45°**  PAGE C - 726 SC.. 09T3.. SC.. 1204..	**SSSC 45°**  PAGE C - 727 SC.. 09T3.. SC.. 1204..	**STAC 90°**  PAGE C - 728 TC.. 0902.. TC.. 1102.. TC.. 16T3..	**STDC 45°**  PAGE C - 729 TC.. 0902.. TC.. 1102.. TC.. 16T3..
STFC 90°  PAGE C - 730 TC.. 0902.. TC.. 1102.. TC.. 16T3..	**STGC 90°**  PAGE C - 731 TC.. 0902.. TC.. 1102.. TC.. 16T3..	**STJC 93°**  PAGE C - 732 TC.. 0902.. TC.. 1102.. TC.. 16T3..	**STTC 60°**  PAGE C - 733 TC.. 0902.. TC.. 1102.. TC.. 16T3..	**SVHC 107°30'**  PAGE C - 734 VC.. 1604..	**SVJB 93°**  PAGE C - 734 VB.. 1604..
SVJC 93°  PAGE C - 736 VC.. 1103.. VC.. 1604..	**NEW SVJC 93°-A**  PAGE C - 737 VC.. 1604..	**SVLC 95°**  PAGE C - 738 VC.. 1303..	**SVVB 72°30'**  PAGE C - 739 VB.. 1604..	**SVVC 72°30'**  PAGE C - 740 VC.. 1103.. VC.. 1604..	**SVXC 113°**  PAGE C - 741 VC.. 1803..
SVZC 100°  PAGE C - 742 VC.. 1604..					

SCAC 90° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: 0°

Order Code		Reference	Dimensions (mm)				Insert	WT	Stock	
R	L		HF = H	B	LF	WF			R	L
212139500	212139400	SCAC R/L 0808 D06	8	8	60	8,5	CC.. 0602..	0,050	⊛	⊛
212139700	212139600	SCAC R/L 1010 E06	10	10	70	10,5	CC.. 0602..	0,070	⊛	⊛
212139900	212139800	SCAC R/L 1212 F09	12	12	80	12,5	CC.. 09T3..	0,100	⊛	⊛
212140100	212140000	SCAC R/L 1616 H09	16	16	100	16,5	CC.. 09T3..	0,200	⊛	⊛
212140300	212140200	SCAC R/L 2020 K12	20	20	125	20,5	CC.. 1204..	0,400	⊛	⊛
212140500	212140400	SCAC R/L 2525 M12	25	25	150	25,5	CC.. 1204..	0,700	⊛	⊛

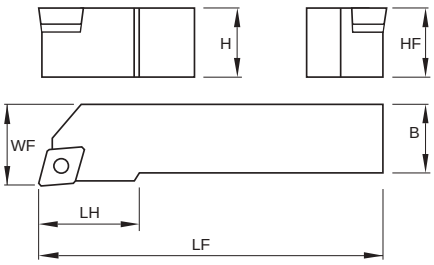
⊛ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

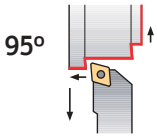
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Screw	Wrench
SCAC R/L 0808 D06	-	-	P0250700	XT07
SCAC R/L 1010 E06	-	-	P0250700	XT07
SCAC R/L 1212 F09	-	-	P0401100	XT15-S35
SCAC R/L 1616 H09	-	-	P0401100	XT15-S35
SCAC R/L 2020 K12	CC120401	T06004000	P0401400	XT15-S40
SCAC R/L 2525 M12	CC120401	T06004000	P0401400	XT15-S40

SCLC 95° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: 0°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
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212045400	212140800	SCLC R/L 1010 E06	10	10	70	10	12	CC.. 0602..	0,070	●	●
212037100	212140900	SCLC R/L 1212 F09	12	12	80	16	16	CC.. 09T3..	0,100	●	●
212047600	212141000	SCLC R/L 1616 H09	16	16	100	18	20	CC.. 09T3..	0,200	●	●
212037500	212141100	SCLC R/L 2020 K09	20	20	125	22	25	CC.. 09T3..	0,400	●	●
212037700	212141200	SCLC R/L 2020 K12	20	20	125	25	25	CC.. 1204..	0,400	●	●
212037900	212141300	SCLC R/L 2525 M12	25	25	150	25	32	CC.. 1204..	0,700	●	●

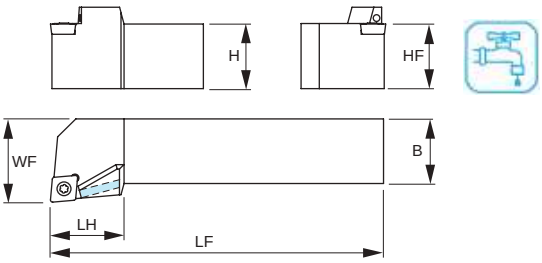
● Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

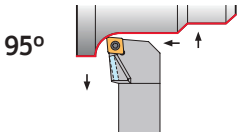
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Screw	Wrench
SCLC R/L 0808 D06	-	-	P0250700	XT07
SCLC R/L 1010 E06	-	-	P025070	XT07
SCLC R/L 1212 F09	-	-	P0401100	XT15-S35
SCLC R/L 1616 H09	-	-	P0401100	XT15-S35
SCLC R/L 2020 K09	-	-	P0401100	XT15-S35
SCLC R/L 2020 K12	CC120401	T06004000	P0401400	XT15-S40
SCLC R/L 2525 M12	CC120401	T06004000	P0401400	XT15-S40

NEW SCLC 95°-A Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: 0°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
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212471400	212471200	SCLC R/L 2525 M09-A	25	25	150	28	32	CC.. 09T3..	0,750	◯	◯

Stock item | Produto de stock | Itens de stock

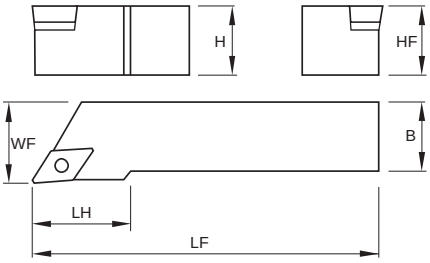
◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

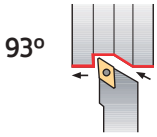
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Screw	Wrench	Cooling Screw 1	Cooling Screw 2	Cooling Screw 3
SCLC R/L 2020 K09-A	P0401100	XT15-S35	H0600475	H1000875	T1000875
SCLC R/L 2525 M09-A	P0401100	XT15-S35	H0600475	H1000875	T1000875

SDJC 93° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: 0°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
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212021500	212143900	SDJC R/L 1212 F07	12	12	80	18	16	DC.. 0702..	0,100	●	●
212420700	212420800	SDJC R/L 1616 H07	16	16	100	16	20	DC.. 0702..	0,150	●	○
212021600	212144000	SDJC R/L 1212 F11	12	12	80	20	16	DC.. 11T3..	0,100	●	●
212035100	212035200	SDJC R/L 1616 H11	16	16	100	18	20	DC.. 11T3..	0,200	●	●
212036200	212035300	SDJC R/L 2020 K11	20	20	125	23	25	DC.. 11T3..	0,400	●	●
212042600	212144100	SDJC R/L 2525 M11	25	25	150	22	32	DC.. 11T3..	0,700	●	●

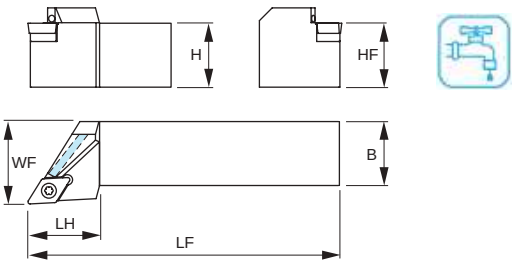
● Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

SPARE PARTS Acessórios | Repuestos

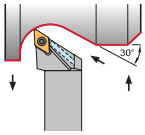
Cutter Reference	Shim	Shim Screw	Screw	Wrench
SDJC R/L 1010 E07	-	-	P0250700	XT07
SDJC R/L 1212 F07	-	-	P0250700	XT07
SDJC R/L 1616 H07	-	-	P0250700	XT07
SDJC R/L 1212 F11	-	-	P0401100	XT15-S35
SDJC R/L 1616 H11	CD110301	T05003500	P0351500	XT15-S35
SDJC R/L 2020 K11	CD110301	T05003500	P0351500	XT15-S35
SDJC R/L 2525 M11	CD110301	T05003500	P0351500	XT15-S35

NEW SDJC 93°-A Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS



93°



Axial: 0°
Radial: 0°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
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212471800	212471600	SDJC R/L 2525 M11-A	25	25	150	28	32	DC.. 11T3..	0,750	◯	◯

Stock item | Produto de stock | Itens de stock

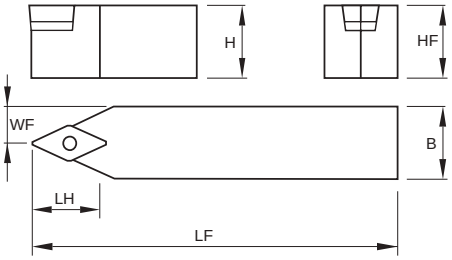
◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

SPARE PARTS Acessórios | Repuestos

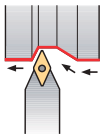
Cutter Reference	Shim	Shim Screw	Screw	Wrench	Cooling Screw 1	Cooling Screw 2	Cooling Screw 3
SDJC R/L 2020 K11-A	CD110301	T05003500	P0351500	XT15-S35	H0600475	H1000875	T1000875
SDJC R/L 2525 M11-A	CD110301	T05003500	P0351500	XT15-S35	H0600475	H1000875	T1000875

SDNC 62°30' Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS



62°30'



Axial: 0°
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Order Code	Reference	Dimensions (mm)					Insert	WT	Stock
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212144300	SDNC N 1010 E07	10	10	70	16	5,0	DC.. 0702..	0,070	⚙
212144400	SDNC N 1212 F07	12	12	80	18	6,0	DC.. 0702..	0,100	⚙
212259700	SDNC N 1616 H11	16	16	100	22	8,0	DC.. 11T3..	0,200	⚙
212144500	SDNC N 2020 K11	20	20	125	22	10,0	DC.. 11T3..	0,400	⚙
212259800	SDNC N 2525 M11	25	25	150	22	12,5	DC.. 11T3..	0,700	⚙

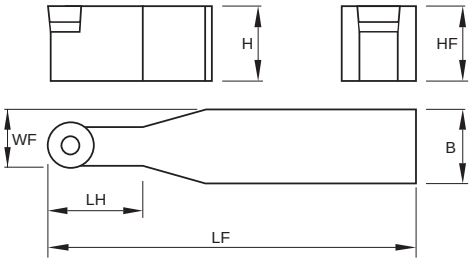
⚙ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

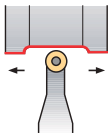
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Screw	Wrench
SDNC N 0808 D07	-	-	P0250700	XT07
SDNC N 1010 E07	-	-	P0250700	XT07
SDNC N 1212 F07	-	-	P0250700	XT07
SDNC N 1616 H11	CD110301	T05003500	P0351500	XT15-S35
SDNC N 2020 K11	CD110301	T05003500	P0351500	XT15-S35
SDNC N 2525 M11	CD110301	T05003500	P0351500	XT15-S35

SRDC Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0º
Radial: 0º

Order Code	Reference	Dimensions (mm)					Insert	Kg	Stock
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212148600	SRDC N 1212 F06	12	12	80	12	11,0	RC.. 0602M0	0,100	●
212058700	SRDC N 1616 H06	16	16	100	16	13,0	RC.. 0602M0	0,200	●
212053400	SRDC N 2020 K06	20	20	125	20	15,0	RC.. 0602M0	0,400	●
212040000	SRDC N 2525 M06	25	25	150	25	17,5	RC.. 0602M0	0,700	●
212148700	SRDC N 1616 H08	16	16	100	16	13,0	RC.. 0803M0	0,200	●
212024400	SRDC N 2020 K08	20	20	125	20	15,0	RC.. 0803M0	0,400	●
212148800	SRDC N 2525 M08	25	25	150	25	17,5	RC.. 0803M0	0,700	●
212049500	SRDC N 2020 K10	20	20	125	22	15,0	RC.. 10T3M0	0,400	●
212040100	SRDC N 2525 M10	25	25	150	22	17,5	RC.. 10T3M0	0,700	●
212259900	SRDC N 2020 K12	20	20	125	28	16,0	RC.. 1204M0	0,400	●
212050800	SRDC N 2525 M12	25	25	150	28	18,5	RC.. 1204M0	0,700	●
212058800	SRDC N 3225 P12	32	25	170	28	18,5	RC.. 1204M0	0,900	●
212148900	SRDC N 3232 P12	32	32	170	28	22,0	RC.. 1204M0	1,200	●

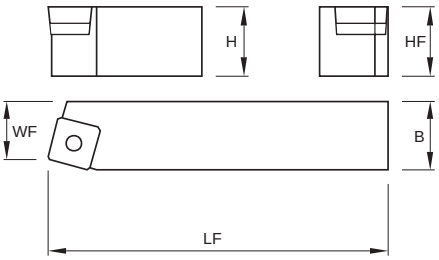
● Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

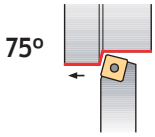
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Screw	Wrench
SRDC N 1010 E06	-	-	P0250700	XT07
SRDC N 1212 F06	-	-	P0250700	XT07
SRDC N 1616 H06	-	-	P0250700	XT07
SRDC N 2020 K06	-	-	P0250700	XT07
SRDC N 2525 M06	-	-	P0250700	XT07
SRDC N 1616 H08	-	-	P0300900	XT08
SRDC N 2020 K08	-	-	P0300900	XT08
SRDC N 2525 M08	-	-	P0300900	XT08
SRDC N 2020 K10	CR100301	T05003500	P0351500	XT15-S35
SRDC N 2525 M10	CR100301	T05003500	P0351500	XT15-S35
SRDC N 2020 K12	CR120301	T05003500	P0351500	XT15-S35
SRDC N 2525 M12	CR120301	T05003500	P0351500	XT15-S35
SRDC N 3225 P12	CR120301	T05003500	P0351500	XT15-S35
SRDC N 3232 P12	CR120301	T05003500	P0351500	XT15-S35

SSBC 75° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: 0°

Order Code		Reference	Dimensions (mm)				Insert	WT	Stock	
R	L		HF = H	B	LF	WF			R	L
212149100	212149000	SSBC R/L 1212 F09	12	12	80	11	SC.. 09T3..	0,100	◎	◎
212045700	212149200	SSBC R/L 1616 H09	16	16	100	13	SC.. 09T3..	0,200	◎	◎
212149400	212149300	SSBC R/L 2020 K12	20	20	125	17	SC.. 1204..	0,400	◎	◎
212149600	212149500	SSBC R/L 2525 M12	25	25	150	22	SC.. 1204..	0,700	◎	◎

◎ Stock item | Produto de stock | Itens de stock

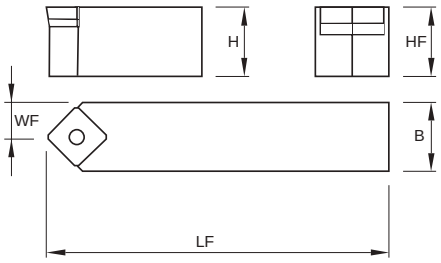
○ Available under request | Disponível sobre consulta | Disponible bajo consulta

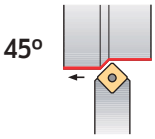
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Screw	Wrench
SSBC R/L 1212 F09	-	-	P0401100	XT15-S35
SSBC R/L 1616 H09	-	-	P0401100	XT15-S35
SSBC R/L 2020 K12	CS120400	T06004000	P0401400	XT15-S40
SSBC R/L 2525 M12	CS120400	T06004000	P0401400	XT15-S40

SSDC 45° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: 0°

Order Code	Reference	Dimensions (mm)				Insert	WT	Stock
		HF = H	B	LF	WF			
212149700	SSDC N 1212 F09	12	12	80	6,0	SC.. 09T3..	0,100	◈
212050900	SSDC N 1616 H09	16	16	100	8,0	SC.. 09T3..	0,200	◈
212046000	SSDC N 2020 K12	20	20	125	10,0	SC.. 1204..	0,400	◈
212076800	SSDC N 2525 M12	25	25	150	12,5	SC.. 1204..	0,700	◈

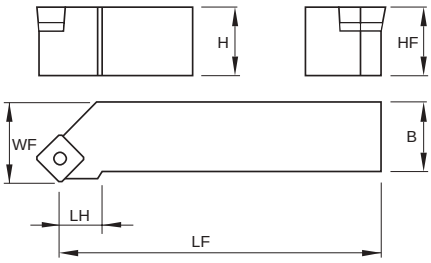
◈ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

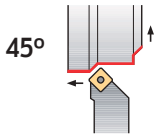
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Screw	Wrench
SSDC N 1212 F09	-	-	P0401100	XT15-S35
SSDC N 1616 H09	-	-	P0401100	XT15-S35
SSDC N 2020 K12	CS120400	T06004000	P0401400	XT15-S40
SSDC N 2525 M12	CS120400	T06004000	P0401400	XT15-S40

SSSC 45° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: 0°

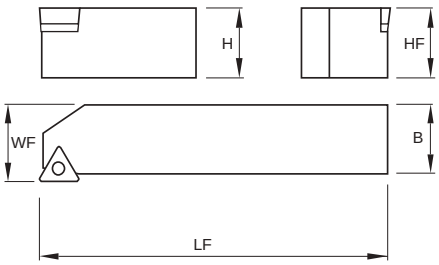
Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212149900	212149800	SSSC R/L 1212 F09	12	12	80	11	16	SC.. 09T3..	0,100	●	●
212150100	212150000	SSSC R/L 1616 H09	16	16	100	22	20	SC.. 09T3..	0,200	●	●
212021900	212150200	SSSC R/L 2020 K12	20	20	125	22	25	SC.. 1204..	0,400	●	●
212042700	212021800	SSSC R/L 2525 M12	25	25	150	22	32	SC.. 1204..	0,700	●	●

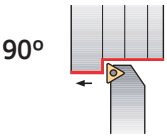
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Screw	Wrench
SSSC R/L 1212 F09	-	-	P0401100	XT15-S35
SSSC R/L 1616 H09	-	-	P0401100	XT15-S35
SSSC R/L 2020 K12	CS120400	T06004000	P0401400	XT15-S40
SSSC R/L 2525 M12	CS120400	T06004000	P0401400	XT15-S40

STAC 90° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: 0°

Order Code		Reference	Dimensions (mm)				Insert	WT	Stock	
R	L		HF = H	B	LF	WF			R	L
212151400	212151300	STAC R/L 0808 D09	8	8	60	8,5	TC.. 0902..	0,050	◈	◈
212151600	212151500	STAC R/L 1010 E09	10	10	70	10,5	TC.. 0902..	0,070	◈	◈
212151800	212151700	STAC R/L 1212 F11	12	12	80	12,5	TC.. 1102..	0,100	◈	◈
212152000	212151900	STAC R/L 1616 H11	16	16	100	16,5	TC.. 1102..	0,200	◈	◈
212152200	212152100	STAC R/L 1616 H16	16	16	100	16,5	TC.. 16T3..	0,200	◈	◈
212260000	212260100	STAC R/L 2020 K16	20	20	125	20,5	TC.. 16T3..	0,400	◈	◈
212152600	212152400	STAC R/L 2525 M16	25	25	150	25,5	TC.. 16T3..	0,700	◈	◈

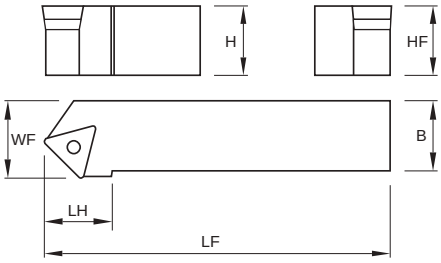
◈ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

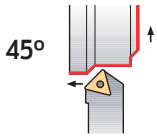
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Screw	Wrench
STAC R/L 0808 D09	-	-	P0220600	XT06
STAC R/L 1010 E09	-	-	P0220600	XT06
STAC R/L 1212 F11	-	-	P0250700	XT07
STAC R/L 1616 H11	-	-	P0250700	XT07
STAC R/L 1616 H16	CT160302	T05003500	P0351500	XT15-S35
STAC R/L 2020 K16	CT160302	T05003500	P0351500	XT15-S35
STAC R/L 2525 M16	CT160302	T05003500	P0351500	XT15-S35

STDC 45° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: 0°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212152800	212152700	STDC R/L 0808 D09	8	8	60	11	10	TC.. 0902..	0,050	⊛	⊛
212153000	212152900	STDC R/L 1010 E09	10	10	70	11	11	TC.. 0902..	0,070	⊛	⊛
212153200	212153100	STDC R/L 1212 F11	12	12	80	16	13	TC.. 1102..	0,100	⊛	⊛
212153400	212153300	STDC R/L 1616 H11	16	16	100	16	17	TC.. 1102..	0,200	⊛	⊛
212153600	212153500	STDC R/L 1212 F16	12	12	80	21	17	TC.. 16T3..	0,100	⊛	⊛
212153800	212153700	STDC R/L 1616 H16	16	16	100	21	17	TC.. 16T3..	0,200	⊛	⊛
212154000	212153900	STDC R/L 2020 K16	20	20	125	21	22	TC.. 16T3..	0,400	⊛	⊛
212154200	212154100	STDC R/L 2525 M16	25	25	150	21	27	TC.. 16T3..	0,700	⊛	⊛

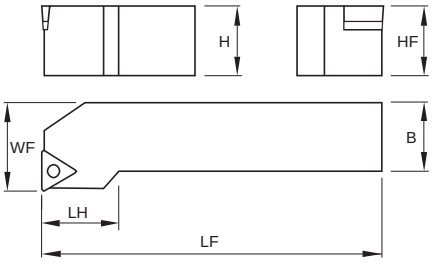
⊛ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

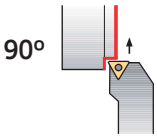
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Screw	Wrench
STDC R/L 0808 D09	-	-	P0220600	XT06
STDC R/L 1010 E09	-	-	P0220600	XT06
STDC R/L 1212 F11	-	-	P0250700	XT07
STDC R/L 1616 H11	-	-	P0250700	XT07
STDC R/L 1212 F16	-	-	P0401100	XT15-S35
STDC R/L 1616 H16	CT160302	T05003500	P0351500	XT15-S35
STDC R/L 2020 K16	CT160302	T05003500	P0351500	XT15-S35
STDC R/L 2525 M16	CT160302	T05003500	P0351500	XT15-S35

STFC 90° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: 0°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212154400	212154300	STFC R/L 0808 D09	8	8	60	16	10	TC.. 0902..	0,050	◈	◈
212154600	212154500	STFC R/L 1010 E09	10	10	70	16	12	TC.. 0902..	0,070	◈	◈
212154800	212154700	STFC R/L 1212 F11	12	12	80	18	16	TC.. 1102..	0,100	◈	◈
212065800	212154900	STFC R/L 1616 H11	16	16	100	22	20	TC.. 1102..	0,200	◈	◈
212155100	212155000	STFC R/L 1212 F16	12	12	80	18	16	TC.. 16T3..	0,100	◈	◈
212056800	212155200	STFC R/L 1616 H16	16	16	100	22	20	TC.. 16T3..	0,200	◈	◈
212056600	212155300	STFC R/L 2020 K16	20	20	125	22	25	TC.. 16T3..	0,400	◈	◈
212155500	212155400	STFC R/L 2525 M16	25	25	150	22	32	TC.. 16T3..	0,700	◈	◈

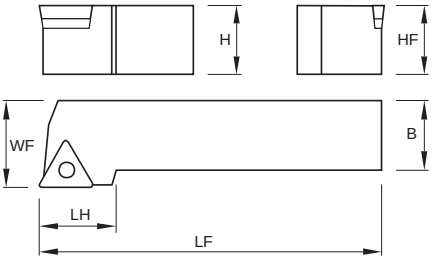
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

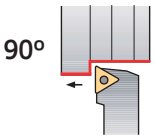
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Screw	Wrench
STFC R/L 0808 D09	-	-	P0220600	XT06
STFC R/L 1010 E09	-	-	P0220600	XT06
STFC R/L 1212 F11	-	-	P0250700	XT07
STFC R/L 1616 H11	-	-	P0250700	XT07
STFC R/L 1212 F16	-	-	P0401100	XT15-S35
STFC R/L 1616 H16	CT160302	T05003500	P0351500	XT15-S35
STFC R/L 2020 K16	CT160302	T05003500	P0351500	XT15-S35
STFC R/L 2525 M16	CT160302	T05003500	P0351500	XT15-S35

STGC 90° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: 0°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212155700	212155600	STGC R/L 0808 D09	8	8	60	16	10	TC.. 0902..	0,050	⊛	⊛
212155900	212155800	STGC R/L 1010 E09	10	10	70	16	12	TC.. 0902..	0,070	⊛	⊛
212156100	212156000	STGC R/L 1212 F11	12	12	80	18	16	TC.. 1102..	0,100	⊛	⊛
212046100	212156200	STGC R/L 1616 H11	16	16	100	22	20	TC.. 1102..	0,200	⊛	⊛
212156400	212156300	STGC R/L 1212 F16	12	12	80	18	16	TC.. 16T3..	0,100	⊛	⊛
212156600	212156500	STGC R/L 1616 H16	16	16	100	22	20	TC.. 16T3..	0,200	⊛	⊛
212156800	212156700	STGC R/L 2020 K16	20	20	125	22	25	TC.. 16T3..	0,400	⊛	⊛
212157000	212156900	STGC R/L 2525 M16	25	25	150	22	32	TC.. 16T3..	0,700	⊛	⊛

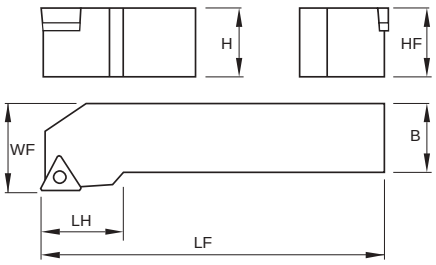
⊛ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

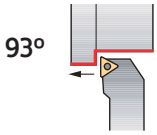
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Screw	Wrench
STGC R/L 0808 D09	-	-	P0220600	XT06
STGC R/L 1010 E09	-	-	P0220600	XT06
STGC R/L 1212 F11	-	-	P0250700	XT07
STGC R/L 1616 H11	-	-	P0250700	XT07
STGC R/L 1212 F16	-	-	P0401100	XT15-S35
STGC R/L 1616 H16	CT160302	T05003500	P0351500	XT15-S35
STGC R/L 2020 K16	CT160302	T05003500	P0351500	XT15-S35
STGC R/L 2525 M16	CT160302	T05003500	P0351500	XT15-S35

STJC 93° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: 0°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212157200	212157100	STJC R/L 0808 D09	8	8	60	16	10	TC.. 0902..	0,050	◈	◈
212157400	212157300	STJC R/L 1010 E09	10	10	70	16	12	TC.. 0902..	0,070	◈	◈
212157600	212157500	STJC R/L 1212 F11	12	12	80	18	16	TC.. 1102..	0,100	◈	◈
212035400	212035500	STJC R/L 1616 H11	16	16	100	22	20	TC.. 1102..	0,200	◈	◈
212157800	212157700	STJC R/L 1212 F16	12	12	80	18	16	TC.. 16T3..	0,100	◈	◈
212035600	212035700	STJC R/L 1616 H16	16	16	100	22	20	TC.. 16T3..	0,200	◈	◈
212036300	212031000	STJC R/L 2020 K16	20	20	125	22	25	TC.. 16T3..	0,400	◈	◈
212038600	212038700	STJC R/L 2525 M16	25	25	150	22	32	TC.. 16T3..	0,700	◈	◈

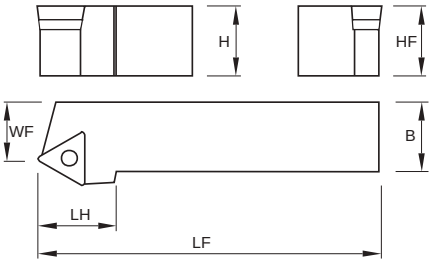
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

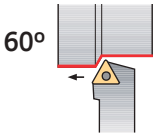
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Screw	Wrench
STJC R/L 0808 D09	-	-	P0220600	XT06
STJC R/L 1010 E09	-	-	P0220600	XT06
STJC R/L 1212 F11	-	-	P0250700	XT07
STJC R/L 1616 H11	-	-	P0250700	XT07
STJC R/L 1212 F16	-	-	P0401100	XT15-S35
STJC R/L 1616 H16	CT160302	T05003500	P0351500	XT15-S35
STJC R/L 2020 K16	CT160302	T05003500	P0351500	XT15-S35
STJC R/L 2525 M16	CT160302	T05003500	P0351500	XT15-S35

STTC 60° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: 0°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212158000	212157900	STTC R/L 0808 D09	8	8	60	16	7	TC.. 0902..	0,050	◉	◉
212158200	212158100	STTC R/L 1010 E09	10	10	70	16	9	TC.. 0902..	0,070	◉	◉
212158400	212158300	STTC R/L 1212 F11	12	12	80	18	11	TC.. 1102..	0,100	◉	◉
212047500	212158500	STTC R/L 1616 H11	16	16	100	18	13	TC.. 1102..	0,200	◉	◉
212158700	212158600	STTC R/L 1212 F16	12	12	80	22	11	TC.. 16T3..	0,100	◉	◉
212158900	212158800	STTC R/L 1616 H16	16	16	100	22	13	TC.. 16T3..	0,200	◉	◉
212159100	212159000	STTC R/L 2020 K16	20	20	125	22	17	TC.. 16T3..	0,400	◉	◉
212159300	212159200	STTC R/L 2525 M16	25	25	150	22	22	TC.. 16T3..	0,700	◉	◉

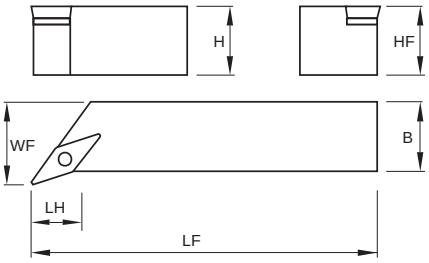
◉ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

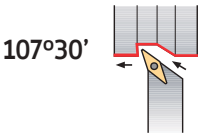
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Screw	Wrench
STTC R/L 0808 D09	-	-	P0220600	XT06
STTC R/L 1010 E09	-	-	P0220600	XT06
STTC R/L 1212 F11	-	-	P0250700	XT07
STTC R/L 1616 H11	-	-	P0250700	XT07
STTC R/L 1212 F16	-	-	P0401100	XT15-S35
STTC R/L 1616 H16	CT160302	T05003500	P0351500	XT15-S35
STTC R/L 2020 K16	CT160302	T05003500	P0351500	XT15-S35
STTC R/L 2525 M16	CT160302	T05003500	P0351500	XT15-S35

SVHC 107°30' Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





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Radial: 0°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212161000	212160900	SVHC R/L 2020 K16	20	20	125	15,4	25	VC.. 1604..	0,400	●	●
212161200	212161100	SVHC R/L 2525 M16	25	25	150	21,0	32	VC.. 1604..	0,700	●	●
212161400	212161300	SVHC R/L 3225 P16	32	25	170	21,0	32	VC.. 1604..	0,900	●	●
212161500	212161600	SVHC R/L 2525 M22	25	25	150	19,6	32	VC.. 2205..	0,700	●	●
212161700	212161800	SVHC R/L 3225 P22	32	25	170	19,6	32	VC.. 2205..	0,900	●	●

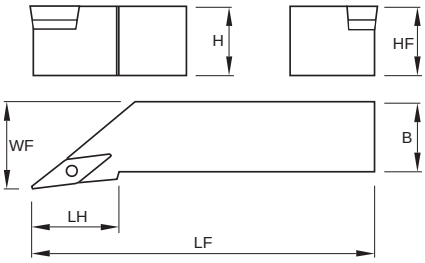
● Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

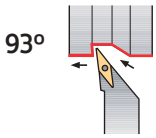
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Screw	Wrench
SVHC R/L 2020 K16	CV160300	T05003500	P0351500	XT15-S35
SVHC R/L 2525 M16	CV160300	T05003500	P0351500	XT15-S35
SVHC R/L 3225 P16	CV160300	T05003500	P0351500	XT15-S35
SVHC R/L 2525 M22	CV220400	T06004000	P0401400	XT20-S40
SVHC R/L 3225 P22	CV220400	T06004000	P0401400	XT20-S40

SVJB 93° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: 0°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212055300	212363000	SVJB R/L 2020 K16	20	20	125	37	25	VB.. 1604..	0,400	ⓢ	ⓢ
212022200	212022000	SVJB R/L 2525 M16	25	25	150	37	32	VB.. 1604..	0,700	ⓢ	ⓢ
212022300	212022100	SVJB R/L 3225 P16	32	25	170	37	32	VB.. 1604..	0,900	ⓢ	ⓢ

ⓢ Stock item | Produto de stock | Itens de stock

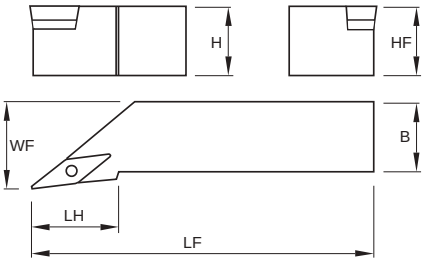
◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

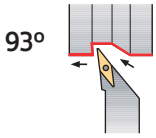
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Screw	Wrench
SVJB R/L 2020 K16	CV160300	T05003500	P0351500	XT15-S35
SVJB R/L 2525 M16	CV160300	T05003500	P0351500	XT15-S35
SVJB R/L 3225 P16	CV160300	T05003500	P0351500	XT15-S35

SVJC 93° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: 0°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212161900	212162000	SVJC R/L 1212 F11	12	12	80	20	16	VC.. 1103..	0,100	◎	◎
212056400	212162100	SVJC R/L 1616 H11	16	16	100	25	20	VC.. 1103..	0,200	◎	◎
212162200	212162300	SVJC R/L 2020 K11	20	20	125	28	25	VC.. 1103..	0,400	◎	◎
212392400	212420900	SVJC R/L 2525 M11	25	25	150	34	32	VC.. 1103..	0,700	◎	◎
212031100	212031200	SVJC R/L 2020 K16	20	20	125	37	25	VC.. 1604..	0,400	◎	◎
212031300	212031400	SVJC R/L 2525 M16	25	25	150	37	32	VC.. 1604..	0,700	◎	◎
212162500	212162400	SVJC R/L 3225 P16	32	25	170	37	32	VC.. 1604..	0,900	◎	◎

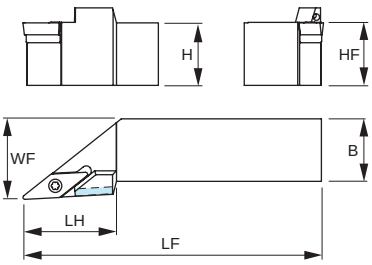
◎ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

SPARE PARTS Acessórios | Repuestos

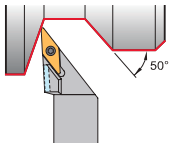
Cutter Reference	Shim	Shim Screw	Screw	Wrench
SVJC R/L 1212 F11	-	-	P0250700	XT07
SVJC R/L 1616 H11	-	-	P0250700	XT07
SVJC R/L 2020 K11	-	-	P0250700	XT07
SVJC R/L 2525 M11	-	-	P0250700	XT07
SVJC R/L 2020 K16	CV160300	T05003500	P0351500	XT15-S35
SVJC R/L 2525 M16	CV160300	T05003500	P0351500	XT15-S35
SVJC R/L 3225 P16	CV160300	T05003500	P0351500	XT15-S35

NEW SVJC 93°-A Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS



93°



Axial: 0°
Radial: 0°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212472100	212471900	SVJC R/L 2020 K11-A	20	20	125	28	25	VC.. 1103..	0,400	◯	◯
212472200	212472000	SVJC R/L 2525 M16-A	25	25	150	34	32	VC.. 1604..	0,700	◯	◯

Stock item | Produto de stock | Itens de stock

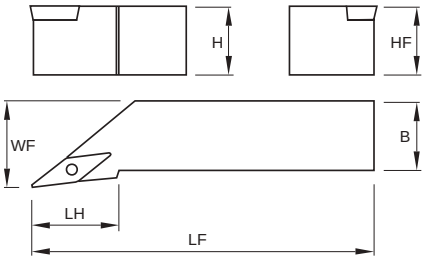
◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

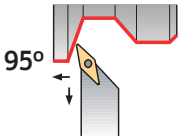
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Screw	Wrench	Cooling Screw 1	Cooling Screw 2	Cooling Screw 3
SVJC R/L 2020 K11-A	-	-	P0250700	XT07	H0600475	H1000875	T1000875
SVJC R/L 2525 M16-A	CV160300	T05003500	P0351500	XT15-35	H0600475	H1000875	T1000875

SVLC 95° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: 0°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212041900	212162600	SVLC R/L 1212 G13	12	12	90	25	16	VCGT 1303..	0,100	◈	◈
212162800	212162700	SVLC R/L 1616 H13	16	16	100	25	20	VCGT 1303..	0,200	◈	◈
212163000	212162900	SVLC R/L 2020 K13	20	20	125	28	25	VCGT 1303..	0,400	◈	◈
212163200	212163100	SVLC R/L 2525 M13	25	25	150	30	32	VCGT 1303..	0,700	◈	◈

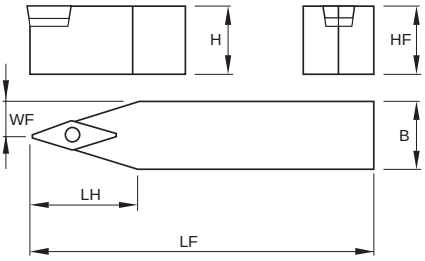
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

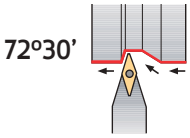
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Screw	Wrench
SVLC R/L 1212 G13	P0300900	XT08
SVLC R/L 1616 H13	P0300900	XT08
SVLC R/L 2020 K13	P0300900	XT08
SVLC R/L 2525 M13	P0300900	XT08

SVVB 72°30' Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: 0°

Order Code	Reference	Dimensions (mm)					Insert	WT	Stock
		HF = H	B	LF	LH	WF			
212260200	SVVB N 2020 K16	20	20	125	37	10,6	VB.. 1604..	0,400	◈
212169500	SVVB N 2525 M16	25	25	150	37	13,1	VB.. 1604..	0,700	◈
212260300	SVVB N 3225 P16	32	25	170	37	13,1	VB.. 1604..	0,900	◈

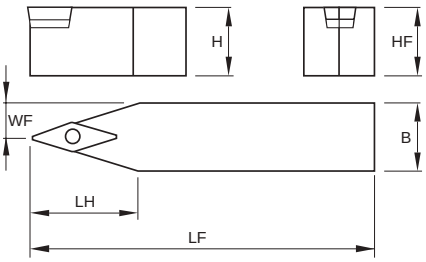
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

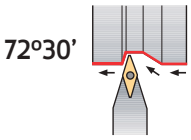
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Screw	Wrench
SVVB N 2020 K16	CV160300	T05003500	P0351500	XT15-S35
SVVB N 2525 M16	CV160300	T05003500	P0351500	XT15-S35
SVVB N 3225 P16	CV160300	T05003500	P0351500	XT15-S35

SVVC 72°30' Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





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Order Code	Reference	Dimensions (mm)					Insert	WT	Stock
		HF = H	B	LF	LH	WF			
212163300	SVVC N 1212 F11	12	12	80	25	6,6	VC.. 1103..	0,100	◈
212163400	SVVC N 1616 H11	16	16	100	25	8,6	VC.. 1103..	0,200	◈
212163500	SVVC N 2020 K11	20	20	125	25	10,6	VC.. 1103..	0,400	◈
212042500	SVVC N 2020 K16	20	20	125	37	10,6	VC.. 1604..	0,400	◈
212163600	SVVC N 2525 M16	25	25	150	37	13,1	VC.. 1604..	0,700	◈
212022400	SVVC N 3225 P16	32	25	170	37	13,1	VC.. 1604..	0,900	◈

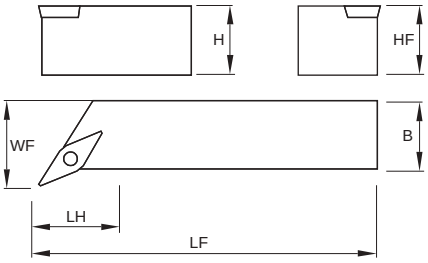
◈ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

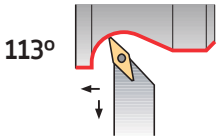
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Screw	Wrench
SVVC N 1212 F11	-	-	P0250700	XT07
SVVC N 1616 H11	-	-	P0250700	XT07
SVVC N 2020 K11	-	-	P0250700	XT07
SVVC N 2020 K16	CV160300	T05003500	P0351500	XT15-S35
SVVC N 2525 M16	CV160300	T05003500	P0351500	XT15-S35
SVVC N 3225 P16	CV160300	T05003500	P0351500	XT15-S35

SVXC 113° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: 0°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212163800	212163700	SVXC R/L 1212 G13	12	12	90	11,5	16	VCGT 1303..	0,100	◈	◈
212164000	212163900	SVXC R/L 1616 H13	16	16	100	13,8	20	VCGT 1303..	0,200	◈	◈
212164200	212164100	SVXC R/L 2020 K13	20	20	125	10,4	25	VCGT 1303..	0,400	◈	◈
212164400	212164300	SVXC R/L 2525 M13	25	25	150	20,2	32	VCGT 1303..	0,700	◈	◈

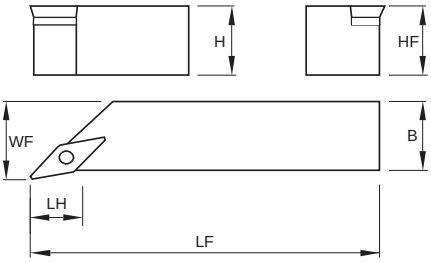
◈ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

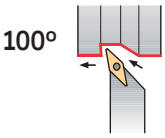
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Screw	Wrench
SVXC R/L 1212 G13	P0300900	XT08
SVXC R/L 1616 H13	P0300900	XT08
SVXC R/L 2020 K13	P0300900	XT08
SVXC R/L 2525 M13	P0300900	XT08

SVZC 100° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: 0°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212164600	212164500	SVZC R/L 2020 K16	20	20	125	25,7	25	VC.. 1604..	0,400	◈	◈
212164700	212044500	SVZC R/L 2525 M16	25	25	150	28,5	32	VC.. 1604..	0,700	◈	◈
212164900	212164800	SVZC R/L 3225 P16	32	25	170	28,5	32	VC.. 1604..	0,900	◈	◈

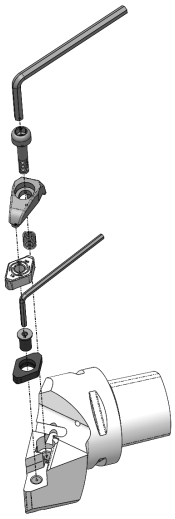
◈ Stock item | Produto de stock | Itens de stock

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

SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Screw	Wrench
SVZC R/L 2020 K16	CV160300	T05003500	P0351500	XT15-S35
SVZC R/L 2525 M16	CV160300	T05003500	P0351500	XT15-S35
SVZC R/L 3225 P16	CV160300	T05003500	P0351500	XT15-S35

NEW PSC SYSTEM - (D) DIMPLE LOCK SYSTEM



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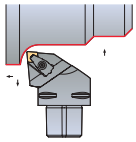
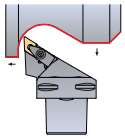
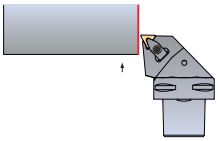
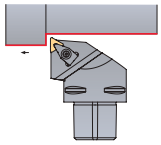
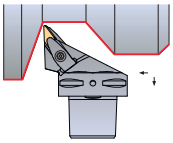
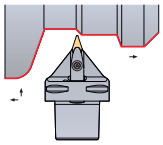
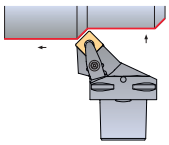
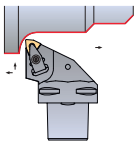
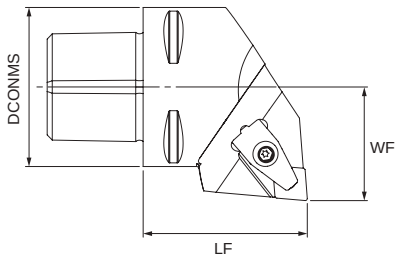
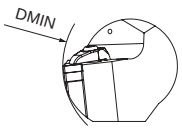
					
PAGE C - 744 CN.. 0903.. CN.. 1204.. CN.. 1606.. CN.. 1906..	PAGE C - 745 DN.. 1104.. DN.. 1506..	PAGE C - 746 TN.. 1604.. TN.. 2204..	PAGE C - 747 TNM.. 1604.. TNM.. 2204..	PAGE C - 748 VN.. 1604..	PAGE C - 749 VN.. 1604..

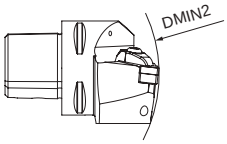
NEW DSSN 45°	NEW DWLN 95°
	
PAGE C - 750 SNM.. 1204.. SNM.. 1506.. SNM.. 1906..	PAGE C - 751 WNMG.. 0604.. WNMG.. 0806..

NEW DCLN 95° Toolholders | Ferros de torno | Herramientas de torneado

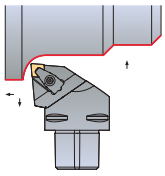
(D) DIMPLE LOCK TOOLHOLDERS







95°



Axial: -6°
Radial: -6°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		DCONMS	DMIN	DMIN2	WF	LF			R	L
212432600	212432700	PSC32-DCLN R/L 22040-09	32	60	116	22	40	CN.. 0903..	0,210	○	○
212432800	212432900	PSC40-DCLN R/L 27050-09	40	60	140	27	50	CN.. 0903..	0,420	○	○
212433000	212433100	PSC32-DCLN R/L 22045-12	32	60	121	22	45	CN.. 1204..	0,240	○	○
212433200	212433300	PSC40-DCLN R/L 27050-12	40	110	140	27	50	CN.. 1204..	0,420	○	○
212433400	212433500	PSC50-DCLN R/L3 5060-12	50	110	165	35	60	CN.. 1204..	0,800	○	○
212433600	212433700	PSC63-DCLN R/L 45065-12	63	110	190	45	65	CN.. 1204..	1,100	○	○
212433800	212433900	PSC80-DCLN R/L 55080-12	80	110	250	55	80	CN.. 1204..	2,740	○	○
212434000	212434100	PSC40-DCLN R/L 27055-16	40	125	145	27	55	CN.. 1606..	0,430	○	○
212434200	212434300	PSC50-DCLN R/L 35060-16	50	125	165	35	60	CN.. 1606..	0,800	○	○
212434400	212434500	PSC63-DCLN R/L 45065-16	63	125	190	45	65	CN.. 1606..	1,100	○	○
212434600	212434700	PSC80-DCLN R/L 55080-16	80	125	250	55	80	CN.. 1606..	2,740	○	○
212434800	212434900	PSC50-DCLN R/L 35060-19	50	125	165	35	60	CN.. 1906..	0,800	○	○
212435000	212435100	PSC63-DCLN R/L 45065-19	63	125	190	45	65	CN.. 1906..	1,100	○	○
212435000	212435300	PSC80-DCLNR/L 55080-19	80	125	250	55	80	CN.. 1906..	2,740	○	○

Stock item | Produto de stock | Itens de stock

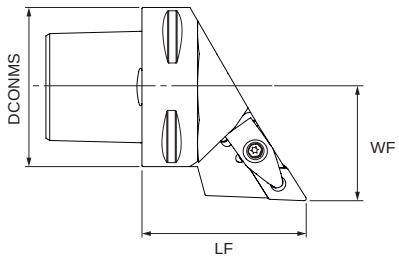
○ Available under request | Disponível sobre consulta | Disponible bajo consulta

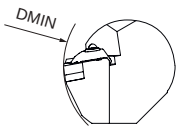
SPARE PARTS Acessórios | Repuestos

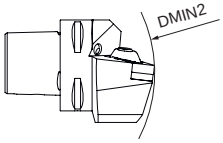
Cutter Reference	Shim Screw	Shim	Clamp Screw	Clamp	Wrench	Spring	Torque Value
							Nm
PSC32-DCLN R/L 22040-09	T05008000	CC090500	D0500801	GA05001	SS40	M06511	3,5
PSC40-DCLN R/L 27050-09	T05008000	CC090500	D0500801	GA05001	SS40	M06511	3,5
PSC32-DCLN R/L 22045-12	T06010000	CC120600	D0602900	GA07002	SS40	M09513	3,5
PSC40-DCLN R/L 27050-12	T06010000	CC120600	D0602900	GA07002	SS40	M09513	3,5
PSC50-DCLN R/L 35060-12	T06010000	CC120600	D0602900	GA07002	SS40	M09513	3,5
PSC63-DCLN R/L 45065-12	T06010000	CC120600	D0602900	GA07002	SS40	M09513	3,5
PSC80-DCLN R/L 55080-12	T06010000	CC120600	D0602900	GA07002	SS40	M09513	3,5
PSC40-DCLN R/L 27055-16	T0601575	CC160501	D0602900	GA07004	SS40	M09513	3,5
PSC50-DCLN R/L 35060-16	T0601575	CC160501	D0602900	GA07004	SS40	M09513	3,5
PSC63-DCLN R/L 45065-16	T0601575	CC160501	D0602900	GA07004	SS40	M09513	3,5
PSC80-DCLN R/L 55080-16	T0601575	CC160501	D0602900	GA07004	SS40	M09513	3,5
PSC50-DCLN R/L 35060-19	T06015000	CC190502	D0602900	GA07003	SS40	M09513	3,5
PSC63-DCLN R/L 45065-19	T06015000	CC190502	D0602900	GA07003	SS40	M09513	3,5
PSC80-DCLN R/L 55080-19	T06015000	CC190502	D0602900	GA07003	SS40	M09513	3,5

NEW DDJN 93° Toolholders | Ferros de torno | Herramientas de torneado

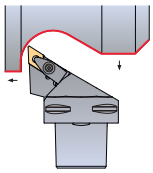
(D) DIMPLE LOCK TOOLHOLDERS







93°



Axial: -6°
Radial: -7°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		DCONMS	DMIN	DMIN2	WF	LF			R	L
212435400	212435500	PSC32-DDJN R/L 22045-11	32	60	121	22	45	DN.. 1104..	0,240	○	○
212435600	212435700	PSC40-DDJN R/L 27050-11	40	60	140	27	50	DN.. 1104..	0,420	○	○
212435800	212435900	PSC50-DDJN R/L 35060-11	50	65	165	35	60	DN.. 1104..	0,800	○	○
212436000	212436100	PSC63-DDJN R/L 45065-11	63	81	190	45	65	DN.. 1104..	1,100	○	○
212436200	212436300	PSC40-DDJN R/L 27055-15	40	110	145	27	55	DN.. 1506..	0,420	◈	◈
212436400	212436500	PSC50-DDJN R/L 35060-15	50	110	165	35	60	DN.. 1506..	0,800	◈	◈
212436600	212436700	PSC63-DDJN R/L 45065-15	63	110	190	45	65	DN.. 1506..	1,100	◈	◈
212436800	212436900	PSC80-DDJN R/L 55080-15	80	110	250	55	80	DN.. 1506..	2,740	◈	◈

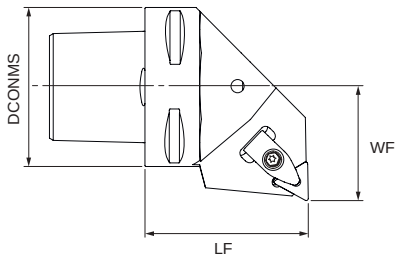
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

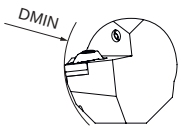
SPARE PARTS Acessórios | Repuestos

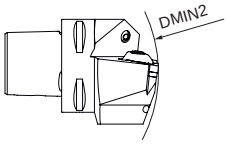
Cutter Reference	Shim Screw	Shim	Clamp Screw	Clamp	Wrench	Spring	Torque Value
							Nm
PSC32-DDJN R/L 22045-11	T05008000	CD110302	D0500801	GA05001	SS40	M06511	3,5
PSC40-DDJN R/L 27050-11	T05008000	CD110302	D0500801	GA05001	SS40	M06511	3,5
PSC50-DDJN R/L 35060-11	T05008000	CD110302	D0500801	GA05001	SS40	M06511	3,5
PSC63-DDJN R/L 45065-11	T05008000	CD110302	D0500801	GA05001	SS40	M06511	3,5
PSC40-DDJN R/L 27055-15	T06010000	CD150501	D0602900	GA07002	SS40	M09513	3,5
PSC50-DDJN R/L 35060-15	T06010000	CD150501	D0602900	GA07002	SS40	M09513	3,5
PSC63-DDJN R/L 45065-15	T06010000	CD150501	D0602900	GA07002	SS40	M09513	3,5
PSC80-DDJN R/L 55080-15	T06010000	CD150501	D0602900	GA07002	SS40	M09513	3,5

NEW DTFN 90° Toolholders | Ferros de torno | Herramientas de torneado

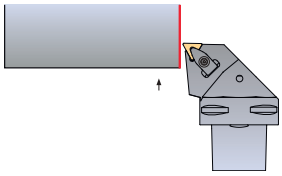
(D) DIMPLE LOCK TOOLHOLDERS







95°



Axial: -6°
Radial: -6°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		DCONMS	DMIN	DMIN2	WF	LF			R	L
212439000	212439100	PSC40-DTFN R/L 27050-16	40	110	140	27	50	TNM.. 1604..	0,420	○	○
212439200	212439300	PSC50-DTFN R/L 35060-16	50	110	165	35	60	TNM.. 1604..	0,800	○	○
212439400	212439500	PSC63-DTFN R/L 45065-16	63	110	190	45	65	TNM.. 1604..	1,100	○	○
212439600	212439700	PSC40-DTFN R/L 27050-22	40	110	140	27	50	TNM.. 2204..	0,420	○	○
212439800	212439900	PSC50-DTFN R/L 35060-22	50	110	165	35	60	TNM.. 2204..	0,800	○	○
212440000	212440100	PSC63-DTFN R/L 45065-22	63	110	190	45	65	TNM.. 2204..	1,100	○	○

Stock item | Produto de stock | Itens de stock

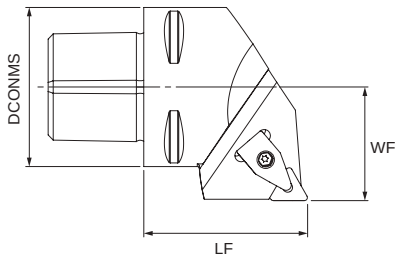
○ Available under request | Disponível sobre consulta | Disponible bajo consulta

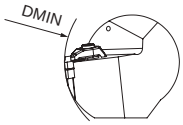
SPARE PARTS Acessórios | Repuestos

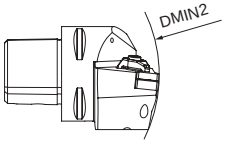
Cutter Reference	Shim Screw	Shim	Clamp Screw	Clamp	Wrench	Spring	Torque Value
							Nm
PSC40-DTFN R/L 27050-16	T05008000	CT160600	D0500801	GA05001	SS40	M06511	3,5
PSC50-DTFN R/L 35060-16	T05008000	CT160600	D0500801	GA05001	SS40	M06511	3,5
PSC63-DTFN R/L 45065-16	T05008000	CT160600	D0500801	GA05001	SS40	M06511	3,5
PSC40-DTFN R/L 27050-22	T06010000	CT220500	D0602900	GA07002	SS40	M09513	3,5
PSC50-DTFN R/L 35060-22	T06010000	CT220500	D0602900	GA07002	SS40	M09513	3,5
PSC63-DTFN R/L 45065-22	T06010000	CT220500	D0602900	GA07002	SS40	M09513	3,5

NEW DTGN 90° Toolholders | Ferros de torno | Herramientas de torneado

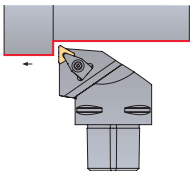
(D) DIMPLE LOCK TOOLHOLDERS







90°



Axial: -6°
Radial: -6°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		DCONMS	DMIN	DMIN2	WF	LF			R	L
212440200	212440300	PSC40-DTGN R/L 27050-16	40	110	140	27	50	TNM.. 1604..	0,420	○	○
212440400	212440500	PSC50-DTGN R/L 35060-16	50	110	165	35	60	TNM.. 1604..	0,800	○	○
212440600	212440700	PSC63-DTGN R/L 45065-16	63	110	190	45	65	TNM.. 1604..	1,100	○	○
212440800	212440900	PSC40-DTGN R/L 27050-22	40	110	140	27	50	TNM.. 2204..	0,420	○	○
212441000	212441100	PSC50-DTGN R/L 35060-22	50	110	165	35	60	TNM.. 2204..	0,800	○	○
212441200	212441300	PSC63-DTGN R/L 45065-22	63	110	190	45	65	TNM.. 2204..	1,100	○	○

Stock item | Produto de stock | Itens de stock

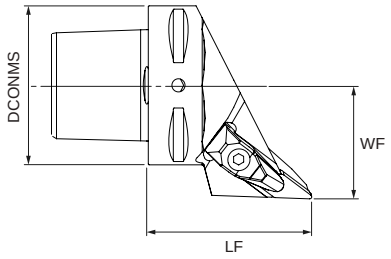
○ Available under request | Disponível sobre consulta | Disponible bajo consulta

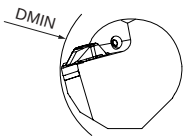
SPARE PARTS Acessórios | Repuestos

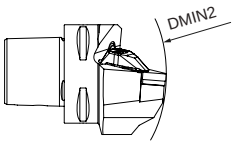
Cutter Reference	Shim Screw	Shim	Clamp Screw	Clamp	Wrench	Spring	Torque Value
							Nm
PSC40-DTGN R/L 27050-16	T05008000	CT160600	D0500801	GA05001	SS40	M06511	3,5
PSC50-DTGN R/L 35060-16	T05008000	CT160600	D0500801	GA05001	SS40	M06511	3,5
PSC63-DTGN R/L 45065-16	T05008000	CT160600	D0500801	GA05001	SS40	M06511	3,5
PSC40-DTGN R/L 27050-22	T06010000	CT220500	D0602900	GA07002	SS40	M09513	3,5
PSC50-DTGN R/L 35060-22	T06010000	CT220500	D0602900	GA07002	SS40	M09513	3,5
PSC63-DTGN R/L 45065-22	T06010000	CT220500	D0602900	GA07002	SS40	M09513	3,5

NEW DVJN 93° Toolholders | Ferros de torno | Herramientas de torneado

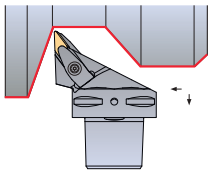
(D) DIMPLE LOCK TOOLHOLDERS







93°



Axial: -4°
Radial: -13°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		DCONMS	DMIN	DMIN2	WF	LF			R	L
212441400	212441500	PSC40-DVJN R/L 27062-16	40	60	152	27	62	VN.. 1604..	0,450	○	○
212441600	212441700	PSC50-DVJN R/L 35065-16	50	65	170	35	65	VN.. 1604..	0,790	○	○
212441800	212441900	PSC63-DVJN R/L 45065-16	63	81	190	45	65	VN.. 1604..	1,100	○	○
212442000	212442100	PSC80-DVJN R/L 55080-16	80	100	250	55	80	VN.. 1604..	2,740	○	○

Stock item | Produto de stock | Itens de stock

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

SPARE PARTS Acessórios | Repuestos

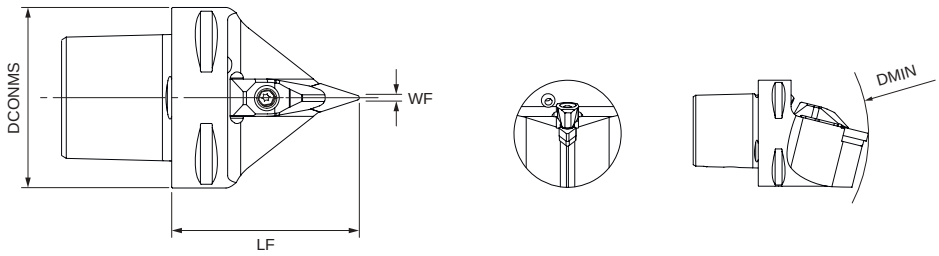
Cutter Reference	Shim Screw	Shim	Clamp Screw	Clamp	Wrench	Spring	Torque Value
							Nm
PSC40-DVJN R/L 27062-16	T05008000	CV160301	D0500801	GA05001	SS40	M06511	3,5
PSC50-DVJN R/L 35065-16	T05008000	CV160301	D0500801	GA05001	SS40	M06511	3,5
PSC63-DVJN R/L 45065-16	T05008000	CV160301	D0500801	GA05001	SS40	M06511	3,5
PSC80-DVJN R/L 55080-16	T05008000	CV160301	D0500801	GA05001	SS40	M06511	3,5

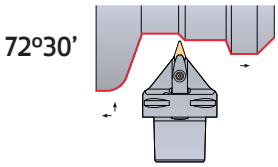
Spare Parts: C - 846 Technical Data: C - 856

palbit

NEW DVVN 72°30' Toolholders | Ferros de torno | Herramientas de torneado

(D) DIMPLE LOCK TOOLHOLDERS





Axial: -6°
Radial: -6°

Order Code	Reference	Dimensions (mm)				Insert	WT	Stock
		DCONMS	DMIN	WF	LF			
212442200	PSC40-DVVN N 00062-16	40	152	0,6	62	VN.. 1604..	0,430	○
212442300	PSC50-DVVN N 00065-16	50	170	0,6	65	VN.. 1604..	0,800	○
212442400	PSC63-DVVN N 00065-16	63	190	0,6	65	VN.. 1604..	1,070	○
212442500	PSC80-DVVN N 00080-16	80	250	0,6	80	VN.. 1604..	2,320	○

Stock item | Produto de stock | Itens de stock

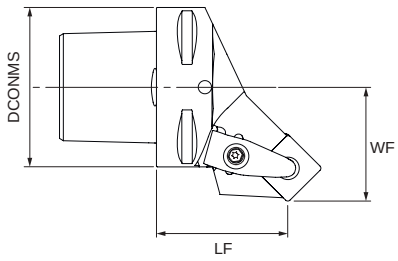
○ Available under request | Disponível sobre consulta | Disponible bajo consulta

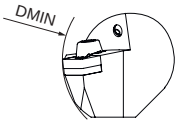
SPARE PARTS Acessórios | Repuestos

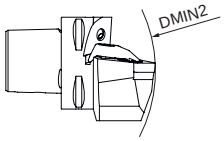
Cutter Reference	Shim Screw	Shim	Clamp Screw	Clamp	Wrench	Spring	Torque Value
							Nm
PSC40-DVVN N 00062-16	T05008000	CV160301	D0500801	GA05001	SS40	M06511	3,5
PSC50-DVVN N 00065-16	T05008000	CV160301	D0500801	GA05001	SS40	M06511	3,5
PSC63-DVVN N 00065-16	T05008000	CV160301	D0500801	GA05001	SS40	M06511	3,5
PSC80-DVVN N 00080-16	T05008000	CV160301	D0500801	GA05001	SS40	M06511	3,5

NEW DSSN 45° Toolholders | Ferros de torno | Herramientas de torneado

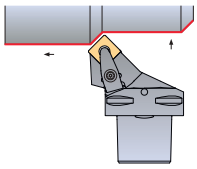
(D) DIMPLE LOCK TOOLHOLDERS







45°



Axial: -8°
Radial: 0°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		DCONMS	DMIN	DMIN2	WF	LF			R	L
212437000	212437100	PSC32-DSSN R/L 22040-12	32	60	124	22	40	SNM.. 1204..	0,210	○	○
212437200	212437300	PSC40-DSSN R/L 27042-12	40	110	140	27	42	SNM.. 1204..	0,350	○	○
212437400	212437500	PSC50-DSSN R/L 35052-12	50	110	165	35	52	SNM.. 1204..	0,700	○	○
212437600	212437700	PSC63-DSSN R/L 45056-12	63	110	190	45	56	SNM.. 1204..	1,120	○	○
212437800	212437900	PSC40-DSSN R/L 27045-15	40	125	145	27	45	SNM.. 1506..	0,400	○	○
212438000	212438100	PSC50-DSSN R/L 35050-15	50	125	165	35	50	SNM.. 1506..	0,680	○	○
212438200	212438300	PSC63-DSSN R/L 45054-15	63	125	190	45	54	SNM.. 1506..	1,140	○	○
212438400	212438500	PSC50-DSSN R/L 35048-19	50	125	165	35	48	SNM.. 1906..	0,700	○	○
212438600	212438700	PSC63-DSSN R/L 45052-19	63	125	190	45	52	SNM.. 1906..	1,130	○	○

Stock item | Produto de stock | Itens de stock

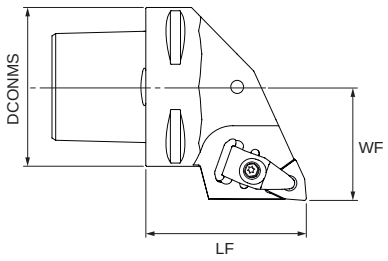
○ Available under request | Disponível sobre consulta | Disponible bajo consulta

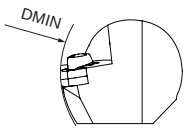
SPARE PARTS Acessórios | Repuestos

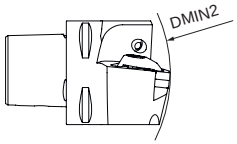
Cutter Reference	Shim Screw	Shim	Clamp Screw	Clamp	Wrench	Spring	Torque Value
							Nm
PSC32-DSSN R/L 22040-12	T06010000	CS120600	D0602900	GA07002	SS40	M09513	3,5
PSC40-DSSN R/L 27042-12	T06010000	CS120600	D0602900	GA07002	SS40	M09513	3,5
PSC50-DSSN R/L 35052-12	T06010000	CS120600	D0602900	GA07002	SS40	M09513	3,5
PSC63-DSSN R/L 45056-12	T06010000	CS120600	D0602900	GA07002	SS40	M09513	3,5
PSC40-DSSN R/L 27045-15	T0601575	CS150500	D0602900	GA07004	SS40	M09513	3,5
PSC50-DSSN R/L 35050-15	T0601575	CS150500	D0602900	GA07004	SS40	M09513	3,5
PSC63-DSSN R/L 45054-15	T0601575	CS150500	D0602900	GA07004	SS40	M09513	3,5
PSC50-DSSN R/L 35048-19	T06015000	CS190501	D0602900	GA07003	SS40	M09513	3,5
PSC63-DSSN R/L 45052-19	T06015000	CS190501	D0602900	GA07003	SS40	M09513	3,5

NEW DWLN 95° Toolholders | Ferros de torno | Herramientas de torneado

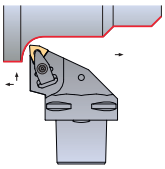
(D) DIMPLE LOCK TOOLHOLDERS







95°



Axial: -6°
Radial: -6°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		DCONMS	DMIN	DMIN2	WF	LF			R	L
212442600	212442700	PSC32-DWLN R/L 22040-06	32	60	116	22	40	WNMG 0604..	0,210	○	○
212442800	212442900	PSC40-DWLN R/L 27050-06	40	60	140	27	50	WNMG 0604..	0,420	○	○
212443000	212443100	PSC50-DWLN R/L 35060-06	50	65	165	35	60	WNMG 0604..	0,800	○	○
212443200	212443300	PSC63-DWLN R/L 45065-06	63	81	190	45	65	WNMG 0604..	1,100	○	○
212443400	212443500	PSC40-DWLN R/L 27050-08	40	110	140	27	50	WNMG 0804..	0,420	○	○
212443600	212443700	PSC50-DWLN R/L 35060-08	50	110	165	35	60	WNMG 0804..	0,800	○	○
212443800	212443900	PSC63-DWLN R/L 45065-08	63	110	190	45	65	WNMG 0804..	1,100	○	○
212444000	212444100	PSC80-DWLN R/L 55080-08	80	110	250	55	80	WNMG 0804..	2,740	○	○

Stock item | Produto de stock | Itens de stock

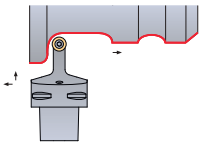
○ Available under request | Disponível sobre consulta | Disponible bajo consulta

SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim Screw	Shim	Clamp Screw	Clamp	Wrench	Spring	Torque Value
							Nm
PSC32-DWLN R/L 22040-06	T05008000	CW060302	D0500801	GA05001	SS40	M06511	3,5
PSC40-DWLN R/L 27050-06	T05008000	CW060302	D0500801	GA05001	SS40	M06511	3,5
PSC50-DWLN R/L 35060-06	T05008000	CW060302	D0500801	GA05001	SS40	M06511	3,5
PSC63-DWLN R/L 45065-06	T05008000	CW060302	D0500801	GA05001	SS40	M06511	3,5
PSC40-DWLN R/L 27050-08	T06010000	CW080500	D0602900	GA07002	SS40	M09513	3,5
PSC50-DWLN R/L 35060-08	T06010000	CW080500	D0602900	GA07002	SS40	M09513	3,5
PSC63-DWLN R/L 45065-08	T06010000	CW080500	D0602900	GA07002	SS40	M09513	3,5
PSC80-DWLN R/L 55080-08	T06010000	CW080500	D0602900	GA07002	SS40	M09513	3,5

NEW PSC SYSTEM - (S) CENTER SCREW SYSTEM

NEW SRDC

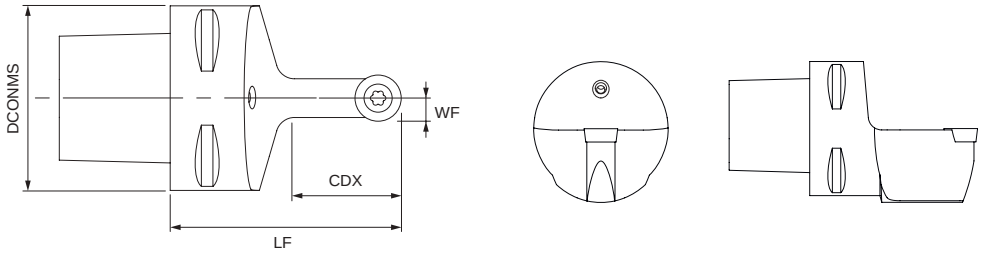


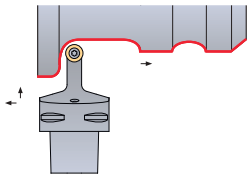
PAGE C - 753

RC.. 0602..
RC.. 0803..

NEW SRDC Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0º
Radial: 0º

Order Code	Reference	Dimensions (mm)				Insert	Kg	Stock
		DCONMS	WF	LF	CDX			
212444300	PSC32-SRDC N 00040-06	32	3	40	12	RC.. 0602..	0,160	○
212462200	PSC40-SRDC N 00050-06	40	3	50	12	RC.. 0602..	0,350	○
212462300	PSC50-SRDC N 00060-06	50	3	60	12	RC.. 0602..	0,750	○
212462400	PSC32-SRDC N 00040-08	32	4	40	16	RC.. 0803..	0,160	○
212470900	PSC40-SRDC N00050-08	40	4	50	16	RC.. 0803..	0,35	○
212471000	PSC50-SRDC N00060-08	50	4	60	16	RC.. 0803..	0,35	○

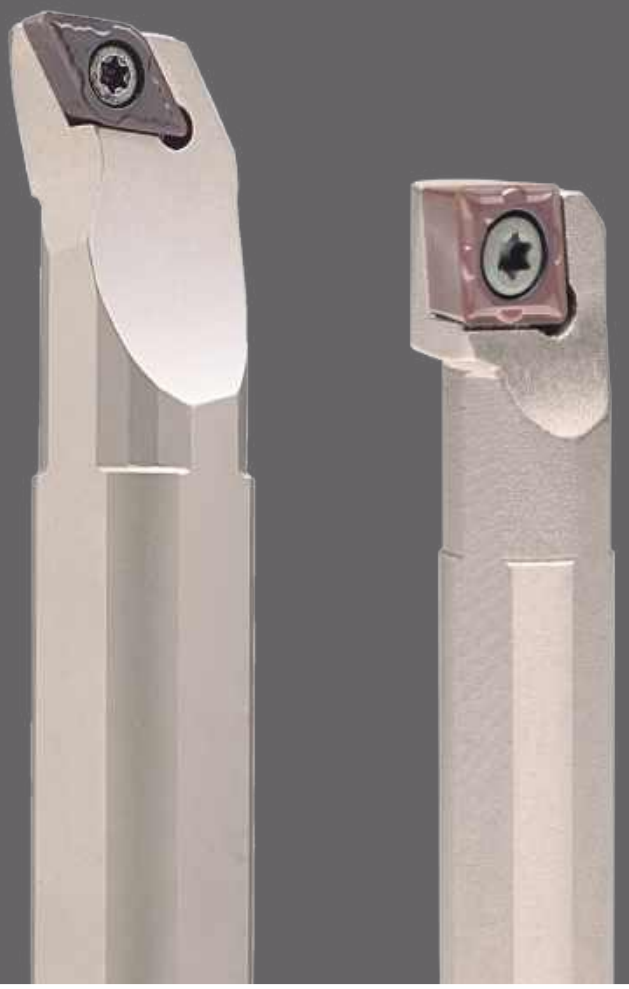
Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim Screw	Wrench	Torque Value
			Nm
PSC32-SRDC N 00040-06	P0250700	XT07	0,9
PSC40-SRDC N 00050-06	P0250700	XT07	0,9
PSC50-SRDC N 00060-06	P0250700	XT07	0,9
PSC32-SRDC N 00040-08	P0300900	XT08	1,2
PSC40-SRDC N 00050-08	P0300900	XT08	1,2
PSC50-SRDC N 00060-08	P0300900	XT08	1,2

TOOLHOLDERS

INTERNAL



Internal turning places high demands on tools due to limited space. Efficient chipbreaking and evacuation are crucial for preventing tool damage and surface finish. Specialized tooling, optimized parameters, and effective coolant usage are vital for successful machining.

O torneamento interno exige muito das ferramentas devido ao espaço limitado. A quebra eficiente de aparas e a evacuação são cruciais para evitar danos à ferramenta e garantir o acabamento da superfície. Ferramentas especializadas, parâmetros otimizados e uso eficaz de refrigerante são vitais para a maqiunação bem-sucedida.

El torneado interno pone altas demandas en las herramientas debido al espacio limitado. La rotura eficiente de virutas y la evacuación son cruciales para prevenir daños en la herramienta y garantizar el acabado superficial. Herramientas especializadas, parámetros optimizados y uso efectivo de refrigerante son vitales para el mecanizado exitoso.

Top Clamp Toolholders (C) > page 760

> Highly rigid top clamp with shim

Grampo altamente rígido com calço | Brida altamente rígida con calzo

Dimple Lock Toolholders (D) > page 765

> Stable and rigid top clamp for negative inserts with a through hole

Grampo estável e rígido para pastilhas negativas com furo passante | Brida estable y rígida para plaquitas negativos con agujero pasante

Wedge Clamp (M) & Double Lock (M-K) Toolholders > page 768

> Double security clamping with eccentric pin, common for negative inserts

Dupla fixação de segurança com pino excêntrico, comum para pastilhas negativas | Doble sujeción de seguridad con pasador excéntrico, común para plaquitas negativas

Lever Lock Toolholders (P) > page 778

> Locking design for negative inserts, avoiding chip interference

Design de bloqueio para pastilhas negativas, evitando interferência de aparas | Diseño de bloqueo para plaquitas negativas, evitando interferencia de virutas

> With or without directional coolant

Com ou sem refrigeração direcional | Con o sin refrigeración direccional

Center Screw Toolholders (S) > page 792

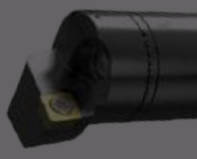
> Solution for ensuring easy insert exchange without interference

Solução ideal para garantir a troca fácil da pastilha sem interferência | Solución para garantizar un intercambio fácil de la plaquita sin interferencias

> With or without directional coolant

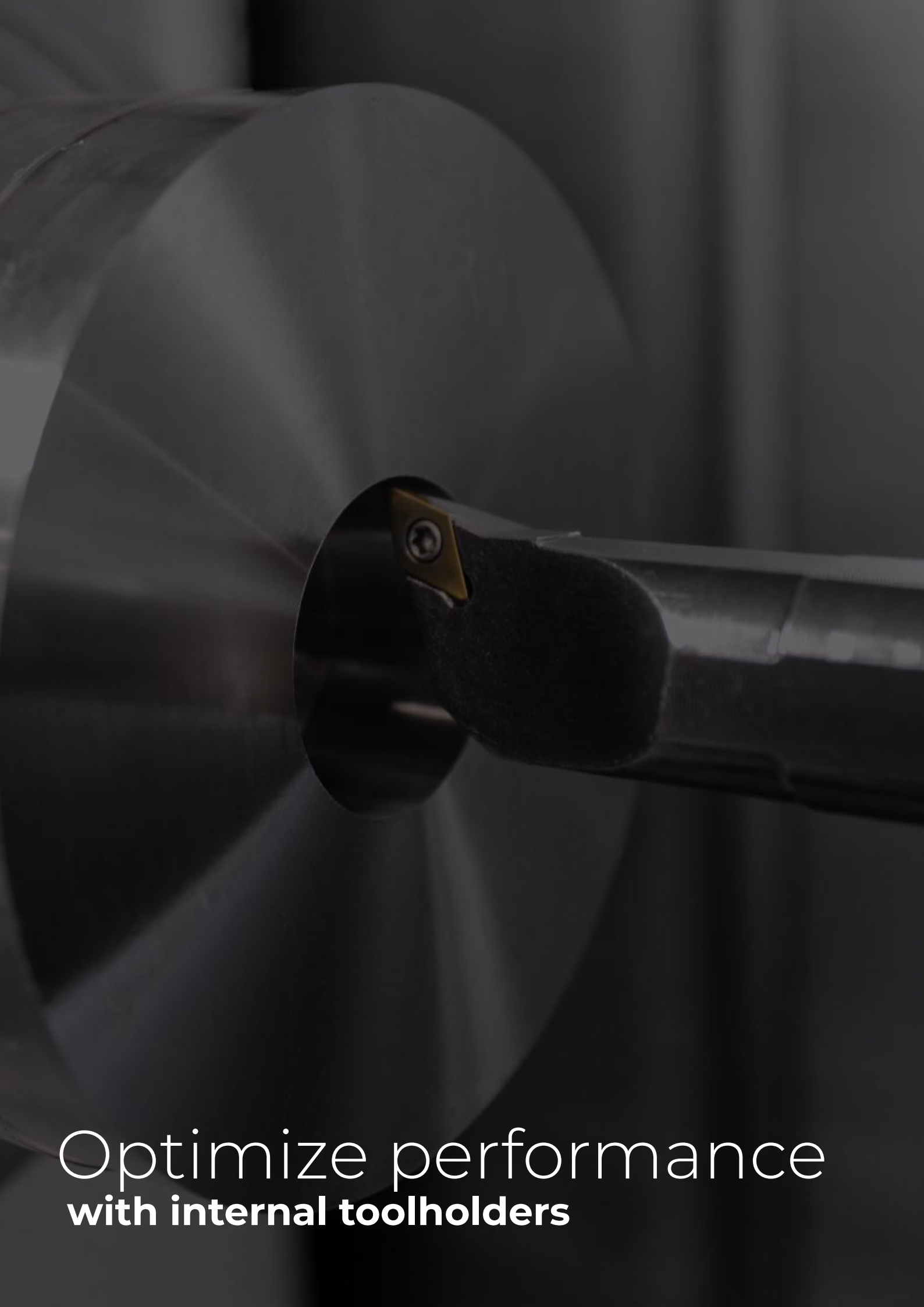
Com ou sem refrigeração direcional | Con o sin refrigeración direccional

Anti-vibration Bars (AVB) > page 821



> Long overhangs with excellent finished surfaces

Torneamentos longos com excelente acabamento de superfície | Torneados largos con excelente acabado superficial



Optimize performance
with internal toolholders

CODE KEY FOR INTERNAL TURNING TOOLHOLDERS

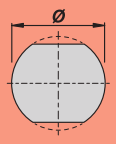
Sistema de codificação para suportes de torneamento interno (ISO) | Codificación de herramientas de torneado interior (ISO)

S	25	T	S	D	U	C	R	11	-	BT
1	2	3	4	5	6	7	8	9		10

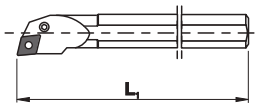
1 - Bar Type

A	Steel shank with internal coolant		
E	Anti-vibration shank (heavy metal) with internal coolant		
S	Steel shank		

2 - Bar Diameter (mm)



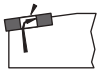
3 - Bar Length (mm)



H	100	T	300
J	110	U	350
K	125	V	400
L	140	W	450
M	150	Y	500
Q	180	X	Special
R	200		
S	250		

4 - Inserts Clamping System

C

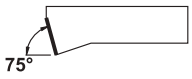

M

P

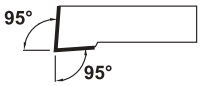
S

6 - Bar Leading Angle

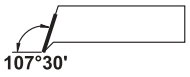
F



K



L



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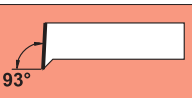
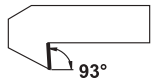


U



U-BT

5 - Insert Shape

C

D

E

K

S

T

V

W

7 - Inserts Clearance Angle

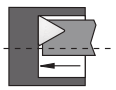
B

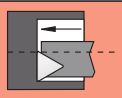
C

N

P

8 - Bar Hand


L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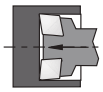
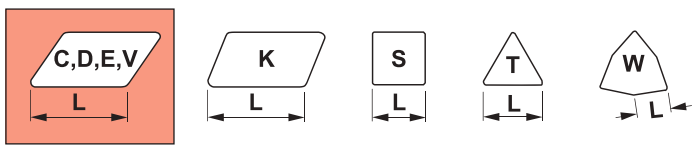

N

9 - Length of Inserts Cutting Edge (mm)



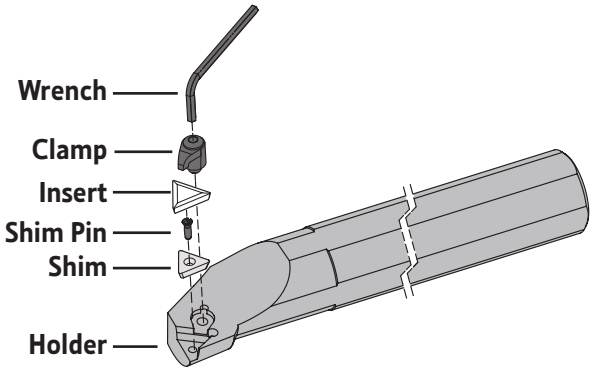
10 - Special Toolholder (Suppressed when standard)

BT - Back Turning

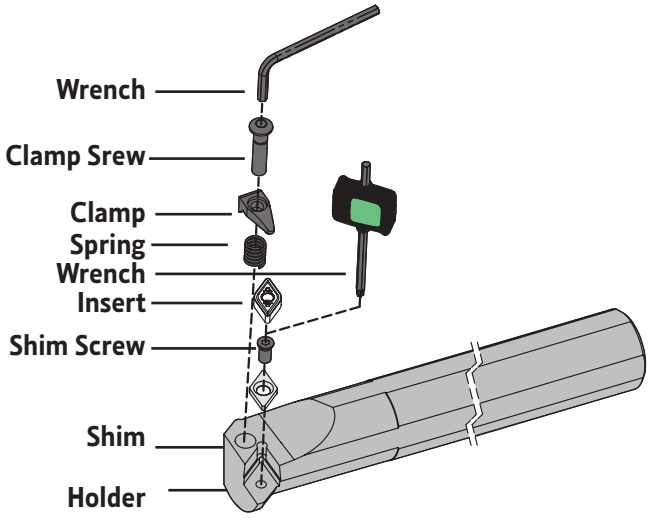
CLAMPING SYSTEMS FOR INTERNAL TOOLHOLDERS

Sistemas de fixação para ferramentas de torneamento interno | Sistemas de fijación para herramientas de torneado interior

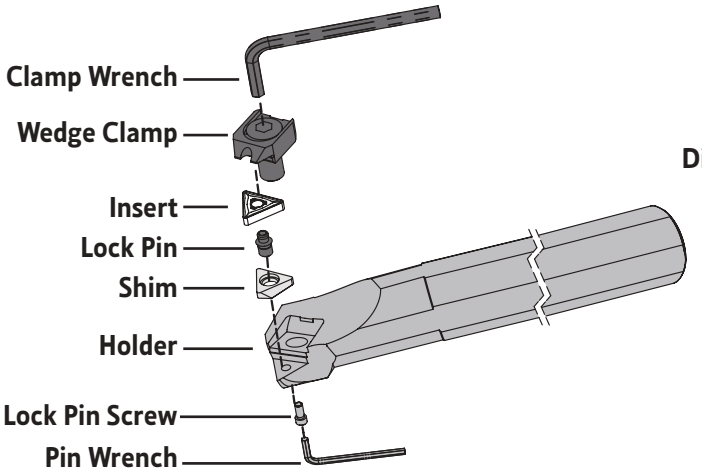
(C) TOP CLAMP SYSTEM



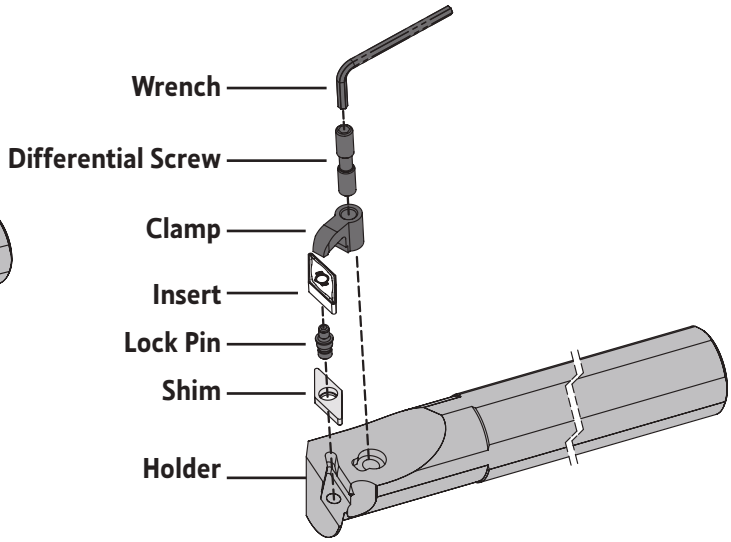
(D) DIMPLE LOCK SYSTEM



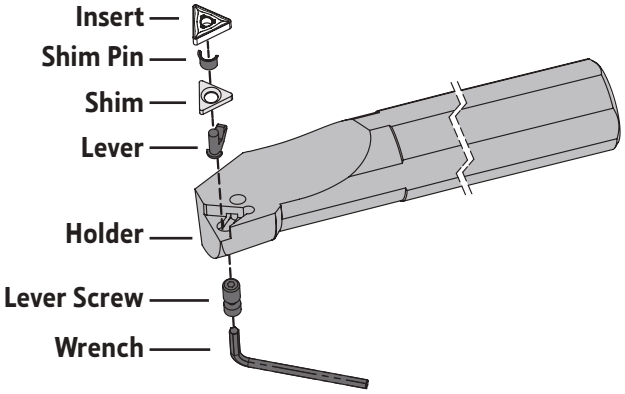
(M) WEDGE CLAMP SYSTEM



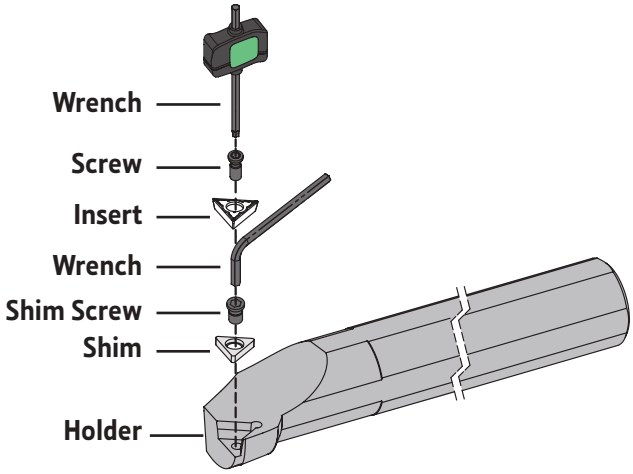
(M-K) DOUBLE LOCK SYSTEM



(P) LEVER LOCK SYSTEM



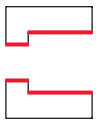
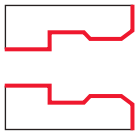
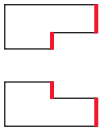
(S) CENTER SCREW SYSTEM



palbit

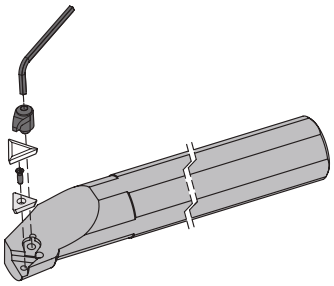
SUITABLE CLAMPING SYSTEM DEFINITION

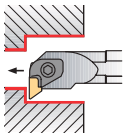
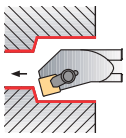
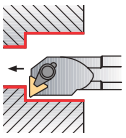
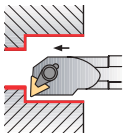
Definição do sistema de fixação | Definición del sistema de Fijación

Internal machining \ Operation		Longitudinal turning	Profiling	Facing
				
Negative inserts	(C) TOP CLAMP SYSTEM	●	●	
	(D) DIMPLE LOCK SYSTEM	●●	●	
	(M) WEDGE CLAMP SYSTEM - (M-K) DOUBLE LOCK SYSTEM	●	●	●
	(P) LEVER LOCK SYSTEM	●●	●	●
Positive inserts	(C) TOP CLAMP SYSTEM	●		
	(S) CENTER SCREW SYSTEM	●●	●●	●●

●● Recomended Insert Shape ● Alternative Insert Shape

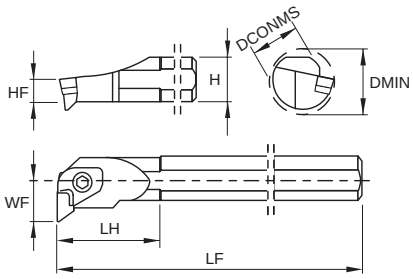
(C) TOP CLAMP SYSTEM

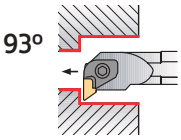


CKUN 93°	CSKP 75°	CTFP 90°	CTUP 93°
			
PAGE C - 761 KNUX 1604..	PAGE C - 762 SP.. 0903.. SP.. 1203.. SP.. 1904..	PAGE C - 763 TP.. 0903.. ... TP.. 2204..	PAGE C - 764 TP.. 0903.. ... TP.. 2204..

CKUN 93° Toolholders | Ferros de torno | Herramientas de torneado

(C) TOP CLAMP TOOLHOLDERS





Axial: -6°
Radial: -10°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212038300	212028200	S25T CKUN R/L 16	25	23	11,5	300	50	20,5	37	KNUX 1604..	0,700	◎	◎
212028300	212028400	S32U CKUN R/L 16	32	30	15,0	350	54	22,0	39	KNUX 1604..	2,050	○	○
212329300	212329400	S40V CKUN R/L 16	40	37	18,5	400	60	27,0	48	KNUX 1604..	3,750	○	○
212329500	212329600	S50W CKUN R/L 16	50	47	23,5	450	65	35,0	61	KNUX 1604..	6,500	○	○

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

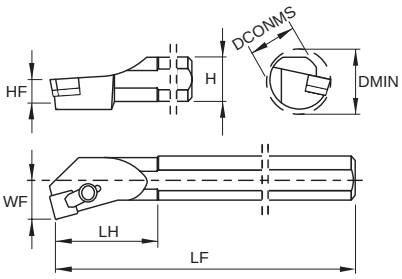
SPARE PARTS Acessórios | Repuestos

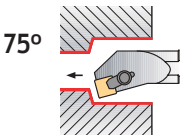
Order separately

Cutter Reference	Shim	Shim Pin	Shim Pin Punch	Spring	Clamp	Screw	Wrench
S25T CKUN R 16	-	-	BF04806	M09513	GAW1401	DW142600	SS40
S32U CKUN R 16	CK160501	BE03000	BF04808	M09513	GAW1401	DW142600	SS40
S40V CKUN R 16	CK160501	BE03000	BF04815	M09513	GAW1401	DW142600	SS40
S50W CKUN R 16	CK160501	BE03000	BF04815	M09513	GAW1401	DW142600	SS40
S25T CKUN L 16	-	-	BF04806	M09513	GAW1400	DW142600	SS40
S32U CKUN L 16	CK160500	BE03000	BF04808	M09513	GAW1400	DW142600	SS40
S40V CKUN L 16	CK160500	BE03000	BF04815	M09513	GAW1400	DW142600	SS40
S50W CKUN L 16	CK160500	BE03000	BF04815	M09513	GAW1400	DW142600	SS40

CSKP 75° Toolholders | Ferros de torno | Herramientas de torneado

(C) TOP CLAMP TOOLHOLDERS





Axial: 6,5°
Radial: -1,25°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212027500	212027600	S16R CSKP R/L 09	16	15	7,5	200	30	11	20	SP.. 0903..	0,300	◉	◉
212027700	212027800	S20S CSKP R/L 09	20	18	9,0	250	35	13	24	SP.. 0903..	0,550	◉	◉
212329700	212027900	S25T CSKP R/L 12	25	23	11,5	300	40	17	31	SP.. 1203..	1,050	◉	◉
212028000	212028100	S32U CSKP R/L 12	32	30	15,0	350	50	22	39	SP.. 1203..	2,050	○	○
212329800	212329900	S40V CSKP R/L 12	40	37	18,5	400	60	27	48	SP.. 1203..	3,650	○	○
212330000	212330100	S50W CSKP R/L 12	50	47	23,5	450	65	35	61	SP.. 1203..	6,450	○	○
212330200	212330300	S50W CSKP R/L 19	50	47	23,5	450	65	35	61	SP.. 1904..	6,400	○	○

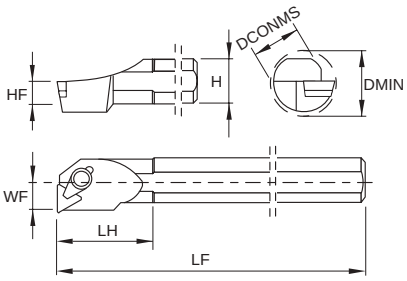
◉ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

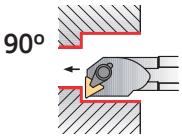
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Complementary Accessories - Flat Inserts						
	Shim	Shim Pin	Clamp	Wrench	Clamp	Chip Breaker 1	Chip Breaker 2
S16R CSKP R/L 09	-	-	GS05000	SS25	-	QCS0900	-
S20S CSKP R/L 09	-	-	GS05000	SS25	-	QCS1200	QCS1201
S25T CSKP R/L 12	-	-	GS06001	SS30	GS06003	QCS1200	QCS1201
S32U CSKP R/L 12	CS120300	BE02100	GS06001	SS30	GS06003	QCS1200	QCS1201
S40V CSKP R/L 12	CS120300	BE02100	GS06001	SS30	GS06003	QCS1200	QCS1201
S50W CSKP R/L 12	CS120300	BE02100	GS06001	SS30	GS06003	QCS1200	QCS1201
S50W CSKP R/L 19	CS190300	BE03000	GS08000	SS40	GS08001	QCS1900	QCS1901

CTFP 90° Toolholders | Ferros de torno | Herramientas de torneado

(C) TOP CLAMP TOOLHOLDERS





Axial: 6°
Radial: 0°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212330400	212330500	S10M CTFP R/L 09	10	9	4,5	150	25	7	13	TP.. 0902..	0,060	◉	◉
212330600	212330700	S12M CTFP R/L 09	12	11	5,5	150	25	9	16	TP.. 0902..	0,150	◉	◉
212170200	212330800	S12M CTFP R/L 11	12	11	5,5	150	25	9	16	TP.. 1103..	0,150	◉	◉
212026800	212026900	S16R CTFP R/L 11	16	15	7,5	200	30	11	20	TP.. 1103..	0,300	◉	◉
212027000	212027100	S20S CTFP R/L 11	20	18	9,0	250	35	13	24	TP.. 1103..	0,550	◉	◉
212330900	212331000	S16R CTFP R/L 16	16	15	7,5	200	30	11	20	TP.. 1603..	0,300	◉	◉
212331100	212331200	S20S CTFP R/L 16	20	18	9,0	250	35	13	24	TP.. 1603..	0,550	◉	◉
212036700	212027200	S25T CTFP R/L 16	25	23	11,5	300	40	17	31	TP.. 1603..	0,700	◉	◉
212027300	212027400	S32U CTFP R/L 16	32	30	15,0	350	50	22	39	TP.. 1603..	2,050	○	○
212331300	212331700	S40V CTFP R/L 16	40	37	18,5	400	60	27	48	TP.. 1603..	3,750	○	○
212331800	212331900	S50W CTFP R/L 16	50	47	23,5	450	65	35	61	TP.. 1603..	6,500	○	○
212021300	212332000	S40V CTFP R/L 22	40	37	18,5	400	60	27	48	TP.. 2204..	3,750	○	○
212332100	212332200	S50W CTFP R/L 22	50	47	23,5	450	65	35	61	TP.. 2204..	6,500	○	○

◉ Stock item | Produto de stock | Itens de stock

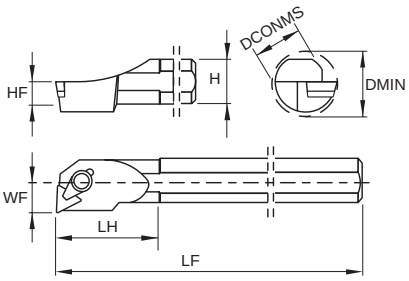
○ Available under request | Disponível sobre consulta | Disponible bajo consulta

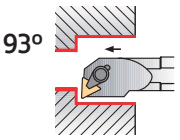
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Complementary Accessories - Flat Inserts						
	Shim	Shim Pin	Clamp	Wrench	Clamp	Chip Breaker 1	Chip Breaker 2
S10M CTFP R/L 09	-	-	GS03000	SS15	-	-	-
S12M CTFP R/L 09	-	-	GS03000	SS15	-	-	-
S12M CTFP R/L 11	-	-	GS04000	SS25	-	-	-
S16R CTFP R/L 11	-	-	GS05000	SS25	GS05003	QCT1100	QCT1101
S20S CTFP R/L 11	-	-	GS05000	SS25	GS05003	QCT1100	QCT1101
S16R CTFP R/L 16	-	-	GS06002	SS30	GS06003	QCT1600	QCT1601
S20S CTFP R/L 16	-	-	GS06002	SS30	GS06003	QCT1600	QCT1601
S25T CTFP R/L 16	-	-	GS06001	SS30	GS06003	QCT1600	QCT1601
S32U CTFP R/L 16	CT160301	BE02100	GS06000	SS30	GS06003	QCT1600	QCT1601
S40V CTFP R/L 16	CT160301	BE02100	GS06000	SS30	GS05005	QCT1600	QCT1601
S50W CTFP R/L 16	CT160301	BE02100	GS06000	SS30	GS05005	QCT1600	QCT1601
S40V CTFP R/L 22	CT220301	BE03000	GS08000	SS40	GS08001	QCT2200	QCT2201
S50W CTFP R/L 22	CT220301	BE03000	GS08000	SS40	GS08001	QCT2200	QCT2201

CTUP 93° Toolholders | Ferros de torno | Herramientas de torneado

(C) TOP CLAMP TOOLHOLDERS





Axial: 0°
Radial: -6°

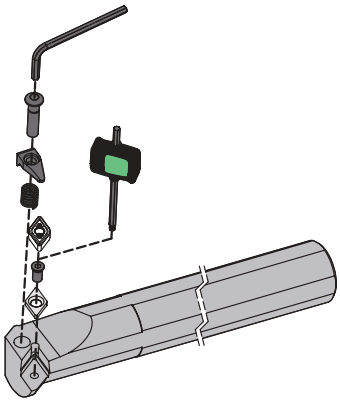
Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212245500	212332300	S10M CTUP R/L 09	10	9	4,5	150	25	7	13	TP.. 0902..	0,060	◉	◉
212332400	212332500	S12M CTUP R/L 09	12	11	5,5	150	25	9	16	TP.. 0902..	0,150	◉	◉
212332600	212332700	S12M CTUP R/L 11	12	11	5,5	150	25	9	16	TP.. 1103..	0,150	◉	◉
212332800	212332900	S16R CTUP R/L 11	16	15	7,5	200	30	11	20	TP.. 1103..	0,300	◉	◉
212333000	212333100	S20S CTUP R/L 11	20	18	9,0	250	35	13	24	TP.. 1103..	0,550	◉	◉
212333200	212333300	S16R CTUP R/L 16	16	15	7,5	200	30	11	20	TP.. 1603..	0,300	◉	◉
212333400	212333500	S20S CTUP R/L 16	20	18	9,0	250	35	13	24	TP.. 1603..	0,550	◉	◉
212245600	212333600	S25T CTUP R/L 16	25	23	11,5	300	40	17	31	TP.. 1603..	0,700	◉	◉
212333700	212333800	S32U CTUP R/L 16	32	30	15,0	350	50	22	39	TP.. 1603..	2,050	○	○
212245700	212333900	S40V CTUP R/L 16	40	37	18,5	400	60	27	48	TP.. 1603..	3,750	○	○
212334000	212334100	S50W CTUP R/L 16	50	47	23,5	450	65	35	61	TP.. 1603..	6,500	○	○
212334200	212334300	S40V CTUP R/L 22	40	37	18,5	400	60	27	48	TP.. 2204..	3,750	○	○
212334400	212334500	S50W CTUP R/L 22	50	47	23,5	450	65	35	61	TP.. 2204..	6,500	○	○

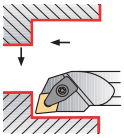
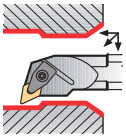
◉ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

SPARE PARTS Acessórios | Repuestos

Cutter Reference	Complementary Accessories - Flat Inserts						
	Shim	Shim Pin	Clamp	Wrench	Clamp	Chip Breaker 1	Chip Breaker 2
S10M CTUP R/L 09	-	-	GS03000	SS15	-	-	-
S12M CTUP R/L 09	-	-	GS03000	SS15	-	-	-
S12M CTUP R/L 11	-	-	GS04000	SS25	-	-	-
S16R CTUP R/L 11	-	-	GS05000	SS25	GS05003	QCT1100	QCT1101
S20S CTUP R/L 11	-	-	GS05000	SS25	GS05003	QCT1100	QCT1101
S16R CTUP R/L 16	-	-	GS06002	SS30	GS06003	QCT1600	QCT1601
S20S CTUP R/L 16	-	-	GS06002	SS30	GS06003	QCT1600	QCT1601
S25T CTUP R/L 16	-	-	GS06001	SS30	GS06003	QCT1600	QCT1601
S32U CTUP R/L 16	CT160301	BE02100	GS06000	SS30	GS06003	QCT1600	QCT1601
S40V CTUP R/L 16	CT160301	BE02100	GS06000	SS30	GS05005	QCT1600	QCT1601
S50W CTUP R/L 16	CT160301	BE02100	GS06000	SS30	GS05005	QCT1600	QCT1601
S40V CTUP R/L 22	CT220301	BE03000	GS08000	SS40	GS08001	QCT2200	QCT2201
S50W CTUP R/L 22	CT220301	BE03000	GS08000	SS40	GS08001	QCT2200	QCT2201

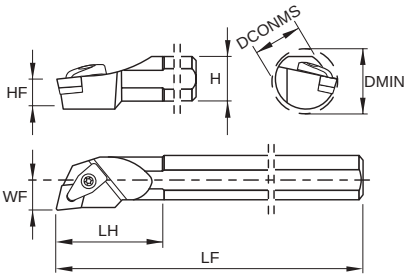
(D) DIMPLE LOCK SYSTEM

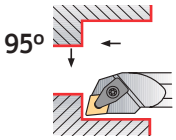


DCLN 95°	DDUN 93°
	
PAGE C - 766 CN.. 1204..	PAGE C - 767 DN.. 1506..

DCLN 95° Toolholders | Ferros de torno | Herramientas de torneado

(D) DIMPLE LOCK TOOLHOLDERS





Axial: -5°
Radial: -13,5°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212334600	212334700	S25T DCLN R/L 12	25	23	11,5	300	40	17	31	CN.. 1204..	0,700	◉	◉
212334800	212334900	S32U DCLN R/L 12	32	30	15,0	350	50	22	39	CN.. 1204..	2,050	○	○
212335000	212335100	S40V DCLN R/L 12	40	37	18,5	400	60	27	48	CN.. 1204..	3,750	○	○

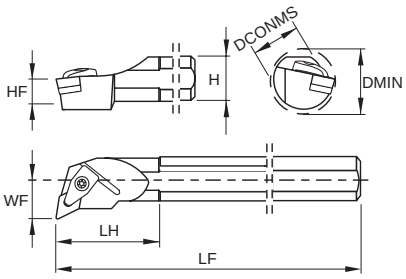
◉ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

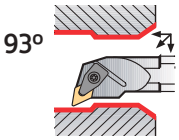
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Spring	Clamp	Clamp Screw	Wrench
S25T DCLN R/L 12	CC120300	T06010000	M09513	GA07002	D0602900	SS40
S32U DCLN R/L 12	CC120300	T06010000	M09513	GA07002	D0602900	SS40
S40V DCLN R/L 12	CC120300	T06010000	M09513	GA07002	D0602900	SS40

DDUN 93° Toolholders | Ferros de torno | Herramientas de torneado

(D) DIMPLE LOCK TOOLHOLDERS





Axial: -6°
Radial: -14°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212335200	212335300	S32U DDUN R/L 15	32	30	15,0	350	50	22	39	DN.. 1506..	2,050	◯	◯
212335400	212335500	S40V DDUN R/L 15	40	37	18,5	400	60	27	48	DN.. 1506..	3,750	◯	◯

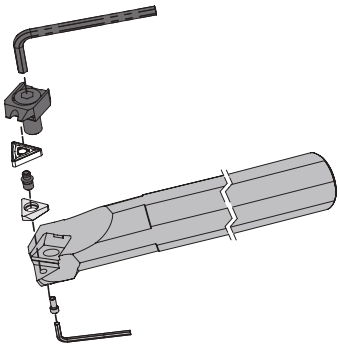
Stock item | Produto de stock | Itens de stock

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

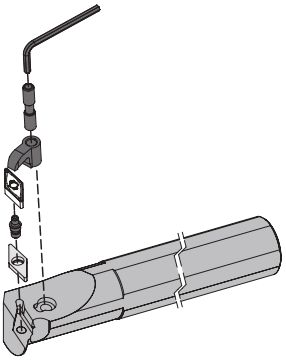
SPARE PARTS Acessórios | Repuestos

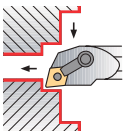
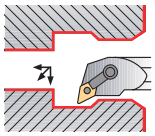
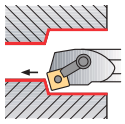
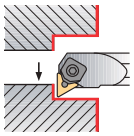
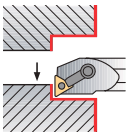
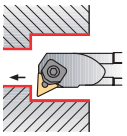
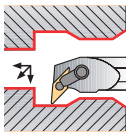
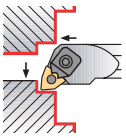
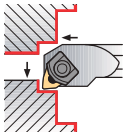
Cutter Reference	Shim	Shim Screw	Spring	Clamp	Clamp Screw	Wrench
S32U DDUN R/L 15	CD150501	T06010000	M09513	GA07002	D0602900	SS40
S40V DDUN R/L 15	CD150501	T06010000	M09513	GA07002	D0602900	SS40

(M) WEDGE CLAMP SYSTEM



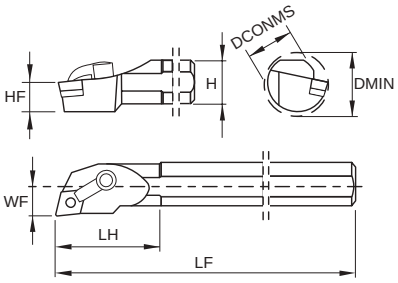
(M-K) DOUBLE LOCK SYSTEM

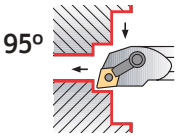


MCLN-K 95°  PAGE C - 769 CN.. 1204..	**MDUN-K 93°**  PAGE C - 770 DN.. 1506..	**MSKN-K 75°**  PAGE C - 771 SN.. 1204..	**MTFN 90°**  PAGE C - 772 TN.. 1604.. TN.. 2204..	**MTFN-K 90°**  PAGE C - 773 TN.. 1604..	**MTUN 93°**  PAGE C - 774 TN.. 1604.. TN.. 2204..
MVUN-K 93°  PAGE C - 775 VN.. 1604..	**MWLN 95°**  PAGE C - 776 WN.. 0604.. WN.. 0804..	**MWLN-K 95°**  PAGE C - 777 WN.. 0804..			

MCLN-K 95° Toolholders | Ferros de torno | Herramientas de torneado

(M-K) DOUBLE LOCK TOOLHOLDERS





Axial: -5°
Radial: -13,5°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212335600	212335700	S25T MCLN R/L 12-K	25	23	11,5	300	33	17	31	CN.. 1204..	0,700	◉	◉
212335800	212335900	S32U MCLN R/L 12-K	32	30	15,0	350	50	22	39	CN.. 1204..	2,050	○	○
212336000	212336100	S40V MCLN R/L 12-K	40	37	18,5	400	60	27	48	CN.. 1204..	3,750	○	○

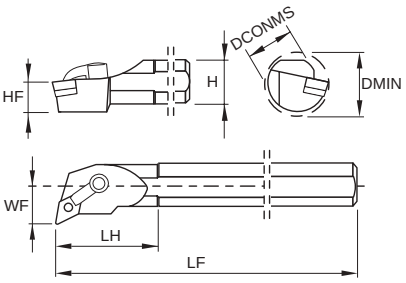
◉ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

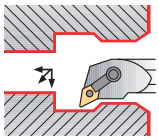
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Lock Pin	Lock Pin Punch	Clamp	Differential Screw	Clamp Wrench
S25T MCLN R/L 12-K	-	BS1-402	SS25	GA06000	F0602100	SS30
S32U MCLN R/L 12-K	CC120500	BS1-400	SS25	GA06000	F0602900	SS30
S40V MCLN R/L 12-K	CC120500	BS1-400	SS25	GA06000	F0602900	SS30

MDUN-K 93° Toolholders | Ferros de torno | Herramientas de torneado

(M-K) DOUBLE LOCK TOOLHOLDERS





Axial: -6º
Radial: -12º

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212245300	212336200	S25T MDUN R/L 15-K	25	23	11,5	300	40	17	31	DN.. 1506..	0,700	◈	◈
212336300	212336400	S32U MDUN R/L 15-K	32	30	15,0	350	50	22	39	DN.. 1506..	2,050	○	○
212245400	212336500	S40V MDUN R/L 15-K	40	37	18,5	400	60	27	48	DN.. 1506..	3,750	○	○

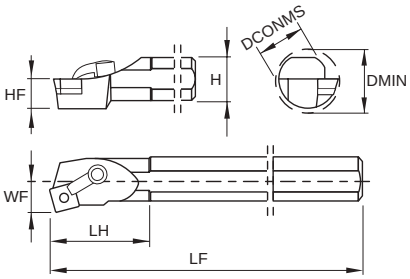
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

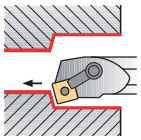
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Lock Pin	Lock Pin Punch	Clamp	Differential Screw	Clamp Wrench
S25T MDUN R/L 15-K	-	BS1-402	SS25	GA06001	F0602100	SS30
S32U MDUN R/L 15-K	CD150501	BS1-401	SS25	GA06001	F0602900	SS30
S40V MDUN R/L 15-K	CD150501	BS1-401	SS25	GA06001	F0602900	SS30

MSKN-K 75° Toolholders | Ferros de torno | Herramientas de torneado

(M-K) DOUBLE LOCK TOOLHOLDERS





Axial: -3,25°
Radial: -11°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212336600	212336700	S32U MSKN R/L 12-K	32	30	15,0	350	50	22	39	SN.. 1204..	2,050	◯	◯
212336800	212336900	S40V MSKN R/L 12-K	40	37	18,5	400	60	27	48	SN.. 1204..	3,750	◯	◯

Stock item | Produto de stock | Itens de stock

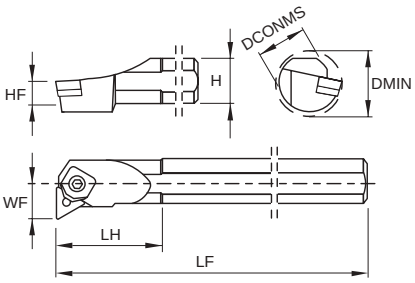
◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

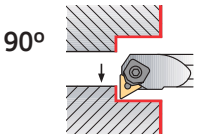
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Lock Pin	Lock Pin Punch	Clamp	Differential Screw	Clamp Wrench
S32U MSKN R/L 12-K	CS120500	BS1-400	SS25	GA06000	F0602900	SS30
S40V MSKN R/L 12-K	CS120500	BS1-400	SS25	GA06000	F0602900	SS30

MTFN 90° Toolholders | Ferros de torno | Herramientas de torneado

(M) DOUBLE LOCK TOOLHOLDERS





Axial: -6°
Radial: -12°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212050300	212338100	S25T MTFN R/L 16	25	23	11,5	300	40	17	34	TN.. 1604..	0,700	◉	◉
212168200	212338200	S32U MTFN R/L 16	32	30	15,0	350	50	22	39	TN.. 1604..	2,050	○	○
212338300	212338400	S40V MTFN R/L 16	40	37	18,5	400	60	27	48	TN.. 1604..	3,750	○	○
212338500	212338600	S50W MTFN R/L 16	50	47	23,5	450	65	35	61	TN.. 1604..	6,500	○	○
212421000	212421100	S60Y MTFN R/L 16	60	57	28,5	600	75	43	80	TN.. 1604..	12,600	○	○
212338700	212338800	S40V MTFN R/L 22	40	37	18,5	400	60	27	48	TN.. 2204..	3,750	○	○
212017500	212338900	S50W MTFN R/L 22	50	47	23,5	450	65	35	61	TN.. 2204..	6,500	○	○
212421800	212421900	S60Y MTFN R/L 22	60	57	28,5	600	75	43	80	TN.. 2204..	12,600	○	○

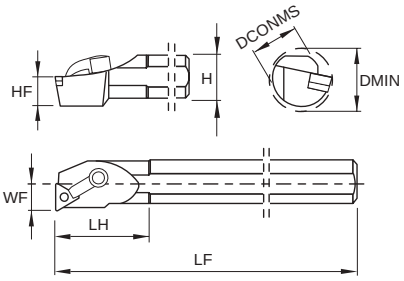
◉ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

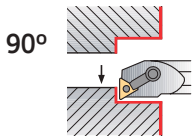
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Lock Pin	Lock Pin Punch	Wedge Clamp	Wrench
S25T MTFN R/L 16	CT160302	BC04501	D0300691	GW08001	SS50
S32U MTFN R/L 16	CT160302	BC04501	D0300700	GW08001	SS50
S40V MTFN R/L 16	CT160302	BC04501	D0300700	GW08001	SS50
S50W MTFN R/L 16	CT160302	BC04501	D0300700	GW08001	SS50
S60Y MTFN R/L 16	CT160302	BC04501	D0300691	GW08001	SS50
S40V MTFN R/L 22	CT220500	BC06000	D0400900	GW08003	SS50
S50W MTFN R/L 22	CT220500	BC06000	D0400900	GW08003	SS50
S60Y MTFN R/L 22	CT220500	BC06000	D0400900	GW08003	SS50

MTFN-K 90° Toolholders | Ferros de torno | Herramientas de torneado

(M-K) DOUBLE LOCK TOOLHOLDERS





Axial: -6°
Radial: -11°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212337000	212337100	S25T MTFN R/L 16-K	25	23	11,5	300	40	17	31	TN.. 1604..	0,700	◈	◈
212337200	212337300	S32U MTFN R/L 16-K	32	30	15,0	350	50	22	39	TN.. 1604..	2,050	○	○
212337400	212337500	S40V MTFN R/L 16-K	40	37	18,5	400	60	27	48	TN.. 1604..	3,750	○	○

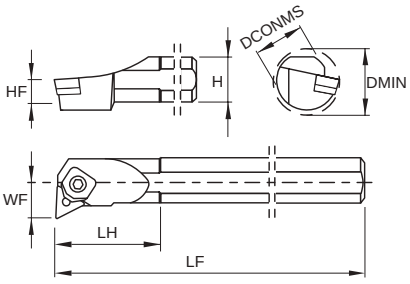
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

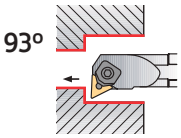
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Lock Pin	Lock Pin Wrench	Clamp	Differential Screw	Clamp Wrench
S25T MTFN R/L 16-K	CT160304	BS05000	SS20	GA06000	F0602900	SS30
S32U MTFN R/L 16-K	CT160304	BS05000	SS20	GA06000	F0602900	SS30
S40V MTFN R/L 16-K	CT160304	BS05000	SS20	GA06000	F0602900	SS30

MTUN 93° Toolholders | Ferros de torno | Herramientas de torneado

(M) DOUBLE LOCK TOOLHOLDERS





Axial: -6°
Radial: -11°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212339000	212339100	S25T MTUN R/L 16	25	23	11,5	300	40	17	34	TN.. 1604..	0,700	◈	◈
212339200	212339300	S32U MTUN R/L 16	32	30	15,0	350	50	22	39	TN.. 1604..	2,050	○	○
212339400	212339500	S40V MTUN R/L 16	40	37	18,5	400	60	27	48	TN.. 1604..	3,750	○	○
212339600	212339700	S50W MTUN R/L 16	50	47	23,5	450	65	35	61	TN.. 1604..	6,500	○	○
212339800	212339900	S40V MTUN R/L 22	40	37	18,5	400	60	27	48	TN.. 2204..	3,750	○	○
212340000	212340100	S50W MTUN R/L 22	50	47	23,5	450	65	35	61	TN.. 2204..	6,500	○	○

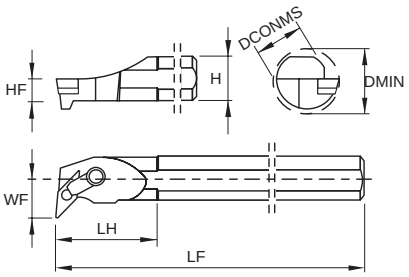
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

SPARE PARTS Acessórios | Repuestos

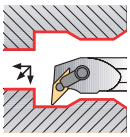
Cutter Reference	Shim	Lock Pin	Lock Pin Punch	Wedge Clamp	Wrench
S25T MTUN R/L 16	CT160302	BC04501	D0300691	GW08001	SS50
S32U MTUN R/L 16	CT160302	BC04501	D0300700	GW08001	SS50
S40V MTUN R/L 16	CT160302	BC04501	D0300700	GW08001	SS50
S50W MTUN R/L 16	CT160302	BC04501	D0300700	GW08001	SS50
S40V MTUN R/L 22	CT220500	BC06000	D0400900	GW08003	SS50
S50W MTUN R/L 22	CT220500	BC06000	D0400900	GW08003	SS50

MVUN-K 93° Toolholders | Ferros de torno | Herramientas de torneado

(M-K) DOUBLE LOCK TOOLHOLDERS



93°



Axial: -5°
Radial: -15°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212050400	212337600	S25T MVUN R/L 16-K	25	23	11,5	300	40	17	31	VN.. 1604..	0,700	◈	◈
212337700	212337800	S32U MVUN R/L 16-K	32	30	15,0	350	50	22	39	VN.. 1604..	2,050	○	○
212337900	212338000	S40V MVUN R/L 16-K	40	37	18,5	400	60	27	48	VN.. 1604..	3,750	○	○

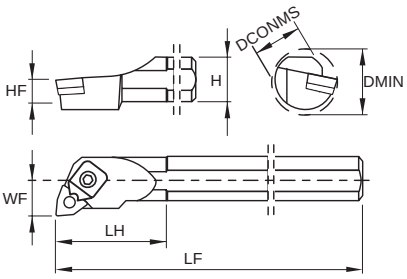
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

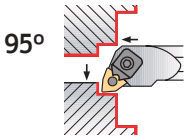
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Lock Pin	Lock Pin Wrench	Clamp	Differential Screw	Clamp Wrench
S25T MVUN R/L 16-K	CV160301	BS05000	SS20	GA06001	F0602100	SS30
S32U MVUN R/L 16-K	CV160301	BS05000	SS20	GA06001	F0602900	SS30
S40V MVUN R/L 16-K	CV160301	BS05000	SS20	GA06001	F0602900	SS30

MWLN 95° Toolholders | Ferros de torno | Herramientas de torneado

(M) DOUBLE LOCK TOOLHOLDERS





Axial: -5°
Radial: -11,5°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212050500	212340200	S20S MWLN R/L 06	20	18	9,0	250	36	13	27	WN.. 0604..	0,550	◈	◈
212340300	212340400	S25T MWLN R/L 06	25	23	11,5	300	40	17	31	WN.. 0604..	0,700	◈	◈
212340500	212340600	S32U MWLN R/L 06	32	30	15,0	350	50	22	39	WN.. 0604..	2,050	○	○
212054400	212340700	S25T MWLN R/L 08	25	23	11,5	300	40	17	31	WN.. 0804..	0,700	◈	◈
212044100	212044000	S32U MWLN R/L 08	32	30	15,0	350	50	22	39	WN.. 0804..	2,050	○	○
212340800	212340900	S40V MWLN R/L 08	40	37	18,5	400	60	27	48	WN.. 0804..	3,750	○	○
212341000	212341100	S50W MWLN R/L 08	50	47	23,5	450	65	35	61	WN.. 0804..	6,500	○	○
212421200	212421300	S60Y MWLN R/L 08	60	57	28,5	600	75	43	80	WNM. 0804..	12,600	○	○

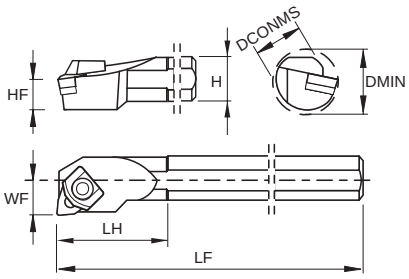
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

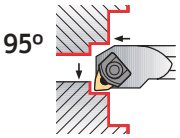
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Lock Pin	Lock Pin Punch	Wedge Clamp	Wrench
S20S MWLN R/L 06	-	BC04502	D0300691	GW05000	SS25
S25T MWLN R/L 06	CW060300	BC04501	D0300691	GW05000	SS25
S32U MWLN R/L 06	CW060300	BC04501	D0300691	GW05000	SS25
S25T MWLN R/L 08	-	BC06001	D0400691	GW08000	SS25
S32U MWLN R/L 08	CW080500	BC06000	D0400691	GW08000	SS25
S40V MWLN R/L 08	CW080500	BC06000	D0400691	GW08000	SS25
S50W MWLN R/L 08	CW080500	BC06000	D0400691	GW08000	SS25
S60Y MWLN R/L 08	CW080500	BC06000	D0400691	GW08000	SS25

MWLN-K 95° Toolholders | Ferros de torno | Herramientas de torneado

(M-K) DOUBLE LOCK TOOLHOLDERS





Axial: -5°
Radial: -11,5°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212341200	212341300	S25T MWLN R/L 08-K	25	23	11,5	300	40	17	31	WN.. 0804..	0,700	◎	◎
212341400	212341500	S32U MWLN R/L 08-K	32	30	15,0	350	50	22	39	WN.. 0804..	2,050	○	○
212341600	212341700	S40V MWLN R/L 08-K	40	37	18,5	400	60	27	48	WN.. 0804..	3,750	○	○
212341800	212341900	S50W MWLN R/L 08-K	50	47	23,5	450	65	35	61	WN.. 0804..	6,500	○	○

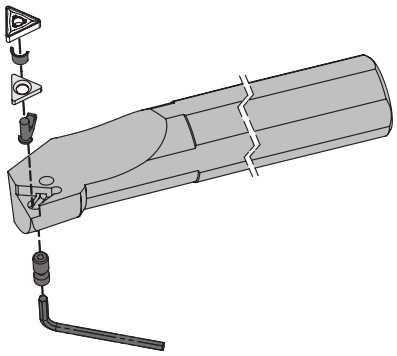
◎ Stock item | Produto de stock | Itens de stock

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

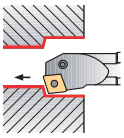
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Lock Pin	Lock Pin Screw	Wedge Clamp	Wrench
S25T MWLN R/L 08-K	-	BC06001	D0400691	GW06000	SS25
S32U MWLN R/L 08-K	CW080500	BC06000	D0400691	GW06000	SS25
S40V MWLN R/L 08-K	CW080500	BC06000	D0400691	GW06000	SS25
S50W MWLN R/L 08-K	CW080500	BC06000	D0400691	GW06000	SS25

(P) LEVER LOCK SYSTEM

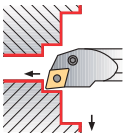


PCKN 75°



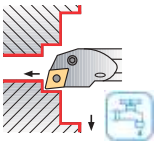
PAGE C - 779
CN.. 1204..
CN.. 1606..
CN.. 1906..

PCLN 95°



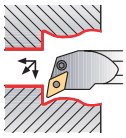
PAGE C - 780
CN.. 0903..
...
CN.. 1906..

A-PCLN 95°



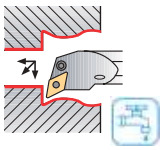
PAGE C - 781
CN.. 0903..
...
CN.. 1204..

PDUN 93°



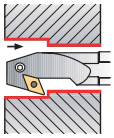
PAGE C - 782
DN.. 1104..
DN.. 1506..

A-PDUN 93°



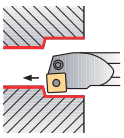
PAGE C - 783
DN.. 1104..
DN.. 1506..

PDUN 93° - BT



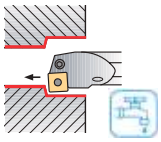
PAGE C - 784
DN.. 1506..

PSKN 75°



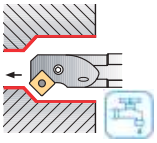
PAGE C - 785
SN.. 1204..
SN.. 1906..

A-PSKN 75°



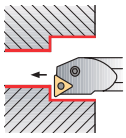
PAGE C - 786
SN.. 1204..

A-PSSN 45°



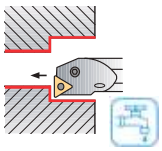
PAGE C - 787
SN.. 1204..

PTFN 90°



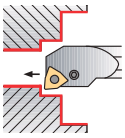
PAGE C - 788
TN.. 1604..
TN.. 2204..

A-PTFN 90°



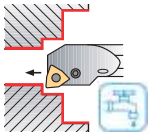
PAGE C - 789
TN.. 1604..
TN.. 2204..

PWLN 95°



PAGE C - 790
WN.. 0604..
WN.. 0804..

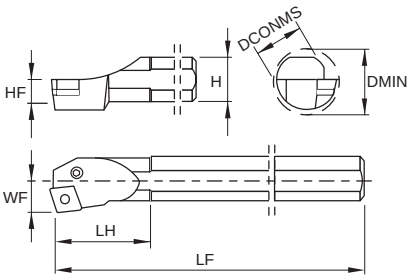
A-PWLN 95°

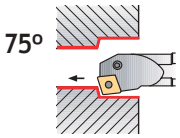


PAGE C - 791
WN.. 0604..
WN.. 0804..

PCKN 75° Toolholders | Ferros de torno | Herramientas de torneado

(P) LEVER LOCK TOOLHOLDERS





Axial: -3°
Radial: -11,5°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212342000	212342100	S25T PCKN R/L 12	25	23	11,5	300	40	17	31	CN.. 1204..	0,700	◈	◈
212342200	212342300	S32U PCKN R/L 12	32	30	15,0	350	50	22	39	CN.. 1204..	2,050	○	○
212342400	212342500	S40V PCKN R/L 12	40	37	18,5	400	60	27	48	CN.. 1204..	3,750	○	○
212421400	212421500	S50W PCKN R/L 12	50	47	23,5	450	60	35	61	CN.. 1204..	6,500	○	○
212421600	212421700	S60Y PCKN R/L 12	60	57	28,5	600	75	43	80	CN.. 1204..	12,600	○	○
212342600	212342700	S50W PCKN R/L 16	50	47	23,5	450	65	35	61	CN.. 1606..	6,500	○	○
212422000	212422100	S60Y PCKN R/L 16	60	57	28,5	600	75	43	80	CN.. 1606..	12,600	○	○
212342800	212342900	S50W PCKN R/L 19	50	47	23,5	450	65	35	61	CN.. 1906..	6,500	○	○
212422200	212422300	S60Y PCKN R/L 19	60	57	28,5	600	75	43	80	CN.. 1906..	12,600	○	○

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

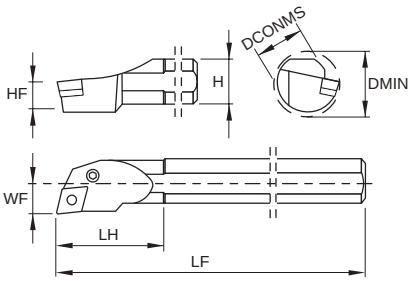
SPARE PARTS Acessórios | Repuestos

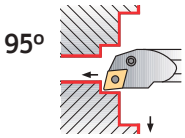
Order separately

Cutter Reference	Shim	Shim Pin	Shim Pin Punch	Lever	Lever Screw	Wrench
S25T PCKN R/L 12	-	-	-	AN12100	PA0601300	SS25
S32U PCKN R/L 12	CC120301	BE05500	BF47509	AC13200	PA0801700	SS30
S40V PCKN R/L 12	CC120301	BE05500	BF47509	AN13100	PA0802100	SS30
S50W PCKN R/L 12	CC120301	BE05500	BF47509	AN13100	PA0802100	SS30
S60Y PCKN R/L 12	CC120301	BE05500	BF47509	AN13100	PA0802100	SS30
S50W PCKN R/L 16	CC160500	BE07000	BF65012	AN17100	PA0802300	SS30
S60Y PCKN R/L 16	CC160500	BE0700	BF65012	AN17100	PA0802300	SS30
S50W PCKN R/L 19	CC190500	BE08500	BF80012	AN20800	PA1002700	SS40
S60Y PCKN R/L 19	CC190500	BE08500	BF0012	AN20800	PA1002700	SS40

PCLN 95° Toolholders | Ferros de torno | Herramientas de torneado

(P) LEVER LOCK TOOLHOLDERS





Axial: -5°
Radial: -13,5°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212247000	212343000	S16R PCLN R/L 09	16	15	7,5	200	26	11	20	CN.. 0903..	0,300	◈	◈
212050600	212343100	S20S PCLN R/L 09	20	18	9,0	250	29	13	25	CN.. 0903..	0,550	◈	◈
212247100	212343200	S25T PCLN R/L 09	25	23	11,5	300	33	17	32	CN.. 0903..	0,700	◈	◈
212048400	212343300	S25T PCLN R/L 12	25	23	11,5	300	40	17	31	CN.. 1204..	0,700	◈	◈
212169900	212343400	S32U PCLN R/L 12	32	30	15,0	350	50	22	39	CN.. 1204..	2,050	○	○
212247200	212017300	S40V PCLN R/L 12	40	37	18,5	400	60	27	48	CN.. 1204..	3,750	○	○
212343500	212343600	S50W PCLN R/L 12	50	47	23,5	450	65	35	61	CN.. 1204..	6,500	○	○
212423300	212423400	S60Y PCLN R/L 12	60	57	28,5	600	75	43	80	CN.. 1204..	12,600	○	○
212423500	212423600	S40V PCLN R/L 16	40	37	18,5	400	50	27	48	CN.. 1606..	3,750	○	○
212017700	212343700	S50W PCLN R/L 16	50	47	23,5	450	65	35	61	CN.. 1606..	6,500	○	○
212423700	212423800	S60Y PCLN R/L 16	60	57	28,5	600	75	43	80	CN.. 1606..	12,600	○	○
212017800	212017600	S50W PCLN R/L 19	50	47	23,5	450	65	35	61	CN.. 1906..	6,500	○	○
212423900	212424000	S60Y PCLN R/L 19	60	57	28,5	600	75	43	80	CN.. 1906..	12,600	○	○

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

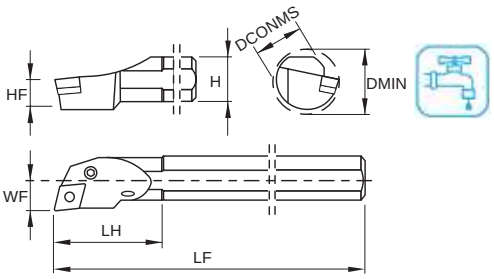
SPARE PARTS Acessórios | Repuestos

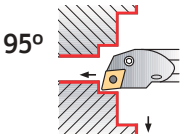
Order separately

Cutter Reference	Shim	Shim Pin	Shim Pin Punch	Lever	Lever Screw	Wrench
S16R PCLN R/L 09	-	-	-	AN07800	PA0501200	SS20
S20S PCLN R/L 09	-	-	-	AN07800	PA0501200	SS20
S25T PCLN R/L 09	CC090300	BE04400	BF40009	AN01200	PA0601300	SS25
S25T PCLN R/L 12	-	-	-	AN12100	PA0601300	SS25
S32U PCLN R/L 12	CC120301	BE05500	BF47509	AC13200	PA0801700	SS30
S40V PCLN R/L 12	CC120301	BE05500	BF47509	AN13100	PA0802100	SS30
S50W PCLN R/L 12	CC120301	BE05500	BF47509	AN13100	PA0802100	SS30
S60Y PCLN R/L 12	CC120301	BE05500	BF47509	AN13100	PA0802100	SS30
S40V PCLN R/L 16	CC160500	BE07000	BF65012	AN17100	PA0802300	SS30
S50W PCLN R/L 16	CC160500	BE07000	BF65012	AN17100	PA0802300	SS30
S60Y PCLN R/L 16	CC160500	BE07000	BF65012	AN17100	PA0802300	SS30
S50W PCLN R/L 19	CC190500	BE08300	BF80012	AN20200	PA1002700	SS40
S60Y PCLN R/L 19	CC190500	BE08300	BF80012	AN20200	PA1002700	SS40

A-PCLN 95° Toolholders | Ferros de torno | Herramientas de torneado

(P) LEVER LOCK TOOLHOLDERS





Axial: -5°
Radial: -13,5°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212343800	212343900	A16M PCLN R/L 09	16	15	7,5	150	26	11	20	CN.. 0903..	0,200	◈	◈
212344000	212344100	A20Q PCLN R/L 09	20	18	9,0	180	29	13	25	CN.. 0903..	0,400	◈	◈
212344200	212344300	A25R PCLN R/L 12	25	23	11,5	200	40	17	31	CN.. 1204..	0,700	◈	◈
212344400	212344500	A32S PCLN R/L 12	32	30	15,0	250	50	22	39	CN.. 1204..	1,400	◈	◈
212344600	212344700	A40T PCLN R/L 12	40	37	18,5	300	60	27	48	CN.. 1204..	2,650	◈	◈

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

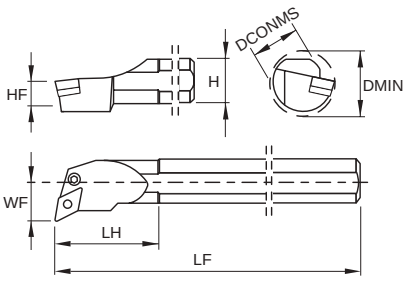
SPARE PARTS Acessórios | Repuestos

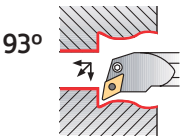
Order separately

Cutter Reference	Shim	Shim Pin	Shim Pin Punch	Lever	Lever Screw	Wrench
A16M PCLN R/L 09	-	-	-	AN07800	PA0501200	SS20
A20Q PCLN R/L 09	-	-	-	AN07800	PA0501200	SS20
A25R PCLN R/L 12	-	-	-	AN12100	PA0601300	SS25
A32S PCLN R/L 12	CC120301	BE05500	BF47509	AC13200	PA0801700	SS30
A40T PCLN R/L 12	CC120301	BE05500	BF47509	AN13100	PA0802100	SS30

PDUN 93° Toolholders | Ferros de torno | Herramientas de torneado

(P) LEVER LOCK TOOLHOLDERS





Axial: -6°
Radial: -14°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212079300	212344800	S25T PDUN R/L 11	25	23	11,5	300	35	17	32	DN.. 1104..	0,700	◈	◈
212247300	212344900	S32U PDUN R/L 11	32	30	15,0	350	40	22	40	DN.. 1104..	2,050	○	○
212079400	212079500	S32U PDUN R/L 15	32	30	15,0	350	50	22	39	DN.. 1506..	2,050	○	○
212345000	212345100	S40V PDUN R/L 15	40	37	18,5	400	60	27	48	DN.. 1506..	3,750	○	○
212018000	212017900	S50W PDUN R/L 15	50	47	23,5	450	65	35	61	DN.. 1506..	6,500	○	○

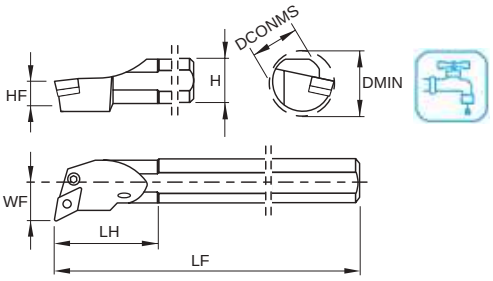
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

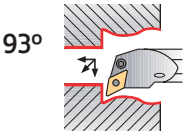
SPARE PARTS Acessórios | Repuestos

	Order separately						for inserts DN.. 1504..	
Cutter Reference	Shim	Shim Pin	Shim Pin Punch	Lever	Lever Screw	Wrench	Shim	Shim Pin
S25T PDUN R/L 11	CD110300	BE04400	BF40009	AN01200	PA0601700	SS25	-	-
S32U PDUN R/L 11	CD110300	BE04400	BF40009	AN01200	PA0601700	SS25	-	-
S32U PDUN R/L 15	CD150300	BE05500	BF47509	AN14700	PA0801700	SS30	CD150500	BE05401
S40V PDUN R/L 15	CD150300	BE05500	BF47509	AN14700	PA0802101	SS30	CD150500	BE05401
S50W PDUN R/L 15	CD150300	BE05500	BF47509	AN14700	PA0802101	SS30	CD150500	BE05401

A-PDUN 93° Toolholders | Ferros de torno | Herramientas de torneado

(P) LEVER LOCK TOOLHOLDERS





Axial: -6°
Radial: -14°

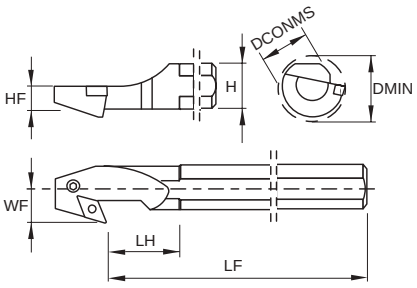
Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212345200	212345300	A25R PDUN R/L 11	25	23	11,5	200	40	17	31	DN.. 1104..	0,700	●	●
212345400	212345500	A32S PDUN R/L 15	32	30	15,0	250	50	22	39	DN.. 1506..	1,400	●	●
212345600	212345700	A40T PDUN R/L 15	40	37	18,5	300	60	27	48	DN.. 1506..	2,650	●	●

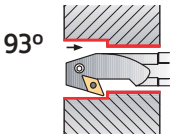
SPARE PARTS Acessórios | Repuestos

	Order separately						for inserts DN.. 1504..	
Cutter Reference	Shim	Shim Pin	Shim Pin Punch	Lever	Lever Screw	Wrench	Shim\	Shim Pin
A25R PDUN R/L 11	CD110300	BE04400	BF40009	AN01200	PA0601700	SS25	-	-
A32S PDUN R/L 15	CD150300	BE05500	BF47509	AN14700	PA0801700	SS30	CD150500	BE05401
A40T PDUN R/L 15	CD150300	BE05500	BF47509	AN14700	PA0802101	SS30	CD150500	BE05401

PDUN 93°-BT Toolholders | Ferros de torno | Herramientas de torneado

(P) LEVER LOCK TOOLHOLDERS





Axial: -6°
Radial: -14°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212345800	212345900	S32U PDUN R/L 15-BT	32	30	15,0	350	50	22	39	DN.. 1506..	2,050	◯	◯
212346000	212346100	S40V PDUN R/L 15-BT	40	37	18,5	400	60	27	48	DN.. 1506..	3,750	◯	◯
212346200	212346300	S50W PDUN R/L 15-BT	50	47	23,5	450	65	35	61	DN.. 1506..	6,500	◯	◯

Stock item | Produto de stock | Itens de stock

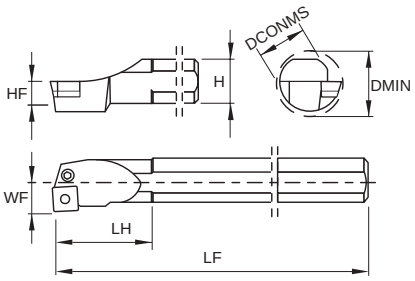
◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

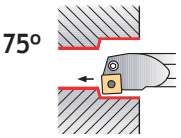
SPARE PARTS Acessórios | Repuestos

	Order separately						for inserts DN.. 1504..	
Cutter Reference	Shim	Shim Pin	Shim Pin Punch	Lever	Lever Screw	Wrench	Shim	Shim Pin
S32U PDUN R/L 15-BT	-	-	-	AN14700	PA0801700	SS30	-	-
S40V PDUN R/L 15-BT	CD150300	BE05500	BF47509	AN14700	PA0802101	SS30	CD150500	BE05401
S50W PDUN R/L 15-BT	CD150300	BE05500	BF47509	AN14700	PA0802101	SS30	CD150500	BE05401

PSKN 75° Toolholders | Ferros de torno | Herramientas de torneado

(P) LEVER LOCK TOOLHOLDERS





Axial: -3°
Radial: -11°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212050700	212346400	S25T PSKN R/L 12	25	23	11,5	300	40	17	31	SN.. 1204..	0,700	◎	◎
212346500	212346600	S32U PSKN R/L 12	32	30	15,0	350	50	22	39	SN.. 1204..	2,050	○	○
212346700	212346800	S40V PSKN R/L 12	40	37	18,5	400	60	27	48	SN.. 1204..	3,750	○	○
212424100	212424200	S40V PSKN R/L 15	40	37	18,5	400	50	27	48	SN.. 1506..	3,750	○	○
212424300	212424400	S50W PSKN R/L 15	50	47	23,5	450	60	35	61	SN.. 1506..	6,500	○	○
212346900	212347000	S50W PSKN R/L 19	50	47	23,5	450	65	35	61	SN.. 1906..	6,500	○	○
212424500	212424600	S60Y PSKN R/L 19	60	57	28,5	600	75	43	80	SN.. 1906..	12,600	○	○

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

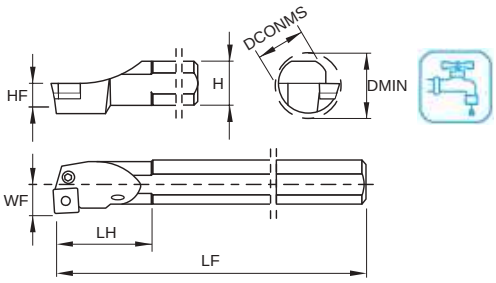
SPARE PARTS Acessórios | Repuestos

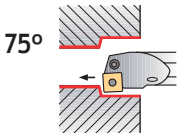
Order separately

Cutter Reference	Shim	Shim Pin	Shim Pin Punch	Lever	Lever Screw	Wrench
S25T PSKN R/L 12	-	-	-	AN12100	PA0601300	SS25
S32U PSKN R/L 12	CS120302	BE05500	BF47509	AC13200	PA0801700	SS30
S40V PSKN R/L 12	CS120302	BE05500	BF47509	AN13100	PA0802100	SS30
S40V PSKN R/L 15	CS150400	BE07000	BF65012	AN17100	PA0802300	SS30
S50W PSKN R/L 15	CS150400	BE07000	BF65012	AN17100	PA0802300	SS30
S50W PSKN R/L 19	CS190400	BE08300	BF80012	AN20200	PA1003000	SS40
S60Y PSKN R/L 19	CS150400	BE08300	BF80012	AN20200	PA1003000	SS40

A-PSKN 75° Toolholders | Ferros de torno | Herramientas de torneado

(P) LEVER LOCK TOOLHOLDERS





Axial: -3°
Radial: -11°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212347100	212347200	A25R PSKN R/L 12	25	23	11,5	200	40	17	31	SN.. 1204..	0,700	◉	◉
212347300	212347400	A32S PSKN R/L 12	32	30	15,0	250	50	22	39	SN.. 1204..	1,400	◉	◉
212347500	212347600	A40T PSKN R/L 12	40	37	18,5	300	60	27	48	SN.. 1204..	2,650	◉	◉

◉ Stock item | Produto de stock | Itens de stock

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

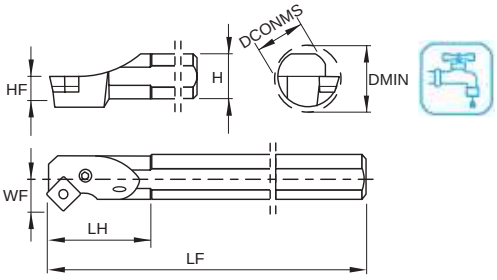
SPARE PARTS Acessórios | Repuestos

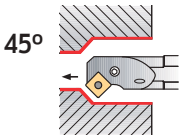
Order separately

Cutter Reference	Shim	Shim Pin	Shim Pin Punch	Lever	Lever Screw	Wrench
A25R PSKN R/L 12	-	-	-	AN12100	PA0601300	SS25
A32S PSKN R/L 12	CS120302	BE05500	BF47509	AC13200	PA0801700	SS30
A40T PSKN R/L 12	CS120302	BE05500	BF47509	AN13100	PA0802100	SS30

A-PSSN 45° Toolholders | Ferros de torno | Herramientas de torneado

(P) LEVER LOCK TOOLHOLDERS





Axial: -6°
Radial: -11°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212347700	212347800	A25R PSSN R/L 12	25	23	11,5	200	40	17	31	SN.. 1204..	0,700	◈	◈
212347900	212348000	A32S PSSN R/L 12	32	30	15,0	250	50	22	39	SN.. 1204..	2,050	◈	◈

◈ Stock item | Produto de stock | Itens de stock

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

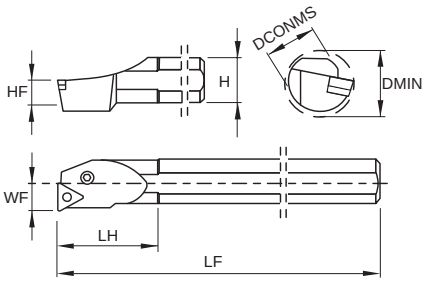
SPARE PARTS Acessórios | Repuestos

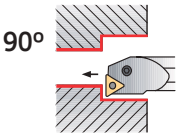
Order separately

Cutter Reference	Shim	Shim Pin	Shim Pin Punch	Lever	Lever Screw	Wrench
A25R PSKN R/L 12	-	-	-	AN12100	PA0601300	SS25
A32S PSKN R/L 12	CS120302	BE05500	BF47509	AC13200	PA0801700	SS30

PTFN 90° Toolholders | Ferros de torno | Herramientas de torneado

(P) LEVER LOCK TOOLHOLDERS





Axial: -6°
Radial: -11°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212054300	212348100	S25T PTFN R/L 16	25	23	11,5	300	40	17	31	TN.. 1604..	0,700	ⓢ	ⓢ
212045000	212348200	S32U PTFN R/L 16	32	30	15,0	350	50	22	39	TN.. 1604..	2,050	○	○
212424700	212424800	S40V PTFN R/L 16	40	37	18,5	400	50	27	48	TN.. 1604..	3,750	○	○
212424900	212425000	S50W PTFN R/L 16	50	47	23,5	450	60	35	61	TN.. 1604..	6,500	○	○
212348300	212348400	S40V PTFN R/L 22	40	37	18,5	400	60	27	48	TN.. 2204..	3,750	○	○
212348500	212348600	S50W PTFN R/L 22	50	47	23,5	450	65	35	61	TN.. 2204..	6,500	○	○

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

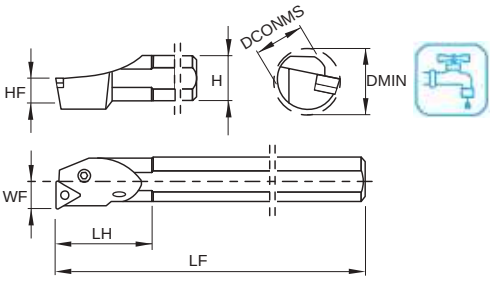
SPARE PARTS Acessórios | Repuestos

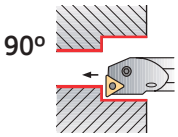
Order separately

Cutter Reference	Shim	Shim Pin	Shim Pin Punch	Lever	Lever Screw	Wrench
S25T PTFN R/L 16	-	-	-	AN09500	PA0501200	SS20
S32U PTFN R/L 16	CT160303	BE04400	BF40009	AN01200	PA0601700	SS25
S40V PTFN R/L 16	CT160303	BE04400	BF40009	AN01200	PA0601700	SS25
S50W PTFN R/L 16	CT160303	BE04400	BF40009	AN01200	PA0601700	SS25
S40V PTFN R/L 22	CT220302	BE05500	BF47509	AN13100	PA0802100	SS30
S50W PTFN R/L 22	CT220302	BE05500	BF47509	AN13100	PA0802100	SS30

A-PTFN 90° Toolholders | Ferros de torno | Herramientas de torneado

(P) LEVER LOCK TOOLHOLDERS





Axial: -6°
Radial: -11°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212348700	212348800	A25R PTFN R/L 16	25	23	11,5	200	40	17	31	TN.. 1604..	0,700	◉	◉
212348900	212349000	A32S PTFN R/L 16	32	30	15,0	250	50	22	39	TN.. 1604..	1,400	◉	◉
212349100	212349200	A40T PTFN R/L 22	40	37	18,5	300	60	27	48	TN.. 2204..	2,650	◉	◉

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

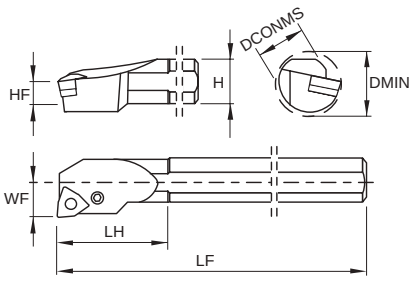
SPARE PARTS Acessórios | Repuestos

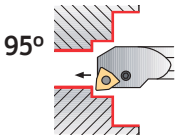
Order separately

Cutter Reference	Shim	Shim Pin	Shim Pin Punch	Lever	Lever Screw	Wrench
A25R PTFN R/L 16	-	-	-	AN09500	PA0501200	SS20
A32S PTFN R/L 16	CT160303	BE04400	BF40009	AN01200	PA0601700	SS25
A40T PTFN R/L 22	CT220302	BE05500	BF47509	AN13100	PA0802100	SS30

PWLN 95° Toolholders | Ferros de torno | Herramientas de torneado

(P) LEVER LOCK TOOLHOLDERS





Axial: -6°
Radial: -13,5°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212046300	212349300	S16R PWLN R/L 06	16	15	7,5	200	24	11	20	WN..0604..	0,300	◈	◈
212219100	212349400	S20S PWLN R/L 06	20	18	9,0	250	36	13	27	WN..0604..	0,550	◈	◈
212249900	212349500	S25T PWLN R/L 06	25	23	11,5	300	40	17	31	WN..0604..	0,700	◈	◈
212046400	212349600	S25T PWLN R/L 08	25	23	11,5	300	40	17	31	WN..0804..	0,700	◈	◈
212349700	212349800	S32U PWLN R/L 08	32	30	15,0	350	50	22	39	WN..0804..	2,050	○	○
212349900	212350000	S40V PWLN R/L 08	40	37	18,5	400	60	27	48	WN..0804..	3,750	○	○

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

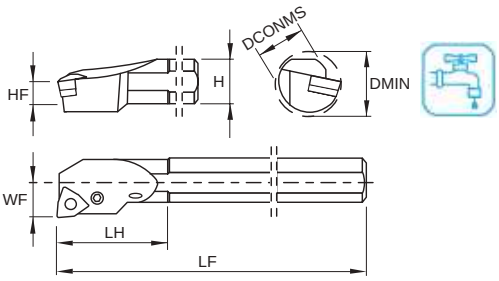
SPARE PARTS Acessórios | Repuestos

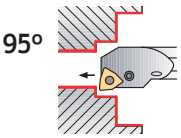
Order separately

Cutter Reference	Shim	Shim Pin	Shim Pin Punch	Lever	Lever Screw	Wrench
S16R PWLN R/L 06	-	-	-	AN09500	PA0501200	SS20
S20S PWLN R/L 06	-	-	-	AN09500	PA0501200	SS20
S25T PWLN R/L 06	CW060301	BE04400	BF40009	AN01200	PA0601700	SS25
S25T PWLN R/L 08	-	-	-	AC13200	PA0801700	SS30
S32U PWLN R/L 08	CW080300	BE05500	BF47509	AN13100	PA0802100	SS30
S40V PWLN R/L 08	CW080300	BE05500	BF47509	AN13100	PA0802100	SS30

A-PWLN 95° Toolholders | Ferros de torno | Herramientas de torneado

(P) LEVER LOCK TOOLHOLDERS





Axial: -6°
Radial: -13,5°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212350100	212350200	A16M PWLN R/L 06	16	15	7,5	150	24	11	20	WN..0604..	0,200	◈	◈
212350300	212350400	A20Q PWLN R/L 06	20	18	9,0	180	36	13	27	WN..0604..	0,400	◈	◈
212350500	212350600	A25R PWLN R/L 06	25	23	11,5	200	40	17	31	WN..0604..	0,700	◈	◈
212350700	212350800	A32S PWLN R/L 06	32	30	15,0	250	50	22	39	WN..0604..	1,400	◈	◈
212350900	212351000	A25R PWLN R/L 08	25	23	11,5	200	40	17	31	WN..0804..	0,700	◈	◈
212351300	212351400	A32S PWLN R/L 08	32	30	15,0	250	50	22	39	WN..0804..	1,400	◈	◈
212351100	212351200	A40T PWLN R/L 08	40	37	18,5	300	60	27	48	WN..0804..	2,650	◈	◈

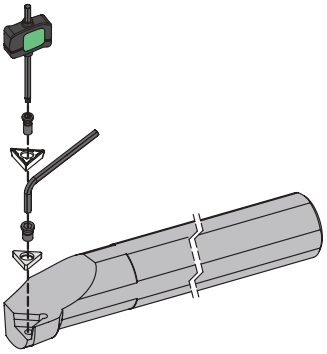
◈ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

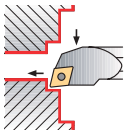
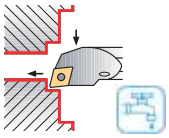
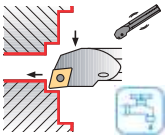
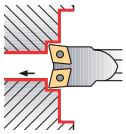
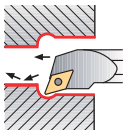
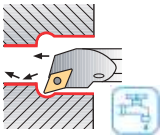
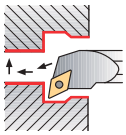
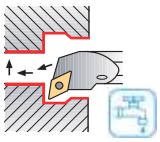
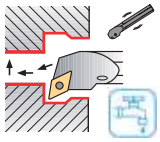
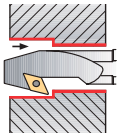
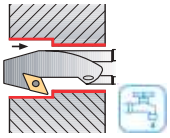
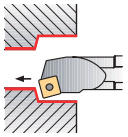
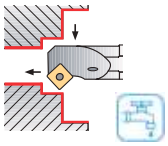
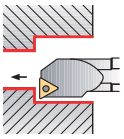
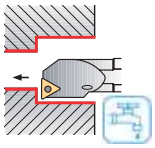
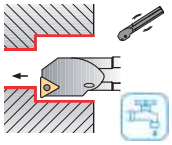
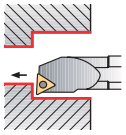
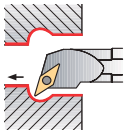
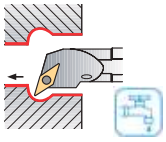
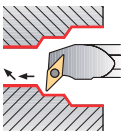
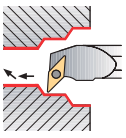
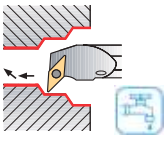
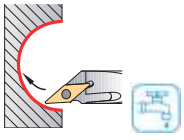
SPARE PARTS Acessórios | Repuestos

Order separately

Cutter Reference	Shim	Shim Pin	Shim Pin Punch	Lever	Lever Screw	Wrench
A16M PWLN R/L 06	-	-	-	AN09500	PA0501200	SS20
A20Q PWLN R/L 06	-	-	-	AN09500	PA0501200	SS20
A25R PWLN R/L 06	CW060301	BE04400	BF40009	AN01200	PA0601700	SS25
A32S PWLN R/L 06	CW060301	BE04400	BF40009	AN01200	PA0601700	SS25
A25R PWLN R/L 08	-	-	-	AC13200	PA0801700	SS30
A32S PWLN R/L 08	CW080300	BE05500	BF47509	AN13100	PA0802100	SS30
A40T PWLN R/L 08	CW080300	BE05500	BF47509	AN13100	PA0802100	SS30

(S) CENTER SCREW SYSTEM

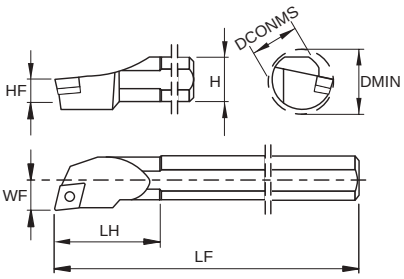


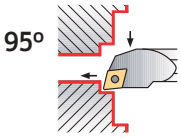
SCLC 95°  PAGE C - 793 CC.. 0602.. CC.. 09T3.. CC.. 1204..	**A-SCLC 95°**  PAGE C - 794 CC.. 0602.. CC.. 09T3.. CC.. 1204..	**E-SCLC 95°**  PAGE C - 795 CC.. 0602.. CC.. 09T3..	**SCLC N 95°**  PAGE C - 796 CC.. 0602.. CC.. 09T3.. CC.. 1204..	**SDQC 107°30'**  PAGE C - 797 DC.. 0702.. DC.. 11T3..	**A-SDQC 107°30'**  PAGE C - 798 DC.. 0702.. DC.. 11T3..
SDUC 93°  PAGE C - 799 DC.. 0702.. DC.. 11T3..	**A-SDUC 93°**  PAGE C - 800 DC.. 0702.. DC.. 11T3..	**E-SDUC 93°**  PAGE C - 801 DC.. 0702..	**SDUC 93° - BT**  PAGE C - 802 DC.. 0702.. DC.. 11T3..	**A-SDUC 93° - BT**  PAGE C - 803 DC.. 0702.. DC.. 11T3..	**SSKC 75°**  PAGE C - 804 SC..09T3.. SC.. 1204..
A-SSSC 45°  PAGE C - 805 SC.. 09T3..	**STFC 90°**  PAGE C - 806 TC.. 0902.. TC.. 1102.. TC.. 16T3..	**A-STFC 90°**  PAGE C - 807 TC.. 0902.. TC.. 1102.. TC.. 16T3..	**E-STFC 90°**  PAGE C - 808 TC.. 0902.. TC.. 1102..	**STUC 93°**  PAGE C - 809 TC.. 1102.. TC.. 16T3..	**SVQC 107°30'**  PAGE C - 810 VC.. 1103.. VC.. 1604..
A-SVQC 107°30'  PAGE C - 811 VC.. 1103.. VC.. 1604..	**SVUB 93°**  PAGE C - 812 VB.. 1604..	**SVUC 93°**  PAGE C - 813 VC.. 1103.. VC.. 1604..	**A-SVUC 93°**  PAGE C - 814 VC.. 1103.. VC.. 1604..	**A-SVJC 93°**  PAGE C - 815 VC.. 1103.. VC.. 1604..	

palbit

SCLC 95° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: -6°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212046700	212141400	S08K SCLC R/L 06	8	7	3,5	125	16	5	11	CC.. 0602..	0,040	◈	◈
212039800	212141500	S10M SCLC R/L 06	10	9	4,5	150	25	7	13	CC.. 0602..	0,060	◈	◈
212047300	212141600	S12M SCLC R/L 06	12	11	5,5	150	25	9	16	CC.. 0602..	0,150	◈	◈
212079200	212141700	S12M SCLC R/L 09	12	11	5,5	150	25	9	16	CC.. 09T3..	0,150	◈	◈
212315200	212315300	S12Q SCLC R/L 09	12	11	5,5	180	25	9	16	CC.. 09T3..	0,150	◈	◈
212041600	212044200	S16R SCLC R/L 09	16	15	7,5	200	30	11	20	CC.. 09T3..	0,300	◈	◈
212141900	212141800	S20S SCLC R/L 09	20	18	9,0	250	35	13	24	CC.. 09T3..	0,550	◈	◈
212142100	212142000	S25T SCLC R7L 09	25	23	11,5	300	40	17	31	CC.. 09T3..	0,550	◈	◈
212047400	212142200	S20S SCLC R/L 12	20	18	9,0	250	35	13	24	CC.. 1204..	0,550	◈	◈
212045500	212142300	S25T SCLC R/L 12	25	23	11,5	300	40	17	31	CC.. 1204..	0,700	◈	◈
212142500	212142400	S32U SCLC R/L 12	32	30	15,0	350	50	22	39	CC.. 1204..	2,050	○	○
212142700	212142600	S40V SCLC R/L 12	40	37	18,5	400	60	27	48	CC.. 1204..	3,750	○	○
212142900	212142800	S50W SCLC R/L 12	50	47	23,5	450	65	35	61	CC.. 1204..	6,500	○	○

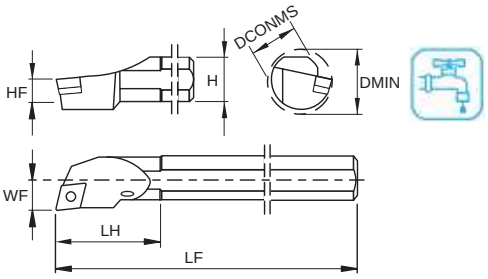
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

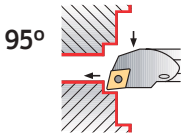
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim S crew	Screw	Wrench
S08K SCLC R/L 06	-	-	P0200601	XT07
S10M SCLC R/L 06	-	-	P0200601	XT07
S12M SCLC R/L 06	-	-	P0200601	XT07
S12M SCLC R/L 09	-	-	P0400802	XT15-S35
S12Q SCLC R/L 09	-	-	P0400802	XT15-S35
S16R SCLC R/L 09	-	-	P0400802	XT15-S35
S20S SCLC R/L 09	-	-	P0400802	XT15-S35
S25T SCLC R7L 09	-	-	P0400802	XT15-S35
S20S SCLC R/L 12	-	-	P0501200	XT15-S40
S25T SCLC R/L 12	-	-	P0501200	XT15-S40
S32U SCLC R/L 12	CC120401	T06004000	P0401400	XT15-S40
S40V SCLC R/L 12	CC120401	T06004000	P0401400	XT15-S40
S50W SCLC R/L 12	CC120401	T06004000	P0401400	XT15-S40

A-SCLC 95° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: -6°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212315400	212315500	A08F SCLC R/L 06	8	7	3,5	80	16	5	11	CC.. 0602..	0,030	●	●
212315600	212315700	A10H SCLC R/L 06	10	9	4,5	100	25	7	13	CC.. 0602..	0,040	●	●
212315800	212315900	A12K SCLC R/L 06	12	11	5,5	125	25	9	16	CC.. 0602..	0,100	●	●
212316000	212316100	A16M SCLC R/L 09	16	15	7,5	150	30	11	20	CC.. 09T3..	0,200	●	●
212316200	212316300	A20Q SCLC R/L 09	20	18	9,0	180	35	13	24	CC.. 09T3..	0,400	●	●
212316400	212316500	A25R SCLC R/L 09	25	23	11,5	200	40	17	31	CC.. 09T3..	0,700	●	●
212316600	212316700	A32S SCLC R/L 12	32	30	15,0	250	50	22	39	CC.. 1204..	1,400	●	●
212316800	212316900	A40T SCLC R/L 12	40	37	18,5	300	60	27	48	CC.. 1204..	2,650	●	●

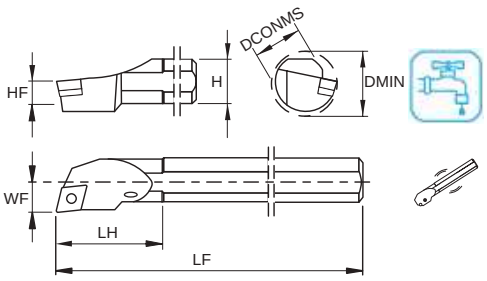
● Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

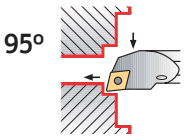
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim S crew	Screw	Wrench
A08F SCLC R/L 06	-	-	P0200601	XT07
A10H SCLC R/L 06	-	-	P0200601	XT07
A12K SCLC R/L 06	-	-	P0200601	XT07
A16M SCLC R/L 09	-	-	P0400802	XT15-S35
A20Q SCLC R/L 09	-	-	P0400802	XT15-S35
A25R SCLC R/L 09	-	-	P0400802	XT15-S35
A32S SCLC R/L 12	CC120401	T06004000	P0401400	XT15-S40
A40T SCLC R/L 12	CC120401	T06004000	P0401400	XT15-S40

E-SCLC 95° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: -6°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212317800	212317900	E08K SCLC R/L 06	8	7	3,5	125	16	5	11	CC.. 0602..	0,080	◈	◈
212318000	212318100	E10M SCLC R/L 06	10	9	4,5	150	25	7	13	CC.. 0602..	0,150	◈	◈
212317400	212318300	E12Q SCLC R/L 06	12	11	5,5	180	25	9	16	CC.. 0602..	0,250	◈	◈
212318400	212317600	E16R SCLC R/L 09	16	15	7,5	200	30	11	20	CC.. 09T3..	0,600	◈	◈

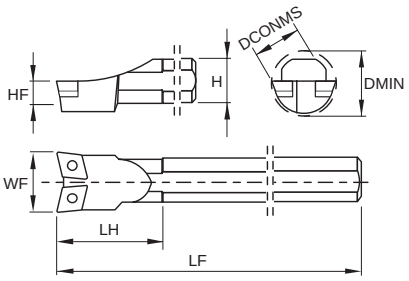
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

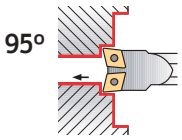
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Screw	Wrench
E08K SCLC R/L 06	P0200601	XT07
E10M SCLC R/L 06	P0200601	XT07
E12M SCLC R/L 06	P0200601	XT07
E16R SCLC R/L 09	P0400802	XT15-S35

SCLC N 95° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: -9°

Order Code	Reference	Dimensions (mm)							Insert	WT	Stock
		DCONMS	H	HF	LF	LH	WF	DMIN			
212143000	S12M SCLC N 06	12	11	5,5	150	25	18	20	CC.. 0602..	0,150	◈
212143100	S16R SCLC N 06	16	15	7,5	200	30	22	25	CC.. 0602..	0,300	◈
212143200	S20S SCLC N 06	20	18	9,0	250	35	26	30	CC.. 0602..	0,550	◈
212143300	S25T SCLC N 09	25	23	11,5	300	40	34	40	CC.. 09T3..	0,700	◈
212143400	S32U SCLC N 12	32	30	15,0	350	50	44	50	CC.. 1204..	2,050	○
212143500	S40V SCLC N 12	40	37	18,5	400	60	54	60	CC.. 1204..	3,750	○
212143600	S50W SCLC N 12	50	47	23,5	450	65	62	68	CC.. 1204..	6,500	○

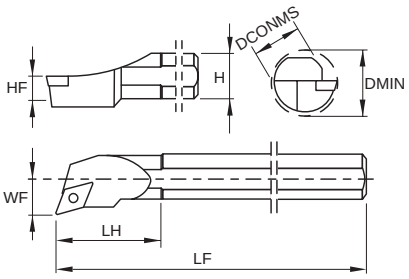
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

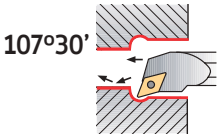
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Screw	Wrench
S12M SCLC N 06	-	-	P0200601	XT07
S16R SCLC N 06	-	-	P0200601	XT07
S20S SCLC N 06	-	-	P0200601	XT07
S25T SCLC N 09	-	-	P0400802	XT15-S35
S32U SCLC N 12	CC120401	T06004000	P0401400	XT15-S40
S40V SCLC N 12	CC120401	T06004000	P0401400	XT15-S40
S50W SCLC N 12	CC120401	T06004000	P0401400	XT15-S40

SDQC 107°30' Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: -6°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212147000	212146900	S10M SDQC R/L 07	10	9	4,5	150	25	7	13	DC.. 0702..	0,060	◈	◈
212147200	212147100	S12M SDQC R/L 07	12	11	5,5	150	25	9	16	DC.. 0702..	0,150	◈	◈
212147400	212147300	S16R SDQC R/L 07	16	15	7,5	200	30	11	20	DC.. 0702..	0,300	◈	◈
212147600	212147500	S20S SDQC R/L 07	20	18	9,0	250	35	13	24	DC.. 0702..	0,550	◈	◈
212147800	212147700	S20S SDQC R/L 11	20	18	9,0	250	35	13	24	DC.. 11T3..	0,550	◈	◈
212148000	212147900	S25T SDQC R/L 11	25	23	11,5	300	40	17	31	DC.. 11T3..	0,700	◈	◈
212148100	212148200	S32U SDQC R/L 11	32	30	15,0	350	50	22	39	DC.. 11T3..	2,050	○	○
212148300	212148400	S40V SDQC R/L 11	40	37	18,5	400	60	27	48	DC.. 11T3..	3,750	○	○

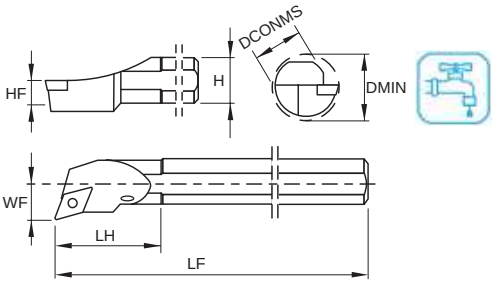
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

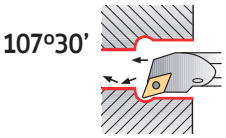
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Screw	Wrench
S10M SDQC R/L 07	-	-	P0200601	XT07
S12M SDQC R/L 07	-	-	P0250700	XT07
S16R SDQC R/L 07	-	-	P0250700	XT07
S20S SDQC R/L 07	-	-	P0250700	XT07
S20S SDQC R/L 11	-	-	P0401100	XT15-S35
S25T SDQC R/L 11	-	-	P0401100	XT15-S35
S32U SDQC R/L 11	CD110301	T05003500	P0351500	XT15-S35
S40V SDQC R/L 11	CD110301	T05003500	P0351500	XT15-S35

A-SDQC 107°30' Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: -6°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212318600	212318700	A12K SDQC R/L 07	12	11	5,5	125	25	9	16	DC.. 0702..	0,100	◈	◈
212318800	212318900	A16M SDQC R/L 07	16	15	7,5	150	30	11	20	DC.. 0702..	0,200	◈	◈
212319000	212319100	A20Q SDQC R/L 11	20	18	9,0	180	35	13	24	DC.. 11T3..	0,400	◈	◈
212319200	212319300	A25R SDQC R/L 11	25	23	11,5	200	40	17	31	DC.. 11T3..	0,700	◈	◈
212319400	212319500	A32S SDQC R/L 11	32	30	15,0	250	50	22	39	DC.. 11T3..	1,400	◈	◈
212319600	212319700	A40T SDQC R/L 11	40	37	18,5	300	60	27	48	DC.. 11T3..	2,650	◈	◈

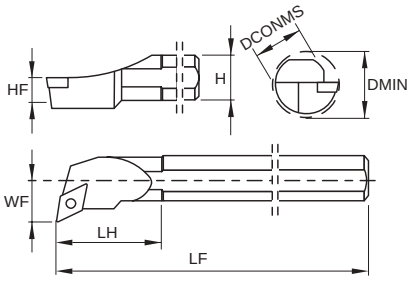
◈ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

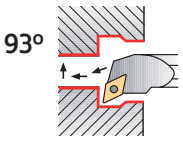
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Screw	Wrench
A12K SDQC R/L 07	-	-	P0250700	XT07
A16M SDQC R/L 07	-	-	P0250700	XT07
A20Q SDQC R/L 11	-	-	P0401100	XT15-S35
A25R SDQC R/L 11	-	-	P0401100	XT15-S35
A32S SDQC R/L 11	CD110301	T05003500	P0351500	XT15-S35
A40T SDQC R/L 11	CD110301	T05003500	P0351500	XT15-S35

SDUC 93° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: -6°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212144700	212144600	S10M SDUC R/L 07	10	9	4,5	150	25	7	13	DC.. 0702..	0,060	◈	◈
212028500	212028600	S12M SDUC R/L 07	12	11	5,5	150	25	9	16	DC.. 0702..	0,150	◈	◈
212319800	212319900	S12Q SDUC R/L 07	12	11	5,5	180	25	9	16	DC.. 0702..	0,150	◈	◈
212028700	212028800	S16R SDUC R/L 07	16	15	7,5	200	30	11	20	DC.. 0702..	0,300	◈	◈
212144900	212144800	S20S SDUC R/L 07	20	18	9,0	250	35	13	24	DC.. 0702..	0,550	◈	◈
212036800	212028900	S20S SDUC R/L 11	20	18	9,0	250	35	13	24	DC.. 11T3..	0,550	◈	◈
212029000	212038400	S25T SDUC R/L 11	25	23	11,5	300	40	17	31	DC.. 11T3..	0,700	◈	◈
212145200	212145100	S32U SDUC R/L 11	32	30	15,0	350	50	22	39	DC.. 11T3..	2,050	○	○
212145400	212145300	S40V SDUC R/L 11	40	37	18,5	400	60	27	48	DC.. 11T3..	3,750	○	○

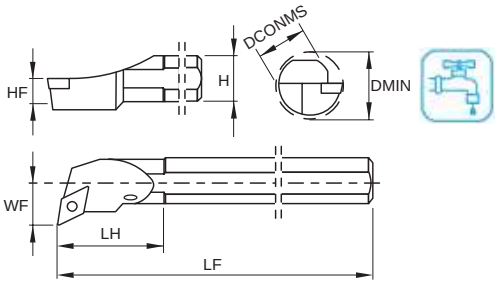
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

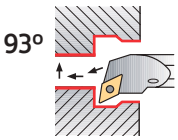
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Screw	Wrench
S10M SDUC R/L 07	-	-	P0200601	XT07
S12M SDUC R/L 07	-	-	P0250700	XT07
S12Q SDUC R/L 07	-	-	P0250700	XT07
S16R SDUC R/L 07	-	-	P0250700	XT07
S20S SDUC R/L 07	-	-	P0250700	XT07
S20S SDUC R/L 11	-	-	P0401100	XT15-S35
S25T SDUC R/L 11	-	-	P0401100	XT15-S35
S32U SDUC R/L 11	CD110301	T05003500	P0351500	XT15-S40
S40V SDUC R/L 11	CD110301	T05003500	P0351500	XT15-S40

A-SDUC 93° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: -6°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212320000	212320100	A12K SDUC R/L 07	12	11	5,5	125	25	9	16	DC.. 0702..	0,100	●	●
212320200	212320300	A16M SDUC R/L 07	16	15	7,5	150	30	11	20	DC.. 0702..	0,200	●	●
212320400	212320500	A20Q SDUC R/L 11	20	18	9,0	180	35	13	24	DC.. 11T3..	0,400	●	●
212320600	212320700	A25R SDUC R/L 11	25	23	11,5	200	40	17	31	DC.. 11T3..	0,700	●	●
212320800	212320900	A32S SDUC R/L 11	32	30	15,0	250	50	22	39	DC.. 11T3..	1,400	●	●
212321000	212321100	A40T SDUC R/L 11	40	37	18,5	300	60	27	48	DC.. 11T3..	2,650	●	●

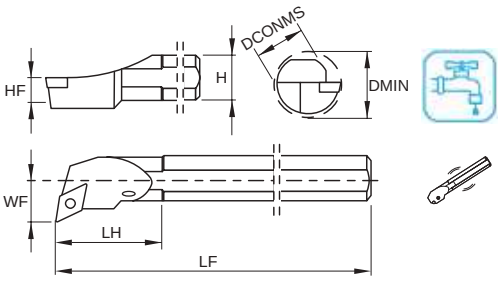
● Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

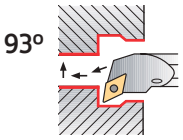
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Screw	Wrench
A12K SDUC R/L 07	-	-	P0250700	XT07
A16M SDUC R/L 07	-	-	P0250700	XT07
A20Q SDUC R/L 11	-	-	P0401100	XT15-S35
A25R SDUC R/L 11	-	-	P0401100	XT15-S35
A32S SDUC R/L 11	CD110301	T05003500	P0351500	XT15-S35
A40T SDUC R/L 11	CD110301	T05003500	P0351500	XT15-S35

E-SDUC 93° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0º
Radial: -6º

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212321800	212321300	E10M SDUC R/L 07	10	9	4,5	150	25	7	13	DC.. 0702..	0,150	●	●
212322000	212322100	E12Q SDUC R/L 07	12	11	5,5	180	25	9	16	DC.. 0702..	0,250	●	●
212322200	212321700	E16R SDUC R/L 07	16	15	7,5	200	30	11	20	DC.. 0702..	0,600	●	●

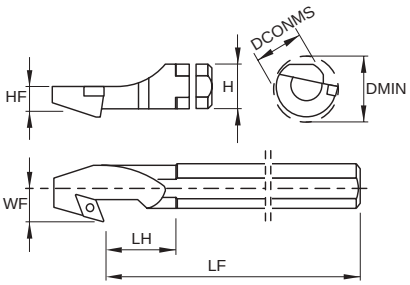
● Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

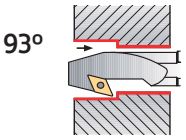
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Screw	Wrench
E10M SDUC R/L 07	P0200601	XT07
E12M SDUC R/L 07	P0250700	XT07
E16R SDUC R/L 07	P0250700	XT07

SDUC 93°-BT Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: -6°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212145600	212145500	S12M SDUC R/L 07-BT	12	11	5,5	150	25	9	16	DC.. 0702..	0,150	◈	◈
212145800	212145700	S16R SDUC R/L 07-BT	16	15	7,5	200	30	11	20	DC.. 0702..	0,300	◈	◈
212146000	212145900	S20S SDUC R/L 07-BT	20	18	9,0	250	35	13	24	DC.. 0702..	0,550	◈	◈
212146200	212146100	S20S SDUC R/L 11-BT	20	18	9,0	250	35	13	24	DC.. 11T3..	0,550	◈	◈
212146400	212146300	S25T SDUC R/L 11-BT	25	23	11,5	300	40	17	31	DC.. 11T3..	0,700	◈	◈
212146600	212146500	S32U SDUC R/L 11-BT	32	30	15,0	350	50	22	39	DC.. 11T3..	2,050	○	○
212146800	212146700	S40V SDUC R/L 11-BT	40	37	18,5	400	60	27	48	DC.. 11T3..	3,750	○	○

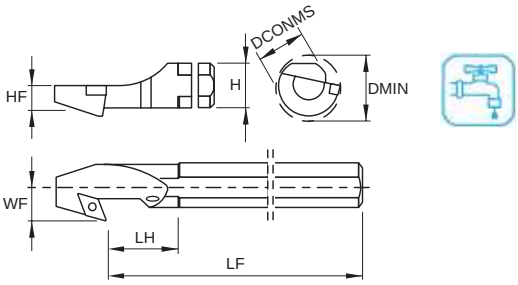
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

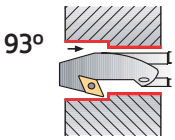
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Screw	Wrench
S12M SDUC R/L 07-BT	-	-	P0250700	XT07
S16R SDUC R/L 07-BT	-	-	P0250700	XT07
S20S SDUC R/L 07-BT	-	-	P0250700	XT07
S20S SDUC R/L 11-BT	-	-	P0400802	XT15-S35
S25T SDUC R/L 11-BT	-	-	P0401100	XT15-S35
S32U SDUC R/L 11-BT	CD110301	T05003500	P0351500	XT15-S35
S40V SDUC R/L 11-BT	CD110301	T05003500	P0351500	XT15-S35

A-SDUC 93°-BT Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: -6°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212322400	212322500	A12K SDUC R/L 07-BT	12	11	5,5	125	25	9	16	DC.. 0702..	0,100	⏣	⏣
212322600	212322700	A16M SDUC R/L 07-BT	16	15	7,5	150	30	11	20	DC.. 0702..	0,200	⏣	⏣
212322800	212322900	A20Q SDUC R7L 11-BT	20	18	9,0	180	35	13	24	DC.. 11T3..	0,400	⏣	⏣
212323000	212323100	A25R SDUC R/L 11-BT	25	23	11,5	200	40	17	31	DC.. 11T3..	0,700	⏣	⏣

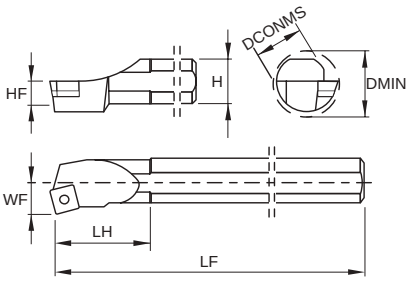
⏣ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

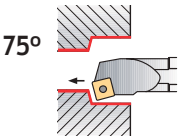
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Screw	Wrench
A12K SDUC R/L 07-BT	P0250700	XT07
A16M SDUC R/L 07-BT	P0250700	XT07
A20Q SDUC R7L 11-BT	P0400802	XT15-S35
A25R SDUC R/L 11-BT	P0401100	XT15-S35

SSKC 75° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: -8°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212150400	212150300	S16R SSKC R/L 09	16	15	7,5	200	30	11	20	SC.. 09T3..	0,300	◈	◈
212150600	212150500	S20S SSKC R/L 09	20	18	9,0	250	35	13	24	SC.. 09T3..	0,550	◈	◈
212045800	212150700	S25T SSKC R/L 09	25	23	11,5	300	40	17	31	SC.. 09T3..	0,700	◈	◈
212045900	212150800	S32U SSKC R/L 12	32	30	15,0	350	50	22	39	SC.. 1204..	2,050	○	○
212151000	212150900	S40V SSKC R/L 12	40	37	18,5	400	60	27	48	SC.. 1204..	3,750	○	○
212151200	212151100	S50W SSKC R/L 12	50	47	23,5	450	65	35	61	SC.. 1204..	6,500	○	○

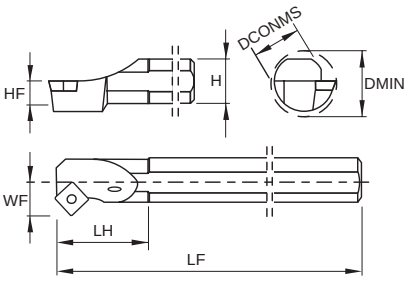
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

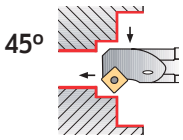
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Screw	Wrench
S16R SSKC R/L 09	-	-	P0400802	XT15-S35
S20S SSKC R/L 09	-	-	P0400802	XT15-S35
S25T SSKC R/L 09	-	-	P0400802	XT15-S35
S32U SSKC R/L 12	CC120400	T06004000	P0401400	XT15-S40
S40V SSKC R/L 12	CC120400	T06004000	P0401400	XT15-S40
S50W SSKC R/L 12	CC120400	T06004000	P0401400	XT15-S40

A-SSSC 45° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: -8°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212323200	212323300	A16M SSSC R/L 09	16	15	7,5	150	30	11	20	SC.. 09T3..	0,300	◉	◉
212323400	212323500	A20Q SSSC R/L 09	20	18	9,0	180	35	13	24	SC.. 09T3..	0,550	◉	◉
212323600	212323700	A25R SSSC R/L 09	25	23	11,5	200	40	17	31	SC.. 09T3..	0,700	◉	◉

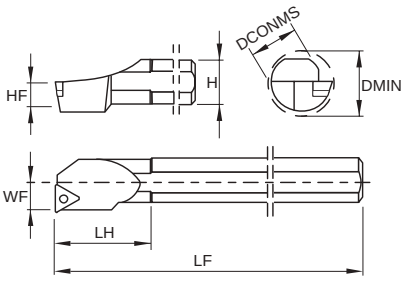
◉ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

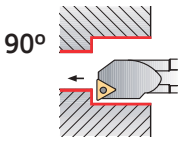
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Screw	Wrench
A16M SSSC R/L 09	P0400802	XT15-S35
A20Q SSSC R/L 09	P0400802	XT15-S35
A25R SSSC R/L 09	P0400802	XT15-S35

STFC 90° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: -6°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212159500	212159400	S10M STFC R/L 09	10	9	4,5	150	25	7	13	TC.. 0902..	0,060	◈	◈
212159700	212159600	S12M STFC R/L 09	12	11	5,5	150	25	9	16	TC.. 0902..	0,150	◈	◈
212039500	212159800	S12M STFC R/L 11	12	11	5,5	150	25	9	16	TC.. 1102..	0,150	◈	◈
212323800	212323900	S12Q STFC R/L 11	12	11	5,5	180	25	9	16	TC.. 1102..	0,050	◈	◈
212160000	212159900	S16R STFC R/L 11	16	15	7,5	200	30	11	20	TC.. 1102..	0,300	◈	◈
212021000	212160100	S20S STFC R/L 11	20	18	9,0	250	35	13	24	TC.. 1102..	0,550	◈	◈
212250700	212324000	S20S STFC R/L 16	20	18	9,0	250	35	13	24	TC.. 16T3..	0,550	◈	◈
212160300	212160200	S25T STFC R/L 16	25	23	11,5	300	40	17	31	TC.. 16T3..	0,700	◈	◈
212160500	212160400	S32U STFC R/L 16	32	30	15,0	350	50	22	39	TC.. 16T3..	2,050	○	○
212160700	212160600	S40V STFC R/L 16	40	37	18,5	400	60	27	48	TC.. 16T3..	3,750	○	○

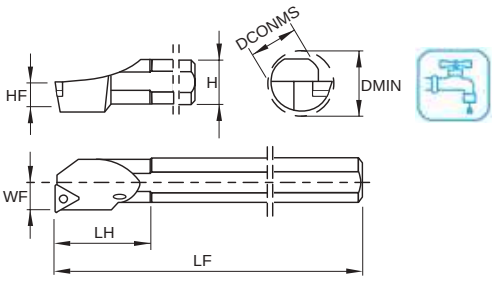
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

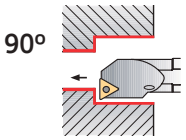
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Screw	Wrench
S10M STFC R/L 09	-	-	P0220600	XT06
S12M STFC R/L 09	-	-	P0220600	XT06
S12M STFC R/L 11	-	-	P0250700	XT07
S12Q STFC R/L 11	-	-	P0250700	XT07
S16R STFC R/L 11	-	-	P0250700	XT07
S20S STFC R/L 11	-	-	P0250700	XT07
S20S STFC R/L 16	-	-	P0401100	XT15-S35
S25T STFC R/L 16	-	-	P0401100	XT15-S35
S32U STFC R/L 16	CT160302	T05003500	P0351500	XT15-S35
S40V STFC R/L 16	CT160302	T05003500	P0351500	XT15-S35

A-STFC 90° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: -6°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212324100	212324200	A10H STFC R/L 09	10	9	4,5	100	25	7	13	TC.. 0902..	0,040	◈	◈
212324300	212324400	A12K STFC R/L 11	12	11	5,5	125	25	9	16	TC.. 1102..	0,100	◈	◈
212324500	212324600	A16M STFC R/L 11	16	15	7,5	150	30	11	20	TC.. 1102..	0,200	◈	◈
212324700	212324800	A20Q STFC R/L 11	20	18	9,0	180	35	13	24	TC.. 1102..	0,400	◈	◈
212324900	212325000	A25R STFC R/L 16	25	23	11,5	200	40	17	31	TC.. 16T3..	0,700	◈	◈
212325100	212325200	A32S STFC R/L 16	32	30	15,0	250	50	22	39	TC.. 16T3..	1,400	◈	◈
212325300	212325400	A40T STFC R/L 16	40	37	18,5	300	60	27	48	TC.. 16T3..	2,650	◈	◈

◈ Stock item | Produto de stock | Itens de stock

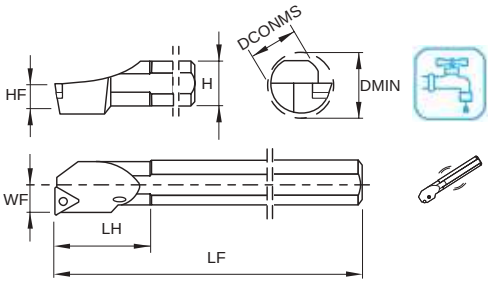
◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

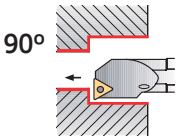
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Screw	Wrench
A10H STFC R/L 09	-	-	P0220600	XT06
A12K STFC R/L 11	-	-	P0250700	XT07
A16M STFC R/L 11	-	-	P0250700	XT07
A20Q STFC R/L 11	-	-	P0250700	XT07
A25R STFC R/L 16	-	-	P0401100	XT15-S35
A32S STFC R/L 16	CT160302	T05003500	P0351500	XT15-S35
A40T STFC R/L 16	CT160302	T05003500	P0351500	XT15-S35

E-STFC 90° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: -6°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212326200	212326300	E12Q STFC R/L 11	12	11	5,5	180	25	9	16	TC.. 1102..	0,250	◉	◉
212326400	212326500	E16R STFC R/L 11	16	15	7,5	200	30	11	20	TC.. 1102..	0,600	◉	◉

◉ Stock item | Produto de stock | Itens de stock

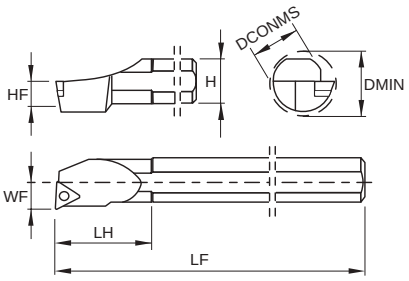
○ Available under request | Disponível sobre consulta | Disponible bajo consulta

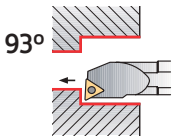
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Screw	Wrench
E12M STFC R/L 11	P0250700	XT07
E16R STFC R/L 11	P0400802	XT15-S35

STUC 93° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: -8°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212029100	212029200	S12M STUC R/L 11	12	11	5,5	150	25	9	16	TC.. 1102..	0,150	◈	◈
212029300	212029400	S16R STUC R/L 16	16	15	7,5	200	30	11	20	TC.. 16T3..	0,300	◈	◈
212036900	212029500	S20S STUC R/L 16	20	18	9,0	250	35	13	24	TC.. 16T3..	0,550	◈	◈
212029600	212029700	S25T STUC R/L 16	25	23	11,5	300	40	17	31	TC.. 16T3..	0,700	◈	◈
212160800	212044600	S32U STUC R/L 16	32	30	15,0	350	50	22	39	TC.. 16T3..	2,050	○	○

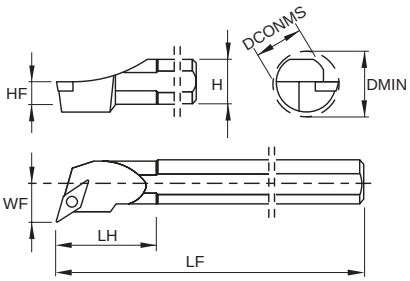
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

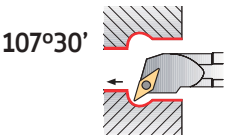
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Screw	Wrench
S12M STUC R/L 11	-	-	P0250700	XT07
S16R STUC R/L 16	-	-	P0401100	XT15-S35
S20S STUC R/L 16	-	-	P0401100	XT15-S35
S25T STUC R/L 16	-	-	P0401100	XT15-S35
S32U STUC R/L 16	CT160302	T05003500	P0351500	XT15-S35

SVQC 107°30' Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: -6°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212165000	212165100	S16R SVQC R/L 11	16	15	7,5	200	30	11	20	VC.. 1103..	0,300	◈	◈
212165200	212165300	S20S SVQC R/L 11	20	18	9,0	250	35	13	24	VC.. 1103..	0,550	◈	◈
212165500	212165400	S16R SVQC R/L 13	16	15	7,5	200	30	13	22	VC.. 1103..	0,300	◈	◈
212165700	212165600	S20S SVQC R/L 13	20	18	9,0	250	35	13	24	VC.. 1103..	0,550	◈	◈
212165900	212165800	S25T SVQC R/L 16	25	23	11,5	300	40	17	31	VC.. 1604..	0,700	◈	◈

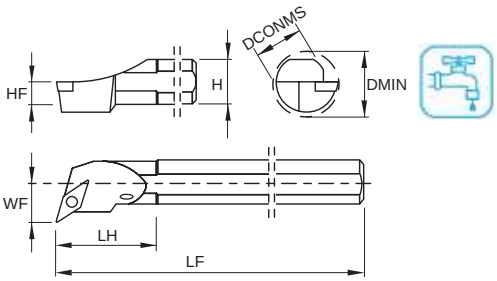
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

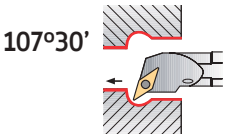
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Screw	Wrench
S16R SVQC R/L 11	-	-	P0250700	XT07
S20S SVQC R/L 11	-	-	P0250700	XT07
S16R SVQC R/L 13	-	-	P0300900	XT08
S20S SVQC R/L 13	-	-	P0300900	XT08
S25T SVQC R/L 16	CV160300	T05003500	P0351500	XT15-S35

A-SVQC 107°30' Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: -6°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212326600	212326700	A16M SVQC R/L 11	16	15	7,5	150	30	11	20	VC.. 1103..	0,200	◈	◈
212326800	212326900	A20Q SVQC R/L 11	20	18	9,0	180	35	13	24	VC.. 1103..	0,400	◈	◈
212327000	212327100	A25R SVQC R/L 16	25	23	11,5	200	40	17	31	VC.. 1604..	0,700	◈	◈
212327200	212327300	A32S SVQC R/L 16	32	30	15,0	250	50	22	39	VC.. 1604..	1,400	◈	◈
212327400	212327500	A40T SVQC R/L 16	40	37	18,5	300	60	27	48	VC.. 1604..	2,650	◈	◈

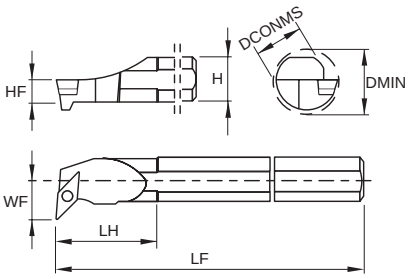
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

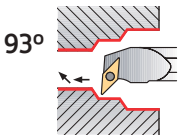
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Screw	Wrench
A16M SVQC R/L 11	-	-	P0250700	XT07
A20Q SVQC R/L 11	-	-	P0250700	XT07
A25R SVQC R/L 16	CV160300	T05003500	P0351500	XT15-S35
A32S SVQC R/L 16	CV160300	T05003500	P0351500	XT15-S35
A40T SVQC R/L 16	CV160300	T05003500	P0351500	XT15-S35

SVUB 93° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: -5°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212056200	212327600	S25T SVUB R/L 16	25	23	11,5	300	40	17	31	VB.. 1604..	0,700	◈	◈
212327700	212327800	S32U SVUB R/L 16	32	30	15,0	350	50	22	39	VB.. 1604..	2,050	○	○
212327900	212328000	S40V SVUB R/L 16	40	37	18,5	400	60	27	48	VB.. 1604..	3,750	○	○

◈ Stock item | Produto de stock | Itens de stock

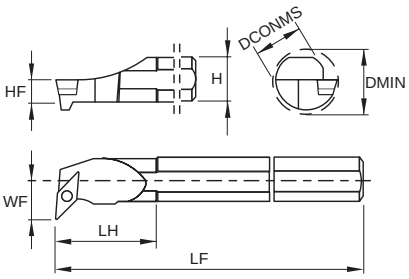
○ Available under request | Disponível sobre consulta | Disponible bajo consulta

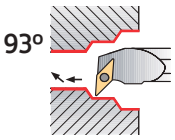
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Screw	Wrench
S25T SVUB R/L 16	CV160300	T05003500	P0351500	XT15-S35
S32U SVUB R/L 16	CV160300	T05003500	P0351500	XT15-S35
S40V SVUB R/L 16	CV160300	T05003500	P0351500	XT15-S35

SVUC 93° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: -5°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212166000	212166100	S16R SVUC R/L 11	16	15	7,5	200	30	11	20	VC.. 1103..	0,300	◈	◈
212166200	212166300	S20S SVUC R/L 11	20	18	9,0	250	35	13	24	VC.. 1103..	0,550	◈	◈
212328100	212166400	S25T SVUC R/L 16	25	23	11,5	300	40	17	31	VC.. 1604..	0,700	◈	◈
212328200	212166500	S32U SVUC R/L 16	32	30	15,0	350	50	22	39	VC.. 1604..	2,050	○	○
212166700	212166600	S40V SVUC R/L 16	40	37	18,5	400	60	27	48	VC.. 1604..	3,750	○	○

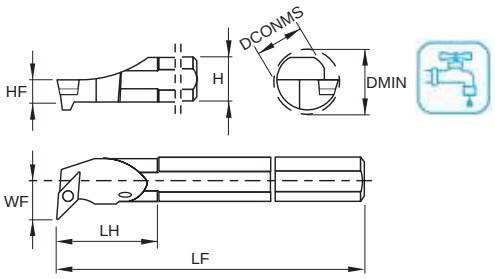
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

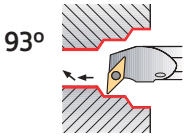
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Shim	Shim Screw	Screw	Wrench
S16R SVUC R/L 11	-	-	P0250700	XT07
S20S SVUC R/L 11	-	-	P0250700	XT07
S25T SVUC R/L 16	CV160300	T05003500	P0351500	XT15-S35
S32U SVUC R/L 16	CV160300	T05003500	P0351500	XT15-S35
S40V SVUC R/L 16	CV160300	T05003500	P0351500	XT15-S35

A-SVUC 93° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: -5°

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	DMIN			R	L
212328300	212328400	A16M SVUC R/L 11	16	15	7,5	150	30	11	20	VC.. 1103..	0,200	⚙	⚙
212328500	212328600	A20Q SVUC R/L 11	20	18	9,0	180	35	13	24	VC.. 1103..	0,400	⚙	⚙
212328700	212328800	A25R SVUC R/L 16	25	23	11,5	200	40	17	31	VC.. 1604..	0,700	⚙	⚙
212328900	212329000	A32S SVUC R/L 16	32	30	15,0	250	50	22	39	VC.. 1604..	1,400	⚙	⚙
212329100	212329200	A40T SVUC R/L 16	40	37	18,5	300	60	27	48	VC.. 1604..	2,650	⚙	⚙

⚙ Stock item | Produto de stock | Itens de stock

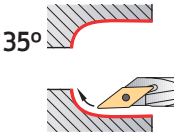
◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

SPARE PARTS Acessórios | Repuestos

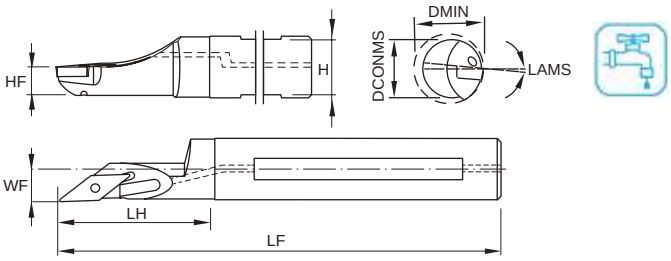
Cutter Reference	Shim	Shim Screw	Screw	Wrench
A16M SVUC R/L 11	-	-	P0250700	XT07
A20Q SVUC R/L 11	-	-	P0250700	XT07
A25R SVUC R/L 16	CV160300	T05003500	P0351500	XT15-S35
A32S SVUC R/L 16	CV160300	T05003500	P0351500	XT15-S35
A40T SVUC R/L 16	CV160300	T05003500	P0351500	XT15-S35

A-SVJC 93° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS



Axial: 0º
Radial: -6º



Order Code		Reference	Dimensions (mm)								Insert	WT	Stock	
R	L		DCONMS	H	HF	LF	LH	WF	LAMS	DMIN			R	L
212362400	212362500	A16M SVJC R/L 11	16	15	7,5	150	30	8,5	22	22	VC.. 1103..	0,200	◈	◈
212362600	212362700	A20Q SVJC R/L 11	20	18	9,0	180	35	10,5	25	25	VC.. 1103..	0,300	◈	◈
212362800	212362900	A25R SVJC R/L 16	25	23	11,5	200	40	13,0	28	28	VC.. 1604..	0,650	◈	◈

◈ Stock item | Produto de stock | Itens de stock

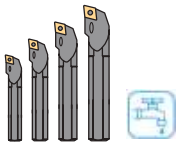
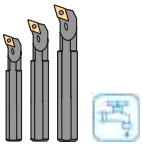
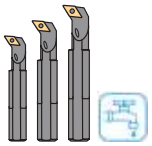
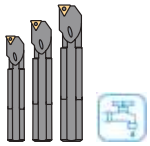
◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

SPARE PARTS Acessórios | Repuestos

Cutter Reference	Screw	Wrench
A16M SVJC R/L 11	P0250700	XT07
A20Q SVJC R/L 11	P0250700	XT07
A25R SVJC R/L 16	P0401100	XT15-S35

INTERNAL TOOLHOLDERS SET

Conjuntos de ferramentas de torneamento interno | Grupos de herramientas de torneado interno

PK SCLC 95°	PK SDQC 107°30'	PK SDUC 93°	PK STFC 90°
			
PAGE C - 817 CC.. 0602..	PAGE C - 818 DC.. 0702..	PAGE C - 819 DC.. 0702..	PAGE C - 820 TC.. 1102..

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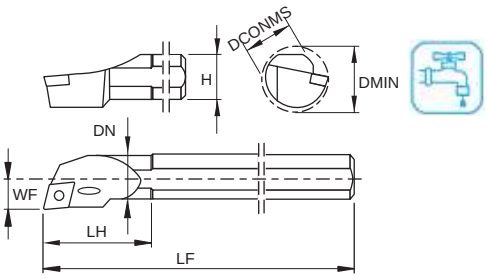
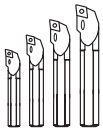
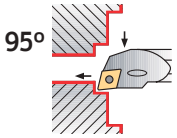
PK SCLC 95° Toolholders | Ferros de torno | Herramientas de torneado

INTERNAL TOOLHOLDERS SET







Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R Pack	R		DCONMS	DN	LF	LH	WF	DMIN	H			Pack	R
212359300	212250500	A0608H SCLC R 06	8	6	100	25	4	10	7	CC.. 0602..	0,400	◈	◈
	212359400	A0810J SCLC R 06	10	8	110	32	6	12	9	CC.. 0602..			◈
	212250600	A1012K SCLC R 06	12	10	125	38	7	14	11	CC.. 0602..			◈
	212167900	A1216M SCLC R 06	16	12	150	50	9	18	15	CC.. 0602..			◈

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
L Pack	L		DCONMS	DN	LF	LH	WF	DMIN	H			Pack	L
212359500	212359600	A0608H SCLC L 06	8	6	100	25	4	10	7	CC.. 0602..	0,400	◈	◈
	212359700	A0810J SCLC L 06	10	8	110	32	6	12	9	CC.. 0602..			◈
	212359800	A1012K SCLC L 06	12	10	125	38	7	14	11	CC.. 0602..			◈
	212359900	A1216M SCLC L 06	16	12	150	50	9	18	15	CC.. 0602..			◈

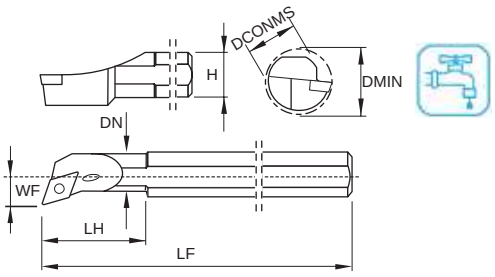
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

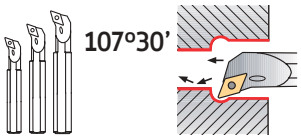
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Screw	Wrench
A0608H SCLC R/L 06	P0200601	XT07
A0810J SCLC R/L 06	P0200601	XT07
A1012K SCLC R/L 06	P0250700	XT07
A1216M SCLC R/L 06	P0250700	XT07

PK SDQC 107°30' Toolholders | Ferros de torno | Herramientas de torneado

INTERNAL TOOLHOLDERS SET





Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R Pack	R		DCONMS	DN	LF	LH	WF	DMIN	H			Pack	R
	212360100	A0810J SDQC R 07	10	8	110	32	7	12,5	9	DC.. 0702..			◈
212360000	212360200	A1012K SDQC R 07	12	10	125	38	9	15,5	11	DC.. 0702..	0,350	◈	◈
	212360300	A1216M SDQC R 07	16	12	150	50	11	19,5	15	DC.. 0702..			◈

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
L Pack	L		DCONMS	DN	LF	LH	WF	DMIN	H			Pack	L
	212360500	A0810J SDQC L 07	10	8	110	32	7	12,5	9	DC.. 0702..			◈
212360400	212360600	A1012K SDQC L 07	12	10	125	38	9	15,5	11	DC.. 0702..	0,350	◈	◈
	212360700	A1216M SDQC L 07	16	12	150	50	11	19,5	15	DC.. 0702..			◈

◈ Stock item | Produto de stock | Itens de stock

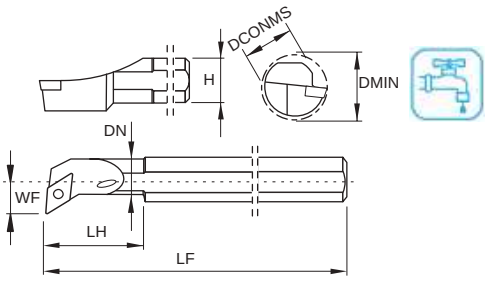
◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

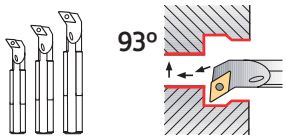
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Screw	Wrench
A0810J SDQC R/L 07	P0200601	XT07
A1012K SDQC R/L 07	P0250700	XT07
A1216M SDQC R/L 07	P0250700	XT07

PK SDUC 93° Toolholders | Ferros de torno | Herramientas de torneado

INTERNAL TOOLHOLDERS SET





Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R Pack	R		DCONMS	DN	LF	LH	WF	DMIN	H			Pack	R
	212360900	A0810J SDUC R 07	10	8	110	32	7	12,5	9	DC.. 0702..			●
212360800	212361000	A1012K SDUC R 07	12	10	125	38	9	15,5	11	DC.. 0702..	0,350	●	●
	212361100	A1216M SDUC R 07	16	12	150	50	11	19,5	15	DC.. 0702..			●

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
L Pack	L		DCONMS	DN	LF	LH	WF	DMIN	H			Pack	L
	212361300	A0810J SDUC L 07	10	8	110	32	7	12,5	9	DC.. 0702..			●
212361200	212361400	A1012K SDUC L 07	12	10	125	38	9	15,5	11	DC.. 0702..	0,350	●	●
	212361500	A1216M SDUC L 07	16	12	150	50	11	19,5	15	DC.. 0702..			●

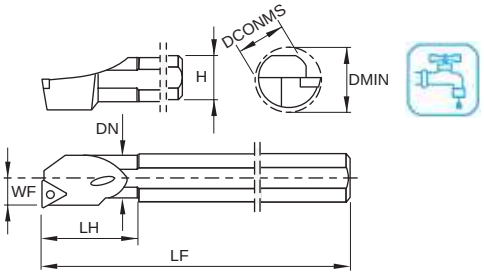
● Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

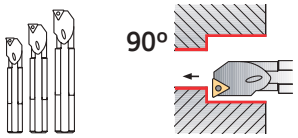
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Screw	Wrench
A0810J SDUC R/L 07	P0200601	XT07
A1012K SDUC R/L 07	P0250700	XT07
A1216M SDUC R/L 07	P0250700	XT07

PK STFC 90° Toolholders | Ferros de torno | Herramientas de torneado

INTERNAL TOOLHOLDERS SET





Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
R Pack	R		DCONMS	DN	LF	LH	WF	DMIN	H			Pack	R
	212361700	A0810J STFC R 11	10	8	110	32	7	12,5	9	TC.. 1102..			◈
212361600	212361800	A1012K STFC R 11	12	10	125	38	9	15,5	11	TC.. 1102..	0,350	◈	◈
	212361900	A1216M STFC R 11	16	12	150	50	11	19,5	15	TC.. 1102..			◈

Order Code		Reference	Dimensions (mm)							Insert	WT	Stock	
L Pack	L		DCONMS	DN	LF	LH	WF	DMIN	H			Pack	L
	212362100	A0810J STFC L 11	10	8	110	32	7	12,5	9	TC.. 1102..			◈
212362000	212362200	A1012K STFC L 11	12	10	125	38	9	15,5	11	TC.. 1102..	0,350	◈	◈
	212362300	A1216M STFC L 11	16	12	150	50	11	19,5	15	TC.. 1102..			◈

◈ Stock item | Produto de stock | Itens de stock

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

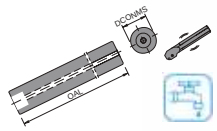
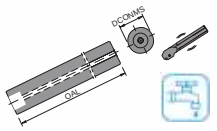
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Screw	Wrench
A0810J STFC R/L 11	P0200601	XT07
A1012K STFC R/L 11	P0250700	XT07
A1216M STFC R/L 11	P0250700	XT07

ANTI-VIBRATION TOOLHOLDERS

Ferramentas anti-vibração | Herramientas anti-vibración

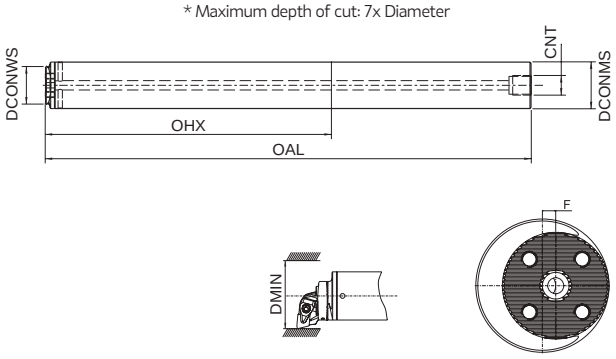
AVB 7XØ | AVB 10XØ

AVB 7xØ	AVB 10xØ
	
PAGE C - 822	PAGE C - 823

AVB 7XØ Toolholders | Ferros de torno | Herramientas de torneado

ANTI-VIBRATION CYLINDRICAL BARS

* Maximum depth of cut: 7x Diameter



Order Code	Reference	Dimensions (mm)							Stock
		DCONMS	DCONWS	DMIN	F	OAL	OHX	CNT	
212454800	AVB16-16-7D	16	16	20	-	156	92	G1/8"	◈
212454900	AVB20-20-7D	20	20	25	-	200	120	G1/4"	◈
212455000	AVB25-25-7D	25	25	32	-	255	155	G1/4"	◈
212455100	AVB32-32-7D	32	32	40	-	320	192	G3/8"	◈
212455200	AVB40-40-7D	40	40	50	-	408	248	G1/2"	○
212455300	AVB50-40-7D	50	40	60	5	518	318	G1/2"	○
212455400	AVB60-40-7D	60	40	72	10	628	388	G3/4"	○

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

Note: The toolholder is suplied without the cutting head.

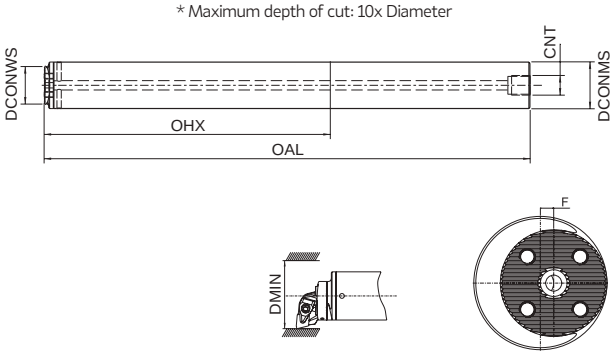
SPARE PARTS Acessórios | Repuestos

Reference	Screw	Wrench
AVB16-16-7D	D0300800	SS25
AVB20-20-7D	D0300800	SS25
AVB25-25-7D	D0401200	SS25
AVB32-32-7D	D0501200	SS30
AVB40-40-7D	D0601200	SS40
AVB50-40-7D	D0601600	SS50
AVB60-40-7D	D0601600	SS50

AVB 10XØ Toolholders | Ferros de torno | Herramientas de torneado

ANTI-VIBRATION CYLINDRICAL BARS

* Maximum depth of cut: 10x Diameter



Order Code	Reference	Dimensions (mm)							Stock
		DCONMS	DCONWS	DMIN	F	OAL	OHX	CNT	
212455500	AVB25-25-10D	25	25	32	-	330	230	G1/4"	ⓢ
212455600	AVB32-32-10D	32	32	40	-	416	288	G3/8"	ⓢ
212455700	AVB40-40-10D	40	40	50	-	528	368	G1/2"	◯
212455800	AVB50-40-10D	50	40	60	5	668	468	G1/2"	◯
212455900	AVB60-40-10D	60	40	72	10	808	568	G3/4"	◯

ⓢ Stock item | Produto de stock | Itens de stock

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

Note: The toolholder is suplied without the cutting head.

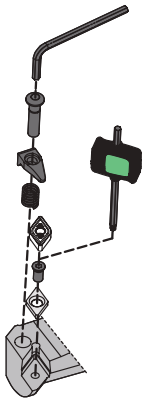
SPARE PARTS Acessórios | Repuestos

Reference	Screw	Wrench
AVB25-25-10D	D0401200	SS25
AVB32-32-10D	D0501200	SS30
AVB40-40-10D	D0601200	SS40
AVB50-40-10D	D0601600	SS50
AVB60-40-10D	D0601600	SS50

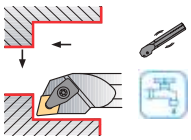
ANTI-VIBRATION TOOLHOLDERS

Ferramentas anti-vibração | Herramientas anti-vibración

(D) DIMPLE LOCK ANTI VIBRATION FOR INTERNAL TURNING



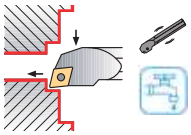
DCLN 85°



PAGE C - 825 CN.. 1204..

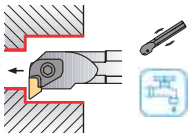
(S) CENTER SCREW ANTI VIBRATION FOR INTERNAL TURNING

SCLC 85°



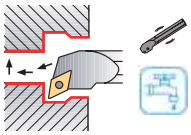
PAGE C - 826 CC.. 0602.. CC.. 09T3.. CC.. 1204..

SDNC 62°30'



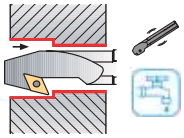
PAGE C - 827 DC.. 0702.. DC.. 11T3..

SDUC 87°



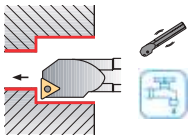
PAGE C - 828 DC.. 0702.. DC.. 11T3..

SDXC 93°



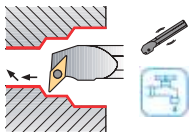
PAGE C - 829 DC.. 0702.. DC.. 11T3..

STFC 89°



PAGE C - 830 TC.. 1102.. TC.. 16T3..

SVUB 87°

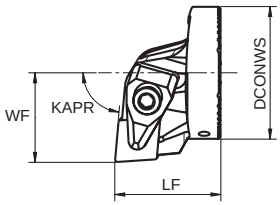


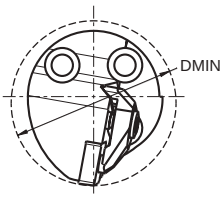
PAGE C - 831 VB.. 1102.. VB.. 1604..

DCLN 85° AVH Cutting heads | Cabeças de corte | Cabezas de corte

CUTTING HEADS FOR BARS

KAPR = 85°





Order Code		Reference	Dimensions (mm)				Insert	Stock	
L	R		DCONWS	DMIN	WF	LF		L	R
212459100	212456000	AVH32 DCLN R/L-12	32	40	22	38	CN.. 1204	◯	⚙
212459200	212456100	AVH40 DCLN R/L-12	40	50	27	38	CN.. 1204	◯	◯

⚙ Stock item | Produto de stock | Itens de stock

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

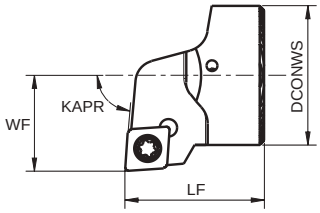
SPARE PARTS Acessórios | Repuestos

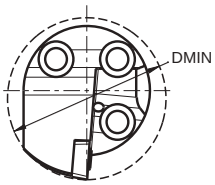
Reference	Shim	Shim Screw	Spring	Clamp	Clamp Screw	Wrench
AVH32 DCLN R/L-12	CC120300	T06010000	M09513	GA07002	D0602900	SS40
AVH40 DCLN R/L-12	CC120300	T06010000	M09513	GA07002	D0602900	SS40

SCLC 85° AVH Cutting heads | Cabeças de corte | Cabezas de corte

CUTTING HEADS FOR BARS

KAPR = 85°





Order Code		Reference	Dimensions (mm)				Insert	Stock	
L	R		DCONWS	DMIN	WF	LF		L	R
212459300	212456200	AVH16 SCLC R/L-06	16	20	11	20	CC.. 0602	◉	◉
212459400	212456300	AVH20 SCLC R/L-09	20	25	13	20	CC.. 09T3	◉	◉
212459500	212456400	AVH25 SCLC R/L-09	25	32	17	20	CC.. 09T3	◉	◉
212459600	212456500	AVH32 SCLC R/L-09	32	40	22	32	CC.. 09T3	◉	◉
212459700	212456600	AVH40 SCLC R/L-12	40	50	27	38	CC.. 1204	○	○

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

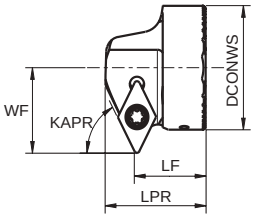
SPARE PARTS Acessórios | Repuestos

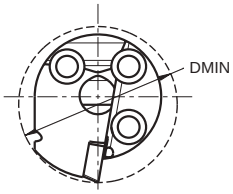
Reference	Shim	Shim Screw	Screw	Wrench
AVH16 SCLC R/L-06	-	-	P0250700	XT07
AVH20 SCLC R/L-09	-	-	P0401100	XT15-S35
AVH25 SCLC R/L-09	-	-	P0401100	XT15-S35
AVH32 SCLC R/L-09	-	-	P0401100	XT15-S35
AVH40 SCLC R/L-12	CC120401	T06004000	P0401400	XT15-S40

SDNC 62°30'AVH Cutting heads | Cabeças de corte | Cabezas de corte

CUTTING HEADS FOR BARS

KAPR = 62°30'





Order Code		Reference	Dimensions (mm)					Insert	Stock	
L	R		DCONWS	DMIN	WF	LF	LPR		L	R
212460800	212457700	AVH16 SDNC R/L-07	16	22	13	15	19,5	DC.. 0702	◉	○
212460900	212457800	AVH20 SDNC R/L-07	20	27	15	15	19,5	DC.. 0702	◉	○
212461000	212457900	AVH25 SDNC R/L-07	25	33	18	15	19,5	DC.. 0702	◉	○
212461100	212458000	AVH32 SDNC R/L-11	32	40	22	20	28	DC.. 11T3	○	○
212461200	212458100	AVH40 SDNC R/L-11	40	50	27	20	28	DC.. 11T3	○	○

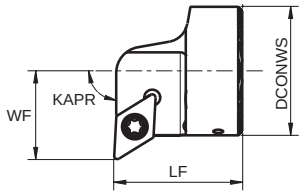
SPARE PARTS Acessórios | Repuestos

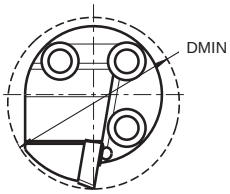
Reference	Shim	Shim Screw	Screw	Wrench
AVH16 SDNC R/L-07	-	-	P0250700	XT07
AVH20 SDNC R/L-07	-	-	P0250700	XT07
AVH25 SDNC R/L-07	-	-	P0250700	XT07
AVH32 SDNC R/L-11	CD110301	T05003500	P0351500	XT15-S35
AVH40 SDNC R/L-11	CD110301	T05003500	P0351500	XT15-S35

SDUC 87° AVH Cutting heads | Cabeças de corte | Cabezas de corte

CUTTING HEADS FOR BARS

KAPR = 87°





Order Code		Reference	Dimensions (mm)				Insert	Stock	
L	R		DCONWS	DMIN	WF	LF		L	R
212459800	212456700	AVH16 SDUC R/L-07	16	20	11	20	DC.. 0702	◈	◈
212459900	212456800	AVH20 SDUC R/L-07	20	25	13	20	DC.. 0702	◈	◈
212460000	212456900	AVH25 SDUC R/L-11	25	32	17	20	DC.. 11T3	◈	◈
212460100	212457000	AVH32 SDUC R/L-11	32	40	22	32	DC.. 11T3	◈	◈
212460200	212457100	AVH40 SDUC R/L-11	40	50	27	32	DC.. 11T3	○	○

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

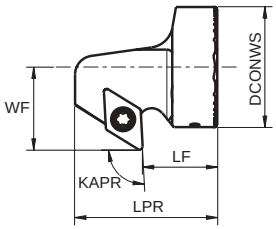
SPARE PARTS Acessórios | Repuestos

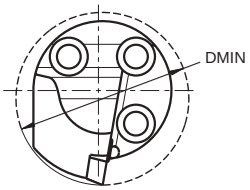
Reference	Shim	Shim Screw	Screw	Wrench
AVH16 SDUC R/L-07	-	-	P0250700	XT07
AVH20 SDUC R/L-07	-	-	P0250700	XT07
AVH25 SDUC R/L-11	-	-	P0401100	XT15-S35
AVH32 SDUC R/L-11	CD110301	T05003500	P0351500	XT15-S35
AVH40 SDUC R/L-11	CD110301	T05003500	P0351500	XT15-S35

SDXC 93° AVH Cutting heads | Cabeças de corte | Cabezas de corte

CUTTING HEADS FOR BARS

KAPR = 93°





Order Code		Reference	Dimensions (mm)					Insert	Stock	
L	R		DCONWS	DMIN	WF	LF	LPR		L	R
212460300	212457200	AVH16 SDXC R/L-07	16	22	13	15	26,5	DC.. 0702	◈	◈
212460400	212457300	AVH20 SDXC R/L-07	20	27	15	15	26,5	DC.. 0702	◈	◈
212460500	212457400	AVH25 SDXC R/L-07	25	33	18	15	26,5	DC.. 0702	◈	◈
212460600	212457500	AVH32 SDXC R/L-11	32	40	22	20	38	DC.. 11T3	◈	◈
212460700	212457600	AVH40 SDXC R/L-11	40	50	27	20	38	DC.. 11T3	○	○

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

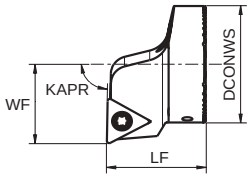
SPARE PARTS Acessórios | Repuestos

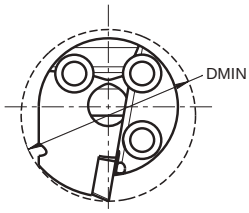
Reference	Shim	Shim Screw	Screw	Wrench
AVH16 SDXC R/L-07	-	-	P0250700	XT07
AVH20 SDXC R/L-07	-	-	P0250700	XT07
AVH25 SDXC R/L-07	-	-	P0250700	XT07
AVH32 SDXC R/L-11	CD110301	T05003500	P0351500	XT15-S35
AVH40 SDXC R/L-11	CD110301	T05003500	P0351500	XT15-S35

STFC 89° AVH Cutting heads | Cabeças de corte | Cabezas de corte

CUTTING HEADS FOR BARS

KAPR = 89°





Order Code		Reference	Dimensions (mm)				Insert	Stock	
L	R		DCONWS	DMIN	WF	LF		L	R
212461700	212458600	AVH16 STFC R/L-11	16	20	11	20	TC.. 1102	○	⚙
212461800	212458700	AVH20 STFC R/L-11	20	25	13	20	TC.. 1102	○	⚙
212461900	212458800	AVH25 STFC R/L-11	25	32	17	20	TC.. 1102	○	⚙
212462000	212458900	AVH32 STFC R/L-16	32	40	22	32	TC.. 16T3	○	○
212462100	212459000	AVH40 STFC R/L-16	40	50	27	32	TC.. 16T3	○	○

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

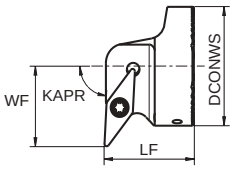
SPARE PARTS Acessórios | Repuestos

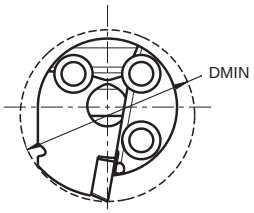
Reference	Shim	Shim Screw	Screw	Wrench
AVH16 STFC R/L-11	-	-	P0250700	XT07
AVH20 STFC R/L-11	-	-	P0250700	XT07
AVH25 STFC R/L-11	-	-	P0250700	XT07
AVH32 STFC R/L-16	CT160302	T05003500	P0351500	XT15-S35
AVH40 STFC R/L-16	CT160302	T05003500	P0351500	XT15-S35

SVUB 87° AVH Cutting heads | Cabeças de corte | Cabezas de corte

CUTTING HEADS FOR BARS

KAPR = 87°





Order Code		Reference	Dimensions (mm)				Insert	Stock	
L	R		DCONWS	DMIN	WF	LF		L	R
212461300	212458200	AVH20 SVUB R/L-11	20	27	16	20	VB.. 1102	○	⚙
212461400	212458300	AVH25 SVUB R/L-11	25	31	17	25	VB.. 1102	○	⚙
212461500	212458400	AVH32 SVUB R/L-16	32	40	22	32	VB.. 1604	○	⚙
212461600	212458500	AVH40 SVUB R/L-16	40	50	27	32	VB.. 1604	○	○

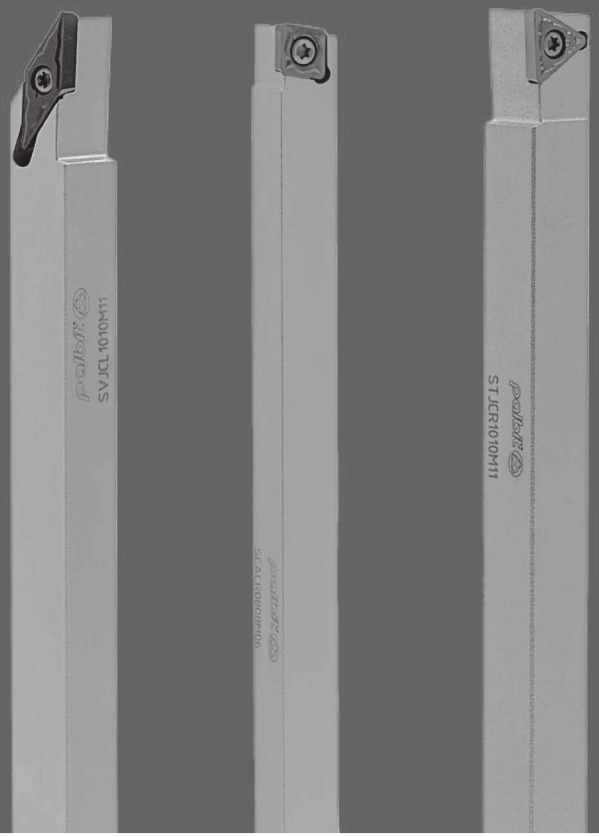
⚙ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

SPARE PARTS Acessórios | Repuestos

Reference	Shim	Shim Screw	Screw	Wrench
AVH20 SVUB R/L-11	-	-	P0250700	XT07
AVH25 SVUB R/L-11	-	-	P0250700	XT07
AVH32 SVUB R/L-16	CV160300	T05003500	P0351500	XT15-S35
AVH40 SVUB R/L-16	CV160300	T05003500	P0351500	XT15-S35

TOOLHOLDERS

AUTOMATIC LATHES

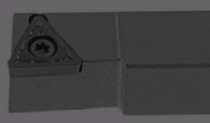


Automatic lathe toolholders efficiently hold cutting tools during automated machining. They ensure precision and consistency in high-speed operations. Quick-change mechanisms facilitate rapid tool changes, minimizing downtime and maximizing productivity in many industries.

Suportes de torno automático mantêm eficientemente ferramentas de corte durante a maquinação automatizada. Garantem precisão e consistência em operações de alta velocidade. Mecanismos de troca rápida facilitam mudanças ágeis, minimizando o tempo de inatividade e maximizando a produtividade em diversas indústrias.

Los portaherramientas de torno automático mantienen eficientemente las herramientas de corte durante el mecanizado automatizado. Aseguran precisión y consistencia en operaciones de alta velocidad. Los mecanismos de cambio rápido facilitan cambios ágiles de herramientas, minimizando el tiempo de inactividad y maximizando la productividad en muchas industrias.

Center Screw Toolholders (S) > page 836



> Solution for ensuring easy insert exchange without interference

Solução ideal para garantir a troca fácil da pastilha sem interferência | Solución para garantizar un intercambio fácil de la plaquita sin interferencias

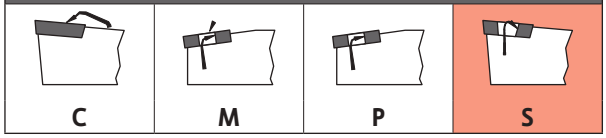
Maximize efficiency
with automatic lathes toolholders

CODE KEY FOR AUTOMATIC LATHES (ISO)

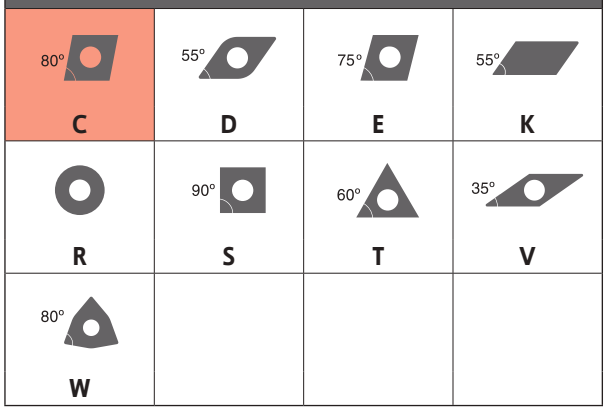
Sistema de codificação para tornos automáticos (ISO) | Codificación de herramientas de tornos automáticos (ISO)

S	C	A	C	R	12	12	M	09
1	2	3	4	5	6	7	8	9

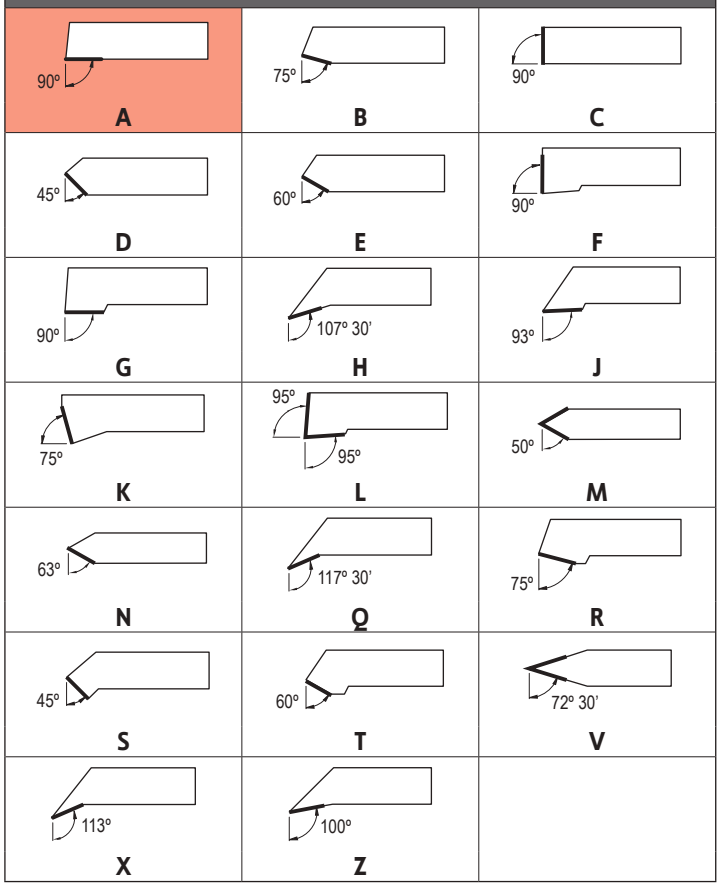
1 - Inserts Clamping System



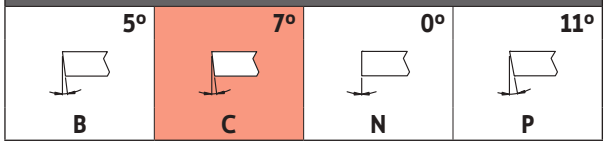
2 - Insert Shape



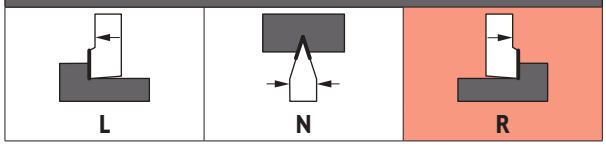
3 - Toolholder Leading Angle



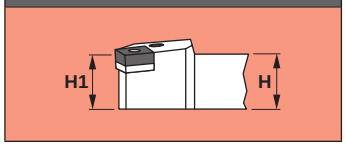
4 - Inserts Clearance Angle



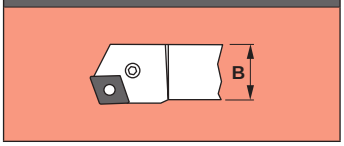
5 - Tool Hand



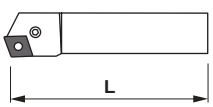
6 - Height of Shank (mm)



7 - Width of Shank (mm)

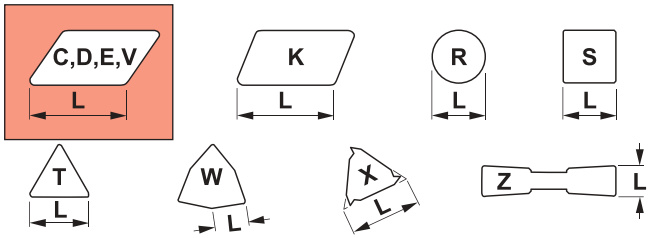


8 - Length of Holder (mm)

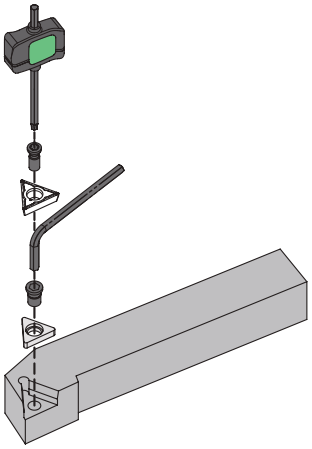


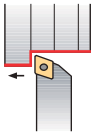
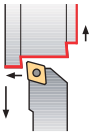
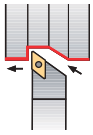
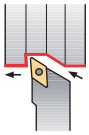
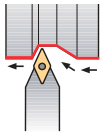
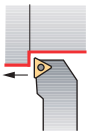
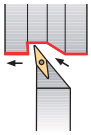
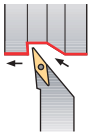
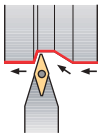
D	60	P	170
E	70	R	200
F	80	S	250
H	100	T	300
K	125	U	350
L	140	V	400
M	150	X	Special

9 - Length of Inserts Cutting Edge (mm)



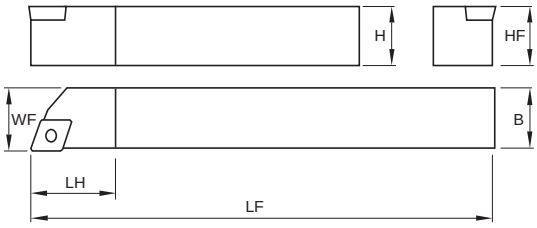
(S) CENTER SCREW SYSTEM

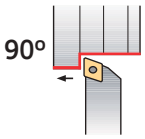


SCAC 90°  PAGE C - 837 CC.. 0602.. CC.. 09T3..	**SCLC 95°**  PAGE C - 838 CC.. 0602.. CC.. 09T3..	**SDAC 90°**  PAGE C - 839 DC.. 0702.. DC.. 11T3..	**SDJC 93°**  PAGE C - 840 DC.. 0702.. DC.. 11T3..	**SDNC 62°30'**  PAGE C - 841 DC.. 0702.. DC.. 11T3..	**STJC 93°**  PAGE C - 842 TC.. 1102..
SVAC 90°  PAGE C - 843 VC.. 1103.. VC.. 1604..	**SVJC 93°**  PAGE C - 844 VC.. 1103.. VC.. 1604..	**SVVC 72°30'**  PAGE C - 845 VC.. 1103..			

SCAC 90° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: 0°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212251300	212251400	SCAC R/L 0808 M06	8	8	150	8	8	CC.. 0602..	0,070	◈	◈
212251500	212251600	SCAC R/L 1010 M06	10	10	150	10	10	CC.. 0602..	0,110	◈	◈
212251700	212251800	SCAC R/L 1212 M06	12	12	150	12	12	CC.. 0602..	0,150	◈	◈
212251900	212252000	SCAC R/L 1616 M06	16	16	150	16	16	CC.. 0602..	0,280	◈	◈
212252100	212252200	SCAC R/L 1212 M09	12	12	150	12	12	CC.. 09T3..	0,150	◈	◈
212252300	212252400	SCAC R/L 1616 M09	16	16	150	16	16	CC.. 09T3..	0,280	◈	◈

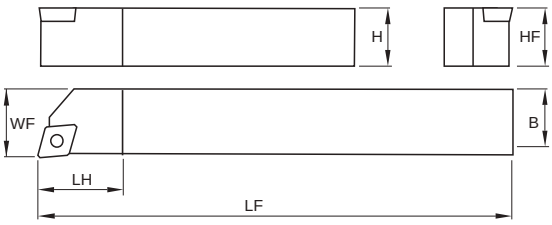
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

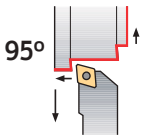
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Screw	Wrench
SCAC R/L 0808 M06	P0250700	XT07
SCAC R/L 1010 M06	P0250700	XT07
SCAC R/L 1212 M06	P0250700	XT07
SCAC R/L 1616 M06	P0250700	XT07
SCAC R/L 1212 M09	P0401100	XT15-S35
SCAC R/L 1616 M09	P0401100	XT15-S35

SCLC 95° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: 0°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
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212252700	212252800	SCLC R/L 1010 M06	10	10	150	10	10	CC.. 0602..	0,110	⊛	⊛
212252900	212253000	SCLC R/L 1212 M06	12	12	150	12	12	CC.. 0602..	0,150	⊛	⊛
212253100	212253200	SCLC R/L 1616 M06	16	16	150	16	16	CC.. 0602..	0,280	⊛	⊛
212253300	212253400	SCLC R/L 1212 M09	12	12	150	12	12	CC.. 09T3..	0,150	⊛	⊛
212253500	212250400	SCLC R/L 1616 M09	16	16	150	16	16	CC.. 09T3..	0,280	⊛	⊛

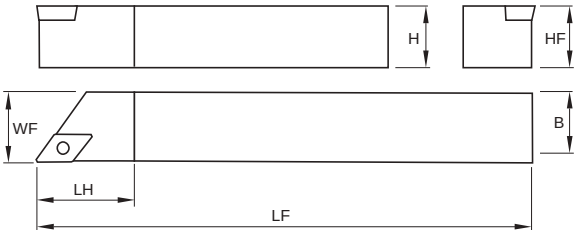
⊛ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

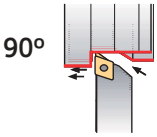
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Screw	Wrench
SCLC R/L 0808 M06	P0250700	XT07
SCLC R/L 1010 M06	P0250700	XT07
SCLC R/L 1212 M06	P0250700	XT07
SCLC R/L 1616 M06	P0250700	XT07
SCLC R/L 1212 M09	P0401100	XT15-S35
SCLC R/L 1616 M09	P0401100	XT15-S35

SDAC 90° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: 0°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212253600	212253700	SDAC R/L 0808 M07	8	8	150	12,7	8	DC.. 0702..	0,070	◈	◈
212253800	212253900	SDAC R/L 1010 M07	10	10	150	15,0	10	DC.. 0702..	0,110	◈	◈
212254000	212254100	SDAC R/L 1212 M07	12	12	150	15,0	12	DC.. 0702..	0,150	◈	◈
212254200	212254300	SDAC R/L 1616 M07	16	16	150	16,0	16	DC.. 0702..	0,280	◈	◈
212254400	212254500	SDAC R/L 1212 M11	12	12	150	18,0	12	DC.. 11T3..	0,150	◈	◈
212254600	212254700	SDAC R/L 1616 M11	16	16	150	20,0	16	DC.. 11T3..	0,280	◈	◈

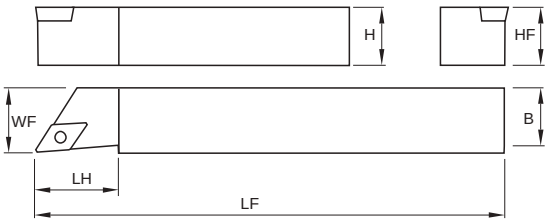
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

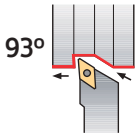
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Screw	Wrench
SDAC R/L 0808 M07	P0250700	XT07
SDAC R/L 1010 M07	P0250700	XT07
SDAC R/L 1212 M07	P0250700	XT07
SDAC R/L 1616 M07	P0250700	XT07
SDAC R/L 1212 M11	P0401100	XT15-S35
SDAC R/L 1616 M11	P0401100	XT15-S35

SDJC 93° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: 0°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212254800	212254900	SDJC R/L 0808 M07	8	8	150	8	8	DC.. 0702..	0,070	◉	◉
212255000	212255100	SDJC R/L 1010 M07	10	10	150	10	10	DC.. 0702..	0,110	◉	◉
212255200	212255300	SDJC R/L 1212 M07	12	12	150	12	12	DC.. 0702..	0,150	◉	◉
212255400	212255500	SDJC R/L 1616 M07	16	16	150	16	16	DC.. 0702..	0,280	◉	◉
212255600	212255700	SDJC R/L 1212 M11	12	12	150	12	12	DC.. 11T3..	0,150	◉	◉
212255800	212255900	SDJC R/L 1616 M11	16	16	150	16	16	DC.. 11T3..	0,280	◉	◉

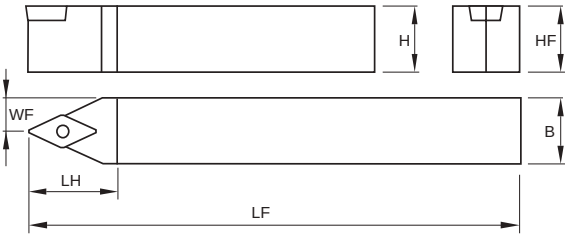
◉ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

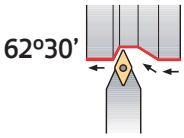
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Screw	Wrench
SDJC R/L 0808 M07	P0250700	XT07
SDJC R/L 1010 M07	P0250700	XT07
SDJC R/L 1212 M07	P0250700	XT07
SDJC R/L 1616 M07	P0250700	XT07
SDJC R/L 1212 M11	P0401100	XT15-S35
SDJC R/L 1616 M11	P0401100	XT15-S35

SDNC 62°30' Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: 0°

Order Code	Reference	Dimensions (mm)					Insert	WT	Stock
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212256100	SDNC N 1212 M11	12	12	150	21	6,2	DC.. 11T3..	0,140	◈
212256200	SDNC N 1616 M11	16	16	150	21	8,6	DC.. 11T3..	0,270	◈

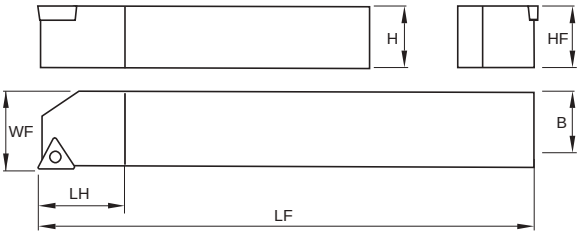
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

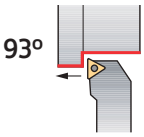
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Screw	Wrench
SDNC N 1010 M07	P0250700	XT07
SDNC N 1212 M11	P0401100	XT15-S35
SDNC N 1616 M11	P0401100	XT15-S35

STJC 93° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0º
Radial: 0º

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
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212256500	212256600	STJC R/L 1212 M11	12	12	150	16	12	TC.. 1102..	0,150	◈	◈
212256700	212256800	STJC R/L 1616 M11	16	16	150	16	16	TC.. 1102..	0,280	◈	◈

◈ Stock item | Produto de stock | Itens de stock

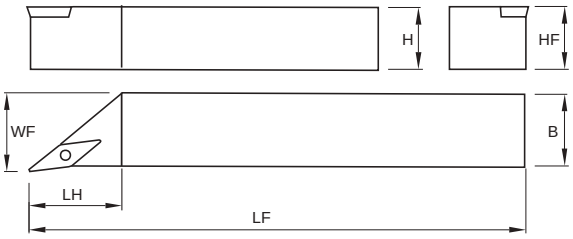
○ Available under request | Disponível sobre consulta | Disponible bajo consulta

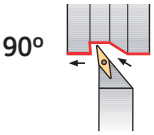
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Screw	Wrench
STJC R/L 1010 M11	P0250700	XT07
STJC R/L 1212 M11	P0250700	XT07
STJC R/L 1616 M11	P0250700	XT07

SVAC 90° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: 0°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
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212257100	212257200	SVAC R/L 1010 M11	10	10	150	26	10	VC.. 1103..	0,100	⚙	⚙
212257300	212257400	SVAC R/L 1212 M11	12	12	150	26	12	VC.. 1103..	0,140	⚙	⚙
212257500	212257600	SVAC R/L 1616 M11	16	16	150	26	16	VC.. 1103..	0,270	⚙	⚙
212257700	212257800	SVAC R/L 1212 M16	12	12	150	40	12	VC.. 1604..	0,140	⚙	⚙
212257900	212258000	SVAC R/L 1616 M16	16	16	150	40	16	VC.. 1604..	0,270	⚙	⚙

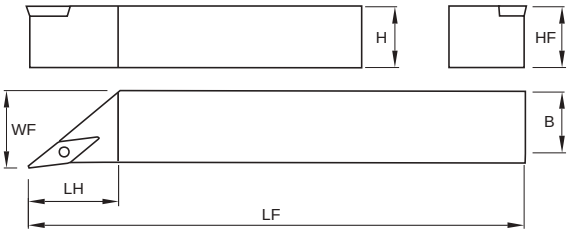
⚙ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

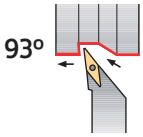
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Screw	Wrench
SVAC R/L 0808 M11	P0250700	XT07
SVAC R/L 1010 M11	P0250700	XT07
SVAC R/L 1212 M11	P0250700	XT07
SVAC R/L 1616 M11	P0250700	XT07
SVAC R/L 1212 M16	P0401100	XT15-S35
SVAC R/L 1616 M16	P0401100	XT15-S35

SVJC 93° Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





Axial: 0°
Radial: 0°

Order Code		Reference	Dimensions (mm)					Insert	WT	Stock	
R	L		HF = H	B	LF	LH	WF			R	L
212258100	212258200	SVJC R/L 0808 M11	8	8	150	26	8	VC.. 1103..	0,070	⊛	⊛
212258300	212258400	SVJC R/L 1010 M11	10	10	150	26	10	VC.. 1103..	0,100	⊛	⊛
212258500	212258600	SVJC R/L 1212 M11	12	12	150	26	12	VC.. 1103..	0,140	⊛	⊛
212258700	212258800	SVJC R/L 1616 M11	16	16	150	26	16	VC.. 1103..	0,270	⊛	⊛
212258900	212259000	SVJC R/L 1212 M16	12	12	150	40	12	VC.. 1604..	0,140	⊛	⊛
212259100	212259200	SVJC R/L 1616 M16	16	16	150	40	16	VC.. 1604..	0,270	⊛	⊛

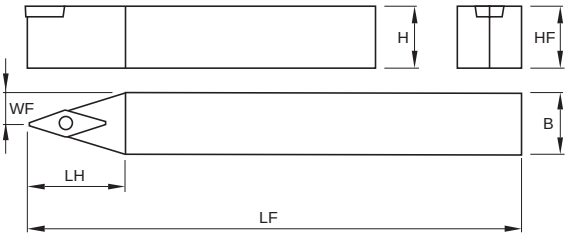
⊛ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

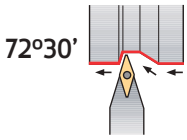
SPARE PARTS Acessórios | Repuestos

Cutter Reference	Screw	Wrench
SVJC R/L 0808 M11	P0250700	XT07
SVJC R/L 1010 M11	P0250700	XT07
SVJC R/L 1212 M11	P0250700	XT07
SVJC R/L 1616 M11	P0250700	XT07
SVJC R/L 1212 M16	P0401100	XT15-S35
SVJC R/L 1616 M16	P0401100	XT15-S35

SVVC 72°30' Toolholders | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS





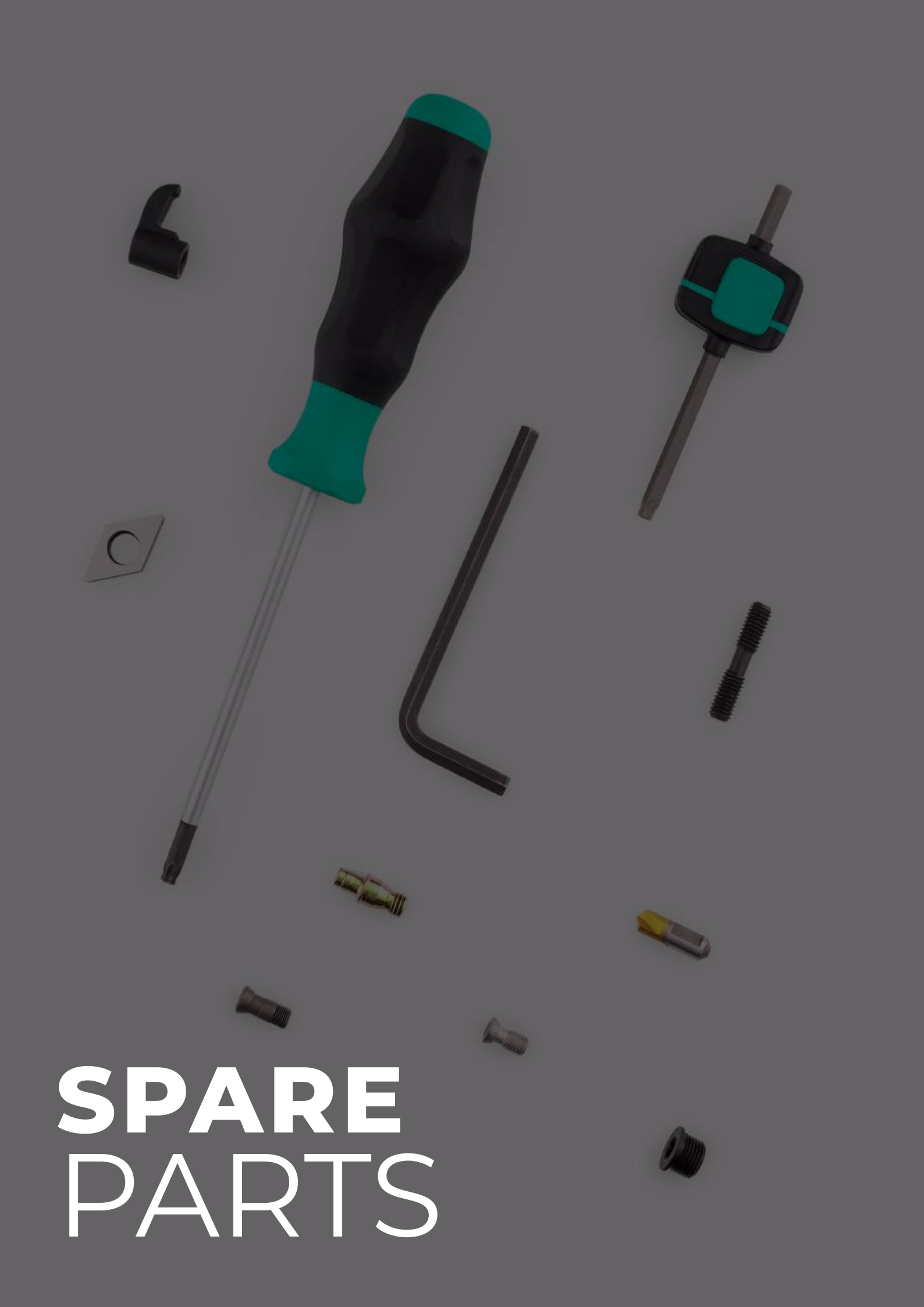
Axial: 0°
Radial: 0°

Order Code	Reference	Dimensions (mm)					Insert	WT	Stock
		HF = H	B	LF	LH	WF			
212259300	SVVC N 0808 M11	8	8	150	21	4,3	VC.. 1103..	0,070	◈
212259400	SVVC N 1010 M11	10	10	150	21	5,3	VC.. 1103..	0,100	◈
212259500	SVVC N 1212 M11	12	12	150	21	6,3	VC.. 1103..	0,140	◈
212259600	SVVC N 1616 M11	16	16	150	21	8,3	VC.. 1103..	0,260	◈

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

SPARE PARTS Acessórios | Repuestos

Cutter Reference	Screw	Wrench
SVVC N 0808 M11	P0250700	XT07
SVVC N 1010 M11	P0250700	XT07
SVVC N 1212 M11	P0250700	XT07
SVVC N 1616 M11	P0250700	XT07



SPARE PARTS

1 **CHIP BREAKERS**
> See page C - 848

2 **CLAMPS**
> See page C - 848

3 **DIFFERENTIALS SCREWS**
> See page C - 849

4 **LEVERS**
> See page C - 849

5 **LOCK PINS**
> See page C - 850

6 **SCREWS**
> See page C - 851

7 **SHIM PINS**
> See page C - 852

8 **SHIMS**
> See page C - 852

9 **SPRINGS**
> See page C - 855

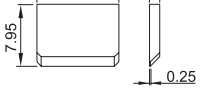
10 **WEDGE CLAMPS**
> See page C - 855

11 **KEYS**
> See page C - 855

SPARE PARTS

CHIP BREAKERS | Quebra Aparas | Rompevirutas

QCS0900
290071500



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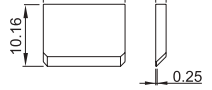

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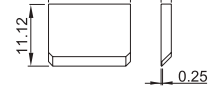

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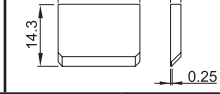

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QCS0901
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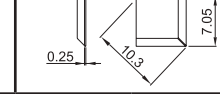

QCS0902
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QCS1202
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QCT1100
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QCT1101
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QCT1600
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QCT1601
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QCT2200
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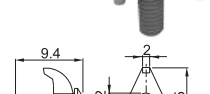

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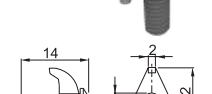


CLAMPS (C HOLDERS) | Grampos (Suportes C) | Tornillos Para Brida (Soportes C)

GS03000
290065100

GS04000
290009700

GS05002
290065900

GS05000
290055800

GS05004
290066500

GS05001
290065800

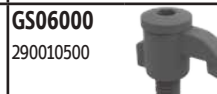
GS05003
290066000

GS06001
290047700

GS06002
290046300

GS06003
290066200

GS06000
290010500



GS05005
290005900

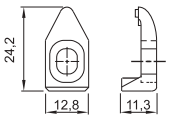
GS08001
290066600

GS08000
290030100

SPARE PARTS
Acessórios | Repuestos

CLAMPS (D HOLDERS) | Grampos (Suportes D) | Bridas (Soportes D)

GA05001
290082000



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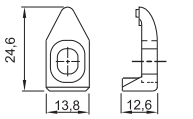

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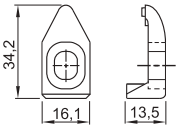
290066300



GA07003
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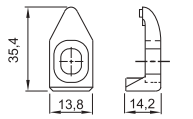

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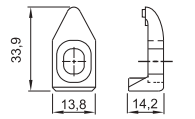

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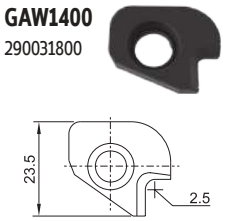

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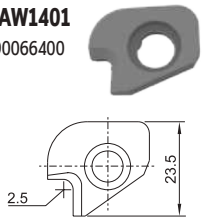
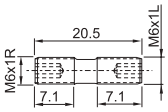
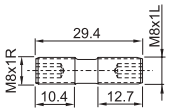


DIFFERENTIALS SCREWS | Parafusos Diferenciais | Tornillos Diferenciales

F0602100
290062700
Allen 3



F0802900
290062300
Allen 4



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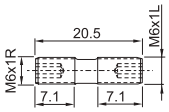
290062700
Allen 3



LEVERS | Alavanca | Palanca

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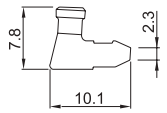

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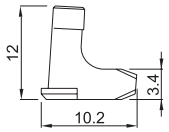

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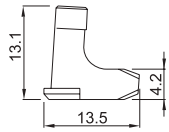

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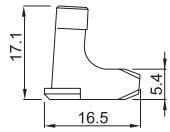

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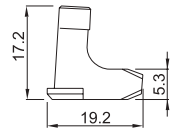

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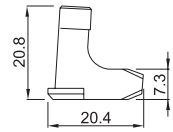

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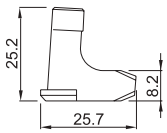

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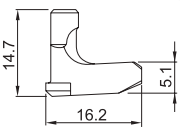

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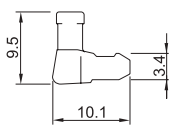

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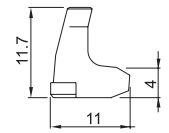

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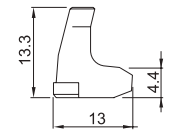

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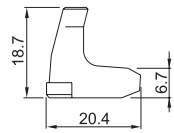

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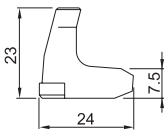

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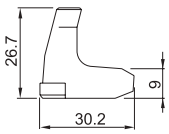

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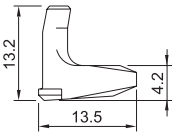

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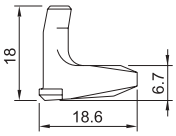

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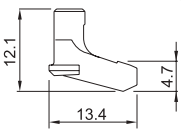

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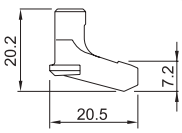
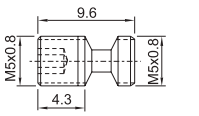


SPARE PARTS

LEVER SCREWS | Parafusos Para Alavanca | Tornillos De Palanca

PA0501000
290048800
Allen 2



PA0501200
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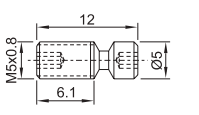
Allen 2



PA0501400
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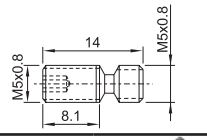
Allen 2



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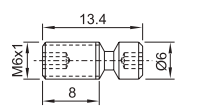

PA0601700
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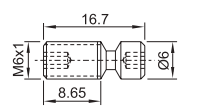

PA0602100
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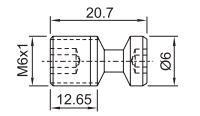
Allen 2,5



PA0801700
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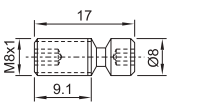
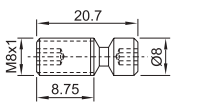


PA0802100
290011900
Allen 3



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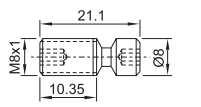

PA0802300
290047100
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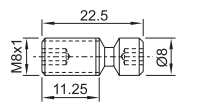

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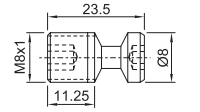

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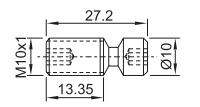

PA1003000
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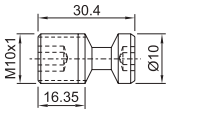
Allen 4



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290063100
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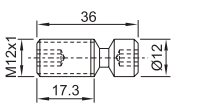
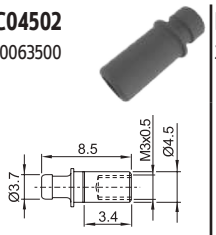


LOCK PINS | Cavilhas De Bloqueio | Pines De Bloqueo

BC04502
290063500



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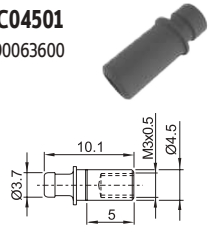
290063600



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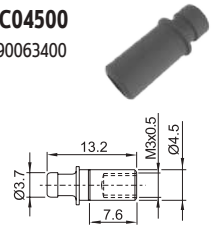

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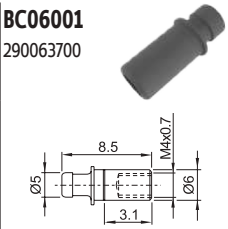

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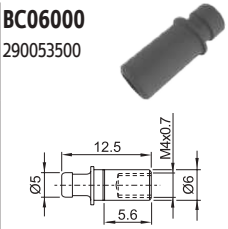

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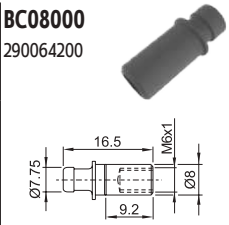
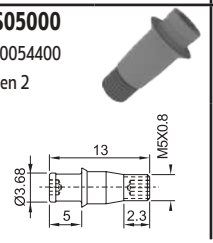


BS05000
290054400
Allen 2



BS1-402
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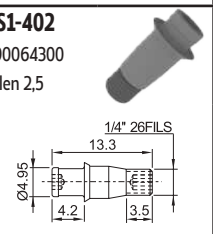
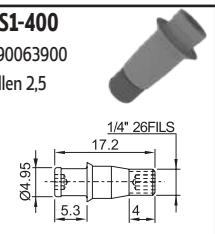
Allen 2,5



BS1-400
290063900
Allen 2,5



BS1-401
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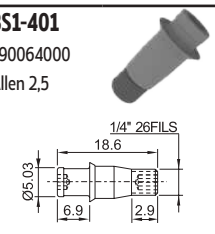
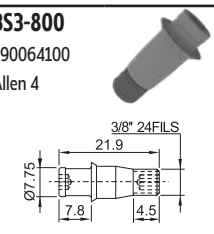
Allen 2,5

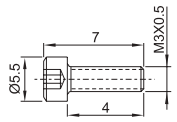


BS3-800
290064100
Allen 4

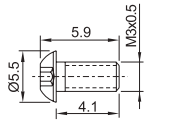


SCREWS (ALLEN) | Parafusos (Allen) | Tornillos (Allen)

D0300700
290012000
Allen 5



D0300691
290064800
Allen 2



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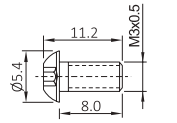
Allen 2.5



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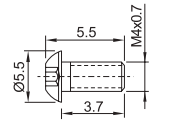
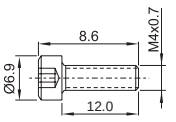


D0401200
290082600
Allen 2.5



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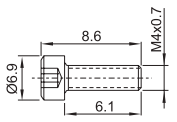
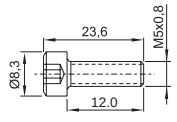
290053700
Allen 5



D0501200
290082800
Allen 3



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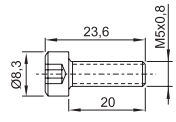

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290062800
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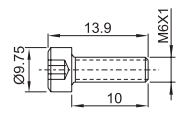
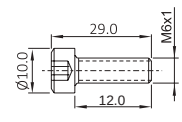


D0601200
290097800
Allen 4



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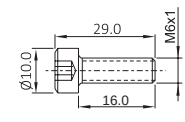
290083000
Allen 5



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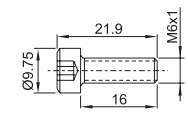
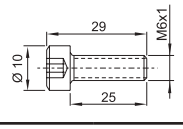
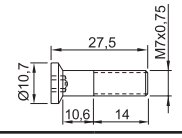


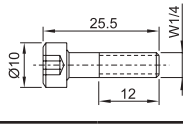
D0602900
290082900
Allen 4



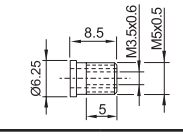
D0702800
290048100
Allen 4



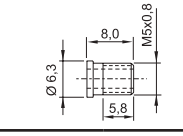
DW142600
290018200
Allen 4



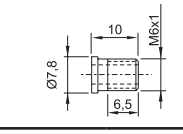
T05003500
290020100
Allen 3.5



T05008000
290082300
Allen 2



T06010000
290082400
Allen 2.5



T06015000
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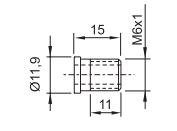
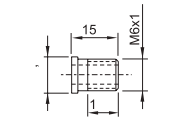
Allen 3



T0601575
290085500
Allen 3



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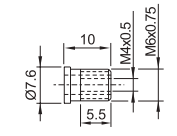
290008700
Allen 4



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290086000
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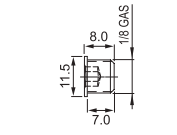
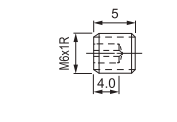
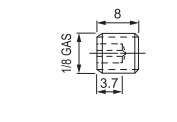


H0600475
290085800
Allen 3

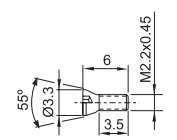


H1000875
290085900
Allen 5

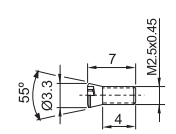


SCREWS (TORX) | Parafusos (torx) | Tornillos (torx)

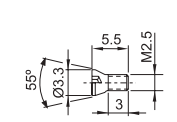
P0220600
290026000
TorxT-6



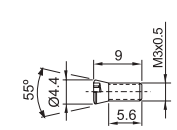
P0250700
290013400
TorxT-7



P0200601
290010700
TorxT-7



P0300900
290007500
TorxT-8



P0351500
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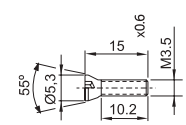
TorxT-15



P0401400
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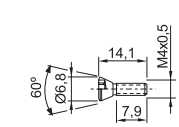
TorxT-15



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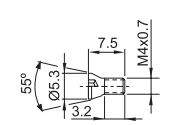

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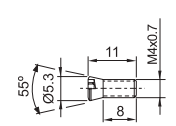

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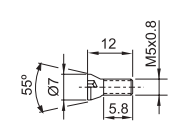

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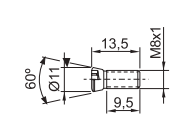

SPARE PARTS

SHIM PINS | Pino calço | Pino cuña

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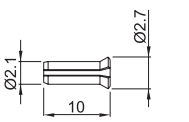

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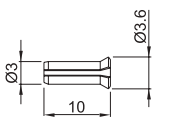

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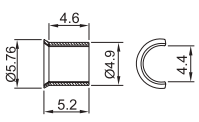

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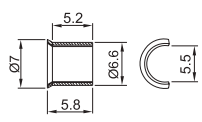

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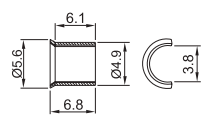

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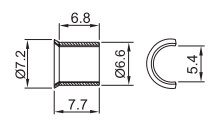

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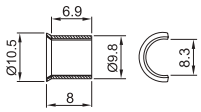

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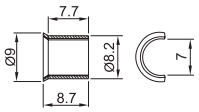

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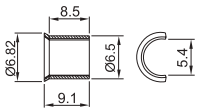

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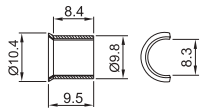

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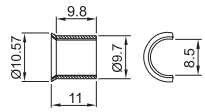

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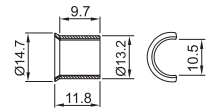

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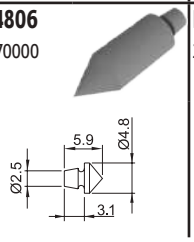

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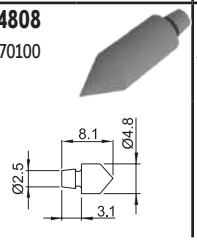

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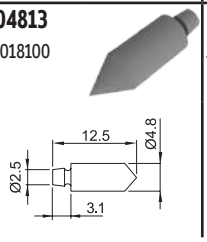

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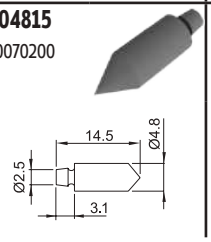

SHIM PIN PUNCHES | Calço | Cuña

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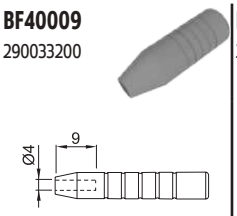
290033200



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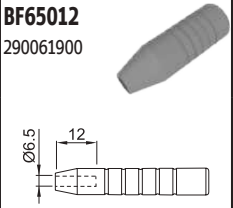

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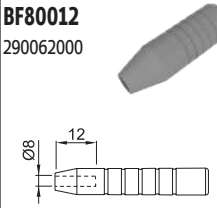

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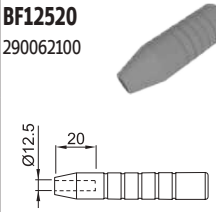

SHIMS (C SHAPES) | Colchões (Pastilhas C) | Placas Base (Plaquitas C)

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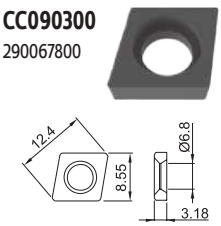

CC120301
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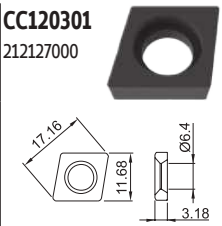

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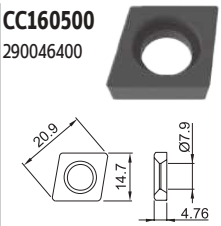

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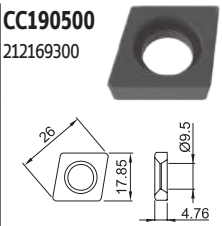

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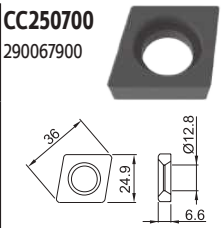

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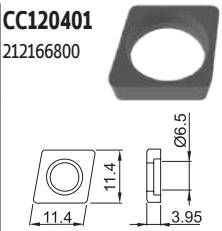

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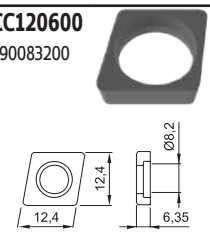

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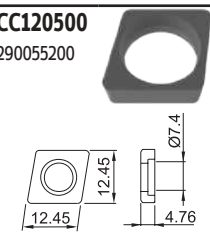

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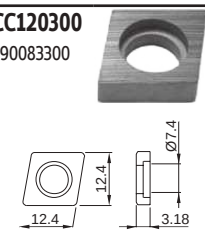

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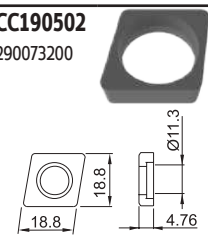

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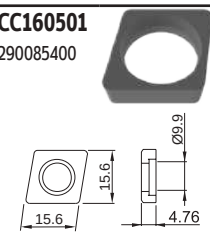
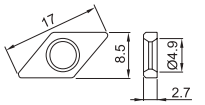


SHIMS (D SHAPES) | Colchões (Pastilhas D) | Placas Base (Plaquitas D)

CD110300
290068000



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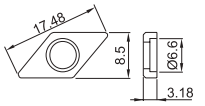

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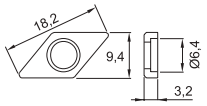

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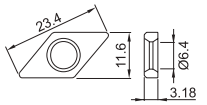

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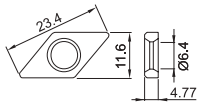

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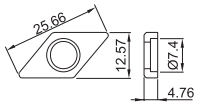

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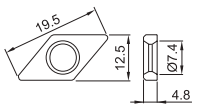

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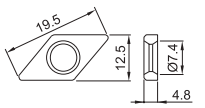

SHIMS (R SHAPES) | Colchões (Pastilhas R) | Placas Base (Plaquitas R)

CR090300
290068700

CR100300
212054600

CR100301
212167100

CR120300
212054700

CR120301
212167200

CR120302
290068800

CR150500
290068900

CR160500
290068300

CR190500
290069000

CR200500
290068400

CR250600
290068500

CR250601
290069100

CR320600
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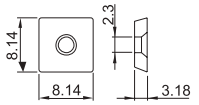
SPARE PARTS

SHIMS (S SHAPES) | Colchões (Pastilhas S) | Placas Base (Plaquitas S)

CS090300
290067100



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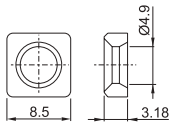

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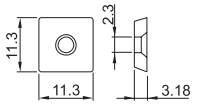

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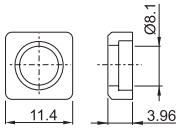

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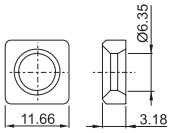

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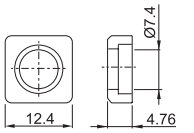

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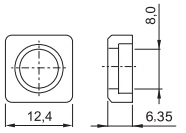

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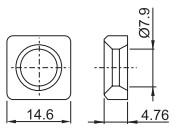

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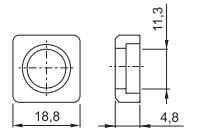

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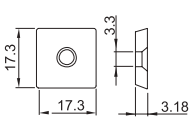

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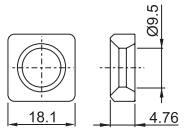

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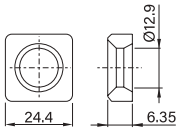

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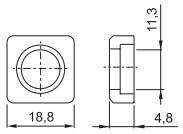

SHIMS (T SHAPES) | Colchões (Pastilhas T) | Placas Base (Plaquitas T)

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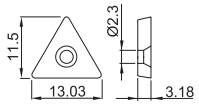

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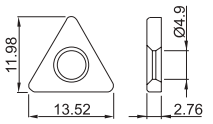

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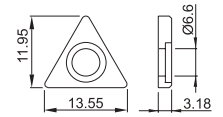

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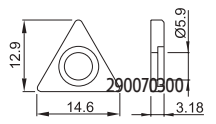

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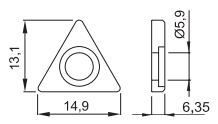

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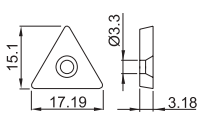

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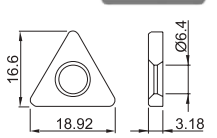

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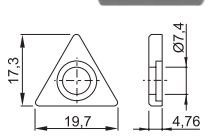

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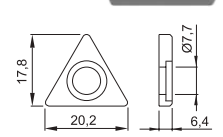

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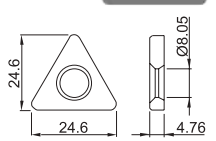

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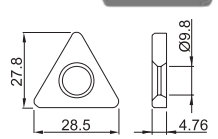
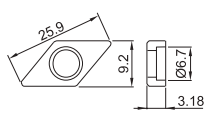


SHIMS (V SHAPES) | Colchões (Pastilhas V) | Placas Base (Plaquitas V)

CV160301
290054300



CV160300
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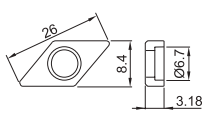

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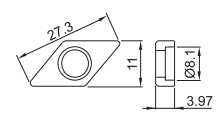


SHIMS (W SHAPES) | Colchões (Pastilhas W) | Placas Base (Plaquitas W)

CW060301
212169100

CW060300
290067000

CW060302
290085700

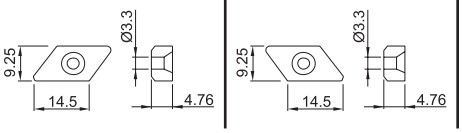
CW080300
212169200

CW080500
290053400

SPARE PARTS
Acessórios | Repuestos

SHIMS (KNUX SHAPES) | Colchões (Pastilhas Knux) | Placas Base (Plaquitas Knux)

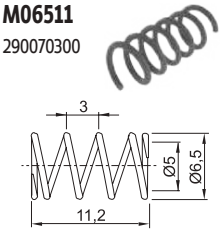
CK160500
212127100



CK160501
290067300

SPRINGS | Mola | Muelle

M06511
290070300



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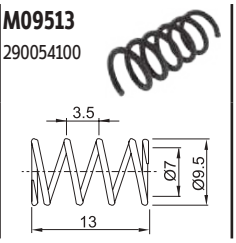
290054100



WEDGE CLAMPS (M HOLDERS) | Grampos Cunhas (Suportes M) | Tornillos Para Cuñas (Soportes M)

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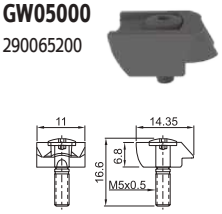

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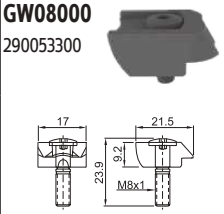
290053300



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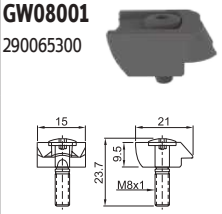
290065300



GW08002
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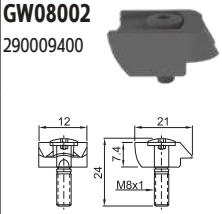

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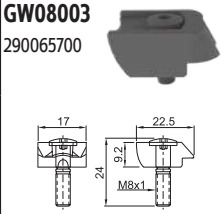

WEDGE CLAMPS (M-K HOLDERS) | Grampos Cunhas (Suportes M-K) | Tornillos Para Cuñas (Soportes M-K)

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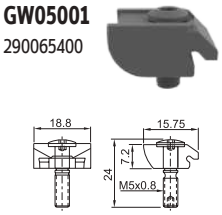

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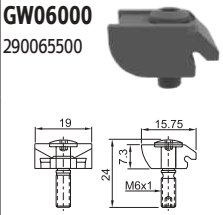

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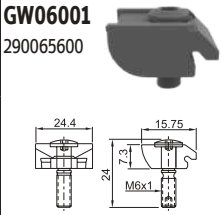
290065600



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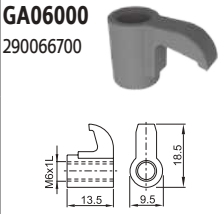

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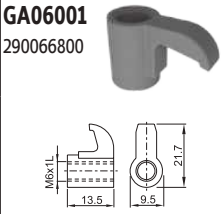

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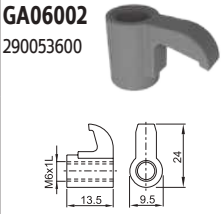

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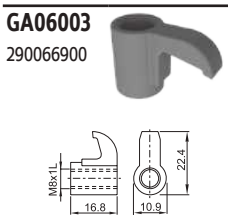


KEYS (ALLEN) | Chaves (Allen) | Llaves (Allen)

SS15
290070400
Allen 1,5

SS20
290020300
Allen 2

SS25
290019800
Allen 2,5

SS30
290038400
Allen 3

SS40
290021200
Allen 4

SS50
290021300
Allen 5

KEYS (TORX) | Chaves (Torx) | Llaves (Torx)

XT07
290012900
Torx 7

XT08
290011700
Torx 8

XT15-S35
290012400
Torx 15 &
Allen 3,5

XT15-S40
290046500
Torx 15 &
Allen 4

XT20-S40
290013200
Torx 20 &
Allen 4

TECHNICAL DATA

1 **TURNING GRADES**
> See page C - 858

2 **TURNING GRADES DESCRIPTION**
> See page C - 860

3 **WIPER CONCEPT**
> See page C - 862

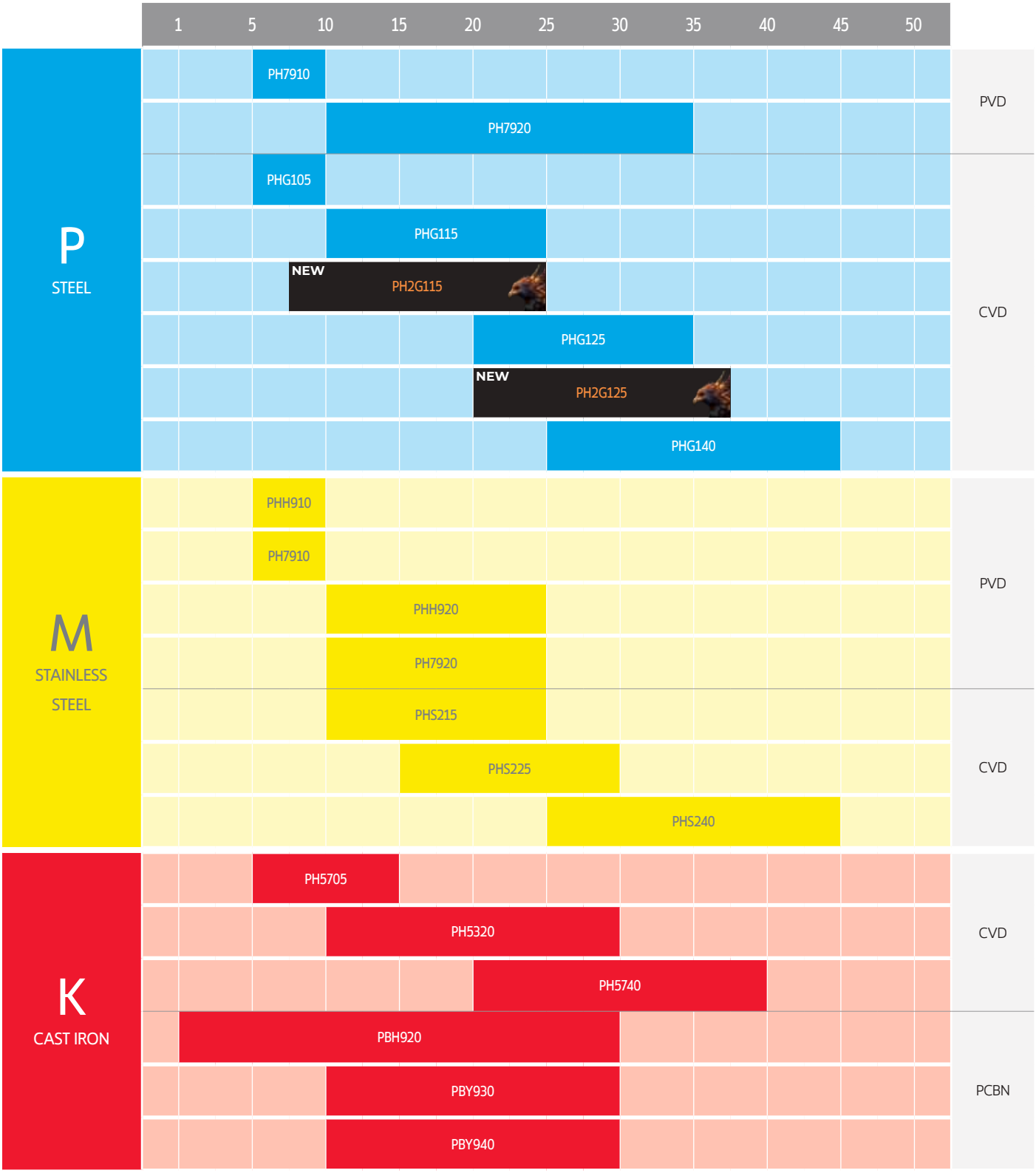
4 **CUTTING SPEED**
> See page C - 863

5 **CHIP BREAKER SPECIFICATIONS**
> See page C - 864

6 **CHIP BREAKER COMPARATIVE CHART**
> See page C - 868

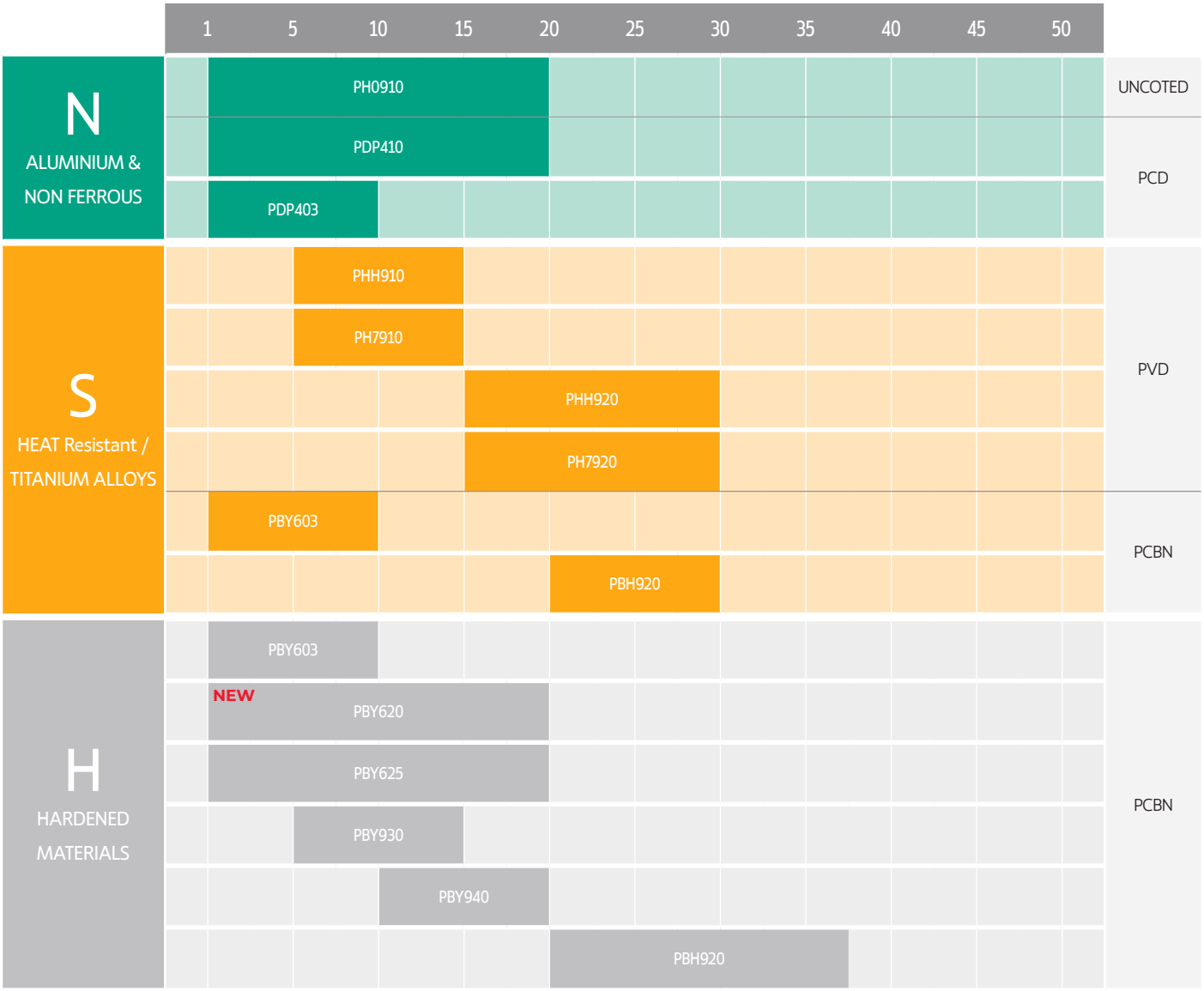
7 **GRADE COMPARATIVE CHART**
> See page C - 870

TURNING GRADES



TURNING GRADES

Graus para torneamento | Calidades para torneado



TURNING GRADES DESCRIPTION

PVD GRADES

PHH...

An exceptionally durable PVD coating boasts superior thermal stability, ensuring outstanding wear resistance and performance.
1st choice for finishing operations on stainless steels and HRSA materials.

WEAR RESISTANCE ⟷ TOUGHNESS

PHH910
M05-M10
S05-S15

An hard micro grain substrate combined with a thin optimized nanostructure PVD coating with excelent heat dissipation

The solution for Stainless steel and HRSA from medium turning to finishing.
For continuous to semi-interrupted turning.
First choice for HRSA.

PHH920
M10-M25
S15-S30

A micro grain substrate combined with a thin optimized nanostructure PVD coating with excelent heat dissipation

Solution for general turning of stainless steels and HRSA.

PH7...

A thin PVD coating is recommended for finishing operations on steel and suitable for stainless steels and HRSA.

WEAR RESISTANCE ⟷ TOUGHNESS

PH7910
P05-P10
M05-M10
S05-S15

PH7920
P10-P35
M10-M25
S15-S30

UNCOATED

PH0910

Uncoated carbide micro-grain grade, characterized by excellent resistance to abrasive wear and toughness, making it suitable for a wide range of machining operations, from rough to finishing, specifically tailored for aluminum alloys.

PH0910
N01-N20

CVD GRADES

PHS...

CVD coating with excellent resistance to thermal and mechanical shock, providing exceptional performance for both continuous and interrupted turning.
1st Choice for stainless steel turning from semi-finishing to roughing.

WEAR RESISTANCE ⟷ TOUGHNESS

PHS215
M10-M25

Suitable for high to medium cutting speeds in stainless steel. Ideal for turning on good condition of cut (continuous cut).

PHS225
M15-M30

First choice for general application on turning of stainless steel.

PHS240
M25-M45

First choice for roughing to heavy roughing operations with interrupted cut at medium to low cutting speeds on stainless steel.

TURNING GRADES DESCRIPTION

Descrição de graus para torneamento | Descripción de calidades para torneado

PHG... | **NEW** PH2G...

PH2G grade series is an innovative combination of a highly dense and hard nanostructured coating base material, including new Al_2O_3 layer with improved wear resistance which provides superior performance during high-speed turning operations.
1st choice for steel turning operations.

WEAR RESISTANCE → TOUGHNESS

PHG105	PHG115	NEW PH2G115	PHG125	NEW PH2G125	PHG140
P05-P10	P10-P25	P10-P25	P20-P35	P20-P35	P25-P45
First option for continuous cut with hardness higher than 38HRC.	Suitable for high to medium cutting speeds on steels.	For finishing to roughing operations with high cutting speeds in continuous cutting applications.	Ideal for general application in all kind of steels.	Ideal for general applications in all kind of steels with high metal removal rates.	First choice for roughing to heavy roughing operations with interrupted cut at medium to low cutting speeds.

PH5...

CVD coating with excellent flank wear resistance, ensuring excellent performance during continuous and interrupted cutting processes on cast iron materials.

WEAR RESISTANCE → TOUGHNESS

PH5705	PH5320	PH5115	PH5125	PH5740
K05-K15	P01-P15 K10-K30	P10-P25	P20-P35	K20-K40

PCBN

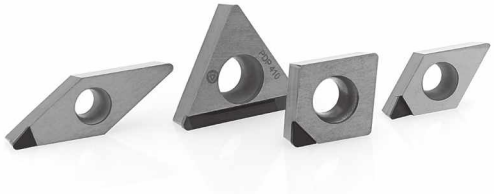
PCBN sets new benchmarks in continuous and intermittent cutting with its exceptional wear resistance. It provides unmatched performance in hot hardness, toughness, and chemical stability.
1st choice for operations on hard and/or abrasive highly abrasive materials.

PBY603	PBY620	PBY930	PBY940	PBH920
S01-S10 H01-H10	H10-H20	H20-H30	H20-H30	K01-K30 S20-S30
Machining of hardened materials in high continuous cut up to 180m/min cutting speed.	Machining of hardened materials in light to heavy interrupted cuts.	High wear resistance and impact thougness. Excels in white iron and steel rolls machining.	For machinning high chrome alloy steels and Ni-hard cast iron.	For machining all types of cast iron. First choice for machining ferrous powder metals.

PCD

Diamond particles sintered into a polycrystalline structure yield a robust, wear-resistant material with excellent thermal conductivity.
1st choice for operations on non-ferrous materials, such as high-silicon aluminium. Metal matrix composites (MMC) and carbon fiber reinforced plastics (CRFP).

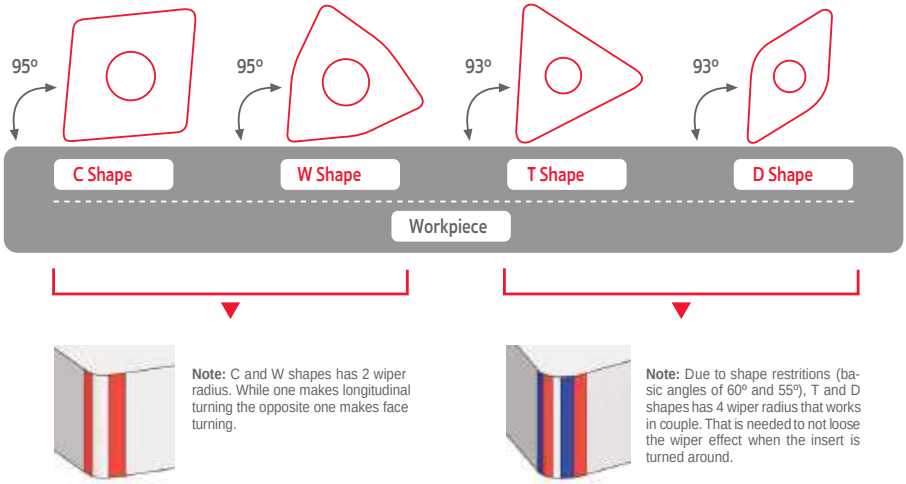
PDP410	PDP403
N01-N20	N01-N10
General purpose Fine surface finishing. <14% silicon aluminium alloy	Highest abrasion resistance Bimodal grain structure for increased diamond percentage content. >14% silicon aluminium alloy



WIPER CONCEPT

Conceito Wiper | Concepto Wiper

THE ANGLE POSITION (KR°)



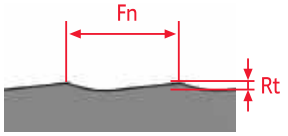
Note: C and W shapes has 2 wiper radius. While one makes longitudinal turning the opposite one makes face turning.

Note: Due to shape restritions (basic angles of 60° and 55°), T and D shapes has 4 wiper radius that works in couple. That is needed to not loose the wiper effect when the insert is turned around.

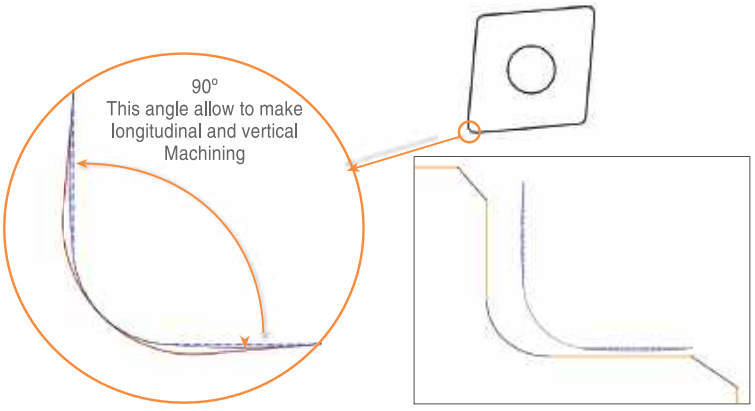
THE WIPER PURPOSE IS BASED ON PRODUCTIVITY:

CNMG 120408-##
VS
CNMG 120408-MW

Holder Angle Position (Kr°) = 95°



EXAMPLE CNMG 120404-MW WITH ANGLE POSITION OF 95°



- Wiper nose radius
- Regular nose radius
- Wiper radius profile
- Wiper radius length
- Workpiece machinable areas with wiper insert.

Note: wiper radius length must be parallel to machinable workpiece areas.

CUTTING SPEED (m/min)

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

ISO	Material	Grade / fn (mm/r) / HB (brinell)	CVD Coating														
			← Wear Resistance												Toughness →		
			PHG105			PHG115			NEW PH2G115			PHG125			NEW PH2G125		
			0.2	0.4	0.8	0.2	0.4	0.8	0.2	0.4	0.8	0.2	0.4	0.8	0.2	0.4	0.8
P	Unalloyed steel	125-170	280-380	210-300	200-250	250-350	180-270	170-220	285-400	205-310	195-250	200-295	170-240	150-215	230-335	195-275	170-245
	Low-alloy steel	180-350	220-280	200-260	170-210	190-250	170-230	140-180	215-285	195-260	160-205	170-230	140-210	120-190	195-260	160-240	135-215
	High-alloy steel	200-325	165-250	150-235	140-230	135-220	120-205	110-200	155-250	135-235	125-230	125-215	110-185	100-170	140-245	125-210	115-195

ISO	Material	Grade / fn (mm/r) / HB (brinell)	CVD Coating						PVD Coating					
			← Wear Resistance					Toughness →	← Wear Resistance					Toughness →
			PHG140			PH5740			PH7910			PH7920		
			0.2	0.4	0.8	0.2	0.4	0.8	0.2	0.4	0.8	0.2	0.4	0.8
P	Unalloyed steel	125-170	135-230	120-210	115-200	125-220	110-200	105-190	140-245	130-225	115-220	130-230	120-220	110-210
	Low-alloy steel	180-350	125-205	105-185	95-185	115-195	95-175	85-175	130-230	125-225	125-215	125-220	115-210	100-200
	High-alloy steel	200-325	105-205	75-175	50-135	95-195	65-165	40-125	-	-	-	-	-	-

ISO	Material	Grade / fn (mm/r) / HB (brinell)	CVD Coating								
			← Wear Resistance							Toughness →	
			PHS215			PHS225			PHS240		
			0.2	0.4	0.6	0.2	0.4	0.6	0.2	0.4	0.6
M	SS - Ferritic/martensitic	200-330	125-260	100-220	80-200	115-230	90-180	70-160	110-230	85-175	70-140
	SS - Austenitic	180-330	120-255	95-215	75-195	110-225	85-175	65-155	105-225	80-170	65-135
	SS - Austenitic-ferritic (Duplex)	230-260	110-245	85-205	65-185	100-215	75-165	55-145	95-215	70-160	55-125

ISO	Material	Grade / fn (mm/r) / HB (brinell)	PVD Coating											
			← Wear Resistance											Toughness →
			PH7910			PHH910			PH7920			PHH920		
			0.2	0.4	0.6	0.2	0.4	0.6	0.2	0.4	0.6	0.2	0.4	0.6
M	SS - Ferritic/martensitic	200-330	120-220	110-210	105-205	130-230	120-220	115-215	110-210	100-200	95-195	120-220	110-210	105-205
	SS - Austenitic	180-330	115-215	105-205	95-195	125-225	115-215	105-205	105-205	95-195	85-185	115-215	105-205	95-195
	SS - Austenitic-ferritic (Duplex)	230-260	105-202	100-195	90-185	115-212	110-205	100-195	95-192	90-185	80-175	105-202	100-195	90-185

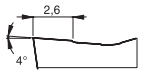
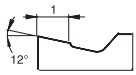
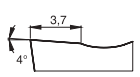
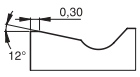
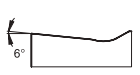
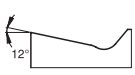
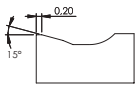
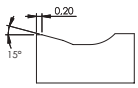
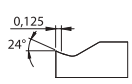
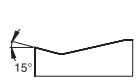
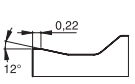
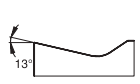
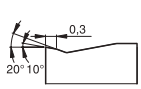
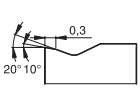
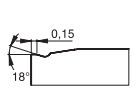
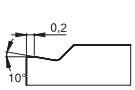
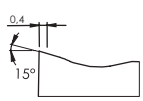
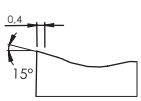
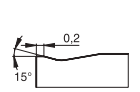
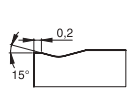
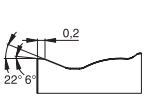
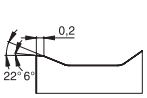
ISO	Material	Grade / fn (mm/r) / HB (brinell)	CVD Coating								
			← Wear Resistance							Toughness →	
			PH5705			PH5320			PH5740		
			0.2	0.4	0.6	0.2	0.4	0.6	0.2	0.4	0.6
K	Marble cast iron	130-230	160-360	140-280	120-235	150-330	130-240	110-220	110-230	100-215	100-190
	Grey cast iron	180-220	220-380	190-330	150-290	200-330	170-280	150-230	150-230	140-220	110-210
	Nodular cast iron	160-380	150-280	135-265	120-220	140-250	125-230	110-220	125-220	115-205	105-185

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

ISO	Material	Grade / fn (mm/r) / HB (brinell)	PVD Coating											
			← Wear Resistance											Toughness →
			PH7910			PHH910			PH7920			PHH920		
			0.1	0.3	0.5	0.2	0.4	0.6	0.1	0.3	0.5	0.2	0.4	0.6
S	Heat Resistant super alloys (Iron base)	200-280	65-140	60-130	50-110	75-150	70-140	60-120	60-135	55-125	45-105	70-145	65-135	55-115
	Heat Resistant super alloys (Nickel base)	250-320	45-120	40-110	30-100	55-130	50-120	40-110	40-115	35-105	25-95	50-125	45-115	35-105
	Heat Resistant super alloys (Cobalt base)	200-320	45-115	40-105	30-90	55-125	50-115	40-100	40-110	35-100	25-85	50-120	45-110	35-95
	Titanium alloys (400<or<1050[MPa])	-	50-130	45-120	40-100	60-140	55-130	50-110	45-125	40-115	35-95	55-135	50-125	45-105

CHIP BREAKER SPECIFICATIONS

NEGATIVES | Negativas | Negativas

Insert Type	Application	Tolerance Class	Major field of Application	Geometry	Cutting Edge* at the nose radius	Cutting Edge* at the flank	Cutting Conditions** Feed Fn (mm/rev)	Cutting Conditions** Depth of cut DOC (mm)	Available Shapes KN __ 55°	CN __ 80°	DN __ 55°	RN __	SN __ 90°	TN __ 60°	VN __ 35°	WN __ 80°
Knux´s	Finishing	U	P M K	01			0,20 to 0,35	1,00 to 6,00	●							
	Medium	U	P M K	02			0,40 to 0,70	1,50 to 6,00	●							
NEGATIVES - double side	Medium to Finishing	M	P M	01			0,12 to 0,50	1,00 to 6,50			●			●		
	Roughing to Medium	M	P M	02			0,14 to 0,50	0,70 to 5,00			●					
	Medium to Finishing	M	P M	03			0,15 to 0,50	0,80 to 6,00			●					
	Fine Finishing	M	M S	NEW GSF			0,08 to 0,15	0,10 to 2,50		●				●	●	●
	Finishing	M	P	MF			0,05 to 0,60	0,10 to 2,50		●	●		●	●	●	●
	Medium to Finishing	M	M N S	MS			0,08 to 0,80	0,20 to 4,50		●	●			●	●	●
		M	M S	SF			0,10 to 0,55	0,60 to 3,00		●	●		●	●	●	●
		M	P	LC			0,07 to 0,50	0,60 to 3,00		●	●			●	●	●
	Medium		M S	GS			0,10 to 0,60	0,40 to 2,00		●	●		●	●	●	●
	Medium Finishing	M	K	ST			0,10 to 0,50	0,15 to 10,50		●	●	●	●	●	●	●
	Medium Finishing	M	P	MR			0,10 to 0,70	0,30 to 9,00		●	●		●	●	●	●

* T-Land varies according to the IC (IC reference used: 12,7mm)
** Cutting Conditions varies according to the Insert shape, IC and Nose Radius

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CHIP BREAKER SPECIFICATIONS

Especificações de quebra-aparas | Especificaciones de rompevirutas

NEGATIVES | Negativas | Negativas

Insert Type	Application	Tolerance Class	Major field of Application	Geometry	Cutting Edge* at the nose radius	Cutting Edge* at the flank	Cutting Conditions** Feed Fn (mm/rev)	Cutting Conditions** Deph of cut DOC (mm)	Available Shapes KN __	CN __	DN __	RN __	SN __	TN __	VN __	WN __
NEGATIVES - double side	Medium	M	P	PM	0,25 / 15° 7°	0,25 / 15° 7°	0,10 to 0,60	0,30 to 9,00		●	●			●		●
	Medium Wiper	M	P K	MW	0,3 / 16°	0,3 / 16°	0,15 to 0,90	0,30 to 6,00		●	●			●		●
	Roughing	M	K	Flat	0°	0°	0,08 to 2,50	0,10 to 15,00		●	●	●	●	●	●	●
	Roughing to Medium	M	P	MA	0,3 / 25°	0,3 / 25°	0,30 to 0,70	1,20 to 8,00		●						
		M	M S	SS	0,3 / 20° 10°	0,3 / 20° 10°	0,10 to 1,00	0,30 to 8,50		●	●		●	●	●	●
	Roughing	M	P M K	HR	0,32 / 18°	0,32 / 18°	0,20 to 1,20	0,80 to 15.00		●	●		●	●		●
		M	P M	RP	0,25 / 20°	0,30 / 20°	0,30 to 1,50	2,00 to 12,00		●			●			
NEGATIVES - Single side		M	P	GR	0,25 / 20°	0,30 / 20°	0,20 to 1,50	0,80 to 8,00		●						
	Heavy to Roughing	M	P M	HY	0,5 0,2 / 17° 8°	0,5 0,2 / 17° 8°	0,35 to 1,60	2,00 to 15,00		●			●			
		M	P K	HZ	0,53 0,2 / 18° 15°	0,53 0,2 / 18° 15°	0,35 to 1,60	2,40 to 17,00		●			●			

* T-Land varies according to the IC (IC reference used: 12,7mm)
** Cutting Conditions varies according to the Insert shape, IC and Nose Radius

CHIP BREAKER SPECIFICATIONS

POSITIVES | Positivas | Positivas

Insert Type	Application	Tolerance Class	Major field of Application	Geometry	Cutting Edge* at the nose radius	Cutting Edge* at the flank	Feed Fn (mm/rev)	Depth of cut DOC (mm)	Available Shapes: CC __ 80°	DC __ 55°	RC __	SC __ 90°	TC __ 60°	VC __ 35°	VB __ 35°
POSITIVES - Clearance angle 5° and 7°	Fine Finishing	M	M, S	NEW FF	5°	15°	0,04 to 0,45	0,08 to 2,00	●	●					●
	Finishing to Fine finishing	G	P, M, S	FS	20° 8° 0,13	6°	0,01 to 0,25	0,10 to 3,00	●	●			●	●	
	Finishing	M	K	Flat	0°	0°	0,04 to 0,80	0,05 to 6,30	●	●		●	●	●	●
		M	P	FP	6°	6°	0,03 to 0,45	0,06 to 2,40	●	●		●	●	●	●
		M	P, M, S	BO	5°	5°	0,05 to 0,30	0,30 to 1,50	●						
		M	M, S	FM	6°	6°	0,03 to 0,45	0,06 to 2,40	●	●		●	●	●	●
		M	K	FK	6°	6°	0,03 to 0,30	0,06 to 2,40	●	●		●	●	●	●
	Fine Finishining wiper	M	P, M, K, S	FW	18° 0,07	18° 0,1	0,05 to 0,50	0,30 to 3,50	●	●			●		
	Finishing	M	M, S	LM	20° 8° 0,10	6°	0,08 to 0,35	0,20 to 3,00	●	●					
	Finishing Wiper	M	P, M, K, S	MW	18° 0,15	18° 0,2	0,10 to 0,50	0,50 to 4,00	●	●			●		
	Medium to Finishing	M	M, S	GS	15°	15°	0,05 to 4,00	0,40 to 5,00			●				
		G	N	LN	~25°	20°	0,05 to 1,60	0,05 to 7,00	●	●	●	●	●	●	
	Medium	M	P	MP	24° 8° 0,12	7°	0,06 to 0,60	0,19 to 3,60	●	●		●	●	●	●

* T-Land varies according to the IC (IC reference used: 12,7mm)
** Cutting Conditions varies according to the Insert shape, IC and Nose Radius

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CHIP BREAKER SPECIFICATIONS

Especificações de quebra-aparas | Especificaciones de rompevirutas

POSITIVES | Positivas | Positivas

Insert Type	Application	Tolerance Class	Major field of Application	Geometry	Cutting Edge* at the nose radius	Cutting Edge* at the flank	Cutting Conditions** Feed Fn (mm/rev)	Cutting Conditions** Deph of cut DOC (mm)	Available Shapes CC _ _ 80°	DC _ _ 55°	RC _ _	SC _ _ 90°	TC _ _ 60°	VC _ _ 35°	VB _ _ 35°
POSITIVES - Clearance angle 5º and 7º	Medium	M	M S	MM	0,12 24° 8°	7°	0,06 to 0,60	0,19 to 3,60	●	●		●	●	●	●
		M	K	MK	0,12 24° 8°	7°	0,06 to 0,60	0,19 to 3,60	●	●		●	●	●	●
		M	P M S	CP	0,08 13°	0,08 13°	0,04 to 0,17	0,50 to 2,40			●				
	Roughing to Medium	M	P M K	ST	0,30 15° 15°	0,30 15° 15°	0,05 to 3,20	0,80 to 12,80			●				
			P M	RF	0,25 9° 2°	0,25 9° 2°	0,25 to 2,50	2,50 to 10,00			●				
			P M K	RM	0,4 15° 15°	0,4 15° 15°	0,80 to 2,50	3,20 to 13,00			●				
			P M	RR	0,55 11°	0,55 11°	0,80 to 2,50	3,20 to 13,00			●				

* T-Land varies according to the IC (IC reference used: 12,7mm)
** Cutting Conditions varies according to the Insert shape, IC and Nose Radius

Insert Type	Application	Tolerance Class	Major field of Application	Geometry	Cutting Edge* at the nose radius	Cutting Edge* at the flank	Cutting Conditions** Feed Fn (mm/rev)	Cutting Conditions** Deph of cut DOC (mm)	Available Shapes CC _ _ 80°	DC _ _ 55°
POSITIVES - Clearance angle 11º	Medium to Finishing	U	P M K S	Flat	0°	0°	0,05 to 2,20	1,00 to 10,00	●	●
	Finishing to Fine Finishing	M	P M K	12	0,2 10°	0,4	0,03 to 0,55	0,10 to 3,00	●	●
	Medium	M	P M	13	0,2	0,4	0,03 to 0,55	0,20 to 7,00	●	●

* T-Land varies according to the IC (IC reference used: 12,7mm)
** Cutting Conditions varies according to the Insert shape, IC and Nose Radius

CHIP BREAKER COMPARATIVE CHART

NEGATIVES | Negativas | Negativas

Application		Palbit	Sandvik	Kennametal	Iscar	Seco	Tungaloy	Mitsubishi	Sumitomo	Walter	Kyocera	Taegutec	Korloy	Ceratizit
Mat.	Operations													
P STEEL	Finishing	**MF**	QF	FS, LF	SF, PP TF		01 TF	PK FH	FA		DP	FA	VF, HU	
	Medium to Finishing	**MF, LC**	PF, QF, LC MF, R/L-K	FF, FN	F3P, NF, SF	FF2,FF1	TS , TSF, ZF 11, NS, AS, TQ, NM, CB, C	SA, FY, C, SH, MP	SU, FL, SE, SX	NF3, NS6	PQ , VFCJ PQ, GP, PP, HQ, GS, CQ	FG, VF, EA FC, MC, ML, MP	VL	CF , TF
	Medium Wiper	**MW***	WL, WF, WMX WM, WR	FW, MW, RW	WF, WG	W-MF2, W-MF3	AFW , FW, ASW, SW	SW	LUW, SEW, GUW	NF, NM	WP, WQ	WS, WT		TFQ, TMQ
	Medium to Roughing	**PM, MR, GR, MA**	PM, QM, XM , XRM	P, MN	M3P, M3M, PP, TF, GN	MR7, MR6, M5, M6	TM , AM, DM, ZM All-round	MA, MH, MP	GU GE , UX	NMT, NM4	HS, PT, GT, CS, PS	PC , MT MC , MG-	VM	TMF , TMM M50
	Roughing	**HR, RP", GR, MA**	HM , PR MR	RN , RP MR	NR MR	MR6, R5	TH, THS	RP, GH HZ, HL	MU , ME HG	NM5, NM6 NM9	PH All-round	RT	GR, HR	TM, TRM
	Heavy Roughing	**RP", HY", HZ"**	PR , MR, HR , QR	RM RH	R3P, NM	R4, RR6	TU, TRS, TUS	HM, HX HV	HG , HP HU, HW HF	NR6, NRF NRR	PX	HT , HD RX , RH HY , HZ	GH, VT	TRR , TR, R28 , R58 R88
M STAINLESS STEEL	Fine Finishing	**GSF**												
	Finishing	**SF, GS**	MF, SM, XF, LC, R/L-K	FP	TF, VL	FF2, FF1, MF1	SF, SA, SS	GM, MS, SH, LM	EX, EG, SU, EF	NF4 NMS	GU, MQ	EA, SF, SU, FG	VP2	CF , F30 M34 F32 , TF
	Medium	**MS, SF, GS**	MM , QM, SM XM , XRM	MP, P	M3M , PP	MF2, FF2, MF5	SM S	MM, MA ES	GU HM	NM4	TK MU	EM , ET	VP3, HS	TMF , M42 M30 , M52
	Roughing	**SS, RP, HZ"**	MR HM, PR	UP, RP	MR , MH	M5, M6, R8, RS, R6	TH , SH, TU	GH , RM, HZ	EM , MU	NR4, NRT, NRS	MS		"GR, VM, VH, GH"	TM, M60, TRM, TMR, TRR R80
K CAST IRON	Medium to Finishing	**ST**	KF , XF	FN	GN	M4, M5	CF	LK, MA	UZ		C	FG	B25	CF
	Medium	**ST, HR, FLAT**	KM , QM, XM, XRM	RP , UN		FLAT	CM All-round	MK GK	GZ	NM5	ZS All-round	MT MG	FLAT	M50
	Roughing to Heavy Roughing	**HR, FLAT, HZ"**	KR Without chip breaker	Without chip breaker		MR7, M5	CH Without chip breaker	RK Without chip breaker	Without chip breaker	Without chip breaker	GC Without chip breaker	RT	GR	TMR , TR R28, R58, R88
N ALUMINIUM	Medium	**MS**	MF, QM	MS , MP MG	PP	-	P		AX		AH , A3	ML	HA	F32
S HRSA	Finishing	**GS, SF, MS**	SF, SM 01	FS , LS MS		MF1, M1	HRF	FJ , LS	EF EX	NFT NF4	MQ	SF	VP1	
	Medium	**SF, SS, DOMX**	MM, QM SMR	UP , P, NGP RP	PP	MR3, MR4	HRM, HMM, SA	MS RS GJ	EG MU	NMS NM4, NRS, NR4	TK MS MU	SU	VP2, VP3	M34 , M52

* = Wiper
" = Single face insert

CHIP BREAKER COMPARATIVE CHART

Tabela comparativa de quebra-aparas | Tabla de comparación de rompevirutas

POSITIVES - CLEARANCE ANGLE 5°, 7° AND 11° | Positivas - Alívio 5°, 7° e 11° | Positivas - Alivio 5°, 7° y 11°

Application		Palbit	Sandvik	Kennametal	Iscar	Seco	Tungaloy	Mitsubishi	Sumitomo	Walter	Kyocera	Taegutec	Korloy	Ceratizit
Mat.	Operations													
P STEEL	Fine Finishing	**FS**	UM	UF	SF	F1, MF2	01	FV, SMG	FC, FW	PF2	CF, CK	FA	HFP	F32
	Finishing	**FS, FP**	R/L-K, PF, XF UF	11, GM, LF	PF, SM, 14 17, 19, XL	FF1, F2, M3, MF2	PSF, PF, SS PS, PSS, TS	FP, FV, SV, LP	FP, FZ, LU, FK, SS, SC SU, SK, SF	PF5, PF4, PS5	CQ, GK, GP HQ, XP, XQ	FG, GF	VF, VL, F	SF, SMF, SMQ
	Finishing Wiper	**FW***	WF	FW	WF	W-F1	TSW, W08	SW	LUW, SDW	PF				
	Finishing to Medium	**MP**	PM	MF, MP, GM, MR	DT, HQ	MF2	PM, 23, 24 RS	MP, MV	SU, UM, UJ	PM5	VF, MF	MT, PC	HMP, C25, M .CMX	SM
	Finishing to Medium Wiper	**MW***	WM	MW	WG			MW		PM		WT		
M STAINLESS STEEL	Fine Finishing	**FS, FF**	UM	LF, GM	SM	F1, MF2, FF1	PSF	FJ	FC	PF2	GQ, GF	FG	HFP	
	Finishing	**FS, FM, LM**	MF, UF, R/L-K	MF	PF, 14	F2, M3	SS, PSS	FM, FV, SV	SU	PF4	MQ	FA	VF, F	SF, SMF, SMQ
	Finishing Wiper	**FW***	WF	FW	WF	W-F1		SW		PF				
	Finishing to Medium	**MM, LM**	MM, XM	MF, MP	SM	MF2, M5	PM	MM, MV	UM	PM5	XQ, VF	MT, PC	HMP, C25, M	F23, F43, SM
	Finishing to Medium Wiper	**MW***	WM	MW	WG			MW		PM		WT		
K CAST IRON	Finishing	**FK**	KF	11	PF	M3		FV	SK		GK	FA	HMP	SF
	Finishing Wiper	**FW***	WF	FW	PF	W-F1		SW	LUW	PF		MT, PC		
	Finishing to Medium	**MK, FLAT**	KM, KR	MF, MP, FLAT	PM5, 19, FLAT	M5	CM, FLAT	MV, MK, FLAT	UM, FLAT	PM5, PS5	FLAT	FALT	C25, HMP, FLAT	25P, 27, 29
	Finishing to Medium Wiper	**MW***	WM	MW		W-F2		MW		PM		WT		
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
S HRSA	Fine Finishing	**FS, FF**	UM	LF	SM	F1, MF2	PSF, PF, SS PS, PSS, TS	FJ	FC	PF2	GQ		HFP	SF
	Finishing	**FM, LM**	MF, UF, R/L-K	GM	PF, 14	F1	PSS, PS	FV	FX, FY	PF4	MQ	FA	HFP	F23, F43, SM
	Finishing Wiper	**FW***	WF	FW	WF					PF				
	Finishing to Medium	**MM, LM**	MM, XM	MF	SM		PM	MV	SI	PM5	MQ	FG	HMP	SM, 25P 29
	Finishing to Medium Wiper	**MW***	WM	MW	WG					PM				
	Medium to Roughing	**GS**												

GRADES COMPARATIVE CHART

CVD COATED GRADES | Graus revestidos a CVD | Calidades con recubrimiento CVD

ISO Material		Palbit	Sandvik	Kennametal	Iscar	Seco	Mitsubishi	Sumitomo	Tungaloy	Walter	Kyocera	Taegutec	Korloy	Ceratizit
P STEEL	P05	**PHG105**	GC4305	KCP05B KC9105	IC9150 IS8080 IC428	TP0500 TP1500	UE6105 MC6005	ACP810P AC700G	T9105 T9005	WPP01	CA510 CA5505	TT1300 TT8105	NC3010	
	P10	**PHG105** **PHG115** **PH2G115**	GC4215 GC4315 GC4415	KCP10B KCP10 KCP25 KCP25C KC9110	IC9150 IC9015 IC8150 IC8250	TP1500 TP1501 TP2500	UE6105 MC6015 MC6115 UE6110 MY5015	AC810P AC8015P AC700G AC820P AC2000	T6215 T9105 T9005 T9115 T9215	WPP05 WPP10S WPP10G	CAS510 CA115P CA5505 CA515 CA5515	TT1300 TT7310 TT7400 TT8115 TT8115B	NC3215	CTC1110 CTC1115 CTC3110 TCC410
	P20	**PHG115** **PH2G115** **PHG125** **PH2G125**	GC4215 GC4315 GC4415 GC4225 GC4325 GC4425	KCP25B KCP25 KCP25C KC9125	IC9015 IC8250 IC9050 IC9250 IC8350	TP1501 TP2500 TP2501	MC6015 MC6115 UE6110 MC6025 MC6125 UE6020 MY5015	AC8015P AC8025P AC820P AC2000 AC830P	T6215 T6225 T9115 T9215 T9125 T9225	WPP10S WPP10G WPP20S WPP20G	CA115P CA515 CA5515 CA525 CA5525 CA6525 CR9025	TT3500 TT5100 TT7400 KT7300 TT7800 TT8115B	NC3220 NC3220 NC3120	CTC1110 CTC1115 CTC1125 CTC1130 CTC1425
	P30	**PHG125** **PH2G125**	GC4225 GC4325 GC4425 GC4335	KCP25B KCP25C KCP30 KCP40 KCP8050	IC8250 IC8350 IC9250 IC9350	TP2500 TP2501 TP3500 TP3000	MC6025 MC6125 UE6020 UE6035 UH6400	AC8025P AC830P AC630M	T6225 T9125 T9225 T9135 T9035	WPP20S WPP20G WPP30S WPP30G	CA525 CA5525 CA6525 CA530 CA5335 CR9025	TT3500 TT5100 TT7400 TT8125B KT7300	NC3215 NC3225 NC3120	CTC1125 CTC1130 CTC1135 CTC1425
	P40	**PH5740** **PHG140**	GC4235 GC4335	KCP30B KCP40B KC9140 KC9040 KC9240 KC9245	IC8350 IC9350	TP3500 TP3000	MC6030 UE6035 UH6400	AC630M	T9135 T9035	WPP30S	CA530 CA5535	TT5100 TT7100 TT8135 KT7300 TT7800	NC500H NC5330	CTC1135 CTC1435 CTC2135
M STAINESS STEEL	M10	**PHS215**	GC2015	KCM15	IC9250 IC6015 IC8250	TM2000	MC7015 US7020	AC610M AC620M	T6120 T9115 T9215	WMP10S WAM20	CA6515		NC9020	CTC1110 CTC1115
	M20	**PHS215** **PHS225**	GC2015 GC2220	KCM15 KCM25 KC9225	IC9250 IC6015 IC6025 IC9025 IC656	TM2000 TM4000	MC7015 US7020 MC7025	AC610M AC620M AC6030M AC630M	T6020 T6120 T6130 T9125 T9215	WMP10S WMP20S	CA6515 CA6525	TT5100 TT9225	NC9020	CTC1115 CTC1125 CTC1130 CTC1135
	M30	**PHS225** **PHS240**	GC2025 GC2220	KCM25 KCM35 KC9230	IC9350 IC6025 IC635	TM4000	MC7025 MC7035 US735	AC6030M AC6040M AC630M	T6030 T6130	WMP20S WMP30	CA6525	TT5100 TT7100 TT9225 TT9235	NC9025	CTC1125 CTC1135 CTC1425 CTC1435 CTC2135
	M40	**PHS240**	GC2025	KCM35 KC9240 KC9245	IC6025 IC9350	TM4000	MC7035 US735	AC6030M AC6040M AC630M		WMP30		TT7100 TT9235	NC9025	CTC2135
	M50	**PHS228**	GC2035	KC9245	IC9350								NC9035	
K CAST IRON	K05	**PH5705**	GC3205 GC3210	KCK05 KC9315	IC5005 IC9007	TH1500 TK1001 TK1000 TK1501	MC5005 UC5105	AC405K AC4010K	T5105	WAK10 WVK10	CA310 CA4505 CA4010	TT7005		
	K10	**PH5705** **PH5320**	GC3205 GC3210 GC3215	KCK15B KCK15B KC920 KC9315 KC9325	IC5005 IC5010 IC9150 IC428 IC4028	TK1001 TK1000 TK1501 TK2000 TK2001 TK2501	MC5015 UC5105 UC5115 MY5015	AC405K AC4010K AC4015K AC420K AC700G	T5105 T5115	WVK10 WAK20 WVK20	CA310 CA315 CA320 CA4515 CA4110 CA4115	TT7005 TT7015 TT3100 TT7310 TT8115	NC6205 NC6210 NC6215	CTC1110 CTC1115 CTC3110 TCC410 CTC3215
	K20	**PH5320**	GC3215	KCK20 KC9110 KC9325	IC5010 IC8150 IC9150 IC9015 IC418	TK2001 TK2000 TK2501	MC5015 UC5115 UE6110 MY5015	AC4015K AC420K AC700G AC820P	T5115 T5125	WVK20 WAK30	CA315 CA320 CA4515 CA4115 CA4120	TT7310 TT7015 TT8115	NC6215	CTC1115 CTC1125 CTC1130 CTC1425 CTC3215
	K30	**PH5740**		KC9125 KC9325	IC9015 IC418		UE6110	AC820P	T5125					TSC30

palbit

GRADES COMPARATIVE 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	

GRADES COMPARATIVE CHART

PVD COATED GRADES | Graus Revestidos a PVD | Calidades con recubrimiento PVD

ISO Material		Palbit	Sandvik	Kennametal	Iscar	Seco	Mitsubishi	Sumitomo	Tungaloy	Walter	Kyocera	Taegutec	Korloy	Ceratizit
P STEEL	P01	**PH7910**									PR915 PR1005	PV3030	PC8110	
	P10	**PH7910**	GC1525 GC1025	KC5010 KC5510 KU10T	IC250 IC350 IC507 IC570 IC807 IC907 IC908	CP200 TS2001	VP10MF		AH710		PR915 PR1005 PR930 PR1025 PR1115 PR1225 PR1425	PV3010 PV3030 TT7080 TT1040	PC230	
	P20	**PH7920**	GC1525 GC1025 GC1125	KC5025 KC5525 KC7215 KC7315 KU25T	IC228 IC250 IC308 IC328 IC350 IC354 IC507 IC528 IC570 IC807 IC808 IC907 IC908 IC928 IC1008 IC1028 IC3028	CP250 TS2500	VP10RT VP20RT VP15TF VP20MF	AC520U	AH710 AH725 AH120 SH730 GH730 GH130		PR930 PR1025 PR1115 PR1225	TT7220 TT9020 TT7080 TT9080 TT7070	PC5300 PC8115	SR226 GM127
	P30	**PH7920**	GC1025 GC1125	KC7015 KC7020 KU25T KC7235	IC228 IC250 IC328 IC330 IC354 IC528 IC1008 IC1028 IC3028	CP500	VP10RT VP20RT VP20MF	AC530U	AH725 AH120 SH730 GH730 GH130 AH740 J740			TT9030 TT7030 TT7080 TT9030 TT9080	PC8115	GM40 CTP1235 CTP2235 SR226 GM127
M STAINESS STEEL	M01	**PH7910** **PHH910**	GC1005		IC520	TS2000 CP200	VP10MF			WSM10S	PR915	TT5080		
	M10	**PH7910** **PHH910**	GC1005 GC1025 GC1115 GC1125 GC1105	KC5010 KC5510 KC6005 KC6015	IC330 IC354 IC507 IC520 IC570 IC807 IC907 IC3028	CP200 TS2000	VP10MF		AH710	WSM20S	PR915 PR1025 PR1225 PR1425	TT5030 PV3010 PV3030 TT9030	PC8110 PC9030	
	M20	**PH7920** **PHH920**	GC1005 GC1025 GC1125 GC1105	KC5025 KC5525 KC7020 KC7025	IC250 IC330 IC354 IC808 IC908 IC1008 IC1028 IC3028	CP250 TS2500 CP500	VP10RT VP20RT VP15TF VP20MF	AC520U	AH710 AH725 AH120 SH730 GH730 GH130 GH330 AH60	WSM30S	PR1025 PR1125 PR1225 PR915 PR930	TT5030 PV3030 TT9020 TT9030	PC9030 PC8110 PC8115	CTP2120 CTP1235 SR226 GM127
	M30	**PH7920** **PHH920**	GC1125 GC2035	KC7030 KC7225	IC228 IC250 IC328 IC330 IC1008 IC1028 IC3028	CP500	VP10RT VP20RT VP15TF VP20MF MP7035	AC520U AC530U	GH330 AH725 AH120 AH730 GH730 GH130 J740 AH645		PR1125	TT9030 TT9080 TT8030	PC9030	CTP2240 CTP1235 CTP2235 SR226 GM127

palbit

GRADES COMPARATIVE CHART

Tabela comparativa de graus | Tabla de comparación de calidades

ISO		Palbit	Sandvik	Kennametal	Iscar	Seco	Mitsubishi	Sumitomo	Tungaloy	Walter	Kyocera	Taegutec	Korloy	Ceratizit
Material														
S	S01	**PH7910 PHH910**			IC507 IC907		MP9005 VP05RT		AH905 AH905 SH730	WDSM10S	PR915		PC8110	
	S10	**PH7910 PHH910**	GC1105 GC1115 GC1005 GC1025	KC5010 KC5410 KC5510	IC507 IC903 IC300 IC808	CP200 CP250 TS2000 TS2500 CP250	MP9015 VP10RT MP9015	AC510U	AH110 AH120	WSM20S	PR915	TT5030 TT5030	PC8110 PC8115 PC8105	CM40 SR226 CM45
	S20	**PH7920 PHH920**	GC1025 GC1125	KC5025 KC5525	IC908 IC928 IC3028 IC806	TS2500 CP500	MT9015 VP20RT	AC510U AC520U	AH120 AH720	WSM30S	PR1125	TT8020 TT8030	PC8815 PC5300	CTP2440 GM127
HRSA	S30	**PH7920 PHH920**	GC1125				VP15TF	AC520U	AH725		PR1125	TT8020	PC5400	CTP2135

LOOKING FOR MORE TROUBLESHOOTING?

Check the qrcode for more information.

CUTTING TOOLS FOR

GROOVING & PARTING OFF

D

D - GROOVING & PARTING OFF

D - 876 | Inserts overview

D - 878 | Grooving plus

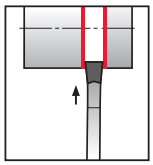
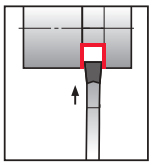
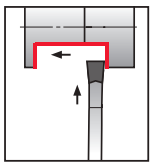
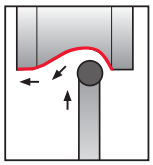
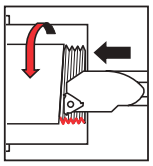
D - 880 | GP inserts

D - 884 | Blades & Toolholders

D - 890 | Grooving & parting off

D - 892 | GCMX & SANCAR inserts
D - 897 | Blades
D - 901 | Trigon inserts
D - 904 | Trigon toolholders
D - 908 | SAL (Swiss automatic lathes)
D - 910 | SAL inserts
D - 914 | SAL toolholders
D - 918 | Light grooving
D - 924 | Forming grooving
D - 930 | Spare parts
D - 932 | Technical data

GENERAL INSERTS OVERVIEW Visão geral | Visión general

Insert Type + Chipbreaker / Operation		Parting Off	General Grooving	Turning	Profiling	Threading
						
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	GP...-N02-MC GP...-R02-MC GP...-L02-MC	●	○			
	GP...-N02-MG	○	●			
	GP...-N02-MM	○	○	●		
	GP...-N02-MP				●	
	GP...-N02-NP				●	
	GCMX...	●	○			
	SANCAR...	●	○			

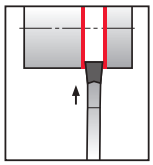
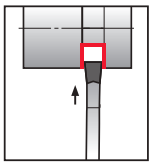
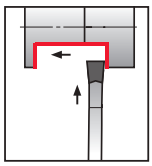
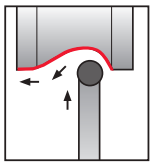
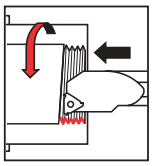
● First choice | Primeira opção | Primera opción

○ Alternative | Alternativa

palbit

GENERAL INSERTS OVERVIEW

Visão geral | Visión general

Insert Type + Chipbreaker / Operation		Parting Off	General Grooving	Turning	Profiling	Threading
						
	TRIGON		◎			○
	SAL GS		◎			
	SAL GR		◎		◎	
	SAL P	◎				
	SAL PT					○
	SAL TP			○		
	LG		◎			
	FG				◎	

◎ First choice | Primeira opção | Primera opción

○ Alternative | Alternativa

GROOVING PLUS

Grooving Plus is designed to address the specific requirements of parting and grooving applications, offering a new level of process security and productivity for machining operation.

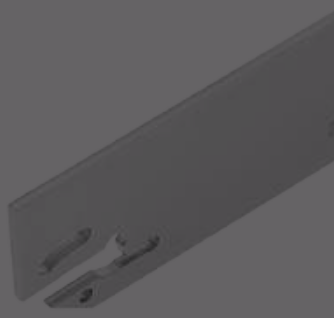
O Grooving Plus foi projetado para atender às exigências específicas de aplicações de corte e canais, oferecendo um novo nível de segurança de processo e produtividade para operações de fresagem.

Grooving Plus está diseñado para abordar los requisitos específicos de aplicaciones de tronzado y ranurado, ofreciendo un nuevo nivel de seguridad y productividad para operaciones de fresado.

INSERTS > page 880

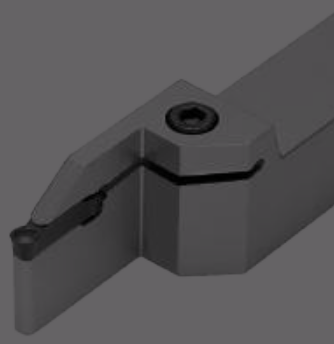
- Cutting width from 2,0mm to 6,0mm
  Largura de corte de 2,0mm a 6,0mm | Ancho de corte de 2,0mm a 6,0mm
- 1 or 2 cutting edges
  1 ou 2 arestas de corte | 1 o 2 filos de corte
- Left, neutral, right and round inserts
  Pastilhas esquerdas, neutras, direitas e redondas | Plaquitas izquierdas, neutras, derechas y redondas

BLADES & TOOLHOLDERS > page 884



- Blade GPNC
  Lâmina GPNC | Lama GPNC
- Toolholders CPTS and DPTS
  Suportes CPTS e DPTS | Herramientas CPTS y DPTS

GROOVING TOOLHOLDERS > page 886



- Monoblock
  Monobloco | Monobloque
- Right and Left
  Esquerdo e Direito | Izquierdo y derecho

GP INSERTS CODE KEY

Chave de codificação para pastilhas GP | Llave de codificación para plaquitas GP

For R or L Insert type

GP	0300	B	020	-	050	R	02	-	MC
1	2	3	4		5	6	7		8

For N Insert type

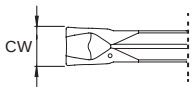
GP	0300	B	020	-	N	02	-	MC
1	2	3	4		6	7		8

1 - Product Line

GP - Grooving Plus

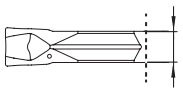
2 - Cutting Width

0200 - 2,00mm | 0300 - 3,00mm | 0400 - 4,00mm | 0500 - 5,00mm | 0600 - 6,00mm



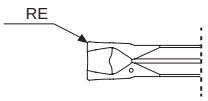
3 - Seat Size

A - GP0200 | B - GP0300 | C - GP0400 | D - GP0500 | E - GP0600

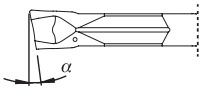


4 - Cutting Radius

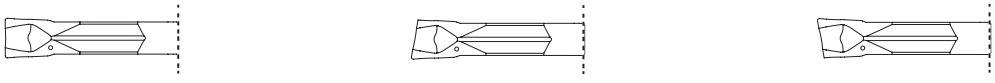
020 - 0,20mm | 025 - 0,25mm | 040 - 0,40mm | 600 - 6,00mm



5 - Relief Angle



6 - Insert Type

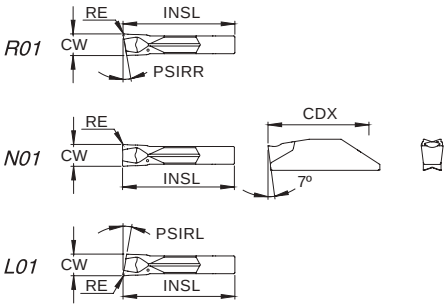


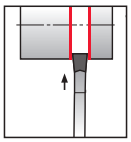
7 - Nº of Cutting Edges

8 - Chipbreaker

MC - Medium Cut Off | MG - Medium Grooving | MM - Medium Multi Function | MP - Medium Profiling | NP - Non-Ferrous Profiling

GP...01-MC Medium Cut Off





(1) Geometry code	ISO/ANSI Reference	P				M			K			S		Dimensions | Dimensões | Dimensiones (mm)						Cutting conditions Condições de corte Condiciones de corte		
	(2) Grade code	CVD		PVD		CVD	PVD		CVD			PVD										
		N2	U6	G4	P4	U6	G4	P4	L6	N2	U6	G4	P4							fn (mm/r)	Min	Max
		PH5135	PHS135	PH7920	PHP930	PHS135	PH7920	PHP930	PH5320	PH5135	PHS135	PH7920	PHP930	CW	RE	INSL	PSIRR/L	CDX[1]	Seat[2] Size			
1130422	GP0200A020-N01-MC	◬	⬡	◬	⬡	⬡	◬	⬡	⬡	◬	⬡	◬	⬡	2,0	0,2	20,2	-	-	A	0,06	0,05	0,10
1130423	GP0300B020-N01-MC	◬	⬡	◬	⬡	⬡	◬	⬡	⬡	◬	⬡	◬	⬡	3,0	0,2	20,1	-	-	B	0,08	0,05	0,15
1130424	GP0400C020-N01-MC	◬	⬡	◬	⬡	⬡	◬	⬡	⬡	◬	⬡	◬	⬡	4,0	0,2	20,5	-	-	C	0,13	0,05	0,25
1130425	GP0200A020-050R01-MC		○		○	○		○	○		○		○	2,0	0,2	20,2	5,0	-	A	0,05	0,04	0,08
1130426	GP0300B020-050R01-MC		○		○	○		○	○		○		○	3,0	0,2	20,1	5,0	-	B	0,07	0,04	0,12
1130427	GP0400C020-050R01-MC		○		○	○		○	○		○		○	4,0	0,2	20,5	5,0	-	C	0,10	0,04	0,20
1130428	GP0200A020-050L01-MC		○		○	○		○	○		○		○	2,0	0,2	20,2	5,0	-	A	0,05	0,04	0,08
1130429	GP0300B020-050L01-MC		○		○	○		○	○		○		○	3,0	0,2	20,1	5,0	-	B	0,07	0,04	0,12
1130430	GP0400C020-050L01-MC		○		○	○		○	○		○		○	4,0	0,2	20,5	5,0	-	C	0,10	0,04	0,20

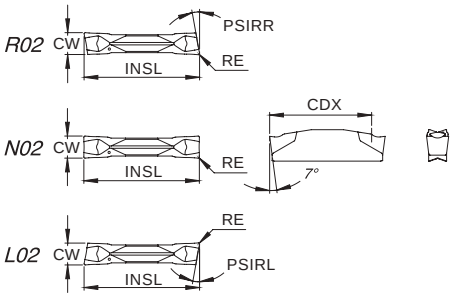
⬡ First choice | Primeira opção | 1ª opción ⬡ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

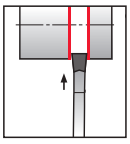
Insert order code = (1) Geometry Code + (2) Grade Code

◬ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

1 - When using inserts with 1 Cutting edge, the "a" measure is given by the Toolholder | 2 - Correspond to a Specific Holder

GP...02-MC Medium Cut Off





(1) Geometry code	ISO/ANSI Reference	P				M			K			S		Dimensions | Dimensões | Dimensiones (mm)						Cutting conditions Condições de corte Condiciones de corte		
	(2) Grade code	CVD		PVD		CVD	PVD		CVD			PVD										
		N2	U6	G4	P4	U6	G4	P4	L6	N2	U6	G4	P4							fn (mm/r)	Min	Max
		PH5135	PHS135	PH7920	PHP930	PHS135	PH7920	PHP930	PH5320	PH5135	PHS135	PH7920	PHP930	CW	RE	INSL	PSIRR/L	CDX	Seat[2] Size			
1130383	GP0200A020-N02-MC				⬡			⬡	⬡				⬡	2,0	0,2	20,5	-	18,5	A	0,06	0,05	0,10
1130384	GP0300B020-N02-MC		⬡		⬡	⬡		⬡	⬡		⬡		⬡	3,0	0,2	20,4	-	18,5	B	0,08	0,05	0,15
1130397	GP0400C020-N02-MC		⬡		⬡	⬡		⬡	⬡		⬡		⬡	4,0	0,2	21,0	-	18,5	C	0,13	0,05	0,25
1130416	GP0200A020-050R02-MC		⬡	◬	⬡	⬡	◬	⬡	○		⬡	◬	⬡	2,0	0,2	20,5	5,0	18,5	A	0,05	0,04	0,08
1130417	GP0300B020-050R02-MC	◬	⬡		⬡	⬡		⬡	○	◬	⬡		⬡	3,0	0,2	20,4	5,0	18,5	B	0,07	0,04	0,12
1130418	GP0400C020-050R02-MC		○			○		○	○		○		○	4,0	0,2	21,0	5,0	18,5	C	0,10	0,04	0,20
1130419	GP0200A020-050L02-MC	◬	⬡	◬	⬡	⬡	◬	⬡	○	◬	⬡	◬	⬡	2,0	0,2	20,5	5,0	18,5	A	0,05	0,04	0,08
1130420	GP0300B020-050L02-MC	◬	⬡	◬	⬡	⬡	◬	⬡	○	◬	⬡	◬	⬡	3,0	0,2	20,4	5,0	18,5	B	0,07	0,04	0,12
1130421	GP0400C020-050L02-MC		○		○	○		○	○		○		○	4,0	0,2	21,0	5,0	18,5	C	0,10	0,04	0,20

⬡ First choice | Primeira opção | 1ª opción ⬡ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

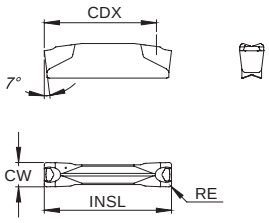
Insert order code = (1) Geometry Code + (2) Grade Code

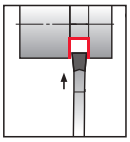
◬ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

2 - Correspond to a Specific Holder

INSERTS Pastilhas | Plaquitas

GP...02-MG Medium Grooving





		P				M				K			S			Dimensions | Dimensões | Dimensiones (mm)					Cutting conditions Condições de corte Condiciones de corte		
		CVD		PVD		CVD	PVD			CVD			PVD										
	(2) Grade code	L8	U6	G4	T1	U6	G4	T1		L6	U6		G4	T1									
(1) Geometry code	ISO/ANSI Reference	PH5125	PHS135	PH7920	PHP920	PHS135	PH7920	PHP920		PH5320	PHS135		PH7920	PHP920		CW	RE	INSL	CDX	Seat[2] Size	fn (mm/r)	Min	Max
1130398	GP0300B020-N02-MG		◉	△	◉	◉	△	◉		◉	◉		◉	◉		3,0	0,2	21,0	18,5	B	0,06	0,05	0,10
1130399	GP0400C040-N02-MG	△	◉	△	◉	◉	△	◉		◉	◉		◉	◉		4,0	0,4	21,0	18,5	C	0,08	0,05	0,15
1130400	GP0500D040-N02-MG	△	◉	△	◉	◉	△	◉		◉	◉		◉	◉		5,0	0,4	21,0	18,5	D	0,13	0,05	0,25

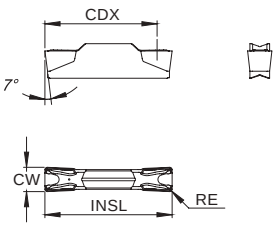
◉ First choice | Primeira opção | 1ª opción ◉ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta Disponible bajo consulta

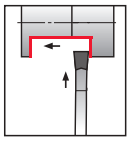
Insert order code = (1) Geometry Code + (2) Grade Code

△ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

2 - Correspond to a Specific Holder

GP...02-MM Medium Multi Function





		P				M				K			S			Dimensions Dimensões Dimensiones (mm)					Cutting conditions Condições de corte Condiciones de corte					
		CVD	PVD			CVD	PVD			CVD		UNC	PVD												
	(2) Grade code	U6	G4	T1	P4	U6	G4	T1	P4	L6	U6	25	G4	T1	P4										
(1) Geometry code	ISO/ANSI Reference	PHS135	PH7920	PHP920	PHP930	PHS135	PH7920	PHP920	PHP930	PH5320	PHS135	PH0705	PH7920	PHP920	PHP930	CW	RE	INSL	CDX[1]	Seat[2] Size	Ap (mm)	Min	Max	fn (mm/r)	Min	Max
1130401	GP0300B040-N02-MM	◉	△	◉	◉	◉	△	◉	◉	◉	◉	△	△	◉	◉	3,0	0,4	21,0	18,5	B	0,8	0,4	1,5	0,09	0,05	0,12
1130402	GP0400C040-N02-MM	◉		◉	◉	◉		◉	◉		◉		△	◉	◉	4,0	0,4	21,0	18,5	C	1,1	0,6	2,0	0,12	0,07	0,15
1130403	GP0500D040-N02-MM	◉	△	◉	◉	◉	△	◉	◉	◉	◉	△	△	◉	◉	5,0	0,4	21,0	18,5	D	1,5	0,8	2,5	0,14	0,10	0,18

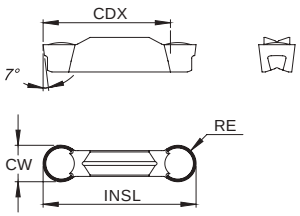
◉ First choice | Primeira opção | 1ª opción ◉ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta Disponible bajo consulta

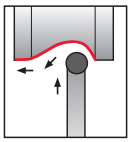
Insert order code = (1) Geometry Code + (2) Grade Code

△ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

1 - When using inserts with 1 Cutting edge, the "a" measure is given by the Toolholder | 2 - Correspond to a Specific Holder

GP...02-MP Medium Profiling





(1) Geometry code	ISO/ANSI Reference	P PVD G4 PH7920	P PVD T1 PHP920	M PVD G4 PH7920	M PVD T1 PHP920	K CVD L6 PH5320	S PVD G4 PH7920	S PVD T1 PHP920	Dimensions CW	RE	INSL	CDX	Seat² Size	Cutting conditions Ap (mm)	fn Min (mm/r)	fn Max (mm/r)	Min	Max
1130607	GP0300B150-N02-MP		◉		◉			◉	3,0	1,5	21,1	18,5	B	0,7	0,04	1,1	0,09	0,04	0,12
1130404	GP0600E300-N02-MP	△	◉	△	◉	△	●	◉	6,0	3,0	25,2	21,0	E	1,50	0,04	2,20	0,18	0,15	0,22

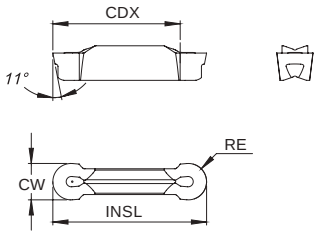
◉ First choice | Primeira opção | 1ª opción ● Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

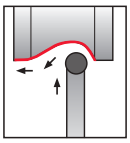
△ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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

2 - Correspond to a Specific Holder

GP...02-NP Non-Ferrous Profiling





(1) Geometry code	ISO/ANSI Reference	N UNC 10 PH0910	Dimensions CW	RE	INSL	CDX	Seat² Size	Cutting conditions Ap (mm)	fn Min (mm/r)	fn Max (mm/r)	Min	Max
1130405	GP0600E300-N02-NP	●	6,0	3,0	25,4	18,5	E	1,30	0,50	2,50	0,20	0,15	0,25

◉ First choice | Primeira opção | 1ª opción ● Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

△ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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

2 - Correspond to a Specific Holder

BLADES & TOOLHOLDERS CODE KEY

Chave de codificação para lâminas | Llave de codificación de lamas

Proprietary grooving line

For Blades

GP	N	C	-	080	25	.A	.0
1	2	3		5	6	7	8

ForToolholders

GP	R	C	-	100	010	25.25	.A	.1
1	2	3		4	5	6	7	8

1 - Product Line

GP - Grooving Plus

2 - Work Side

R - Right

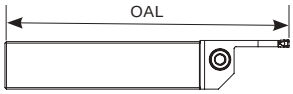
N - Neutral

L - Left

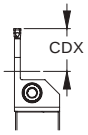
3 - Tool Type

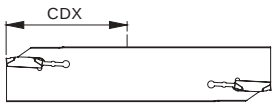
C - Frontal

4 - Total toolholder lenght

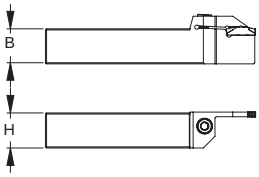


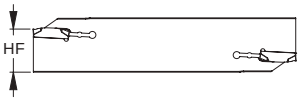
5 - Maximum Depth of Cut





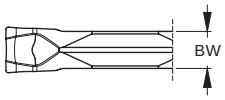
6 - Shaft | Cutting Unit Dimension



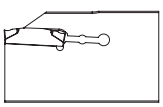


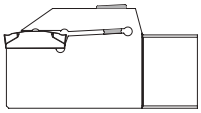
7 - Seat Size

A - 1,60mm | B - 2,30mm | C - 3,30mm | D - 4,30mm | E - 4,00mm | F - 6,60mm

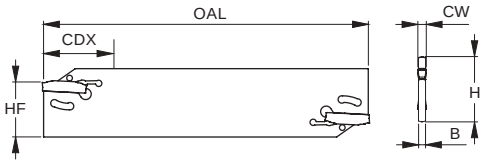


8 - Clamping System

0 - Spring 

1 - Screw 

GPNC



GP02... | GP03... | GP04...

MC MG MM

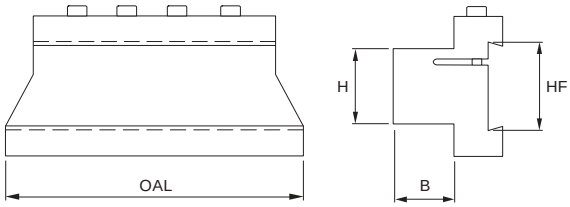
Seat Size A, B, C

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)							Insert	Toolholder		Wrench	Stock
		CDX	OAL	H	HF	B	CW	Seat Size		CPTS	DPTS		
213010000	GPNC-020 25.A.0	20	150	32	25,0	1,5	2	A	GP02...	CPTS 32...	DPTS 32...	LE25-30	●
213009900	GPNC-055 25.B.0	55	150	32	25,0	2,3	3	B	GP03...	CPTS 32...	DPTS 32...	LE25-30	●
213009700	GPNC-055 25.C.0	55	150	32	25,0	3,3	4	C	GP04...	CPTS 32...	DPTS 32...	LE25-30	●

● 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

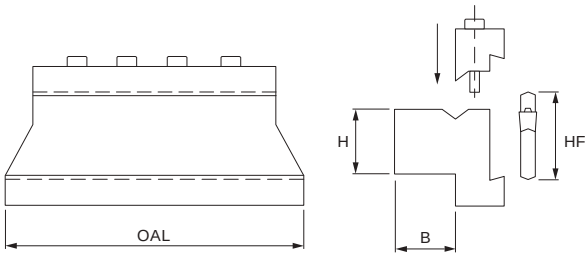
CPTS



Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)				Kg	Screw	Wrench	Stock
		HF	OAL	H	B				
290006200	CPTS 3220	32	100	20	20	0,700	D0603600	SS50	●
290005000	CPTS 3225	32	110	25	25	0,950	D0603600	SS50	●
290006300	CPTS 3232	32	120	32	32	1,400	D0603600	SS50	●

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

DPTS



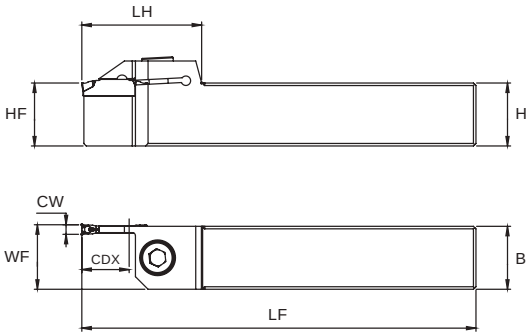
Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)				Kg	Screw	Wrench	Stock
		HF	OAL	H	B				
290073600	DPTS 3220	32	100	20	20	0,750	D0603600	SS50	●
290073700	DPTS 3225	32	110	25	25	1,00	D0603600	SS50	●
290073800	DPTS 3232	32	120	32	32	1,450	D0603600	SS50	●

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

GROOVING TOOLHOLDERS Suportes | Herramientas

Proprietary grooving line

GPLC



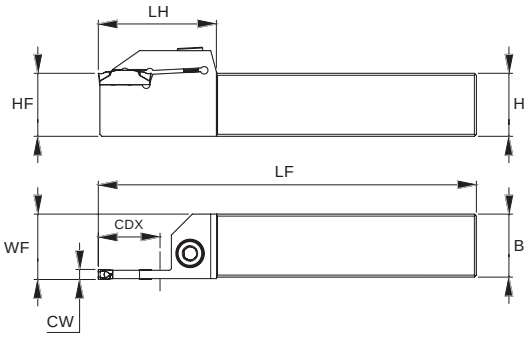
Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)								Seat Size	Insert	Screw	Wrench	Nm	Stock
		CDX	LF	B	H	HF	LH	WF	CW						
183020800	GPLC-100 010 16.16.A.1	10	100	16	16	16	30	16,25	2	A	GP02...	D0602200	SS50	2,0	○
183020900	GPLC-100 015 16.16.A.1	15	100	16	16	16	38	16,25	2		GP02...	D0602200	SS50	2,0	◈
183021000	GPLC-125 010 20.20.A.1	10	125	20	20	20	32	20,25	2		GP02...	D0602600	SS50	2,0	○
183021100	GPLC-125 015 20.20.A.1	15	125	20	20	20	38	20,25	2		GP02...	D0602600	SS50	2,0	◈
183021200	GPLC-150 010 25.25.A.1	10	150	25	25	25	34	25,25	2		GP02...	D0603100	SS50	2,0	◈
183021300	GPLC-150 020 25.25.A.1	20	150	25	25	25	42	25,25	2		GP02...	D0603100	SS50	2,0	◈
183021400	GPLC-100 010 16.16.B.1	10	100	16	16	16	30	16,5	3	B	GP03...	D0602200	SS50	2,0	○
183021500	GPLC-100 015 16.16.B.1	15	100	16	16	16	38	16,5	3		GP03...	D0602200	SS50	2,0	◈
183021600	GPLC-125 010 20.20.B.1	10	125	20	20	20	32	20,5	3		GP03...	D0602600	SS50	2,0	○
183021700	GPLC-125 015 20.20.B.1	15	125	20	20	20	38	20,5	3		GP03...	D0602600	SS50	2,0	◈
183021800	GPLC-150 010 25.25.B.1	10	150	25	25	25	34	25,5	3		GP03...	D0603100	SS50	2,0	◈
183021900	GPLC-150 020 25.25.B.1	20	150	25	25	25	42	25,5	3		GP03...	D0603100	SS50	2,0	◈
183022000	GPLC-125 013 20.20.C.1	13	125	20	20	20	32	20,5	4	C	GP04...	D0602600	SS50	3,0	○
183022100	GPLC-125 019 20.20.C.1	19	125	20	20	20	38	20,5	4		GP04...	D0602600	SS50	3,0	◈
183022200	GPLC-150 013 25.25.C.1	13	150	25	25	25	34	25,5	4		GP04...	D0603100	SS50	3,0	◈
183022300	GPLC-150 023 25.25.C.1	23	150	25	25	25	42	25,5	4		GP04...	D0603100	SS50	3,0	◈
183022400	GPLC-125 013 20.20.D.1	13	125	20	20	20	32	20,5	5	D	GP05...	D0602600	SS50	3,0	○
183022500	GPLC-125 019 20.20.D.1	19	125	20	20	20	38	20,5	5		GP05...	D0602600	SS50	3,0	◈
183022600	GPLC-150 013 25.25.D.1	13	150	25	25	25	34	25,5	5		GP05...	D0603100	SS50	3,0	◈
183022700	GPLC-150 023 25.25.D.1	23	150	25	25	25	42	25,5	5		GP05...	D0603100	SS50	3,0	◈
183022800	GPLC-150 015 25.25.E.1	15	150	25	25	25	34	26	6	E	GP06...	D0603100	SS50	4,0	◈
183022900	GPLC-150 023 25.25.E.1	23	150	25	25	25	42	26	6		GP06...	D0603100	SS50	4,0	◈

◈ 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

GP02... | GP03... | GP04... | GP05...			GP06...	
MC	MG	MM	MP	NP
Seat Size A, B, C, D			Seat Size E	

GPRC



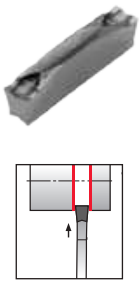
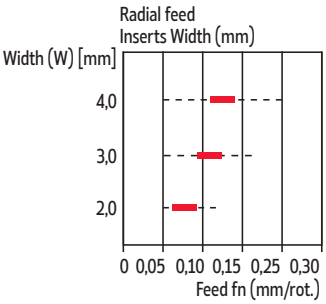
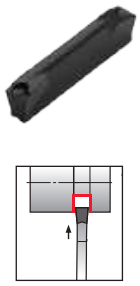
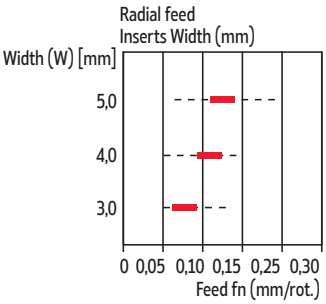
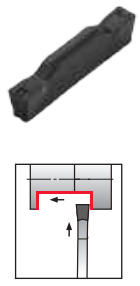
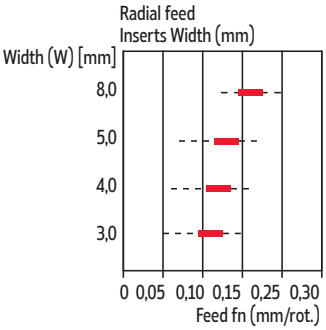
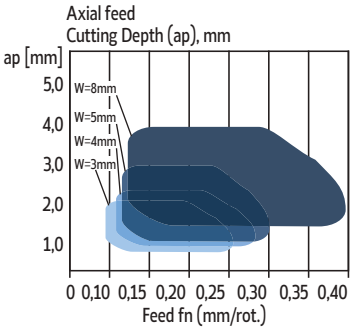
Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)								Seat Size	Insert	Screw	Wrench	Nm	Stock
		CDX	LF	B	H	HF	LH	WF	CW						
183018400	GPRC-100 010 16.16.A.1	10	100	16	16	16	30	16,25	2	A	GP02...	D0602200	SS50	2,0	○
183018500	GPRC-100 015 16.16.A.1	15	100	16	16	16	38	16,25	2		GP02...	D0602200	SS50	2,0	●
183018600	GPRC-125 010 20.20.A.1	10	125	20	20	20	32	20,25	2		GP02...	D0602600	SS50	2,0	○
183018700	GPRC-125 015 20.20.A.1	15	125	20	20	20	38	20,25	2		GP02...	D0602600	SS50	2,0	●
183018800	GPRC-150 010 25.25.A.1	10	150	25	25	25	34	25,25	2		GP02...	D0603100	SS50	2,0	●
183018900	GPRC-150 020 25.25.A.1	20	150	25	25	25	42	25,25	2		GP02...	D0603100	SS50	2,0	●
183019000	GPRC-100 010 16.16.B.1	10	100	16	16	16	30	16,5	3	B	GP03...	D0602200	SS50	2,0	○
183019100	GPRC-100 015 16.16.B.1	15	100	16	16	16	38	16,5	3		GP03...	D0602200	SS50	2,0	●
183019200	GPRC-125 010 20.20.B.1	10	125	20	20	20	32	20,5	3		GP03...	D0602600	SS50	2,0	○
183019300	GPRC-125 015 20.20.B.1	15	125	20	20	20	38	20,5	3		GP03...	D0602600	SS50	2,0	●
183019400	GPRC-150 010 25.25.B.1	10	150	25	25	25	34	25,5	3		GP03...	D0603100	SS50	2,0	●
183019500	GPRC-150 020 25.25.B.1	20	150	25	25	25	42	25,5	3		GP03...	D0603100	SS50	2,0	●
183018300	GPRC-125 013 20.20.C.1	13	125	20	20	20	32	20,5	4	C	GP04...	D0602600	SS50	3,0	○
183018200	GPRC-125 019 20.20.C.1	19	125	20	20	20	38	20,5	4		GP04...	D0602600	SS50	3,0	●
183018100	GPRC-150 013 25.25.C.1	13	150	25	25	25	34	25,5	4		GP04...	D0603100	SS50	3,0	●
183018000	GPRC-150 023 25.25.C.1	23	150	25	25	25	42	25,5	4		GP04...	D0603100	SS50	3,0	●
183017900	GPRC-125 013 20.20.D.1	13	125	20	20	20	32	20,5	5	D	GP05...	D0602600	SS50	3,0	○
183017800	GPRC-125 019 20.20.D.1	19	125	20	20	20	38	20,5	5		GP05...	D0602600	SS50	3,0	●
183017700	GPRC-150 013 25.25.D.1	13	150	25	25	25	34	25,5	5		GP05...	D0603100	SS50	3,0	●
183017600	GPRC-150 023 25.25.D.1	23	150	25	25	25	42	25,5	5		GP05...	D0603100	SS50	3,0	●
183017500	GPRC-150 015 25.25.E.1	15	150	25	25	25	34	26	6	E	GP06...	D0603100	SS50	4,0	●
183020500	GPRC-150 023 25.25.E.1	23	150	25	25	25	42	26	6		GP06...	D0603100	SS50	4,0	●

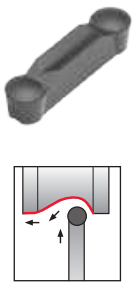
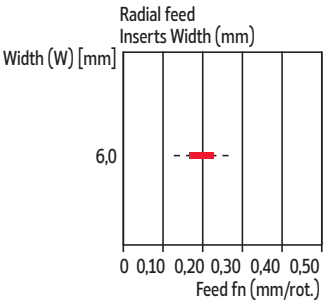
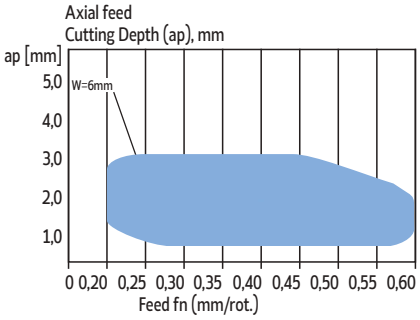
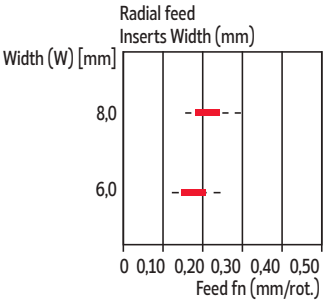
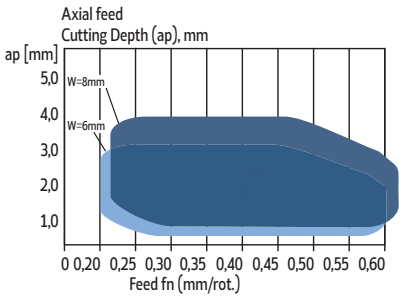
● Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

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

GP02... | GP03... | GP04... | GP05...			GP06...	
MC	MG	MM	MP	NP
Seat Size A, B, C, D			Seat Size E	

CUTTING PARAMETERS Parâmetros de corte | Parámetros de corte

Feed recommendations and geometry descriptions			Grooving & Parting Off
GP...02-MC 			**Medium Parting Off** Recommended for parting off, thin walled tubes and small diameter components in all materials. The positive geometry eliminates the risk of built-up edge. Low cutting forces resulting in reduced vibration.
GP...02-MG 			**Medium Grooving** Outstanding chip control. Reduces chip width, resulting in improved surface finish. For all materials.
GP...02-MM 			**Medium Multi Function (Grooving & Turning)** For grooving and turning in all materials. Good chip control.

Feed recommendations and geometry descriptions			Grooving & Parting Off
GP...02-MP 			**Medium Profiling** For profiling all materials. Outstanding chip control even at low feeds and small depths of cut. Good surface finish.
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.

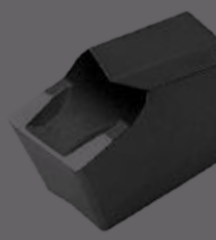
GROOVING & PARTING OFF

These are standard tools for grooving and parting off applications. With trigon inserts, it is possible to perform internal and external grooving.

Estas são ferramentas padrão para aplicações de corte e canal. Com pastilhas trigonais é possível realizar canais internos e externos.

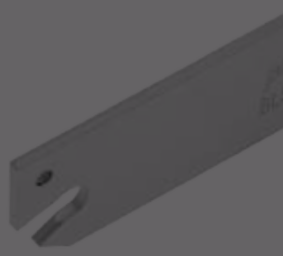
Estas son herramientas estándar para aplicaciones de ranurado y tronzado. Con las plaquitas trigon es posible realizar ranurados interiores y exteriores.

INSERTS > page 892



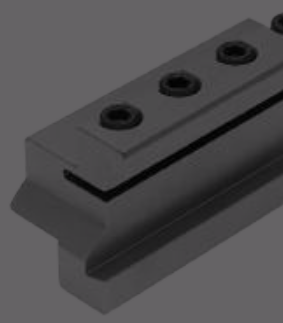
- GCMX- L/N/R and SANCAR
  GCMX-L/N/R e SANCAR | GCMX-L/N/R y SANCAR
- 1 cutting edge
  1 aresta de corte | 1 filo de corte

BLADES > page 897



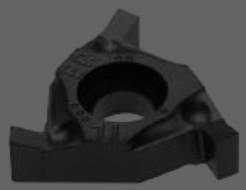
- BLST and BLS
  Lâminas BLST e BLS | Lamas BLST y BLS
- Toolholders CPTS and DPTS
  Suportes CPTS e DPTS | Herramientas CPTS y DPTS

TOOLHOLDERS > page 900



- CPTS and DPTS
  Suportes CPTS e DPTS | Herramientas CPTS y DPTS

TRIGON INSERTS > page 901



- Flat and Full Radius Grooving inserts
  Pastilhas para canais planos e de raio completo| Plaquitas de ranurado de radio plano y completo
- External and Internal
  Externo e Interno | Externo e interno
- From sizes 11 to 16
  De tamanhos de 11 a 16 | De tamaños de 11 a 16

TOOLHOLDERS > page 904

- External and Internal
  Externo e Interno | Externo e interno

GCMX & SANCAR INSERTS CODE KEY

Chave de codificação para pastilhas | Llave de codificación para plaquitas

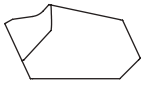
For GCMX Inserts

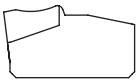
GCMX	-	3	R	15
1		2	3	4

For SANCAR Inserts

SANCAR	-	3	R	5
1		2	3	4

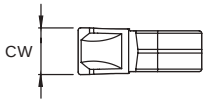
1 - Product Line

GCMX 

SANCAR 

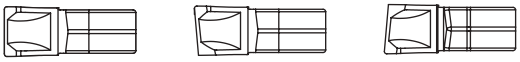
2 - Cutting Width

2mm | 2,4mm | 3mm | 4mm | 4,8mm | 5mm | 6mm



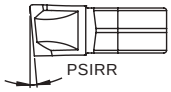
3 - Inserts Type

N - Neutral | R - Right | L - Left

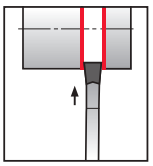
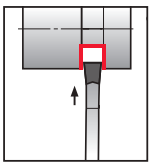
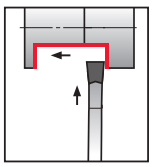
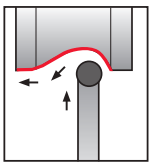


4 - Relief Angle

4 - 4º | 5 - 5º | 8 - 8º | 15 - 15º



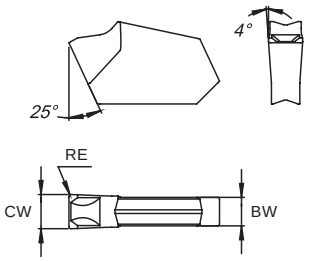
INSERTS OVERVIEW Visão geral | Visión general

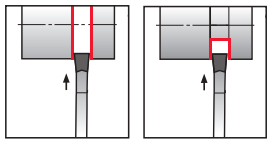
Insert Type + Chipbreaker / Operation		Parting Off	General Grooving	Turning	Profiling
					
	GCMX-...	●	●		
	SANCAR-...	●	●		

● First choice | Primeira opção | Primera opción

● Alternative | Alternativa

GCMX-N





(1) Geometry code	(2) Grade code ISO Reference	ANSI Reference	P CVD-MT L7 PH5115	P CVD-MT N2 PH5135	M CVD-MT N2 PH5135	K CVD-MT L6 PH5320	K CVD-MT N2 PH5135	Dimensions Dimensões Dimensiones (mm) CW	BW	RE	Cutting conditions Condições de corte Condiciones de corte fn (mm/r)	Min	Max
1130165	GCMX-2N	GTN-2N	●	◉	●	●	◉	2,2	1,8	0,16	0,08	0,05	0,16
1130228	GCMX-2.4N	GTN-2.4N	○	○	○	○	○	2,4	2,0	0,16	0,10	0,06	0,18
1130169	GCMX-3N	GTN-3N	●	◉	●	●	◉	3,1	2,6	0,20	0,15	0,10	0,25
1130174	GCMX-4N	GTN-4N	●	◉	●	●	◉	4,1	3,5	0,25	0,18	0,10	0,30
1130229	GCMX-4.8N	GTN-4.8N	○	○	○	○	○	4,8	4,2	0,28	0,20	0,12	0,35
1130175	GCMX-5N	GTN-5N	●	◉	●	●	◉	5,1	4,5	0,28	0,20	0,12	0,35
1130176	GCMX-6N	GTN-6N	●	◉	●	●	◉	6,4	5,5	0,35	0,25	0,15	0,40
1130449	GCMX-8N	GTN-8N	○	○	○	○	○	8,0	7,1	0,40	0,28	0,17	0,45

● First choice | Primeira opção | 1ª opción

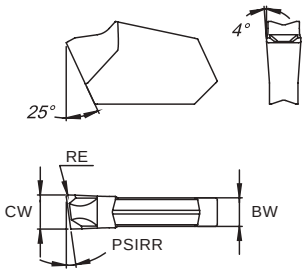
◉ Stock item | Produto de stock | Itens de stock

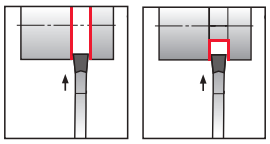
○ Available under request | Disponível sobre consulta | Disponible bajo consulta

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

INSERTS Pastilhas | Plaquitas

GCMX-R



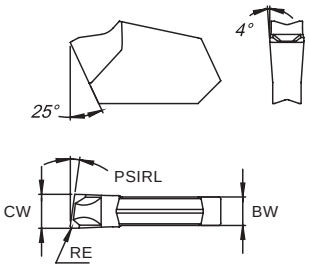


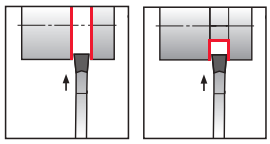
(1) Geometry code	ISO Reference	ANSI Reference	P CVD-MT (2) Grade code L7 PH5115	P CVD-MT (2) Grade code N2 PH5135	M CVD-MT (2) Grade code N2 PH5135	K CVD-MT (2) Grade code L6 PH5320	K CVD-MT (2) Grade code N2 PH5135	Dimensions Dimensões Dimensiones (mm) CW	BW	RE	PSIRR	Cutting conditions Condições de corte Condiciones de corte fn (mm/r)	Min	Max
1130166	GCMX-2R 4	GTN-2R 4	○	○	○	○	○	2,2	1,8	0,16	4	0,07	0,04	0,13
1130167	GCMX-2R 8	GTN-2R 8	○	○	○	○	○	2,2	1,8	0,16	8	0,06	0,04	0,11
1130255	GCMX-2R 15	GTN-2R 15	○	○	○	○	○	2,2	1,8	0,16	15	0,06	0,04	0,09
1130257	GCMX-2.4R 4	GTN-2.4R 4	○	○	○	○	○	2,4	2,0	0,16	4	0,08	0,04	0,14
1130233	GCMX-2.4R 8	GTN-2.4R 8	○	○	○	○	○	2,4	2,0	0,16	8	0,07	0,04	0,12
1130258	GCMX-2.4R 15	GTN-2.4R 15	○	○	○	○	○	2,4	2,0	0,16	15	0,06	0,04	0,10
1130170	GCMX-3R 4	GTN-3R 4	○	○	○	○	○	3,1	2,6	0,20	4	0,08	0,05	0,15
1130171	GCMX-3R 8	GTN-3R 8	○	○	○	○	○	3,1	2,6	0,20	8	0,07	0,05	0,12
1130253	GCMX-3R 15	GTN-3R 15	○	○	○	○	○	3,1	2,6	0,20	15	0,06	0,05	0,10
1130261	GCMX-4R 4	GTN-4R 4	○	○	○	○	○	4,1	3,5	0,25	4	0,12	0,08	0,20
1130222	GCMX-4R 8	GTN-4R 8	○	○	○	○	○	4,1	3,5	0,25	8	0,10	0,08	0,12
1130262	GCMX-4R 15	GTN-4R 15	○	○	○	○	○	4,1	3,5	0,25	15	0,10	0,08	0,12
1130264	GCMX-4.8R 4	GTN-4.8R 4	○	○	○	○	○	4,8	4,2	0,28	4	0,18	0,10	0,25
1130230	GCMX-4.8R 8	GTN-4.8R 8	○	○	○	○	○	4,8	4,2	0,28	8	0,13	0,10	0,18
1130265	GCMX-4.8R 15	GTN-4.8R 15	○	○	○	○	○	4,8	4,2	0,28	15	0,12	0,09	0,15
1130268	GCMX-5R 4	GTN-5R 4	○	○	○	○	○	5,1	4,5	0,28	4	0,18	0,10	0,25
1130224	GCMX-5R 8	GTN-5R 8	○	○	○	○	○	5,1	4,5	0,28	8	0,13	0,10	0,18
1130269	GCMX-5R 15	GTN-5R 15	○	○	○	○	○	5,1	4,5	0,28	15	0,12	0,09	0,15
1130272	GCMX-6R 4	GTN-6R 4	○	○	○	○	○	6,4	5,5	0,35	4	0,20	0,10	0,30
1130227	GCMX-6R 8	GTN-6R 8	○	○	○	○	○	6,4	5,5	0,35	8	0,17	0,12	0,20
1130276	GCMX-6R 15	GTN-6R 15	○	○	○	○	○	6,4	5,5	0,35	15	0,14	0,10	0,18

First choice | Primeira opção | 1ª opción — Stock item | Produto de stock | Itens de stock — ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

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

GCMX-L





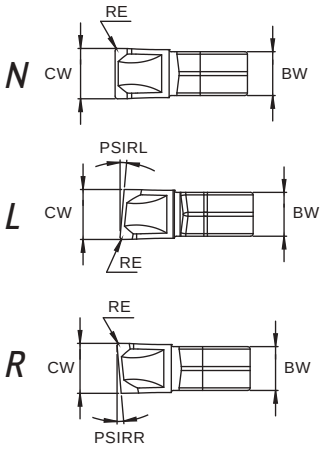
			P		M	K		Dimensions Dimensões Dimensiones (mm)				Cutting conditions Condições de corte Condiciones de corte		
	(2) Grade code		CVD-MT		CVD-MT	CVD-MT								
			L7	N2	N2	L6	N2							
(1) Geometry code	ISO Reference	ANSI Reference	PH5115	PH5135	PH5135	PH5320	PH5135	CW	BW	RE	PSIRL	fn (mm/r)	Min	Max
1130164	GCMX-2L 4	GTN-2L 4	○	○	○	○	○	2,2	1,8	0,16	4	0,07	0,04	0,13
1130220	GCMX-2L 8	GTN-2L 8	○	○	○	○	○	2,2	1,8	0,16	8	0,06	0,04	0,11
1130256	GCMX-2L 15	GTN-2L 15	○	○	○	○	○	2,2	1,8	0,16	15	0,06	0,04	0,09
1130259	GCMX-2.4L 4	GTN-2.4L 4	○	○	○	○	○	2,4	2,0	0,16	4	0,08	0,04	0,14
1130232	GCMX-2.4L 8	GTN-2.4L 8	○	○	○	○	○	2,4	2,0	0,16	8	0,07	0,04	0,12
1130260	GCMX-2.4L 15	GTN-2.4L 15	○	○	○	○	○	2,4	2,0	0,16	15	0,06	0,04	0,10
1130221	GCMX-3L 4	GTN-3L 4	○	○	○	○	○	3,1	2,6	0,20	4	0,08	0,05	0,15
1130168	GCMX-3L 8	GTN-3L 8	○	○	○	○	○	3,1	2,6	0,20	8	0,07	0,05	0,12
1130254	GCMX-3L 15	GTN-3L 15	○	○	○	○	○	3,1	2,6	0,20	15	0,06	0,05	0,10
1130173	GCMX-4L 4	GTN-4L 4	○	○	○	○	○	4,1	3,5	0,25	4	0,12	0,08	0,20
1130223	GCMX-4L 8	GTN-4L 8	○	○	○	○	○	4,1	3,5	0,25	8	0,10	0,08	0,12
1130263	GCMX-4L 15	GTN-4L 15	○	○	○	○	○	4,1	3,5	0,25	15	0,10	0,08	0,12
1130266	GCMX-4.8L 4	GTN-4.8L 4	○	○	○	○	○	4,8	4,2	0,28	4	0,18	0,10	0,25
1130231	GCMX-4.8L 8	GTN-4.8L 8	○	○	○	○	○	4,8	4,2	0,28	8	0,13	0,10	0,18
1130267	GCMX-4.8L 15	GTN-4.8L 15	○	○	○	○	○	4,8	4,2	0,28	15	0,12	0,09	0,15
1130270	GCMX-5L 4	GTN-5L 4	○	○	○	○	○	5,1	4,5	0,28	4	0,18	0,10	0,25
1130225	GCMX-5L 8	GTN-5L 8	○	○	○	○	○	5,1	4,5	0,28	8	0,13	0,10	0,18
1130271	GCMX-5L 15	GTN-5L 15	○	○	○	○	○	5,1	4,5	0,28	15	0,12	0,09	0,15
1130274	GCMX-6L 4	GTN-6L 4	○	○	○	○	○	6,4	5,5	0,35	4	0,20	0,10	0,30
1130226	GCMX-6L 8	GTN-6L 8	○	○	○	○	○	6,4	5,5	0,35	8	0,17	0,12	0,20
1130275	GCMX-6L 15	GTN-6L 15	○	○	○	○	○	6,4	5,5	0,35	15	0,14	0,10	0,18

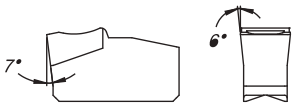
First choice | Primeira opção | 1ª opción — Stock item | Produto de stock | Itens de stock — ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

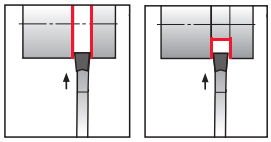
Insert order code = (1) Geometry Code + (2) Grade Code

INSERTS Pastilhas | Plaquitas

SANCAR







(1) Geometry code	(2) Grade code ISO Reference	ANSI Reference	P CVD-MT L7 PH5115	P CVD-MT N2 PH5135	M CVD-MT N2 PH5135	K CVD-MT L6 PH5320	K CVD-MT N2 PH5135	Dimensions Dimensões Dimensiones (mm) CW	BW	RE	PSIRR/L	Cutting conditions Condições de corte Condiciones de corte fn (mm/r) Min	Max
1130186	SANCAR-3N	SANCAR-3N	◉	◉	◉	◉	◉	3,0	2,5	0,25	-	0,13	0,05	0,25
1130187	SANCAR-4N	SANCAR-4N	◉	◉	◉	◉	◉	4,0	3,3	0,25	-	0,18	0,10	0,30
1130189	SANCAR-5N	SANCAR-5N	◉	◉	◉	◉	◉	5,0	4,3	0,25	-	0,22	0,10	0,35
1130185	SANCAR-3L 5	SANCAR-3L 5	○	○	○	○	○	3,0	2,5	0,25	5	0,10	0,05	0,15
1130390	SANCAR-4L 5	SANCAR-4L 5	○	○	○	○	○	4,0	3,3	0,25	5	0,12	0,08	0,20
1130389	SANCAR-5L 5	SANCAL-5L 5	○	○	○	○	○	5,0	4,3	0,25	5	0,15	0,08	0,25
1130288	SANCAR-3R 5	SANCAR-3R 5	○	○	○	○	○	3,0	2,5	0,25	5	0,10	0,05	0,15
1130188	SANCAR-4R 5	SANCAR-4R 5	○	○	○	○	○	4,0	3,3	0,25	5	0,12	0,08	0,20
1130388	SANCAR-5R 5	SANCAR-5R 5	○	○	○	○	○	5,0	4,3	0,25	5	0,15	0,08	0,25

◉ First choice | Primeira opção | 1ª opción ◉ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta Disponible bajo consulta

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

BLADES CODE KEY Chave de codificação para laminas | Llave de codificación de lamas

BL	ST	3	-	26
1	2	3		4

1 - Product Line

BL - Blade

2 - Blade Type

ST - Standard Blade

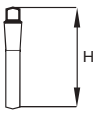
S - SANCAR Blade

3 - Cutting Width

2mm | 3mm | 4mm | 5mm | 6mm

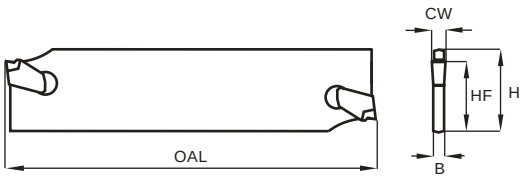
4 - Maximum Depth of Cut

19 - 19mm | 26 - 26mm | 32 - 32mm



BLADES Lâminas | Lamas

BLST (GCMX)



GCMX...

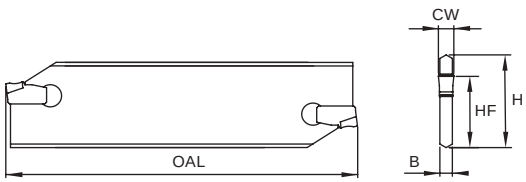
Hand Type
N, R, L

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)					Inserts	Toolholder		Wrench	Stock
		H	CW	HF	B	OAL		CPTS	DPTS		
183008000	BLST 2-19	19	2	16	1,6	85	GCMX-2...	CPTS 19...	DPTS 19...	LE05	◉
183008100	BLST 2-26	26	2	21,4	1,6	110	GCMX-2...	CPTS 26...	DPTS 26...	LE05	◉
213008200	BLST 3-26	26	3	21,4	2,4	110	GCMX-3...	CPTS 26...	DPTS 26...	LE05	◉
213008300	BLST 4-26	26	4	21,4	3,2	110	GCMX-4...	CPTS 26...	DPTS 26...	LE05	◉
213008400	BLST 5-26	26	5	21,4	4	110	GCMX-5...	CPTS 26...	DPTS 26...	LE05	◉
213008500	BLST 6-26	26	6	21,4	5,2	110	GCMX-6...	CPTS 26...	DPTS 26...	LE05	◉
183008600	BLST 2-32	32	2	25	1,6	150	GCMX-2...	CPTS 32...	DPTS 32...	LE05	◉
213008700	BLST 3-32	32	3	25	2,4	150	GCMX-3...	CPTS 32...	DPTS 32...	LE05	◉
213008800	BLST 4-32	32	4	25	3,2	150	GCMX-4...	CPTS 32...	DPTS 32...	LE05	◉
213008900	BLST 5-32	32	5	25	4	150	GCMX-5...	CPTS 32...	DPTS 32...	LE05	◉
213009000	BLST 6-32	32	6	25	5,2	150	GCMX-6...	CPTS 32...	DPTS 32...	LE05	◉

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

Note: Check the procedures for inserts extration on page D-749.

BLS (SANCAR)



SANCAR...

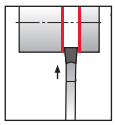
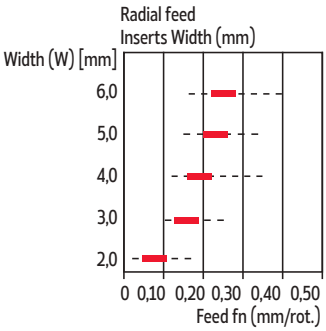
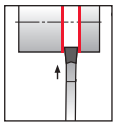
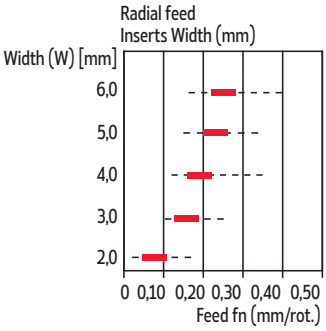
Hand Type
N, R, L

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)					Inserts	Toolholder		Wrench	Stock
		H	CW	HF	B	OAL		CPTS	DPTS		
213004600	BLS 3-32	32	3	25	2,4	150	SANCAR 3...	CPTS 32...	DPTS 32...	LE05	◉
213004700	BLS 4-32	32	4	25	3,2	150	SANCAR 4...	CPTS 32...	DPTS 32...	LE05	◉
213005500	BLS 5-32	32	5	25	4	150	SANCAR 5...	CPTS 32...	DPTS 32...	LE05	◉

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

Note: Check the procedures for inserts extration on page D-749.

CUTTING PARAMETERS Parâmetros de corte | Parámetros de corte

Feed recommendations and geometry descriptions	Grooving & Parting Off
GCMX-...  	**Medium Parting Off** Most efficient on stainless steel and most types of steel at moderate feed rates. Superior straightness of cut
SANCAR-...  	**Medium Parting Off** Optimizer to minimize pips and burrs on components. Recommended for steel, stainless steel and cast iron.

Recommended starting value.
For cutting speed recommendations, see page D-779

PROCEDURE FOR INSERT EXTRACTION

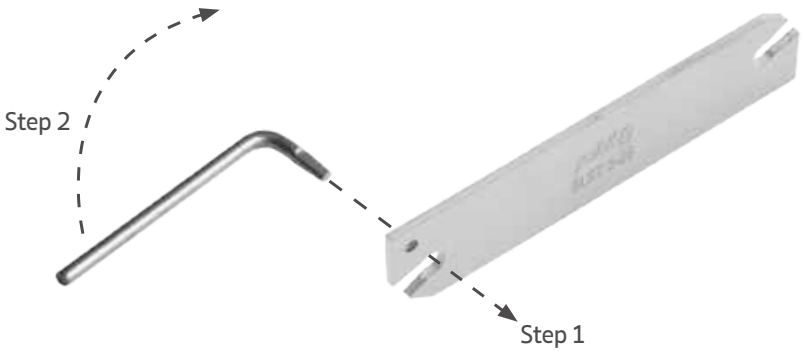
Procedimentos para remoção de pastilha | Procedimientos para retirar plaquitas

1. Always use the right key to remove the insert.
   Use sempre a chave adequada para rettirar as pastilhas.
   Utilice siempre la llave adecuada para retirar la plaquita.

2. Position the LE05 key according to **Step 1** and make sure it fits perfectly.
   Posicione a chave LE05 de acordo com o **Passo 1** e certifique que está bem encaixada.
   Coloque la llave LE05 de acuerdo con el **Paso 1** y asegúrese de que esté correctamente montada.

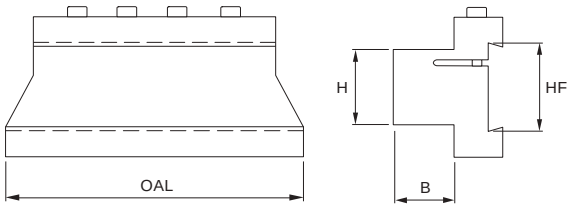
3. Hold the blade with one hand. With the other hand, rotate the LE05 key as illustrated in **Step 2**.
   Segure a lâmina com uma mão. Com a outra rode a chave LE05 como ilustrado no **Passo 2**.
   Sostenga la lama con una mano. Con la otra gire la llave LE05 como se ilustra en **Paso 2**.

4. Always replace damaged inserts with new ones.
   Substitua sempre as pastilhas danificadas por pastilhas novas.
   Siempre reemplace las plaquitas dañadas por plaquitas nuevas.



TOOLHOLDERS Suportes | Herramientas

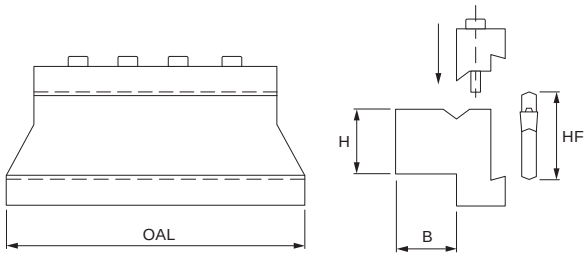
CPTS



Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)				Kg	Screw	Wrench	Stock
		HF	OAL	H	B				
290009300	CPTS 1916	19	76	16	16	0,300	D0503000	SS40	◈
290008200	CPTS 2616	26	76	16	16	0,450	D0603600	SS50	◈
290006000	CPTS 2620	26	87	20	20	0,500	D0603600	SS50	◈
290006100	CPTS 2625	26	87	25	25	0,650	D0603600	SS50	◈
290006200	CPTS 3220	32	100	20	20	0,700	D0603600	SS50	◈
290005000	CPTS 3225	32	110	25	25	0,950	D0603600	SS50	◈
290006300	CPTS 3232	32	120	32	32	1,400	D0603600	SS50	◈

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

DPTS



Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)				Kg	Screw	Wrench	Stock
		HF	OAL	H	B				
290045400	DPTS 1916	19	76	16	16	0,250	D0503000	SS40	◈
290045500	DPTS 2620	26	87	20	20	0,550	D0603600	SS50	◈
290046600	DPTS 2625	26	87	25	25	0,700	D0603600	SS50	◈
290073600	DPTS 3220	32	100	20	20	0,750	D0603600	SS50	◈
290073700	DPTS 3225	32	110	25	25	1,00	D0603600	SS50	◈
290073800	DPTS 3232	32	120	32	32	1,450	D0603600	SS50	◈

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

TRIGON INSERTS CODE KEY

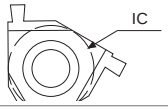
Chave de codificação para pastilhas | Llave de codificación para plaquitas

For Trigon 60º Inserts

16	-	ER	-	W	-	1.00
1		2		3		4

1 - Inscribed Circle

16 - 9,525mm



2 - Insert Type

ER - External Right | IR - Internal Right

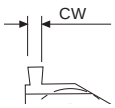
3 - Cutting Edge Type

W - Rectangular

R - Rounded

4 - Cutting Edge Length

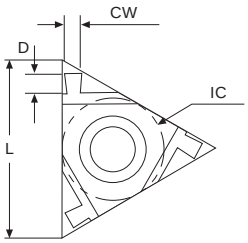
0,50 - 0,5mm | 2,25 - 2,25mm

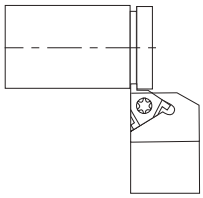


TRIGON INSERTS Pastilhas | Plaquitas

FLAT GROOVING

External





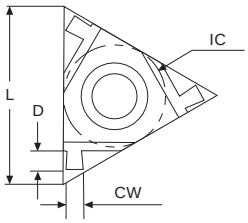
Inserts ER = IL

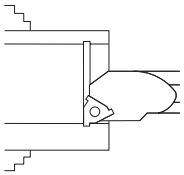
Order code Código	Reference Referência Referencia	Anvil	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)	
			IC	L	CW	D	(68) PH6920	(D0) PH8920
1883721	11 ER W 0.50	-	6,35	11,00	0,50	1,40	○	○
1883722	11 ER W 0.60	-	6,35	11,00	0,60	1,40	○	○
1883723	11 ER W 0.70	-	6,35	11,00	0,70	1,40	○	○
1883724	11 ER W 0.80	-	6,35	11,00	0,80	1,40	○	○
1883725	11 ER W 1.00	-	6,35	11,00	1,00	1,30	○	○
1883726	16 ER W 0.50	EA 16	9,525	16,00	0,50	1,40	○	○
1881125	16 ER W 1.00	EA 16	9,525	16,00	1,00	1,40	◎	○
1883707	16 ER W 1.20	EA 16	9,525	16,00	1,20	1,60	◎	○
1883720	16 ER W 1.40	EA 16	9,525	16,00	1,40	1,80	◎	○
1881129	16 ER W 1.70	EA 16	9,525	16,00	1,70	2,00	◎	◎
1883711	16 ER W 1.95	EA 16	9,525	16,00	1,95	2,00	◎	◎
1883714	16 ER W 2.25	EA 16	9,525	16,00	2,25	2,25	◎	◎

◎ 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

Internal





Inserts IR = EL

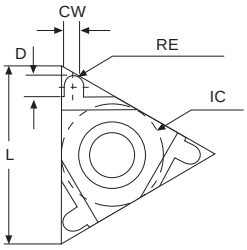
Order code Código	Reference Referência Referencia	Anvil	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)	
			IC	L	CW	D	(68) PH6920	(D0) PH8920
1881142	11 IR W 0.50	-	6,35	11,00	0,50	1,40	◎	○
1883727	11 IR W 0.60	-	6,35	11,00	0,60	1,40	○	○
1883728	11 IR W 0.70	-	6,35	11,00	0,70	1,40	○	○
1883729	11 IR W 0.80	-	6,35	11,00	0,80	1,40	○	○
1881144	11 IR W 1.00	-	6,35	11,00	1,00	1,30	◎	○
1883730	16 IR W 0.50	EA 16	9,525	16,00	0,50	1,40	○	○
1881134	16 IR W 1.00	EA 16	9,525	16,00	1,00	1,40	◎	○
1883731	16 IR W 1.20	EA 16	9,525	16,00	1,20	1,60	◎	○
1883712	16 IR W 1.40	EA 16	9,525	16,00	1,40	1,80	◎	○
1881138	16 IR W 1.70	EA 16	9,525	16,00	1,70	2,00	◎	○
1883710	16 IR W 1.95	EA 16	9,525	16,00	1,95	2,00	◎	○
1883713	16 IR W 2.25	EA 16	9,525	16,00	2,25	2,25	◎	○

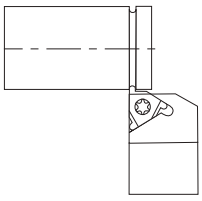
◎ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

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

FULL RADIUS GROOVING

External





Inserts ER = IL

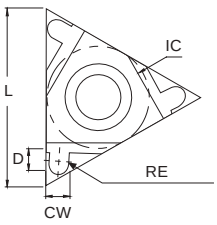
Order code Código	Reference Referência Referencia	Anvil	Dimensions | Dimensões | Dimensiones (mm)					Stock - Grade Code (2)	
			IC	L	CW	RE	D	(68) PH6920	(D0) PH8920
1881149	16 ER R 0.50	EA 16	9,525	16	1,00	0,50	1,40	◈	○
1883732	16 ER R 0.60	EA 16	9,525	16	1,20	0,60	1,60	○	○
1883733	16 ER R 0.90	EA 16	9,525	16	1,80	0,90	2,00	○	○
1881151	16 ER R 1.00	EA 16	9,525	16	2,00	1,00	2,00	○	○
1883734	16 ER R 1.10	EA 16	9,525	16	2,20	1,10	2,15	○	○
1883735	16 ER R 1.20	EA 16	9,525	16	2,40	1,20	2,15	○	○

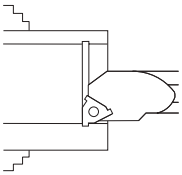
◈ Stock item | Produto de stock | Itens de stock

○ Available under request | Disponível sobre consulta
Disponible bajo consulta

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

Internal





Inserts IR = EL

Order code Código	Reference Referência Referencia	Anvil	Dimensions | Dimensões | Dimensiones (mm)					Stock - Grade Code (2)	
			IC	L	CW	RE	D	(68) PH6920	(D0) PH8920
1881145	16 IR R 0.50	EA 16	9,525	16	1,00	0,50	1,40	○	○
1883736	16 IR R 0.60	EA 16	9,525	16	1,20	0,60	1,60	○	○
1883737	16 IR R 0.90	EA 16	9,525	16	1,80	0,90	2,00	○	○
1881147	16 IR R 1.00	EA 16	9,525	16	2,00	1,00	2,00	○	○
1883738	16 IR R 1.10	EA 16	9,525	16	2,20	1,10	2,15	○	○
1883739	16 IR R 1.20	EA 16	9,525	16	2,40	1,20	2,15	○	○

◈ Stock item | Produto de stock | Itens de stock

○ Available under request | Disponível sobre consulta
Disponible bajo consulta

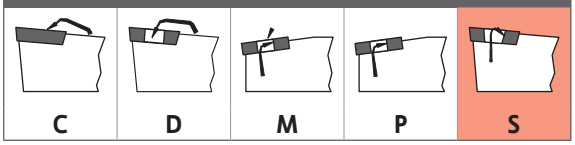
Insert order code = (1) Geometry Code + (2) Grade Code

EXTERNAL TOOLHOLDERS CODE KEY

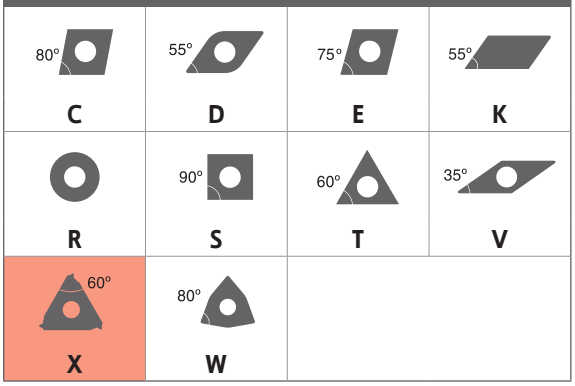
Chave de codificação para suporte externos | Llave de codificación para herramienta exterior

S	X	A	N	R	25	25	M	16
1	2	3	4	5	6	7	8	9

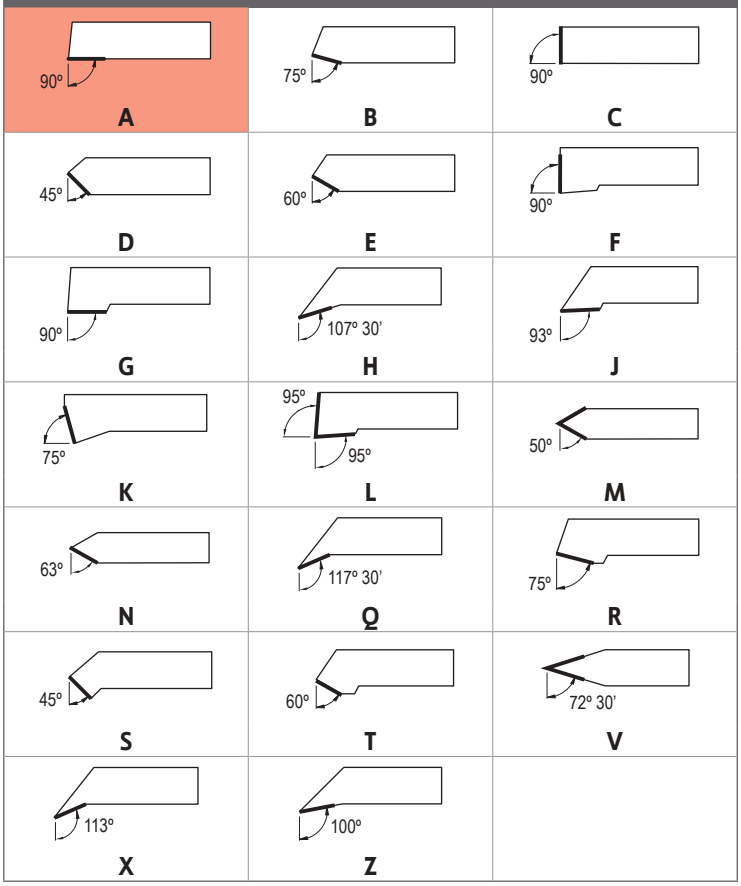
1 - Inserts Clamping System



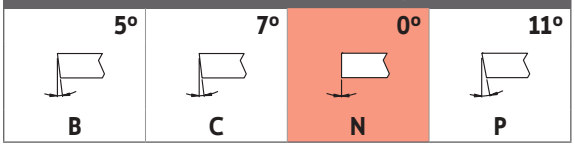
2 - Insert Shape



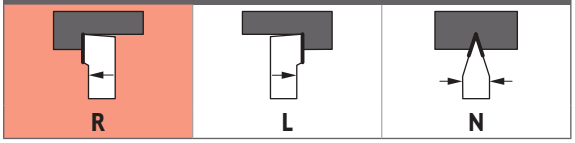
3 - Toolholder Leading Angle



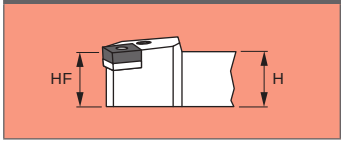
4 - Inserts Clearance Angle



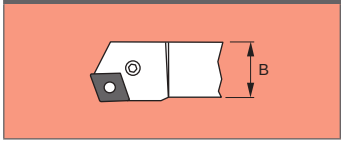
5 - Tool Hand



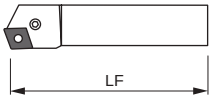
6 - Height of Shank (mm)



7 - Width of Shank (mm)

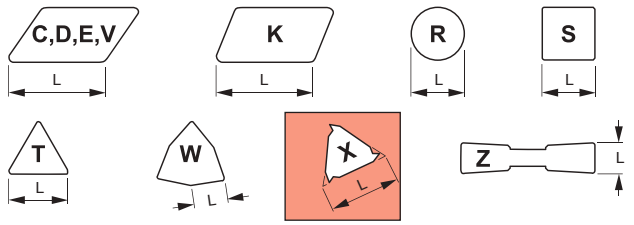


8 - Length of Holder (mm)



D	60	P	170
E	70	R	200
F	80	S	250
H	100	T	300
K	125	U	350
L	140	V	400
M	150	X	Special

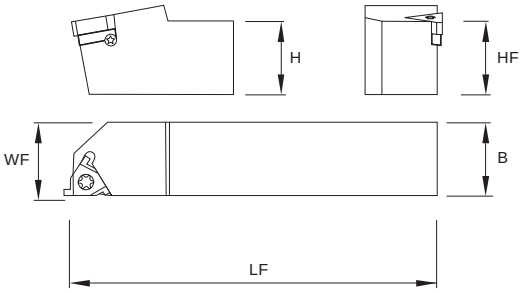
9 - Length of Inserts Cutting Edge (mm)

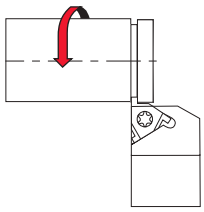


palbit

EXTERNAL TOOLHOLDER Suportes externos | Herramienta exterior

SXAN





External Left

Order Code Código	Reference Referência Referencia	Insert Geometry	Dimensions | Dimensões | Dimensiones (mm)				Anvil	Anvil Screw	Insert Screw	Torx Key	Stock
			HF = H	B	WF	LF					
182014600	SXAN L 0808 H11	11 IR	8	8	11	100	-	-	P0260700	XT08	○
182006900	SXAN L 1010 H11	11 IR	10	10	11	100	-	-	P0260700	XT08	◎
182015600	SXAN L 1212 K11	11 IR	12	12	12	125	-	-	P0260700	XT08	○
182015700	SXAN L 1212 F16	16 IR	12	12	16	80	IA16	P5000790	P5401390	XT10	○
182011600	SXAN L 1616 H16	16 IR	16	16	16	100	IA16	P5000790	P5401390	XT10	○
182003700	SXAN L 2020 K16	16 IR	20	20	20	125	IA16	P5000790	P5401390	XT10	◎
182003100	SXAN L 2525 M16	16 IR	25	25	25	150	IA16	P5000790	P5401390	XT10	◎
182011700	SXAN L 3232 P16	16 IR	32	32	32	170	IA16	P5000790	P5401390	XT10	○

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

External Right

Order Code Código	Reference Referência Referencia	Insert Geometry	Dimensions | Dimensões | Dimensiones (mm)				Anvil	Anvil Screw	Insert Screw	Torx Key	Stock
			HF = H	B	WF	LF					
182014900	SXAN R 0808 H11	11 ER	8	8	11	100	-	-	P0260700	XT08	○
182007000	SXAN R 1010 H11	11 ER	10	10	11	100	-	-	P0260700	XT08	◎
182016000	SXAN R 1212 K11	11 ER	12	12	12	125	-	-	P0260700	XT08	○
182003200	SXAN R 1212 F16	16 ER	12	12	16	80	EA16	P5000790	P5401390	XT10	◎
182003300	SXAN R 1616 H16	16 ER	16	16	16	100	EA16	P5000790	P5401390	XT10	◎
182004800	SXAN R 2020 K16	16 ER	20	20	20	125	EA16	P5000790	P5401390	XT10	◎
182004900	SXAN R 2525 M16	16 ER	25	25	25	150	EA16	P5000790	P5401390	XT10	◎
182005400	SXAN R 3232 P16	16 ER	32	32	32	170	EA16	P5000790	P5401390	XT10	◎

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

INTERNAL TOOLHOLDERS CODE KEY

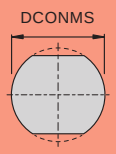
Chave de codificação para suporte internos | Llave de codificación para herramienta interior

S	32	S	S	X	F	N	R	16
1	2	3	4	5	6	7	8	9

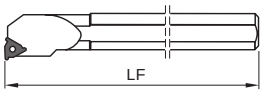
1 - Bar Type

S	Steel shank

2 - Bar Diameter (mm)



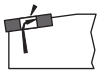
3 - Bar Length (mm)



H	100	T	300
J	110	U	350
K	125	V	400
L	140	W	450
M	150	Y	500
Q	180	X	Special
R	200		
S	250		

4 - Inserts Clamping System

C


M

P

S

5 - Insert Shape

C

D

E

K

S

T

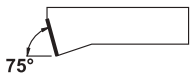
V

W

X

6 - Bar Leading Angle

F



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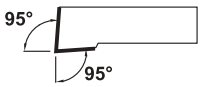
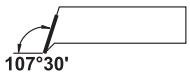
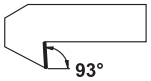


L



Q

U



U-BT

G

7 - Inserts Clearance Angle

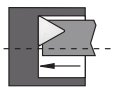
B

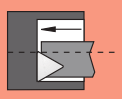
C

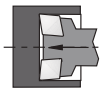
N

P

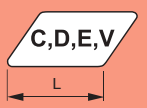
8 - Bar Hand

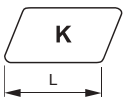

L


R

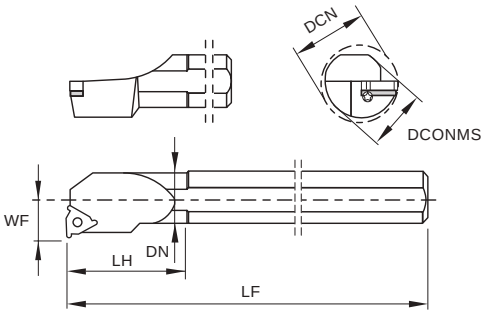

N

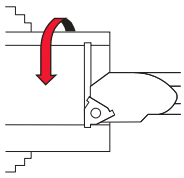
9 - Length of Inserts Cutting Edge (mm)





SXFN





Internal Left

Order Code Código	Reference Referência Referencia	Insert Type	Dimensions | Dimensões | Dimensiones (mm)						Anvil	Anvil Screw	Insert Screw	Torx Key	Stock
			DCONMS	DN	DCN	LF	LH	WF					
182006100	S10H SXFN L 11	11 ER	10	10	12	100	-	7,4	-	-	P0260700	XT08	⊛
182014300	S10K SXFN L 11	11 ER	16	10	12	125	25	7,4	-	-	P0260700	XT08	○
182016300	S13L SXFN L 11	11 ER	16	13	15	140	32	8,9	-	-	P0260700	XT08	○
182006300	S13M SXFN L 16	16 ER	16	13	16	150	32	10,2	-	-	P5401391	XT10	○
182006000	S16P SXFN L 16	16 ER	20	16	19	170	40	11,7	-	-	P5401391	XT10	⊛
182002600	S20P SXFN L 16	16 ER	20	20	24	170	-	13,7	EA16	P5000790	P5401390	XT10	⊛
182005500	S25R SXFN L 16	16 ER	25	25	29	200	-	16,2	EA16	P5000790	P5401390	XT10	⊛
182012500	S32S SXFN L 16	16 ER	32	32	36	250	-	19,7	EA16	P5000790	P5401390	XT10	○
182012700	S40T SXFN L 16	16 ER	40	40	44	300	-	23,7	EA16	P5000790	P5401390	XT10	○

⊛ Stock item | Produto de stock | Itens de stock

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

Note: All the toolholders SXFN are made with 1,5° helix angle. | Todos os ferros de torno são fornecidos com um ângulo de hélice de 1,5° | Todos los suportes se hacen con un ángulo de hélice de 1,5°.

Internal Right

Order Code Código	Reference Referência Referencia	Insert Type	Dimensions | Dimensões | Dimensiones (mm)						Anvil	Anvil Screw	Insert Screw	Torx Key	Stock
			DCONMS	DN	DCN	LF	LH	WF					
182002100	S10H SXFN R 11	11 IR	10	10	12,5	100	-	7,3	-	-	P0260700	XT08	⊛
182006200	S10K SXFN R 11	11 IR	16	10	12,5	125	25	7,3	-	-	P0260700	XT08	○
182016400	S13L SXFN R 11	11 IR	16	13	15	140	32	8,9	-	-	P0260700	XT08	○
182002300	S13M SXFN R 16	16 IR	16	13	16,5	150	32	10,4	-	-	P5401391	XT10	⊛
182002500	S16P SXFN R 16	16 IR	20	16	19,5	170	40	11,6	-	-	P5401391	XT10	⊛
182002700	S20P SXFN R 16	16 IR	20	20	23,5	170	-	13,6	IA16	P5000790	P5401390	XT10	⊛
182002900	S25R SXFN R 16	16 IR	25	25	28,5	200	-	16,3	IA16	P5000790	P5401390	XT10	⊛
182005600	S32S SXFN R 16	16 IR	32	32	35,5	250	-	19,6	IA16	P5000790	P5401390	XT10	○
182012600	S40T SXFN R 16	16 IR	40	40	43,5	300	-	23,6	IA16	P5000790	P5401390	XT10	○

⊛ Stock item | Produto de stock | Itens de stock

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

Note: All the toolholders SXFN are made with 1,5° helix angle. | Todos os ferros de torno são fornecidos com um ângulo de hélice de 1,5° | Todos los suportes se hacen con un ángulo de hélice de 1,5°.

SAL

SWISS AUTOMATIC LATHES

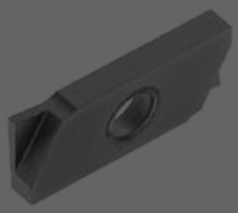
The SAL is a set of tools specifically tailored for grooving, parting off, turning, and threading applications on Swiss lathe machines. It optimizes performance and enhances productivity in precision manufacturing processes.

O SAL é um conjunto de ferramentas especialmente projetado para aplicações de canais, corte, torneamento e roscagem em máquinas de torno. Otimiza o desempenho e aumenta a produtividade nos processos de fabricação de precisão.

El SAL es un conjunto de herramientas diseñadas específicamente para aplicaciones de ranurado, corte, torneado y roscado en máquinas de torno. Optimiza el rendimiento y mejora la productividad en procesos de fabricación de precisión.

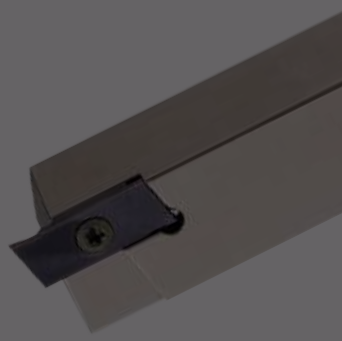
INSERTS > page 910

- > Square and Round Grooving
  Ranhura quadrada e redonda | Ranurado cuadrado y redondo
- > Parting Off
  Sangramento | Tronzado
- > Threading
  Roscagem | Roscado
- > Turning
  Torneamento | Torneado



EXTERNAL TOOLHOLDERS > page 914

- > Inserts SAL...L and SAL...R
  Pastilhas SAL...L e SAL...R | Plaquitas SAL...L y SAL...R
- > Right and Left
  Esquerdo e Direito | Izquierdo y derecho



SAL - SWISS AUTOMATIC LATHES Maquinação de precisão | Herramientas para tornos automáticos

INSERTS CODE KEY Chave de codificação para pastilhas | Llave de codificación de plaquitas

Grooving Inserts

SAL	25	G	050	R		GS
1	2	5	6	8	-	11

Parting Off Inserts

SAL	11	P	100	R	N		P07
1	3	5	6	8	9	-	11

Threading Inserts

SAL	100	H	010	R	60		PT
1	4	5	7	8	10	-	11

Turning Inserts

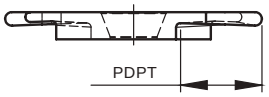
SAL	60	T	300	R		TP
1	2	5	6	8	-	11

1 - Product line

SAL - Swiss Automatic Lathes Line

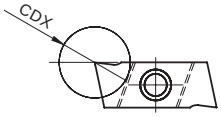
2 - Maximum depth of cut (Turning and Grooving inserts)

25 - 2,5mm | 60 - 6,0mm



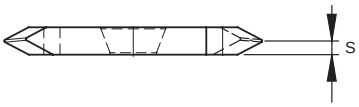
3 - Maximum Cutting Diameter (Parting Off Inserts)

11 - 11,0mm | 13 - 13,0mm

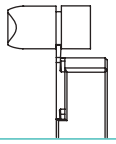
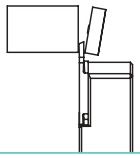
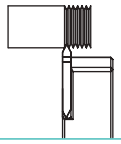
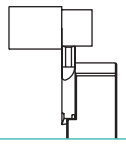


4 - Center distance (Threading Inserts)

050 - 0,5mm | 100 - 1,00mm

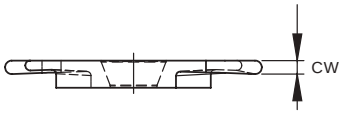


5 - Operations type

G - Grooving	P - Parting off	H - Threading	T - Turning
			

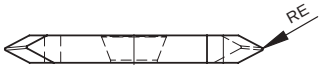
6 - Cut thickness (Grooving, Parting Off and Turning Inserts)

050 - 0,50mm | 070 - 0,70mm | 080 - 0,80mm
090 - 0,90mm | 100 - 1,00mm | 110 - 1,10mm
130 - 1,30mm | 150 - 1,50mm | 160 - 1,60mm
185 - 1,85mm | 200 - 2,00 mm | 300 - 3,00 mm



7 - Corner radius (Threading Inserts)

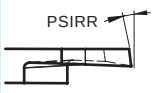
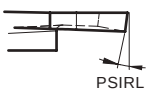
005 - 0,05mm | 010 - 0,10mm
012 - 0,12mm



8- Insert / toolholder side

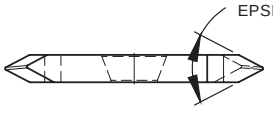
L - Left hand	R - Right hand

9 - Front angle (Parting off)

N - Neutral	R - Right	L - Left
		

10 - Angle (Threading Inserts)

55 - 55° | 60 - 60°



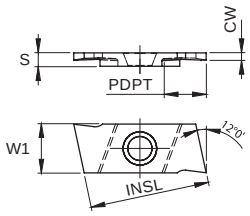
11 - Chip Breaker (Turning, Grooving, Parting Off and Threading Inserts)

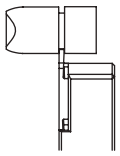
Turning	TP - Turning steel
Grooving	GS - Square Grooving GR - Round Grooving
Parting Off	P00 - Front angle 0° P07 - Front angle 7°
Threading	PT - Partial Profile

GS SERIES Inserts | Pastilhas | Plaquitas

Right hand style show

For square grooving
Para grooving quadrado
Para ranurado quadrado





Grooving

			P		M		K		S	
	(2) Grade code		PVD							
			G1	G4	G4	P8	G4	P8	G4	P8
(1) Geometry code	ISO Reference	ANSI Reference	PH7910	PH7920	PH7920	PH7135	PH7920	PH7135	PH7920	PH7135
1130441	SAL25G050R-GS	SAL25G050R-GS	○	ⓢ	ⓢ	○	ⓢ	○	ⓢ	○
1130475	SAL25G070R-GS	SAL25G070R-GS	○	ⓢ	ⓢ	○	ⓢ	○	ⓢ	○
1130477	SAL25G080R-GS	SAL25G080R-GS	○	ⓢ	ⓢ	○	ⓢ	○	ⓢ	○
1130479	SAL25G090R-GS	SAL25G090R-GS	○	ⓢ	ⓢ	○	ⓢ	○	ⓢ	○
1130488	SAL60G110R-GS	SAL60G110R-GS	○	ⓢ	ⓢ	○	ⓢ	○	ⓢ	○
1130490	SAL60G130R-GS	SAL60G130R-GS	○	ⓢ	ⓢ	○	ⓢ	○	ⓢ	○
1130442	SAL60G160R-GS	SAL60G160R-GS	○	ⓢ	ⓢ	○	ⓢ	○	ⓢ	○
1130495	SAL60G185R-GS	SAL60G185R-GS	○	ⓢ	ⓢ	○	ⓢ	○	ⓢ	○
1130473	SAL25G050L-GS	SAL25G050L-GS	○	ⓢ	ⓢ	○	ⓢ	○	ⓢ	○
1130474	SAL25G070L-GS	SAL25G070L-GS	○	ⓢ	ⓢ	○	ⓢ	○	ⓢ	○
1130476	SAL25G080L-GS	SAL25G080L-GS	○	ⓢ	ⓢ	○	ⓢ	○	ⓢ	○
1130478	SAL25G090L-GS	SAL25G090L-GS	○	ⓢ	ⓢ	○	ⓢ	○	ⓢ	○
1130487	SAL60G110L-GS	SAL60G110L-GS	○	ⓢ	ⓢ	○	ⓢ	○	ⓢ	○
1130489	SAL60G130L-GS	SAL60G130L-GS	○	ⓢ	ⓢ	○	ⓢ	○	ⓢ	○
1130493	SAL60G160L-GS	SAL60G160L-GS	○	ⓢ	ⓢ	○	ⓢ	○	ⓢ	○
1130494	SAL60G185L-GS	SAL60G185L-GS	○	ⓢ	ⓢ	○	ⓢ	○	ⓢ	○

Dimensions Dimensões Dimensiones (mm)					Cutting conditions Condições de corte Condiciones de corte		
CW	INSL	S	W1	PDPT	fn (mm/r)	Min.	Max.
0,50	17,00	2,00	7,00	2,50	0,04	0,02	0,06
0,70	17,00	2,00	7,00	2,50	0,05	0,02	0,08
0,80	17,00	2,00	7,00	2,50	0,05	0,02	0,09
0,90	17,00	2,00	7,00	2,50	0,06	0,02	0,10
1,10	17,00	2,00	7,00	6,00	0,06	0,02	0,11
1,30	17,00	2,00	7,00	6,00	0,07	0,02	0,12
1,60	17,00	2,00	7,00	6,00	0,07	0,02	0,13
1,85	17,00	2,00	7,00	6,00	0,08	0,02	0,14
0,50	17,00	2,00	7,00	2,50	0,04	0,02	0,06
0,70	17,00	2,00	7,00	2,50	0,05	0,02	0,08
0,80	17,00	2,00	7,00	2,50	0,05	0,02	0,09
0,90	17,00	2,00	7,00	2,50	0,06	0,02	0,10
1,10	17,00	2,00	7,00	6,00	0,06	0,02	0,11
1,30	17,00	2,00	7,00	6,00	0,07	0,02	0,12
1,60	17,00	2,00	7,00	6,00	0,07	0,02	0,13
1,85	17,00	2,00	7,00	6,00	0,08	0,02	0,14

ⓢ Stock item | Produto de stock | Itens de stock

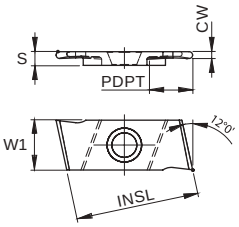
○ Available under request with delivery time 4 weeks
Disponível sobre consulta com prazo de entrega de 4 semanas
Disponible bajo consulta, con fecha de entrega en 4 semanas

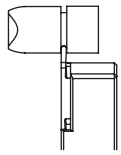
Order code = (1) Geometry code + (2) Grade code

GR SERIES Inserts | Pastilhas | Plaquitas

Right hand style show

For round grooving
Para grooving redondo
Para ranurado redondo





Grooving

			P		M		K		S	
	(2) Grade code		PVD							
			G1	G4	G4	P8	G4	P8	G4	P8
(1) Geometry code	ISO Reference	ANSI Reference	PH7910	PH7920	PH7920	PH7135	PH7920	PH7135	PH7920	PH7135
1130443	SAL60G100R-GR	SAL60G100R-GR	○	ⓢ	ⓢ	○	ⓢ	○	ⓢ	○
1130492	SAL60G150R-GR	SAL60G150R-GR	○	ⓢ	ⓢ	○	ⓢ	○	ⓢ	○
1130497	SAL60G200R-GR	SAL60G200R-GR	○	ⓢ	ⓢ	○	ⓢ	○	ⓢ	○
1130486	SAL60G100L-GR	SAL60G100L-GR	○	ⓢ	ⓢ	○	ⓢ	○	ⓢ	○
1130491	SAL60G150L-GR	SAL60G150L-GR	○	ⓢ	ⓢ	○	ⓢ	○	ⓢ	○
1130496	SAL60G200L-GR	SAL60G200L-GR	○	ⓢ	ⓢ	○	ⓢ	○	ⓢ	○

Dimensions (mm) Dimensões (mm) Dimensiones (mm)					Cutting conditions Condições de corte Condiciones de corte		
CW	INSL	S	W1	PDPT	fn (mm/r)	Min.	Max.
1,00	17,00	2,00	7,00	6,00	0,06	0,02	0,10
1,50	17,00	2,00	7,00	6,00	0,08	0,02	0,12
2,00	17,00	2,00	7,00	6,00	0,08	0,03	0,14
1,00	17,00	2,00	7,00	6,00	0,06	0,02	0,10
1,50	17,00	2,00	7,00	6,00	0,08	0,02	0,12
2,00	17,00	2,00	7,00	6,00	0,08	0,03	0,14

ⓢ Stock item | Produto de stock | Itens de stock

○ Available under request with delivery time 4 weeks
Disponível sobre consulta com prazo de entrega de 4 semanas
Disponible bajo consulta, con fecha de entrega en 4 semanas

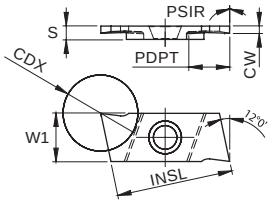
Order code = (1) Geometry code + (2) Grade code

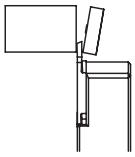
SAL - SWISS AUTOMATIC LATHES Maquinação de precisão | Herramientas para tornos automáticos

P(P00) SERIES Inserts | Pastilhas | Plaquitas

Right hand style show

Without front angle
Sem ângulo frontal
Sín angulo frontal





Parting off

(1) Geometry code	(2) Grade code ISO Reference	ANSI Reference	P PVD G1 PH7910	P PVD G4 PH7920	M PVD G4 PH7920	M PVD P8 PH7135	K PVD G4 PH7920	K PVD P8 PH7135	S PVD G4 PH7920	S PVD P8 PH7135	Dimensions (mm) Dimensões (mm) Dimensiones (mm) CW	INSL	S	W1	PDPT	PSIRR/L	CDX	Cutting conditions Condições de corte Condiciones de corte fn (mm/r)	Min.	Max.
1130444	SAL11P100RN-P00	SAL11P100RN-P00	○	◈	◈	○	◈	○	◈	○	1,00	17,00	2,00	7,00	6,00	0	11,00	0,06	0,02	0,10
1130462	SAL11P150RN-P00	SAL11P150RN-P00	○	◈	◈	○	◈	○	◈	○	1,50	17,00	2,00	7,00	6,00	0	11,00	0,08	0,02	0,12
1130468	SAL13P200RN-P00	SAL13P200RN-P00	○	◈	◈	○	◈	○	◈	○	2,00	17,00	2,00	7,00	6,00	0	13,00	0,08	0,03	0,14
1130456	SAL11P100LN-P00	SAL11P100LN-P00	○	◈	◈	○	◈	○	◈	○	1,00	17,00	2,00	7,00	6,00	0	11,00	0,06	0,02	0,10
1130459	SAL11P150LN-P00	SAL11P150LN-P00	○	◈	◈	○	◈	○	◈	○	1,50	17,00	2,00	7,00	6,00	0	11,00	0,08	0,02	0,12
1130465	SAL13P200LN-P00	SAL13P200LN-P00	○	◈	◈	○	◈	○	◈	○	2,00	17,00	2,00	7,00	6,00	0	13,00	0,08	0,03	0,14

◈ Stock item | Produto de stock | Itens de stock

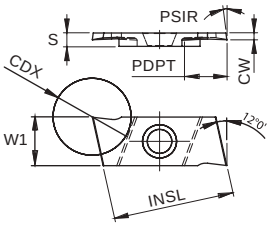
○ Available under request with delivery time 4 weeks
Disponível sobre consulta com prazo de entrega de 4 semanas
Disponible bajo consulta, con fecha de entrega en 4 semanas

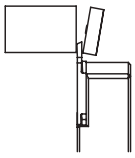
Order code = (1) Geometry code + (2) Grade code

P(P07) SERIES Inserts | Pastilhas | Plaquitas

Right hand style show

Front angle 7°
Ângulo frontal de 7°
Angulo frontal de 7°





Parting off

(1) Geometry code	(2) Grade code ISO Reference	ANSI Reference	P PVD G1 PH7910	P PVD G4 PH7920	M PVD G4 PH7920	M PVD P8 PH7135	K PVD G4 PH7920	K PVD P8 PH7135	S PVD G4 PH7920	S PVD P8 PH7135	Dimensions (mm) Dimensões (mm) Dimensiones (mm) CW	INSL	S	W1	PDPT	PSIRR/L	CDX	Cutting conditions Condições de corte Condiciones de corte fn (mm/r)	Min.	Max.
1130445	SAL11P100RR-P07	SAL11P100RR-P07	○	◈	◈	○	◈	○	◈	○	1,00	17,00	2,00	7,00	6,00	7	11,00	0,05	0,02	0,08
1130446	SAL11P100RL-P07	SAL11P100RL-P07	○	◈	◈	○	◈	○	◈	○	1,00	17,00	2,00	7,00	6,00	7	11,00	0,05	0,02	0,08
1130463	SAL11P150RR-P07	SAL11P150RR-P07	○	◈	◈	○	◈	○	◈	○	1,50	17,00	2,00	7,00	6,00	7	11,00	0,06	0,02	0,10
1130461	SAL11P150RL-P07	SAL11P150RL-P07	○	◈	◈	○	◈	○	◈	○	1,50	17,00	2,00	7,00	6,00	7	11,00	0,06	0,02	0,10
1130469	SAL13P200RR-P07	SAL13P200RR-P07	○	◈	◈	○	◈	○	◈	○	2,00	17,00	2,00	7,00	6,00	7	13,00	0,06	0,03	0,12
1130467	SAL13P200RL-P07	SAL13P200RL-P07	○	◈	◈	○	◈	○	◈	○	2,00	17,00	2,00	7,00	6,00	7	13,00	0,06	0,03	0,12
1130457	SAL11P100LR-P07	SAL11P100LR-P07	○	◈	◈	○	◈	○	◈	○	1,00	17,00	2,00	7,00	6,00	7	11,00	0,05	0,02	0,08
1130455	SAL11P100LL-P07	SAL11P100LL-P07	○	◈	◈	○	◈	○	◈	○	1,00	17,00	2,00	7,00	6,00	7	11,00	0,05	0,02	0,08
1130460	SAL11P150LR-P07	SAL11P150LR-P07	○	◈	◈	○	◈	○	◈	○	1,50	17,00	2,00	7,00	6,00	7	11,00	0,06	0,02	0,10
1130458	SAL11P150LL-P07	SAL11P150LL-P07	○	◈	◈	○	◈	○	◈	○	1,50	17,00	2,00	7,00	6,00	7	11,00	0,06	0,02	0,10
1130466	SAL13P200LR-P07	SAL13P200LR-P07	○	◈	◈	○	◈	○	◈	○	2,00	17,00	2,00	7,00	6,00	7	13,00	0,06	0,03	0,12
1130464	SAL13P200LL-P07	SAL13P200LL-P07	○	◈	◈	○	◈	○	◈	○	2,00	17,00	2,00	7,00	6,00	7	13,00	0,06	0,03	0,12

◈ Stock item | Produto de stock | Itens de stock

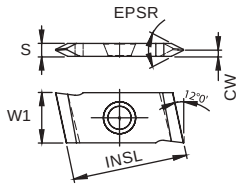
○ Available under request with delivery time 4 weeks
Disponível sobre consulta com prazo de entrega de 4 semanas
Disponible bajo consulta, con fecha de entrega en 4 semanas

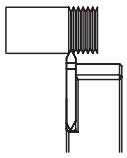
Order code = (1) Geometry code + (2) Grade code

PT SERIES Inserts | Pastilhas | Plaquitas

Right hand style show

For partial profile threading
Para perfil parcial de roscagem
Para perfil parcial de roscado





Threading

(1) Geometry code	(2) Grade code ISO Reference	ANSI Reference	P PVD G1 PH7910	P PVD G4 PH7920	M PVD G4 PH7920	M PVD P8 PH7135	K PVD G4 PH7920	K PVD P8 PH7135	S PVD G4 PH7920	S PVD P8 PH7135	Dimensions (mm) Dimensões (mm) Dimensiones (mm) CW	INSL	S	W1	PDPT	EPSR	Cutting conditions Condições de corte Condiciones de corte fn (mm/r)	Min.	Max.
1130472	SAL100H012R55-PT	SAL100H012R55-PT	○	◈	◈	○	◈	○	◈	○	1,09	17,00	2,00	7,00	0,12	55	0,80	0,20	2,00
1130447	SAL100H012R60-PT	SAL100H012R60-PT	○	◈	◈	○	◈	○	◈	○	1,09	17,00	2,00	7,00	0,12	60	0,80	0,20	2,00
1130470	SAL100H012L55-PT	SAL100H012L55-PT	○	◈	◈	○	◈	○	◈	○	1,09	17,00	2,00	7,00	0,12	55	0,80	0,20	2,00
1130471	SAL100H012L60-PT	SAL100H012L60-PT	○	◈	◈	○	◈	○	◈	○	1,09	17,00	2,00	7,00	0,12	60	0,80	0,20	2,00

◈ Stock item | Produto de stock | Itens de stock

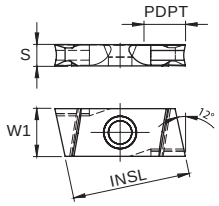
○ Available under request with delivery time 4 weeks
Disponível sobre consulta com prazo de entrega de 4 semanas
Disponible bajo consulta, con fecha de entrega en 4 semanas

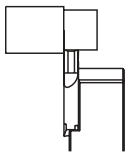
Order code = (1) Geometry code + (2) Grade code

TP SERIES Inserts | Pastilhas | Plaquitas

Right hand style show

For turning
Para torneamento
Para torneado





Turning

(1) Geometry code	(2) Grade code ISO Reference	ANSI Reference	P PVD G1 PH7910	P PVD G4 PH7920	M PVD G4 PH7920	M PVD P8 PH7135	K PVD G4 PH7920	K PVD P8 PH7135	S PVD G4 PH7920	S PVD P8 PH7135	Dimensions (mm) Dimensões (mm) Dimensiones (mm) INSL	S	W1	PDPT	Cutting conditions Condições de corte Condiciones de corte fn (mm/r)	Min.	Max.
1130501	SAL60T300R-TP	SAL60T300R-TP	○	◈	◈	○	◈	○	◈	○	17,00	3,17	7,00	6,00	0,08	0,02	0,12
1130499	SAL60T300L-TP	SAL60T300L-TP	○	◈	◈	○	◈	○	◈	○	17,00	3,17	7,00	6,00	0,08	0,02	0,12

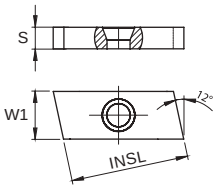
◈ Stock item | Produto de stock | Itens de stock

○ Available under request with delivery time 4 weeks
Disponível sobre consulta com prazo de entrega de 4 semanas
Disponible bajo consulta, con fecha de entrega en 4 semanas

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

BLANKS FOR GRINDING Blanks para personalizar | Blanks para personalizar

Right hand style show



Inserts blanks “do it yourself” grinding are available allowing modifications of the insert for any machining operation.

As pastilhas de blank “faça você mesmo” permitem a personalização da pastilha para qualquer operação de maquinação.

Las plaquitas de blank “haga usted mismo” permiten la personalización de la plaquita para qualquiera operación de maquinación.

(1) Geometry code	(2) Grade code ISO Reference	ANSI Reference	Uncoated 10 PH0910	Uncoated 12 PH0920	Uncoated 14 PH0135	Dimensions (mm) Dimensões (mm) Dimensiones (mm) INSL	S	W1
1130440	BLANK SALR 17x7x2	BLANK SALR 17x7x2	◈	◈	◈	17,50	2,00	7,50
1130504	BLANK SALR 17x7x3,17	BLANK SALR 17x7x3,17	◈	◈	◈	17,50	3,17	7,50
1130453	BLANK SALL 17x7x2	BLANK SALL 17x7x2	◈	◈	◈	17,50	2,00	7,50
1130505	BLANK SALL 17x7x3,17	BLANK SALL 17x7x3,17	◈	◈	◈	17,50	3,17	7,50

◈ 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

SAL - SWISS AUTOMATIC LATHES Maquinação de precisão | Herramientas para tornos automáticos

TOOLHOLDERS CODE KEY Chave de codificação para suportes | Llave de codificación de herramienta

SAL	H	E	R	-	08	08	-	M	07
1	2	3	4	-	5	6	-	7	8

1 - Product line

SAL - Swiss Automatic Lathes Line

2 - Tool type

H - Holder

3 - Internal or External

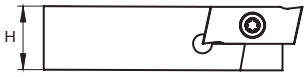
E - External

4 - Insert / toolholder side

L - Left hand	R - Right hand

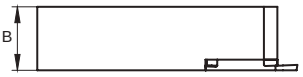
5 - Shank height

- 08 - 8 mm
- 10 - 10 mm
- 12 - 12 mm
- 16 - 16 mm



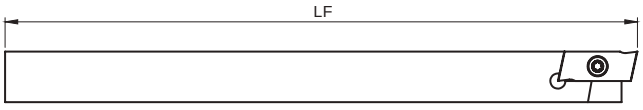
6 - Shank width

- 08 - 8 mm
- 10 - 10 mm
- 12 - 12 mm
- 16 - 16 mm



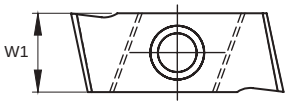
7 - Shank lenght (mm)

- L - 140 mm
- M - 150 mm

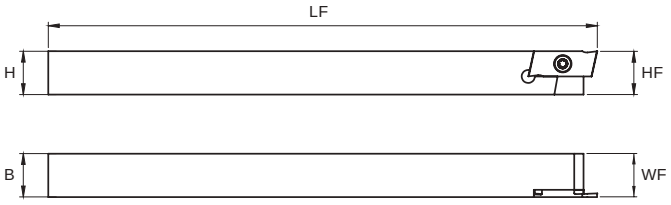


8 - Insert cutting edge lenght (mm)

07 - 7,0 mm



EXTERNAL TOOLHOLDERS Suportes exteriores | herramientas de tronzado exterior

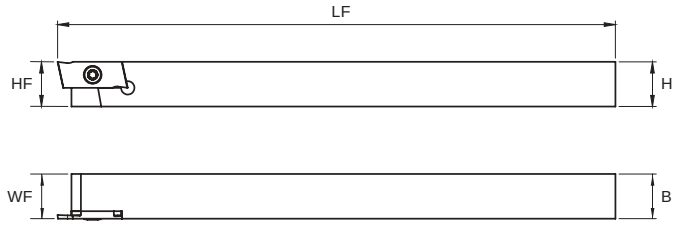


Left hand style show

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)					* Insert	Screw	Wrench	Stock
		B	H	HF	LF	WF				
213023600	SALHEL 0808 M07	8,00	8,00	8,00	150,00	8,00	SAL...L	P0300900	XT 08	⊛
213023700	SALHEL 1010 M07	10,00	10,00	10,00	150,00	10,00	SAL...L	P0300900	XT 08	⊛
213023800	SALHEL 1212 M07	12,00	12,00	12,00	150,00	12,00	SAL...L	P0300900	XT 08	⊛
213023900	SALHEL 1616 M07	16,00	16,00	16,00	150,00	16,00	SAL...L	P0300900	XT 08	⊛
213029700	SALHEL 2020 M07	20,00	20,00	20,00	150,00	20,00	SAL...L	P0300900	XT 08	⊛
213029900	SALHEL 2525 M07	25,00	25,00	25,00	150,00	25,00	SAL...L	P0300900	XT 08	⊛

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

* Left insert only fits on left toolholder



Right hand style show

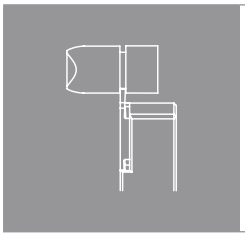
Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)					* Insert	Screw	Wrench	Stock
		B	H	HF	LF	WF				
213023200	SALHER 0808 M07	8,00	8,00	8,00	150,00	8,00	SAL...R	P0300900	XT 08	⊛
213023300	SALHER 1010 M07	10,00	10,00	10,00	150,00	10,00	SAL...R	P0300900	XT 08	⊛
213023400	SALHER 1212 M07	12,00	12,00	12,00	150,00	12,00	SAL...R	P0300900	XT 08	⊛
213023500	SALHER 1616 M07	16,00	16,00	16,00	150,00	16,00	SAL...R	P0300900	XT 08	⊛
213029600	SALHER 2020 M07	20,00	20,00	20,00	150,00	20,00	SAL...R	P0300900	XT 08	⊛
213029800	SALHER 2525 M07	25,00	25,00	25,00	150,00	25,00	SAL...R	P0300900	XT 08	⊛

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

* Right insert only fits on right toolholder

SAL - SWISS AUTOMATIC LATHES Maquinação de precisão | Herramientas para tornos automáticos

GROOVING Canais | Ranurado

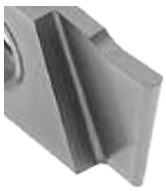


- High precision
- Close tolerances
- Wide variety of insert widths

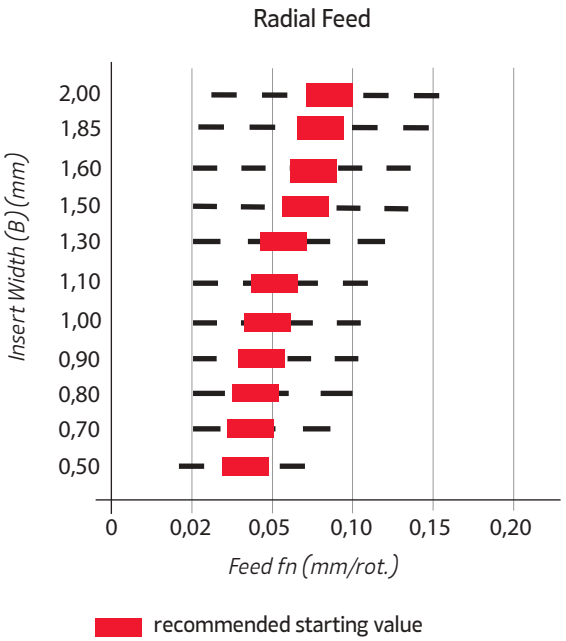
GS

Square grooving

GR



Round grooving



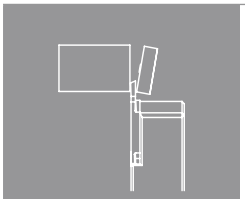
Recomended cutting conditions

P	M	K	S
60-200	60-180	60-150	20-50

Recomended grade PH7920, (Vc) m/min.

Grade PH7910 and PH7135
Available under request (4 weeks delivery time)

PARTING OFF Corte | Tronzado



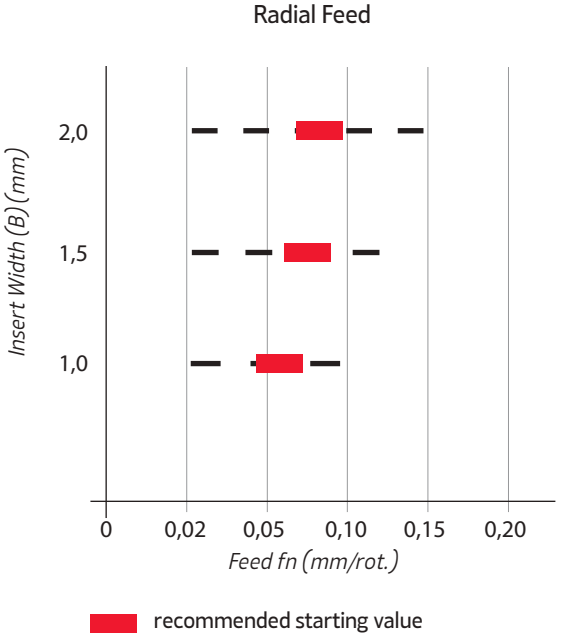
- When parting off with a sub-spindle, it is more productive to use a straight cutting edge. This is a more stable parting method and will generate the best surface finish.
- When parting off without a sub-spindle, we recommend you use an insert with a maximum 7° front angle to minimize the risk of burr and pips on the component.
- When parting off with 7° front angled inserts, we recommend reducing the feed rate by approximately 30%.

P00

0º Relief angle

P07

7º Relief angle



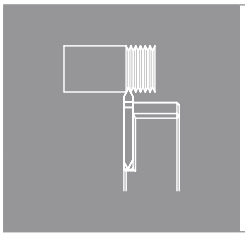
Recomended cutting conditions

P	M	K	S
60-200	60-180	60-150	20-50

Recomended grade PH7920, (Vc) m/min.

Grade PH7910 and PH7135
Available under request (4 weeks delivery time)

THREADING Roscagem | Roscado

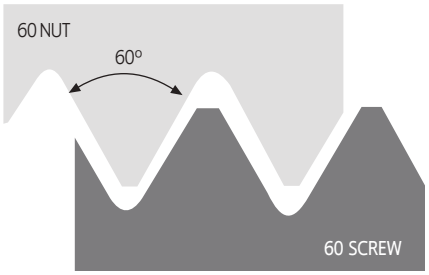


Two types of threading:
- Partial profile 55º
- Partial profile 60º

Pitch from 12 - 94 TPI / 0,25 - 2,0 mm

PT

Partial profile

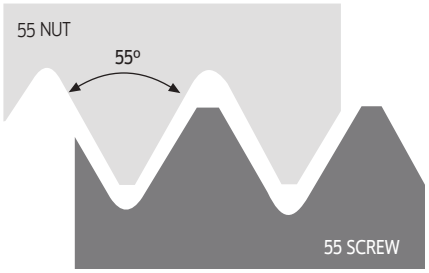


Recomended cutting conditions

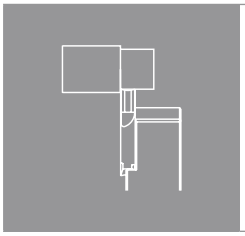
P	M	K	S
60-200	60-180	60-150	20-50

Recomended grade PH7920, (Vc) m/min.

Grade PH7910 and PH7135
Available under request (4 weeks delivery time)



TURNING Torneamento | Torneado



- Insert for turning
- Maximum depth of cut of 2,50 mm
- Excesssively low cutting speeds will result in inadequate tool life.

TP

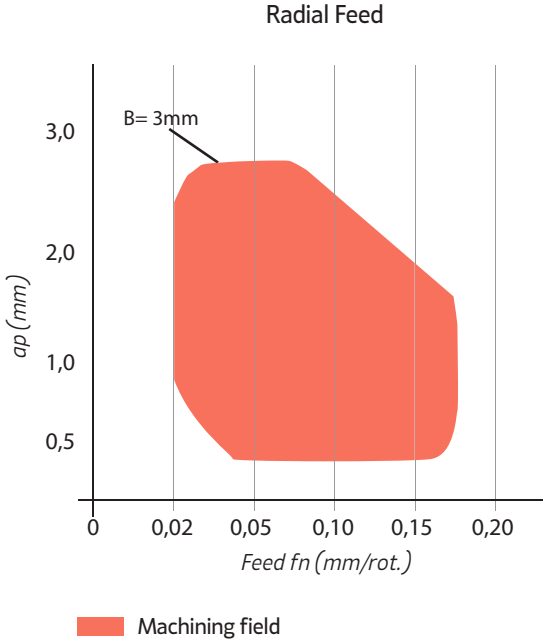
Turning steel

Recomended cutting conditions

P	M	K	S
60-200	60-180	60-150	20-50

Recomended grade PH7920, (Vc) m/min.

Grade PH7910 and PH7135
Available under request (4 weeks delivery time)



LIGHT GROOVING

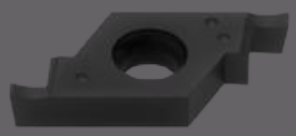
Light grooving is specifically tailored for the manufacturing of grooves, whether internal or external, for coupling circlips.

O Light Grooving é especificamente adaptado para a fabricação de canais, internos ou externos, para acoplamento de anéis de retenção.

El Light Grooving está específicamente diseñado para la fabricación de ranuras, ya sean internas o externas, para acoplamiento de circlips.

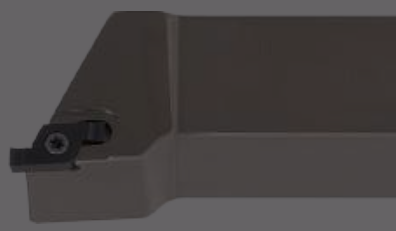
INSERTS > page 920

- For circlip width from 1mm to 3mm
  Para anéis de retenção com largura desde 1mm até 3mm | Para anillos de retención con anchos de 1 mm a 3 mm
- 2 cutting edges
  2 arestas de corte | 2 filos de corte
- Size 06
  Tamanho 06 | Tamaño 06



TOOLHOLDERS > page 922

- External and Internal
  Externo e Interno | Externo e interno
- Insert LG-R/L
  Pastilha LG-R/L | Plaquita LG-R/L



LIGHT GROOVING INSERTS Pastilhas | Plaquitas

LG	06	02	R	110
1	2	3	4	5

1 - Product Line | Ligne de produits | Produktlinie

LG - Light Grooving

2 - Insert size

06 - IC = 6,35mm

3 - Cutting edges

02 - 2 cutting edges

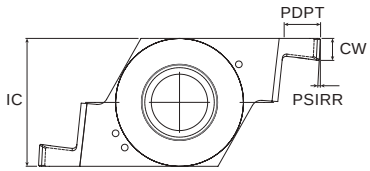
4 - Work side

R - Right
L - Left

5 - Edge width

110 = 1,1mm

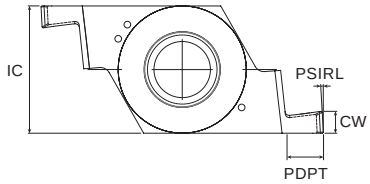
LG-R



Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)				For circlip widht	Stock
		IC	PSIRR	CW	PDPT		PH7920
1130597G4	LG 0602R110	6,35	3	1,10	0,8	1,0	◉
1130598G4	LG 0602R130	6,35	3	1,30	1,4	1,2	◉
1130599G4	LG 0602R160	6,35	3	1,60	1,7	1,5	◉
1130600G4	LG 0602R185	6,35	3	1,85	2,0	1,75	◉
1130601G4	LG 0602R215	6,35	3	2,15	2,4	2,0	◉
1130602G4	LG 0602R265	6,35	3	2,65	2,7	2,5	◉
1130603G4	LG 0602R300	6,35	3	3,00	3,0	-	◉
1130604G4	LG 0602R315	6,35	3	3,15	3,0	3,0	◉

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

LG-L



Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)				For circlip widht	Stock
		IC	PSIRL	CW	PDPT		PH7920
1130589G4	LG 0602L110	6,35	3	1,10	0,8	1,0	◉
1130590G4	LG 0602L130	6,35	3	1,30	1,4	1,2	◉
1130591G4	LG 0602L160	6,35	3	1,60	1,7	1,5	◉
1130592G4	LG 0602L185	6,35	3	1,85	2	1,75	◉
1130593G4	LG 0602L215	6,35	3	2,15	2,4	2,0	◉
1130594G4	LG 0602L265	6,35	3	2,65	2,7	2,5	◉
1130595G4	LG 0602L300	6,35	3	3,00	3	-	◉
1130596G4	LG 0602L315	6,35	3	3,15	3	3,0	◉

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

LIGHT GROOVING TOOLHOLDERS Suportes | Herramientas

LG	H	06	02	I	R	150	16
1	2	3	4	5	6	7	8

1 - Product Line

LG - Light Grooving

2 - Product type

H - Holder

3 - Insert size

06 - IC=6,35mm

4 - Cutting edges

02 - 2 Cutting edges

5 - Internal / External

I - Internal
E - External

6 - Work side

R - Right
L - Left

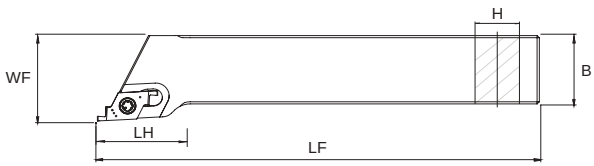
7 - Tool length

150 - 150mm

8 - Shank dimenson

Internal: 16 - Ø16mm
External: 2020 - 20mm x 20mm

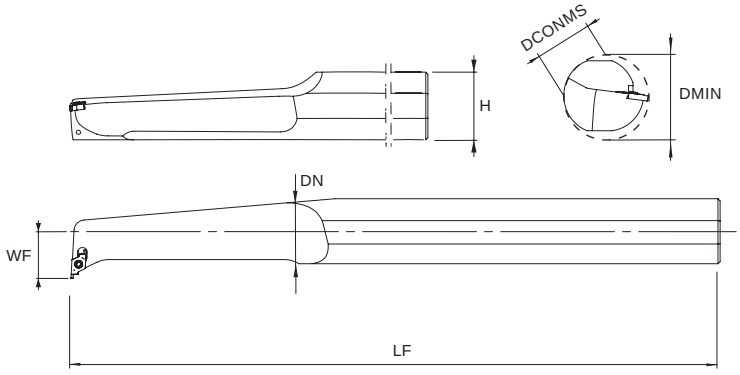
LGH-ER/L



Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)					Insert	Screw	Key	Stock
		H	B1	LF	LH	WF				
Right Toolholder										
183031100	LGH 0602-ER 100 1616	16	16	100	21	20	LG 0602R	P0250702	XT08	◎
183031200	LGH 0602-ER 125 2020	20	20	125	25	25	LG 0602R	P0250702	XT08	◎
183031300	LGH 0602-ER 150 2525	25	25	150	32	32	LG 0602R	P0250702	XT08	◎
Left Toolholder										
183030300	LGH 0602-EL 100 1616	16	16	100	21	20	LG 0602L	P0250702	XT08	◎
183030400	LGH 0602-EL 125 2020	20	20	125	25	25	LG 0602L	P0250702	XT08	◎
183030500	LGH 0602-EL 150 2525	25	25	150	32	32	LG 0602L	P0250702	XT08	◎

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

LGH-IR/L



Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)						Insert	Screw	Key	Stock
		DCONMS	DMIN	H	DN	LF	WF				
Right Toolholder											
183031400	LGH 0602-IR 150 12	12	16	11	11,5	150	9	LG 0602L	P0250503	XT08	◎
183031500	LGH 0602-IR 150 16	16	20	15	15	150	11	LG 0602L	P0250503	XT08	◎
183031600	LGH 0602-IR 170 20	20	25	18	19	170	13	LG 0602L	P0250503	XT08	◎
183031700	LGH 0602-IR 200 25	25	32	23	24	200	17	LG 0602L	P0250503	XT08	◎
183031800	LGH 0602-IR 300 32	32	40	30	31	300	22	LG 0602L	P0250503	XT08	◎
Left Toolholder											
183030600	LGH 0602-IL 150 12	12	16	11	11,5	150	9	LG 0602R	P0250503	XT08	◎
183030700	LGH 0602-IL 150 16	16	20	15	15	150	11	LG 0602R	P0250503	XT08	◎
183030800	LGH 0602-IL 170 20	20	25	18	19	170	13	LG 0602R	P0250503	XT08	◎
183030900	LGH 0602-IL 200 25	25	32	23	24	200	17	LG 0602R	P0250503	XT08	◎
183031000	LGH 0602-IL 300 32	32	40	30	31	300	22	LG 0602R	P0250503	XT08	◎

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

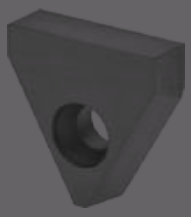
FORMING GROOVING

Carbide blanks for customization, tailored to the profile designed by the custome.

Blanks em metal duro para personalização, adaptados ao perfil desenhado pelo cliente.

Blanks de carburo para personalización, adaptados al perfil diseñado por el cliente.

BLANKS > page 926



- From sizes 13 to 26
  De tamanhos de 13 a 26 | De tamaños de 13 a 26
- 2 geometrys
  2 geometrias | 2 geometrías
- Available in grades PH0930
  Disponível nos graus PH0930 | Disponible en las calidades PH0930

TOOLHOLDERS > page 928

- 4 types
  4 tipos | 4 tipos

FORMING GROOVING - BLANKS Code Key | Chave de codificação | Llave de codificación

FG	I	13
1	2	3

1 - Product Line

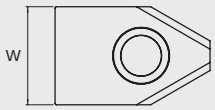
FG - Forming Grooving

2 - Product type

I - Insert

3 - Edge width (W)

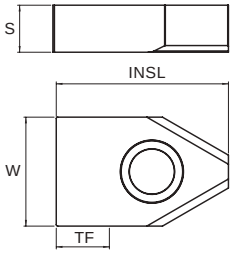
13 - 13mm
16 - 16mm
20 - 20mm
32 - 32mm



FORMING GROOVING - BLANKS

Blanks de Sangramento | Blanks de Tronzado

FGI

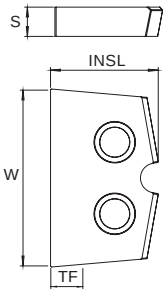


(1) Geometry code	(2) Grade code ISO Reference	UNC 18 PH0930	Dimensions | Dimensões | Dimensiones (mm) W	S	INSL	TF
1130550	BLANK FGI 13	●	13	5,35	20,70	6,00
1130551	BLANK FGI 16	●	16	5,35	25,00	10,00
1130552	BLANK FGI 20	●	20	6,35	20,70	7,00
1130615	BLANK FGI 20 L	●	20	6,35	25,00	11,00

● 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

FGI



(1) Geometry code	(2) Grade code ISO Reference	UNC 18 PH0930	Dimensions | Dimensões | Dimensiones (mm) W	S	INSL	TF
1130553	BLANK FGI 32	●	32	5,00	19,80	7,00

● 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

FORMING GROOVING - TOOLHOLDERS Blanks de Sangramento | Blanks de Tronzado

FG	H	13	-	A	125	12	.	12	-	5º
1	2	3		4	5	6		7		8

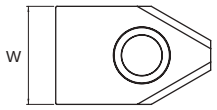
1 - Product Line

FG - Forming Grooving

2 - Cutting Width

H - Holder

3 - Edge Width (Forming)

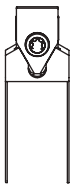


13 - 13 mm
16 - 16 mm
20 - 20 mm
32 - 32 mm (2 holes)

4 - Toolholder Type (Forming)

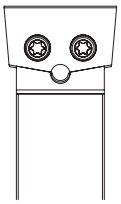
Type A

Type B



Type C

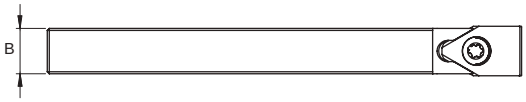
Type C



5 - Toolholder total lenght

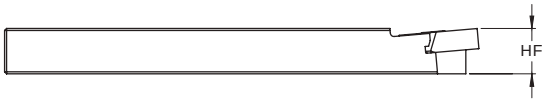
125 - 125 mm
150 - 150 mm

6 - Toolholder depth



10 - 10 mm
12 - 12 mm
14 - 14 mm
16 - 16 mm
20 - 20 mm

7 - Insert height



10 - 10 mm
12 - 12 mm
14 - 14 mm
16 - 16 mm
25 - 25 mm

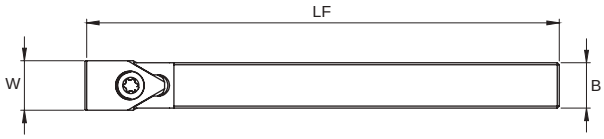
8 - Insert relief angle

0º
5º

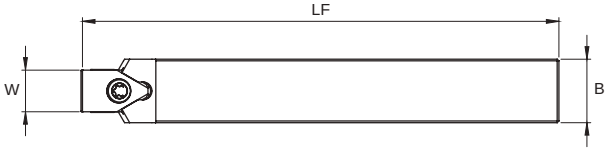
FORMING GROOVING - TOOLHOLDERS

Blanks de Sangramento | Blanks de Tronzado

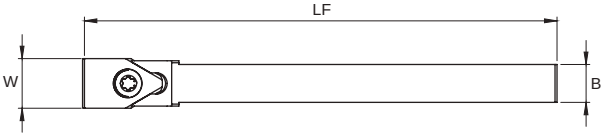
Type A



Type B



Type C

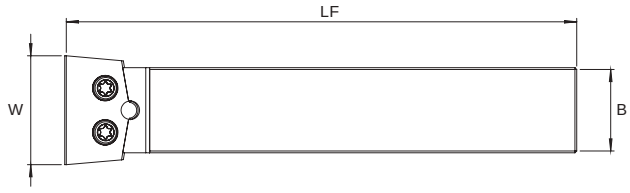


Type A|B|C

Order code		ISO Reference	Dimensions | Dimensões | Dimensiones (mm)					Insert	Toolholder Type	Stock	
*a 0º	*a 5º		H	HF	B	LF	W			0º	5º
113056500	113055400	FGH 13-A 125 12.12 - 0º/5º	12	12	12	125	13	FGI 13	A	●	●
113056600	113055500	FGH 13-B 125 14.14 - 0º/5º	14	14	14	125	13	FGI 13	B	●	●
113058000	113058100	FGH 13-B 125 16.16-0°/5º	16	16	16	125	13	FGI 13	B	○	●
113056700	113055600	FGH 13-C 125 10.10 - 0º/5º	10	10	10	125	13	FGI 13	C	○	●
113056800	113055700	FGH 16-A 125 16.16 - 0º/5º	16	16	16	125	16	FGI 16	A	●	●
113056900	113055800	FGH 16-B 150 20.20 - 0º/5º	20	20	20	150	16	FGI 16	B	●	●
113057000	113055900	FGH 16-C 125 14.14 - 0º/5º	14	14	14	125	16	FGI 16	C	●	●
113057100	113056000	FGH 20-A 150 20.20 - 0º/5º	20	20	20	150	20	FGI 20	A	○	●
113057200	113056100	FGH 20-C 125 16.16 - 0º/5º	16	16	16	125	20	FGI 20	C	○	●
113061600	113061700	FGH 20L-A 150 20.20-0º/5º	20	20	20	150	20	FGI 20 L	A	●	●
113061800	113061900	FGH 20L-C 125 16.16-0º/5º	16	16	16	125	20	FGI 20 L	C	●	●

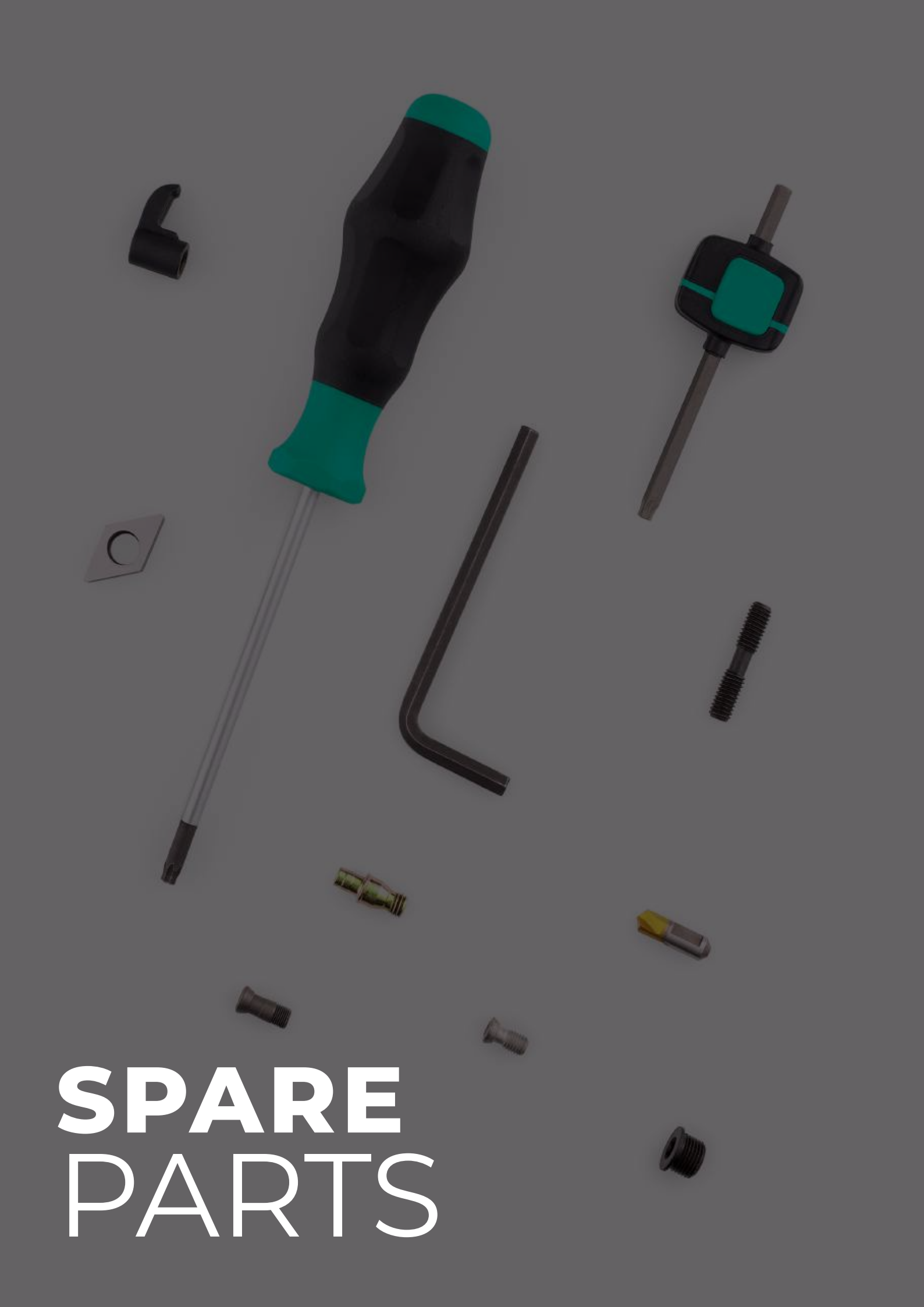
● Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Type C



Order code		ISO Reference	Dimensions | Dimensões | Dimensiones (mm)					Insert	Toolholder Type	Stock	
*a 0º	*a 5º		H	HF	B	LF	W			0º	5º
113057300	113056200	FGH 32-C 150 25.25 - 0º/5º	25	25	25	150	32	FGI 32	C	○	●

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



SPARE PARTS

SCREWS & KEYS

Screws

Order code Código	Reference Referência Referencia	Sock
290074100	D0503000	◎
290020700	D0603600	◎
290062900	D0602200	◎
290087400	D0602600	◎
290087500	D0603100	◎
290017700	P0250702	◎
290033100	P0250503	◎
290044800	P0260700	◎
290044600	P5401390	◎
290044900	P5401391	◎

Keys

Order Code Código	Reference Referência Referencia	Stock
290011700	XT08	◎
290013100	XT10	◎

◎ Stock item | Produto de stock | Itens de stock

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

WRENCHES

Order code Código	Reference Referência Referencia	Sock
290021200	SS40	◎
290021300	SS50	◎

Order code Código	Reference Referência Referencia	Sock
290074400	LE05	◎

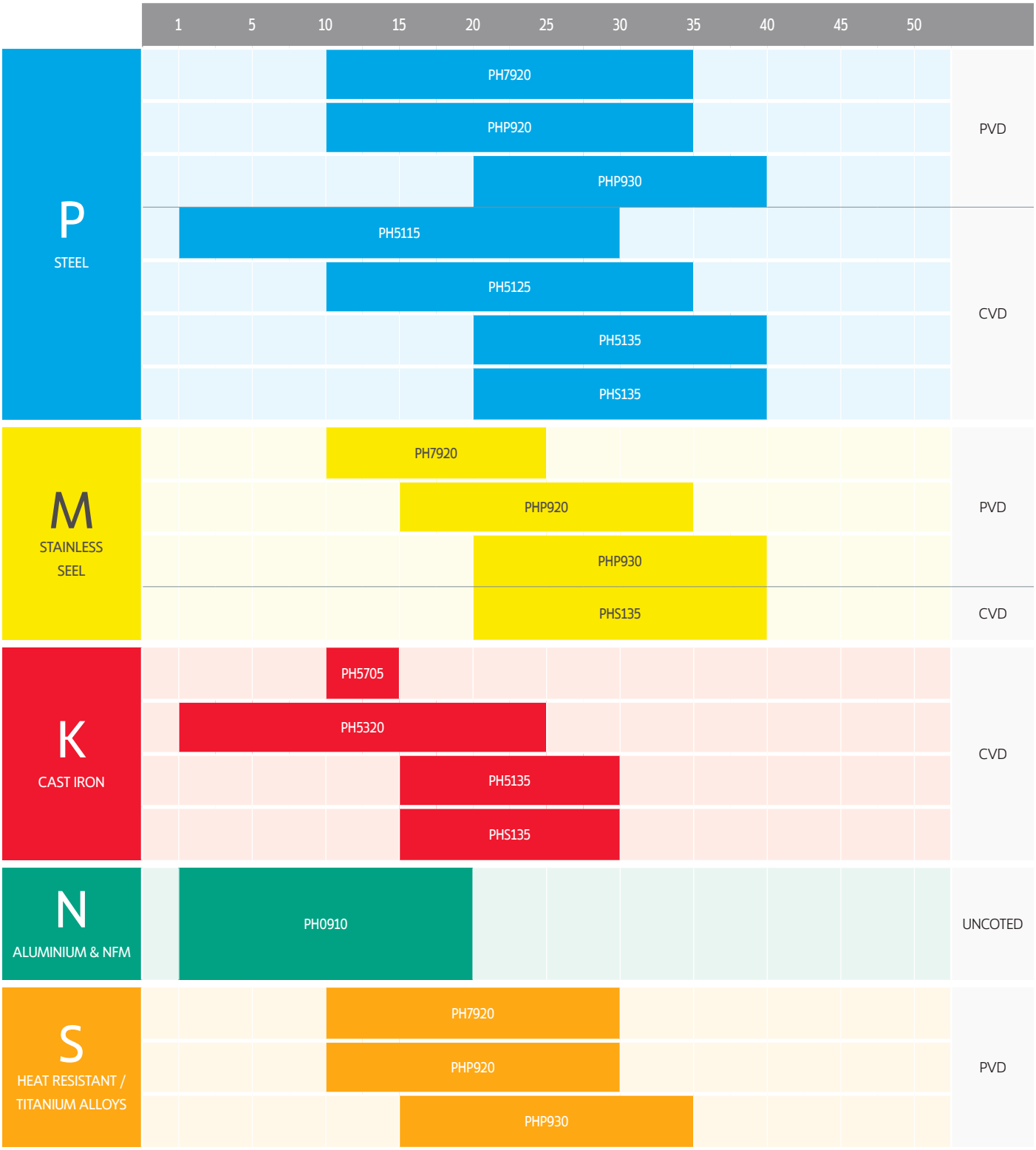
Order code Código	Reference Referência Referencia	Sock
290079600	LE25-30	◎

◎ Stock item | Produto de stock | Itens de stock

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

TECHNICAL DATA

GROOVING & PARTING OFF GRADES Graus para Sangramento | Calidades para Tronzado



GROOVING & PARTING OFF GRADES DESCRIPTION

Graus de Sangramento | Calidades para Tronzado

PVD GRADES

PH7920
P10-P35
M10-M25
S10-S30

A hard carbide substrate coated with PVD coating. Suitable for machining under good conditions or lightly interrupted cuts.

PHP920
P10-P35
M10-M25
S10-S30

A hard carbide insert coated with revolutionary PVD coating with great adhesion and smoothness. Recommended for machining under good conditions or lightly interrupted cuts at medium to high cutting speeds.

PHP930
P20-P40
M20-M40
S15-S35

A tough carbide insert coated with revolutionary PVD coating with great adhesion and smoothness. Recommended for machining under lightly to highly interrupted cuts at low to medium cutting speeds.

CVD GRADES

PH5

A thick CVD coating with a smooth surface. Works great at medium temperatures.

WEAR RESISTANCE ⟷ TOUGHNESS

PH5705
K05-K15

PH5320
K01-K25

PH5115
P10-P25

PH5125
P20-P35

PH5135
P20-P40
K15-K30

PHS

PHS135
P20-P40
M15-M35
K15-K30

A though substrate combined with a thin CVD coating with excellent thermal resistance and hardness at high temperature.
Excellent solution for difficult operations at low velocities.

UNCOATED CARBIDE GRADE

PH0910
N01-N20

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

palbit

RECOMMENDED GRADES AND CUTTING SPEEDS (M/MIN)

Graus recomendados e velocidades de corte (m/min) | Calidades recomendadas y velocidades de corte (m/min)

ISO	Material	Grade fn (mm/r) / HB (brinell)	CVD Coating				PVD Coating		
			← Wear Resistence						Toughness →
			PH5115	PH5125	PH5135	PHS135	PH7920	PHP920	PHP930
			0.04 - 0.5	0.04 - 0.5	0.04 - 0.5	0.04 - 0.5	0.04 - 0.5	0.04 - 0.5	0.04 - 0.5
P	Unalloyed steel	125-170	90-180	80-170	70-160	70-160	60-160	60-160	50-150
	Low-alloy steel	180-350	70-160	60-150	60-140	60-150	60-140	60-150	50-140
	High-alloy steel	200-325	50-150	40-140	40-130	40-140	50-130	50-140	40-130

ISO	Material	Grade fn (mm/r) / HB (brinell)	CVD Coating	PVD Coating		
			← Wear Resistence			Toughness →
			PHS135	PH7920	PHP920	PHP930
			0.04 - 0.5	0.04 - 0.5	0.04 - 0.5	0.04 - 0.5
M	SS - Ferritic / Martensitic	200-330	70-150	60-140	60-140	50-130
	SS - Austenitic / Duplex	180-330	60-130	60-120	60-130	50-110
	SS - Ferritic / Duplex	230-260	40-120	40-110	40-120	40-110

ISO	Material	Grade fn (mm/r) / HB (brinell)	CVD Coating			
			← Wear Resistence			Toughness →
			PH5705	PH5320	PH5115	PHS135
			0.04 - 0.5	0.04 - 0.5	0.04 - 0.5	0.04 - 0.5
K	Marble cast iron	130-230	100-220	90-210	90-200	80-170
	Grey cast iron	180-220	100-200	90-190	80-180	70-150
	Nodular cast iron	160-380	80-170	80-160	70-150	50-140

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

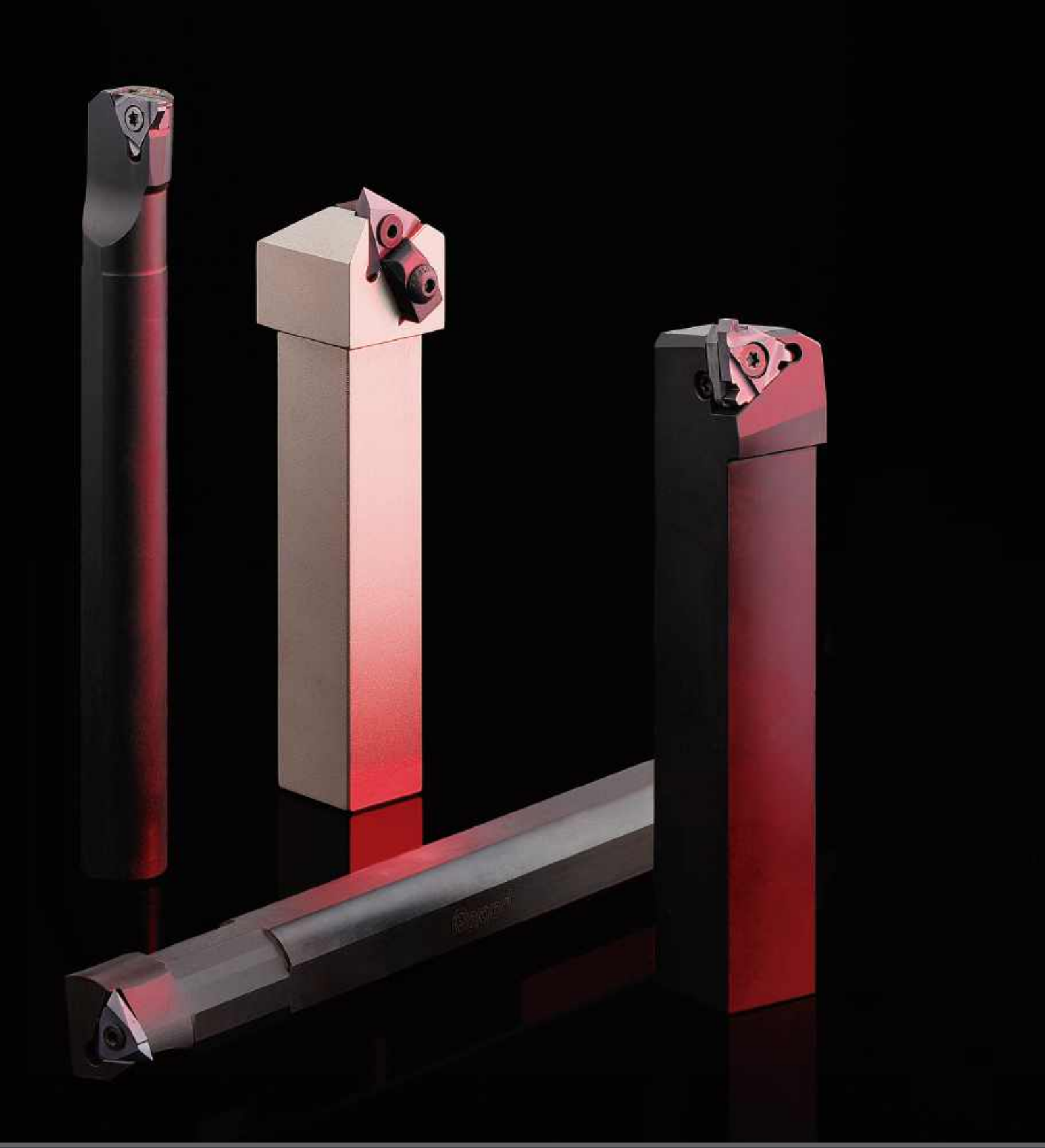
ISO	Material	Grade fn (mm/r) / HB (brinell)	PVD Coating		
			← Wear Resistence		Toughness →
			PH7920	PHP920	PHP930
			0.04 - 0.30	0.04 - 0.30	0.04 - 0.30
S	Heat resistant super alloys (Iron base)	200-280	35-90	-	-
	Heat resistant super alloys (Nickel base)	250-320	22-60	-	-
	Heat resistant super alloys (Cobalt base)	200-320	30-90	30-90	20-80

CUTTING TOOLS FOR

THREADING

E

E - THREADING
E - 938 | Thread milling
E - 938 | Inserts
E - 948 | Toolholders
E - 953 | Technical data



E - 954 | Thread turning
E - 958 | Inserts overview
E - 960 | Partial profile inserts
E - 964 | Full profile inserts
E - 1004 | Tangential profile inserts
E - 1006 | External & Internal Toolholders
E - 1018 | Spare Parts
E - 1020 | Technical Data

THREAD MILLING

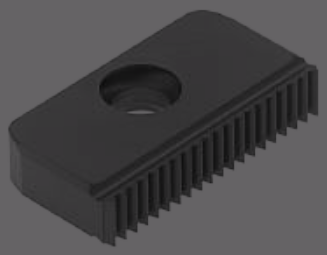
INSERTS

Thread milling inserts offer versatility by producing both internal and external threads without the need for tool changes. Featuring various thread profile types, inserts enable the production of diverse thread types and pitches simply by replacing them with another insert. This flexibility streamlines the machining process, enhancing productivity and precision in thread milling operations.

As pastilhas para fresagem de roscas oferecem versatilidade ao produzir roscas internas e externas sem a necessidade de trocar de ferramenta. Com diversos tipos de perfil de rosca, as pastilhas permitem a produção de diferentes passos de rosca, substituindo-as por outra pastilha. Essa flexibilidade otimiza o processo de maquinação, aumentando a produtividade e a precisão nas operações de roscagem.

Las plaquitas de fresado de roscas ofrecen versatilidad al producir roscas internas y externas sin necesidad de cambio de herramienta. Con diferentes tipos de perfil de rosca, las plaquitas permiten realizar diferentes pasos de rosca, sustituyéndolos por otro inserto. Esta flexibilidad optimiza el proceso de mecanizado, aumentando la productividad y la precisión en las operaciones de roscado.

INSERTS > page 940



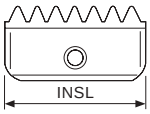
- Internal and external threads
  Roscas internas e externas | Hilos internos y externos
- Full profile: ISO, UN, WHIT, BSPT, NPT, NPTF, ABUT, ACME and others
  Perfil completo: ISO, ONU, WHIT, BSPT, NPT, NPTF, ABUT, ACME e outros | Perfil completo: ISO, ONU, WHIT, BSPT, NPT, NPTF, ABUT, ACME e outros
- Multiple sizes and thread pitches
  Multiplos tamanhos e passos de rosca | Múltiples tamaños y pasos de rosca

THREAD MILLING INSERTS CODE KEY

Codificação ISO para pastilhas de fresagem de roscar | Codificación ISO para plaquitas de fresado de roscar

30	E	20	UN	PH7920
1	2	3	4	5

1 - Insert Size



12
14
21
30
40

2 - Insert Hand Type

E	External
I	Internal
I/E	Internal + External

3 - Pitch

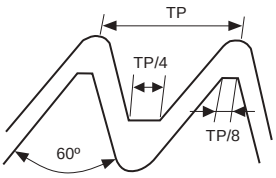
Example: 20 = 20.00

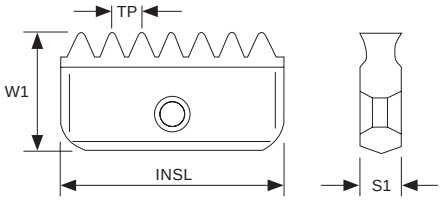
4 - Profile Type

Symbol	Profile Type	Symbol	Profile Type	Symbol	Profile Type
ISO	ISO METRIC	**NPT**	NPT	**ACME**	AMERICAN ACME
UN	AMERICAN UN	**NPTF**	NPTF	**PG**	PG
W	WITHWORTH	**NPS**	NPS	**UNJ**	UNJ
BSPT	BSPT	**NPSF**	NPSF	**ABUT**	AMERICAN BUTTRESS

5 - Grades

PH7920





INSL	S1	W1
12	2,9	6,5
14	3,1	7,9
21	4,7	12,6
30	5,5	16,7
40	6,3	20,9

External

P (Pitch)	Dimensions | Dimensões | Dimensiones (mm)								Stock grade code (2)
	14		21		30		40		
	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	(G4) PH7920
0.75 EXT	2123972	14 E 0.75 ISO							◎
0.80 EXT	2124202	14 E 0.80 ISO							◎
1.00 EXT	2123973	14 E 1.00 ISO	2123987	21 E 1.00 ISO					◎
1.25 EXT	2123974	14 E 1.25 ISO							◎
1.50 EXT	2123975	14 E 1.50 ISO	2123988	21 E 1.50 ISO	2123999	30 E 1.50 ISO	2124012	40 E 1.50 ISO	◎
1.75 EXT	2123976	14 E 1.75 ISO							◎
2.00 EXT	2123977	14 E 2.00 ISO	2123989	21 E 2.00 ISO	2124000	30 E 2.00 ISO	2124013	40 E 2.00 ISO	◎
2.50 EXT	2123978	14 E 2.50 ISO	2123990	21 E 2.50 ISO					◎
3.00 EXT			2123991	21 E 3.00 ISO	2124001	30 E 3.00 ISO	2124014	40 E 3.00 ISO	◎
3.50 EXT					2124002	30 E 3.50 ISO			◎
4.00 EXT					2124003	30 E 4.00 ISO	2124015	40 E 4.00 ISO	◎
5.00 EXT							2124016	40 E 5.00 ISO	◎
6.00 EXT							2124017	40 E 6.00 ISO	◎

◎ Stock item | Produto de stock | Itens de stock

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

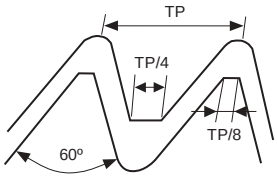
Internal

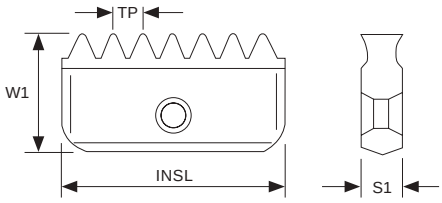
P (Pitch)	Dimensions | Dimensões | Dimensiones (mm)										Stock grade code (2)
	12		14		21		30		40		
	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	(G4) PH7920
0.50 INT	2123967	12 I 0.50 ISO	2123979	14 I 0.50 ISO							◎
0.75 INT	2123968	12 I 0.75 ISO	2123980	14 I 0.75 ISO							◎
1.00 INT	2123969	12 I 1.00 ISO	2123981	14 I 1.00 ISO	2123992	21 I 1.00 ISO					◎
1.25 INT	2123970	12 I 1.25 ISO	2123982	14 I 1.25 ISO							◎
1.50 INT	2123971	12 I 1.50 ISO	2123983	14 I 1.50 ISO	2123993	21 I 1.50 ISO	2124004	30 I 1.50 ISO	2124018	40 I 1.50 ISO	◎
1.75 INT			2123984	14 I 1.75 ISO	2123994	21 I 1.75 ISO					◎
2.00 INT			2123985	14 I 2.00 ISO	2123995	21 I 2.00 ISO	2124005	30 I 2.00 ISO	2124019	40 I 2.00 ISO	◎
2.50 INT			2123986	14 I 2.50 ISO	2123996	21 I 2.50 ISO					◎
3.00 INT					2123997	21 I 3.00 ISO	2124006	30 I 3.00 ISO	2124020	40 I 3.00 ISO	◎
3.50 INT					2123998	21 I 3.50 ISO	2124007	30 I 3.50 ISO	2124021	40 I 3.50 ISO	◎
4.00 INT							2124008	30 I 4.00 ISO	2124022	40 I 4.00 ISO	◎
4.50 INT							2124009	30 I 4.50 ISO	2124023	40 I 4.50 ISO	◎
5.00 INT							2124010	30 I 5.00 ISO	2124024	40 I 5.00 ISO	◎
5.50 INT									2124025	40 I 5.50 ISO	◎
6.00 INT									2124026	40 I 6.00 ISO	◎

◎ Stock item | Produto de stock | Itens de stock

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

UN UNC, UNF, UNEF, UNS Two cutting edges | Duas arestas de corte | Dos filos de corte





INSL	S1	W1
12	2,9	6,5
14	3,1	7,9
21	4,7	12,6
30	5,5	16,7
40	6,3	20,9

External

P (Pitch)	Dimensions | Dimensões | Dimensiones (mm)								Stock grade code (2)
	14		21		30		40		
	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	(G4) PH7920
32.00 EXT	2124033	14 E 32 UN							◈
28.00 EXT	2124034	14 E 28 UN							◈
24.00 EXT	2124035	14 E 24 UN	2124055	21 E 24 UN					◈
20.00 EXT	2124036	14 E 20 UN	2124056	21 E 20 UN	2124072	30 E 20 UN			◈
18.00 EXT	2124037	14 E 18 UN	2124057	21 E 18 UN	2124073	30 E 18 UN			◈
16.00 EXT	2124038	14 E 16 UN	2124058	21 E 16 UN	2124074	30 E 16 UN	2124089	40 E 16 UN	◈
14.00 EXT	2124039	14 E 14 UN	2124059	21 E 14 UN	2124075	30 E 14 UN	2124090	40 E 14 UN	◈
13.00 EXT	2124203	14 E 13 UN							◈
12.00 EXT	2124040	14 E 12 UN	2124060	21 E 12 UN	2124076	30 E 12 UN	2124091	40 E 12 UN	◈
11.00 EXT	2124041	14 E 11 UN							◇
10.00 EXT			2124062	21 E 10 UN	2124077	30 E 10 UN	2124092	40 E 10 UN	◈
8.00 EXT					2124078	30 E 8.0 UN	2124093	40 E 8.0 UN	◈
6.00 EXT					2124079	30 E 6.0 UN	2124094	40 E 6.0 UN	◈

◈ Stock item | Produto de stock | Itens de stock

◇ Stock available until sold out | Stock disponível até acabar o stock
Stock disponible hasta acabar el stock

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

Internal

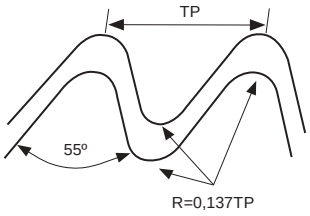
P (Pitch)	Dimensions | Dimensões | Dimensiones (mm)										Stock grade code (2)
	12		14		21		30		40		
	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	(G4) PH7920
32.00 INT	2124027	12 I 32 UN	2124043	14 I 32 UN							◈
28.00 INT	2124028	12 I 28 UN	2124044	14 I 28 UN							◈
27.00 INT			2124045	14 I 27 UN							◈
24.00 INT	2124029	12 I 24 UN	2124046	14 I 24 UN	2124063	21 I 24 UN					◈
20.00 INT	2124030	12 I 20 UN	2124047	14 I 20 UN	2124064	21 I 20 UN	2124080	30 I 20 UN			◈
18.00 INT	2124031	12 I 18 UN	2124048	14 I 18 UN	2124065	21 I 18 UN	2124081	30 I 18 UN			◈
16.00 INT	2124032	12 I 16 UN	2124049	14 I 16 UN	2124066	21 I 16 UN	2124082	30 I 16 UN	2124095	40 I 16 UN	◈
14.00 INT			2124050	14 I 14 UN	2124067	21 I 14 UN	2124083	30 I 14 UN	2124096	40 I 14 UN	◈
12.00 INT			2124051	14 I 12 UN	2124068	21 I 12 UN	2124084	30 I 12 UN	2124097	40 I 12 UN	◈
10.00 INT			2124053	14 I 10 UN	2124069	21 I 10 UN	2124085	30 I 10 UN	2124098	40 I 10 UN	◈
9.00 INT			2124054	14 I 9.0 UN							◇
8.00 INT					2124070	21 I 8.0 UN	2124086	30 I 8.0 UN	2124099	40 I 8.0 UN	◈
7.00 INT					2124071	21 I 7.0 UN					◇
6.00 INT							2124087	30 I 6.0 UN	2124100	40 I 6.0 UN	◈
5.00 INT							2124088	30 I 5.0 UN			◈
4.50 INT									2124101	40 I 4.5 UN	◈
4.00 EXT									2124102	40 I 4.0 UN	◈

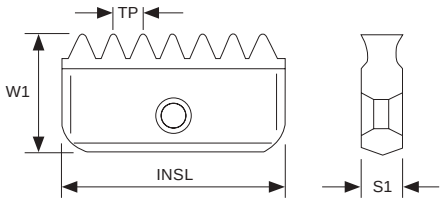
◈ Stock item | Produto de stock | Itens de stock

◇ Stock available until sold out | Stock disponível até acabar o stock
Stock disponible hasta acabar el stock

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

WHIT BSW, BSF, BSP Two cutting edges | Duas arestas de corte | Dos filos de corte





INSL	S1	W1
12	2,9	6,5
14	3,1	7,9
21	4,7	12,6
30	5,5	16,7
40	6,3	20,9

Same insert for external and internal thread | Mesma pastilha para roscagem externa e interna | Misma plaquita para roscado externo e interno

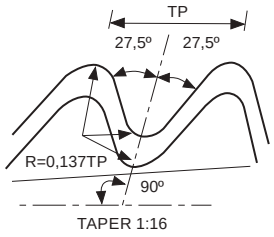
P (Pitch)	Dimensions | Dimensões | Dimensiones (mm)										Stock grade code (2)
	12		14		21		30		40		
	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	(G4) PH7920
24.00			2124104	14 I/E 24 W							⚙
20.00			2124105	14 I/E 20 W	2124110	21 I/E 20 W					⚙
19.00	2124103	12 I/E 19 W*	2124106	14 I/E 19 W	2124111	21 I/E 19 W					⚙
16.00			2124107	14 I/E 16 W	2124112	21 I/E 16 W	2124115	30 I/E 16 W			⚙
14.00			2124108	14 I/E 14 W	2124113	21 I/E 14 W	2124116	30 I/E 14 W			⚙
11.00			2124109	14 I/E 11 W	2124114	21 I/E 11 W	2124117	30 I/E 11 W	2124118	40 I/E 11 W	⚙
8.00									2124119	40 I/E 8 W	⚙

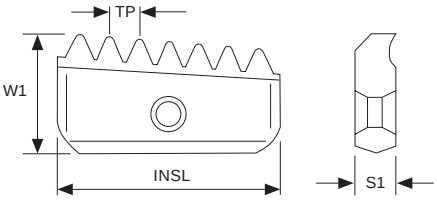
*One cutting edge | Uma aresta de corte | Un filo de corte

⚙ Stock item | Produto de stock | Itens de stock

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

BSPT One cutting edge | Uma aresta de corte | Un filo de corte





INSL	S1	W1
12	2,9	6,5
14	3,1	7,9
21	4,7	12,6
30	5,5	16,7
40	6,3	20,9

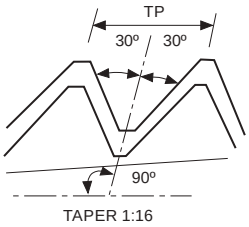
Conical pipe thread milling inserts are one sided and may be used for both external and internal threading | As pastilhas de roscagem para tubos cónicos têm uma face e podem ser usadas para roscagem externa e interna | Las plaquitas de roscado para tubos cónicos tienen una cara y pueden ser usadas para roscado externo e interno.

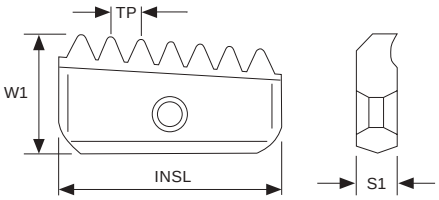
P (Pitch)	Dimensions | Dimensões | Dimensiones (mm)										Stock grade code (2)
	12		14		21		30		40		
	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	(G4) PH7920
19.00	2124120	12 I/E 19 BSPT	2124121	14 I/E 19 BSPT							⚙
14.00			2124122	14 I/E 14 BSPT	2124123	21 I/E 14 BSPT					⚙
11.00					2124124	21 I/E 11 BSPT	2124125	30 I/E 11 BSPT	2124126	40 I/E 11 BSPT	⚙

⚙ Stock item | Produto de stock | Itens de stock

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

NPT One cutting edge | Uma aresta de corte | Un filo de corte





INSL	S1	W1
12	2,9	6,5
14	3,1	7,9
21	4,7	12,6
30	5,5	16,7
40	6,3	20,9

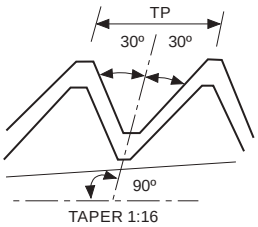
Conical pipe thread milling inserts are one sided and may be used for both external and internal threading | As pastilhas de roscagem para tubos cónicos têm uma face e podem ser usadas para roscagem externa e interna | Las plaquitas de roscado para tubos cónicos tienen una cara y pueden ser usadas para roscado externo e interno.

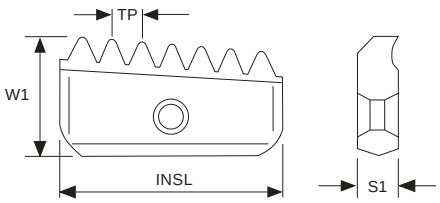
P (Pitch)	Dimensions | Dimensões | Dimensiones (mm)										Stock grade code (2)
	12		14		21		30		40		
	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	(G4) PH7920
18.00	2124127	12 I/E 18 NPT	2124128	14 I/E 18 NPT							⛃
14.00			2124129	14 I/E 14 NPT	2124130	21 I/E 14 NPT					⛃
11.50					2124131	21 I/E 11.5 NPT	2124132	30 I/E 11.5 NPT	2124134	40 I/E 11.5 NPT	⛃
8.00							2124133	30 I/E 8 NPT	2124135	40 I/E 8 NPT	⛃

⛃ Stock item | Produto de stock | Itens de stock

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

NPTF One cutting edge | Uma aresta de corte | Un filo de corte





INSL	S1	W1
12	2,9	6,5
14	3,1	7,9
21	4,7	12,6
30	5,5	16,7
40	6,3	20,9

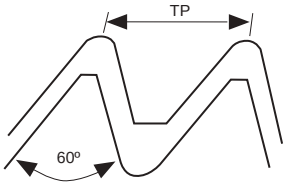
Conical pipe thread milling inserts are one sided and may be used for both external and internal threading | As pastilhas de roscagem para tubos cónicos têm uma face e podem ser usadas para roscagem externa e interna | Las plaquitas de roscado para tubos cónicos tienen una cara y pueden ser usadas para roscado externo e interno.

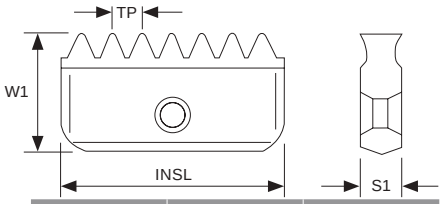
P (Pitch)	Dimensions | Dimensões | Dimensiones (mm)										Stock grade code (2)
	12		14		21		30		40		
	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	(G4) PH7920
18.00	2124136	12 I/E 18 NPTF	2124137	14 I/E 18 NPTF							⛃
14.00			2124138	14 I/E 14 NPTF	2124139	21 I/E 14 NPTF					⛃
11.50					2124140	21 I/E 11.5 NPTF	2124141	30 I/E 11.5 NPTF	2124143	40 I/E 11.5 NPTF	⛃
8.00							2124142	30 I/E 8 NPTF	2124144	40 I/E 8 NPTF	⛃

⛃ Stock item | Produto de stock | Itens de stock

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

NPS Two cutting edges | Duas arestas de corte | Dos filos de corte





INSL	S1	W1
12	2,9	6,5
14	3,1	7,9
21	4,7	12,6
30	5,5	16,7
40	6,3	20,9

Same insert for external and internal thread | Mesma pastilha para roscagem externa e interna | Misma plaquita para roscado externo e interno

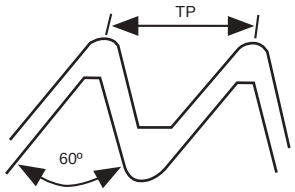
P (Pitch)	Dimensions | Dimensões | Dimensiones (mm)										Stock grade code (2)
	12		14		21		30		40		
	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	(G4) PH7920
18.00	2124145	12 I/E 18 NPS*	2124147	14 I/E 18 NPS							◬
14.00			2124148	14 I/E 14 NPS	2124149	21 I/E 14 NPS					◬
11.50					2124150	21 I/E 11.5 NPS	2124151	30 I/E 11.5 NPS	2124153	40 I/E 11.5 NPS	◬
8.00							2124152	30 I/E 8 NPS	2124154	40 I/E 8 NPS	◬

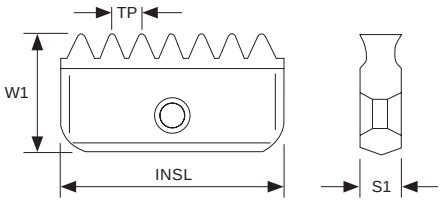
◬ Stock available until sold out. This item will be discontinued. | Stock disponivel até acabar o stock. Este artigo será descontinuado. Stock disponible hasta acabar el stock. Este item será descontinuado.

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

*One cutting edge | Uma aresta de corte | Un filo de corte

NPSF Two cutting edges | Duas arestas de corte | Dos filos de corte





INSL	S1	W1
12	2,9	6,5
14	3,1	7,9
21	4,7	12,6
30	5,5	16,7
40	6,3	20,9

Same insert for external and internal thread | Mesma pastilha para roscagem externa e interna | Misma plaquita para roscado externo e interno

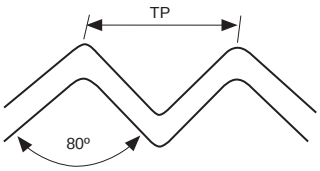
P (Pitch)	Dimensions | Dimensões | Dimensiones (mm)										Stock grade code (2)
	12		14		21		30		40		
	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	(G4) PH7920
18.00	2124155	12 I/E 18 NPSF*	2124156	14 I/E 18 NPSF							◬
14.00			2124157	14 I/E 14 NPSF	2124158	21 I/E 14 NPSF					◬
11.50					2124159	21 I/E 11.5 NPSF	2124160	30 I/E 11.5 NPSF	2124162	40 I/E 11.5 NPSF	◬
8.00							2124161	30 I/E 8 NPSF	2124163	40 I/E 8 NPSF	◬

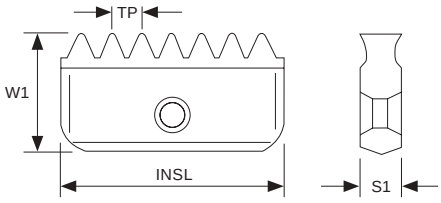
◬ Stock available until sold out. This item will be discontinued. | Stock disponivel até acabar o stock. Este artigo será descontinuado. Stock disponible hasta acabar el stock. Este item será descontinuado.

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

*One cutting edge | Uma aresta de corte | Un filo de corte

PG DIN 40430 Two cutting edges | Duas arestas de corte | Dos filos de corte





INSL	S1	W1
14	3,1	7,9
21	4,7	12,6
30	5,5	16,7

Same insert for external and internal thread | Mesma pastilha para roscagem externa e interna | Misma plaquita para roscado externo e interno

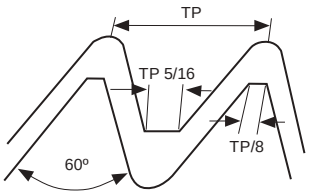
P (Pitch)	Dimensions | Dimensões | Dimensiones (mm)						Stock grade code (2)
	14		21		30		
	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	(G4) PH7920
18.00	2124164	14 I/E 18 PG	2124165	21 I/E 18 PG			⛁
16.00			2124166	21 I/E 16 PG	2124167	30 I/E 16 PG	⛁

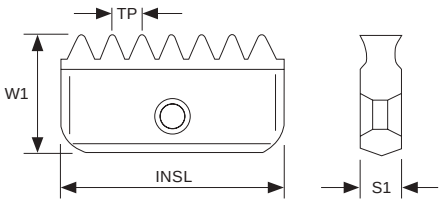
*One cutting edge | Uma aresta de corte | Un filo de corte

⛁ Stock item | Produto de stock | Itens de stock

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

UNJ Two cutting edges | Duas arestas de corte | Dos filos de corte





INSL	S1	W1
14	3,1	7,9
21	4,7	12,6

Same insert for external and internal thread | Mesma pastilha para roscagem externa e interna | Misma plaquita para roscado externo e interno

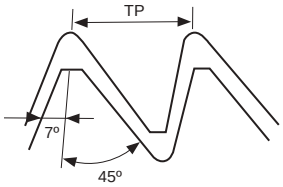
P (Pitch)	Dimensions | Dimensões | Dimensiones (mm)				Stock grade code (2)
	14		21		
	Geometry code (1)	Ref.	Geometry code (1)	Ref.	(G4) PH7920
24.00	2124168	14 E 24 UNJ	2124174	21 E 24 UNJ	⛁
20.00	2124169	14 E 20 UNJ	2124175	21 E 20 UNJ	⛁
18.00	2124170	14 E 18 UNJ			⛁
16.00	2124171	14 E 16 UNJ			⛁
14.00	2124172	14 E 14 UNJ			⛁
12.00	2124173	14 E 12 UNJ	2124179	21 E 12 UNJ	⛁

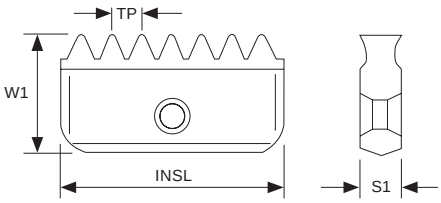
⛁ Stock item | Produto de stock | Itens de stock

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

Note: For internal UNJ threads it is common to use UN inserts as partial profile tool | Para roscagem interna UNJ é comum utilizar pastilhas UN como ferramenta de perfil parcial | Para roscado interno UNJ é usual utilizar plaquitas UN como herramienta de perfilado parcial

AMERICAN BUTTRESS Two cutting edges | Duas arestas de corte | Dos filos de corte





INSL	S1	W1
21	4,7	12,6
30	5,5	16,7

Same insert for external and internal thread | Mesma pastilha para roscagem externa e interna | Misma plaquita para roscado externo e interno

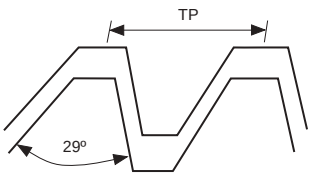
P (Pitch)	Dimensions | Dimensões | Dimensiones (mm)				Stock grade code (2)
	21		30		
	Geometry code (1)	Ref.	Geometry code (1)	Ref.	(G4) PH7920
16.00	2124180	21 I/E 16 ABUT	2124184	30 I/E 16 ABUT	◎
12.00	2124181	21 I/E 12 ABUT	2124185	30 I/E 12 ABUT	◎
10.00	2124182	21 I/E 10 ABUT	2124186	30 I/E 10 ABUT	◎
8.00	2124183	21 I/E 8 ABUT	2124187	30 I/E 8 ABUT	◎
6.00			2124188	30 I/E 6 ABUT	◎
4.00			2124189	30 I/E 4 ABUT	◎

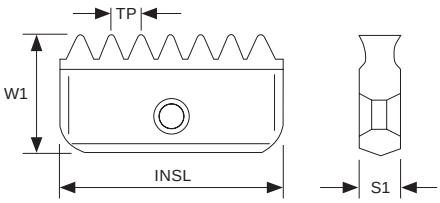
◎ Stock item | Produto de stock | Itens de stock

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

Note: ABUT thread milling inserts are one-sided and it can be used only on Multi-insert toolholders | As pastilhas de roscagem ABUT são de uma face e só podem ser utilizadas nos suportes de múltiplas pastilhas | Las plaquitas de roscado ABUT son de una cara y sólo se pueden utilizar en las herramientas de múltiples plaquitas

ACME Two cutting edges | Duas arestas de corte | Dos filos de corte





INSL	S1	W1
21	4,7	12,6
30	5,5	16,7
40	6,3	20,9

Same insert for external and internal thread | Mesma pastilha para roscagem externa e interna | Misma plaquita para roscado externo e interno

P (Pitch)	Dimensions | Dimensões | Dimensiones (mm)						Stock grade code (2)
	21		30		40		
	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	(G4) PH7920
12.00	2124191	21 I 12 ACME					◎
10.00							◎
8.00							◎
6.00			2124197	30 I 6.0 ACME			◎
4.00							◎
3.50							◎
3.00							◎

◎ Stock item | Produto de stock | Itens de stock

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

THREAD MILLING

TOOLHOLDERS

Thread milling offers a variable range of toolholders suitable for internal, external, medium, and large threads. It is particularly effective for threading large diameter or blind holes. With reduced cutting force requirements and the ability to use a single tool across various hole sizes, thread milling ensures versatility, process security, efficiency, and precise threading.

A fresagem de roscas oferece uma ampla gama de suportes adequados para roscas internas, externas, de tamanho médio e grande. É particularmente eficaz para furos de grande diâmetro ou cegos. Com requisitos reduzidos de força de corte e a capacidade de usar uma única ferramenta em diferentes tamanhos de furo, garante versatilidade, segurança do processo, eficiência e precisão na roscagem.

El fresado de roscas ofrece una amplia gama de soportes adecuados para roscas internas, externas, medianas y grandes. Es particularmente eficaz para agujeros ciegos o de gran diámetro. Con requisitos de fuerza de corte reducidos y la capacidad de utilizar una sola herramienta en diferentes tamaños de orificios, garantiza versatilidad, seguridad del proceso, eficiencia y precisión en el roscado.

SINGLE INSERT TOOLHOLDERS

> page 950

- From ØDc 9,5mm to 48,0mm
  De ØDc 9,5mm a 48,0mm | Desde ØDc 9,5mm hasta 48,0mm
- Short and long version on weldon shank
  Versão curta e longa com haste weldon | Versión corta y larga con mango weldon
- Long carbide on cylindrical shank
  Haste cilíndrica longa em metal duro | Mango cilíndrico largo en metal duro

DOUBLE INSERT TOOLHOLDERS

> page 952

- From ØDc 20mm to 50mm
  De ØDc 20mm a 50mm | Desde ØDc 20mm hasta 50mm
- Short version on weldon shank
  Versão curta com haste weldon | Versión corta con mango weldon

THREAD MILLING TOOLHOLDERS CODE KEY

Codificação ISO para suportes de fresagem de roscar | Codificación ISO para herramientas de fresado de roscar

W	S	S	N	029	110	A30	-	1
1	2	3	4	5	6	7		8

1 - Mounting type	
A	Arbor
E	Cylindrical
W	Weldon

2 - Toolholder material	
S	Steel
C	Carbide

3 - Clamping	
S	Screw

4 - Operation type	
N	Internal + External
E	External

5 - Cutting diameter (ØDC - mm)
Example: 029 = 29 mm

6 - Toolholder lenght (LF - mm)
Example: 110 = 110 mm

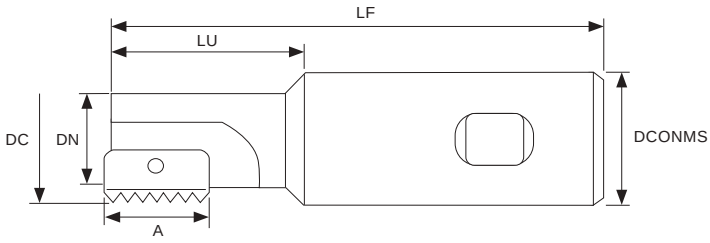
7 - Insert Pocket Size	
A12	12 mm
A14	14 mm
A21	21 mm
A30	30 mm
A40	40 mm

8 - Number of inserts				
1	**2**	**3**	**4**	**5**

palbit

SINGLE INSERT TOOLHOLDERS Suportes de uma única pastilha | Herramientas de una única plaquita

WSSN-1

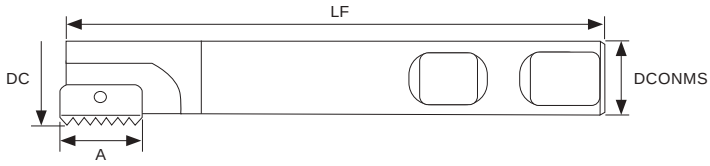


Order Code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)						Number of inserts	Stock
		A	DC	DCONMS	DN	LF	LU		
182004400	WSSN 009 085 A12-1	12	9,5	20	7,5	85	14	1	◈
182008000	WSSN 010 085 A12-1	12	9,9	20	7,6	85	16	1	◈
182004500	WSSN 012 075 A14-1	14	12,0	20	8,9	75	20	1	◈
182008100	WSSN 014 085 A14-1	14	14,5	20	11,2	85	25	1	◈
182008200	WSSN 017 085 A14-1	14	17,0	20	13,4	85	30	1	◈
182003500	WSSN 018 085 A21-1*	21	18,0	20	14,4	85	30	1	◈
182003600	WSSN 021 094 A21-1	21	21,0	20	16,5	94	40	1	◈
182008300	WSSN 029 110 A30-1	30	29,0	25	22,4	110	50	1	◈
182019600	WSSN 048 153 A40-1	40	48,0	40	35,0	153	78	1	○

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

***Can not be used with the following inserts:** | Não pode ser usado com as seguintes pastilhas: | No se puede utilizar con las seguientes plaquitas:
21 I 3.5 ISO; 21 I 8.0 UN; 21 I 7.0 UN; 21 I/E 11 BSPT; 21 I/E 11.5 NPT; 21 I/E 11.5 NPTF

WSSN-1 Long shank



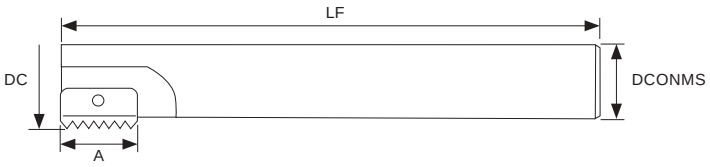
Order Code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)				Number of inserts	Stock
		A	DC	DCONMS	LF		
182008600	WSSN 025 125 A21-1	21	25	20	125	1	◈
182008700	WSSN 031 150 A30-1	30	31	25	150	1	◈
182019500	WSSN 038 150 A30-1	30	38	32	150	1	◈
182019700	WSSN 048 210 A40-1	40	48	40	210	1	○

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

Note: For holders with long overhang reduce the cutting speed by 20-40%, depending on workpiece, material, pitch and overhang | Para suportes com comprimento elevado reduza a velocidade de corte em 20-40%, dependendo da peça a maquinar, do material, do pitch e comprimento | Para herramientas con longitud elevada reduzca la velocidad de corte en 20-40%, dependiendo de la pieza a mecanizar, del material, del pitch y la longitud.

SINGLE INSERT TOOLHOLDERS Suportes de uma única pastilha | Herramientas de una única plaquita

ECSN-1 Long carbide shank



Order Code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)				Number of inserts	Stock
		A	DC	DCONMS	LF		
182007400	ECSN 010 125 A12-1*	12	9,9	8	125	1	⊛
182007600	ECSN 013 155 A14-1	14	13,2	10	155	1	⊛
182007700	ECSN 015 175 A14-1	14	15,2	12	175	1	⊛
182007800	ECSN 021 130 A21-1	21	21,0	16	130	1	⊛
182007900	ECSN 021 200 A21-1	21	21,0	16	200	1	⊛

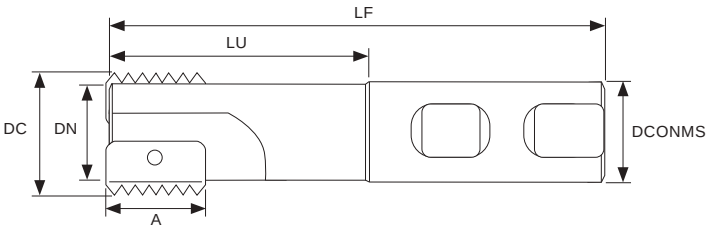
⊛ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

*** Without coolant bore** | Sem furo de refrigeração | Sin agujero de refrigeración

Note: For holders with long overhang reduce the cutting speed by 20-40%, depending on workpiece, material, pitch and overhang | Para suportes com comprimento elevado reduza a velocidade de corte em 20-40%, dependendo da peça a maquinar, do material, do pitch e comprimento | Para herramientas con longitud elevada reduzca la velocidad de corte en 20-40%, dependiendo de la pieza a mecanizar, del material, del pitch y la longitud.

DOUBLE INSERT TOOLHOLDERS Suportes de duas pastilhas | Herramientas de dos plaquitas

WSSN-2



Order Code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)						Number of inserts	Stock
		A	DC	DCONMS	DN	LF	LU		
182004300	WSSN 020 093 A14-2	14	20	20	16	93	41	2	⊛
182008400	WSSN 030 108 A21-2	21	30	25	24	108	52	2	⊛
182008500	WSSN 040 130 A30-2	30	40	32	30	130	70	2	⊛
182019800	WSSN 050 153 A40-2	40	50	40	38	153	78	2	◯

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

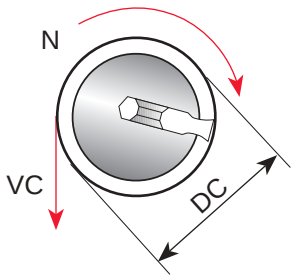
THREAD MILLING TOOLHOLDERS TECHNICAL DATA

Dados técnicos de suportes de fresagem de roscar | Datos técnicos de herramientas de fresado de roscar

Conversion of selected cutting speed to rotational speed is calculated using the following formulas:

Spindle Speed (rev/min)

$$n = \frac{vc \cdot 1000}{\pi \cdot DC} \quad (RPM)$$



Cutting Speed (m/min)

$$vc = \frac{n \cdot \pi \cdot DC}{1000} \quad (m/min)$$

Nomenclature

DC - Cutter diameter (mm)
n - Spindle Speed (rev/min)
VC - Cutting Speed (m/min)

Example for the following values:
VC = 120 m/min
DC = 30 mm

$$n = \frac{VC \times 1000}{\pi \times D} = \frac{120 \times 1000}{3.14 \times 30} = 1274 \text{ RPM}$$

SPEED AND FEED SELECTION Selecção da velocidade e do avanço | Selección de la velocidad e de avance

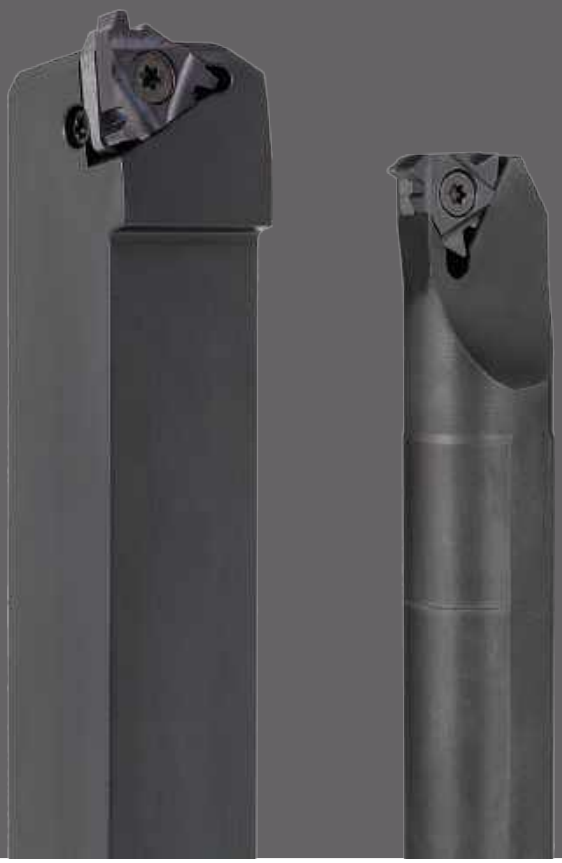
TiAlN – Sub-Micron Grade with Titanium Aluminium Nitride multi-layer coating (ISO K10-K20). This is a general purpose grade, which can be used with all materials, it should be run at medium to high cutting speeds.

Recommended feed per tooth: 0.05 - 0.15 mm/t

ISO	Material	Cutting Speed VC (m/min) TiAlN
P	Low and Medium Carbon Steels	115 - 280
	High Carbon Steels	130 - 200
	Treated Steels	105 - 180
M	Stainless Steels, Cast Stainless Steels	130 - 190
	Cast Steels	150 - 190
K	Cast Iron	80 - 170
N	Non-Ferrous and Aluminium	180 - 340
	Synthetics, Duroplastics, Thermoplastics	115 - 460
S	Nickel Alloys, Titanium Alloys	25 - 90

THREAD TURNING

INSERTS

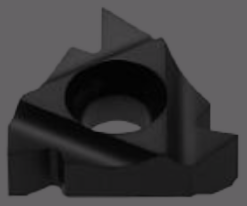


Thread turning inserts are indispensable tools in machining, capable of producing various thread types such as metric, imperial, acme, and buttress. They ensure precise threading, vital for diverse industry needs.

As pastilhas para torneamento de roscas são ferramentas indispensáveis na maquinação, capazes de produzir diversos tipos de roscas, tais como métrica, imperial, acme e buttress. Estas garantem um processo de roscagem preciso, vital para as diversas necessidades da indústria.

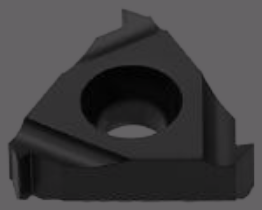
Los insertos de torneado de roscas son herramientas indispensables en el mecanizado, capaces de producir varios tipos de roscas, como métricas, imperiales, acme y buttress. Garantizan un roscado preciso, vital para diversas necesidades de industria.

PARTIAL PROFILE > page 960



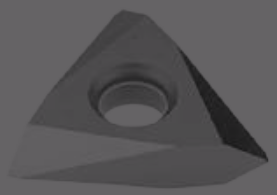
- 55º and 60º
  55º e 60º | 55º y 60º
- From sizes 06 to 27
  De tamanhos 06 até 27 | De tamaños 06 a 27

FULL PROFILE > page 964



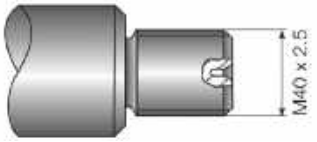
- ISO, UN, WHIT, BSPT, NPT, NPTF, ABUT, ACME, API and others
  ISO, UN, WHIT, BSPT, NPT, NPTF, ABUT, ACME, API e outros | ISO, UN, WHIT, BSPT, NPT, NPTF, ABUT, ACME, API y otros
- From sizes 06 to 27
  De tamanhos 06 até 27 | De tamaños 06 a 27

TANGENTIAL PROFILE > page 1004



- Inserts TNMC and TPMC
  Pastilhas TNMC e TPMC | Plaquitas TNMC y TPMC
- Sizes 16 and 22
  Tamanhos 16 e 22 | Tamaños 16 y 22

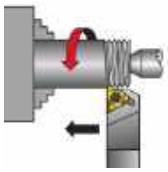
THREAD TURNING - STEP BY STEP EXAMPLE



Application:

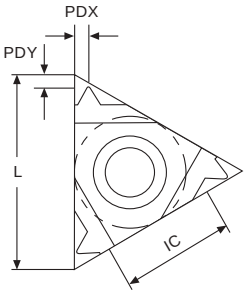
Thread: External Right Hand
ISO MetricM40x2,5
Material: 4140 (25HRc)

1 - Choose the Thread Working Method



Feed direction towards the chuck was choosen.
Therefore, an external right hand insert and an external right hand holder will be used.

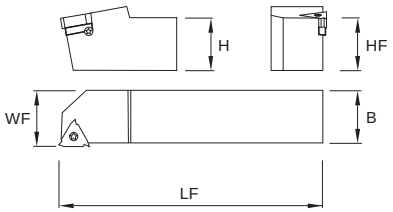
2 - Choose the Insert Size



Chosen insert: **16ER 2.50ISO**

Insert Size		Pitch	Reference	Anvil	Toolholder
IC	L mm	mm		RH	
9.525	16	2.50	16ER 2.50ISO	EA16	STCNL 2525 M16

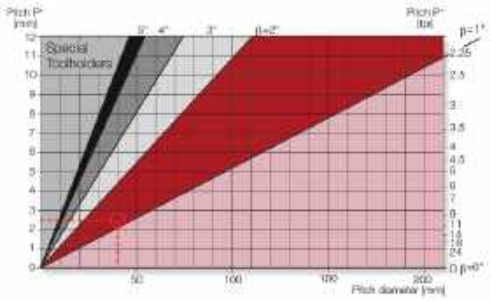
3 - Choose the Toolholder



Chosen toolholder: **SXANR 2525 M16**

Insert Size	Reference	Dimensions mm		
IC		H=HF=B	WF	LF
9.525	SXANR 2525 M16	25	25	150

4 - Find the Helix Angle



From the table, using a pitch of 2,5mm (10 TPI) and a workpiece diameter of 40mm (1,57"), we find the helix angle to be **1,5°**

THREAD TURNING - STEP BY STEP EXAMPLE

Roscagem - Exemplo passo-a-passo | Roscado - Ejemplo paso a paso

5 - Choose the Correct Anvil

Anvil choosen: **EA16**

Resultant Helix Angle			3.5	2.5	1.5	0.5
Insert Size		Holder				
IC	L mm					
9,525	16	ER/IL	EA16+3.5	EA16+2.5	EA16	EA16+0.5

6 - Choose the Carbide Grade and Cutting Speed

Carbide grade choosen: **PH6920**
Cutting Speed: **140 m/min**

	Material:		Hardness Brinell HB	PH6920
P	Low alloy steel (alloying elements ≤ 5%)	Non hardened	180	**85-145**
		Hardened	275	75-140
		Hardened	350	70-135

7 - Determine the Number of Passes

Number of passes; 10

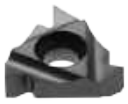
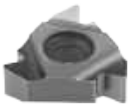
ISO External

Pitch	mm	1.50	1.75	2.00	**2.50**	3.00	3.50	4.00
	tpi	16	14	12	10	8	7	6
No. of passes		6-10	7-12	7-12	**8-14**	9-16	10-18	11-18

SUMMARY

	Thread Type	ISO M40x2,5 External Right Hand
1	Feed Direction:	Towards the chuck
2	Insert and Grade:	16ER 2,5ISO PH6920
3	Toolholder:	SXANR 2525 M16
4	Helix Angle:	1,5°
5	Anvil:	EA16
6	Cutting Speed:	140 m/min
7	Number of Passes;	14

THREAD TURNING INSERTS OVERVIEW

	Insert Image	Description	Page
Partial Profile		PARTIAL PROFILE 60°	961
		PARTIAL PROFILE 55°	962
Full Profile		AMERICAN BUTTRESS | ANSI B1.9-1973	997
		AMERICAN ACME | ANSI/ASME: 1.5-1988	988
		AMERICAN UN (UNC, UNF, UNEF) | ANSI B1.1-1982	969
		API | API SPEC 7:2001 (0.040 | 0.038R | 0.050)	999
		API | BUTTRESS CASING | API SPEC 5B:2008 | OIL THREADS	1000
		API ROUND CASING & TUBING | API SPEC 5B:2008	1001
		BSPT | B.S.21: 1985	979
		EXTREME LINE CASING | API SPEC 5B:2008 - OIL THREADS	1002
		ISO METRIC ISO 965-1: 1999-11 | DIN 13: 2005-08	965
		METRIC BUTTRESS SAGENGEWINDE (DIN 513:1985) SAW THREAD	998

THREAD TURNING INSERTS OVERVIEW

Vista geral de pastilhas | Vista general de plaquitas

	Insert Image	Description	Page
Full Profile		MJ | ISO 5855-1:1989	996
		NPT | ANSI/ASME B 1.20.1-1983	980
		NPTF | ANSI B 1.20.3-1976	982
		PG | DIN 40430; 1971	1003
		ROUND (DIN 20400) | DIN 20400:1990	985
		ROUND (DIN 405) | DIN 405:1997	984
		STUB ACME | ANSI/ASME: 1.8-1988	990
		TRAPEZ | DIN 103:1977 | ISO 2901:1993	986
		UNJ | MIL-S-8879A	992
		WITHWORTH FOR BSW, BSF, BSP, B.S.84: 1956, DIN 259, ISO 228-1:1994	974
Tangential Profile		TNMC	1005
		TPMC	1005

PARTIAL PROFILE INSERTS CODE KEY

Chave do codificação de pastilhas | Llave de codificación de plaquitas

Partial Profile Example

16	ER	A	55	PH6920
1	2	3	4	5

1 - Insert Size						
L	**06**	**08**	**11**	**16**	**22**	**27**
I.C.	4.00	5.00	6.35	9.525	12.70	15.875

2 - Insert Hand Type	
ER	External Right Holder
EL	External Left Holder
IR	Internal Right Holder
IL	Internal Left Holder

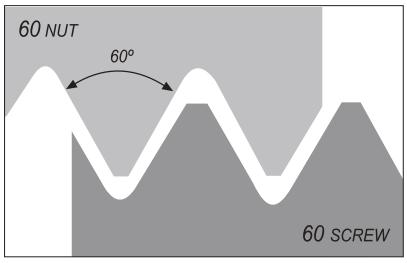
3 - Profile Type		
symbol	**mm**	**TPI**
A	0.5 - 1.5	48 - 16
G	1.75 - 3.0	14 - 8
AG	0.5 - 3.0	48 - 8
N	3.5 - 5.0	7 - 5
Q	5.5 - 6.0	4.5 - 4

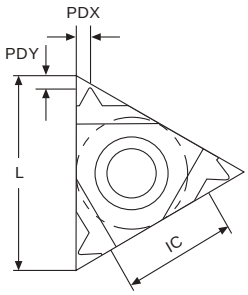
4 - Profile Angle	
55	55º
60	60º

5 - Grades
PH6920

palbit

PARTIAL PROFILE 60°





External

Geometry code [1]	Reference Referência Referencia	Pitch		Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code [2]
		MM	TPI	IC	L	PDY	PDX	(68) PH6920
1880592	11 ER A60	0.5-1.5	48-16	6.35	11	0.8	0.9	⚙
1880429	16 ER A60	0.5-1.5	48-16	9.525	16	0.8	0.9	⚙
1880431	16 ER G60	1.75-3.0	14-8	9.525	16	1.2	1.7	⚙
1880388	16 ER AG60	0.5-3.0	48-8	9.525	16	1.2	1.7	⚙
1880046	22 ER N60	3.5-5.0	7-5	12.70	22	1.7	2.5	⚙
1882486	27 ER Q60	5.5-6.0	4.5-4	15.875	27	2.1	3.1	⚙
1881851	11 EL A60	0.5-1.5	48-16	6.35	11	0.8	0.9	⚙
1880771	16 EL A60	0.5-1.5	48-16	9.525	16	0.8	0.9	⚙
1880773	16 EL G60	1.75-3.0	14-8	9.525	16	1.2	1.7	⚙
1880524	16 EL AG60	0.5-3.0	48-8	9.525	16	1.2	1.7	⚙
1880853	22 EL N60	3.5-5.0	7-5	12.70	22	1.7	2.5	⚙
1882155	27 EL Q60	5.5-6.0	4.5-4	15.875	27	2.1	3.1	○

⚙ 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

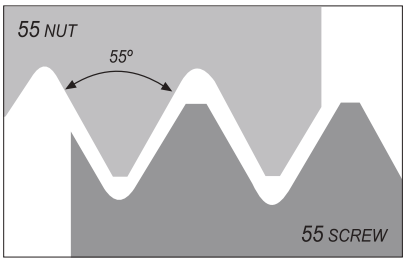
Internal

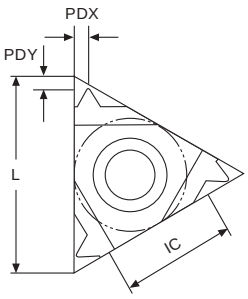
Geometry code [1]	Reference Referência Referencia	Pitch		Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code [2]
		MM	TPI	IC	L	PDY	PDX	(68) PH6920
1881730	06 IR A60	0.5-1.25	48-20	4.00	06	0.6	0.6	○
1881773	08 IR A60	0.5-1.5	48-16	5.00	08	0.6	0.7	○
1880595	11 IR A60	0.5-1.5	48-16	6.35	11	0.8	0.9	⚙
1880045	16 IR A60	0.5-1.5	48-16	9.525	16	0.8	0.9	⚙
1880435	16 IR G60	1.75-3.0	14-8	9.525	16	1.2	1.7	⚙
1880437	16 IR AG60	0.5-3.0	48-8	9.525	16	1.2	1.7	⚙
1880769	22 IR N60	3.5-5.0	7-5	12.70	22	1.7	2.5	⚙
1882487	27 IR Q60	5.5-6.0	4.5-4	15.875	27	2.1	3.1	○
1881716	06 IL A60	0.5-1.25	48-20	4.00	06	0.6	0.6	○
1882199	08 IL A60	0.5-1.5	48-16	5.00	08	0.6	0.7	⚙
1880855	11 IL A60	0.5-1.5	48-16	6.35	11	0.8	0.9	⚙
1880772	16 IL A60	0.5-1.5	48-16	9.525	16	0.8	0.9	⚙
1880774	16 IL G60	1.75-3.0	14-8	9.525	16	1.2	1.7	⚙
1880775	16 IL AG60	0.5-3.0	48-8	9.525	16	1.2	1.7	⚙
1880854	22 IL N60	3.5-5.0	7-5	12.70	22	1.7	2.5	⚙
1882179	27 IL Q60	5.5-6.0	4.5-4	15.875	27	2.1	3.1	○

⚙ 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

PARTIAL PROFILE 55°





External

Geometry code (1)	Reference Referência Referencia	Pitch		Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		MM	TPI	IC	L	PDY	PDX	(68) PH6920
1880598	11 ER A55	0.5-1.5	48-16	6.35	11	0.8	0.9	◉
1880430	16 ER A55	0.5-1.5	48-16	9.525	16	0.8	0.9	◉
1880432	16 ER G55	1.75-3.0	14-8	9.525	16	1.2	1.7	◉
1880433	16 ER AG55	0.5-3.0	48-8	9.525	16	1.2	1.7	◉
1880770	22 ER N55	3.5-5.0	7-5	12.70	22	1.7	2.5	◉
1882167	27 ER Q55	5.5-6.0	4.5-4	15.875	27	2.0	2.9	○
1881850	11 EL A55	0.5-1.5	48-16	6.35	11	0.8	0.9	○
1880776	16 EL A55	0.5-1.5	48-16	9.525	16	0.8	0.9	○
1880778	16 EL G55	1.75-3.0	14-8	9.525	16	1.2	1.7	○
1880780	16 EL AG55	0.5-3.0	48-8	9.525	16	1.2	1.7	○
1880858	22 EL N55	3.5-5.0	7-5	12.70	22	1.7	2.5	○
1882154	27 EL Q55	5.5-6.0	4.5-4	15.875	27	2.0	2.9	○

◉ 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

Internal

Geometry code (1)	Reference Referência Referencia	Pitch		Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		MM	TPI	IC	L	PDY	PDX	(68) PH6920
1881729	06 IR A55	0.5-1.25	48-20	4.00	06	0.5	0.6	○
1881772	08 IR A55	0.5-1.5	48-16	5.00	08	0.6	0.7	○
1880006	11 IR A55	0.5-1.5	48-16	6.35	11	0.8	0.9	◈
1880434	16 IR A55	0.5-1.5	48-16	9.525	16	0.8	0.9	◈
1880436	16 IR G55	1.75-3.0	14-8	9.525	16	1.2	1.7	◈
1880438	16 IR AG55	0.5-3.0	48-8	9.525	16	1.2	1.7	◈
1880047	22 IR N55	3.5-5.0	7-5	12.70	22	1.7	2.5	◈
1882189	27 IR Q55	5.5-6.0	4.5-4	15.875	27	2.0	2.9	○
1881715	06 IL A55	0.5-1.25	48-20	4.00	06	0.5	0.6	○
1881751	08 IL A55	0.5-1.5	48-16	5.00	08	0.6	0.7	○
1880856	11 IL A55	0.5-1.5	48-16	6.35	11	0.8	0.9	○
1880777	16 IL A55	0.5-1.5	48-16	9.525	16	0.8	0.9	○
1880779	16 IL G55	1.75-3.0	14-8	9.525	16	1.2	1.7	○
1880781	16 IL AG55	0.5-3.0	48-8	9.525	16	1.2	1.7	◈
1880857	22 IL N55	3.5-5.0	7-5	12.70	22	1.7	2.5	○
1882178	27 IL Q55	5.5-6.0	4.5-4	15.875	27	2.0	2.9	○

◈ 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

FULL PROFILE INSERTS CODE KEY Chave do codificação de pastilhas | Llave de codificación de plaquitas

Full Profile Example

16	ER	1.50	ISO	PH6920
1	2	3	4	7

1 - Insert Size						
L	**06**	**08**	**11**	**16**	**22**	**27**
I.C.	4.00	5.00	6.35	9.525	12.70	15.875

2 - Insert Hand Type	
ER	External Right Holder
EL	External Left Holder
IR	Internal Right Holder
IL	Internal Left Holder

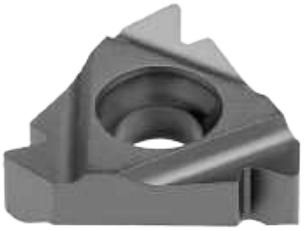
3 - Pitch	
mm	TPI
0.35 - 7.0	72 - 3

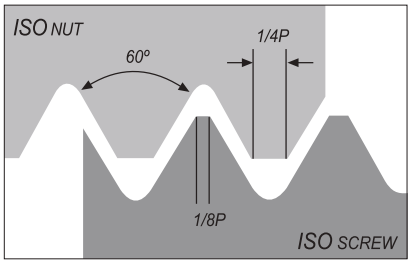
4 - Profile Type							
symbol	**profile type**	**symbol**	**profile type**	**symbol**	**profile type**	**symbol**	**profile type**
ISO	ISO METRIC	**NPTF**	NPTF	**STACME**	STUB ACME	**API**	API
UN	AMERICAN UN	**RD**	ROUND (DIN 405)	**UNJ**	UNJ	**BUT**	API BUTTRESS CASING
W	WITHWORTH	**RD20400**	ROUND (DIN 20400)	**MJ**	MJ	**API RD**	API ROUND CAS. & TUBING
BSPT	BSPT	**TR**	TRAPEZ	**ABUT**	AMERICAN BUTTRESS	**EL**	EXTREME LINE CASING
NPT	NPT	**ACME**	AMERICAN ACME	**SAGE**	METRIC BUT. SAGENGWINDE	**PG**	PG

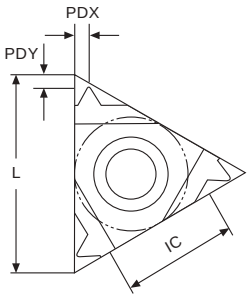
5 - Grades
PH6920

palbit

ISO METRIC ISO 965-1: 1999-11 | DIN 13: 2005-08







External

Geometry code (1)	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		MM	IC	L	PDY	PDX	(68) PH6920
1881852	11 ER 0.35 ISO	0.35	6.35	11	0.8	0.4	○
1881853	11 ER 0.40 ISO	0.40	6.35	11	0.7	0.4	○
1881854	11 ER 0.45 ISO	0.45	6.35	11	0.7	0.4	○
1881855	11 ER 0.50 ISO	0.50	6.35	11	0.6	0.6	○
1881856	11 ER 0.60 ISO	0.60	6.35	11	0.6	0.6	○
1881857	11 ER 0.70 ISO	0.70	6.35	11	0.6	0.6	○
1881858	11 ER 0.75 ISO	0.75	6.35	11	0.6	0.6	◈
1881859	11 ER 0.80 ISO	0.80	6.35	11	0.6	0.6	○
1880602	11 ER 1.00 ISO	1.00	6.35	11	0.7	0.7	◈
1881861	11 ER 1.25 ISO	1.25	6.35	11	0.8	0.9	◈
1880603	11 ER 1.50 ISO	1.50	6.35	11	0.8	1.0	◈
1881864	11 ER 1.75 ISO	1.75	6.35	11	0.8	1.1	○
1881881	11 ER 2.00 ISO	2.00	6.35	11	0.8	1.1	○
1882030	16 ER 0.35 ISO	0.35	9.525	16	0.8	0.4	○
1882031	16 ER 0.40 ISO	0.40	9.525	16	0.7	0.4	○
1882032	16 ER 0.45 ISO	0.45	9.525	16	0.7	0.4	○
1880819	16 ER 0.50 ISO	0.50	9.525	16	0.6	0.6	○
1882033	16 ER 0.60 ISO	0.60	9.525	16	0.6	0.6	○
1882034	16 ER 0.70 ISO	0.70	9.525	16	0.6	0.6	○
1880447	16 ER 0.75 ISO	0.75	9.525	16	0.6	0.6	◈
1880804	16 ER 0.80 ISO	0.80	9.525	16	0.6	0.6	◈
1880479	16 ER 1.00 ISO	1.00	9.525	16	0.7	0.7	◈
1880007	16 ER 1.25 ISO	1.25	9.525	16	0.8	0.9	◈
1880262	16 ER 1.50 ISO	1.50	9.525	16	0.8	1.0	◈
1880732	16 ER 1.75 ISO	1.75	9.525	16	0.9	1.2	◈
1880018	16 ER 2.00 ISO	2.00	9.525	16	1.0	1.3	◈
1880020	16 ER 2.50 ISO	2.50	9.525	16	1.1	1.5	◈
1880022	16 ER 3.00 ISO	3.00	9.525	16	1.2	1.6	◈
1883740	16 ER 3.50 ISO	3.50	9.525	16	1.2	1.7	○
1880823	22 ER 3.50 ISO	3.50	12.70	22	1.6	2.3	◈
1880811	22 ER 4.00 ISO	4.00	12.70	22	1.6	2.3	◈
1880824	22 ER 4.50 ISO	4.50	12.70	22	1.7	2.4	◈
1880649	22 ER 5.00 ISO	5.00	12.70	22	1.7	2.5	◈
1883741	22 ER 5.50 ISO	5.50	12.70	22	1.7	2.6	○
1883742	22 ER 6.00 ISO	6.00	12.70	22	1.9	2.7	○
1882163	27 ER 5.50 ISO	5.50	15.875	27	1.6	2.3	○
1882164	27 ER 6.00 ISO	6.00	15.875	27	1.8	2.5	○

◈ 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

ISO METRIC ISO 965-1: 1999-11 | DIN 13: 2005-08

External

Geometry code (1)	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		MM	IC	L	PDY	PDX	(68) PH6920
1881794	11 EL 0.35 ISO	0.35	6.35	11	0.8	0.4	○
1881795	11 EL 0.40 ISO	0.40	6.35	11	0.7	0.4	○
1881796	11 EL 0.45 ISO	0.45	6.35	11	0.7	0.4	○
1881797	11 EL 0.50 ISO	0.50	6.35	11	0.6	0.6	○
1881798	11 EL 0.60 ISO	0.60	6.35	11	0.6	0.6	○
1881799	11 EL 0.70 ISO	0.70	6.35	11	0.6	0.6	○
1881800	11 EL 0.75 ISO	0.75	6.35	11	0.6	0.6	○
1881801	11 EL 0.80 ISO	0.80	6.35	11	0.6	0.6	○
1881802	11 EL 1.00 ISO	1.00	6.35	11	0.7	0.7	○
1881803	11 EL 1.25 ISO	1.25	6.35	11	0.8	0.9	○
1881804	11 EL 1.50 ISO	1.50	6.35	11	0.8	1.0	○
1881806	11 EL 1.75 ISO	1.75	6.35	11	0.8	1.1	○
1880654	11 EL 2.00 ISO	2.00	6.35	11	0.8	1.1	○
1881977	16 EL 0.35 ISO	0.35	9.525	16	0.8	0.4	○
1881978	16 EL 0.40 ISO	0.40	9.525	16	0.7	0.4	○
1881979	16 EL 0.45 ISO	0.45	9.525	16	0.7	0.4	◈
1881980	16 EL 0.50 ISO	0.50	9.525	16	0.6	0.6	○
1881981	16 EL 0.60 ISO	0.60	9.525	16	0.6	0.6	○
1881982	16 EL 0.70 ISO	0.70	9.525	16	0.6	0.6	○
1881983	16 EL 0.75 ISO	0.75	9.525	16	0.6	0.6	◈
1881984	16 EL 0.80 ISO	0.80	9.525	16	0.6	0.6	○
1880782	16 EL 1.00 ISO	1.00	9.525	16	0.7	0.7	◈
1880651	16 EL 1.25 ISO	1.25	9.525	16	0.8	0.9	◈
1880652	16 EL 1.50 ISO	1.50	9.525	16	0.8	1.0	○
1880653	16 EL 1.75 ISO	1.75	9.525	16	0.9	1.2	◈
1882519	16 EL 2.00 ISO	2.00	9.525	16	1.0	1.3	◈
1880788	16 EL 2.50 ISO	2.50	9.525	16	1.1	1.5	◈
1880488	16 EL 3.00 ISO	3.00	9.525	16	1.2	1.6	○
1883743	16 EL 3.50 ISO	3.50	9.525	16	1.2	1.7	○
1880844	22 EL 3.50 ISO	3.50	12.70	22	1.6	2.3	○
1880845	22 EL 4.00 ISO	4.00	12.70	22	1.6	2.3	○
1880846	22 EL 4.50 ISO	4.50	12.70	22	1.7	2.4	○
1880847	22 EL 5.00 ISO	5.00	12.70	22	1.7	2.5	○
1883744	22 EL 5.50 ISO	5.50	12.70	22	1.7	2.6	○
1883745	22 EL 6.00 ISO	6.00	12.70	22	1.9	2.7	○
1882150	27 EL 5.50 ISO	5.50	15.875	27	1.6	2.3	○
1882151	27 EL 6.00 ISO	6.00	15.875	27	1.8	2.5	○

◈ 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

Internal

Geometry code [1]	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code [2]
		MM	IC	L	PDY	PDX	(68) PH6920
1881717	06 IR 0.50 ISO	0.50	4.00	06	0.9	0.5	○
1881718	06 IR 0.75 ISO	0.75	4.00	06	0.8	0.5	○
1881719	06 IR 1.00 ISO	1.00	4.00	06	0.7	0.6	○
1881720	06 IR 1.25 ISO	1.25	4.00	06	0.6	0.6	○
1881752	08 IR 0.35 ISO	0.35	5.00	08	0.7	0.4	○
1881753	08 IR 0.50 ISO	0.50	5.00	08	0.6	0.5	○
1881754	08 IR 0.75 ISO	0.75	5.00	08	0.6	0.5	○
1881755	08 IR 1.00 ISO	1.00	5.00	08	0.6	0.6	○
1881756	08 IR 1.25 ISO	1.25	5.00	08	0.6	0.7	◈
1881757	08 IR 1.50 ISO	1.50	5.00	08	0.6	0.7	○
1881758	08 IR 1.75 ISO	1.75	5.00	08	0.6	0.8	○
1881937	11 IR 0.35 ISO	0.35	6.35	11	0.8	0.3	○
1881938	11 IR 0.40 ISO	0.40	6.35	11	0.8	0.4	○
1881939	11 IR 0.45 ISO	0.45	6.35	11	0.8	0.4	○
1880825	11 IR 0.50 ISO	0.50	6.35	11	0.6	0.6	◈
1881940	11 IR 0.60 ISO	0.60	6.35	11	0.6	0.6	○
1881941	11 IR 0.70 ISO	0.70	6.35	11	0.6	0.6	○
1880762	11 IR 0.75 ISO	0.75	6.35	11	0.6	0.6	◈
1881942	11 IR 0.80 ISO	0.80	6.35	11	0.6	0.6	○
1880604	11 IR 1.00 ISO	1.00	6.35	11	0.8	0.7	◈
1880827	11 IR 1.25 ISO	1.25	6.35	11	0.8	0.8	◈
1880605	11 IR 1.50 ISO	1.50	6.35	11	0.8	1.0	◈
1880828	11 IR 1.75 ISO	1.75	6.35	11	0.8	1.1	◈
1880829	11 IR 2.00 ISO	2.00	6.35	11	0.8	0.9	◈
1883746	11 IR 2.50 ISO	2.50	6.35	11	0.8	1.2	○
1882108	16 IR 0.35 ISO	0.35	9.525	16	0.8	0.3	○
1882109	16 IR 0.40 ISO	0.40	9.525	16	0.8	0.4	○
1882110	16 IR 0.45 ISO	0.45	9.525	16	0.8	0.4	○
1880830	16 IR 0.50 ISO	0.50	9.525	16	0.6	0.6	◈
1882112	16 IR 0.60 ISO	0.60	9.525	16	0.6	0.6	○
1882113	16 IR 0.70 ISO	0.70	9.525	16	0.6	0.6	○
1880831	16 IR 0.75 ISO	0.75	9.525	16	0.6	0.6	◈
1880832	16 IR 0.80 ISO	0.80	9.525	16	0.6	0.6	◈
1880025	16 IR 1.00 ISO	1.00	9.525	16	0.6	0.7	◈
1880026	16 IR 1.25 ISO	1.25	9.525	16	0.8	0.9	◈
1880619	16 IR 1.50 ISO	1.50	9.525	16	0.8	1.0	◈
1880733	16 IR 1.75 ISO	1.75	9.525	16	0.9	1.2	◈
1880039	16 IR 2.00 ISO	2.00	9.525	16	1.0	1.3	◈
1880041	16 IR 2.50 ISO	2.50	9.525	16	1.1	1.5	◈
1880042	16 IR 3.00 ISO	3.00	9.525	16	1.1	1.5	◈
1883747	16 IR 3.50 ISO	3.50	9.525	16	1.2	1.7	◈
1880834	22 IR 3.50 ISO	3.50	12.70	22	1.6	2.3	◈
1880818	22 IR 4.00 ISO	4.00	12.70	22	1.6	2.3	◈
1880835	22 IR 4.50 ISO	4.50	12.70	22	1.6	2.4	○
1880650	22 IR 5.00 ISO	5.00	12.70	22	1.6	2.3	◈
1883748	22 IR 5.50 ISO	5.50	12.70	22	1.6	2.3	○
1883749	22 IR 6.00 ISO	6.00	12.70	22	1.6	2.4	○
1882185	27 IR 5.50 ISO	5.50	15.875	27	1.6	2.3	◈
1882186	27 IR 6.00 ISO	6.00	15.875	27	1.8	2.5	○

◈ 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

ISO METRIC ISO 965-1: 1999-11 | DIN 13: 2005-08

Internal

Geometry code [1]	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code [2]
		MM	IC	L	PDY	PDX	(68) PH6920
1881703	06 IL 0.50 ISO	0.50	4.00	06	0.9	0.5	○
1881704	06 IL 0.75 ISO	0.75	4.00	06	0.8	0.5	○
1881705	06 IL 1.00 ISO	1.00	4.00	06	0.7	0.6	○
1881706	06 IL 1.25 ISO	1.25	4.00	06	0.6	0.6	○
1881732	08 IL 0.50 ISO	0.50	5.00	08	0.6	0.5	◈
1881733	08 IL 0.75 ISO	0.75	5.00	08	0.6	0.5	○
1881734	08 IL 1.00 ISO	1.00	5.00	08	0.6	0.6	○
1881735	08 IL 1.25 ISO	1.25	5.00	08	0.6	0.7	○
1881736	08 IL 1.50 ISO	1.50	5.00	08	0.6	0.7	○
1881737	08 IL 1.75 ISO	1.75	5.00	08	0.6	0.8	○
1881911	11 IL 0.35 ISO	0.35	6.35	11	0.8	0.3	○
1881912	11 IL 0.40 ISO	0.40	6.35	11	0.8	0.4	○
1881913	11 IL 0.45 ISO	0.45	6.35	11	0.8	0.4	○
1880837	11 IL 0.50 ISO	0.50	6.35	11	0.6	0.6	○
1881914	11 IL 0.60 ISO	0.60	6.35	11	0.6	0.6	○
1881915	11 IL 0.70 ISO	0.70	6.35	11	0.6	0.6	○
1880838	11 IL 0.75 ISO	0.75	6.35	11	0.6	0.6	○
1881916	11 IL 0.80 ISO	0.80	6.35	11	0.6	0.6	○
1880839	11 IL 1.00 ISO	1.00	6.35	11	0.8	0.7	○
1880840	11 IL 1.25 ISO	1.25	6.35	11	0.8	0.8	◈
1880841	11 IL 1.50 ISO	1.50	6.35	11	0.8	1.0	◈
1880842	11 IL 1.75 ISO	1.75	6.35	11	0.8	1.1	◈
1880843	11 IL 2.00 ISO	2.00	6.35	11	0.8	0.9	◈
1883750	11 IL 2.50 ISO	2.50	6.35	11	0.8	1.2	○
1882058	16 IL 0.35 ISO	0.35	9.525	16	0.8	0.3	○
1882059	16 IL 0.40 ISO	0.40	9.525	16	0.8	0.4	○
1882060	16 IL 0.45 ISO	0.45	9.525	16	0.8	0.4	○
1882061	16 IL 0.50 ISO	0.50	9.525	16	0.6	0.6	○
1882062	16 IL 0.60 ISO	0.60	9.525	16	0.6	0.6	○
1882063	16 IL 0.70 ISO	0.70	9.525	16	0.6	0.6	○
1882064	16 IL 0.75 ISO	0.75	9.525	16	0.6	0.6	○
1882065	16 IL 0.80 ISO	0.80	9.525	16	0.6	0.6	○
1880783	16 IL 1.00 ISO	1.00	9.525	16	0.6	0.7	◈
1880784	16 IL 1.25 ISO	1.25	9.525	16	0.8	0.9	◈
1880785	16 IL 1.50 ISO	1.50	9.525	16	0.8	1.0	◈
1880786	16 IL 1.75 ISO	1.75	9.525	16	0.9	1.2	◈
1880787	16 IL 2.00 ISO	2.00	9.525	16	1.0	1.3	◈
1880789	16 IL 2.50 ISO	2.50	9.525	16	1.1	1.5	◈
1880790	16 IL 3.00 ISO	3.00	9.525	16	1.1	1.5	◈
1883751	16 IL 3.50 ISO	3.50	9.525	16	1.2	1.7	○
1880848	22 IL 3.50 ISO	3.50	12.70	22	1.6	2.3	○
1880849	22 IL 4.00 ISO	4.00	12.70	22	1.6	2.3	○
1880850	22 IL 4.50 ISO	4.50	12.70	22	1.6	2.4	○
1880851	22 IL 5.00 ISO	5.00	12.70	22	1.6	2.3	○
1883752	22 IL 5.50 ISO	5.50	12.70	22	1.6	2.3	○
1883753	22 IL 6.00 ISO	6.00	12.70	22	1.6	2.4	○
1882174	27 IL 5.50 ISO	5.50	15.875	27	1.6	2.3	○
1882175	27 IL 6.00 ISO	6.00	15.875	27	1.8	2.5	○

◈ 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

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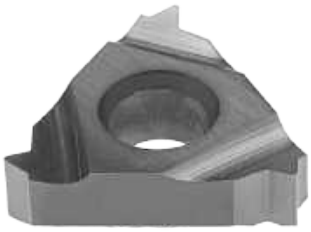
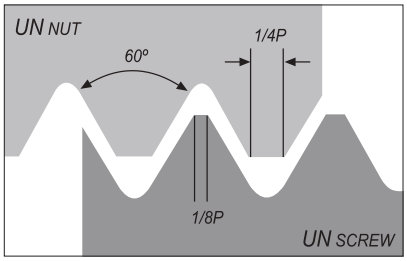
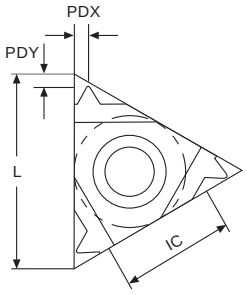






External

Geometry code (1)	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		TPI	IC	L	PDY	PDX	(68) PH6920
1881907	11 ER 72 UN	72	6.35	11	0.8	0.4	○
1881906	11 ER 64 UN	64	6.35	11	0.8	0.4	○
1881903	11 ER 56 UN	56	6.35	11	0.7	0.4	○
1881901	11 ER 48 UN	48	6.35	11	0.6	0.6	○
1881900	11 ER 44 UN	44	6.35	11	0.6	0.6	○
1881898	11 ER 40 UN	40	6.35	11	0.6	0.6	○
1881896	11 ER 36 UN	36	6.35	11	0.6	0.6	○
1881894	11 ER 32 UN	32	6.35	11	0.6	0.6	○
1881892	11 ER 28 UN	28	6.35	11	0.6	0.7	○
1881890	11 ER 27 UN	27	6.35	11	0.7	0.8	○
1881885	11 ER 24 UN	24	6.35	11	0.7	0.8	○
1881882	11 ER 20 UN	20	6.35	11	0.8	0.9	○
1881877	11 ER 18 UN	18	6.35	11	0.8	1.0	○
1881873	11 ER 16 UN	16	6.35	11	0.9	1.1	○
1881869	11 ER 14 UN	14	6.35	11	0.9	1.1	○
1882055	16 ER 72 UN	72	9.525	16	0.8	0.3	○
1882054	16 ER 64 UN	64	9.525	16	0.8	0.4	○
1882051	16 ER 56 UN	56	9.525	16	0.7	0.4	○
1882049	16 ER 48 UN	48	9.525	16	0.6	0.6	○
1882048	16 ER 44 UN	44	9.525	16	0.6	0.6	○
1882046	16 ER 40 UN	40	9.525	16	0.6	0.6	○
1882044	16 ER 36 UN	36	9.525	16	0.6	0.6	○
1880870	16 ER 32 UN	32	9.525	16	0.6	0.6	○
1880869	16 ER 28 UN	28	9.525	16	0.6	0.7	◎
1882041	16 ER 27 UN	27	9.525	16	0.7	0.8	○
1880868	16 ER 24 UN	24	9.525	16	0.7	0.8	◎
1880021	16 ER 20 UN	20	9.525	16	0.8	0.9	○
1880867	16 ER 18 UN	18	9.525	16	0.8	1.0	○
1880616	16 ER 16 UN	16	9.525	16	0.9	1.1	◎
1880014	16 ER 14 UN	14	9.525	16	1.0	1.2	◎
1880866	16 ER 13 UN	13	9.525	16	1.0	1.3	◎
1880865	16 ER 12 UN	12	9.525	16	1.1	1.4	○
1883754	16 ER 11.5 UN	11.5	9.525	16	1.1	1.5	○
1880864	16 ER 11 UN	11	9.525	16	1.1	1.5	○
1880863	16 ER 10 UN	10	9.525	16	1.1	1.5	◎
1880862	16 ER 9 UN	9	9.525	16	1.2	1.7	◎

◎ 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

AMERICAN UN (UNC, UNF, UNEF) | ANSI B1.1-1982

External

Geometry code (1)	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		TPI	IC	L	PDY	PDX	(68) PH6920
1880024	16 ER 8 UN	8	9.525	16	1.2	1.6	○
1880861	22 ER 7 UN	7	12.70	22	1.6	2.3	◈
1880860	22 ER 6 UN	6	12.70	22	1.6	2.3	◈
1880859	22 ER 5 UN	5	12.70	22	1.7	2.5	○
1882157	27 ER 4.5 UN	4.5	15.875	27	1.9	2.7	○
1882161	27 ER 4 UN	4	15.875	27	2.1	3.0	○
1881848	11 EL 72 UN	72	6.35	11	0.8	0.4	○
1881847	11 EL 64 UN	64	6.35	11	0.8	0.4	○
1882200	11 EL 56 UN	56	6.35	11	0.7	0.4	○
1881843	11 EL 48 UN	48	6.35	11	0.6	0.6	○
1881842	11 EL 44 UN	44	6.35	11	0.6	0.6	○
1881840	11 EL 40 UN	40	6.35	11	0.6	0.6	○
1881838	11 EL 36 UN	36	6.35	11	0.6	0.6	○
1881836	11 EL 32 UN	32	6.35	11	0.6	0.6	○
1881834	11 EL 28 UN	28	6.35	11	0.6	0.7	○
1881832	11 EL 27 UN	27	6.35	11	0.7	0.8	○
1881827	11 EL 24 UN	24	6.35	11	0.7	0.8	○
1881824	11 EL 20 UN	20	6.35	11	0.8	0.9	○
1881819	11 EL 18 UN	18	6.35	11	0.8	1.0	○
1881815	11 EL 16 UN	16	6.35	11	0.9	1.1	○
1881811	11 EL 14 UN	14	6.35	11	0.9	1.1	○
1882022	16 EL 72 UN	72	9.525	16	0.8	0.3	○
1882020	16 EL 64 UN	64	9.525	16	0.8	0.4	○
1882017	16 EL 56 UN	56	9.525	16	0.7	0.4	○
1882015	16 EL 48 UN	48	9.525	16	0.6	0.6	○
1882014	16 EL 44 UN	44	9.525	16	0.6	0.6	○
1882012	16 EL 40 UN	40	9.525	16	0.6	0.6	○
1882010	16 EL 36 UN	36	9.525	16	0.6	0.6	○
1880886	16 EL 32 UN	32	9.525	16	0.6	0.6	○
1880885	16 EL 28 UN	28	9.525	16	0.6	0.7	◈
1882007	16 EL 27 UN	27	9.525	16	0.7	0.8	○
1880884	16 EL 24 UN	24	9.525	16	0.7	0.8	◈
1880883	16 EL 20 UN	20	9.525	16	0.8	0.9	○
1880882	16 EL 18 UN	18	9.525	16	0.8	1.0	◈
1880881	16 EL 16 UN	16	9.525	16	0.9	1.1	○
1880880	16 EL 14 UN	14	9.525	16	1.0	1.2	○
1880879	16 EL 13 UN	13	9.525	16	1.0	1.3	○
1880878	16 EL 12 UN	12	9.525	16	1.1	1.4	○
1883755	16 EL 11.5 UN	11.5	9.525	16	1.1	1.5	○
1880877	16 EL 11 UN	11	9.525	16	1.1	1.5	○
1880876	16 EL 10 UN	10	9.525	16	1.1	1.5	○
1880875	16 EL 9 UN	9	9.525	16	1.2	1.7	○
1880874	16 EL 8 UN	8	9.525	16	1.2	1.6	○
1880873	22 EL 7U N	7	12.70	22	1.6	2.3	○
1880872	22 EL 6 UN	6	12.70	22	1.6	2.3	○
1880871	22 EL 5 UN	5	12.70	22	1.7	2.5	○
1882144	27 EL 4.5 UN	4.5	15.875	27	1.9	2.7	○
1882148	27 EL 4 UN	4	15.875	27	2.1	3.0	○

◈ 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

Internal

Geometry code (1)	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		TPI	IC	L	PDY	PDX	(68) PH6920
1881726	06 IR 32 UN	32	4.00	06	0.8	0.5	○
1881725	06 IR 28 UN	28	4.00	06	0.8	0.6	○
1881722	06 IR 24 UN	24	4.00	06	0.7	0.6	○
1883756	06 IR 20 UN	20	4.00	06	0.6	0.6	○
1881721	06 IR 18 UN	18	4.00	06	0.6	0.7	○
1881769	08 IR 32 UN	32	5.00	08	0.6	0.5	○
1881768	08 IR 28 UN	28	5.00	08	0.6	0.6	○
1881765	08 IR 24 UN	24	5.00	08	0.6	0.6	○
1881764	08 IR 20 UN	20	5.00	08	0.6	0.7	◈
1881762	08 IR 18 UN	18	5.00	08	0.6	0.7	○
1881760	08 IR 16 UN	16	5.00	08	0.6	0.7	○
1881759	08 IR 14 UN	14	5.00	08	0.6	0.8	○
1881956	11 IR 72 UN	72	6.35	11	0.8	0.3	○
1881955	11 IR 64 UN	64	6.35	11	0.8	0.4	○
1881954	11 IR 56 UN	56	6.35	11	0.7	0.4	○
1881953	11 IR 48 UN	48	6.35	11	0.6	0.6	○
1881952	11 IR 44 UN	44	6.35	11	0.6	0.6	○
1881951	11 IR 40 UN	40	6.35	11	0.6	0.6	○
1881950	11 IR 36 UN	36	6.35	11	0.6	0.6	○
1880910	11 IR 32 UN	32	6.35	11	0.6	0.6	○
1880909	11 IR 28 UN	28	6.35	11	0.6	0.7	○
1881948	11 IR 27 UN	27	6.35	11	0.7	0.8	○
1880908	11 IR 24 UN	24	6.35	11	0,7	0.8	○
1880907	11 IR 20 UN	20	6.35	11	0.8	0.9	○
1880906	11 IR 18 UN	18	6.35	11	0.8	1.0	○
1880905	11 IR 16 UN	16	6.35	11	0.9	1.1	◈
1880904	11 IR 14 UN	14	6.35	11	0.9	1.1	◈
1880903	11 IR 13 UN	13	6.35	11	0.8	1.0	○
1880902	11 IR 12 UN	12	6.35	11	0.9	1.1	◈
1880901	11 IR 11 UN	11	6.35	11	0.8	1.1	○
1882126	16 IR 72 UN	72	9.525	16	0.8	0.3	○
1882124	16 IR 64 UN	64	9.525	16	0.8	0.4	○
1882123	16 IR 56 UN	56	9.525	16	0.7	0.4	○
1882122	16 IR 48 UN	48	9.525	16	0.6	0.6	○
1882121	16 IR 44 UN	44	9.525	16	0.6	0.6	○
1882120	16 IR 40 UN	40	9.525	16	0.6	0.6	○
1882118	16 IR 36 UN	36	9.525	16	0.6	0.6	○
1880900	16 IR 32 UN	32	9.525	16	0.6	0.6	○
1880899	16 IR 28 UN	28	9.525	16	0.6	0.7	○
1882117	16 IR 27 UN	27	9.525	16	0.7	0.8	○
1880898	16 IR 24 UN	24	9.525	16	0.7	0.8	○
1880618	16 IR 20 UN	20	9.525	16	0.8	0.9	◈
1880897	16 IR 18 UN	18	9.525	16	0.8	1.0	◈
1880037	16 IR 16 UN	16	9.525	16	0.9	1.1	○
1880034	16 IR 14 UN	14	9.525	16	1.0	1.2	○
1882116	16 IR 13 UN	13	9.525	16	1.0	1.3	◈

◈ 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

AMERICAN UN (UNC, UNF, UNEF) | ANSI B1.1-1982

Internal

Geometry code (1)	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		TPI	IC	L	PDY	PDX	(68) PH6920
1880894	16 IR 12 UN	12	9.525	16	1.1	1.4	◈
1883757	16 IR 11.5 UN	11.5	9.525	16	1.1	1.5	○
1880893	16 IR 11 UN	11	9.525	16	1.1	1.5	○
1880892	16 IR 10 UN	10	9.525	16	1.1	1.5	○
1880891	16 IR 9 UN	9	9.525	16	1.2	1.7	○
1880044	16 IR 8 UN	8	9.525	16	1.2	1.6	○
1880889	22 IR 7 UN	7	12.70	22	1.6	2.3	○
1880888	22 IR 6 UN	6	12.70	22	1.6	2.3	○
1880887	22 IR 5 UN	5	12.70	22	1.6	2.3	○
1882181	27 IR 4.5 UN	4.5	15.875	27	1.7	2.4	○
1882184	27 IR 4 UN	4	15.875	27	1.8	2.7	○
1881712	06 IL 32 UN	32	4.00	06	0.8	0.5	○
1881711	06 IL 28 UN	28	4.00	06	0.8	0.6	○
1881708	06 IL 24 UN	24	4.00	06	0.7	0.6	○
1883758	06 IL 20 UN	20	4.00	06	0.6	0.6	○
1881707	06 IL 18 UN	18	4.00	06	0.6	0.7	○
1881748	08 IL 32 UN	32	5.00	08	0.6	0.5	○
1881747	08 IL 28 UN	28	5.00	08	0.6	0.6	○
1881744	08 IL 24 UN	24	5.00	08	0.6	0.6	○
1881743	08 IL 20 UN	20	5.00	08	0.6	0.7	○
1881741	08 IL 18 UN	18	5.00	08	0.6	0.7	○
1881739	08 IL 16 UN	16	5.00	08	0.6	0.7	○
1881738	08 IL 14 UN	14	5.00	08	0.6	0.8	○
1881936	11 IL 72 UN	72	6.35	11	0.8	0.3	○
1881935	11 IL 64 UN	64	6.35	11	0.8	0.4	○
1881934	11 IL 56 UN	56	6.35	11	0.7	0.4	○
1881933	11 IL 48 UN	48	6.35	11	0.6	0.6	○
1881932	11 IL 44 UN	44	6.35	11	0.6	0.6	○
1881931	11 IL 40 UN	40	6.35	11	0.6	0.6	○
1881930	11 IL 36 UN	36	6.35	11	0.6	0.6	○
1880935	11 IL 32 UN	32	6.35	11	0.6	0.6	○
1880934	11 IL 28 UN	28	6.35	11	0.6	0.7	○
1881928	11 IL 27 UN	27	6.35	11	0.7	0.8	○
1880933	11 IL 24 UN	24	6.35	11	0,7	0.8	○
1880932	11 IL 20 UN	20	6.35	11	0.8	0.9	○
1880931	11 IL 18 UN	18	6.35	11	0.8	1.0	○
1880930	11 IL 16 UN	16	6.35	11	0.9	1.1	○
1880929	11 IL 14 UN	14	6.35	11	0.9	1.1	○
1880928	11 IL 13 UN	13	6.35	11	0.8	1.0	○
1880927	11 IL 12 UN	12	6.35	11	0.9	1.1	○
1880926	11 IL 11 UN	11	6.35	11	0.8	1.1	○
1882101	16 IL 72 UN	72	9.525	16	0.8	0.3	○
1882098	16 IL 64 UN	64	9.525	16	0.8	0.4	○
1882097	16 IL 56 UN	56	9.525	16	0.7	0.4	○
1882096	16 IL 48 UN	48	9.525	16	0.6	0.6	○
1882095	16 IL 44 UN	44	9.525	16	0.6	0.6	○

◈ 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

Internal

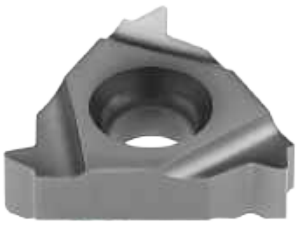
Geometry code (1)	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		TPI	IC	L	PDY	PDX	(68) PH6920
1882094	16 IL 40 UN	40	9.525	16	0.6	0.6	○
1882092	16 IL 36 UN	36	9.525	16	0.6	0.6	○
1880925	16 IL 32 UN	32	9.525	16	0.6	0.6	○
1880924	16 IL 28 UN	28	9.525	16	0.6	0.7	○
1882089	16 IL 27 UN	27	9.525	16	0.7	0.8	○
1880923	16 IL 24 UN	24	9.525	16	0.7	0.8	○
1880922	16 IL 20 UN	20	9.525	16	0.8	0.9	○
1880921	16 IL 18 UN	18	9.525	16	0.8	1.0	○
1880920	16 IL 16 UN	16	9.525	16	0.9	1.1	○
1880919	16 IL 14 UN	14	9.525	16	1.0	1.2	○
1882074	16 IL 13 UN	13	9.525	16	1.0	1.3	○
1880918	16 IL 12 UN	12	9.525	16	1.1	1.4	○
1883759	16 IL 11.5 UN	11.5	9.525	16	1.1	1.5	○
1880917	16 IL 11 UN	11	9.525	16	1.1	1.5	○
1880916	16 IL 10 UN	10	9.525	16	1.1	1.5	○
1880915	16 IL 9 UN	9	9.525	16	1.2	1.7	○
1880914	16 IL 8 UN	8	9.525	16	1.2	1.6	○
1880913	22 IL 7 UN	7	12.70	22	1.6	2.3	○
1880912	22 IL 6 UN	6	12.70	22	1.6	2.3	○
1880911	22 IL 5 UN	5	12.70	22	1.6	2.3	○
1882170	27 IL 4.5 UN	4.5	15.875	27	1.7	2.4	○
1882173	27 IL 4 UN	4	15.875	27	1.8	2.7	○

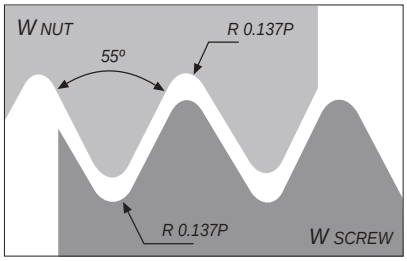
Stock item | Produto de stock | Itens de stock

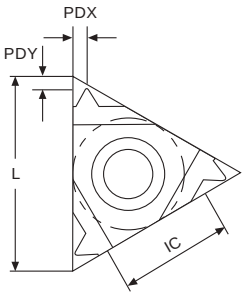
○ Available under request | Disponível sobre consulta | Disponible bajo consulta

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

WITHWORTH FOR BSW, BSF, BSP, B.S.84: 1956, DIN 259, ISO 228-1:1994







External

Geometry code (1)	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		TPI	IC	L	PDY	PDX	(68) PH6920
1881908	11 ER 72 W	72	6.35	11	0.7	0.4	○
1881905	11 ER 60 W	60	6.35	11	0.7	0.4	○
1881904	11 ER 56 W	56	6.35	11	0.7	0.4	○
1881902	11 ER 48 W	48	6.35	11	0.6	0.6	○
1881899	11 ER 40 W	40	6.35	11	0.6	0.6	○
1881897	11 ER 36 W	36	6.35	11	0.6	0.6	○
1881895	11 ER 32 W	32	6.35	11	0.6	0.6	○
1881893	11ER 28 W	28	6.35	11	0.6	0.7	○
1881887	11 ER 26 W	26	6.35	11	0.7	0.7	○
1881886	11 ER 24 W	24	6.35	11	0.7	0.8	○
1881884	11 ER 22 W	22	6.35	11	0.8	0.9	○
1881883	11 ER 20 W	20	6.35	11	0.8	0.9	○
1881880	11 ER 19 W	19	6.35	11	0.8	1.0	○
1881878	11 ER 18 W	18	6.35	11	0.8	1.0	○
1881874	11 ER 16 W	16	6.35	11	0.9	1.1	○
1881870	11 ER 14 W	14	6.35	11	0.9	1.1	○
1882056	16 ER 72 W	72	9.525	16	0.7	0.4	○
1882053	16 ER 60 W	60	9.525	16	0.7	0.4	○
1882052	16 ER 56 W	56	9.525	16	0.7	0.4	○
1882050	16 ER 48 W	48	9.525	16	0.6	0.6	○
1882047	16 ER 40 W	40	9.525	16	0.6	0.6	○
1882045	16 ER 36 W	36	9.525	16	0.6	0.6	○
1882043	16 ER 32 W	32	9.525	16	0.6	0.6	○
1880940	16 ER 28 W	28	9.525	16	0.6	0.7	○
1882040	16 ER 26 W	26	9.525	16	0.7	0.7	○
1880939	16 ER 24 W	24	9.525	16	0.7	0.8	○
1882039	16 ER 22 W	22	9.525	16	0.8	0.9	○
1880938	16 ER 20 W	20	9.525	16	0.8	0.9	◈
1880017	16 ER 19 W	19	9.525	16	0.8	1.0	◈
1880937	16 ER 18 W	18	9.525	16	0.8	1.0	○
1880609	16 ER 16 W	16	9.525	16	0.9	1.1	◈
1880015	16 ER 14 W	14	9.525	16	1.0	1.2	◈
1880611	16 ER 12 W	12	9.525	16	1.1	1.4	◈
1880613	16 ER 11 W	11	9.525	16	1.1	1.5	◈
1880614	16 ER 10 W	10	9.525	16	1.1	1.5	◈
1880936	16 ER 9 W	9	9.525	16	1.2	1.7	○

◈ 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

External

Geometry code (1)	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		TPI	IC	L	PDY	PDX	(68) PH6920
1880646	16 ER 8 W	8	9.525	16	1.2	1.5	◉
1880941	22 ER 7 W	7	12.70	22	1.6	2.3	◉
1880942	22 ER 6 W	6	12.70	22	1.6	2.3	◉
1880943	22 ER 5 W	5	12.70	22	1.7	2.4	○
1882518	27 ER 4.5 W	4.5	15.875	27	1.8	2.6	◉
1882162	27 ER 4 W	4	15.875	27	2.0	2.9	○
1881849	11 EL 72 W	72	6.35	11	0.7	0.4	○
1881846	11 EL 60 W	60	6.35	11	0.7	0.4	○
1881845	11 EL 56 W	56	6.35	11	0.7	0.4	○
1881844	11 EL 48 W	48	6.35	11	0.6	0.6	○
1881841	11 EL 40 W	40	6.35	11	0.6	0.6	○
1881839	11 EL 36 W	36	6.35	11	0.6	0.6	○
1881837	11 EL 32 W	32	6.35	11	0.6	0.6	○
1881835	11 EL 28 W	28	6.35	11	0.6	0.7	○
1881829	11 EL 26 W	26	6.35	11	0.7	0.7	○
1881828	11 EL 24 W	24	6.35	11	0.7	0.8	○
1881826	11 EL 22 W	22	6.35	11	0.8	0.9	○
1881825	11 EL 20 W	20	6.35	11	0.8	0.9	○
1881822	11 EL 19 W	19	6.35	11	0.8	1.0	○
1881820	11 EL 18 W	18	6.35	11	0.8	1.0	○
1881816	11 EL 16 W	16	6.35	11	0.9	1.1	○
1881812	11 EL 14 W	14	6.35	11	0.9	1.1	○
1882023	16 EL 72 W	72	9.525	16	0.7	0.4	○
1882019	16 EL 60 W	60	9.525	16	0.7	0.4	○
1882018	16 EL 56 W	56	9.525	16	0.7	0.4	○
1882016	16 EL 48 W	48	9.525	16	0.6	0.6	○
1882013	16 EL 40 W	40	9.525	16	0.6	0.6	○
1882011	16 EL 36 W	36	9.525	16	0.6	0.6	○
1882009	16 EL 32 W	32	9.525	16	0.6	0.6	○
1880955	16 EL 28 W	28	9.525	16	0.6	0.7	○
1882004	16 EL 26 W	26	9.525	16	0.6	0.7	○
1880954	16 EL 24 W	24	9.525	16	0.7	0.8	○
1882003	16 EL 22 W	22	9.525	16	0.8	0.9	○
1880953	16 EL 20 W	20	9.525	16	0.8	0.9	○
1880952	16 EL 19 W	19	9.525	16	0.8	1.0	○
1880951	16 EL 18 W	18	9.525	16	0.8	1.0	○
1880950	16 EL 16 W	16	9.525	16	0.9	1.1	○
1880949	16 EL 14 W	14	9.525	16	1.0	1.2	◉
1880948	16 EL 12 W	12	9.525	16	1.1	1.4	○
1880947	16 EL 11 W	11	9.525	16	1.1	1.5	○
1880946	16 EL 10 W	10	9.525	16	1.1	1.5	○
1880945	16 EL 9 W	9	9.525	16	1.2	1.7	○
1880944	16 EL 8 W	8	9.525	16	1.2	1.5	○
1880956	22 EL 7 W	7	12.70	22	1.6	2.3	○
1880957	22 EL 6 W	6	12.70	22	1.6	2.3	○
1880958	22 EL 5 W	5	12.70	22	1.7	2.4	○
1882145	27 EL 4.5 W	4.5	15.875	27	1.8	2.6	○
1882149	27 EL 4 W	4	15.875	27	2.0	2.9	○

◉ 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

WITHWORTH FOR BSW, BSF, BSP, B.S.84: 1956, DIN 259, ISO 228-1:1994

Internal

Geometry code (1)	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		TPI	IC	L	PDY	PDX	(68) PH6920
1882203	06 IR 26 W	26	4.00	06	0.7	0.6	○
1882207	06 IR 22 W	22	4.00	06	0.6	0.6	○
1883760	06 IR 20 W	20	4.00	06	0.6	0.7	○
1882211	06 IR 18 W	18	4.00	06	0.6	0.7	○
1882213	08 IR 28 W	28	5.00	08	0.6	0.6	○
1882217	08 IR 24 W	24	5.00	08	0.6	0.6	○
1882219	08 IR 20 W	20	5.00	08	0.6	0.7	○
1882221	08 IR 19 W	19	5.00	08	0.6	0.7	○
1882223	08 IR 18 W	18	5.00	08	0.6	0.7	○
1882225	08 IR 16 W	16	5.00	08	0.6	0.7	○
1882227	11 IR 72 W	72	6.35	11	0.7	0.4	○
1882229	11 IR 60 W	60	6.35	11	0.7	0.4	○
1882231	11 IR 56 W	56	6.35	11	0.7	0.4	○
1882233	11 IR 48 W	48	6.35	11	0.6	0.6	○
1882235	11 IR 40 W	40	6.35	11	0.6	0.6	○
1883761	11 IR 36 W	36	6.35	11	0.6	0.6	○
1882237	11 IR 32 W	32	6.35	11	0.6	0.6	○
1880972	11 IR 28 W	28	6.35	11	0.6	0.7	○
1882239	11 IR 26 W	26	6.35	11	0.7	0.7	○
1880971	11 IR 24 W	24	6.35	11	0.7	0.8	○
1883762	11 IR 22 W	22	6.35	11	0.8	0.9	○
1880970	11 IR 20 W	20	6.35	11	0.8	0.9	○
1880005	11 IR 19 W	19	6.35	11	0.8	1.0	○
1880968	11 IR 18 W	18	6.35	11	0.8	1.0	◎
1880967	11 IR 16 W	16	6.35	11	0.9	1.1	○
1880004	11 IR 14 W	14	6.35	11	0.9	1.1	◎
1883763	11 IR 12 W	12	6.35	11	1.0	1.1	○
1883764	11 IR 11 W	11	6.35	11	0.9	1.2	○
1882241	16 IR 72 W	72	9.525	16	0.7	0.4	○
1882498	16 IR 60 W	60	9.525	16	0.7	0.4	○
1882244	16 IR 56 W	56	9.525	16	0.7	0.4	○
1882246	16 IR 48 W	48	9.525	16	0.6	0.6	○
1882248	16 IR 40 W	40	9.525	16	0.6	0.6	○
1882250	16 IR 36 W	36	9.525	16	0.6	0.6	○
1882252	16 IR 32 W	32	9.525	16	0.6	0.6	○
1880965	16 IR 28 W	28	9.525	16	0.6	0.7	◎
1882254	16 IR 26 W	26	9.525	16	0.6	0.7	○
1880964	16 IR 24 W	24	9.525	16	0.7	0.8	○
1882256	16 IR 22 W	22	9.525	16	0.8	0.9	○
1880963	16 IR 20 W	20	9.525	16	0.8	0.9	◎
1880608	16 IR 19 W	19	9.525	16	0.8	1.0	◎
1880962	16 IR 18 W	18	9.525	16	0.8	1.0	◎
1880610	16 IR 16 W	16	9.525	16	0.9	1.1	◎
1880035	16 IR 14 W	14	9.525	16	1.0	1.2	◎
1880612	16 IR 12 W	12	9.525	16	1.1	1.4	◎
1880031	16 IR 11 W	11	9.525	16	1.1	1.5	◎

◎ 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

Internal

Geometry code [1]	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code [2]
		TPI	IC	L	PDY	PDX	(68) PH6920
1880615	16 IR 10 W	10	9.525	16	1.1	1.5	○
1882258	16 IR 9 W	9	9.525	16	1.2	1.7	○
1880672	16 IR 8 W	8	9.525	16	1.2	1.5	◎
1880959	22 IR 7 W	7	12.70	22	1.6	2.3	○
1880960	22 IR 6 W	6	12.70	22	1.6	2.3	◎
1880961	22 IR 5 W	5	12.70	22	1.7	2.4	○
1882259	27 IR 4.5 W	4.5	15.875	27	1.8	2.6	○
1882261	27 IR 4 W	4	15.875	27	2.0	2.9	○
1882204	06 IL 26 W	26	4.00	06	0.7	0.6	○
1882208	06 IL 22 W	22	4.00	06	0.6	0.6	○
1883765	06 IL 20 W	20	4.00	06	0.6	0.7	○
1882212	06 IL 18 W	18	4.00	06	0.6	0.7	○
1882214	08 IL 28 W	28	5.00	08	0.7	0.7	○
1882218	08 IL 24 W	24	5.00	08	0.7	0.7	○
1882220	08 IL 20 W	20	5.00	08	0.7	0.7	○
1882222	08 IL 19 W	19	5.00	08	0.7	0.7	○
1882224	08 IL 18 W	18	5.00	08	0.7	0.7	○
1882226	08 IL 16 W	16	5.00	08	0.7	0.7	○
1882228	11 IL 72 W	72	6.35	11	0.7	0.4	○
1882230	11 IL 60 W	60	6.35	11	0.7	0.4	○
1882232	11 IL 56 W	56	6.35	11	0.7	0.4	○
1882234	11 IL 48 W	48	6.35	11	0.6	0.6	○
1882236	11 IL 40 W	40	6.35	11	0.6	0.6	○
1883766	11 IL 36 W	36	6.35	11	0.6	0.6	○
1882238	11 IL 32 W	32	6.35	11	0.6	0.6	○
1880994	11 IL 28 W	28	6.35	11	0.6	0.7	○
1882240	11 IL 26 W	26	6.35	11	0.7	0.7	○
1880993	11 IL 24 W	24	6.35	11	0.7	0.8	○
1883767	11 IL 22 W	22	6.35	11	0.8	0.9	○
1880992	11 IL 20 W	20	6.35	11	0.8	0.9	○
1880991	11 IL 19 W	19	6.35	11	0.8	1.0	○
1880990	11 IL 18 W	18	6.35	11	0.8	1.0	○
1880989	11 IL 16 W	16	6.35	11	0.9	1.1	○
1880988	11 IL 14 W	14	6.35	11	0.9	1.1	○
1883768	11 IL 12 W	12	6.35	11	1.0	1.1	○
1883769	11 IL 11 W	11	6.35	11	0.9	1.2	○
1882242	16 IL 72 W	72	9.525	16	0.7	0.4	○
1882243	16 IL 60 W	60	9.525	16	0.7	0.4	○
1882245	16 IL 56 W	56	9.525	16	0.7	0.4	○
1882247	16 IL 48 W	48	9.525	16	0.6	0.6	○

◎ 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

WITHWORTH FOR BSW, BSF, BSP, B.S.84: 1956, DIN 259, ISO 228-1:1994

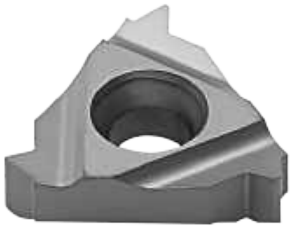
Internal

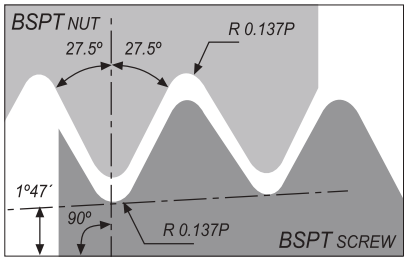
Geometry code (1)	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		TPI	IC	L	PDY	PDX	(68) PH6920
1882249	16 IL 40 W	40	9.525	16	0.6	0.6	○
1882251	16 IL 36 W	36	9.525	16	0.6	0.6	○
1882253	16 IL 32 W	32	9.525	16	0.6	0.6	○
1880987	16 IL 28 W	28	9.525	16	0.6	0.7	○
1882255	16 IL 26 W	26	9.525	16	0.6	0.7	○
1880986	16 IL 24 W	24	9.525	16	0.7	0.8	○
1882257	16 IL 22 W	22	9.525	16	0.8	0.9	○
1880985	16 IL 20 W	20	9.525	16	0.8	0.9	○
1880984	16 IL 19 W	19	9.525	16	0.8	1.0	○
1880983	16 IL 18 W	18	9.525	16	0.8	1.0	○
1880982	16 IL 16 W	16	9.525	16	0.9	1.1	○
1880981	16 IL 14 W	14	9.525	16	1.0	1.2	○
1880980	16 IL 12 W	12	9.525	16	1.1	1.4	○
1880979	16 IL 11 W	11	9.525	16	1.1	1.5	◈
1880978	16 IL 10 W	10	9.525	16	1.1	1.5	○
1880977	16 IL 9 W	9	9.525	16	1.2	1.7	○
1880976	16 IL 8 W	8	9.525	16	1.2	1.5	○
1880975	22 IL 7 W	7	12.70	22	1.6	2.3	○
1880974	22 IL 6 W	6	12.70	22	1.6	2.3	○
1880973	22 IL 5 W	5	12.70	22	1.7	2.4	○
1882260	27 IL 4.5 W	4.5	15.875	27	1.8	2.6	○
1882262	27 IL 4 W	4	15.875	27	2.0	2.9	○

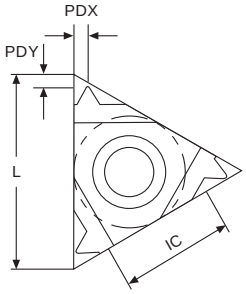
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

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

BSPT | B.S.21: 1985







External

Geometry code (1)	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		TPI	IC	L	PDY	PDX	(68) PH6920
1880998	16 ER 28 BSPT	28	9.525	16	0.6	0.6	○
1880997	16 ER 19 BSPT	19	9.525	16	0.8	0.9	○
1880996	16 ER 14 BSPT	14	9.525	16	1.0	1.2	○
1880995	16 ER 11 BSPT	11	9.525	16	1.1	1.5	◈
1882008	16 EL 28 BSPT	28	9.525	16	0.6	0.6	○
1882001	16 EL 19 BSPT	19	9.525	16	0.8	0.9	○
1881993	16 EL 14 BSPT	14	9.525	16	1.0	1.2	○
1881989	16 EL 11 BSPT	11	9.525	16	1.1	1.5	○

◈ 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

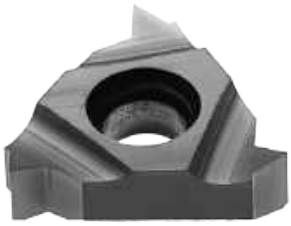
Internal

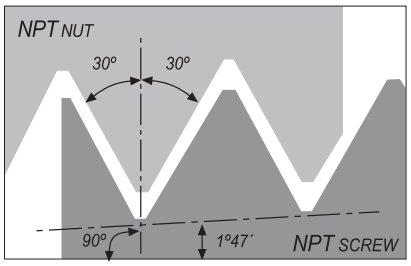
Geometry code (1)	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		TPI	IC	L	PDY	PDX	(68) PH6920
1881724	06 IR 28 BSPT	28	4.00	06	0.7	0.6	○
1881767	08 IR 28 BSPT	28	5.00	08	0.6	0.6	○
1881763	08 IR 19 BSPT	19	5.00	08	0.6	0.6	○
1881949	11 IR 28 BSPT	28	6.35	11	0.6	0.6	○
1881004	11 IR 19 BSPT	19	6.35	11	0.8	0.9	○
1881003	11 IR 14 BSPT	14	6.35	11	0.9	1.0	○
1883770	11 IR 11 BSPT	11	6.35	11	0.9	1.2	○
1881002	16 IR 28 BSPT	28	9.525	16	0.6	0.6	○
1881001	16 IR 19 BSPT	19	9.525	16	0.8	0.9	○
1881000	16 IR 14 BSPT	14	9.525	16	1.0	1.2	○
1880999	16 IR 11 BSPT	11	9.525	16	1.1	1.5	○
1881710	06 IL 28 BSPT	28	4.00	06	0.7	0.6	○
1881746	08 IL 28 BSPT	28	5.00	08	0.6	0.6	○
1881742	08 IL 19 BSPT	19	5.00	08	0.6	0.6	○
1881929	11 IL 28 BSPT	28	6.35	11	0.6	0.6	○
1881925	11 IL 19 BSPT	19	6.35	11	0.8	0.9	○
1881918	11 IL 14 BSPT	14	6.35	11	0.9	1.0	○
1883771	11 IL 11 BSPT	11	6.35	11	0.9	1.2	○
1882090	16 IL 28 BSPT	28	9.525	16	0.6	0.6	○
1882084	16 IL 19 BSPT	19	9.525	16	0.8	0.9	○
1882076	16 IL 14 BSPT	14	9.525	16	1.0	1.2	○
1882071	16 IL 11 BSPT	11	9.525	16	1.1	1.5	○

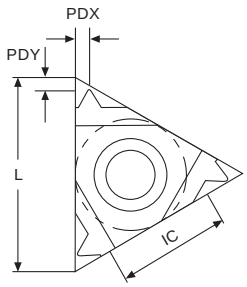
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

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

NPT | ANSI/ASME B 1.20.1-1983







External

Geometry code (1)	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		TPI	IC	L	PDY	PDX	(68) PH6920
1881888	11 ER 27 NPT	27	6.35	11	0.7	0.8	○
1881875	11 ER 18 NPT	18	6.35	11	0.8	1.0	○
1881867	11 ER 14 NPT	14	6.35	11	0.8	1.0	○
1881017	16 ER 27 NPT	27	9.525	16	0.7	0.8	◈
1881016	16 ER 18 NPT	18	9.525	16	0.8	1.0	◈
1880013	16 ER 14 NPT	14	9.525	16	0.9	1.2	◈
1880009	16 ER 11.5 NPT	11.5	9.525	16	1.1	1.5	◈
1880023	16 ER 8 NPT	8	9.525	16	1.3	1.8	○
1881830	11 EL 27 NPT	27	6.35	11	0.7	0.8	○
1881817	11 EL 18 NPT	18	6.35	11	0.8	1.0	○
1881809	11 EL 14 NPT	14	6.35	11	0.8	1.0	○
1882005	16 EL 27 NPT	27	9.525	16	0.7	0.8	○
1881999	16 EL 18 NPT	18	9.525	16	0.8	1.0	○
1881994	16 EL 14 NPT	14	9.525	16	0.9	1.2	○
1881987	16 EL 11.5 NPT	11.5	9.525	16	1.1	1.5	○
1882025	16 EL 8 NPT	8	9.525	16	1.3	1.8	○

◈ 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

Internal

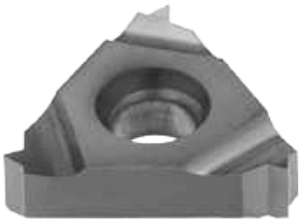
Geometry code (1)	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		TPI	IC	L	PDY	PDX	(68) PH6920
1881723	06 IR 27 NPT	27	4.00	06	0.6	0.6	○
1881766	08 IR 27 NPT	27	5.00	08	0.6	0.6	○
1881761	08 IR 18 NPT	18	5.00	08	0.6	0.7	○
1881946	11 IR 27 NPT	27	6.35	11	0.7	0.8	○
1881020	11 IR 18 NPT	18	6.35	11	0.8	1.0	◈
1880003	11 IR 14 NPT	14	6.35	11	0.8	1.0	◈
1881019	16 IR 27 NPT	27	9.525	16	0.7	0.8	○
1881018	16 IR 18 NPT	18	9.525	16	0.8	1.0	◈
1880033	16 IR 14 NPT	14	9.525	16	0.9	1.2	◈
1880029	16 IR 11.5 NPT	11.5	9.525	16	1.1	1.5	○
1880043	16 IR 8 NPT	8	9.525	16	1.3	1.8	○
1881709	06 IL 27 NPT	27	4.00	06	0.6	0.6	○
1881745	08 IL 27 NPT	27	5.00	08	0.6	0.6	○
1881740	08 IL 18 NPT	18	5.00	08	0.6	0.6	○
1881926	11 IL 27 NPT	27	6.35	11	0.7	0.8	○
1881923	11 IL 18 NPT	18	6.35	11	0.8	1.0	○
1881919	11 IL 14 NPT	14	6.35	11	0.8	1.0	○
1882087	16 IL 27 NPT	27	9.525	16	0.7	0.8	○
1882082	16 IL 18 NPT	18	9.525	16	0.8	1.0	○
1882077	16 IL 14 NPT	14	9.525	16	0.9	1.2	○
1882069	16 IL 11.5 NPT	11.5	9.525	16	1.1	1.5	○
1882103	16 IL 8 NPT	8	9.525	16	1.3	1.8	○

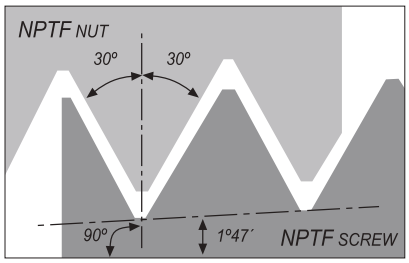
◈ Stock item | Produto de stock | Itens de stock

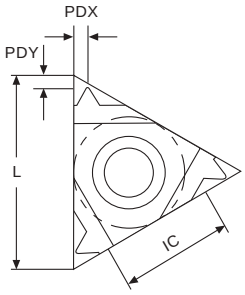
○ Available under request | Disponível sobre consulta | Disponible bajo consulta

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

NPTF | ANSI B 1.20.3-1976







External

Geometry code (1)	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		TPI	IC	L	PDY	PDX	(68) PH6920
1881889	11 ER 27 NPTF	27	6.35	11	0.7	0.7	○
1881876	11 ER 18 NPTF	18	6.35	11	0.8	1.0	○
1881868	11 ER 14 NPTF	14	6.35	11	0.8	1.0	○
1881030	16 ER 27 NPTF	27	9.525	16	0.7	0.7	◈
1881029	16 ER 18 NPTF	18	9.525	16	0.8	1.0	◈
1881028	16 ER 14 NPTF	14	9.525	16	0.9	1.2	○
1881027	16 ER 11.5 NPTF	11.5	9.525	16	1.1	1.5	○
1882057	16 ER 8 NPTF	8	9.525	16	1.3	1.8	○
1881831	11 EL 27 NPTF	27	6.35	11	0.7	0.7	○
1881818	11 EL 18 NPTF	18	6.35	11	0.8	1.0	○
1881810	11 EL 14 NPTF	14	6.35	11	0.8	1.0	○
1882006	16 EL 27 NPTF	27	9.525	16	0.7	0.8	○
1882000	16 EL 18 NPTF	18	9.525	16	0.8	1.0	○
1881995	16 EL 14 NPTF	14	9.525	16	0.9	1.2	○
1881988	16 EL 11.5 NPTF	11.5	9.525	16	1.1	1.5	○
1882026	16 EL 8 NPTF	8	9.525	16	1.3	1.8	○

◈ 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

Internal

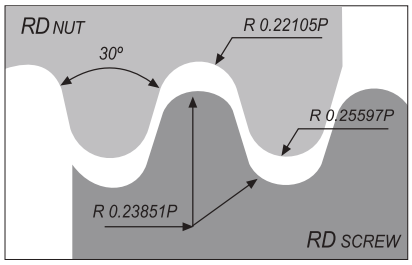
Geometry code (1)	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		TPI	IC	L	PDY	PDX	(68) PH6920
1883772	06 IR 27 NPTF	27	4.00	06	0.7	0.6	○
1883773	08 IR 18 NPTF	18	5.00	08	0.6	0.6	○
1883774	08 IR 14 NPTF	14	5.00	08	0.6	0.6	○
1881947	11 IR 27 NPTF	27	6.35	11	0.7	0.7	○
1881026	11 IR 18 NPTF	18	6.35	11	0.8	1.0	○
1881025	11 IR 14 NPTF	14	6.35	11	0.8	1.0	○
1881024	16 IR 27 NPTF	27	9.525	16	0.7	0.7	○
1881023	16 IR 18 NPTF	18	9.525	16	0.8	1.0	○
1881022	16 IR 14 NPTF	14	9.525	16	0.9	1.2	○
1881021	16 IR 11.5 NPTF	11.5	9.525	16	1.1	1.5	○
1882127	16 IR 8 NPTF	8	9.525	16	1.3	1.8	○
1883775	06 IL 27 NPTF	27	4.00	06	0.7	0.6	○
1883776	08 IL 18 NPTF	18	5.00	08	0.6	0.6	○
1883777	08 IL 14 NPTF	14	5.00	08	0.6	0.6	○
1881927	11 IL 27 NPTF	27	6.35	11	0.7	0.7	○
1881924	11 IL 18 NPTF	18	6.35	11	0.8	1.0	○
1881920	11 IL 14 NPTF	14	6.35	11	0.8	1.0	○
1882088	16 IL 27 NPTF	27	9.525	16	0.7	0.7	○
1882083	16 IL 18 NPTF	18	9.525	16	0.8	1.0	○
1882078	16 IL 14 NPTF	14	9.525	16	0.9	1.2	○
1882070	16 IL 11.5 NPTF	11.5	9.525	16	1.1	1.5	○
1882104	16 IL 8 NPTF	8	9.525	16	1.3	1.8	○

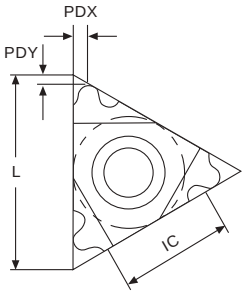
Stock item | Produto de stock | Itens de stock

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

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

ROUND (DIN 405) | DIN 405:1997





External

Geometry code (1)	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		TPI	IC	L	PDY	PDX	(68) PH6920
1881031	16 ER 10 RD	10	9.525	16	1.1	1.2	○
1881032	16 ER 8 RD	8	9.525	16	1.4	1.4	○
1881033	16 ER 6 RD	6	9.525	16	1.4	1.5	○
1881034	22 ER 6 RD	6	12.70	22	1.5	1.7	○
1881035	22 ER 4 RD	4	12.70	22	2.2	2.3	◈
1882332	27 ER 4 RD	4	15.875	27	2.2	2.3	○
1882333	16 EL 10 RD	10	9.525	16	1.1	1.2	○
1882334	16 EL 8 RD	8	9.525	16	1.4	1.4	○
1882335	16 EL 6 RD	6	9.525	16	1.4	1.5	○
1882336	22 EL 6 RD	6	12.70	22	1.5	1.7	○
1882337	22 EL 4 RD	4	12.70	22	2.2	2.3	○
1882338	27 EL 4 RD	4	15.875	27	2.2	2.3	○

◈ 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

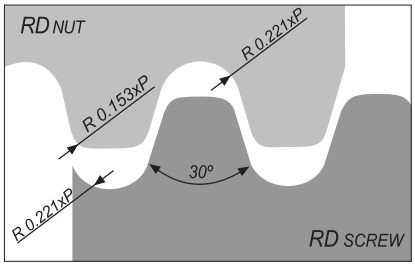
Internal

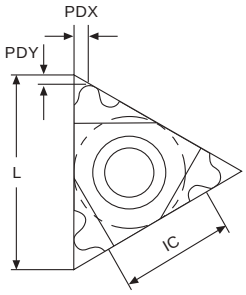
Geometry code (1)	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		TPI	IC	L	PDY	PDX	(68) PH6920
1881039	16 IR 10 RD	10	9.525	16	1.1	1.2	◈
1881040	16 IR 8 RD	8	9.525	16	1.4	1.4	◈
1881041	16 IR 6 RD	6	9.525	16	1.4	1.5	○
1881042	22 IR 6 RD	6	12.70	22	1.5	1.7	○
1881043	22 IR 4 RD	4	12.70	22	2.2	2.3	○
1882339	27 IR 4 RD	4	15.875	27	2.2	2.3	○
1882340	16 IL 10 RD	10	9.525	16	1.1	1.2	○
1882341	16 IL 8 RD	8	9.525	16	1.4	1.4	○
1882342	16 IL 6 RD	6	9.525	16	1.4	1.5	○
1882343	22 IL 6 RD	6	12.70	22	1.5	1.7	○
1882344	22 IL 4 RD	4	12.70	22	2.2	2.3	○
1882345	27 IL 4 RD	4	15.875	27	2.2	2.3	○

◈ 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

ROUND (DIN 20400) | DIN 20400:1990





External

Geometry code (1)	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		MM	IC	L	PDY	PDX	(68) PH6920
1882347	22 ER 4.0 RD20400	4.0	12.70	22	1.4	1.4	◈
1882348	22 ER 5.0 RD20400	5.0	12.70	22	1.7	1.8	○
1882349	22 ER 6.0 RD20400	6.0	12.70	22	1.7	2.0	○
1882351	22 EL 4.0 RD20400	4.0	12.70	22	1.4	1.4	○
1882352	22 EL 5.0 RD20400	5.0	12.70	22	1.7	1.8	○
1882353	22 EL 6.0 RD20400	6.0	12.70	22	1.7	2.0	○

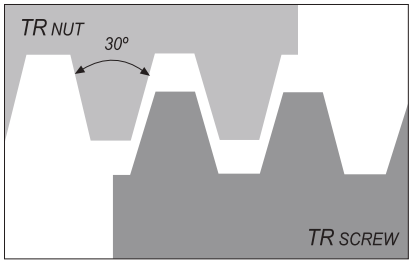
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta **Insert order code** = (1) Geometry Code + (2) Grade Code

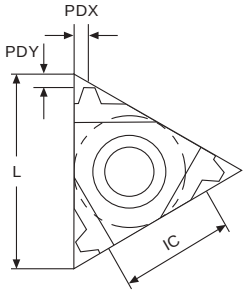
Internal

Geometry code (1)	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		MM	IC	L	PDY	PDX	(68) PH6920
1882355	22 IR 4.0 RD20400	4.0	12.70	22	1.4	1.4	○
1882356	22 IR 5.0 RD20400	5.0	12.70	22	1.7	1.8	○
1882357	22 IR 6.0 RD20400	6.0	12.70	22	1.7	2.0	○
1882359	22 IL 4.0 RD20400	4.0	12.70	22	1.4	1.4	○
1882360	22 IL 5.0 RD20400	5.0	12.70	22	1.7	1.8	○
1882361	22 IL 6.0 RD20400	6.0	12.70	22	1.7	2.0	○

◈ 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

TRAPEZ | DIN 103:1977 | ISO 2901:1993





External

Geometry code (1)	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		MM	IC	L	PDY	PDX	(68) PH6920
1881044	16 ER 1.5 TR	1.5	9.525	16	1.0	1.1	○
1881045	16 ER 2.0 TR	2.0	9.525	16	1.0	1.3	◈
1881046	16 ER 3.0 TR	3.0	9.525	16	1.3	1.5	◈
1883778	16 ER 4.0 TR	4.0	9.525	16	1.3	1.5	○
1881047	22 ER 4.0 TR	4.0	12.70	22	1.8	1.9	◈
1881049	22 ER 5.0 TR	5.0	12.70	22	2.0	2.4	◈
1883779	22 ER 6.0 TR	6.0	12.70	22	2.0	2.4	○
1882165	27 ER 6.0 TR	6.0	15.875	27	2.3	2.7	○
1882166	27 ER 7.0 TR	7.0	15.875	27	2.2	2.6	○
1881050	16 EL 1.5 TR	1.5	9.525	16	1.0	1.1	○
1881051	16 EL 2.0 TR	2.0	9.525	16	1.1	1.3	○
1881052	16 EL 3.0 TR	3.0	9.525	16	1.3	1.5	○
1883780	16 EL 4.0 TR	4.0	9.525	16	1.3	1.5	○
1881053	22 EL 4.0 TR	4.0	12.70	22	1.8	1.9	○
1882130	22 EL 5.0 TR	5.0	12.70	22	2.0	2.4	○
1883781	22 EL 6.0 TR	6.0	12.70	22	2.0	2.4	○
1882152	27 EL 6.0 TR	6.0	15.875	27	2.3	2.7	○
1882153	27 EL 7.0 TR	7.0	15.875	27	2.2	2.6	○

◈ 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

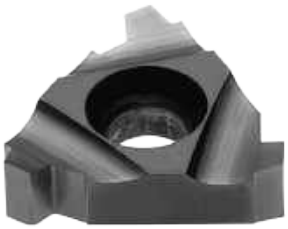
Internal

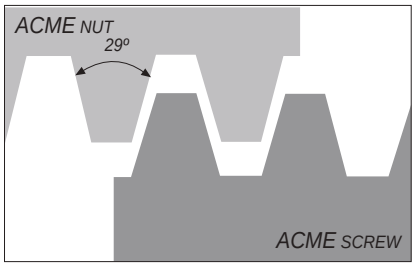
Geometry code (1)	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		MM	IC	L	PDY	PDX	(68) PH6920
1883782	08 IR 1.5 TR	1.5	5.00	08	0.6	0.6	○
1881055	16 IR 1.5 TR	1.5	9.525	16	1.0	1.1	○
1881056	16 IR 2.0 TR	2.0	9.525	16	1.0	1.3	◈
1881057	16 IR 3.0 TR	3.0	9.525	16	1.3	1.5	◈
1882119	16 IR 4.0 TR	4.0	9.525	16	1.3	1.5	◈
1881058	22 IR 4.0 TR	4.0	12.70	22	1.8	1.9	○
1881059	22 IR 5.0 TR	5.0	12.70	22	2.0	2.4	◈
1881060	22 IR 6.0 TR	6.0	12.70	22	2.0	2.4	◈
1882187	27 IR 6.0 TR	6.0	15.875	27	2.3	2.7	◈
1882188	27 IR 7.0 TR	7.0	15.875	27	2.2	2.6	○
1883783	08 IL 1.5 TR	1.5	5.00	08	0.6	0.6	○
1881062	16 IL 2.0 TR	2.0	9.525	16	1.0	1.3	○
1881063	16 IL 3.0 TR	3.0	9.525	16	1.3	1.5	○
1882093	16 IL 4.0 TR	4.0	9.525	16	1.3	1.5	○
1881064	22 IL 4.0 TR	4.0	12.70	22	1.8	1.9	○
1881065	22 IL 5.0 TR	5.0	12.70	22	2.0	2.4	○
1881066	22 IL 6.0 TR	6.0	12.70	22	2.0	2.4	○
1882176	27 IL 6.0 TR	6.0	15.875	27	2.3	2.7	○
1882177	27 IL 7.0 TR	7.0	15.875	27	2.2	2.6	○

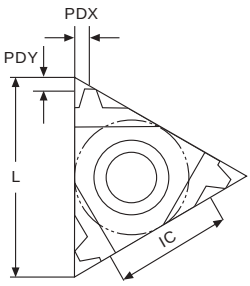
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

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

AMERICAN ACME | ANSI/ASME: 1.5-1988







External

Geometry code (1)	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		TPI	IC	L	PDY	PDX	(68) PH6920
1881871	11 ER 16 ACME	16	6.35	11	0.9	1.0	○
1881078	16 ER 16 ACME	16	9.525	16	0.9	1.0	⊛
1881077	16 ER 14 ACME	14	9.525	16	1.0	1.2	⊛
1881076	16 ER 12 ACME	12	9.525	16	1.1	1.2	⊛
1881075	16 ER 10 ACME	10	9.525	16	1.3	1.3	⊛
1881079	16 ER 8 ACME	8	9.525	16	1.5	1.5	⊛
1883784	16 ER 6 ACME	6	9.525	16	1.7	1.8	○
1881080	22 ER 6 ACME	6	12.70	22	1.8	2.1	⊛
1881081	22 ER 5 ACME	5	12.70	22	2.0	2.3	○
1883826	22 ER 4 ACME	4	12.70	22	2.1	2.2	○
1882159	27 ER 4 ACME	4	15.875	27	2.3	2.7	○
1881813	11 EL 16 ACME	16	6.35	11	0.9	1.0	○
1881997	16 EL 16 ACME	16	9.525	16	0.9	1.0	○
1881992	16 EL 14 ACME	14	9.525	16	1.0	1.2	○
1881990	16 EL 12 ACME	12	9.525	16	1.1	1.2	○
1881985	16 EL 10 ACME	10	9.525	16	1.3	1.3	○
1882024	16 EL 8 ACME	8	9.525	16	1.5	1.5	○
1883827	16 EL 6 ACME	6	9.525	16	1.7	1.8	○
1882133	22 EL 6 ACME	6	12.70	22	1.8	2.1	⊛
1882131	22 EL 5 ACME	5	12.70	22	2.0	2.3	⊛
1883785	22 EL 4 ACME	4	12.70	22	2.1	2.2	○
1882146	27 EL 4 ACME	4	15.875	27	2.3	2.7	○

⊛ 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

Internal

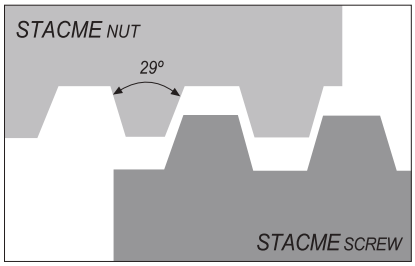
Geometry code (1)	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		TPI	IC	L	PDY	PDX	(68) PH6920
1883786	08 IR 16 ACME	16	5.00	08	0.6	0.6	○
1881944	11 IR 16 ACME	16	6.35	11	0.9	1.0	○
1881107	16 IR 16 ACME	16	9.525	0.9	1.0	1.1	◎
1881106	16 IR 14 ACME	14	9.525	1.0	1.2	1.2	◎
1881105	16 IR 12 ACME	12	9.525	1.1	1.2	1.2	○
1881104	16 IR 10 ACME	10	9.525	1.3	1.3	1.4	○
1881103	16 IR 8 ACME	8	9.525	1.5	1.5	1.5	○
1881885	16 IR 6 ACME	6	9.525	1.7	1.8	1.5	○
1881083	22 IR 6 ACME	6	12.70	22	1.8	2.1	◎
1881082	22 IR 5 ACME	5	12.70	22	2.0	2.3	○
1881102	22 IR 4 ACME	4	12.70	22	2.1	2.2	◎
1882182	27 IR 4 ACME	4	15.875	27	2.3	2.7	○
1883787	08 IL 16 ACME	16	5.00	08	0.6	0.6	○
1881921	11 IL 16 ACME	16	6.35	11	0.9	1.0	○
1882080	16 IL 16 ACME	16	9.525	0.9	1.0	1.1	○
1882075	16 IL 14 ACME	14	9.525	1.0	1.2	1.2	○
1882072	16 IL 12 ACME	12	9.525	1.1	1.2	1.2	○
1882067	16 IL 10 ACME	10	9.525	1.3	1.3	1.4	○
1882102	16 IL 8 ACME	8	9.525	1.5	1.5	1.5	○
1882099	16 IL 6 ACME	6	9.525	1.7	1.8	1.5	○
1882140	22 IL 6 ACME	6	12.70	22	1.8	2.1	○
1882138	22 IL 5 ACME	5	12.70	22	2.0	2.3	○
1882136	22 IL 4 ACME	4	12.70	22	2.1	2.2	○
1882171	27 IL 4 ACME	4	15.875	27	2.3	2.7	○

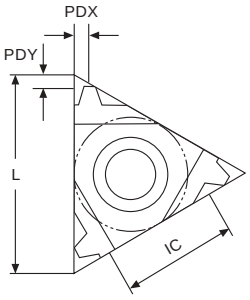
◎ Stock item | Produto de stock | Itens de stock

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

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

STUB ACME | ANSI/ASME: 1.8-1988





External

Geometry code [1]	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code [2]
		TPI	IC	L	PDY	PDX	(68) PH6920
1881872	11 ER 16 STACME	16	6.35	11	1.0	1.0	○
1881116	16 ER 16 STACME	16	9.525	16	1.0	1.0	○
1881117	16 ER 14 STACME	14	9.525	16	1.1	1.1	○
1881118	16 ER 12 STACME	12	9.525	16	1.2	1.2	◈
1881119	16 ER 10 STACME	10	9.525	16	1.3	1.3	○
1881120	16 ER 8 STACME	8	9.525	16	1.5	1.5	◈
1881121	16 ER 6 STACME	6	9.525	16	1.8	1.8	◈
1882135	22 ER 6 STACME	6	12.70	22	1.8	2.1	◈
1881122	22 ER 5 STACME	5	12.70	22	2.0	2.3	○
1881123	22 ER 4 STACME	4	12.70	22	2.3	2.4	◈
1882160	27 ER 4 STACME	4	15.875	27	2.3	2.4	◈
1882156	27 ER 3 STACME	3	15.875	27	2.8	2.9	○
1881814	11 EL 16 STACME	16	6.35	11	1.0	1.0	○
1881998	16 EL 16 STACME	16	9.525	16	1.0	1.0	○
1881996	16 EL 14 STACME	14	9.525	16	1.1	1.1	○
1881991	16 EL 12 STACME	12	9.525	16	1.2	1.2	○
1881986	16 EL 10 STACME	10	9.525	16	1.3	1.3	○
1882027	16 EL 8 STACME	8	9.525	16	1.5	1.5	○
1882021	16 EL 6 STACME	6	9.525	16	1.8	1.8	○
1882134	22 EL 6 STACME	6	12.70	22	1.8	2.1	○
1882132	22 EL 5 STACME	5	12.70	22	2.0	2.3	○
1881889	22 EL 4 STACME	4	12.70	22	2.3	2.4	○
1882147	27 EL 4 STACME	4	15.875	27	2.3	2.4	○
1882143	27 EL 3 STACME	3	15.875	27	2.8	2.9	○

◈ 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

Internal

Geometry code (1)	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		TPI	IC	L	PDY	PDX	(68) PH6920
1883788	08 IR 16 STACME	16	5.00	08	0.6	0.6	○
1881108	16 IR 16 STACME	16	9.525	16	1.0	1.0	○
1881109	16 IR 14 STACME	14	9.525	16	1.1	1.1	○
1881110	16 IR 12 STACME	12	9.525	16	1.2	1.2	○
1881111	16 IR 10 STACME	10	9.525	16	1.3	1.3	○
1881112	16 IR 8 STACME	8	9.525	16	1.5	1.5	◈
1881113	16 IR 6 STACME	6	9.525	16	1.8	1.8	○
1882142	22 IR 6 STACME	6	12.70	22	1.8	2.1	○
1881114	22 IR 5 STACME	5	12.70	22	2.0	2.3	○
1881115	22 IR 4 STACME	4	12.70	22	2.3	2.4	○
1882183	27 IR 4 STACME	4	15.875	27	2.3	2.4	◈
1882180	27 IR 3 STACME	3	15.875	27	2.8	2.9	○
1883789	08 IL 16 STACME	16	5.00	08	0.6	0.6	○
1882081	16 IL 16 STACME	16	9.525	16	1.0	1.0	○
1882079	16 IL 14 STACME	14	9.525	16	1.1	1.1	○
1882073	16 IL 12 STACME	12	9.525	16	1.2	1.2	○
1882068	16 IL 10 STACME	10	9.525	16	1.3	1.3	○
1882105	16 IL 8 STACME	8	9.525	16	1.5	1.5	○
1882100	16 IL 6 STACME	6	9.525	16	1.8	1.8	○
1882141	22 IL 6 STACME	6	12.70	22	1.8	2.1	○
1882139	22 IL 5 STACME	5	12.70	22	2.0	2.3	○
1882137	22 IL 4 STACME	4	12.70	22	2.3	2.4	○
1882172	27 IL 4 STACME	4	15.875	27	2.3	2.4	○
1882169	27 IL 3 STACME	3	15.875	27	2.8	2.9	○

◈ 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

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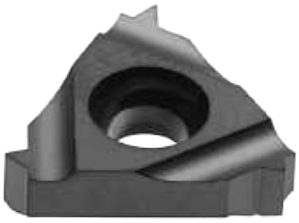
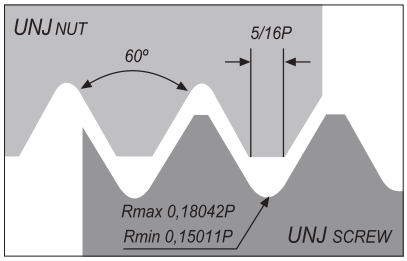
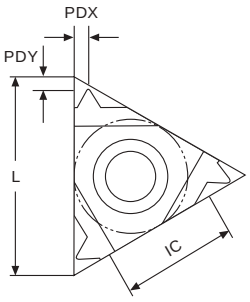






External

Geometry code [1]	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code [2]
		TPI	IC	L	PDY	PDX	(68) PH6920
1883790	11 ER 48 UNJ	48	6.35	11	0.6	0.6	○
1883791	11 ER 44 UNJ	44	6.35	11	0.6	0.6	○
1883792	11 ER 40 UNJ	40	6.35	11	0.6	0.6	○
1883793	11 ER 36 UNJ	36	6.35	11	0.6	0.6	○
1882318	11 ER 32 UNJ	32	6.35	11	0.6	0.6	○
1882319	11 ER 28 UNJ	28	6.35	11	0.6	0.6	○
1882320	11 ER 24 UNJ	24	6.35	11	0.7	0.8	○
1882321	11 ER 20 UNJ	20	6.35	11	0.8	0.9	○
1882322	11 ER 18 UNJ	18	6.35	11	0.8	1.0	○
1882323	11 ER 16 UNJ	16	6.35	11	0.8	1.0	○
1882324	11 ER 14 UNJ	14	6.35	11	0.9	1.0	○
1883794	16 ER 48 UNJ	48	9.525	16	0.6	0.6	○
1883795	16 ER 44 UNJ	44	9.525	16	0.6	0.6	○
1883796	16 ER 40 UNJ	40	9.525	16	0.6	0.6	○
1883797	16 ER 36 UNJ	36	9.525	16	0.6	0.6	○
1881165	16 ER 32 UNJ	32	9.525	16	0.6	0.6	○
1881164	16 ER 28 UNJ	28	9.525	16	0.6	0.6	○
1881163	16 ER 24 UNJ	24	9.525	16	0.7	0.8	○
1881162	16 ER 20 UNJ	20	9.525	16	0.8	0.9	○
1881161	16 ER 18 UNJ	18	9.525	16	0.8	1.0	○
1881160	16 ER 16 UNJ	16	9.525	16	0.8	1.0	○
1881159	16 ER 14 UNJ	14	9.525	16	1.0	1.2	○
1881158	16 ER 13 UNJ	13	9.525	16	1.0	1.3	○
1881157	16 ER 12 UNJ	12	9.525	16	1.1	1.4	○
1881156	16 ER 11 UNJ	11	9.525	16	1.1	1.5	○
1881155	16 ER 10 UNJ	10	9.525	16	1.1	1.5	○
1881154	16 ER 9 UNJ	9	9.525	16	1.2	1.6	○
1881153	16 ER 8 UNJ	8	9.525	16	1.2	1.6	○
1883798	11 EL 48 UNJ	48	6.35	11	0.6	0.6	○
1883799	11 EL 44 UNJ	44	6.35	11	0.6	0.6	○
1883800	11 EL 40 UNJ	40	6.35	11	0.6	0.6	○
1883801	11 EL 36 UNJ	36	6.35	11	0.6	0.6	○
1882325	11 EL 32 UNJ	32	6.35	11	0.6	0.6	○
1882326	11 EL 28 UNJ	28	6.35	11	0.6	0.6	○
1882327	11 EL 24 UNJ	24	6.35	11	0.7	0.8	○
1882328	11 EL 20 UNJ	20	6.35	11	0.8	0.9	○

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

External

Geometry code (1)	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		TPI	IC	L	PDY	PDX	(68) PH6920
1882329	11 EL 18 UNJ	18	6.35	11	0.8	1.0	○
1882330	11 EL 16 UNJ	16	6.35	11	0.8	1.0	○
1882331	11 EL 14 UNJ	14	6.35	11	0.9	1.0	○
1883802	16 ER 48 UNJ	48	9.525	16	0.6	0.6	○
1883803	16 ER 44 UNJ	44	9.525	16	0.6	0.6	○
1883804	16 ER 40 UNJ	40	9.525	16	0.6	0.6	○
1883805	16 ER 36 UNJ	36	9.525	16	0.6	0.6	○
1881179	16 EL 32 UNJ	32	9.525	16	0.6	0.6	○
1881178	16 EL 28 UNJ	28	9.525	16	0.6	0.6	○
1881177	16 EL 24 UNJ	24	9.525	16	0.7	0.8	○
1881176	16 EL 20 UNJ	20	9.525	16	0.8	0.9	○
1881175	16 EL 18 UNJ	18	9.525	16	0.8	1.0	○
1881174	16 EL 16 UNJ	16	9.525	16	0.8	1.0	○
1881173	16 EL 14 UNJ	14	9.525	16	1.0	1.2	○
1881172	16 EL 13 UNJ	13	9.525	16	1.0	1.3	○
1881170	16 EL 12 UNJ	12	9.525	16	1.1	1.4	○
1881169	16 EL 11 UNJ	11	9.525	16	1.1	1.5	○
1881168	16 EL 10 UNJ	10	9.525	16	1.1	1.5	○
1881167	16 EL 9 UNJ	9	9.525	16	1.2	1.6	○
1881166	16 EL 8 UNJ	8	9.525	16	1.2	1.6	○

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

UNJ | MIL-S-8879A

Internal

Geometry code [1]	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code [2]
		TPI	IC	L	PDY	PDX	(68) PH6920
1883806	11 IR 48 UNJ	48	6.35	11	0.6	0.6	○
1883807	11 IR 44 UNJ	44	6.35	11	0.6	0.6	○
1883808	11 IR 40 UNJ	40	6.35	11	0.6	0.6	○
1883809	11 IR 36 UNJ	36	6.35	11	0.6	0.6	○
1881198	11 IR 32 UNJ	32	6.35	11	0.6	0.6	○
1881197	11 IR 28 UNJ	28	6.35	11	0.6	0.6	○
1881196	11 IR 24 UNJ	24	6.35	11	0.7	0.8	○
1881195	11 IR 20 UNJ	20	6.35	11	0.8	0.9	○
1881194	11 IR 18 UNJ	18	6.35	11	0.8	1.0	○
1881193	11 IR 16 UNJ	16	6.35	11	0.8	1.0	○
1881192	11 IR 14 UNJ	14	6.35	11	0.9	1.0	○
1883810	16 IR 48 UNJ	48	9.525	16	0.6	0.6	○
1883811	16 IR 44 UNJ	44	9.525	16	0.6	0.6	○
1883812	16 IR 40 UNJ	40	9.525	16	0.6	0.6	○
1883813	16 IR 36 UNJ	36	9.525	16	0.6	0.6	○
1881191	16 IR 32 UNJ	32	9.525	16	0.6	0.6	○
1881190	16 IR 28 UNJ	28	9.525	16	0.6	0.6	○
1881189	16 IR 24 UNJ	24	9.525	16	0.7	0.8	○
1881188	16 IR 20 UNJ	20	9.525	16	0.8	0.9	○
1881187	16 IR 18 UNJ	18	9.525	16	0.8	1.0	○
1881186	16 IR 16 UNJ	16	9.525	16	0.8	1.0	○
1881185	16 IR 14 UNJ	14	9.525	16	1.0	1.2	○
1883814	16 IR 13 UNJ	13	9.525	16	1.0	1.3	○
1881184	16 IR 12 UNJ	12	9.525	16	1.1	1.4	◈
1881183	16 IR 11 UNJ	11	9.525	16	1.1	1.5	○
1881182	16 IR 10 UNJ	10	9.525	16	1.1	1.5	◈
1881181	16 IR 9 UNJ	9	9.525	16	1.2	1.6	○
1881180	16 IR 8 UNJ	8	9.525	16	1.2	1.6	○
1883815	11 IL 48 UNJ	48	6.35	11	0.6	0.6	○
1883816	11 IL 44 UNJ	44	6.35	11	0.6	0.6	○
1883817	11 IL 40 UNJ	40	6.35	11	0.6	0.6	○
1883818	11 IL 36 UNJ	36	6.35	11	0.6	0.6	○
1881217	11 IL 32 UNJ	32	6.35	11	0.6	0.6	○
1881216	11 IL 28 UNJ	28	6.35	11	0.6	0.6	○
1881215	11 IL 24 UNJ	24	6.35	11	0.7	0.8	○
1881214	11 IL 20 UNJ	20	6.35	11	0.8	0.9	○
1881213	11 IL 18 UNJ	18	6.35	11	0.8	1.0	○
1881188	11 IL 16 UNJ	16	6.35	11	0.8	1.0	○
1881211	11 IL 14 UNJ	14	6.35	11	0.9	1.0	○
1883819	16 IL 48 UNJ	48	9.525	16	0.6	0.6	◈
1883820	16 IL 44 UNJ	44	9.525	16	0.6	0.6	◈
1883821	16 IL 40 UNJ	40	9.525	16	0.6	0.6	○
1883822	16 IL 36 UNJ	36	9.525	16	0.6	0.6	○
1881210	16 IL 32 UNJ	32	9.525	16	0.6	0.6	◈
1881209	16 IL 28 UNJ	28	9.525	16	0.6	0.6	○
1881208	16 IL 24 UNJ	24	9.525	16	0.7	0.8	◈

◈ 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

Internal

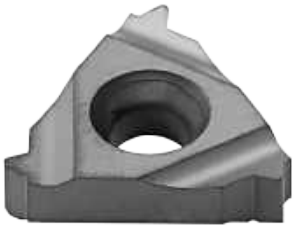
Geometry code (1)	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		TPI	IC	L	PDY	PDX	(68) PH6920
1881207	16 IL 20 UNJ	20	9.525	16	0.8	0.9	○
1881206	16 IL 18 UNJ	18	9.525	16	0.8	1.0	○
1881205	16 IL 16 UNJ	16	9.525	16	0.8	1.0	○
1881204	16 IL 14 UNJ	14	9.525	16	1.0	1.2	○
1883823	16 IR 13 UNJ	13	9.525	16	1.0	1.3	○
1881203	16 IL 12 UNJ	12	9.525	16	1.1	1.4	○
1881202	16 IL 11 UNJ	11	9.525	16	1.1	1.5	○
1881201	16 IL 10 UNJ	10	9.525	16	1.1	1.5	○
1881200	16 IL 9 UNJ	9	9.525	16	1.2	1.6	○
1881199	16 IL 8 UNJ	8	9.525	16	1.2	1.6	○

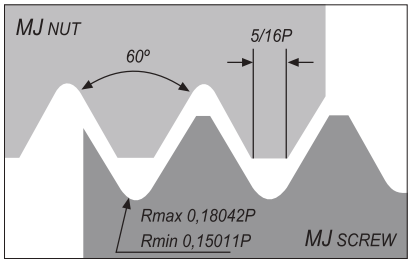
Stock item | Produto de stock | Itens de stock

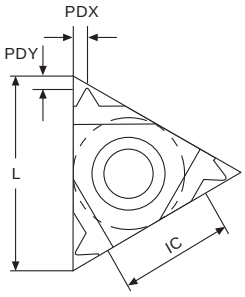
○ Available under request | Disponível sobre consulta | Disponible bajo consulta

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

MJ | ISO 5855-1:1989







External

Geometry code (1)	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		MM	IC	L	PDY	PDX	(68) PH6920
1881067	16 ER 1.0 MJ	1.0	9.525	16	0.7	0.8	○
1881068	16 ER 1.25 MJ	1.25	9.525	16	0.8	0.9	○
1881069	16 ER 1.5 MJ	1.5	9.525	16	0.8	1.0	○
1881070	16 ER 2.0 MJ	2.0	9.525	16	1.0	1.3	◈

◈ 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

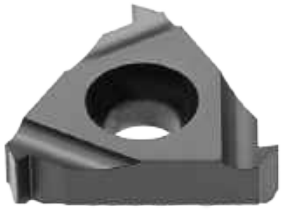
Internal

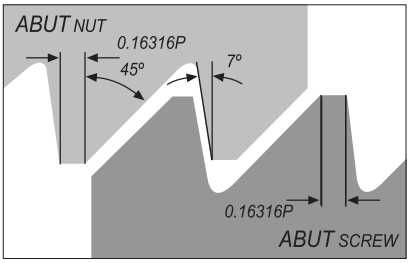
Geometry code (1)	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		MM	IC	L	PDY	PDX	(68) PH6920
1882370	11 IR 1.0 MJ	1.0	6.35	11	0.7	0.8	○
1882371	11 IR 1.25 MJ	1.25	6.35	11	0.8	0.9	○
1882372	11 IR 1.5 MJ	1.5	6.35	11	0.8	1.0	○
1883824	11 IR 2.0 MJ	2.0	6.35	11	0.9	1.0	○
1881071	16 IR 1.0 MJ	1.0	9.525	16	0.7	0.8	○
1881072	16 IR 1.25 MJ	1.25	9.525	16	0.8	0.9	○
1881073	16 IR 1.5 MJ	1.5	9.525	16	0.8	1.0	○
1881074	16 IR 2.0 MJ	2.0	9.525	16	1.0	1.3	○

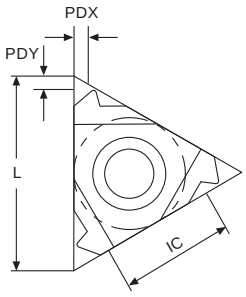
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

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

AMERICAN BUTTRESS | ANSI B1.9-1973







External

Geometry code (1)	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		TPI	IC	L	PDY	PDX	(68) PH6920
1882298	11 ER 20 ABUT	20	6.35	11	1.0	1.3	○
1882299	11 ER 16 ABUT	16	6.35	11	1.0	1.5	○
1881007	16 ER 20 ABUT	20	9.525	16	1.0	1.3	○
1880754	16 ER 16 ABUT	16	9.525	16	1.0	1.5	○
1881006	16 ER 12 ABUT	12	9.525	16	1.4	2.0	○
1881005	16 ER 10 ABUT	10	9.525	16	1.5	2.3	○
1881008	22 ER 8 ABUT	8	12.70	22	2.1	3.3	○
1881009	22 ER 6 ABUT	6	12.70	22	2.1	3.4	○
1882300	11 EL 20 ABUT	20	6.35	11	1.0	1.4	○
1882301	11 EL 16 ABUT	16	6.35	11	1.1	1.6	○
1882302	16 EL 20 ABUT	20	9.525	16	1.0	1.3	○
1882303	16 EL 16 ABUT	16	9.525	16	1.0	1.5	○
1882304	16 EL 12 ABUT	12	9.525	16	1.4	2.0	○
1882305	16 EL 10 ABUT	10	9.525	16	1.5	2.3	○
1882306	22 EL 8 ABUT	8	12.70	22	2.1	3.3	○
1882307	22 EL 6 ABUT	6	12.70	22	2.1	3.4	○

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

Internal

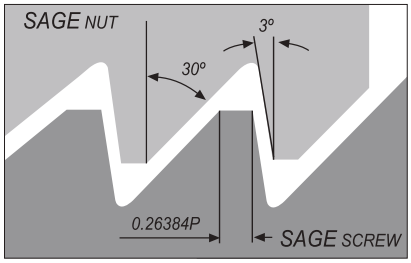
Geometry code (1)	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		TPI	IC	L	PDY	PDX	(68) PH6920
1882308	11 IR 20 ABUT	20	6.35	11	1.0	1.4	○
1882309	11 IR 16 ABUT	16	6.35	11	1.1	1.6	○
1881015	16 IR 20 ABUT	20	9.525	16	1.0	1.3	○
1881014	16 IR 16 ABUT	16	9.525	16	1.0	1.5	◎
1881013	16 IR 12 ABUT	12	9.525	16	1.4	2.0	○
1881012	16 IR 10 ABUT	10	9.525	16	1.5	2.3	◎
1881011	22 IR 8 ABUT	8	12.70	22	2.1	3.3	○
1881010	22 IR 6 ABUT	6	12.70	22	2.1	3.4	○
1882310	11 IL 20 ABUT	20	6.35	11	1.0	1.4	○
1882311	11 IL 16 ABUT	16	6.35	11	1.1	1.6	○
1882312	16 IL 20 ABUT	20	9.525	16	1.0	1.3	○
1882313	16 IL 16 ABUT	16	9.525	16	1.0	1.5	○
1882314	16 IL 12 ABUT	12	9.525	16	1.4	2.0	○
1882315	16 IL 10 ABUT	10	9.525	16	1.5	2.3	○
1882316	22 IL 8 ABUT	8	12.70	22	2.1	3.3	○
1882317	22 IL 6 ABUT	6	12.70	22	2.1	3.4	○

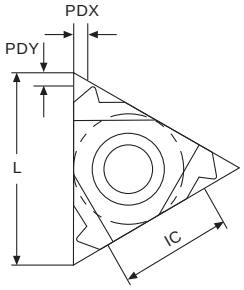
◎ Stock item | Produto de stock | Itens de stock

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

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

METRIC BUTTRESS SAGENGEWINDE (DIN 513:1985) SAW THREAD





External

Geometry code (1)	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		MM	IC	L	PDY	PDX	(68) PH6920
1882384	16 ER 2.0 SAGE	2.0	9.525	16	1.1	1.6	○
1882385	22 ER 3.0 SAGE	3.0	12.70	22	1.5	2.4	○
1882386	22 ER 4.0 SAGE	4.0	12.70	22	1.9	3.1	◈
1882387	16 EL 2.0 SAGE	2.0	9.525	16	1.1	1.6	○
1882388	22 EL 3.0 SAGE	3.0	12.70	22	1.5	2.4	○
1882389	22 EL 4.0 SAGE	4.0	12.70	22	1.9	3.1	○

◈ 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

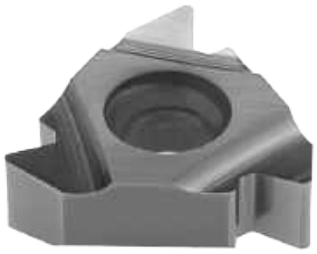
Internal

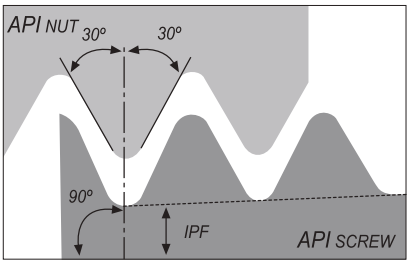
Geometry code (1)	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		MM	IC	L	PDY	PDX	(68) PH6920
1882390	16 IR 2.0 SAGE	2.0	9.525	16	1.2	1.7	○
1882391	22 IR 3.0 SAGE	3.0	12.70	22	1.9	2.9	○
1882392	22 IR 4.0 SAGE	4.0	12.70	22	2.3	3.5	○
1882393	16 IL 2.0 SAGE	2.0	9.525	16	1.2	1.7	○
1882394	22 IL 3.0 SAGE	3.0	12.70	22	1.9	2.9	○
1882395	22 IL 4.0 SAGE	4.0	12.70	22	2.3	3.5	○

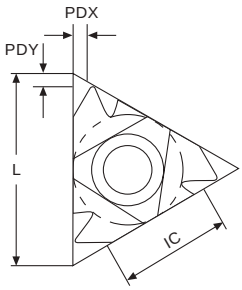
◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

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

API | API SPEC 7:2001 (0.040 | 0.038R | 0.050)







External

Geometry code [1]	Reference Referência Referencia	Pitch	Thread	Taper	Size	Dimensions | Dimensões Dimensiones (mm)				Stock - Grade Code [2]
		TPI		IPF		IC	L	PDY	PDX	(68) PH6920
1881326	22 ER 5.00 API 403	5	V-0.040	3	2 3/8" - 4 1/2" REG	12.70	22	1.8	2.5	◈
1881322	22 ER 4.00 API 382	4	V-0.038R	2	NC23-NC50	12.70	22	2.0	2.6	○
1881323	22 ER 4.00 API 383	4	V-0.038R	3	NC56-NC77	12.70	22	2.0	2.6	◈
1881324	22 ER 4.00 API 502	4	V-0.050	2	6 5/8" REG	12.70	22	1.9	2.8	○
1882396	27 ER 5.00 API 403	5	V-0.040	3	2 3/8" - 4 1/2" REG	15.875	27	1.9	2.7	○
1882397	27 ER 4.00 API 382	4	V-0.038R	2	NC23-NC50	15.875	27	2.1	2.8	○
1882398	27 ER 4.00 API 383	4	V-0.038R	3	NC56-NC77	15.875	27	2.1	2.8	○
1882399	27 ER 4.00 API 502	4	V-0.050	2	6 5/8" REG	15.875	27	2.0	3.0	◈
1882400	27 ER 4.00 API 503	4	V-0.050	3	5 1/2" , 7 5/8" , 8 5/8" REG	15.875	27	2.0	3.0	○

◈ 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

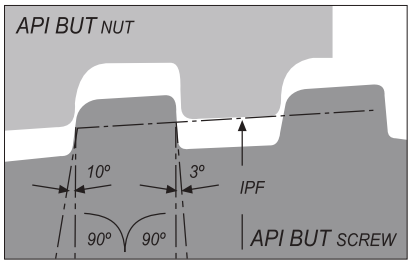
Internal

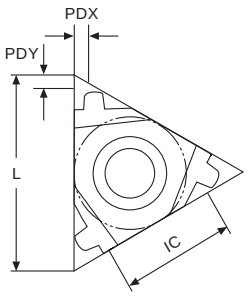
Geometry code [1]	Reference Referência Referencia	Pitch	Thread	Taper	Size	Dimensions | Dimensões Dimensiones (mm)				Stock - Grade Code [2]
		TPI		IPF		IC	L	PDY	PDX	(68) PH6920
1881335	22 IR 5.00 API 403	5	V-0.040	3	2 3/8" - 4 1/2" REG	12.70	22	1.8	2.5	◈
1881331	22 IR 4.00 API 382	4	V-0.038R	2	NC23-NC50	12.70	22	2.0	2.6	○
1881333	22 IR 4.00 API 502	4	V-0.050	2	6 5/8" REG	12.70	22	1.9	2.8	○
1882401	27 IR 5.00 API 403	5	V-0.040	3	2 3/8" - 4 1/2" REG	15.875	27	1.9	2.7	○
1882402	27 IR 4.00 API 382	4	V-0.038R	2	NC23-NC50	15.875	27	2.1	2.8	○
1882403	27 IR 4.00 API 383	4	V-0.038R	3	NC56-NC77	15.875	27	2.1	2.8	○
1882404	27 IR 4.00 API 502	4	V-0.050	2	6 5/8" REG	15.875	27	2.0	3.0	○
1882405	27 IR 4.00 API 503	4	V-0.050	3	5 1/2" , 7 5/8" , 8 5/8" REG	15.875	27	2.0	3.0	○

◈ 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

API | BUTTRESS CASING | API SPEC 5B:2008 | OIL THREADS





External

Geometry code [1]	Reference Referência Referencia	Pitch	Taper	Size	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code [2]
		TPI	IPF		IC	L	PDY	PDX	(68) PH6920
1881327	22 ER 5 BUT 0.75	5	0.75	4 1/2" - 13 3/8"	12.70	22	2.2	2.4	⛭
1881328	22 ER 5 BUT 1.00	5	1.00	16" - 20"	12.70	22	2.3	2.4	⛭

⛭ 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

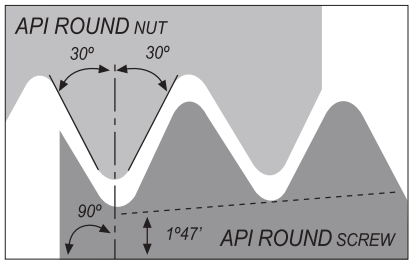
Internal

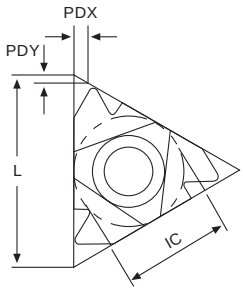
Geometry code [1]	Reference Referência Referencia	Pitch	Taper	Size	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code [2]
		TPI	IPF		IC	L	PDY	PDX	(68) PH6920
1881336	22 IR 5 BUT 0.75	5	0.75	4 1/2" - 13 3/8"	12.70	22	2.2	2.4	⛭
1881337	22 IR 5 BUT 1.00	5	1.00	16" - 20"	12.70	22	2.3	2.4	⛭

⛭ 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

API ROUND CASING & TUBING | API SPEC 5B:2008





External

Geometry code (1)	Reference Referência Referencia	Pitch	Taper	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		TPI	IPF	IC	L	PDY	PDX	(68) PH6920
1881318	16 ER 10 API RD	10	0.75	9.525	16	1.5	1.4	⚙
1881320	16 ER 8 API RD	8	0.75	9.525	16	1.3	1.6	⚙

⚙ 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

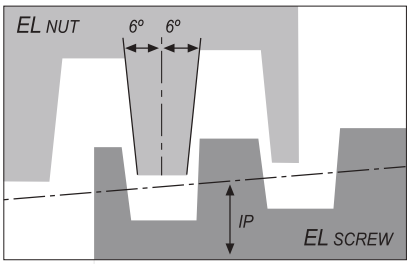
Internal

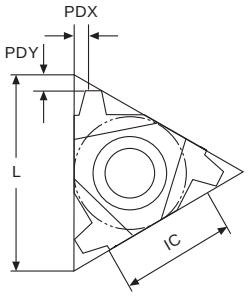
Geometry code (1)	Reference Referência Referencia	Pitch	Taper	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		TPI	IPF	IC	L	PDY	PDX	(68) PH6920
1881319	16 IR 10 API RD	10	0.75	9.525	16	1.5	1.4	⚙
1881321	16 IR 8 API RD	8	0.75	9.525	16	1.3	1.6	○

⚙ 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

EXTREME LINE CASING | API SPEC 5B:2008 - OIL THREADS





External

Geometry code (1)	Reference Referência Referencia	Pitch	Taper	Size	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		TPI	IPF		IC	L	PDY	PDX	(68) PH6920
1881329	22 ER 6 EL 1.5	6	1.5	5" - 7 5/8"	12.70	22	1.9	1.9	○
1881330	22 ER 5 EL 1.25	5	1.25	8 5/8" - 10 3/4"	12.70	22	2.4	2.3	○

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

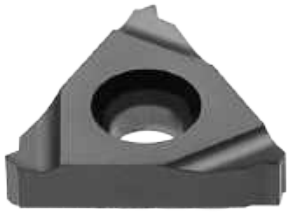
Internal

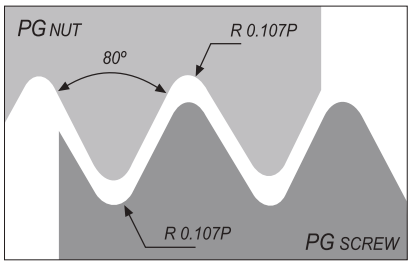
Geometry code (1)	Reference Referência Referencia	Pitch	Taper	Size	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		TPI	IPF		IC	L	PDY	PDX	(68) PH6920
1881339	22 IR 6 EL 1.5	6	1.5	5" - 7 5/8"	12.70	22	1.9	1.9	○
1881338	22 IR 5 EL 1.25	5	1.25	8 5/8" - 10 3/4"	12.70	22	2.4	2.3	○

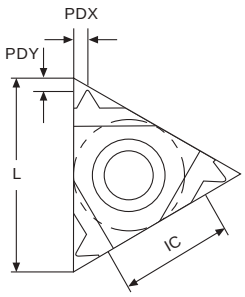
Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Insert order code = (1) Geometry Code + (2) Grade Code

PG | DIN 40430; 1971







External

Geometry code (1)	Reference Referência Referencia	Pitch	Size	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		TPI		IC	L	PDY	PDX	(68) PH6920
1882290	16 ER 20 PG	20	PG7	9.525	16	0.7	0.8	○
1882291	16 ER 18 PG	18	PG9, PG11, PG13.5, PG16	9.525	16	0.8	0.9	◈
1882292	16 ER 16 PG	16	PG21, PG29, PG36, PG42, PG48	9.525	16	0.8	1.0	○

◈ 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

Internal

Geometry code (1)	Reference Referência Referencia	Pitch	Size	Dimensions | Dimensões | Dimensiones (mm)				Stock - Grade Code (2)
		TPI		IC	L	PDY	PDX	(68) PH6920
1883825	08 IR 20 PG	20	PG7	5.0	8	0.6	0.7	○
1882294	11 IR 18 PG	18	PG9, PG11, PG13.5, PG16	6.35	11	0.8	0.9	◈
1882296	16 IR 18 PG	18	PG9, PG11, PG13.5, PG16	9.525	16	0.8	0.9	○
1882297	16 IR 16 PG	16	PG21, PG29, PG36, PG42, PG48	9.525	16	0.8	1.0	◈

◈ 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

TANGENTIAL PROFILE INSERTS CODE KEY

Chave do codificação de pastilhas | Llave de codificación de plaquitas

Tangential Profile Example

TNMC	16	03	55	PH6920
1	2	3	4	5

1 - Insert Type
TNMC
TPMC

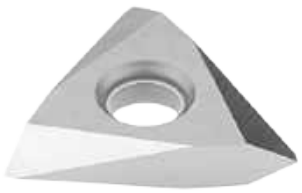
2 - Insert Size (LF - mm)	
16	16.50
22	22.00

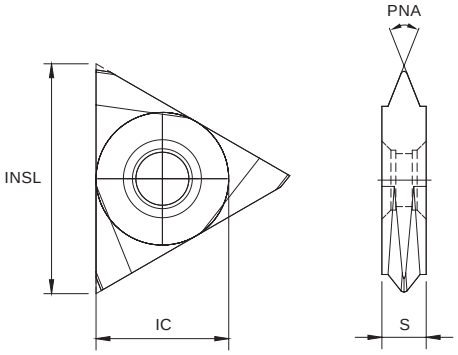
3 - Insert Size (S - mm)	
03	3.18
04	4.76

4 - Profile Angle	
55	55º
60	60º

5 - Grades
PH6920

TNMC (TANGENTIAL INSERTS)



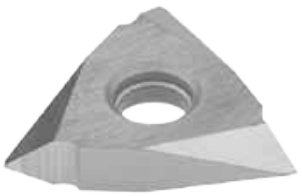


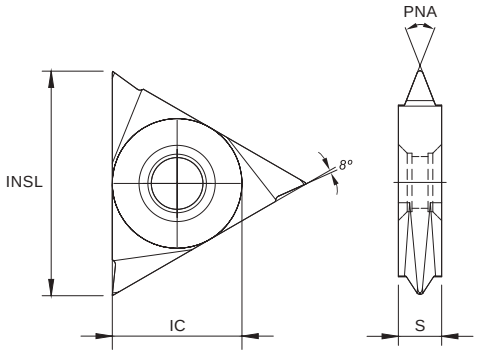
Geometry code [1]	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)			PNA	Stock - Grade Code [2]
		IC	INSL	S		(68) PH6920
1110401	TNMC 1603 55	9.525	16.50	3.18	55	○
1110402	TNMC 1603 60	9.525	16.50	3.18	60	○
1110530	TNMC 2204 55	12.70	22.00	4.76	55	○
1110404	TNMC 2204 60	12.70	22.00	4.76	60	○

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

TPMC (TANGENTIAL INSERTS)





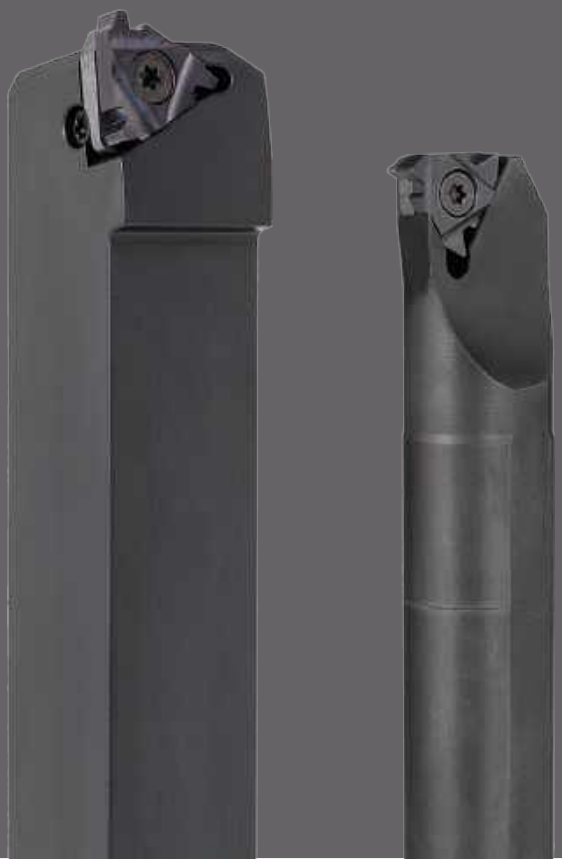
Geometry code [1]	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)			PNA	Geometry code [1]
		IC	INSL	S		(68) PH6920
1110481	TPMC 1603 55	9.525	16.50	3.18	55	○
1110480	TPMC 1603 60	9.525	16.50	3.18	60	○
1110541	TPMC 2204 55	12.70	22.00	4.76	55	○
1110542	TPMC 2204 60	12.70	22.00	4.76	60	○

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

THREAD TURNING

TOOLHOLDERS



The thread turning toolholder is a essential machining component, offering stability and precision for cutting both internal and external threads. Its design accommodates diverse threading inserts, ensuring efficient and accurate threading operations.

Os suportes de torneamento para roscar são um componente essencial de torneamento, oferecendo estabilidade e precisão no processo de produção de roscas internas e externas. O seu design permite a utilização de diversas pastilhas de roscagem, garantindo operações de roscagem eficientes e precisas.

El portaherramientas de torneado de roscas es un componente esencial de mecanizado que ofrece estabilidad y precisión para cortar roscas tanto internas como externas. Su diseño se adapta a diversos insertos de roscado, lo que garantiza operaciones de roscado eficientes y precisas.

EXTERNAL TOOLHOLDERS > page 1008

- > Laydown inserts
  Pastilhas negativas de roscagem | Plaquitas negativas de roscado
- > Tangential inserts
  Pastilhas tangenciais | Plaquitas tangenciales

INTERNAL TOOLHOLDERS > page 1012

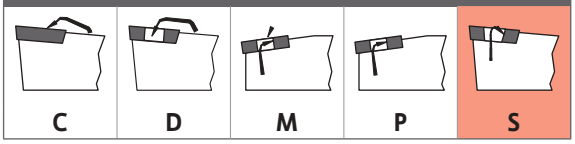
- > Laydown inserts
  Pastilhas negativas de roscagem | Plaquitas negativas de roscado
- > Tangential inserts
  Pastilhas tangenciais | Plaquitas tangenciales

EXTERNAL TOOLHOLDERS CODE KEY

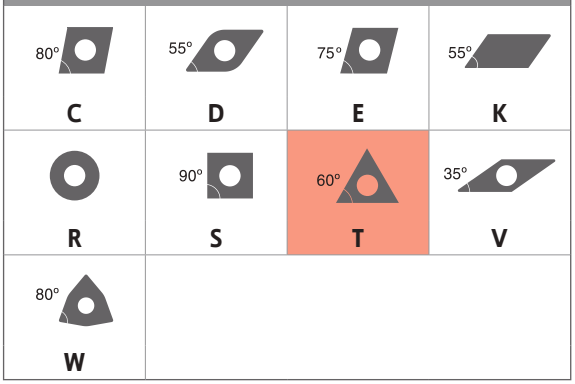
Chave de codificação para suporte externos | Llave de codificación para roscado exterior

S	T	C	N	R	25	25	M	16
1	2	3	4	5	6	7	8	9

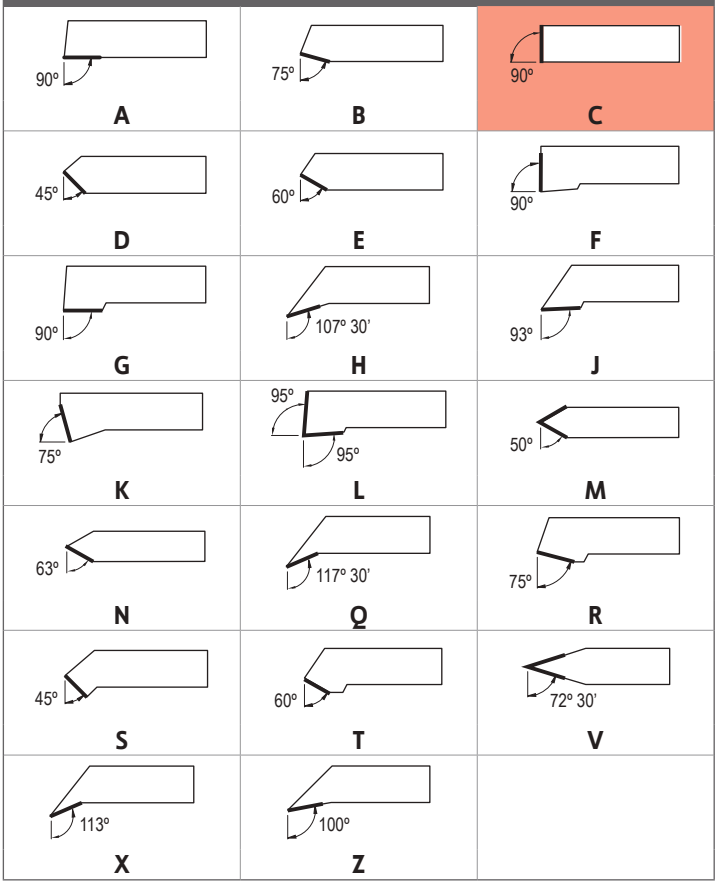
1 - Inserts Clamping System



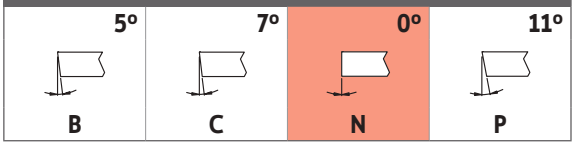
2 - Insert Shape



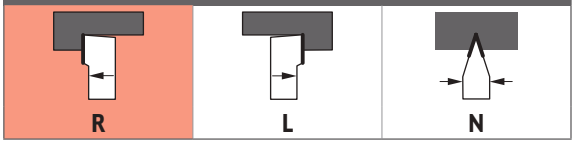
3 - Toolholder Leading Angle



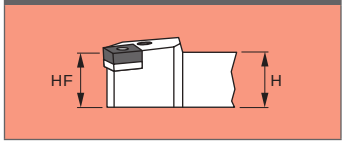
4 - Inserts Clearance Angle



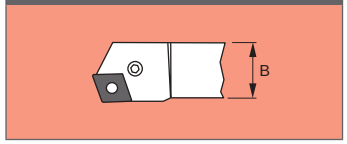
5 - Tool Hand



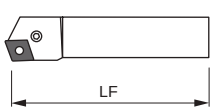
6 - Height of Shank (mm)



7 - Width of Shank (mm)

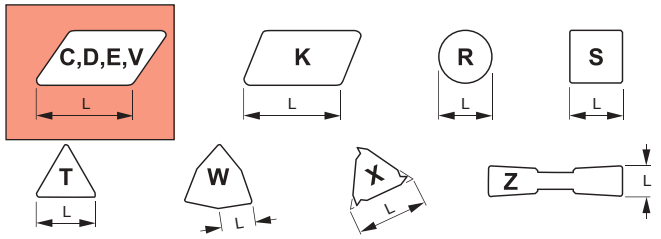


8 - Length of Holder (mm)



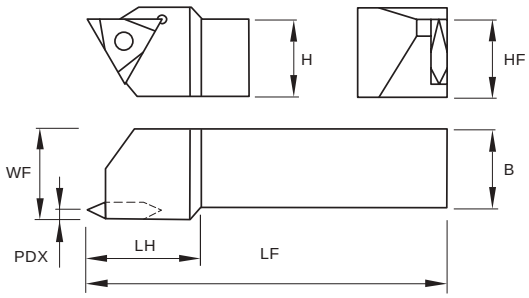
D	60	P	170
E	70	R	200
F	80	S	250
H	100	T	300
K	125	U	350
L	140	V	400
M	150	X	Special

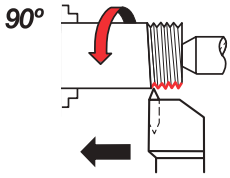
9 - Length of Inserts Cutting Edge (mm)



palbit

STCN 90°





External Left

Order Code Código	Reference Referência Referencia	Insert Geometry	Dimensions | Dimensões | Dimensiones (mm)						Stock
			H = HF	B	WF	LF	LH	PDX	
182013200	STCNL 1212 F16	TNMC/TPMC 16..	12	12	16	80	25	1,59	◈
182013300	STCNL 1616 H16	TNMC/TPMC 16..	16	16	19	100	25	1,59	◈
182008900	STCNL 2020 K16	TNMC/TPMC 16..	20	20	22	125	28	1,59	◈
182013800	STCNL 2020 K22	TNMC/TPMC 22..	20	20	22	125	34	2,38	◈
182009100	STCNL 2525 M16	TNMC/TPMC 16..	25	25	32	150	34	1,59	◈
182004700	STCNL 2525 M22	TNMC/TPMC 22..	25	25	32	150	34	2,38	◈
182014000	STCNL 3225 P22	TNMC/TPMC 22..	32	25	32	170	34	2,38	◈
182013600	STCNL 3232 P16	TNMC/TPMC 16..	32	32	38	170	34	1,59	◈
182014200	STCNL 3232 P22	TNMC/TPMC 22..	32	32	38	170	34	2,38	◈

◈ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

External Right

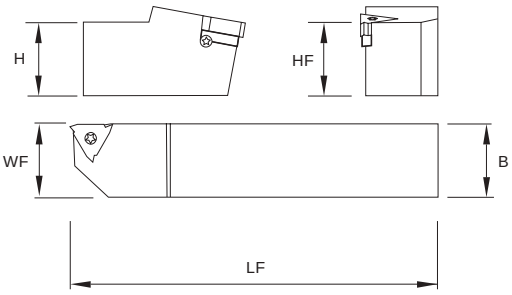
Order Code Código	Reference Referência Referencia	Insert Geometry	Dimensions | Dimensões | Dimensiones (mm)						Stock
			H = HF	B	WF	LF	LH	PDX	
182010200	STCNR 1212 F16	TNMC/TPMC 16..	12	12	16	80	25	1,59	◈
182010300	STCNR 1616 H16	TNMC/TPMC 16..	16	16	19	100	25	1,59	◈
182008800	STCNR 2020 K16	TNMC/TPMC 16..	20	20	22	125	28	1,59	◈
182013700	STCNR 2020 K22	TNMC/TPMC 22..	20	20	22	125	34	2,38	◈
182009000	STCNR 2525 M16	TNMC/TPMC 16..	25	25	32	150	34	1,59	◈
182004600	STCNR 2525 M22	TNMC/TPMC 22..	25	25	32	150	34	2,38	◈
182013900	STCNR 3225 P22	TNMC/TPMC 22..	32	25	32	170	34	2,38	◈
182013500	STCNR 3232 P16	TNMC/TPMC 16..	32	32	38	170	34	1,59	◈
182014100	STCNR 3232 P22	TNMC/TPMC 22..	32	32	38	170	34	2,38	◈

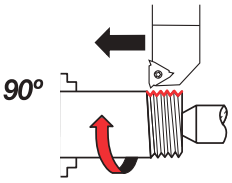
◈ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

SPARE PARTS Complementos | Repuestos

Cutter Reference	Insert Screw	Clamp	Clamp Screw	Clamp Wrench	Wrench
STCNR/L 1212 F16	P0351375	-	-	-	SS20
STCNR/L 1616 H16	P0351375	-	-	-	SS20
STCNR/L 2020 K16	P0351375	GR05000	D0501591	SS30	SS20
STCNR/L 2020 K22	P0501975	GR05000	D0501591	SS30	SS25
STCNR/L 2525 M16	P0351375	GR05000	D0501591	SS30	SS20
STCNR/L 2525 M22	P0501975	GR05000	D0501591	SS30	SS25
STCNR/L 3225 P22	P0501975	GR05000	D0501591	SS30	SS25
STCNR/L 3232 P16	P0351375	GR05000	D0501591	SS30	SS20
STCNR/L 3232 P22	P0501975	GR05000	D0501591	SS30	SS25

SXAN

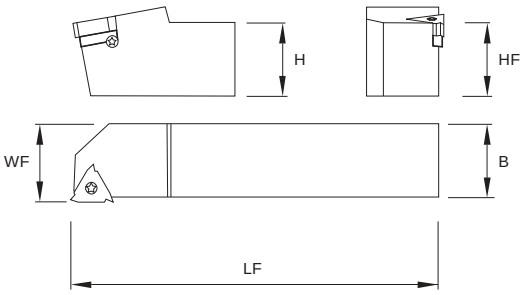


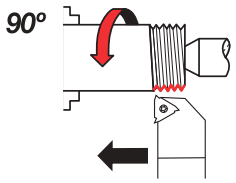


External Left

Order Code Código	Reference Referência Referencia	Insert Geometry	Dimensions | Dimensões | Dimensiones (mm)				Anvil	Anvil Screw	Insert Screw	Torx Key	Stock
			HF = H	B	WF	LF					
182014600	SXAN L 0808 H11	11 EL	8	8	11	100	-	-	P0260700	XT08	○
182006900	SXAN L 1010 H11	11 EL	10	10	11	100	-	-	P0260700	XT08	◎
182015600	SXAN L 1212 K11	11 EL	12	12	12	125	-	-	P0260700	XT08	○
182015700	SXAN L 1212 F16	16 EL	12	12	16	80	IA16	P5000790	P5401390	XT10	○
182011600	SXAN L 1616 H16	16 EL	16	16	16	100	IA16	P5000790	P5401390	XT10	○
182003700	SXAN L 2020 K16	16 EL	20	20	20	125	IA16	P5000790	P5401390	XT10	◎
182003100	SXAN L 2525 M16	16 EL	25	25	25	150	IA16	P5000790	P5401390	XT10	◎
182011700	SXAN L 3232 P16	16 EL	32	32	32	170	IA16	P5000790	P5401390	XT10	○
182005100	SXAN L 2525 M22	22 EL	25	25	25	150	IA22	P8000990	P8001590	XT20	◎
182005300	SXAN L 3232 P22	22 EL	32	32	32	170	IA22	P8000990	P8001590	XT20	◎
182015800	SXAN L 4040 R22	22 EL	40	40	40	200	IA22	P8000990	P8001590	XT20	○
182014700	SXAN L 2525 M27	27 EL	25	25	32	150	IA27	P0500990	P0502200	XT25	○
182014800	SXAN L 3232 P27	27 EL	32	32	32	170	IA27	P0500990	P0502200	XT25	○
182015900	SXAN L 4040 R27	27 EL	40	40	40	200	IA27	P0500990	P0502200	XT25	○

◎ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta





External Right

Order Code Código	Reference Referência Referencia	Insert Geometry	Dimensions | Dimensões | Dimensiones (mm)				Anvil	Anvil Screw	Insert Screw	Torx Key	Stock
			HF = H	B	WF	LF					
182014900	SXAN R 0808 H11	11 ER	8	8	10	100	-	-	P0260700	XT08	○
182007000	SXAN R 1010 H11	11 ER	10	10	10	100	-	-	P0260700	XT08	◈
182016000	SXAN R 1212 K11	11 ER	12	12	12	125	-	-	P0260700	XT08	○
182003200	SXAN R 1212 F16	16 ER	12	12	16	80	EA16	P5000790	P5401390	XT10	◈
182003300	SXAN R 1616 H16	16 ER	16	16	16	100	EA16	P5000790	P5401390	XT10	◈
182004800	SXAN R 2020 K16	16 ER	20	20	20	125	EA16	P5000790	P5401390	XT10	◈
182004900	SXAN R 2525 M16	16 ER	25	25	25	150	EA16	P5000790	P5401390	XT10	◈
182005400	SXAN R 3232 P16	16 ER	32	32	32	170	EA16	P5000790	P5401390	XT10	◈
182003400	SXAN R 2525 M22	22 ER	25	25	25	150	EA22	P8000990	P8001590	XT20	◈
182005200	SXAN R 3232 P22	22 ER	32	32	32	170	EA22	P8000990	P8001590	XT20	◈
182016100	SXAN R 4040 R22	22 ER	40	40	40	200	EA22	P8000990	P8001590	XT20	○
182015000	SXAN R 2525 M27	27 ER	25	25	32	150	EA27	P0500990	P0502200	XT25	○
182015100	SXAN R 3232 P27	27 ER	32	32	32	170	EA27	P0500990	P0502200	XT25	○
182016200	SXAN R 4040 R27	27 ER	40	40	40	200	EA27	P0500990	P0502200	XT25	○

◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

INTERNAL TOOLHOLDERS CODE KEY

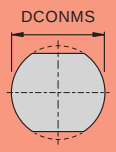
Chave de codificação para suporte internos | Llave de codificación para herramienta interior

S	32	U	S	T	G	N	R	16
1	2	3	4	5	6	7	8	9

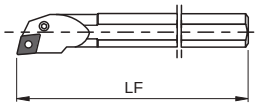
1 - Bar Type

S	Steel shank

2 - Bar Diameter (mm)



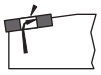
3 - Bar Length (mm)



H	100	**T**	300
J	110	**U**	350
K	125	**V**	400
L	140	**W**	450
M	150	**Y**	500
Q	180	**X**	Special
R	200		
S	250		

4 - Inserts Clamping System

C



M

P

S

5 - Insert Shape

C

D

E

K

S

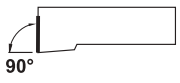
T

V

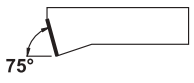
W

X

6 - Bar Leading Angle



F



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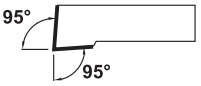

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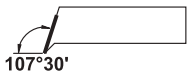

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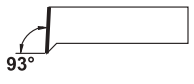

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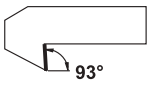
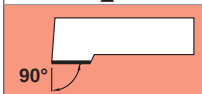


U-BT

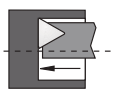


G

7 - Inserts Clearance Angle

5°	7°	0°	11°
B	**C**	**N**	**P**

8 - Bar Hand



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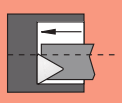

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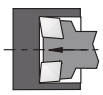
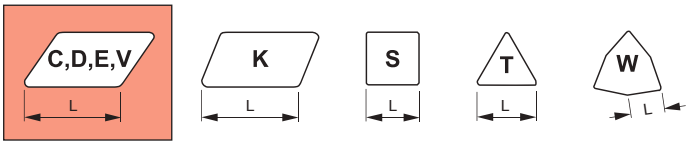


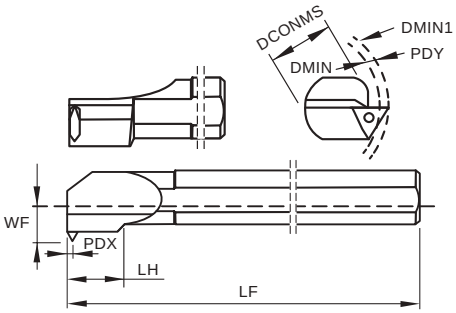
N

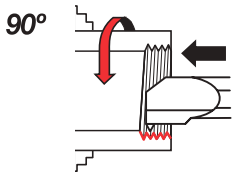
9 - Length of Inserts Cutting Edge (mm)



palbit

STGN 90°





Internal Left

Order Code Código	Reference Referência Referencia	Insert	Dimensions | Dimensões | Dimensiones (mm)								Stock
			DCONMS	LF	LH	WF	DMIN1	DMIN	PDY	PDX	
182010400	S32U STGN L 16	TNMC 1603..	32	350	19	21,0	50,4	45	2,7	1,59	●
182010600	S40V STGN L 16	TNMC 1603..	40	400	19	25,0	60,4	55	2,7	1,59	●
182010700	S32U STGN L 22	TNMC 2204..	32	350	28	21,0	50,4	45	4,1	2,38	●
182010900	S40V STGN L 22	TNMC 2204..	40	400	28	25,0	60,4	55	4,1	2,38	●
182011100	S50W STGN L 22	TNMC 2204..	50	450	28	36,5	78,2	70	4,1	2,38	●

● Stock item | Produto de stock | Ítens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Internal Right

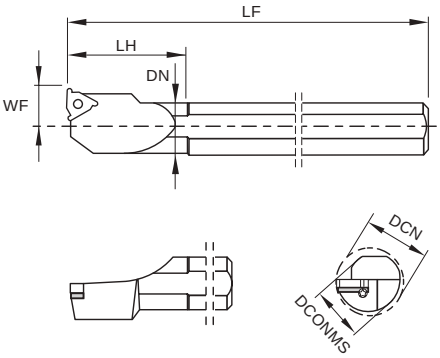
Order Code Código	Reference Referência Referencia	Insert	Dimensions | Dimensões | Dimensiones (mm)								Stock
			DCONMS	LF	LH	WF	DMIN1	DMIN	PDY	PDX	
182010000	S32U STGN R 16	TNMC 1603..	32	350	19	21,0	50,4	45	2,7	1,59	●
182010500	S40V STGN R 16	TNMC 1603..	40	400	19	25,0	60,4	55	2,7	1,59	●
182005000	S32U STGN R 22	TNMC 2204..	32	350	28	21,0	50,4	45	4,1	2,38	●
182010800	S40V STGN R 22	TNMC 2204..	40	400	28	25,0	60,4	55	4,1	2,38	●
182011000	S50W STGN R 22	TNMC 2204..	50	450	28	36,5	78,2	70	4,1	2,38	●

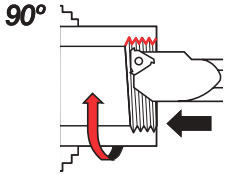
● Stock item | Produto de stock | Ítens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

SPARE PARTS Complementos | Repuestos

Cutter Reference	Insert Screw	Clamp	Clamp Screw	Clamp Wrench	Wrench
S32U STGN R/L 16	P0351375	GR05000	D0501591	SS30	SS20
S32U STGN R/L 22	P0501975	GR05000	D0501591	SS30	SS25
S40V STGN R/L 16	P0351375	GR05000	D0501591	SS30	SS20
S40V STGN R/L 22	P0501975	GR05000	D0501591	SS30	SS25
S50W STGN R/L 22	P0501975	GR05000	D0501591	SS30	SS25

SXFN





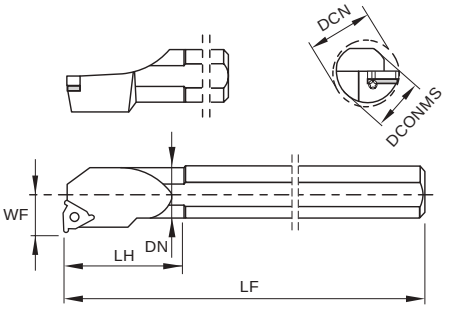
Internal Left

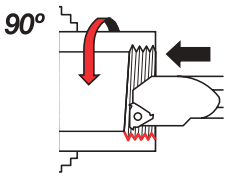
Order Code Código	Reference Referência Referencia	Insert Type	Dimensions | Dimensões | Dimensiones (mm)						Anvil	Anvil Screw	Insert Screw	Torx Key	Stock
			DCONMS	DN	DCN	LF	LH	WF					
182006500	S12H SXFN L 06	06 IL	12	5,1	6	100	12	4,3	-	-	P0200400	XT06	◉
182006600	S16K SXFN L 08	08 IL	16	6,6	7,8	125	18	5,3	-	-	P0200600	XT06	◉
182006100	S10H SXFN L 11	11 IL	10	10	12	100	-	7,4	-	-	P0260700	XT08	◉
182014300	S10K SXFN L 11	11 IL	16	10	12	125	25	7,4	-	-	P0260700	XT08	○
182016300	S13L SXFN L 11	11 IL	16	13	15	140	32	8,9	-	-	P0260700	XT08	○
182006300	S13M SXFN L 16	16 IL	16	13	16	150	32	10,2	-	-	P5401391	XT10	○
182006000	S16P SXFN L 16	16 IL	20	16	19	170	40	11,7	-	-	P5401391	XT10	◉
182002600	S20P SXFN L 16	16 IL	20	20	24	170	-	13,7	EA16	P5000790	P5401390	XT10	◉
182005500	S25R SXFN L 16	16 IL	25	25	29	200	-	16,2	EA16	P5000790	P5401390	XT10	◉
182012500	S32S SXFN L 16	16 IL	32	32	36	250	-	19,7	EA16	P5000790	P5401390	XT10	○
182012700	S40T SXFN L 16	16 IL	40	40	44	300	-	23,7	EA16	P5000790	P5401390	XT10	○
182006400	S20P SXFN L 22	22 IL	20	20	24	170	-	15,6	-	-	P8001591	XT20	◉
182005700	S25R SXFN L 22	22 IL	25	25	29	200	-	18,1	EA22	P8000990	P8001590	XT20	◉
182005900	S32S SXFN L 22	22 IL	32	32	38	250	-	21,6	EA22	P8000990	P8001590	XT20	◉
182013100	S40T SXFN L 22	22 IL	40	40	46	300	-	25,6	EA22	P8000990	P8001590	XT20	○
182006700	S32S SXFN L 27	27 IL	32	32	40	250	-	22,6	EA27	P0500990	P0502200	XT25	◉
182014400	S40T SXFN L 27	27 IL	40	40	48	300	-	26,6	EA27	P0500990	P0502200	XT25	○

◉ Stock item | Produto de stock
Itens de stock

○ Available under request | Disponível sobre consulta
Disponible bajo consulta

Note: All the toolholders SXFN are made with 1,5° helix angle. | Todos os ferros de torno são fornecidos com um ângulo de hélice de 1,5° | Todos los suportes se hacen con un ángulo de hélice de 1,5°.





Internal Right

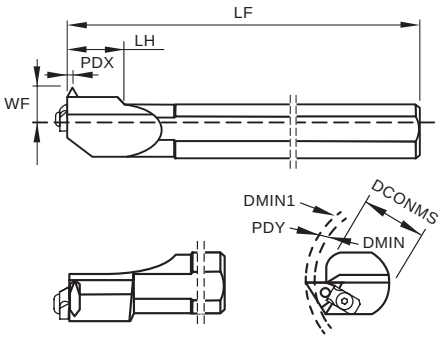
Order Code Código	Reference Referência Referencia	Insert Type	Dimensions | Dimensões | Dimensiones (mm)						Anvil	Anvil Screw	Insert Screw	Torx Key	Stock
			DCONMS	DN	DCN	LF	LH	WF					
182002200	S12H SXFN R 06	06 IR	12	5	6	100	12	4,3	-	-	P0200400	XT06	◉
182002400	S16K SXFN R 08	08 IR	16	6,5	7,8	125	17	5,3	-	-	P0200600	XT06	◉
182002100	S10H SXFN R 11	11 IR	10	10	12	100	-	7,4	-	-	P0260700	XT08	◉
182006200	S10K SXFN R 11	11 IR	16	10	12	125	25	7,4	-	-	P0260700	XT08	○
182016400	S13L SXFN R 11	11 IR	16	13	15	140	32	8,9	-	-	P0260700	XT08	○
182002300	S13M SXFN R 16	16 IR	16	13	16	150	32	10,2	-	-	P5401391	XT10	○
182002500	S16P SXFN R 16	16 IR	20	16	19	170	40	11,7	-	-	P5401391	XT10	◉
182002700	S20P SXFN R 16	16 IR	20	20	24	170	-	13,7	IA16	P5000790	P5401390	XT10	◉
182002900	S25R SXFN R 16	16 IR	25	25	29	200	-	16,2	IA16	P5000790	P5401390	XT10	◉
182005600	S32S SXFN R 16	16 IR	32	32	36	250	-	19,7	IA16	P5000790	P5401390	XT10	○
182012600	S40T SXFN R 16	16 IR	40	40	44	300	-	23,7	IA16	P5000790	P5401390	XT10	○
182002800	S20P SXFN R 22	22 IR	20	20	24	170	-	15,6	-	-	P8001591	XT20	◉
182003000	S25R SXFN R 22	22 IR	25	25	29	200	-	18,1	IA22	P8000990	P8001590	XT20	◉
182005800	S32S SXFN R 22	22 IR	32	32	38	250	-	21,6	IA22	P8000990	P8001590	XT20	◉
182013000	S40T SXFN R 22	22 IR	40	40	46	300	-	25,6	IA22	P8000990	P8001590	XT20	○
182006800	S32S SXFN R 27	27 IR	32	32	40	250	-	22,6	IA27	P0500990	P0502200	XT25	◉
182014500	S40T SXFN R 27	27 IR	40	40	48	300	-	26,6	IA27	P0500990	P0502200	XT25	○

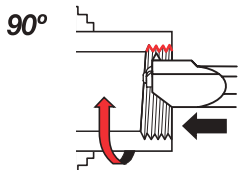
◉ Stock item | Produto de stock
Itens de stock

○ Available under request | Disponível sobre consulta
Disponible bajo consulta

Note: All the toolholders SXFN are made with 1,5° helix angle. | Todos os ferros de torno são fornecidos com um ângulo de hélice de 1,5° | Todos los suportes se hacen con un ángulo de hélice de 1,5°.

STGP 90°

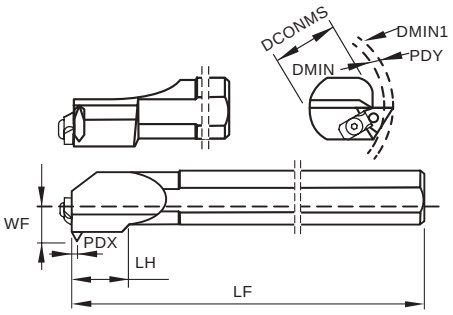


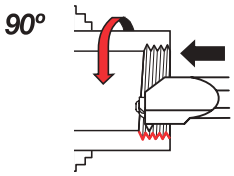


Internal Left

Order Code Código	Reference Referência Referencia	Insert	Dimensions | Dimensões | Dimensiones (mm)								Stock
			DCONMS	LF	LH	WF	DMIN1	DMIN	PDY	PDX	
182009300	S25T STGP L 16	TPMC 1603..	25	300	19	17,5	50,4	45	2,7	1,59	◈
182009500	S32U STGP L 16	TPMC 1603..	32	350	19	20,5	50,4	45	2,7	1,59	◈
182009700	S40V STGP L 22	TPMC 2204..	40	400	28	25,0	78,2	70	4,1	2,38	◈
182011300	S50W STGP L 22	TPMC 2204..	50	450	28	36,5	78,2	70	4,1	2,38	◈

◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta





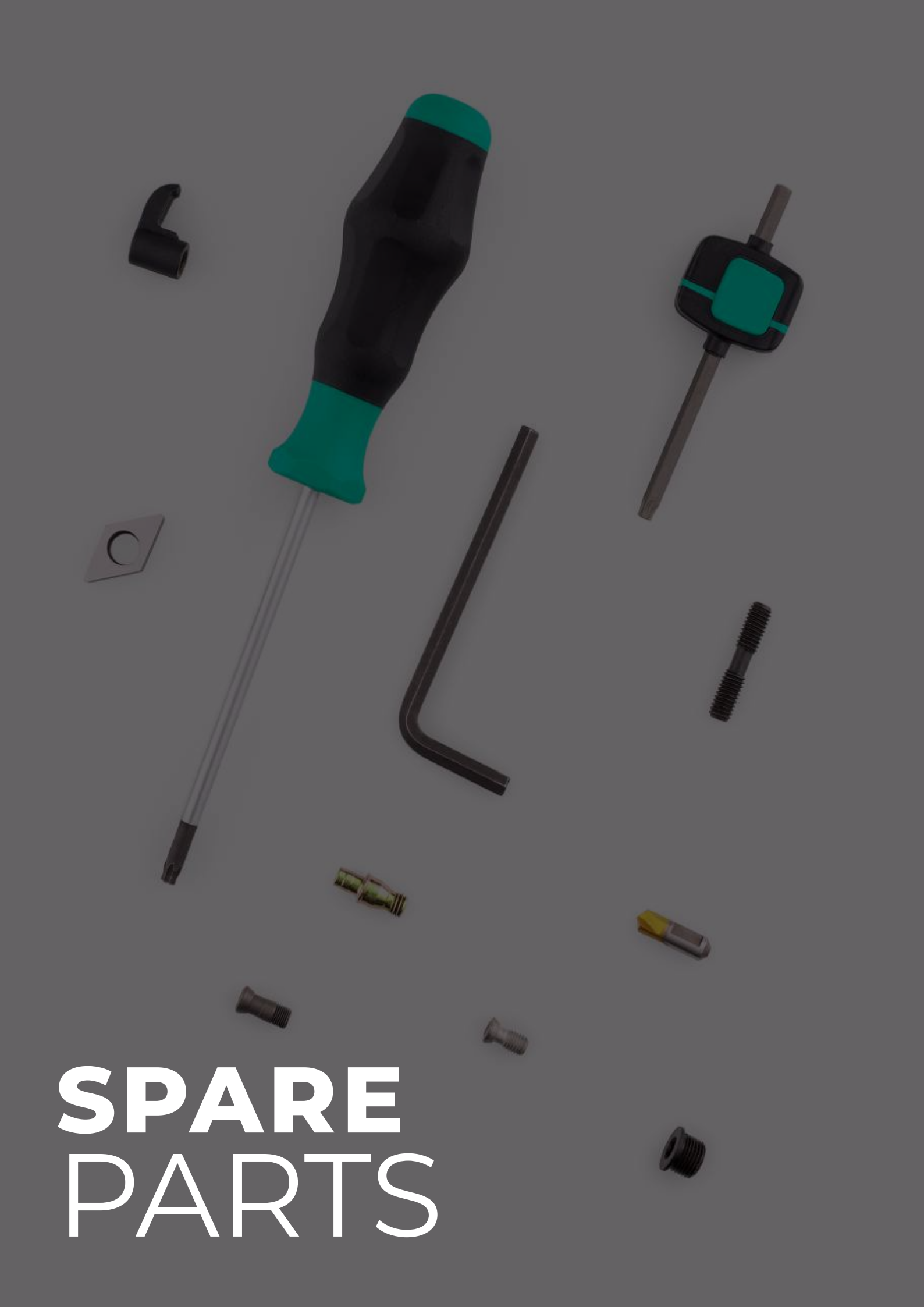
Internal Right

Order Code Código	Reference Referência Referencia	Insert	Dimensions | Dimensões | Dimensiones (mm)								Stock
			DCONMS	LF	LH	WF	DMIN1	DMIN	PDY	PDX	
182009200	S25T STGP R 16	TPMC 1603..	25	300	19	17,5	50,4	45	2,7	1,59	◈
182009400	S32U STGP R 16	TPMC 1603..	32	350	19	20,5	50,4	45	2,7	1,59	◈
182009600	S40V STGP R 22	TPMC 2204..	40	400	28	25,0	78,2	70	4,1	2,38	◈
182011200	S50W STGP R 22	TPMC 2204..	50	450	28	36,5	78,2	70	4,1	2,38	◈

◈ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

SPARE PARTS Complementos | Repuestos

Cutter Reference	Insert Screw	Clamp	Clamp Screw	Clamp Wrench	Wrench
S25T STGP R/L 16	P0351375	GR05000	D0501591	SS30	SS20
S32U STGP R/L 16	P0351375	GR05000	D0501591	SS30	SS20
S40V STGP R/L 22	P0501975	GR05000	D0501591	SS30	SS25
S50W STGP R/L 22	P0501975	GR05000	D0501591	SS30	SS25



SPARE PARTS

SPARE PARTS Complementos | Repuestos

Screws

Order Code Código	Reference Referência Referencia	Stock
290025900	P0200600	○
290033100	P0250503	◈
290044800	P0260700	◈
290009100	P0300800	◈
290027000	P0351000	◈
290027200	P0351375	◈
290031100	P0401400	◈
290027500	P0500990	○
290027800	P0501975	◈
290055000	P0502200	○
290045100	P5000790	◈
290044600	P5401390	◈
290044900	P5401391	◈
290045200	P8000990	◈
290044700	P8001590	◈
290045000	P8001591	◈
290097000	D0501591	○

◈ Stock item | Produto de stock | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Clamp

Order Code Código	Reference Referência Referencia	Stock
290096900	GR05000	○

◈ Stock item | Produto de stock | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Keys

Order Code Código	Reference Referência Referencia	Stock
290011400	XT06	◈
290011700	XT08	◈
290013100	XT10	◈
290013200	XT20	◈
290017400	XT25	◈
290020300	SS20	○
290019800	SS25	○

◈ Stock item | Produto de stock | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Anvils

Order Code Código	Reference Referência Referencia	Stock
116026918	EA16 +0.5	◈
116030418	EA16 +2.5	◈
116027118	EA16 +3.5	◈
116027218	EA16 +4.5	◈
116030618	EA16 0.0	○
116026718	EA16 -0.5	◈
116026818	EA16 -1.5	◈
116021918	EA16	◈
116027518	EA22 +0.5	◈
116027618	EA22 +2.5	◈
116027718	EA22 +3.5	◈
116027818	EA22 +4.5	◈
116030718	EA22 0.0	○
116027318	EA22 -0.5	◈
116027418	EA22 -1.5	◈
116023318	EA22	◈
116028118	EA27 +0.5	◈
116028218	EA27 +2.5	◈
116028318	EA27 +3.5	◈
116028418	EA27 +4.5	◈
116030818	EA27 0.0	○
116027918	EA27 -0.5	◈
116028018	EA27 -1.5	◈
116023418	EA27	◈
116028718	IA16 +0.5	◈
116028818	IA16 +2.5	◈
116028918	IA16 +3.5	◈
116029018	IA16 +4.5	◈
116030918	IA16 0.0	◈
116028518	IA16 -0.5	◈
116028618	IA16 -1.5	◈
116023518	IA16	◈
116029318	IA22 +0.5	◈
116029418	IA22 +2.5	◈
116029518	IA22 +3.5	◈
116029618	IA22 +4.5	◈
116031018	IA22 0.0	○
116029118	IA22 -0.5	◈
116029218	IA22 -1.5	◈
116023618	IA22	◈
116029918	IA27 +0.5	◈
116030018	IA27 +2.5	◈
116030118	IA27 +3.5	◈
116030218	IA27 +4.5	◈
116031118	IA27 0.0	○
116029718	IA27 -0.5	◈
116029818	IA27 -1.5	◈
116023718	IA27	◈

◈ Stock item | Produto de stock | Itens de stock

○ Available under request | Disponível sobre consulta | Disponible bajo consulta

TECHNICAL DATA

THREADING TECHNICAL DATA Dados técnicos de roscagem | Datos técnicos de roscado

THREADING GRADES Graus de roscagem | Calidades para roscado

GRADES DESCRIPTION Descrição de graus | Descripción de calidades

PH7920

PH6920

P10-P35
M10-M25
K10-K30
N05-N15
S10-S30

Multi purpose PVD coated grade with good balance between wear resistance and toughness.

THREADING TECHNICAL DATA Dados técnicos de roscagem | Datos técnicos de roscado

RECOMMENDED GRADES AND CUTTING SPEEDS (M/MIN)

Graus recomendados e velocidades de corte (m/min) | Calidades recomendadas y velocidades de corte (m/min)

ISO	Material	Hardness HB	Coated
			PH7(6)920
P	Unalloyed steel	130	120-200
	Low-alloyed steel	200	110-180
	High-alloy steel	240	100-170
	Steel castings	270	70-120
	Heat Treated steel	400	50-90
M	300 Stainless steel: (303,304,316)	200	70-140
	400 Stainless steel: (420,440)	240	80-120
	17-4 PH, 15-5 PH, 13-8MO PH	400	50-110
K	Grey cast iron	190	70-150
	Nodular cast iron	180	100-140
	Malleable cast iron	240	90-150
N	Wrought aluminium: (2024, 6061, 7075...)	80	100-400
	Cast aluminium:	90	150-400
	Copper & Copper: Brass, Bronze, Copper Silicon	100	80-180
	Non metalic: Rubber, Polypropylene, Thermoplastics (PVC), Thermoplastics Plastics (Fiberglass), Polyamides		200-500
S	Titanium:		
	Pure titanium: 99,0Ti		100-150
	Alpha alloys: Ti5A12.5Sn		40-60
	Beta alloys: Ti 13V11Cr3A1		30-50
	Alpha - beta alloys: Ti 6A14V		30-50
	Cobalt base alloys: Stellite		20-40
	Nikel base alloys: Inconel, Hastelloy, Waspalloy, Kovar		20-40
	High temperature alloys: Iron based: Incoloy		30-60
H	Hardened steel	56 HRc	-
	Hardened cast iron	50 HRc	-

LOOKING FOR MORE TROUBLESHOOTING?

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WORKPIECE MATERIALS - PALBIT SELECTION MATERIALS, PSM

Material da peça - seleção de materiais Palbit, PSM | Material de la pieza - selección materiales Palbit, PSM

STEEL, FERRITIC AND MARTENSITIC STAINLESS STEEL

ISO	PSM	Material Example	Description	R_m(N/mm²)	kcX (N/mm²)	m_c
P	1	Ck50	Structural steels; ordinary carbon steels with low to medium carbon content(<0,5%C); soft carbon steel; free cutting steel.	<500	1500	0.25
	2	42CrMnNiMo 4	Normal tool steels; harder steels for toughening; Martensitic stainless steels; Carbon steels with high carbon content (>0,5%C); Ferritic and martensitic stainless steels.	550<900	1900	0.24
	3	X40CrMoV51	Normal tool steels; Harder steels for toughening; Martensitic stainless steels; Difficult tool steels; High-alloy steels with high hardness; Martensitic stainless steels.	900<1200	2000	0.24

EASY-CUTTING, AUSTENITIC AND DUPLEX STAINLESS STEEL

ISO	PSM	Material Example	Description	R_m(N/mm²)	kcX (N/mm²)	m_c
M	4	X8CrNiS189	Easy-cutting stainless steels; Free-cutting stainless steels; Calcium-treated stainless steels.		1750	0.22
	5	X2CrNiMo17122	Moderately to difficult stainless steels: Austenitic and duplex.		2050	0.20
	6	X2CrNiMoN2253	Very difficult stainless steels: Austenitic and duplex.		2150	0.20

CAST IRON

ISO	PSM	Material Example	Description	R_m(N/mm²)	kcX (N/mm²)	m_c
K	7	GJL-150	Medium / hard cast iron; Grey cast iron.		1150	0.22
	8	GJL-250	Low-alloy cast iron; Malleable cast iron; Nodular cast iron.		1225	0.25
	9	GJL-350	Difficult high-alloy cast iron; Difficult malleable cast iron; Nodular cast iron		1470	0.30

ALUMINIUM AND NON-FERROUSES

ISO	PSM	Material Example	Description	R_m(N/mm²)	kcX (N/mm²)	m_c
N	10	AW7075 AlSi12 CuZn37	Aluminium alloys: Low Si Aluminium alloys: High Si Copper alloys			

HEAT RESISTANT SUPER ALLOYS

ISO	PSM	Material Example	Description	R_m(N/mm²)	kcX (N/mm²)	m_c
S	11	Inconel 718	Ni-based super-alloys Titanium alloys		3300 1450	0.24 0.23

Please note that the R_m value is only for selection of the material group and when the material has been heat treatment or other methods that increase the strength of the material.

LOOKING FOR GENERAL DATA?

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