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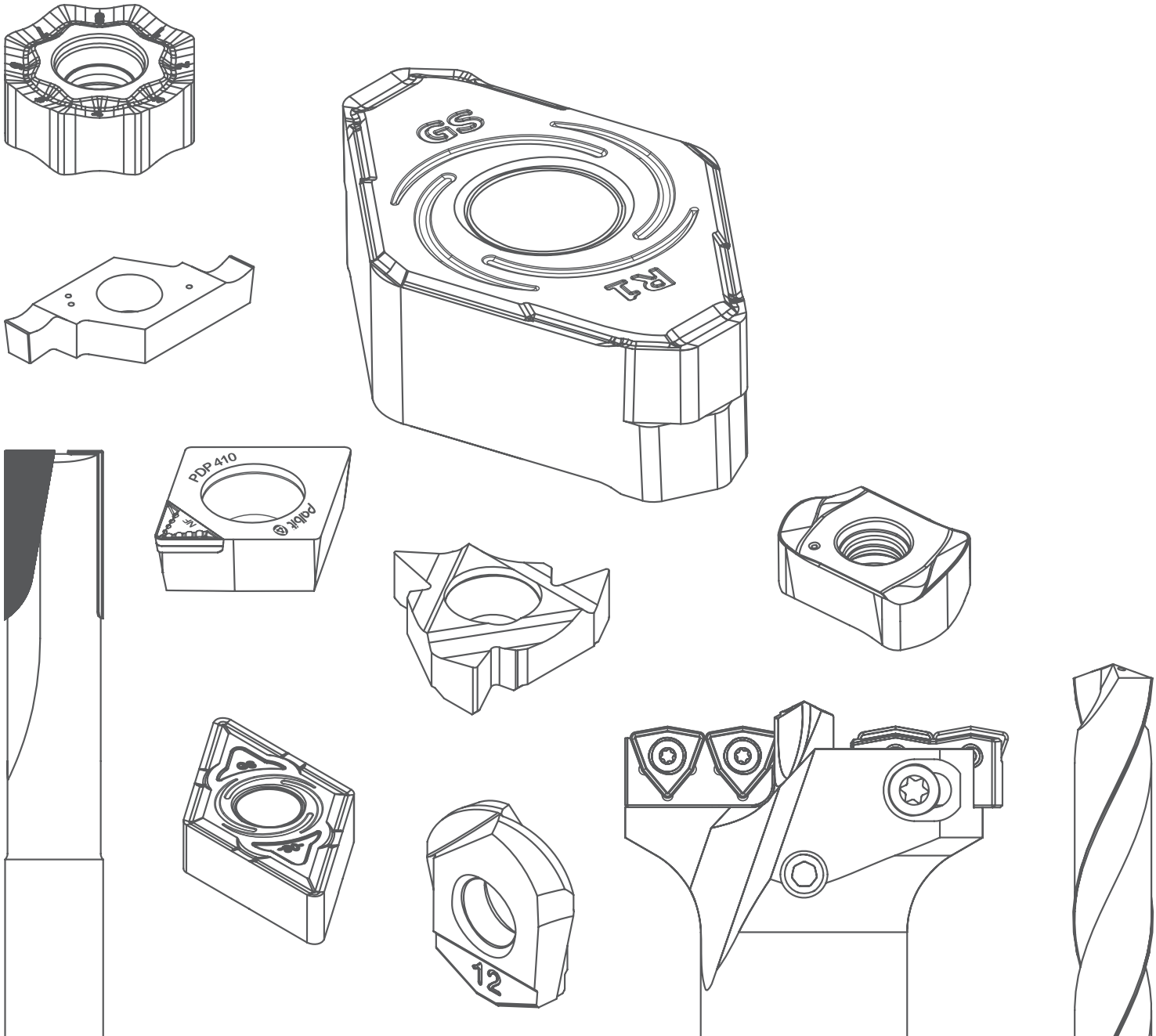
TOOLING SOLUTIONS EXPERTS
SINCE1916

PalbitUSA.com

PILOT
Precision Products

GENERAL CATALOG - IMPERIAL





AEROSPACE & DEFENSE



GENERAL ENGINEERING



AUTOMOTIVE



MOULD & DIE



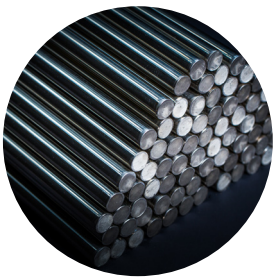
RAILWAY



SHIPBUILDING



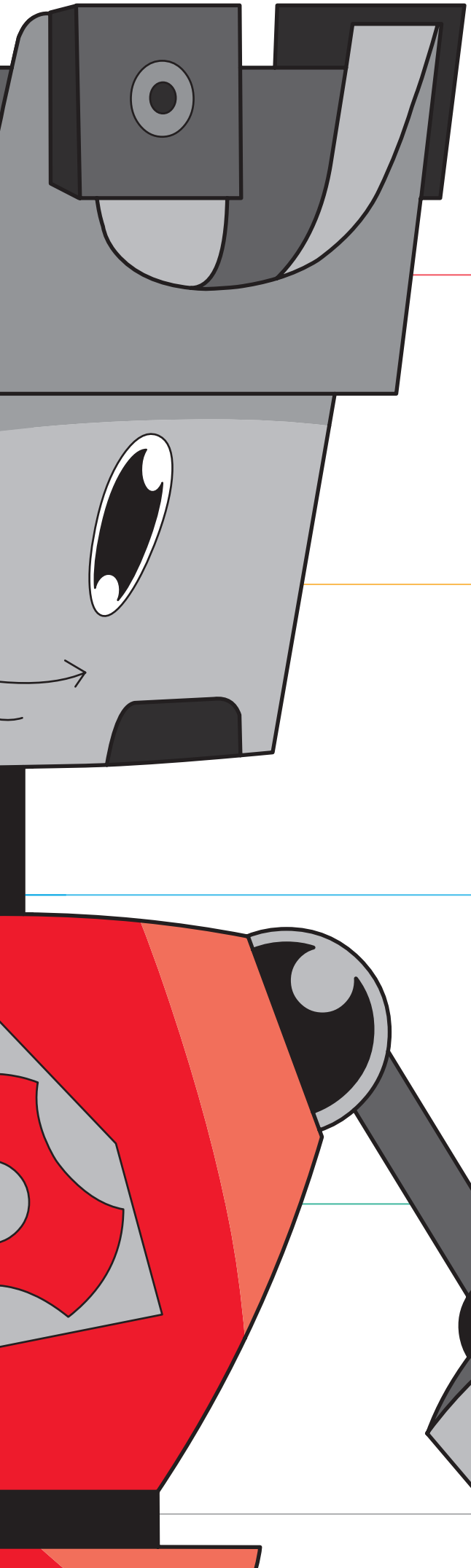
WIND ENERGY



BAR PEELING



POWER GENERATION





MILLING



DRILLING



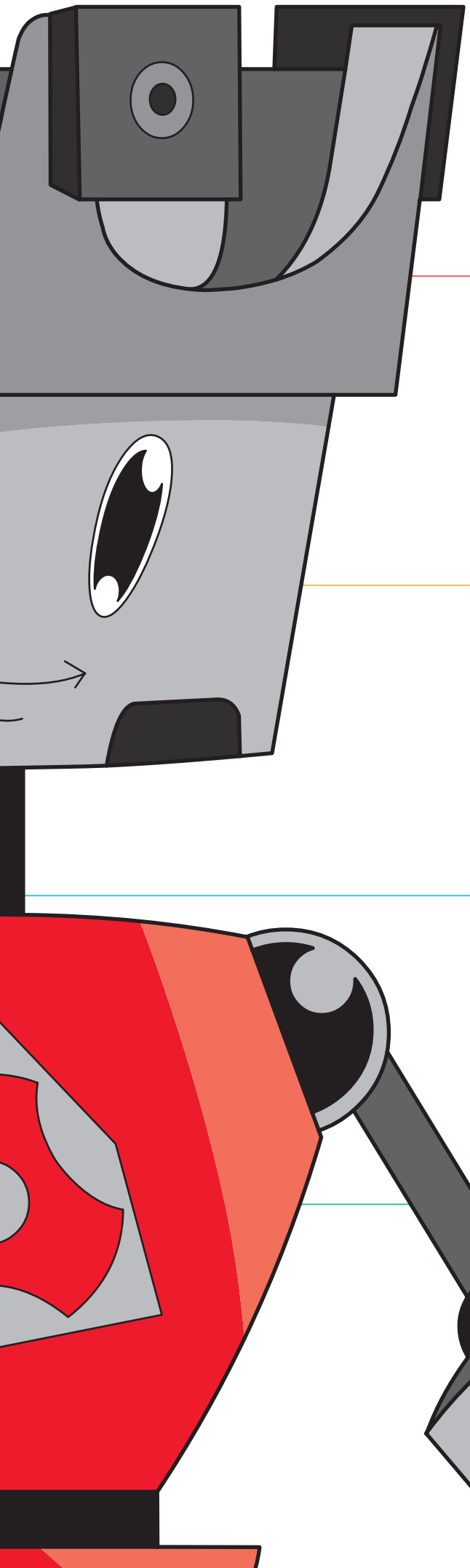
TURNING



GROOVING &
PARTING OFF



THREADING





MILLING



DRILLING



TURNING



GROOVING &
PARTING OFF



THREADING

NEWS



MILLING

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TURNING

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GROOVING & PARTING OFF

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D - 548 | Inserts code key
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9 | GROOVING NEWS

palbit®
TOOLING SOLUTIONS EXPERTS
SINCE1916

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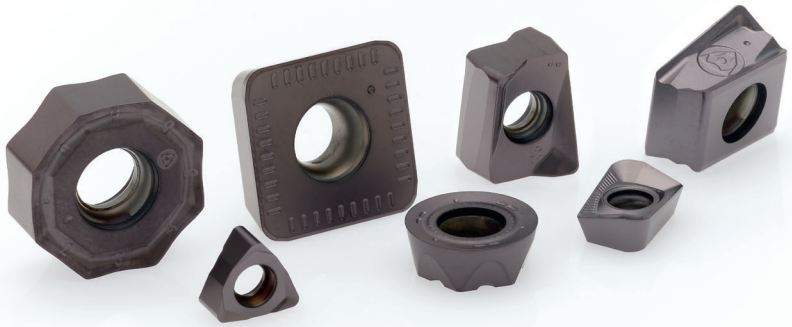
MILLING NEWS

NEW

NEW MILLING GRADE - PHP | Novo revestimento - PHP | Nuevo recubrimiento - PHP

The pioneering coating technology!

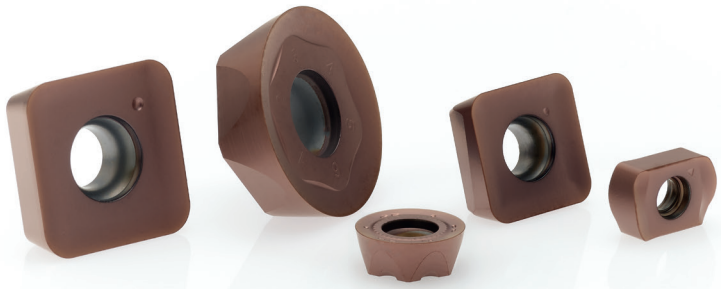


PHP910
PHP920
PHP930
PHP530
PHP808

PHP
NEW
GRADE

NEW MILLING GRADE - PHH | Novo revestimento - PHH | Nuevo recubrimiento - PHH

The revolution on coating technology!



PHH603
PHH910
PHH930
PHH530
PHH808

PHH
NEW
GRADE

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PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

MILLING NEWS

NEW

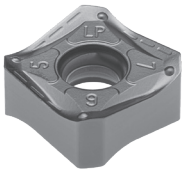
PLUS ON45-05 | ONH(K)X 0505.. | SNH(K)X 1206



ONH(K)X



SNH(K)X

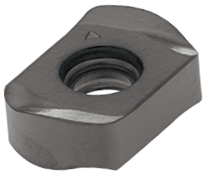


P
M
K
N
S

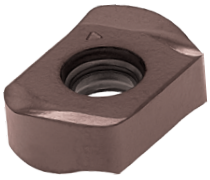
TETRAFEED XN20-06 | XNKU 06T3...



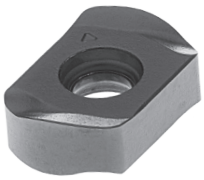
PHP
(grade)



PHH
(grade)



PHS
(grade)



P
M
K
S

HEXAPLUS WN90-08 | WNXT 0806..



WNXT



P
K

PENTA-HIFEED 06320 ‖ POKT 0403..

METRIC LINE



POKT



P

K

HEXAPLUS 49590 ‖ WNXT 0806..

METRIC LINE



WNXT



P

K

W-PRO 62090 ‖ WCR 08... | WCL 08...

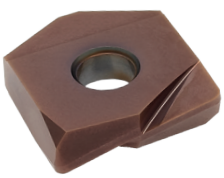
METRIC LINE



WCR



WCL



P

M

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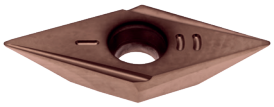
ENGRAVING 06467 | VPGT 0602..

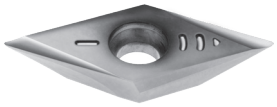
METRIC LINE



VPGT-LM



VPGT-LN

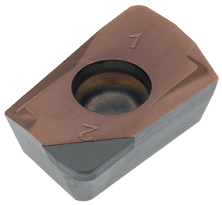


P M N S

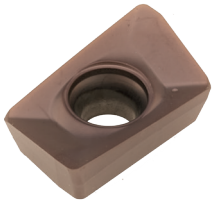
NEW INSERTS | CHIPBREAKER

LINEPRO XP20

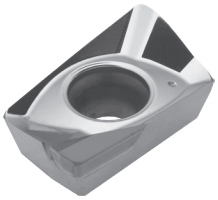
XPHW-MH | Z1



XPET-LS



XPET-LN Z1 | W



PLUS SN45-16

ONHX-LS



TOROMILL RP90

RPHT-LS



CENTER & CHAMFER

SOGT



TURNING NEWS

NEW

NEW TURNING GRADE - PHH ‖ Novo revestimento - PHH | Nuevo recubrimiento - PHH

A new turn for Stainless Steel and HRSA Turning!



PHH910
PHH920

PHH
NEW
GRADE

PCBN TURNING INSERTS ‖ Pastilhas de torneamento PCBN | Plaquitas de torneado PCBN

Higher performance achieved by grinding machining technology

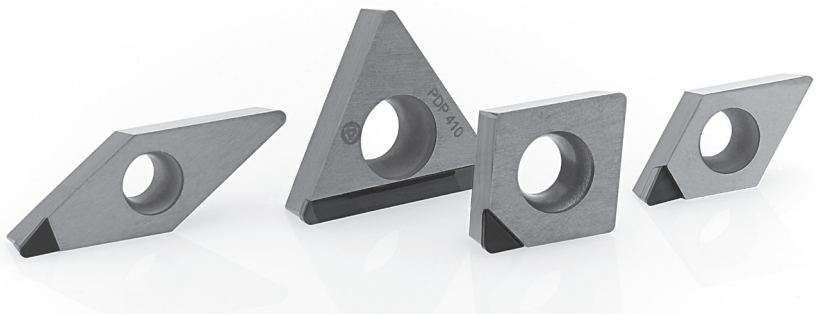


PBY603
PBY620

PCBN

PCD TURNING INSERTS ‖ Pastilhas de torneamento PCD | Plaquitas de torneado PCD

Laser machining technology



PDP410
PDP410

PCD

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PILOT Precision Products

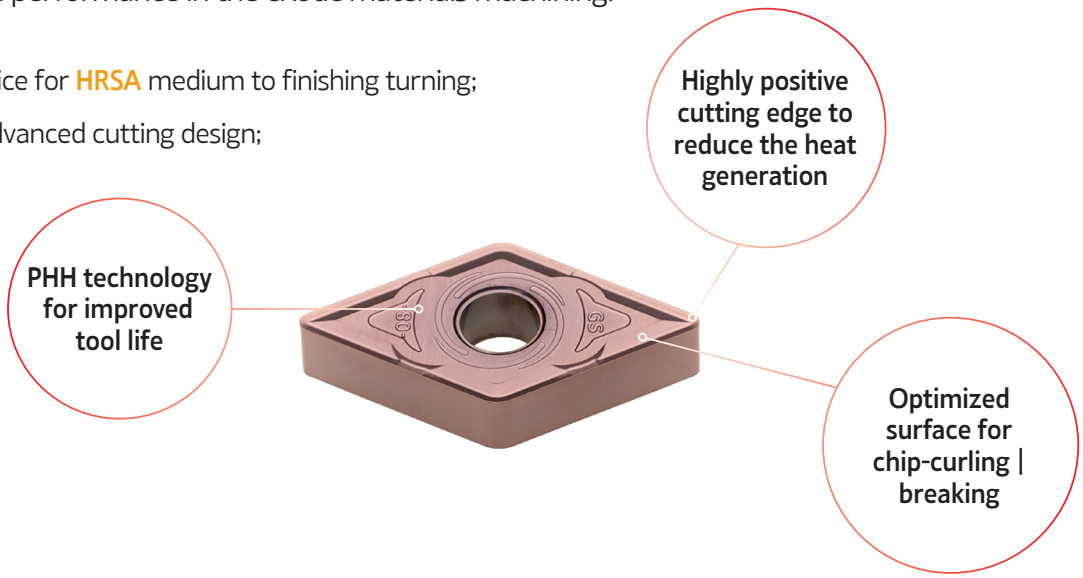
TURNING NEWS

NEW

NEW GS CHIPBREAKER | Quebra-aparas GS | Rompevirutas GS

Designed especially for HRSA, the new chipbreaker **GS** combined with the latest PHH technology, offers exceptional performance in the exotic materials machining.

- First choice for **HRSA** medium to finishing turning;
- Highly advanced cutting design;



Another way of machining-rough to medium cut with DOMX®



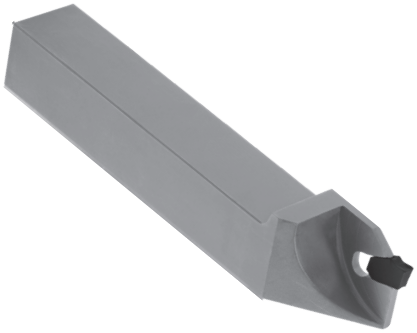
DOMX®

GROOVING & PARTING OFF NEWS

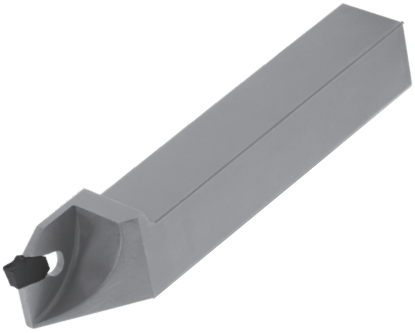
NEW

XLCF TOOLHOLDERS

XLCF R



XLCF L





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MILLING

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A - 138 | SHOULDER MILLING

A - 196 | PROFILE MILLING

A - 210 | HARDMILL

A - 220 | CENTER & CHAMFER

A - 222 | ENGRAVING

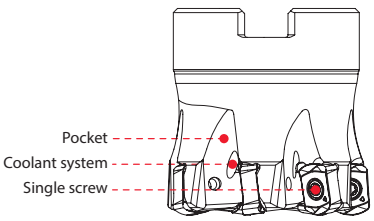
A - 224 | Spare Parts

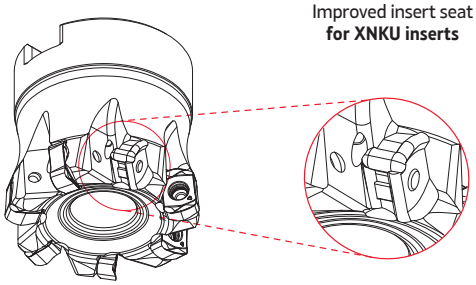
A - 232 | Technical Data

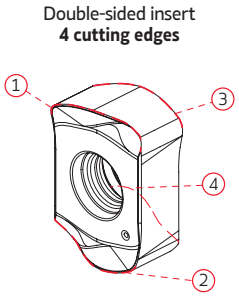
NEW TETRAFEED XN20-06

NEW

Nova linha TETRAFEED XN20-06 | Nueva línea TETRAFEED XN20-06







MILLING CUTTER

Design
- Optimized design for better chip evacuation;

Pocket
- Strong pocket design for better cutter body durability;
- Improved insert seat;

INSERT

Insert Width
- Large cross section;

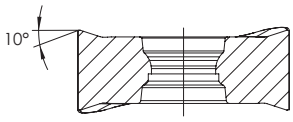
Cutting edge
- Improved cutting edge;
- Improved wear resistance;

Double-sided insert
- Double-sided insert with 4 cutting edges;

XNKU 06T3

XNKU-MP





P M K S



GEOMETRY FEATURES | Características geométricas | Características geométricas

Geometry	Features | Características | Características
Geometry **MP** General machining	Geometry with a reinforced cutting edge for general applications on different materials.

See more on page A - 204

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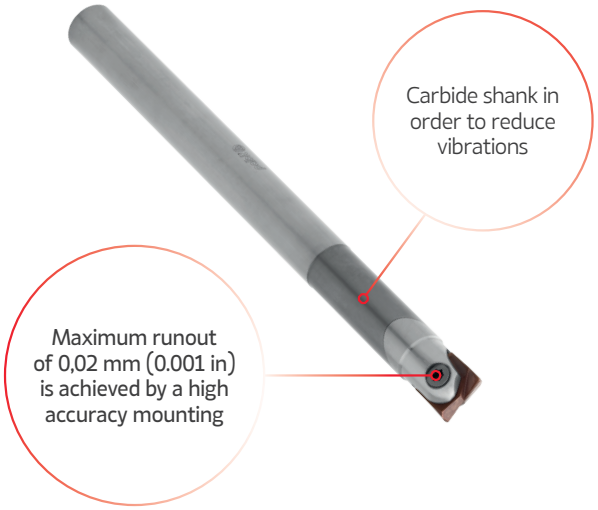
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

NEW W-PRO 62090

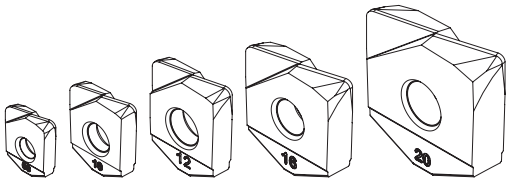
NEW

Nova linha W-PRO 62090 | Nueva línea W-PRO 62090

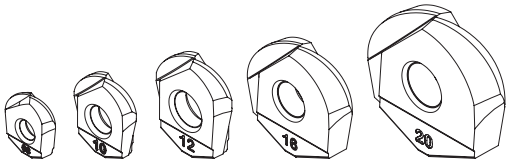
The new W-PRO is the combination of the most refined inserts and the most stable shanks. When looking for a finishing solution for Steels, Stainless Steels, Cast Irons, HRSA or Hardened Steels that can work for a long time while delivering a flawless machined surface, this is the best solution.



WCL



WCR



One toolholder for two types of inserts

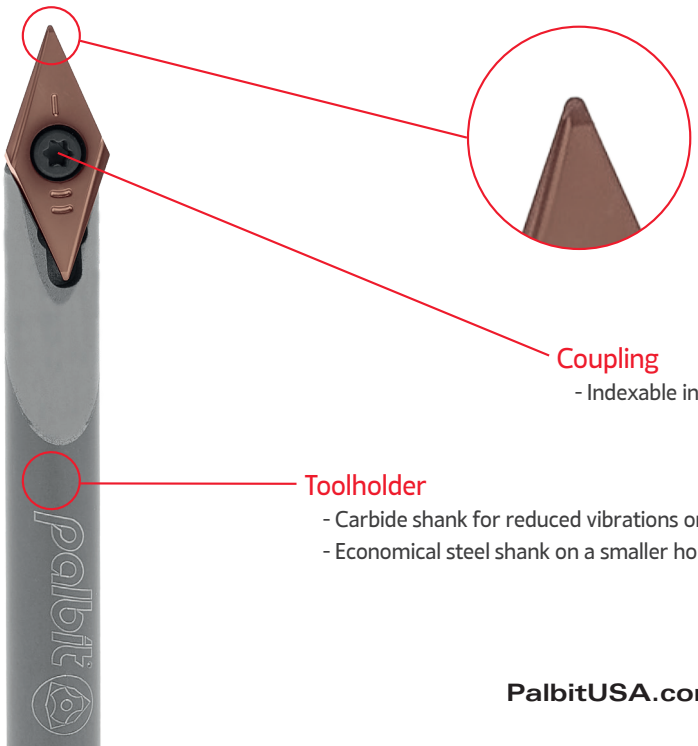
See more on page A - 206

NEW ENGRAVING 64067

NEW

Nova linha ENGRAVING 64067 | Nueva línea ENGRAVING 64067

Higher performance and faster setup on engraving operations.
The biggest barrier in engraving is the time it takes to replace the tool. Focused on this, Palbit engineers developed a solution to overcome it. With the Indexable Line Engraving 64067, only the insert needs to be replaced. Consequently, the down time is sharply reduced, leading to a productivity boost!



Insert Geometry
- Very low depth of cut resulting on thin engraving.

Coupling
- Indexable insert assembly for faster replacement.

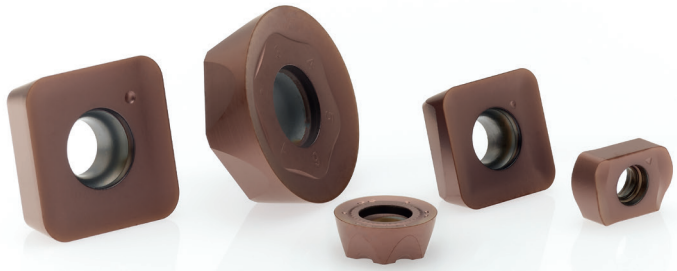
Toolholder
- Carbide shank for reduced vibrations on longer holders;
- Economical steel shank on a smaller holder.

See more on page A - 222

NEW MILLING GRADES | Novos graus de fresagem | Nuevos calidades de fresado

NEW

PHH GRADE - A new step on coating innovation for machining Stainless steels and HRSA



PHH
NEW
GRADE

PHH603 NEW
H05-H15
P01-P05
Recommended for finishing operations in steels and hardened steels. First choice in mold and die finishing applications.

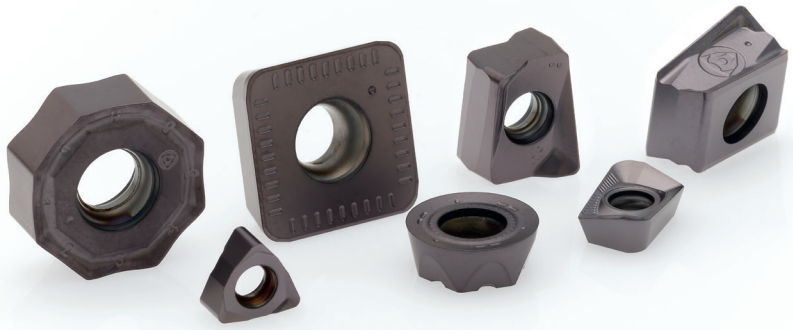
PHH910 NEW
P05-P10
H15-H30
Recommended for finishing operations in steels and hardened steels in unstable conditions.

PHH930 NEW
M20-M40
S20-S30
Recommended for general purpose milling of stainless steels and HRSA.

PHH530 NEW
M25-M40
S25-S35
Extremely heat resistant grade. First choice in hot-section turbine blade milling.

PHH808 NEW
M30-M40
S30-S40
High heat resistance grade. Economic choice in hot-section turbine blade milling

PHP GRADE - A new step on coating innovation for machining Steels and Cast Irons



PHP
NEW
GRADE

PHP910 NEW
P05-P10
K05-K10
Recommended for light operations in steels.

PHP920 NEW
P10-P35
K10-K30
Recommended for General Steel & Cast Iron Milling.

PHP930 NEW
P20-P40
K20-K40
Recommended for medium to roughing operations in steels and cast irons.

PHP530 NEW
P25-P40
M25-M40
Extremely heat resistant grade. First choice in cold-section turbine blade milling.

PHP808 NEW
P30-P40
High heat resistance grade. Economic choice for cold-section turbine blade milling.

GRADES CODIFICATION SYSTEM | Sistema de codificação de graus | Codificación de calidad

PH	X	X	XX
PH - Palbit Hardmetal PD - Palbit diamond PB - Palbit PCBN	Coating PCD | PCBN Grade	1 - Steel 2 - Stainess steel 3 - Cast Iron 4 - Non Ferrous 5 - Super Alloys 6 - Hardened Materials 7 - Wearparts 9 - Universal Range	01 - ISO Field (...) 50 - ISO Field

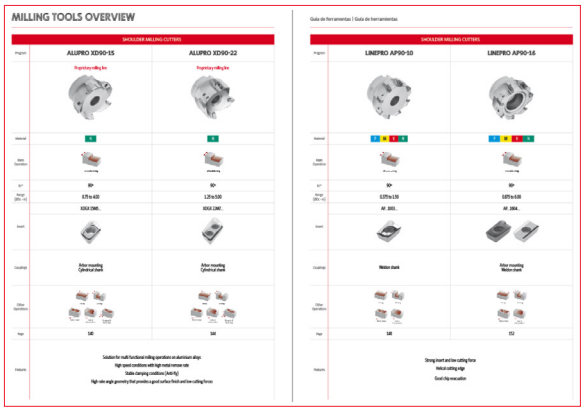
MILLING TOOL SELECTION

1 - Define your operation type:

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

Select your tool:

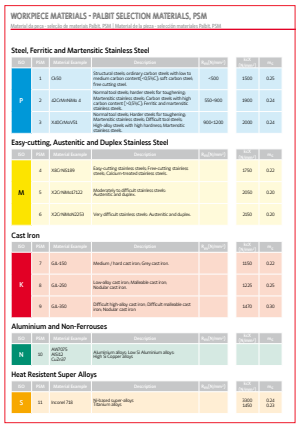
See page A - 22 | A - 28



2 - Define your material according to ISO:

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

See the chapter General Technical Data on the last pages for Palbit Selection Materials - PSM

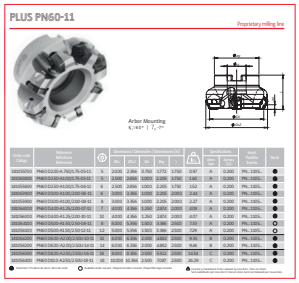


3 - Select your milling cutter.

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 mouting type
- The cutter marked as “stock available under request” has a minimum order quantity according to the following table:

Qty	* ØDc Size
10	≤ 4 in
5	> 4 in



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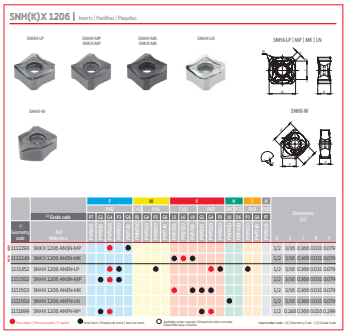
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

4 - Select your insert.

Choose the chipbreaker for your operation:

- Chipbreaker L= Light (for light cuts when low forces/power are required)
- Chipbreaker M = Medium (first choice for mixed production)
- Chipbreaker 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:

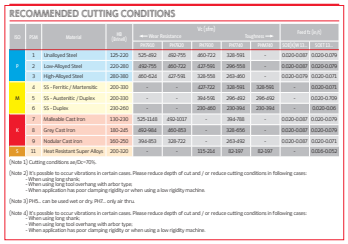
Qty	*IC Size
300	≤ IC 0.984 in
150	> IC 0.984 in



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 HOLDERS

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

Code	Inserts Description	Page
AN90-10	ANHX 1004...	149
AN90-12	ANHX 1204...	153
AN90-16	ANHX 1607...	157
AP90-10	AP... 1003...	186
AP90-16	AP... 1604	192
ON45-05	ON..X 0505.. | SN..X 1206	93
PN60-11	PNHX 1105...	89
RN90-12	RN... 1204...	203
RP90-10	RP... 10T3...	198
RP90-12	RP... 1204...	198
RP90-16	RP... 1605...	198
SN45-12	SN...X 1206...	93 | 97
SN45-16	SN...X 1606 | ON...X 0606...	101
SN88-12	SN...U 1206...	85

Code	Inserts Description		Page
SO10-08	SO... 0803...		115
SO10-13	SO... 13M5...		121
SO15-16	SO... 1605...		127
WD60-12	WD... 1204...		131
WN60-12	WNMW 1207...		135
WN90-04	WNHU 04T3...-LP		157
WN90-08	WNXT 0806..		138
XD90-15	XDGX 15M5...		179
XD90-22	XDGX 22M7...		183
XN20-06	XNKU 06T3...		105
XN90-12	XNHW 1205...		231
XP90-06	XPET 0602...		161
XP90-10	XPET 1003...		168
XP90-17	XPET 1706...		173
06320	POKT 0403	METRIC LINE	111
49590	WNXT 0806..	METRIC LINE	142
62090	WCL | WCR	METRIC LINE	107 | 108

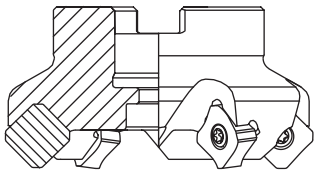
COUPLING TYPES

Tipo de acoplamento | Tipo de acoplamiento

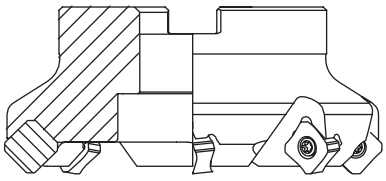
Symbol Símbolo Símblo	Coupling type Tipo de acoplamento Tipo de acoplamiento	Inserts fixation type Fixação de pastilhas Fijación de plaquitas	Standard Norma Norma
A	Arbor mounting Montagem tipo árvore Montaje tipo husillo	Insert screw Parafuso pastilha Tornillo de la plaquita	ISO 6462
B		Wedge Cunha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

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

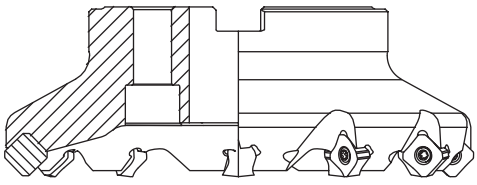
Arbor type A



Arbor type B



Arbor type C



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

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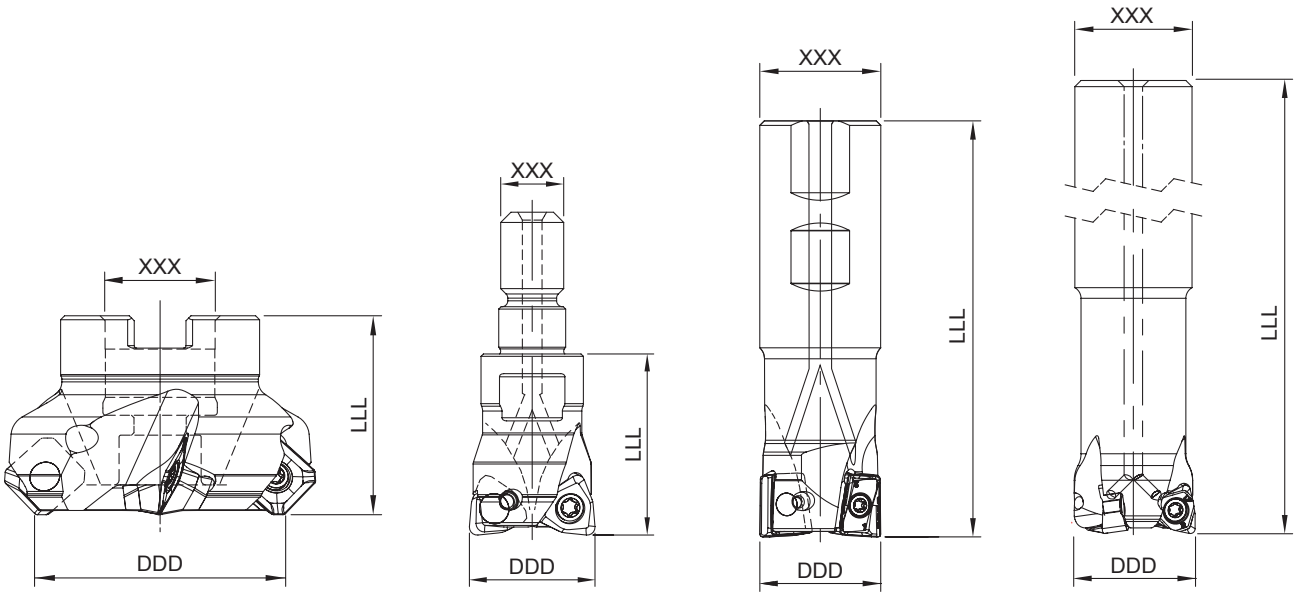
MILLING TOOLS CODIFICATION

Codificação das ferramentas de fresagem | Codificación de heramientas de fresado



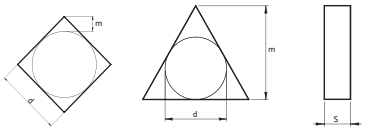
A N 9 0 - D 3 . 0 0 A X X X / L L L U - 0 6 - 1 6 - L

- Insert Type (A-17)
  Pastilha aplicável (A-17)
  Inserto aplicable (A-17)
- Lead angle
  Ângulo de posicionamento da pastilha
  Ángulo de posicion del inserto
- Diameter
  Diâmetro
  Diametro
- Coupling Type (A-18)
  Tipo de acoplamento (A-18)
  Tipo de acoplamiento (A-18)
- Coupling diameter
  Diâmetro de acoplamento
  Diámetro de acoplamiento
- Total lenght
  Comprimento total
  Longitud total
- Cooling system
  Refrigeração
  Refrigeración
  U - Whitout cooling system
  U - Sem refrigeração
  U - Sin refrigeración
- Number of teeth
  Número de dentes
  Numero de dientes
- Insert dimension
  Dimensão da pastilha
  Dimesion del inserto
- Rotation (R/L)
  Rotação (R/L)
  Rotación (R/L)
  *In case of right rotation the "R" is supressed.

ISO | ANSI MILLING INSERTS CODE KEY

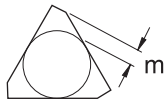
H	120°	M	86°
O	135°	V	35°
P	108°	W	80°
S	90°	L	90°
T	60°	A	85°
C	80°	B	82°
D	55°	K	55°
E	75°	R	
F	50°	X	Special

1- Insert shape symbol



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

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



Triangular inserts with a facet (secondary cutting edge)

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

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

Inscribed circle Tolerances (mm)

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

3 - Tolerances symbol

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

2 - Normal clearance symbol

ISO | ANSI



4 - Insert symbol

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

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

5 - Insert size symbol

* ANSI designation only (Radius Designation is 00)

** Metric designation only (Radius Designation is M0)

According to International Standard ISO 1832 - 2012(E)

"Indexable inserts for cutting tools - Designation"

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

6 - Insert thickness symbol

12 06 00 AN S N - MP

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

Ex.: ANHX 160708 PNER - MP

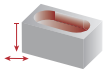
7* - Insert corner symbol			
ISO	mm	inch	ANSI
00	Sharp nose		0
01	0.10	.004	0.2
02	0.20	.008	0.5
04	0.40	.015	1
08	0.80	.032	2
12	1.2	.047	3
16	1.6	.062	4
20	2.0	.078	5
24	2.4	.094	6
28	2.8	.109	7
32	3.2	.125	8
00 (inch or M0/ metric)	Round insert		0
*only when required.			

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 TOOLS OVERVIEW

	PLUS AN90-10	PLUS AN90-12	PLUS AN90-16	LINEPRO AP90-10	LINEPRO AP90-16
Page	148	152	156	186	190
Insert	ANHX 1004...	ANHX 1206...	ANHX 1607...	AP... 1003...	AP... 1604...
Arbor mounting	Ø 1.50 to 4.00 in	Ø 2.00 to 4.00 in	Ø 2.00 to 6.00 in	-	Ø 1.50 to 6.00 in
Weldon Shank	Ø 0.75 to 2.00 in	Ø 1.00 to 1.50 in	Ø 1.25 to 2.00 in	Ø 0.375 to 1.50 in	Ø 0.875 to 1.50 in
Cylindrical Shank	-	-	-	-	-
Threaded Coupling	-	Ø 1.00 to 1.50 in	-	-	-
 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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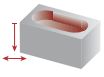
	PLUS ON45-05 NEW	PLUS PN60-11	TOROMILL RN90-12	TOROMILL RP90-10	TOROMILL RP90-12	TOROMILL RP90-16
	92	88	282	196	196	196
	ON..X 0505... SN..X 1206...	PN... 1105...	RNHX 1204...	RPHT 10T3...	RPHT 1204...	RPHT 1605...
	Ø 2.00 to 5.00 in	Ø 2.00 to 10.00 in	Ø 1.50 to 3.00 in	Ø 1.50 to 2.00 in	Ø 2.00 to 4.00 in	Ø 3.00 to 5.00 in
	-	-	Ø 1.25 in	-	-	-
	-	-	-	Ø 1.00 to 1.50 in	-	-
	-	-	Ø 1.25 to 1.50 in	Ø 1.00 to 1.50 in	-	-
	●	●	○	○	○	○
	○					
			○	○	○	○
			○	○	○	○
			○	○	○	○
			●	●	●	●
			●	●	●	●

MILLING TOOLS OVERVIEW

	PLUS SN45-12	PLUS SN45-16	PLUS SN88-12	HIFEED SO10-08	HIFEED SO10-13	HIFEED SO15-16
Page	96	100	84	114	120	126
Insert	SN.. 1206...	SN... 1606... ON... 0606...	SN...U 1206...	SO... 0803...	SO... 13M5...	SO... 1605...
Arbor mounting	Ø 1.50 to 10.00 in	Ø 2.50 to 10.00 in	Ø 2.00 to 10.00 in	Ø 1.50 to 2.00 in	Ø 2.00 to 4.00 in	Ø 2.50 to 6.00 in
Weldon Shank	-	-	-	Ø 0.75 to 1.25 in	-	-
Cylindrical Shank	-	-	-	-	-	-
Threaded Coupling	-	-	-	Ø 1.50 to 1.25 in	-	-
 Facing	●	●	●	●	●	●
 Shouldering			○			
 Slanted Shoulder & Chamfer	○	○				
 Ramp down				○	○	○
 Helical Interpolation				○	○	○
 Plunging				○	○	○
 Side milling						
 Slotting						
 Profiling				●	●	●
 Copying				●	●	●
 Plunging & Recessing						

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	HIFEED WD60-12	HIFEED WN60-12	PLUS WN90-04	HEXAPLUS WN90-08 NEW	ALUPRO XD90-15	ALUPRO XD90-22
	130	134	146	138	178	182
	WD... 1204...	WN... 1207...	WNHU 04T308-LP	WNXT 0806...	XDGX 15M5...	XDGX 22M7...
	Ø 1.50 to 4.00 in	Ø 2.00 to 4.00 in	-	Ø 2.00 to 3.00 in	Ø 1.50 to 4.00 in	Ø 2.00 to 5.00 in
	-	-	-	-	-	-
	-	-	Ø 0.625 to 1.00 in	-	Ø 0.75 to 1.50 in	Ø 1.25 to 1.50 in
	-	-	Ø 0.625 to 1.00 in	-	-	-
	●	●	○	○	○	○
			●	●	●	●
	○	○		○	○	○
	○	○		○	○	○
		○				
				○		
					○	○
	●	●				
	●	●				
					○	○

MILLING TOOLS OVERVIEW

	TETRAFEED XN20-06	HARDMILL XN90-12	LINEPRO XP90-06	LINEPRO XP90-10	LINEPRO XP90-17
Page	104	210	160	166	172
Insert	XNKU... 06...	XNHW 1205...	XPET 0602...	XPET 1003...	XPET 1706...
Arbor mounting	Ø 1.50 to 2.50 in	Ø 1.50 to 4.00 in	-	Ø 1.50 to 2.50 in	Ø 1.50 to 5.00 in
Weldon Shank	Ø 0.625 to 1.25 in	-	-	Ø 0.625 to 1.00 in	Ø 1.25 to 1.50 in
Cylindrical Shank	Ø 0.625 to 1.50 in	-	Ø 0.375 to 0.625 in	-	-
Threaded Coupling	Ø 0.625 to 1.50 in	-	Ø 0.625 to 1.25 in	Ø 0.625 to 1.25 in	-
Facing	●	●	●	●	○
Shouldering		○	●	●	●
Slanted Shoulder & Chamfer					
Ramp down	○		○	○	○
Helical Interpolation	○		○	○	○
Plunging	○		○	○	○
Side milling			○ (only with XPET-HF)	○ (only with XPET-HF)	
Slotting			○	○	○
Profiling	○		○	○	
Copying	○		○	○	
Plunging & Recessing					

● Main Operation ○ Other Operations

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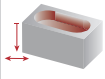
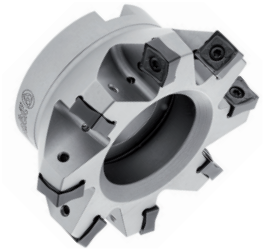
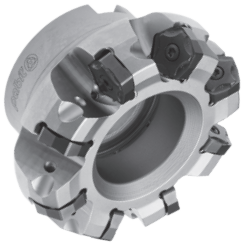
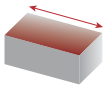
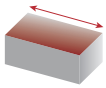
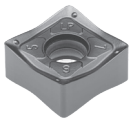
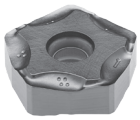
METRIC LINE

	PENTA HIFEED 06320 NEW	HEXAPLUS 49590 NEW	W-PRO 62090 NEW
Page	**110**	**142**	**206**
Insert	POKT 0403...	WNXT 0806...	WC... 08 | 12 | 16 | 20
Arbor mounting	Ø 40-66	Ø 40-125	-
Weldon Shank	-	Ø 32-50	-
Cylindrical Shank	Ø 20-40	-	Ø 8 to 20 mm
Threaded Coupling	Ø 16-42	-	-
 Facing	●	●	●
 Shouldering		●	●
 Slanted Shoulder & Chamfer			
 Ramp down	●	●	
 Helical Interpolation	●	●	
 Plunging	●		
 Side milling		●	
 Slotting			
 Profiling	●		●
 Copying	●		●
 Plunging & Recessing			

MILLING TOOLS OVERVIEW

FACE MILLING CUTTERS

Program	PLUS SN88-12	PLUS PN60-11
	Proprietary milling line 	Proprietary milling line 
Material	P M K	P K
Main Operation	 Facing	 Facing
Kr°	88°	60°
Range (ØDc - in)	2.00 to 10.00	2.00 to 10.00
Insert	SN...1206... 	PN...1105... 
Couplings	Arbor mounting	Arbor mounting
Other Operations	 Shouldering	
Page	84	88
Features	Indexable face mills with 8 helical cutting edges For rough to semi-finish with high-efficiency face milling Cutting edge angle enables performing face milling very close to the sidewall	Economical because double sided inserts applied 10 corners available improved insert design for distribution of cutting forces Excellent solution for cast iron

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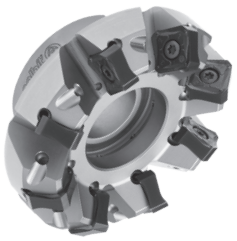
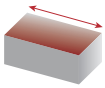
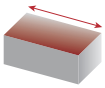
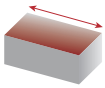
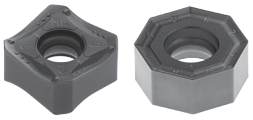
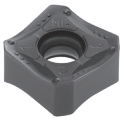
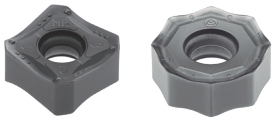
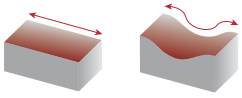
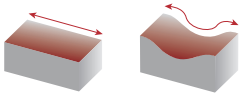
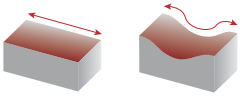
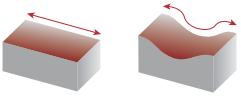
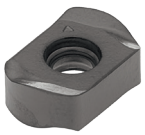
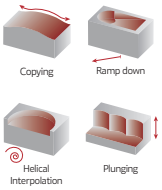
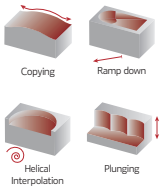
FACE MILLING CUTTERS

Program	PLUS ON45-05 NEW	PLUS SN45-12	PLUS SN45-16
	Proprietary milling line 	Proprietary milling line 	Proprietary milling line 
Material	P M K N S	P M K N S	P M K
Main Operation	 Facing	 Facing	 Facing
Kr°	45°	45°	45°
Range (ØDc - in)	2.00 to 5.00	1.50 to 10.00	2.50 to 10.00
	ON...0505... & SN...1206	SN...1206...	SN...1606... & ON...0606...
Insert			
Couplings	Arbor mounting	Arbor mounting	Arbor mounting
Other Operations	 Slanted Shoulder & Chamfer	 Slanted Shoulder & Chamfer	 Slanted Shoulder & Chamfer
Page	92	96	100
Features	New line for Heavy and Soft face milling Two different geometries for same pocket Insert geometries available for all applications materials Excellent surface finishing	Economical because double sided inserts applied Variety of insert geometries is available for all applications materials Excellent surface finishing Available in regular and fine pitch cutters	Two different geometries for same pocket Insert geometries available for all applications materials Excellent surface finishing Available in regular and fine pitch cutters

MILLING TOOLS OVERVIEW

HIFEED MILLING CUTTERS

Program	TETRAFEED XN20-06 NEW	PENTA HIFEED 06320 NEW	HIFEED SO10-08	HIFEED SO10-13
	Proprietary milling line	Proprietary milling line	Proprietary milling line	Proprietary milling line
		 METRIC LINE		
Material	P M K S	P K	P M K S	P M K S
Main Operation	 Facing Profiling	 Facing Profiling	 Facing Profiling	 Facing Profiling
Kr°	20°	20°	10°	10°
Range (ØDc - in)	0.625 to 2.50	20 - 66	0.75 to 2.00	2.00 to 4.00
	XNKU 06T3...	POKT 0403...	SO...0803...	SO...13M5...
Insert				
Couplings	Arbor mounting Weldon shank Threaded coupling	Arbor mounting Cylindrical shank Threaded coupling	Arbor mounting Weldon shank Threaded coupling	Arbor mounting
Other Operations	 Copying Ramp down Helical Interpolation Plunging	 Copying Ramp down Helical Interpolation Plunging	 Ramp down Helical Interpolation Plunging	 Ramp down Helical Interpolation Plunging
Page	204	110	114	120
Features	Double-sided insert with 4 cutting edges Optimized design for better chip evacuation High productivity	High feed cutting with low cutting load High productivity	High feed cutting with low cutting load High productivity	

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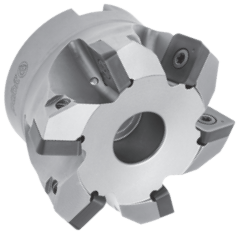
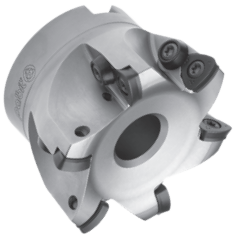
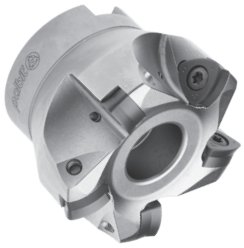
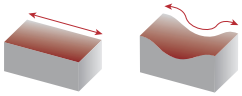
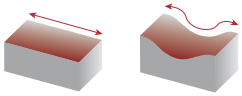
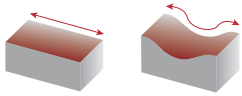
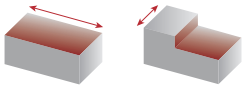
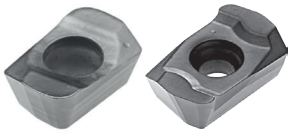
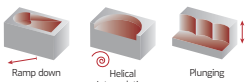
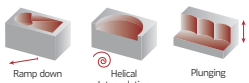
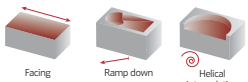
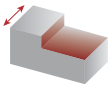
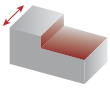
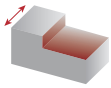
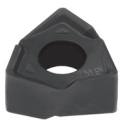
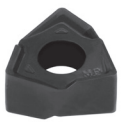
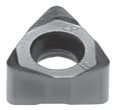
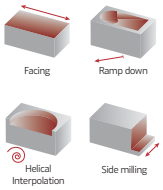
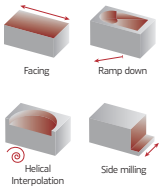
HIFEED MILLING CUTTERS

Program	HIFEED SO15-16	HIFEED WD60-12	HIFEED WN60-12	LINEPRO XP90-06 | XP90-10
	Proprietary milling line			Proprietary milling line
				
Material	P M K S	P M K S	P K	P M K S H
Main Operation	 Facing Profiling	 Facing Profiling	 Facing Profiling	 Facing Shouldering
Kr°	15°	-	-	90°
Range (ØDc - in)	2.50 to 6.00	2.00 to 3.00	2.00 to 4.00	0.375 to 2.50
	SO...1605...	WD...1204...	WN...1207...	XP...0602... | XP...1003...
Insert				
Couplings	Arbor mounting	Arbor mounting	Arbor mounting	Arbor mounting Weldon shank Threaded coupling Cylindrical shank
Other Operations	 Ramp down Helical Interpolation Plunging	 Ramp down Helical Interpolation Plunging	 Ramp down Helical Interpolation Plunging	 Facing Ramp down Helical Interpolation
Page	126	130	134	160 | 166
Features	High feed cutting with low cutting load High productivity	High feed cutting with low cutting load	High feed cutting with low cutting load Excellent in high overhang	New chipbreaker HF for Hifeed machining

MILLING TOOLS OVERVIEW

SHOULDER MILLING CUTTERS

Program	HEXAPLUS WN90-08 NEW	HEXAPLUS 49590 NEW	PLUS WN90-04
	Proprietary milling line	Proprietary milling line	Proprietary milling line
			
		METRIC LINE	
Material	P K	P K	P K
Main Operation	 Shouldering	 Shouldering	 Shouldering
Kr°	90°	90°	90°
Range (ØDc - in)	2.00 to 3.00	32 - 125	0.625 to 1.00
	WNXT 0806...	WNXT 0806...	WNHU 04T308-LP
Insert			
Couplings	Arbor mounting	Arbor mounting Weldon shank	Cylindrical shank Threaded coupling
Other Operations	 Facing, Ramp down, Helical Interpolation, Side milling	 Facing, Ramp down, Helical Interpolation, Side milling	 Facing
Page	138	142	146
Features	6 High rake cutting edges Excellent surface finish Strong insert seat 6 High rake cutting edges Excellent surface finish Strong insert seat		Economical because double sided inserts applied

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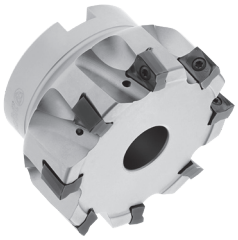
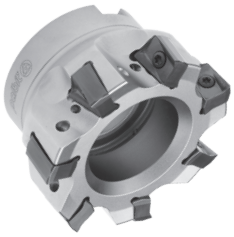
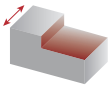
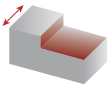
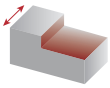
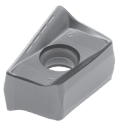
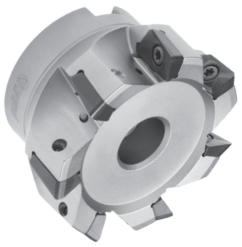
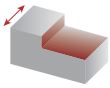
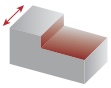
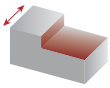
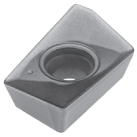
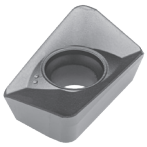
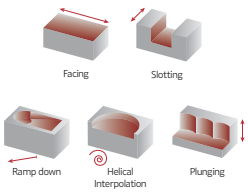
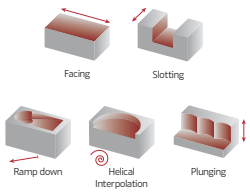
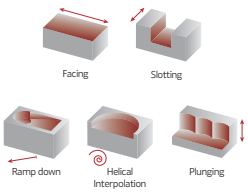
SHOULDER MILLING CUTTERS

Program	PLUS AN90-10	PLUS AN90-12	PLUS AN90-16
	Proprietary milling line 	Proprietary milling line 	Proprietary milling line 
Material	P M K N S	P M K S	P K N
Main Operation	 Shouldering	 Shouldering	 Shouldering
Kr°	90°	90°	90°
Range (ØDc - in)	0.75 to 4.00	1.00 to 4.00	1.25 to 6.00
Insert	ANHX 1004... 	ANHX 1206... 	ANHX 1607... 
Couplings	Arbor mounting Weldon shank	Arbor mounting Weldon shank Threaded coupling	Arbor mounting Weldon shank
Other Operations	 Facing Slotting Plunging	 Facing Slotting Plunging	 Facing Slotting Plunging
Page	148	152	156
Features	4 corners insert with positive cutting edge Variety of insert geometries is available for all applications Helical cutting edge Available in regular and fine pitch cutters		

MILLING TOOLS OVERVIEW

SHOULDER MILLING CUTTERS

Program	LINEPRO XP90-06	LINEPRO XP90-10	LINEPRO XP90-17
	Proprietary milling line 	Proprietary milling line 	Proprietary milling line 
Material	P M K N S H	P M K N S H	P M K N S
Main Operation	 Shouldering	 Shouldering	 Shouldering
Kr°	90°	90°	90°
Range (ØDc - in)	0.375 to 1.25	0.625 to 2.00	1.25 to 5.00
Insert	XP...0602... 	XP...1003... 	XP...1706... 
Couplings	Cylindrical shank Threaded coupling	Arbor mounting Weldon shank Cylindrical shank Threaded coupling	Arbor mounting Weldon shank
Other Operations			
Page	160	166	172
Features	Excellent solution for square shoulder milling Offers longer tool life, better tolerances and better productivity parameters Low power requirement & smooth cutting possible due to positive helical angle Very flexible and suitable for most milling operations High positive cutting rake geometry		

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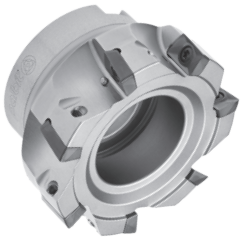
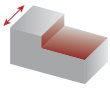
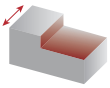
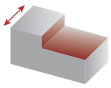
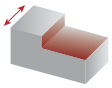
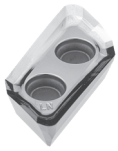
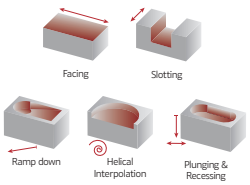
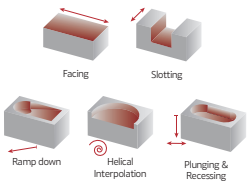
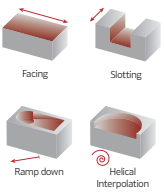
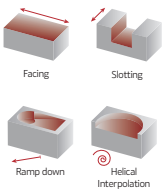
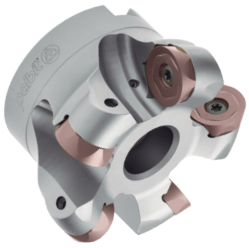
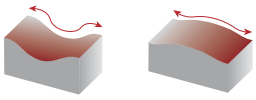
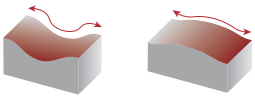
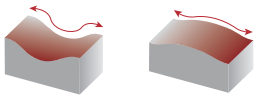
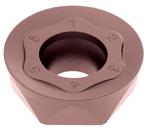
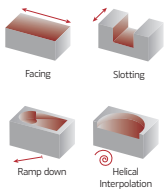
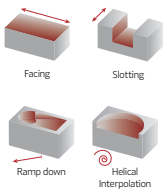
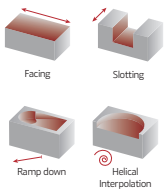
SHOULDER MILLING CUTTERS

Program	ALUPRO XD90-15	ALUPRO XD90-22	LINEPRO AP90-10	LINEPRO AP90-16
	Proprietary milling line 	Proprietary milling line 		
Material	N	N	P M K N	P M K N
Main Operation	 Shouldering	 Shouldering	 Shouldering	 Shouldering
Kr°	90°	90°	90°	90°
Range (ØDc - in)	0.75 to 4.00	1.25 to 5.00	0.375 to 1.50	0.875 to 6.00
Insert	XDGX 15M5... 	XDGX 22M7... 	AP...1003... 	AP...1604... 
Couplings	Arbor mounting Cylindrical shank	Arbor mounting Cylindrical shank	Weldon shank	Arbor mounting Weldon shank
Other Operations				
Page	178	182	186	190
Features	Solution for multi functional milling operations on aluminium alloys High speed conditions with high metal remove rate Stable clamping conditions (Anti-fly) High rake angle geometry that provides a good surface finish and low cutting forces		Strong insert and low cutting force Helical cutting edge Good chip evacuation	

MILLING TOOLS OVERVIEW

PROFILE MILLING CUTTERS

Program	TOROMILL RP90-10	TOROMILL RP90-12	TOROMILL RP90-16
	Proprietary milling line 	Proprietary milling line 	Proprietary milling line 
Material	P M S	P M S	P M S
Main Operation	 Profiling Copying	 Profiling Copying	 Profiling Copying
Kr°	-	-	-
Range (ØDc - in)	1.00 to 2.00	2.00 to 4.00	3.00 to 5.00
Insert	RPHT 10T3... 	RPHT 1204... 	RPHT 1605... 
Couplings	Arbor mounting Cylindrical shank Threaded coupling	Arbor mounting	Arbor mounting
Other Operations	 Facing Slotting Ramp down Helical Interpolation	 Facing Slotting Ramp down Helical Interpolation	 Facing Slotting Ramp down Helical Interpolation
Page	196	196	196
Features	Excellent solution for profile milling Low power requirement & smooth cutting possible due to positive helical angle First choice for problematic materials (M and S material classes) High positive cutting rake geometry		

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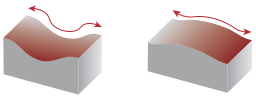
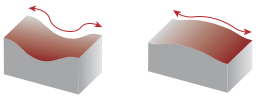
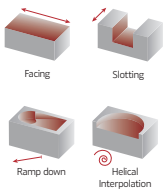
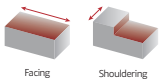
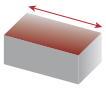
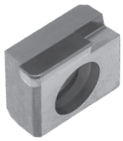
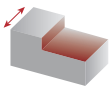
PROFILE MILLING CUTTERS

Program	TOROMILL RN90-12	W-PRO 62090 NEW
	Proprietary milling line 	Proprietary milling line  METRIC LINE
Material	P M K S	P M K S H
Main Operation	 Profiling Copying	 Profiling Copying
Kr°	-	90°
Range (ØDc - in)	1.25 to 3.00	8 to 20 mm
Insert	RNHX 1204... 	WCL... | WCR... 
Couplings	Arbor mounting Weldon shank Threaded coupling	Cylindrical shank Threaded coupling
Other Operations	 Facing Slotting Ramp down Helical Interpolation	 Facing Shouldering
Page	202	206
Features	Excellent solution for Profile milling "First choice for problematic materials (M and S material classes) High positive cutting rake geometry	Helical profile for smooth cutting Tight Insert tolerances Carbide shank to reduce vibrations

MILLING TOOLS OVERVIEW

HARDMILL	
Program	HARDMILL XN90-12
	
Material	K N
Main Operation	 Facing
Kr°	90°
Range (ØDc - in)	1.50 to 4.00
Insert	XNHW 1205... 
Couplings	Arbor mounting
Other Operations	 Shouldering
Page	210
Features	Excellent solution for aluminium PCD tip

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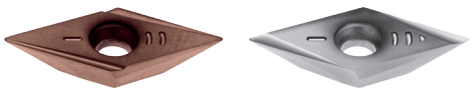
	CENTER & CHAMFER	ENGRAVING
Program	CENTER & CHAMFER	ENGRAVING 64067 NEW
		 METRIC LINE
Material	P M K	P M K S
Main Operation		
Kr°	-	-
Range (ØDc - in)	0.512	0,45 to 0,65 mm
Insert	SOMT | SOGT 11T3... 	VPGT 0602... 
Couplings	Weldon Shank	Cylindrical Shank
Other Operations	Spotting Chamfering Engraving Grooving Spot Drilling	Engraving
Page	220	222
Features	Milling tool for a wide range of center & chamfer operations	Milling tool for a wide range of engraving operations



METRIC LINES OVERVIEW

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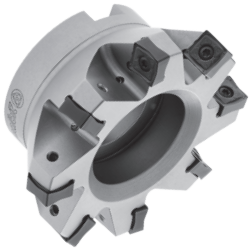
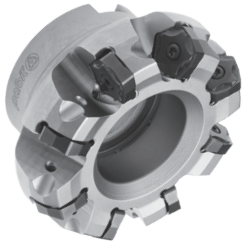
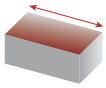
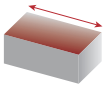
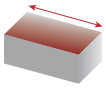
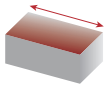
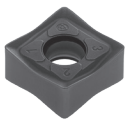
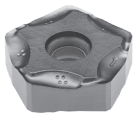
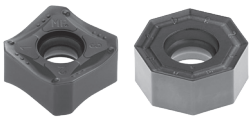
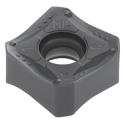
FACE MILLING CUTTERS

Program	PLUS 28088	PLUS 90260	PLUS 90845	PLUS 90945
	Proprietary milling line 	Proprietary milling line 	Proprietary milling line 	Proprietary milling line 
Material	P M K	P K	P M K N S	P M K N S
Main Operation	 Facing	 Facing	 Facing	 Facing
Kr°	88°	60°	45°	45°
Range (ØDc - mm)	50 - 200	50 - 160	32 - 250	50 - 250
Insert	SN...1206... 	PN...1105... 	SN...1206... & ON...0505... 	SN...1206... 
Couplings	Arbor mounting	Arbor mounting	Arbor mounting Weldon shank	Arbor mounting
Other Operations	 Shouldering		 Slanted Shoulder & Chamfer	 Slanted Shoulder & Chamfer
Features	Indexable face mills with 8 helical cutting edges For rough to semi-finish with high-efficiency face milling Cutting edge angle enables performing face milling very close to the sidewall	Economical because double sided inserts applied 10 corners available improved insert design for distribution of cutting forces Excellent solution for cast iron	New line for Heavy and Soft face milling Two different geometries for same pocket Insert geometries available for all applications materials Excellent surface finishing	Economical because double sided inserts applied Variety of insert geometries is available for all applications materials Excellent surface finishing Available in regular and fine pitch cutters

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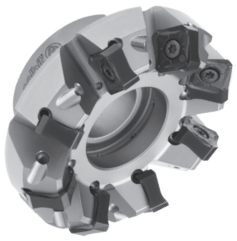
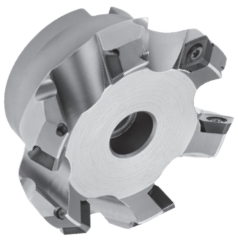
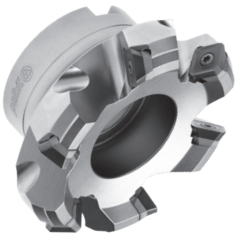
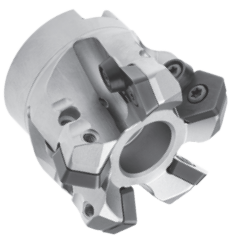
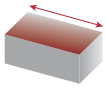
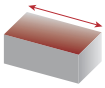
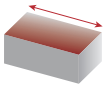
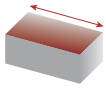
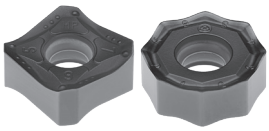
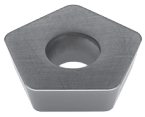
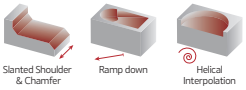
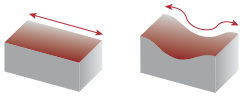
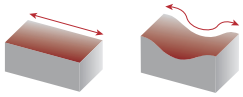
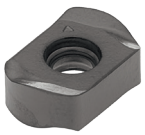
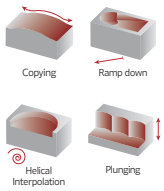
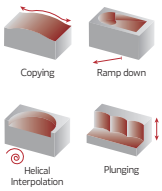
FACE MILLING CUTTERS

Program	PLUS 91245	LINEPRO 06045	LINEPRO 09945	LINEPRO 00036
	Proprietary milling line 			
Material	P M K S	P M K N	P M K N	P K
Main Operation	 Facing	 Facing	 Facing	 Facing
Kr°	45°	45°	45°	36°
Range (ØDc - mm)	63 - 250	50 - 160	50 - 250	66 - 160
Insert	SN...1606... & ON...0606... 	SE...1204... 	SE...13T3... 	PD...1204... 
Couplings	Arbor mounting	Arbor mounting	Arbor mounting	Arbor mounting
Other Operations	 Slanted Shoulder & Chamfer	 Slanted Shoulder & Chamfer	 Slanted Shoulder & Chamfer	 Slanted Shoulder & Chamfer; Ramp down; Helical Interpolation
Features	Two different geometries for same pocket Excellent surface finishing Available in regular and fine pitch cutters	Low cutting forces Good chip flow	Low cutting forces Suitable for high-speed machining Excellent chip flow High rigidity due to carbide shim	High rake angle and low cutting forces

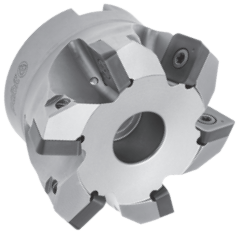
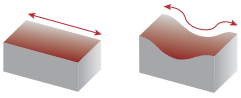
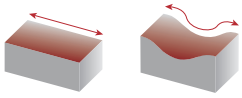
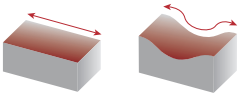
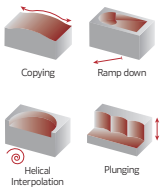
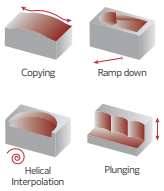
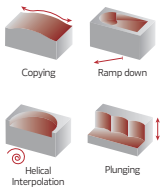
METRIC LINES available at www.palbitusa.com

HIFEED MILLING CUTTERS

Program	TETRAFEED 16320 NEW	PENTA HIFEED 06320
	Proprietary milling line 	Proprietary milling line 
Material	P M K S	P K
Main Operation	 Facing Profiling	 Facing Profiling
Kr°	20°	20°
Range (ØDc - mm)	16 - 63	20 - 66
Insert	XNKU 06T3... 	POKT 0403... 
Couplings	Arbor mounting Weldon shank Threaded coupling	Arbor mounting Cylindrical shank Threaded coupling
Other Operations	 Copying Ramp down Helical Interpolation Plunging	 Copying Ramp down Helical Interpolation Plunging
Features	Double-sided insert with 4 cutting edges Optimized design for better chip evacuation High productivity	High feed cutting with low cutting load High productivity

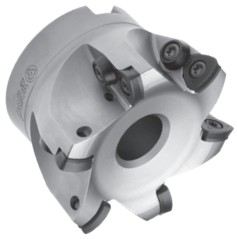
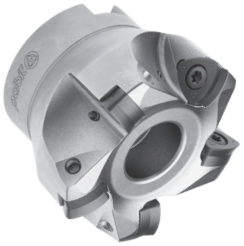
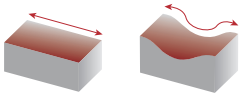
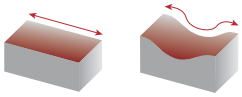
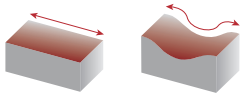
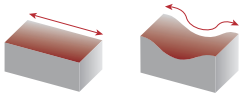
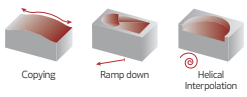
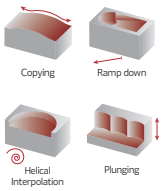
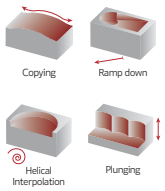
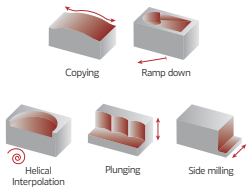
METRIC LINES available at www.palbitusa.com

HIFEED MILLING CUTTERS

Program	HIFEED 06410	HIFEED 06690	HIFEED 06815
	Proprietary milling line 	Proprietary milling line 	Proprietary milling line 
Material	P M K S	P M K S	P M K S
Main Operation	 Facing Profiling	 Facing Profiling	 Facing Profiling
Kr°	10°	10°	15°
Range	20 - 42	32 - 100	63 - 160
Insert	SO...0803... 	SO...13M5... 	SO...1605... 
Couplings	Weldon shank Threaded coupling	Arbor mounting Threaded coupling	Arbor mounting
Other Operations	 Copying Ramp down Helical Interpolation Plunging	 Copying Ramp down Helical Interpolation Plunging	 Copying Ramp down Helical Interpolation Plunging
Features	High feed cutting with low cutting load High productivity		

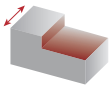
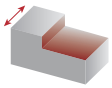
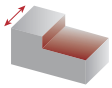
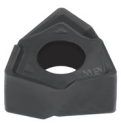
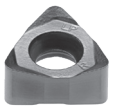
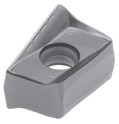
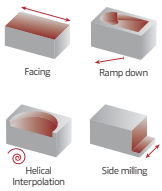
METRIC LINES available at www.palbitusa.com

HIFEED MILLING CUTTERS

Program	HIFEED 50560	HIFEED 50060	HIFEED 06590	PRO 20090 | 20190
				Proprietary milling line 
Material	P M K S	P K	P M K	P M K S
Main Operation	 Facing Profiling	 Facing Profiling	 Facing Profiling	 Facing Profiling
Kr°	-	-	10°	90°
Range	52 - 80	35 - 80	20 - 42	10 - 63
Insert	WD...1204... 	WN...1207... 	SP...08T3... 	XPET 0602... - HF | XPET 1003... - HF 
Couplings	Arbor mounting	Arbor mounting Threaded coupling	Weldon shank Threaded coupling	Arbor mounting Weldon shank Cylindrical shank Threaded coupling
Other Operations	 Copying Ramp down Helical Interpolation	 Copying Ramp down Helical Interpolation Plunging	 Copying Ramp down Helical Interpolation Plunging	 Copying Ramp down Helical Interpolation Plunging Side milling
Features	High feed cutting with low cutting load	High feed cutting with low cutting load Excellent in high overhang	High feed cutting with low cutting load	Chipbreaker HF for Hifeed machining

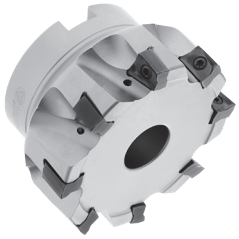
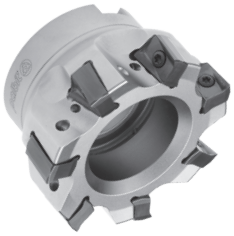
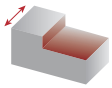
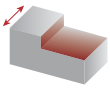
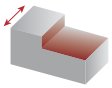
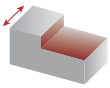
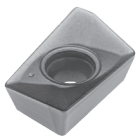
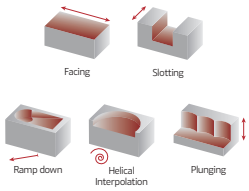
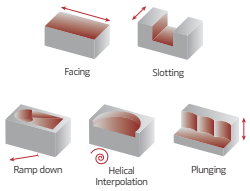
METRIC LINES available at www.palbitusa.com

SHOULDER MILLING CUTTERS

Program	HEXAPLUS 49590 NEW	PLUS 49090	PLUS 17190
	Proprietary milling line 	Proprietary milling line 	Proprietary milling line 
Material	P K	P K	P M K N S
Main Operation	 Shouldering	 Shouldering	 Shouldering
Kr°	90°	90°	90°
Range (ØDc - mm)	32 - 125	16 - 32	14 - 100
Insert	WNXT 0806... 	WNHU 04T308-LP 	ANHX 1004... 
Couplings	Arbor mounting Weldon shank	Cylindrical shank Threaded coupling	Arbor mounting Weldon shank
Other Operations		 Facing	
Features	6 High rake cutting edges Excellent surface finish Strong insert seat	Economical because double sided inserts applied	4 corners insert with positive cutting edge Variety of insert geometries is available for all applications Helical cutting edge Available in regular and fine pitch cutters

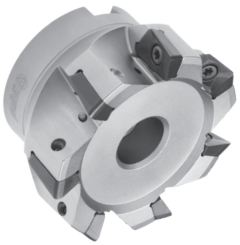
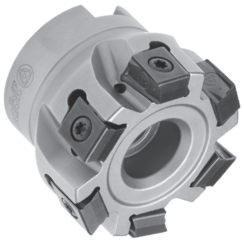
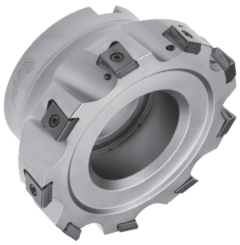
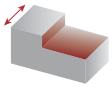
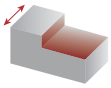
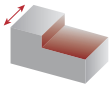
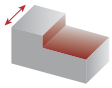
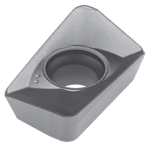
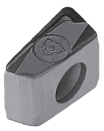
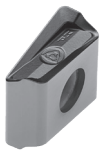
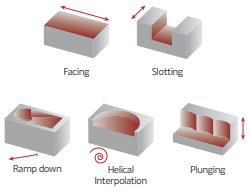
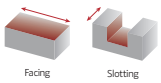
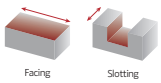
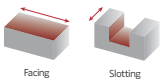
METRIC LINES available at www.palbitusa.com

SHOULDER MILLING CUTTERS

Program	PLUS 17590	PLUS 18190	LINEPRO 20090	LINEPRO 20190
	Proprietary milling line 	Proprietary milling line 	Proprietary milling line 	Proprietary milling line 
Material	P M K S	P K N	P M K N S H	P M K N S H
Main Operation	 Shouldering	 Shouldering	 Shouldering	 Shouldering
Kr°	90°	90°	90°	90°
Range (ØDc - mm)	25 - 125	32 - 160	10 - 32	16 - 63
Insert	ANHX 1206... 	ANHX 1607... 	XP...0602... 	XP...1003... 
Couplings	Arbor mounting Weldon shank Cylindrical shank Threaded coupling	Arbor mounting Weldon shank Threaded coupling	Cylindrical shank Threaded coupling	Arbor mounting Weldon shank Cylindrical shank Threaded coupling
Other Operations	 Facing Slotting Plunging	 Facing Slotting Plunging	 Facing Slotting Ramp down Helical Interpolation Plunging	 Facing Slotting Ramp down Helical Interpolation Plunging
Features	4 corners insert with positive cutting edge Variety of insert geometries is available for all applications Helical cutting edge Available in regular and fine pitch cutters		Excellent solution for square shoulder milling Offers longer tool life, better tolerances and better productivity parameters Low power requirement & smooth cutting possible due to positive helical angle Very flexible and suitable for most milling operations High positive cutting rake geometry	

METRIC LINES available at www.palbitusa.com

SHOULDER MILLING CUTTERS

Program	LINEPRO 20290	TGPLUS 90090	TGPLUS 90190	TGPLUS 90390
	Proprietary milling line 	Proprietary milling line 	Proprietary milling line 	Proprietary milling line 
Material	P M K N S	P M K	P M K	P K
Main Operation	 Shouldering	 Shouldering	 Shouldering	 Shouldering
Kr°	90°	90°	90°	90°
Range (ØDc - mm)	32 - 125	16 - 63	25 - 125	50 - 160
Insert	XP...1706... 	LNXT 0904... 	LNXT 1306... 	LNXT 1506... 
Couplings	Arbor mounting Weldon shank	Arbor mounting Weldon shank Cylindrical shank Threaded coupling	Arbor mounting Cylindrical shank Weldon shank	Arbor mounting
Other Operations				
Features	Excellent solution for square shoulder milling Offers longer tool life, better tolerances and better productivity parameters Low power requirement & smooth cutting possible due to positive helical angle	Tangential inserts with 4 corners available High rake angle insert reduces cutting force Excellent insert rigidity and excellent machining stability Improved pocket configuration Available in regular and fine pitch cutters		

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PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

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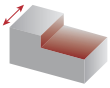
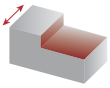
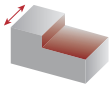
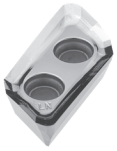
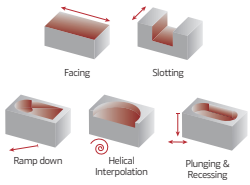
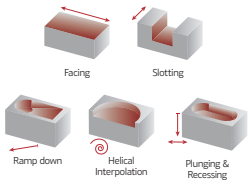
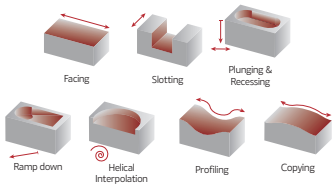
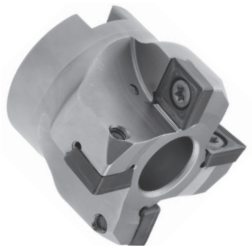
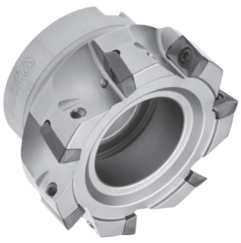
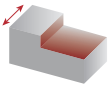
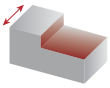
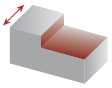
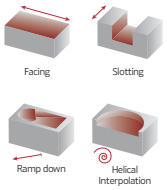
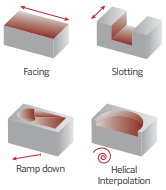
SHOULDER MILLING CUTTERS

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

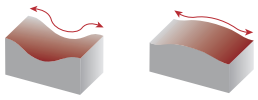
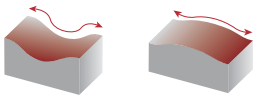
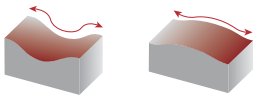
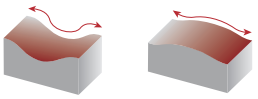
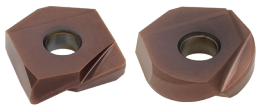
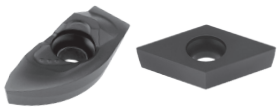
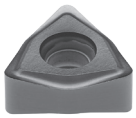
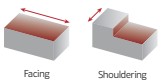
METRIC LINES available at **www.palbitusa.com**

SHOULDER MILLING CUTTERS

Program	LINEPRO 06290 (NEW)	LINEPRO 17090	LINEPRO 18090
			
Material	P M K S	P M K N	P M K N
Main Operation	 Shouldering	 Shouldering	 Shouldering
Kr°	90°	90°	90°
Range (ØDc - mm)	40 - 160	16 - 63	25 - 125
Insert	SP...1204... 	AP...1003... 	AP...1604... 
Couplings	Arbor mounting	Arbor mounting Weldon shank Threaded coupling	Arbor mounting Weldon shank
Other Operations	 Facing	 Facing, Slotting, Ramp down, Helical Interpolation	 Facing, Slotting, Ramp down, Helical Interpolation
Features	Positive inserts with 4 cutting edges Recommended for conventional milling machines and machining centers	Strong insert and low cutting force Helical cutting edge Good chip evacuation	

METRIC LINES available at www.palbitusa.com

PROFILE MILLING CUTTERS

Program	W-PRO 62090 NEW	BALLPRO 63090 NEW	PLUS 49095	PLUS 45095
	Proprietary milling line	Proprietary milling line	Proprietary milling line	Proprietary milling line
				
Material	P M K S H	P K	P K H	P K H
Main Operation	 Profiling Copying	 Profiling Copying	 Profiling Copying	 Profiling Copying
Kr°	90°	-	95°	95°
Range (ØDc - mm)	8 - 20	32	16 - 35	25 - 42
	WCL... | WCR...	XPGT 3206... | DCMW 11T3...	WNHU 04T3...	WNHU 0604...
Insert				
Couplings	Cylindrical shank Threaded coupling	Threaded coupling	Threaded coupling	Threaded coupling
Other Operations	 Facing Shouldering	-	 Facing	 Facing
Features	Helical profile for smooth cutting Tight Insert tolerances Carbide shank to reduce vibrations	Designed for finishing and semi-finishing Strong insert design Stable cutting performance	Economical because double sided inserts applied Designed for finishing and profile miling Robust geometry	

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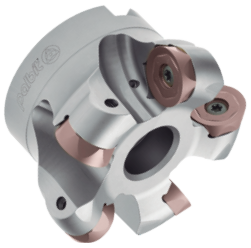
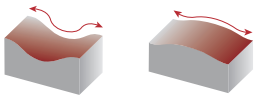
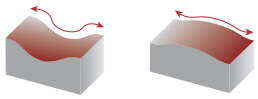
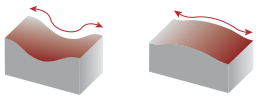
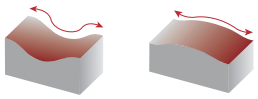
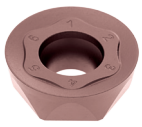
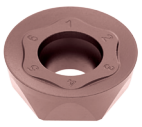
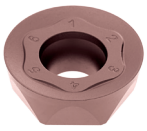
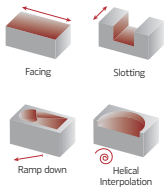
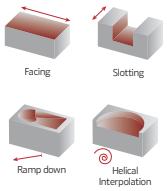
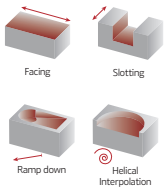
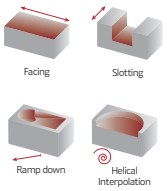
PROFILE MILLING CUTTERS

Program	TOROMILL 33590	TOROMILL 33690	TOROMILL 33790	TOROMILL 33890
	Proprietary milling line 	Proprietary milling line 	Proprietary milling line 	Proprietary milling line 
Material	P M S	P M S	P M S	P M S
Main Operation	 Profiling Copying	 Profiling Copying	 Profiling Copying	 Profiling Copying
Kr°	-	-	-	-
Range (ØDc - mm)	16 -32	20 - 52	40 - 80	50 - 125
	RDHT 0802...	RPHT 10T3...	RPHT 1204...	RPHT 1605...
Insert				
Couplings	Cylindrical shank Threaded coupling	Arbor mounting Cylindrical shank Threaded coupling	Arbor mounting	Arbor mounting
Other Operations	 Facing Slotting Ramp down Helical Interpolation	 Facing Slotting Ramp down Helical Interpolation	 Facing Slotting Ramp down Helical Interpolation	 Facing Slotting Ramp down Helical Interpolation
Features	Excellent solution for Profile milling Low power requirement & smooth cutting possible due to positive helical angle First choice for problematic materials (M and S material classes) High positive cutting rake geometry			

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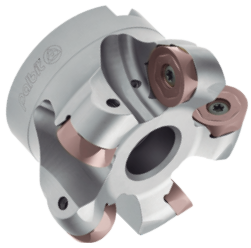
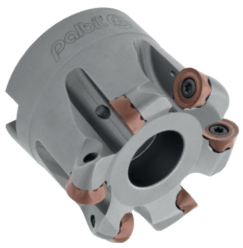
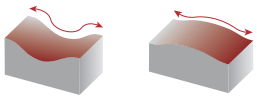
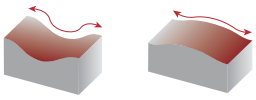
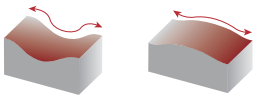
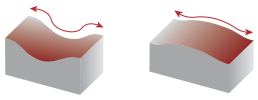
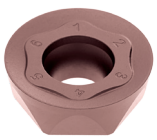
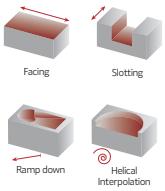
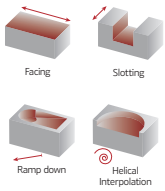
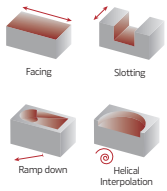
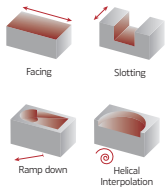
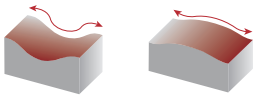
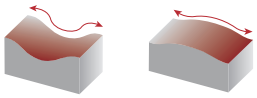
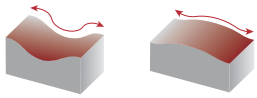
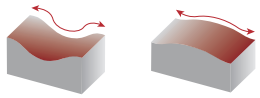
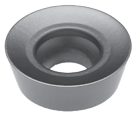
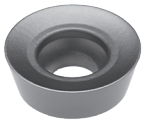
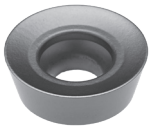
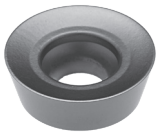
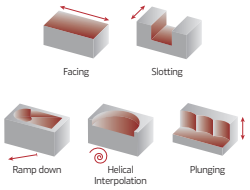
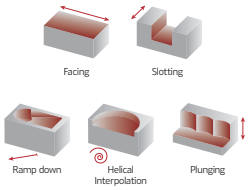
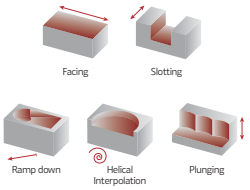
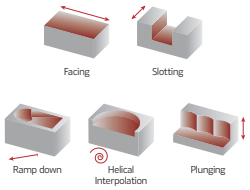
PROFILE MILLING CUTTERS

Program	TOROMILL 33990	TURBOMILL 34190 NEW	TURBOMILL 34290 NEW	TOROMILL X2 35190
	Proprietary milling line	Proprietary milling line	Proprietary milling line	Proprietary milling line
				
Material	P M S	P M S	P M S	P M K S
Main Operation	 Profiling Copying	 Profiling Copying	 Profiling Copying	 Profiling Copying
Kr°	-	-	-	-
Range (ØDc - mm)	80 - 125	42 - 52	40 - 80	32 - 80
	RPHT 2006...	RPHT 10T3...-LS(4)	RPHT 1204...-LS(4)	RNHX 1204...
Insert				
Couplings	Arbor mounting	Arbor mounting	Arbor mounting	Arbor mounting Weldon shank Threaded coupling
Other Operations	 Facing Slotting Ramp down Helical Interpolation	 Facing Slotting Ramp down Helical Interpolation	 Facing Slotting Ramp down Helical Interpolation	 Facing Slotting Ramp down Helical Interpolation
Features	Excellent solution for Profile milling Low power requirement & smooth cutting possible due to positive helical angle First choice for problematic materials (M and S material classes) High positive cutting rake geometry	Excellent solution for Profile milling First choice for problematic materials (M and S material classes) Improved insert seat		Excellent solution for Profile milling "First choice for problematic materials (M and S material classes) High positive cutting rake geometry

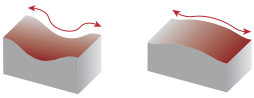
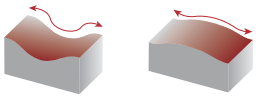
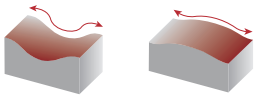
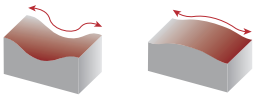
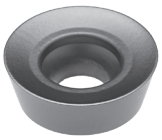
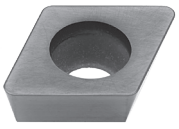
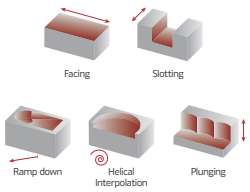
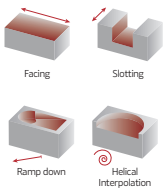
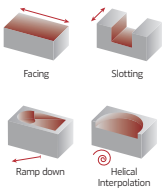
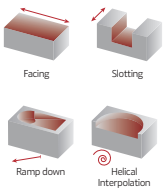
METRIC LINES available at www.palbitusa.com

PROFILE MILLING CUTTERS

Program	TOROMILL 24590	TOROMILL 25090	TOROMILL 25190	TOROMILL 25290
				
Material	P K H	P K H	P K H	P K H
Main Operation	 Profiling Copying	 Profiling Copying	 Profiling Copying	 Profiling Copying
Kr°	-	-	-	-
Range (ØDc - mm)	15 - 20	20 - 52	24 - 80	32 - 160
Insert	RD...0702... 	RD...1003... 	RD...12T3... 	RD...1604... 
Couplings	Weldon shank Threaded coupling	Arbor mounting Weldon shank Threaded coupling	Arbor mounting Weldon shank Threaded coupling	Arbor mounting Threaded coupling
Other Operations	 Facing Slotting Ramp down Helical Interpolation Plunging	 Facing Slotting Ramp down Helical Interpolation Plunging	 Facing Slotting Ramp down Helical Interpolation Plunging	 Facing Slotting Ramp down Helical Interpolation Plunging
Features	Offers longer tool life, better tolerances and better productivity parameters Low power requirement & smooth cutting possible due to positive helical angle Very flexible and suitable for most milling operations High positive cutting rake geometry			

METRIC LINES available at **www.palbitusa.com**

PROFILE MILLING CUTTERS

Program	TOROMILL 25390	LINEPRO 40095	LINEPRO 40595	LINEPRO 41095
				
Material	P K H	P K N H	P K N H	P K N H
Main Operation	 Profiling Copying	 Profiling Copying	 Profiling Copying	 Profiling Copying
Kr°	-	95°	95°	95°
Range (ØDc - mm)	80 - 160	16 - 25	25 - 80	10 - 12
Insert	RD...2006... 	XD...0602... 	XD...10T3... 	XD...0401... 
Couplings	Arbor mounting	Threaded coupling	Arbor mounting Threaded coupling	Threaded coupling
Other Operations	 Facing Slotting Ramp down Helical Interpolation Plunging	 Facing Slotting Ramp down Helical Interpolation	 Facing Slotting Ramp down Helical Interpolation	 Facing Slotting Ramp down Helical Interpolation
Features	Offers longer tool life, better tolerances and better productivity parameters Low power requirement & smooth cutting possible due to positive helical angle Very flexible and suitable for most milling operations High positive cutting rake geometry	Designed for finishing and profile milling Low power consumption		

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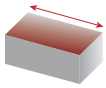
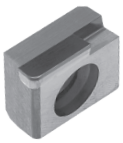
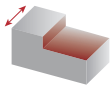
	HARDMILL	CENTER & CHAMFER	SPOT FACE
Program	HARDMILL 72090	CENTER & CHAMFER	SPOT FACE
			
Material	K N	P M K	P M K
	 Facing		
Kr°	90°	-	-
Range (ØDc - mm)	40 - 160	13	10 - 21
Insert	XNHW 1205... 	SOMT|SOGT 11T3... 	SPKX 05... | 06... | 07... | 09... 
Couplings	Arbor mounting	Weldon Shank	Weldon Shank Cylindrical shank
	 Shouldering	Spotting Chamfering Engraving Grooving Spot Drilling	Spot face
Features	Excellent solution for aluminium PCD tip	Milling tool for a wide range of center & chamfer operations	Economical solution Smooth cutting

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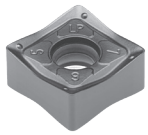
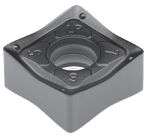
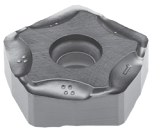
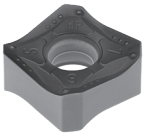
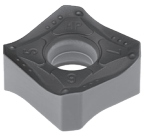
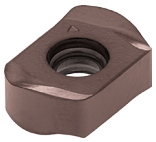
MILLING INSERTS OVERVIEW

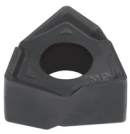
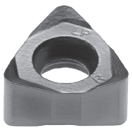
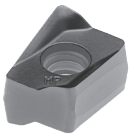
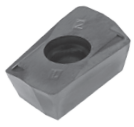
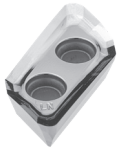
FACE MILLING INSERTS

Reference	SNHU	SNKU	PNHX	PNKX	SNHX	SNKX
	Proprietary milling insert 	Proprietary milling insert 			Proprietary milling insert 	Proprietary milling insert 
Size	12	12	11	11	12 | 16	12 | 16
Material	P M K	P M K	P K	P K	P M K N S	P K
Page	85	85	89	89	93 | 97 | 101	93 | 97 | 101

HIFEED MILLING INSERTS

Reference	XNKU NEW	POKT NEW	SOEW	SOET	WDET	WDMW
	Proprietary milling insert 	Proprietary milling insert 	Proprietary milling insert 	Proprietary milling insert 	Proprietary milling insert 	
Size	06	04	08 | 13 | 16	08 | 13 | 16	12	12
Material	P M K S	P K	P K	P M S	P M S	P K
Page	105	111	115 | 121 | 127	115 | 121 | 127	131	131

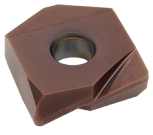
SHOULDER MILLING INSERTS

Reference	WNXT NEW	WNHU	ANHX	XPET	XPHW	XDGX
	Proprietary milling insert 	Proprietary milling insert 	Proprietary milling insert 	Proprietary milling insert 	Proprietary milling insert 	Proprietary milling insert 
Size	08	04	10 | 12 | 16	06 | 10 | 17	06 | 10	15 | 22
Material	P K	P K	P M K N S	P M K N S	P H	N
Page	138 | 142	157	149 | 153 | 157	161 | 168 | 173	161 | 168	179 | 183

PROFILE MILLING INSERTS

Reference	RPHT	RNHX
	Proprietary milling insert 	Proprietary milling insert 
Size	10 | 12 | 16	12
Material	P M S	P M K S
Page	198	203

PROFILE MILLING INSERTS - METRIC LINE

Reference	WCR NEW	WCL NEW
	Proprietary milling insert 	Proprietary milling insert 
Size	08 | 10 | 12 | 16 | 20	08 | 10 | 12 | 16 | 20
Material	P M K N S H	P M K N S H
Page	107	108

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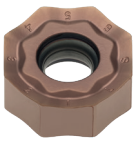
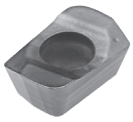
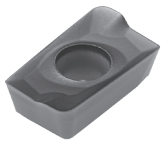
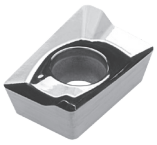
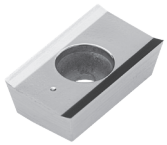
FACE MILLING INSERTS

Reference	ONHX	ONHX-LS NEW	ONKX
	Proprietary milling insert	Proprietary milling insert	Proprietary milling insert
			
Size	05 | 06	06	05 | 06
Material	P M K S	M S	P M K S
Page	93 | 101	101	93 | 101

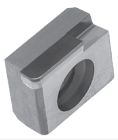
HIFEED MILLING INSERTS

Reference	WNMW	XPET...HF
		Proprietary milling insert
		
Size	12	06 | 10
Material	P K	P M K S
Page	135	161 | 168

SHOULDER MILLING INSERTS

Reference	APKT	APET	APHT
			
Size	10 | 16	10	16
Material	P M K N	N	N
Page	186 | 192	186	192

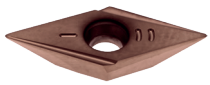
HARDMILL MILLING INSERTS

Reference	XNHW
	
Size	12
Material	K N
Page	231

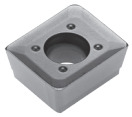
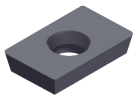
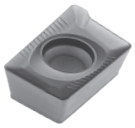
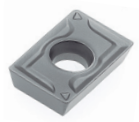
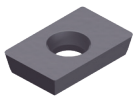
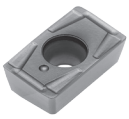
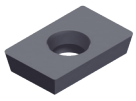
CENTER & CHAMFER INSERTS

Reference	SOMT	SOGT NEW
		
Size	11	11
Material	P M K	P M K
Page	220	220

ENGRAVING INSERTS

Reference	VPGT NEW
	METRIC LINE
	
Size	06
Material	P M N S
Page	222

MILLING INSERTS OVERVIEW

Inserts Pastilhas Plaquitas	(1) Geometry code	(2) Grade code / ISO Reference	P							M			K									N	
			PVD							PVD			CVD		PVD							UNC	UNC
		(2) Grade code	M6	54	68	66	78	86	I5	68	66	I5	L5	L9	D2	54	68	67	66	I5	17	10
		ISO Reference	PH6103	PH6910	PH6920	PH6930	PH6125	PH6135	PH6740	PH6920	PH6930	PH6740	PH5705	PH5740	PH6705	PH6910	PH6920	PH6325	PH6930	PH6740	PH0325	PH0910
	1111423	ACET 150612 TR			◉			△		◉							◉					
	1110005	ADHW 150308 R			○												○					
	1110006	ADKT 1505 PDR			◉	○				◉	○						◉		○			
	1111218	ADKT 1505 PDSR			◉	◉				◉	◉						◉		◉			
	1111209	ADKT 1505 PDTR			◉	○				◉	○						◉		○			
	1110010	ADMT 150308R			○			○		○							○					
	1110011	ADMW 150308R			○												○					
	1110014	APFT 1604 PDFR			○												○					
	1110015	APFT 1604 PDSR			◉					◉							◉					
	1110557	APFT 1604 PDTR			○												○					
	1111184	APFW 1604 PDER			○												○					
	1110016	APFW 1604 PDTR			○												○					

◉ 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-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

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

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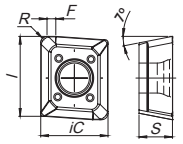
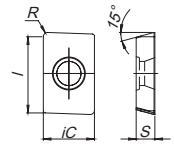
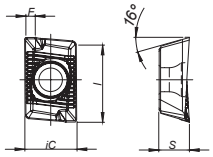
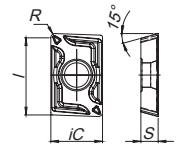
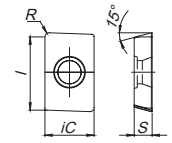
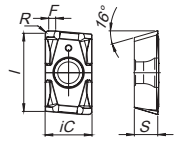
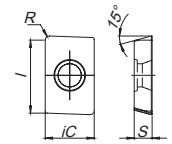
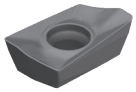
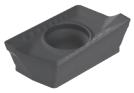
Dimensions (in) | Dimensões (in) | Dimensiones (in)						Drawing
ic	S	I	R	a	F	
0.500	0.250	0.591	0.047	-	0.067	
0.375	0.125	0.591	0.031	-	-	
0.376	0.222	0.618	-	-	0.063	
0.376	0.222	0.618	-	-	0.063	
0.376	0.222	0.618	-	-	0.063	
0.375	0.125	0.591	0.031	-	-	
0.375	0.125	0.591	0.031	-	-	
0.375	0.187	0.630	0.031	-	0.079	
0.375	0.187	0.630	0.031	-	0.079	
0.375	0.187	0.630	0.031	-	0.079	
0.375	0.187	0.630	0.031	-	0.079	
0.375	0.187	0.630	0.031	-	0.079	

MILLING INSERTS OVERVIEW

Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	P							M		K						S				N
			PVD							PVD		PVD						PVD				UNC
		(2) Grade code	G1	54	68	G4	P3	86	I5	P3	66	G1	54	G4	68	P3	I5	P3	G6	I5		10
			PH7910	PH6910	PH6920	PH7920	PH7930	PH6135	PH6740	PH7930	PH6930	PH7910	PH6910	PH7920	PH6920	PH7930	PH6740	PH7930	PH7740	PH6740		PH0910
	1112192	BOMT 130408R			○										○							
	1110038	BCKT 1304 PDR						○														
	1112194	ENHQ 090400 R			○																	
	1110617	ENHQ 090400-L			○																	
	1112208	ENHQ 090408-L			○																	
	1112207	ENHQ 090408-R			○																	
	1111037	ENHQ 120600 L			○																	
	1110790	ENHQ 120600 R			○																	
	1110730	ENHQ 120610 L			○																	
	1110729	ENHQ 120610 R			○																	
	1111353	ENHQ 120630 TR			○																	
	1110793	ENHQ 120640 R			○																	

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-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

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

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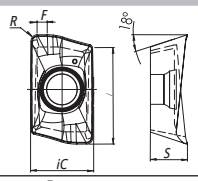
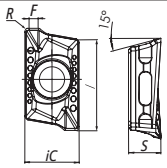
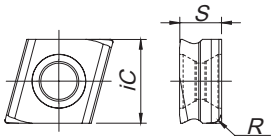
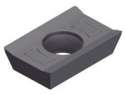
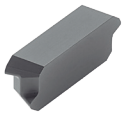
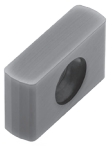
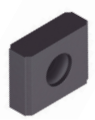
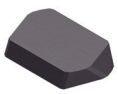
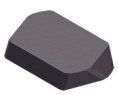
Dimensions (in) | Dimensões (in) | Dimensiones (in)						Drawing
ic	S	I	R	a	F	
0.320	0.191	0.453	0.047	-	0.055	
0.331	0.193	0.504	0.024	-	0.055	
0.375	0.187	-	-	-	-	
0.375	0.187	-	-	-	-	
0.375	0.187	-	0.031	-	-	
0.375	0.187	-	0.031	-	-	
0.500	0.250	-	-	-	-	
0.500	0.250	-	-	-	-	
0.500	0.250	-	0.039	-	-	
0.500	0.250	-	0.039	-	-	
0.500	0.250	-	0.118	-	-	
0.500	0.250	-	0.157	-	-	

MILLING INSERTS OVERVIEW

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	86	I5	68	66	L5	L9	D2	54	68	67	I5	17	10
			PH6103	PH6910	PH6920	PH6930	PH6125	PH6135	PH6740	PH6920	PH6930	PH5705	PH5740	PH6705	PH6910	PH6920	PH6325	PH6740	PH0325	PH0910
	1110922	HNGF 090520 - V										◉				◉	◬				
	1110957	HNGF 090520 - W										◉		◉	◬						
	1112410	LDHT 15T3			○																
	1112388	LNCX 1806 AZ R-11			○											○		○			
	1112428	LNCX 1806 AZ L-11			○											○		○			
	1111876	LNE 323-02														○					
	1111877	LNE 323-10														○					
	1110952	LNE 323-02 SP														○					
	1111420	LNE 434-02														○					
	1111416	LNJN 2205 DDSR-A1														○					
	1111351	LNJN 3007 DDTP-SP														○					

◉ 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-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

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

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Dimensions (in) | Dimensões (in) | Dimensiones (in)						Drawing
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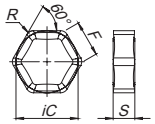
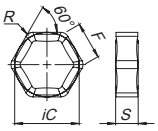
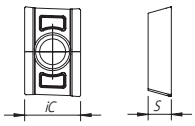
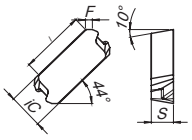
0.638	0.219	0.361	0.079	-	-	
0.368	0.219	0.361	0.079	-	-	
0.375	0.156	-	-	-	-	
0.394	0.252	0.739	-	-	0.079	
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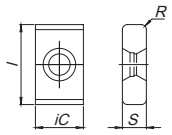
0.375	0.187	0.625	-	-	0.016	
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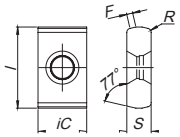
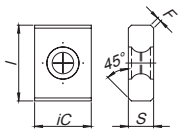
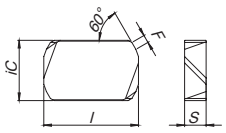
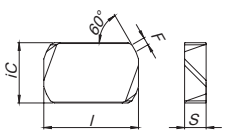
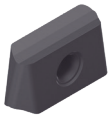
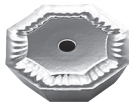
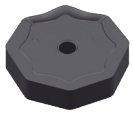
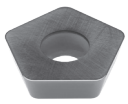
0.375	0.187	0.625	0.031	-	0.047	
0.562	0.250	0.750	-	-	0.031	
0.551	0.197	0.866	-	0.079	-	
0.630	0.276	1.181	-	0.079	-	

MILLING INSERTS OVERVIEW

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	86	I5	68	66	I5	L9	D2	54	68	67	I5	17	10
			PH6103	PH6910	PH6920	PH6930	PH6125	PH6135	PH6740	PH6920	PH6930	PH6740	PH5740	PH6705	PH6910	PH6920	PH6325	PH6740	PH0325	PH0910
	1123709	LNUJ 220920S R			○																
	1111518	OFEN 070405 TN		◍	◍				◍				△		◍	◍		◍			
	1111569	OFKR 070408 FN-LN																			◍
	1111568	OFKR 070408 SN-MP		◍	◍		◍		◍			◍			◍	◍		◍			
	1112015	ONEF 090520 ZZTN-W-14											○								
	1112016	ONMF 090520 ANTN-MK-16											○					○			
	1110554	PDHW 120420 T			◍		◍	◍								◍					
	1110555	PDMW 120420 T		△	△		◍	◍													

◍ 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-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

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

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Dimensions (in) | Dimensões (in) | Dimensiones (in)						Drawing
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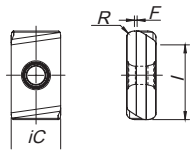
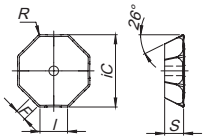
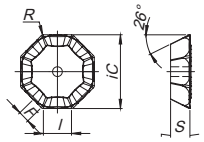
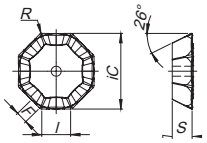
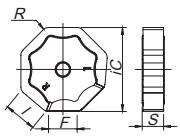
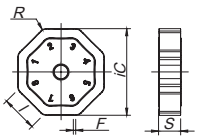
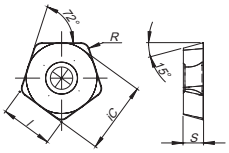
0.625	0.372	0.945	-	0.039	-	
0.709	0.187	0.291	0.024	-	0.087	
0.709	0.187	0.291	0.024	-	0.087	
0.709	0.187	0.291	0.024	-	0.063	
0.866	0.219	0.354	0.079	-	0.354	
0.866	0.219	0.354	0.079	-	0.024	
0.650	0.188	0.472	0.079	-	-	
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MILLING INSERTS OVERVIEW

Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	P							M			K					N	H	
			PVD							PVD			PVD					PCD	PVD	CBN
		(2) Grade code	M6	54	68	66	78	86	I5	68	66	I5	D2	54	68	67	66	D6	M6	D4
			PH6103	PH6910	PH6920	PH6930	PH6125	PH6135	PH6740	PH6920	PH6930	PH6740	PH6705	PH6910	PH6920	PH6325	PH6930	PDP410	PH6103	PBH910
	1112040	RDHT 12T3 M0S-MP			◈		○		◈											
	1112039	RDHT 1604 M0S-MP			◈		○		◈											
	1110082	RDHT 1003 M0T					◈	◈												
	1110083	RDHT 12T3 M0T					◈	◈												
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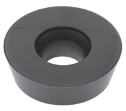	2110530	RDHW 0702 M0T 02020																		○
	2110531	RDHW 1003 M0T 02020																		○
	1110961	RDHW 0702 M0F																○		
	1110548	RDHW 0702 M0T	◈	◈	◈		△	△						◈	◈				◈	
	1110962	RDHW 1003 M0F																○		
	1110087	RDHW 1003 M0T	◈	◈	◈			◈						◈	◈				◈	
	1110090	RDHW 12T3 M0T	◈	◈	◈			◈						◈	◈				◈	
	1110092	RDHW 1604 M0T	◈	◈	◈			◈						◈	◈				◈	
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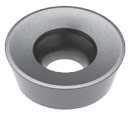	1110583	RDMT 1003 M0T					◈	◈												
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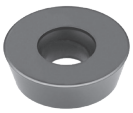	1110549	RDMW 1003 M0T			◈		◈	◈							◈					
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	1110097	RDMW 1604 M0T			◈	△	◈	◈					△		◈		△			
	1110869	RDMW 2006 M0T					◈	○							○					
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◈ First choice | 1ª Escolha | 1ª Opción
◈ Stock Itens | Itens 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-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

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

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Dimensions (in) | Dimensões (in) | Dimensiones (in)						Drawing
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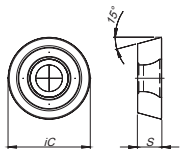
0.472	0.156	-	-	-	-	
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0.394	0.125	-	-	-	-	
0.472	0.156	-	-	-	-	
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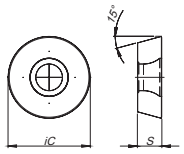
0.276	0.094	-	-	-	-	
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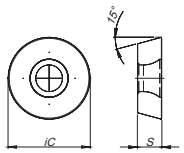
0.276	0.094	-	-	-	-	
0.276	0.094	-	-	-	-	
0.394	0.125	-	-	-	-	
0.394	0.125	-	-	-	-	
0.472	0.156	-	-	-	-	
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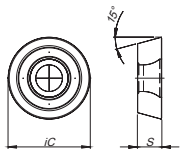
0.787	0.250	-	-	-	-	
0.394	0.125	-	-	-	-	
0.472	0.156	-	-	-	-	
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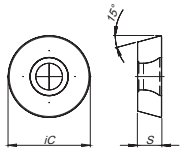
0.394	0.125	-	-	-	-	
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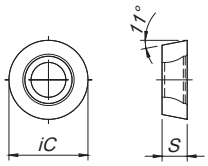
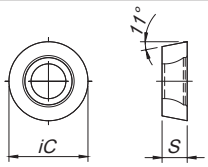
0.787	0.250	-	-	-	-	
0.472	0.187	-	-	-	-	
0.394	0.125	-	-	-	-	
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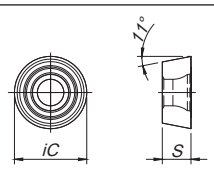
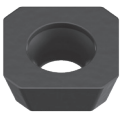
0.394	0.125	-	-	-	-	
0.472	0.187	-	-	-	-	

MILLING INSERTS OVERVIEW

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	86	I5	68	66	I5	L9	D2	54	68	67	I5	17	10
			PH6103	PH6910	PH6920	PH6930	PH6125	PH6135	PH6740	PH6920	PH6930	PH6740	PH5740	PH6705	PH6910	PH6920	PH6325	PH6740	PH0325	PH0910
	1110200	SDHT 1204 AEEN			○						○					○				
	1110693	SDHT 1204 AFFN		○												○				
	1110201	SDHT 1204 AESN-PL			○		○									○				
	1110818	SDHW 09T3 AEEN			○											○				
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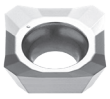
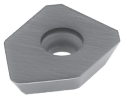
	1110781	SDHW 1204 AEEN			○											○				
	1110782	SDHW 1204 AETN			○											○				
	1112339	SDHW 150412			○											○				
	1110206	SEAN 1203 AFEN			○											○				
	1110207	SEAN 1203 AFFN			○											○				
	1110208	SEAN 1203 AFSN			◎											◎				
	1110209	SEAN 1203 AFTN			○											○				
	1110211	SEAN 1504 AFFN			○											○				
	1110212	SEAN 1504 AFTN			○											○				
	1110576	SEHT 09T3 AFTN			○											○				
	1110218	SEHT 1204 AFTN			◎				◎			◎				◎		◎		
	1110216	SEHT 1204 AFEN			◎				◎			◎				◎		◎		
	1110559	SEHT 13T3 AGSN			◎				◎			◎				◎		◎		
	1110931	SEHT 13T3 AGTN			○		△					○				○		○		
	1112283	SEHT 1204 AFFN-LN																		◎
	1111586	SEHT 13T3 AGFN-LN																		◎
	1110627	SEHT 13T3 AGSN-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-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

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

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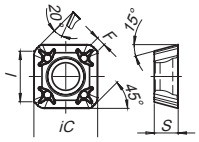
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

Dimensions (in) | Dimensões (in) | Dimensiones (in)						Drawing
ic	S	I	R	a	F	
0.500	0.187	0.394	-	-	0.071	
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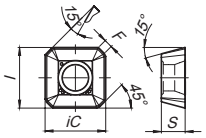
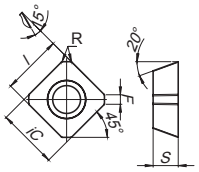
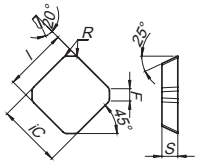
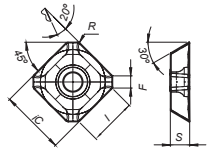
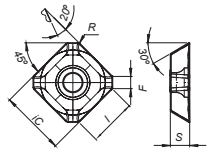
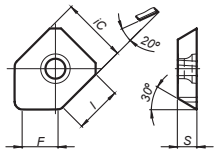
0.500	0.187	0.394	-	-	0.071	
0.375	0.156	0.287	0.012	-	0.059	
0.375	0.156	0.287	0.012	-	0.059	
0.500	0.187	0.354	-	-	0.098	
0.500	0.187	0.354	-	-	0.098	
0.625	0.187	-	0.047	-	-	
0.500	0.125	0.362	0.031	-	0.094	
0.500	0.125	0.362	0.031	-	0.094	
0.500	0.125	0.362	0.047	-	0.094	
0.500	0.125	0.362	0.047	-	0.094	
0.625	0.187	0.457	0.039	-	0.094	
0.625	0.187	0.457	0.039	-	0.094	
0.375	0.156	0.287	-	-	0.059	
0.500	0.188	0.500	-	-	0.110	
0.500	0.188	0.500	-	-	0.110	
0.526	0.156	0.394	-	-	0.079	
0.526	0.156	0.394	-	-	0.079	
0.500	0.188	0.500	-	-	0.079	
0.526	0.156	0.394	-	-	0.091	
0.526	0.156	0.394	-	-	0.323	

MILLING INSERTS OVERVIEW

Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	P								M			K						N
			PVD								PVD			CVD	PVD					UNC
		(2) Grade code	M6	54	G4	68	66	78	86	I5	68	66	I5	L9	D2	54	68	67	I5	10
			PH6103	PH6910	PH7920	PH6920	PH6930	PH6125	PH6135	PH6740	PH6920	PH6930	PH6740	PH5740	PH6705	PH6910	PH6920	PH6325	PH6740	PH0910
	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			△	○											○			
	1110266	SNGN 120408				○											○			
	1110267	SNGN 120412				○											○			
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	1110598	SNGN 190416				○											○			
	1110271	SNKN 1204 ENEN				◉											◉			
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	1120544	SNUN 120408				○											○			
	1121880	SNUN 190612T					○													

◉ 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-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

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

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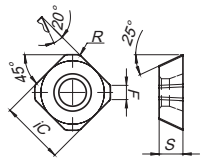
Dimensions (in) | Dimensões (in) | Dimensiones (in)						Drawing
ic	S	I	R	a	F	
0.500	0.188	0.500	-	-	0.110	
0.500	0.188	0.500	-	-	0.110	
0.526	0.156	0.394	-	-	0.079	
0.625	0.187	0.457	0.008	-	0.110	
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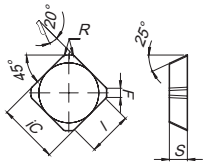
0.500	0.125	0.362	0.047	-	0.094	
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0.500	0.125	0.362	0.047	-	0.094	
0.500	0.125	0.362	0.047	-	0.094	
0.500	0.187	0.362	0.047	-	0.094	
0.500	0.187	0.362	0.047	-	0.094	
0.500	0.187	0.362	0.047	-	0.094	
0.625	0.187	0.484	0.039	-	0.094	
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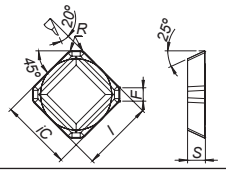
0.500	0.125	0.362	0.047	-	0.094	
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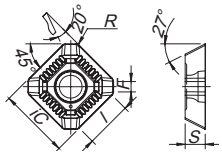
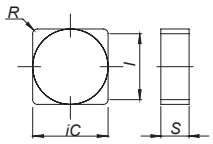
0.625	0.187	0.484	0.039	-	0.094	
0.551	0.157	0.362	0.039	-	0.110	
0.500	0.187	-	0.031	-	-	
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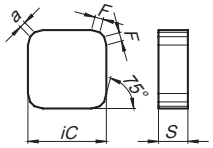
0.500	0.187	-	-	0.059	0.031	
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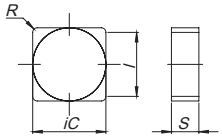
0.500	0.187	0.437	0.016	-	-	
0.500	0.187	0.437	0.031	-	-	
0.500	0.187	0.437	0.047	-	-	
0.750	0.250	-	0.047	-	-	

MILLING INSERTS OVERVIEW

Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	P							M			K							
			PVD							PVD			CVD	PVD						UNC
		(2) Grade code	M6	54	68	66	78	86	I5	68	66	I5	L9	D2	54	68	67	I5	17
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	1110765	SPGN 090312			○											○			
	1111173	SPGN 090316			○											○			
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	1110301	SPGN 120312			○											○			
	1110303	SPGN 120408			○											○			
	1110588	SPGN 120412			○											○			
	1110590	SPGN 150408			○											○			
	1110304	SPGN 150412			○											○			
	1110326	SPKN 1203 EDFR																	△
	1110328	SPKN 1203 EDSR			○		◈	◈								○			
	1110330	SPKN 1203 EDTR			◈		◈	◈	◈							◈		◈	
	1110331	SPKN 1204 EDER			◈														
	1110332	SPKN 1204 EDSR			◈				◈							◈		◈	
	1110333	SPKN 1204 EDTR			○											○			
	1110336	SPKN 1504 EDER			◈		◈									◈			
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	1110339	SPKN 1504 EDSR			◈				◈							◈		◈	
	1110340	SPKN 1504 EDTR			◈		◈		◈							◈		◈	
	1110335	SPKN 1504 EDEL			○											○			
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	1111107	SPKR 1906			○											○			
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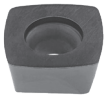	1111364	SPKW 08T308-E			◈					◈						◈			
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	1111153	SPKW 130510 F												○		○			
	1111355	SPKW 130510-E			◈			○		◈						◈			
	1110888	SPKW 130510-S			◈		△	△								◈			

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

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Dimensions (in) | Dimensões (in) | Dimensiones (in)						Drawing
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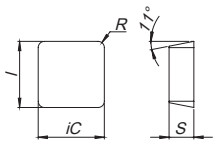
0.375	0.125	-	0.047	-	-	
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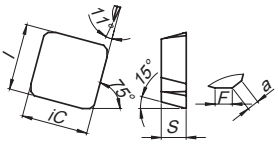
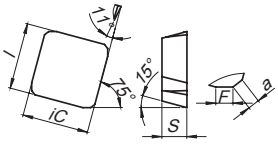
0.500	0.187	-	0.031	-	-	
0.500	0.187	-	0.047	-	-	
0.625	0.187	-	0.031	-	-	
0.625	0.187	-	0.047	-	-	
0.500	0.125	0.500	-	0.039	0.059	
0.500	0.125	0.500	-	0.039	0.059	
0.500	0.125	0.500	-	0.039	0.059	
0.500	0.187	0.500	-	0.039	0.059	
0.500	0.187	0.500	-	0.039	0.059	
0.500	0.187	0.500	-	0.039	0.059	
0.625	0.187	0.625	-	0.039	0.059	
0.625	0.187	0.625	-	0.039	0.059	
0.625	0.187	0.625	-	0.039	0.059	
0.625	0.187	0.625	-	0.039	0.059	
0.625	0.187	0.625	-	0.039	0.059	
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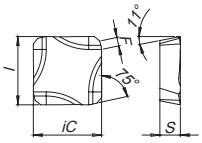
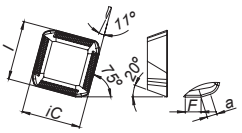
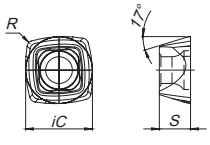
0.500	0.125	0.500	-	0.039	0.055	
0.625	0.187	0.625	-	0.039	0.055	
0.625	0.187	0.625	-	0.039	0.055	
0.750	0.250	0.750	-	0.039	0.055	
0.335	0.156	-	0.031	-	-	
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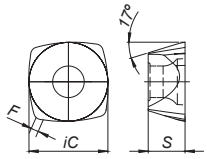
0.335	0.156	-	0.031	-	-	
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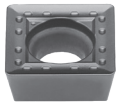
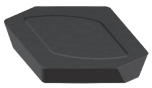
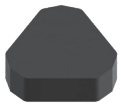
0.512	0.219	-	0.039	-	-	

MILLING INSERTS OVERVIEW

Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	P							M		K							S	
			PVD							PVD		CVD		PVD					PVD	
		(2) Grade code	54	68	G4	78	86	I5	G6	68	I5	L5	L9	D2	54	68	G4	I5	P3	I5
			PH6910	PH6920	PH7920	PH6125	PH6135	PH6740	PH7740	PH6920	PH6740	PH5705	PH5740	PH6705	PH6910	PH6920	PH7920	PH6740	PH7930	PH6740
	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										◈	◈		○	○				
	1110395	TNJN 1204 AN														○				
	1110422	TPGN 110304		○												○				
	1110423	TPGN 110308		○												○				
	1110425	TPGN 160304		◈												◈				
	1110426	TPGN 160308		◈												◈				
	1110431	TPGN 220408		○												○				
	1110432	TPGN 220412		○												○				

◈ 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-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

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

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Dimensions (in) | Dimensões (in) | Dimensiones (in)						Drawing
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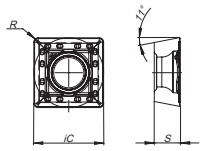
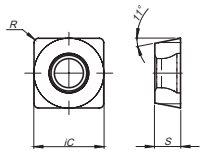
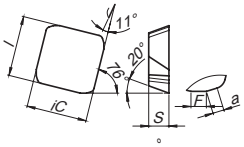
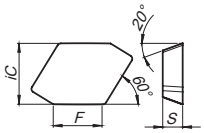
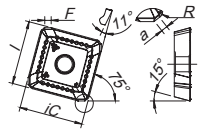
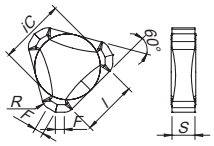
0.250	0.188	-	0.031	-	-	
0.250	0.188	-	0.031	-	-	
0.750	0.250	0.750	-	0.039	0.055	
0.750	0.250	-	-	-	0.472	
0.500	0.125	0.500	0.039	0.039	0.054	
0.500	0.187	0.472	0.079	-	0.067	
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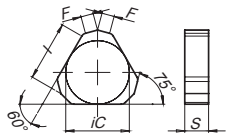
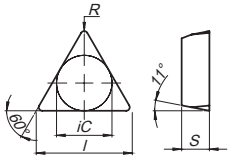
0.500	0.187	0.472	-	-	0.098	
0.250	0.125	-	0.016	-	-	
0.250	0.125	-	0.016	-	-	
0.375	0.125	-	0.016	-	-	
0.375	0.125	-	0.031	-	-	
0.500	0.188	-	0.031	-	-	
0.500	0.188	-	0.047	-	-	

MILLING INSERTS OVERVIEW

Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	P								M			K						N
			PVD						CVD		PVD			CVD	PVD				UNC	UNC
		(2) Grade code	54	68	G4	66	I5	G6	L8	L9	68	66	I5	L9	54	68	67	I5	17	10
			PH6910	PH6920	PH7920	PH6930	PH6740	PH7740	PH5125	PH5740	PH6920	PH6930	PH6740	PH5740	PH6910	PH6920	PH6325	PH6740	PH0325	PH0910
	1110450	TPKN 1603 PDEL		○												○				
	1110543	TPKN 1603 PDSL		○												○				
	1110547	TPKN 1603 PPEN		○												○				
	1110460	TPKN 1603 PPSN		○												○				
	1110462	TPKN 1603 PPTN		○												○				
	1110452	TPKN 1603 PDFR	○																	
	1110458	TPKN 1603 PPER		○												○				
	1110461	TPKN 1603 PPSR		○												○				
	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		○												○				
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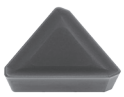	1110476	TPKR 1603 PDSR		◬			◬									◬		◬		
	1110921	TPKR 1603 PDTR		○												○				
	1110477	TPKR 2204 PDSR		◬			◬									◬		◬		
	1120761	TPUN 110304			○															
	1120762	TPUN 110308			○															
	1120765	TPUN 160304			◬			○	◬	◬										
	1120766	TPUN 160308			◬			◬	◬	◬										
	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-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

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

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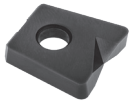
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

Dimensions (in) | Dimensões (in) | Dimensiones (in)						Drawing
ic	S	I	R	a	F	
0.375	0.125	0.650	0.028	-	0.047	
0.375	0.125	0.650	0.028	-	0.047	
0.375	0.125	0.650	-	-	0.043	
0.375	0.125	0.650	-	-	0.043	
0.375	0.125	0.650	-	-	0.043	
0.375	0.125	0.650	0.028	-	0.055	
0.375	0.125	0.650	-	-	0.043	
0.375	0.125	0.650	-	-	0.043	
0.375	0.125	0.650	0.028	-	0.055	
0.375	0.125	0.650	0.028	-	0.047	
0.375	0.125	0.650	0.028	-	0.055	
0.375	0.125	0.650	-	-	0.043	
0.375	0.125	0.650	-	-	0.043	
0.500	0.187	0.866	0.020	-	0.067	
0.500	0.187	0.866	0.020	-	0.067	
0.500	0.187	0.866	0.020	-	0.067	
0.500	0.187	0.866	-	-	0.055	
0.500	0.187	0.866	-	-	0.055	
0.500	0.187	0.866	-	-	0.055	
0.375	0.125	0.650	0.024	-	0.047	
0.375	0.125	0.650	0.024	-	0.047	
0.500	0.187	0.866	0.020	-	0.067	
0.250	0.125	0.433	0.016	-	-	
0.250	0.125	0.433	0.031	-	-	
0.375	0.125	0.650	0.016	-	-	
0.375	0.125	0.650	0.031	-	-	
0.375	0.125	0.650	0.047	-	-	
0.500	0.187	0.866	0.016	-	-	
0.500	0.187	0.866	0.031	-	-	
0.500	0.187	0.866	0.047	-	-	
0.625	0.250	1.063	0.063	-	-	
0.500	0.187	0.866	0.039	-	0.067	

MILLING INSERTS OVERVIEW

Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	P								M			K						N	H
			PVD								PVD			PVD						UNC	PVD
		(2) Grade code	P7	M6	G1	54	G4	68	78	I5	68	66	I5	G1	54	G4	68	67	I5	10	M6
			PH7603	PH6103	PH7910	PH6910	PH7920	PH6920	PH6125	PH6740	PH6920	PH6930	PH6740	PH7910	PH6910	PH7920	PH6920	PH6325	PH6740	PH0910	PH6103
	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				◈		◈							◈		◈				
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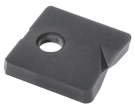	1110820	WPV 08		◬		◬		○	○						○		○				
	1110821	WPV 10		◬		◬		○	○						○		○				
	1110822	WPV 12		◬		◬		○	○						○		○				
	1110948	WPV 16		◬		◬		○	○						○		○				
	1111020	WPV 20		○		○		○	○						○		○				

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

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Dimensions (in) | Dimensões (in) | Dimensiones (in)						Drawing
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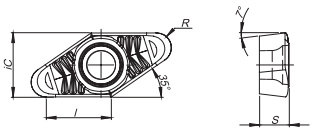
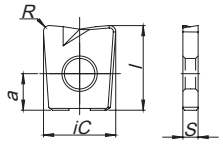
0.500	0.220	0.500	0.118	-	-	
0.315	0.079	0.374	0.024	0.157	-	
0.394	0.098	0.453	0.031	0.197	-	
0.472	0.098	0.551	0.039	0.236	-	
0.630	0.118	0.630	0.051	0.236	-	
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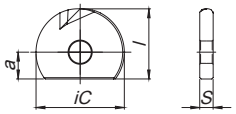
0.315	0.079	0.374	-	0.098	-	
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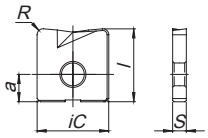
0.787	0.118	0.626	-	0.236	-	
0.984	0.157	0.839	-	0.354	-	
1.260	0.197	1.016	-	0.394	-	
0.315	0.079	0.374	0.024	0.157	–	
0.394	0.098	0.453	0.031	0.197	–	
0.472	0.098	0.551	0.039	0.236	–	
0.630	0.118	0.630	0.051	0.236	–	
0.787	0.118	0.787	0.063	0.236	–	

MILLING INSERTS OVERVIEW

Inserts Pastilhas Plaquitas	(1) Geometry code	ISO Reference	P							M			K				N			H	
			PVD							PVD			PVD				CVD	UNC	PCD	PVD	CBN
		(2) Grade code	M6	54	68	66	78	86	I5	68	66	I5	D2	54	68	I5	P2	10	D6	M6	S4
			PH6103	PH6910	PH6920	PH6930	PH6125	PH6135	PH6740	PH6920	PH6930	PH6740	PH6705	PH6910	PH6920	PH6740	PHD103	PH0910	PDP410	PH6103	PBH920
	1110543	WPZ 08	◈	○	○									○	○						
	1110551	WPZ 10	◈	○	○									○	○						
	1110552	WPZ 12	◈	○	○									○	○						
	1110544	WPZ 16	◈	○	○									◈	○						
	1110553	WPZ 20	◈	○	○									◈	○						
	1110661	WPZ 25	◈	◈	○									◈	○						
	1110662	WPZ 32	◈	◈	○									◈	○						
	1110905	XDHW 040105	○	○			○							○	○		◈			○	
	1110573	XDHW 040110	◈	◈			◈							◈	○	◈	◈			◈	
	1110532	XDHW 060210	◈	◈			◈	◈						◈	○	◈	◈			◈	
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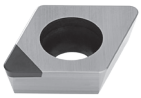	1112316	XDHW 040110 FN																	◈		
	1112317	XDHW 040110 SN																			◈
	1112318	XDHW 060210 FN																	◈		
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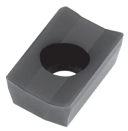	1110910	XPHT 1604 PDTR			○										○						
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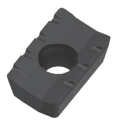
	1110926	XPHT 160432 PDSR			○										○						
	1110958	XPHT 160412-MR			○										○						

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

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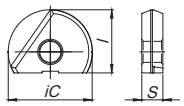
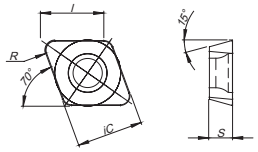
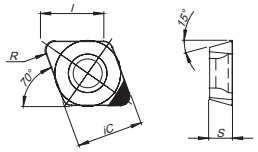
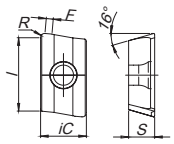
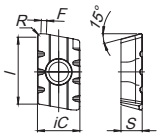
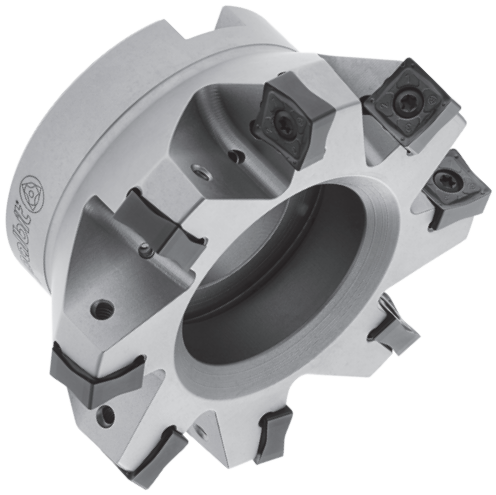
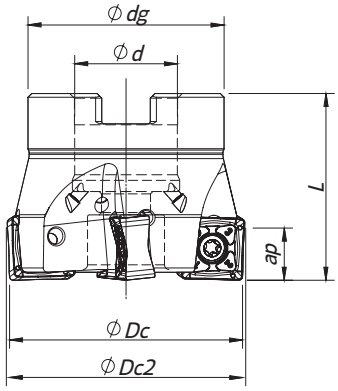
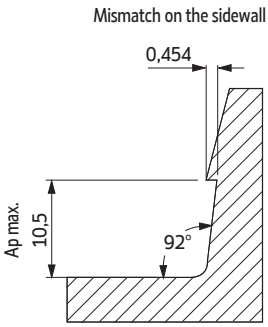
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

Dimensions (in) | Dimensões (in) | Dimensiones (in)						Drawing
ic	S	I	R	a	F	
0.315	0.094	0.276	-	0.118	-	
0.394	0.102	0.335	-	0.138	-	
0.472	0.118	0.394	-	0.157	-	
0.630	0.157	0.472	-	0.157	-	
0.787	0.197	0.591	-	0.197	-	
0.984	0.236	0.728	-	0.236	-	
1.260	0.276	0.925	-	0.295	-	
0.157	0.063	0.157	0.020	-	-	
0.157	0.063	0.157	0.039	-	-	
0.256	0.094	0.244	0.039	-	-	
0.394	0.156	0.390	0.039	-	-	
0.157	0.063	0.157	0.039	-	-	
0.157	0.063	0.157	0.039	-	-	
0.256	0.094	0.244	0.039	-	-	
0.256	0.094	0.244	0.039	-	-	
0.394	0.156	0.390	0.039	-	-	
0.394	0.156	0.390	0.039	-	-	
0.375	0.187	0.630	0.047	-	0.067	
0.375	0.187	0.630	0.079	-	0.028	
0.375	0.187	0.630	0.126	-	-	
0.375	0.187	0.630	0.047	-	0.067	

PLUS SN88-12







Arbor Mounting

K_r=88° | γ_p=-6°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)					lbs	Specifications		Insert Pastilha Inserto	Stock
			ØDc	ØDc2	Ød	Ødg	L		Arbor Type	Ap max (in)		
181103400	SN88 D2.00-A.750/1.75-04-12	4	2.000	2.035	0.750	1.772	1.750	0.92	A	0.413	SN... 1206...	◈
181103500	SN88 D2.00-A.750/1.75-05-12	5	2.000	2.035	0.750	1.772	1.750	0.88	A	0.413	SN... 1206...	◈
181103600	SN88 D2.50-A1.00/1.75-05-12	5	2.500	2.535	1.000	2.205	1.750	1.14	A	0.413	SN... 1206...	◈
181103700	SN88 D2.50-A1.00/1.75-06-12	6	2.500	2.535	1.000	2.205	1.750	1.10	A	0.413	SN... 1206...	◈
181103800	SN88 D3.00-A1.00/2.00-07-12	7	3.000	3.035	1.000	2.205	2.000	2.20	A	0.413	SN... 1206...	◈
181103900	SN88 D3.00-A1.00/2.00-09-12	9	3.000	3.035	1.000	2.205	2.000	2.12	A	0.413	SN... 1206...	○
181139100	SN88 D4.00-A1.50/2.50-08-12	8	4.000	4.035	1.500	2.874	2.500	3.52	A	0.413	SN... 1206...	○
181139200	SN88 D4.00-A1.50/2.50-11-12	11	4.000	4.035	1.500	2.874	2.500	3.30	A	0.413	SN... 1206...	○
181104000	SN88 D4.00-A1.25/2.00-08-12	8	4.000	4.035	1.250	2.874	2.000	3.52	A	0.413	SN... 1206...	◇
NEW 181104100	SN88 D4.00-A1.25/2.00-11-12	11	4.000	4.035	1.250	2.874	2.000	3.30	A	0.413	SN... 1206...	○
181104200	SN88 D5.00-A1.50/2.50-12-12	12	5.000	5.035	1.500	3.386	2.500	6.83	A	0.413	SN... 1206...	○
181104300	SN88 D6.00-A2.00/2.50U-18-12	18	6.000	6.035	2.000	4.882	2.500	7.71	B	0.413	SN... 1206...	◈
181104400	SN88 D8.00-A2.50/2.50U-14-12	14	8.000	8.035	2.500	5.512	2.500	13.90	C	0.413	SN... 1206...	◈
181104500	SN88 D10.0-A2.50/2.50U-22-12	22	10.000	10.035	2.500	7.087	2.500	15.87	C	0.413	SN... 1206...	◈

◈ Stock item | Produto de stock | Itens de stock

○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)

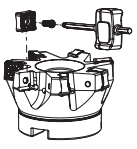
◇ Inventory maintained. To be replaced by new item. | Iten em stock. Será substituido por novo item | Iten en stock. Será reemplezado por nuevo iten.

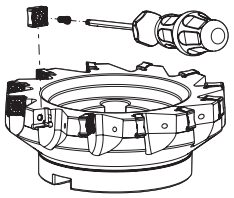
SPARE PARTS | Acessórios | Repuestos

Order separately

Cutter ØDc	Insert Screw	Key (Torx)	Key (Torx - lbf/in)	Torque Value
			lbf/in	lbf/in
SN88-A-12 - 2.00-3.00	P0401200	XT15	DT1530	26.6
SN88-A-12 - 4.00-10.00	P0401200	PT15	DT1530	26.6

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-231.
Check the procedures for the clamping screws on the page A-231.





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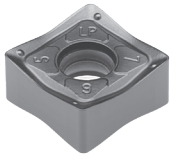
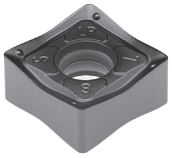
Facing Shouldering

SNH(K)U 1206 | Inserts | Pastilhas | Plaquitas

SNHU-LP
(PHP grade)

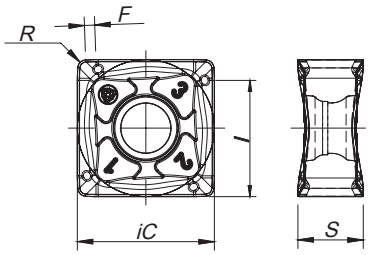


SNKU-LP
(PHP grade)



PHP
NEW
GRADE

SNH(K)U-LP



		P						M			K										Dimensions Dimensões Dimensiones (in)				
		CVD	PVD					PVD			CVD				PVD										
	(2) Grade code	T9	G4	T1	P3	P4	G6	P3	X9	G6	L5	L6	L9	T9	G4	T1	P3	P4	G6					
(1) Geometry code	ISO Reference	PHS740	PH7920	PHP920	PH7930	PHP930	PH7740	PH7930	PHH930	PH7740	PH5705	PH5320	PH5740	PHS740	PH7920	PHP920	PH7930	PHP930	PH7740	iC	S	I	R	F
1112020	SNHU 120608 ZNER-LP			●		◉	◉			◉	●		◉			◉		◉	◉	0.524	1/4	0.457	0.031	0.039
1112278	SNKU 120608 ZNER-LP	◉	△	●	△		◉	△		◉	●	◉	◉	◉	△	◉	△		◉	0.524	1/4	0.457	0.031	0.039

● 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-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

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	PHP930	PH7930	PHH930	PH5740	PHS740	PH7740
P	1	Unalloyed Steel	125-220			✓	✓	✓	✓			✓	✓
	2	Low-Alloyed Steel	220-280			✓	✓	✓	✓			✓	✓
	3	High-Alloyed Steel	280-380			✓	✓	✓	✓			✓	✓
M	4	SS - Ferritic / Martensitic	200-330					✓	✓	✓			✓
	5	SS - Austenitic	200-330					✓	✓	✓			✓
	6	SS - Austenitic-ferritic (Duplex)	230-260					✓	✓	✓			✓
K	7	Malleable Cast Iron	130-230	✓	✓	✓	✓	✓	✓		✓		✓
	8	Grey Cast Iron	180-245	✓	✓	✓	✓	✓	✓		✓		✓
	9	Nodular Cast iron	160-250	✓	✓	✓	✓	✓	✓		✓		✓

● Good Conditions ◉ Average Conditions ✱ Difficult Conditions

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PLUS SN88-12

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

ISO	PSM	Material	HB (Brinell)	Vc (SFM) ← Wear Resistance				
				PH5705	PH5320	PHP920	PH7920	PHP930
P	1	Unalloyed Steel	125-220	-	-	590-820	590-787	525-754
	2	Low-Alloyed Steel	220-280	-	-	525-754	525-722	459-689
	3	High-Alloyed Steel	280-380	-	-	459-722	459-689	394-656
M	4	SS - Ferritic / Martensitic	200-330	-	-	-	459-722	-
	5	SS - Austenitic	200-330	-	-	-	426-590	-
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	-	-	394-525	-
K	7	Malleable Cast Iron	130-230	525-951	492-918	525-886	525-853	492-820
	8	Grey Cast Iron	180-245	558-1050	525-1050	459-820	459-787	459-754
	9	Nodular Cast iron	160-250	459-656	328-623	394-689	394-656	328-656

(Note 1) The above table indicates the cutting conditions of 70% of the tool engagement.
(Note 2) With low workspace clamping rigidity or long overhang of the tool, adjust cutting speed and feed to 70 or 80% of the recommended conditions above.
(Note 3) Surface finishing is determinated by speed/feed used.
(Note 4) PH5... and PHS... can be used wet or dry. PH7... use only air.

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Vc (SFM)				Toughness →	Feed fz (in/t)
PH7930	PHH930	PH5740	PHS740	PH7740	SNH(K)U 1206
525-722	-	-	459-722	459-656	0.004-0.014
459-656	-	-	394-656	426-590	0.004-0.014
394-623	-	-	328-623	328-558	0.004-0.014
459-656	459-689	-	-	426-590	0.004-0.014
394-525	394-558	-	-	361-525	0.004-0.014
328-459	328-492	-	-	-	0.004-0.014
492-787	-	525-853	-	459-722	0.004-0.014
459-754	-	459-787	-	394-689	0.004-0.014
328-623	-	394-656	-	328-623	0.004-0.014

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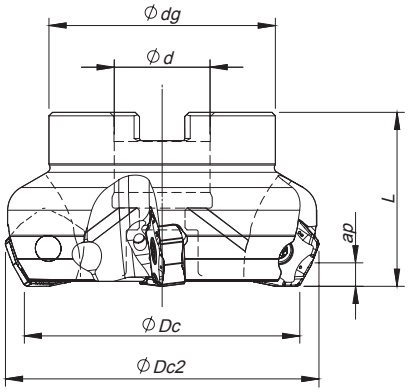
PLUS PN60-11





Arbor Mounting

K_r=60° | γ_p -7°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)					lbs	Specifications		Insert Pastilha Inserto	Stock
			ØDc	ØDc2	Ød	Ødg	L		Arbor Type	Ap max (in)		
181055700	PN60 D2.00-A.750/1.75-05-11	5	2.000	2.356	0.750	1.772	1.750	0.97	A	0.200	PN... 1105...	●
181063800	PN60 D2.50-A1.00/1.75-05-11	5	2.500	2.856	1.000	2.205	1.750	1.60	A	0.200	PN... 1105...	●
181055800	PN60 D2.50-A1.00/1.75-06-11	6	2.500	2.856	1.000	2.205	1.750	1.52	A	0.200	PN... 1105...	●
181063900	PN60 D3.00-A1.00/2.00-06-11	6	3.000	3.356	1.000	2.205	2.000	2.44	A	0.200	PN... 1105...	●
181055900	PN60 D3.00-A1.00/2.00-08-11	8	3.000	3.356	1.000	2.205	2.000	2.27	A	0.200	PN... 1105...	●
181064000	PN60 D4.00-A1.25/2.00-07-11	7	4.000	4.356	1.250	2.874	2.000	4.09	A	0.200	PN... 1105...	●
181056000	PN60 D4.00-A1.25/2.00-10-11	10	4.000	4.356	1.250	2.874	2.000	4.07	A	0.200	PN... 1105...	●
181064100	PN60 D5.00-A1.50/2.50-08-11	8	5.000	5.356	1.500	3.386	2.500	7.33	A	0.200	PN... 1105...	○
181056100	PN60 D5.00-A1.50/2.50-12-11	12	5.000	5.356	1.500	3.386	2.500	7.29	A	0.200	PN... 1105...	○
181064200	PN60 D6.00-A2.00/2.50U-10-11	10	6.000	6.356	2.000	4.882	2.500	9.35	B	0.200	PN... 1105...	●
181056200	PN60 D6.00-A2.00/2.50U-14-11	14	6.000	6.356	2.000	4.882	2.500	9.46	B	0.200	PN... 1105...	●
181056300	PN60 D8.00-A2.50/2.50U-16-11	16	8.000	8.356	2.500	5.512	2.500	14.54	C	0.200	PN... 1105...	●
181056400	PN60 D10.0-A2.50/2.50U-18-11	18	10.000	10.356	2.500	7.087	2.500	26.29	C	0.200	PN... 1105...	●

● Stock item | Produto de stock | Itens de stock

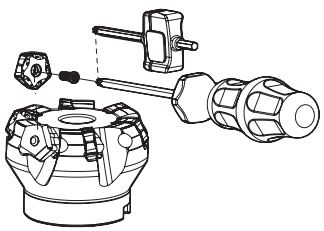
○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)

SPARE PARTS | Acessórios | Repuestos

Order separately

Cutter ØDc	Insert Screw	Key (Torx)	Key (Torx - lbf/in)	Torque Value
				lbf/in
PN60-A-11 - 2.00-3.00	P0401200	XT15	DT1530	26.6
PN60-A-11 - 4.00-10.00	P0401200	PT15	DT1530	26.6

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-231.
Check the procedures for the clamping screws on the page A-231.



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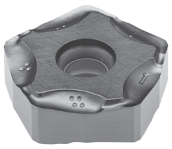
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

PNH(K)X 1105 | Inserts | Pastilhas | Plaquitas

PNHX-MK



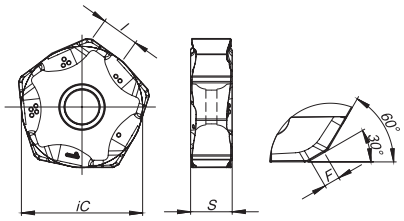
PNHX-HK



PNKX-MK



PNH(K)X-MK | HK



		P				K						Dimensions Dimensões Dimensiones (in)				
		PVD				CVD		PVD								
	[2] Grade code	G1	X5	G4	T1	L5	L9	G1	X5	G4	T1					
[1] Geometry code	ISO Reference	PH7910	PHP910	PH7920	PHP920	PH5705	PH5740	PH7910	PHP910	PH7920	PHP920	iC	S	l	R	F
1111374	PNHX 1105 ZNER-MK	△	○	△	◎	◎	◎	△	○	△	◎	0.650	0.223	0.224	-	0.051
1111998	PNHX 1105 ZNER-HK					◎	○					0.650	0.223	0.224	-	0.051
1112294	PNKX 1105 ZNER-MK	△	○	△	◎	◎	○	△	○	△	◎	0.650	0.223	0.224	-	0.051

◎ 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-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

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	PHP910	PH7920	PHP920	PH5740
P	1	Unalloyed Steel	125-220		✓	✓	✓	✓	
P	2	Low-Alloyed Steel	220-280		✓	✓	✓	✓	
P	3	High-Alloyed Steel	280-380		✓	✓	✓	✓	
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

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PLUS PN60-11

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

ISO	PSM	Material	HB (Brinell)	Vc (SFM) ← Wear Resistance		
				PH5705	PH7910	PHP910
P	1	Unalloyed Steel	125-220	-	590-820	590-820
	2	Low-Alloyed Steel	220-280	-	525-755	525-788
	3	High-Alloyed Steel	280-380	-	460-722	460-755
K	7	Malleable Cast Iron	130-230	525-950	590-1004	590-1004
	8	Grey Cast Iron	180-245	558-1050	525-820	525-820
	9	Nodular Cast iron	160-250	460-656	492-656	492-690

(Note 1) Cutting conditions a_e/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.

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

ISO	PSM	Material	HB (Brinell)	Chipbreaker Application	
				1st choise	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

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Vc (SFM) Toughness →			Feed fz (in/t)
PH7920	PHP920	PH5740	PNH(K)X 1105
590-788	590-820	-	0.006-0.012
525-722	525-755	-	0.006-0.012
460-690	460-722	-	0.006-0.010
525-854	525-886	525-854	0.005-0.014
460-788	460-820	460-788	0.005-0.014
394-656	394-690	394-656	0.005-0.012

A
MILLING
News & Features
Overview
Face milling
Hifeed milling
Shoulder milling
Profile milling
Hardmill
Center & Chamfer
Engraving
Spare Parts
Technical Data

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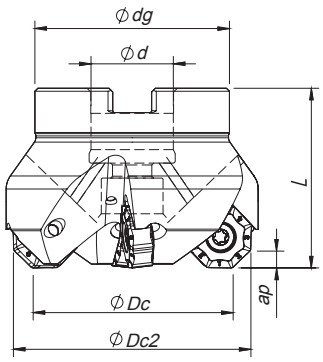
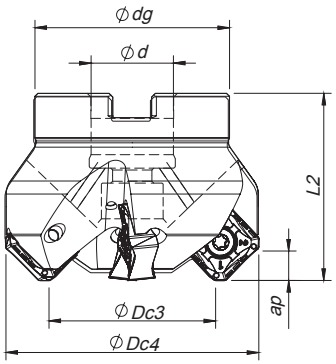
PLUS ON45-05

NEW







Arbor Mounting

K_r=45° | γ_p=-6°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)								lbs	Specifications		Insert Pastilha Inserto	Stock
			ØDc	ØDc2	ØDc3	ØDc4	Ød	Ødg	L	L2		Arbor Type	Ap (in)		
181185700	ON45 D2.00-A.750/1.75-04-05	4	2.000	2.299	1.886	2.473	0.750	1.770	1.750	1.809	0.844	A	0.138 | 0.236	ON...05 | SN...12	◈
181185800	ON45 D2.50-A1.00/1.75-06-05	6	2.500	2.799	2.386	2.973	1.000	2.200	1.750	1.809	1.157	A	0.138 | 0.236	ON...05 | SN...12	◈
181185900	ON45 D3.15-A1.00/2.00-07-05	7	3.150	3.449	3.036	3.623	1.000	2.200	2.000	2.059	1.865	A	0.138 | 0.236	ON...05 | SN...12	◈
181186000	ON45 D5.00-A1.50/2.50-10-05	10	5.000	5.229	4.886	5.473	1.500	3.380	2.500	2.559	6.548	A	0.138 | 0.236	ON...05 | SN...12	◈

◈ Stock item | Produto de stock | Itens de stock

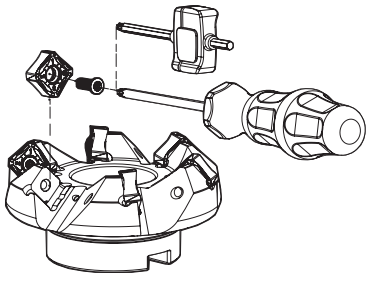
○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)

SPARE PARTS | Acessórios | Repuestos

Order separately

Cutter ØDc	Insert Screw	Key (Torx)	Key (Torx - lbf/in)	Torque Value
ON45-05 – 2.00-3.15	P0401200	XT15	DT1530	26.6
ON45-05 – 5.00	P0401200	PT15	DT1530	26.6

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-231.
Check the procedures for the clamping screws on the page A-231.



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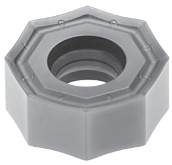
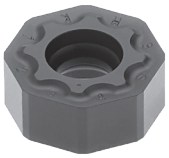
ONH(K)X 05 | SNH(K)X 12 | Inserts | Pastilhas | Plaquitas

ONH(K)X-LP



ONH(K)X-MK

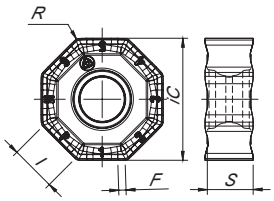


ONH(K)X-MP
(PHS grade)



PHP
NEW
GRADE

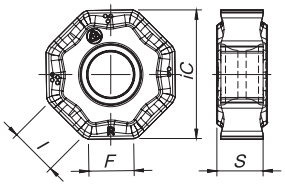
ONH(K)X-MK | LP | MP



ONHX-W
8 Cutting Edges (8R)



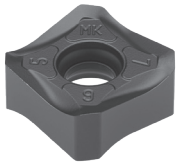
ONHX-W



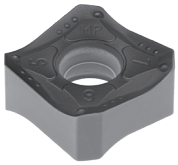
SNHX-LP



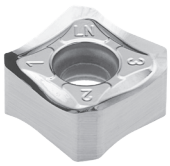
SNH(K)X-MK



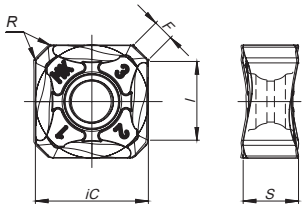
SNH(K)X-MP
(PHS grade)



SNHX-LN



SNH(K)X- MK | LP | MP | 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	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	PHP910	PH7920	PHP920	PH7930	PHP930	PH7740	PH0910	PHH930	PH7740	iC	S	l	R	F
1112302	ONHX 050505 ANEN-LP				◉		◉	◉		◉						◉		◉	◉			◉	1/2	0.205	0.209	0.020	-
1112304	ONHX 050505 ANSN-MP				◉		◉									◉		◉					1/2	0.205	0.209	0.020	-
1112301	ONKX 050505 ANEN-LP	○		△	◉	△	◉	○	○						△	◉	△	◉	○		○	○	1/2	0.205	0.209	0.020	-
1112303	ONKX 050505 ANSN-MP	◉		△	◉	△	◉								△	◉	△	◉					1/2	0.205	0.209	0.020	-
1112305	ONKX 050500 ANEN-MK										○	◉	◉				△						1/2	0.205	0.209	-	-
1112307	ONHX 050500 ANER-W			△	◉						◉				△	◉							1/2	0.205	0.209	-	0.169
1111452	SNHX 1206 ANEN-LP				◉		◉		◉							◉		◉	○		◉	○	1/2	0.250	0.366	0.031	0.079
1111502	SNHX 1206 ANSN-MP	◉	◉	◉	◉		◉							◉		◉		◉	○		○	○	1/2	0.250	0.366	0.031	0.079
1111503	SNHX 1206 ANEN-MK										◉		◉	◉	△	◉							1/2	0.250	0.366	0.031	0.079
1111504	SNHX 1206 ANFN-LN																			◉			1/2	0.250	0.366	0.031	0.079
1112293	SNKX 1206 ANSN-MP	◉		△	◉			◉					○		△	◉			◉			◉	1/2	0.250	0.366	0.031	0.079
1112249	SNKX 1206 ANEN-MK										◉	◉	◉										1/2	0.250	0.366	0.031	0.079

◉ 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-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

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

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PLUS ON45-05

NEW

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

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

ISO	PSM	Material	HB (Brinell)	Chipbreaker Application	
				1st choise	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	-

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

ISO	PSM	Material	HB (Brinell)	Vc (SFM) ← Wear Resistance						Toughness →
				PH0910	PH5705	PH5320	PHP910	PHP920	PH7920	PHP930
P	1	Unalloyed Steel	125-220	-	-	-	591-820	591-820	591-788	525-722
	2	Low-Alloyed Steel	220-280	-	-	-	525-788	525-755	525-722	460-656
	3	High-Alloyed Steel	280-380	-	-	-	460-755	460-722	460-689	394-624
M	4	SS - Ferritic / Martensitic	200-330	-	-	-	-	-	460-722	460-656
	5	SS - Austenitic	200-330	-	-	-	-	-	427-591	394-525
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	-	-	-	-	394-525	328-460
K	7	Malleable Cast Iron	130-230	-	525-952	492-919	591-984	525-886	525-853	492-788
	8	Grey Cast Iron	180-245	-	558-1050	525-1050	525-820	460-820	460-788	460-755
	9	Nodular Cast iron	160-250	-	460-656	328-624	492-689	394-689	394-656	328-624
N	10	Aluminium and Non Ferrous	30-130	328-6560	-	-	-	-	-	-
S	11	Heat Resistant Super Alloys	200-320	-	-	-	-	-	-	99-328

ISO	PSM	Material	HB (Brinell)	Vc (SFM) ← Wear Resistance				Toughness →	Feed fz (in/t)	
				PHH930	PH7930	PH5740	PHS740	PH7740	SNH(K)X 12...	ONH(K)X 05...
P	1	Unalloyed Steel	125-220	-	525-722	-	460-722	460-656	0.004-0.014	0.004-0.014
	2	Low-Alloyed Steel	220-280	-	460-656	-	394-656	427-591	0.004-0.014	0.004-0.014
	3	High-Alloyed Steel	280-380	-	394-624	-	328-624	328-558	0.004-0.012	0.004-0.012
M	4	SS - Ferritic / Martensitic	200-330	460-689	460-656	-	-	427-591	0.004-0.012	0.004-0.012
	5	SS - Austenitic	200-330	394-558	394-525	-	-	361-525	0.004-0.012	0.004-0.012
	6	SS - Austenitic-ferritic (Duplex)	230-260	328-492	328-460	-	-	296-492	0.004-0.010	0.004-0.010
K	7	Malleable Cast Iron	130-230	-	492-788	525-853	-	460-722	0.004-0.014	0.004-0.014
	8	Grey Cast Iron	180-245	-	460-755	460-788	-	394-689	0.004-0.014	0.004-0.014
	9	Nodular Cast iron	160-250	-	328-624	394-656	-	328-624	0.004-0.012	0.004-0.012
N	10	Aluminium and Non Ferrous	30-130	-	-	-	-	-	0.004-0.014	-
S	11	Heat Resistant Super Alloys	200-320	99-361	99-328	-	-	99-328	0.003-0.008	0.003-0.008

(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) PH5... and PHS... can be used wet or dry. PH7... use only air.

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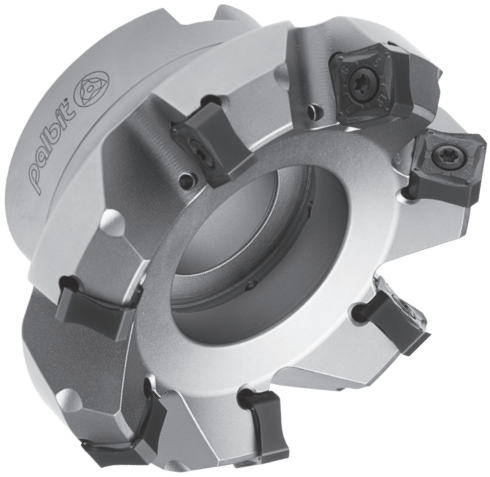
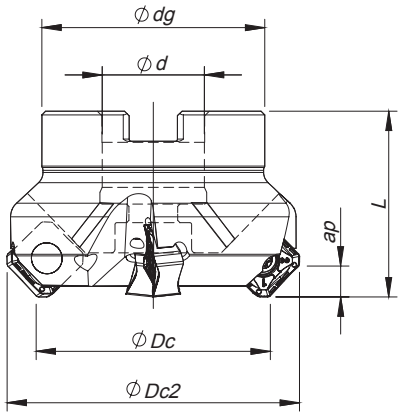
PLUS SN45-12





Arbor Mounting

K_r=45° | γ_p=-6°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)					lbs	Specifications		Insert Pastilha Inserto	Stock
			ØDc	ØDc2	Ød	Ødg	L		Arbor Type	Ap max (in)		
181072800	SN45 D1.50-A.500/1.50-03-12	3	1.500	2.006	0.500	1.417	1.500	1.03	A	0.236	SN... 1206	◉
181048800	SN45 D2.00-A.750/1.75-04-12	4	2.000	2 513	0.750	1.772	1.750	1.05	A	0.236	SN... 1206	◉
181062700	SN45 D2.00-A.750/1.75-06-12	6	2.000	2 513	0.750	1.772	1.750	1.03	A	0.236	SN... 1206	◉
181048900	SN45 D2.50-A1.00/1.75-06-12	6	2.500	3 013	1.000	2.205	1.750	1.51	A	0.236	SN... 1206	◉
181062800	SN45 D2.50-A1.00/1.75-08-12	8	2.500	3 013	1.000	2.205	1.750	1.52	A	0.236	SN... 1206	◉
181049000	SN45 D3.00-A1.00/2.00-07-12	7	3.000	3 513	1.000	2.205	2.000	2.23	A	0.236	SN... 1206	◉
181062900	SN45 D3.00-A1.00/2.00-10-12	10	3.000	3 513	1.000	2.205	2.000	2.16	A	0.236	SN... 1206	◉
181136600	SN45 D4.00-A1.50/2.50-08-12	8	4.000	4 513	1.500	2.874	2.500	3.91	A	0.236	SN... 1206	◉
181136700	SN45 D4.00-A1.50/2.50-12-12	12	4.000	4 513	1.500	2.874	2.500	3.80	A	0.236	SN... 1206	◉
181063000	SN45 D4.00-A1.25/2.00-12-12	12	4.000	4 513	1.250	2.874	2.000	3.80	A	0.236	SN... 1206	◇
181049200	SN45 D5.00-A1.50/2.50-10-12	10	5.000	5 513	1.500	3.386	2.500	7.36	A	0.236	SN... 1206	◉
181049300	SN45 D6.00-A2.00/2.50U-12-12	12	6.000	6 513	2.000	4.882	2.500	9.51	B	0.236	SN... 1206	◉
181054400	SN45 D8.00-A2.50/2.50U-14-12	14	8.000	8 513	2.500	5.512	2.500	13.51	C	0.236	SN... 1206	◉
181054500	SN45 D10.0-A2.50/2.50U-16-12	16	10.000	10 513	2.500	7.087	2.500	24.58	C	0.236	SN... 1206	◉

◉ Stock item | Produto de stock | Itens de stock

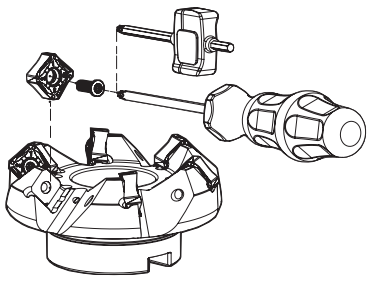
○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)

◇ Inventory maintained. To be replaced by new item. | Iten em stock. Será substituido por novo item | Iten en stock. Será reemplezado por nuevo iten.

SPARE PARTS | Acessórios | Repuestos

Cutter ØDc	Insert Screw	Key (Torx)	Order separately: Key (Torx - lbf/in)	Torque Value
				
SN45-A-12 - 1.50-3.00	P0401200	XT15	DT1530	26.6
SN45-A-12 - 4.00-10.00	P0401200	PT15	DT1530	26.6

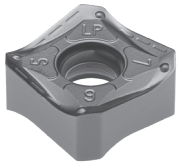
Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-231.
Check the procedures for the clamping screws on the page A-231.



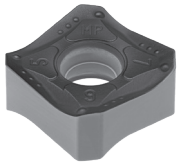
page A - 224 Technical Data page A - 232

SNH(K)X 1206 | Inserts | Pastilhas | Plaquitas

SNHX-LP

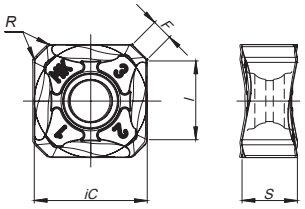


SNH(K)X-MP

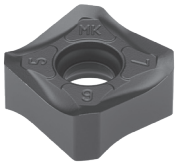


PHP NEW GRADE

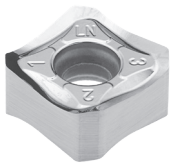
SNH(K)X-MK | LP | MP | LN



SNH(K)X-MK



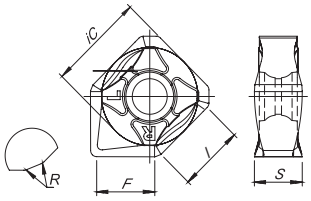
SNHX-LN



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	P4	G6	X9	G6	L5	L6	L9	X5	G4	T1	P4	G6	10	X9	G6					
(1) Geometry code	ISO Reference	PHS740	PHP910	PH7920	PHP920	PHP930	PH7740	PHH930	PH7740	PH5705	PH5320	PH5740	PHP910	PH7920	PHP920	PHP930	PH7740	PH0910	PHH930	PH7740	iC	S	I	R	F
1111452	SNHX 1206 ANEN-LP				◉	◉		◉							◉	◉	○		◉	○	1/2	0.250	0.366	0.031	0.079
1111502	SNHX 1206 ANSN-MP	◉	◉	◉	◉	◉							◉		◉	◉	○		○	○	1/2	0.250	0.366	0.031	0.079
1111503	SNHX 1206 ANEN-MK									◉		◉	◉	△	◉						1/2	0.250	0.366	0.031	0.079
1111504	SNHX 1206 ANFN-LN																	◉			1/2	0.250	0.366	0.031	0.079
1111899	SNHX 1206 ANFN-W*		◉		◉								◉		◉						1/2	0.248	0.366	0.016	0.299
1112293	SNKX 1206 ANSN-MP	◉		△	◉		◉					○		△	◉		◉			◉	1/2	0.250	0.366	0.031	0.079
1112249	SNKX 1206 ANEN-MK									◉	◉	◉									1/2	0.250	0.366	0.031	0.079

◉ 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-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

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

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

page A - 224 | Technical Data page A - 232

PLUS SN45-12

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

ISO	PSM	Material	HB (Brinell)	Vc (SFM) ← Wear Resistance						
				PH0910	PH5705	PH5320	PHP910	PHP920	PH7920	PHP930
P	1	Unalloyed Steel	125-220	-	-	-	590-820	590-820	590-788	525-755
	2	Low-Alloyed Steel	220-280	-	-	-	525-788	525-755	525-722	460-690
	3	High-Alloyed Steel	280-380	-	-	-	460-755	460-722	460-690	394-656
M	4	SS - Ferritic / Martensitic	200-330	-	-	-	-	-	460-722	-
	5	SS - Austenitic	200-330	-	-	-	-	-	426-590	-
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	-	-	-	-	394-525	-
K	7	Malleable Cast Iron	130-230	-	525-950	492-918	590-1004	525-886	525-854	492-820
	8	Grey Cast Iron	180-245	-	558-1050	525-1050	525-820	460-820	460-788	460-755
	9	Nodular Cast iron	160-250	-	460-656	328-624	492-690	394-690	394-656	328-656
N	10	Aluminium and Non Ferrous	30-130	328-6560	-	-	-	-	-	-
S	11	Heat Resistant Super Alloys	200-320	-	-	-	-	-	-	-

(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) PH5... and PHS... can be used wet or dry. PH7... use only air.

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

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

ISO	PSM	Material	HB (Brinell)	Chipbreaker Application	
				1st choise	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	-

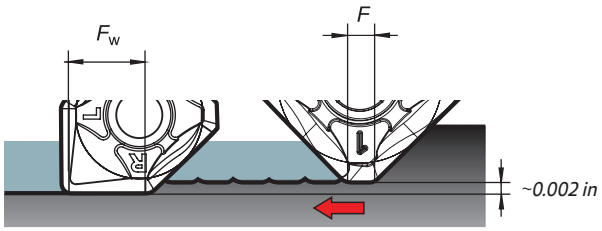
palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

Vc (SFM) Toughness →					Feed fz (in/t)				
PHH930	PH7930	PH5740	PHS740	PH7740	SNHX 12...LP	SNH(K)X 12... MP	SNH(K)X 12... MK	SNH(K)X 12... LN	SNH(K)X 12... W
-	525-722	-	460-722	460-656	0.004-0.014	0.004-0.014	-	-	0.004-0.014
-	460-656	-	394-656	426-590	0.004-0.014	0.004-0.014	-	-	0.004-0.014
-	394-624	-	328-624	328-558	0.004-0.012	0.004-0.012	-	-	0.004-0.012
460-690	460-656	-	-	426-590	0.004-0.012	-	-	-	-
394-558	394-525	-	-	360-525	0.004-0.012	-	-	-	-
328-492	328-460	-	-	-	0.004-0.010	-	-	-	-
-	492-788	525-854	-	460-722	0.004-0.014	-	0.004-0.014	-	0.004-0.016
-	460-755	460-788	-	394-690	0.004-0.014	-	0.004-0.014	-	0.004-0.016
-	328-624	394-656	-	328-624	0.004-0.012	-	0.004-0.012	-	0.004-0.012
-	-	-	-	-	-	-	-	0.004-0.014	-
100-360	100-328	-	-	100-328	0.003-0.008	-	-	-	-

WIPER INSERTS

Recommended Cutting Conditions:

- f_Z should be equal to 0,8 x F_W / Z
- Axial depth of cut is 0.020 to 0.031 in.



Example:

- The width of the parallel land (F) of the insert is 0.079 in.
- To obtain a good surface finishing, the feed per revolution should be a maximum of 80% of 0.079 in = 0.063 in.
- The wiper insert will have a parallel land (F_W) with a width of 0.299 in.
- Result: Feed per revolution (f_n) could be increased from 0.063 to 0.240 in (80% of 0.299 in).

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

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 workspace cutting surface.

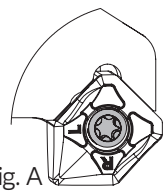


Fig. A

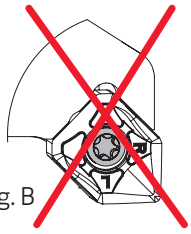
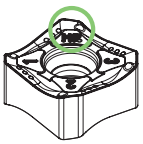
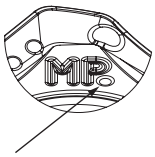


Fig. B

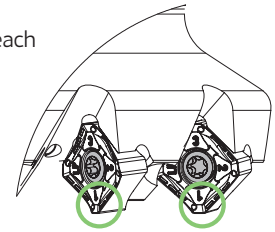
When using wiper insert, install the insert as shown on Fig. A if the insert is installed as shown on Fig. B breakage of the insert is inevitable and normal surface finish can not been obtained.





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.



PDF

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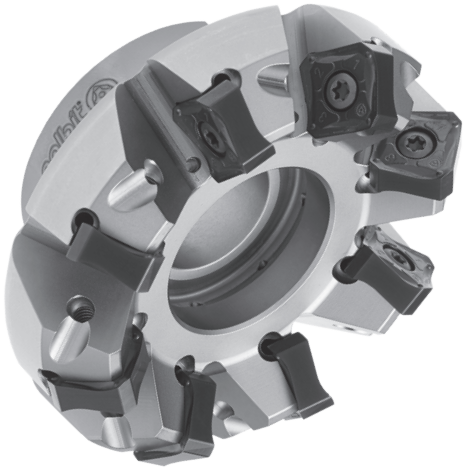
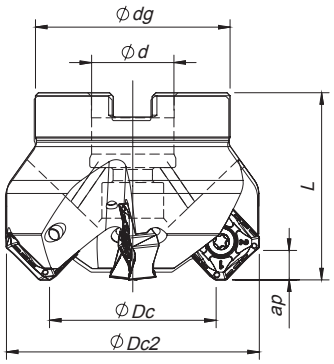
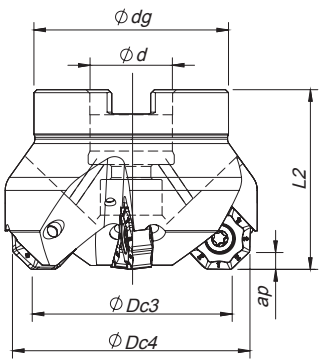
PLUS SN45-16







Arbor Mounting

K_r=45° | γ_p=-6°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)								lbs	Specifications		Insert Pastilha Inserto	Stock
			ØDc	ØDc2	ØDc3	ØDc4	Ød	Ødg	L	L2		Arbor Type	Ap (in)		
181102400	SN45 D2.50-A1.00/2.00-05-16	5	2.500	3.173	2.641	3.011	1.000	2.047	2.000	1.921	1.79	A	0.335|0.150	SN...16|ON...06	◈
181102500	SN45 D3.00-A1.00/2.00-06-16	6	3.000	3.673	3.141	3.511	1.000	2.362	2.000	1.921	2.40	A	0.335|0.150	SN...16|ON...06	◈
181102600	SN45 D3.00-A1.00/2.00-08-16	8	3.000	3.673	3.141	3.511	1.000	2.362	2.000	1.921	2.33	A	0.335|0.150	SN...16|ON...06	○
181138800	SN45 D4.00-A1.50/2.50-07-16	7	4.000	4.673	4.141	4.511	1.500	3.150	2.500	2.421	4.95	A	0.335|0.150	SN...16|ON...06	◈
181138900	SN45 D4.00-A1.50/2.50-10-16	10	4.000	4.673	4.141	4.511	1.500	3.150	2.500	2.421	4.85	A	0.335|0.150	SN...16|ON...06	○
181102700	SN45 D4.00-A1.25/2.00-07-16	7	4.000	4.673	4.141	4.511	1.250	3.150	2.000	1.921	5.02	A	0.335|0.150	SN...16|ON...06	◇
181102800	SN45 D4.00-A1.25/2.00-10-16	10	4.000	4.673	4.141	4.511	1.250	3.150	2.000	1.921	4.93	A	0.335|0.150	SN...16|ON...06	○
181102900	SN45 D5.00-A1.50/2.50-08-16	8	5.000	5.673	5.141	5.511	1.500	3.543	2.500	2.421	6.70	A	0.335|0.150	SN...16|ON...06	◈
181103000	SN45 D6.00-A2.00/2.50U-10-16	10	6.000	6.673	6.141	6.511	2.000	4.331	2.500	2.421	9.70	B	0.335|0.150	SN...16|ON...06	◈
181103100	SN45 D8.00-A2.50/2.50U-12-16	12	8.000	8.673	8.141	8.511	2.500	6.772	2.500	2.421	20.11	C	0.335|0.150	SN...16|ON...06	◈
181103200	SN45 D10.0-A2.50/2.50U-14-16	14	10.000	10.673	10.141	10.511	2.500	6.772	2.500	2.421	26.37	C	0.335|0.150	SN...16|ON...06	◈

◈ Stock item | Produto de stock | Itens de stock

○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)

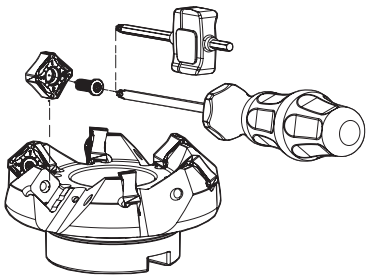
◇ Inventory maintained. To be replaced by new item. | Iten em stock. Será substituido por novo item | Iten en stock. Será reemplezado por nuevo iten.

SPARE PARTS | Acessórios | Repuestos

Order separately

Cutter ØDc	Insert Screw	Key (Torx)	Key (Torx - lbf/in)	Torque Value
				
SN45-A-16 - 2.50-3.00	P0451400	XT20	DT2050	44.3
SN45-A-16 - 4.00-10.00	P0451400	PT20	DT2050	44.3

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-231.
Check the procedures for the clamping screws on the page A-231.



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ONH(K)X 0606 | SNH(K)X 1606 | Inserts | Pastilhas | Plaquitas

ONH(K)X-LP



ONH(K)X-MP
(PHP grade)

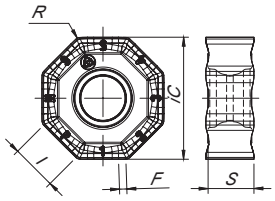


ONH(K)X-MK



PHP
NEW
GRADE

ONH(K)X-LP | MP | MK



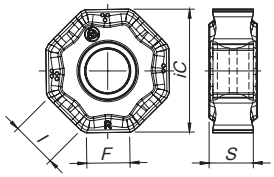
ONHX-W
(8 Cutting edges (4R + 4L))



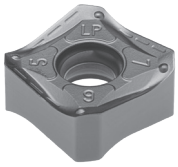
ONHX-LS
(PHH grade)
NEW



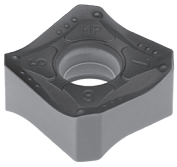
ONHX-W



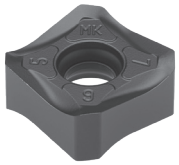
SNHX-LP



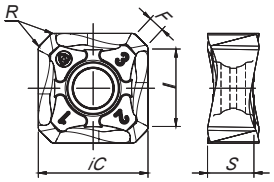
SNH(K)X-MP
(PHS grade)



SNH(K)X-MK



SNH(K)X-MK | LP | MP



		P						M			K							S			Dimensions Dimensões Dimensiones (in)				
		CVD	PVD					PVD			CVD			PVD					PVD							
	(2) Grade code	T9	G4	T1	P3	P4	G6	P3	X9	G6	L5	L6	L9	G4	T1	P3	P4	G6	P3	X9	G6					
(1) Geometry code	ISO Reference	PH5740	PH7920	PHP920	PH7930	PHP930	PH7740	PH7930	PHH930	PH7740	PH5705	PH5320	PH5740	PH7920	PHP920	PH7930	PHP930	PH7740	PH7930	PHH930	PH7740	iC	S	I	R	F
1111954	ONHX 0606 ANEN-LP			◉	△	◉	◉	△		◉					◉	△	◉	◉	△		◉	0.650	1/4	0.244	0.031	0.039
NEW 1112696	ONHX 0606 ANEN-LS	○					○		◉	○								○		◉	○	0.650	1/4	0.244	0.031	0.039
1111955	ONHX 0606 ANEN-MP			◉			◉			◉			○		◉			◉			◉	0.650	1/4	0.244	0.031	0.039
1111956	ONHX 0606 ANEN-MK										◉		◉									0.650	1/4	0.244	0.031	0.039
1112053	ONHX 0606 ANEN-W*		△	◉							◉			△	◉							0.650	1/4	0.244	-	0.236
1112284	ONKX 0606 ANEN-LP	○	△	◉	△	◉	◉	△	◉	◉		◉		△	◉	△	◉	◉	△	◉	◉	0.650	1/4	0.244	0.031	0.039
1112287	ONKX 0606 ANEN-MP	◉	△	◉			◉			◉				△	◉			◉			◉	0.650	1/4	0.244	0.031	0.039
1112291	ONKX 0606 ANEN-MK										◉		◉									0.650	1/4	0.244	0.031	0.039
1111951	SNHX 1606 ANER-LP			◉		◉	◉			◉			○		◉	○	◉	◉	○		◉	0.650	1/4	0.492	0.031	0.087
1111952	SNHX 1606 ANER-MP	◉		◉			◉			◉		○			◉			◉			◉	0.650	1/4	0.492	0.031	0.087
1111953	SNHX 1606 ANER-MK												◉									0.650	1/4	0.492	0.031	0.087
1112281	SNKX 1606 ANER-MP	◉	△	◉			◉			◉				△	◉			◉			◉	0.650	1/4	0.492	0.031	0.087
1112282	SNKX 1606 ANER-MK											◉	◉									0.650	1/4	0.492	0.031	0.087

◉ 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-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

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

* Wiper insert with 4 rights and 4 left-hand cutting edges.

PLUS SN45-16

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

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

ISO	PSM	Material	HB (Brinell)	Vc (SFM) ← Wear Resistance — Toughness →					
				PH5705	PH5320	PHP920	PH7920	PHP930	PHH930
P	1	Unalloyed Steel	125-220	-	-	590-820	590-788	525-755	-
	2	Low-Alloyed Steel	220-280	-	-	525-755	525-722	460-690	-
	3	High-Alloyed Steel	280-380	-	-	460-722	460-690	394-656	-
M	4	SS - Ferritic / Martensitic	200-330	-	-	-		-	460-690
	5	SS - Austenitic	200-330	-	-	-		-	394-558
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	-	-		-	328-492
K	7	Malleable Cast Iron	130-230	525-950	492-918	525-886	525-854	492-820	-
	8	Grey Cast Iron	180-245	558-1050	525-1050	460-820	460-788	460-755	-
	9	Nodular Cast iron	160-250	460-656	328-624	394-690	394-656	328-656	-
S	11	Heat Resistant Super Alloys	200-320	-	-	-	-	-	100-360

ISO	PSM	Material	HB (Brinell)	Vc (SFM) ← Wear Resistance — Toughness →				Feed fz (in/t)
				PH7930	PH5740	PHS740	PH7740	SNH(K)X/ONH(K)X
P	1	Unalloyed Steel	125-220	525-722	-	460-722	460-656	0.006-0.016
	2	Low-Alloyed Steel	220-280	460-656	-	394-656	426-590	0.006-0.016
	3	High-Alloyed Steel	280-380	394-624	-	328-624	328-558	0.006-0.016
M	4	SS - Ferritic / Martensitic	200-330	460-656	-	-	426-590	0.004-0.012
	5	SS - Austenitic	200-330	394-525	-	-	360-525	0.004-0.012
	6	SS - Austenitic-ferritic (Duplex)	230-260	328-460	-	-	-	0.004-0.012
K	7	Malleable Cast Iron	130-230	492-788	525-854	-	460-722	0.006-0.016
	8	Grey Cast Iron	180-245	460-755	460-788	-	394-690	0.006-0.016
	9	Nodular Cast iron	160-250	328-624	394-656	-	328-624	0.006-0.016
S	11	Heat Resistant Super Alloys	200-320	100-328	-	-	100-328	0.004-0.007

(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) PH5... and PHS... can be used wet or dry. PH7... use only air.

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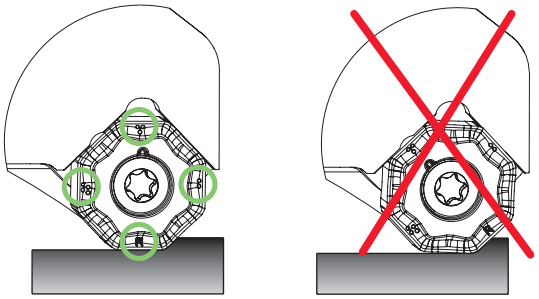
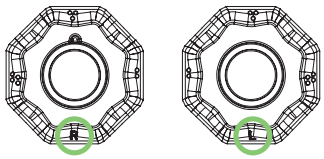
CHIPBREAKER SELECTION GUIDE | Guia para aplicações do quebra-aparas | Guía para aplicación del rompevirutas

ISO	PSM	Material	HB (Brinell)	Chipbreaker Application	
				1st choice	Alternative
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



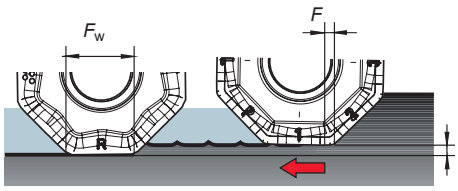
The points and letter (R or L) on the insert indicates the side that should be parallel to the workspace material.



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).

WIPER INSERTS

Recommended Cutting Conditions
- f_Z should be equal to 0,8 x F_W / Z
- Axial depth of cut is 0.020 to 0.031 in.



Example:
- The width of the parallel land (F) of the insert is 0.039 in.
- To obtain a good surface finishing, the feed per revolution should be a maximum of 80% of 0.039 in = 0.031 in.
- The wiper insert will have a parallel land (F_W) with a width of 0.236 in.
- Result: Feed per revolution (f_n) could be increased from 0.031 to 0.189 in (80% of 0.236 in).

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

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 workspace cutting surface.
- The points and the letter (R or L) on the insert indicates the side that should be parallel to the worspace material.
- The side work of the insert it's indicated by the letter (R - Right & L - Left).

PDF

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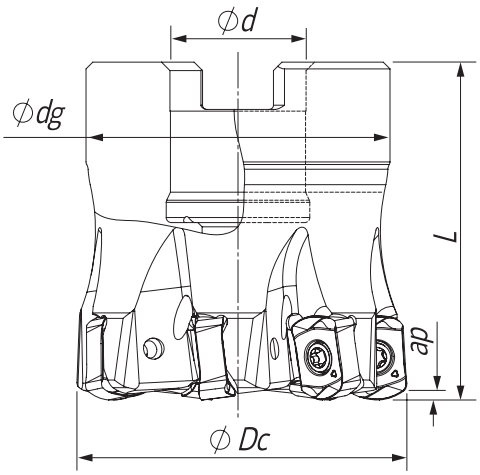
TETRAFEED XN20-06

NEW





Arbor Mounting

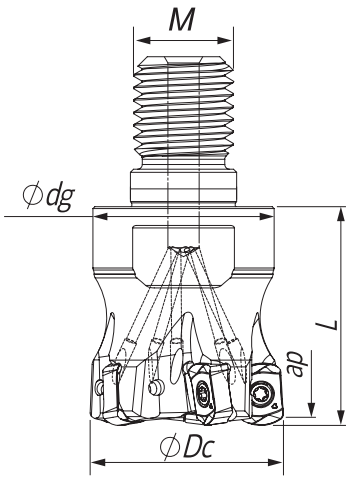
K_r=20° | γ_p=-7° | Rp=0.071

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)				lbs	Specifications		Insert	Stock
			ØDc	Ød/M	Ødg	L		Ap max (in)	Arbor Type		
181169900	XN20 D1.50-A.500/1.50-07-06	7	1.500	0.500	1.417	1.500	0.434	0.040	A	XNKU 06...	◈
181170000	XN20 D2.00-A.750/1.50-08-06	8	2.000	0.750	1.772	1.500	0.725	0.040	A	XNKU 06...	◈
181170100	XN20 D2.50-A1.00/1.50-09-06	9	2.500	1.000	2.205	1.500	1.100	0.040	A	XNKU 06...	○

◈ Stock item | Produto de stock | Itens de stock

○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)





Threaded Coupling

K_r=20° | γ_p=-7° | Rp=0.071

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)				lbs	Specifications	Insert	Stock
			ØDc	Ød/M	Ødg	L		Ap max (in)		
181169400	XN20 D.625-R-08/.984-02-06	2	0.625	M8	0.580	0.985	0.050	0.040	XNKU 06...	◈
181169500	XN20 D.750-R-10/1.18-03-06	3	0.750	M10	0.730	1.180	0.090	0.040	XNKU 06...	◈
181169600	XN20 D1.00-R-12/1.18-04-06	4	1.000	M12	0.905	1.180	0.145	0.040	XNKU 06...	◈
181169700	XN20 D1.25-R-16/1.38-05-06	5	1.250	M16	1.180	1.380	0.340	0.040	XNKU 06...	◈
181169800	XN20 D1.50-R-20/1.58-06-06	6	1.500	M20	1.440	1.575	0.455	0.040	XNKU 06...	◈

◈ Stock item | Produto de stock | Itens de stock

○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)

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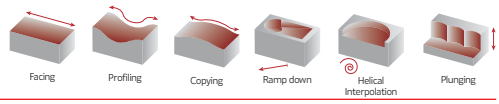
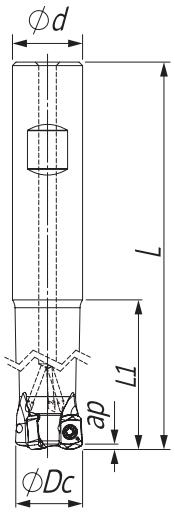






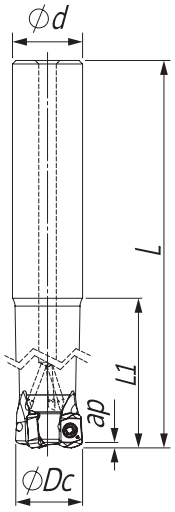
Weldon Shank

K_r=20° | γ_p=-7° | Rp=0.071

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)				lbs	Specifications	Insert	Stock
			ØDc	Ød/M	L	L1		Ap max (in)		
181170200	XN20 D.625-W.625/3.50-02-06	2	0.625	0.625	3.500	1.250	0.224	0.040	XNKU 06...	◎
181170300	XN20 D.750-W.750/4.00-03-06	3	0.750	0.750	4.000	1.750	0.372	0.040	XNKU 06...	◎
181170400	XN20 D1.00-W1.00/5.00-04-06	4	1.000	1.000	5.000	2.500	0.782	0.040	XNKU 06...	◎
181170500	XN20 D1.25-W1.25/5.00-05-06	5	1.250	1.250	5.000	2.500	1.316	0.040	XNKU 06...	◎

◎ Stock item | Produto de stock | Itens de stock
○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)





Cylindrical Shank

K_r=20° | γ_p=-7° | Rp=0.071

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)				lbs	Specifications	Insert	Stock
			ØDc	Ød/M	L	L1		Ap max (in)		
181170600	XN20 D.625-C.625/6.00-02-06	2	0.625	0.625	6.000	2.000	0.458	0.040	XNKU 06...	◎
181170700	XN20 D.750-C.750/6.50-03-06	3	0.750	0.750	6.500	2.950	0.632	0.040	XNKU 06...	◎
181170800	XN20 D1.00-C1.00/7.00-04-06	4	1.000	1.000	7.000	4.000	1.106	0.040	XNKU 06...	◎
181170900	XN20 D1.25-C1.25/8.00-05-06	5	1.250	1.250	8.000	5.000	2.074	0.040	XNKU 06...	◎
181171000	XN20 D1.50-C1.50/5.00-06-06	6	1.500	1.500	5.000	2.250	1.973	0.040	XNKU 06...	◎

◎ Stock item | Produto de stock | Itens de stock
○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)

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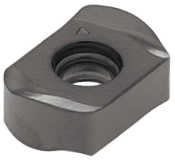
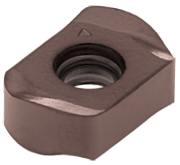
TETRAFEED XN20-06 NEW

XNKU 06T3... | Inserts | Pastilhas | Plaquitas

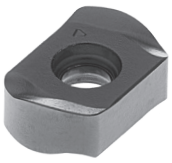
XNKU-MP (PHP grade)



XNKU-MP (PHH grade)

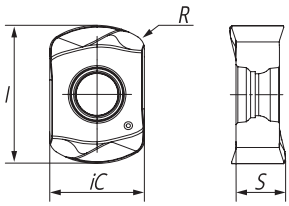


XNKU-MP (PHS grade)





XNKU-MP



		P					M				K		S			Dimensions Dimensões Dimensiones (in)			
		CVD	PVD				CVD	PVD			CVD	PVD	CVD	PVD					
	(2) Grade code	T9	G4	T1	X9	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	iC	S	I	R
1112802	XNKU 06T310-MP	◉	◉	◉	○	◉	◉	◉	◉	◉	◉	◉	◉	◉	◉	0.270	0.140	0.400	0.040

◉ First choice | Primeira opção | 1ª opción ◉ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

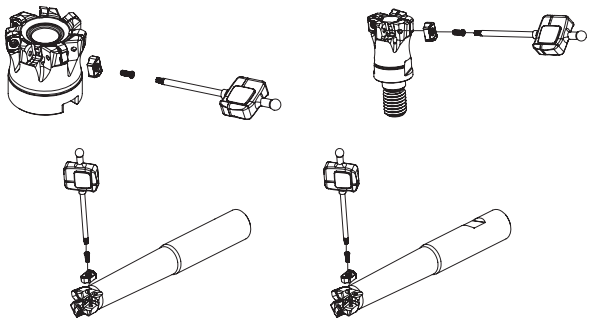
Insert order code = (1) Geometry Code + (2) Grade Code

SPARE PARTS | Acessórios | Repuestos

Order separately

Cutter ØDc	Insert Screw	Key (Torx)	Key (Torx - lbf/in)	Torque Value
				
XN-A-06 - 1.500-2.500	P0250704	XT08	DT0812	10.6
XN-R-06 - 0.625-1.500	P0250704	XT08	DT0812	10.6
XN-W-06 - 0.265-1.250	P0250704	XT08	DT0812	10.6
XN-C-06 - 0.625-1.500	P0250704	XT08	DT0812	10.6

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-231.
Check the procedures for the clamping screws on the page A-231.



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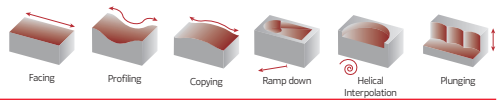

GRADES SELECTION GUIDE | Guia para selecção de graus | Tabla para selección de calidades

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance — Toughness → PHP910	PHP920	PHP930	PHH930	PHP530	PHH530	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

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

ISO	PSM	Material	HB (Brinell)	Vc (SFM) ← Wear Resistance — Toughness → PHP910	PHP920	PHP930	PHH930	PHP530	PHH530	PHS740	Feed fz (in/t) XNKU 06...-MP
P	1	Unalloyed Steel	125-220	590-820	590-820	525-755	-	590-1115	-	525-755	0.020-0.060
	2	Low-Alloyed Steel	220-280	525-790	560-690	490-625	-	590-1115	-	490-620	0.020-0.060
	3	High-Alloyed Steel	280-380	460-755	525-655	460-590	-	590-1082	-	460-590	0.020-0.060
M	4	SS - Ferritic / Martensitic	200-330	-	-	-	425-560	492-886	558-918	395-590	0.020-0.055
	5	SS - Austenitic	200-330	-	-	-	330-525	-	525-918	330-490	0.020-0.055
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	-	-	260-455	-	492-854	230-420	0.020-0.055
K	7	Malleable Cast Iron	130-230	590-985	590-1050	-	-	-	-	525-985	0.020-0.060
	8	Grey Cast Iron	180-245	525-820	560-920	-	-	-	-	490-850	0.020-0.060
	9	Nodular Cast iron	160-250	490-690	330-790	-	-	-	-	260-720	0.020-0.060
S	11	Heat Resistant Super Alloys	200-320	-	-	-	100-245	-	100-492	100-230	0.020-0.050

(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 ØDc=0.625in apply 70% or less feed (fz) from the table.

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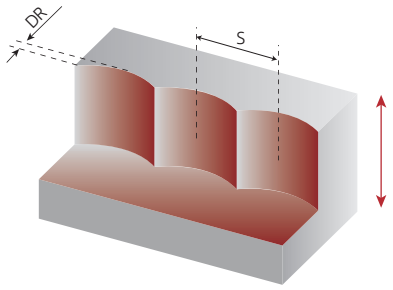
TETRAFEED XN20-06

NEW

PLUNGING | Mergulho | Plunge

L≤3Dc	L>3Dc	S max.
f_z (in/t)		
0.003-0.006	0.002-0.004	$Smax = \sqrt{DC.Dr-Dr^2}$

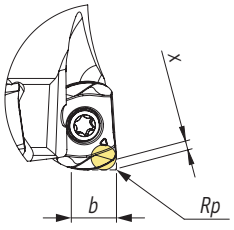


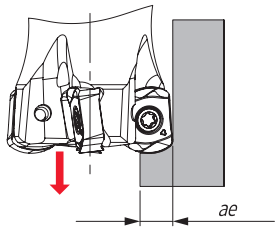
S max and DR corresponding cutting diameter Dc (in)							
DR (in)	Dc (in)						
	0.625	0.750	1.000	1.250	1.500	2.000	2.500
0.040	0.155	0.170	0.195	0.220	0.240	0.280	0.315
0.080	0.210	0.230	0.270	0.305	0.335	0.390	0.440
0.120	0.245	0.275	0.325	0.370	0.405	0.475	0.535

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

PROGRAMMING DATA | Dados para programação | Datos para la programación

Insert	Programming Data			
	Rp	X	b	a_e
XNKU 06T310-MP	0.070	0.015	0.140	0.135





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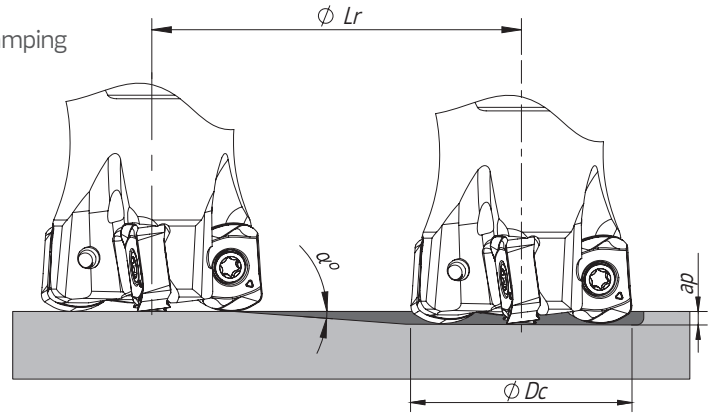
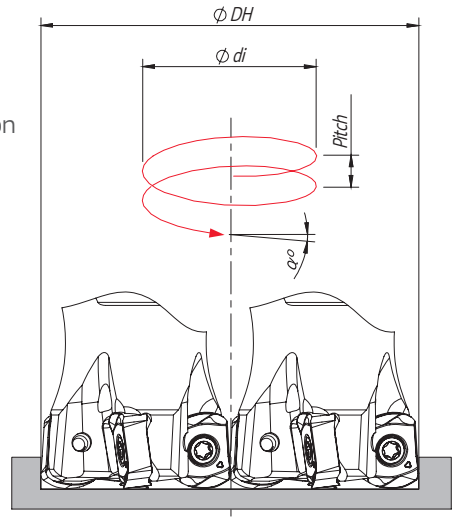
RAMPING AND HELICAL INTERPOLATION

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

Ramping



Helical Interpolation



Blind hole
Flat bottom

Ødi = ØDH - ØDc

ØDc	Ramping			Helical Interpolation		
	Max Ramp a°	Max a_p	Min Lr	ØDHmin	ØDHmax	Max Pitch/Rev.
0.625	0.5	0.040	4.510	0.970 -	- 1.171	0.009 0.014
0.750	0.5	0.040	4.510	1.220 -	- 1.421	0.012 0.018
1.000	0.8	0.040	2.820	1.720 -	- 1.921	0.030 0.040
1.250	0.8	0.040	2.820	2.220 -	- 2.421	0.040 0.040
1.500	0.4	0.040	5.635	2.720 -	- 2.921	0.026 0.030
2.000	0.3	0.040	7.520	3.720 -	- 3.921	0.028 0.030
2.500	0.25	0.040	9.025	4.720 -	- 4.921	0.030 0.033

Note: During helical interpolation do not exceed max Pitch.
(*) 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.

PDF VIDEO

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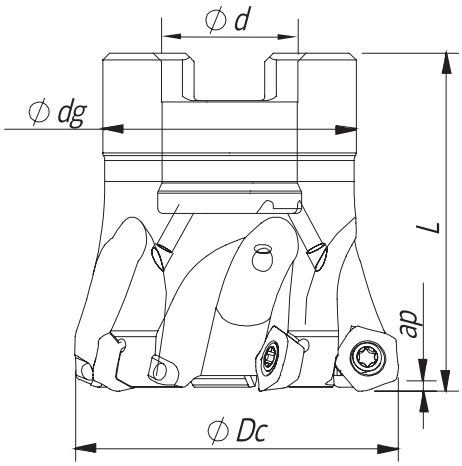


Arbor Mounting

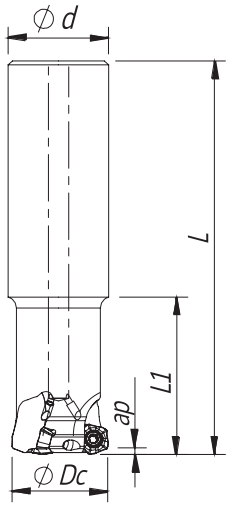
K_r=20° | γ_p=14° | Rp=2,5

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Specifications		Insert	Stock
			ØDc	Ød	Ødg	L		Ap max (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-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)





Cylindrical Shank

K_r=20° | γ_p=14° | Rp=2,5

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Specifications	Insert	Stock
			ØDc	Ød	L	L1		Ap max (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	50	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-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)

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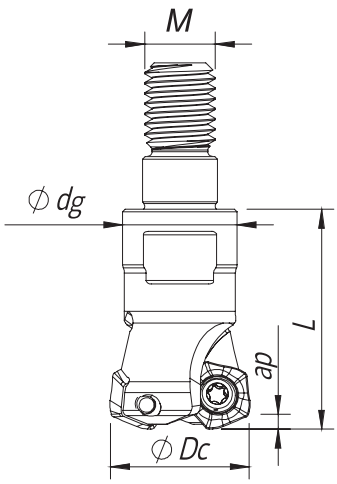


Threaded Coupling

K_r=20° | γ_p=14° | Rp=2,5

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Specifications	Insert	Stock
			ØDc	ØM	Ødg	L		Ap max (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...	◉

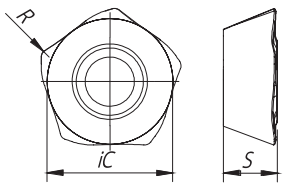
◉ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)

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	R
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-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

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

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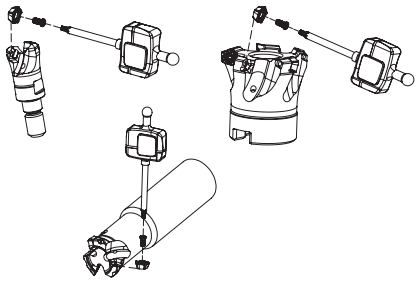
PENTA HIFEED 06320 NEW

SPARE PARTS Acessórios | Repuestos

Cutter ØDc	Insert Screw	Key (Torx)	Key (Torx - lbf/in) Order separately	Torque Value	Screw Order separately	DIN 6368 Wrench
R06320 - 16-42	P0250503	XT08	DT0812	10.6	-	-
E06320 - 25-40	P0250503	XT08	DT0812	10.6	-	-
A06320 - 40-60	P0250503	XT08	DT0812	10.6	-	-



Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-231.
Check the procedures for the clamping screws on the page A-231.

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

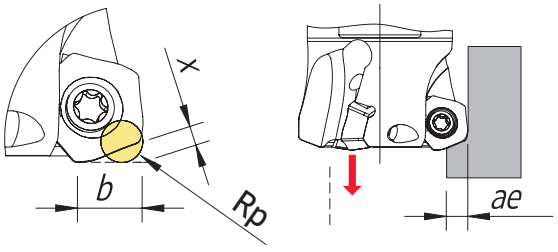
ISO	PSM	Material	HB (Brinell)	Vc (SFM) ← Wear Resistance Toughness → PH7910	PH7920	PH7930	PH7740	Feed fz (in/t) POKT 04...-MP
P	1	Unalloyed Steel	125-220	591-820	591-788	525-722	460-656	0.020-0.060
	2	Low-Alloyed Steel	220-280	525-755	525-722	460-656	427-591	0.020-0.060
	3	High-Alloyed Steel	280-380	460-722	460-689	394-624	328-558	0.020-0.060
K	7	Malleable Cast Iron	130-230	591-984	525-853	-	-	0.020-0.061
	8	Grey Cast Iron	180-245	525-820	460-788	-	-	0.020-0.061
	9	Nodular Cast iron	160-250	492-656	394-656	-	-	0.020-0.062

(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) PH5... and PHS... can be used wet or dry. PH7... use only air.

PROGRAMMING DATA | Dados para programação | Datos para la programación

Insert	Programming Data Rp	X	b	a_e
POKT 0403...	0.098	0.047	0.169	0.157



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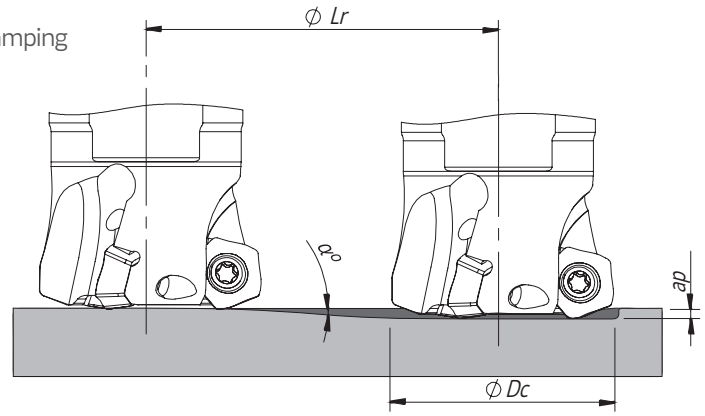
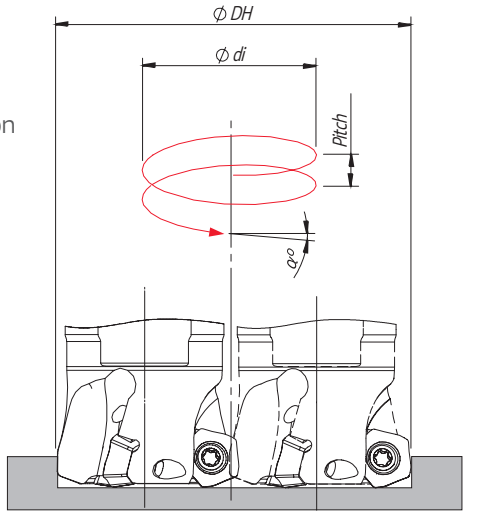
RAMPING AND HELICAL INTERPOLATION

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

Ramping



Helical Interpolation



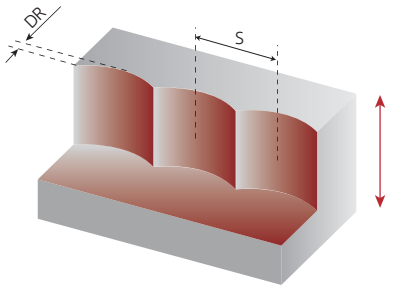
Ødi = ØDH - ØDc

ØDc (mm)	Ramping (in)			Helical Interpolation (in)		
	Max Ramp a°	Max a_p	Min Lr	ØDHmin	ØDHmax	Max Pitch/Rev.
16	15	0.039	0.146	0.921 -	- 1.181	0.236 0.433
20	9,0	0.039	0.248	1.236 -	- 1.496	0.197 0.315
25	5,0	0.039	0.449	1.630 -	- 1.890	0.157 0.236
32	3,4	0.039	0.661	2.181 -	- 2.441	0.157 0.197
35	3,0	0.039	0.752	2.417 -	- 2.677	0.157 0.197
40	2,0	0.039	1.126	2.811 -	- 3.071	0.118 0.157
42	2,0	0.039	1.126	3.307 -	- 3.228	0.157 0.157
50	2,0	0.039	1.126	3.598 -	- 3.858	0.157 0.197
52	2,0	0.039	1.126	3.756 -	- 4.016	0.157 0.197
63	2,0	0.039	1.126	4.622 -	- 4.882	0.197 0.236
66	1,8	0.039	1.252	4.858 -	- 5.118	0.197 0.236

Note: During helical interpolation do not exceed max Pitch.

PLUNGING | Mergulho | Plunge

L≤3Dc	L>3Dc	S max.
f_z (in/t)		
0.004-0.006	0.002-0.004	$Smax = \sqrt{DC.Dr-Dr^2}$



S max and DR corresponding cutting diameter Dc (in)											
DR (in)	Dc (mm)										
	16	20	25	32	35	40	42	50	52	63	66
0.039	0.154	0.173	0.193	0.224	0.228	0.244	0.252	0.276	0.280	0.311	0.319
0.079	0.209	0.236	0.268	0.106	0.319	0.343	0.350	0.386	0.394	0.433	0.445
0.118	0.244	0.280	0.319	0.366	0.386	0.413	0.425	0.469	0.476	0.528	0.539
0.157	0.272	0.315	0.362	0.417	0.437	0.472	0.484	0.535	0.547	0.606	0.618

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

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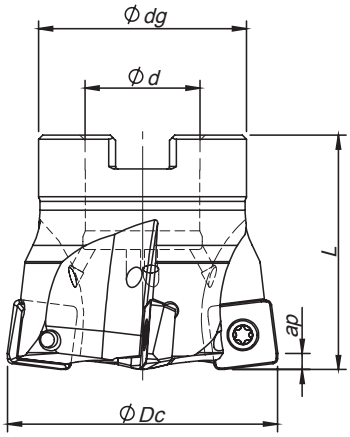


Arbor Mounting

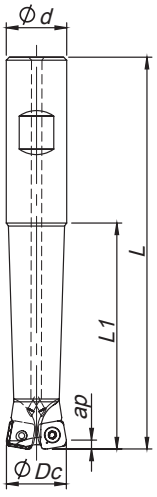
K_r=10° | γ_p=+2° | γ_f=+2° | R_p=0.079

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

◈ Stock item | Produto de stock | Itens de stock

◯ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)





Weldon Shank

K_r=10° | γ_p=+2° | γ_f=+2° | R_p=0.079

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

◈ Stock item | Produto de stock | Itens de stock

◯ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)

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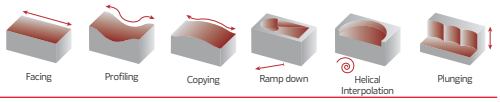
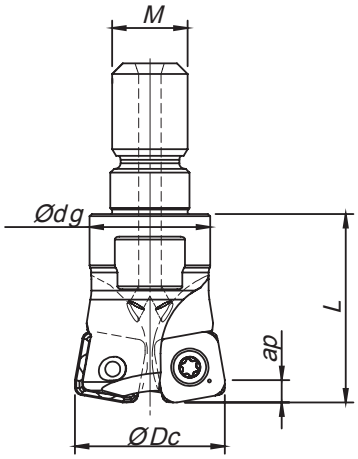






Threaded Coupling

K_r=10° | γ_p=+2° | γ_f=+2° | R_p=0.079

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

◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)

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

SOEW

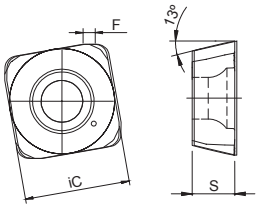


SOET

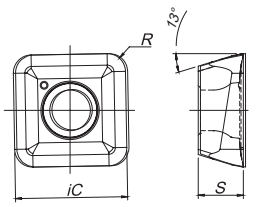


PHP NEW GRADE

SOEW



SOET



(1) Geometry code	ISO Reference	P PVD (2) Grade code X5 PHP910	P PVD T1 PHP920	P PVD G6 PH7740	M PVD X9 PHH930	M PVD G6 PH7740	K PVD X5 PHP910	K PVD T1 PHP920	K PVD G6 PH7740	S PVD X9 PHH930	S PVD G6 PH7740	Dimensions Dimensões Dimensiones (in) iC	S	R	F
1111884	SOEW 080310 S	◈	◈				◈	◈				0.339	0.137	0.039	0.039
1112149	SOET 080315-MS			◈	◈	◈			◈	◈	◈	0.339	0.137	0.059	-

◈ First choice | Primeira opção | 1ª opción ◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

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

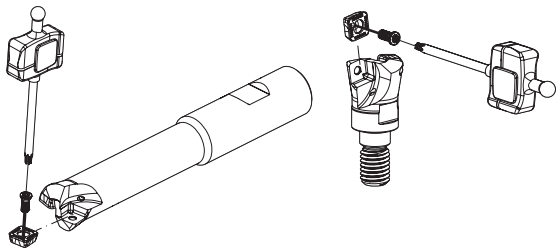
HIFEED SO10-08

SPARE PARTS | Acessórios | Repuestos

Order seperately

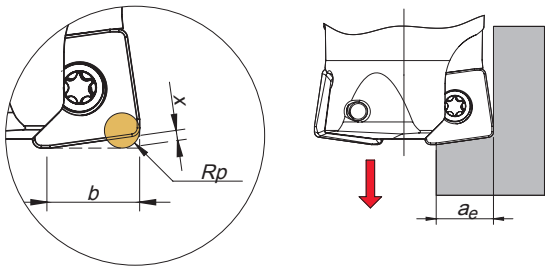
Cutter ØDc	Insert Screw	Key (Torx)	Key (Torx - lbf/in)	Torque Value
			lbf/in	lbf/in
SO10-W-08 - 0.75-1.25	P0300800	XT09	DT0914	12.4
SO10-R-08 - 0.75-1.25	P0300800	XT09	DT0914	12.4
SO10-A-08 - 1.50-2.00	P0300800	XT09	DT0914	12.4

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-231.
Check the procedures for the clamping screws on the page A-231.



PROGRAMMING DATA | Dados para programação | Datos para la programación

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



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

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

ISO	PSM	Material	HB (Brinell)	Vc (SFM) ← Wear Resistance Toughness →				Feed fz (in/t)	
				PHP910	PHP920	PHH930	PH7740	SOEW 08...	SOET 08...
P	1	Unalloyed Steel	125-220	590-820	590-820	-	460-656	0.015-0.070	0.015-0.070
	2	Low-Alloyed Steel	220-280	525-788	525-755	-	426-590	0.015-0.070	-
	3	High-Alloyed Steel	280-380	460-755	460-722	-	328-558	0.015-0.060	-
M	4	SS - Ferritic / Martensitic	200-330	-	-	460-690	426-590	-	0.015-0.050
	5	SS - Austenitic	200-330	-	-	394-558	360-525	-	0.015-0.050
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	-	328-492	-	-	0.004-0.040
K	7	Malleable Cast Iron	130-230	590-1004	525-886	-	460-722	0.015-0.070	0.015-0.070
	8	Grey Cast Iron	180-245	525-820	460-820	-	394-690	0.015-0.070	-
	9	Nodular Cast iron	160-250	492-690	394-690	-	328-624	0.015-0.070	-
S	11	Heat Resistant Super Alloys	200-320	-	-	100-360	100-328	-	0.015-0.040

(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) PH5... and PHS... can be used wet or dry. PH7... use only air.

(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.

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

ISO	PSM	Material	HB (Brinell)	Chipbreaker Application	
				1st choise	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...	-

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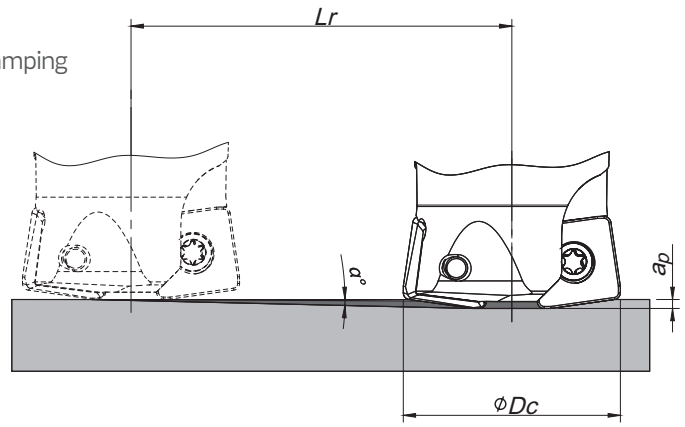
HIFEED SO10-08

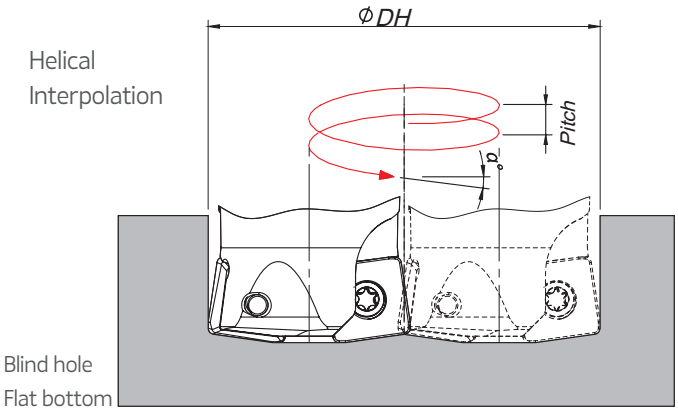
RAMPING AND HELICAL INTERPOLATION

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

Ramping



Helical Interpolation



Blind hole
Flat bottom

Ødi = ØDH - ØDc

ØDc	Ramping			Helical Interpolation		
	Max Ramp a°	Max a_p	Min Lr	ØDHmin	ØDHmax	Max Pitch/Rev.
0.750	15.0	0.039	0.146	0.964 -	- 1.421	0.039 0.039
1.000	9.5	0.039	0.233	1.464 -	- 1.921	0.039 0.039
1.250	5.5	0.039	0.405	1.964 -	- 2.421	0.039 0.039
1.500	4.0	0.039	0.558	2.464 -	- 2.921	0.039 0.039
2.000	2.5	0.039	0.893	3.464 -	- 3.921	0.039 0.039

Note: During helical interpolation do not exceed max Pitch.

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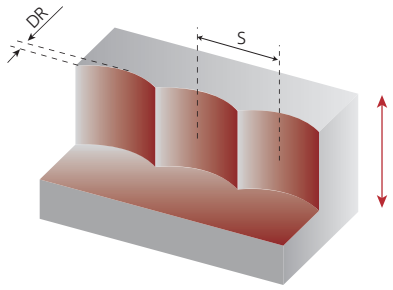
PLUNGING | Mergulho | Plunge

L≤3Dc	L>3Dc	S max.
f_z (in/t)		
0.004-0.006	0.002-0.004	$Smax = \sqrt{DC.DR-DR^2}$



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

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

PDF

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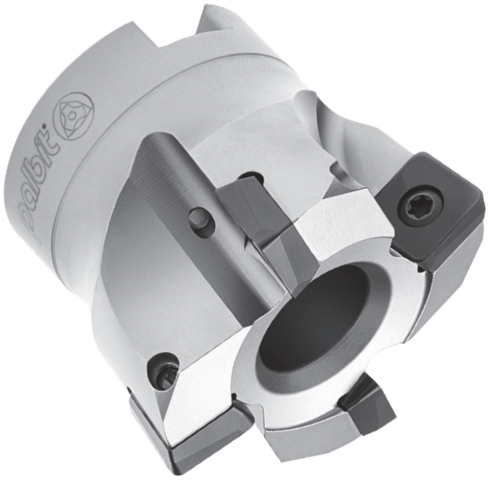
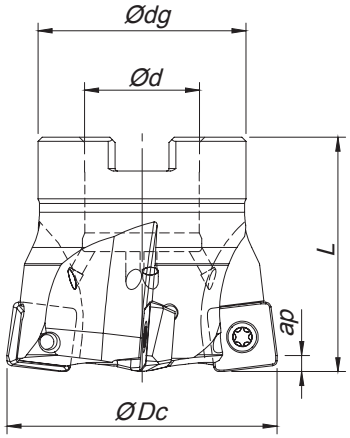
HIFEED SO10-13





Arbor Mounting

K_r=10° | γ_p=+5° | R_p=2,5

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

◎ Stock item | Produto de stock | Itens de stock

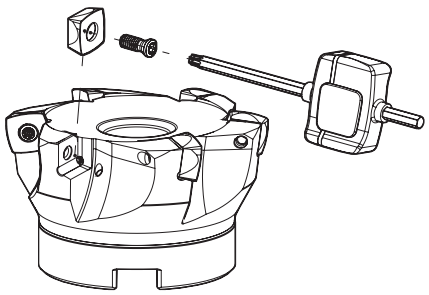
○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)

SPARE PARTS | Acessórios | Repuestos

Order separately

Cutter ØDc	Insert Screw	Key (Torx)	Key (Torx - lbf/in)	Torque Value
			lbf/in	lbf/in
SO10-A-13 - 2.00-3.00	P0401200	XT15	DT1530	26.6
SO10-A-13 - 4.00	P0401200	PT15	DT1530	26.6

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-231.
Check the procedures for the clamping screws on the page A-231.



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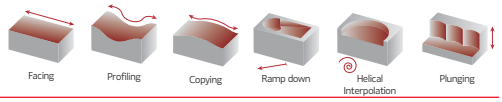


SO...13M5... | Inserts | Pastilhas | Plaquitas

SOEW



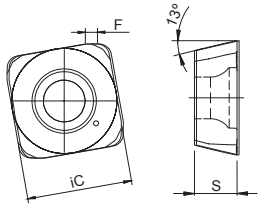
SOEW-MD NEW



PHH NEW GRADE

PHP NEW GRADE

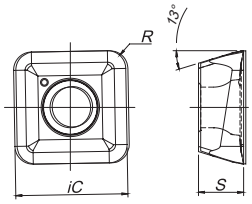
SOEW | SOEW-MD



SOET



SOET



		P			M		K			S		Dimensions Dimensões Dimensiones (in)			
		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	R	F
1111906	SOEW 13M510 S	◈	◈	◈			◈	◈	◈			0.489	0.197	0.047	0.039
NEW 1112813	SOEW 13M510-MD		◈					◈				0.489	0.197	0.047	0.039
1112147	SOET 13M520-MS	○		◈	◈	◈			◈	◈	◈	0.489	0.197	0.079	-

◈ First choice | Primeira opção | 1ª opción ◈ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

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

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HIFEED SO10-13

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 (SFM) ← Wear Resistance — Toughness → PHP910	PHP920	PHH930	PH7740	Feed fz (in/t) SOEW S	SOEW MD	SOET MS
P	1	Unalloyed Steel	125-220	590-820	590-820	-	460-656	0.020-0.082	0.020-0.088	0.020-0.082
	2	Low-Alloyed Steel	220-280	525-788	525-755	-	426-590	0.020-0.082	0.020-0.088	-
	3	High-Alloyed Steel	280-380	460-755	460-722	-	328-558	0.020-0.080	0.020-0.082	-
M	4	SS - Ferritic / Martensitic	200-330	-	-	460-690	426-590	-	-	0.020-0.070
	5	SS - Austenitic	200-330	-	-	394-558	360-525	-	-	0.020-0.070
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	-	328-492	-	-	-	0.020-0.060
K	7	Malleable Cast Iron	130-230	590-1004	525-886	-	460-722	0.020-0.082	0.020-0.088	0.020-0.082
	8	Grey Cast Iron	180-245	525-820	460-820	-	394-690	0.020-0.082	0.020-0.088	-
	9	Nodular Cast iron	160-250	492-690	394-690	-	328-624	0.020-0.082	0.020-0.088	-
S	11	Heat Resistant Super Alloys	200-320	-	-	100-360	100-328	-	-	0.016-0.050

(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.

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

ISO	PSM	Material	HB (Brinell)	Chipbreaker Application	
				1st choise	Dificult Operations
P	1	Unalloyed Steel	125-220	SOEW-MD	SOEW-S
	2	Low-Alloyed Steel	220-280	SOEW-MD	SOEW-S
	3	High-Alloyed Steel	280-380	SOEW-MD	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-MD	SOEW-S
	9	Nodular Cast iron	160-250	SOEW-MD	SOEW-S
S	11	Heat Resistant Super Alloys	200-320	SOET-MS	-

PROGRAMMING DATA | Dados para programação | Datos para la programación

Insert	Programming Data			
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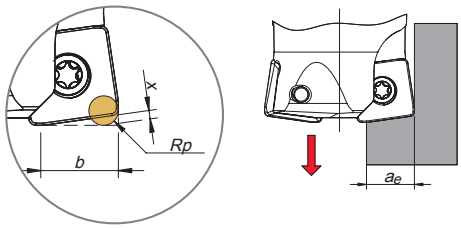
SO... 13M5..	0.098	0.043	0.038	0.394



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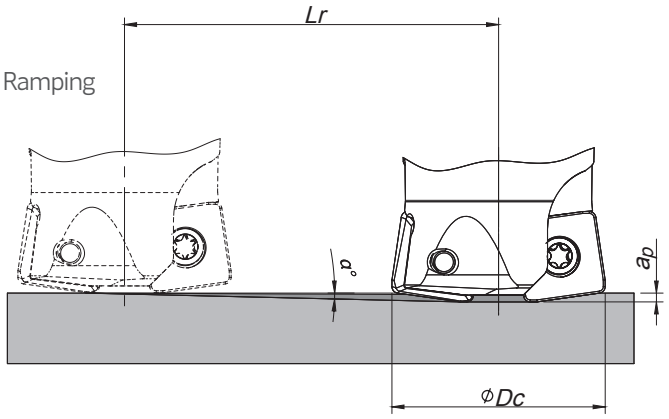
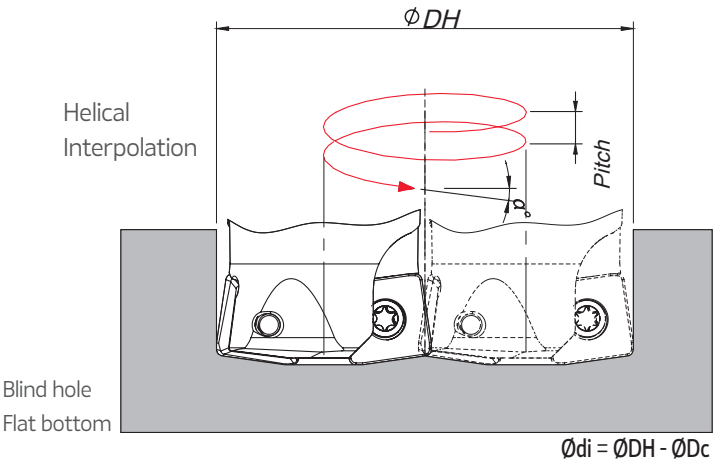
RAMPING AND HELICAL INTERPOLATION

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





Ødi = ØDH - ØDc

ØDc	Ramping			Helical Interpolation		
	Max Ramp a°	Max a_p	Min Lr	ØDHmin	ØDHmax	Max Pitch/Rev.
2.000	4.3	0.059	0.785	3.924 -	- 3.921	0.059 0.059
2.500	3.0	0.059	1.126	4.924 -	- 4.921	0.059 0.059
3.000	2.0	0.059	1.690	5.924 -	- 5.921	0.059 0.059
4.000	0.7	0.059	4.829	7.924 -	- 7.921	0.059 0.059

Note: During helical interpolation do not exceed max Pitch.

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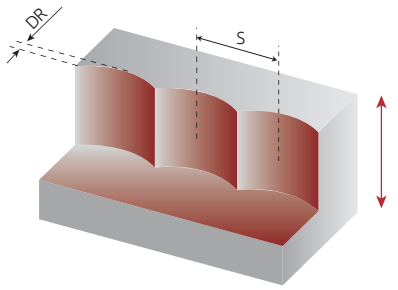
PLUNGING | Mergulho | Plunge

L≤3Dc	L>3Dc	S max.
f_z (in/t)		
0.004-0.008	0.003-0.006	$Smax = \sqrt{DC.DR-DR^2}$



S max and DR corresponding cutting diameter Dc (in)				
DR (mm)	Dc (in)			
	2.000	2.500	3.000	4.000
0.039	0.277	0.310	0.340	0.393
0.079	0.390	0.437	0.480	0.557
0.118	0.471	0.530	0.583	0.677
0.157	0.538	0.607	0.668	0.777
0.197	0.596	0.674	0.743	0.866
0.236	0.645	0.731	0.808	0.942
0.276	0.690	0.783	0.867	1.014
0.315	0.729	0.830	0.920	1.077
0.354	0.763	0.872	0.968	1.136
0.394	0.795	0.911	1.013	1.192

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

PDF VIDEO

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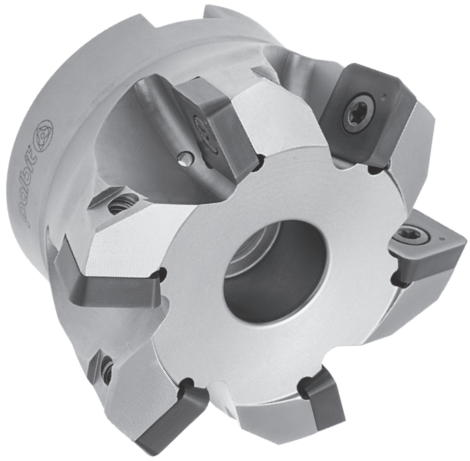
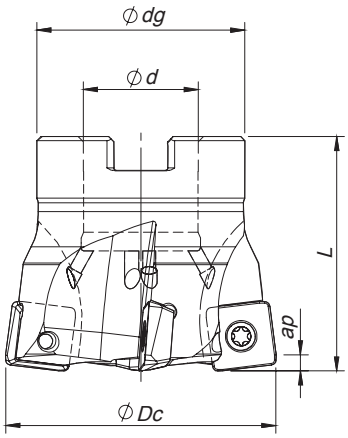
HIFEED SO15-16





Arbor Mounting

K_r=15° | γ_p=+2° | R_p=4,5

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

◈ Stock item | Produto de stock | Itens de stock

○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)

△ Inventory maintained. To be replaced by new item. | Iten em stock. Será substituido por novo item | Iten en stock. Será reemplezado por nuevo iten.

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

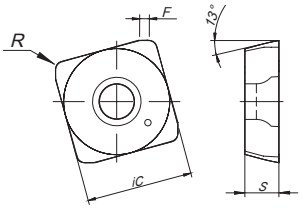
SOEW



PHH NEW GRADE

PHP NEW GRADE

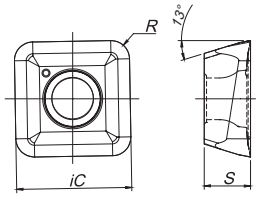
SOEW



SOET



SOET



(1) Geometry code	ISO Reference	P PVD (2) Grade code X5 PHP910	P PVD T1 PHP920	P PVD G6 PH7740	M PVD X9 PHH930	M PVD G6 PH7740	K PVD X5 PHP910	K PVD T1 PHP920	K PVD G6 PH7740	S PVD X9 PHH930	S PVD G6 PH7740	Dimensions Dimensões Dimensiones (in) iC	S	R	F
1111907	SOEW 160512 S	◈	◉	◈		◈	◈	◉	◈			0.646	0.207	0.047	0.059
1112221	SOET 160520-MS			◈	◉	◈			◈	◉	◈	0.646	0.207	0.079	-

◉ First choice | Primeira opção | 1ª opción

◈ Stock item | Produto de stock | Itens de stock

○ Available under request (see page A-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

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

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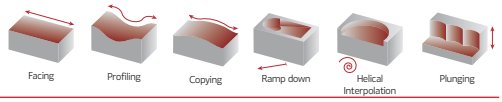
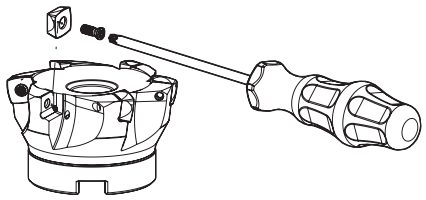


SPARE PARTS | Acessórios | Repuestos

Order separately

Cutter ØDc	Insert Screw	Key (Torx)	Key (Torx - lbf/in)	Torque Value
				
SO15-A-16 - 2.50-6.00	P0501302	PT20	DT2050	44.3

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-231.
Check the procedures for the clamping screws on the page A-231.



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 (SFM) ← Wear Resistance — Toughness → PHP910	PHP920	PHH930	PH7740	Feed fz (in/t) SOEW S	SOET MS
P	1	Unalloyed Steel	125-220	590-820	590-820	-	460-656	0.020-0.082	0.020-0.088
	2	Low-Alloyed Steel	220-280	525-788	525-755	-	426-590	0.020-0.082	0.020-0.088
	3	High-Alloyed Steel	280-380	460-755	460-722	-	328-558	0.020-0.080	0.020-0.070
M	4	SS - Ferritic / Martensitic	200-330	-	-	460-690	426-590	-	0.020-0.070
	5	SS - Austenitic	200-330	-	-	394-558	360-525	-	0.020-0.070
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	-	328-492	-	-	0.020-0.060
K	7	Malleable Cast Iron	130-230	590-1004	525-886	-	460-722	0.020-0.082	0.020-0.080
	8	Grey Cast Iron	180-245	525-820	460-820	-	394-690	0.020-0.082	0.020-0.080
	9	Nodular Cast iron	160-250	492-690	394-690	-	328-624	0.020-0.082	0.020-0.070
S	11	Heat Resistant Super Alloys	200-320	-	-	100-360	100-328	-	0.015-0.050

(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) PH5... and PHS... can be used wet or dry. PH7... use only air.

(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.

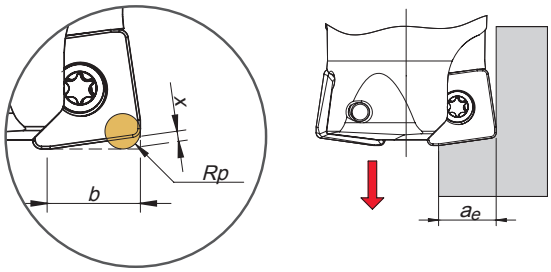
HIFEED SO15-16

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

ISO	PSM	Material	HB (Brinell)	Chipbreaker Application	
				1st choise	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...	-

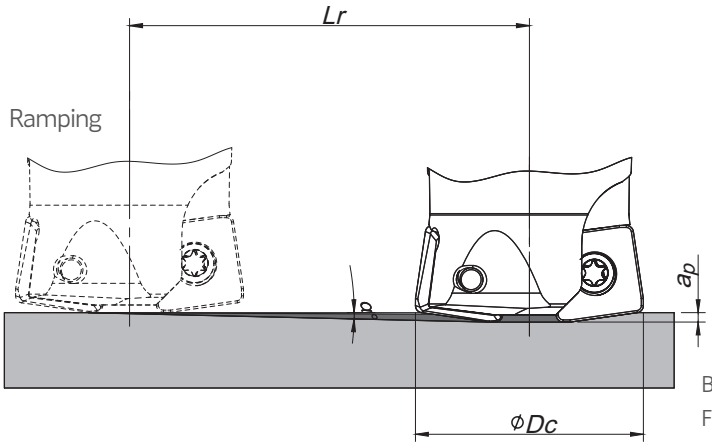
PROGRAMMING DATA | Dados para programação | Datos para la programación

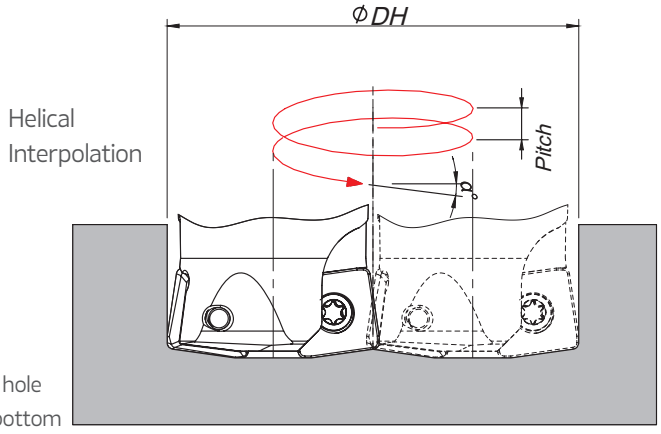
Insert	Programming Data			
	Rp	X	b	a_e
SO... 1605..	0.177	0.091	0.531	0.504



RAMPING AND HELICAL INTERPOLATION

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





Ødi = ØDH - ØDc

ØDc	Ramping			Helical Interpolation		
	Max Ramp a°	Max a_p	Min Lr	ØDHmin	ØDHmax	Max Pitch/Rev.
2.500	3.5	0.138	2.256	3.938 -	- 4.921	0.138 0.138
3.000	2.0	0.138	3.952	4.938 -	- 5.921	0.138 0.138
4.000	1.5	0.138	5.270	6.938 -	- 7.921	0.138 0.138
5.000	1.0	0.138	7.906	8.938 -	- 9.921	0.138 0.138
6.000	0.5	0.138	15.813	10.938 -	- 11.921	0.130 0.138

Note: During helical interpolation do not exceed max Pitch.

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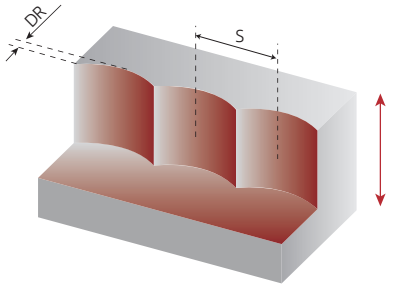
PLUNGING | Mergulho | Plunge

L≤3Dc	L>3Dc	S max.
f_z (in/t)		
0.004-0.008	0.003-0.006	Smax = $\sqrt{DC.DR-DR^2}$



S max and DR corrsponding cutting diameter Dc (in)					
DR (in)	Dc (in)				
	2.500	3.000	4.000	5.000	6.000
0.039	0.310	0.340	0.393	0.440	0.482
0.079	0.437	0.480	0.557	0.624	0.684
0.118	0.530	0.583	0.677	0.759	0.833
0.157	0.607	0.668	0.777	0.872	0.958
0.197	0.674	0.743	0.866	0.973	1.069
0.236	0.731	0.808	0.942	1.060	1.166
0.276	0.783	0.867	1.014	1.142	1.257
0.315	0.830	0.920	1.077	1.215	1.338
0.354	0.872	0.968	1.136	1.282	1.414
0.394	0.911	1.013	1.192	1.347	1.486
0.433	0.946	1.054	1.243	1.406	1.553
0.472	0.978	1.092	1.290	1.462	1.615

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

PDF

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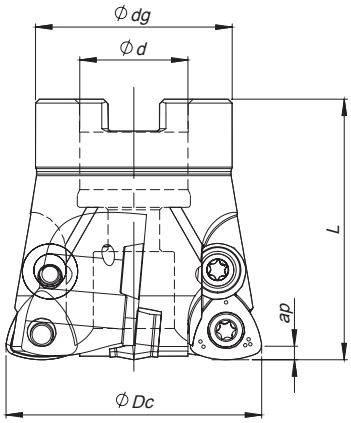
HIFEED WD60-12





Arbor Mounting

γ_p=+5° | R_p=3,2

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)				lbs	Specifications		Insert Pastilha Inserto	Stock
			ØDc	Ød	Ødg	L		Ap max (in)	Arbor Type		
181134700	WD60 D2.00-A.750/2.00-04-12	4	2.000	0.750	1.772	2.000	0.93	0.059	A	WD... 1204...	◉
181139800	WD60 D2.50-A1.00/2.00-05-12	5	2.500	1.000	1.772	2.000	1.39	0.059	A	WD... 1204...	○
181139900	WD60 D3.00-A1.25/2.00-06-12	6	3.000	1.250	2.283	2.000	2.25	0.059	A	WD... 1204...	○

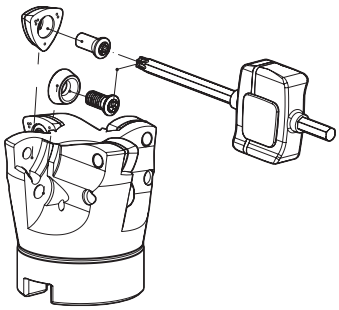
◉ Stock item | Produto de stock | Itens de stock

○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)

SPARE PARTS | Acessórios | Repuestos

Cutter ØDc	Insert Screw	Key (Torx)	Order separately Key (Torx - lbf/in)	Torque Value	Order separately Washer	Washer Screw
WD60-A-12 - 2.00-3.00	P0451001	XT20	DT2050	44.3	HC01200	P0451001

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-231.
Check the procedures for the clamping screws on the page A-231.



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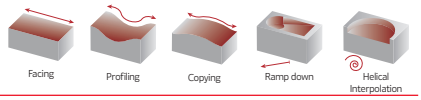
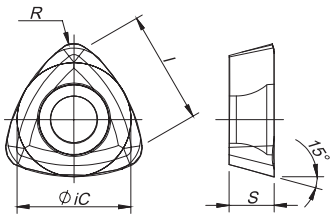


WD... 1204... | Inserts | Pastilhas | Plaquitas

WDET



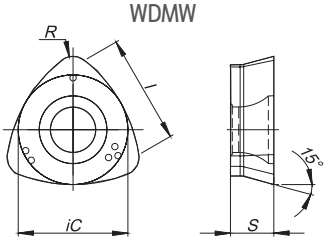
WDET



WDMW



WDMW



		P				M		K		S		Dimensions Dimensões Dimensiones (in)			
		PVD				PVD		PVD		PVD					
	(2) Grade code	G4	P3	G6	Z2	P3	G6	G4	G6	P3	G6				
(1) Geometry code	ISO Reference	PH7920	PH7930	PH7740	PHP530	PH7930	PH7740	PH7920	PH7740	PH7930	PH7740	iC	S	l	R
1112148	WDET 120420-MS	○	◬	◬	○	◬	◬	○	◬	◬	◬	0.472	0.187	0.469	0.079
1111123	WDMW 120420-T	◬		◬			◬	◬	◬		◬	0.472	0.187	0.469	0.079

◬ First choice | Primeira opção | 1ª opción ◬ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

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 → PH7920	PH7930	PHP530	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

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HIFEED WD60-12

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

ISO	PSM	Material	HB (Brinell)	Vc (SFM) ← Wear Resistance — Toughness →				Feed fz (in/t)	
				PH7920	PH7930	PHP530	PH7740	WDMW 12...	WDET 12...
P	1	Unalloyed Steel	125-220	590-788	525-722	590-1115	460-656	0.012-0.060	0.012-0.052
	2	Low-Alloyed Steel	220-280	525-722	460-656	590-1115	426-590	0.012-0.060	0.012-0.052
	3	High-Alloyed Steel	280-380	460-690	394-624	590-1082	328-558	0.012-0.052	0.012-0.040
M	4	SS - Ferritic / Martensitic	200-330	460-722	460-656	492-886	426-590	-	0.012-0.052
	5	SS - Austenitic	200-330	426-590	394-525	-	360-525	-	0.012-0.052
	6	SS - Austenitic-ferritic (Duplex)	230-260	394-525	328-460	-	-	-	0.012-0.040
K	7	Malleable Cast Iron	130-230	525-854	492-788	-	460-722	0.012-0.060	-
	8	Grey Cast Iron	180-245	460-788	460-755	-	394-690	0.012-0.060	-
	9	Nodular Cast iron	160-250	394-656	328-624	-	328-624	0.012-0.055	-
S	11	Heat Resistant Super Alloys	200-320	-	100-328	-	100-328	-	0.012-0.040

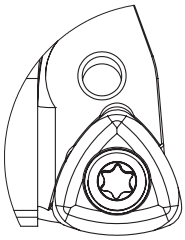
(Note 1) Cutting conditions a_e/Dc=70%.

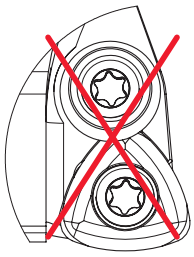
(Note 2) It's possible to occur vibrations in certain cases. Please reduce depth of cut and / or reduce cutting conditions in following cases:
- When using long shank;
- When using long tool overhang with arbor type;
- When application has poor clamping rigidity or when using a low rigidity machine.

(Note 3) PH5... and PHS... can be used wet or dry. PH7... use only air.

(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.

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





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

ISO	PSM	Material	HB (Brinell)	Chipbreaker Application	
				1st choise	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...	-

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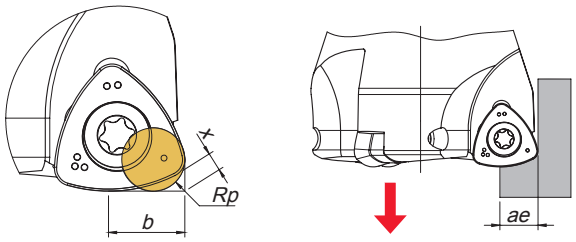
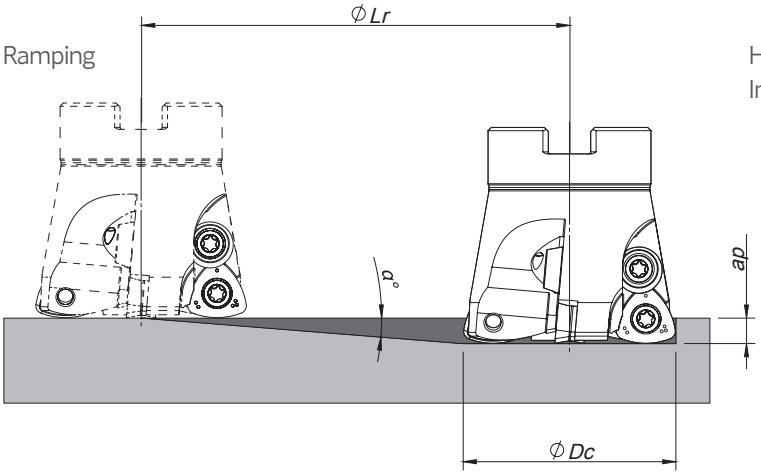
PROGRAMMING DATA | Dados para programação | Datos para la programación

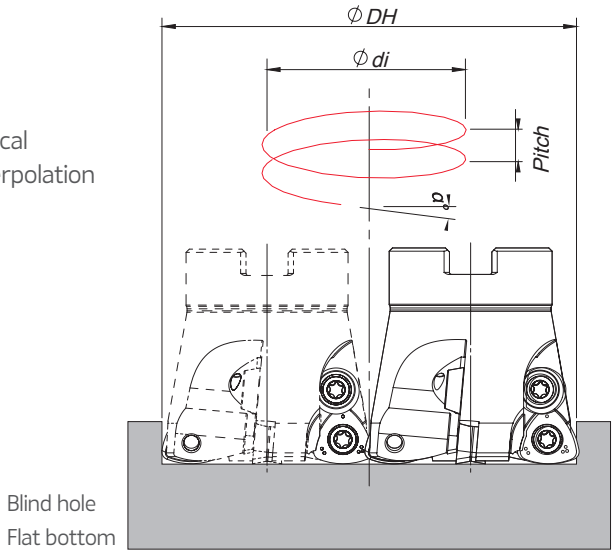
Insert	Programming Data			
	Rp	x	b	a_e
WD... 1204	0.126	0.028	0.283	0.276



RAMPING AND HELICAL INTERPOLATION

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





Ødi = ØDH - ØDc

ØDc	Ramping			Helical Interpolation		
	Max Ramp a°	Max a_p	Min Lr	ØDHmin	ØDHmax	Max Pitch/Rev.
2.000	0.8	0.059	4.225	3.434 -	- 3.921	0.059 0.059
2.500	0.4	0.059	8.451	4.434 -	- 4.921	0.042 0.053
3.000	0.3	0.059	11.268	5.434 -	- 5.921	0.040 0.048

Note: During helical interpolation do not exceed max Pitch.

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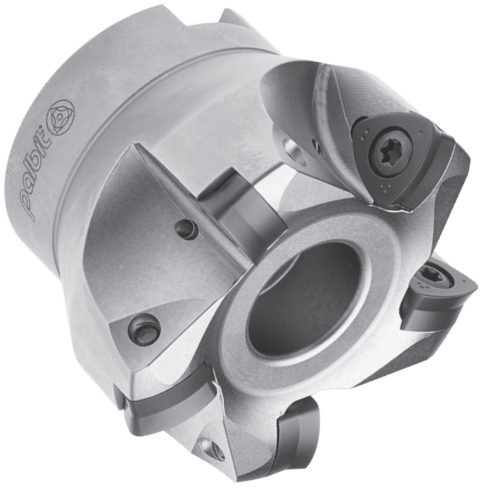
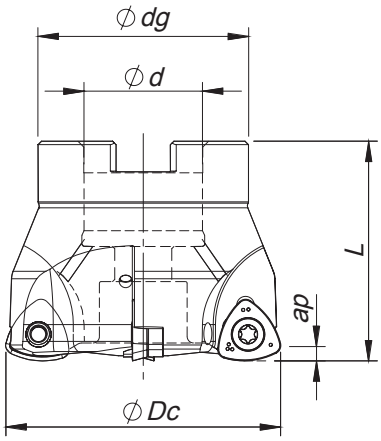
HIFEED WN60-12





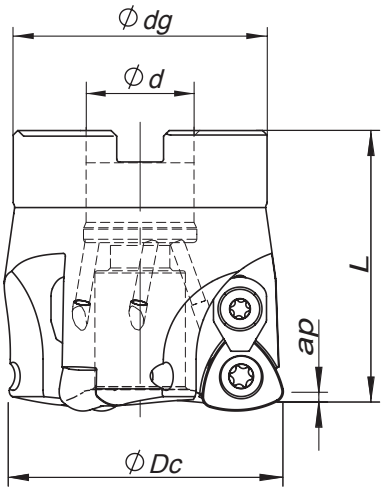
Arbor Mounting

γ_p=0° | R_p=3,5

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)				lbs	Specifications		Insert Pastilha Inserto	Stock
			ØDc	Ød/M	Ødg	L		Ap max (in)	Arbor Type		
181054600	WN60 D2.00-A.750/1.75-03-12	3	2.000	0.750	1.772	1.750	0.79	0.071	A	WN... 1207	◈
181054700	WN60 D2.50-A.750/1.75-04-12	4	2.500	0.750	1.772	1.750	1.10	0.071	A	WN... 1207	○
181080700	WN60 D2.50-A1.00/1.75-04-12	4	2.500	1.000	1.772	1.750	1.08	0.071	A	WN... 1207	◈
181054800	WN60 D3.00-A1.00/2.00-05-12	5	3.000	1.000	2.283	2.000	1.99	0.071	A	WN... 1207	◈
181072900	WN60 D4.00-A1.25/2.00-05-12	5	4.000	1.250	2.874	2.000	3.30	0.071	A	WN... 1207	◈

◈ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)





Clamp Version

γ_p=0° | R_p=0.138

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)				lbs	Specifications		Insert Pastilha Inserto	Stock
			ØDc	Ød/M	Ødg	L		Ap max (in)	Arbor Type		
181083700	WN60 D2.00-A.750/1.97-03-12	3	2.000	0.750	1.772	1.969	0.81	0.071	A	WN... 1207	◈
181083800	WN60 D2.50-A1.00/2.00-04-12	4	2.500	1.000	2.205	2.000	1.08	0.071	A	WN... 1207	◈
181083900	WN60 D3.00-A1.00/2.50-05-12	5	3.000	1.000	2.283	2.500	1.97	0.071	A	WN... 1207	◈
181084000	WN60 D4.00-A1.50/2.50-05-12	5	4.000	1.500	2.874	2.500	3.24	0.071	A	WN... 1207	◈

◈ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)

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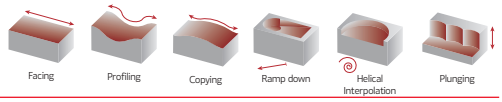
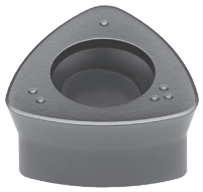
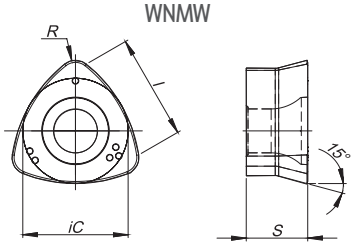


WNMW 1207 | Inserts | Pastilhas | Plaquitas

WNMW



WNMW



		P					K			Dimensions Dimensões Dimensiones (in)			
		PVD					PVD						
	(2) Grade code	G1	G4	78	86	G6	G1	G4	G6				
(1) Geometry code	ISO Reference	PH7910	PH7920	PH6125	PH6135	PH7740	PH7910	PH7920	PH7740	iC	S	l	R
1121148	WNMW 1207-SP	●	●	●	●	◇	●	●	◇	0.472	0.276	0.469	0.079

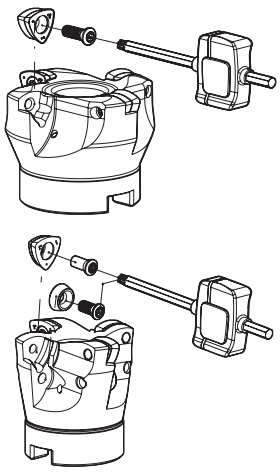
● First choice | 1ª Escolha | 1ª Opción
● Stock Itens | Itens de stock
◇ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock
○ Available under request (see page A-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

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

SPARE PARTS | Acessórios | Repuestos

Cutter ØDc	Insert Screw	Key (Torx)	Order separately Key (Torx - lbf/in)	Torque Value	Clamp Version Clamp Set	Clamp Key (Torx)
WN60-A-12 - 2.00-3.00	P0451400	XT20	DT2050	44.3	GS40140	XT15
WN60-A-12 - 4.00	P0451400	XT20	DT2050	44.3	GS40140	XT15

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-231.
Check the procedures for the clamping screws on the page A-231.



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	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

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HIFEED WN60-12

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

ISO	PSM	Material	HB (Brinell)	Vc (SFM) ← Wear Resistance				Toughness →	Feed fz (in/t)
				PH7910	PH7920	PH6125	PH6135	PH7740	WNMW 12...
P	1	Unalloyed Steel	125-220	590-820	590-788	525-624	492-590	460-656	0.012-0.060
	2	Low-Alloyed Steel	220-280	525-755	525-722	460-590	460-558	426-590	0.012-0.060
	3	High-Alloyed Steel	280-380	460-722	460-690	426-525	394-492	328-558	0.012-0.050
K	7	Malleable Cast Iron	130-230	590-1004	525-854	-	-	460-722	0.012-0.060
	8	Grey Cast Iron	180-245	525-820	460-788	-	-	394-690	0.012-0.060
	9	Nodular Cast iron	160-250	492-656	394-656	-	-	328-624	0.012-0.055

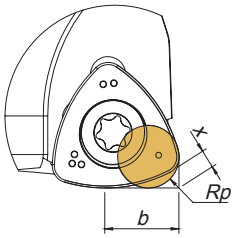
(Note 1) Cutting conditions a_e/Dc=70%.

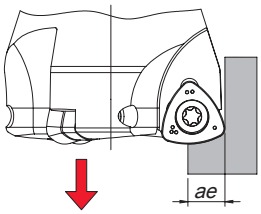
(Note 2) It's possible to occur vibrations in certain cases. Please reduce depth of cut and / or reduce cutting conditions in following cases:
- When using long shank;
- When using long tool overhang with arbor type;
- When application has poor clamping rigidity or when using a low rigidity machine.

(Note 3) PH5... and PHS... can be used wet or dry. PH7... use only air.

PROGRAMMING DATA | Dados para programação | Datos para la programación

Insert	Programming Data			
	Rp	X	b	a_e
WNMW 12	0.138	0.035	0.331	0.315





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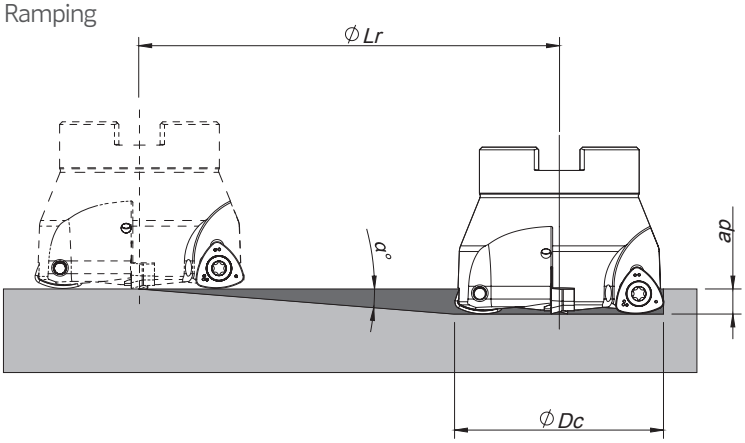
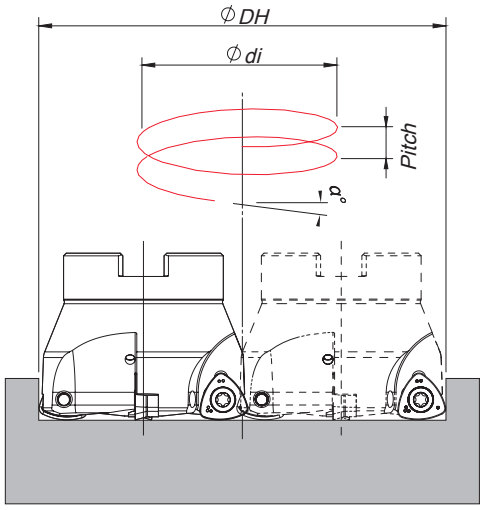
RAMPING AND HELICAL INTERPOLATION

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

Ramping



Helical Interpolation



Blind hole
Flat bottom

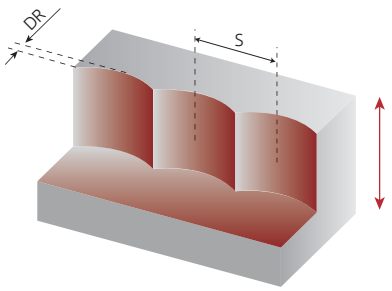
Ødi = ØDH - ØDc

ØDc	Ramping			Helical Interpolation		
	Max Ramp a°	Max a_p	Min Lr	ØDHmin	ØDHmax	Max Pitch/Rev.
2.000	1.8	0.138	4.391	3.338 -	- 3.921	0.130 0.138
2.500	1.2	0.138	6.588	4.338 -	- 4.921	0.120 0.138
3.000	0.9	0.138	8.785	5.338 -	- 5.921	0.110 0.138
4.000	0.4	0.138	19.767	7.338 -	- 7.921	0.070 0.080

Note: During helical interpolation do not exceed max Pitch.

PLUNGING | Mergulho | Plunge

L≤3Dc	L>3Dc	S max.
f_z (in/t)		
0.004-0.008	0.003-0.006	$Smax = \sqrt{DC.DR-DR^2}$



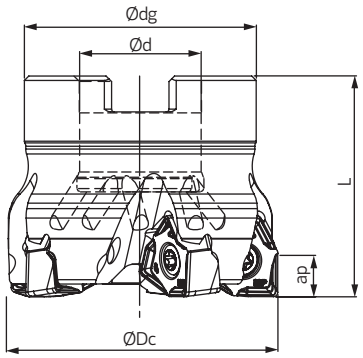
S max and DR corrsponding cutting diameter Dc (in)				
DR (in)	Dc (in)			
	2.000	2.500	3.000	4.000
0.039	0.277	0.310	0.340	0.393
0.079	0.390	0.437	0.480	0.557
0.118	0.471	0.530	0.583	0.677
0.157	0.538	0.607	0.668	0.777
0.197	0.596	0.674	0.743	0.866
0.236	0.645	0.731	0.808	0.942
0.276	0.690	0.783	0.867	1.014
0.315	0.729	0.830	0.920	1.077

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

HEXAPLUS WN90-08

NEW





Arbor Mounting

$K_r = 90°$ | $\gamma_p = -6°$

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)				lbs	Specifications		Insert Pastilha Inserto	Stock
			ØDc	Ød	Ødg	L		Arbor Type	Ap max (in)		
181185300	WN90 D2.00-A.750/1.57-04-08	4	2.000	0.750	1.770	1.570	0.860	A	0.295	WNXT 0806...	◈
181185400	WN90 D2.00-A.750/1.57-05-08	5	2.000	0.750	1.770	1.570	0.838	A	0.295	WNXT 0806...	○
181185500	WN90 D2.50-A1.00/1.75-05-08	5	2.500	1.000	2.200	1.750	1.102	A	0.295	WNXT 0806...	◈
181185600	WN90 D3.00-A1.00/1.75-07-08	7	3.000	1.000	2.200	1.750	2.030	A	0.295	WNXT 0806...	◈

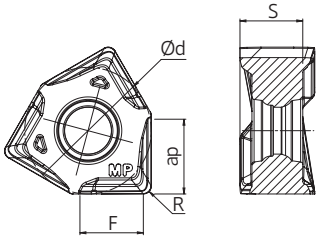
◈ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)

WNXT ‖ Inserts | Pastilhas | Plaquitas

WNXT NEW



PHP NEW GRADE



		P		K		Dimensions | Dimensões | Dimensiones (mm)			
		PVD		PVD					
	(2) Grade code	T1	P4	T1	P4				
(1) Geometry code	Reference Referência Referencia	PHP920	PHP930	PHP920	PHP930	iC	S	R	F
1113000	WNXT 080608 PNSR-MP	◈	◈	◈	◈	1/2	1/4	1/32	0.161

◈ First choice | Primeira opção | 1ª opción ◈ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

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

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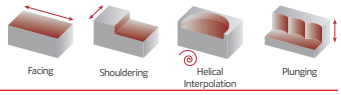
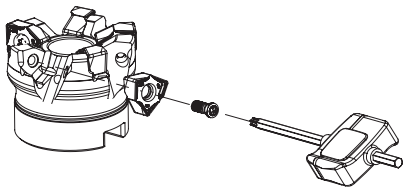


SPARE PARTS Acessórios | Repuestos

Order separately

Cutter ØDc	Insert Screw	Key (Torx)	Key (Torx - lbf/in)	Torque Value
			lbf/in	lbf/in
WN90-08 - 2.000-3.000	P0401200	XT15	DT1530	26.6



Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-231.
Check the procedures for the clamping screws on the page A-231.

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

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance	Grades 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

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HEXAPLUS WN90-08

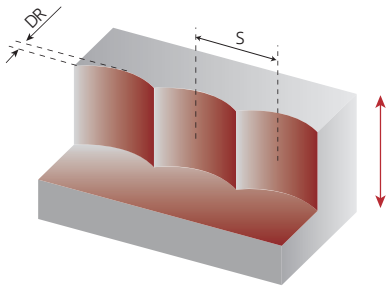
NEW

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

ISO	PSM	Material	HB (Brinell)	Vc (SFM) ← Wear Resistance Toughness →		Feed fz (in/t)
				PHP920	PHP930	WNXT
P	1	Unalloyed Steel	125-220	591-820	525-755	0.004-0.010
	2	Low-Alloyed Steel	220-280	525-755	460-689	0.004-0.010
	3	High-Alloyed Steel	280-380	460-722	394-656	0.004-0.008
K	7	Malleable Cast Iron	130-230	427-755	492-820	0.004-0.010
	8	Grey Cast Iron	180-245	591-804	460-755	0.004-0.010
	9	Nodular Cast iron	160-250	394-689	328-656	0.004-0.008

PLUNGING | Mergulho | Plunge

L≤3Dc	L>3Dc	S max.
fz (in/t)		
0.004-0.006	0.003-0.005	$Smax = \sqrt{DC.Dr - Dr^2}$



S max and DR corresponding cutting diameter Dc (in)			
DR (in)	Dc (in)		
	2.000	2.500	3.000
0.039	0.275	0.311	0.350
0.079	0.386	0.433	0.492
0.118	0.469	0.528	0.598
0.157	0.535	0.606	0.685

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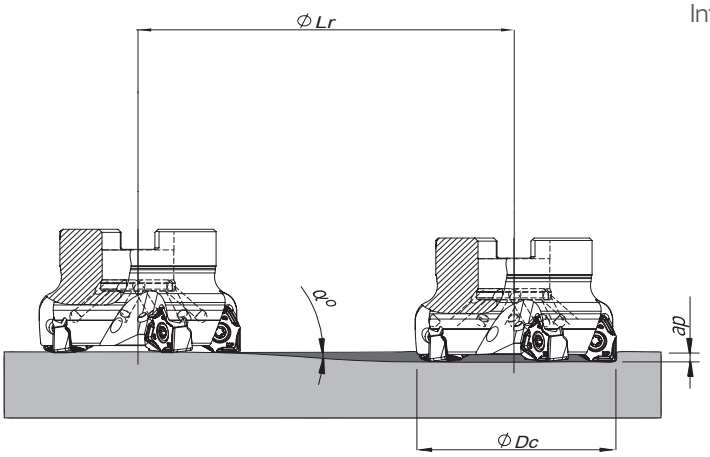
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

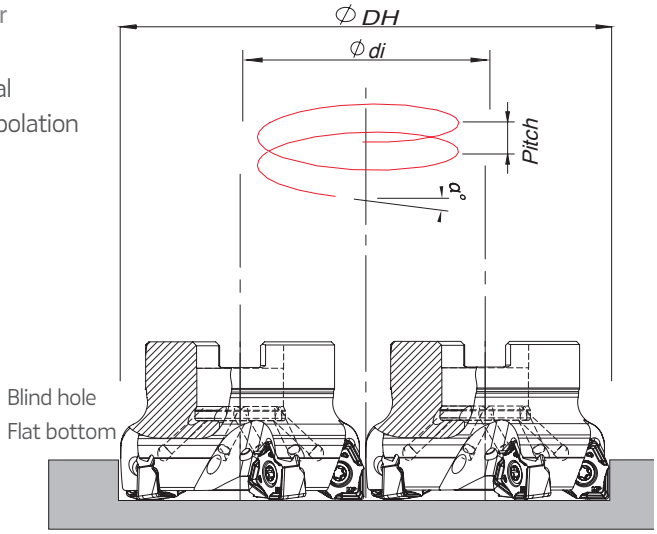
RAMPING AND HELICAL INTERPOLATION

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

Ramping



Helical Interpolation



Ødi = ØDH - ØDc

ØDc	Ramping			Helical Interpolation		
	Max Ramp a°	Max a_p	Min Lr	ØDHmin	ØDHmax	Max Pitch/Rev.
2.000	3.5	0.300	4.830	3.450 -	- 3.860	0.287 0.300
2.500	3.5	0.300	4.830	4.500 -	- 4.880	0.300 0.300
3.000	3.0	0.300	5.630	5.830 -	- 6.220	0.300 0.300

Note: During helical interpolation do not exceed max Pitch.
(*) 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.

VIDEO

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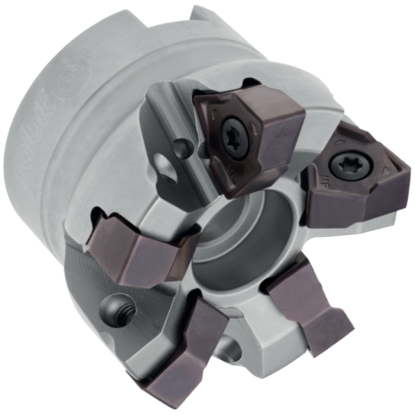
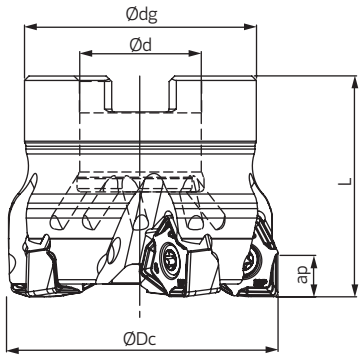
HEXAPLUS 49590

NEW

METRIC LINE

Proprietary milling line





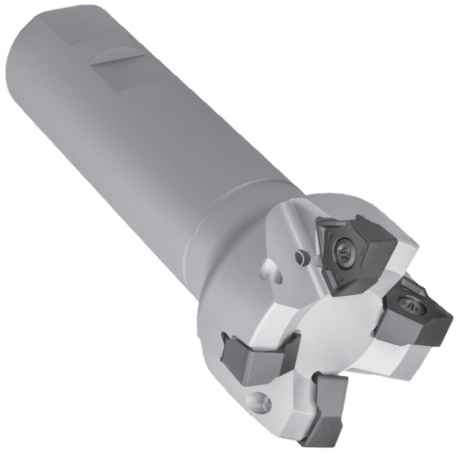
Arbor Mounting

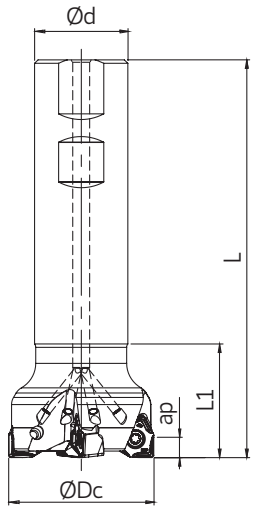
$\kappa_r = 90°$ | $\gamma_p = -6°$

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Specifications		Insert Pastilha Inserto	Stock
			ØDc	Ød	Ødg	L		Arbor Type	Ap max (mm)		
181174900	040A49590-03-06-016040	3	40	16	32	40	0,15	A	7,5	WNXT 0806...	◈
181175000	040A49590-04-06-016040	4	40	16	32	40	0,13	A	7,5	WNXT 0806...	○
181173400	050A49590-04-06-022040	4	50	22	42	40	0,39	A	7,5	WNXT 0806...	◈
181165600	050A49590-05-06-022040	5	50	22	42	40	0,38	A	7,5	WNXT 0806...	◈
181173500	063A49590-05-06-022040	5	63	22	52	40	0,5	A	7,5	WNXT 0806...	◈
181173600	063A49590-06-06-022040	6	63	22	52	40	0,49	A	7,5	WNXT 0806...	○
181173700	080A49590-07-06-027050	7	80	27	60	50	1,18	B	7,5	WNXT 0806...	◈
181173800	080A49590-09-06-027050	9	80	27	60	50	1,16	B	7,5	WNXT 0806...	○
181173900	100A49590-08-06-032050	8	100	32	80	50	1,62	B	7,5	WNXT 0806...	◈
181174000	100A49590-11-06-032050	11	100	32	80	50	1,55	B	7,5	WNXT 0806...	○
181174100	125A49590-11-06-040063	11	125	40	90	63	2,82	B	7,5	WNXT 0806...	◈
181174200	125A49590-14-06-040063	14	125	40	90	63	2,76	B	7,5	WNXT 0806...	○

◈ Stock item | Produto de stock | Itens de stock

○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)





Weldon Shank

$\kappa_r = 90°$ | $\gamma_p = -6°$

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Specifications	Insert Pastilha Inserto	Stock
			ØDc	Ød	L	L1		ap max (mm)		
181174300	032W49590-02-06-032125	2	32	32	125	40	0,65	7,5	WNXT 0806...	◈
181174400	032W49590-03-06-032125	3	32	32	125	40	0,60	7,5	WNXT 0806...	○
181174500	040W49590-03-06-032130	3	40	32	130	40	0,70	7,5	WNXT 0806...	◈
181174600	040W49590-04-06-032130	4	40	32	130	40	0,65	7,5	WNXT 0806...	○
181174700	050W49590-04-06-032140	4	50	32	140	45	0,86	7,5	WNXT 0806...	○
181174800	050W49590-05-06-032140	5	50	32	140	45	0,81	7,5	WNXT 0806...	○

◈ Stock item | Produto de stock | Itens de stock

○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)

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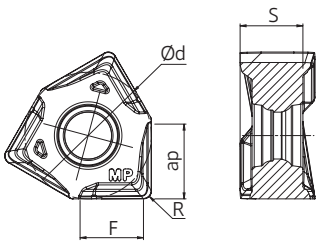
WNXT | Inserts | Pastilhas | Plaquitas

WNXT NEW



PHP NEW GRADE



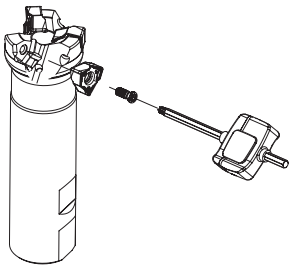
(1) Geometry code	Reference Referência Referencia	P PVD (2) Grade code T1	P PVD P4	K PVD T1	K PVD P4	Dimensions | Dimensões | Dimensiones (mm) iC	S	R	F
1113000	WNXT 080608 PNSR-MP	PHP920	PHP930	PHP920	PHP930	12,7	6,3	0,8	4,1

First choice | Primeira opção | 1ª opción — Stock item | Produto de stock | Itens de stock — Available under request (see page A-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

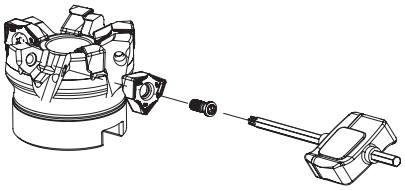
Insert order code = (1) Geometry Code + (2) Grade Code

SPARE PARTS Acessórios | Repuestos

Cutter ØDc	Insert Screw	Key (Torx)	Order separately: Key (Torx - lbf/in)	Torque Value	Order separately: Screw	DIN 6368 Wrench	Retaining Screw
W49590 - 32 - 50	P0401200	XT15	DT1530	26.6	-	-	-
A49590 - 40	P0401200	XT15	DT1530	26.6	-		290087600
A49590 - 50 - 63	P0401200	XT15	DT1530	26.6	-	-	-
A49590 - 80	P0401200	XT15	DT1530	26.6	J0123510	SD6368-12	-
A49590 - 100	P0401200	PT15	DT1530	26.6	J0164110	SD6368-16	-
A49590 - 125	P0401200	PT15	DT1530	26.6	J0204610	SD6368-20	-



Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-231.
Check the procedures for the clamping screws on the page A-231.



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	✓	✓

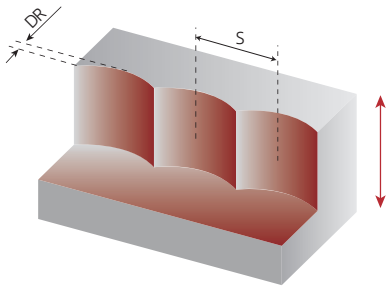
Good Conditions
Average Conditions
Difficult Conditions

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

ISO	PSM	Material	HB (Brinell)	Vc (SFM) ← Wear Resistance	Toughness →	Feed fz (in/t)
				PHP920	PHP930	WNXT
P	1	Unalloyed Steel	125-220	591-820	525-755	0.004-0.010
	2	Low-Alloyed Steel	220-280	525-755	460-689	0.004-0.010
	3	High-Alloyed Steel	280-380	460-722	394-656	0.004-0.008
K	7	Malleable Cast Iron	130-230	427-755	492-820	0.004-0.010
	8	Grey Cast Iron	180-245	591-804	460-755	0.004-0.010
	9	Nodular Cast iron	160-250	394-689	328-656	0.004-0.008

PLUNGING | Mergulho | Plunge

L≤3Dc	L>3Dc	S max.
fz (in/t)		
0.004-0.006	0.004-0.005	$Smax = \sqrt{DC.Dr - Dr^2}$



S max and DR corresponding cutting diameter Dc (in)							
DR (in)	Dc (mm)						
	32	40	50	63	80	100	125
0.039	0.220	0.244	0.276	0.311	0.350	0.390	0.437
0.079	0.303	0.343	0.386	0.433	0.492	0.551	0.618
0.118	0.366	0.413	0.469	0.528	0.598	0.673	0.752
0.157	0.417	0.472	0.535	0.606	0.685	0.772	0.866

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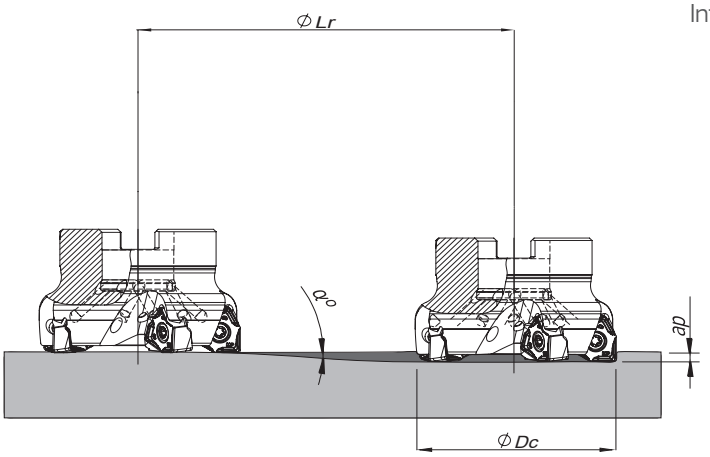
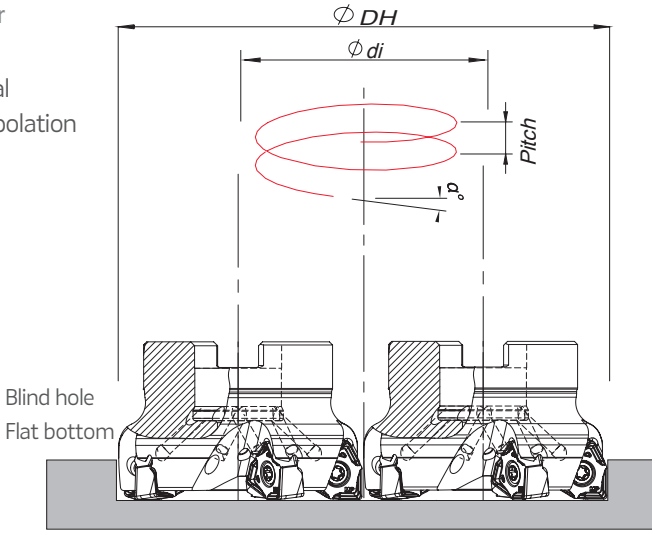
RAMPING AND HELICAL INTERPOLATION

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

Ramping



Helical Interpolation



Ødi = ØDH - ØDc

ØDc	Ramping (in)			Helical Interpolation (in)		
	Max Ramp a°	Max a_p	Min Lr	ØDHmin	ØDHmax	Max Pitch/Rev.
32	4,0	0.295	4.224	2.047 -	- 2.441	0.169 0.260
40	3,8	0.295	4.445	2677 -	- 3.071	0.228 0.315
50	3,5	0.295	4.827	3.465 -	- 3.858	0.287 0.362
63	3,5	0.295	4.827	0.433 -	- 4.882	0.354 0.461
80	3,0	0.295	5.634	5.827 -	- 6.220	0.437 0.508
100	2,1	0.295	8.051	7.402 -	- 7.795	0.398 0.445
125	1,4	0.295	12.083	9.370 -	- 9.764	0.339 0.370

Note: During helical interpolation do not exceed max Pitch.
(*) 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.

PDF VIDEO

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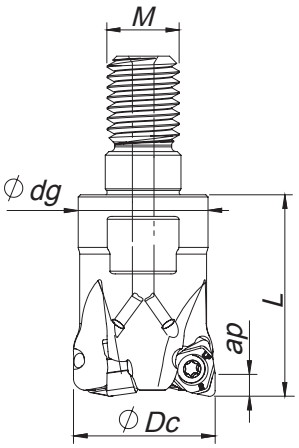
PLUS WN90-04





Threaded Coupling

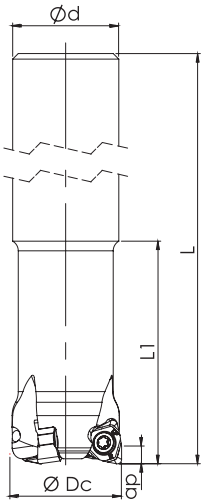
K_r = 90° | γ_p = -7°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)				lbs	Specification	Insert Pastilha Inserto	Stock
			ØDc	M	Ødg	L		Ap max (in)		
181140000	WN90 D.625-R-08/.800-02-04	2	0.625	M8	0.512	0.800	0.09	0.118	WNHU 04T3..-LP	○
181140100	WN90 D.750-R-10/1.00-03-04	3	0.750	M10	0.709	1.000	0.18	0.118	WNHU 04T3..-LP	○
181140200	WN90 D1.00-R-12/1.25-04-04	4	1.000	M12	1.142	1.250	0.22	0.118	WNHU 04T3..-LP	○

Stock item | Produto de stock | Itens de stock

○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)





Cylindrical Shank

K_r = 90° | γ_p = -7°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)				lbs	Specifications	Insert Pastilha Inserto	Stock
			ØDc	Ød/M	L	L1		Ap max		
181140300	WN90 D.625-C.625/4.00-02-04	2	0.625	0.625	4.000	2.000	0.53	0.118	WNHU 04T3..-LP	○
181140400	WN90 D.750-C.750/5.00-03-04	3	0.750	0.750	5.000	3.000	0.62	0.118	WNHU 04T3..-LP	○
181140500	WN90 D1.00-C1.00/6.00-04-04	4	1.000	1.000	6.000	3.750	0.77	0.118	WNHU 04T3..-LP	○

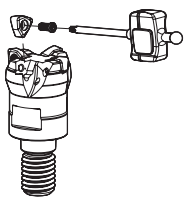
Stock item | Produto de stock | Itens de stock

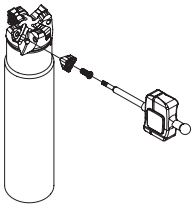
○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)

SPARE PARTS | Acessórios | Repuestos

Order separately

Cutter ØDc	Insert Screw	Key (Torx)	Key (Torx - lbf/in)	Torque Value
			lbf/in	lbf/in
WN90-R-04 - 0.625-1.00	P0250704	XT08	DT0812	10.6
WN90-C-04 - 0.625-1.00	P0250704	XT08	DT0812	10.6





Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-231.
Check the procedures for the clamping screws on the page A-231.

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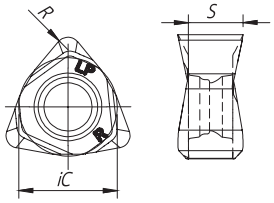
WNHU 04T308 | Inserts | Pastilhas | Plaquitas



PHP
NEW
GRADE



		P			K			Dimensions Dimensões Dimensiones (in)		
		PVD			PVD					
	(2) Grade code	X5	T1	P4	X5	T1	P4			
(1) Geometry code	ISO Reference	PHP910	PHP920	PHP930	PHP910	PHP920	PHP930	iC	S	R
1112277	WNHU 04T308 PNER-LP	●	●	●	●	●	●	1/4	0.138	0.031
NEW 1113167	WNHU 04T316 PNER-LP		●			●		1/4	0.133	0.063

● First choice | Primeira opção | 1ª opción ● Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

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 →
				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	✓	✓	✓

● Good Conditions
● Average Conditions
● Difficult Conditions

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

ISO	PSM	Material	HB (Brinell)	Vc (SFM) ← Wear Resistance				Toughness →	Feed fz (in/t)
				PHH603	PHH910	PHP910	PHP920	PHP930	WNHU 04T3
P	1	Unalloyed Steel	125-220	-	-	590-820	590-820	525-755	0.004-0.012
	2	Low-Alloyed Steel	220-280	-	525-886	525-788	525-755	460-690	0.004-0.012
	3	High-Alloyed Steel	280-380	590-1017	460-755	460-755	460-722	394-656	0.004-0.010
K	7	Malleable Cast Iron	130-230	-	-	590-1004	525-886	492-820	0.004-0.012
	8	Grey Cast Iron	180-245	-	-	525-820	460-820	460-755	0.004-0.012
	9	Nodular Cast iron	160-250	-	-	492-690	394-690	328-656	0.004-0.010

Insert	Feed f_z (in/t)		a_p Rec.
	Roughing	Finishing	
WNHU 04T308-LP	0.006-0.012	0.004-0.010	0.020-0.120
WNHU 04T316-LP	0.006-0.012	0.004-0.010	0.063-0.118

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

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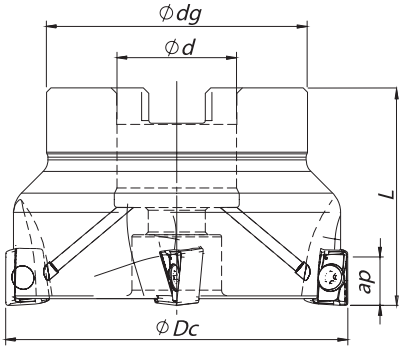
PLUS AN90-10





Arbor Mounting

$\kappa_r = 90°$ | $\gamma_p = -7°$

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)				lbs	Specifications		Insert Pastilha Inserto	Stock
			ØDc	Ød/M	ØDg	L		Arbor Type	Ap max (in)		
181077700	AN90 D1.50-A.500/1.50-04-10	4	1.500	0.500	1.417	1.500	0.45	A	0.354	ANHX 1004...	◈
181077800	AN90 D1.50-A.500/1.50-05-10	5	1.500	0 .500	1.417	1.500	0.44	A	0.354	ANHX 1004...	○
181077900	AN90 D2.00-A.750/1.75-05-10	5	2.000	0.750	1.772	1.750	0.72	A	0.354	ANHX 1004...	◈
181078000	AN90 D2.00-A.750/1.75-07-10	7	2.000	0.750	1.772	1.750	0.70	A	0.354	ANHX 1004...	○
181078100	AN90 D2.50-A1.00/1.75-07-10	7	2.500	1.000	2.205	1.750	1.19	A	0.354	ANHX 1004...	◈
181078200	AN90 D2.50-A1.00/1.75-09-10	9	2.500	1.000	2.205	1.750	1.16	A	0.354	ANHX 1004...	○
181078300	AN90 D3.00-A1.00/2.00-08-10	8	3.000	1.000	2.205	2.000	2.18	A	0.354	ANHX 1004...	◈
181078400	AN90 D3.00-A1.00/2.00-10-10	10	3.000	1.000	2.205	2.000	2.13	A	0.354	ANHX 1004...	○
181078500	AN90 D4.00-A1.25/2.00-09-10	9	4.000	1.250	2.874	2.000	3.97	A	0.354	ANHX 1004...	◇
181138000	AN90 D4.00-A1.50/2.50-09-10	9	4.000	1.500	2.874	2.500	3.88	A	0.354	ANHX 1004...	◈
181138100	AN90 D4.00-A1.50/2.50-12-10	12	4.000	1.500	2.874	2.500	3.88	A	0.354	ANHX 1004...	○

◈ Stock item | Produto de stock | Itens de stock

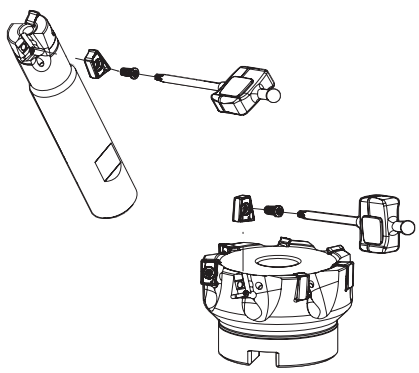
○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)

◇ Inventory maintained. To be replaced by new item. | Iten em stock. Será substituido por novo item | Iten en stock. Será reemplezado por nuevo iten.

SPARE PARTS | Acessórios | Repuestos

Cutter ØDc	Insert Screw	Key (Torx)	Order separately Key (Torx - lbf/in)	Torque Value
AN90-W-10 - 0.75-2.00	P0300800	XT09	DT0914	26.6
AN90-A-10 - 1.50-4.00	P0300800	XT09	DT0914	26.6

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-231.
Check the procedures for the clamping screws on the page A-231.



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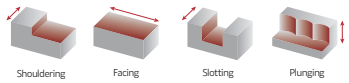
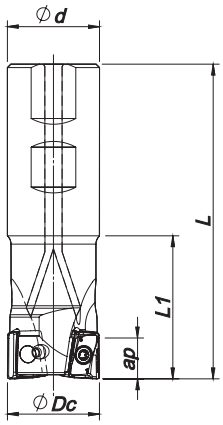




Weldon Shank

$\kappa_r = 90°$ | $\gamma_p = -7° (-6°*)$



Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)				Ibs	Specifications	Insert Pastilha Inserto	Stock
			ØDc	Ød/M	L	L1		Ap max (in)		
181071200	AN90 D.750-W.750/3.94-02-10*	2	0.750	0.750	3.937	1.181	0.46	0.354	ANHX 1004...	◈
181071300	AN90 D.750-W.750/3.94-03-10*	3	0.750	0.750	3.937	1.181	0.44	0.354	ANHX 1004...	◈
181077000	AN90 D1.00-W1.00/4.53-02-10*	2	1.000	1.000	4.528	1.378	0.86	0.354	ANHX 1004...	◈
181064300	AN90 D1.00-W1.00/4.53-03-10*	3	1.000	1.000	4.528	1.378	0.85	0.354	ANHX 1004...	◈
181077100	AN90 D1.25-W1.25/4.92-03-10*	3	1.250	1.250	4.921	1.575	1.54	0.354	ANHX 1004...	◈
181077200	AN90 D1.25-W1.25/4.92-04-10*	4	1.250	1.250	4.921	1.575	1.53	0.354	ANHX 1004...	◈
181138200	AN90 D1.50-W1.25/5.00-04-10	4	1.500	1.250	5.000	1.500	1.69	0.354	ANHX 1004...	◈
181138300	AN90 D1.50-W1.25/5.00-05-10	5	1.500	1.250	5.000	1.500	1.69	0.354	ANHX 1004...	○
181077300	AN90 D1.50-W1.50/5.12-04-10	4	1.500	1.500	5.118	1.654	1.69	0.354	ANHX 1004...	◇
181077500	AN90 D2.00-W1.50/5.32-05-10	5	2.000	1.500	5.315	1.772	1.72	0.354	ANHX 1004...	◇

◈ Stock item | Produto de stock | Itens de stock

○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)

◇ Inventory maintained. To be replaced by new item. | Iten em stock. Será substituido por novo item | Iten en stock. Será reemplezado por nuevo iten.

ANHX 1004.. | Inserts | Pastilhas | Plaquitas

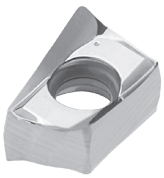
ANHX-LP



ANHX-LM



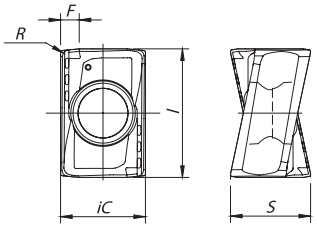
ANHX-LN



PHH NEW GRADE

PHP NEW GRADE

ANHX-LP | LM | LN



		P					M		K					N	S		Dimensions Dimensões Dimensiones (in)				
		PVD					PVD		PVD					UNC	PVD						
	(2) Grade code	G1	X5	T1	P4	G6	X9	G6	G1	X5	T1	P4	G6	10	X9	G6					
(1) Geometry code	ISO Reference	PH7910	PHP910	PHP920	PHP930	PH7740	PHH930	PH7740	PH7910	PHP910	PHP920	PHP930	PH7740	PH0910	PHH930	PH7740	iC	S	I	R	F
1111652	ANHX 100405 PNR-LP	◇	◈	◈	◈		○		◇	◈	◈	◈			○		0.260	0.244	0.394	0.020	0.033
1112106	ANHX 100408 PNR-LP			◈	◈	○		○			◈	◈	○			○	0.260	0.244	0.394	0.031	0.024
1111908	ANHX 100412 PNR-LP			◈	◈						◈	◈					0.260	0.244	0.394	0.047	0.012
1112005	ANHX 100405 PNER-LM			◈	◈	◈	◈	◈			◈	◈	◈		◈	◈	0.260	0.244	0.394	0.020	0.033
1112162	ANHX 100408 PNER-LM			◈	◈	◈	◈	◈			◈	◈	◈		◈	◈	0.260	0.244	0.394	0.031	0.024
1112103	ANHX 100412 PNER-LM			◈	◈	◈	◈	◈			◈	◈	◈		◈	◈	0.260	0.244	0.394	0.047	0.012
1111997	ANHX 100405 PNFR-LN													◈			0.260	0.244	0.394	0.020	0.033
1112102	ANHX 100412 PNR-LN													◈			0.260	0.244	0.394	0.047	0.012

◈ 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-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

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

PLUS AN90-10

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	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 (SFM) ← Wear Resistance — Toughness → PH0910	PHP910	PHP920	PHP930	PHH930	PH7740	Feed fz (in/t) ANHX... LP	ANHX... LM	ANHX... LN
P	1	Unalloyed Steel	125-220	-	590-820	590-820	525-755	-	460-656	0.003-0.008	0.003-0.008	-
P	2	Low-Alloyed Steel	220-280	-	525-788	525-755	460-690	-	426-590	0.003-0.008	0.003-0.006	-
P	3	High-Alloyed Steel	280-380	-	460-755	460-722	394-656	-	328-558	0.003-0.006	0.003-0.006	-
M	4	SS - Ferritic / Martensitic	200-330	-	-	-	-	460-690	426-590	-	0.003-0.008	-
M	5	SS - Austenitic	200-330	-	-	-	-	394-558	360-525	-	0.003-0.006	-
M	6	SS - Austenitic-ferritic (Duplex)	230-260	-	-	-	-	328-492	-	-	0.003-0.006	-
K	7	Malleable Cast Iron	130-230	-	590-1004	525-886	492-820	-	460-722	0.003-0.010	0.003-0.008	-
K	8	Grey Cast Iron	180-245	-	525-820	460-820	460-755	-	394-690	0.003-0.008	0.003-0.008	-
K	9	Nodular Cast iron	160-250	-	492-690	394-690	328-656	-	328-624	0.003-0.008	0.003-0.006	-
N	10	Aluminium and Non Ferrous	30-130	328-6560	-	-	-	-	-	-	-	0.003-0.008
S	11	Heat Resistant Super Alloys	200-320	-	-	-	-	100-360	100-328	-	0.003-0.006	-

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

(Note 2)

Operation	a_e	Vc & fz	a_p (in)
Slotting	100%	<20%	0.079-0.138
Shouldering	<50%	>8%	0.118-0.236
	≤25%	>12%	0.236-0.335

(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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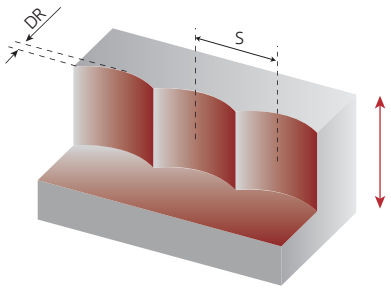
CHIPBREAKER SELECTION GUIDE | Guia de selecção do quebra-aparas | Guía de selección del rompevirutas

ISO	PSM	Material	HB (Brinell)	Chipbreaker 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 (in/t)		
0.004-0.008	0.004-0.006	$Smax = \sqrt{DC.Dr - Dr^2}$



S max and DR corresponding cutting diameter Dc (in)								
DR (in)	Dc (in)							
	0.750	1.000	1.250	1.500	2.000	2.500	3.000	4.000
0.039	0.167	0.194	0.217	0.239	0.277	0.310	0.340	0.393
0.079	0.230	0.270	0.304	0.335	0.390	0.437	0.480	0.557
0.118	0.273	0.323	0.365	0.404	0.471	0.530	0.583	0.677

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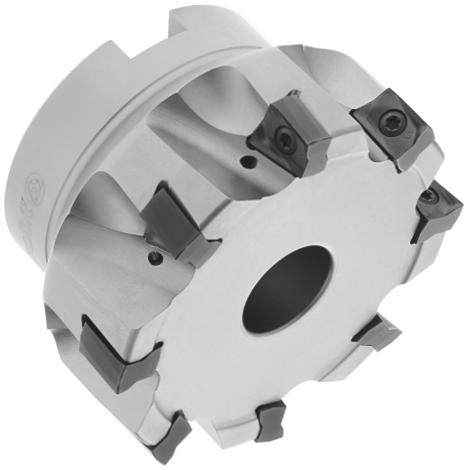
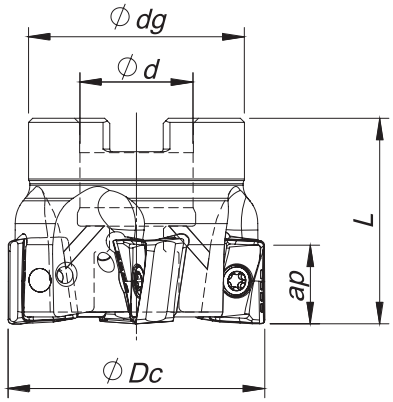




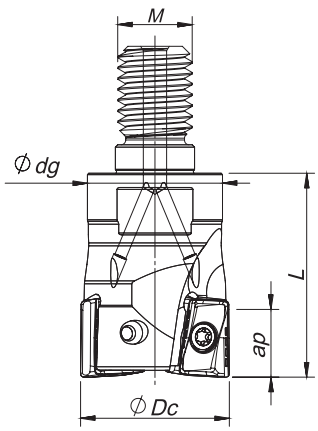
Arbor Mounting

$\kappa_r = 90°$ | $\gamma_p = -6°$

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)				lbs	Specifications		Insert Pastilha Inserto	Stock
			ØDc	Ød/M	Ødg	L		Arbor Type	Ap max (in)		
181140600	AN90 D2.00-A.750/1.57-05-12	5	2.000	0.750	1.772	1.570	0.66	A	0.433	ANHX 1206...	◈
181140700	AN90 D2.50-A.750/1.57-06-12	6	2.500	0.750	1.772	1.570	1.17	A	0.433	ANHX 1206...	○
181140800	AN90 D3.00-A1.00/1.75-07-12	7	3.000	1.000	2.283	1.750	2.09	A	0.433	ANHX 1206...	◈
181140900	AN90 D4.00-A1.50/2.38-11-12	11	4.000	1.500	2.874	2.375	3.64	A	0.433	ANHX 1206...	○

◈ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)





Threaded Coupling

$\kappa_r = 90°$ | $\gamma_p = -6°$

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)				lbs	Specifications	Insert Pastilha Inserto	Stock
			ØDc	Ød/M	Ødg	L		Ap max (in)		
181141300	AN90 D1.00-R-12/1.50-02-12	2	1.000	M12	1.142	1.500	0.22	0.433	ANHX 1206...	◈
181141400	AN90 D1.25-R-16/1.75-03-12	3	1.250	M16	1.142	1.750	0.44	0.433	ANHX 1206...	◈
181141500	AN90 D1.50-R-16/1.75-04-12	4	1.500	M16	1.142	1.750	0.57	0.433	ANHX 1206...	◈

◈ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)

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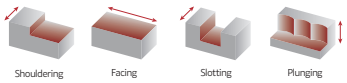
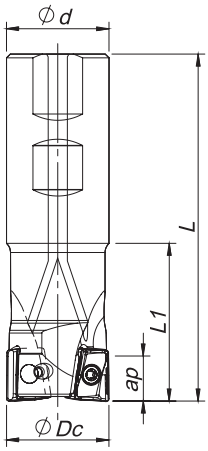






Weldon Shank

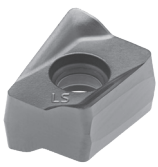
$K_r = 90°$ | $\gamma_p = -6°$

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)				lbs	Specifications	Insert Pastilha Inserto	Stock
			ØDc	Ød/M	L	L1		Ap max (in)		
181141000	AN90 D1.00-W1.00/6.00-02-12	2	1.000	1.000	6.000	3.550	0.82	0.433	ANHX 1206...	◈
181141100	AN90 D1.25-W1.25/6.50-03-12	3	1.250	1.250	6.500	4.220	1.76	0.433	ANHX 1206...	◈
181141200	AN90 D1.50-W1.25/4.50-04-12	4	1.500	1.250	4.500	2.250	1.94	0.433	ANHX 1206...	◈

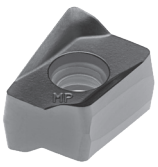
◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)

ANHX 1206.. | Inserts | Pastilhas | Plaquitas

ANHX-LS



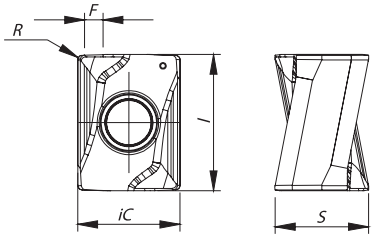
ANHX-MP



PHH NEW GRADE

PHP NEW GRADE

ANHX-LS | MP



		P						M			K						S			Dimensions Dimensões Dimensiones (in)				
		CVD	PVD					PVD			PVD						PVD							
	(2) Grade code	T9	G4	T1	P3	P4	G6	P3	X9	G6	L6	G4	T1	P3	P4	G6	P3	X9	G6					
(1) Geometry code	ISO Reference	PHS740	PH7920	PHP920	PH7930	PHP930	PH7740	PH7930	PHH930	PH7740	PH5320	PH7920	PHP920	PH7930	PHP930	PH7740	PH7930	PHH930	PH7740	iC	S	I	R	F
1112474	ANHX 120604 PNER-LS			◈	△	◯	◈	△	◯	◈			◈	△	◯	◈	△	◯	◈	0.354	0.327	0.472	0.016	0.063
1112237	ANHX 120608 PNER-LS			◈		◯	◈		◈	◈			◈		◯	◈		◈	◈	0.354	0.327	0.472	0.031	0.047
1112429	ANHX 120616 PNER-LS			◈	△	◯	◈	△	◈	◈			◈	△	◯	◈	△	◈	◈	0.354	0.327	0.472	0.063	0.016
1112473	ANHX 120604 PNSR-MP			◈			◈			◈	◈	△	◈			◈			◈	0.354	0.327	0.472	0.016	0.063
1112238	ANHX 120608 PNSR-MP	◈		◈			◈			◈	◈	△	◈			◈			◈	0.354	0.327	0.472	0.031	0.047
1112430	ANHX 120616 PNSR-MP		△	◈			◈			◈	◈	△	◈			◈			◈	0.354	0.327	0.472	0.063	0.016

◈ First choice | 1ª Escolha | 1ª Opción △ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

◈ Stock Itens | Itens de stock ◯ Available under request (see page A-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

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

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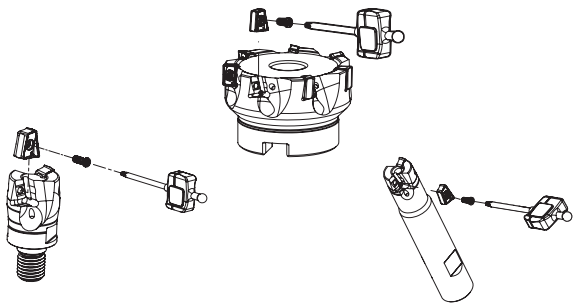
PLUS AN90-12

SPARE PARTS | Acessórios | Repuestos

Order separately

Cutter ØDc	Insert Screw	Key (Torx)	Key (Torx - lbf/in)	Torque Value
AN90-A-12 - 2.00-3.00	P0350904	XT10	DT1020	26.6
AN90-A-12 - 4.00	P0350904	PT10	DT1020	26.6
AN90-R-12 - 1.00-1.50	P0350904	XT10	DT1020	26.6
AN90-W-12 - 1.00-1.50	P0350904	XT10	DT1020	26.6

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-231.
Check the procedures for the clamping screws on the page A-231.



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

ISO	PSM	Material	HB (Brinell)	Vc (SFM) ◄— Wear Resistance — Toughness —►							
				PH5320	PHP920	PH7920	PHH930	PH7930	PHP930	PHS740	PH7740
P	1	Unalloyed Steel	125-220	-	590-820	590-788	-	525-722	525-755	460-722	460-656
	2	Low-Alloyed Steel	220-280	-	525-755	525-722	-	460-656	460-690	394-656	426-590
	3	High-Alloyed Steel	280-380	-	460-722	460-690	-	394-624	394-656	328-624	328-558
M	4	SS - Ferritic / Martensitic	200-330	-	-	460-722	460-690	460-656	-	-	426-590
	5	SS - Austenitic	200-330	-	-	426-590	394-558	394-525	-	-	360-525
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	-	394-525	328-492	328-460	-	-	-
K	7	Malleable Cast Iron	130-230	492-918	525-886	525-854	-	492-788	492-820	-	460-722
	8	Grey Cast Iron	180-245	525-1050	460-820	460-788	-	460-755	460-755	-	394-690
	9	Nodular Cast iron	160-250	328-624	394-690	394-656	-	328-624	328-656	-	328-624
S	11	Heat Resistant Super Alloys	200-320	-	-	-	100-360	100-328	-	-	100-328

ISO	PSM	Material	HB (Brinell)	Feed f_z (in/t)	
				ANHX 12... LS	ANHX 12... MP
P	1	Unalloyed Steel	125-220	0.003-0.008	0.003-0.012
	2	Low-Alloyed Steel	220-280	0.003-0.008	0.003-0.010
	3	High-Alloyed Steel	280-380	0.003-0.006	0.003-0.008
M	4	SS - Ferritic / Martensitic	200-330	0.003-0.008	-
	5	SS - Austenitic	200-330	0.003-0.006	-
	6	SS - Austenitic-ferritic (Duplex)	230-260	0.003-0.006	-
K	7	Malleable Cast Iron	130-230	0.003-0.008	0.003-0.012
	8	Grey Cast Iron	180-245	0.003-0.008	0.003-0.010
	9	Nodular Cast iron	160-250	0.003-0.008	0.003-0.008
S	11	Heat Resistant Super Alloys	200-320	0.003-0.004	-

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

(Note 2)

Operation	ae	Vc & fz	ap (in)
Slotting	100%	<20%	0.098-0.157
Shouldering	<50%	>8%	0.157-0.276
	≤25%	>12%	0.276-0.394

(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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palbit PILOT Precision Products Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

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

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance — Toughness →							
				PH5320	PHP920	PH7920	PHH930	PH7930	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				✓	✓			✓

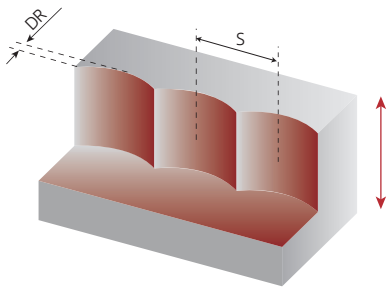
Good Conditions Average Conditions Difficult Conditions

CHIPBREAKER SELECTION GUIDE | Guia de selecção do quebra-aparas | Guía de selección del rompevirutas

ISO	PSM	Material	HB (Brinell)	Chipbreaker 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

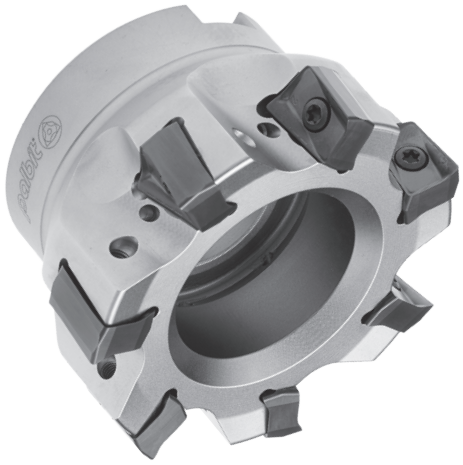
L≤3Dc	L>3Dc	S max.
f_z (in/t)		
0.004-0.008	0.004-0.006	$Smax = \sqrt{DC.Dr - Dr^2}$

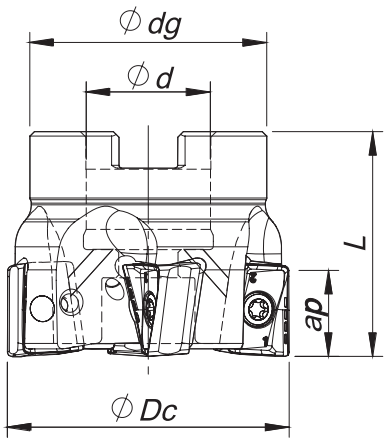


S max and DR corresponding cutting diameter Dc (in)							
DR (in)	Dc (in)						
	1.000	1.250	1.500	2.000	2.500	3.000	4.000
0.039	0.194	0.217	0.239	0.277	0.310	0.340	0.393
0.079	0.270	0.304	0.335	0.390	0.437	0.480	0.557
0.118	0.323	0.365	0.404	0.471	0.530	0.583	0.677
0.157	0.364	0.414	0.459	0.538	0.607	0.668	0.777
0.197	0.398	0.455	0.507	0.596	0.674	0.743	0.866
0.236	0.425	0.489	0.546	0.645	0.731	0.808	0.942
0.276	0.447	0.518	0.581	0.690	0.783	0.867	1.014

PDF VIDEO

PLUS AN90-16





Arbor Mounting

$\kappa_r = 90°$ | $\gamma_p = -4°$

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)				lbs	Specifications		Insert Pastilha Inserto	Stock
			ØDc	Ød/M	ØDg	L		Arbor Type	Ap max (in)		
181058900	AN90 D2.00-A.750/1.75-03-16	3	2.000	0.750	1.772	1.750	0.77	A	0.591	ANHX 1607...	●
181059000	AN90 D2.00-A.750/1.75-04-16	4	2.000	0.750	1.772	1.750	0.79	A	0.591	ANHX 1607...	●
181059100	AN90 D2.50-A1.00/1.75-04-16	4	2.500	1.000	2.205	1.750	1.25	A	0.591	ANHX 1607...	●
181059200	AN90 D2.50-A1.00/1.75-06-16	6	2.500	1.000	2.205	1.750	1.23	A	0.591	ANHX 1607...	●
181059300	AN90 D3.00-A1.00/2.00-05-16	5	3.000	1.000	2.205	2.000	1.93	A	0.591	ANHX 1607...	●
181059400	AN90 D3.00-A1.00/2.00-06-16	6	3.000	1.000	2.205	2.000	2.00	A	0.591	ANHX 1607...	●
181136400	AN90 D4.00-A1.50/2.50-05-16	5	4.000	1.500	3.386	2.500	3.66	A	0.591	ANHX 1607...	●
181136500	AN90 D4.00-A1.50/2.50-08-16	8	4.000	1.500	3.386	2.500	3.75	A	0.591	ANHX 1607...	●
181059500	AN90 D4.00-A1.25/2.00-05-16	5	4.000	1.250	2.874	2.000	3.66	A	0.591	ANHX 1607...	○
181059600	AN90 D4.00-A1.25/2.00-08-16	8	4.000	1.250	2.874	2.000	3.75	A	0.591	ANHX 1607...	○
181059700	AN90 D5.00-A1.50/2.50-07-16	7	5.000	1.500	3.386	2.500	7.38	A	0.591	ANHX 1607...	●
181059800	AN90 D5.00-A1.50/2.50-10-16	10	5.000	1.500	3.386	2.500	7.49	A	0.591	ANHX 1607...	●
181059900	AN90 D6.00-A2.00/2.50U-08-16	8	6.000	2.000	4.882	2.500	8.83	B	0.591	ANHX 1607...	●
181060000	AN90 D6.00-A2.00/2.50U-11-16	11	6.000	2.000	4.882	2.500	8.91	B	0.591	ANHX 1607...	●

● Stock item | Produto de stock | Itens de stock

○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)

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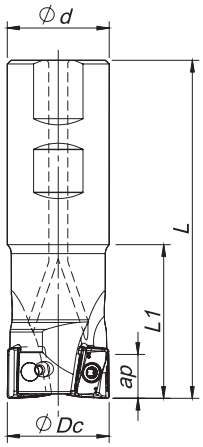
Shouldering | Facing | Slotting | Plunging





Weldon Shank

$\kappa_r = 90°$ | $\gamma_p = -4°$

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)				lbs	Specifications	Insert Pastilha Inserto	Stock
			ØDc	Ød/M	L	L1		Ap max (in)		
181060100	AN90 D1.25-W1.25/4.92-02-16	2	1.250	1.250	4.921	1.575	1.41	0.591	ANHX 1607...	◈
181060200	AN90 D1.50-W1.25/5.12-03-16	3	1.500	1.250	5.118	1.654	1.54	0.591	ANHX 1607...	◈
181060300	AN90 D2.00-W1.25/5.32-04-16	4	2.000	1.250	5.315	1.772	1.90	0.591	ANHX 1607...	◈

◈ Stock item | Produto de stock | Itens de stock

◯ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)

ANHX 1607... | Inserts | Pastilhas | Plaquitas

ANHX-LP



ANHX-MP

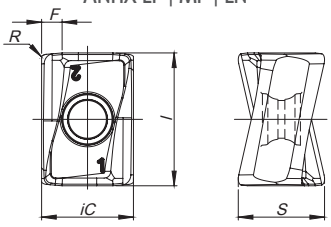


ANHX-LN



PHP NEW GRADE

ANHX-LP | MP | LN



		P							K						N	Dimensions Dimensões Dimensiones (in)				
		CVD	PVD						PVD						UNC					
	(2) Grade code	T9	G1	X5	G4	T1	P3	P4	G1	X5	G4	T1	P3	P4	10					
(1) Geometry code	ISO Reference	PHS740	PH7910	PHP910	PH7920	PHP920	PH7930	PHP930	PH7910	PHP910	PH7920	PHP920	PH7930	PHP930	PH0910	iC	S	l	R	F
1111519	ANHX 160708 PNR-LP		◬	◯		◈	◬	◈	◬	◯		◈	◬	◈		11,20	10,80	16	0,8	1,4
1111596	ANHX 160712 PNR-LP			◯	◬	◈	◬	◈		◯	◬	◈	◬	◈		11,20	10,50	16	1,2	1,2
1111595	ANHX 160708 PNER-MP	◈	◬	◯		◈	◬	◈	◬	◯		◈	◬	◈		11,20	10,80	16	0,8	1,4
1111598	ANHX 160712 PNER-MP			◯	◬	◈		◈		◯	◬	◈		◈		11,20	10,50	16	1,2	1,2
1111659	ANHX 160708 PNFR-LN														◈	11,20	10,80	16	0,8	1,4
1111597	ANHX 160712 PNFR-LN														◈	11,20	10,50	16	1,2	1,2

◈ 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-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

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

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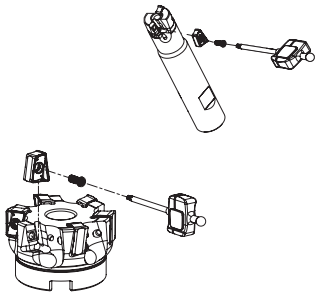
PLUS AN90-16

SPARE PARTS | Acessórios | Repuestos

Order separately

Cutter ØDc	Insert Screw	Key (Torx)	Key (Torx - lbf/in)	Torque Value
			lbf/in	lbf/in
AN90-A-16 - 2.00-3.00	P0401200	XT15	DT1530	26.6
AN90-A-16 - 4.00-6.00	P0401200	XT15	DT1530	26.6
AN90-W-16 - 1.25-2.00	P0401200	XT15	DT1530	26.6

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-231.
Check the procedures for the clamping screws on the page A-231.



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

ISO	PSM	Material	HB (Brinell)	Vc (SFM) ← Wear Resistance							Toughness →
				PH0910	PH7910	PHP910	PHP920	PH7920	PHP930	PH7930	PHS740
P	1	Unalloyed Steel	125-220	-	590-820	590-820	590-820	590-788	525-755	525-722	460-722
	2	Low-Alloyed Steel	220-280	-	525-755	525-788	525-755	525-722	460-690	460-656	394-656
	3	High-Alloyed Steel	280-380	-	460-722	460-755	460-722	460-690	394-656	394-624	328-624
K	7	Malleable Cast Iron	130-230	-	590-1004	590-1004	525-886	525-854	492-820	492-788	-
	8	Grey Cast Iron	180-245	-	525-820	525-820	460-820	460-788	460-755	460-755	-
	9	Nodular Cast iron	160-250	-	492-656	492-690	394-690	394-656	328-656	328-624	-
N	10	Aluminium and Non Ferrous	30-130	328-6560	-	-	-	-	-	-	-

ISO	PSM	Material	HB (Brinell)	Feed f_z (in/t)		
				ANHX 12... LP	ANHX 12... MP	ANHX 12... LN
P	1	Unalloyed Steel	125-220	0.004-0.010	0.004-0.010	-
	2	Low-Alloyed Steel	220-280	0.004-0.010	0.004-0.010	-
	3	High-Alloyed Steel	280-380	0.004-0.008	0.004-0.008	-
K	7	Malleable Cast Iron	130-230	0.004-0.010	0.004-0.010	-
	8	Grey Cast Iron	180-245	0.004-0.010	0.004-0.010	-
	9	Nodular Cast iron	160-250	0.004-0.008	0.004-0.010	-
N	10	Aluminium and Non Ferrous	30-130	-	-	0.004-0.016

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

(Note 2)

Operation	a_e	Vc & fz	a_p (in)
Slotting	100%	<20%	0.078-0.178
Shouldering	<50%	>8%	0.236-0.315
	≤25%	>12%	0.315-0.591

(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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GRADES SELECTION GUIDE | Guia para selecção de graus | Guía para selección de calidades

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance — Toughness →							
				PH0910	PH7910	PHP910	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	✓							

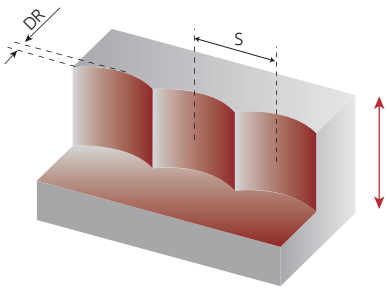
Good Conditions — Average Conditions — Difficult Conditions

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

ISO	PSM	Material	HB (Brinell)	Chipbreaker 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.
fz (in/t)		
0.004-0.008	0.004-0.006	$Smax = \sqrt{DC.DR - DR^2}$



S max and DR corresponding cutting diameter Dc (in)								
DR (in)	Dc (in)							
	1.250	1.500	2.000	2.500	3.000	4.000	5.000	6.000
0.039	0.217	0.239	0.277	0.310	0.340	0.393	0.440	0.482
0.079	0.304	0.335	0.390	0.437	0.480	0.557	0.624	0.684
0.118	0.365	0.404	0.471	0.530	0.583	0.677	0.759	0.833
0.157	0.414	0.459	0.538	0.607	0.668	0.777	0.872	0.958
0.197	0.455	0.507	0.596	0.674	0.743	0.866	0.973	1.069

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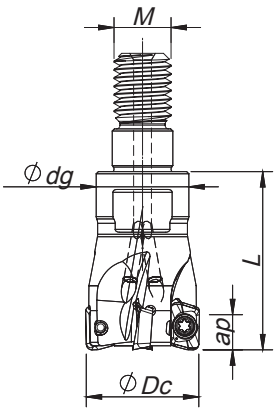
LINEPRO XP90-06





Threaded Coupling

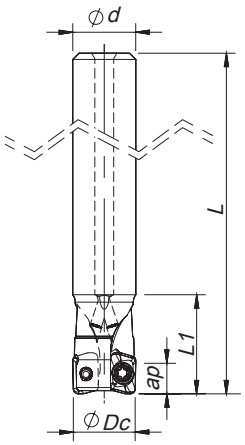
κ_r=90° | γ_p=+4°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)				lbs	Max ap (in)		Insert Pastilha Inserto	Stock
			ØDc	Ød/M	Ødg	L		LP	HF		
181105900	XP90 D.625-R-08/0.90-04-06	4	0.625	M08	0.531	0.906	0.13	0.157	0.012	XP... 0602...	◉
181106000	XP90 D.750-R-10/1.18-05-06	5	0.750	M10	0.708	1.181	0.19	0.157	0.012	XP... 0602...	◉
181106100	XP90 D1.00-R-12/1.37-07-06	7	1.000	M12	0.905	1.378	0.22	0.157	0.012	XP... 0602...	◉
181106200	XP90 D1.25-R-16/1.37-08-06	8	1.250	M16	1.102	1.378	0.39	0.157	0.012	XP... 0602...	◉

◉ Stock item | Produto de stock | Itens de stock

○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)





Cylindrical Shank

κ_r=90° | γ_p=+4°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)				lbs	Max ap (in)		Insert Pastilha Inserto	Stock
			ØDc	Ød/M	L	L1		LP	HF		
181105500	XP90 D.375-C.375/2.16-02-06	2	0.375	0.375	2.165	0.669	0.05	0.157	0.012	XP... 0602...	◉
181105600	XP90 D.500-C.500/3.15-02-06	2	0.500	0.500	3.150	0.709	0.15	0.157	0.012	XP... 0602...	◉
181105700	XP90 D.625-C.625/3.54-03-06	3	0.625	0.625	3.543	0.787	0.26	0.157	0.012	XP... 0602...	◉
181105800	XP90 D.625-C.625/3.54-04-06	4	0.625	0.625	3.543	0.787	0.25	0.157	0.012	XP... 0602...	◉

◉ Stock item | Produto de stock | Itens de stock

○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16))

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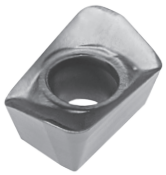
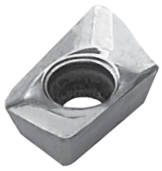
XP... 0602... | Inserts | Pastilhas | Plaquitas

XPET-LP



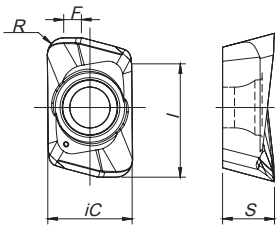
XPET-LN NEW



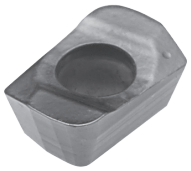
PHH NEW GRADE

PHP NEW GRADE

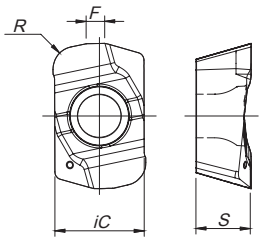
XPET-LP | LN



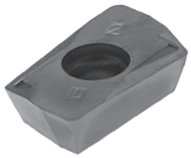
XPET-HF
(HiFeed geometry)



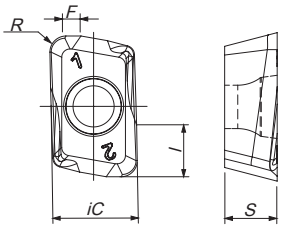
XPET-HF



XPHW-MH NEW
(finishing geometry)



XPHW-MH



		P				M	K		N	S	H		Dimensions Dimensões Dimensiones (in)				
		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	iC	S	l	R	F
1112002	XPET 060204 PDER-LP			◈	◈	◈	◈	◈		◈			0.154	0.094	0.209	0.016	0.031
1112003	XPET 060208 PDER-LP			◈	◈	◈	◈	◈		◈			0.154	0.094	0.209	0.031	0.028
1112004	XPET 060216 PDER-LP			◈	◈	○	◈	◈		○			0.154	0.094	0.209	0.063	0.024
NEW 1112579	XPET 060202 PDFR-LN								◈				0.154	0.094	0.201	0.008	0.037
NEW 1112580	XPET 060204 PDFR-LN								◈				0.154	0.094	0.201	0.016	0.031
1112049	XPET 060210 ZER-HF			◈	◈	◈	◈	◈		◈			0.154	0.094	-	0.039	0.031
NEW 1112259	XPHW 060208 ZER-MH	◈	◈								◈	◈	0.154	0.094	0.094	0.031	0.028

◈ First choice | Primeira opção | 1ª opción ◈ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

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

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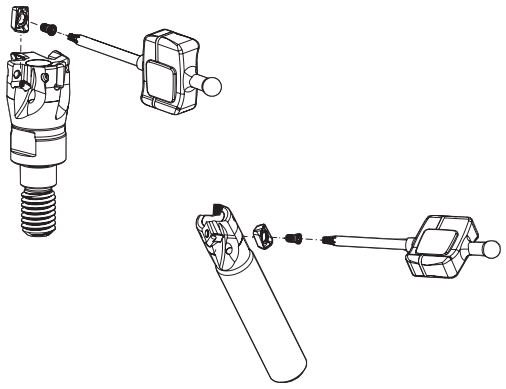
LINEPRO XP90-06

SPARE PARTS | Acessórios | Repuestos

Order separately

Cutter ØDc	Insert Screw	Key (Torx)	Key (Torx - lbf/in)	Torque Value
XP90-C-06 - 0.375	P0180300	XT06IP	DT0606IP	2.66
XP90-C-06 - 0.500-0.625	P0180400	XT06IP	DT0606IP	2.66
XP90-R-06 - 0.625-1.250	P0180400	XT06IP	DT0606IP	2.66

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-231.
Check the procedures for the clamping screws on the page A-231.



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

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

ISO	PSM	Material	HB (Brinell)	Vc (SFM) ◄— Wear Resistance					Toughness —►
				PH0910	PHH603	PHH910	PHP920	PHP930	PHH930
P	1	Unalloyed Steel	125-220	-	-	-	590-820	525-755	-
	2	Low-Alloyed Steel	220-280	-	-	525-886	525-755	460-690	-
	3	High-Alloyed Steel	280-380	-	590-1017	460-755	460-722	394-656	-
M	4	SS - Ferritic / Martensitic	200-330	-	-	-	-	-	460-690
	5	SS - Austenitic	200-330	-	-	-	-	-	394-558
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	-	-	-	-	328-492
K	7	Malleable Cast Iron	130-230	-	-	-	525-886	492-820	-
	8	Grey Cast Iron	180-245	-	-	-	460-820	460-755	-
	9	Nodular Cast iron	160-250	-	-	-	394-690	328-656	-
N	10	Aluminium and Non Ferrous	30-130	328-6560	-	-	-	-	-
S	11	Heat Resistant Super Alloys	200-320	-	-	-	-	-	100-360
H	12	Hardened Steels	40-55 HRC	-	230-886	230-854	-	-	-

ISO	PSM	Material	HB (Brinell)	Feed fz (in/t)			
				XPET 06...LP	XPET 06...LN	XPET 06...HF	XPHW 06...MH
P	1	Unalloyed Steel	125-220	0.002-0.003	-	0.016-0.031	-
	2	Low-Alloyed Steel	220-280	0.002-0.003	-	0.016-0.031	0.002-0.005
	3	High-Alloyed Steel	280-380	0.002-0.003	-	0.016-0.024	0.002-0.005
M	4	SS - Ferritic / Martensitic	200-330	0.002-0.003	-	0.016-0.031	-
	5	SS - Austenitic	200-330	0.002-0.003	-	0.016-0.024	-
	6	SS - Austenitic-ferritic (Duplex)	230-260	0.002-0.003	-	0.016-0.024	-
K	7	Malleable Cast Iron	130-230	0.002-0.003	-	0.016-0.031	-
	8	Grey Cast Iron	180-245	0.002-0.003	-	0.016-0.031	-
	9	Nodular Cast iron	160-250	0.002-0.003	-	0.016-0.031	-
N	10	Aluminium and Non Ferrous	30-130	-	0.002-0.003	-	-
S	11	Heat Resistant Super Alloys	200-320	0.002-0.003	-	0.016-0.024	-
H	12	Hardened Steels	40-55 HRC	-	-	-	0.001-0.004

(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) PH5... and PHS... can be used wet or dry. PH7... use only air.

(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.

Operation	a_e	Vc & fz	a_p (in)
Slotting	100%	<20%	0.039-0.118
Shouldering	<50%	>8%	0.039-0.157
	≤25%	>12%	0.039-0.157

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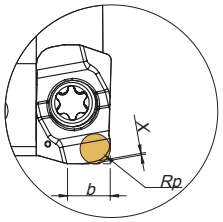
CHIPBREAKER SELECTION GUIDE | Guia para aplicações do quebra-aparas | Guía para aplicación del rompevirutas

ISO	PSM	Material	HB (Brinell)	Chipbreaker Application	
				1st choise	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	0.043	0.033	0.091



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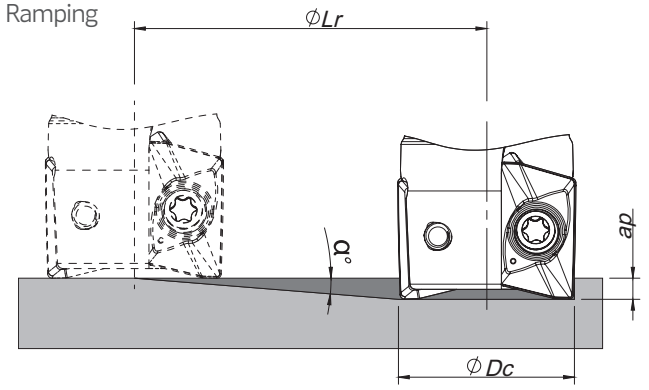
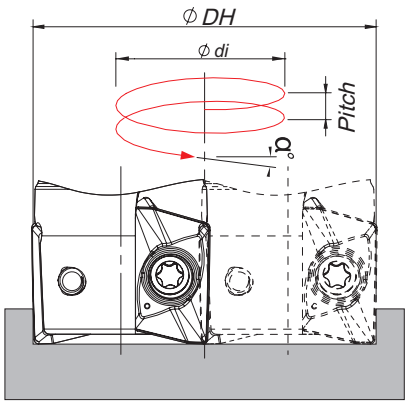
RAMPING AND HELICAL INTERPOLATION

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

Ramping



Helical Interpolation



Blind hole
Flat bottom

Ødi = ØDH - ØDc

ØDc	Ramping			Helical Interpolation		
				Diameter for Blind Hole. Flat Bottom Face (1)		Max Pitch/Rev.
	Max Ramp a°	Max a_p	Min Lr	ØDHmin	ØDHmax	
0.375	5.5	0.012	0.125	0.568 -	- 0.671	0.012 0.012
0.500	4.0	0.012	0.172	0.818 -	- 0.921	0.012 0.012
0.625	2.5	0.012	0.275	1.068 -	- 1.171	0.012 0.012
0.750	1.9	0.012	0.362	1.318 -	- 1.421	0.012 0.012
1.000	1.3	0.012	0.529	1.818 -	- 1.921	0.012 0.012
1.250	1.0	0.012	0.700	2.318 -	- 2.421	0.012 0.012

(1) using LP insert with radius 0.0.31 in

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 (ØDc - (R corner radius + F width of edge wiper))
- Maximum Diameter: ØDHmax = 2 x (ØDc - R corner radius)
(On HF insert the corner radius should be corner radius programming)

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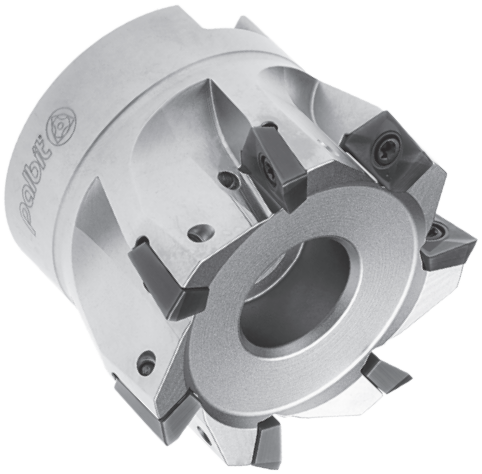
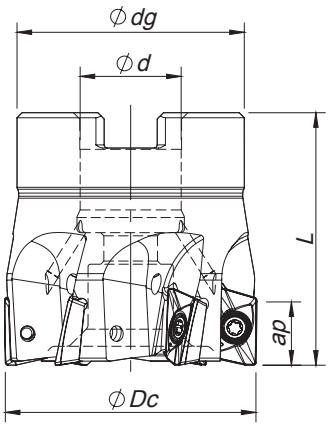
LINEPRO XP90-10





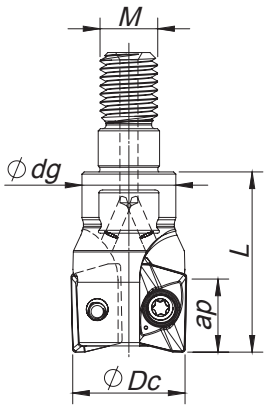
Arbor Mounting

κ_r=90° | γ_p=+8°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)				lbs	Max ap (in)			Arbor Style	Insert Pastilha Inserto	Stock
			ØDc	Ød/M	Ødg	L		LP/MP	HF	MH			
181107000	XP90 D1.50-A.500/1.57-06-10	6	1.500	0.500	1.417	1.575	0.22	0.394	0.031	0.118	A	XP... 1003...	◎
181107100	XP90 D2.00-A.750/1.57-07-10	7	2.000	0.750	1.772	1.575	0.31	0.394	0.031	0.118	A	XP... 1003...	◎
181107200	XP90 D2.50-A.750/1.57-08-10	8	2.500	0.750	2.205	1.575	0.43	0.394	0.031	0.118	A	XP... 1003...	◎

◎ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)





Threaded Coupling

κ_r=90° | γ_p=+5° ~+6°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)				lbs	Max ap (in)			Insert Pastilha Inserto	Stock
			ØDc	Ød/M	Ødg	L		LP/MP	HF	MH		
181106600	XP90 D.625-R-08/1.00-02-10	2	0.625	M8	0.531	1.000	0.05	0.394	0.031	0.118	XP... 1003...	◎
181106700	XP90 D.750-R-10/1.37-03-10	3	0.750	M10	0.728	1.378	0.23	0.394	0.031	0.118	XP... 1003...	◎
181106800	XP90 D1.00-R-12/1.57-04-10	4	1.000	M12	0.906	1.575	0.27	0.394	0.031	0.118	XP... 1003...	◎
181106900	XP90 D1.25-R-16/1.57-05-10	5	1.250	M16	1.181	1.575	0.47	0.394	0.031	0.118	XP... 1003...	◎

◎ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)

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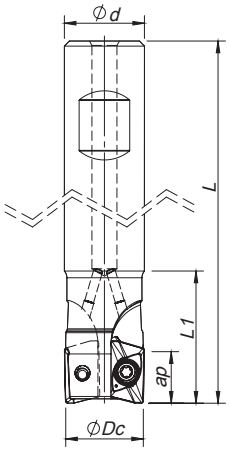


Weldon Shank

κ_r=90° | γ_p=+5°~8°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)				lbs	Max ap (in)			Insert Pastilha Inserto	Stock
			ØDc	Ød/M	L	L1		LP/MP	HF	MH		
181106300	XP90 D.625-W.625/3.25-02-10	2	0.625	0.625	3.252	1.083	0.23	0.394	0.031	0.118	XP... 1003...	◎
181106400	XP90 D.750-W.750/3.39-02-10	2	0.750	0.750	3.390	1.189	0.34	0.394	0.031	0.118	XP... 1003...	◎
181106500	XP90 D1.00-W1.00/3.78-03-10	3	1.000	1.000	3.780	1.280	0.68	0.394	0.031	0.118	XP... 1003...	◎

◎ Stock item | Produto de stock | Itens de stock

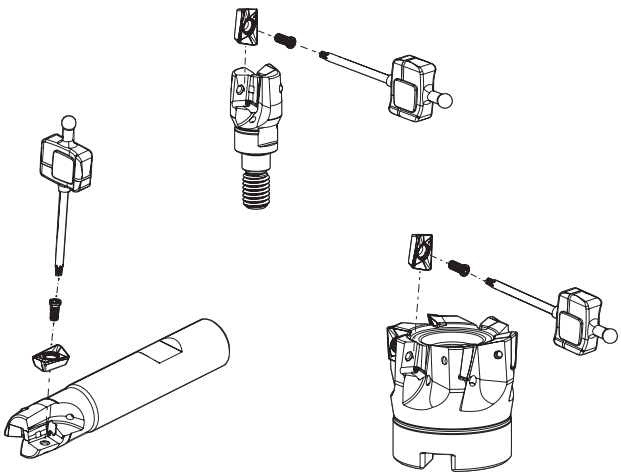
○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)

SPARE PARTS | Acessórios | Repuestos

Order separately

Cutter ØDc	Insert Screw	Key (Torx)	Key (Torx - lbf/in)	Torque Value
			lbf/in	lbf/in
XP90-W-10 - 0.625-1.00	P0250704	XT08	DT0812	10.6
XP90-R-10 - 0.625-1.25	P0250704	XT08	DT0812	10.6
XP90-A-10 - 1.50-2.50	P0250704	XT08	DT0812	10.6

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-231.
Check the procedures for the clamping screws on the page A-231.



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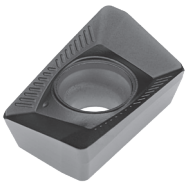
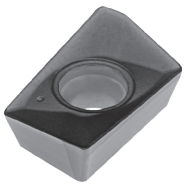
XP... 1003... | Inserts | Pastilhas | Plaquitas

XPET-LP
(PHH-PHP grade)



XPET-MP
(PHH-PHP grade)



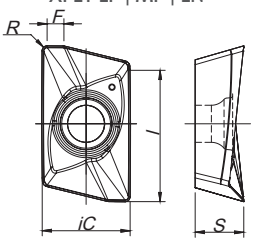
XPET-LN



PHH NEW GRADE

PHP NEW GRADE

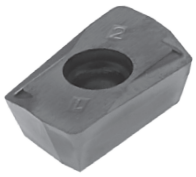
XPET-LP | MP | LN



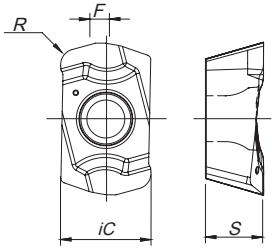
XPET-HF
(HiFeed geometry)



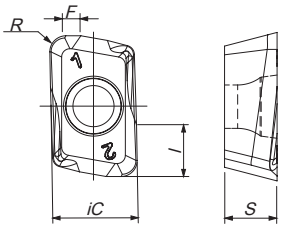
XPHW-MH NEW
(finishing geometry)



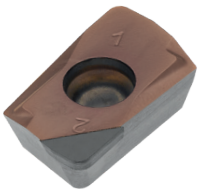
XPET-HF



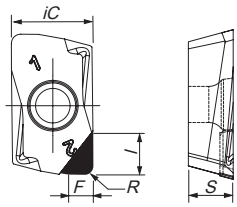
XPHW-MH



XPHW-R Z1 NEW



XPHW-R Z1



		P					M	K					N		S	H		Dimensions Dimensões Dimensiones (in)				
		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	PH5740	PH7910	PHP910	PHP920	PHP930	PHH930	PH5705	PH5740	PHP910	PHP920	PHP930	PH0910	PDP410	PHH930	PHH603	PHH910	iC	S	l	R	F
NEW 1113132	XPET 100302 PDER-LP						◬								◬			0.274	0.156	0.413	0.008	0.059
1111980	XPET 100304 PDER-LP				◬	◬	◬				◬	◬			◬			0.274	0.156	0.413	0.016	0.051
1111981	XPET 100308 PDER-LP	◬			◬	◬	◬				◬	◬			◬			0.274	0.156	0.413	0.031	0.055
1112022	XPET 100316 PDER-LP				◬	◬	◬				◬	◬			◬			0.274	0.156	0.413	0.063	0.031
1111982	XPET 100304 PDSR-MP		◬	○	◬	◬		◬	◬		◬	◬						0.274	0.156	0.413	0.016	0.043
1111983	XPET 100308 PDSR-MP	◬	◬	◬	◬	◬	○	◬	◬	◬	◬	◬			○			0.274	0.156	0.413	0.031	0.053
1111984	XPET 100304 PDFR-LN												◬	○				0.274	0.156	0.413	0.016	0.030
1112906	XPET 100308 PDFR-LN												◬	○				0.274	0.156	0.413	0.031	0.041
1111985	XPET 100312 PDFR-LN												◬					0.274	0.156	0.413	0.047	0.030
1112376	XPET 100312 ZDR-HF			◬	◬	◬	◬			◬	◬	◬			◬			0.274	0.156	-	0.047	0.059
NEW 1112500	XPHW 100308 ZER-MH			○						○						◬	◬	0.274	0.142	0.118	0.031	0.051
NEW 1112736	XPHW 100310 ZER-MH															◬		0.274	0.142	0.118	0.039	0.014
NEW 1112735	XPHW 100320 ZER-MH															◬		0.274	0.142	0.118	0.047	0.043
NEW 1112556	XPHW 100308 R Z1													◬				0.274	0.142	0.150	0.031	0.091

◬ 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-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

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

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palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

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

ISO	PSM	Material	HB (Brinell)	Chipbreaker Application	
				1st choise	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 ... LP/HF	-
	5	SS - Austenitic	200-330	XPET 10 ... LP/HF	-
	6	SS - Austenitic-ferritic (Duplex)	230-260	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 ... LP/HF	-
H	12	Hardened Steels	40-55 HRC	XPHW 10 ... MH	-

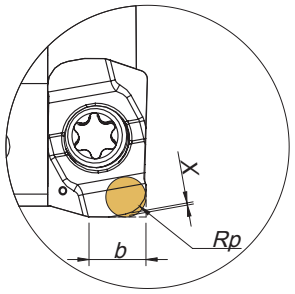
GRADES SELECTION GUIDE | Guia para selecção de graus | Tabla para selección de calidades

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance Toughness →								PCD
				PH0910	PH5705	PHH603	PHP910	PHP920	PHP930	PHH930	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

PROGRAMMING DATA | Dados para programação | Datos para la programación

Insert	Programming Data		
	Rp	X	b
XPET 10 HF	0.063	0.013	0.136



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

ISO	PSM	Material	HB (Brinell)	Vc (SFM) ← Wear Resistance						Toughness →		
				PH0910	PH5705	PHH603	PHP910	PHP920	PHP930	PHH930	PH5740	PHS740
P	1	Unalloyed Steel	125-220	-	-	-	590-820	590-820	525-755	-	-	460-722
	2	Low-Alloyed Steel	220-280	-	-	-	525-788	525-755	460-690	-	-	394-656
	3	High-Alloyed Steel	280-380	-	-	590-1017	460-755	460-722	394-656	-	-	328-624
M	4	SS - Ferritic / Martensitic	200-330	-	-	-	-	-	-	460-690	-	-
	5	SS - Austenitic	200-330	-	-	-	-	-	-	394-558	-	-
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	-	-	-	-	-	328-492	-	-
K	7	Malleable Cast Iron	130-230	-	525-950	-	590-1004	525-886	492-820	-	525-854	-
	8	Grey Cast Iron	180-245	-	558-1050	-	525-820	460-820	460-755	-	460-788	-
	9	Nodular Cast iron	160-250	-	460-656	-	492-690	394-690	328-656	-	394-656	-
N	10	Aluminium and Non Ferrous	30-130	328-6560	-	-	-	-	-	-	-	-
S	11	Heat Resistant Super Alloys	200-320	-	-	-	-	-	-	100-360	-	-
H	12	Hardened Steels	40-55 HRC	-	-	230-886	-	-	-	-	-	-

ISO	PSM	Material	HB (Brinell)	PCD	Feed fz (in/t)				
				PDP410	XPET 10... LP	XPET 10... MP	XPET 10... LN/R Z1	XPET 10... HF	XPHW 10... MH
P	1	Unalloyed Steel	125-220	-	0.003-0.008	0.004-0.010	-	0.016-0.031	0.004-0.010
	2	Low-Alloyed Steel	220-280	-	0.003-0.008	0.004-0.008	-	0.016-0.031	0.004-0.010
	3	High-Alloyed Steel	280-380	-	0.003-0.006	0.004-0.008	-	0.016-0.024	0.004-0.010
M	4	SS - Ferritic / Martensitic	200-330	-	0.003-0.008	0.004-0.008	-	0.016-0.028	-
	5	SS - Austenitic	200-330	-	0.003-0.008	0.004-0.008	-	0.016-0.028	-
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	0.003-0.006	0.004-0.008	-	0.016-0.024	-
K	7	Malleable Cast Iron	130-230	-	0.003-0.008	0.004-0.010	-	0.020-0.031	-
	8	Grey Cast Iron	180-245	-	0.003-0.008	0.004-0.010	-	0.020-0.031	-
	9	Nodular Cast iron	160-250	-	0.003-0.008	0.004-0.008	-	0.020-0.024	-
N	10	Aluminium and Non Ferrous	30-130	328-9840	-	-	0.003-0.010	-	-
S	11	Heat Resistant Super Alloys	200-320	-	0.002-0.003	-	-	0.016-0.024	-
H	12	Hardened Steels	40-55 HRC	-	-	-	-	-	0.003-0.006

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

(Note 2): PH5... and PHS... can be used wet or dry. PH7... use only air.

(Note 3):

Operation	a_e	Vc & fz	a_p (in)
Slotting	100%	<20%	0.078-0.157
Shouldering	<50%	>8%	0.118-0.236
	≤25%	>12%	0.276-0.354

(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.

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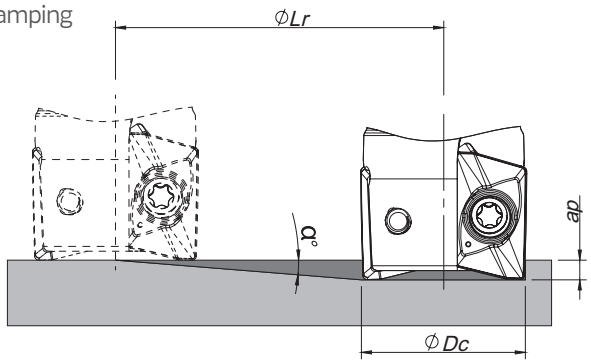
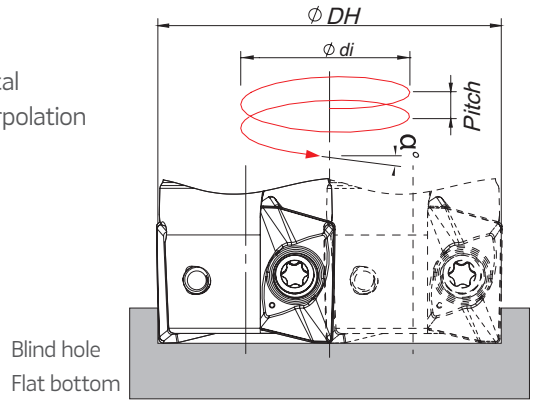
RAMPING AND HELICAL INTERPOLATION

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

Ramping



Helical Interpolation



Ødi = ØDH - ØDc

ØDc	Ramping			Helical Interpolation		
				Diameter for Blind Hole, Flat Bottom Face (1)		Max Pitch/Rev.
	Max Ramp a°	Max a_p	Min Lr	ØDHmin	ØDHmax	
0.625	7.5	0.394	2.993	0.978 -	- 1.171	0.140 0.220
0.750	5.0	0.394	4.503	1.228 -	- 1.421	0.130 0.180
1.000	3.5	0.394	6.442	1.728 -	- 1.921	0.130 0.170
1.250	2.5	0.394	9.024	2.228 -	- 2.421	0.130 0.160
1.500	1.7	0.394	13.275	2.728 -	- 2.921	0.110 0.130
2.000	1.3	0.394	17.362	3.728 -	- 3.921	0.120 0.130
2.500	1.0	0.394	22.572	4.728 -	- 4.921	0.120 0.130

(1) using LP insert with radius 0.031 in

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 (ØDc - (R corner radius + F width of edge wiper))
- Maximum Diameter: ØDHmax = 2 x (ØDc - R corner radius)

PDF

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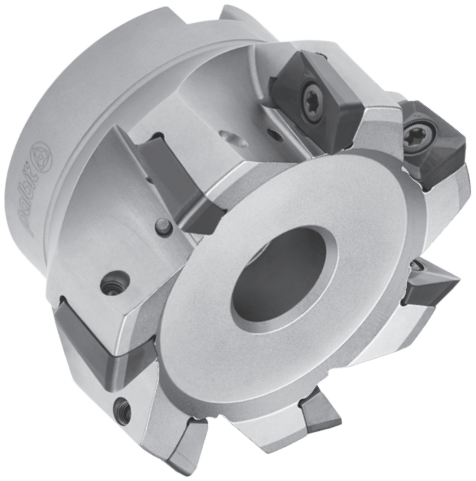
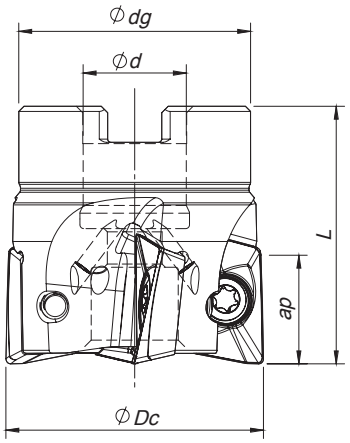
LINEPRO XP90-17





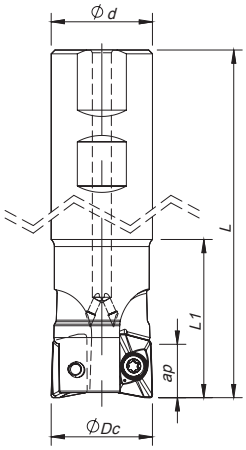
Arbor Mounting

K_r=90° | γ_p=+7° ~+8°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)				lbs	Specifications		Insert Pastilha Inserto	Stock
			ØDc	Ød/M	Ødg	L		Arbor Type	Ap max (in)		
181107700	XP90 D1.50-A.500/1.57-04-17	4	1.500	0.500	1.417	1.575	0.50	A	0.669	XPET 1706...	◈
181107800	XP90 D2.00-A.750/1.57-05-17	5	2.000	0.750	1.772	1.575	0.70	A	0.669	XPET 1706...	◈
181107900	XP90 D2.50-A.750/1.57-06-17	6	2.500	0.750	2.205	1.575	1.10	A	0.669	XPET 1706...	◈
181108000	XP90 D3.00-A1.00/1.97-07-17	7	3.000	1.000	2.205	1.970	2.20	A	0.669	XPET 1706...	◈
181108100	XP90 D4.00-A1.25/1.97-08-17	8	4.000	1.250	2.874	1.970	3.74	A	0.669	XPET 1706...	◈
181108200	XP90 D5.00-A1.25/2.48-09-17	9	5.000	1.500	3.386	2.480	6.83	A	0.669	XPET 1706...	◈

◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)





Weldon Shank

K_r=90° | γ_p=+6° ~+7°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)				lbs	Specifications	Insert Pastilha Inserto	Stock
			ØDc	Ød/M	L	L1		Ap max (in)		
181107300	XP90 D1.25-W1.25/4.33-02-17	2	1.250	1.250	4.330	1.570	1.00	0.669	XPET 1706...	◈
181107400	XP90 D1.25-W1.25/4.33-03-17	3	1.250	1.250	4.330	1.570	1.00	0.669	XPET 1706...	◈
181107500	XP90 D1.50-W1.25/4.72-03-17	3	1.500	1.250	4.720	1.570	1.70	0.669	XPET 1706...	◈
181107600	XP90 D1.50-W1.25/4.72-04-17	4	1.500	1.250	4.720	1.570	1.70	0.669	XPET 1706...	◈

◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)

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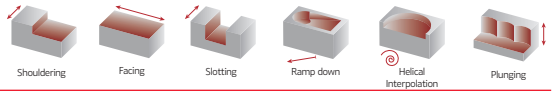
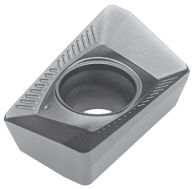


XPET 1706... | Inserts | Pastilhas | Plaquitas

XPET-LP



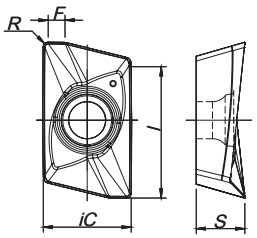
XPET-MP



PHH NEW GRADE

PHP NEW GRADE

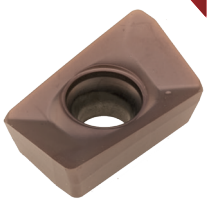
XPET-LP | MP | LN | LS



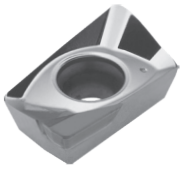
XPET-LN



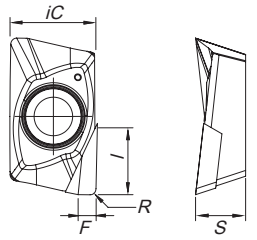
XPET-LS (PHH grade) NEW



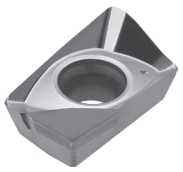
XPET-LN Z1 NEW



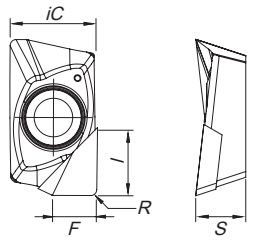
XPET-LP | MP | LN | LS



XPET-LN Z1W NEW



XPET-LP | MP | LN | LS



		P			M		K				N		S		Dimensions Dimensões Dimensiones (in)				
		CVD	PVD		PVD		CVD		PVD		UNC	PCD	PVD						
	(2) Grade code	T9	T1	G6	X9	G6	L5	L9	T1	G6	10	D6	X9	G6					
(1) Geometry code	ISO Reference	PHS740	PHP920	PH7740	PHH930	PH7740	PH5705	PH5740	PHP920	PH7740	PH0910	PDP410	PHH930	PH7740	iC	S	l	R	F
1111986	XPET 170608 PDER-LP		◬	◬		◬			◬	◬				◬	0.445	0.250	0.689	0.031	0.071
1111987	XPET 170616 PDER-LP		◬	◬		◬			◬	◬				◬	0.445	0.250	0.689	0.063	0.047
1111988	XPET 170608 PDSR-MP	◬	◬	◬		◬	◬	◬	◬	◬				◬	0.445	0.250	0.689	0.031	0.071
1111989	XPET 170616 PDSR-MP		◬	◬		◬	◬	◬	◬	◬				◬	0.445	0.250	0.689	0.063	0.039
NEW 1113085	XPET 170608 PDFR-LN Z1											◬			0.433	0.256	0.315	0.031	0.059
NEW 1113086	XPET 170608 PDFR-LN Z1W											◬			0.433	0.256	0.315	0.031	0.193
1111990	XPET 170608 PDFR-LN										◬				0.445	0.250	0.689	0.031	0.047
1111991	XPET 170620 PDFR-LN										◬				0.445	0.250	0.689	0.079	0.039
1111992	XPET 170632 PDFR-LN										◬				0.445	0.250	0.689	0.126	0.031
NEW 1112223	XPET 170608 PDER-LS			◬	◬	◬				◬			◬	◬	0.445	0.250	0.689	0.031	0.071

◬ First choice | Primeira opção | 1ª opción ◬ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

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

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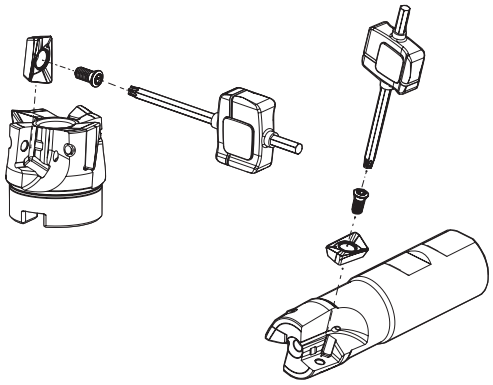
LINEPRO XP90-17

SPARE PARTS | Acessórios | Repuestos

Cutter ØDc	Insert Screw	Key (Torx)	Order separately Key (Torx - lbf/in)	Torque Value
				
XP90-A-17 - 1.50-3.00	P0451001	XT20	DT2050	44.3
XP90-A-17 - 4.00-5.00	P0451001	PT20	DT2050	44.3
XP-90-W-17 - 1.25-1.50	P0451001	XT20	DT2050	44.3

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-231.
Check the procedures for the clamping screws on the page A-231.



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	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

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

ISO	PSM	Material	HB (Brinell)	Chipbreaker Application	
				1st choise	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	-
	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/R Z1/R Z1W	-
S	11	Heat Resistant Super Alloys	200-320	XPET 17... LS	XPET 17... LP

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LINEPRO XP90-17

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

ISO	PSM	Material	HB (Brinell)	Vc (SFM) ← Wear Resistance							Toughness →
				PH0910	PH5705	PHP920	PHP930	PHH930	PH5740	PHS740	PH7740
P	1	Unalloyed Steel	125-220	-	-	590-820	525-755	-	-	460-722	460-656
	2	Low-Alloyed Steel	220-280	-	-	525-755	460-690	-	-	394-656	426-590
	3	High-Alloyed Steel	280-380	-	-	460-722	394-656	-	-	328-624	328-558
M	4	SS - Ferritic / Martensitic	200-330	-	-	-	-	460-690	-	-	426-590
	5	SS - Austenitic	200-330	-	-	-	-	394-558	-	-	360-525
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	-	-	-	328-492	-	-	-
K	7	Malleable Cast Iron	130-230	-	525-950	525-886	492-820	-	525-854	-	460-722
	8	Grey Cast Iron	180-245	-	558-1050	460-820	460-755	-	460-788	-	394-690
	9	Nodular Cast iron	160-250	-	460-656	394-690	328-656	-	394-656	-	328-624
N	10	Aluminium and Non Ferrous	30-130	328-6560	-	-	-	-	-	-	-
S	11	Heat Resistant Super Alloys	200-320	-	-	-	-	100-360	-	-	100-328

ISO	PSM	Material	HB (Brinell)	PCD	Feed fz (in/t)			
				PDP410	XPET 17... LP	XPET 17... MP	XPET 17... LN/R Z1	XPET 17... LS
P	1	Unalloyed Steel	125-220	-	0.004-0.014	0.004-0.014	-	-
	2	Low-Alloyed Steel	220-280	-	0.004-0.014	0.004-0.014	-	-
	3	High-Alloyed Steel	280-380	-	0.004-0.012	0.004-0.012	-	-
M	4	SS - Ferritic / Martensitic	200-330	-	0.004-0.012	-	-	0.004-0.014
	5	SS - Austenitic	200-330	-	0.004-0.012	-	-	0.004-0.012
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	0.004-0.010	-	-	-
K	7	Malleable Cast Iron	130-230	-	0.004-0.014	0.004-0.014	-	-
	8	Grey Cast Iron	180-245	-	0.004-0.014	0.004-0.014	-	-
	9	Nodular Cast iron	160-250	-	0.004-0.012	0.004-0.012	-	-
N	10	Aluminium and Non Ferrous	30-130	330-9850	-	-	0.004-0.014	-
S	11	Heat Resistant Super Alloys	200-320	-	0.004-0.008	-	-	0.004-0.008

(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	a_p (in)
Slotting	100%	<20%	0.079-0.236
Shouldering	<50%	>8%	0.276-0.512
	≤25%	>12%	0.512-0.630

(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.

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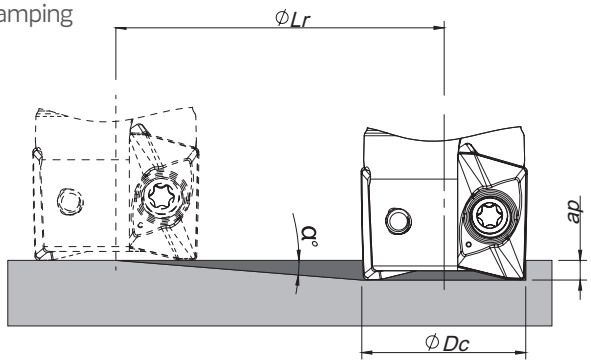
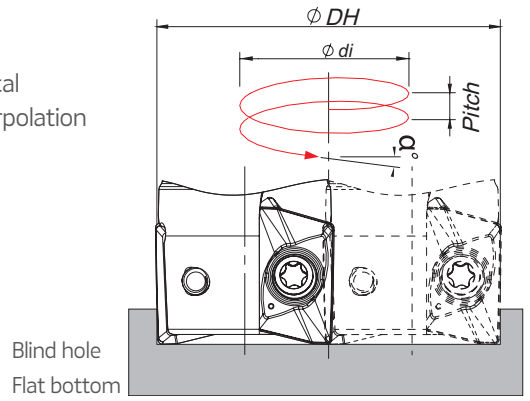
RAMPING AND HELICAL INTERPOLATION

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

Ramping



Helical Interpolation



Ødi = ØDH - ØDc

ØDc	Ramping			Helical Interpolation		
				Diameter for Blind Hole. Flat Bottom Face (1)		Max Pitch/Rev.
	Max Ramp a°	Max a_p	Min Lr	ØDHmin	ØDHmax	
1.250	3.8	0.669	10.072	2.228 -	- 2.421	0.200 0.240
1.500	2.7	0.669	14.186	2.728 -	- 2.921	0.180 0.210
2.000	2.0	0.669	19.158	3.728 -	- 3.921	0.180 0.210
2.500	1.5	0.669	25.548	4.728 -	- 4.921	0.180 0.190
3.000	1.0	0.669	38.327	5.728 -	- 5.921	0.140 0.160
4.000	0.8	0.669	47.910	7.728 -	- 7.921	0.160 0.170
5.000	0.7	0.669	54.756	9.728 -	- 9.921	0.180 0.180

(1) using LP insert with radius 0.031 in
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 (ØDc - (R corner radius + F width of edge wiper))
- Maximum Diameter: ØDHmax = 2 x (ØDc - R corner radius)

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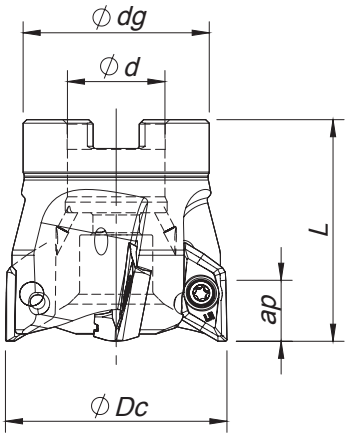
ALUPRO XD90-15





Arbor Mounting

K_r=90° | γ_p=+11°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)				lbs	Specifications			Insert radius Raio da pastilha Rayo del Inserto	Stock
			ØDc	Ød	Ødg	L		Cutter Type	Max ap (in)	rpm max		
181104600	XD90 D1.50-A.500/2.00-03-15	3	1.500	0.500	1.440	2.000	0.66	A	0.551	29 000	0.016~0.126	◎
181104700	XD90 D2.00-A.750/2.00-04-15	4	2.000	0.750	1.772	2.000	0.88	A	0.551	24 000	0.016~0.126	◎
181104800	XD90 D2.50-A.750/2.50-05-15	5	2.500	0.750	2.205	2.500	1.54	A	0.551	21 000	0.016~0.126	◎
181104900	XD90 D3.00-A1.00/2.50-05-15	5	3.000	1.000	2.874	2.500	2.42	A	0.551	19 000	0.016~0.126	◎
181105000	XD90 D4.00-A1.50/2.50-06-15	6	4.000	1.500	3.180	2.500	4.41	A	0.551	16 000	0.016~0.126	◎

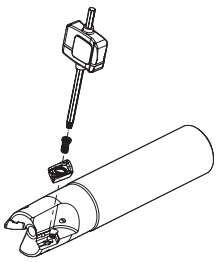
◎ Stock item | Produto de stock | Itens de stock

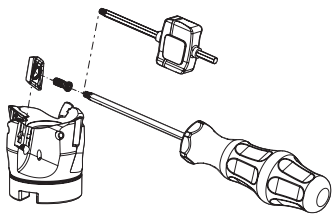
○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)

SPARE PARTS | Acessórios | Repuestos

Order separately

Cutter ØDc	Insert Screw	Key (Torx)	Key (Torx - lbf/in)	Torque Value
			lbf/in	lbf/in
XD90-A-15 - 1.50-3.00	P0400900	XT15	DT1530	26.6
XD90-A-15 - 4.00	P0400900	PT15	DT1530	26.6
XD90-C-15 - 0.75-1.00	P0400803	XT15	DT1530	26.6
XD90-C-15 - 1.25-1.50	P0400900	XT15	DT1530	26.6





Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-231.
Check the procedures for the clamping screws on the page A-231.

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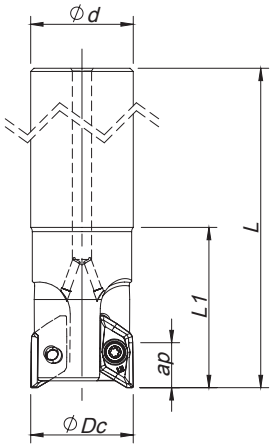


Cylindrical Shank

κ_r=90° | γ_p=+6° ~+11°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)				lbs	Specifications			Insert radius Raio da pastilha Rayo del Inserto	Stock
			ØDc	Ød	L	L1		Cutter Type	Max ap (in)	rpm max		
181105100	XD90 D0.75-C0.75/6.00-01-15	1	0.750	0.750	6.000	2.000	0.44	A	0.591	40 000	0.016~0.126	◈
181105200	XD90 D1.00-C1.00/6.00-02-15	2	1.000	1.000	6.000	2.000	0.88	A	0.591	38 000	0.016~0.126	◈
181105300	XD90 D1.25-C1.25/6.00-02-15	2	1.250	1.250	6.000	2.000	1.54	A	0.591	33 000	0.016~0.126	◈
181105400	XD90 D1.50-C1.50/6.00-03-15	3	1.500	1.500	6.000	2.000	3.08	A	0.591	29 000	0.016~0.126	◇

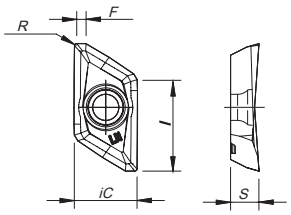
◈ Stock item | Produto de stock | Itens de stock

○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)

◇ Inventory maintained. To be replaced by new item. | Iten em stock. Será substituido por novo item | Iten en stock. Será reemplezado por nuevo iten.

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





		N	Dimensions Dimensões Dimensiones (in)					Cutter Type
		UNC						
	(2) Grade code	10						
(1) Geometry code	ISO Reference	PH0910	iC	S	I	R	F	
1111624	XDGX 15M504 PDFR-LN	◈	0.441	0.197	0.630	0.016	0.059	A
1111625	XDGX 15M508 PDFR-LN	◈	0.441	0.197	0.630	0.031	0.043	A
1111626	XDGX 15M512 PDFR-LN	◈	0.441	0.197	0.630	0.047	0.028	A
1111627	XDGX 15M516 PDFR-LN	◈	0.441	0.197	0.630	0.063	0.016	A
1111628	XDGX 15M520 PDFR-LN	◈	0.441	0.197	0.630	0.079	0.008	A
1112154	XDGX 15M530 PDFR-LN	◈	0.441	0.197	0.630	0.118	0.024	A
1111629	XDGX 15M532 PDFR-LN	◈	0.441	0.197	0.630	0.126	0.024	A

First choice | Primeira opção | 1ª opción

◈ Stock item | Produto de stock | Itens de stock

○ Available under request (see page A-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

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

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ALUPRO XD90-15

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

SHOULDERING

ISO	PSM	Material	HB (Brinell)	Vc (SFM) PH0910	Width of Cut ae	Depth of Cut ap (in)	Feed fz(in/t)
N	10	Aluminium and Non Ferrous	30-130	1148-9840	≤ 25% ØDc	≤0.197	0.014 - 0.016
						0.197 - 0.394	0.012 - 0.014
						0.394 - 0.591	0.010 - 0.012
					< 50% ØDc	≤0.197	0.014 - 0.016
						0.197 - 0.394	0.012 - 0.014
						0.394 - 0.591	0.010 - 0.012
					≤ 75% ØDc	≤0.197	0.012 - 0.014
						0.197 - 0.394	0.010 - 0.012
						0.394 - 0.591	0.008 - 0.010

SLOTTING

ISO	PSM	Material	HB (Brinell)	Vc (SFM) PH0910	Width of Cut ae	Depth of Cut ap (in)	Feed fz(in/t)
N	10	Aluminium and Non Ferrous	30-130	1148-9840	100% ØDc	≤0.197	0.010 - 0.014
						0.197 - 0.394	0.008 - 0.012
						0.394 - 0.591	0.006 - 0.010

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

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

(Note 3) Use internal coolant supply

OPERATIONAL GUIDE | Guia operacional | Guía operativa

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

Table 1 - Maximum allowable revolutions:

ØDc	Ø0.750	Ø1.000	Ø1.250	Ø1.500	Ø2.000	Ø2.500	Ø3.000	Ø4.000
RPM (min^{-1})	40 000	38 000	33 000	29 000	24 000	21 000	19 000	16 000

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

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

ØDc	Ø0.750	Ø1.000	Ø1.250	Ø1.500	Ø2.000	Ø2.500	Ø3.000	Ø4.000
RPM (min^{-1})	15 000	12 000	9 500	8 500	7 600	6 800	6 000	5 400

- 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.

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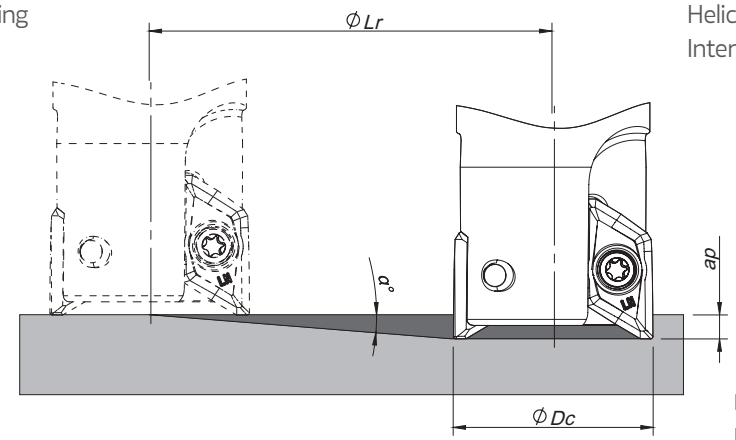
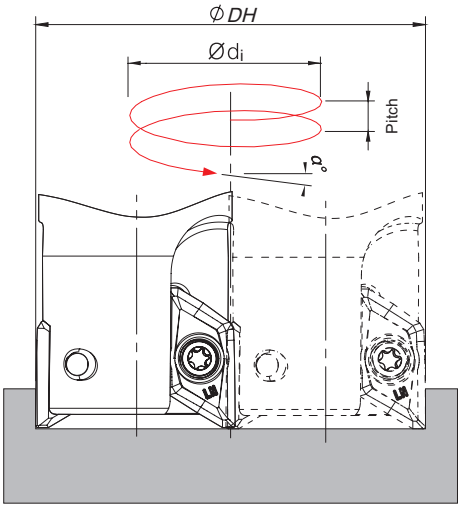
RAMPING AND HELICAL INTERPOLATION

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

Ramping



Helical Interpolation



Blind hole
Flat bottom

Ødi = ØDH - ØDc

ØDc	Ramping			Helical Interpolation		
				Diameter for Blind Hole. Flat Bottom Face (1)		Max Pitch/Rev.
	Max Ramp a°	Max a_p	Min Lr	ØDHmin	ØDHmax	
0.750	23	0.551	1.299	1.342 -	- 1.421	0.551 0.551
1.000	21	0.551	1.436	1.842 -	- 1.921	0.551 0.551
1.250	15	0.551	2.057	2.342 -	- 2.421	0.551 0.551
1.500	10	0.551	3.126	2.842 -	- 2.921	0.551 0.551
2.000	8	0.551	3.922	3.842 -	- 3.921	0.551 0.551
2.500	6	0.551	5.244	4.842 -	- 4.921	0.551 0.551
3.000	4	0.551	7.883	5.842 -	- 5.921	0.551 0.551
4.000	2.5	0.551	12.625	7.842 -	- 7.921	0.520 0.530

(1) using insert radius 0.031 in.
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 (ØDc - (R corner radius + F width of edge wiper))
- Maximum Diameter: ØDHmax = 2 x (ØDc - R corner radius)

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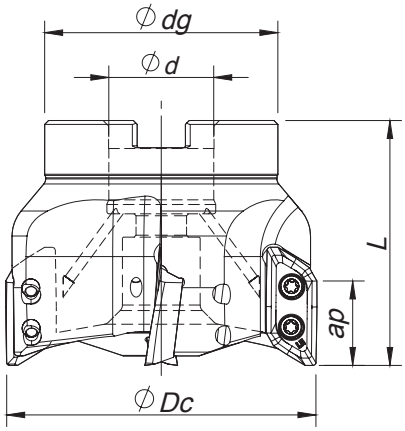
ALUPRO XD90-22





Arbor Mounting

K_r=90° | γ_p=+7°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)				lbs	Specifications			Insert radius Raio da pastilha Rayo del Inserto	Stock
			ØDc	Ød	Ødg	L		Arbor Type	Max ap (in)	rpm max		
181079500	XD90 D2.00-A.750/2.00-03-22	3	2.000	0.750	1.772	2.000	0.98	A	0.846	30 000	0.031~0.126	◉
181079600	XD90 D2.50-A1.00/2.00-03-22	3	2.500	1.000	2.205	2.000	1.41	A	0.846	25 000	0.031~0.126	◉
181072600	XD90 D3.00-A1.00/2.00-04-22	4	3.000	1.000	2.205	2.000	1.82	A	0.846	23 000	0.031~0.126	○
181071700	XD90 D3.00-A1.00/2.50-04-22	4	3.000	1.000	2.205	2.500	2.96	A	0.846	23 000	0.031~0.126	◉
181079700	XD90 D4.00-A1.25/2.50-05-22	5	4.000	1.250	2.874	2.500	5.43	A	0.846	19 000	0.031~0.126	◬
181138600	XD90 D4.00-A1.50/2.50-05-22	5	4.000	1.500	3.000	2.500	5.43	A	0.846	16 000	0.031~0.126	○
181079800	XD90 D5.00-A1.50/2.50-06-22	6	5.000	1.500	3.180	2.500	6.72	A	0.846	30 000	0.031~0.126	◉

◉ Stock item | Produto de stock | Itens de stock

○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)

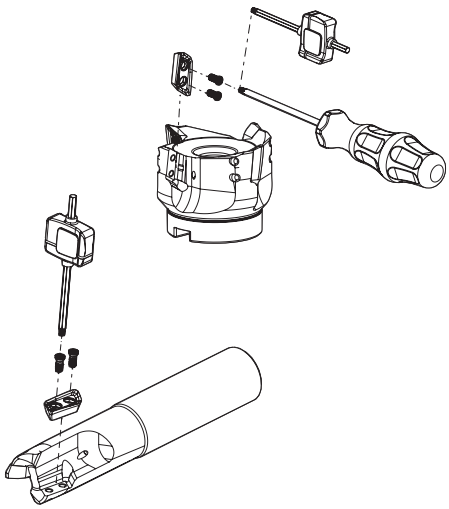
◬ Inventory maintained. To be replaced by new item. | Iten em stock. Será substituido por novo item | Iten en stock. Será reemplezado por nuevo iten.

SPARE PARTS | Acessórios | Repuestos

Order separately

Cutter ØDc	Insert Screw	Key (Torx)	Key (Torx - lbf/in)	Torque Value
			lbf/in	lbf/in
XD90-A-22 - 2.00-3.00	P0401200	XT15	DT1530	26.6
XD90-A-22 - 4.00-5.00	P0401200	PT15	DT1530	26.6
XD90-C-22 - 1.25-1.50	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-231.
Check the procedures for the clamping screws on the page A-231.



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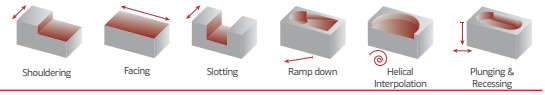
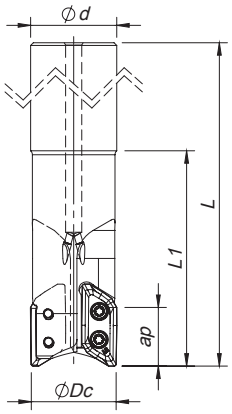




Cylindrical Shank

K_r=90° | γ_p=+6°



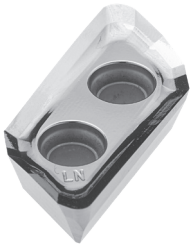
Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)				lbs	Specifications			Insert radius Raio da pastilha Rayo del Inserto	Stock
			ØDc	Ød	L	L1		Arbor Type	Max ap (in)	rpm max		
181069900	XD90 D1.25-C1.25/6.69-02-22	2	1.250	1.250	6.693	3.150	1.67	A	0.846	41 000	0.031~0.126	◈
181079900	XD90 D1.50-C1.50/6.69-02-22	2	1.500	1.500	6.693	3.150	1.82	A	0.846	36 000	0.031~0.126	◇
181138700	XD90 D1.50-C1.25/8.00-02-22	2	1.500	1.250	8.000	3.000	1.82	A	0.846	41 000	0.031~0.126	○

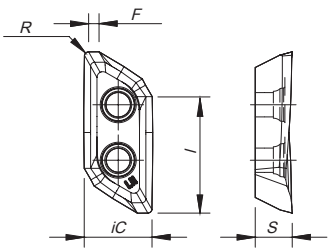
◈ Stock item | Produto de stock | Itens de stock

○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)

◇ Inventory maintained. To be replaced by new item. | Iten em stock. Será substituido por novo item | Iten en stock. Será reemplezado por nuevo iten.

XDGX 22M7... | Inserts | Pastillas | Plaquitas





		N	Dimensions Dimensões Dimensiones (in)					Cutter Type
	(2) Grade code	UNC 10						
(1) Geometry code	ISO Reference	PH0910	iC	S	l	R	F	
1111618	XDGX 22M708 PDFR-LN	◈	0.512	0.276	0.866	0.031	0.079	A
1111619	XDGX 22M716 PDFR-LN	◈	0.512	0.276	0.866	0.063	0.047	A
1111620	XDGX 22M720 PDFR-LN	◈	0.512	0.276	0.866	0.079	0.031	A
1111621	XDGX 22M732 PDFR-LN	◈	0.512	0.276	0.866	0.126	0.024	A

◈ First choice | Primeira opção | 1ª opción ◈ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

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

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ALUPRO XD90-22

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

SHOULDERING

ISO	PSM	Material	HB (Brinell)	Vc (SFM) PH0910	Width of Cut ae	Depth of Cut ap (in)	Feed fz(in/t)
N	10	Aluminium and Non Ferrous	30-130	1148-9840	≤ 25% ØDc	≤0.197	0.014-0.016
						0.197 - 0.394	0.012-0.014
						0.394 - 0.591	0.010-0.012
						0.591 - 0.787	0.008-0.010
					< 50% ØDc	≤0.197	0.014-0.016
						0.197 - 0.394	0.012-0.014
						0.394 - 0.591	0.010-0.012
						0.591 - 0.787	0.008-0.010
					≤ 75% ØDc	≤0.197	0.012-0.014
						0.197 - 0.394	0.010-0.012
						0.394 - 0.591	0.008-0.010
						0.591 - 0.787	0.006-0.008

SLOTTING

ISO	PSM	Material	HB (Brinell)	Vc (SFM) PH0910	Width of Cut ae (mm)	Depth of Cut ap (in)	Feed fz(in/t)
N	10	Aluminium and Non Ferrous	30-130	1148-9840	100% ØDc	≤0.197	0.010-0.014
						0.197 - 0.394	0.008-0.012
						0.394 - 0.591	0.006-0.010
						0.591 - 0.787	0.004-0.008

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

(Note 3) Use internal coolant supply.

OPERATIONAL GUIDE | Guia operacional | Guía operativa

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

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

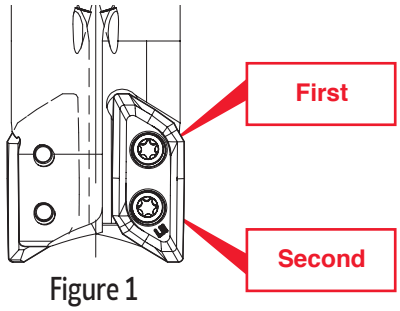

Figure 1

Table 1 - Maximum allowable revolutions:

ØDc	Ø1.250	Ø1.500	Ø2.000	Ø2.500	Ø3.000	Ø4.000	Ø5.000
RPM (min^{-1})	41 000	36 000	30 000	25 000	23 000	19 000	16 000

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

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

ØDc	Ø1.250	Ø1.500	Ø2.000	Ø2.500	Ø3.000	Ø4.000	Ø5.000
RPM (min^{-1})	9 500	7 600	6 000	4 800	3 800	3 000	2 400

- 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.

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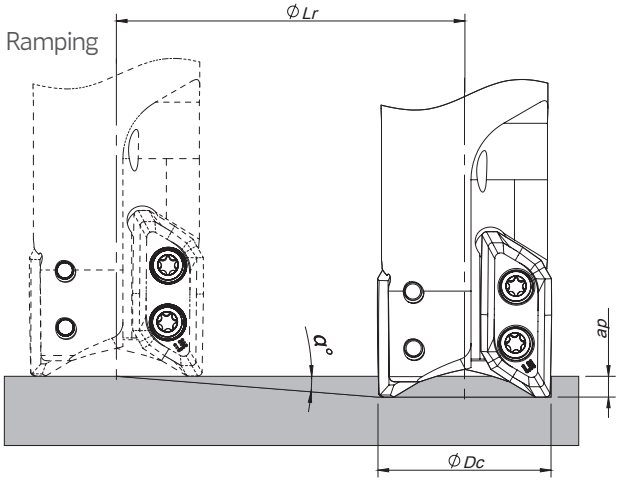
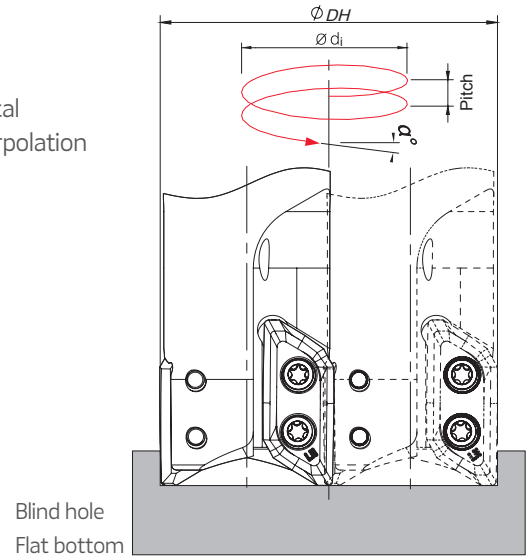
RAMPING AND HELICAL INTERPOLATION

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

Ramping



Helical Interpolation



Ødi = ØDH - ØDc

ØDc	Ramping			Helical Interpolation		
				Diameter for Blind Hole. Flat Bottom Face (1)		Max Pitch/Rev.
	Max Ramp a°	Max a_p	Min Lr	ØDHmin	ØDHmax	
1.250	19.0	0.827	2.401	2.303 -	- 2.421	0.827 0.827
1.500	13.0	0.827	3.581	2.803 -	- 2.921	0.827 0.827
2.000	9.0	0.827	5.220	3.803 -	- 3.921	0.827 0.827
2.500	7.0	0.827	6.734	4.803 -	- 4.921	0.827 0.827
3.000	5.0	0.827	9.450	5.803 -	- 5.921	0.770 0.800
4.000	4.0	0.827	11.824	7.803 -	- 7.921	0.827 0.827
5.000	3.0	0.827	15.776	9.803 -	- 9.921	0.790 0.810

(1) using insert radius 0.031 in.
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 (ØDc - (R corner radius + F width of edge wiper))
- Maximum Diameter: ØDHmax = 2 x (ØDc - R corner radius)

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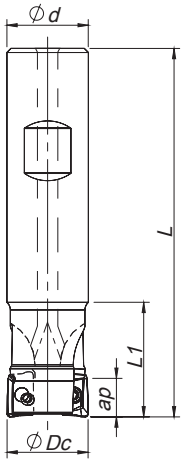
LINEPRO AP90-10





Weldon Shank

κ_r=90° | γ_p=+7° ~+9°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)				lbs	Specifications	Insert Pastilha Inserto	Stock
			ØDc	Ød/M	L	L1		Ap max (in)		
181060400	AP90 D.500-W.500/3.94-01-10	1	0.500	0.500	3.937	0.850	0.40	0.354	AP... 1003...	○
181060500	AP90 D.625-W.625/3.94-02-10	2	0.625	0.625	3.937	1.024	0.28	0.354	AP... 1003...	◎
181060700	AP90 D.750-W.750/3.94-02-10	2	0.750	0.750	3.937	1.181	0.40	0.354	AP... 1003...	◎
181064500	AP90 D.750-W.750/3.94-03-10	3	0.750	0.750	3.937	1.181	0.37	0.354	AP... 1003...	○
181060800	AP90 D.750-W.750/7.87-02-10	2	0.750	0.750	7.874	1.575	0.85	0.354	AP... 1003...	◎
181068800	AP90 D1.00-W1.00/4.53-03-10	3	1.000	1.000	4.528	1.378	0.84	0.354	AP... 1003...	◎
181060900	AP90 D1.00-W1.00/5.91-03-10	3	1.000	1.000	5.910	1.432	1.08	0.354	AP... 1003...	○
181068900	AP90 D1.00-W1.00/4.53-04-10	4	1.000	1.000	4.528	1.378	0.83	0.354	AP... 1003...	○
181061000	AP90 D1.00-W1.00/9.84-03-10	3	1.000	1.000	9.843	1.575	1.95	0.354	AP... 1003...	◎
181069000	AP90 D1.25-W1.25/4.92-04-10	4	1.250	1.250	4.921	1.575	1.46	0.354	AP... 1003...	○
181061100	AP90 D1.25-W1.25/6.30-03-10	3	1.250	1.250	6.300	1.575	1.15	0.354	AP... 1003...	○
181061200	AP90 D1.25-W1.25/9.84-04-10	4	1.250	1.250	9.843	1.575	3.11	0.354	AP... 1003...	○
181061300	AP90 D1.50-W1.25/7.87-03-10	3	1.500	1.250	7.874	1.575	2.57	0.354	AP... 1003...	○
181061400	AP90 D1.50-W1.25/9.84-05-10	5	1.500	1.250	9.843	1.575	3.20	0.354	AP... 1003...	○

◎ Stock item | Produto de stock | Itens de stock

○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)

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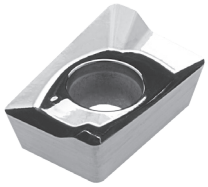
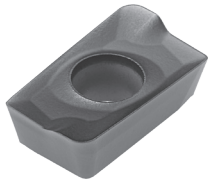
AP... 1003... | Inserts | Pastilhas | Plaquitas

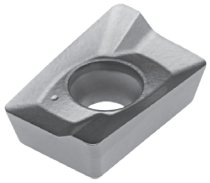
APET - LN



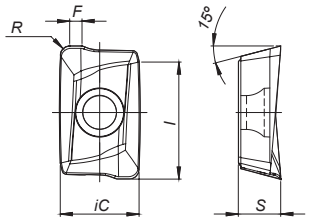
APKT - X



APKT - X1



APET-LN | APKT-X | APKT-X1



		P		M	K		N	Dimensions Dimensões Dimensiones (in)				
		PVD		PVD	PVD		UNC					
	(2) Grade code	68	66	66	68	66	10					
(1) Geometry code	ISO Reference	PH6920	PH6930	PH6930	PH6920	PH6930	PH0910	iC	S	l	R	F
1112043	APET 100305 PDFR-LN						●	0.264	0.138	0.394	0.020	0.047
1112168	APKT 100305 PDER-X1	●	●	●	●	●		0.264	0.138	0.394	0.020	0.047
1112167	APKT 100305 PDSR-X1	●	●	●	●	●		0.264	0.138	0.394	0.020	0.047
1111071	APKT 100308 PDER-X	●	●	●	●	●		0.264	0.138	0.394	0.031	0.035
1111044	APKT 100308 PDSR-X	●	○	○	●	○		0.264	0.138	0.394	0.031	0.035
1111042	APKT 100308 PDTR-X	●	●	●	●	●		0.264	0.138	0.394	0.031	0.035
1111072	APKT 100312 PDER-X	●	●	●	●	●		0.264	0.138	0.394	0.047	-
1110987	APKT 100312 PDSR-X	●	○	○	●	○		0.264	0.138	0.394	0.047	-
1111045	APKT 100312 PDTR-X	●	●	●	●	●		0.264	0.138	0.394	0.047	-

● First choice | Primeira opção | 1ª opción ● Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

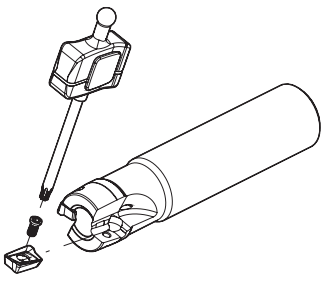
Insert order code = (1) Geometry Code + (2) Grade Code

SPARE PARTS | Acessórios | Repuestos

Order separately

Cutter ØDc	Insert Screw	Key (Torx)	Key (Torx - lbf/in)	Torque Value
			lbf/in	lbf/in
AP90-W-10 - 0.50-1.50	P0250503	XT08	DT0812	10.6

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-231.
Check the procedures for the clamping screws on the page A-231.



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LINEPRO AP90-10

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

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

ISO	PSM	Material	HB (Brinell)	Vc (SFM) ← Wear Resistance Toughness → PH0910	PH6920	PH6930	Feed fz (in/t) APKT 10... PDER-X/X1	APKT 10... PDS(T)R-X/X1	APET 10... PDFR-LN
P	1	Unalloyed Steel	125-220	-	590-788	525-722	0.003-0.006	0.004-0.010	-
	2	Low-Alloyed Steel	220-280	-	525-722	460-656	0.003-0.004	0.004-0.008	-
	3	High-Alloyed Steel	280-380	-	460-690	394-624	0.003-0.004	0.004-0.008	-
M	4	SS - Ferritic / Martensitic	200-330	-	460-722	460-656	0.003-0.004	-	-
	5	SS - Austenitic	200-330	-	426-590	394-525	0.003-0.004	-	-
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	394-525	328-460	0.003-0.004	-	-
K	7	Malleable Cast Iron	130-230	-	525-854	492-788	0.003-0.006	0.004-0.010	-
	8	Grey Cast Iron	180-245	-	460-788	460-755	0.003-0.006	0.004-0.010	-
	9	Nodular Cast iron	160-250	-	394-656	328-624	-	0.004-0.008	-
N	10	Aluminium and Non Ferrous	30-130	328-6560	-	-	-	-	0.003-0.008

(Note 1) Cutting conditions a_e/Dc=70%.
(Note 2) Cutting conditions for slotting and shouldering operations:

Operation	a_e	Vc & fz	a_p (in)
Slotting	100%	<20%	0.118-0.157
Shouldering	<50%	>8%	0.197-0.236
	≤25%	>12%	0.276-0.315

(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.

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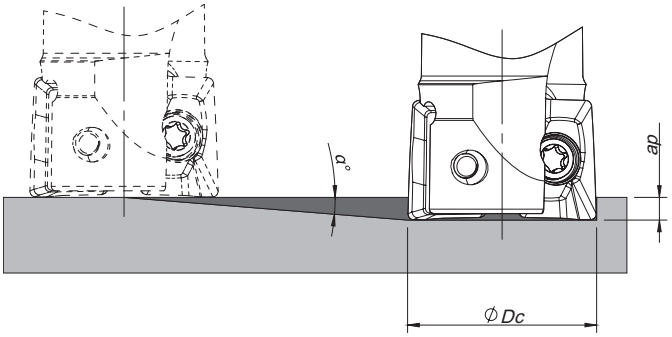
CHIPBREAKER SELECTION GUIDE | Guia para aplicações do quebra-aparas | Guía para aplicación del rompevirutas

ISO	PSM	Material	HB (Brinell)	Chipbreaker Application	
				1st choise	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	-

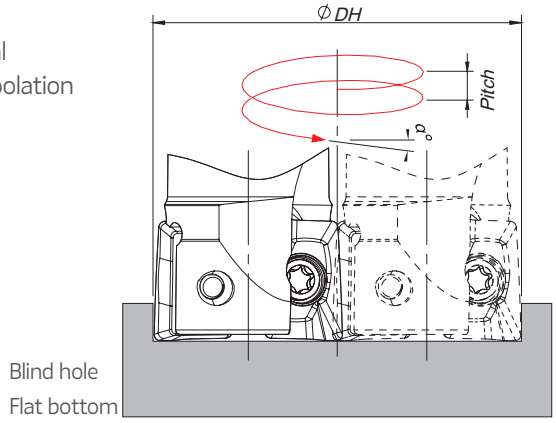
RAMPING AND HELICAL INTERPOLATION

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

Ramping



Helical Interpolation



Ødi = ØDH - ØDc

ØDc	Ramping			Helical Interpolation		
				Diameter for Blind Hole. Flat Bottom Face (1)		Max Pitch/Rev.
	Max Ramp a°	Max a_p	Min Lr	ØDHmin	ØDHmax	
0.500	1.5	0.354	13.519	0.866 -	- 0.921	0.030 0.034
0.625	1.4	0.354	14.485	1.116 -	- 1.171	0.037 0.041
0.750	1.0	0.354	20.281	1.366 -	- 1.421	0.033 0.036
1.000	0.7	0.354	28.974	1.866 -	- 1.921	0.033 0.035
1.250	0.6	0.354	33.803	2.366 -	- 2.421	0.036 0.038
1.500	0.5	0.354	40.564	2.866 -	- 2.921	0.037 0.038

(1) using LP insert with radius 0.031 in
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 (ØDc - (R corner radius + F width of edge wiper))
- Maximum Diameter: ØDHmax = 2 x (ØDc - R corner radius)

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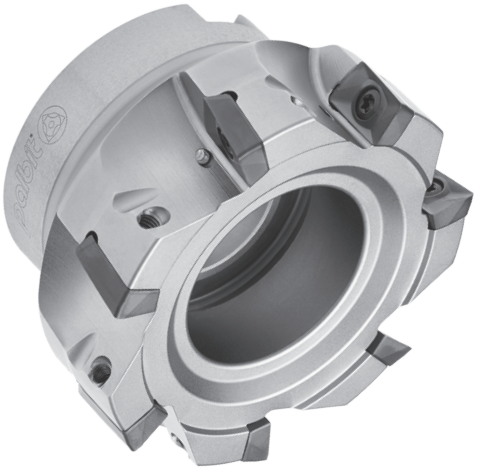

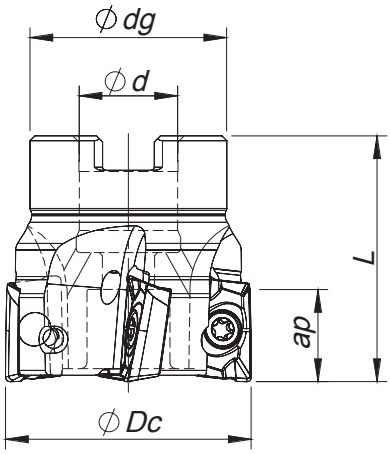

Arbor Mounting

K_r=90° | γ_p=+8° ~+10°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)				lbs	Specifications		Insert Pastilha Inserto	Stock
			ØDc	Ød	Ødg	L		Arbor Type	Ap max (in)		
181137100	AP90 D1.50-A.500/1.50-04-16	4	1.500	0.500	1.417	1.500	0.37	A	0.571	AP... 1604	○
181137200	AP90 D2.00-A.750/1.75-05-16	5	2.000	0.750	1.772	1.750	0.66	A	0.571	AP... 1604	◈
181137300	AP90 D2.50-A.750/1.75-06-16	6	2.500	0.750	1.772	1.750	1.17	A	0.571	AP... 1604	○
181137400	AP90 D3.00-A1.00/2.00-07-16	7	3.000	1.000	2.205	2.000	1.87	A	0.571	AP... 1604	◈
181137500	AP90 D4.00-A1.25/2.00-08-16	8	4.000	1.250	2.874	2.000	3.75	A	0.571	AP... 1604	◈
181137600	AP90 D5.00-A1.50/2.50-09-16	9	5.000	1.500	3.386	2.500	6.94	A	0.571	AP... 1604	○
181137700	AP90 D6.00-A2.00/2.50-10-16	10	6.000	2.000	4.882	2.500	9.37	A	0.571	AP... 1604	○

◈ Stock item | Produto de stock | Itens de stock

○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)

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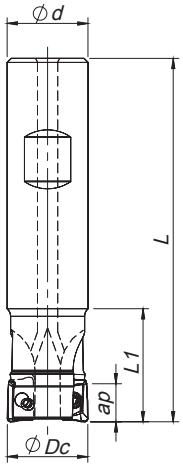


Weldon Shank

κ_r=90° | γ_p=+6° ~+8°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)				lbs	Specifications	Insert Pastilha Inserto	Stock
			ØDc	Ød	L	L1		Ap max (in)		
181061500	AP90 D.875-W.750/3.94-02-16	2	0.875	0.750	3.937	1.378	0.39	0.571	AP... 1604	◉
181136800	AP90 D1.00-W1.00/4.00-02-16	2	1.000	1.000	4.000	1.750	0.67	0.571	AP... 1604	◉
181136900	AP90 D1.00-W1.00/6.00-02-16	2	1.000	1.000	6.000	3.750	1.02	0.571	AP... 1604	◉
181137000	AP90 D1.00-W1.00/8.00-02-16	2	1.000	1.000	8.000	5.750	1.48	0.571	AP... 1604	◉
181062000	AP90 D1.00-W1.00/5.91-02-16	2	1.000	1.000	5.906	3.150	1.02	0.571	AP... 1604	◇
181061900	AP90 D1.00-W1.00/7.87-02-16	2	1.000	1.000	7.874	1.968	1.48	0.571	AP... 1604	◇
181061800	AP90 D1.25-W1.00/4.92-03-16	3	1.250	1.000	4.921	1.575	0.93	0.571	AP... 1604	◉
181061700	AP90 D1.25-W1.25/4.92-03-16	3	1.250	1.250	4.921	1.968	1.37	0.571	AP... 1604	◉
181062200	AP90 D1.25-W1.25/6.30-03-16	3	1.250	1.250	6.300	3.937	1.74	0.571	AP... 1604	◉
181062100	AP90 D1.25-W1.25/9.84-03-16	3	1.250	1.250	9.843	1.968	3.02	0.571	AP... 1604	◉
181062300	AP90 D1.50-W1.25/7.87-03-16	3	1.500	1.250	7.874	1.575	2.51	0.571	AP... 1604	◉
181062400	AP90 D1.50-W1.25/9.84-03-16	3	1.500	1.250	9.843	1.575	3.16	0.571	AP... 1604	◉

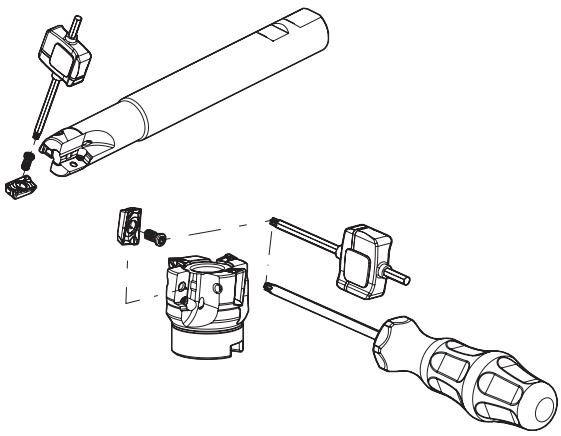
◉ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta ◇ Inventory maintained. To be replaced by new item. | Iten em stock. Será substituido por novo item | Iten en stock. Será reemplezado por nuevo iten.

SPARE PARTS | Acessórios | Repuestos

Order separately

Cutter ØDc	Insert Screw	Key (Torx)	Key (Torx - lbf/in)	Torque Value
AP90-A-16 - 1.50-3.00	P0400900	XT15	DT1530	26.6
AP90-A-16 - 4.00-6.00	P0400900	PT15	DT1530	26.6
AP90-W-16 - 0.875-1.50	P0400900	XT15	DT1530	26.6

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-231.
Check the procedures for the clamping screws on the page A-231.



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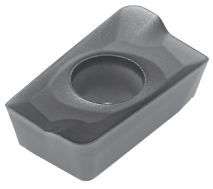
LINEPRO AP90-16

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

APKT - X



APKT - X1



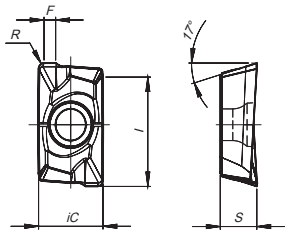
APKT - X2



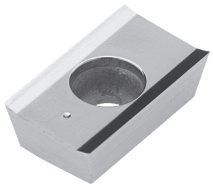
APKT - LN



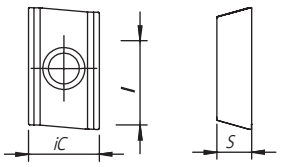
APKT-X | X1 | X2 | LN



APHT - LN



APHT-LN



		P				M		K				N	Dimensions Dimensões Dimensiones (in)				
		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	iC	S	l	R	F
1112159	APKT 160408 PDER-X1	◉		◉		◉		◉		◉			0.372	0.211	0.630	0.031	0.071
1112464	APKT 160408 PDER-X2		◉		◉		◉		◉		◉		0.372	0.211	0.630	0.031	0.071
1112158	APKT 160408 PDSR-X1	◉		◉		◉		◉		◉			0.372	0.211	0.630	0.031	0.071
1112367	APKT 160408 PDSR-X2		◉		◉		◉		◉		◉		0.372	0.211	0.630	0.031	0.071
1111923	APKT 160408 PDFR-LN											◉	0.372	0.211	0.630	0.031	0.031
1111074	APKT 160416 PDER-X	◉						◉					0.372	0.211	0.630	0.063	0.047
1111050	APKT 160416 PDSR-X	◉		◉				◉		◉			0.372	0.211	0.630	0.063	0.047
1111075	APKT 160432 PDER-X*	◉						◉					0.372	0.211	0.630	0.126	-
1111052	APKT 160432 PDSR-X*	◉						◉					0.372	0.211	0.630	0.126	-
1111924	APHT 1604 PDFR-LN											◉	0.372	0.211	0.630	-	-

◉ First choice | Primeira opção | 1ª opción ◉ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

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

*For inserts with radius above 0.079 in, the cutter must be adjusted

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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

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

ISO	PSM	Material	HB (Brinell)	Chipbreaker Application	
				1st choise	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

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

ISO	PSM	Material	HB (Brinell)	Vc (SFM) ← Wear Resistance		Toughness →
				PH0910	PH7(6)920	PH7(6)930
P	1	Unalloyed Steel	125-220	-	590-788	525-722
	2	Low-Alloyed Steel	220-280	-	525-722	460-656
	3	High-Alloyed Steel	280-380	-	460-690	394-624
M	4	SS - Ferritic / Martensitic	200-330	-	460-722	460-656
	5	SS - Austenitic	200-330	-	426-590	394-525
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	394-525	328-460
K	7	Malleable Cast Iron	130-230	-	525-854	492-788
	8	Grey Cast Iron	180-245	-	460-788	460-755
	9	Nodular Cast iron	160-250	-	394-656	328-624
N	10	Aluminium and Non Ferrous	30-130	328-6560	-	-

ISO	PSM	Material	HB (Brinell)	Feed fz (in/t)		
				APKT 16... PDER-X/X2	APKT 16... PDS(T)R-X/X2	AP...T 16... PDFR-LN
P	1	Unalloyed Steel	125-220	0.003-0.006	0.004-0.010	-
	2	Low-Alloyed Steel	220-280	0.003-0.004	0.004-0.008	-
	3	High-Alloyed Steel	280-380	0.003-0.004	0.004-0.008	-
M	4	SS - Ferritic / Martensitic	200-330	0.003-0.004	-	-
	5	SS - Austenitic	200-330	0.003-0.004	-	-
	6	SS - Austenitic-ferritic (Duplex)	230-260	0.003-0.004	-	-
K	7	Malleable Cast Iron	130-230	0.003-0.006	0.004-0.010	-
	8	Grey Cast Iron	180-245	0.003-0.006	0.004-0.010	-
	9	Nodular Cast iron	160-250	-	0.004-0.008	-
N	10	Aluminium and Non Ferrous	30-130	-	-	0.003-0.008

(Note 1) Cutting conditions a_e/Dc=70%.
(Note 2) Cutting conditions for slotting and shouldering operations:

Operation	a_e	Vc & fz	a_p (in)
Slotting	100%	<20%	0.197-0.236
Shouldering	<50%	>8%	0.236-0.354
	≤25%	>12%	0.393-0.472

(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.

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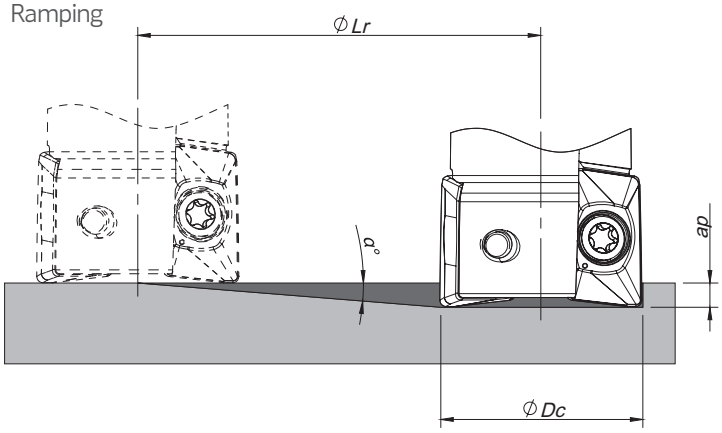
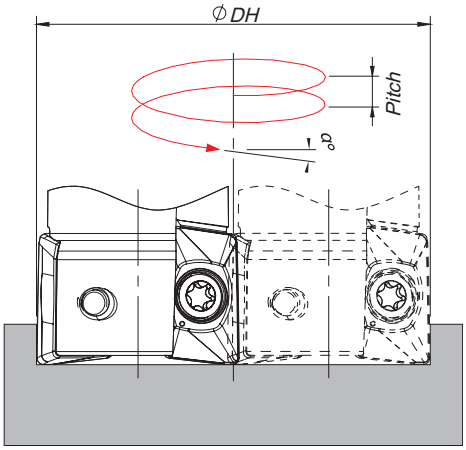
RAMPING AND HELICAL INTERPOLATION

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

Ramping



Helical Interpolation



Blind hole
Flat bottom

Ødi = ØDH - ØDc

ØDc	Ramping			Helical Interpolation		
				Diameter for Blind Hole, Flat Bottom Face (1)		Max Pitch/Rev.
	Max Ramp a°	Max a_p	Min Lr	ØDHmin	ØDHmax	
0.875	3.4	0.571	9.611	1.596 -	- 1.671	0.134 0.148
1.000	3.0	0.571	10.895	1.846 -	- 1.921	0.139 0.151
1.250	2.1	0.571	15.572	2.346 -	- 2.421	0.126 0.134
1.500	1.6	0.571	20.442	2.846 -	- 2.921	0.118 0.124
2.000	1.1	0.571	29.738	3.846 -	- 3.921	0.111 0.115
2.500	0.85	0.571	38.486	4.846 -	- 4.921	0.109 0.112
3.000	0.70	0.571	46.735	5.846 -	- 5.921	0.100 0.110
4.000	0.50	0.571	65.430	7.846 -	- 7.921	0.100 0.100
5.000	0.35	0.571	93.473	9.846 -	- 9.921	0.093 0.094

(1) Using insert radius 0.031 in
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 (ØDc - (R corner radius + F width of edge wiper))
- Maximum Diameter: ØDHmax = 2 x (ØDc - R corner radius)

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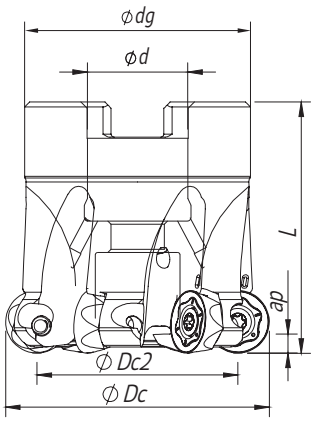
TOROMILL RP90-10 | RP90-12 | RP90-16





Arbor Mounting

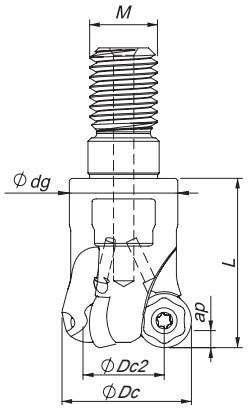
γ_p= +5°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)					lbs	Specifications		Insert Pastilha Inserto	Stock
			ØDc	ØDc2	Ød/M	Ødg	L		Arbor Type	Ap max (in)		
RP90-10												
181141600	RP90 D1.50-A.500/1.75-05-10	5	1.500	1.110	0.500	1.420	1.750	0.31	A	0.197	RP...10T3 M0E	○
181141700	RP90 D2.00-A.750/1.75-06-10	6	2.000	1.610	0.750	1.750	1.750	0.57	A	0.197	RP...10T3 M0E	◈
RP90-12												
181142300	RP90 D2.00-A.750/1.75-05-12	5	2.000	1.530	0.750	1.750	1.750	0.44	A	0.236	RP...1204 M0E	◈
181142400	RP90 D2.50-A1.00/2.00-06-12	6	2.500	2.030	1.000	2.250	2.000	0.79	A	0.236	RP...1204 M0E	○
181142500	RP90 D3.00-A1.00/2.00-07-12	7	3.000	2.530	1.000	2.250	2.000	1.50	A	0.236	RP...1204 M0E	◈
181142600	RP90 D4.00-A1.25/2.00-10-12	10	4.000	3.530	1.250	2.750	2.000	1.87	A	0.236	RP...1204 M0E	○
RP90-16												
181142700	RP90 D3.00-A1.00/2.00-06-16	6	3.000	2.370	1.000	2.250	2.000	1.87	A	0.315	RP...1605 M0E	◈
181142800	RP90 D5.00-A1.50/2.00-08-16	8	5.000	4.370	1.500	3.750	2.000	4.67	A	0.315	RP...1605 M0E	○

◈ Stock item | Produto de stock | Itens de stock

○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)





Threaded Coupling

γ_p= +5°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)				lbs	Specifications	Insert Pastilha Inserto	Stock
			ØDc	ØDc2	Ød/M	L		Ap max (in)		
RP90-10										
181142100	RP90 D1.00-R-12/1.25-03-10	3	1.000	0.610	M12	1.250	0.42	0.197	RP...10T3 M0E	○
181142200	RP90 D1.50-R-16/1.75-05-10	5	1.500	1.110	M16	1.750	0.68	0.197	RP...10T3 M0E	○

◈ Stock item | Produto de stock | Itens de stock

○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)

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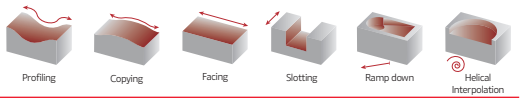
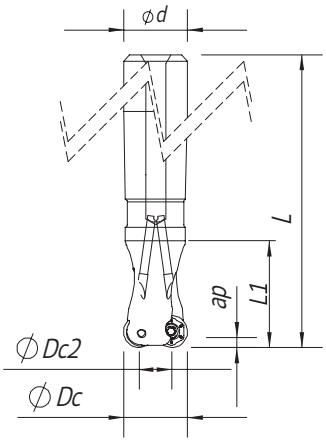




Cylindrical Shank

γ_p= +5°



Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)					lbs	Specifications	Insert Pastilha Inserto	Stock
			ØDc	ØDc2	Ød/M	L	L1		Ap max (in)		
RP90-10											
181141800	RP90 D1.00-W1.00/4.50-03-10	3	1.000	0.610	1.000	4.500	2.250	0.75	0.197	RP...10T3 M0E	○
181141900	RP90 D1.25-W1.25/5.25-04-10	4	1.250	0.860	1.250	5.250	2.750	1.23	0.197	RP...10T3 M0E	○
181142000	RP90 D1.50-W1.25/6.00-05-10	5	1.500	1.110	1.250	6.000	3.250	1.65	0.197	RP...10T3 M0E	○

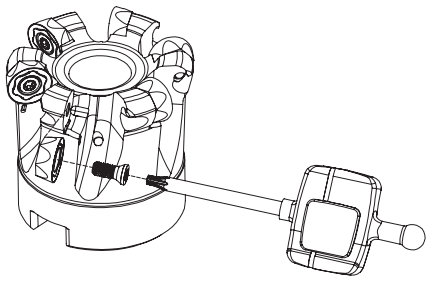
Stock item | Produto de stock | Itens de stock

○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)

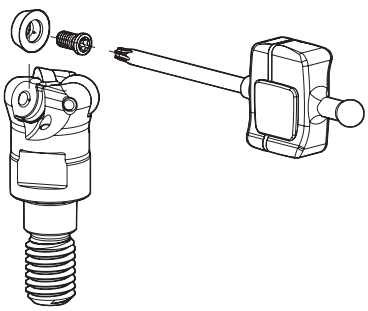
SPARE PARTS | Acessórios | Acessórios

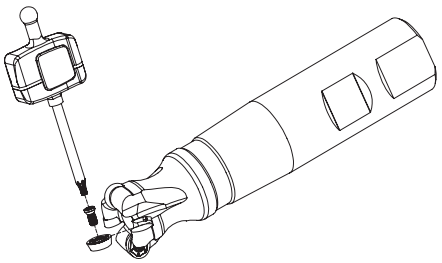
Order separately

Cutter ØDc	Insert Screw	Key (Torx)	Key (Torx - lbf/in)	Torque Value
			lbf/in	lbf/in
RP90-10 - 1.00-2.00	P0300800	XT09	DT0914	12.4
RP90-12 - 2.00-4.00	P0350800	XT15	DT1530	26.6
RP90-16 - 3.00-5.00	P0451100	XT20	DT2050	44.3



Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-231.
Check the procedures for the clamping screws on the page A-231.





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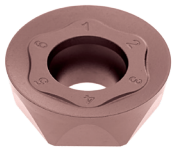
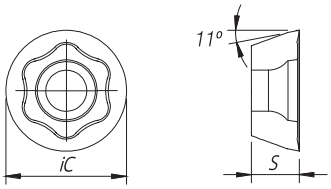
TOROMILL RP90-10 | RP90-12 | RP90-16

RPHT | Inserts | Pastilhas | Plaquitas

RPHT-MS



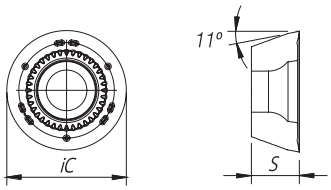
RPHT-MS



RPHT-LS NEW



RPHT-LS



		P				M				S			Dimensions Dimensões Dimensiones (in)	
		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
1112253	RPHT 10T3 M0E-MS		◬			◬				◬			0.394	0.156
NEW 1112772	RPHT 10T3 M0E-LS	◬		◬	◬		◬	◬	◬		◬	◬	0.394	0.156
1112186	RPHT 1204 M0E-MS		◬			◬				◬			0.472	0.187
NEW 1112766	RPHT 1204 M0E-LS	◬		◬	◬		◬	◬	◬		◬	◬	0.472	0.187
1112254	RPHT 1605 M0E-MS		◬			◬				◬			0.630	0.219
1112951	RPHT 1605 M0E-LS			◬	◬		◬	◬	◬		◬	◬	0.630	0.219

◬ First choice | Primeira opção | 1ª opción ◬ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

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

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

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance — Toughness → PHP920	PHH930	PHP530	PHH530	PHP808	PHH808	PHS740
P	1	Unalloyed Steel	125-220	✓		✓		✓		✓
	2	Low-Alloyed Steel	220-280	✓		✓		✓		✓
	3	High-Alloyed Steel	280-380	✓		✓		✓		✓
M	4	SS - Ferritic / Martensitic	200-330		✓	✓	✓		✓	
	5	SS - Austenitic	200-330		✓		✓		✓	
	6	SS - Austenitic-ferritic (Duplex)	230-260		✓		✓		✓	
S	11	Heat Resistant Super Alloys	200-320		✓		✓		✓	

Good Conditions Average Conditions Difficult Conditions

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

ISO	PSM	Material	HB (Brinell)	Vc (SFM) ← Wear Resistance — Toughness → PHP920	PHH930	PHP530	PHH530	PHP808	PHH808	PHS740
P	1	Unalloyed Steel	125-220	590-820	-	590-1115	-	590-1115	-	460-722
	2	Low-Alloyed Steel	220-280	525-755	-	590-1115	-	590-1115	-	394-656
	3	High-Alloyed Steel	280-380	460-722	-	590-1082	-	590-1082	-	328-624
M	4	SS - Ferritic / Martensitic	200-330	-	460-690	492-886	558-918		525-885	-
	5	SS - Austenitic	200-330	-	394-558	-	525-918		525-885	-
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	328-492	-	492-854		492-820	-
S	11	Heat Resistant Super Alloys	200-320	-	100-360	-	100-492		100-460	-

ISO	PSM	Material	HB (Brinell)	Feed fz (in/t) RPHT 10...	RPHT 12...	RPHT 16...
P	1	Unalloyed Steel	125-220	0.002-0.016	0.002-0.018	0.003-0.022
	2	Low-Alloyed Steel	220-280	0.002-0.016	0.002-0.018	0.003-0.022
	3	High-Alloyed Steel	280-380	0.002-0.014	0.002-0.016	0.003-0.02
M	4	SS - Ferritic / Martensitic	200-330	0.002-0.012	0.002-0.014	0.003-0.018
	5	SS - Austenitic	200-330	0.002-0.012	0.002-0.014	0.003-0.018
	6	SS - Austenitic-ferritic (Duplex)	230-260	0.002-0.012	0.002-0.014	0.003-0.018
S	11	Heat Resistant Super Alloys	200-320	0.002-0.010	0.002-0.012	0.003-0.014

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

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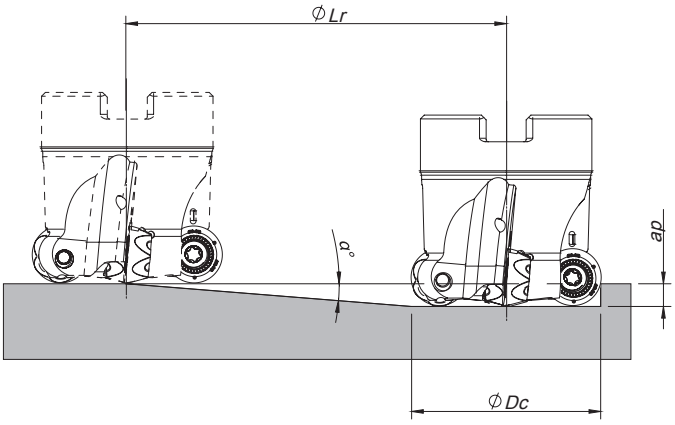
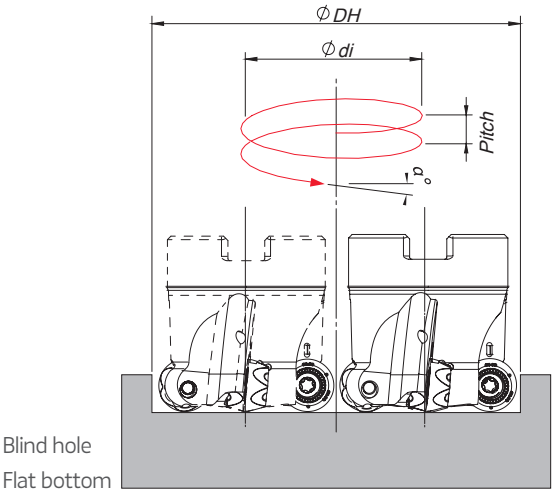
RAMPING AND HELICAL INTERPOLATION

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





Blind hole
Flat bottom

Ødi = ØDH - ØDc

Insert	ØDc	Ramping			Helical Interpolation		
		Max Ramp a°	Max a_p	Min Lr	ØDHmin	ØDHmax	Max Pitch/Rev.
RP90-10							
RP... 10	1.00	6	0.197	1.874	1.606 -	- 2.0	0.197 0.197
	1.25	6	0.197	1.874	2.106 -	- 2.5	0.197 0.197
	1.50	5	0.197	2.252	2.606 -	- 3.0	0.197 0.197
	2.00	4	0.197	2.817	3.606 -	- 4.0	0.197 0.197
RP90-12							
RP... 12	2.00	3.5	0.236	3.859	3.528 -	- 4.0	0.236 0.236
	2.50	2.5	0.236	5.405	4.528 -	- 5.0	0.236 0.236
	3.00	2	0.236	6.758	5.528 -	- 6.0	0.236 0.236
	4.00	1.5	0.236	9.012	7.528 -	- 8.0	0.236 0.236
RP90-16							
RP... 16	3.00	3	0.315	6.011	5.370 -	- 6.0	0.315 0.315
	5.00	2.5	0.315	7.215	9.370 -	- 10.0	0.315 0.315

Note: During helical interpolation do not exceed max Pitch.

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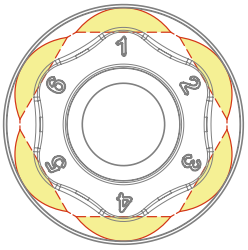
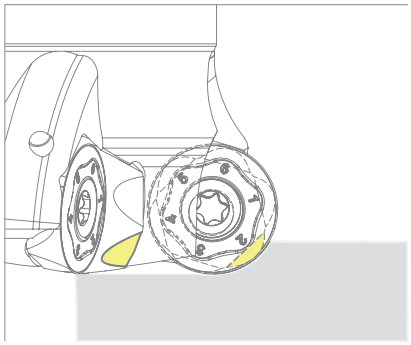
INSERT INFORMATION | Informação de pastilha | Información del inserto

The maximum depth of cut using 6 cutting edges

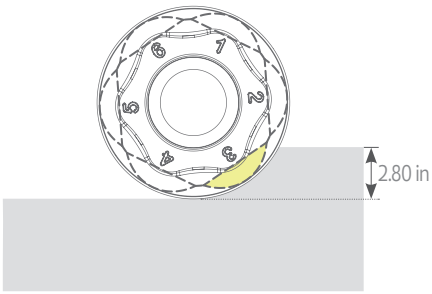


6 cutting edges



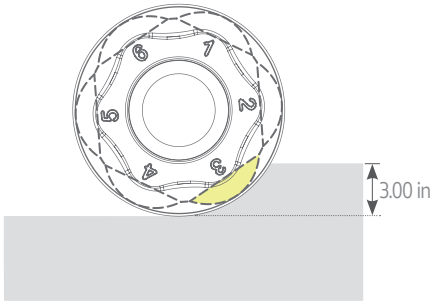
TOROMILL RP90-10

RPHT 10T3...



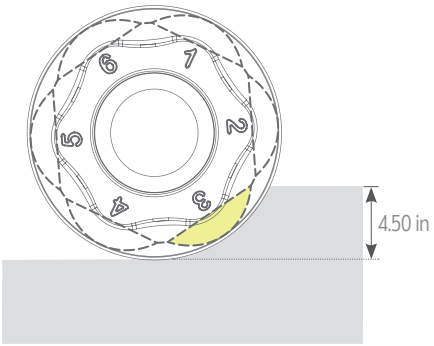
TOROMILL RP90-12

RPHT 1204...



TOROMILL RP90-16

RPHT 1605...



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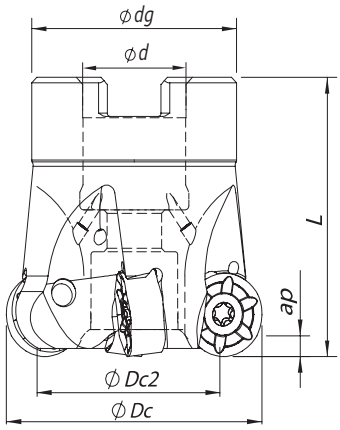
TOROMILL RN90-12





Arbor Mounting

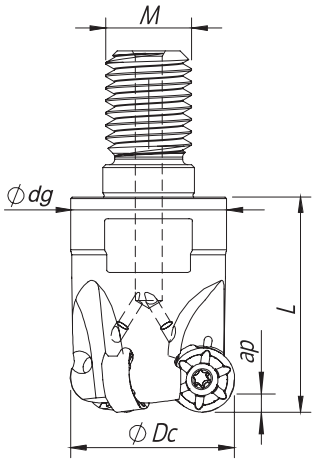
γ_p=-7°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)					lbs	Specifications		Insert Pastilha Inserto	Stock
			ØDc	ØDc2	Ød/M	Ødg	L		Arbor Type	Ap max (in)		
181142900	RN90 D1.50-A0.50/1.57-04-12	4	1.500	1.030	0.500	1.300	1.570	0.44	A	0.118	RNHX 1204 M0E...	○
181143000	RN90 D2.00-A0.75/2.00-05-12	5	2.000	1.530	0.750	1.750	2.000	0.55	A	0.118	RNHX 1204 M0E...	○
181143100	RN90 D2.50-A0.75/2.00-06-12	6	2.500	2.030	0.750	1.750	2.000	1.21	A	0.118	RNHX 1204 M0E...	○
181143200	RN90 D3.00-A1.00/2.00-07-12	7	3.000	2.530	1.000	2.189	2.000	1.72	A	0.118	RNHX 1204 M0E...	○

Stock item | Produto de stock | Itens de stock

○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)





Threaded Coupling

γ_p=-7°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)				lbs	Specifications	Insert Pastilha Inserto	Stock
			ØDc	Ød/M	Ødg	L		Ap max (in)		
181143400	RN90 D1.25-R-M16/1.50-03-12	3	1.250	M16	1.142	1.500	0.35	0.118	RNHX 1204 M0E...	○
181143500	RN90 D1.50-R-M16/1.50-04-12	4	1.500	M16	1.142	1.500	0.44	0.118	RNHX 1204 M0E...	○

Stock item | Produto de stock | Itens de stock

○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)

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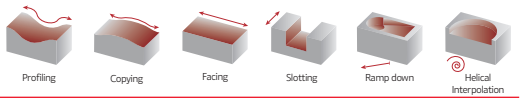
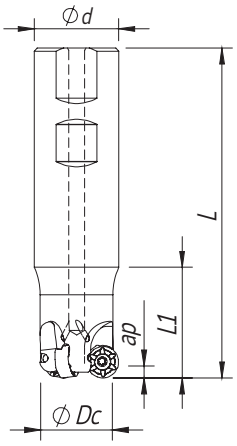




Weldon Shank

γ_p=-7°

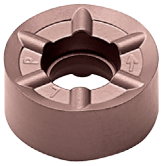


Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)				lbs	Specifications	Insert Pastilha Inserto	Stock
			ØDc	Ød/M	L	L1		Ap max (in)		
181143300	RN90 D1.25-W1.00/4.28-03-12	3	1.250	1.000	4.280	2.117	2.16	0.118	RNHX 1204 M0E...	◯

Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

RNHX 1204... | Inserts | Pastilhas | Plaquitas

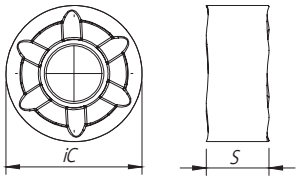
RNHX-LP



RNHX-MP



RNHX-LP | MP



		P			M			K		S		Dimensions Dimensões Dimensiones (in)	
		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	◬		◬	◬	◬	◬	◬		◬	◬	0.472	0.187
1112052	RNHX 1204 M0E-MP	◬	◬					◬	◬			0.472	0.187

◬ First choice | Primeira opção | 1ª opción ◬ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

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

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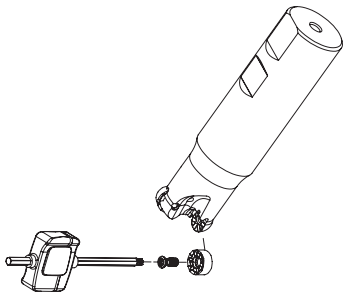
TOROMILL RN90-12

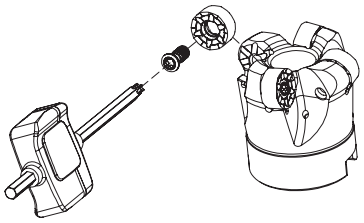
SPARE PARTS | Acessórios | Repuestos

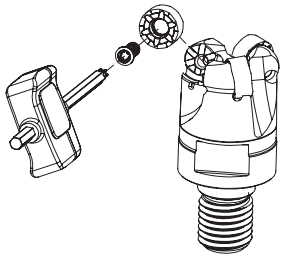
Order separately

Cutter ØDc	Insert Screw	Key (Torx)	Key (Torx - lbf/in)	Torque Value
			lbf/in	lbf/in
RN90-A-12 - 1.50-3.00	P0401065	XT15	DT1530	26.6
RN90-R-12 - 1.25-1.50	P0401065	XT15	DT1530	26.6
RN90-W-12 - 1.25	P0401065	XT15	DT1530	26.6

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-231.
Check the procedures for the clamping screws on the page A-231.







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 (SFM) ← Wear Resistance — Toughness → PHP920	PHP930	PHH930	PHP530	PHH530	Feed fz (in/t) RNHX 12... LP	RNHX 12... MP
P	1	Unalloyed Steel	125-220	590-820	525-755	-	590-1115	-	0.006-0.018	0.006-0.020
	2	Low-Alloyed Steel	220-280	525-755	460-690	-	590-1115	-	0.006-0.018	0.006-0.020
	3	High-Alloyed Steel	280-380	460-722	394-656	-	590-1082	-	0.006-0.018	0.006-0.018
M	4	SS - Ferritic / Martensitic	200-330	-	-	460-690	492-886	558-918	0.004-0.014	-
	5	SS - Austenitic	200-330	-	-	394-558	-	525-918	0.004-0.014	-
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	-	328-492	-	492-854	0.004-0.014	-
K	7	Malleable Cast Iron	130-230	525-886	492-820	-	-	-	-	0.006-0.022
	8	Grey Cast Iron	180-245	460-820	460-755	-	-	-	-	0.006-0.022
	9	Nodular Cast iron	160-250	394-690	328-656	-	-	-	-	0.006-0.020
S	11	Heat Resistant Super Alloys	200-320	-	-	100-360	-	100-492	0.002-0.012	-

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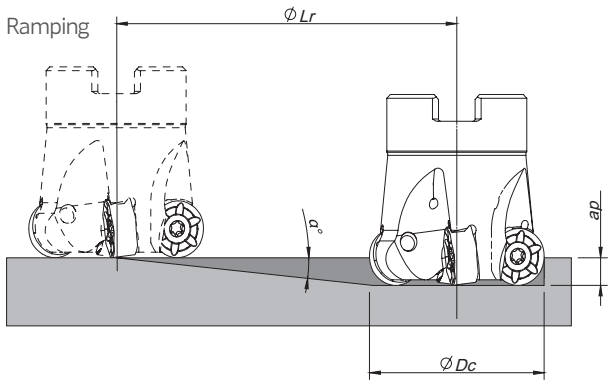
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

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

ISO	PSM	Material	HB (Brinell)	Chipbreaker Application	
				1st choise	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	ØDc	Ramping		
		Max Ramp a°	Max a_p	Min Lr
RNHX 1204	1.25	1.0	0.118	6.8
	1.50	0.8	0.118	8.5
	2.00	0.8	0.118	8.5
	2.50	0.6	0.118	11.3
	3.00	0.5	0.118	13.5

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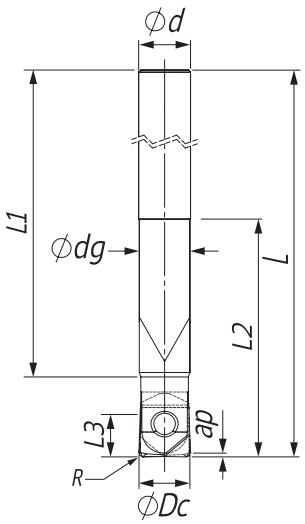


Cylindrical Carbide Shank

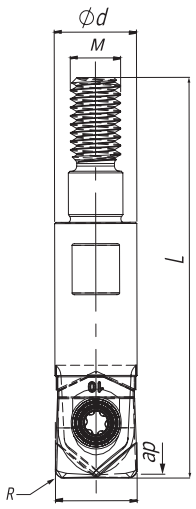
Tolerance R	Runout Tolerance
± 0,015	R 0,02

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)						Kg	Specifications				Insert	Stock
			ØDc	Ød	Ødg	L	L1	L2		Ap max (mm)		Ae max (mm)			
181156600	008E62090-02-U008140	2	8	8	7,7	140	128	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	136	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	166	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	147	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	182	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	180	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	230	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	193	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	223	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	273	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-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)





Threaded Steel Shank

Tolerance R	Runout Tolerance
± 0,015	R 0,02

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)					Kg	Specifications				Insert	Stock
			ØDc	R	Ød	L	M		Ap max (mm)		Ae max (mm)			
181167000	010R62090-02-UM06030	2	10	5	6,5	30	M6	0,011	5	3,0	1,0	1,0	WCR 10.../WCL 10...	◉
181167100	012R62090-02-UM06030	2	12	6	6,5	30	M6	0,016	6	4,0	1,2	1,2	WCR 12.../WCL 12...	◉
181167200	016R62090-02-UM08030	2	16	8	8,5	30	M8	0,028	8	5,0	1,6	1,6	WCR 16.../WCL 16...	◉
181167300	020R62090-02-UM10035	2	20	10	10,5	35	M10	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-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)

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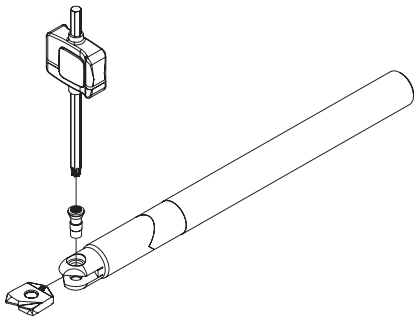
SPARE PARTS | Acessórios | Repuestos

Order separately

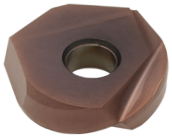
Cutter ØDc	Insert Screw	Key (Torx)	Key (Torx - lbf/in)	Torque Value
				lbf/in
E62090 - 8	P0300726	XT08	DT0812	23.4
E62090 - 10	P0350825	XT10	DT1020	39.0
E62090 - 12	P0501025	XT20	DT2050	97.6
E62090 - 16	P0501326	XT20	DT2050	97.6
E62090 - 20	P0601725	XT25	-	134.7

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-231.
Check the procedures for the clamping screws on the page A-231.



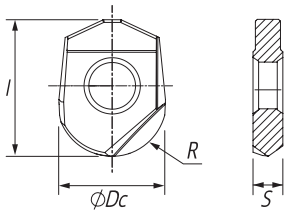
WCR | Inserts | Pastilhas | Plaquitas

WCR NEW



PHH NEW GRADE

WCR



(1) Geometry code	ISO Reference	P PVD (2) Grade code X4 PHH603	P PVD X6 PHH910	M PVD X4 PHH603	M PVD X6 PHH910	K PVD X4 PHH603	K PVD X6 PHH910	H PVD X4 PHH603	H PVD X6 PHH910	Dimensions Dimensões Dimensiones (mm) l	R	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 | Primeira opção | 1ª opción
● Stock item | Produto de stock | Itens de stock
○ Available under request (see page A-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

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

PDF VIDEO

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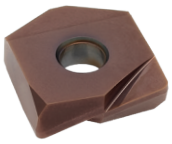
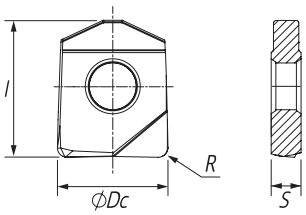
WCL | Inserts | Pastilhas | Plaquitas

WCL NEW



PHH NEW GRADE

WCL



(1) Geometry code	ISO Reference	P PVD (2) Grade code X4 PHH603	P PVD X6 PHH910	M PVD X4 PHH603	M PVD X6 PHH910	K PVD X4 PHH603	K PVD X6 PHH910	H PVD X4 PHH603	H PVD X6 PHH910	Dimensions Dimensões Dimensiones (mm) l	R	S	Dc
1112879	WCL-08 R0.3	●	●	○	○	○	○	○	○	9,7	0,3	2,1	8
1112880	WCL-08 R0.5	●	●	○	○	○	○	○	○	9,7	0.5	2,1	08
1112853	WCL-08 R1.0	●	●	○	○	○	○	○	○	9,7	1.0	2,1	08
1112881	WCL-10 R0.3	●	●	○	○	○	○	○	○	12,0	0.3	2,7	10
1112882	WCL-10 R0.5	●	●	○	○	○	○	○	○	12,0	0.5	2,7	10
1112848	WCL-10 R1.0	●	●	○	○	○	○	○	○	12,0	1.0	2,7	10
1112883	WCL-10 R1.5	●	●	○	○	○	○	○	○	12,0	1.5	2,7	10
1112884	WCL-10 R2.0	●	●	○	○	○	○	○	○	12,0	2.0	2,7	10
1112885	WCL-12 R0.3	●	●	○	○	○	○	○	○	14,6	0.3	3,2	12
1112886	WCL-12 R0.5	●	●	○	○	○	○	○	○	14,6	0.5	3,2	12
1112096	WCL-12 R1.0	●	●	○	○	○	○	○	○	14,6	1.0	3,2	12
1112887	WCL-12 R1.5	●	●	○	○	○	○	○	○	14,6	1.5	3,2	12
1112888	WCL-12 R2.0	●	●	○	○	○	○	○	○	14,6	2.0	3,2	12
1112889	WCL-12 R3.0	●	●	○	○	○	○	○	○	14,6	3.0	3,2	12
1112890	WCL-16 R0.3	●	●	○	○	○	○	○	○	16,6	0.3	4,2	16
1112891	WCL-16 R0.5	●	●	○	○	○	○	○	○	16,6	0.5	4,2	16
1112097	WCL-16 R1.0	●	●	○	○	○	○	○	○	16,6	1.0	4,2	16
1112892	WCL-16 R1.5	●	●	○	○	○	○	○	○	16,6	1.5	4,2	16
1112893	WCL-16 R2.0	●	●	○	○	○	○	○	○	16,6	2.0	4,2	16
1112894	WCL-16 R3.0	●	●	○	○	○	○	○	○	16,6	3.0	4,2	16
1112895	WCL-20 R0.3	●	●	○	○	○	○	○	○	20,0	0.3	5,2	20
1112896	WCL-20 R0.5	●	●	○	○	○	○	○	○	20,0	0.5	5,2	20
1112098	WCL-20 R1.0	●	●	○	○	○	○	○	○	20,0	1.0	5,2	20
1112897	WCL-20 R1.5	●	●	○	○	○	○	○	○	20,0	1.5	5,2	20
1112898	WCL-20 R2.0	●	●	○	○	○	○	○	○	20,0	2.0	5,2	20
1112899	WCL-20 R3.0	●	●	○	○	○	○	○	○	20,0	3.0	5,2	20

● First choice | Primeira opção | 1ª opción ● Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

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

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

ISO	PSM	Material	HB (Brinell)	Grades ← Wear Resistance Toughness → PHH603	PHH910
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 (SFM) ← Wear Resistance Toughness → PHH603	PHH910	Feed fz (in/t) WCR	WCL
P	1	Unalloyed Steel	125-220	591-1017	460-886	0.006-0.018	0.004-0.012
	2	Low-Alloyed Steel	220-280	591-984	460-853	0.006-0.016	0.004-0.010
	3	High-Alloyed Steel	280-380	591-919	460-722	0.004-0.016	0.004-0.010
M	4	SS - Ferritic / Martensitic	200-330	558-984	427-853	0.006-0.014	0.004-0.010
	5	SS - Austenitic	200-330	525-952	394-820	0.006-0.014	0.004-0.010
	6	SS - Austenitic-ferritic (Duplex)	230-260	492-886	361-755	0.006-0.012	0.004-0.008
K	7	Malleable Cast Iron	130-230	656-1247	591-1214	0.004-0.020	0.004-0.014
	8	Grey Cast Iron	180-245	591-1181	591-1148	0.004-0.018	0.004-0.012
	9	Nodular Cast iron	160-250	525-1017	525-952	0.004-0.016	0.004-0.012
H	12	Hardened Steels	46-54 HRC	296-886	263-853	0.002-0.008	0.002-0.006
	13	Hardened Steels	55-62 HRC	263-656	230-591	0.002-0.006	0.002-0.005
	14	Hardened Steels	63-70 HRC	230-591	230-525	0.002-0.005	0.002-0.004

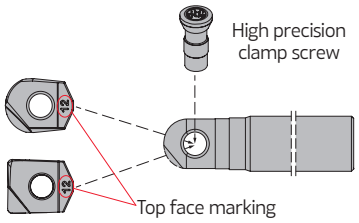
PROCEDURES FOR CLAMPING SCREWS | Procedimentos para parafusos de aperto | Procedimientos para sujetar tornillos

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.

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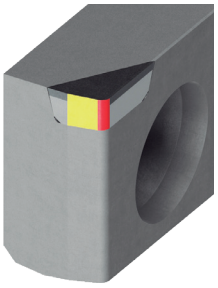
HARDMILL XN90-12

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

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

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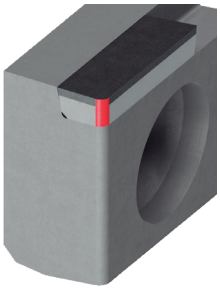
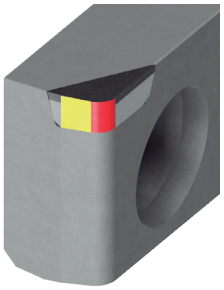

XNHW 120504 PZFR-000080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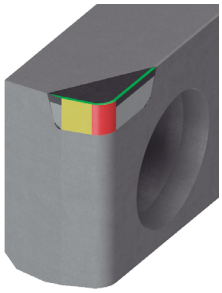
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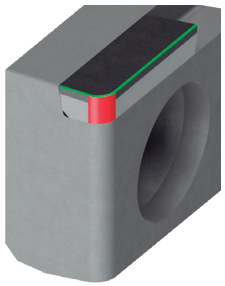
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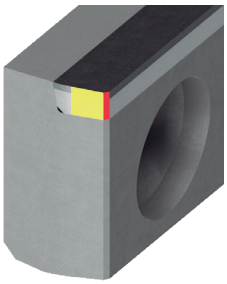
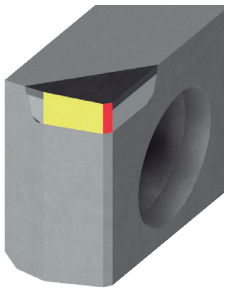

XNHW 1205 PZFR-020120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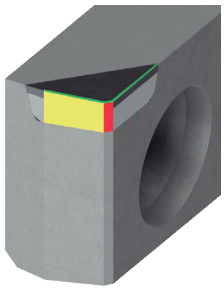
XNHW 1205 PZTR-030045

Cutting edge Type (radius, chamfer)

Wiper cutting edge

Edge Preparation (F, T)

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XNHW 1205
PZFR-020120



NEW

XNHW 120508
PZTR-000080



NEW

XNHW 120508
PZTR-015045



NEW

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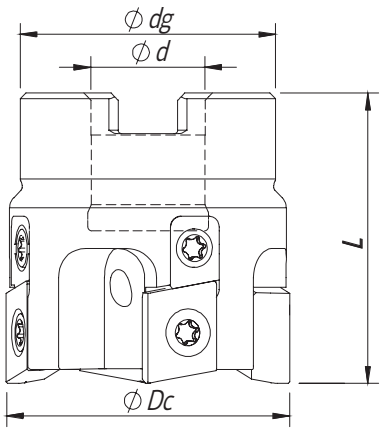
HARDMILL XN90-12





Arbor Mounting

κ_r=90° | γ_p=0°

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)				lbs	Specifications		Insert Pastilha Inserto	Stock
			ØDc	Ød	Ødg	L		Arbor Type	N max (in)		
181143600	XN90 D1.50-A0.50/1.57-04-12	4	1.500	0.500	1.300	1.570	0.66	A	32 000	XNHW 1205...	○
181143700	XN90 D2.00-A0.75/1.57-04-12	4	2.000	0.750	1.750	1.570	0.86	A	32 000	XNHW 1205...	○
181143800	XN90 D2.50-A0.75/1.57-05-12	5	2.500	0.750	1.750	1.570	1.39	A	29 000	XNHW 1205...	○
181143900	XN90 D3.00-A1.00/2.00-06-12	6	3.000	1.000	2.189	2.000	2.64	A	26 000	XNHW 1205...	○
181144000	XN90 D4.00-A1.25/2.00-07-12	7	4.000	1.250	2.750	2.000	4.08	A	24 000	XNHW 1205...	○

Stock item | Produto de stock | Itens de stock

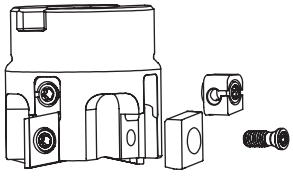
○ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)

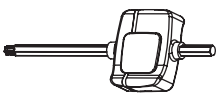
SPARE PARTS | Acessórios | Repuestos

Order separately

Cutter ØDc	Insert Screw	Key (Torx)	Key (Torx - lbf/in)	Torque Value	Wedge
					
XN90-A-12 - 1.50-4.00	P0401100	XT15	DT1530	26.6	SETDEV AS 04 00

Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-231.
Check the procedures for the clamping screws on the page A-231.





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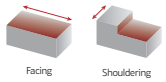
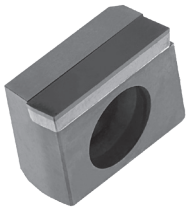


XNHW 1205... | Inserts | Pastilhas | Plaquitas

XNHW 1205 PZFR-020120



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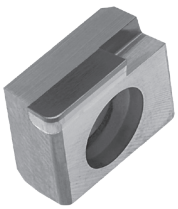

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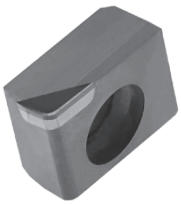
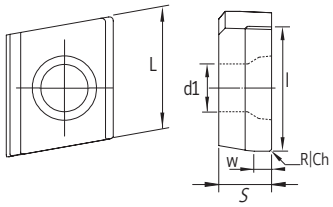


XNHW



		N		Dimensions Dimensões Dimensiones (in)					
		PCD							
	(2) Grade code	I3	D6						
(1) Geometry code	ISO Reference	PDP403	PDP410	L	S	l	d1	r	W
1112564	XNHW 120504 PZFR-015045	○	○	0.482	0.213	0.177	0.189	0.016	0.059
1112565	XNHW 120504 PZFR-000080	○	○	0.482	0.213	0.315	0.189	0.016	-
1112566	XNHW 120508 PZFR-015045	◈	○	0.482	0.213	0.177	0.189	0.031	0.059
1112551	XNHW 120508 PZTR-015045	◈	○	0.482	0.213	0.177	0.189	0.031	0.059
1112552	XNHW 120508 PZTR-000080	◈	○	0.482	0.213	0.315	0.189	0.031	-
1112553	XNHW 1205 PZFR-020120	◈	○	0.482	0.213	0.472	0.189	-	0.079
1112567	XNHW 1205 PZFR-030045	○	○	0.482	0.213	0.177	0.189	-	0.118
1112568	XNHW 1205 PZTR-030045	○	○	0.482	0.213	0.177	0.189	-	0.118

◈ First choice | Primeira opção | 1ª opción ◈ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

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

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

ISO	Material		HB (Brinell)	Vc (SFM)	Feed fz (in/t)
	Work piece material	Type of treatment / alloy		PDP403	XNHW 12...
N	Aluminium wrought alloys		80	984 - 13120	0.002 - 0.016
			90	984 - 4920	
	Aluminium cast alloys	< 12% Si	130	984 - 16400	
		< 12% Si	90	984 - 9840	
		> 12% Si	100	984 - 3280	
		brass, red bronze	100	328 - 2296	
		bronze	-	328 - 4920	
		lead-free copper and electrolytic copper	-	984 - 9840	
	Non-metallic materials	thermosetting plastics	-	263-984	
		fibre-reinforced plastics	200-320	263-984	
		hard rubber		263-984	

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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 (mm)

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

5 - Flutes number (Z)

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

6 - Cutting diameter (ØDc - mm)

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

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

060 = 6 mm ; 080 = 8 mm

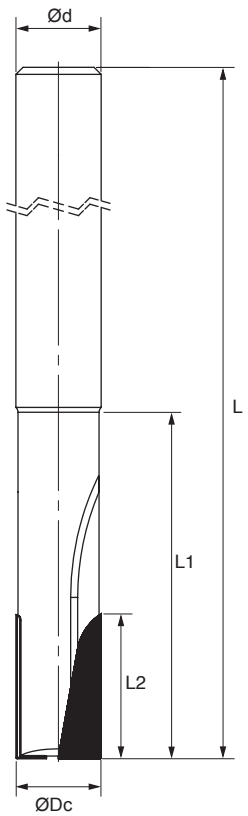
8 - Corner radius (mm) (Suppressed when it doesn't exist)

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

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

Example: 060 = 6 mm

Straight Flute
technical drawing example



ØDc	Tool diameter
Ød	Shank diameter
L	Overall length
L1	Neck length
L2	Tip length
r	Corner form (radius or chamfer)

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PCD TIPPED ENDMILLS

NEW

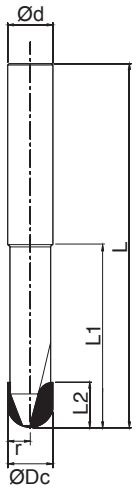
Fresas de metal duro com pontas de PCD | Fresas de carburo con puntas de PCD



HARDMILL BALL NOSE

NEW



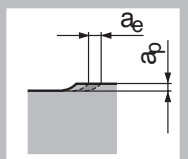
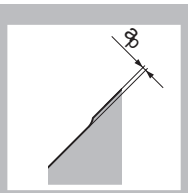


(1) Geometry code	(2) Grade code Reference Referência Referencia		N PCD D6 PDP410	Dimensions | Dimensões | Dimensiones (mm) ØDc	Ød	L	L1	L2	r
1180079	DBNS 1 030 050 150 060	1	◈	3	3	60	30	5	1,50
1180080	DBNS 1 040 100 200 040	1	◈	4	4	60	30	10	2,00
1180081	DBNS 2 060 100 300 060	2	◈	6	6	80	40	10	3,00
1180082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

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

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

Material Group	Correction factor	V_C (SFM)
Aluminium cast alloys 5% < Si ≤ 12%	1.6	2592-3280
Aluminium cast alloys 12% < Si	1.5	2592-3280
Fibre-reinforced synthetics	1.0	1312-1640
Graphite	1.0	2296-2788

ØD (in)	 a_e = 0.2 x ØDc a_p = 0.1 x ØDc	 a_p = 0.05 x ØDc
	f_z (in/t)	f_z (in/t)
0.118	0.001	0.001
0.157	0.001	0.001
0.236	0.001	0.002
0.315	0.002	0.002
0.394	0.002	0.003
0.472	0.003	0.003

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

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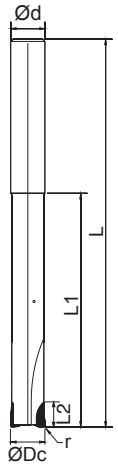
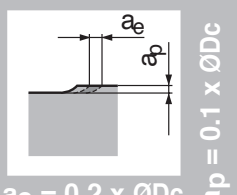
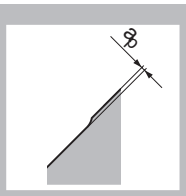


(1) Geometry code	(2) Grade code: Reference Referência Referencia		N PCD D6 PDP410	Dimensions | Dimensões | Dimensiones (mm) ØDc	Ød	L	L1	L2	r
1180073	DSNS 1 030 050 030 040	1	●	3	4	60	30	5	0,30
1180075	DSNL 2 040 050 030 040	2	●	4	4	75	45	5	0,30
1180076	DSNL 2 060 060 030 060	2	●	6	6	100	60	6	0,30
1180077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

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

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

Material Group	Correction factor	V_C (SFM)
Aluminium cast alloys 5% < Si ≤ 12%	1.6	790-1000
Aluminium cast alloys 12% < Si	1.5	790-1000
Fibre-reinforced synthetics	1.0	400-500
Graphite	1.0	700-850

ØD	 a_e = 0.2 x ØDc a_p = 0.1 x ØDc	 a_p = 0.05 x ØDc
	f_z (in/t)	f_z (in/t)
0.118	0.001	0.001
0.157	0.001	0.001
0.236	0.001	0.002
0.315	0.002	0.002
0.394	0.002	0.003
0.472	0.003	0.003

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

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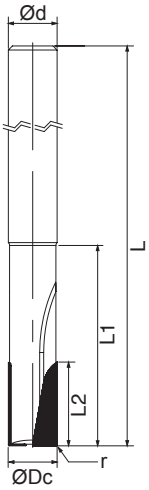
HARDMILL STRAIGHT EDGE

NEW

METRIC LINE





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

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

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

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

ISO	Workpiece Material	Vc (SFM) min	Vc (SFM) max	fz (in/t) min	fz (in/t) max	Coolant
N	Aluminium <6%Si	656	19680	0.002	0.012	Emulsion / MQL
	Aluminium <12%Si	656	13120	0.002	0.010	
	Aluminium >12%Si	646	6560	0.002	0.008	
	Cooper/Cooper Alloys	820	9840	0.001	0.012	

SYNTHETICS MATERIALS | Materiais sintéticos | Materiales sintéticos

ISO	Workpiece Material	Vc (SFM) min	Vc (SFM) max	fz (in/t) min	fz (in/t) max	Coolant
N	Graphit	492	8200	0.002	0.016	Dry/ Air
	GFRP, CFRP	656	9840	0.002	0.016	Dry/ Air
	Plastics (Termo/Duroplast)	328	8200	0.002	0.012	Emulsion/MQL
	Acrylic (PMMA)	328	3936	0.000	0.010	Emulsion /MQL
	Laminate	328	3936	0.001	0.020	Dry/Air

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

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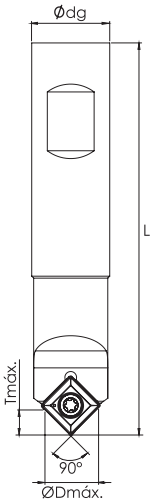


Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (in)					lbs	Insert Pastilha Inserto	Stock
			ØMáx.	Tmáx.	Ødg	L	Angle º			
181147600	CHT S.625H N11-45	1	0.512	0.256	5/8	3.937	45	0.322	SO.. 11T3..	◈
181147700	CHT S.625M N11-45	1	0.512	0.256	5/8	5.906	45	0.397	SO.. 11T3..	◈

◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-16) | Disponível sobre consulta (consulte a página A-16) | Disponible bajo consulta (mire pagina A-16)

SO...T 11T3.. ‖ Inserts | Pastilhas | Plaquitas

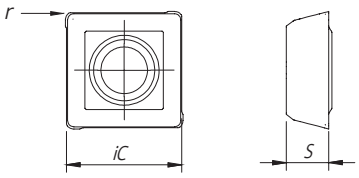
SOMT



SOGT NEW



SOMT | SOGT



(1) Geometry code	ISO Reference	P PVD (2) Grade code G4 PH7920	M PVD G4 PH7920	K PVD G4 PH7920	Dimensions Dimensões Dimensiones (in) iC	S	l	r
1112425	SOMT 11T308	◈	◈	◈	0.428	0.156	0.433	0.031
1112973	SOGT 11T303	◈	◈	◈	0.428	0.156	0.433	(0.012)

◈ First choice | Primeira opção | 1ª opción ◈ Stock item | Produto de stock | Itens de stock ◯ Available under request (see page A-17) | Disponível sobre consulta (consulte a página A-17) | Disponible bajo consulta (mire pagina A-17)

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

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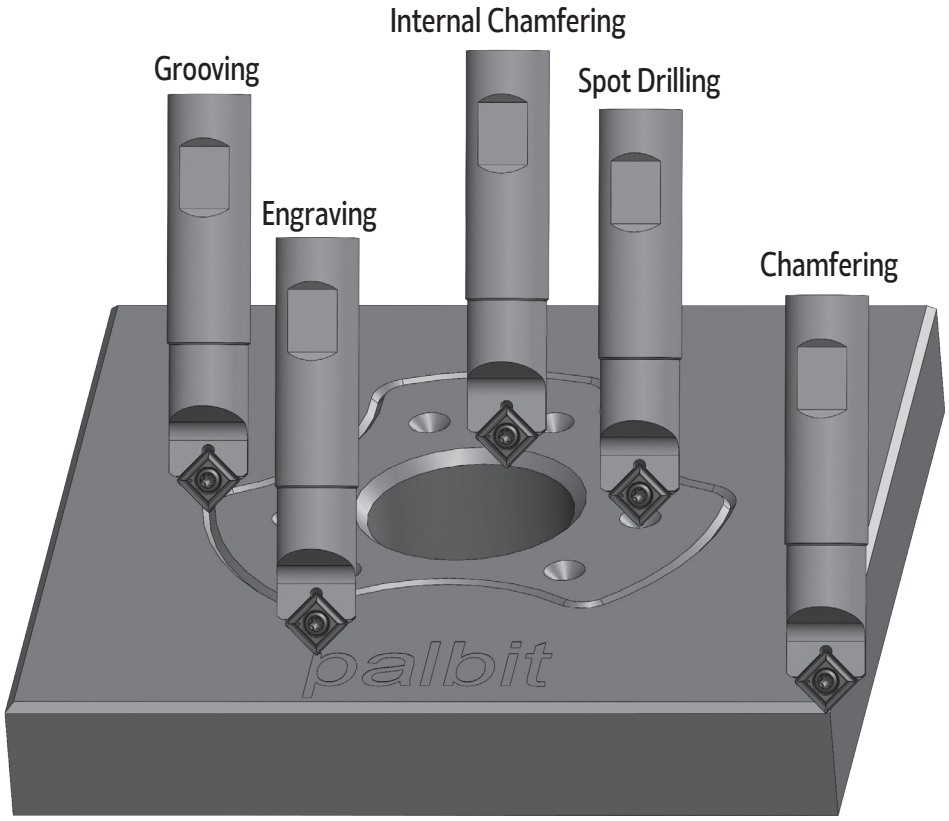
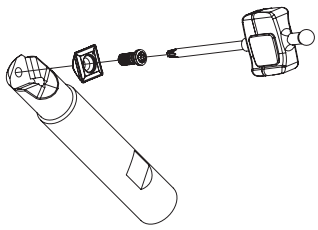
TOOL SELECTION | Selecção de ferramenta | Selección de herramienta



SPARE PARTS | Acessórios | Repuestos

Order separately

Cutter ØDc	Insert Screw	Key (Torx)	Key (Torx - lbf/in)	Torque Value
CHT S.625...	P0350800	XT15	DT1530	26.6



Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-231.
Check the procedures for the clamping screws on the page A-231.

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

ISO	PSM	Material	HB (Brinell)	Vc (SFM)	Feed fz (in/t)	
				PH7920	SOMT 11T308	SOGT 11T303
P	1	Unalloyed Steel	125-220	394-492	0.002-0.004	0.002-0.004
	2	Low-Alloyed Steel	220-280	328-394	0.002-0.003	0.002-0.004
	3	High-Alloyed Steel	280-380	197-328	0.002-0.003	0.002-0.004
M	4	SS - Ferritic / Martensitic	200-330	328-492	0.002-0.003	0.002-0.003
	5	SS - Austenitic	200-330	263-394	0.002-0.003	0.002-0.003
	6	SS - Austenitic-ferritic (Duplex)	230-260	164-296	0.002-0.003	0.002-0.004
K	7	Malleable Cast Iron	130-230	296-492	0.002-0.004	0.002-0.004
	8	Grey Cast Iron	180-245	263-394	0.002-0.004	0.002-0.004
	9	Nodular Cast iron	160-250	230-361	0.002-0.004	0.002-0.004

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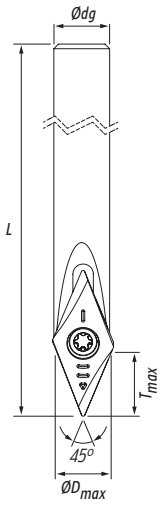
ENGRAVING 64067

NEW

METRIC LINE





Type A: Steel Shank
Type B: Carbide Shank

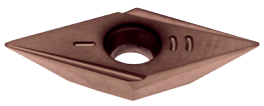
Order code Código	Reference Referência Referencia		Type	Dimensions | Dimensões | Dimensiones (mm)							Kg	Insert Pastilha Inserto	Stock
				ØDmin	ØDmax	Tmin	Tmax	Ødg	L	Angle º			
181168500	002E64067-01-10-U006040	1	A	0,45~0,65	2,10	0,05~0,20	2,00	6	40	45º	0,011	VPGT 0602...	◈
181168600	002E64067-01-10-U006060	1	B	0,45~0,65	2,10	0,05~0,20	2,00	6	60	45º	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	45º	0,050	VPGT 0602...	◈

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

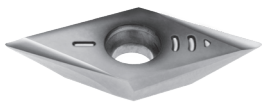
***Note:** Recommended only for non-ferrous materials machinning

VPGT 0602.. | Inserts | Pastilhas | Plaquitas

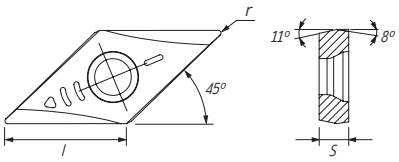
VPGT-45LM

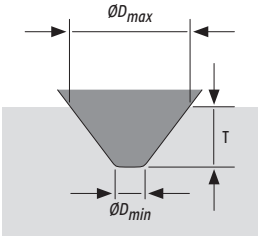


VPGT-45LN



VPGT-45LM | 45LN





		P	M	N	S	Dimensions Dimensões Dimensiones (mm)						
		PVD	PVD	UNC	PVD							
	(2) Grade code	Y3	Y3	Z5	Y3							
(1) Geometry code	ISO Reference	PHH920	PHH920	PH0610	PHH920	l	S	r	ØDmin	ØDmax	Tmin	Tmax
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

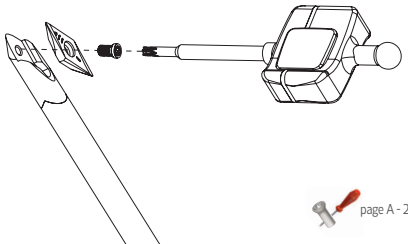
◈ First choice | Primeira opção | 1ª opción ◈ Stock item | Produto de stock | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

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

SPARE PARTS | Acessórios | Repuestos

Order separately

Cutter	Insert Screw	Key (Torx)	Key (Torx - lbf/in)	Torque Value
				
002E64067	P0220401	XT06	DT0606	5.3



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RECOMMENDED CONDITIONS | Condições recomendadas | Condiciones recomendables

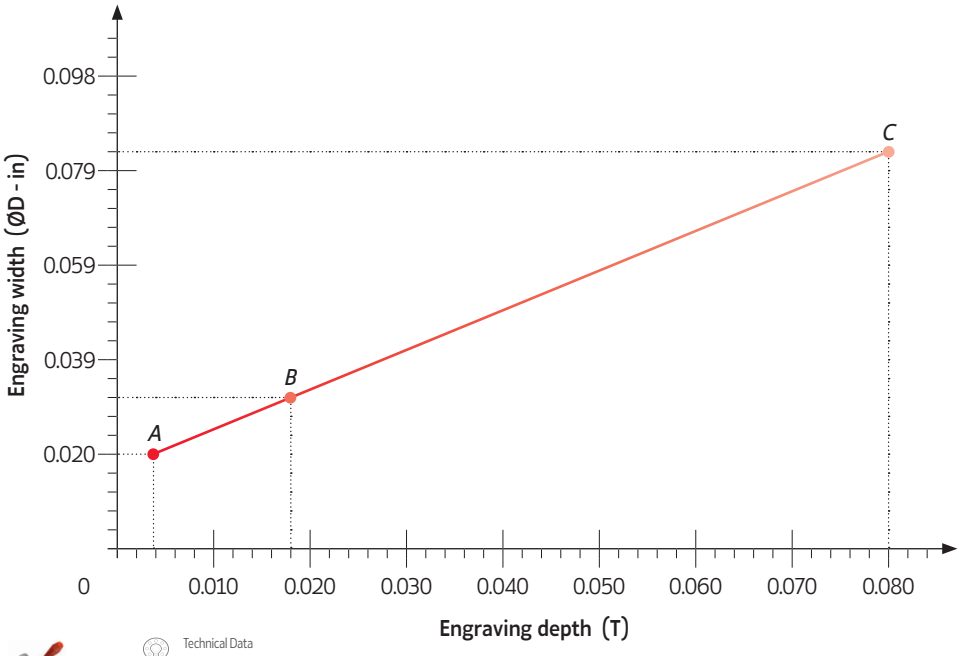
ISO	Material	n (RPM)	f (in/rev)	
			VPGT 060602-45LM	VPGT 060602-45LN
P	Carbon Steel	5 000 - 40 000	0.0003 - 0.002	-
	Alloy Steel	5 000 - 40 000	0.0003 - 0.001	-
M	SS - Austenitic	5 000 - 40 000	0.0003 - 0.002	-
N	Aluminium and Non Ferrous	5 000 - 40 000	-	0.0003 - 0.002
S	Heat Resistant Super Alloys	5 000 - 30 000	0,005 - 0.001	-

a_p per step:

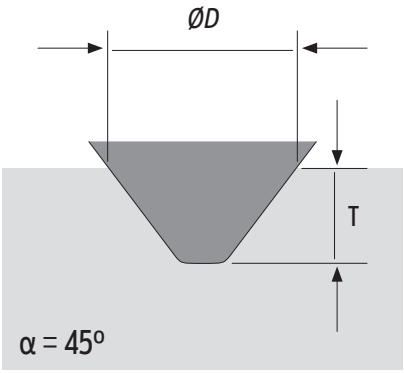
ISO	Material	a_p (in) Tmax: 0.079in							
		1st	2nd	3rd	4th	5th	6th	Next steps	Fine finishing
P	Carbon Steel	0.031	0.024	0.012	0.008	0.004	-	-	0.004
	Alloy Steel	0.020	0.016	0.012	0.012	0.008	0.008	0.004	0.004
M	SS - Austenitic	0.020	0.016	0.008	0.012	0.008	0.008	0.004	0.002
N	Aluminium and Non Ferrous	0.039	0.031	0.008	-	-	-	-	0.004
S	Heat Resistant Super Alloys	0.020	0.016	0.008	0.012	0.008	0.008	0.004	0.002

(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= 0.020 in x Depth = 0.033 in
- *Point B:* Width= 0.031 in x Depth = 0.018 in
- *Point C:* Width= 0.083 in x Depth = 0.079 in



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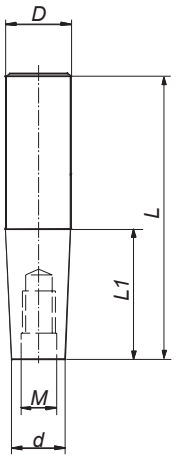
MULTIFIT DENSIMET ANTI-VIBRATION | Shank | Adaptador | Fijación





order code	Reference	Dimensions (mm)					Stock
		D	L1	L	d	M	
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

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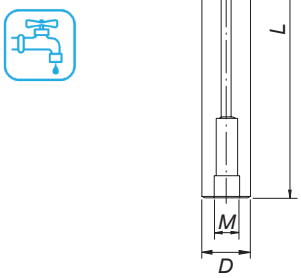
MULTIFIT CARBIDE ANTI-VIBRATION | Shank | Adaptador | Fijación





Standard Version

Customized Version

order code	Reference	Dimensions (mm)					Stock
		D	L	M	d*	L1*	
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	-	-	◈

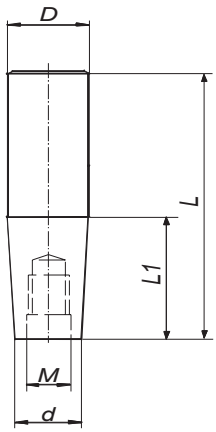
◈ Stock item | Produto de stock | Itens de stock

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

* Costumized versions under request

MULTIFIT CYLINDRICAL IN STEEL | Shank | Adaptador | Fijación



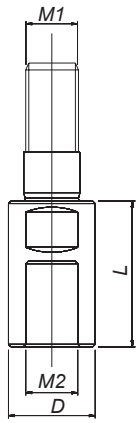


order code	Reference	Dimensions (mm)					Stock
		D	L1	L	d	M	
229000500	AC-RI-D12-M06-L020	12	20	65	9,8	M6	◎
229000600	AC-RI-D16-M08-L040	16	40	88	12,8	M8	◎
229000700	AC-RI-D20-M10-L045	20	45	95	17,8	M10	◎
229000800	AC-RI-D25-M12-L050	25	50	106	20,8	M12	◎
229000900	AC-RI-D32-M16-L050	32	50	110	28,8	M16	◎

◎ 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



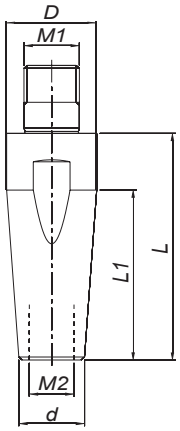


order code	Reference	Dimensions (mm)				Stock
		D	M1	M2	L	
229003200	AL-M08-L040-M08	13,8	M8	M8	40	◎
229003600	AL-M10-L060-M10	18,0	M10	M10	60	◎
229003700	AL-M12-L060-M12	21,0	M12	M12	60	◎
229003100	AL-M16-L060-M16	29,0	M16	M16	60	◎

◎ 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





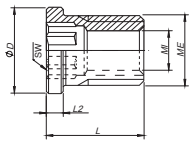
order code	Reference	Dimensions (mm)						Stock
		M1	M2	D	d	L	L1	
229012100	AL-M08-L040-M06	M8	M6	13,8	10,0	40	25	⊛
229012200	AL-M10-L040-M08	M10	M8	18,0	13,8	40	25	⊛
229012300	AL-M12-L040-M10	M12	M10	21,0	18,0	40	15	⊛
229012400	AL-M16-L040-M12	M16	M12	29,0	21,0	40	19	⊛

⊛ Stock item | Produto de stock | Itens de stock

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

SHIM SCREW

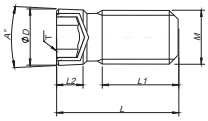




order code	Screw	Dimensions (in)					
		SW	MI (mm)	ME (mm)	ØD	L	L2
290030400	T0503509	0.138	M3,5 x 0,6	M5,0 x 0,5	0.248	0.276	0.047

ADJUSTMENT SCREW

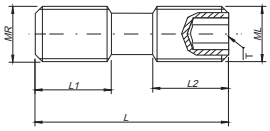




order code	Screw	T (torx)	Dimensions (in)					
			M (mm)	ØD	A°	L	L1	L2
290051500	F0601441	T-20	M6 x 1,0	0.248	5°	0.535	0.335	0.126

DIFFERENTIAL SCREW

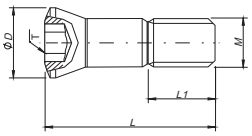




order code	Screw	T (torx)	Dimensions (in)				
			MR (mm)	ML (mm)	L	L1	L2
290016300	F0701800	T-20	M7 x 0,75	M7 x 0,75	0.709	0.295	0.295

INSERT SCREW





order code	Screw	T (torx)	Dimensions (in)			
			M	ØD	L	L1
290013900	P0400925	T-15	M4 x 0,5	0.228	0.339	0.138
290010600	P0500925	T-20	M5 x 0,5	0.264	0.374	0.134
290014400	P0501325	T-20	M5 x 0,5	0.295	0.504	0.177
290014000	P0501525	T-20	M5 x 0,5	0.295	0.610	0.177

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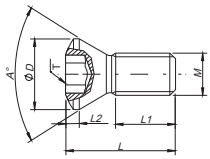
INSERT SCREW

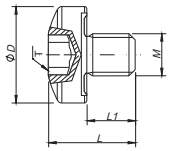




order code	Screw	T (torx)	Dimensions (mm)					
			M	ØD	A°	L	L1	L2
290078800	P0180300	T-GIP	M1,8 x 0,35	0.096	60°	0.134	0.059	0.020
290058400	P0180400	T-GIP	M1,8 x 0,35	0.096	60°	0.146	0.071	0.020
290011300	P0180401	T-6	M1,8 x 0,35	0.108	55°	0.142	0.075	0.016
290031400	P0200500	T-6	M2 x 0,4	0.110	60°	0.185	0.114	0.024
290030600	P0220500	T-7	M2,2 x 0,45	0.126	60°	0.197	0.118	0.024
290033100	P0250503	T-8	M2,5 x 0,45	0.136	60°	0.217	0.110	0.028
290048900	P0250601	T-8	M2,5 x 0,45	0.136	60°	0.236	0.138	0.031
290013400	P0250700	T-8	M2,5 x 0,45	0.130	55°	0.276	0.157	0.031
290031300	P0250704	T-8	M2,5 x 0,45	0.136	60°	0.256	0.157	0.028
290084200	P0300726	T-8	M3 x 0,35	0.173	60°	0.264	0.067	0.028
290009100	P0300800	T-9	M3 x 0,5	0.173	60°	0.291	0.165	0.031
290081700	P0350702	T-15	M3,5	0.209	55°	0.276	0.122	0.079
290019900	P0350800	T-15	M3,5 x 0,6	0.217	60°	0.303	0.146	0.039
290084300	P0350825	T-10	M3,5 x 0,35	0.224	54°	0.331	0.110	0.039
290027100	P0350902	T-10	M3,5 x 0,6	0.185	60°	0.354	0.217	0.016
290030900	P0350903	T-15	M3,5 x 0,6	0.215	60°	0.354	0.236	0.024
290075200	P0350904	T-15	M3,5 x 0,6	0.189	60°	0.354	0.197	0.031
290005800	P0351200	T-15	M3,5 x 0,6	0.209	60°	0.472	0.315	0.055
119198800	P0400803	T-15	M4 x 0,7	0.217	60°	0.315	0.217	0.039
290048200	P0400900	T-15	M4 x 0,7	0.217	60°	0.354	0.217	0.039
290075600	P0401065	T-15	M4 x 0,6	0.224	60°	0.394	0.236	0.039
290007000	P0401100	T-15	M4 x 0,7	0.209	55°	0.433	0.315	0.079
290047500	P0401200	T-15	M4 x 0,7	0.217	60°	0.433	0.236	0.047
290026900	P0451001	T-20	M4,5 x 0,75	0.260	55°	0.413	0.217	0.039
290006700	P0451400	T-20	M4,5 x 0,75	0.283	60°	0.551	0.354	0.039
290084400	P0501025	T-20	M5 x 0,5	0.276	60°	0.390	0.102	0.035
290084500	P0501326	T-20	M5 x 0,5	0.264	42°	0.524	0.150	0.045
290017500	P0501100	T-20	M5 x 0,8	0.252	43°	0.433	0.232	0.020
290031700	P0501300	T-20	M5 x 0,8	0.276	60°	0.504	0.315	0.051
290078900	P0501302	T-20	M5 x 0,8	0.276	60°	0.512	0.323	0.031
290048300	P0601402	T-20	M6 x 1,0	0.331	60°	0.551	0.354	0.035
290084600	P0601725	T-25	M6 x 0,75	0.313	44°	0.661	0.224	0.045

ADJUSTMENT SCREW

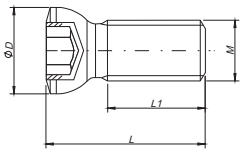




order code	Screw	T (torx)	Dimensions (in)			
			M (mm)	ØD	L	L1
290014200	P0350750	T-15	M3,5 x 0,6	0.315	0.283	0.157

WASHER SCREW



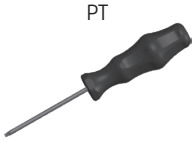
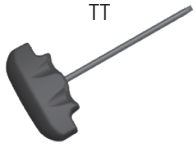


order code	Screw	Dimensions (in)			
		M (mm)	ØD	L	L1
290075600	P0401065	M4 x 0,6	0.224	0.394	0.236
290018500	P0601265	M6 x 1,0	0.354	0.488	0.256
290011000	P0601765	M6 x 1,0	0.354	0.669	0.433
290028400	P0802265	M8 x 1,25	0.433	0.866	0.591

OTHERS

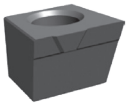
Washer	Order Code	Reference
	119200900	HC01200
	290060200	HC01400
	290002900	HC01800

Cartridge Screw	Order Code	Reference
	119169600	D0602096

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
	290056000	TT 20
	290059500	LT 30

Shim	Order Code	Reference
	160022218	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

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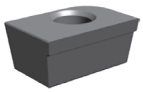
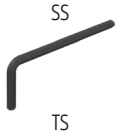
Wedge (Cartridge)	Order Code	Reference
	290061000	WA7002
	290061200	WA7004

Hex Key	Order Code	Reference
SS  TS 	290021200	SS40
	290021300	SS50
	290058700	TS40

Tork Keys	Order Code	Reference	Torx	Lbf/in
lbf/in 	290078300	DT0606IP	6IP	5.3
	290059600	DT0606	6	5.3
	290059700	DT0709	7	8.0
	290059800	DT0812	8	10.6
	290059900	DT0914	9	12.4
	290060000	DT1020	10	17.7
	290047800	DT1530	15	26.6
	290078400	DT2050	20	44.3

Screw for Coolant Supply	Order Code	Reference	M (mm)	Ø Ext. (in)
	119163000	J0123510	12	1.492
	119163100	J0164110	16	1.772
	119163200	J0204610	20	2.157

DIN 6368 Wrench	Order Code	Reference
	290058000	SD6368-12
	290058100	SD6368-16
	290058200	SD6368-20

Clamp Set	Order Code	Reference
	290074600	GS40140

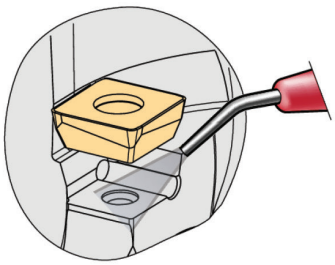
Retaining Screw	Order Code	Reference
	290087700	D1603500
	290087800	D2004000

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).

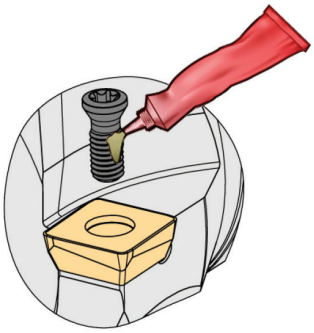


2. Clean the insert seat.
Make sure that the insert seat is free from dust or chips from the machining. If necessary, clean the insert seat with compressed air.



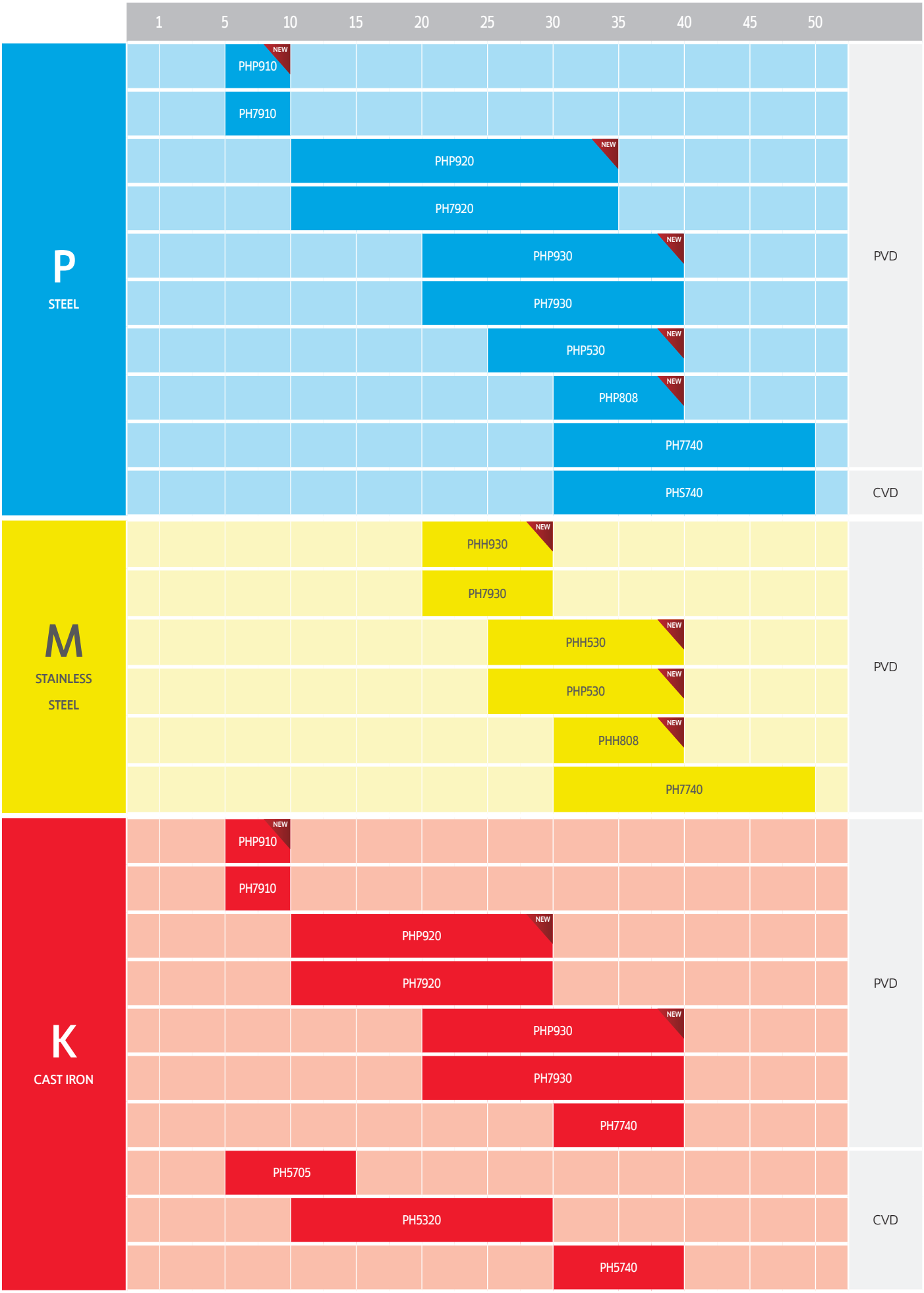
3. Check the insert seat.
Before assembly cutter it is important to ensure that the insert seat has not been damaged during machining or handling.

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.

MILLING GRADES | Graus de fresagem | Calidades de fresado



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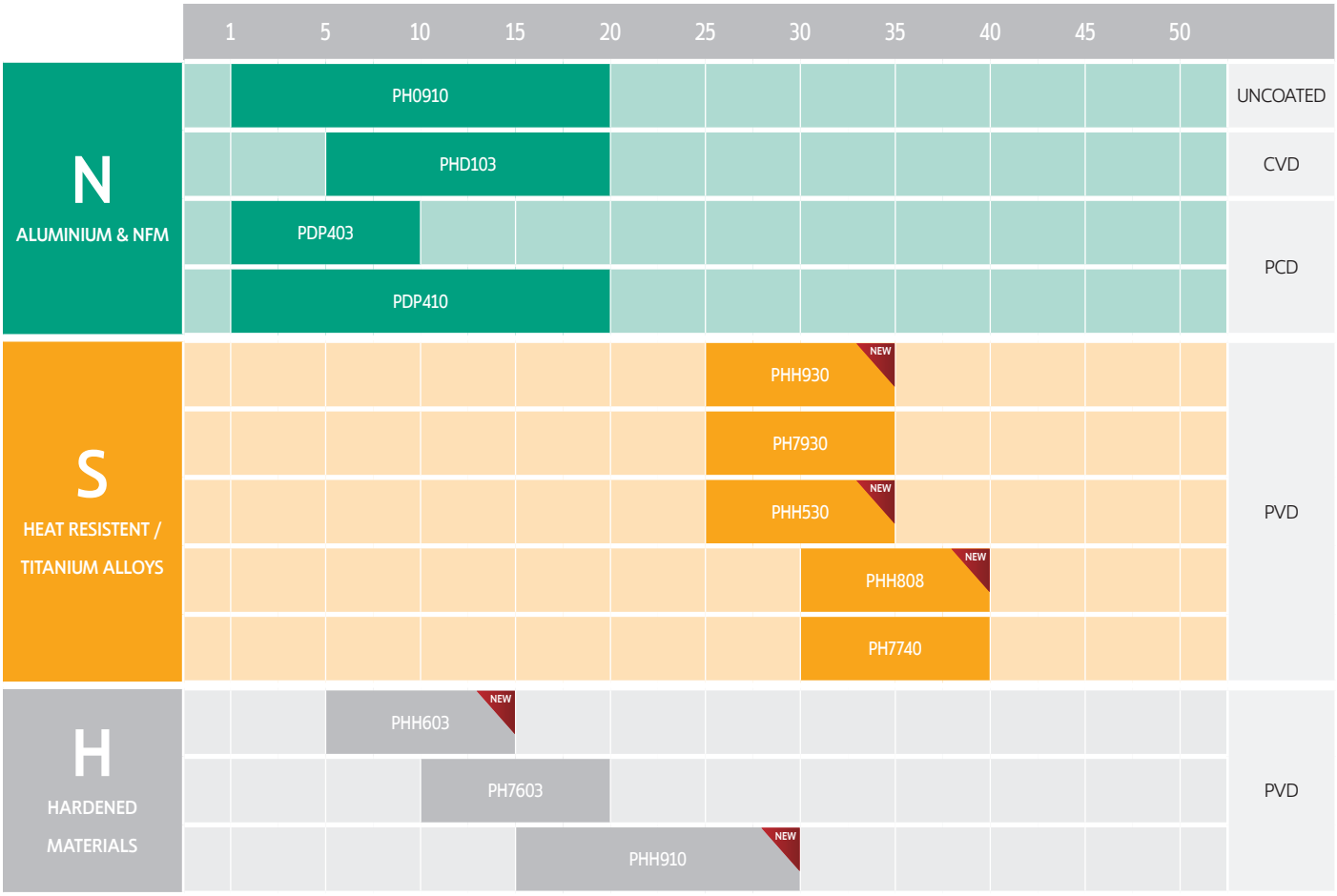
MILLING GRADES | Graus de fresagem | Calidades de fresado

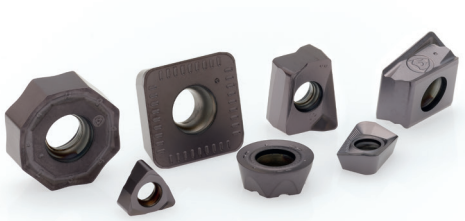


MILLING GRADES

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.



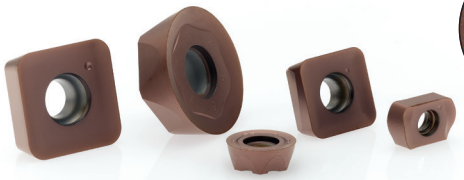
PHP NEW GRADE

WEAR RESISTANCE ⟷ TOUGHNESS

PHP910 (NEW)	PHP920 (NEW)	PHP930 (NEW)	PHP530 (NEW)	PHP808 (NEW)
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 unmatched heat resistance.
It's structure contains refractory materials which allows it to work at the highest temperature and the hardest conditions.



PHH NEW GRADE

WEAR RESISTANCE ⟷ TOUGHNESS

PHH603 (NEW)	PHH910 (NEW)	PHH930 (NEW)	PHH530 (NEW)	PHH808 (NEW)
H05-H15 P01-P05	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. First choice in mold and die finishing applications.	Recommended for finishing operations in steels and hardened steels in unstable conditions.	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.

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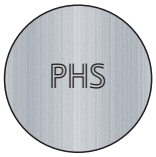
CVD GRADES

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...

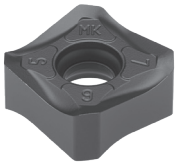
A thick CVD coating with very smooth surface. Can be used wet or dry. Ideal for machining cast irons.

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



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

COMPARATIVE GRADES CHART

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

ISO Material		Palbit	Sandvik	Kennametal	Iscar	Seco	Mitsubishi	Sumitomo	Hitachi	Walter	Kyocera	Taegutec	Dijet	Ceratizit
P STEEL	P01	**PH7603 PH6103**	GC1010	KC505M KC510M KC515M	IC903				ATH80D JP4105			TT2510 TT5505	JC8003	
	P10	**PH7910 PH6910 PHP910**	GC1010 GC1025	KC505M KC510M KC515M KC610M KC715M	IC903 IC907 IC950 IC908 IC910 IC380 IC900	CP200 TS2001	MP6120 VP15TF	ACP200	ATH80D PN08M ATH10E PN15M JP4105 JP4115 JP4120	WHH15 WXM15	PR830 PR1225 PR1230 PR1525	TT2510 TT5505 TT5515 TT7080	JC8003 JC8015 JC5015 JC5118	
	P20	**PH7920 PH6920 PH6125 PHP920**	GC1025 GC1030 GC2030	KC522M KC525M KC527M KC530M KC610M KC620M KC635M KC715M KC720M KC730M	IC907 IC950 IC908 IC910 IC380 IC900 IC830 IC928 IC1008	CP250 TS2500	MP6120 VP15TF MP6130 UP20M VP20RT	ACP200 ACP300	JP4120 JS4045 CY250	WHH15 WXM15	PR830 PR1225 PR1230 PR1525	TT2510 TT5505 TT5525 TT7080 TT9030 TT9080	JC8015 JC5015 JC5118 JC5040	CTP1235 CTP1625
	P30	**PHP808 PHP530 PH7930 PH6930 PH6135 PHP930**	GC1025 GC1125	KC525M KC527M KC530M KC537M KC610M KC620M KC720M KC725M KC730M KC735M	IC907 IC950 IC908 IC910 IC380 IC900 IC830 IC928 IC1008	MP3000 F25M F30M F40M	MP6120 VP15TF MP6130 UP20M VP20RT VP30RT	ACP200 ACP300	JS4045 CY250 JM4160	WSP45 WSP46	PR830 PR1225 PR1230 PR1525	TT5525 TT7080 TT8020 TT8080 TT9030 TT9080	JC5118 JC5040 JC8050 JC7560	CTP1235 CTP1625 CTP2235
	P40	**PH7740 PH6740**		KC537M KC720M KC725M KC735M	IC830 IC928 IC1008	MP3000 F40M T60M	VP30RT	ACP300	JM4160	WSP45 WSP46		TT8020	JC5118 JC5040 JC8050 JC7560	CTP1235 CTP2235
M STAINESS STEEL	M01		GC1010		IC907 IC903			ACM100 ACK300	PCS08M					
	M10	**PH7910 PH6910**	GC1010 GC1025 GC1030 GC2030	KC515M KC610M KC635M KC720M	IC907 IC903		VP15TF	ACM100 ACK300 ACP300	PCS08M CY150	WXM15	PR830 PR1225 PR1525 PR1535			
	M20	**PH7920 PH6920**	GC1025 GC1030 GC1040 GC2030	KC522M KC525M KC530M KC610M KC635M KC720M KC730M	IC380 IC900 IC908 IC928 IC1008	MP3000 MS2050 F25M F30M	VP15TF MP7130 MP7030 UP20M VP20RT	ACM300 ACP300	CY150 CY250	WXM15 WSM35 WSM36	PR830 PR1225 PR1525 PR1535	TT8020 TT8080	JC8015 JC5015 JC5118	CTP1235 CTP1625
	M30	**PH7930 PH6930 PH6135 PHH530 PHH930**	GC1040 GC2030	KC522M KC525M KC530M KC537M KC725M KC730M KC735M	IC380 IC900 IC908 IC928 IC1008 IC328 IC330	MP3000 MS2050 F30M F40M	VP15TF MP7130 MP7030 UP20M VP20RT MP7140 VP30RT	ACM300	CY250 JM4160	WSM35 WSM36 WSP45 WSP46	PR830 PR1225 PR1525 PR1535	TT8020 TT8080	JC8015 JC5015 JC5118 JC8050 JC7560	CTP1235 CTP2235
	M40	**PH7740 PH6740 PHH808**	GC1040	KC725M	IC1008 IC328 IC330	MS2050 F40M	MP7140 VP30RT	ACM300	JM4160	WSM35 WSM36 WSP45 WSP46	PR1225 PR1525 PR1535	TT8020	JC5015 JC5118 JC8050 JC7560	CTP2235
K CAST IRON	K01		GC1010		IC380 IC900		MP8010		ATH80D JP4105		PR1510	TT6080	JC8003	AMZ
	K10	**PH7910 PH6910 PHP910**	GC1010 GC1020	KC514M KC515M KC520M KC620M	IC380 IC900 IC810 IC910	MK2050	MP8010 VP15TF		ATH80D JP4105 JP4120 CY150	WHH15 WXM15 WKK25	PR1210 PR1510	TT6080	JC8015	AMZ CTP3220 CTP6215
	K20	**PHP920 PH7920 PH6920**	GC1020	KC514M KC520M KC522M KC524M KC527M KC610M KC620M KC635M	IC810 IC910 IC950 IC350 IC830 IC928	MK2050	MP8010 VP15TF VP20RT	ACK300	JP4120 CY150 CY250	WHH15 WXM15 WKK25	PR1210 PR1510		JC8015 JC5015	CTP3220 CTP1625
	K30	**PH7740 PH6740**		KC522M KC524M KC527M KC537M KC610M KC620M KC635M	IC830 IC928 IC1008 IC808 IC908	MK2050	VP15TF VP20RT	ACK300	CY250	WKK25	PR1510		JC8015 JC5015	

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

ISO Material		Palbit	Sandvik	Kennametal	Iscar	Seco	Mitsubishi	Sumitomo	Hitachi	Walter	Kyocera	Taegutec	Dijet	Ceratizit
N ALUMINIUM	N01			KC410M KC510M KC5410								TT6080		AMZ
	N10		GC1025 GC1030	KC410M KC510M KC5410 KC620M				DL1000	SD5010 HD7010	WXN15		TT6080 TT8020		AMZ
	N20		GC1025 GC1030	KC422M KC620M		F15M	LC15TF	DL1000	SD5010 HD7010	WXN15		TT8020		
S HEAT RESISTENT / TITANIUM ALLOYS	S01		GC1010	KC510M	IC808 IC907 IC908			ACM100 ACK300			PR905 PR1210 PR1535		JC8003 JC8015	AMZ
	S10	**PH7910 PH6910**	GC1010 GC1030 GC2030	KC510M KC610M	IC808 IC907 IC908 IC903	MS2050	MP9120 VP15TF MP9130 MP9030	ACM100 ACK300	PTH13S JS1025		PR905 PR1210 PR1535	TT9030 TT9080 TT8080	JC8003 JC8015 JC5015 JC5118	AMZ CTP1625
	S20	**PH7920 PH6920**	GC1030 GC1040 GC2030 GC2040	KC522M KC525M KC610M	IC300 IC900 IC830 IC928	MS2050 F40M	MP9120 VP15TF MP9130 MP9030	ACM300	PTH13S JS1025	WSM35 WSM36	PR905 PR1210 PR1535	TT8080 TT8020	JC8015 JC5015 JC5118 JC8050 JC7560	CTP1235 CTP1625
	S30	**PH7930 PH6930 PHH930 PHH530**	S30T GC1040 GC2040	KC522M KC525M KC725M	IC830 IC928	MS2050 F40M	MP9130 MP9030	ACM300		WSM35 WSM36 WSP45 WSP46	PR1535	TT8020	JC5118 JC8050 JC7560	CTP1235 CTP2235
	S40	**PH7740 PH6740 PHH808**	GC2040 GC1040	KC725M	IC830 IC928	MS2050 F40M				WSP45 WSP46			JC5118 JC8050 JC7560	
H HARDENED MATERIAL	H01	**PH7603 PH6103 PHH603**	GC1010	KC510M	IC903		MP8010					TT2510 TT5505	DH102 JC6102 JC8003 JC8008	
	H10	**PHH603 PH7603 PH6103 PH7910 PHH910**	GC1010 GC1025 GC1030	KC505M KC510M KC635M	IC903 IC808 IC907 IC908	MH1000 F15M	MP8010 VP15TF		PTH08M JP4105	WHH15		TT5515 TT6080	JC6102 JC8003 JC8008 JC8015 JC5118	CTP6215
	H20		GC1025 GC1030	KC635M	IC808 IC907 IC908 IC380 IC900	F15M	VP15TF		JP4105	WHH15		TT5515 TT6080	JC8015 JC5118	CTP6215
	K10				IC380 IC900 IC1008	MP3000 F30M								

COMPARATIVE GRADES CHART

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

ISO	Material	Palbit	Sandvik	Kennametal	Iscar	Seco	Mitsubishi	Sumitomo	Hitachi	Walter	Kyocera	Taegutec	Dijet	Ceratizit
P STEEL	P40	**PHS740**				MP2500				WKP35S				
M STAINESS STEEL	M10		GC2015	KCPM20	IC9250 IC520M IC9350			ACM200					JC730U	
	M20		GC4230	KCPM20 KCPM30 KC927M	IC9250 IC520M IC9350 IC4050 IC635	MP2500 T350M T25M	F7030	ACM200			CA6535	TT7800	JC730U	CTC5235 GM226+
	M30		GC2040 GC4230 GC4240 S40T	KCPM30 KC927M	IC9350 IC4050 IC635	MP2500 T350M T25M	F7030	ACM200	GX2160		CA6535	TT7800	JC730U	CTC5235 CTC5240 GM226+ GM246 GM43+
	M40		GC2040 GC4240 S40T		IC635	In4500 T350M			GX2160		CA6535			CTC5235 CTC5240 GM246 GM43+
K CAST IRON	K01	**PH5705**		KC907M	IC8080 IC4100 IC5100 IC9150		MC5020	ACK200		WKP15	CA420M		JC605W	CTC3215
	K10	**PH5705**	GC3220	KC907M KC914M KC917M KC924M KCK15	IC8080 IC4100 IC5100 IC9150 IC9080 IC520M	MK1500	MC5020	ACK200	GX2120	WKP15 WKP25	CA420M	TT6800	JC605W JC608X JC610	CTC3215 SR216 SR226+
	K20	**PH5320**	GC3220 GC3330 GC3040 GC4220 GC4230	KC917M KC924M KCK15 KCPM20 KCPK30 KC927M	IC5100 IC9150 IC9080 IC520M IC4050	MK1500 MP1500	MC5020	ACK200	GX2120 GX2140	WKP15 WKP25 WKP35 WKP35S	CA420M	TT6800	JC605W JC608X JC610	SR216 SR226+
	K30	**PH5740**	GC3330 GC3040 GC4220 GC4230 GC4240	KCPM20 KCPK30 KC927M	IC520M IC4050	MK1500 MP1500	MC5020		GX2140	WKP25 WKP35 WKP35S			JC610	

palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

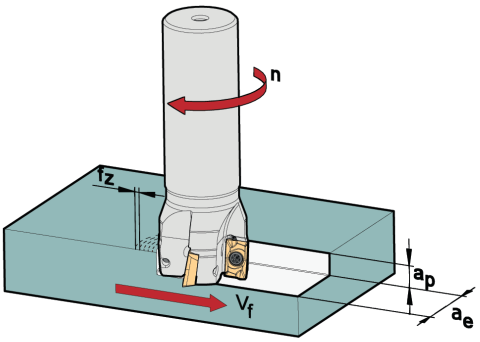
UNCOATED GRADES | GRAUS NÃO REVESTIDOS | GRADOS SÍN RECUBRIMIENTO

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

Formulas

Spindle Speed (rev/min)

$$n = \frac{v_c \cdot 12}{\pi \cdot D_c}$$



Cutting Speed (SFM)

$$v_c = \frac{n \cdot \pi \cdot D_c}{12}$$

Feed Speed (inch/min)

$$v_f = n \cdot Z_n \cdot f_z$$

Feed per Revolution (inch/rev)

$$f = Z_n \cdot f_z$$

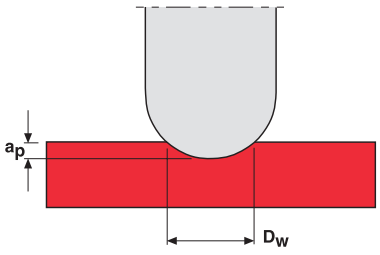
Feed per Tooth (inch/tooth)

$$f_z = \frac{v_f}{n \cdot Z_n}$$

Metal removal Rate (in³/min)

$$Q = a_e \cdot a_p \cdot v_f$$

Cutting Speed and Spindle Speed for Copying



$$v_c = \frac{n \cdot \pi \cdot D_w}{12} \quad \text{(SFM)}$$

$$n = \frac{v_c \cdot 12}{\pi \cdot D_w} \quad \text{(RPM)}$$

$$D_w = 2 \cdot \sqrt{a_p (D_c - a_p)} \quad \text{(inch)}$$

Nomenclature

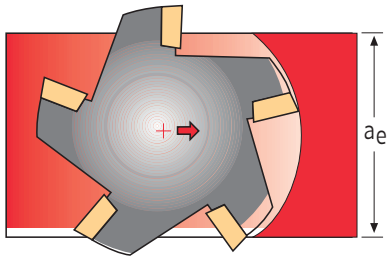
a_e	- Width of cut inch/radial depth of cut	(inch)
a_p	- Depth of cut inch/radial depth of cut	(inch)
D_c	- Cutter diameter	(inch)
f	- Feed per Revolution	(inch/rev)
f_z	- Feed per Tooth	(inch/tooth)
n	- Spindle Speed	(rev/min)
Q	- Material removal Rate	(in³/min)
V_c	- Cutting Speed	(SFM)
V_f	- Feed Speed	(inch/min)
Z_n	- Nº of theeth	

POWER REQUIREMENT CALCULATION

Cálculo de potência requerida | Cálculo del requerimiento de potencia

Calculating the power demand

$$P_c = \frac{a_p \times a_e \times v_f}{396{,}000 \times \eta} \cdot k_c$$



P_c - Power (kW)
a_p - Depth of cut (inch)
a_e - Width of cut (inch)
v_f - Feed speed (inch/min)
η - Efficiency
k_c - Cutting force per inch² (Lbf/inch²)

Calculating average chip thickness (h_m) and cutting force per inch² (k_c)

$$h_m = \frac{360 \times f_z \times a_e}{\pi \times Dc \times \omega_e} \cdot \sin k_r$$

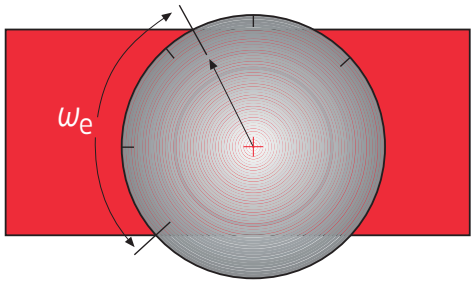
h_m - Average chip thickness (inch)
f_z - Feed per tooth (inch/tooth)
D_c - Cutter diameter (inch)
ω_e - Engagement angle
k_r - Lead angle

$$k_c = \frac{1}{\left(\frac{h_m}{0.04}\right)^{m_c}} \cdot k_c x$$

m_c* - Exponent
$k_c x$* - Cutting force for 0.04 inch chip thickness (Lbf/inch²)

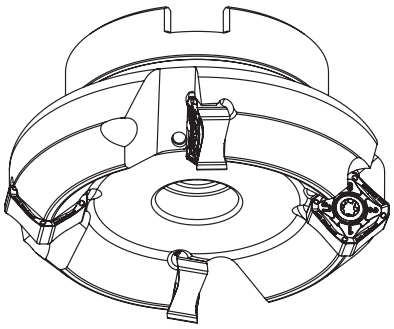
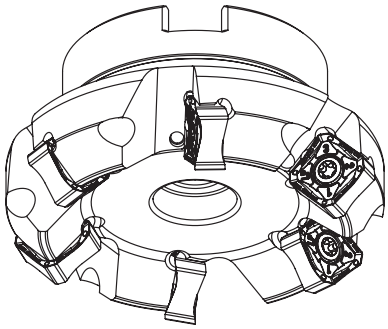
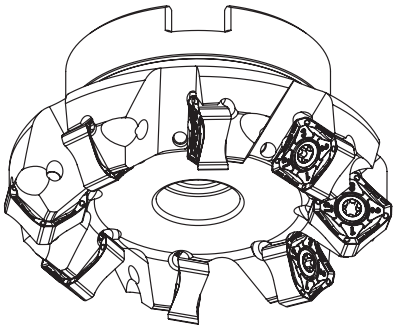
* Please see these values on page 687.

Engagement angle



Engagement a_e / D_c	Engagement angle ω_e
70%	89°
100%	180°

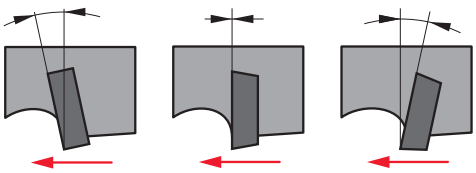
Engagement a_e / D_c	Engagement angle ω_e
5%	26°
10%	37°
75%	60°

Coarse Pitch Type	Normal Pitch Type	Fine Pitch Type
First choice for cutting aluminium (long-chipping material - ISO N). First choice for unstable operations due to lowest cutting forces. Smooth cutting allows longer overhang applications. First choice for deep cutting and high feed rates.	First choice for roughing in stable conditions. Good productivity. Good chip space for roughing in steels, stainless steel and super alloys. First choice for shallow cutting with low feed rates.	First choice for cast iron. First choice for high productivity with low width of cut (Ae). Roughing in super alloys materials in combination with round inserts. For cutting operations where chip discharge volume is small and high table feed is desired.
		

Standard inserts

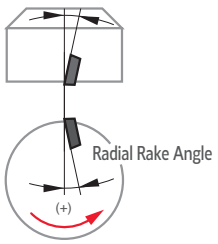
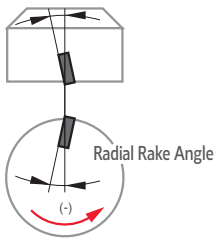
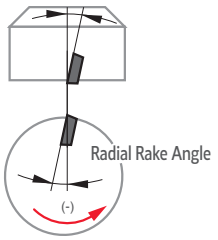
Positive and Negative Rake Angle

- Insert shape whose cutting edge precedes is a positive rake angle.
- Insert shape whose cutting edge follows is a negative rake angle.



Negative (-) Rake Angle | Neutral Rake Angle | Positive Rake Angle

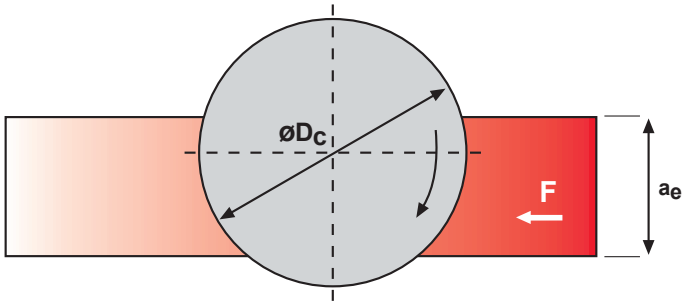
Standard Cutting Edge Shape

		(+) Axial Rake Angle	(-) Axial Rake Angle	(+) Axial Rake Angle
Standard Cutting Edge Combinations				
		Double Positive (DP Edge Type)	Double Negative (DN Edge Type)	Negative / Positive (NP Edge Type)
	Axial Rake Angle γ_p	Positive (+)	Negative (-)	Positive (+)
	Radial Rake Angle γ_f	Positive (+)	Negative (-)	Negative (-)
	Insert Used	Positive Insert (One Sided Use)	Negative Insert (Double Sided Use)	Positive Insert (One Sided Use)
Work Material	Steel	✓	-	✓
	Cast Iron	-	✓	✓
	Aluminium Alloy	✓	-	-
	Hardened Materials	✓	-	✓

Choosing Cutter Diameter

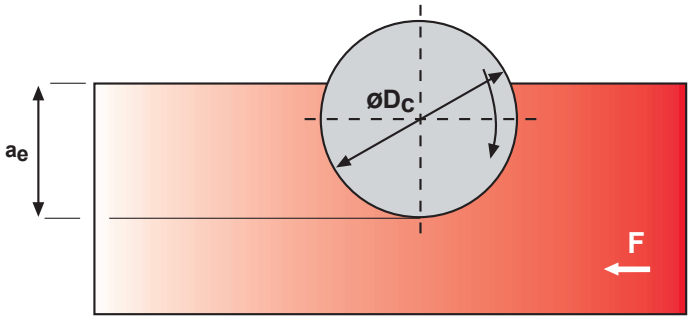
The Best Cutter Diameter (ØDc) should be selected upon the workpiece dimensions

$D_C = 1{,}3 - 1{,}5\ a_e$



If the machine power is limited or the workpiece is too wide, select a cutter diameter that takes more than two passes or that matches the power of machine. When the appropriate cutter diameter is not available, proper cutter position will give good results.

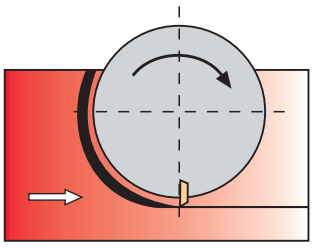
$a_e = 3/4\ D_C$



Cutter Position

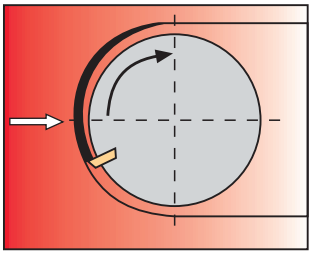
Conventional Milling (Up Milling)

The feed direction of the workpiece is opposite to that of cutter rotation. The chip thickness starts at zero and increases to the maximum at the end of cut. In Up Milling, the insert wear is severe with excessive friction and high temperature caused by the rubbing or burnishing effect in the insert.



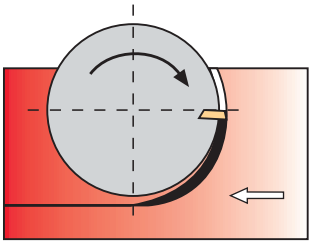
Channel Milling (Up and Down Milling)

The cutter position is in the middle of the workpiece and the cutting force is alternately changed in the radial direction. It causes vibration when the spindle structure is weak. Channel Milling is a combination of conventional and climb milling. When Channel Milling is necessary use positive geometry cutters at reduced speeds and feeds with coolant.



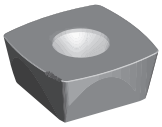
Climb Milling (Down Milling)

Climb Milling is normally recommended.
The feed direction of workpiece is the same as that of cutter rotation. So the chip thickness starts from the maximum and decreases to zero at the end of cut. The tool life is long with less heat and minimum work hardening of workpiece.



TROUBLESHOOTING

EDGE WEAR



Corrective action:
- Increase feed rate
- Reduce cutting speed
- Use more wear resistant grade
- Apply coated grade

DESGASTE DA ARESTA

Possível solução:
- Aumentar o avanço
- Reduzir a Vc
- Usar grau mais resistente ao desgaste
- Aplicar grau revestido

DESGASTE DEL FLANCO

Solución posible:
- Aumentar el avance
- Reduzca la velocidad de corte
- Seleccione una calidade más resistente al desgaste
- Utilice metales duros recubiertos

HEAT DEFORMATION (UPSET)



Corrective action:
- Reduce cutting speed
- Reduce feed
- Reduce depth of cut
- Use grade with higher hot hardness

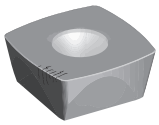
DEFORMAÇÃO ARESTA

Possível solução:
- Reduzir a Vc
- Reduzir o avanço
- Reduzir a profundidade corte
- Usar grau com maior dureza a quente

DEFORMACIÓN PLÁSTICA

Solución posible:
- Reduzca la velocidad de corte
- Seleccione una calidade más resistente al desgaste
- Reduzca el ap

THERMAL CRACKING



Corrective action:
- Properly apply coolant
- Reduce cutting speed
- Reduce feed
- Apply coated grade

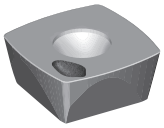
FENDAS TÉRMICAS

Possível solução:
- Aplicação correcta do fluido de corte
- Reduzir a Vc
- Reduzir o avanço
- Aplicar grau revestido

FISSURAS TÉRMICAS

Solución posible:
- Preste atención al uso del refrigerante
- Reduzca la velocidad de corte
- Reduzca el avance
- Utilice metales duros recubiertos

CRATER



Corrective action:
- Reduce feed rate
- Reduce speed
- Apply coated grades
- Apply coolant

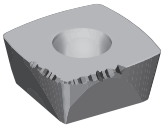
CRATERA FACE ATAQUE

Possível solução:
- Reduzir o avanço
- Reduzir a Vc
- Aplicar grau revestido
- Usar fluido de corte

DESGASTE DE CRÁTER

Solución posible:
- Reduzca el avance
- Reduzca la velocidad de corte
- Utilice metales duros recubiertos
- Preste atención al uso del refrigerante

CHIPPING



Corrective action:
- Use a tougher grade
- Consider edge preparation
- Check rigidity of system
- Increase lead angle

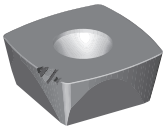
ESMILHAMENTO

Possível solução:
- Usar um grau mais tenaz
- Considerar a preparação da aresta
- Verificar a rigidez do sistema
- Aumentar o ângulo de ataque

FILOS ASTILLADOS

Solución posible:
- Seleccione una calidade más resistente al desgaste
- Utilice un inserto con una geometria de filo de corte más estable
- Modifique el ángulo de posicion
- Modifique la geometria de rompevirutas

DEPTH-OF-CUT NOTCHING



Corrective action:
- Change lead angle
- Consider edge preparation
- Apply different grade
- Adjust feed

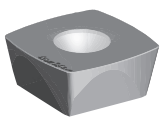
FRACTURA

Possível solução:
- Alterar o ângulo de ataque
- Considerar a preparação da aresta
- Aplicar outro grau
- Ajustar o avanço

DESGASTE POR ENTALLA

Solución posible:
- Escoja un ángulo de posición mas pequeño
- Ajuste el avance
- Cambie de calidad
- Utilice un inserto con una geometria de filo de corte más estable

BUILT-UP EDGE



Corrective action:
- Increase cutting speed
- Increase feed rate
- Apply PVD coated grades
- Use coolant
- Edge preparation (smaller hone)

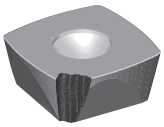
ARESTA POSTIÇA CORTE

Possível solução:
- Aumentar a Vc
- Aumentar o avanço
- Aplicar grau revestido
- Usar fluido de corte
- Reduzir boleamento

FILOS RECRECIDOS

Solución posible:
- Aumentar la velocidad de corte
- Aumentar el avance
- Utilice metales duros recubiertos
- Aplique refrigerante con mayor concentración de aceite
- Seleccione una geometría de corte positiva

CATASTROPHIC BREAKAGE



Corrective action:
- Utilize stronger grade / geometry
- Reduce feed rate
- Reduce depth of cut
- Check rigidity of system
- Examine edge prep / nose radius

FRACTURA CATASTRÓFICA

Possível solução:
- Aplicar grau / geometria mais resistente
- Reduzir o avanço
- Reduzir a profundidade de corte
- Aplicar grau revestido
- Usar fluido de corte

ROTURA DE INSERTO

Solución posible:
- Seleccione un material más tenaz
- Utilice insertos más robustos con ángulos de arista más grandes
- Selecione una geometria de rompe virutas para secciones de corte más amplias
- Reduzca en avance

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PROBLEMS | PROBLEMAS | PROBLEMAS	Possible causes and areas of investigation Causas possíveis e áreas de intervenção Possibles causas y las áreas de intervención	cutting speed | velocidade de corte | velocidad corte	feed | avanço | avance	depth-of-cut | profundidade de corte | profundidad de corte	grade | grau da pastilha | calidad inserto	coolant | óleo de corte | refrigerante	rake angle | ângulo de ataque | ángulo de posición	edge preparation | preparação da aresta | preparación del filo	material (type / condition) | material (tipo / condições) | material	center height | altura do centro | altura al centro	geometry (insert) | geometria da pastilha | geometría del inserto	insert finish | acabamento na pastilha | acabado del inserto	insert thickness | espessura da pastilha | espessura inserto	nose radius | raio de canto | radio punta	lead angle | ângulo da aresta de ataque | ángulo filo corte	holder (type / condition) | suporte (tipo / condições) | soporte (condiciónes)	machine condition | estado do equipamento - torno | condición de maquina	chip flow direction | direcção de fluxo da apara | dirección de la viruta	horsepower | potência | fuerza	excessive overhang | excessivo comprimento livre da ferramenta | sobreendeudamiento excessivo	spindle bearings | rolamentos do eixo | cojinetes del husillo	turret | torreta | torreta	machine anchored | fundações da máquina | anclada de la maquina	workholding | fixação da peça | sujeción pieca	rigidity | rigidez | estabilidad	chatter | vibração | vibraciones
• UNACCEPTABLE CHIPS • APARA DESADEQUADA • VIRUTA INACEPTABLE	• stringer / ribbons (light silver colo) • demasiado longas (cor de prata suave) • mucho larga (color plata suave)	P↑	P↑	◬		◬	◬	◬	◬		P			◬	◬			◬										
	• scorrugated / tight (dark blue or black color) • ondulado / firme (cor azul escuro ou preto) • corrugado / firme (azul / negra)	◬	P↓	◬	◬	◬	◬	◬	◬	◬	P			◬	◬													
• WORKPIECE CONCERNS • MATERIAL • MATERIAL	• finish / rms tolerance • tolerância e rugosidades • tolerancia y rugosidades	P	P	◬	◬	◬	◬	◬	◬	◬		◬		P				◬	◬									
	• interrupted cuts • corte interrompido • corte interrumpido	P↑	P↓	P↓	◬		◬	◬	◬		◬		◬	◬	▲			◬		◬	◬	◬			◬	◬	◬
• MACHINE CONCERNS • MÁQUINA FERRAMENTA • MAQUINA HERRAMIENTA	• areas of investigation • áreas de intervenção • áreas de intervención	◬	◬	◬	◬	◬				◬								◬		◬	◬	◬	◬	◬	◬	P	
• INSERTS FAILURE MODES • MODOS DE RUPTURA DA PASTILHA • MODOS DE RUPTURA DE INSERTO	• edge wear • desgaste da aresta • desgaste de flanco	P	P	◬	P	◬				◬																	
	• heat deformation (upset) • deformação plástica • deformación plástic	P↓	P↓	P↓	◬	◬	◬						◬	◬													
	• thermal cracking • fendas térmicas • fissuras térmicas	◬	◬	◬	P	P	◬						◬														
	• crater • cratera na face de ataque • cráter en la pared de ataque	P↓	P↓		◬	◬	◬					◬								◬							
	• chipping • esmilhamento • filos astillados	◬	◬		P	◬	◬	P	◬	◬	◬	◬	◬	◬	◬	◬	◬	◬							◬	◬	◬
	• depth-of-cut notching • fractura • desgaste por entalla	◬	◬		◬		◬	◬	P				◬	P													
	• built-up edge • aresta postiça de corte • filos recrescidos	P↑	P↑		PVD	◬	◬	P	P	◬	◬	◬															
	• catastrophic breakage • fractura catastrófica • rotura de inserto	◬	◬	◬	◬	◬	◬	◬	◬		◬		◬	◬	◬	◬	◬	◬		◬				◬	P	P

↑↓ *Arrows indicate direction of adjustment | As setas indicam a direcção do ajustamento | Las flechas indican la dirección de ajuste*

P *Indicate areas of primary investigation | Indica as áreas de primeira intervenção | Indica las áreas de intervención primaria*



B

B - DRILLING

B - 248 | Drills code key

B - 249 | Nomenclature

B - 250 | Overview

DRILLING



B - 252 | Inserts code key

B - 254 | Inserts

B - 256 | Jet Drills

B - 260 | Vortex Drill

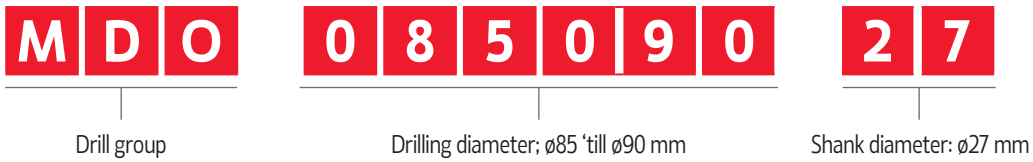
B - 264 | Solid Carbide Drills

B - 276 | Spare Parts

B - 282 | Technical Data

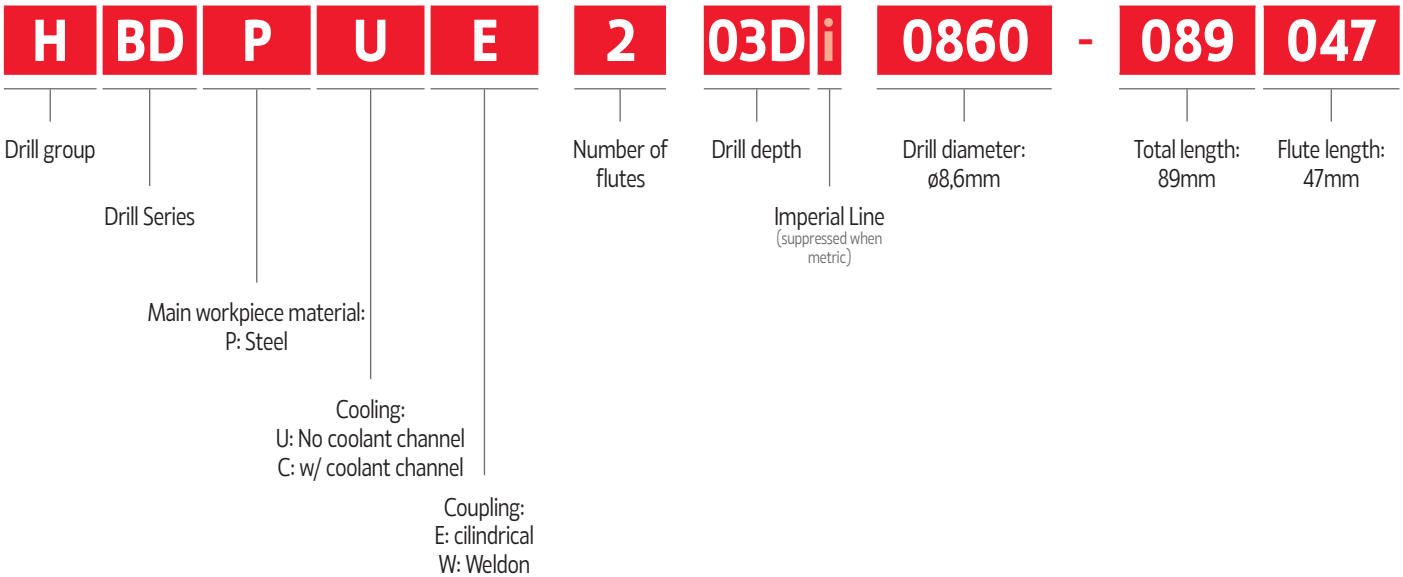
DRILLS CODE KEY | Sistema de codificação para brocas | Sistema de codificación para brocas











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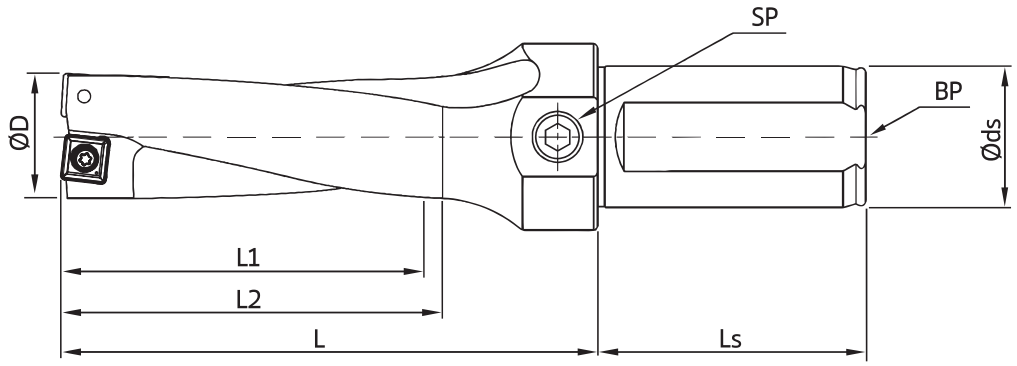
NOMENCLATURE | Nomenclatura | Nomenclatura



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

COOLANT SUPPLY | Furos de refrigeração | Agujeros de refrigeración

New version / Standard version *

Type	BP	SP
SCI	✓ / ✓	✗ / ✓
MDO	✓ / ✓	✓ / ✓

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.

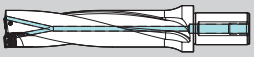
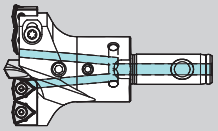
New version / Standard version *

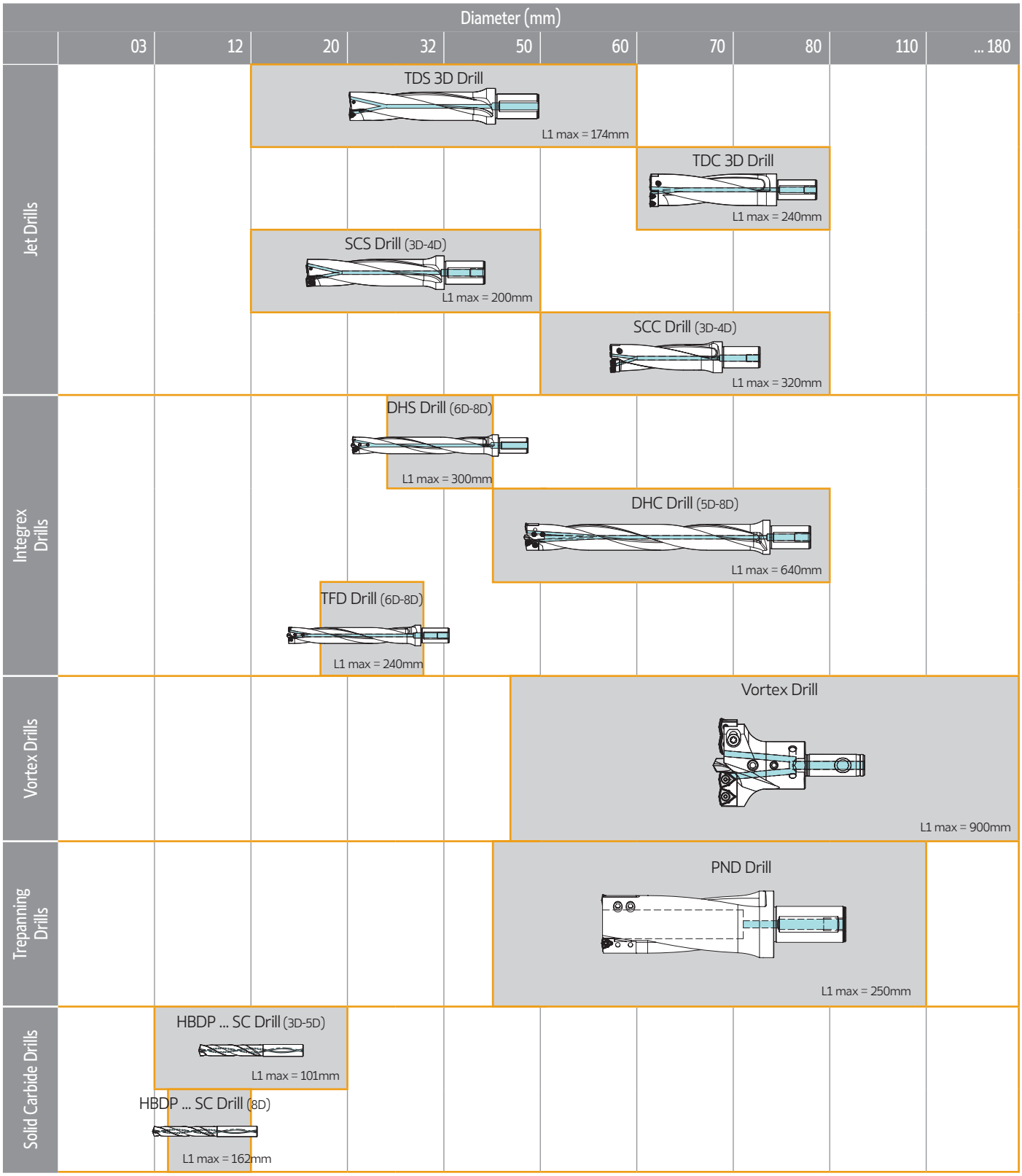
Type	BP	SP
TDS	✓ / ✓	✗ / ✓
TDC	✓ / ✓	✓ / ✓
SCS	✓ / ✓	✗ / ✓
SCC	✓ / ✓	✓ / ✓
DHS	✓ / ✓	✗ / ✓
DHC	✓ / ✓	✗ / ✓
TFD	✓ / ✓	✓ / ✓
MDO	✓ / ✓	✓ / ✓
PND	✓ / ✓	✓ / ✓

BP - Back Plug
SP - Side Plug
✓ - Available
✗ - Not Available

METRIC LINE available at **www.palbitusa.com**

OVERVIEW | Vista genérica | Información general

	Diameter (in)									
	0.118	0.472	0.787	1.260	1.969	2.362	2.756	3.150	4.331	... 7.087
Jet Drills			SCI Drill (3D-4D)  Page B - 256 L1 max = 7.752 in							
Vortex Drills						Vortex Drill  Page B - 260 L1 max = 900 mm				
Solid Carbide Drills		HBDP ... SC Drill (3D-5D)  Page B - 264 L1 max = 3.976 in								
		HBDP ... SC Drill (8D)  Page B - 264 L1 max = 6.378 in								

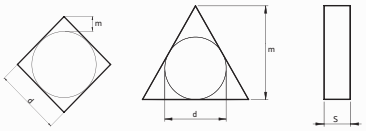


METRIC LINE available at **www.palbitusa.com**

ISO DRILLING INSERTS CODE KEY

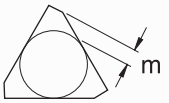
H	120°	M	86°
O	135°	V	35°
P	108°	W	80°
S	90°	L	90°
T	60°	A	85°
C	80°	B	82°
D	55°	K	55°
E	75°	R	
F	50°	X	Special

1- Insert shape symbol



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

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



Triangular inserts with a facet (secondary cutting edge)

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

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

3 - Tolerances symbol

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

2 - Normal clearance symbol

ISO **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	
H	with hole	Round hole / one countersink (70°~90°)	Chipbreaker on one side	
C		Round hole / double countersink (70°~90°)	Without chipbreaker	
J			Chipbreaker on both sides	
A		Round hole	Without chipbreaker	
M			Chipbreaker on one side	
G	with hole	Round hole	Chipbreaker on both sides	
N	without hole	-	Without chipbreaker	
R		-	Chipbreaker on one side	
F		-	Chipbreaker on both sides	
X	-	-	-	On request

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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.		

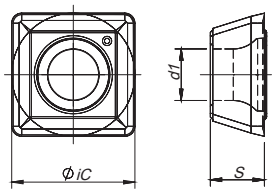
INSERTS ‖ Pastilhas | Plaquitas

SPKX ‖ Inserts | Pastilhas | Plaquitas



(PHC grade)





		P			M			K		S			N	Dimensions Dimensões Dimensiones (in)			
		PVD			PVD			PVD		PVD			UNC				
	(2) Grade code	68	66	J3	68	66	J3	68	66	68	66	J3	10				
(1) Geometry code	ISO Reference	PH6920	PH6930	PHC930	PH6920	PH6930	PHC930	PH6920	PH6930	PH6920	PH6930	PHC930	PH0910	iC	S	d1	R
1111281	SPKX 050204	●	●	●	●	●	●	●	●	●	●	●		0.197	0.094	0.087	0.016
1111282	SPKX 060204	●	●	●	●	●	●	●	●	●	●	●		0.236	0.094	0.100	0.016
1142099	SPHX 060204-LN												●	0.236	0.094	0.100	0.016
1111283	SPKX 07T308	●	●	●	●	●	●	●	●	●	●	●		0.313	0.156	0.112	0.031
1111284	SPKX 090408	●	●	●	●	●	●	●	●	●	●	●		0.386	0.169	0.161	0.031
1111285	SPKX 110408	●	●	●	●	●	●	●	●	●	●	●		0.453	0.189	0.173	0.031
1111286	SPKX 140512	●	●	●	●	●	●	●	●	●	●	●		0.563	0.205	0.226	0.047

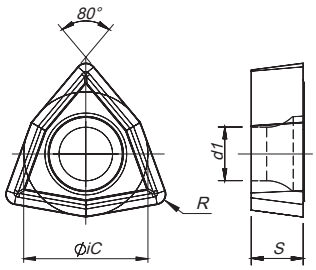
● Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

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

Note: for inside inserts it is recommended to use grade PH6930 or PHC930

WCKX ‖ Inserts | Pastilhas | Plaquitas





		P				M		K		S		Dimensions Dimensões Dimensiones (in)			
		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	R
1140300	WCKX 02T104	●	●	○	○	●	●	●	●	●	●	0.187	0.078	0.079	0.016
1140276	WCKX 030204	●	●	○	○	●	●	●	●	●	●	0.219	0.094	0.100	0.016
1140277	WCKX 040204	●	●	○	○	●	●	●	●	●	●	0.250	0.094	0.112	0.016
1140278	WCKX 050308	●	●	○	○	●	●	●	●	●	●	0.313	0.125	0.138	0.031
1140279	WCKX 06T308	●	●	○	○	●	●	●	●	●	●	0.376	0.156	0.161	0.031
1140280	WCKX 080408	●	●	○	○	●	●	●	●	●	●	0.500	0.187	0.220	0.031

● 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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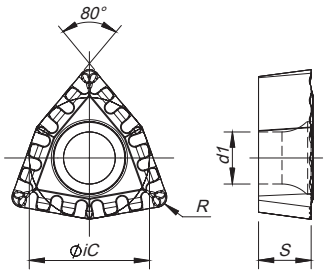
WCKX-LC for low carbon steels | Inserts | Pastilhas | Plaquitas





		P		Dimensions Dimensões Dimensiones (in)			
		PVD					
	(2) Grade code	68	66				
(1) Geometry code	ISO Reference	PH6920	PH6930	iC	S	d1	R
1142068	WCKX 050308-LC	◎	◎	0.313	0.125	0.138	0.031
1142069	WCKX 06T308-LC	◎	◎	0.376	0.156	0.161	0.031

◎ 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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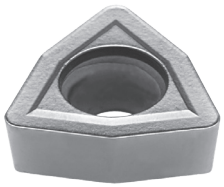
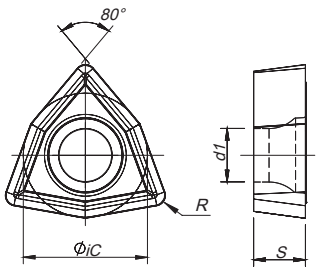
ISO references for other drilling systems

(PHC grade)







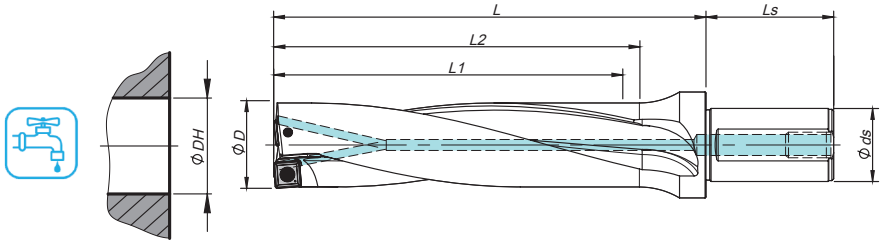
		P		M		K		S		Dimensions Dimensões Dimensiones (in)			
		PVD		PVD		PVD		PVD					
	(2) Grade code	68	J3	68	J3	68	J3	68	J3				
(1) Geometry code	ISO Reference	PH6920	PHC930	PH6920	PHC930	PH6920	PHC930	PH6920	PHC930	iC	S	d1	R
1120827	WCMX 030204	○	○	○	○	○	○	○	○	0.219	0.094	0.110	0.016
1120828	WCMX 030208	◎	◎	◎	◎	◎	◎	◎	◎	0.219	0.094	0.110	0.031
1120829	WCMX 040208	◎	◎	◎	◎	◎	◎	◎	◎	0.250	0.094	0.122	0.031
1120830	WCMX 050308	◎	◎	◎	◎	◎	◎	◎	◎	0.313	0.125	0.126	0.031
1120831	WCMX 06T308	◎	◎	◎	◎	◎	◎	◎	◎	0.375	0.156	0.146	0.031
1120832	WCMX 080408	◎	◎	◎	◎	◎	◎	◎	◎	0.500	0.187	0.169	0.031
1120833	WCMX 080412	◎	◎	◎	◎	◎	◎	◎	◎	0.500	0.187	0.169	0.047

◎ 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

Note: for inside inserts it is recommended to use grade PH6930 or PHC930





Øds	Ls	BP / SP
0.750	1.969	1/8 - 27 NPT
1.000	2.205	1/8 - 27 NPT
1.250	2.362	1/4 - 18 NPT
1.500	2.756	1/4 - 18 NPT

ØDH tolerance (in)	
ØD	3D
0.531 - 0.844	-0.004 / +0.006
0.875 - 1.938	-0.005 / +0.008

Order seperately

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (in)					Insert	Screw	Torx key	Stock
		ØD	Ø ds	L1	L2	L				
184197900	SCI 07500531-3D	0.531	0.750	1.593	1.693	2.756	SPKX 050204	P0200500	XT06	◎
184198000	SCI 07500563-3D	0.563	0.750	1.689	1.811	2.874	SPKX 050204	P0200500	XT06	◎
184198100	SCI 07500594-3D	0.594	0.750	1.782	1.890	2.953	SPKX 050204	P0200500	XT06	◎
184198200	SCI 10000625-3D	0.625	1.000	1.875	2.008	3.189	SPKX 060204	P0220500	XT07	◎
184198300	SCI 10000656-3D	0.656	1.000	1.968	2.087	3.268	SPKX 060204	P0220500	XT07	◎
184198400	SCI 10000688-3D	0.688	1.000	2.064	2.165	3.346	SPKX 060204	P0220500	XT07	◎
184198500	SCI 10000703-3D	0.703	1.000	2.109	2.244	3.425	SPKX 060204	P0220500	XT07	◎
184198600	SCI 10000734-3D	0.734	1.000	2.202	2.323	3.504	SPKX 060204	P0220500	XT07	◎
184198700	SCI 10000750-3D	0.750	1.000	2.250	2.362	3.543	SPKX 060204	P0220500	XT07	◎
184198800	SCI 10000781-3D	0.781	1.000	2.343	2.480	3.661	SPKX 060204	P0220500	XT07	◎
184198900	SCI 10000813-3D	0.813	1.000	2.439	2.559	3.740	SPKX 060204	P0220500	XT07	◎
184199000	SCI 10000844-3D	0.844	1.000	2.532	2.638	3.819	SPKX 060204	P0220500	XT07	◎
184199100	SCI 12500875-3D	0.875	1.250	2.625	2.756	4.134	SPKX 07T308	P0250704	XT08	◎
184199200	SCI 12500906-3D	0.906	1.250	2.718	2.835	4.213	SPKX 07T308	P0250704	XT08	◎
184199300	SCI 12500938-3D	0.938	1.250	2.814	2.913	4.291	SPKX 07T308	P0250704	XT08	◎
184199400	SCI 12500969-3D	0.969	1.250	2.907	3.031	4.409	SPKX 07T308	P0250704	XT08	◎
184199500	SCI 12500984-3D	0.984	1.250	2.952	3.071	4.449	SPKX 07T308	P0250704	XT08	◎
184199600	SCI 12501000-3D	1.000	1.250	3.000	3.110	4.488	SPKX 07T308	P0250704	XT08	◎
184199700	SCI 12501031-3D	1.031	1.250	3.093	3.228	4.606	SPKX 07T308	P0250704	XT08	◎
184199800	SCI 12501063-3D	1.063	1.250	3.189	3.307	4.685	SPKX 07T308	P0250704	XT08	◎
184199900	SCI 12501094-3D	1.094	1.250	3.282	3.386	4.764	SPKX 07T308	P0250704	XT08	◎

◎ Stock item | Produto de stock | Itens de stock

○ Available under request | Disponível sobre consulta
Disponible bajo consulta

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palbit PILOT Precision Products Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

Order seperately

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (in)					Insert	Screw	Torx key	Stock
		ØD	Ø ds	L1	L2	L				
184200000	SCI 12501125-3D	1.125	1.250	3.375	3.504	4.882	SPKX 090408	P0350903	XT15	◎
184200100	SCI 12501156-3D	1.156	1.250	3.468	3.583	4.961	SPKX 090408	P0350903	XT15	◎
184200200	SCI 12501188-3D	1.188	1.250	3.564	3.701	5.079	SPKX 090408	P0350903	XT15	◎
184200300	SCI 12501219-3D	1.219	1.250	3.657	3.780	5.157	SPKX 090408	P0350903	XT15	◎
184200400	SCI 12501250-3D	1.250	1.250	3.750	3.858	5.236	SPKX 090408	P0350903	XT15	◎
184200500	SCI 12501281-3D	1.281	1.250	3.843	3.976	5.354	SPKX 090408	P0350903	XT15	◎
184200600	SCI 12501313-3D	1.313	1.250	3.939	4.055	5.433	SPKX 090408	P0350903	XT15	◎
184200700	SCI 15001375-3D	1.375	1.500	4.125	4.331	5.906	SPKX 110408	P0401200	XT15	◎
184200800	SCI 15001406-3D	1.406	1.500	4.218	4.409	5.984	SPKX 110408	P0401200	XT15	◎
184200900	SCI 15001438-3D	1.438	1.500	4.314	4.528	6.102	SPKX 110408	P0401200	XT15	◎
184201000	SCI 15001469-3D	1.469	1.500	4.407	4.606	6.181	SPKX 110408	P0401200	XT15	◎
184201100	SCI 15001500-3D	1.500	1.500	4.500	4.685	6.260	SPKX 110408	P0401200	XT15	◎
184201200	SCI 15001531-3D	1.531	1.500	4.593	4.803	6.378	SPKX 110408	P0401200	XT15	◎
184201300	SCI 15001563-3D	1.563	1.500	4.689	4.882	6.457	SPKX 110408	P0401200	XT15	◎
184201400	SCI 15001625-3D	1.625	1.500	4.875	5.079	6.654	SPKX 110408	P0401200	XT15	◎
184201500	SCI 15001688-3D	1.688	1.500	5.064	5.276	6.850	SPKX 140512	P0501300	XT20	◎
184201600	SCI 15001750-3D	1.750	1.500	5.250	5.433	7.008	SPKX 140512	P0501300	XT20	◎
184201700	SCI 15001813-3D	1.813	1.500	5.439	5.630	7.205	SPKX 140512	P0501300	XT20	◎
184201800	SCI 15001875-3D	1.875	1.500	5.625	5.827	7.402	SPKX 140512	P0501300	XT20	◎
184201900	SCI 15001938-3D	1.938	1.500	5.814	6.024	7.598	SPKX 140512	P0501300	XT20	◎

◎ Stock item | Produto de stock | Itens de stock

○ Available under request | Disponível sobre consulta
Disponible bajo consulta

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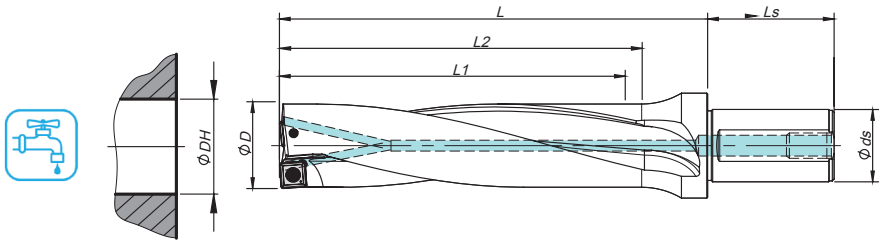
SCI 4D | Jet drill | Broca jet | Broca jet





Øds	Ls	BP / SP
0.750	1.969	1/8 - 27 NPT
1.250	2.205	1/8 - 27 NPT
1.500	2.362	1/4 - 18 NPT
1.500	2.756	1/4 - 18 NPT

ØDH tolerance (in)	
ØD	4D
0.531 - 0.844	-0.005 / +0.008
0.875 - 1.938	-0.005 / +0.010

Order seperately

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (in)					Insert	Screw	Torx key	Stock
		ØD	Ø ds	L1	L2	L				
184202000	SCI 07500531-4D	0.531	0.750	2.124	2.244	3.307	SPKX 050204	P0200500	XT06	◎
184202100	SCI 07500563-4D	0.563	0.750	2.252	2.362	3.425	SPKX 050204	P0200500	XT06	◎
184202200	SCI 07500594-4D	0.594	0.750	2.376	2.480	3.543	SPKX 050204	P0200500	XT06	◎
184202300	SCI 10000625-4D	0.625	1.000	2.500	2.638	3.819	SPKX 060204	P0220500	XT07	◎
184202400	SCI 10000656-4D	0.656	1.000	2.624	2.756	3.937	SPKX 060204	P0220500	XT07	◎
184202500	SCI 10000688-4D	0.688	1.000	2.752	2.874	4.055	SPKX 060204	P0220500	XT07	◎
184202600	SCI 10000703-4D	0.703	1.000	2.812	2.913	4.094	SPKX 060204	P0220500	XT07	◎
184202700	SCI 10000734-4D	0.734	1.000	2.936	3.071	4.252	SPKX 060204	P0220500	XT07	◎
184202800	SCI 10000750-4D	0.750	1.000	3.000	3.110	4.291	SPKX 060204	P0220500	XT07	◎
184202900	SCI 10000781-4D	0.781	1.000	3.124	3.228	4.409	SPKX 060204	P0220500	XT07	◎
184203000	SCI 10000813-4D	0.813	1.000	3.252	3.386	4.567	SPKX 060204	P0220500	XT07	◎
184203100	SCI 10000844-4D	0.844	1.000	3.376	3.504	4.685	SPKX 060204	P0220500	XT07	◎
184203200	SCI 12500875-4D	0.875	1.250	3.500	3.622	5.000	SPKX 07T308	P0250704	XT08	◎
184203300	SCI 12500906-4D	0.906	1.250	3.624	3.740	5.118	SPKX 07T308	P0250704	XT08	◎
184203400	SCI 12500938-4D	0.938	1.250	3.752	3.858	5.236	SPKX 07T308	P0250704	XT08	◎
184203500	SCI 12500969-4D	0.969	1.250	3.876	3.976	5.354	SPKX 07T308	P0250704	XT08	◎
184203600	SCI 12500984-4D	0.984	1.250	3.936	4.055	5.433	SPKX 07T308	P0250704	XT08	◎
184203700	SCI 12501000-4D	1.000	1.250	4.000	4.134	5.512	SPKX 07T308	P0250704	XT08	◎
184203800	SCI 12501031-4D	1.031	1.250	4.124	4.252	5.630	SPKX 07T308	P0250704	XT08	◎
184203900	SCI 12501063-4D	1.063	1.250	4.252	4.370	5.748	SPKX 07T308	P0250704	XT08	◎
184204000	SCI 12501094-4D	1.094	1.250	4.376	4.488	5.866	SPKX 07T308	P0250704	XT08	◎

◎ Stock item | Produto de stock | Itens de stock

○ Available under request | Disponível sobre consulta
Disponible bajo consulta

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palbit PILOT Precision Products Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

Order seperately

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (in)					Insert	Screw	Torx key	Stock
		ØD	Ø ds	L1	L2	L				
184204100	SCI 12501125-4D	1.125	1.250	4.500	4.606	5.984	SPKX 090408	P0350903	XT15	◎
184204200	SCI 12501156-4D	1.156	1.250	4.624	4.724	6.102	SPKX 090408	P0350903	XT15	◎
184204300	SCI 12501188-4D	1.188	1.250	4.752	4.882	6.260	SPKX 090408	P0350903	XT15	◎
184204400	SCI 12501219-4D	1.219	1.250	4.876	5.000	6.378	SPKX 090408	P0350903	XT15	◎
184204500	SCI 12501250-4D	1.250	1.250	5.000	5.118	6.496	SPKX 090408	P0350903	XT15	◎
184204600	SCI 12501281-4D	1.281	1.250	5.124	5.236	6.614	SPKX 090408	P0350903	XT15	◎
184204700	SCI 12501313-4D	1.313	1.250	5.252	5.354	6.732	SPKX 090408	P0350903	XT15	◎
184204800	SCI 15001375-4D	1.375	1.500	5.500	5.709	7.283	SPKX 110408	P0401200	XT15	◎
184204900	SCI 15001406-4D	1.406	1.500	5.624	5.827	7.402	SPKX 110408	P0401200	XT15	◎
184205000	SCI 15001438-4D	1.438	1.500	5.752	5.945	7.520	SPKX 110408	P0401200	XT15	◎
184205100	SCI 15001469-4D	1.469	1.500	5.876	6.063	7.638	SPKX 110408	P0401200	XT15	◎
184205200	SCI 15001500-4D	1.500	1.500	6.000	6.181	7.756	SPKX 110408	P0401200	XT15	◎
184205300	SCI 15001531-4D	1.531	1.500	6.124	6.339	7.913	SPKX 110408	P0401200	XT15	◎
184205400	SCI 15001563-4D	1.563	1.500	6.252	6.457	8.031	SPKX 110408	P0401200	XT15	◎
184205500	SCI 15001625-4D	1.625	1.500	6.500	6.693	8.268	SPKX 110408	P0401200	XT15	◎
184205600	SCI 15001688-4D	1.688	1.500	6.752	6.969	8.543	SPKX 140512	P0501300	XT20	◎
184205700	SCI 15001750-4D	1.750	1.500	7.000	7.205	8.780	SPKX 140512	P0501300	XT20	◎
184205800	SCI 15001813-4D	1.813	1.500	7.252	7.441	9.016	SPKX 140512	P0501300	XT20	◎
184205900	SCI 15001875-4D	1.875	1.500	7.500	7.717	9.291	SPKX 140512	P0501300	XT20	◎
184206000	SCI 15001938-4D	1.938	1.500	7.752	7.953	9.528	SPKX 140512	P0501300	XT20	◎

◎ Stock item | Produto de stock | Itens de stock

○ Available under request | Disponível sobre consulta
Disponible bajo consulta

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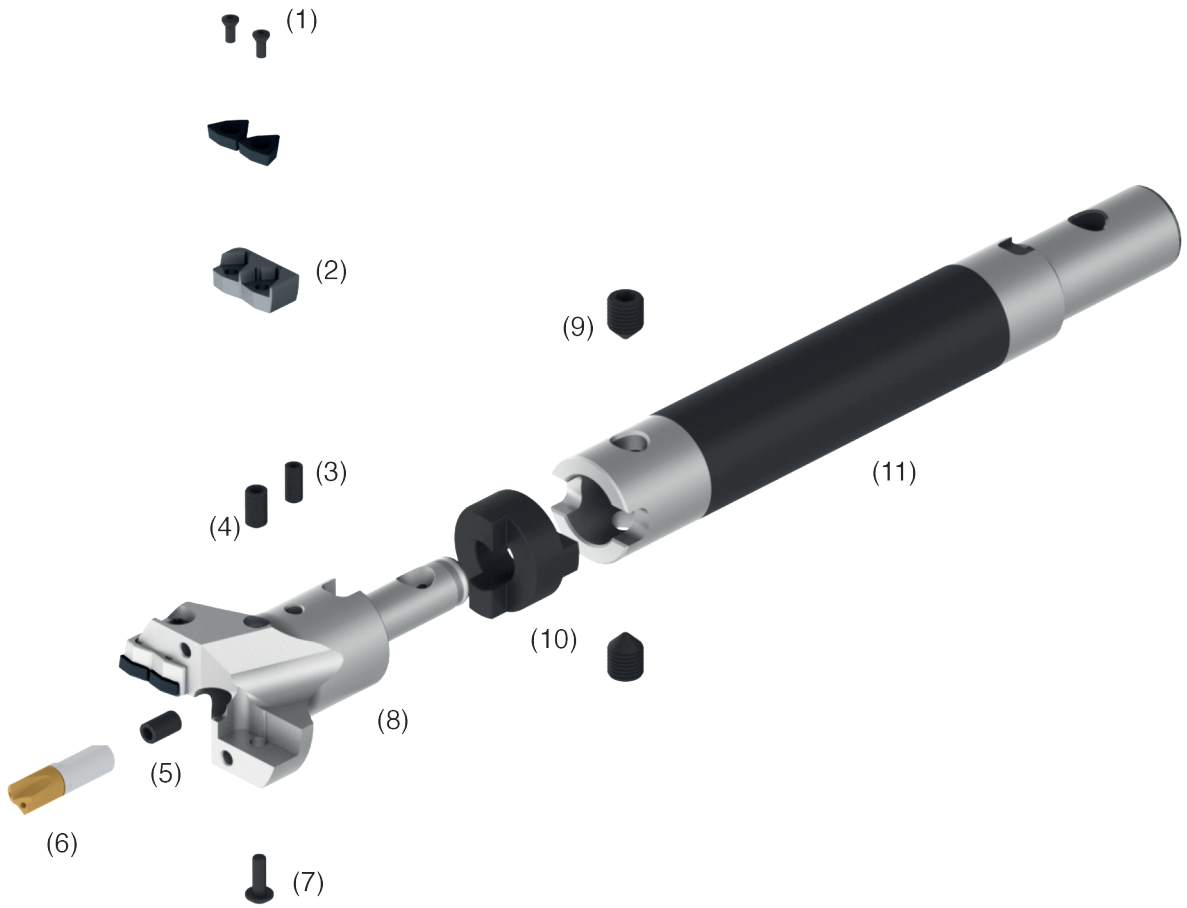


(1) - Insert Screw

(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

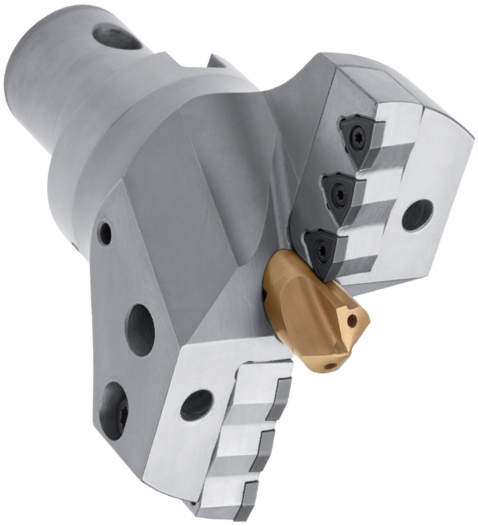
(7) - Screw for cartridge

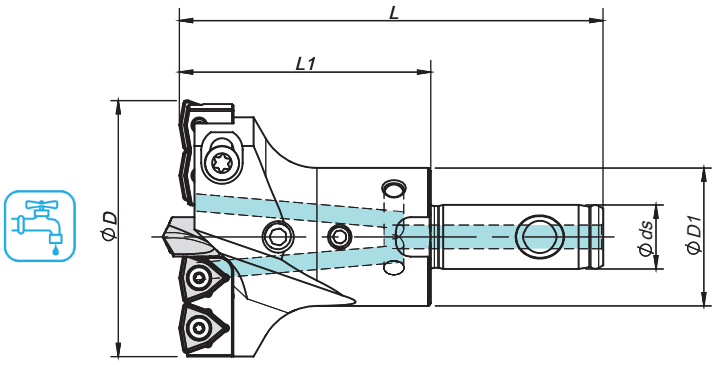
(8) -Vortex Drill

(9) - Fixation Screw

(10) - Drive Ring

(11) - MSD Shank or MDE Extension





Order code Código	Reference Referência Referencia	Dimensions | Dimensões Dimensiones (mm)					Cartridge	Insert	Insert Screw	Torx key	Order seperately Pilot drill	Stock
		ØD	Ø ds	L1	L	ØD1						
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	●
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 - 280 for setting pilot drill.

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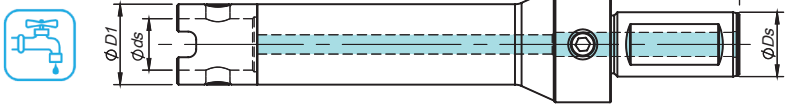
MDS SHANK

Vortex drill Accessories | Acessórios de broca vortex | Accessorios de broca vortex





New version / Standard version*

Øds	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
		ØDs	Øds	ØD1	L		
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 shanks type are supplied without drive ring. Please order them separately.

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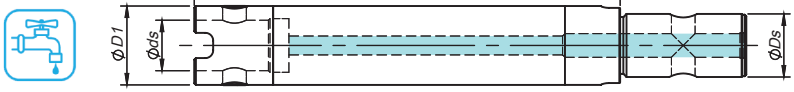
palbit PILOT Precision Products Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

MDE EXTENSION

Vortex drill Accessories | Acessórios de broca vortex | Accessorios de broca vortex





Order seperately

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)				Drive Ring	Stock
		ØDs	Ød	ØD1	L		
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 shanks type are supplied without drive ring. Please order them separately.

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SOLID CARBIDE DRILLS WITH COOLANT

IMPERIAL LINE

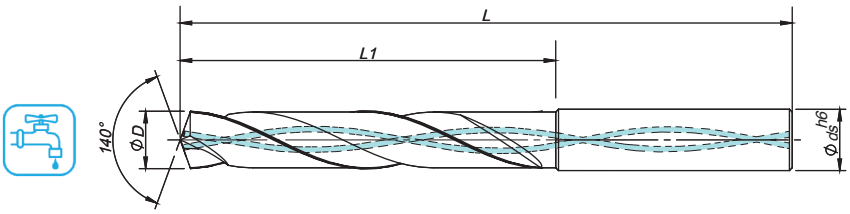
Brocas de metal duro com refrigeração | Brocas en metal duro con refrigeración

P K

HRC ≤ 60|48

IT8~9 IT class





Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones				Tolerances Tolerâncias Tolerancias	HRC	PHU920
			ØD (in)	Ø ds (mm)	L1 (in)	L (in)			
				3D					
118164Z9	HBDPCE 2 03Di 0318-060020	2	1/8	6,0	0.787	2.362	+0.016/+0.004	≤ 60	🇺🇸
118164Z9	HBDPCE 2 03Di 0635-075034	2	1/4	8,0	1.339	2.953	+0.021/+0.006		🇺🇸
118164Z9	HBDPCE 2 03Di 0953-090047	2	3/8	10,0	1.850	3.543	+0.021/+0.006		🇺🇸
118164Z9	HBDPCE 2 03Di 1270-100060	2	1/2	14,0	2.362	3.937	+0.025/+0.007		🇺🇸
118164Z9	HBDPCE 2 03Di 1588-108065	2	5/8	16,0	2.559	4.252	+0.025/+0.007		🇺🇸
118164Z9	HBDPCE 2 03Di 1905-120079	2	3/4	20,0	3.110	4.724	+0.029/+0.008		🇺🇸
				5D					
118164Z9	HBDPCE 2 05Di 0318-075028	2	1/8	6,0	1.102	2.953	+0.016/+0.004	≤ 60	🇺🇸
118164Z9	HBDPCE 2 05Di 0635-092053	2	1/4	8,0	2.087	3.622	+0.021/+0.006		🇺🇸
118165Z9	HBDPCE 2 05Di 0953-105061	2	3/8	10,0	2.402	4.134	+0.021/+0.006		🇺🇸
118165Z9	HBDPCE 2 05Di 1270-126077	2	1/2	14,0	3.031	4.961	+0.025/+0.007		🇺🇸
118165Z9	HBDPCE 2 05Di 1588-135083	2	5/8	16,0	3.268	5.315	+0.025/+0.007		🇺🇸
118165Z9	HBDPCE 2 05Di 1905-156101	2	3/4	20,0	3.976	6.142	+0.029/+0.008		🇺🇸
				8D					
118165Z9	HBDPCE 2 08Di 0318-083040	2	1/8	6,0	1.339	2.835	+0.016/+0.004	≤ 48	🇺🇸
118165Z9	HBDPCE 2 08Di 0635-105067	2	1/4	8,0	2.992	4.488	+0.021/+0.006		🇺🇸
118165Z9	HBDPCE 2 08Di 0953-135092	2	3/8	10,0	3.740	5.591	+0.021/+0.006		🇺🇸
118165Z9	HBDPCE 2 08Di 1270-163128	2	1/2	14,0	4.488	6.378	+0.025/+0.007		🇺🇸
118165Z9	HBDPCE 2 08Di 1588-197146	2	5/8	16,0	5.748	7.756	+0.025/+0.007		🇺🇸

🇺🇸 Available soon in the USA | Disponível em breve nos EUA | Disponible pronto en los EE. UU.

Technical Data
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palbit TOOLING SOLUTIONS EXPERTS

PILOT Precision Products

Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

SOLID CARBIDE DRILLS WITHOUT COOLANT

IMPERIAL LINE

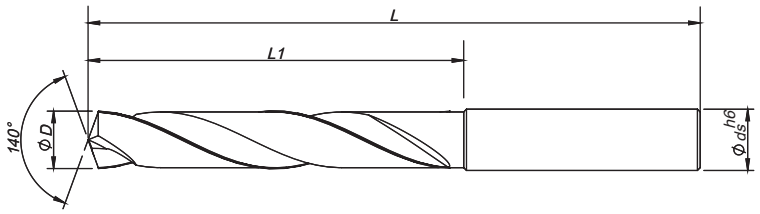
Brocas de metal duro sem refrigeração | Brocas en metal duro sin refrigeración

P K

HRC ≤ 60|48

IT8~9 IT class





Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones				Tolerances Tolerâncias Tolerancias	HRC	PHU920
			ØD (in)	Ø ds (mm)	L1 (in)	L (in)			
				3D					
118165Z9	HBDPUE 2 03Di 0318-060020	2	1/8	6,0	0.787	2.362	+0.016/+0.004	≤ 60	
118166Z9	HBDPUE 2 03Di 0635-075034	2	1/4	8,0	1.339	2.953	+0.021/+0.006		
118166Z9	HBDPUE 2 03Di 0953-090047	2	3/8	10,0	1.850	3.543	+0.021/+0.006		
118166Z9	HBDPUE 2 03Di 1270-100060	2	1/2	14,0	2.362	3.937	+0.025/+0.007		
118166Z9	HBDPUE 2 03Di 1588-110065	2	5/8	16,0	2.559	4.331	+0.025/+0.007		
118166Z9	HBDPUE 2 03Di 1905-120079	2	3/4	20,0	3.110	4.724	+0.029/+0.008		
				5D					
118166Z9	HBDPUE 2 05Di 0318-075028	2	1/8	6,0	1.102	2.953	+0.016/+0.004	≤ 60	
118166Z9	HBDPUE 2 05Di 0635-092053	2	1/4	8,0	2.087	3.622	+0.021/+0.006		
118166Z9	HBDPUE 2 05Di 0953-100061	2	3/8	10,0	2.402	3.937	+0.021/+0.006		
118166Z9	HBDPUE 2 05Di 1270-126077	2	1/2	14,0	3.031	4.961	+0.025/+0.007		
118166Z9	HBDPUE 2 05Di 1588-135083	2	5/8	16,0	3.268	5.315	+0.025/+0.007		
118167Z9	HBDPUE 2 05Di 1905-156101	2	3/4	20,0	3.976	6.142	+0.029/+0.008		

Available soon in the USA | Disponível em breve nos EUA | Disponible pronto en los EE. UU.

Technical Data
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HBDPCE 2 03D | Solid carbide drills | Brocas de metal duro | Brocas en metal duro

METRIC LINE

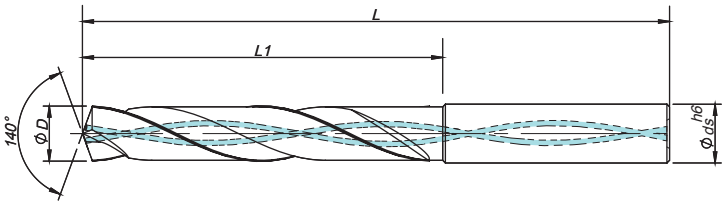


P K

HRC ≤ 60

IT8~9 IT class





Drill Dia. ØD	ØD3,0	3,0<ØD≤6,0	6,0<ØD≤10,0	10,0<ØD≤18,0	18,0<ØD≤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 Código	Reference Referência Referencia	Dimensions | Dimensões Dimensiones (mm) ØD	Ø ds	L1	L	Z	PHU920
1180956Z9	HBDPCE 2 03D 0300-062020	3	6	20	62	2	●
1180957Z9	HBDPCE 2 03D 0310-062020	3,1	6	20	62	2	●
1180958Z9	HBDPCE 2 03D 0320-062020	3,2	6	20	62	2	●
1180959Z9	HBDPCE 2 03D 0330-062020	3,3	6	20	62	2	●
1180960Z9	HBDPCE 2 03D 0340-062020	3,4	6	20	62	2	●
1180961Z9	HBDPCE 2 03D 0350-062020	3,5	6	20	62	2	●
1180962Z9	HBDPCE 2 03D 0360-062020	3,6	6	20	62	2	○
1180963Z9	HBDPCE 2 03D 0370-062020	3,7	6	20	62	2	○
1180964Z9	HBDPCE 2 03D 0380-066024	3,8	6	24	66	2	○
1180965Z9	HBDPCE 2 03D 0390-066024	3,9	6	24	66	2	○
1180966Z9	HBDPCE 2 03D 0400-066024	4	6	24	66	2	●
1180967Z9	HBDPCE 2 03D 0410-066024	4,1	6	24	66	2	○
1180968Z9	HBDPCE 2 03D 0420-066024	4,2	6	24	66	2	●
1180969Z9	HBDPCE 2 03D 0430-066024	4,3	6	24	66	2	○
1180970Z9	HBDPCE 2 03D 0440-066024	4,4	6	24	66	2	○
1180971Z9	HBDPCE 2 03D 0450-066024	4,5	6	24	66	2	○
1180972Z9	HBDPCE 2 03D 0460-066024	4,6	6	24	66	2	●
1180973Z9	HBDPCE 2 03D 0470-066024	4,7	6	24	66	2	○
1180974Z9	HBDPCE 2 03D 0480-066028	4,8	6	28	66	2	○
1180975Z9	HBDPCE 2 03D 0490-066028	4,9	6	28	66	2	○
1180976Z9	HBDPCE 2 03D 0500-066028	5	6	28	66	2	●
1180977Z9	HBDPCE 2 03D 0510-066028	5,1	6	28	66	2	○

Order code Código	Reference Referência Referencia	Dimensions | Dimensões Dimensiones (mm) ØD	Ø ds	L1	L	Z	PHU920
1180978Z9	HBDPCE 2 03D 0520-066028	5,2	6	28	66	2	○
1180979Z9	HBDPCE 2 03D 0530-066028	5,3	6	28	66	2	○
1180980Z9	HBDPCE 2 03D 0540-066028	5,4	6	28	66	2	○
1180981Z9	HBDPCE 2 03D 0550-066028	5,5	6	28	66	2	○
1180982Z9	HBDPCE 2 03D 0560-066028	5,6	6	28	66	2	●
1180983Z9	HBDPCE 2 03D 0570-066028	5,7	6	28	66	2	○
1180984Z9	HBDPCE 2 03D 0580-066028	5,8	6	28	66	2	○
1180985Z9	HBDPCE 2 03D 0590-066028	5,9	6	28	66	2	○
1180986Z9	HBDPCE 2 03D 0600-066028	6	6	28	66	2	●
1180987Z9	HBDPCE 2 03D 0610-079034	6,1	8	34	79	2	○
1180988Z9	HBDPCE 2 03D 0620-079034	6,2	8	34	79	2	○
1180989Z9	HBDPCE 2 03D 0630-079034	6,3	8	34	79	2	○
1180990Z9	HBDPCE 2 03D 0640-079034	6,4	8	34	79	2	○
1180991Z9	HBDPCE 2 03D 0650-079034	6,5	8	34	79	2	●
1180792Z9	HBDPCE 2 03D 0660-079034	6,6	8	34	79	2	○
1180992Z9	HBDPCE 2 03D 0670-079034	6,7	8	34	79	2	○
1180993Z9	HBDPCE 2 03D 0680-079034	6,8	8	34	79	2	●
1180994Z9	HBDPCE 2 03D 0690-079034	6,9	8	34	79	2	○
1180995Z9	HBDPCE 2 03D 0700-079034	7	8	34	79	2	●
1180996Z9	HBDPCE 2 03D 0710-079041	7,1	8	41	79	2	○
1180997Z9	HBDPCE 2 03D 0720-079041	7,2	8	41	79	2	○
1180998Z9	HBDPCE 2 03D 0730-079041	7,3	8	41	79	2	○

● Stock item | Produto de stock | Itens de stock

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

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palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

Order code Código	Reference Referência Referencia	Dimensions | Dimensões Dimensiones (mm)				Z	PHU920
		ØD	Ø ds	L1	L		
118099Z9	HBDPCE 2 03D 0740-079041	7,4	8	41	79	2	○
118100Z9	HBDPCE 2 03D 0750-079041	7,5	8	41	79	2	○
118100 1Z9	HBDPCE 2 03D 0760-079041	7,6	8	41	79	2	○
118100 2Z9	HBDPCE 2 03D 0770-079041	7,7	8	41	79	2	○
118100 3Z9	HBDPCE 2 03D 0780-079041	7,8	8	41	79	2	○
118100 4Z9	HBDPCE 2 03D 0790-079041	7,9	8	41	79	2	○
118100 5Z9	HBDPCE 2 03D 0800-079041	8	8	41	79	2	◈
118100 6Z9	HBDPCE 2 03D 0810-089047	8,1	10	47	89	2	○
118100 7Z9	HBDPCE 2 03D 0820-089047	8,2	10	47	89	2	○
118100 8Z9	HBDPCE 2 03D 0830-089047	8,3	10	47	89	2	○
118100 9Z9	HBDPCE 2 03D 0840-089047	8,4	10	47	89	2	○
118101 0Z9	HBDPCE 2 03D 0850-089047	8,5	10	47	89	2	○
118101 1Z9	HBDPCE 2 03D 0860-089047	8,6	10	47	89	2	○
118101 2Z9	HBDPCE 2 03D 0870-089047	8,7	10	47	89	2	○
118101 3Z9	HBDPCE 2 03D 0880-089047	8,8	10	47	89	2	○
118101 4Z9	HBDPCE 2 03D 0890-089047	8,9	10	47	89	2	○
118101 5Z9	HBDPCE 2 03D 0900-089047	9	10	47	89	2	◈
118101 6Z9	HBDPCE 2 03D 0910-089047	9,1	10	47	89	2	○
118101 7Z9	HBDPCE 2 03D 0920-089047	9,2	10	47	89	2	○
118101 8Z9	HBDPCE 2 03D 0930-089047	9,3	10	47	89	2	○
118101 9Z9	HBDPCE 2 03D 0940-089047	9,4	10	47	89	2	○
118102 0Z9	HBDPCE 2 03D 0950-089047	9,5	10	47	89	2	○
118102 1Z9	HBDPCE 2 03D 0960-089047	9,6	10	47	89	2	○
118102 2Z9	HBDPCE 2 03D 0970-089047	9,7	10	47	89	2	○
118102 3Z9	HBDPCE 2 03D 0980-089047	9,8	10	47	89	2	○
118102 4Z9	HBDPCE 2 03D 0990-089047	9,9	10	47	89	2	○
118102 5Z9	HBDPCE 2 03D 1000-089047	10	10	47	89	2	◈
118102 6Z9	HBDPCE 2 03D 1010-102055	10,1	12	55	102	2	○
118102 7Z9	HBDPCE 2 03D 1020-102055	10,2	12	55	102	2	◈
118102 8Z9	HBDPCE 2 03D 1030-102055	10,3	12	55	102	2	○
118102 9Z9	HBDPCE 2 03D 1040-102055	10,4	12	55	102	2	○
118103 0Z9	HBDPCE 2 03D 1050-102055	10,5	12	55	102	2	○
118103 1Z9	HBDPCE 2 03D 1060-102055	10,6	12	55	102	2	○
118103 2Z9	HBDPCE 2 03D 1070-102055	10,7	12	55	102	2	○
118103 3Z9	HBDPCE 2 03D 1080-102055	10,8	12	55	102	2	○
118103 4Z9	HBDPCE 2 03D 1090-102055	10,9	12	55	102	2	○
118103 5Z9	HBDPCE 2 03D 1100-102055	11	12	55	102	2	◈
118103 6Z9	HBDPCE 2 03D 1110-102055	11,1	12	55	102	2	○
118103 7Z9	HBDPCE 2 03D 1120-102055	11,2	12	55	102	2	○
118103 8Z9	HBDPCE 2 03D 1130-102055	11,3	12	55	102	2	○
118103 9Z9	HBDPCE 2 03D 1140-102055	11,4	12	55	102	2	○
118104 0Z9	HBDPCE 2 03D 1150-102055	11,5	12	55	102	2	○
118104 1Z9	HBDPCE 2 03D 1160-102055	11,6	12	55	102	2	○
118104 2Z9	HBDPCE 2 03D 1170-102055	11,7	12	55	102	2	○
118104 3Z9	HBDPCE 2 03D 1180-102055	11,8	12	55	102	2	○
118104 4Z9	HBDPCE 2 03D 1190-102055	11,9	12	55	102	2	○
118104 5Z9	HBDPCE 2 03D 1200-102055	12	12	55	102	2	◈
118104 6Z9	HBDPCE 2 03D 1250-107060	12,5	14	60	107	2	◈
118104 7Z9	HBDPCE 2 03D 1300-107060	13	14	60	107	2	○
118104 8Z9	HBDPCE 2 03D 1350-107060	13,5	14	60	107	2	○
118104 9Z9	HBDPCE 2 03D 1400-107060	14	14	60	107	2	◈
118105 0Z9	HBDPCE 2 03D 1450-115065	14,5	16	65	115	2	◈
118105 1Z9	HBDPCE 2 03D 1500-115065	15	16	65	115	2	◈
118105 2Z9	HBDPCE 2 03D 1550-115065	15,5	16	65	115	2	○
118105 3Z9	HBDPCE 2 03D 1600-115065	16	16	65	115	2	○
118105 4Z9	HBDPCE 2 03D 1650-123073	16,5	18	73	123	2	○
118105 5Z9	HBDPCE 2 03D 1700-123073	17	18	73	123	2	○
118105 6Z9	HBDPCE 2 03D 1750-123073	17,5	18	73	123	2	○
118105 7Z9	HBDPCE 2 03D 1800-123073	18	18	73	123	2	○
118105 8Z9	HBDPCE 2 03D 1850-131079	18,5	20	79	131	2	○
118105 9Z9	HBDPCE 2 03D 1900-131079	19	20	79	131	2	○
118106 0Z9	HBDPCE 2 03D 1950-131079	19,5	20	79	131	2	○
118106 1Z9	HBDPCE 2 03D 2000-131079	20	20	79	131	2	○

◈ Stock item | Produto de stock | Itens de stock

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

Technical Data page B - 292

HBDPUE 2 03D | Solid carbide drills | Brocas de metal duro | Brocas en metal duro

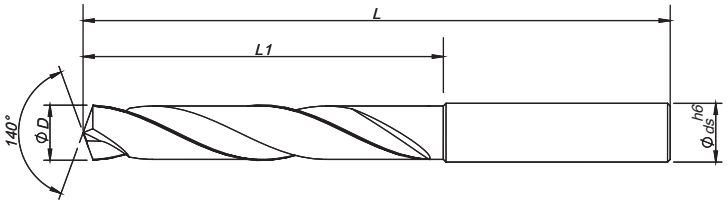
METRIC LINE



P K

HRC ≤ 60

IT8~9 IT class



Drill Dia. ØD	ØD3,0	3,0<ØD≤6,0	6,0<ØD≤10,0	10,0<ØD≤18,0	18,0<ØD≤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 Código	Reference Referência Referencia	Dimensions | Dimensões Dimensiones (mm)				Z	PHU920
		ØD	Ø ds	L1	L		
1180784Z9	HBDPUE 2 03D 0300-062020	3	6	20	62	2	○
1180852Z9	HBDPUE 2 03D 0310-062020	3,1	6	20	62	2	○
1180853Z9	HBDPUE 2 03D 0320-062020	3,2	6	20	62	2	○
1180854Z9	HBDPUE 2 03D 0330-062020	3,3	6	20	62	2	○
1180790Z9	HBDPUE 2 03D 0340-062020	3,4	6	20	62	2	○
1180855Z9	HBDPUE 2 03D 0350-062020	3,5	6	20	62	2	○
1180856Z9	HBDPUE 2 03D 0360-062020	3,6	6	20	62	2	○
1180857Z9	HBDPUE 2 03D 0370-062020	3,7	6	20	62	2	○
1180858Z9	HBDPUE 2 03D 0380-066024	3,8	6	24	66	2	○
1180859Z9	HBDPUE 2 03D 0390-066024	3,9	6	24	66	2	○
1180860Z9	HBDPUE 2 03D 0400-066024	4	6	24	66	2	○
1180861Z9	HBDPUE 2 03D 0410-066024	4,1	6	24	66	2	○
1180862Z9	HBDPUE 2 03D 0420-066024	4,2	6	24	66	2	○
1180863Z9	HBDPUE 2 03D 0430-066024	4,3	6	24	66	2	○
1180864Z9	HBDPUE 2 03D 0440-066024	4,4	6	24	66	2	○
1180865Z9	HBDPUE 2 03D 0450-066024	4,5	6	24	66	2	○
1180866Z9	HBDPUE 2 03D 0460-066024	4,6	6	24	66	2	○
1180867Z9	HBDPUE 2 03D 0470-066024	4,7	6	24	66	2	○
1180868Z9	HBDPUE 2 03D 0480-066028	4,8	6	28	66	2	○
1180869Z9	HBDPUE 2 03D 0490-066028	4,9	6	28	66	2	○
1180870Z9	HBDPUE 2 03D 0500-066028	5	6	28	66	2	○
1180871Z9	HBDPUE 2 03D 0510-066028	5,1	6	28	66	2	○

Order code Código	Reference Referência Referencia	Dimensions | Dimensões Dimensiones (mm)				Z	PHU920
		ØD	Ø ds	L1	L		
1180872Z9	HBDPUE 2 03D 0520-066028	5,2	6	28	66	2	○
1180873Z9	HBDPUE 2 03D 0530-066028	5,3	6	28	66	2	○
1180874Z9	HBDPUE 2 03D 0540-066028	5,4	6	28	66	2	○
1180875Z9	HBDPUE 2 03D 0550-066028	5,5	6	28	66	2	○
1180791Z9	HBDPUE 2 03D 0560-066028	5,6	6	28	66	2	○
1180876Z9	HBDPUE 2 03D 0570-066028	5,7	6	28	66	2	○
1180877Z9	HBDPUE 2 03D 0580-066028	5,8	6	28	66	2	○
1180878Z9	HBDPUE 2 03D 0590-066028	5,9	6	28	66	2	○
1180879Z9	HBDPUE 2 03D 0600-066028	6	6	28	66	2	○
1180880Z9	HBDPUE 2 03D 0610-079034	6,1	8	34	79	2	○
1180881Z9	HBDPUE 2 03D 0620-079034	6,2	8	34	79	2	○
1180882Z9	HBDPUE 2 03D 0630-079034	6,3	8	34	79	2	○
1180883Z9	HBDPUE 2 03D 0640-079034	6,4	8	34	79	2	○
1180884Z9	HBDPUE 2 03D 0650-079034	6,5	8	34	79	2	○
1180885Z9	HBDPUE 2 03D 0660-079034	6,6	8	34	79	2	○
1180886Z9	HBDPUE 2 03D 0670-079034	6,7	8	34	79	2	○
1180887Z9	HBDPUE 2 03D 0680-079034	6,8	8	34	79	2	○
1180888Z9	HBDPUE 2 03D 0690-079034	6,9	8	34	79	2	○
1180889Z9	HBDPUE 2 03D 0700-079034	7	8	34	79	2	○
1180890Z9	HBDPUE 2 03D 0710-079041	7,1	8	41	79	2	○
1180891Z9	HBDPUE 2 03D 0720-079041	7,2	8	41	79	2	○
1180892Z9	HBDPUE 2 03D 0730-079041	7,3	8	41	79	2	○

Stock item | Produto de stock | Itens de stock

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

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palbit PILOT Precision Products Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

Order code Código	Reference Referência Referencia	Dimensions | Dimensões Dimensiones (mm)				Z	PHU920
		ØD	Ø ds	L1	L		
1180893Z9	HBDPUE 2 03D 0740-079041	7,4	8	41	79	2	○
1180894Z9	HBDPUE 2 03D 0750-079041	7,5	8	41	79	2	○
1180895Z9	HBDPUE 2 03D 0760-079041	7,6	8	41	79	2	○
1180896Z9	HBDPUE 2 03D 0770-079041	7,7	8	41	79	2	○
1180897Z9	HBDPUE 2 03D 0780-079041	7,8	8	41	79	2	○
1180898Z9	HBDPUE 2 03D 0790-079041	7,9	8	41	79	2	○
1180899Z9	HBDPUE 2 03D 0800-079041	8	8	41	79	2	○
1180900Z9	HBDPUE 2 03D 0810-089047	8,1	10	47	89	2	○
1180901Z9	HBDPUE 2 03D 0820-089047	8,2	10	47	89	2	○
1180902Z9	HBDPUE 2 03D 0830-089047	8,3	10	47	89	2	○
1180903Z9	HBDPUE 2 03D 0840-089047	8,4	10	47	89	2	○
1180904Z9	HBDPUE 2 03D 0850-089047	8,5	10	47	89	2	○
1180905Z9	HBDPUE 2 03D 0860-089047	8,6	10	47	89	2	○
1180906Z9	HBDPUE 2 03D 0870-089047	8,7	10	47	89	2	○
1180907Z9	HBDPUE 2 03D 0880-089047	8,8	10	47	89	2	○
1180908Z9	HBDPUE 2 03D 0890-089047	8,9	10	47	89	2	○
1180909Z9	HBDPUE 2 03D 0900-089047	9	10	47	89	2	○
1180910Z9	HBDPUE 2 03D 0910-089047	9,1	10	47	89	2	○
1180911Z9	HBDPUE 2 03D 0920-089047	9,2	10	47	89	2	○
1180912Z9	HBDPUE 2 03D 0930-089047	9,3	10	47	89	2	○
1180913Z9	HBDPUE 2 03D 0940-089047	9,4	10	47	89	2	○
1180914Z9	HBDPUE 2 03D 0950-089047	9,5	10	47	89	2	○
1180915Z9	HBDPUE 2 03D 0960-089047	9,6	10	47	89	2	○
1180916Z9	HBDPUE 2 03D 0970-089047	9,7	10	47	89	2	○
1180917Z9	HBDPUE 2 03D 0980-089047	9,8	10	47	89	2	○
1180918Z9	HBDPUE 2 03D 0990-089047	9,9	10	47	89	2	○
1180919Z9	HBDPUE 2 03D 1000-089047	10	10	47	89	2	○
1180920Z9	HBDPUE 2 03D 1010-102055	10,1	12	55	102	2	○
1180921Z9	HBDPUE 2 03D 1020-102055	10,2	12	55	102	2	○
1180922Z9	HBDPUE 2 03D 1030-102055	10,3	12	55	102	2	○
1180923Z9	HBDPUE 2 03D 1040-102055	10,4	12	55	102	2	○
1180924Z9	HBDPUE 2 03D 1050-102055	10,5	12	55	102	2	○
1180925Z9	HBDPUE 2 03D 1060-102055	10,6	12	55	102	2	○
1180926Z9	HBDPUE 2 03D 1070-102055	10,7	12	55	102	2	○
1180927Z9	HBDPUE 2 03D 1080-102055	10,8	12	55	102	2	○
1180928Z9	HBDPUE 2 03D 1090-102055	10,9	12	55	102	2	○
1180929Z9	HBDPUE 2 03D 1100-102055	11	12	55	102	2	○
1180930Z9	HBDPUE 2 03D 1110-102055	11,1	12	55	102	2	○
1180931Z9	HBDPUE 2 03D 1120-102055	11,2	12	55	102	2	○
1180932Z9	HBDPUE 2 03D 1130-102055	11,3	12	55	102	2	○
1180933Z9	HBDPUE 2 03D 1140-102055	11,4	12	55	102	2	○
1180934Z9	HBDPUE 2 03D 1150-102055	11,5	12	55	102	2	○
1180935Z9	HBDPUE 2 03D 1160-102055	11,6	12	55	102	2	○
1180936Z9	HBDPUE 2 03D 1170-102055	11,7	12	55	102	2	○
1180937Z9	HBDPUE 2 03D 1180-102055	11,8	12	55	102	2	○
1180938Z9	HBDPUE 2 03D 1190-102055	11,9	12	55	102	2	○
1180939Z9	HBDPUE 2 03D 1200-102055	12	12	55	102	2	○
1180940Z9	HBDPUE 2 03D 1250-107060	12,5	14	60	107	2	○
1180941Z9	HBDPUE 2 03D 1300-107060	13	14	60	107	2	○
1180942Z9	HBDPUE 2 03D 1350-107060	13,5	14	60	107	2	○
1180943Z9	HBDPUE 2 03D 1400-107060	14	14	60	107	2	○
1180944Z9	HBDPUE 2 03D 1450-115065	14,5	16	65	115	2	○
1180945Z9	HBDPUE 2 03D 1500-115065	15	16	65	115	2	○
1180946Z9	HBDPUE 2 03D 1550-115065	15,5	16	65	115	2	○
1180947Z9	HBDPUE 2 03D 1600-115065	16	16	65	115	2	○
1180948Z9	HBDPUE 2 03D 1650-123073	16,5	18	73	123	2	○
1180949Z9	HBDPUE 2 03D 1700-123073	17	18	73	123	2	○
1180950Z9	HBDPUE 2 03D 1750-123073	17,5	18	73	123	2	○
1180951Z9	HBDPUE 2 03D 1800-123073	18	18	73	123	2	○
1180952Z9	HBDPUE 2 03D 1850-131079	18,5	20	79	131	2	○
1180953Z9	HBDPUE 2 03D 1900-131079	19	20	79	131	2	○
1180954Z9	HBDPUE 2 03D 1950-131079	19,5	20	79	131	2	○
1180955Z9	HBDPUE 2 03D 2000-131079	20	20	79	131	2	○

Stock item | Produto de stock | Itens de stock

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

Technical Data page B - 292

HBDPCE 2 05D | Solid carbide drills | Brocas de metal duro | Brocas en metal duro

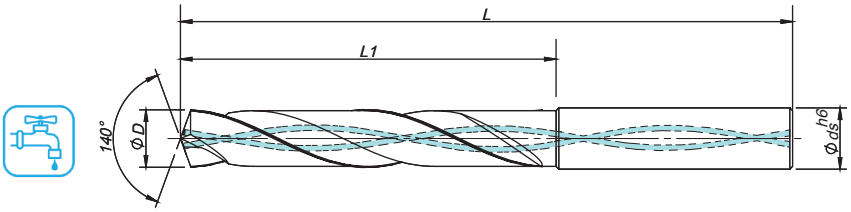
METRIC LINE



P K

HRC ≤ 60

IT8~9 IT class



Drill Dia. ØD	ØD3,0	3,0<ØD≤6,0	6,0<ØD≤10,0	10,0<ØD≤18,0	18,0<ØD≤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 Código	Reference Referência Referencia	Dimensions | Dimensões Dimensiones (mm) ØD	Ø ds	L1	L	Z	PHU920
1180788Z9	HBDPCE 2 05D 0300-066028	3	6	28	66	2	◈
1181160Z9	HBDPCE 2 05D 0310-066028	3,1	6	28	66	2	◈
1181161Z9	HBDPCE 2 05D 0320-066028	3,2	6	28	66	2	◈
1181162Z9	HBDPCE 2 05D 0330-066028	3,3	6	28	66	2	◈
1180797Z9	HBDPCE 2 05D 0340-066028	3,4	6	28	66	2	◈
1181163Z9	HBDPCE 2 05D 0350-066028	3,5	6	28	66	2	◈
1181164Z9	HBDPCE 2 05D 0360-066028	3,6	6	28	66	2	○
1180798Z9	HBDPCE 2 05D 0370-066028	3,7	6	28	66	2	◈
1181165Z9	HBDPCE 2 05D 0380-074036	3,8	6	36	74	2	○
1181166Z9	HBDPCE 2 05D 0390-074036	3,9	6	36	74	2	○
1181167Z9	HBDPCE 2 05D 0400-074036	4	6	36	74	2	◈
1181168Z9	HBDPCE 2 05D 0410-074036	4,1	6	36	74	2	◈
1180799Z9	HBDPCE 2 05D 0420-074036	4,2	6	36	74	2	◈
1180800Z9	HBDPCE 2 05D 0430-074036	4,3	6	36	74	2	◈
1181169Z9	HBDPCE 2 05D 0440-074036	4,4	6	36	74	2	○
1181170Z9	HBDPCE 2 05D 0450-074036	4,5	6	36	74	2	○
1181171Z9	HBDPCE 2 05D 0460-074036	4,6	6	36	74	2	○
1181172Z9	HBDPCE 2 05D 0470-074036	4,7	6	36	74	2	◈
1181173Z9	HBDPCE 2 05D 0480-082044	4,8	6	44	82	2	○
1181174Z9	HBDPCE 2 05D 0490-082044	4,9	6	44	82	2	○
1180801Z9	HBDPCE 2 05D 0500-082044	5	6	44	82	2	◈
1181175Z9	HBDPCE 2 05D 0510-082044	5,1	6	44	82	2	○
1181176Z9	HBDPCE 2 05D 0520-082044	5,2	6	44	82	2	○
1181177Z9	HBDPCE 2 05D 0530-082044	5,3	6	44	82	2	○
1181178Z9	HBDPCE 2 05D 0540-082044	5,4	6	44	82	2	○

Order code Código	Reference Referência Referencia	Dimensions | Dimensões Dimensiones (mm) ØD	Ø ds	L1	L	Z	PHU920
1181179Z9	HBDPCE 2 05D 0550-082044	5,5	6	44	82	2	○
1181180Z9	HBDPCE 2 05D 0560-082044	5,6	6	44	82	2	○
1181181Z9	HBDPCE 2 05D 0570-082044	5,7	6	44	82	2	○
1180802Z9	HBDPCE 2 05D 0580-082044	5,8	6	44	82	2	◈
1181182Z9	HBDPCE 2 05D 0590-082044	5,9	6	44	82	2	○
1181183Z9	HBDPCE 2 05D 0600-082044	6	6	44	82	2	◈
1181184Z9	HBDPCE 2 05D 0610-091053	6,1	8	53	91	2	○
1181185Z9	HBDPCE 2 05D 0620-091053	6,2	8	53	91	2	○
1181186Z9	HBDPCE 2 05D 0630-091053	6,3	8	53	91	2	○
1181187Z9	HBDPCE 2 05D 0640-091053	6,4	8	53	91	2	○
1180787Z9	HBDPCE 2 05D 0650-091053	6,5	8	53	91	2	◈
1181188Z9	HBDPCE 2 05D 0660-091053	6,6	8	53	91	2	◈
1181189Z9	HBDPCE 2 05D 0670-091053	6,7	8	53	91	2	○
1180803Z9	HBDPCE 2 05D 0680-091053	6,8	8	53	91	2	◈
1181190Z9	HBDPCE 2 05D 0690-091053	6,9	8	53	91	2	○
1180804Z9	HBDPCE 2 05D 0700-091053	7	8	53	91	2	◈
1181191Z9	HBDPCE 2 05D 0710-091053	7,1	8	53	91	2	○
1181192Z9	HBDPCE 2 05D 0720-091053	7,2	8	53	91	2	○
1181193Z9	HBDPCE 2 05D 0730-091053	7,3	8	53	91	2	○
1180805Z9	HBDPCE 2 05D 0740-091053	7,4	8	53	91	2	◈
1181194Z9	HBDPCE 2 05D 0750-091053	7,5	8	53	91	2	○
1181195Z9	HBDPCE 2 05D 0760-091053	7,6	8	53	91	2	○
1181196Z9	HBDPCE 2 05D 0770-091053	7,7	8	53	91	2	○
1181197Z9	HBDPCE 2 05D 0780-091053	7,8	8	53	91	2	○
1181198Z9	HBDPCE 2 05D 0790-091053	7,9	8	53	91	2	○

◈ Stock item | Produto de stock | Itens de stock

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

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palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

Order code Código	Reference Referência Referencia	Dimensions | Dimensões Dimensiones (mm)				Z	PHU920
		ØD	Ø ds	L1	L		
118119Z9	HBDPCE 2 05D 0800-091053	8	8	53	91	2	◉
118120Z9	HBDPCE 2 05D 0810-103061	8,1	10	61	103	2	○
118120Z9	HBDPCE 2 05D 0820-103061	8,2	10	61	103	2	○
118120Z9	HBDPCE 2 05D 0830-103061	8,3	10	61	103	2	○
118120Z9	HBDPCE 2 05D 0840-103061	8,4	10	61	103	2	○
118080Z9	HBDPCE 2 05D 0850-103061	8,5	10	61	103	2	◉
118120Z9	HBDPCE 2 05D 0860-103061	8,6	10	61	103	2	○
118120Z9	HBDPCE 2 05D 0870-103061	8,7	10	61	103	2	○
118120Z9	HBDPCE 2 05D 0880-103061	8,8	10	61	103	2	○
118120Z9	HBDPCE 2 05D 0890-103061	8,9	10	61	103	2	○
118080Z9	HBDPCE 2 05D 0900-103061	9	10	61	103	2	◉
118120Z9	HBDPCE 2 05D 0910-103061	9,1	10	61	103	2	○
118120Z9	HBDPCE 2 05D 0920-103061	9,2	10	61	103	2	○
118121Z9	HBDPCE 2 05D 0930-103061	9,3	10	61	103	2	○
118121Z9	HBDPCE 2 05D 0940-103061	9,4	10	61	103	2	○
118121Z9	HBDPCE 2 05D 0950-103061	9,5	10	61	103	2	○
118121Z9	HBDPCE 2 05D 0960-103061	9,6	10	61	103	2	○
118121Z9	HBDPCE 2 05D 0970-103061	9,7	10	61	103	2	○
118121Z9	HBDPCE 2 05D 0980-103061	9,8	10	61	103	2	○
118121Z9	HBDPCE 2 05D 0990-103061	9,9	10	61	103	2	○
118121Z9	HBDPCE 2 05D 1000-103061	10	10	61	103	2	◉
118121Z9	HBDPCE 2 05D 1010-118071	10,1	12	71	118	2	○
118080Z9	HBDPCE 2 05D 1020-118071	10,2	12	71	118	2	◉
118121Z9	HBDPCE 2 05D 1030-118071	10,3	12	71	118	2	○
118122Z9	HBDPCE 2 05D 1040-118071	10,4	12	71	118	2	○
118080Z9	HBDPCE 2 05D 1050-118071	10,5	12	71	118	2	◉
118081Z9	HBDPCE 2 05D 1060-118071	10,6	12	71	118	2	◉
118122Z9	HBDPCE 2 05D 1070-118071	10,7	12	71	118	2	○
118122Z9	HBDPCE 2 05D 1080-118071	10,8	12	71	118	2	○
118122Z9	HBDPCE 2 05D 1090-118071	10,9	12	71	118	2	○
118081Z9	HBDPCE 2 05D 1100-118071	11	12	71	118	2	◉
118122Z9	HBDPCE 2 05D 1110-118071	11,1	12	71	118	2	○
118122Z9	HBDPCE 2 05D 1120-118071	11,2	12	71	118	2	○
118122Z9	HBDPCE 2 05D 1130-118071	11,3	12	71	118	2	○
118122Z9	HBDPCE 2 05D 1140-118071	11,4	12	71	118	2	○
118081Z9	HBDPCE 2 05D 1150-118071	11,5	12	71	118	2	◉
118122Z9	HBDPCE 2 05D 1160-118071	11,6	12	71	118	2	○
118122Z9	HBDPCE 2 05D 1170-118071	11,7	12	71	118	2	○
118123Z9	HBDPCE 2 05D 1180-118071	11,8	12	71	118	2	○
118123Z9	HBDPCE 2 05D 1190-118071	11,9	12	71	118	2	○
118081Z9	HBDPCE 2 05D 1200-118071	12	12	71	118	2	◉
118123Z9	HBDPCE 2 05D 1250-124077	12,5	14	77	124	2	○
118081Z9	HBDPCE 2 05D 1300-124077	13	14	77	124	2	◉
118123Z9	HBDPCE 2 05D 1350-124077	13,5	14	77	124	2	○
118123Z9	HBDPCE 2 05D 1400-124077	14	14	77	124	2	○
118123Z9	HBDPCE 2 05D 1450-133083	14,5	16	83	133	2	○
118123Z9	HBDPCE 2 05D 1500-133083	15	16	83	133	2	○
118123Z9	HBDPCE 2 05D 1550-133083	15,5	16	83	133	2	○
118123Z9	HBDPCE 2 05D 1600-133083	16	16	83	133	2	○
118123Z9	HBDPCE 2 05D 1650-143093	16,5	18	93	143	2	○
118124Z9	HBDPCE 2 05D 1700-143093	17	18	93	143	2	○
118081Z9	HBDPCE 2 05D 1750-143093	17,5	18	93	143	2	◉
118124Z9	HBDPCE 2 05D 1800-143093	18	18	93	143	2	○
118124Z9	HBDPCE 2 05D 1850-153101	18,5	20	101	153	2	○
118124Z9	HBDPCE 2 05D 1900-153101	19	20	101	153	2	○
118124Z9	HBDPCE 2 05D 1950-153101	19,5	20	101	153	2	○
118124Z9	HBDPCE 2 05D 2000-153101	20	20	101	153	2	○

◉ Stock item | Produto de stock Itens de stock

○ Available under request | Disponível sobre consulta Disponible bajo consulta

Technical Data page B - 292

HBDPUE 2 05D | Solid carbide drills | Brocas de metal duro | Brocas en metal duro

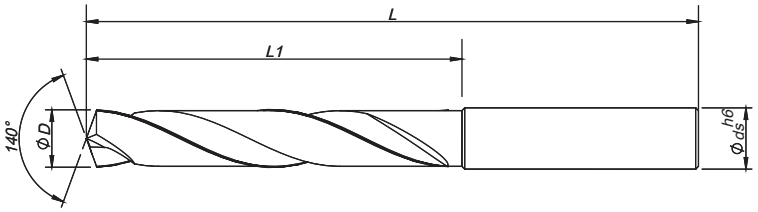
METRIC LINE



P K

HRC ≤ 60

IT8~9 IT class



Drill Dia. ØD	ØD3,0	3,0<ØD≤6,0	6,0<ØD≤10,0	10,0<ØD≤18,0	18,0<ØD≤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 Código	Reference Referência Referencia	Dimensions | Dimensões Dimensiones (mm)				Z	PHU920
		ØD	Ø ds	L1	L		
1180793Z9	HBDPUE 2 05D 0300-066028	3	6	28	66	2	○
1180794Z9	HBDPUE 2 05D 0310-066028	3,1	6	28	66	2	○
1181062Z9	HBDPUE 2 05D 0320-066028	3,2	6	28	66	2	○
1181063Z9	HBDPUE 2 05D 0330-066028	3,3	6	28	66	2	○
1180789Z9	HBDPUE 2 05D 0340-066028	3,4	6	28	66	2	○
1181064Z9	HBDPUE 2 05D 0350-066028	3,5	6	28	66	2	○
1181065Z9	HBDPUE 2 05D 0360-066028	3,6	6	28	66	2	○
1181066Z9	HBDPUE 2 05D 0370-066028	3,7	6	28	66	2	○
1181067Z9	HBDPUE 2 05D 0380-074036	3,8	6	36	74	2	○
1180795Z9	HBDPUE 2 05D 0390-074036	3,9	6	36	74	2	○
1181068Z9	HBDPUE 2 05D 0400-074036	4	6	36	74	2	○
1181069Z9	HBDPUE 2 05D 0410-074036	4,1	6	36	74	2	○
1180785Z9	HBDPUE 2 05D 0420-074036	4,2	6	36	74	2	○
1181070Z9	HBDPUE 2 05D 0430-074036	4,3	6	36	74	2	○
1181071Z9	HBDPUE 2 05D 0440-074036	4,4	6	36	74	2	○
1181072Z9	HBDPUE 2 05D 0450-074036	4,5	6	36	74	2	○
1181073Z9	HBDPUE 2 05D 0460-074036	4,6	6	36	74	2	○
1180786Z9	HBDPUE 2 05D 0470-074036	4,7	6	36	74	2	○
1181074Z9	HBDPUE 2 05D 0480-082044	4,8	6	44	82	2	○
1181075Z9	HBDPUE 2 05D 0490-082044	4,9	6	44	82	2	○
1180782Z9	HBDPUE 2 05D 0500-082044	5	6	44	82	2	○
1181076Z9	HBDPUE 2 05D 0510-082044	5,1	6	44	82	2	○
1181077Z9	HBDPUE 2 05D 0520-082044	5,2	6	44	82	2	○
1181078Z9	HBDPUE 2 05D 0530-082044	5,3	6	44	82	2	○
1181079Z9	HBDPUE 2 05D 0540-082044	5,4	6	44	82	2	○

Order code Código	Reference Referência Referencia	Dimensions | Dimensões Dimensiones (mm)				Z	PHU920
		ØD	Ø ds	L1	L		
1181080Z9	HBDPUE 2 05D 0550-082044	5,5	6	44	82	2	○
1181081Z9	HBDPUE 2 05D 0560-082044	5,6	6	44	82	2	○
1181082Z9	HBDPUE 2 05D 0570-082044	5,7	6	44	82	2	○
1181083Z9	HBDPUE 2 05D 0580-082044	5,8	6	44	82	2	○
1181084Z9	HBDPUE 2 05D 0590-082044	5,9	6	44	82	2	○
1181085Z9	HBDPUE 2 05D 0600-082044	6	6	44	82	2	○
1181086Z9	HBDPUE 2 05D 0610-091053	6,1	8	53	91	2	○
1181087Z9	HBDPUE 2 05D 0620-091053	6,2	8	53	91	2	○
1181088Z9	HBDPUE 2 05D 0630-091053	6,3	8	53	91	2	○
1181089Z9	HBDPUE 2 05D 0640-091053	6,4	8	53	91	2	○
1181090Z9	HBDPUE 2 05D 0650-091053	6,5	8	53	91	2	○
1181091Z9	HBDPUE 2 05D 0660-091053	6,6	8	53	91	2	○
1181092Z9	HBDPUE 2 05D 0670-091053	6,7	8	53	91	2	○
1180781Z9	HBDPUE 2 05D 0680-091053	6,8	8	53	91	2	○
1181093Z9	HBDPUE 2 05D 0690-091053	6,9	8	53	91	2	○
1181094Z9	HBDPUE 2 05D 0700-091053	7	8	53	91	2	○
1181095Z9	HBDPUE 2 05D 0710-091053	7,1	8	53	91	2	○
1181096Z9	HBDPUE 2 05D 0720-091053	7,2	8	53	91	2	○
1181097Z9	HBDPUE 2 05D 0730-091053	7,3	8	53	91	2	○
1181098Z9	HBDPUE 2 05D 0740-091053	7,4	8	53	91	2	○
1181099Z9	HBDPUE 2 05D 0750-091053	7,5	8	53	91	2	○
1181100Z9	HBDPUE 2 05D 0760-091053	7,6	8	53	91	2	○
1181101Z9	HBDPUE 2 05D 0770-091053	7,7	8	53	91	2	○
1181102Z9	HBDPUE 2 05D 0780-091053	7,8	8	53	91	2	○
1181103Z9	HBDPUE 2 05D 0790-091053	7,9	8	53	91	2	○

Stock item | Produto de stock | Itens de stock

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

Technical Data page B - 292

palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

Order code Código	Reference Referência Referencia	Dimensions | Dimensões Dimensiones (mm)				Z	PHU920
		ØD	Ø ds	L1	L		
118110479	HBDPUE 2 05D 0800-091053	8	8	53	91	2	○
118110579	HBDPUE 2 05D 0810-103061	8,1	10	61	103	2	○
118110679	HBDPUE 2 05D 0820-103061	8,2	10	61	103	2	○
118110779	HBDPUE 2 05D 0830-103061	8,3	10	61	103	2	○
118110879	HBDPUE 2 05D 0840-103061	8,4	10	61	103	2	○
118110979	HBDPUE 2 05D 0850-103061	8,5	10	61	103	2	○
118111079	HBDPUE 2 05D 0860-103061	8,6	10	61	103	2	○
118111179	HBDPUE 2 05D 0870-103061	8,7	10	61	103	2	○
118111279	HBDPUE 2 05D 0880-103061	8,8	10	61	103	2	○
118111379	HBDPUE 2 05D 0890-103061	8,9	10	61	103	2	○
118111479	HBDPUE 2 05D 0900-103061	9	10	61	103	2	○
118111579	HBDPUE 2 05D 0910-103061	9,1	10	61	103	2	○
118111679	HBDPUE 2 05D 0920-103061	9,2	10	61	103	2	○
118111779	HBDPUE 2 05D 0930-103061	9,3	10	61	103	2	○
118111879	HBDPUE 2 05D 0940-103061	9,4	10	61	103	2	○
118111979	HBDPUE 2 05D 0950-103061	9,5	10	61	103	2	○
118112079	HBDPUE 2 05D 0960-103061	9,6	10	61	103	2	○
118112179	HBDPUE 2 05D 0970-103061	9,7	10	61	103	2	○
118112279	HBDPUE 2 05D 0980-103061	9,8	10	61	103	2	○
118112379	HBDPUE 2 05D 0990-103061	9,9	10	61	103	2	○
118112479	HBDPUE 2 05D 1000-103061	10	10	61	103	2	○
118112579	HBDPUE 2 05D 1010-118071	10,1	12	71	118	2	○
118112679	HBDPUE 2 05D 1020-118071	10,2	12	71	118	2	○
118112779	HBDPUE 2 05D 1030-118071	10,3	12	71	118	2	○
118112879	HBDPUE 2 05D 1040-118071	10,4	12	71	118	2	○
118079679	HBDPUE 2 05D 1050-118071	10,5	12	71	118	2	○
118112979	HBDPUE 2 05D 1060-118071	10,6	12	71	118	2	○
118113079	HBDPUE 2 05D 1070-118071	10,7	12	71	118	2	○
118113179	HBDPUE 2 05D 1080-118071	10,8	12	71	118	2	○
118113279	HBDPUE 2 05D 1090-118071	10,9	12	71	118	2	○
118113379	HBDPUE 2 05D 1100-118071	11	12	71	118	2	○
118113479	HBDPUE 2 05D 1110-118071	11,1	12	71	118	2	○
118113579	HBDPUE 2 05D 1120-118071	11,2	12	71	118	2	○
118113679	HBDPUE 2 05D 1130-118071	11,3	12	71	118	2	○
118113779	HBDPUE 2 05D 1140-118071	11,4	12	71	118	2	○
118113879	HBDPUE 2 05D 1150-118071	11,5	12	71	118	2	○
118113979	HBDPUE 2 05D 1160-118071	11,6	12	71	118	2	○
118114079	HBDPUE 2 05D 1170-118071	11,7	12	71	118	2	○
118114179	HBDPUE 2 05D 1180-118071	11,8	12	71	118	2	○
118114279	HBDPUE 2 05D 1190-118071	11,9	12	71	118	2	○
118114379	HBDPUE 2 05D 1200-118071	12	12	71	118	2	○
118114479	HBDPUE 2 05D 1250-124077	12,5	14	77	124	2	○
118114579	HBDPUE 2 05D 1300-124077	13	14	77	124	2	○
118114679	HBDPUE 2 05D 1350-124077	13,5	14	77	124	2	○
118114779	HBDPUE 2 05D 1400-124077	14	14	77	124	2	○
118114879	HBDPUE 2 05D 1450-133083	14,5	16	83	133	2	○
118114979	HBDPUE 2 05D 1500-133083	15	16	83	133	2	○
118115079	HBDPUE 2 05D 1550-133083	15,5	16	83	133	2	○
118115179	HBDPUE 2 05D 1600-133083	16	16	83	133	2	○
118115279	HBDPUE 2 05D 1650-143093	16,5	18	93	143	2	○
118115379	HBDPUE 2 05D 1700-143093	17	18	93	143	2	○
118115479	HBDPUE 2 05D 1750-143093	17,5	18	93	143	2	○
118115579	HBDPUE 2 05D 1800-143093	18	18	93	143	2	○
118115679	HBDPUE 2 05D 1850-153101	18,5	20	101	153	2	○
118115779	HBDPUE 2 05D 1900-153101	19	20	101	153	2	○
118115879	HBDPUE 2 05D 1950-153101	19,5	20	101	153	2	○
118115979	HBDPUE 2 05D 2000-153101	20	20	101	153	2	○

Stock item | Produto de stock | Itens de stock

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

Technical Data page B - 292

HBDPCE 2 08D | Solid carbide drills | Brocas de metal duro | Brocas en metal duro

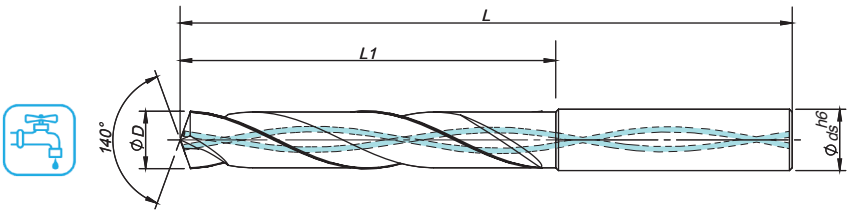
METRIC LINE



P K

HRC ≤ 48

IT8~9 IT class



Drill Dia. ØD	3,0≤ØD≤5,0	5,0<ØD≤6,0	6,0<ØD≤10,0	10,0<ØD≤12,0
Hole Tolerances	+0,002	+0,004	+0,006	+0,007
	+0,012	+0,016	+0,021	+0,025

Order code Código	Reference Referência Referencia	Dimensions | Dimensões Dimensiones (mm) ØD	Ø ds	L1	L	Z	PHU920
118124607Z9	HBDPCE 2 08D 0300-072034	3	6	34	72	2	○
118124707Z9	HBDPCE 2 08D 0310-072034	3,1	6	34	72	2	○
118124807Z9	HBDPCE 2 08D 0320-072034	3,2	6	34	72	2	○
118124907Z9	HBDPCE 2 08D 0330-072034	3,3	6	34	72	2	○
118125007Z9	HBDPCE 2 08D 0340-072034	3,4	6	34	72	2	○
118125107Z9	HBDPCE 2 08D 0350-072034	3,5	6	34	72	2	○
118125207Z9	HBDPCE 2 08D 0360-072034	3,6	6	34	72	2	○
118125307Z9	HBDPCE 2 08D 0370-072034	3,7	6	34	72	2	○
118125407Z9	HBDPCE 2 08D 0380-081043	3,8	6	43	81	2	○
118125507Z9	HBDPCE 2 08D 0390-081043	3,9	6	43	81	2	○
118125607Z9	HBDPCE 2 08D 0400-081043	4	6	43	81	2	○
118125707Z9	HBDPCE 2 08D 0410-081043	4,1	6	43	81	2	○
118125807Z9	HBDPCE 2 08D 0420-081043	4,2	6	43	81	2	○
118125907Z9	HBDPCE 2 08D 0430-081043	4,3	6	43	81	2	○
118126007Z9	HBDPCE 2 08D 0440-081043	4,4	6	43	81	2	○
118126107Z9	HBDPCE 2 08D 0450-081043	4,5	6	43	81	2	○
118126207Z9	HBDPCE 2 08D 0460-081043	4,6	6	43	81	2	○
118126307Z9	HBDPCE 2 08D 0470-081043	4,7	6	43	81	2	○
118126407Z9	HBDPCE 2 08D 0480-095057	4,8	6	57	95	2	○
118126507Z9	HBDPCE 2 08D 0490-095057	4,9	6	57	95	2	○
118126607Z9	HBDPCE 2 08D 0500-095057	5	6	57	95	2	○
118126707Z9	HBDPCE 2 08D 0510-095057	5,1	6	57	95	2	○
118126807Z9	HBDPCE 2 08D 0520-095057	5,2	6	57	95	2	○
118126907Z9	HBDPCE 2 08D 0530-095057	5,3	6	57	95	2	○
118127007Z9	HBDPCE 2 08D 0540-095057	5,4	6	57	95	2	○

Order code Código	Reference Referência Referencia	Dimensions | Dimensões Dimensiones (mm) ØD	Ø ds	L1	L	Z	PHU920
118127107Z9	HBDPCE 2 08D 0550-095057	5,5	6	57	95	2	○
118127207Z9	HBDPCE 2 08D 0560-095057	5,6	6	57	95	2	○
118127307Z9	HBDPCE 2 08D 0570-095057	5,7	6	57	95	2	○
118127407Z9	HBDPCE 2 08D 0580-095057	5,8	6	57	95	2	○
118127507Z9	HBDPCE 2 08D 0590-095057	5,9	6	57	95	2	○
118127607Z9	HBDPCE 2 08D 0600-095057	6	6	57	95	2	○
118127707Z9	HBDPCE 2 08D 0610-114076	6,1	8	76	114	2	○
118127807Z9	HBDPCE 2 08D 0620-114076	6,2	8	76	114	2	○
118127907Z9	HBDPCE 2 08D 0630-114076	6,3	8	76	114	2	○
118128007Z9	HBDPCE 2 08D 0640-114076	6,4	8	76	114	2	○
118128107Z9	HBDPCE 2 08D 0650-114076	6,5	8	76	114	2	○
118128207Z9	HBDPCE 2 08D 0660-114076	6,6	8	76	114	2	○
118128307Z9	HBDPCE 2 08D 0670-114076	6,7	8	76	114	2	○
118128407Z9	HBDPCE 2 08D 0680-114076	6,8	8	76	114	2	○
118128507Z9	HBDPCE 2 08D 0690-114076	6,9	8	76	114	2	○
118128607Z9	HBDPCE 2 08D 0700-114076	7	8	76	114	2	○
118128707Z9	HBDPCE 2 08D 0710-114076	7,1	8	76	114	2	○
118128807Z9	HBDPCE 2 08D 0720-114076	7,2	8	76	114	2	○
118128907Z9	HBDPCE 2 08D 0730-114076	7,3	8	76	114	2	○
118129007Z9	HBDPCE 2 08D 0740-114076	7,4	8	76	114	2	○
118129107Z9	HBDPCE 2 08D 0750-114076	7,5	8	76	114	2	○
118129207Z9	HBDPCE 2 08D 0760-114076	7,6	8	76	114	2	○
118129307Z9	HBDPCE 2 08D 0770-114076	7,7	8	76	114	2	○
118129407Z9	HBDPCE 2 08D 0780-114076	7,8	8	76	114	2	○
118129507Z9	HBDPCE 2 08D 0790-114076	7,9	8	76	114	2	○

Stock item | Produto de stock | Itens de stock

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

Technical Data page B - 292

palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

Order code Código	Reference Referência Referencia	Dimensions | Dimensões Dimensiones (mm)				Z	PHU920
		ØD	Ø ds	L1	L		
118129609	HBDPCE 2 08D 0800-114076	8	8	76	114	2	○
118129709	HBDPCE 2 08D 0810-142095	8,1	10	95	142	2	○
118129809	HBDPCE 2 08D 0820-142095	8,2	10	95	142	2	○
118129909	HBDPCE 2 08D 0830-142095	8,3	10	95	142	2	○
118130009	HBDPCE 2 08D 0840-142095	8,4	10	95	142	2	○
118130109	HBDPCE 2 08D 0850-142095	8,5	10	95	142	2	○
118130209	HBDPCE 2 08D 0860-142095	8,6	10	95	142	2	○
118130309	HBDPCE 2 08D 0870-142095	8,7	10	95	142	2	○
118130409	HBDPCE 2 08D 0880-142095	8,8	10	95	142	2	○
118130509	HBDPCE 2 08D 0890-142095	8,9	10	95	142	2	○
118130609	HBDPCE 2 08D 0900-142095	9	10	95	142	2	○
118130709	HBDPCE 2 08D 0910-142095	9,1	10	95	142	2	○
118130809	HBDPCE 2 08D 0920-142095	9,2	10	95	142	2	○
118130909	HBDPCE 2 08D 0930-142095	9,3	10	95	142	2	○
118131009	HBDPCE 2 08D 0940-142095	9,4	10	95	142	2	○
118131109	HBDPCE 2 08D 0950-142095	9,5	10	95	142	2	○
118131209	HBDPCE 2 08D 0960-142095	9,6	10	95	142	2	○
118131309	HBDPCE 2 08D 0970-142095	9,7	10	95	142	2	○
118131409	HBDPCE 2 08D 0980-142095	9,8	10	95	142	2	○
118131509	HBDPCE 2 08D 0990-142095	9,9	10	95	142	2	○
118131609	HBDPCE 2 08D 1000-142095	10	10	95	142	2	○
118131709	HBDPCE 2 08D 1010-162114	10,1	12	114	162	2	○
118131809	HBDPCE 2 08D 1020-162114	10,2	12	114	162	2	○
118131909	HBDPCE 2 08D 1030-162114	10,3	12	114	162	2	○
118132009	HBDPCE 2 08D 1040-162114	10,4	12	114	162	2	○
118132109	HBDPCE 2 08D 1050-162114	10,5	12	114	162	2	○
118132209	HBDPCE 2 08D 1060-162114	10,6	12	114	162	2	○
118132309	HBDPCE 2 08D 1070-162114	10,7	12	114	162	2	○
118132409	HBDPCE 2 08D 1080-162114	10,8	12	114	162	2	○
118132509	HBDPCE 2 08D 1090-162114	10,9	12	114	162	2	○
118132609	HBDPCE 2 08D 1100-162114	11	12	114	162	2	○
118132709	HBDPCE 2 08D 1110-162114	11,1	12	114	162	2	○
118132809	HBDPCE 2 08D 1120-162114	11,2	12	114	162	2	○
118132909	HBDPCE 2 08D 1130-162114	11,3	12	114	162	2	○
118133009	HBDPCE 2 08D 1140-162114	11,4	12	114	162	2	○
118133109	HBDPCE 2 08D 1150-162114	11,5	12	114	162	2	○
118133209	HBDPCE 2 08D 1160-162114	11,6	12	114	162	2	○
118133309	HBDPCE 2 08D 1170-162114	11,7	12	114	162	2	○
118133409	HBDPCE 2 08D 1180-162114	11,8	12	114	162	2	○
118133509	HBDPCE 2 08D 1190-162114	11,9	12	114	162	2	○
118133609	HBDPCE 2 08D 1200-162114	12	12	114	162	2	○

Stock item | Produto de stock | Itens de stock

Available under request | Disponível sobre consulta | Disponible bajo consulta

Technical Data page B - 292

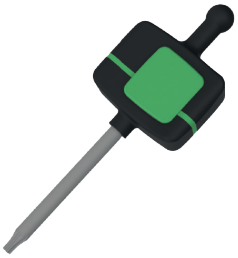
SCREWS & KEYS



Order Code	Reference Referência Referencia
290031400	P0200500
290030600	P0220500
290031300	P0250704
290030900	P0350903
290047500	P0401200
290031700	P0501300
290025800	P0180500
290033100	P0250503
290030800	P0300701
290031000	P0401101

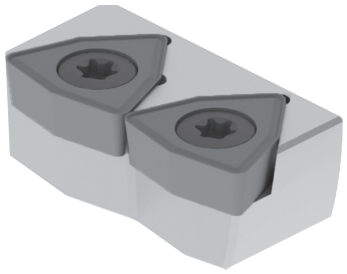


Order Code	Reference Referência Referencia
290075700	P012013
290075800	P014015
290075900	P016017
290076000	P018019
290076100	P020021
290076200	P022023
290076300	P024025
290076400	P026027
290076500	P028029
290076600	P030031



Order Code	Reference Referência Referencia
290011400	XT06
290012900	XT07
290011700	XT08
290025700	XT09
290012400	XT15
290013200	XT20
290074700	TT15
290056000	TT20
290056100	TT25

MDO CARTRIDGE



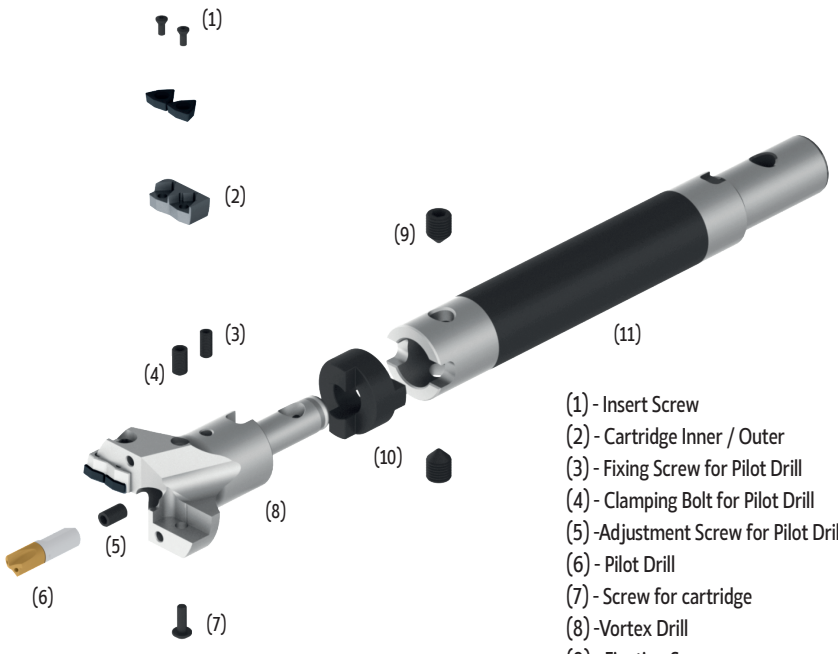
Order seperately

ØD (mm)	Inner Cartridge		Outer Cartridge		Insert	Insert Screw	Torx key	For Drill
	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

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	290041600	P1001676	290043000	P0601279
MDO 08008522	290040400	P0601075	290040900	P1002075	290041600	P1001676	290043100	P0601479
MDO 08509027	290040400	P0601075	290040900	P1002075	290041700	P1001876	290043600	P0601679
MDO 09009527	290040400	P0601075	290040900	P1002075	290041700	P1001876	290043600	P0601679
MDO 09510027	290040400	P0601075	290040900	P1002075	290041700	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

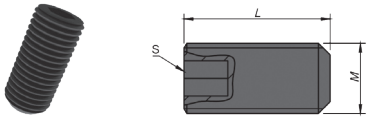
(9) Fixation Screw for MDS Shank, MDE Extension, MDM Reducer		
ØD / ØD1	Order Code Código	Screw
28	290032400	P0801280
32	290032400	P0801280
40	290032500	P1001580
48	290032600	P1201880
58	290039600	P1202080
70	290032800	P1602780
80	290032800	P1602780



(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

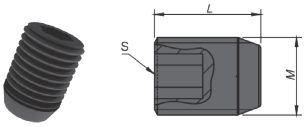
VORTEX SPARE PARTS - SCREWS

Fixing Screw and Clamping Bolt for Pilot Drill (DIN 916)



Order Code Código	Screw	Dimensions | Dimensões | Dimensiones (mm)		
		M	L	S
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



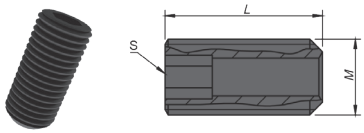
Order Code Código	Screw	Dimensions | Dimensões | Dimensiones (mm)		
		M	L	S
290032400	P0801280	M8	12,0	4,0
290032500	P1001580	M10	15,0	5,0
290032600	P1201880	M12	18,0	6,0
290039600	P1202080	M12	20,0	6,0
290032800	P1602780	M16	27,0	8,0

Insert Screw



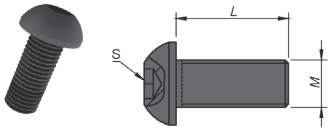
Order Code	Screw
290030600	P0220500
290033100	P0250503
290030800	P0300701
290030900	P0350903
290031000	P0401101

Adjustment Screw for Pilot Drill (DIN 916 w/ hole)



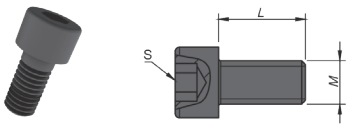
Order Code Código	Screw	Dimensions | Dimensões | Dimensiones (mm)		
		M	L	S
290041400	P0601076	M6 x 1,0	10,0	3,0
290041500	P0801576	M8 x 1,25	15,0	4,0
290041600	P1001676	M10 x 1,5	16,0	5,0
290041700	P1001876	M10 x 1,5	18,0	5,0
290041800	P1202076	M12 x 1,75	20,0	6,0
290041900	P1402076	M14 x 2,0	20,0	6,0

Screw for Cartridge (ISO 7380)



Order Code Código	Screw	Dimensions | Dimensões | Dimensiones (mm)		
		M	L	S
290042500	P0401078	M4 x 0,7	10,0	2,0
290042700	P0501278	M5 x 0,8	12,0	2,5

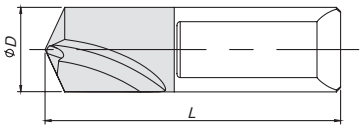
Screw for Cartridge (DIN 912)



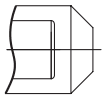
Order Code Código	Screw	Dimensions | Dimensões | Dimensiones (mm)		
		M	L	S
290043000	P0601279	M6 x 1,0	12,0	2,5
290043100	P0601479	M6 x 1,0	14,0	3,0
290043600	P0601679	M6 x 1,0	16,0	3,0
290043300	P0801879	M8 x 1,25	18,0	4,0
290043400	P0802079	M8 x 1,25	20,0	4,0
290043500	P0802579	M8 x 1,25	25,0	4,0

PILOT DRILL

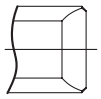




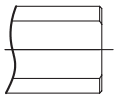
Shank Type



A (with cone)



B (with chamfer)

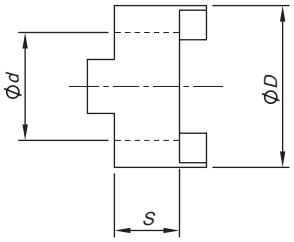


C

Order Code	Reference	Dimensions | Dimensões | Dimensiones (mm)		Type	Oil Hole	For Drill
		ØD	L			
184033100	MDP 3510	10	35	B	✓	MDO (Ø45-Ø55)
184033200	MDP 3812	12	38	B	✓	MDO (Ø55-Ø75)
184033300	MDP 4516	16	45	B	✓	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)

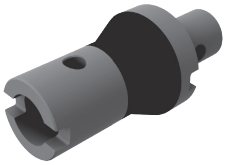
DRIVE RING

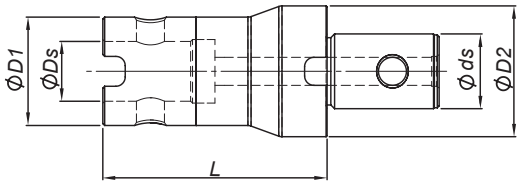




Order Code	Reference	Dimensions | Dimensões | Dimensiones (mm)		
		ØD	Ød	S
184021600	MDR 1028	28	13	10
184021700	MDR 1032	32	16	10
184022100	MDR 1240	40	22	12
184022200	MDR 1248	48	27	12
184022300	MDR 1458	58	32	14
184022400	MDR 1470	70	40	14
184022500	MDR 1680	80	50	16

MDM - REDUCER

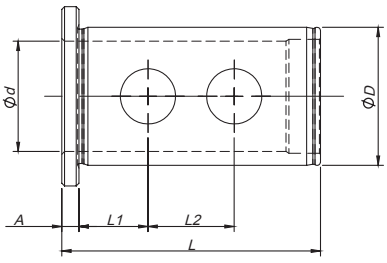




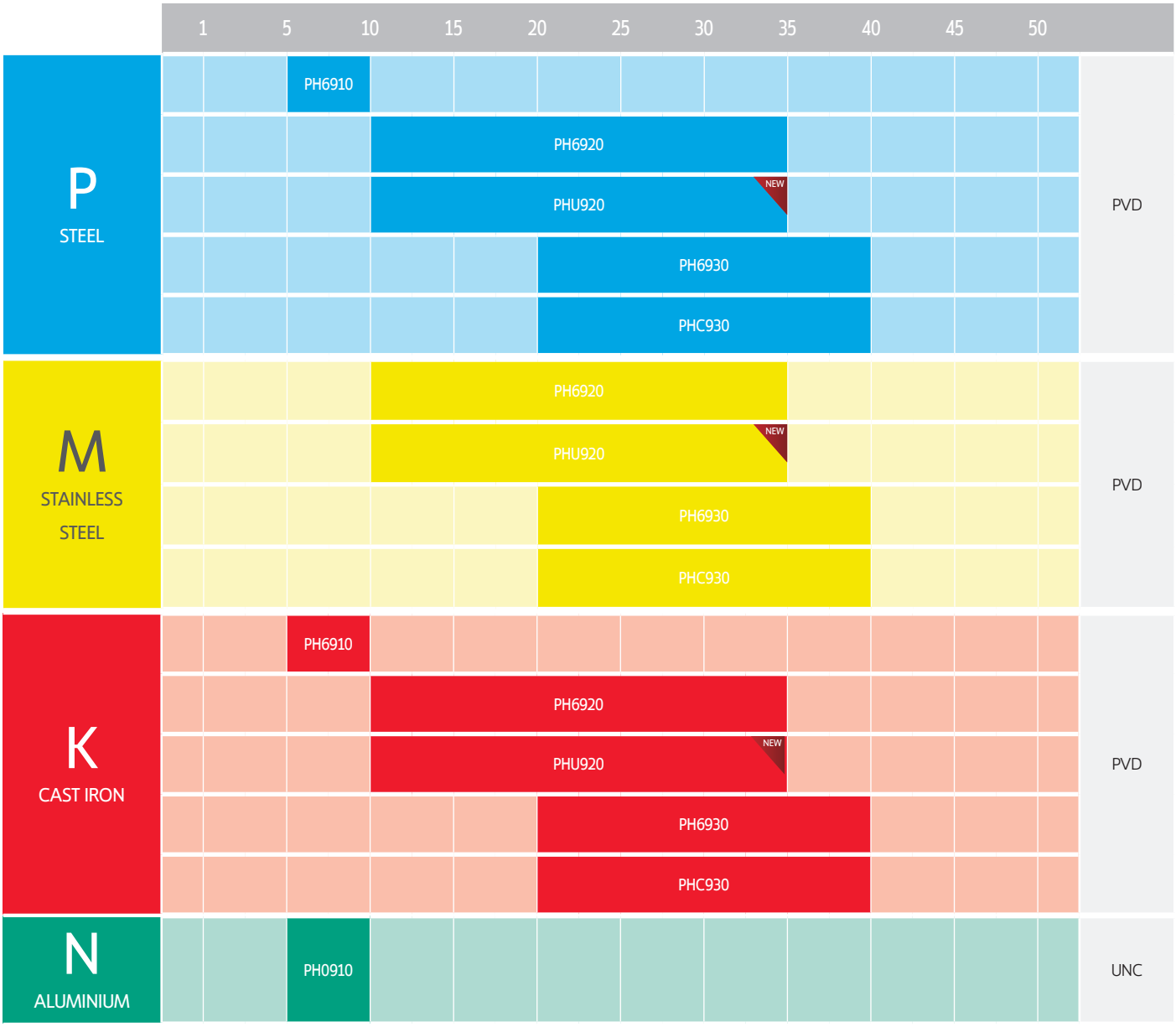
Order Code	Reference	Dimensions | Dimensões | Dimensiones (mm)					Drive Ring D1	Drive Ring D2
		ØDs	Ød	ØD1	ØD2	L		
184253900	MDM 16100130	13	16	28	32	100	MDR 1028	MDR 1032
184254000	MDM 22100160	16	22	32	40	100	MDR 1032	MDR 1240
184254100	MDM 27100220	22	27	40	48	100	MDR 1240	MDR 1248
184254200	MDM 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

RDS - DRILL SLEEVE





Order Code	Reference	Dimensions | Dimensões | Dimensiones (mm)					
		ØD	Ød	L	L1	L2	A
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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PH6920
PHU920
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PHC930
PVD
M
STAINLESS STEEL
PH6920
PHU920
NEW
PH6930
PHC930
PVD
K
CAST IRON
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PH6920
PHU920
NEW
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PVD
N
ALUMINIUM
PH0910
UNC

PVD GRADES

PH6910
P05-P10
K05-K10

Coated carbide grade with a very hard substrate for drilling of steels and cast irons.

PH6920
P10-P35
M10-M25
K10-K30

Coated grade over a tough wear resistance substrate for general purpose machining.

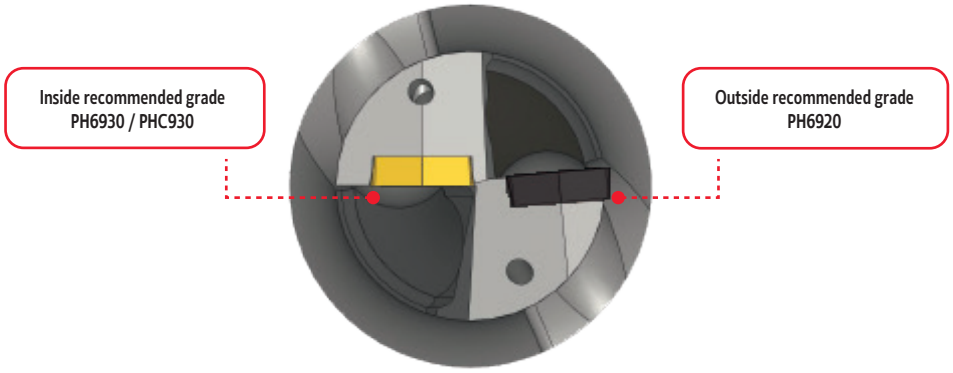
PH6930
P20-P40
M20-M30
K20-K40

Grade suitable for applications with instability conditions. Excellent solution for medium cutting speed applications.

PHC930
P20-P40
M20-M30
K20-K40

Grade suitable for applications with instability conditions. Excellent solution for medium cutting speed applications.
Coated in Yellow to be visually distinguishable.

Grades recommendation for drilling 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

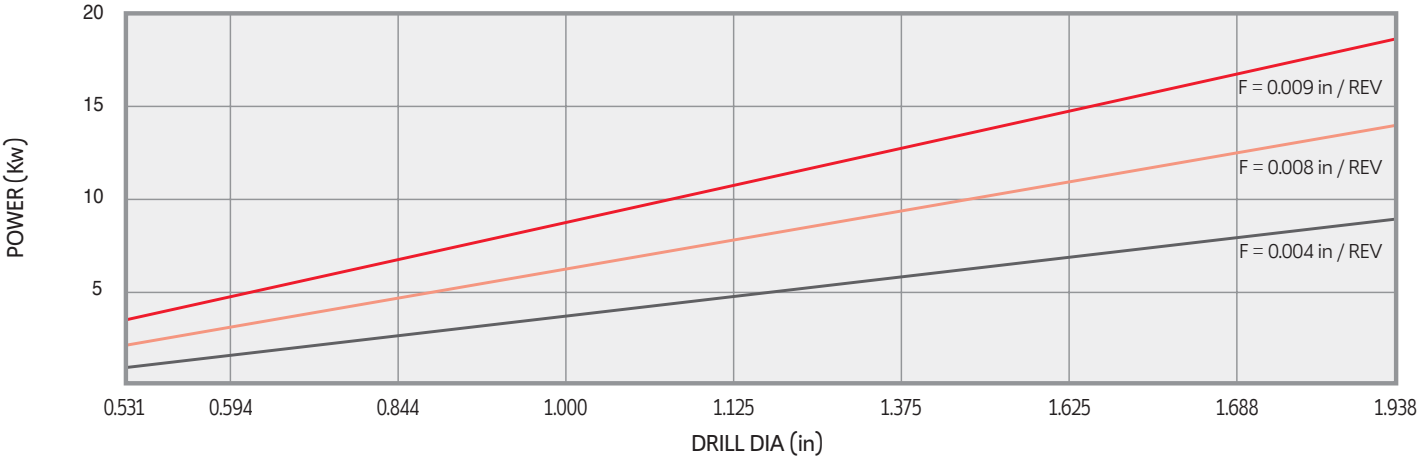
— Color: Grey

JET DRILLS - SCI DRILL TYPE

Recommended Speeds and Feeds | Parâmetros de Corte Recomendados | Recomendaciones de Datos de Corte

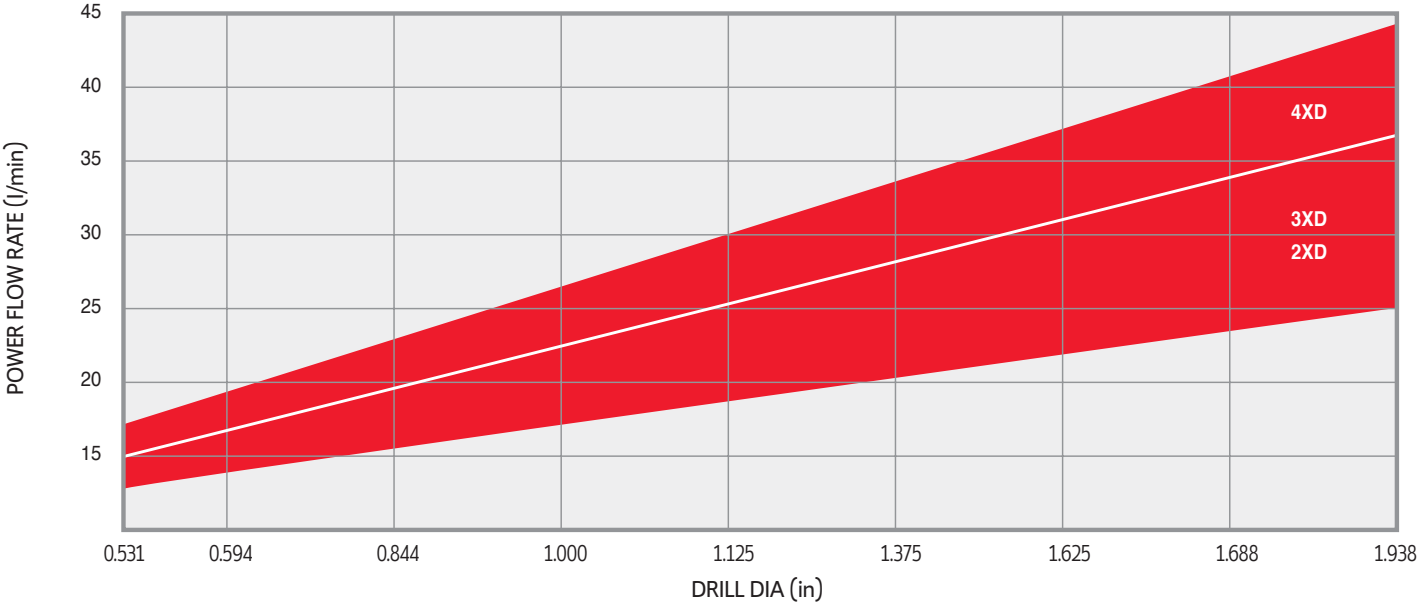
ISO	Material Group Grupo Materiais Grupo Materiales	Vc (SFM)	Feed fz (in/t)					
			Ø0.310~0.594	Ø0.625~0.844	Ø0.875~1.094	Ø1.125~1.313	Ø1.375~1.625	Ø1.688~1.938
P	CARBON STEEL	525-722	0.002-0.005	0.003-0.006	0.004-0.007	0.005-0.009	0.005-0.009	0.005-0.010
	ALLOY STEEL	492-656	0.002-0.005	0.003-0.006	0.004-0.007	0.005-0.009	0.005-0.009	0.005-0.010
	HARDENED STEEL	426-590	0.002-0.004	0.003-0.006	0.004-0.008	0.005-0.009	0.005-0.009	0.005-0.009
M	STAINLESS STEEL	558-722	0.002-0.004	0.002-0.005	0.003-0.006	0.004-0.006	0.004-0.007	0.004-0.007
K	GREY CAST IRON	590-820	0.002-0.005	0.003-0.006	0.005-0.008	0.006-0.010	0.006-0.011	0.007-0.012
	NODULAR CAST IRON	426-656	0.002-0.004	0.003-0.006	0.004-0.007	0.005-0.008	0.006-0.009	0.006-0.010
S	HEAT RESISTANT SUPER ALLOYS	98-197	0.002-0.004	0.002-0.006	0.003-0.007	0.004-0.009	0.006-0.009	0.006-0.009

Power Requirements | Requisitos de Potência | Requisitos de Potencia



• These chart is based on machining experiences using steels with a hardness of 200-250HB and cutting speed of 328 SFM.
• For cast iron the effective power requirement is around 30% lower.

Coolant Application Chart | Tabela Aplicação de Refrigeração | Tabla Aplicación de Refrigerante



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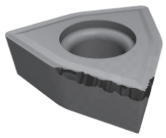
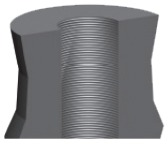
JET DRILLS - SCI DRILL TYPE

Hole Tolerance and Maximum Hole Size With Radial Adjustment
Tolerância do Furo e Dimensão Máxima do Furo com Ajuste Radial
Tolerancia de los Agujeros y el Tamaño Delagujero Máximo con AjusteRadial

Drill D	3xD		
	Normal	Radial Adjust	Max. Hole D
0.512	0.518	0.020	0.551
0.551	0.555	0.020	0.591
0.591	0.594	0.020	0.630
0.630	0.633	0.020	0.669
0.669	0.672	0.020	0.709
0.709	0.711	0.020	0.748
0.748	0.751	0.020	0.787
0.787	0.790	0.020	0.827
0.827	0.826	0.010	0.846
0.866	0.864	0.020	0.906
0.906	0.909	0.020	0.945
0.945	0.949	0.020	0.984
0.984	0.987	0.020	1.024
1.024	1.025	0.010	1.043
1.063	1.065	0.010	1.083
1.102	1.107	0.020	1.142
1.142	1.124	0.020	1.181
1.181	1.190	0.020	1.220
1.220	1.223	0.010	1.240
1.260	1.262	0.010	1.280
1.299	1.304	0.010	1.319
1.339	1.343	0.020	1.378
1.378	1.381	0.020	1.417
1.417	1.419	0.020	1.457
1.457	1.462	0.020	1.496
1.496	1.498	0.020	1.535
1.535	1.537	0.020	1.575
1.575	1.575	0.010	1.594
1.614	1.614	0.010	1.634
1.654	1.655	0.020	1.693
1.693	1.693	0.020	1.732
1.732	1.739	0.020	1.772
1.772	1.780	0.020	1.811
1.811	1.818	0.020	1.850
1.850	1.856	0.020	1.890
1.890	1.894	0.010	1.909
1.929	1.929	0.010	1.949
1.969	1.969	0.010	1.988

Drill D	4xD		
	Normal	Radial Adjust	Max. Hole D
0.512	0.520	0.020	0.551
0.551	0.557	0.020	0.591
0.591	0.597	0.020	0.630
0.630	0.633	0.020	0.669
0.669	0.674	0.020	0.709
0.709	0.717	0.020	0.748
0.748	0.755	0.020	0.787
0.787	0.789	0.020	0.827
0.827	0.827	0.010	0.846
0.866	0.867	0.020	0.906
0.906	0.909	0.020	0.945
0.945	0.951	0.020	0.984
0.984	0.989	0.020	1.024
1.024	1.027	0.010	1.043
1.063	1.061	0.010	1.083
1.102	1.101	0.020	1.142
1.142	1.144	0.020	1.181
1.181	1.186	0.020	1.220
1.220	1.225	0.010	1.240
1.260	1.264	0.010	1.280
1.299	1.306	0.010	1.319
1.339	1.344	0.020	1.378
1.378	1.383	0.020	1.417
1.417	1.420	0.020	1.457
1.457	1.464	0.020	1.496
1.496	1.499	0.020	1.535
1.535	1.539	0.020	1.575
1.575	1.577	0.010	1.594
1.614	1.616	0.010	1.634
1.654	1.657	0.020	1.693
1.693	1.694	0.020	1.732
1.732	1.741	0.020	1.772
1.772	1.782	0.020	1.811
1.811	1.820	0.020	1.850
1.850	1.858	0.020	1.890
1.890	1.896	0.010	1.909
1.929	1.931	0.010	1.949
1.969	1.971	0.010	1.988

JET DRILLS - TROUBLESHOOTING | Solução de problemas | Solucción de problemas

Problem | Problema	Corrective Action	Possível Solução	Solución Posible
INNER CUTTING EDGE CRACKING 	**On Lathes:** • Check machine alignment. • Check clamping accuracy. If tool clamping cannot be improved and/or optimum machine stability is doubtful, reduce feed by 30%. • User tougher carbide grade. **TIP:** Grades can be mixed to achieve optimum performance. **Example:** Use grade PH6125 in the inside pocket with PH6135 in the outside pocket.	**Em Tornos:** • Verifique o alinhamento máquina. • Verifique a precisão do aperto. Se o aperto não puder ser melhorado e/ou a optimização da estabilidade da máquina é duvidosa, reduza o avanço em 30%. • Usar classes de graus mais duras. **DICA:** Misture classes Graus para alcançar o desempenho ideal. **Exemplo:** Utilize PH6125 na pastilhainterior e PH6135 na pastilha exterior.	**Tornos en:** • Compruebe la alineación de máquinas. • Verificar la precisión de sujeción. Si la herramienta de sujeción no puede mejorar y/o optimizar la estabilidad de la máquina es dudosa, reducir los piensos en un 30%. • El usuario de carburo de calidad es más estrictas. **SUGERENCIA:** Las calificaciones se pueden mezclar para lograr un rendimiento óptimo. **Ejemplo:** Utilice PH6125 en el inserto interior e PH6135 en el inserto exterior.
CHIP EVACUATION NOT OPTIMAL 	• Increase coolant pressure and volume (coolant helps support chip evacuation as well as cooling the cutting edges). • Optimize chip control for a given application. • Increase cutting speed by 20%.	• Aumente a pressão e volume do líquido de refrigeração (este permite uma melhor evacuação da apara, bem como um arrefecimento das arestas de corte). • Optimize o controlo das aparas para cada operação. • Aumentar a velocidade de corte de 20%.	• Aumentar la presión del refrigerante y el volumen (el líquido de refrigeración de chips de apoyo ayuda a la evacuación, así como el enfriamiento de la corte de los bordes). • Optimizar el control de chip para una aplicación determinada. • Aumentar la velocidad de corte un 20%.
EXCESSIVE INSERT WEAR 	• Increase coolant pressure and volume. • Reduce cutting speed by 20%. • Use a more wear – resistant grade.	• Aumente o volume e a pressão do líquido de refrigeração. • Reduzir a velocidade de corte de 20%. • Utilize um grau mais resistente ao desgaste.	• Aumentar la presión del refrigerante y el volumen. • Reducir la velocidad de corte en un 20%. • Utilice un mayor desgaste - resistente grado.
POOR DRILL HOLE QUALITY 	• Increase coolant pressure and volume. • Increase cutting speed by 20% • Check clamping accuracy (tool and workpiece) for possible improvement. **TIP:** Use higher speed with lighter feed to produce better hole quality.	• Aumente o volume e a pressão do líquido de refrigeração. • Aumentar a velocidade de cortede 20% • Verifique a precisão do aperto (ferramenta e peça). **DICA:** Utilize velocidades com avanços menores para produzir uma melhor qualidade do furo.	• Aumentar la presión del refrigerante y el volumen. • Aumentar la velocidad de corte en un 20% • Verificar la precisión de sujeción(herramienta y pieza de trabajo) para una posible mejora. **SUGERENCIA:** El uso ligero con mayor velocidad de alimentación para producir una mejor calidad agujero.

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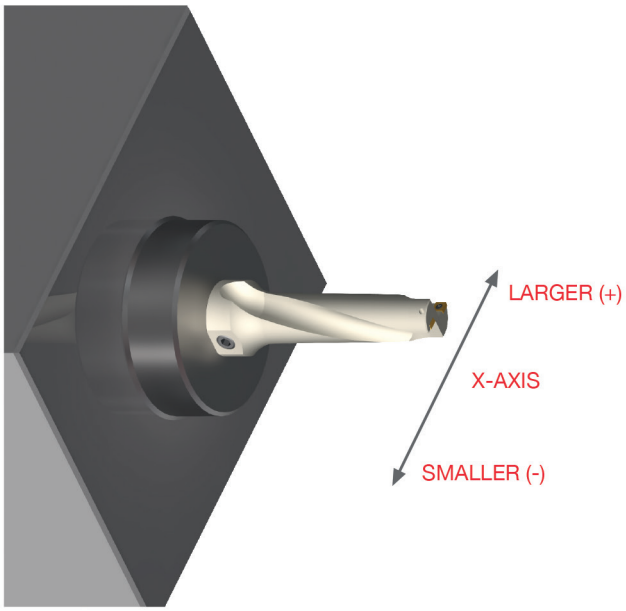
Informação técnica para aplicações | Información técnica para aplicaciones

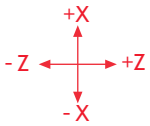
Initial Drill Set Up and Check | Ajuste Inicial da Broca e Verificação | Ajuste Inicial de la Broca e su Verificación

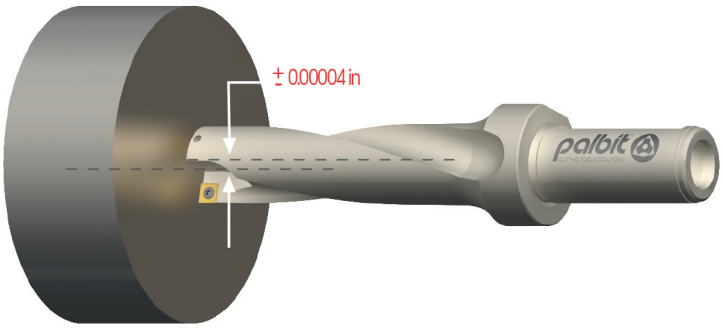


- The cutting edge of insert should be parallel to X-axis to make it possible to do offset cutting. Since a flat part on shank for side lock clamping has been made parallel with the cutting edge line of insert, operator can set the drill as per flat part of shank.

- A aresta de corte da pastilha deve ser paralela ao eixo X tornando possível o alinhamento de corte.

- El hilo de corte del inserto se debe posicionar paralelamente al axis-X tornando posible el aliñamiento de corte.

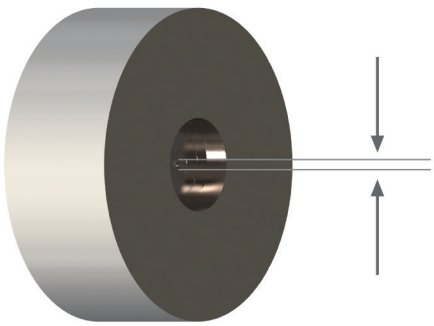




- The outer insert should be located in the direction (+) of X-axis to allow offset cutting and then the inner insert should face the operator.

- A pastilha exterior deve estar localizada na direcção (+) do eixo-X, permitindo assim o alinhamento do corte, a pastilha interior deve estar virada ao operador.

- El inserto exterior se debe localizar en la dirección (+) del axis-X, permitiendo el aliñamiento del corte, el inserto interior debe quedar-se virado para el operador.

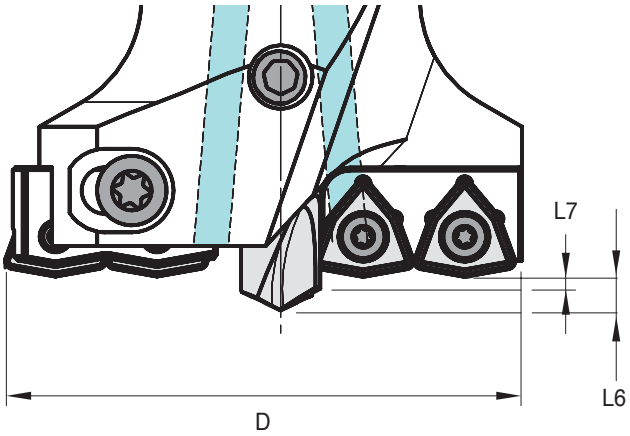


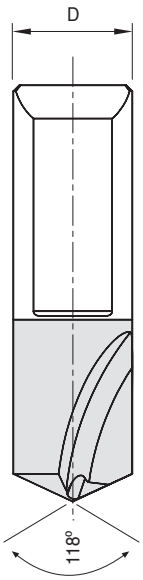
- To check the setting of drill before use, test it by drilling about 0.200 in depth and then measure the core size if it is around 0.008 in - 0.027 in.
- Para verificar o ajuste faça o teste furando cerca de 0.200 in de profundidade medindo depois o núcleo verificando se este tem aproximadamente 0.008 in - 0.027 in.

- Para comprobar el ajuste hacer un taladro de cerca de 0.200 in de profundidad, medido después su núcleo si se trata de 0.008 in - 0.020 in.

Parâmetros de corte e ajustes | Condiciones de corte y ajustes

Pilot Drill Adjustement | Ajuste da Broca Piloto | Ajuste de la Broca Piloto





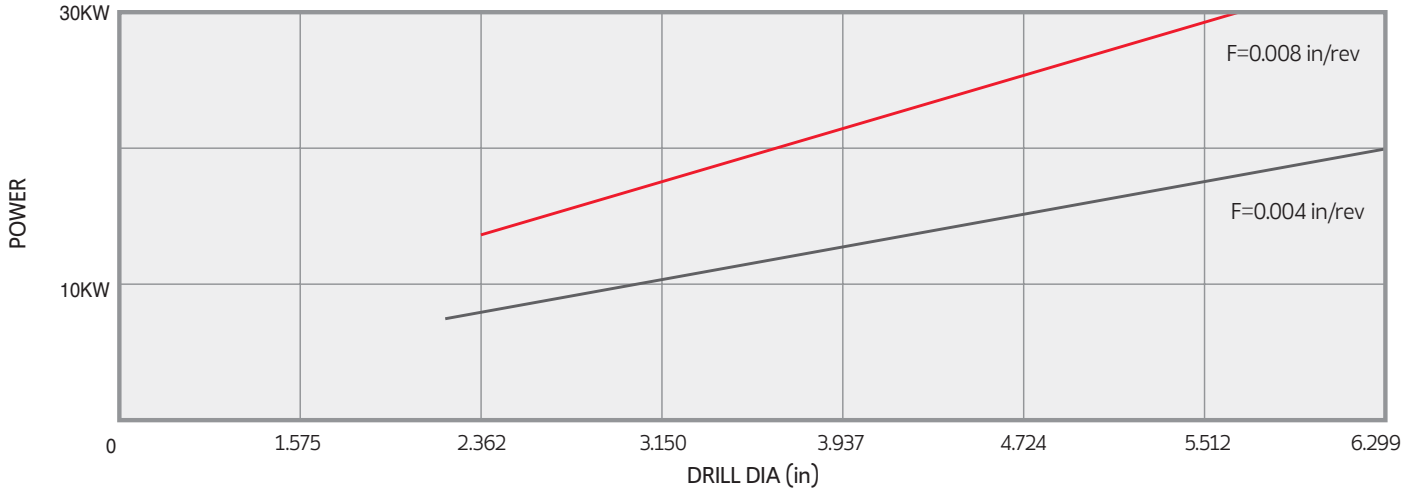
Dc (mm)	2D to 4D		4D to 6D		> 6D	
	L7	L6	L7	L6	L7	L6
45-55	1,6	4,0	1,8	4,2	2,0	4,4
55-75	1,8	5,4	2,0	5,6	2,2	5,8
75-100	2,2	6,5	2,5	6,8	2,8	7,1
100-120	2,4	7,7	2,8	8,1	3,2	8,5
120-170	3,2	9,9	3,6	10,3	4,0	10,7
170-180	3,5	12,2	3,9	12,6	4,3	13,0

Parâmetros de corte e ajustes | Condiciones de corte y ajustes

Recommended Speeds and Feeds | Parâmetros de Corte Recomendados Recomendaciones de Datos de Corte

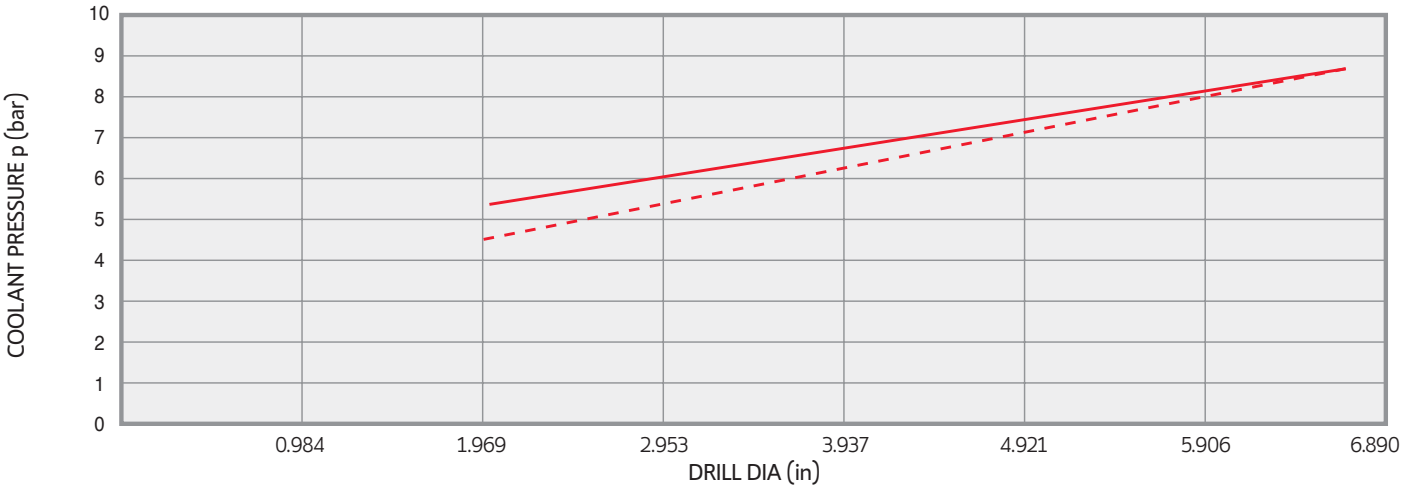
ISO	Material Group Grupo Materiais Grupo Materiales	Vc (SFM)	Feed fz (in/t)						
			Ø45~55 mm	Ø55~60 mm	Ø60~75 mm	Ø75~100 mm	Ø100~105 mm	Ø105~150 mm	Ø150~180 mm
P	UNALLOYED STEEL (-0,25%)	394-591	0.003-0.004	0.003-0.005	0.004-0.005	0.004-0.006	0.006-0.008	0.004-0.005	0.004-0.006
	LOW-ALLOY STEEL (0,25%-)	361-558	0.003-0.004	0.003-0.005	0.004-0.005	0.004-0.006	0.005-0.008	0.004-0.005	0.004-0.006
	LOW-ALLOY STEEL (-HB300)	296-427	0.003-0.004	0.003-0.005	0.004-0.005	0.004-0.006	0.005-0.008	0.004-0.005	0.004-0.006
	HIGH-ALLOY STEEL (HB300-)	197-328	0.002-0.003	0.002-0.003	0.003-0.004	0.003-0.004	0.004-0.006	0.003-0.004	0.003-0.004
M	STAINLESS STEEL	197-361	0.002-0.003	0.002-0.005	0.003-0.005	0.004-0.006	0.004-0.008	0.003-0.005	0.004-0.006
K	GREY CAST IRON	394-591	0.003-0.006	0.003-0.006	0.004-0.007	0.004-0.008	0.005-0.009	0.004-0.007	0.004-0.008
	CAST IRON WITH NODULAR CAST	328-591	0.002-0.006	0.003-0.006	0.004-0.007	0.004-0.010	0.005-0.011	0.004-0.007	0.004-0.010

Power Requirements | Requisitos de Potência | Requisitos de Potencia



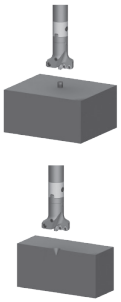
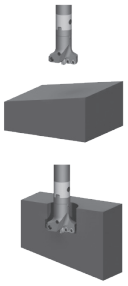
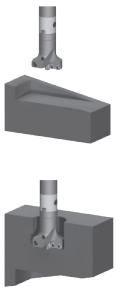
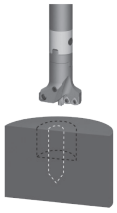
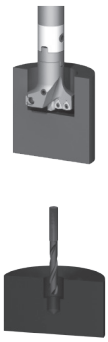
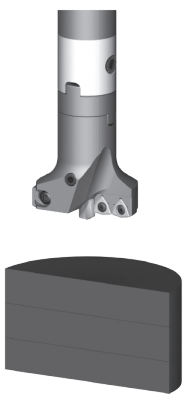
• These chart is based on machining experiences using steels with a hardness of 200-250HB and cutting speed of 328 SFM.

Coolant Application Chart | Tabela Aplicação de Refrigeração | Tabla Aplicación de Refrigerante

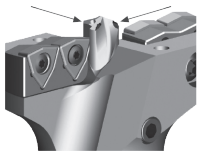
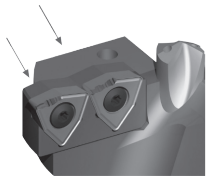
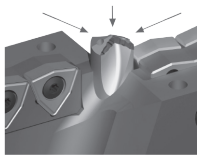
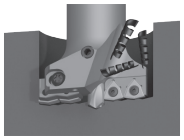


Parâmetros de corte e ajustes | Condiciones de corte y ajustes

Rules & Tips | Regras e Dicas | Normas e Consejos

WRONG	CORRECT	EN	PT	ES
		**Spot Drilling** For plain/straight surfaces, no spot drilling is required. For centering, the center drill diameter should be considerably smaller than the pilot drill diameter.	**Perfuração Localizada** Para superfícies planas a perfuração localizada não é necessária. O diâmetro da broca de pré-furação deve ser consideravelmente menor do que o diâmetro da broca-piloto.	**Perforación Localizada** Para superficies planas, no se requiere la perforación in situ. Para centrar el diámetro de pré-perforación debe ser considerablemente más pequeño que el diámetro de la broca piloto.
		**Spot drilling and drilling throughon inclined surfaces.** Up to an 8º inclination angle is possible. Drilling through at a maximum of 4º is possible; otherwise, a pre-facing operation is necessary.	**Perfuração localizada e perfuração através de superfícies inclinadas.** Até 8 º ângulo de inclinação é possível. Perfuração até a um máximo de 4º é possível, caso contrário, é necessária uma pré-operação.	**Perforación localizada y perforación sobre superficies inclinadas.** Hasta un ángulo de inclinación de 8º es posible. Através de la perforación en un máximo de 4º es posible, de otro modo, es necesaria pre-operación.
		**Multi-Stage Drill Hole** Vortex series drills are not recommended for boring operations. First, use the Integrex drill to drill a larger diameter hole. Then, use a solid carbide drill for smaller holes. Optimum centering of the solid carbide drill is possible on the drill hole of the pilot drill.	**Furo Multi-Estágio** As brocas Vortex não são recomendadas para operações de mandrilagem. Primeiro utilize a Integrex para o furo de diâmetro maior, então use uma broca Metal Duro Integrex para o furo de diâmetro mais reduzido.	**Multi-etapa taladro** Las brocas Vortex no son recomendadas para las operaciones de mandrilagen. En primer lugar, utilizar la Integrex para perforar un agujero de diámetro mayor. A continuación,utilice una broca de carburo sólido para los pequeños agujeros. Centrado óptimo del taladro de carburo sólido es posible en el taladro de la broca piloto.
		**Drilling of stacked plates** This is not possible with Integrex series drills because a final disc forms when the drill breaks through. **Caution:** During through-hole operations, a slug or disc is produced as the tool breaks through the workpiece. When the drill is stationary and the workpiece is rotating, this slug may be hurled from the chuck by centrifugal force. Provide adequate shielding to protect all bystanders.	**Perfuração de chapas empilhadas** Isso não é possível com a Integrex porque um disco final forma-se quando a broca passa **Cuidado:** Durante operações de trespassar uma placa, uma apara ou disco é produzido quando a broca rompe através da peça. Quando a broca está parada e é a peça rotativa, este disco pode ser arremessado da brecha pela força centrífuga. Proporcionar adequada blindagem para proteger todos os transeuntes.	**Perforación de placas apiladas** Esto no es posible con la Integrex debido a un disco que se forma cuando el taladro a través de las placas. **Precaución:** Durante las operaciones a través de agujeros, una babosa o disco se produce como la herramienta provocando saltos de la pieza. Cuando la perforación es estacionaria y la pieza está girando, este disco puede ser lanzado desde el plato por la fuerza centrífuga. Proporcionar la protección adecuada para proteger a todos los transeúntes.

Solução de problemas | Solucción de problemas

Problem | Problema	Corrective Action	Possível Solução	Solución Posible
PILOT DRILL CRACKING 	**On Lathes:** • Verify that the tool is centered correctly. Readjust machine, if necessary. • Check clamping accuracy (tool andworkpiece).	**Em Tornos:** • Verifique se a ferramenta está centrada correctamente. Reajustar a máquina caso necessário. • Verifique a precisão do aperto (ferramento e peça).	**Tornos en:** • Compruebe que la herramienta se centra correctamente. Reajustar la máquina, si es necesario. • Verificar la precisión de sujeción (herramienta y pieza de trabajo) para una posible mejora.
INSERT CRACKING 	• Use tougher carbide grade. • Check clamping accuracy (tool and workpiece) for possible run out.	• Use classes de graus mais duras. • Verifique a precisão do aperto (ferramento e peça).	• Uso más duras de carburo de grado. • Verificar la precisión de sujeción (herramienta y pieza de trabajo) para su posible run out.
EXCESSIVE INSERT WEAR 	• Use coated pilot drill. • Increase coolant pressure and volume. • Reduce speed by 20% • Use wear & resistant carbide grade.	• Utilizar uma broca piloto revestida. • Aumentar o volume e a pressão do liquido de refrigeração. • Reduzir a velocidade de corte em 20%. • Utilizar classes de graus mais resistentes ao desgaste.	• Utilice broca piloto revestida. • Aumentar la presión del refrigerante y el volumen. • Reduzca la velocidad en un 20% • Utilice el desgaste y resistentes de carburo de grado.
CHIP BREAKING NOT OPTIMAL 	• Optimize chip control for given application by using diferent chipbreaker geometry. • Increase cutting speed by 20%; reduce feed by 20%.	• Optimizar o controlo da apara numa determinada operação outra geometria de quebra aparas. • Aumentar a velocidade de corte em 20% e reduzir o avanço em 20%.	• Optimizar el control de viruta numa dada aplicación mediante utilizacion de otra geometría quebra viruta • Aumentar la velocidad de corte en un 20%, reducir la alimentación en un 20%.
CHIP EVACUATION NOT OPTIMAL, POOR DRILL HOLE QUALITY 	• Increase coolant pressure and volume. • Increase cutting speed by 20%.	• Aumentar o volume e a pressão do líquido de refrigeração. • Aumentar a velocidade de corte em 20%.	• Aumentar la presión del refrigerante y el volumen. • Aumentar la velocidad de corte en un 20%.

SAFETY

Caution:

• During trough-hole operations, a slug or disc is produced as the tool breaks through the workpiece. When the drill is stationary and the workpiece is rotating, this slug may be hurled from the chuck by centrifugal force. Provide adequate shielding to protect all bystanders.

• When drilling through, a small shoulder will be produced on breakthrough as the pilot drill is no longer cutting.

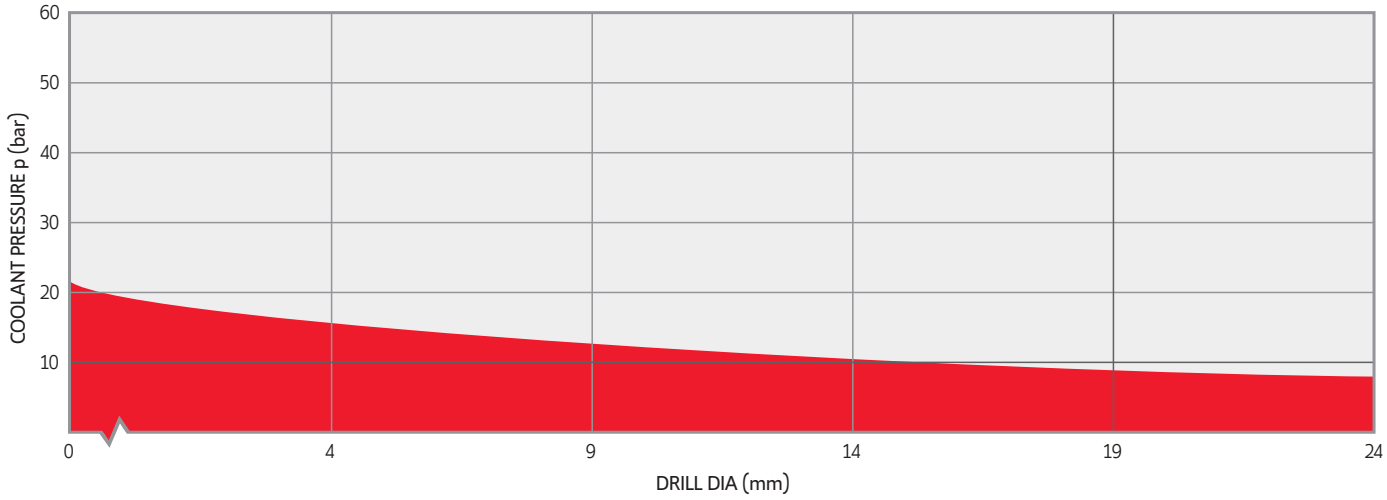
SOLID CARBIDE DRILLS - CUTTING PARAMETERS AND ADJUSTMENTS

Parâmetros de corte e ajustes | Condiciones de corte y ajustes

Recommended Speeds and Feeds | Parâmetros de Corte Recomendados Recomendaciones de Datos de Corte

ISO	Material Group Grupo Materiais Grupo Materiales	Vc (SFM)	f (in/rev)			
			Ø3~8mm	Ø8~12mm	Ø12~16mm	Ø16~20mm
P	UNALLOYED STEEL (-0,25%)	263-328	0,004-0,008	0,006-0,010	0,008-0,016	0,010-0,02
	LOW-ALLOY STEEL (0,25%-)	230-328	0,004-0,008	0,008-0,012	0,008-0,014	0,010-0,016
	HIGH-ALLOY STEEL	132-230	0,004-0,006	0,005-0,009	0,008-0,016	0,010-0,016
M	STAINLESS STEEL	115-164	0,004-0,006	0,005-0,010	0,006-0,012	0,008-0,014
K	MALEABLE CAST IRON	230-328	0,004-0,012	0,008-0,016	0,010-0,016	0,010-0,020
	GREY CAST IRON	230-328	0,004-0,010	0,008-0,014	0,012-0,018	0,014-0,022

Coolant Application Chart | Tabela Aplicação de Refrigeração | Tabla Aplicación de Refrigerante



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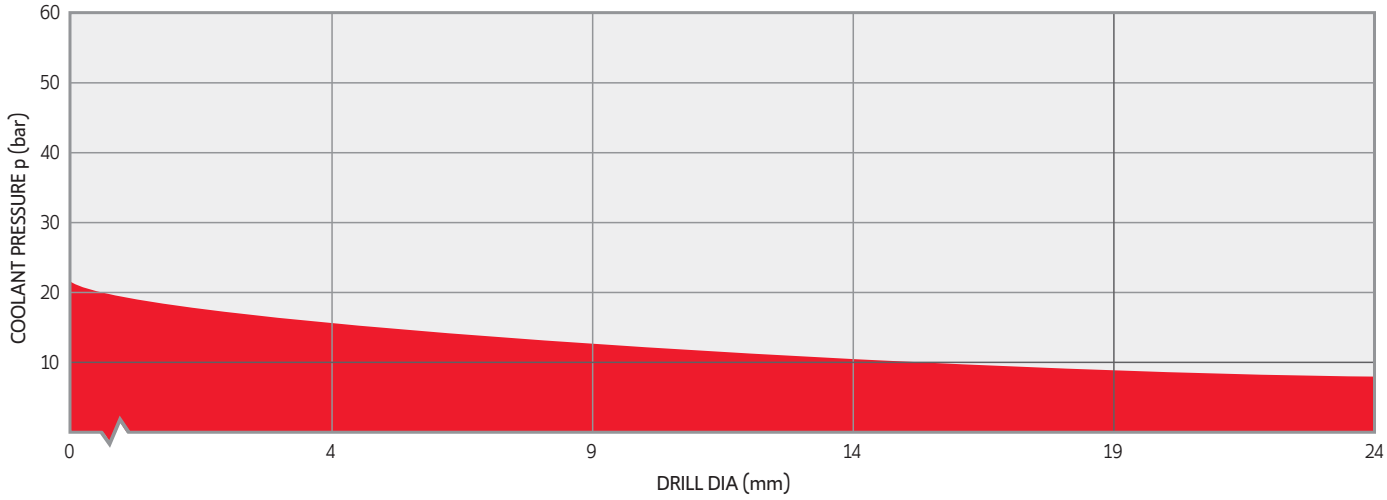
METRIC LINE

Recommended Speeds and Feeds | Parâmetros de Corte Recomendados Recomendaciones de Datos de Corte

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 | Tabela Aplicação de Refrigeração | Tabla Aplicación de Refrigerante



SOLID CARBIDE DRILLS - TROUBLESHOOTING

Problem | Problema	Cause | Causa | Fuente	Possible Solution | Solução | Solución
Heavy wear on the cutting corners Desgaste profundo das arestas de corte Desgaste profundo de los gavilanse	• Spintering on the cutting corners • Estilhamento das esquinas de corte • Astillado en las esquinas de corte	• Check cooling lubricant. In the case of internal coolant supply, increase coolant pressure. In the case of external coolant supply, adjust positioning of coolant jet. Cool from both sides. • Veja o lubrificante. No caso de fornecimento interno, aumente a pressão da refrigeração, no caso de fornecimento externo, ajuste o posicionamento do jorro do refrigerante, esfrie ambos os lados. • Compruebe el lubricante de refrigeración. En caso de suministro de refrigerante interno,aumente la presión del refrigerante. En caso de suministro de refrigerante externo, ajuste el posicionamiento del chorro de refrigerante. Enfríe desde ambos lados.
	• Cutting conditions • Condições de corte • Condiciones de corte	• Reduce cutting speed, increase feed. • Reduza a velocidade de corte, aumente o avanço. • Reduzca la velocidad de corte, aumente el avance.
Splintering on the chisel edge Estilhamento do fio de corte transversal Astillado del filo de corte transversal	• Clamping chuck • Sistema de amarre • Sistema amarre	• Check clamping accuracy. Use hydraulic clamping chuck or high-precision chucking system. • Comprove a precisão da fixação utilize uma pinça de fixação hidraulica ou um sistema de aperto de alta precisão. • Compruebe la precisión de la fijación. Utilice una pinza de fijación hidráulica o un sistema de amarre de alta precisión.
	• Cutting conditions • Condições de corte • Condiciones de corte	• Increase feed. • Aumente o avanço. • Aumente el avance.
Built-up edge Acrescimo do fio de corte Recrecimiento del filo de corte	• Insufficient coolant. • Refrigeração insuficiente • Refrigerante insuficiente	• Check cooling lubricant. In the case of internal coolant supply, increase coolant pressure. In the case of external coolant supply, adjust positioning of coolant jet. Cool from both sides. .• Veja o lubrificante. No caso de fornecimento interno, aumente a pressão da refrigeração, no caso de fornecimento externo, ajuste o posicionamento do jorro do refrigerante, esfrie ambos lados. • Compruebe el lubricante de refrigeración. En caso de suministro de refrigerante interno, aumente la presión del refrigerante. En caso de suministro de refrigerante externo, ajuste el posicionamiento del chorro de refrigerante. Enfríe desde ambos lados
	• Cutting conditions • Condições de corte • Condiciones de corte	• Increase speed 20-30%. • Aumente a velocidade em uns 20% a 30%. • Aumente la velocidad en un 20-30%.
Splintering on the cutting edges Estinhamento do fio de corte principal Astillado del filo de corte principal	• Clamping chuck • Sistema de amarre • Sistema amarre	• Check clamping accuracy and torque transmission. Use hydraulic clamping chuck or high-precision chucking system. • Comprove a precisão da fixação utilize uma pinça de fixação hidraulica ou um sistema de aperto de alta precisão. • Compruebe la precisión de la fijación y la transmisión de par. Utilice una pinza de fijación hidráulica o un sistema de amarre de alta precisión.
	• Cutting conditions caused by built-up edge • Condições de corte provocadas por acrescimos no fio de corte • Condiciones de corte provocadas por recrecimiento del filo de corte	• Check cutting values and, possibly increase cutting speed. Examine regularly for built-up edge. • Veja os valores de corte e a ser possível aumente a velocidade de corte. Examine regularmente o aumento do fio de corte. • Compruebe los valores de corte y a ser posible aumente la velocidad de corte. Examine regularmente el recrecimiento del filo de corte.
Thermal checking / Comb cracking Desgaste / Rotura dos chanfros Desgaste / Rotura de los chaflanes	• Cutting conditions • Condições de corte • Condiciones de corte	• Inconsistent / insufficient coolant supply. • Fornecimento de refrigeração, inconsistente/insuficiente. • Suministro de refrigerante inconsistente/insuficiente.
Heavy wear on the cutting corners Desgaste profundo dos chanfros Desgaste profundo de los chaflanes	• Workpiece movement • Movimento das peças de trabalho • Movimiento de piezas de trabajo	• Stabilize workpiece chucking and check stability of machine tool. • Estabilize a fixação da peça de trabalho e veja a estabilidade da máquina ferramenta. • Estabilice la fijación de la pieza de trabajo y compruebe la estabilidad de la máquina herramienta
	• Insufficient coolant • Refrigeração insuficiente • Refrigerante insuficiente	• Check cooling lubricant. In the case of internal coolant supply, increase coolant pressure. In the case of external coolant supply, adjust positioning of coolant jet. Cool from both sides. •Veja o lubrificante. No caso de fornecimento interno, aumente a pressão da refrigeração, no caso de fornecimento externo, ajuste o posicionamentodo jorro do refrigerante, esfrie ambos lados. • Compruebe el lubricante de refrigeración. En caso de suministro de refrigerante interno, aumente la presión del refrigerante. En caso de suministro de refrigerante externo, ajuste el posicionamiento del chorro de refrigerante. Enfríe desde ambos lados.
	• Wrong drill • Broca incorrecta • Broca incorrecta	• Check drill type, drilling depth, cooling system, and workpiece material. • Veja o tipo de broca, a profundidade do furo, o sistema de refrigeração e o material de trabalho. • Compruebe el tipo de broca, la profundidad de taladrado, el sistema de refrigeración y el material de trabajo.
	• Cutting conditions • Condições de corte • Condiciones de corte	• Check cutting parameters at exit. Reduce feed 15-20% prior to breakout. • Revise os parâmetros de corte de saída. Reduza o avanço em uns 15% a 20% antes da rotura. • Revise los parámetros de corte de la salida. Reduzca el avance en un 15-20% antes de la rotura.
Hole too big Furo demasiado grande Orificio demasiado grande	• Cutting conditions • Condições de corte • Condiciones de corte	• Check cutting values, increase cutting speed, or reduce feed. • Comprove os valores de corte, aumente a velocidade de corte e reduza o avanço. • Compruebe los valores de corte, aumente la velocidad de corte o reduzca el avance.
	• Clamping chuck • Sistema de amarre • Sistema amarre	• Check clamping accuracy and torque transmission. Use hydraulic clamping chuck or high-precision chucking system. • Comprove a precisão da fixação utilize uma pinça de fixação hidraulica ou um sistema de aperto de alta precisão. • Compruebe la precisión de la fijación y la transmisión de par. Utilice una pinza de fijación hidráulica o un sistema de amarre de alta precisión.
	• Wrong drill • Broca incorrecta • Broca incorrecta	• Check drill diameter. Please notice that drills are ground to a positive tolerance. Check concentric running. • Veja o diâmetro da broca. Assegure-se que as brocas estão ligadas a uma tolerância positiva. Comprove que o funcionamento é concêntrico. • Compruebe el diámetro de la broca. Asegúrese de que las brocas están conectadas a una tolerancia positiva. Compruebe el funcionamiento concéntrico.

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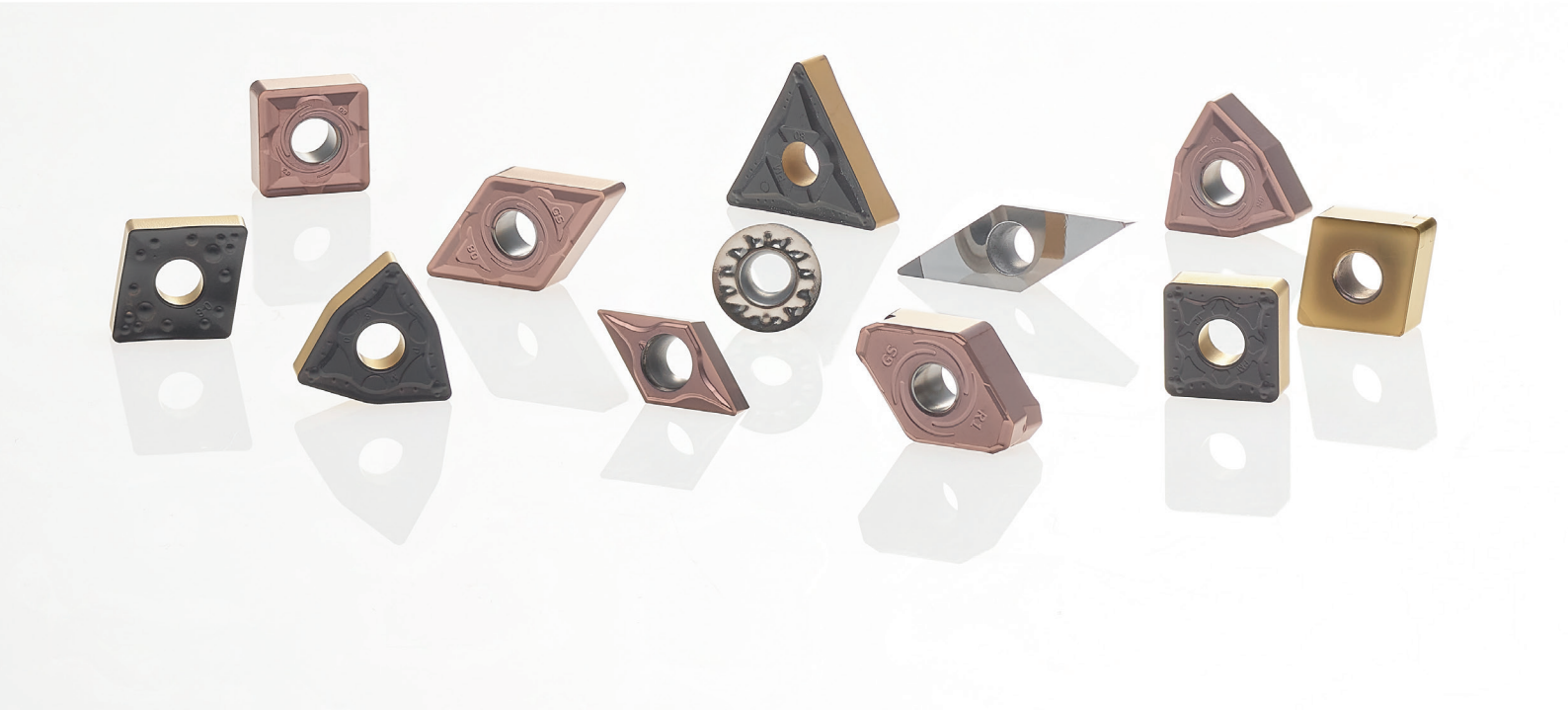
Problem | Problema	Cause | Causa | Fuente	Possible Solution | Solução | Solución
Hole too small **Furo demasiado pequeno** **Orificio demasiado pequeño**	• Insufficient coolant • Refrigeração insuficiente • Refrigerante insuficiente	• Check cooling lubricant. In the case of internal coolant supply, increase coolant pressure. In the case of external coolant supply, adjusting positioning of coolant jet. Cool from both sides. • Veja o lubrificante. No caso de fornecimento interno, aumente a pressão da refrigeração, no caso de fornecimento externo, ajuste o posicionamento do jorro do refrigerante, esfrie ambos lados. • Compruebe el lubricante de refrigeración. En caso de suministro de refrigerante interno, aumente la presión del refrigerante .En caso de suministro de refrigerante externo, ajuste el posicionamiento del chorro de refrigerante. Enfríe desde ambos lados.
	• Cutting conditions • Condições de corte • Condiciones de corte	• Reduce cutting speed; increase feed. • Reduza a velocidade de corte, aumente o avanço. • Reduzca la velocidad de corte, aumente el avance.
	• Wrong drill • Broca incorrecta • Broca incorrecta	• Check cutting-edge diameter. • Veja o diâmetro do fio de corte. • Compruebe el diámetro del filo de corte.
Hole not cylindrical Furo não está recto Orificio no es recto	• Clamping chuck • Sistema de amarre • Sistema amarre	• Check clamping accuracy and torque transmission. Use hydraulic clamping chuck or high-precision chucking system. • Veja a precisão da fixação e a transmição do par. Utilize uma pinça de fixação hidraulica ou um sistema de aperto de alta precisão. • Compruebe la precisión de la fijación y la transmisión de par. Utilice una pinza de fijación hidráulica o un sistema de amarre de alta precisión.
	• Workpiece movement • Movimento das peças de trabalho • Movimiento de piezas de trabajo	• Stabilize workpiece chucking and check stability of machine tool. • Estabilize a fixação da peça de trabalho e veja a estabilidade da maquina ferramenta. • Estabilice la fijación de la pieza de trabajo y compruebe la estabilidad de la máquina herramienta.
	• Wrong drill • Broca incorreta • Broca incorrecta	• Check drill type and drilling depth. Use longer drills • Veja o tipo de broca e a profundidade do furo. Utilize brocas mais largas. • Compruebe el tipo de broca y la profundidad de taladrado. Utilice brocas más largas.
	• Cutting conditions • Condições de corte • Condiciones de corte	• Reduce feed at entry. • Reduza o avanço de entrada. • Reduzca el avance de la entrada.
	• Clamping chuck • Sistema de amarre • Sistema amarre	• Check clamping accuracy and torque transmission.Use hydraulic clamping chuck or high-precision chucking system. • Veja a precisão da fixação e a transmição do par. Utilize uma pinça de fixação hidraulica ou um sistema de aperto de alta precisão. • Compruebe la precisión de la fijación y la transmisión de par. Utilice una pinza de fijación hidráulica o un sistema de amarre de alta precisión.
Drill Breakage Rotura da broca Rotura de broca	• Workpiece movement • Movimento das peças de trabalho • Movimiento de piezas de trabajo	• Stabilize workpiece chucking and check stability of machine tool. • Estabilize a fixação da peça de trabalho e veja a estabilidade da maquina ferramenta. • Estabilice la fijación de la pieza de trabajo y compruebe la estabilidad de la máquina herramienta.
	• Wrong drill • Broca incorreta • Broca incorrecta	• Check drill type, drilling depth, cooling system, and workpiece material. • Veja o tipo de broca, a profundidade do furo, o sistema de refrigeração e o material de trabalho. • Compruebe el tipo de broca, la profundidad de taladrado, el sistema de refrigeración y el material de trabajo.
	• Insufficient coolant • Refrigeração insuficiente • Refrigerante insuficiente	• Check cooling lubricant. In the case of internal coolant supply, increase coolant pressure. In the case of external coolant supply, adjusting positioning of coolant jet. Cool from both sides. • Veja o lubrificante. No caso de fornecimento interno, aumente a pressão da refrigeração, no caso de fornecimento externo, ajuste o posicionamento do jorro do refrigerante, esfrie ambos lados. • Compruebe el lubricante de refrigeración. En caso de suministro de refrigerante interno, aumente la presión del refrigerante .En caso de suministro de refrigerante externo, ajuste el posicionamiento del chorro de refrigerante. Enfríe desde ambos lados.
	• Cutting conditions • Condições de corte • Condiciones de corte	• Check cutting values, and possibly reduce feed. • Comprove os valores de corte, aumente a velocidade de corte e reduza o avanço. • Compruebe los valores de corte y a ser posible reduzca el avance.
	• Clamping chuck • Sistema de amarre • Sistema amarre	• Check torque transmission. Use hydraulic clamping chuck or high-precision chucking system. • Comprove a transmissão do par. Utilize uma pinça de fixação hidraulica ou um sistema de aperto de alta precisão. • Compruebe la transmisión de par. Utilice una pinza de fijación hidráulica o un sistema de amarre de alta precisión.
Splintering on the cutting corners Estilhamento das esquinas de corte Astillado en las esquinas de corte	• Workpiece movement • Movimento das peças de trabalho • Movimiento de piezas de trabajo	• Stabilize workpiece chucking and check stability of machine tool. • Estabilize a fixação da peça de trabalho e veja a estabilidade da maquina ferramenta. • Estabilice la fijación de la pieza de trabajo y compruebe la estabilidad de la máquina herramienta.
	• Wrong drill • Broca incorreta • Broca incorrecta	• Check drill type, drilling depth, cooling system, and workpiece material. Possibly, use longer drill. • Comprove o tipo de broca, a profundidade do furo, sistema de refrigeração e o material de trabalho. A ser possível utilize uma broca mais larga. • Compruebe el tipo de broca, la profundidad de taladrado, sistema de refrigeración y material de trabajo. A ser posible, utilice una broca más larga.
	• Insufficient coolant • Refrigeração insuficiente • Refrigerante insuficiente	• Check cooling lubricant. In the case of internal coolant supply, increase coolant pressure. In the case of external coolant supply, adjusting positioning of coolant jet. Cool from both sides. • Veja o lubrificante. No caso de fornecimento interno, aumente a pressão da refrigeração, no caso de fornecimento externo, ajuste o posicionamento do jorro do refrigerante, esfrie ambos lados. • Compruebe el lubricante de refrigeración. En caso de suministro de refrigerante interno, aumente la presión del refrigerante .En caso de suministro de refrigerante externo, ajuste el posicionamiento del chorro de refrigerante. Enfríe desde ambos lados.
	• Cutting conditions • Condições de corte • Condiciones de corte	• Check cutting values, and possibly reduce feed. • Comprove os valores de corte, aumente a velocidade de corte e reduza o avanço. • Compruebe los valores de corte y a ser posible reduzca el avance.



C

C - TURNING

C - 298 | News

C - 300 | ISO turning inserts code key

C - 302 | Insert selection

C - 310 | Inserts overview

TURNING



C - 314 | New DOMX®

C - 318 | Negative turning inserts

C - 356 | Positive turning inserts

C - 390 | PCBN inserts

C - 408 | PCD inserts

C - 427 | Heavy turning

C - 428 | Bar Peeling turning inserts

C - 434 | Railway turning inserts

C - 444 | Scarfing

C - 448 | Toolholders

C - 518 | Technical Data

PCD GRADE FOR MACHINING NON-FERROUS MATERIALS

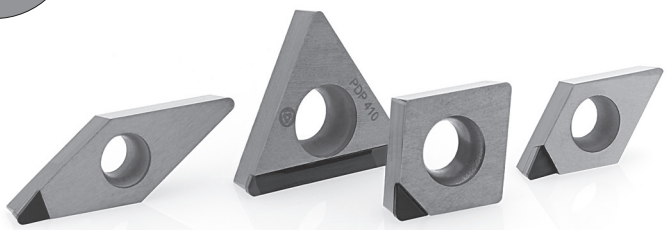
NEW

Grau PCD para maquinar materiais não-ferrosos | Calidad PCD para maquinar materiales no-ferrosos

LASER MACHINING TECHNOLOGY

- **High cutting edge quality**
- **Customized Chipbreaker according to our customers' needs**

DIATURN
PCD
RANGE



PDP410
<14% silicon aluminium alloy

Used in 90% of all applications in non-ferrous materials.
Ideal for aluminium alloys (Si ⩽ 12%), graphite and graphite composites

Extreme edge sharpness/retention achieving a fine surface finishing.

PDP403
>14% silicon aluminium alloy

Machining of Al/Si alloys with high Si content (Si ⩾ 12%)

Excellent abrasion resistance and good thermal stability.

PCBN GRADE FOR MACHINING HARDENED MATERIALS

NEW

Grau PCBN para maquinar materiais endurecidos | Calidad PCBN para maquinar materiales endurecidos



PBY603
H01 - H10

Machining of hardened materials in high continuous cut up to 656SFM cutting speed.

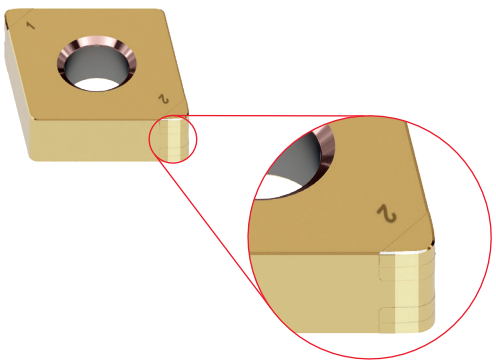
Can be used on high resistance alloys.
(New PVD coating for PCBN inserts with improved wear resistance.)

PBY620
H10 - H20

Machining of hardened materials in light to heavy interrupted cuts.

Enhanced crater and flank wear resistance with an excellent balance of toughness.

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.

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PHH NEW GRADE - THE CUTTING EDGE TECHNOLOGY FOR SUPERALLOYS TURNING

NEW

Novo grau PHH - A tecnologia de ponta para super-ligas em torneamento | Nueva calidad PHH - La tecnología de vanguardia para superaleaciones en torneado

A NEW TURN FOR STAINLESS STEEL AND HRSA TURNING

PHH
NEW
GRADE



PHH910 NEW
M05-M10
S05-S15

PHH920 NEW
M10-M25
S15-S30

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.

DOMX® - THE REVOLUTION IN HRSA MEDIUM TO ROUGH TURNING

NEW

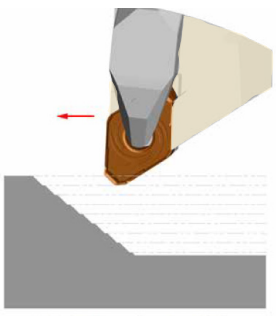
A revolução em torneamento de materiais termorresistentes | La revolución en el torneado de materiales exóticos

Designed especially for HRSA, the new DOMX® combined with the latest 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 insert**.

DOMX®



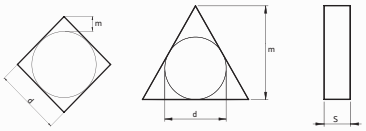


- Machine at 45º with a 93º holder;
- **Up to + 140% tool life improvement**.

ISO | ANSI TURNING INSERTS CODE KEY

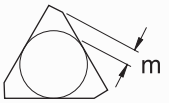
H	120°	M	86°
O	135°	V	35°
P	108°	W	80°
S	90°	L	90°
T	60°	A	85°
C	80°	B	82°
D	55°	K	55°
E	75°	R	
F	50°	X	Special

1 - Insert shape symbol



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

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



Triangular inserts with a facet (secondary cutting edge)

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

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

3 - Tolerances symbol

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

2 - Normal clearance symbol

ISO	T	N	M	G
ANSI	T	N	M	G

4 - Insert symbol

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

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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	11/4	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 - Chipbreaker geometries

NEGATIVE Chipbreakers

FLAT	MF	GS	SF	LC	MS
MR	PM	ST	MW	SS	HR
MA	RP	HY	HZ	GR	

POSITIVE Chipbreakers

FLAT	FP	BO	FM	FK	FW	LM	MP	MM
MK	MW	FS	LN	GS	ST	RF	RM	RR

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

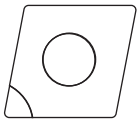
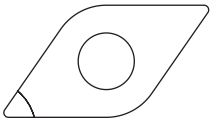
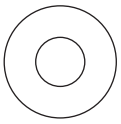
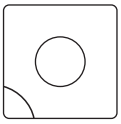
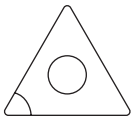
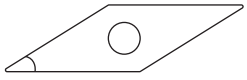
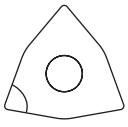
*only when required.

INSERTS RECOMMENDATION

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.

Insert Shape \ Operation	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

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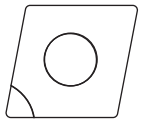
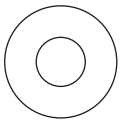
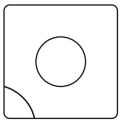
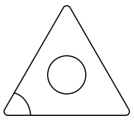
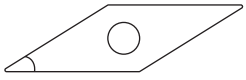
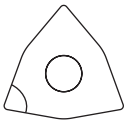
INTERNAL MACHINING | MAQUINAÇÃO INTERNA | MAQUINACIÓN INTERNA

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.

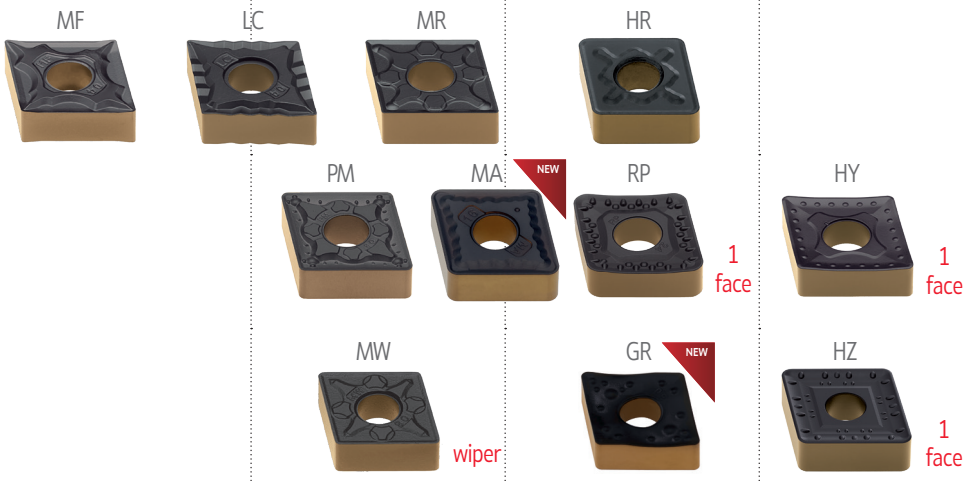
Insert Shape \ Operation	Longitudinal turning	Profiling	Facing
 Rhombic 80º	●		●●
 Rhombic 55º	●	●●	●
 Parallelogram 55º	●●		
 Round	●		●
 Square 90º	●		
 Triangular 60º	●●	●	●
 Rhombic 35º		●	
 Trigon 80º	●		●

●● Recomended Insert Shape ● Alternative Insert Shape

NEGATIVE TURNING Application Range Overview

P

Fine finishing	Finishing	Medium	Roughing	Heavy roughing
	MF, LC	MR, PM, MA NEW, MW wiper	HR, RP 1 face, GR NEW	HY 1 face, HZ 1 face



CVD Grades

PHG105	PHG115	PH5125	PHG125	PH5740	PHG140
P05-P10	P10-P25	P20-P35	P20-P35	P25-P45	P25-P45

PVD Grades

PH7910
P05-P10

Continuous cut ← → Interrupted cut

M

Fine finishing	Finishing	Medium	Roughing	Heavy roughing
	GS NEW, MS	SF	SS, RP 1 face	HY 1 face



CVD Grades

PHS215	PHS225	PHS240
M10-M25	M15-M30	M25-M45

PVD Grades

PH7910	PHH910 NEW	PH7920	PHH920 NEW
M05-M10	M05-M10	M10-M25	M10-M25

Continuous cut ← → Interrupted cut

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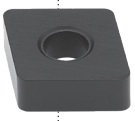
K

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				



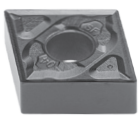
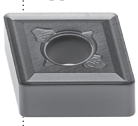

N

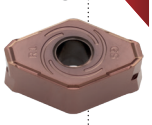
Fine finishing	Finishing	Medium	Roughing	Heavy roughing
		MS		
Uncoated Grades				
		PH0910 N01-N20		
Continuous cut ⟷ Interrupted cut				



S

Fine finishing	Finishing	Medium	Roughing	Heavy roughing
	GS NEW	SF	SS	
		MS		DOMX NEW
PVD Grades				
	PH7910 S05-S10	PHH910 NEW S10-S25	PH7920 S10-S25	PHH920 NEW S10-S25
Continuous cut ⟷ Interrupted cut				

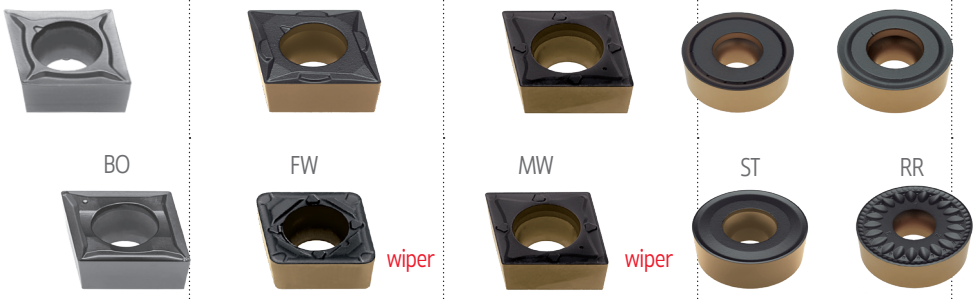


POSITIVE TURNING Application Range Overview

P

5° & 7°

Fine finishing	Finishing	Medium	Roughing	Heavy roughing
FS	FP	MP	RF, RM	
BO	FW wiper	MW wiper	ST, RR	



CVD Grades

Fine finishing	Finishing	Medium	Roughing	Heavy roughing
	PHG115 P10-P25	**PH5125** P20-P35	**PHG125** P20-P35	**PHG140** P25-P45, **PH5740** P25-P45

PVD Grades

Fine finishing	Finishing	Medium	Roughing	Heavy roughing
PH7910 P05-P10		**PH7920** P10-P35		

Continuous cut ⟷ Interrupted cut

P

11°

Fine finishing	Finishing	Medium	Roughing	Heavy roughing
	12	13	FLAT	



CVD Grades

Fine finishing	Finishing	Medium	Roughing	Heavy roughing
	PH5115 P05-P20	**PH5125** P20-P35	**PH5740** P25-P45	

Continuous cut ⟷ Interrupted cut

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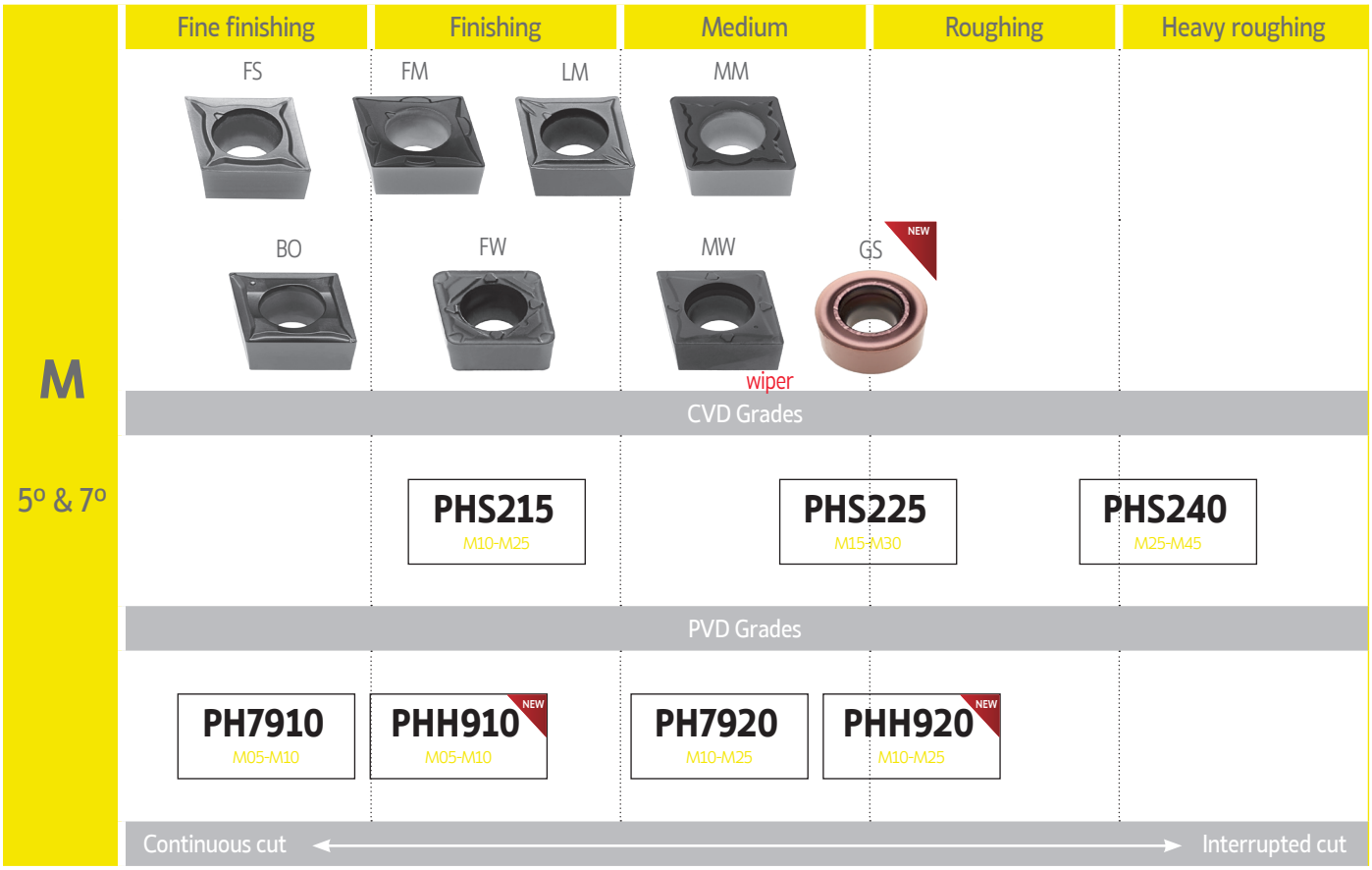
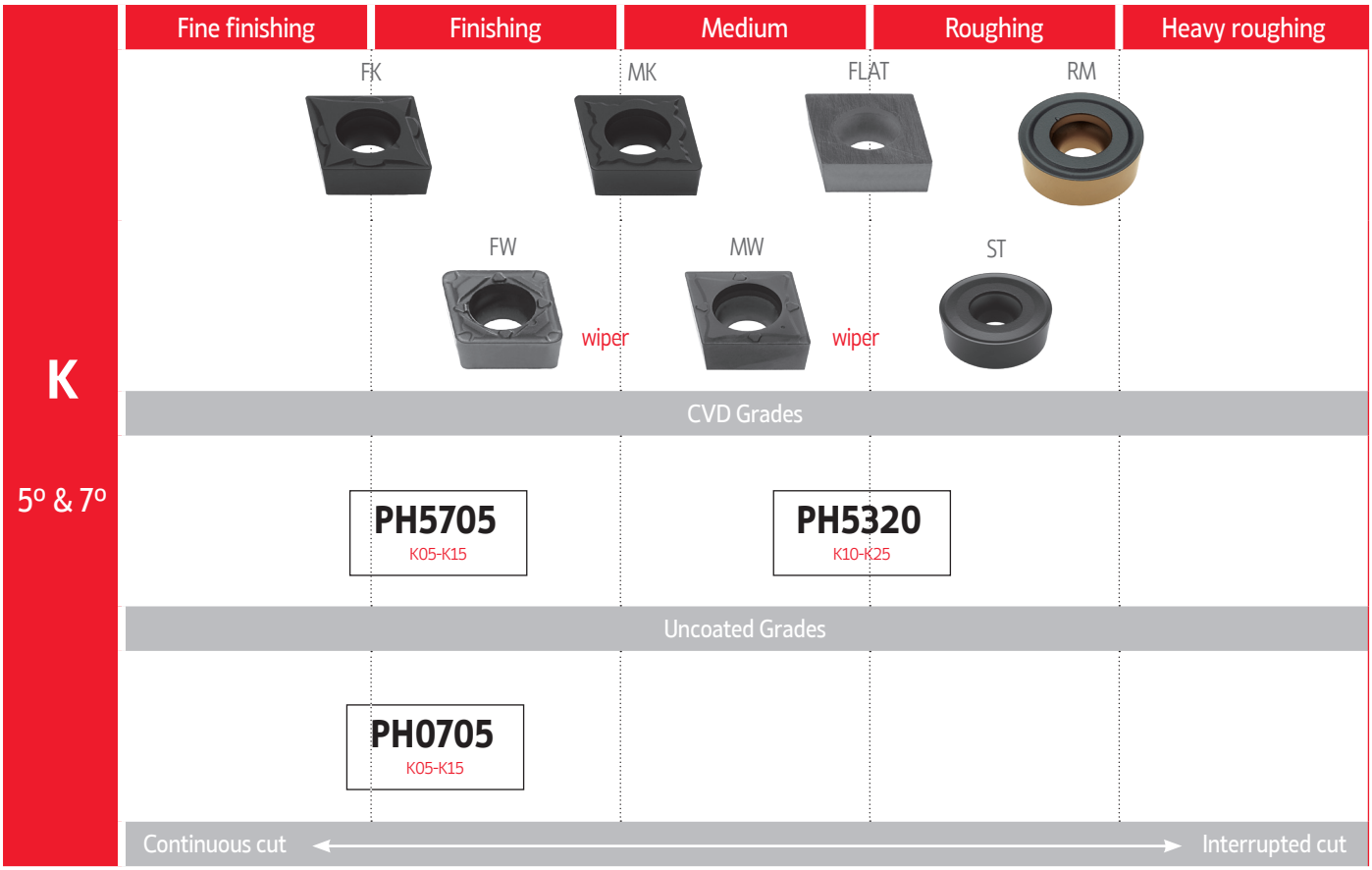
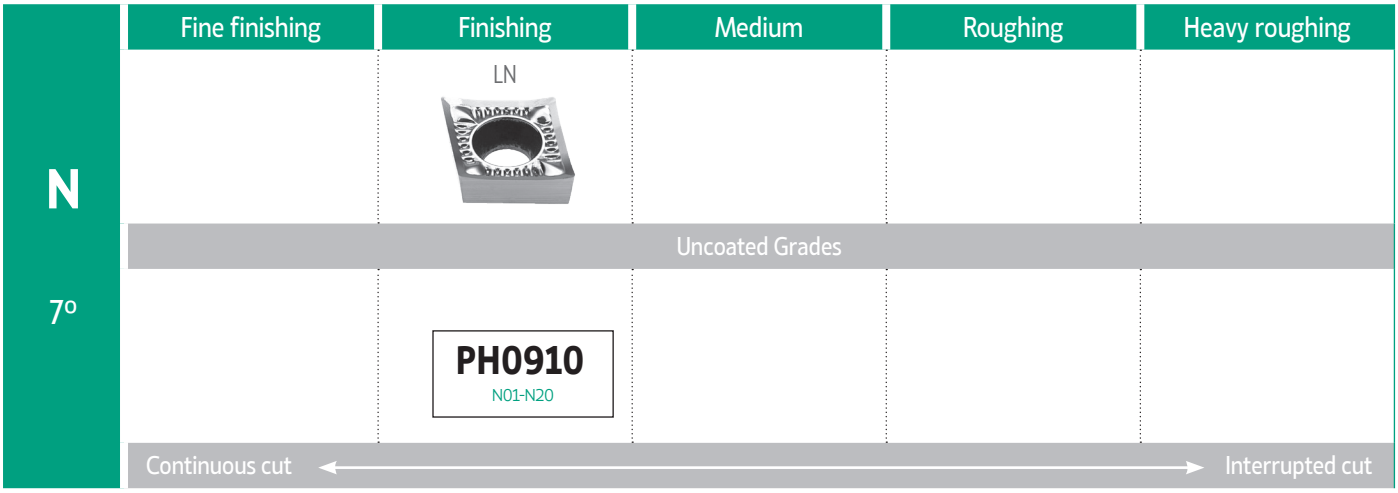
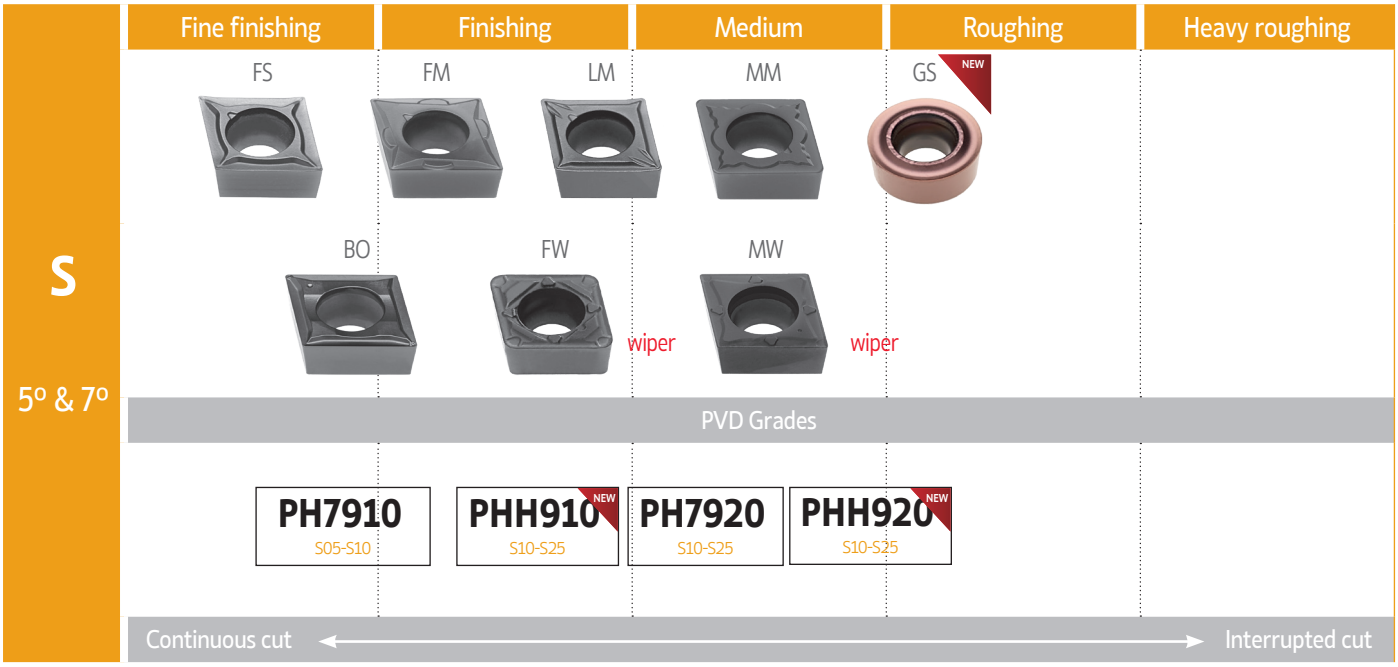

M
5º & 7º
Fine finishing
Finishing
Medium
Roughing
Heavy roughing
FS
FM
LM
MM
BO
FW
MW
GS
NEW
wiper
CVD Grades
PHS215
M10-M25
PHS225
M15-M30
PHS240
M25-M45
PVD Grades
PH7910
M05-M10
PHH910
NEW
M05-M10
PH7920
M10-M25
PHH920
NEW
M10-M25
Continuous cut
Interrupted cut


K
5º & 7º
Fine finishing
Finishing
Medium
Roughing
Heavy roughing
FK
MK
FLAT
RM
FW
wiper
MW
wiper
ST
CVD Grades
PH5705
K05-K15
PH5320
K10-K25
Uncoated Grades
PH0705
K05-K15
Continuous cut
Interrupted cut

POSITIVE TURNING

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





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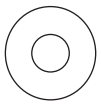
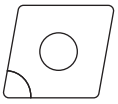
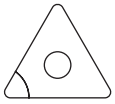
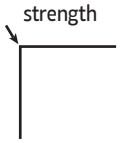
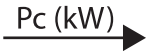
INSERT SHAPE SELECTION

Selecção de geometria para pastilha | Selección de geometria para plaquita

Shape angle		90º	80º	80º	60º	55º	35º
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.

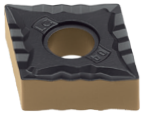
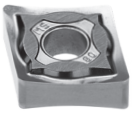
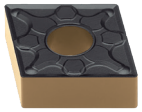
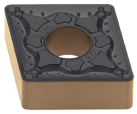
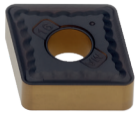
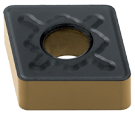
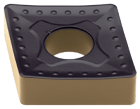
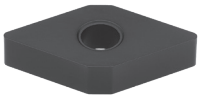
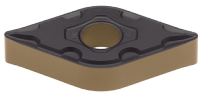
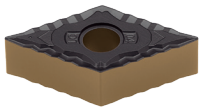
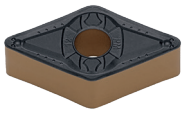
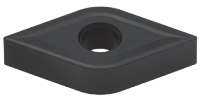
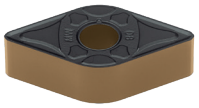
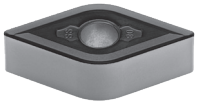
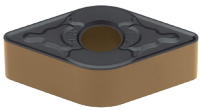
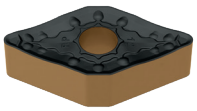
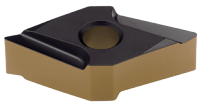
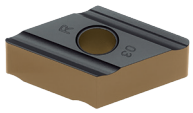
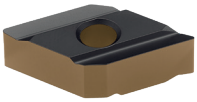
A large nose angle is strong, but requires more machine power and has a higher tendency for vibration.

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	CNMG-MF	CNMG-SF	CNMG-LC	CNMG-MS	NEW CNMG-GS
					
Roughing	Finishing	Medium to Finishing	Medium to Finishing	Medium	Medium
Page C - 318 Rhombic 80°	Page C - 318 Rhombic 80°	Page C - 318 Rhombic 80°	Page C - 318 Rhombic 80°	Page C - 318 Rhombic 80°	Page C - 318 Rhombic 80°
CNMG-MR	CNMG-PM	CNMG-ST	CNMG-MW	CNMG-SS	NEW CNMG-MA
					
Medium	Medium	Medium	Medium wiper	Roughing to Medium	Medium to Roughing
Page C - 320 Rhombic 80°	Page C - 320 Rhombic 80°	Page C - 320 Rhombic 80°	Page C - 320 Rhombic 80°	Page C - 322 Rhombic 80°	Page C - 322 Rhombic 80°
CNMG-HR	CNMM-RP	NEW CNMM-GR	CNMM-HY	CNMM-HZ	
					
Roughing	Roughing	Roughing	Heavy to Roughing	Heavy to Roughing	
Page C - 322 Rhombic 80°	Page C - 324 Rhombic 80°	Page C - 324 Rhombic 80°	Page C - 324 Rhombic 80°	Page C - 324 Rhombic 80°	
DNMA	DNMG-MF	DNMG-SF	DNMG-LC	DNMG-MS	NEW DNMG-GS
					
Roughing	Finishing	Medium to Finishing	Medium to Finishing	Medium	Medium
Page C - 326 Rhombic 55°	Page C - 326 Rhombic 55°	Page C - 326 Rhombic 55°	Page C - 326 Rhombic 55°	Page C - 328 Rhombic 55°	Page C - 328 Rhombic 55°
DNMG-MR	DNMG-PM	DNMG-ST	DNMG-MW	DNMG-SS	DNMG-HR
					
Medium	Medium	Medium	Medium wiper	Roughing to Medium	Roughing
Page C - 328 Rhombic 55°	Page C - 328 Rhombic 55°	Page C - 330 Rhombic 55°	Page C - 330 Rhombic 55°	Page C - 330 Rhombic 55°	Page C - 330 Rhombic 55°
DNMM-RP	DNMX-02	DNMX-03	DNMX-01		
					
Roughing	Medium to Finishing	Medium	Roughing to Medium		
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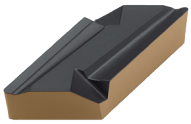
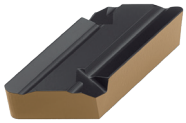
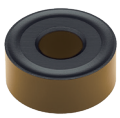
KNUX-01	KNUX-02				
					
Finishing	Medium				
Page C - 334 Parallelogram 55°	Page C - 334 Parallelogram 55°				
RNMG-ST					
					
Medium					
Page C - 336 Round R°					

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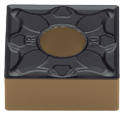
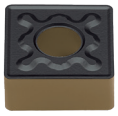
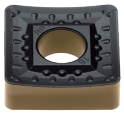
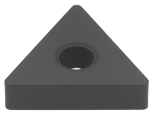
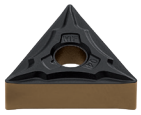
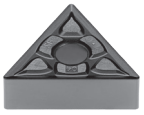
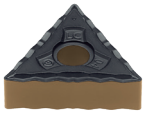
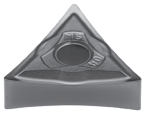
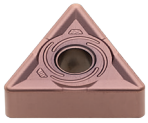
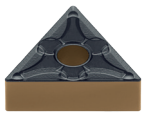
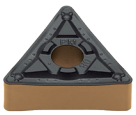
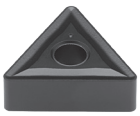
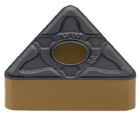
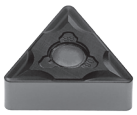
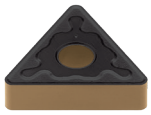
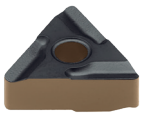
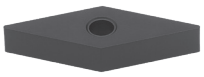
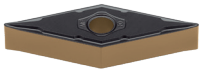
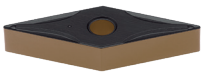
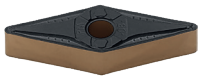
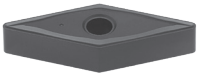
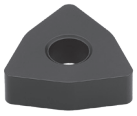
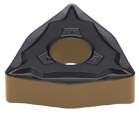
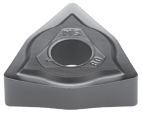
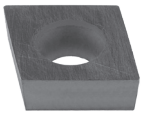
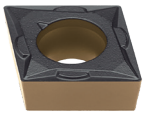
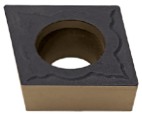
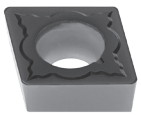
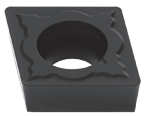
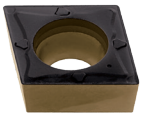
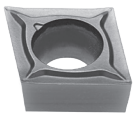
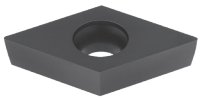
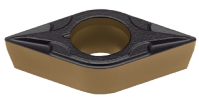
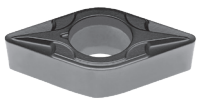
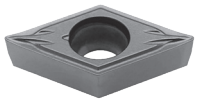
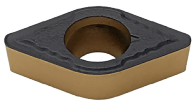
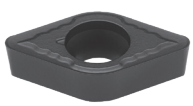
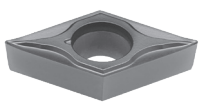
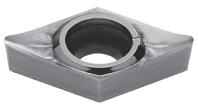
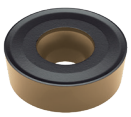
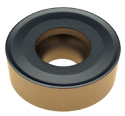
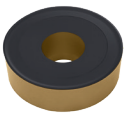
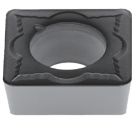
SNMA	SNMG-MF	SNMG-SF	SNMG-GS NEW	SNMG-MR	SNMG-PM
					
Roughing	Finishing	Medium to Finishing	Medium	Medium	Medium
Page C - 338 Square 90°	Page C - 338 Square 90°	Page C - 338 Square 90°	Page C - 338 Square 90°	Page C - 338 Square 90°	Page C - 338 Square 90°
SNMG-ST	SNMG-SS	SNMG-HR	SNMM-RP	SNMM-HY	SNMM-HZ
					
Medium	Roughing to Medium	Roughing	Roughing	Heavy to Roughing	Heavy to Roughing
Page C - 340 Square 90°	Page C - 340 Square 90°	Page C - 340 Square 90°	Page C - 342 Square 90°	Page C - 342 Square 90°	Page C - 342 Square 90°
TNMA	TNMG-MF	TNMG-SF	TNMG-LC	TNMG-MS	TNMG-GS NEW
					
Roughing	Finishing	Medium to Finishing	Medium to Finishing	Medium	Medium
Page C - 344 Triangular 60°	Page C - 344 Triangular 60°	Page C - 344 Triangular 60°	Page C - 344 Triangular 60°	Page C - 344 Triangular 60°	Page C - 344 Triangular 60°
TNMG-MR	TNMG-PM	TNMG-ST	TNMG-MW	TNMG-SS	TNMG-HR
					
Medium	Medium	Medium	Medium wiper	Roughing to Medium	Roughing
Page C - 346 Triangular 60°	Page C - 346 Triangular 60°	Page C - 346 Triangular 60°	Page C - 348 Triangular 60°	Page C - 348 Triangular 60°	Page C - 348 Triangular 60°
TNMX-01		VNMA	VNMG-MF	VNMG-SF	VNMG-LC
					
Medium to Finishing		Roughing	Finishing	Medium to Finishing	Medium to Finishing
Page C - 348 Triangular 60°		Page C - 350 Rhombic 35°	Page C - 350 Rhombic 35°	Page C - 350 Rhombic 35°	Page C - 350 Rhombic 35°
VNMG-MS	VNMG-GS NEW	VNMG-MR	VNMG-PM	VNMG-ST	VNMG-SS
					
Medium	Medium	Medium	Medium	Medium	Roughing to Medium
Page C - 350 Rhombic 35°	Page C - 350 Rhombic 35°	Page C - 350 Rhombic 35°	Page C - 350 Rhombic 35°	Page C - 350 Rhombic 35°	Page C - 350 Rhombic 35°
WNMA	WNMG-MF	WNMG-SF	WNMG-LC	WNMG-MS	WNMG-GS NEW
					
Roughing	Finishing	Medium to Finishing	Medium to Finishing	Medium	Medium
Page C - 352 Trigon 80°	Page C - 352 Trigon 80°	Page C - 352 Trigon 80°	Page C - 352 Trigon 80°	Page C - 352 Trigon 80°	Page C - 352 Trigon 80°
WNMG-MR	WNMG-PM	WNMG-ST	WNMG-MW	WNMG-SS	WNMG-HR
Medium	Medium	Medium	Medium wiper	Roughing to Medium	Roughing
Page C - 354 Trigon 80°	Page C - 354 Trigon 80°	Page C - 354 Trigon 80°	Page C - 354 Trigon 80°	Page C - 354 Trigon 80°	Page C - 354 Trigon 80°

POSITIVE TURNING INSERTS OVERVIEW

CCMW  Finishing Page C - 356 Rhombic 80°	CCMT-FP  Finishing Page C - 356 Rhombic 80°	CCMT-BO  Finishing Page C - 356 Rhombic 80°	CCMT-FM  Finishing Page C - 356 Rhombic 80°	CCMT-FK  Finishing Page C - 356 Rhombic 80°	CCMT-FW  Finishing wiper Page C - 358 Rhombic 80°
CCMT-LM  Medium to Finishing Page C - 358 Rhombic 80°	CCMT-MP  Medium Page C - 358 Rhombic 80°	CCMT-MM  Medium Page C - 358 Rhombic 80°	CCMT-MK  Medium Page C - 358 Rhombic 80°	CCMT-MW  Medium to Finishing wiper Page C - 358 Rhombic 80°	
CCGT-FS  Finishing to Fine finishing Page C - 360 Rhombic 80°	CCGT-LN  Medium to Finishing Page C - 360 Rhombic 80°				
DCMW  Finishing Page C - 362 Rhombic 55°	DCMT-FP  Finishing Page C - 362 Rhombic 55°	DCMT-FM  Finishing Page C - 362 Rhombic 55°	DCMT-FK  Finishing Page C - 362 Rhombic 55°	DCMT-FW  Finishing wiper Page C - 362 Rhombic 55°	DCMT-LM  Medium to Finishing Page C - 362 Rhombic 55°
DCMT-MP  Medium Page C - 362 Rhombic 55°	DCMT-MM  Medium Page C - 364 Rhombic 55°	DCMT-MK  Medium Page C - 364 Rhombic 55°	DCMT-MW  Medium to Finishing wiper Page C - 364 Rhombic 55°	DCGT-FS  Finishing to Fine finishing Page C - 364 Rhombic 55°	DCGT-LN  Medium to Finishing Page C - 364 Rhombic 55°
RCMT-GS NEW  Medium Page C - 366 Round R°	RCMT-CP  Medium Page C - 366 Round R°	RCMT-ST  Roughing to Medium Page C - 366 Round R°	RCMT-RF  Roughing to Medium Page C - 366 Round R°	RCMT-RM  Roughing to Medium Page C - 366 Round R°	
RCMX-ST  Roughing to Medium Page C - 366 Round R°	RCMX-RM  Roughing to Medium Page C - 366 Round R°	RCMX-RR  Roughing to Medium Page C - 366 Round R°		RCGT-LN  Finishing to Fine finishing Page C - 368 Round R°	
SCMW  Finishing Page C - 370 Square 90°	SCMT-FP  Finishing Page C - 370 Square 90°	SCMT-FM  Finishing Page C - 370 Square 90°	SCMT-FK  Finishing Page C - 370 Square 90°	SCMT-MP  Medium Page C - 370 Square 90°	SCMT-MM  Medium Page C - 370 Square 90°

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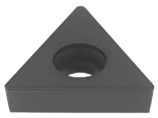
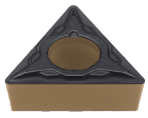
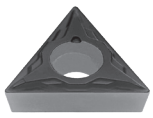
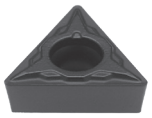
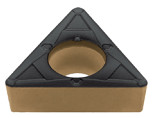
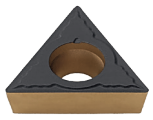
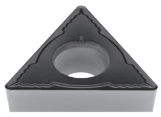
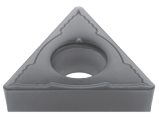
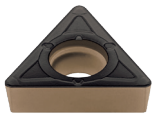
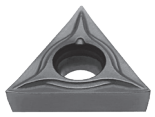
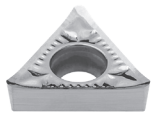
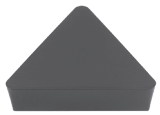
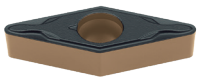
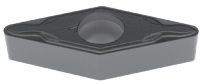
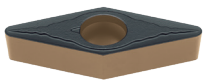
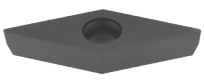
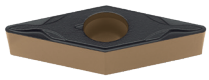
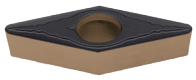
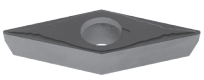
SCMT-MK  Medium Page C - 370 Square 90°	SCGT-LN  Medium to Finishing Page C - 370 Square 90°		SPUN  Medium to Finishing Page C - 372 Square 90°	SPMR-12  Finishing to Fine finishing Page C - 372 Square 90°	SPMR-13  Medium Page C - 372 Square 90°
TCMW  Finishing Page C - 374 Triangular 60°	TCMT-FP  Finishing Page C - 374 Triangular 60°	TCMT-FM  Finishing Page C - 374 Triangular 60°	TCMT-FK  Finishing Page C - 376 Triangular 60°	TCMT-FW  Finishing wiper Page C - 376 Triangular 60°	TCMT-MP  Medium Page C - 376 Triangular 60°
TCMT-MM  Medium Page C - 378 Triangular 60°	TCMT-MK  Medium Page C - 378 Triangular 60°	TCMT-MW  Medium to Finishing wiper Page C - 378 Triangular 60°		TCGT-FS  Finishing to Fine finishing Page C - 380 Triangular 60°	TCGT-LN  Medium to Finishing Page C - 380 Triangular 60°
TPUN  Medium to Finishing Page C - 382 Triangular 60°	TPMR-12  Finishing to Fine finishing Page C - 382 Triangular 60°	TPMR-13  Medium Page C - 382 Triangular 60°			
VBMW  Finishing Page C - 384 Rhombic 35°	VBMT-FP  Finishing Page C - 384 Rhombic 35°	VBMT-FM  Finishing Page C - 384 Rhombic 35°	VBMT-FK  Finishing Page C - 384 Rhombic 35°	VBMT-MP  Medium Page C - 384 Rhombic 35°	VBMT-MM  Medium Page C - 384 Rhombic 35°
VBMT-MK  Medium Page C - 384 Rhombic 35°					
VCMW  Finishing Page C - 386 Rhombic 35°	VCMT-FP  Finishing Page C - 386 Rhombic 35°	VCMT-FM  Finishing Page C - 386 Rhombic 35°	VCMT-FK  Finishing Page C - 386 Rhombic 35°	VCMT-MP  Medium Page C - 386 Rhombic 35°	VCMT-MM  Medium Page C - 386 Rhombic 35°
VCMT-MK  Medium Page C - 386 Rhombic 35°		VCGT-FS  Finishing to Fine finishing Page C - 388 Rhombic 35°	VCGT-LN  Medium to Finishing Page C - 388 Rhombic 35°		

DOMX® - THE REVOLUTION IN HRSA MEDIUM TO ROUGH TURNING

NEW

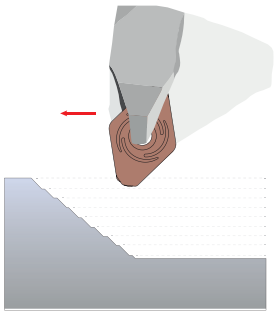
A revolução em torneamento de materiais termorresistentes | La revolución en el torneado de materiales exóticos

Designed especially for HRSA, the new DOMX® combined with the latest 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®

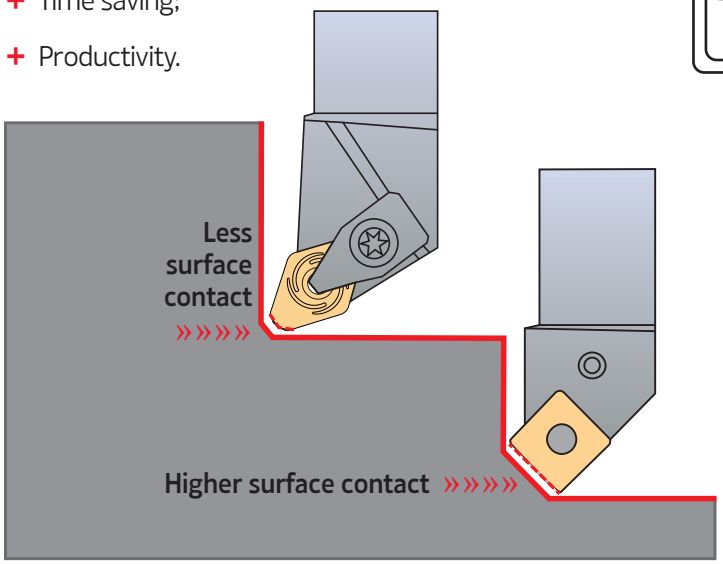




- Machine at 45º with a 93º holder;
- **Up to + 140% tool life improvement.**

DOMX VS SNMG

- Surface contact;
- Heating;
- Vibration;
- Cutting effort;
- + Time saving;
- + Productivity.



COMERCIAL VIDEO

VIDEO

TECHNICAL VIDEO

VIDEO

APPLICATION GUIDE

PDF

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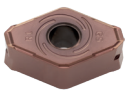
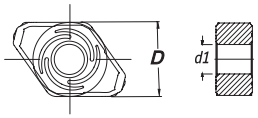
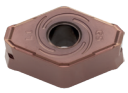
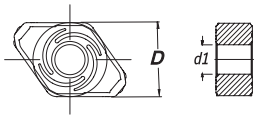
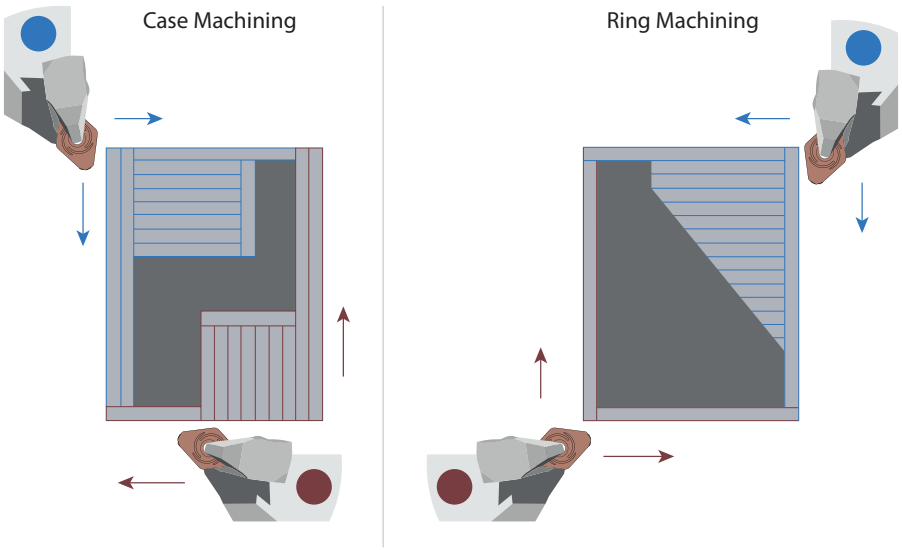
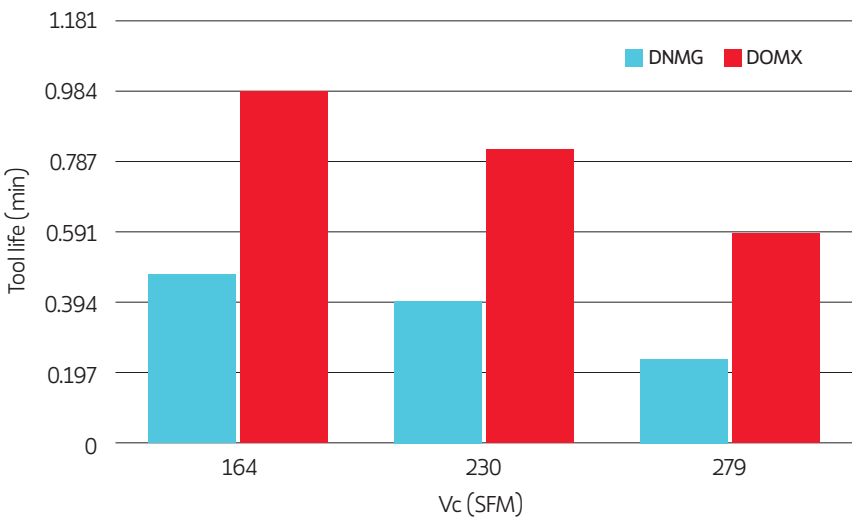
Inserts Pastilhas Plaquitas	(1) Geometry code	(2) Grade code ISO | ANSI Reference	S PVD X6 PHH910	S PVD Y3 PHH920	Dimensions (in) Dimensões (in) Dimensiones (in) D	S	Re	d1	Cutting Conditions Condições de Corte Condiciones de Corte ap (in)	Min	Max	fn (in/rev)	Min	Max	Technical drawing Desenho técnico Dibujo técnico
DOMX-GS 	1124595	DOMX 1506R1-GS	●	◎	1/2	1/4	0.031	0.203	0.059	0.008	0.079	0.012	0.008	0.020	
DOMX-GS 	1124493	DOMX 1506L1-GS	●	◎	1/2	1/4	0.031	0.203	0.059	0.008	0.079	0.012	0.008	0.020	

● First choice | 1ª Escolha | 1ª Opción ◎ Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

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

This new insert (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 0.059 in, fn 0.006 in/r

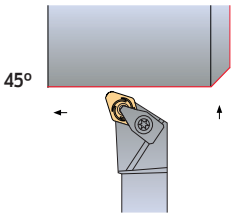
A = DDJN-BAN-DX1 45° | TOOLHOLDERS

Proprietary turning line

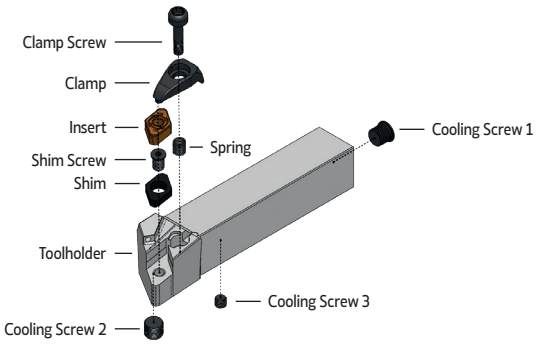
NEW

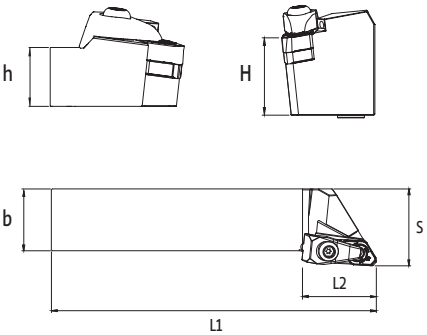
(D) DIMPLE LOCK TOOLHOLDERS

Roughing to Heavy Roughing	Roughing to Heavy Roughing
DOMX (L1)	DOMX (R1)
	
(15)	(15)



Axial: -6,25°
Radial: -6,75°





Order Code		Reference	Dimensions (in)					Insert	lbs	Stock	
R	L		H=h	b	L1	L2	S			R	L
182020400	182020700	DDJN R/L 124 BAN-DX1	0.750	0.750	4.500	1.535	1.000	DOMX 1506..	0.88	◎	◎
182020500	182020800	DDJN R/L 164 DAN-DX1	1.000	1.000	6.000	1.535	1.250	DOMX 1506..	1.54	◎	◎
182020600	182020900	DDJN R/L 204 DAN-DX1	1.250	1.250	6.000	1.535	1.500	DOMX 1506..	2.76	◎	◎

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

A = DDJN-DX1 45° | TOOLHOLDERS

METRIC LINE

Order Code		Reference	Dimensions (mm)					Insert	Kg	Stock	
R	L		H=h	b	L1	L2	S			R	L
182000900	182001200	DDJN R/L 2020 K15-A-DX1	20	20	125	42	25	DOMX 1506..	0,40	◎	◎
182001000	182001300	DDJN R/L 2525 M15-A-DX1	25	25	150	42	32	DOMX 1506..	0,75	◎	◎
182001100	182001400	DDJN R/L 3232 P15-A-DX1	32	32	170	42	40	DOMX 1506..	1,30	◎	◎

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

SPARE PARTS | Complementos | 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	-
Spare Part Order Code	116021723	116021623	290082400	290054100	290082100	290082900	290021200	290085800	290085900	290086000

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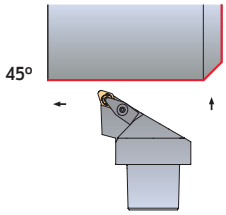
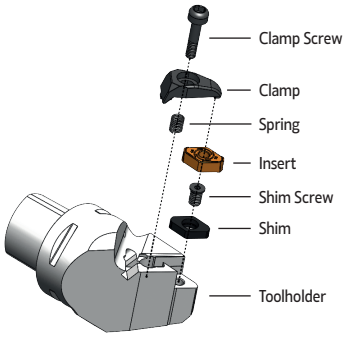
(D) DIMPLE LOCK TOOLHOLDERS

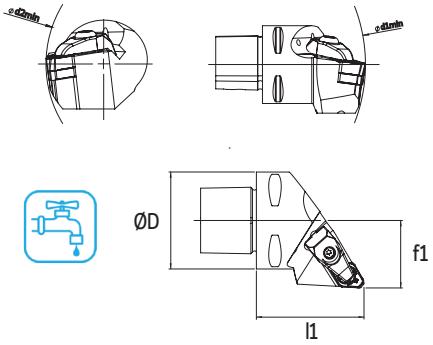
Roughing to Heavy Roughing	Roughing to Heavy Roughing
DOMX (L1)	DOMX (R1)
	
(15)	(15)

METRIC LINE



Axial: -6°
Radial: -7°





Order Code		Reference	Dimensions (mm)					Insert	Kg	Stock	
R	L		ØD	Ød1 min	Ød2 min	f1	l1			R	L
182000100	182000500	PSC40-DDJNR/L27055-15-DX1	40	110	145	27	55	DOMX 1506..	0,42	●	●
182000200	182000600	PSC50-DDJNR/L35060-15-DX1	50	110	165	35	60	DOMX 1506..	0,80	●	●
182000300	182000700	PSC63-DDJNR/L45065-15-DX1	63	110	190	45	65	DOMX 1506..	1,10	●	●
182000400	182000800	PSC80-DDJNR/L55080-15-DX1	80	110	250	55	80	DOMX 1506..	2,74	●	●

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

SPARE PARTS | Complementos | 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
Spare Part Order Code	116021723	116021623	290082400	290054100	290082100	290082900	290021200

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	R3	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	ANSI Reference	PHG105	PHG115	PHG125	PHG135	PHG140	PH7910	PHS215	PHS225	PHS240	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
CNMA	1120219	CNMA 431															●	●						
	1120220	CNMA 432															●	●						
	1120221	CNMA 433															●	●						
Roughing	1120223	CNMA 434															●	●						
	1120224	CNMA 542															●	●						
	1120225	CNMA 543															●	●						
	1121470	CNMA 544															●	●						
	1120226	CNMA 643															●	●						
	1120227	CNMA 644															●	●	◇					
	1121471	CNMA 646																●						
CNMG-MF	1121472	CNMG 321-MF		●	●																			
	1121318	CNMG 322-MF		●	●																			
	1121320	CNMG 32.51-MF		●																				
Finishing	1121317	CNMG 32.52-MF		●																				
	1121478	CNMG 431-MF	●	●	●			◇																
	1121480	CNMG 432-MF		●	●			◇																
	1121482	CNMG 433-MF		●	●																			
CNMG-SF	1123747	CNMG 431-SF							●	●		◇	●	●	●						◇	●	◇	●
	1123717	CNMG 432-SF							●	●		◇	●	●	●						◇	●	◇	●
Medium to Finishing	1123748	CNMG 433-SF							●	●		◇	●	●	●						◇	●	◇	●
CNMG-LC	1122024	CNMG 431-LC		●	●																			
	1122021	CNMG 432-LC	●	●	●																			
Medium to Finishing	1124029	CNMG 433-LC		●	●																			
CNMG-MS	1121479	CNMG 431-MS											●	◇	●					●		●	◇	●
	1121481	CNMG 432-MS											●	◇	●					●		●	◇	●
	1121483	CNMG 433-MS											●	◇	●					●		●	◇	●
Medium to Finishing	1121486	CNMG 434-MS												◇	○					○			◇	○
NEW CNMG-GS	1124514	CNMG 431-GS											●		●							●		●
	1124502	CNMG 432-GS											●		●							●		●
Medium to Finishing	1124515	CNMG 433-GS											●		●							●		●

● 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 | Disponível sob consulta | Disponible bajo consulta

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

Technical Data page C - 518

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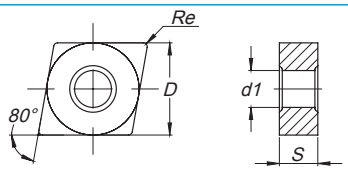

ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)				Cutting Conditions Condições de Corte Condiciones de Corte					
		D	S	Re	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
CNMA 431	CNMA 120404	1/2	3/16	1/64	0.203	0.098	0.008	0.197	0.008	0.004	0.012
CNMA 432	CNMA 120408	1/2	3/16	1/32	0.203	0.157	0.008	0.315	0.014	0.006	0.024
CNMA 433	CNMA 120412	1/2	3/16	3/64	0.203	0.157	0.012	0.315	0.018	0.008	0.031
CNMA 434	CNMA 120416	1/2	3/16	1/16	0.203	0.157	0.012	0.315	0.022	0.008	0.039
CNMA 542	CNMA 160608	5/8	1/4	1/32	0.250	0.197	0.012	0.394	0.018	0.008	0.031
CNMA 543	CNMA 160612	5/8	1/4	3/64	0.250	0.197	0.012	0.394	0.018	0.008	0.031
CNMA 544	CNMA 160616	5/8	1/4	1/16	0.250	0.197	0.012	0.394	0.022	0.008	0.039
CNMA 643	CNMA 190612	3/4	1/4	3/64	0.313	0.236	0.012	0.472	0.018	0.008	0.031
CNMA 644	CNMA 190616	3/4	1/4	1/16	0.313	0.236	0.012	0.472	0.022	0.008	0.039
CNMA 646	CNMA 190624	3/4	1/4	1/32	0.313	0.236	0.016	0.472	0.024	0.008	0.055
CNMG 321-MF	CNMG 090304-MF	3/8	1/8	1/64	0.150	0.020	0.004	0.059	0.006	0.002	0.010
CNMG 322-MF	CNMG 090308-MF	3/8	1/8	1/32	0.150	0.022	0.004	0.059	0.008	0.004	0.016
CNMG 32.51-MF	CNMG 09T304-MF	3/8	5/32	1/64	0.150	0.020	0.004	0.059	0.006	0.002	0.010
CNMG 32.52-MF	CNMG 09T308-MF	3/8	5/32	1/32	0.150	0.022	0.004	0.059	0.008	0.004	0.016
CNMG 431-MF	CNMG 120404-MF	1/2	3/16	1/64	0.203	0.031	0.008	0.059	0.006	0.002	0.010
CNMG 432-MF	CNMG 120408-MF	1/2	3/16	1/32	0.203	0.039	0.010	0.059	0.008	0.004	0.016
CNMG 433-MF	CNMG 120412-MF	1/2	3/16	3/64	0.203	0.049	0.020	0.098	0.010	0.006	0.020
CNMG 431-SF	CNMG 120404-SF	1/2	3/16	1/64	0.203	0.059	0.024	0.118	0.006	0.004	0.009
CNMG 432-SF	CNMG 120408-SF	1/2	3/16	1/32	0.203	0.059	0.024	0.118	0.010	0.005	0.015
CNMG 433-SF	CNMG 120412-SF	1/2	3/16	3/64	0.203	0.059	0.024	0.118	0.014	0.006	0.022
CNMG 431-LC	CNMG 120404-LC	1/2	3/16	1/64	0.203	0.039	0.016	0.098	0.004	0.003	0.012
CNMG 432-LC	CNMG 120408-LC	1/2	3/16	1/32	0.203	0.059	0.016	0.098	0.006	0.004	0.016
CNMG 433-LC	CNMG 120412-LC	1/2	3/16	3/64	0.203	0.059	0.016	0.098	0.008	0.006	0.016
CNMG 431-MS	CNMG 120404-MS	1/2	3/16	1/64	0.203	0.059	0.008	0.142	0.006	0.004	0.008
CNMG 432-MS	CNMG 120408-MS	1/2	3/16	1/32	0.203	0.079	0.012	0.142	0.010	0.004	0.016
CNMG 433-MS	CNMG 120412-MS	1/2	3/16	3/64	0.203	0.094	0.016	0.142	0.012	0.006	0.024
CNMG 434-MS	CNMG 120416-MS	1/2	3/16	1/16	0.203	0.094	0.016	0.142	0.016	0.006	0.031
CNMG 431-GS	CNMG 120404-GS	1/2	3/16	1/64	0.203	0.059	0.006	0.098	0.008	0.004	0.012
CNMG 432-GS	CNMG 120408-GS	1/2	3/16	1/32	0.203	0.079	0.008	0.118	0.010	0.004	0.014
CNMG 433-GS	CNMG 120412-GS	1/2	3/16	3/64	0.203	0.098	0.012	0.157	0.012	0.004	0.018

Technical Data
page C - 518

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	R3	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	ANSI Reference	PHG105	PHG115	PHG125	PHG135	PHG140	PH7910	PHS215	PHS225	PHS240	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
CNMG-MR	1121473	CNMG 321-MR		○	◈																			
	1121293	CNMG 322-MR		○	◈																			
	1121180	CNMG 431-MR		◈	◈		◈																	
	1121174	CNMG 432-MR		◈	◈		◈																	
	1121198	CNMG 433-MR		○	◈		◈																	
	1121485	CNMG 434-MR		○	○																			
	1121239	CNMG 542-MR		◈	◈		◈																	
	1121355	CNMG 543-MR		◈	◈		◈																	
	1121490	CNMG 544-MR		◈	○																			
	1121302	CNMG 643-MR		◈	◈		◈																	
	1121301	CNMG 644-MR		◈	◈																			
CNMG-PM	1123919	CNMG 431-PM	◈	◈	◈																			
	1123790	CNMG 432-PM	◈	◈	◈																			
	1123920	CNMG 433-PM	◈	◈	◈																			
	1123921	CNMG 434-PM		◈	◈																			
CNMG-ST	1121344	CNMG 431-ST															◈	◈						
	1121165	CNMG 432-ST															◈	◈						
	1121166	CNMG 433-ST															◈	◈						
	1121488	CNMG 434-ST															◈	◈						
	1121335	CNMG 542-ST															◈	◈						
	1121303	CNMG 543-ST															◈	◈						
	1121491	CNMG 544-ST															◈	◈						
	1121336	CNMG 643-ST															◈	◈						
	1121345	CNMG 644-ST															◈	◈						
CNMG-MW	1121339	CNMG 432-MW		◈	◈													◈	◈					
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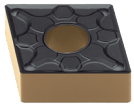
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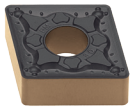
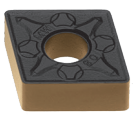

Medium


Medium


Medium Wiper

◈ First choice | 1ª Escolha | 1ª Opción

◈ Stock Itens | Itens de stock

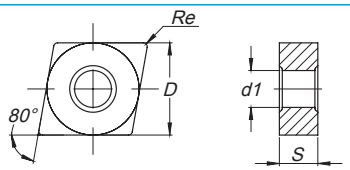
◈ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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

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

Technical Data page C - 518

palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

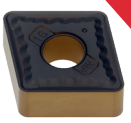
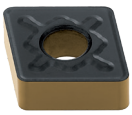


ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)				Cutting Conditions Condições de Corte Condiciones de Corte					
		D	S	Re	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
CNMG 321-MR	CNMG 090304-MR	3/8	1/8	1/64	0.150	0.079	0.016	0.157	0.008	0.004	0.012
CNMG 322-MR	CNMG 090308-MR	3/8	1/8	1/32	0.150	0.079	0.020	0.157	0.012	0.006	0.020
CNMG 431-MR	CNMG 120404-MR	1/2	3/16	1/64	0.203	0.118	0.016	0.217	0.008	0.004	0.012
CNMG 432-MR	CNMG 120408-MR	1/2	3/16	1/32	0.203	0.118	0.020	0.217	0.012	0.006	0.020
CNMG 433-MR	CNMG 120412-MR	1/2	3/16	3/64	0.203	0.118	0.031	0.217	0.014	0.007	0.024
CNMG 434-MR	CNMG 120416-MR	1/2	3/16	1/16	0.203	0.118	0.039	0.217	0.016	0.009	0.026
CNMG 542-MR	CNMG 160608-MR	5/8	1/4	1/32	0.250	0.157	0.020	0.283	0.012	0.006	0.020
CNMG 543-MR	CNMG 160612-MR	5/8	1/4	3/64	0.250	0.157	0.031	0.283	0.014	0.007	0.024
CNMG 544-MR	CNMG 160616-MR	5/8	1/4	1/16	0.250	0.157	0.039	0.283	0.016	0.009	0.026
CNMG 643-MR	CNMG 190612-MR	3/4	1/4	3/64	0.313	0.157	0.031	0.339	0.014	0.007	0.024
CNMG 644-MR	CNMG 190616-MR	3/4	1/4	1/16	0.313	0.157	0.039	0.339	0.016	0.009	0.026
CNMG 431-PM	CNMG 120404-PM	1/2	3/16	1/64	0.203	0.118	0.016	0.217	0.008	0.004	0.012
CNMG 432-PM	CNMG 120408-PM	1/2	3/16	1/32	0.203	0.118	0.020	0.217	0.012	0.006	0.020
CNMG 433-PM	CNMG 120412-PM	1/2	3/16	3/64	0.203	0.118	0.031	0.217	0.014	0.007	0.024
CNMG 434-PM	CNMG 120416-PM	1/2	3/16	1/16	0.203	0.118	0.039	0.217	0.016	0.009	0.026
CNMG 431-ST	CNMG 120404-ST	1/2	3/16	1/64	0.203	0.098	0.008	0.197	0.009	0.006	0.010
CNMG 432-ST	CNMG 120408-ST	1/2	3/16	1/32	0.203	0.118	0.008	0.236	0.014	0.006	0.020
CNMG 433-ST	CNMG 120412-ST	1/2	3/16	3/64	0.203	0.118	0.012	0.236	0.016	0.006	0.024
CNMG 434-ST	CNMG 120416-ST	1/2	3/16	1/16	0.203	0.118	0.012	0.236	0.018	0.008	0.028
CNMG 542-ST	CNMG 160608-ST	5/8	1/4	1/32	0.250	0.157	0.008	0.315	0.014	0.006	0.020
CNMG 543-ST	CNMG 160612-ST	5/8	1/4	3/64	0.250	0.157	0.012	0.315	0.016	0.006	0.024
CNMG 544-ST	CNMG 160616-ST	5/8	1/4	1/16	0.250	0.157	0.012	0.315	0.018	0.008	0.028
CNMG 643-ST	CNMG 190612-ST	3/4	1/4	3/64	0.313	0.177	0.012	0.354	0.016	0.006	0.024
CNMG 644-ST	CNMG 190616-ST	3/4	1/4	1/16	0.313	0.177	0.012	0.354	0.018	0.008	0.028
CNMG 432-MW	CNMG 120408-MW	1/2	3/16	1/32	0.203	0.118	0.020	0.197	0.012	0.006	0.024
CNMG 433-MW	CNMG 120412-MW	1/2	3/16	3/64	0.203	0.138	0.031	0.236	0.020	0.008	0.035

Technical Data
page C - 518

CN = RHOMBIC 80° NEGATIVE

RÔMBICA 80° NEGATIVA | RÓMBICA 80° NEGATIVA

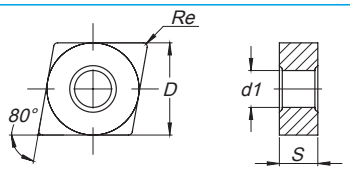
			P						M							K				N	S			
			CVD					PVD	CVD			PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	R3	S9	V5	G1	U4	U5	V6	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
Inserts Pastilhas Plaquitas	(1) Geometry code	ANSI Reference	PHG105	PHG115	PHG125	PHG135	PHG140	PH7910	PHS215	PHS225	PHS240	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
CNMG-SS  Roughing to Medium	1121474	CNMG 321-SS								●		△		●							△		●	
	1121476	CNMG 322-SS								●		△		●							△		●	
	1121243	CNMG 431-SS							◉	●	◉	△		●							△		●	
	1121201	CNMG 432-SS							◉	●	◉	△		●							△		●	
	1121202	CNMG 433-SS							◉	●	◉	△		●							△		●	
	1121487	CNMG 434-SS								●				●									●	
	1121332	CNMG 542-SS								●				●									●	
	1121333	CNMG 543-SS								●				●									●	
	1121363	CNMG 643-SS								●				●									●	
	1121364	CNMG 644-SS								●				●									●	
CNMG-MA NEW  Medium to Roughing	1124504	CNMG 543-MA		◉	●																			
	1123785	CNMG 544-MA	○	◉	●																			
CNMG-HR  Roughing	1121193	CNMG 432-HR	◉	◉	●		◉										◉	●						
	1121192	CNMG 433-HR	◉	◉	●		◉										◉	●						
	1121484	CNMG 434-HR		◉	●												◉	●	◉					
	1121331	CNMG 542-HR		◉	●		◉										◉	●						
	1121358	CNMG 543-HR		◉	●		◉										◉	●						
	1121489	CNMG 544-HR		◉	●												◉	●	◉					
	1121359	CNMG 643-HR		◉	●		◉										◉	●						
	1121360	CNMG 644-HR		◉	●		◉										◉	●						
	1121636	CNMG 866-HR			○		◉																	

◉ 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 | Disponível sob consulta | Disponible bajo consulta

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

Technical Data page C - 518

palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373



ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)				Cutting Conditions Condições de Corte Condiciones de Corte					
		D	S	Re	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
CNMG 321-SS	CNMG 090304-SS	3/8	1/8	1/64	0.150	0.079	0.020	0.098	0.008	0.004	0.010
CNMG 322-SS	CNMG 090308-SS	3/8	1/8	1/32	0.150	0.079	0.020	0.098	0.010	0.005	0.018
CNMG 431-SS	CNMG 120404-SS	1/2	3/16	1/64	0.203	0.118	0.020	0.224	0.008	0.004	0.010
CNMG 432-SS	CNMG 120408-SS	1/2	3/16	1/32	0.203	0.118	0.020	0.224	0.010	0.005	0.018
CNMG 433-SS	CNMG 120412-SS	1/2	3/16	3/64	0.203	0.118	0.020	0.224	0.012	0.006	0.024
CNMG 434-SS	CNMG 120416-SS	1/2	3/16	1/16	0.203	0.118	0.020	0.224	0.015	0.007	0.026
CNMG 542-SS	CNMG 160608-SS	5/8	1/4	1/32	0.250	0.157	0.020	0.283	0.010	0.005	0.018
CNMG 543-SS	CNMG 160612-SS	5/8	1/4	3/64	0.250	0.157	0.020	0.283	0.012	0.006	0.024
CNMG 643-SS	CNMG 190612-SS	3/4	1/4	3/64	0.313	0.157	0.020	0.335	0.012	0.006	0.024
CNMG 644-SS	CNMG 190616-SS	3/4	1/4	1/16	0.313	0.157	0.020	0.335	0.015	0.007	0.026
CNMG 543-MA	CNMG 160612-MA	5/8	1/4	3/64	0.250	0.157	0.059	0.315	0.016	0.008	0.026
CNMG 544-MA	CNMG 160616-MA	5/8	1/4	1/16	0.250	0.197	0.063	0.315	0.020	0.010	0.028
CNMG 432-HR	CNMG 120408-HR	1/2	3/16	1/32	0.203	0.157	0.039	0.276	0.014	0.008	0.022
CNMG 433-HR	CNMG 120412-HR	1/2	3/16	3/64	0.203	0.157	0.039	0.276	0.016	0.010	0.024
CNMG 434-HR	CNMG 120416-HR	1/2	3/16	1/16	0.203	0.157	0.059	0.276	0.020	0.013	0.030
CNMG 542-HR	CNMG 160608-HR	5/8	1/4	1/32	0.250	0.197	0.039	0.315	0.014	0.008	0.022
CNMG 543-HR	CNMG 160612-HR	5/8	1/4	3/64	0.250	0.197	0.039	0.315	0.016	0.010	0.024
CNMG 544-HR	CNMG 160616-HR	5/8	1/4	1/16	0.250	0.197	0.059	0.315	0.020	0.013	0.030
CNMG 643-HR	CNMG 190612-HR	3/4	1/4	3/64	0.313	0.217	0.079	0.394	0.016	0.010	0.028
CNMG 644-HR	CNMG 190616-HR	3/4	1/4	1/16	0.313	0.217	0.079	0.394	0.020	0.013	0.031
CNMG 866-HR	CNMG 250924-HR	1	3/8	1/32	0.359	0.236	0.079	0.591	0.024	0.016	0.039

Technical Data
page C - 518

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	R3	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	ANSI Reference	PHG105	PHG115	PHG125	PHG135	PHG140	PH7910	PHS215	PHS225	PHS240	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
CNMM-RP  Roughing	1124054	CNMM 542-RP		◎	◎																			
	1124055	CNMM 543-RP		◎	◎																			
	1124056	CNMM 544-RP	○	◎	◎					◎														
	1124000	CNMM 643-RP		○	◎																			
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	1124596	CNMM 433-GR			◎																			
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	1121252	CNMM 644-HY		◎	◎						◎													
	1121434	CNMM 646-HY		○	◎	◇																		
	1121248	CNMM 866-HY		○	◎	◇																		
CNMM-HZ  Heavy to Roughing	1121607	CNMM 643-HZ		○	◎	◎												◎	◎					
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	1121435	CNMM 646-HZ		◎	◎	◎												◎	◎					
	1121247	CNMM 866-HZ		○	◎		◎											◎						

◎ First choice | 1ª Escolha | 1ª Opción

◎ Stock Itens | Itens de stock

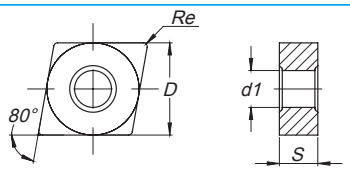
◇ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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

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

Technical Data page C - 518

palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373



ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)				Cutting Conditions Condições de Corte Condiciones de Corte					
		D	S	Re	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
CNMM 542-RP	CNMM 160608-RP	5/8	1/4	1/32	0.250	0.138	0.039	0.315	0.014	0.008	0.022
CNMM 543-RP	CNMM 160612-RP	5/8	1/4	3/64	0.250	0.138	0.039	0.315	0.010	0.010	0.024
CNMM 544-RP	CNMM 160616-RP	5/8	1/4	1/16	0.250	0.138	0.059	0.315	0.020	0.013	0.030
CNMM 643-RP	CNMM 190612-RP	3/4	1/4	3/64	0.313	0.217	0.079	0.394	0.016	0.010	0.028
CNMM 644-RP	CNMM 190616-RP	3/4	1/4	1/16	0.313	0.217	0.079	0.394	0.020	0.013	0.031
CNMM 646-RP	CNMM 190624-RP	3/4	1/4	1/32	0.313	0.236	0.079	0.472	0.024	0.014	0.047
CNMM 432-GR	CNMM 120408-GR	1/2	3/16	1/32	0.203	0.157	0.039	0.315	0.016	0.010	0.026
CNMM 433-GR	CNMM 120412-GR	1/2	3/16	3/64	0.203	0.197	0.059	0.335	0.020	0.012	0.028
CNMM 643-HY	CNMM 190612-HY	3/4	1/4	3/64	0.313	0.236	0.079	0.472	0.020	0.014	0.031
CNMM 644-HY	CNMM 190616-HY	3/4	1/4	1/16	0.313	0.236	0.079	0.472	0.024	0.014	0.039
CNMM 646-HY	CNMM 190624-HY	3/4	1/4	1/32	0.313	0.236	0.079	0.472	0.024	0.014	0.047
CNMM 866-HY	CNMM 250924-HY	1	3/8	1/32	0.359	0.315	0.098	0.591	0.028	0.016	0.055
CNMM 643-HZ	CNMM 190612-HZ	3/4	1/4	3/64	0.313	0.394	0.094	0.472	0.026	0.020	0.031
CNMM 644-HZ	CNMM 190616-HZ	3/4	1/4	1/16	0.313	0.394	0.094	0.472	0.031	0.020	0.043
CNMM 646-HZ	CNMM 190624-HZ	3/4	1/4	1/32	0.313	0.394	0.126	0.472	0.039	0.024	0.063
CNMM 866-HZ	CNMM 250924-HZ	1	3/8	1/32	0.359	0.394	0.126	0.669	0.039	0.024	0.063

Technical Data
page C - 518

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	R3	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	ANSI Reference	PHG105	PHG115	PHG125	PHG135	PHG140	PH7910	PHS215	PHS225	PHS240	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
DNMA Roughing	1120975	DNMA 331															●	●						
	1120312	DNMA 431															●	●						
	1120313	DNMA 432															●	●						
	1121178	DNMA 433															●	●						
	1121496	DNMA 434															●	●						
	1120314	DNMA 441															●	●						
	1120315	DNMA 442															●	●						
	1120316	DNMA 443															●	●						
	1120317	DNMA 444															●	●						
DNMG-MF Finishing	1121497	DNMG 331-MF		●	●																			
	1121499	DNMG 332-MF	●	●	●																			
	1121502	DNMG 431-MF		●	●	◇		◇																
	1121504	DNMG 432-MF		●	●	◇		◇																
	1121507	DNMG 433-MF		●	●	○																		
	1121515	DNMG 441-MF		●	●			◇																
	1121516	DNMG 442-MF		●	●			◇																
	1121517	DNMG 443-MF		●	●																			
DNMG-SF Medium to Finishing	1123749	DNMG 331-SF							●	●		◇	●	●	●						◇	●	●	●
	1123750	DNMG 332-SF							●	●		◇	●	●	●						◇	●	●	●
	1123751	DNMG 431-SF							●	●		◇	●	●	●						◇	●	●	●
	1123752	DNMG 432-SF							●	●		◇	●	●	●						◇	●	●	●
	1123753	DNMG 433-SF							●	●		◇	●	●	●						◇	●	●	●
	1123754	DNMG 441-SF							●	●			●	●	●							●	●	●
	1123755	DNMG 442-SF							●	●			●	●	●							●	●	●
	1123756	DNMG 443-SF							●	●			●	●	●							●	●	●
DNMG-LC Medium to Finishing	1123662	DNMG 431-LC		●	●																			
	1123663	DNMG 432-LC		●	●																			
	1123664	DNMG 433-LC		●	●																			
	1122020	DNMG 441-LC	●	●	●																			
	1122007	DNMG 442-LC	●	●	●																			
	1123655	DNMG 443-LC		●	●																			

● First choice | 1ª Escolha | 1ª Opción

● Stock Itens | Itens de stock

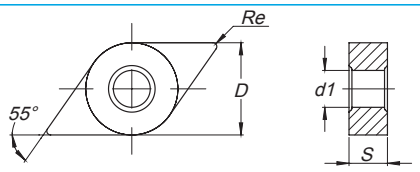
◇ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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

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

Technical Data page C - 518

palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

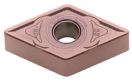


ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)				Cutting Conditions Condições de Corte Condiciones de Corte					
		D	S	Re	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
DNMA 331	DNMA 110404	3/8	3/16	1/64	0.150	0.079	0.008	0.138	0.006	0.004	0.012
DNMA 431	DNMA 150404	1/2	3/16	1/64	0.203	0.118	0.008	0.157	0.006	0.004	0.012
DNMA 432	DNMA 150408	1/2	3/16	1/32	0.203	0.118	0.008	0.236	0.014	0.006	0.024
DNMA 433	DNMA 150412	1/2	3/16	3/64	0.203	0.118	0.012	0.236	0.018	0.008	0.031
DNMA 434	DNMA 150416	1/2	3/16	1/16	0.203	0.118	0.012	0.236	0.022	0.008	0.039
DNMA 441	DNMA 150604	1/2	1/4	1/64	0.203	0.118	0.008	0.157	0.006	0.004	0.012
DNMA 442	DNMA 150608	1/2	1/4	1/32	0.203	0.118	0.008	0.236	0.014	0.006	0.024
DNMA 443	DNMA 150612	1/2	1/4	3/64	0.203	0.118	0.012	0.236	0.018	0.008	0.031
DNMA 444	DNMA 150616	1/2	1/4	1/16	0.203	0.118	0.012	0.236	0.022	0.008	0.039
DNMG 331-MF	DNMG 110404-MF	3/8	3/16	1/64	0.150	0.016	0.004	0.059	0.006	0.002	0.010
DNMG 332-MF	DNMG 110408-MF	3/8	3/16	1/32	0.150	0.016	0.004	0.059	0.008	0.004	0.016
DNMG 431-MF	DNMG 150404-MF	1/2	3/16	1/64	0.203	0.016	0.006	0.059	0.006	0.002	0.010
DNMG 432-MF	DNMG 150408-MF	1/2	3/16	1/32	0.203	0.016	0.008	0.059	0.008	0.004	0.016
DNMG 433-MF	DNMG 150412-MF	1/2	3/16	3/64	0.203	0.031	0.010	0.098	0.010	0.006	0.020
DNMG 441-MF	DNMG 150604-MF	1/2	1/4	1/64	0.203	0.016	0.004	0.059	0.006	0.002	0.010
DNMG 442-MF	DNMG 150608-MF	1/2	1/4	1/32	0.203	0.016	0.004	0.059	0.008	0.004	0.016
DNMG 443-MF	DNMG 150612-MF	1/2	1/4	3/64	0.203	0.031	0.008	0.098	0.010	0.006	0.020
DNMG 331-SF	DNMG 110404-SF	3/8	3/16	1/64	0.150	0.059	0.024	0.118	0.006	0.004	0.009
DNMG 332-SF	DNMG 110408-SF	3/8	3/16	1/32	0.150	0.059	0.024	0.118	0.010	0.005	0.015
DNMG 431-SF	DNMG 150404-SF	1/2	3/16	1/64	0.203	0.059	0.024	0.118	0.006	0.004	0.009
DNMG 432-SF	DNMG 150408-SF	1/2	3/16	1/32	0.203	0.059	0.024	0.118	0.010	0.005	0.015
DNMG 433-SF	DNMG 150412-SF	1/2	3/16	3/64	0.203	0.059	0.024	0.118	0.014	0.006	0.022
DNMG 441-SF	DNMG 150604-SF	1/2	1/4	1/64	0.203	0.059	0.024	0.118	0.006	0.004	0.009
DNMG 442-SF	DNMG 150608-SF	1/2	1/4	1/32	0.203	0.059	0.024	0.118	0.010	0.005	0.015
DNMG 443-SF	DNMG 150612-SF	1/2	1/4	3/64	0.203	0.059	0.024	0.118	0.014	0.006	0.022
DNMG 431-LC	DNMG 150404-LC	1/2	3/16	1/64	0.203	0.039	0.016	0.098	0.006	0.003	0.012
DNMG 432-LC	DNMG 150408-LC	1/2	3/16	1/32	0.203	0.059	0.016	0.098	0.008	0.004	0.016
DNMG 433-LC	DNMG 150412-LC	1/2	3/16	3/64	0.203	0.079	0.031	0.118	0.010	0.006	0.020
DNMG 441-LC	DNMG 150604-LC	1/2	1/4	1/64	0.203	0.059	0.016	0.118	0.006	0.003	0.012
DNMG 442-LC	DNMG 150608-LC	1/2	1/4	1/32	0.203	0.079	0.016	0.118	0.008	0.004	0.016
DNMG 443-LC	DNMG 150612-LC	1/2	1/4	3/64	0.203	0.098	0.031	0.138	0.010	0.006	0.020

Technical Data
page C - 518

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	R3	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	ANSI Reference	PHG105	PHG115	PHG125	PHG135	PHG140	PH7910	PHS215	PHS225	PHS240	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
DNMG-MS  Medium to Finishing	1121503	DNMG 431-MS												◈	◉					◉			◈	◉
	1121505	DNMG 432-MS												◈	◉					◉			◈	◉
	1121509	DNMG 433-MS												◈	○					○			◈	○
	1121513	DNMG 434-MS												◈	○					○			◈	○
	1121927	DNMG 441-MS											◉		◉					◉		◉		◉
	1121928	DNMG 442-MS											◉		◉					◉		◉		◉
	1122030	DNMG 443-MS											◉	◈	◉					○		◉	◈	◉
NEW DNMG-GS  Medium to Finishing	1124688	DNMG 331-GS											◉		◉							◉		◉
	1124689	DNMG 332-GS											◉		◉							◉		◉
	1124511	DNMG 431-GS											◉		◉							◉		◉
	1124512	DNMG 432-GS											◉		◉							◉		◉
	1124513	DNMG 433-GS											◉		◉							◉		◉
	1124682	DNMG 441-GS											◉		◉							◉		◉
	1124683	DNMG 442-GS											◉		◉							◉		◉
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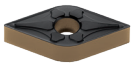
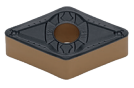
DNMG-MR  Medium	1121498	DNMG 331-MR		◉	◉	○													○					
	1121500	DNMG 332-MR		◉	◉	○													○					
	1121218	DNMG 431-MR		○	◉	◉													◉					
	1121219	DNMG 432-MR		◉	◉	◈	◉												◈					
	1121508	DNMG 433-MR		○	○	◉													◉					
	1121224	DNMG 441-MR		◉	◉	◉													◉					
	1121328	DNMG 442-MR		○	◉	◈	◉												◈					
	1121518	DNMG 443-MR		◉	◉	◉													◉					
	1121522	DNMG 444-MR			○	○													○					
DNMG-PM  Medium	1123924	DNMG 431-PM	◉	◉	◉																			
	1123916	DNMG 432-PM	◉	◉	◉																			
	1123925	DNMG 433-PM	◉	◉	◉																			
	1123926	DNMG 434-PM		◉	◉																			
	1124065	DNMG 441-PM	◉	◉	◉																			
	1123777	DNMG 442-PM	◉	◉	◉																			
	1124066	DNMG 443-PM	◉	◉	◉																			
	1124082	DNMG 444-PM		◉	◉																			

◉ First choice | 1ª Escolha | 1ª Opción

◉ Stock Itens | Itens de stock

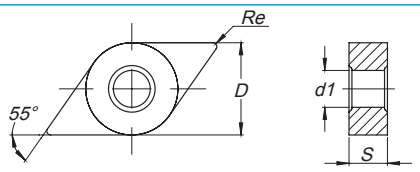
◈ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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

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

Technical Data page C - 518

palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

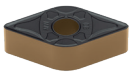
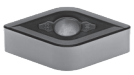
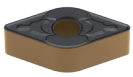
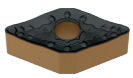


ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)				Cutting Conditions Condições de Corte Condiciones de Corte					
		D	S	Re	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
DNMG 431-MS	DNMG 150404-MS	1/2	3/16	1/64	0.203	0.059	0.008	0.142	0.006	0.004	0.008
DNMG 432-MS	DNMG 150408-MS	1/2	3/16	1/32	0.203	0.079	0.012	0.150	0.010	0.004	0.016
DNMG 433-MS	DNMG 150412-MS	1/2	3/16	3/64	0.203	0.098	0.016	0.157	0.012	0.006	0.024
DNMG 434-MS	DNMG 150416-MS	1/2	3/16	1/16	0.203	0.110	0.016	0.177	0.016	0.006	0.031
DNMG 441-MS	DNMG 150604-MS	1/2	1/4	1/64	0.203	0.059	0.008	0.142	0.006	0.004	0.008
DNMG 442-MS	DNMG 150608-MS	1/2	1/4	1/32	0.203	0.079	0.012	0.157	0.010	0.004	0.016
DNMG 443-MS	DNMG 150612-MS	1/2	1/4	3/64	0.203	0.110	0.016	0.177	0.012	0.006	0.024
DNMG 331-GS	DNMG 110404-GS	3/8	3/16	1/64	0.150	0.059	0.006	0.079	0.008	0.004	0.010
DNMG 332-GS	DNMG 110408-GS	3/8	3/16	1/32	0.150	0.079	0.008	0.098	0.010	0.004	0.012
DNMG 431-GS	DNMG 150404-GS	1/2	3/16	1/64	0.203	0.059	0.006	0.079	0.008	0.004	0.010
DNMG 432-GS	DNMG 150408-GS	1/2	3/16	1/32	0.203	0.079	0.008	0.098	0.010	0.004	0.012
DNMG 433-GS	DNMG 150412-GS	1/2	3/16	3/64	0.203	0.098	0.012	0.118	0.012	0.004	0.014
DNMG 441-GS	DNMG 150604-GS	1/2	1/4	1/64	0.203	0.059	0.006	0.079	0.008	0.004	0.010
DNMG 442-GS	DNMG 150608-GS	1/2	1/4	1/32	0.203	0.079	0.008	0.098	0.010	0.004	0.012
DNMG 443-GS	DNMG 150612-GS	1/2	1/4	3/64	0.203	0.098	0.012	0.118	0.012	0.004	0.014
DNMG 331-MR	DNMG 110404-MR	3/8	3/16	1/64	0.150	0.079	0.016	0.197	0.008	0.004	0.012
DNMG 332-MR	DNMG 110408-MR	3/8	3/16	1/32	0.150	0.079	0.020	0.197	0.012	0.006	0.020
DNMG 431-MR	DNMG 150404-MR	1/2	3/16	1/64	0.203	0.118	0.016	0.236	0.008	0.004	0.012
DNMG 432-MR	DNMG 150408-MR	1/2	3/16	1/32	0.203	0.118	0.020	0.236	0.012	0.006	0.020
DNMG 433-MR	DNMG 150412-MR	1/2	3/16	3/64	0.203	0.118	0.031	0.236	0.014	0.007	0.024
DNMG 441-MR	DNMG 150604-MR	1/2	1/4	1/64	0.203	0.118	0.016	0.236	0.008	0.004	0.012
DNMG 442-MR	DNMG 150608-MR	1/2	1/4	1/32	0.203	0.118	0.020	0.236	0.012	0.006	0.020
DNMG 443-MR	DNMG 150612-MR	1/2	1/4	3/64	0.203	0.118	0.031	0.236	0.014	0.007	0.024
DNMG 444-MR	DNMG 150616-MR	1/2	1/4	1/16	0.203	0.118	0.039	0.236	0.016	0.009	0.026
DNMG 431-PM	DNMG 150404-PM	1/2	3/16	1/64	0.203	0.118	0.016	0.236	0.008	0.004	0.012
DNMG 432-PM	DNMG 150408-PM	1/2	3/16	1/32	0.203	0.118	0.020	0.236	0.012	0.006	0.020
DNMG 433-PM	DNMG 150412-PM	1/2	3/16	3/64	0.203	0.118	0.031	0.236	0.014	0.007	0.024
DNMG 434-PM	DNMG 150416-PM	1/2	3/16	1/16	0.203	0.118	0.039	0.236	0.016	0.009	0.026
DNMG 441-PM	DNMG 150604-PM	1/2	1/4	1/64	0.203	0.098	0.020	0.197	0.010	0.006	0.016
DNMG 442-PM	DNMG 150608-PM	1/2	1/4	1/32	0.203	0.118	0.020	0.236	0.012	0.006	0.020
DNMG 443-PM	DNMG 150612-PM	1/2	1/4	3/64	0.203	0.138	0.020	0.276	0.014	0.008	0.024
DNMG 444-PM	DNMG 150616-PM	1/2	1/4	1/16	0.203	0.118	0.039	0.236	0.016	0.009	0.026

Technical Data
page C - 518

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	R3	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	ANSI Reference	PHG105	PHG115	PHG125	PHG135	PHG140	PH7910	PHS215	PHS225	PHS240	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
DNMG-ST  Medium	1121346	DNMG 331-ST															◉	◉						
	1121347	DNMG 332-ST															◉	◉						
	1121255	DNMG 431-ST															◉	◉						
	1121256	DNMG 432-ST															◉	◉						
	1121512	DNMG 433-ST															◉	◉						
	1121514	DNMG 434-ST															◉	◉						
	1121257	DNMG 441-ST															◉	◉						
	1121258	DNMG 442-ST															◉	◉						
	1121521	DNMG 443-ST															◉	◉						
	1121523	DNMG 444-ST															◉	◉						
DNMG-MW  Medium Wiper	1121374	DNMG 432-MW		○	○													◉	◉					
	1121510	DNMG 433-MW		○	○													◉	◉					
	1121375	DNMG 442-MW		◉	◉													◉	◉					
	1121519	DNMG 443-MW		◉	○													◉	◉					
DNMG-SS  Roughing to Medium	1121501	DNMG 332-SS								◉		△		△							△		◉	◉
	1121291	DNMG 431-SS							◉	◉	◉	△		△							△		◉	◉
	1121292	DNMG 432-SS							◉	◉	◉	△		△							△		◉	◉
	1121511	DNMG 433-SS							◉	◉	◉	△		△							△		◉	○
	1121284	DNMG 441-SS							◉	◉	◉	△		△							△		◉	◉
	1121285	DNMG 442-SS							◉	◉	◉	△		△							△		◉	◉
	1121520	DNMG 443-SS							◉	◉	◉	△		△							△		◉	◉
	1121287	DNMG 444-SS								◉				△									◉	○
DNMG-HR  Roughing	1121253	DNMG 432-HR		◉	◉		◉										◉	◉						
	1121506	DNMG 433-HR		◉	◉		○										◉	◉	◉					
	1121254	DNMG 442-HR		◉	◉		◉										◉	◉						
	1121362	DNMG 443-HR		◉	◉		◉										◉	◉						
	1121340	DNMG 444-HR		○	◉		◉										◉	◉						
DNMM-RP  Roughing	1124205	DNMM 443-RP		◉	◉																			

◉ 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 | Disponível sob consulta | Disponible bajo consulta

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

Technical Data page C - 518

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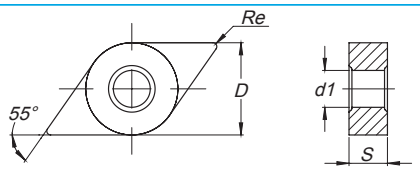
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373



ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)				Cutting Conditions Condições de Corte Condiciones de Corte					
		D	S	Re	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
DNMG 331-ST	DNMG 110404-ST	3/8	3/16	1/64	0.150	0.079	0.008	0.138	0.008	0.006	0.012
DNMG 332-ST	DNMG 110408-ST	3/8	3/16	1/32	0.150	0.079	0.008	0.138	0.014	0.006	0.020
DNMG 431-ST	DNMG 150404-ST	1/2	3/16	1/64	0.203	0.098	0.008	0.197	0.008	0.006	0.012
DNMG 432-ST	DNMG 150408-ST	1/2	3/16	1/32	0.203	0.098	0.020	0.197	0.014	0.006	0.020
DNMG 433-ST	DNMG 150412-ST	1/2	3/16	3/64	0.203	0.118	0.020	0.236	0.020	0.010	0.028
DNMG 434-ST	DNMG 150416-ST	1/2	3/16	1/16	0.203	0.118	0.012	0.236	0.024	0.010	0.039
DNMG 441-ST	DNMG 150604-ST	1/2	1/4	1/64	0.203	0.098	0.008	0.197	0.008	0.006	0.012
DNMG 442-ST	DNMG 150608-ST	1/2	1/4	1/32	0.203	0.098	0.008	0.197	0.014	0.006	0.020
DNMG 443-ST	DNMG 150612-ST	1/2	1/4	3/64	0.203	0.118	0.012	0.236	0.020	0.006	0.028
DNMG 444-ST	DNMG 150616-ST	1/2	1/4	1/16	0.203	0.118	0.012	0.236	0.024	0.010	0.039
DNMG 432-MW	DNMG 150408-MW	1/2	3/16	1/32	0.203	0.098	0.012	0.157	0.014	0.006	0.024
DNMG 433-MW	DNMG 150412-MW	1/2	3/16	3/64	0.203	0.118	0.020	0.197	0.020	0.010	0.035
DNMG 442-MW	DNMG 150608-MW	1/2	1/4	1/32	0.203	0.118	0.012	0.177	0.014	0.006	0.024
DNMG 443-MW	DNMG 150612-MW	1/2	1/4	3/64	0.203	0.138	0.020	0.217	0.020	0.010	0.035
DNMG 332-SS	DNMG 110408-SS	3/8	3/16	1/32	0.150	0.079	0.020	0.173	0.010	0.005	0.018
DNMG 431-SS	DNMG 150404-SS	1/2	3/16	1/64	0.203	0.118	0.012	0.236	0.010	0.004	0.012
DNMG 432-SS	DNMG 150408-SS	1/2	3/16	1/32	0.203	0.118	0.020	0.252	0.010	0.005	0.018
DNMG 433-SS	DNMG 150412-SS	1/2	3/16	3/64	0.203	0.118	0.020	0.252	0.012	0.006	0.024
DNMG 441-SS	DNMG 150604-SS	1/2	1/4	1/64	0.203	0.118	0.012	0.236	0.010	0.004	0.012
DNMG 442-SS	DNMG 150608-SS	1/2	1/4	1/32	0.203	0.118	0.020	0.252	0.010	0.005	0.018
DNMG 443-SS	DNMG 150612-SS	1/2	1/4	3/64	0.203	0.118	0.020	0.252	0.012	0.006	0.024
DNMG 444-SS	DNMG 150616-SS	1/2	1/4	1/16	0.203	0.118	0.020	0.252	0.020	0.008	0.039
DNMG 432-HR	DNMG 150408-HR	1/2	3/16	1/32	0.203	0.157	0.031	0.236	0.014	0.008	0.022
DNMG 433-HR	DNMG 150412-HR	1/2	3/16	3/64	0.203	0.157	0.039	0.236	0.016	0.010	0.028
DNMG 442-HR	DNMG 150608-HR	1/2	1/4	1/32	0.203	0.157	0.031	0.236	0.014	0.008	0.022
DNMG 443-HR	DNMG 150612-HR	1/2	1/4	3/64	0.203	0.157	0.039	0.236	0.016	0.010	0.028
DNMG 444-HR	DNMG 150616-HR	1/2	1/4	1/16	0.203	0.157	0.059	0.236	0.020	0.012	0.031
DNMM 443-RP	DNMM 150612-RP	1/2	1/4	3/64	0.203	0.157	0.039	0.236	0.016	0.010	0.028

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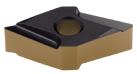
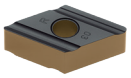
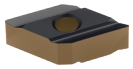
DN = RHOMBIC 55° NEGATIVE

RÔMBICA 55° NEGATIVA | RÓMBICA 55° NEGATIVA

			P						M							K				N	S			
			CVD					PVD	CVD			PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	R3	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	ANSI Reference	PHG105	PHG115	PHG125	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 441-L02		◉	◉																			
	1120353	DNMX 441-R02		◉	◉																			
	1120355	DNMX 442-L02		◉	◉																			
	1120357	DNMX 442-R02		◉	◉																			
DNMX-03  Medium	1123983	DNMX 441-L03		○	○																			
	1123815	DNMX 441-R03		◉	◉																			
	1123796	DNMX 442-L03		○	◉																			
	1123795	DNMX 442-R03		◉	◉																			
DNMX-01  Roughing to Medium	1120348	DNMX 432-L01		○	○																			
	1120349	DNMX 432-R01		○	○																			
	1120350	DNMX 441-L01		○	○																			
	1120352	DNMX 441-R01		◉	◉																			
	1120354	DNMX 442-L01		○	◉																			
	1120356	DNMX 442-R01		○	◉																			

◉ 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 | Disponível sob consulta | Disponible bajo consulta

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

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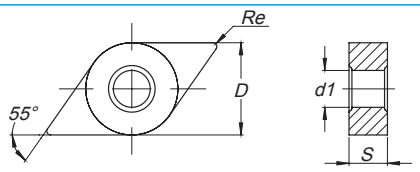

ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)				Cutting Conditions Condições de Corte Condiciones de Corte					
		D	S	Re	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
DNMX 441-L02	DNMX 150604-L02	1/2	1/4	1/64	0.203	0.098	0.028	0.197	0.008	0.006	0.010
DNMX 441-R02	DNMX 150604-R02	1/2	1/4	1/64	0.203	0.098	0.028	0.197	0.008	0.006	0.010
DNMX 442-L02	DNMX 150608-L02	1/2	1/4	1/32	0.203	0.118	0.031	0.197	0.014	0.006	0.020
DNMX 442-R02	DNMX 150608-R02	1/2	1/4	1/32	0.203	0.118	0.031	0.197	0.014	0.006	0.020
DNMX 441-L03	DNMX 150604-L03	1/2	1/4	1/64	0.203	0.106	0.031	0.217	0.008	0.006	0.010
DNMX 441-R03	DNMX 150604-R03	1/2	1/4	1/64	0.203	0.106	0.031	0.217	0.008	0.006	0.010
DNMX 442-L03	DNMX 150608-L03	1/2	1/4	1/32	0.203	0.126	0.039	0.236	0.014	0.006	0.020
DNMX 442-R03	DNMX 150608-R03	1/2	1/4	1/32	0.203	0.126	0.039	0.236	0.014	0.006	0.020
DNMX 432-L01	DNMX 150408-L01	1/2	3/16	1/32	0.203	0.098	0.039	0.197	0.014	0.008	0.020
DNMX 432-R01	DNMX 150408-R01	1/2	3/16	1/32	0.203	0.098	0.039	0.197	0.014	0.008	0.020
DNMX 441-L01	DNMX 150604-L01	1/2	1/4	1/64	0.203	0.118	0.059	0.236	0.010	0.006	0.012
DNMX 441-R01	DNMX 150604-R01	1/2	1/4	1/64	0.203	0.118	0.059	0.236	0.010	0.006	0.012
DNMX 442-L01	DNMX 150608-L01	1/2	1/4	1/32	0.203	0.138	0.079	0.256	0.014	0.008	0.020
DNMX 442-R01	DNMX 150608-R01	1/2	1/4	1/32	0.203	0.138	0.079	0.256	0.014	0.008	0.020

Technical Data
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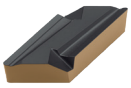
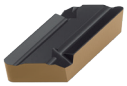
KN = PARALLELOGRAM 55º NEGATIVE

PARALELOGRAMA 55º NEGATIVA | PARALELOGRAMO 55º NEGATIVA

			P						M							K				N	S			
			CVD					PVD	CVD			PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	R3	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	ANSI Reference	PHG105	PHG115	PHG125	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

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

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

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

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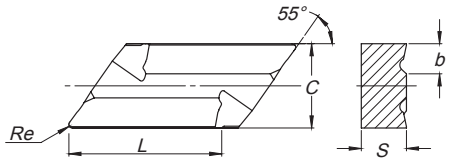

ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)					Cutting Conditions Condições de Corte Condiciones de Corte					
		L	C	Re	S	b	ap (in)	Min	Max	fn (in/rev)	Min	Max
KNUX 160405-L01-PD	KNUX 160405-L01-PD	13/20	3/8	0.020	3/16	0.098	0.118	0.039	0.236	0.012	0.008	0.35
KNUX 160405-R01-PD	KNUX 160405-R01-PD	13/20	3/8	0.020	3/16	0.098	0.118	0.039	0.236	0.012	0.008	0.35
KNUX 160410-L02	KNUX 160410-L02	13/20	3/8	0.039	3/16	0.126	0.157	0.059	0.236	0.020	0.016	0.70
KNUX 160410-R02	KNUX 160410-R02	13/20	3/8	0.039	3/16	0.126	0.157	0.059	0.236	0.020	0.016	0.70

Technical Data
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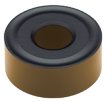
RN = ROUND Rº NEGATIVE

REDONDA Rº NEGATIVA | REDONDA Rº NEGATIVA

			P						M							K				N	S			
			CVD					PVD	CVD			PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	R3	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	ANSI Reference	PHG105	PHG115	PHG125	PHG135	PHG140	PH7910	PHS215	PHS225	PHS240	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
RNMG-ST  Medium	1120439	RNMG 320-ST			◈																			
	1120440	RNMG 430-ST			○																			
	1120441	RNMG 540-ST			○																			
	1120442	RNMG 640-ST			◈																			
	1120443	RNMG 860-ST			○													◈						

◈ 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 | Disponível sob consulta | Disponible bajo consulta

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

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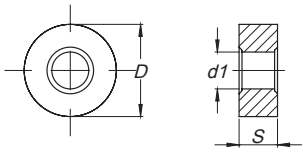
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373



ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)				Cutting Conditions Condições de Corte Condiciones de Corte					
		D	S	Re	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
RNMG 320-ST	RNMG 090300-ST	3/8	1/8	-	0.125	0.091	0.035	0.177	0.012	0.004	0.035
RNMG 430-ST	RNMG 120400-ST	1/2	3/16	-	0.203	0.118	0.047	0.189	0.016	0.005	0.047
RNMG 540-ST	RNMG 150600-ST	5/8	1/4	-	0.250	0.150	0.059	0.295	0.020	0.006	0.059
RNMG 640-ST	RNMG 190600-ST	3/4	1/4	-	0.313	0.177	0.075	0.299	0.026	0.008	0.075
RNMG 860-ST	RNMG 250900-ST	1	3/8	-	0.359	0.248	0.098	0.394	0.031	0.010	0.098

Technical Data
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SN = SQUARE 90° NEGATIVE

QUADRADA 90° NEGATIVA | ESQUADRA 90° NEGATIVA

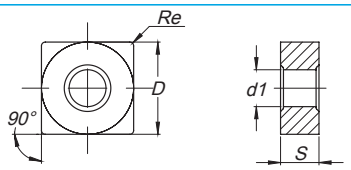
			P						M							K				N	S			
			CVD					PVD	CVD			PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	R3	S9	V5	G1	U4	U5	V6	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
Inserts Pastilhas Plaquitas	(1) Geometry code	ANSI Reference	PHG105	PHG115	PHG125	PHG135	PHG140	PH7910	PHS215	PHS225	PHS240	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
SNMA Roughing	1121070	SNMA 321															◉	◉						
	1120474	SNMA 322															◉	◉						
	1120475	SNMA 431															◉	◉						
	1120476	SNMA 432															◉	◉						
	1120478	SNMA 433															◉	◉						
	1120479	SNMA 434															◉	◉						
	1120481	SNMA 533															◉	◉						
	1121525	SNMA 543															◉	◉						
	1120482	SNMA 643															◉	◉						
	1120483	SNMA 644															◉	◉						
	1120485	SNMA 646															◉	◉						
	1120486	SNMA 856														○	◉	◉						
SNMG-MF Finishing	1121528	SNMG 431-MF		◉	◉			◇																
	1121530	SNMG 432-MF		◉	◉			◇																
	1121531	SNMG 433-MF		◉	◉			◇																
SNMG-SF Medium to Finishing	1123874	SNMG 431-SF							◉	◉		◇	◉	◇	◉						◇	◉	◉	◉
	1123875	SNMG 432-SF							◉	◉		◉	◉	◉	◉						◉	◉	◉	◉
	1123876	SNMG 433-SF							◉	◉		◇	◉	◉	◉						◇	◉	◉	◉
NEW SNMG-GS Medium to Finishing	1124556	SNMG 432-GS											◉		◉							◉		◉
	1124557	SNMG 433-GS											◉		◉							◉		◉
	1124558	SNMG 434-GS											◉		◉							◉		◉
SNMG-MR Medium	1121529	SNMG 431-MR		◉	◉																			
	1121179	SNMG 432-MR		◉	◉		◉																	
	1121311	SNMG 433-MR		○	◉		◉																	
	1121357	SNMG 434-MR			◉																			
	1121533	SNMG 542-MR		◉	◉		◉																	
	1121536	SNMG 543-MR		◉	◉		◉																	
	1121540	SNMG 534-MR			○																			
	1121543	SNMG 643-MR		○	◉		◉																	
	1121546	SNMG 644-MR		○	○		◉																	
SNMG-PM Medium	1124083	SNMG 431-PM	◉	◉	◉																			
	1124084	SNMG 432-PM	◉	◉	◉																			
	1124085	SNMG 433-PM	◉	◉	◉																			

◉ 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 | Disponível sob consulta | Disponible bajo consulta

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

Technical Data page C - 518

palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373



ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)				Cutting Conditions Condições de Corte Condiciones de Corte					
		D	S	Re	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
SNMA 321	SNMA 090304	3/8	1/8	1/64	0.150	0.098	0.008	0.177	0.008	0.006	0.012
SNMA 322	SNMA 090308	3/8	1/8	1/32	0.150	0.098	0.016	0.177	0.016	0.008	0.024
SNMA 431	SNMA 120404	1/2	3/16	1/64	0.203	0.157	0.008	0.315	0.008	0.006	0.012
SNMA 432	SNMA 120408	1/2	3/16	1/32	0.203	0.157	0.008	0.315	0.016	0.008	0.024
SNMA 433	SNMA 120412	1/2	3/16	3/64	0.203	0.157	0.012	0.315	0.018	0.008	0.031
SNMA 434	SNMA 120416	1/2	3/16	1/16	0.203	0.157	0.012	0.315	0.022	0.008	0.039
SNMA 533	SNMA 150412	5/8	3/16	3/64	0.250	0.197	0.012	0.354	0.018	0.008	0.031
SNMA 543	SNMA 150612	5/8	1/4	3/64	0.250	0.197	0.012	0.394	0.018	0.008	0.031
SNMA 643	SNMA 190612	3/4	1/4	3/64	0.313	0.236	0.012	0.472	0.018	0.008	0.031
SNMA 644	SNMA 190616	3/4	1/4	1/16	0.313	0.236	0.012	0.472	0.022	0.008	0.039
SNMA 646	SNMA 190624	3/4	1/4	1/32	0.313	0.236	0.012	0.472	0.024	0.008	0.047
SNMA 856	SNMA 250724	1	5/16	1/32	0.359	0.236	0.016	0.472	0.024	0.008	0.055
SNMG 431-MF	SNMG 120404-MF	1/2	3/16	1/64	0.203	0.016	0.006	0.059	0.004	0.002	0.010
SNMG 432-MF	SNMG 120408-MF	1/2	3/16	1/32	0.203	0.020	0.008	0.059	0.008	0.004	0.016
SNMG 433-MF	SNMG 120412-MF	1/2	3/16	3/64	0.203	0.031	0.010	0.098	0.012	0.008	0.024
SNMG 431-SF	SNMG 120404-SF	1/2	3/16	1/64	0.203	0.079	0.039	0.157	0.006	0.004	0.009
SNMG 432-SF	SNMG 120408-SF	1/2	3/16	1/32	0.203	0.079	0.039	0.157	0.008	0.005	0.015
SNMG 433-SF	SNMG 120412-SF	1/2	3/16	3/64	0.203	0.098	0.039	0.157	0.010	0.006	0.022
SNMG 432-GS	SNMG 120408-GS	1/2	3/16	1/32	0.203	0.079	0.008	0.118	0.012	0.006	0.016
SNMG 433-GS	SNMG 120412-GS	1/2	3/16	3/64	0.203	0.098	0.020	0.138	0.014	0.008	0.020
SNMG 434-GS	SNMG 120416-GS	1/2	3/16	1/16	0.203	0.118	0.020	0.157	0.016	0.008	0.020
SNMG 431-MR	SNMG 120404-MR	1/2	3/16	1/64	0.203	0.118	0.016	0.236	0.008	0.004	0.012
SNMG 432-MR	SNMG 120408-MR	1/2	3/16	1/32	0.203	0.118	0.020	0.236	0.012	0.006	0.020
SNMG 433-MR	SNMG 120412-MR	1/2	3/16	3/64	0.203	0.118	0.031	0.236	0.014	0.007	0.024
SNMG 434-MR	SNMG 120416-MR	1/2	3/16	1/16	0.203	0.118	0.039	0.236	0.016	0.009	0.026
SNMG 542-MR	SNMG 150608-MR	5/8	1/4	1/32	0.250	0.157	0.024	0.295	0.012	0.006	0.020
SNMG 543-MR	SNMG 150612-MR	5/8	1/4	3/64	0.250	0.157	0.031	0.295	0.014	0.007	0.024
SNMG 534-MR	SNMG 150616-MR	5/8	1/4	1/16	0.250	0.157	0.039	0.295	0.016	0.008	0.028
SNMG 643-MR	SNMG 190612-MR	3/4	1/4	3/64	0.313	0.197	0.031	0.354	0.014	0.007	0.024
SNMG 644-MR	SNMG 190616-MR	3/4	1/4	1/16	0.313	0.197	0.039	0.354	0.016	0.009	0.026
SNMG 431-PM	SNMG 120404-PM	1/2	3/16	1/64	0.203	0.118	0.016	0.236	0.008	0.004	0.012
SNMG 432-PM	SNMG 120408-PM	1/2	3/16	1/32	0.203	0.118	0.020	0.236	0.012	0.006	0.020
SNMG 433-PM	SNMG 120412-PM	1/2	3/16	3/64	0.203	0.118	0.031	0.236	0.014	0.007	0.024

Technical Data
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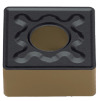
SN = SQUARE 90° NEGATIVE

QUADRADA 90° NEGATIVA | ESQUADRA 90° NEGATIVA

			P						M							K				N	S			
			CVD					PVD	CVD			PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	R3	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	ANSI Reference	PHG105	PHG115	PHG125	PHG135	PHG140	PH7910	PHS215	PHS225	PHS240	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
SNMG-ST  Medium	1121338	SNMG 322-ST															◈	◈						
	1121241	SNMG 431-ST															○	◈						
	1121181	SNMG 432-ST															◈	◈						
	1121310	SNMG 433-ST															◈	◈	○					
	1121242	SNMG 434-ST															◈	◈						
	1121538	SNMG 543-ST															○	○						
	1121541	SNMG 544-ST															○	◈						
	1121544	SNMG 643-ST															◈	◈						
	1121548	SNMG 644-ST														○	◈	◈						
SNMG-SS  Roughing to Medium	1121526	SNMG 321-SS										△		△							△		△	
	1121527	SNMG 322-SS										△		△							△		△	
	1121365	SNMG 431-SS								◈		△		◈							△		◈	
	1121315	SNMG 432-SS								◈	◈	△		◈							△		◈	
	1121366	SNMG 433-SS								◈		△		◈							△		◈	
	1121532	SNMG 434-SS								◈														
	1121534	SNMG 542-SS								◈														
	1121537	SNMG 543-SS								◈														
	1121547	SNMG 644-SS								◈														
SNMG-HR  Roughing	1121194	SNMG 432-HR		◈	◈		◈										△	◈	△					
	1121195	SNMG 433-HR		◈	◈		◈										△	◈						
	1121361	SNMG 434-HR		◈	◈													◈	◈					
	1121535	SNMG 543-HR			◈		◈												○					
	1121539	SNMG 544-HR			◈		◈												△					
	1121542	SNMG 643-HR		◈	◈														◈					
	1121545	SNMG 644-HR		◈	◈		◈												○					
	1124184	SNMG 856-HR			◈																			
	1121638	SNMG 866-HR			◈		◈												○					

◈ 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 | Disponível sob consulta | Disponible bajo consulta

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

Technical Data page C - 518

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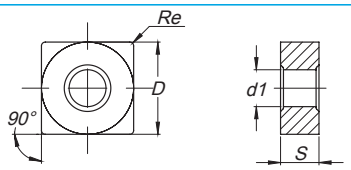
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373



ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)				Cutting Conditions Condições de Corte Condiciones de Corte					
		D	S	Re	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
SNMG 322-ST	SNMG 090308-ST	3/8	1/8	1/32	0.150	0.098	0.008	0.177	0.014	0.006	0.020
SNMG 431-ST	SNMG 120404-ST	1/2	3/16	1/64	0.203	0.118	0.008	0.236	0.008	0.006	0.012
SNMG 432-ST	SNMG 120408-ST	1/2	3/16	1/32	0.203	0.118	0.008	0.236	0.014	0.006	0.020
SNMG 433-ST	SNMG 120412-ST	1/2	3/16	3/64	0.203	0.118	0.012	0.236	0.016	0.006	0.024
SNMG 434-ST	SNMG 120416-ST	1/2	3/16	1/16	0.203	0.118	0.012	0.236	0.018	0.008	0.028
SNMG 543-ST	SNMG 150612-ST	5/8	1/4	3/64	0.250	0.160	0.012	0.315	0.016	0.006	0.025
SNMG 544-ST	SNMG 150616-ST	5/8	1/4	1/16	0.250	0.160	0.012	0.315	0.020	0.008	0.030
SNMG 643-ST	SNMG 190612-ST	3/4	1/4	3/64	0.313	0.177	0.012	0.354	0.016	0.006	0.024
SNMG 644-ST	SNMG 190616-ST	3/4	1/4	1/16	0.313	0.177	0.012	0.354	0.018	0.008	0.028
SNMG 321-SS	SNMG 090304-SS	3/8	1/8	1/64	0.150	0.079	0.020	0.177	0.008	0.004	0.012
SNMG 322-SS	SNMG 090308-SS	3/8	1/8	1/32	0.150	0.079	0.020	0.177	0.010	0.005	0.018
SNMG 431-SS	SNMG 120404-SS	1/2	3/16	1/64	0.203	0.118	0.020	0.252	0.008	0.005	0.012
SNMG 432-SS	SNMG 120408-SS	1/2	3/16	1/32	0.203	0.118	0.020	0.252	0.010	0.005	0.018
SNMG 433-SS	SNMG 120412-SS	1/2	3/16	3/64	0.203	0.118	0.020	0.252	0.012	0.006	0.024
SNMG 434-SS	SNMG 120416-SS	1/2	3/16	1/16	0.203	0.118	0.020	0.252	0.018	0.006	0.031
SNMG 542-SS	SNMG 150608-SS	5/8	1/4	1/32	0.250	0.157	0.020	0.315	0.010	0.005	0.018
SNMG 543-SS	SNMG 150612-SS	5/8	1/4	3/64	0.250	0.157	0.020	0.315	0.012	0.006	0.024
SNMG 644-SS	SNMG 190616-SS	3/4	1/4	1/16	0.313	0.157	0.020	0.315	0.018	0.006	0.031
SNMG 432-HR	SNMG 120408-HR	1/2	3/16	1/32	0.203	0.157	0.031	0.276	0.014	0.008	0.022
SNMG 433-HR	SNMG 120412-HR	1/2	3/16	3/64	0.203	0.157	0.039	0.276	0.016	0.010	0.028
SNMG 434-HR	SNMG 120416-HR	1/2	3/16	1/16	0.203	0.157	0.059	0.276	0.020	0.013	0.031
SNMG 543-HR	SNMG 150612-HR	5/8	1/4	3/64	0.250	0.157	0.039	0.315	0.016	0.010	0.028
SNMG 544-HR	SNMG 150616-HR	5/8	1/4	1/16	0.250	0.157	0.059	0.315	0.020	0.013	0.031
SNMG 643-HR	SNMG 190612-HR	3/4	1/4	3/64	0.313	0.197	0.039	0.394	0.016	0.010	0.028
SNMG 644-HR	SNMG 190616-HR	3/4	1/4	1/16	0.313	0.197	0.059	0.394	0.020	0.013	0.031
SNMG 856-HR	SNMG 250724-HR	1	5/16	1/32	0.359	0.236	0.079	0.591	0.039	0.016	0.047
SNMG 866-HR	SNMG 250924-HR	1	3/8	1/32	0.359	0.236	0.079	0.591	0.039	0.016	0.047

Technical Data
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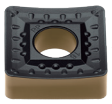
SN = SQUARE 90° NEGATIVE

QUADRADA 90° NEGATIVA | ESQUADRA 90° NEGATIVA

			P						M							K				N	S			
			CVD					PVD	CVD			PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	R3	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	ANSI Reference	PHG105	PHG115	PHG125	PHG135	PHG140	PH7910	PHS215	PHS225	PHS240	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
SNMM-RP  Roughing	1124057	SNMG 542-RP		●	●																			
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	1124001	SNMM 643-RP		●	●																			
	1124002	SNMM 644-RP		●	●																			
	1124003	SNMM 646-RP		○	●	◇																		
SNMM-HY  Heavy to Roughing	1121606	SNMM 643-HY		●	●		●				●													
	1121250	SNMM 644-HY		●	●						○													
	1121452	SNMM 646-HY		○	○						○													
	1121160	SNMM 856-HY		○	●		●				●													
	1121161	SNMM 866-HY		○	○		●				●													
SNMM-HZ  Heavy to Roughing	1121605	SNMM 643-HZ		●	○													●	●					
	1121249	SNMM 644-HZ		○	●		●											●	○					
	1121440	SNMM 646-HZ		○	●	○												●	●					
	1121158	SNMM 856-HZ		●	●		●											●	○					
	1123786	SNMM 858-HZ		○	●																			
	1121159	SNMM 866-HZ		○	●		●											●	○					

● 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 | Disponível sob consulta | Disponible bajo consulta

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

Technical Data page C - 518

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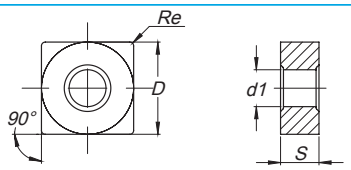
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373



ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)				Cutting Conditions Condições de Corte Condiciones de Corte					
		D	S	Re	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
SNMG 542-RP	SNMM 150608-RP	5/8	1/4	1/32	0.250	0.157	0.039	0.315	0.012	0.006	0.020
SNMG 543-RP	SNMM 150612-RP	5/8	1/4	3/64	0.250	0.157	0.039	0.315	0.016	0.010	0.028
SNMG 544-RP	SNMM 150616-RP	5/8	1/4	1/16	0.250	0.157	0.039	0.315	0.020	0.014	0.035
SNMM 643-RP	SNMM 190612-RP	3/4	1/4	3/64	0.313	0.217	0.079	0.472	0.024	0.012	0.033
SNMM 644-RP	SNMM 190616-RP	3/4	1/4	1/16	0.313	0.236	0.079	0.472	0.024	0.014	0.039
SNMM 646-RP	SNMM 190624-RP	3/4	1/4	1/32	0.313	0.236	0.079	0.472	0.031	0.020	0.059
SNMM 643-HY	SNMM 190612-HY	3/4	1/4	3/64	0.313	0.236	0.079	0.472	0.024	0.014	0.035
SNMM 644-HY	SNMM 190616-HY	3/4	1/4	1/16	0.313	0.236	0.079	0.472	0.024	0.014	0.047
SNMM 646-HY	SNMM 190624-HY	3/4	1/4	1/32	0.313	0.236	0.079	0.472	0.039	0.024	0.063
SNMM 856-HY	SNMM 250724-HY	1	5/16	1/32	0.359	0.335	0.098	0.591	0.039	0.024	0.063
SNMM 866-HY	SNMM 250924-HY	1	3/8	1/32	0.359	0.335	0.118	0.591	0.039	0.024	0.063
SNMM 643-HZ	SNMM 190612-HZ	3/4	1/4	3/64	0.313	0.394	0.094	0.512	0.024	0.014	0.035
SNMM 644-HZ	SNMM 190616-HZ	3/4	1/4	1/16	0.313	0.394	0.094	0.512	0.024	0.014	0.047
SNMM 646-HZ	SNMM 190624-HZ	3/4	1/4	1/32	0.313	0.394	0.126	0.512	0.039	0.024	0.063
SNMM 856-HZ	SNMM 250724-HZ	1	5/16	1/32	0.359	0.394	0.126	0.669	0.039	0.024	0.063
SNMM 858-HZ	SNMM 250732-HZ	1	5/16	1/8	0.359	0.394	0.126	0.669	0.047	0.031	0.071
SNMM 866-HZ	SNMM 250924-HZ	1	3/8	1/32	0.359	0.394	0.126	0.669	0.039	0.024	0.063

Technical Data
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TN = TRIANGULAR 60º NEGATIVE

TRIANGULAR 60º NEGATIVA | TRIANGULAR 60º NEGATIVA

			P						M							K				N	S			
			CVD					PVD	CVD			PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	R3	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	ANSI Reference	PHG105	PHG115	PHG125	PHG135	PHG140	PH7910	PHS215	PHS225	PHS240	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
TNMA	1120624	TNMA 221															●	●						
	1120625	TNMA 222															●	●						
	1120626	TNMA 321															●	●						
	1120627	TNMA 322															●	●						
	1120629	TNMA 331															●	●						
	1120630	TNMA 332															●	●						
	1120632	TNMA 333															●	●						
	1121921	TNMA 334															●	●						
	1120634	TNMA 431															●	●						
	1120635	TNMA 432															●	●						
	1120636	TNMA 433															●	●						
	1120637	TNMA 434															●	●						
	1121554	TNMA 542															●	●						
	1121555	TNMA 543															●	●						
	1120639	TNMA 544															●	●						
	1120640	TNMA 656															●	●						
TNMG-MF	1121556	TNMG 331-MF	●	●	●			◇																
	1121558	TNMG 332-MF	●	●	●			◇																
	1121560	TNMG 333-MF		●	●																			
Finishing	1121369	TNMG 432-MF		○																				
TNMG-SF	1123757	TNMG 331-SF							●	●			●	●	●							●	●	●
	1123719	TNMG 332-SF							●	●			●	●	●							●	●	●
	1123758	TNMG 333-SF							●	●		◇	●	●	●						◇	●	●	●
Medium to Finishing	1124070	TNMG 431-SF							●	●			●	●	●							●	●	●
	1123759	TNMG 432-SF							●	●			●	●	●							●	●	●
	1124028	TNMG 433-SF							●	●		◇	●	●	●						◇	●	●	●
TNMG-LC	1123638	TNMG 331-LC	●	●	●																			
	1122025	TNMG 332-LC		●	●																			
	1123656	TNMG 333-LC		●	●																			
Medium to Finishing	1123660	TNMG 432-LC		●	○																			
	1123657	TNMG 433-LC		○	○																			
TNMG-MS	1121557	TNMG 331-MS													●					●				●
	1121559	TNMG 332-MS												◇	●					●			◇	●
Medium to Finishing	1121561	TNMG 333-MS													●					●				●
NEW TNMG-GS	1124508	TNMG 331-GS											●		●							●		●
	1124509	TNMG 332-GS											●		●							●		●
Medium to Finishing	1124510	TNMG 333-GS											●		●							●		●

● First choice | 1ª Escolha | 1ª Opción

● Stock Itens | Itens de stock

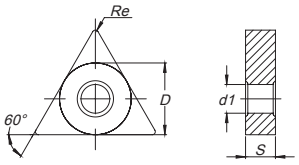
◇ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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

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

Technical Data page C - 518

palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373



ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)				Cutting Conditions Condições de Corte Condiciones de Corte					
		D	S	Re	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
TNMA 221	TNMA 110304	1/4	1/8	1/64	0.089	0.079	0.006	0.157	0.008	0.004	0.012
TNMA 222	TNMA 110308	1/4	1/8	1/32	0.089	0.079	0.006	0.157	0.014	0.006	0.024
TNMA 321	TNMA 160304	3/8	1/8	1/64	0.150	0.098	0.008	0.197	0.008	0.004	0.012
TNMA 322	TNMA 160308	3/8	1/8	1/32	0.150	0.098	0.008	0.197	0.014	0.006	0.024
TNMA 331	TNMA 160404	3/8	3/16	1/64	0.150	0.098	0.008	0.197	0.008	0.004	0.012
TNMA 332	TNMA 160408	3/8	3/16	1/32	0.150	0.138	0.008	0.276	0.014	0.006	0.024
TNMA 333	TNMA 160412	3/8	3/16	3/64	0.150	0.138	0.012	0.276	0.018	0.008	0.031
TNMA 334	TNMA 160416	3/8	3/16	1/16	0.150	0.138	0.012	0.276	0.022	0.008	0.039
TNMA 431	TNMA 220404	1/2	3/16	1/64	0.203	0.157	0.008	0.394	0.008	0.004	0.012
TNMA 432	TNMA 220408	1/2	3/16	1/32	0.203	0.197	0.008	0.394	0.014	0.006	0.024
TNMA 433	TNMA 220412	1/2	3/16	3/64	0.203	0.197	0.012	0.394	0.018	0.008	0.031
TNMA 434	TNMA 220416	1/2	3/16	1/16	0.203	0.197	0.012	0.394	0.022	0.008	0.039
TNMA 542	TNMA 270608	5/8	1/4	1/32	0.250	0.197	0.012	0.472	0.014	0.006	0.024
TNMA 543	TNMA 270612	5/8	1/4	3/64	0.250	0.197	0.012	0.472	0.018	0.008	0.031
TNMA 544	TNMA 270616	5/8	1/4	1/16	0.250	0.197	0.012	0.472	0.022	0.008	0.039
TNMA 656	TNMA 330724	3/4	5/16	1/32	0.313	0.256	0.012	0.591	0.024	0.012	0.079
TNMG 331-MF	TNMG 160404-MF	3/8	3/16	1/64	0.150	0.016	0.004	0.059	0.006	0.002	0.010
TNMG 332-MF	TNMG 160408-MF	3/8	3/16	1/32	0.150	0.016	0.004	0.059	0.008	0.004	0.016
TNMG 333-MF	TNMG 160412-MF	3/8	3/16	3/64	0.150	0.039	0.008	0.098	0.012	0.006	0.024
TNMG 432-MF	TNMG 220408-MF	1/2	3/16	1/32	0.203	0.059	0.010	0.098	0.008	0.004	0.016
TNMG 331-SF	TNMG 160404-SF	3/8	3/16	1/64	0.150	0.059	0.024	0.118	0.006	0.004	0.009
TNMG 332-SF	TNMG 160408-SF	3/8	3/16	1/32	0.150	0.059	0.024	0.118	0.010	0.005	0.015
TNMG 333-SF	TNMG 160412-SF	3/8	3/16	3/64	0.150	0.059	0.024	0.118	0.014	0.006	0.022
TNMG 431-SF	TNMG 220404-SF	1/2	3/16	1/64	0.203	0.059	0.024	0.118	0.008	0.004	0.014
TNMG 432-SF	TNMG 220408-SF	1/2	3/16	1/32	0.203	0.059	0.024	0.118	0.010	0.005	0.016
TNMG 433-SF	TNMG 220412-SF	1/2	3/16	3/64	0.203	0.059	0.024	0.118	0.014	0.006	0.022
TNMG 331-LC	TNMG 160404-LC	3/8	3/16	1/64	0.150	0.039	0.016	0.098	0.006	0.003	0.012
TNMG 332-LC	TNMG 160408-LC	3/8	3/16	1/32	0.150	0.059	0.016	0.098	0.008	0.004	0.016
TNMG 333-LC	TNMG 160412-LC	3/8	3/16	3/64	0.150	0.079	0.031	0.118	0.010	0.006	0.020
TNMG 432-LC	TNMG 220408-LC	1/2	3/16	1/32	0.203	0.079	0.016	0.118	0.008	0.004	0.016
TNMG 433-LC	TNMG 220412-LC	1/2	3/16	3/64	0.203	0.098	0.031	0.138	0.010	0.006	0.020
TNMG 331-MS	TNMG 160404-MS	3/8	3/16	1/64	0.150	0.079	0.012	0.150	0.006	0.004	0.008
TNMG 332-MS	TNMG 160408-MS	3/8	3/16	1/32	0.150	0.079	0.012	0.150	0.010	0.004	0.016
TNMG 333-MS	TNMG 160412-MS	3/8	3/16	3/64	0.150	0.079	0.016	0.150	0.012	0.006	0.024
TNMG 331-GS	TNMG 160404-GS	3/8	3/16	1/64	0.150	0.079	0.006	0.118	0.008	0.004	0.012
TNMG 332-GS	TNMG 160408-GS	3/8	3/16	1/32	0.150	0.098	0.008	0.118	0.010	0.004	0.012
TNMG 333-GS	TNMG 160412-GS	3/8	3/16	3/64	0.150	0.118	0.012	0.138	0.012	0.006	0.014

Technical Data
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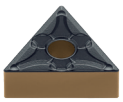
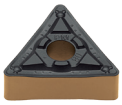
TN = TRIANGULAR 60º NEGATIVE

TRIANGULAR 60º NEGATIVA | TRIANGULAR 60º NEGATIVA

			P						M							K				N	S			
			CVD					PVD	CVD			PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	R3	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	ANSI Reference	PHG105	PHG115	PHG125	PHG135	PHG140	PH7910	PHS215	PHS225	PHS240	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
TNMG-MR  Medium	1122000	TNMG 322-MR		◈	◈																			
	1121281	TNMG 331-MR		◈	◈		◈																	
	1121269	TNMG 332-MR		◈	◈		◈																	
	1121282	TNMG 333-MR		○	◈		◈																	
	1121562	TNMG 334-MR			○																			
	1121625	TNMG 431-MR		○	◈		◈																	
	1121305	TNMG 432-MR		◈	◈		◈																	
	1121307	TNMG 433-MR		○	◈																			
	1121564	TNMG 434-MR			○																			
TNMG-PM  Medium	1123991	TNMG 331-PM	◈	◈	◈																			
	1123917	TNMG 332-PM	◈	◈	◈																			
	1123992	TNMG 333-PM	◈	◈	◈																			
	1123993	TNMG 334-PM		◈	◈																			
	1123922	TNMG 431-PM		◈	◈																			
	1123923	TNMG 432-PM		◈	◈																			
	1123994	TNMG 433-PM		◈	◈																			
	1123995	TNMG 434-PM		◈	◈																			
TNMG-ST  Medium	1121210	TNMG 222-ST																◈						
	1121211	TNMG 321-ST																◈						
	1121212	TNMG 322-ST																◈						
	1121294	TNMG 331-ST															◈	◈						
	1121268	TNMG 332-ST															◈	◈						
	1121348	TNMG 333-ST															◈	◈						
	1121563	TNMG 334-ST															◈	◈						
	1121349	TNMG 431-ST															◈	◈						
	1121350	TNMG 432-ST															◈	◈						
	1121354	TNMG 433-ST															◈	◈						
	1121351	TNMG 434-ST															◈	◈						

◈ First choice | 1ª Escolha | 1ª Opción

◈ Stock Itens | Itens de stock

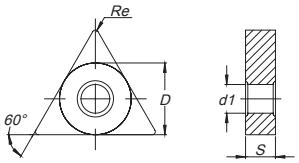
◈ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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

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

Technical Data page C - 518

palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373



ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)				Cutting Conditions Condições de Corte Condiciones de Corte					
		D	S	Re	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
TNMG 322-MR	TNMG 160308-MR	3/8	1/8	1/32	0.150	0.110	0.012	0.197	0.012	0.006	0.020
TNMG 331-MR	TNMG 160404-MR	3/8	3/16	1/64	0.150	0.118	0.016	0.197	0.008	0.004	0.012
TNMG 332-MR	TNMG 160408-MR	3/8	3/16	1/32	0.150	0.118	0.020	0.197	0.012	0.006	0.020
TNMG 333-MR	TNMG 160412-MR	3/8	3/16	3/64	0.150	0.118	0.031	0.197	0.014	0.007	0.024
TNMG 334-MR	TNMG 160416-MR	3/8	3/16	3/64	0.150	0.120	0.032	0.200	0.016	0.009	0.025
TNMG 431-MR	TNMG 220404-MR	1/2	3/16	1/64	0.203	0.157	0.016	0.260	0.008	0.004	0.012
TNMG 432-MR	TNMG 220408-MR	1/2	3/16	1/32	0.203	0.157	0.020	0.260	0.012	0.006	0.020
TNMG 433-MR	TNMG 220412-MR	1/2	3/16	3/64	0.203	0.157	0.031	0.260	0.014	0.007	0.024
TNMG 434-MR	TNMG 220416-MR	1/2	3/16	1/16	0.203	0.157	0.039	0.260	0.016	0.009	0.028
TNMG 331-PM	TNMG 160404-PM	3/8	3/16	1/64	0.150	0.118	0.016	0.197	0.008	0.004	0.012
TNMG 332-PM	TNMG 160408-PM	3/8	3/16	1/32	0.150	0.118	0.020	0.197	0.012	0.006	0.020
TNMG 333-PM	TNMG 160412-PM	3/8	3/16	3/64	0.150	0.118	0.031	0.197	0.014	0.007	0.024
TNMG 334-PM	TNMG 160416-PM	3/8	3/16	1/16	0.150	0.118	0.039	0.197	0.016	0.009	0.026
TNMG 431-PM	TNMG 220404-PM	1/2	3/16	1/64	0.203	0.157	0.016	0.260	0.008	0.004	0.012
TNMG 432-PM	TNMG 220408-PM	1/2	3/16	1/32	0.203	0.157	0.020	0.260	0.012	0.006	0.020
TNMG 433-PM	TNMG 220412-PM	1/2	3/16	3/64	0.203	0.157	0.031	0.260	0.014	0.007	0.024
TNMG 434-PM	TNMG 220416-PM	1/2	3/16	1/16	0.203	0.157	0.039	0.260	0.016	0.009	0.024
TNMG 222-ST	TNMG 110308-ST	1/4	1/8	1/32	0.089	0.079	0.006	0.177	0.014	0.006	0.020
TNMG 321-ST	TNMG 160304-ST	3/8	1/8	1/64	0.150	0.118	0.008	0.217	0.009	0.006	0.012
TNMG 322-ST	TNMG 160308-ST	3/8	1/8	1/32	0.150	0.118	0.008	0.217	0.014	0.006	0.020
TNMG 331-ST	TNMG 160404-ST	3/8	3/16	1/64	0.150	0.118	0.008	0.217	0.009	0.006	0.012
TNMG 332-ST	TNMG 160408-ST	3/8	3/16	1/32	0.150	0.118	0.008	0.217	0.014	0.006	0.020
TNMG 333-ST	TNMG 160412-ST	3/8	3/16	3/64	0.150	0.118	0.012	0.217	0.016	0.006	0.024
TNMG 334-ST	TNMG 160416-ST	3/8	3/16	1/16	0.150	0.118	0.012	0.217	0.016	0.006	0.024
TNMG 431-ST	TNMG 220404-ST	1/2	3/16	1/64	0.203	0.157	0.008	0.315	0.009	0.006	0.012
TNMG 432-ST	TNMG 220408-ST	1/2	3/16	1/32	0.203	0.157	0.008	0.315	0.014	0.006	0.020
TNMG 433-ST	TNMG 220412-ST	1/2	3/16	3/64	0.203	0.157	0.012	0.315	0.016	0.006	0.024
TNMG 434-ST	TNMG 220416-ST	1/2	3/16	1/16	0.203	0.157	0.012	0.315	0.018	0.008	0.028

Technical Data
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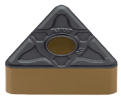
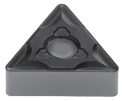
TN = TRIANGULAR 60º NEGATIVE

TRIANGULAR 60º NEGATIVA | TRIANGULAR 60º NEGATIVA

			P						M							K				N	S			
			CVD					PVD	CVD			PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	R3	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	ANSI Reference	PHG105	PHG115	PHG125	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 332-MW		◉	◉													◉	◉					
	1121343	TNMG 333-MW		○	○													◉	◉					
TNMG-SS  Roughing to Medium	1121289	TNMG 331-SS							◉	◉	◉	◇		◉							◇		◉	
	1121271	TNMG 332-SS							◉	◉	◉	◇		◉							◇		◉	
	1121290	TNMG 333-SS							◉	◉	◉	◇		◉							◇		◉	
	1121330	TNMG 432-SS							◉	◉	◉	◇		◉							◇		◉	
	1121368	TNMG 433-SS								◉				◉									◉	
TNMG-HR  Roughing	1121270	TNMG 332-HR	◉	◉	◉		◉										◉	◉						
	1121283	TNMG 333-HR		◉	◉		◉										◉	◉						
	1121306	TNMG 432-HR		◉	◉		○										◉	◉	◉					
	1121308	TNMG 433-HR		◉	◉		◉										◉	◉						
	1121309	TNMG 434-HR		◉	◉												◉	◉	◉					
	1121567	TNMG 543-HR			◉		◉																	
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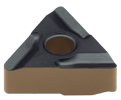
TNMX-01  Medium to Finishing	1121004	TNMX 331-L01		◉	◉					○									○					
	1120713	TNMX 331-R01		◉	◉					○							○		○					
	1121005	TNMX 332-L01		○	◉	○													○					
	1121006	TNMX 332-R01		◉	◉	○													○					
	1123822	TNMX 431-R01																						
	1123823	TNMX 431-L01			○																			
	1123824	TNMX 432-R01																						
	1123825	TNMX 432-L01			○																			

◉ First choice | 1ª Escolha | 1ª Opción

◉ Stock Itens | Itens de stock

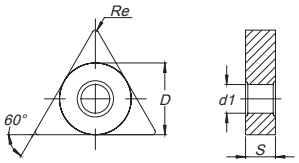
◇ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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

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

Technical Data page C - 518

palbit PILOT Precision Products **Pilot Precision Products** | 15 Merrigan Way | South Deerfield, MA 01373



ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)				Cutting Conditions Condições de Corte Condiciones de Corte					
		D	S	Re	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
TNMG 332-MW	TNMG 160408-MW	3/8	3/16	1/32	0.150	0.079	0.020	0.177	0.014	0.006	0.024
TNMG 333-MW	TNMG 160412-MW	3/8	3/16	3/64	0.150	0.098	0.020	0.197	0.020	0.010	0.035
TNMG 331-SS	TNMG 160404-SS	3/8	3/16	1/64	0.150	0.079	0.020	0.157	0.008	0.004	0.012
TNMG 332-SS	TNMG 160408-SS	3/8	3/16	1/32	0.150	0.118	0.020	0.189	0.010	0.005	0.018
TNMG 333-SS	TNMG 160412-SS	3/8	3/16	3/64	0.150	0.118	0.020	0.189	0.012	0.006	0.024
TNMG 432-SS	TNMG 220408-SS	1/2	3/16	1/32	0.203	0.157	0.020	0.260	0.010	0.005	0.018
TNMG 433-SS	TNMG 220412-SS	1/2	3/16	3/64	0.203	0.157	0.020	0.260	0.012	0.006	0.024
TNMG 332-HR	TNMG 160408-HR	3/8	3/16	1/32	0.150	0.118	0.031	0.236	0.014	0.008	0.022
TNMG 333-HR	TNMG 160412-HR	3/8	3/16	3/64	0.150	0.118	0.039	0.236	0.016	0.010	0.028
TNMG 432-HR	TNMG 220408-HR	1/2	3/16	1/32	0.203	0.157	0.031	0.256	0.014	0.008	0.022
TNMG 433-HR	TNMG 220412-HR	1/2	3/16	3/64	0.203	0.157	0.039	0.276	0.016	0.010	0.028
TNMG 434-HR	TNMG 220416-HR	1/2	3/16	1/16	0.203	0.157	0.059	0.276	0.024	0.010	0.035
TNMG 543-HR	TNMG 270612-HR	5/8	1/4	3/64	0.250	0.236	0.079	0.394	0.016	0.010	0.028
TNMG 544-HR	TNMG 270616-HR	5/8	1/4	1/16	0.250	0.236	0.079	0.394	0.024	0.014	0.035
TNMG 666-HR	TNMG 330924-HR	3/4	3/8	1/32	0.313	0.276	0.079	0.472	0.031	0.016	0.047
TNMX 331-L01	TNMX 160404-L01	3/8	3/16	1/64	0.150	0.098	0.039	0.138	0.006	0.005	0.012
TNMX 331-R01	TNMX 160404-R01	3/8	3/16	1/64	0.150	0.098	0.039	0.138	0.006	0.005	0.012
TNMX 332-L01	TNMX 160408-L01	3/8	3/16	1/32	0.150	0.098	0.051	0.138	0.012	0.006	0.020
TNMX 332-R01	TNMX 160408-R01	3/8	3/16	1/32	0.150	0.098	0.051	0.138	0.012	0.006	0.020
TNMX 431-R01	TNMX 220404-R01	1/2	3/16	1/64	0.203	0.157	0.059	0.276	0.008	0.006	0.012
TNMX 431-L01	TNMX 220404-L01	1/2	3/16	1/64	0.203	0.157	0.059	0.276	0.008	0.006	0.012
TNMX 432-R01	TNMX 220408-R01	1/2	3/16	1/32	0.203	0.157	0.059	0.276	0.012	0.007	0.022
TNMX 432-L01	TNMX 220408-L01	1/2	3/16	1/32	0.203	0.157	0.059	0.276	0.012	0.007	0.022

Technical Data
page C - 518

VN = RHOMBIC 35° NEGATIVE

RÔMBICA 35° NEGATIVA | RÓMBICA 35° NEGATIVA

			P						M							K				N	S			
			CVD					PVD	CVD			PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	R3	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	ANSI Reference	PHG105	PHG115	PHG125	PHG135	PHG140	PH7910	PHS215	PHS225	PHS240	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
VNMA Roughing	1120819	VNMA 331															●	●						
	1121077	VNMA 332															●	●						
VNMG-MF Finishing	1123635	VNMG 331-MF		●	●			◇	○															
	1123636	VNMG 332-MF	●	●	●			◇	○															
VNMG-SF Medium to Finishing	1123760	VNMG 331-SF							●	●			●	●	●							●	●	●
	1123761	VNMG 332-SF							●	●			●	●	●							●	●	●
	1123762	VNMG 333-SF							●	●		◇	●	●	●						◇	●	●	●
VNMG-LC Medium to Finishing	1123659	VNMG 332-LC		●	●																			
VNMG-MS Medium to Finishing	1121579	VNMG 331-MS											●	◇	●					●		●	◇	●
	1121580	VNMG 332-MS											●	◇	●					●		●	◇	●
NEW VNMG-GS Medium to Finishing	1124562	VNMG 331-GS											●		●							●		●
	1124563	VNMG 332-GS											●		●							●		●
	1124564	VNMG 333-GS											●		●							●		●
VNMG-MR Medium	1121278	VNMG 331-MR		●	●		●																	
	1121279	VNMG 332-MR		●	●		●																	
	1121581	VNMG 432-MR		●	●		◇																	
VNMG-PM Medium	1124086	VNMG 331-PM	●	●	●																			
	1124087	VNMG 332-PM	●	●	●																			
	1124600	VNMG 333-PM		○	○																			
VNMG-ST Medium	1121276	VNMG 331-ST															●	●						
	1121277	VNMG 332-ST															●	●						
VNMG-SS Roughing to Medium	1121367	VNMG 331-SS								●		◇		●							◇		●	
	1121295	VNMG 332-SS								●		◇		●							◇		●	

● First choice | 1ª Escolha | 1ª Opción

● Stock Itens | Itens de stock

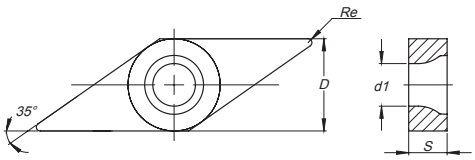
◇ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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

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

Technical Data page C - 518

palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373



ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)				Cutting Conditions Condições de Corte Condiciones de Corte					
		D	S	Re	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
VNMA 331	VNMA 160404	3/8	3/16	1/64	0.150	0.008	0.004	0.130	0.006	0.003	0.010
VNMA 332	VNMA 160408	3/8	3/16	1/32	0.150	0.008	0.004	0.130	0.012	0.004	0.020
VNMG 331-MF	VNMG 160404-MF	3/8	3/16	1/64	0.150	0.020	0.006	0.059	0.006	0.002	0.010
VNMG 332-MF	VNMG 160408-MF	3/8	3/16	1/32	0.150	0.031	0.008	0.059	0.008	0.004	0.016
VNMG 331-SF	VNMG 160404-SF	3/8	3/16	1/64	0.150	0.059	0.024	0.118	0.006	0.004	0.009
VNMG 332-SF	VNMG 160408-SF	3/8	3/16	1/32	0.150	0.059	0.024	0.118	0.010	0.005	0.015
VNMG 333-SF	VNMG 160412-SF	3/8	3/16	3/64	0.150	0.059	0.024	0.118	0.014	0.006	0.022
VNMG 332-LC	VNMG 160408-LC	3/8	3/16	1/32	0.150	0.039	0.014	0.079	0.005	0.003	0.014
VNMG 331-MS	VNMG 160404-MS	3/8	3/16	1/64	0.150	0.079	0.008	0.157	0.006	0.004	0.008
VNMG 332-MS	VNMG 160408-MS	3/8	3/16	1/32	0.150	0.098	0.008	0.157	0.010	0.006	0.016
VNMG 331-GS	VNMG 160404-GS	3/8	3/16	1/64	0.150	0.059	0.006	0.079	0.008	0.003	0.010
VNMG 332-GS	VNMG 160408-GS	3/8	3/16	1/32	0.150	0.079	0.008	0.098	0.010	0.004	0.012
VNMG 333-GS	VNMG 160412-GS	3/8	3/16	3/64	0.150	0.098	0.012	0.118	0.012	0.005	0.014
VNMG 331-MR	VNMG 160404-MR	3/8	3/16	1/64	0.150	0.118	0.039	0.157	0.010	0.004	0.012
VNMG 332-MR	VNMG 160408-MR	3/8	3/16	1/32	0.150	0.118	0.039	0.157	0.012	0.006	0.020
VNMG 432-MR	VNMG 220408-MR	1/2	3/16	1/32	0.203	0.157	0.059	0.197	0.014	0.006	0.020
VNMG 331-PM	VNMG 160404-PM	3/8	3/16	1/64	0.150	0.118	0.039	0.157	0.010	0.004	0.012
VNMG 332-PM	VNMG 160408-PM	3/8	3/16	1/32	0.150	0.118	0.039	0.157	0.012	0.006	0.020
VNMG 333-PM	VNMG 160412-PM	3/8	3/16	3/64	0.150	0.118	0.039	0.157	0.014	0.008	0.020
VNMG 331-ST	VNMG 160404-ST	3/8	3/16	1/64	0.150	0.079	0.008	0.138	0.012	0.006	0.016
VNMG 332-ST	VNMG 160408-ST	3/8	3/16	1/32	0.150	0.079	0.012	0.138	0.014	0.006	0.020
VNMG 331-SS	VNMG 160404-SS	3/8	3/16	1/64	0.150	0.059	0.020	0.157	0.008	0.004	0.012
VNMG 332-SS	VNMG 160408-SS	3/8	3/16	1/32	0.150	0.079	0.020	0.157	0.010	0.005	0.018

Technical Data
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WN = TRIGON 80º NEGATIVE

TRIGONAL 80º NEGATIVA | TRIGONA 80º NEGATIVA

			P						M							K				N	S			
			CVD					PVD	CVD			PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	R3	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	ANSI Reference	PHG105	PHG115	PHG125	PHG135	PHG140	PH7910	PHS215	PHS225	PHS240	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
WNMA Roughing	1122002	WNMA 332															●	●						
	1120834	WNMA 431															●	●						
	1120835	WNMA 432															●	●						
	1121076	WNMA 433															●	●						
	1121582	WNMA 434															●	●						
WNMG-MF Finishing	1121205	WNMG 32.51-MF		●	●																			
	1121206	WNMG 32.52-MF		●	●																			
	1121586	WNMG 32.53-MF		●	●																			
	1121207	WNMG 331-MF		●	●																			
	1121208	WNMG 332-MF		●	●																			
	1121583	WNMG 333-MF		●	●																			
	1121213	WNMG 431-MF		●	●			◇																
	1121214	WNMG 432-MF	●	●	●			◇																
	1121589	WNMG 433-MF		●	●																			
WNMG-SF Medium to Finishing	1123763	WNMG 331-SF							●	●		◇	●	●	●						◇	●	●	●
	1123764	WNMG 332-SF							●	●		◇	○	●	●						◇	●	●	●
	1123765	WNMG 333-SF							●	●		◇	○	◇	●						◇	●	◇	●
	1123766	WNMG 431-SF							●	●			●	◇	●							●	◇	●
	1123721	WNMG 432-SF							●	●		◇	●	◇	●						◇	●	◇	●
	1123767	WNMG 433-SF							●	●		◇	●	◇	●						◇	●	◇	●
WNMG-LC Medium to Finishing	1123658	WNMG 432-LC	●	●	●																			
WNMG-MS Medium to Finishing	1121910	WNMG 331-MS												◇	●								◇	●
	1121911	WNMG 332-MS												◇	●								◇	●
	1124574	WNMG 431-MS											●		●					●		●		●
	1121588	WNMG 432-MS											●		●					●		●		●
	1121590	WNMG 433-MS											●	◇	●					●		●	◇	●
NEW WNMG-GS Medium to Finishing	1124690	WNMG 331-GS											●		●							●		●
	1124691	WNMG 332-GS											●		●							●		●
	1124559	WNMG 431-GS											●		●							●		●
	1124560	WNMG 432-GS											●		●							●		●
	1124561	WNMG 433-GS											●		●							●		●

● First choice | 1ª Escolha | 1ª Opción

● Stock Itens | Itens de stock

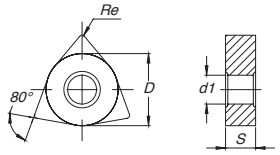
◇ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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

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

Technical Data page C - 518

palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373



ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)				Cutting Conditions Condições de Corte Condiciones de Corte					
		D	S	Re	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
WNMA 332	WNMA 060408	3/8	3/16	1/32	0.150	0.098	0.008	0.157	0.014	0.006	0.024
WNMA 431	WNMA 080404	1/2	3/16	1/64	0.203	0.110	0.008	0.197	0.009	0.006	0.012
WNMA 432	WNMA 080408	1/2	3/16	1/32	0.203	0.118	0.008	0.197	0.014	0.006	0.024
WNMA 433	WNMA 080412	1/2	3/16	3/64	0.203	0.118	0.012	0.197	0.018	0.008	0.031
WNMA 434	WNMA 080416	1/2	3/16	1/16	0.203	0.118	0.012	0.197	0.022	0.008	0.039
WNMG 32.51-MF	WNMG 06T304-MF	3/8	5/32	1/64	0.150	0.016	0.004	0.059	0.006	0.002	0.012
WNMG 32.52-MF	WNMG 06T308-MF	3/8	5/32	1/32	0.150	0.016	0.004	0.059	0.008	0.004	0.016
WNMG 32.53-MF	WNMG 06T312-MF	3/8	5/32	3/64	0.150	0.016	0.006	0.059	0.012	0.006	0.024
WNMG 331-MF	WNMG 060404-MF	3/8	3/16	1/64	0.150	0.016	0.004	0.059	0.006	0.002	0.012
WNMG 332-MF	WNMG 060408-MF	3/8	3/16	1/32	0.150	0.016	0.004	0.059	0.008	0.004	0.016
WNMG 333-MF	WNMG 060412-MF	3/8	3/16	3/64	0.150	0.016	0.006	0.059	0.012	0.006	0.024
WNMG 431-MF	WNMG 080404-MF	1/2	3/16	1/64	0.203	0.024	0.004	0.079	0.006	0.002	0.012
WNMG 432-MF	WNMG 080408-MF	1/2	3/16	1/32	0.203	0.024	0.004	0.079	0.008	0.004	0.016
WNMG 433-MF	WNMG 080412-MF	1/2	3/16	3/64	0.203	0.024	0.006	0.079	0.012	0.006	0.024
WNMG 331-SF	WNMG 060404-SF	3/8	3/16	1/64	0.150	0.059	0.024	0.118	0.006	0.004	0.009
WNMG 332-SF	WNMG 060408-SF	3/8	3/16	1/32	0.150	0.059	0.024	0.118	0.010	0.005	0.015
WNMG 333-SF	WNMG 060412-SF	3/8	3/16	3/64	0.150	0.059	0.024	0.118	0.014	0.006	0.022
WNMG 431-SF	WNMG 080404-SF	1/2	3/16	1/64	0.203	0.059	0.024	0.118	0.006	0.004	0.009
WNMG 432-SF	WNMG 080408-SF	1/2	3/16	1/32	0.203	0.059	0.024	0.118	0.010	0.005	0.015
WNMG 433-SF	WNMG 080412-SF	1/2	3/16	3/64	0.203	0.059	0.024	0.118	0.014	0.006	0.022
WNMG 432-LC	WNMG 080408-LC	1/2	3/16	1/64	0.203	0.059	0.016	0.098	0.006	0.004	0.014
WNMG 331-MS	WNMG 060404-MS	3/8	3/16	1/64	0.150	0.047	0.012	0.087	0.006	0.004	0.008
WNMG 332-MS	WNMG 060408-MS	3/8	3/16	1/32	0.150	0.047	0.012	0.087	0.010	0.008	0.016
WNMG 431-MS	WNMG 080404-MS	1/2	3/16	1/64	0.203	0.098	0.028	0.157	0.006	0.004	0.012
WNMG 432-MS	WNMG 080408-MS	1/2	3/16	1/32	0.203	0.098	0.028	0.157	0.010	0.008	0.016
WNMG 433-MS	WNMG 080412-MS	1/2	3/16	3/64	0.203	0.098	0.039	0.157	0.012	0.010	0.022
WNMG 331-GS	WNMG 060404-GS	3/8	3/16	1/64	0.150	0.079	0.006	0.098	0.008	0.004	0.012
WNMG 332-GS	WNMG 060408-GS	3/8	3/16	1/32	0.150	0.098	0.010	0.118	0.010	0.004	0.014
WNMG 431-GS	WNMG 080404-GS	1/2	3/16	1/64	0.203	0.079	0.006	0.098	0.008	0.004	0.012
WNMG 432-GS	WNMG 080408-GS	1/2	3/16	1/32	0.203	0.098	0.010	0.118	0.010	0.004	0.014
WNMG 433-GS	WNMG 080412-GS	1/2	3/16	3/64	0.203	0.118	0.012	0.138	0.012	0.006	0.016

Technical Data
page C - 518

WN = TRIGON 80º NEGATIVE

TRIGONAL 80º NEGATIVA | TRIGONA 80º NEGATIVA

			P						M							K				N	S			
			CVD					PVD	CVD			PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	R3	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	ANSI Reference	PHG105	PHG115	PHG125	PHG135	PHG140	PH7910	PHS215	PHS225	PHS240	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
WNMG-MR	1121262	WNMG 32.51-MR		○	◉																			
	1121167	WNMG 32.52-MR		○	◉																			
	1121587	WNMG 32.53-MR		○	○																			
Medium	1121240	WNMG 331-MR		○	◉																			
	1121168	WNMG 332-MR		◎	◉																			
	1121584	WNMG 333-MR		◎	◉																			
	1121356	WNMG 431-MR		◎	◉																			
	1121327	WNMG 432-MR		◎	◉		◎																	
	1121261	WNMG 433-MR		◎	◉		◎																	
	1121592	WNMG 434-MR		◎	○																			
WNMG-PM	1124088	WNMG 331-PM	◎	◎	◉																			
	1124089	WNMG 332-PM	◎	◎	◉																			
Medium	1123988	WNMG 431-PM	◎	◎	◉																			
	1123918	WNMG 432-PM	◎	◎	◉																			
	1123989	WNMG 433-PM	◎	◎	◉		◎																	
	1123990	WNMG 434-PM	◎	◎	◉																			
WNMG-ST	1121162	WNMG 431-ST															◎	◉						
	1121163	WNMG 432-ST															◎	◉						
Medium	1121164	WNMG 433-ST															◎	◉						
	1121593	WNMG 434-ST															◎	◉						
WNMG-MW	1121370	WNMG 332-MW		○	◉		◎											◉	○					
	1121585	WNMG 333-MW		○	○													◉	◎					
	1121372	WNMG 432-MW		◉	◎													◉	◎					
Medium Wiper	1121371	WNMG 433-MW		◉	◎													◉	◎					
WNMG-SS	1121321	WNMG 32.51-SS							◎	◉		△		◎							△		◎	
	1121324	WNMG 32.52-SS							◎	◉	◎	△		◎							△		◎	
	1121322	WNMG 331-SS												◎									◎	
Roughing to Medium	1121325	WNMG 332-SS												◎									◎	
	1121323	WNMG 431-SS							◎	◉	◎	△		◎							△		◎	
	1121326	WNMG 432-SS							◎	◉	◎	△		◎							△		◎	
	1121591	WNMG 433-SS							◎	◉	◎	△		◎							△		◎	
WNMG-HR	1121127	WNMG 432-HR	◎	◎	◉		◎										◎	◉						
Roughing	1121128	WNMG 433-HR		◎	◉		◎										◎	◉						

◉ First choice | 1ª Escolha | 1ª Opción

◎ Stock Itens | Itens de stock

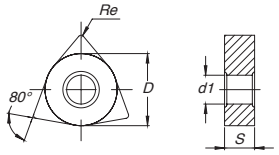
△ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

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

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

Technical Data page C - 518

palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373



ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)				Cutting Conditions Condições de Corte Condiciones de Corte					
		D	S	Re	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
WNMG 32.51-MR	WNMG 06T304-MR	3/8	5/32	1/64	0.150	0.079	0.020	0.118	0.009	0.004	0.012
WNMG 32.52-MR	WNMG 06T308-MR	3/8	5/32	1/32	0.150	0.079	0.020	0.118	0.012	0.006	0.020
WNMG 32.53-MR	WNMG 06T312-MR	3/8	5/32	3/64	0.150	0.079	0.031	0.118	0.014	0.007	0.024
WNMG 331-MR	WNMG 060404-MR	3/8	3/16	1/64	0.150	0.079	0.020	0.118	0.009	0.004	0.012
WNMG 332-MR	WNMG 060408-MR	3/8	3/16	1/32	0.150	0.079	0.020	0.118	0.012	0.006	0.020
WNMG 333-MR	WNMG 060412-MR	3/8	3/16	3/64	0.150	0.079	0.031	0.118	0.014	0.007	0.024
WNMG 431-MR	WNMG 080404-MR	1/2	3/16	1/64	0.203	0.098	0.020	0.157	0.009	0.004	0.012
WNMG 432-MR	WNMG 080408-MR	1/2	3/16	1/32	0.203	0.098	0.020	0.157	0.012	0.006	0.020
WNMG 433-MR	WNMG 080412-MR	1/2	3/16	3/64	0.203	0.098	0.031	0.157	0.014	0.007	0.024
WNMG 434-MR	WNMG 080416-MR	1/2	3/16	1/16	0.203	0.118	0.039	0.157	0.016	0.009	0.026
WNMG 331-PM	WNMG 060404-PM	3/8	3/16	1/64	0.150	0.098	0.020	0.118	0.009	0.004	0.012
WNMG 332-PM	WNMG 060408-PM	3/8	3/16	1/32	0.150	0.098	0.020	0.118	0.012	0.006	0.020
WNMG 431-PM	WNMG 080404-PM	1/2	3/16	1/64	0.203	0.098	0.020	0.157	0.009	0.004	0.012
WNMG 432-PM	WNMG 080408-PM	1/2	3/16	1/32	0.203	0.098	0.020	0.157	0.012	0.006	0.020
WNMG 433-PM	WNMG 080412-PM	1/2	3/16	3/64	0.203	0.098	0.031	0.157	0.014	0.007	0.024
WNMG 434-PM	WNMG 080416-PM	1/2	3/16	1/16	0.203	0.118	0.039	0.177	0.014	0.008	0.026
WNMG 431-ST	WNMG 080404-ST	1/2	3/16	1/64	0.203	0.098	0.008	0.197	0.009	0.006	0.012
WNMG 432-ST	WNMG 080408-ST	1/2	3/16	1/32	0.203	0.098	0.008	0.197	0.014	0.006	0.020
WNMG 433-ST	WNMG 080412-ST	1/2	3/16	3/64	0.203	0.098	0.012	0.197	0.016	0.006	0.024
WNMG 434-ST	WNMG 080416-ST	1/2	3/16	1/16	0.203	0.098	0.012	0.197	0.018	0.008	0.028
WNMG 332-MW	WNMG 060408-MW	3/8	3/16	1/32	0.150	0.059	0.020	0.138	0.012	0.006	0.024
WNMG 333-MW	WNMG 060412-MW	3/8	3/16	3/64	0.150	0.059	0.031	0.138	0.020	0.008	0.035
WNMG 432-MW	WNMG 080408-MW	1/2	3/16	1/32	0.203	0.118	0.020	0.197	0.012	0.006	0.024
WNMG 433-MW	WNMG 080412-MW	1/2	3/16	3/64	0.203	0.138	0.031	0.236	0.020	0.008	0.035
WNMG 32.51-SS	WNMG 06T304-SS	3/8	5/32	1/64	0.150	0.079	0.020	0.118	0.008	0.005	0.012
WNMG 32.52-SS	WNMG 06T308-SS	3/8	5/32	1/32	0.150	0.079	0.020	0.118	0.010	0.005	0.018
WNMG 331-SS	WNMG 060404-SS	3/8	3/16	1/64	0.150	0.079	0.020	0.118	0.008	0.005	0.012
WNMG 332-SS	WNMG 060408-SS	3/8	3/16	1/32	0.150	0.079	0.020	0.118	0.010	0.005	0.018
WNMG 431-SS	WNMG 080404-SS	1/2	3/16	1/64	0.203	0.079	0.020	0.118	0.008	0.005	0.012
WNMG 432-SS	WNMG 080408-SS	1/2	3/16	1/32	0.203	0.098	0.020	0.157	0.010	0.005	0.018
WNMG 433-SS	WNMG 080412-SS	1/2	3/16	3/64	0.203	0.098	0.020	0.157	0.012	0.006	0.024
WNMG 432-HR	WNMG 080408-HR	1/2	3/16	1/32	0.203	0.157	0.031	0.197	0.014	0.008	0.022
WNMG 433-HR	WNMG 080412-HR	1/2	3/16	3/64	0.203	0.157	0.059	0.197	0.016	0.010	0.028

Technical Data
page C - 518

CC = RHOMBIC 80° POSITIVE

RÔMBICA 80° POSITIVA | RÓMBICA 80° POSITIVA

Inserts Pastilhas Plaquitas	(1) Geometry code	ANSI Reference	P												M						K				N	S			
			CVD								PVD				CVD		PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	L7	R2	L8	R3	S9	L9	V5	G1	X5	G4	T1	U4	U5	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
		ANSI Reference	PHG105	PH5115	PHG115	PH5125	PHG125	PHG135	PH5740	PHG140	PH7910	PHP910	PH7920	PHP920	PHS215	PHS225	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
CCMW Finishing	1120206	CCMW 21.51																				◉							
	1120212	CCMW 32.51																				◉							
	1120214	CCMW 431																					◉						
CCMT-FP Finishing	1121655	CCMT 21.50.5-FP					◉																						
	1121658	CCMT 21.51-FP			◉		◉						△																
	1121690	CCMT 32.50.5-FP					◉																						
	1121666	CCMT 32.51-FP			◉		◉						△																
	1121652	CCMT 32.52-FP			◉		◉						△																
	1121665	CCMT 431-FP			◉		◉																						
CCMT-BO Finishing	1121620	CCMT 21.50.5-BO									◉		◉				◉		◉							◉		◉	
	1121621	CCMT 21.51-BO									◉		◉				◉		◉							◉		◉	
	1124090	CCMT 21.52-BO											◉						◉									◉	
	1124091	CCMT 21.50.5-BO											◉						◉									◉	
	1121601	CCMT 32.51-BO									◉		◉				◉		◉							◉		◉	
	1121622	CCMT 32.52-BO									◉		◉				◉		◉							◉		◉	
	1121624	CCMT 431-BO									◉		◉				◉		◉							◉		◉	
	1121623	CCMT 432-BO									◉		◉				◉		◉							◉		◉	
CCMT-FM Finishing	1121654	CCMT 21.50.5-FM																△	△	◉							◉	△	◉
	1121657	CCMT 21.51-FM														◉	△	△	△	◉						△	◉	△	◉
	1121689	CCMT 32.50.5-FM																△	△	◉							◉	△	◉
	1121692	CCMT 32.51-FM														◉		△	△	◉							◉	△	◉
	1121651	CCMT 32.52-FM														◉	△	△		◉						△	◉		◉
	1121664	CCMT 431-FM														◉		○	△	◉							○	△	◉
CCMT-FK Finishing	1121653	CCMT 21.50.5-FK																				◉							
	1121656	CCMT 21.51-FK																				◉							
	1121688	CCMT 32.50.5-FK																				◉							
	1121691	CCMT 32.51-FK																				◉							
	1121663	CCMT 431-FK																				◉							

◉ 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 | Disponível sob consulta | Disponible bajo consulta

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

Technical Data page C - 518

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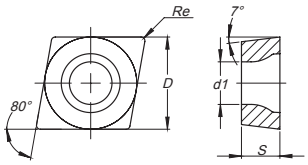
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

RELIEF ANGLE 7°



ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)				Cutting Conditions Condições de Corte Condiciones de Corte					
		D	S	Re	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
CCMW 21.51	CCMW 060204	1/4	3/32	1/64	0.110	0.059	0.002	0.118	0.008	0.003	0.010
CCMW 32.51	CCMW 09T304	3/8	5/32	1/64	0.173	0.091	0.002	0.177	0.008	0.003	0.010
CCMW 431	CCMW 120404	1/2	3/16	1/64	0.217	0.122	0.002	0.236	0.008	0.003	0.010
CCMT 21.50.5-FP	CCMT 060202-FP	1/4	3/32	0.008	0.110	0.012	0.002	0.067	0.002	0.001	0.004
CCMT 21.51-FP	CCMT 060204-FP	1/4	3/32	1/64	0.110	0.012	0.004	0.067	0.003	0.002	0.007
CCMT 32.50.5-FP	CCMT 09T302-FP	3/8	5/32	0.008	0.173	0.014	0.003	0.079	0.003	0.002	0.005
CCMT 32.51-FP	CCMT 09T304-FP	3/8	5/32	1/64	0.173	0.014	0.004	0.079	0.004	0.002	0.009
CCMT 32.52-FP	CCMT 09T308-FP	3/8	5/32	1/32	0.173	0.014	0.006	0.079	0.008	0.003	0.018
CCMT 431-FP	CCMT 120404-FP	1/2	3/16	1/64	0.217	0.017	0.006	0.094	0.006	0.003	0.011
CCMT 21.50.5-BO	CCMT 060202-BO	1/4	3/32	0.008	0.110	0.020	0.012	0.039	0.003	0.002	0.005
CCMT 21.51-BO	CCMT 060204-BO	1/4	3/32	1/64	0.110	0.020	0.012	0.039	0.005	0.003	0.008
CCMT 21.52-BO	CCMT 060208-BO	1/4	3/32	1/32	0.110	0.020	0.012	0.039	0.008	0.004	0.012
CCMT 21.50.5-BO	CCMT 09T302-BO	3/8	5/32	0.008	0.173	0.031	0.016	0.047	0.005	0.003	0.008
CCMT 32.51-BO	CCMT 09T304-BO	3/8	5/32	1/64	0.173	0.031	0.020	0.047	0.005	0.003	0.008
CCMT 32.52-BO	CCMT 09T308-BO	3/8	5/32	1/32	0.173	0.031	0.020	0.047	0.008	0.004	0.012
CCMT 431-BO	CCMT 120404-BO	1/2	3/16	1/64	0.217	0.039	0.020	0.059	0.005	0.003	0.008
CCMT 432-BO	CCMT 120408-BO	1/2	3/16	1/32	0.217	0.039	0.020	0.059	0.008	0.004	0.012
CCMT 21.50.5-FM	CCMT 060202-FM	1/4	3/32	0.008	0.110	0.012	0.002	0.067	0.002	0.001	0.004
CCMT 21.51-FM	CCMT 060204-FM	1/4	3/32	1/64	0.110	0.012	0.004	0.067	0.003	0.002	0.007
CCMT 32.50.5-FM	CCMT 09T302-FM	3/8	5/32	0.008	0.173	0.014	0.003	0.079	0.003	0.002	0.005
CCMT 32.51-FM	CCMT 09T304-FM	3/8	5/32	1/64	0.173	0.014	0.004	0.079	0.004	0.002	0.009
CCMT 32.52-FM	CCMT 09T308-FM	3/8	5/32	1/32	0.173	0.014	0.006	0.079	0.008	0.003	0.018
CCMT 431-FM	CCMT 120404-FM	1/2	3/16	1/64	0.217	0.017	0.006	0.094	0.006	0.003	0.011
CCMT 21.50.5-FK	CCMT 060202-FK	1/4	3/32	0.008	0.110	0.012	0.002	0.067	0.002	0.001	0.004
CCMT 21.51-FK	CCMT 060204-FK	1/4	3/32	1/64	0.110	0.012	0.004	0.067	0.003	0.002	0.007
CCMT 32.50.5-FK	CCMT 09T302-FK	3/8	5/32	0.008	0.173	0.014	0.003	0.079	0.003	0.002	0.005
CCMT 32.51-FK	CCMT 09T304-FK	3/8	5/32	1/64	0.173	0.014	0.004	0.079	0.004	0.002	0.009
CCMT 431-FK	CCMT 120404-FK	1/2	3/16	1/64	0.217	0.017	0.006	0.094	0.006	0.003	0.011

Technical Data
page C - 518

CC = RHOMBIC 80° POSITIVE

RÔMBICA 80° POSITIVA | RÓMBICA 80° POSITIVA

Inserts Pastilhas Plaquitas	(1) Geometry code	ANSI Reference	P												M						K				N	S				
			CVD								PVD				CVD		PVD				UNC	CVD			UNC	PVD				
		(2) Grade code	T6	L7	R2	L8	R3	S9	L9	V5	G1	X5	G4	T1	U4	U5	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3	
			PHG105	PH5115	PHG115	PH5125	PHG125	PHG135	PH5740	PHG140	PH7910	PHP910	PH7920	PHP920	PHS215	PHS225	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920	
CCMT-FW	1121398	CCMT 21.51-FW			●								●						●			●						●		
	1121743	CCMT 21.52-FW			●								●						●			○						●		
Finishing Wiper	1121399	CCMT 32.51-FW			○								●						●			●						●		
	1121744	CCMT 32.52-FW			○								●						●			●						●		
CCMT-LM	1123801	CCMT 21.51-LM															△	△	△	△						△	△	△	△	
	1123773	CCMT 32.51-LM															△	△	△	△						△	△	△	△	
Medium to Finishing	1123804	CCMT 431-LM															△	△	△	△						△	△	△	△	
CCMT-MP	1121697	CCMT 21.51-MP			●		●						●																	
	1121661	CCMT 21.52-MP			●		●																							
	1121700	CCMT 32.51-MP			●		●						●																	
Medium	1121687	CCMT 32.52-MP			●		●						●																	
	1121719	CCMT 431-MP			●		●																							
	1121722	CCMT 432-MP			●		●						●																	
	1121724	CCMT 433-MP			●		●																							
CCMT-MM	1121696	CCMT 21.51-MM													●		△	●	●	●						△	●	●	●	
	1121660	CCMT 21.52-MM													●			●		●							●		●	
	1121699	CCMT 32.51-MM													●		△	●	●	●						△	●	●	●	
Medium	1121686	CCMT 32.52-MM													●			●	●	●							●	●	●	
	1121718	CCMT 431-MM													●			●	●	●							●	●	●	
	1121721	CCMT 432-MM													●		△	●	●	●						△	●	●	●	
	1121723	CCMT 433-MM													●			●	●	●							●	●	●	
CCMT-MK	1121695	CCMT 21.51-MK																				●	●							
	1121659	CCMT 21.52-MK																				●	●							
	1121698	CCMT 32.51-MK																				●	●							
Medium	1121685	CCMT 32.52-MK																				●	●							
	1121717	CCMT 431-MK																				●	●							
	1121720	CCMT 432-MK																				●	●							
CCMT-MW	1121462	CCMT 21.52-MW			○								●						●				●					●		
	1121400	CCMT 32.51-MW			○								●						●				●					●		
	1121411	CCMT 32.52-MW			○								●						●				●					●		
Medium to Finishing Wiper	1121412	CCMT 431-MW			○																		●							
	1121413	CCMT 432-MW			●																		●							

● 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

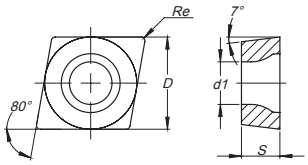
○ Available under request | Disponível sob consulta | Disponible bajo consulta

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

Technical Data page C - 518

palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

RELIEF ANGLE 7°



ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)				Cutting Conditions Condições de Corte Condiciones de Corte					
		D	S	Re	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
CCMT 21.51-FW	CCMT 060204-FW	1/4	3/32	1/64	0.110	0.031	0.012	0.079	0.005	0.002	0.012
CCMT 21.52-FW	CCMT 060208-FW	1/4	3/32	1/32	0.110	0.031	0.012	0.079	0.006	0.004	0.014
CCMT 32.51-FW	CCMT 09T304-FW	3/8	5/32	1/64	0.173	0.039	0.012	0.118	0.008	0.003	0.012
CCMT 32.52-FW	CCMT 09T308-FW	3/8	5/32	1/32	0.173	0.039	0.012	0.118	0.010	0.005	0.020
CCMT 21.51-LM	CCMT 060204-LM	1/4	3/32	1/64	0.110	0.020	0.008	0.079	0.004	0.003	0.008
CCMT 32.51-LM	CCMT 09T304-LM	3/8	5/32	1/64	0.173	0.020	0.010	0.098	0.006	0.004	0.012
CCMT 431-LM	CCMT 120404-LM	1/2	3/16	1/64	0.217	0.031	0.012	0.118	0.007	0.005	0.014
CCMT 21.51-MP	CCMT 060204-MP	1/4	3/32	1/64	0.110	0.025	0.008	0.094	0.004	0.002	0.007
CCMT 21.52-MP	CCMT 060208-MP	1/4	3/32	1/32	0.110	0.025	0.016	0.094	0.007	0.003	0.014
CCMT 32.51-MP	CCMT 09T304-MP	3/8	5/32	1/64	0.173	0.025	0.010	0.118	0.006	0.003	0.009
CCMT 32.52-MP	CCMT 09T308-MP	3/8	5/32	1/32	0.173	0.031	0.020	0.118	0.008	0.004	0.016
CCMT 431-MP	CCMT 120404-MP	1/2	3/16	1/64	0.217	0.038	0.012	0.142	0.007	0.004	0.011
CCMT 432-MP	CCMT 120408-MP	1/2	3/16	1/32	0.217	0.038	0.024	0.142	0.009	0.005	0.018
CCMT 433-MP	CCMT 120412-MP	1/2	3/16	3/64	0.217	0.038	0.028	0.142	0.014	0.006	0.024
CCMT 21.51-MM	CCMT 060204-MM	1/4	3/32	1/64	0.110	0.025	0.008	0.094	0.004	0.002	0.007
CCMT 21.52-MM	CCMT 060208-MM	1/4	3/32	1/32	0.110	0.025	0.016	0.094	0.007	0.003	0.014
CCMT 32.51-MM	CCMT 09T304-MM	3/8	5/32	1/64	0.173	0.025	0.010	0.118	0.006	0.003	0.009
CCMT 32.52-MM	CCMT 09T308-MM	3/8	5/32	1/32	0.173	0.031	0.020	0.118	0.008	0.004	0.016
CCMT 431-MM	CCMT 120404-MM	1/2	3/16	1/64	0.217	0.038	0.012	0.142	0.007	0.004	0.011
CCMT 432-MM	CCMT 120408-MM	1/2	3/16	1/32	0.217	0.038	0.024	0.142	0.009	0.005	0.018
CCMT 433-MM	CCMT 120412-MM	1/2	3/16	3/64	0.217	0.038	0.028	0.142	0.014	0.006	0.024
CCMT 21.51-MK	CCMT 060204-MK	1/4	3/32	1/64	0.110	0.025	0.008	0.094	0.004	0.002	0.007
CCMT 21.52-MK	CCMT 060208-MK	1/4	3/32	1/32	0.110	0.025	0.016	0.094	0.007	0.003	0.014
CCMT 32.51-MK	CCMT 09T304-MK	3/8	5/32	1/64	0.173	0.025	0.010	0.118	0.006	0.003	0.009
CCMT 32.52-MK	CCMT 09T308-MK	3/8	5/32	1/32	0.173	0.031	0.020	0.118	0.008	0.004	0.016
CCMT 431-MK	CCMT 120404-MK	1/2	3/16	1/64	0.217	0.038	0.012	0.142	0.007	0.004	0.011
CCMT 432-MK	CCMT 120408-MK	1/2	3/16	1/32	0.217	0.038	0.024	0.142	0.009	0.005	0.018
CCMT 21.52-MW	CCMT 060208-MW	1/4	3/32	1/32	0.110	0.047	0.020	0.098	0.008	0.004	0.016
CCMT 32.51-MW	CCMT 09T304-MW	3/8	5/32	1/64	0.173	0.059	0.020	0.157	0.010	0.005	0.016
CCMT 32.52-MW	CCMT 09T308-MW	3/8	5/32	1/32	0.173	0.059	0.028	0.157	0.012	0.006	0.020
CCMT 431-MW	CCMT 120404-MW	1/2	3/16	1/64	0.217	0.079	0.020	0.157	0.010	0.006	0.016
CCMT 432-MW	CCMT 120408-MW	1/2	3/16	1/32	0.217	0.079	0.028	0.157	0.012	0.006	0.020

Technical Data
page C - 518

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	L7	R2	L8	R3	S9	L9	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	ANSI Reference	PHG105	PH5115	PHG115	PH5125	PHG125	PHG135	PH5740	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 21.50.2-FS											◬					◉	◬	◉							◉	◬	◉
	1121726	CCGT 21.50.5-FS																◉		◉							◉		◉
	1121727	CCGT 21.51-FS																◉		◉							◉		◉
	1121455	CCGT 32.50.2-FS									◬		◬				◬	◉	◬	◉						◬	◉	◬	◉
	1121456	CCGT 32.50.5-FS									◬						◬	◉		◉						◬	◉		◉
	1121457	CCGT 32.51-FS																◉		◉							◉		◉
CCGT-LN  Medium to Finishing	1121884	CCGT 21.50.5-LN															◉								◉	◉			
	1121885	CCGT 21.51-LN															◉								◉	◉			
	1121886	CCGT 32.50.5-LN																							◉				
	1121887	CCGT 32.51-LN															◉								◉	◉			
	1121888	CCGT 32.52-LN																							◉				
	1123679	CCGT 430.5-LN																							◉				
	1123681	CCGT 431-LN																							◉				
	1123682	CCGT 432-LN																							◉				

◉ 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

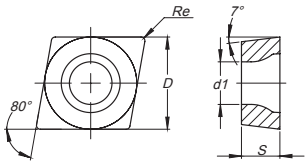
◯ Available under request | Disponível sob consulta | Disponible bajo consulta

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

Technical Data page C - 518

palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

RELIEF ANGLE 7°



ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)				Cutting Conditions Condições de Corte Condiciones de Corte					
		D	S	Re	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
CCGT 21.50.2-FS	CCGT 060201-FS	1/4	3/32	0.004	0.110	0.012	0.004	0.039	0.001	0.000	0.002
CCGT 21.50.5-FS	CCGT 060202-FS	1/4	3/32	0.008	0.110	0.020	0.004	0.059	0.003	0.001	0.005
CCGT 21.51-FS	CCGT 060204-FS	1/4	3/32	1/64	0.110	0.031	0.006	0.059	0.008	0.003	0.010
CCGT 32.50.2-FS	CCGT 09T301-FS	3/8	5/32	0.004	0.173	0.020	0.004	0.059	0.001	0.000	0.002
CCGT 32.50.5-FS	CCGT 09T302-FS	3/8	5/32	0.008	0.173	0.039	0.004	0.079	0.003	0.001	0.005
CCGT 32.51-FS	CCGT 09T304-FS	3/8	5/32	1/64	0.173	0.049	0.006	0.098	0.006	0.003	0.010
CCGT 21.50.5-LN	CCGT 060202-LN	1/4	3/32	0.008	0.110	0.039	0.002	0.118	0.003	0.002	0.005
CCGT 21.51-LN	CCGT 060204-LN	1/4	3/32	1/64	0.110	0.061	0.004	0.118	0.006	0.004	0.008
CCGT 32.50.5-LN	CCGT 09T302-LN	3/8	5/32	0.008	0.173	0.060	0.002	0.118	0.003	0.002	0.005
CCGT 32.51-LN	CCGT 09T304-LN	3/8	5/32	1/64	0.173	0.100	0.004	0.197	0.006	0.004	0.009
CCGT 32.52-LN	CCGT 09T308-LN	3/8	5/32	1/32	0.173	0.100	0.004	0.197	0.009	0.006	0.018
CCGT 430.5-LN	CCGT 120402-LN	1/2	3/16	0.008	0.217	0.080	0.002	0.157	0.003	0.002	0.005
CCGT 431-LN	CCGT 120404-LN	1/2	3/16	1/64	0.217	0.100	0.004	0.197	0.007	0.004	0.010
CCGT 432-LN	CCGT 120408-LN	1/2	3/16	1/32	0.217	0.110	0.004	0.217	0.010	0.006	0.020

Technical Data
page C - 518

DC = RHOMBIC 55° POSITIVE

RÔMBICA 55° POSITIVA | RÓMBICA 55° POSITIVA

Inserts Pastilhas Plaquitas	(1) Geometry code	ANSI Reference	P												M						K				N	S				
			CVD								PVD				CVD		PVD				UNC	CVD			UNC	PVD				
		(2) Grade code	T6	L7	R2	L8	R3	S9	L9	V5	G1	X5	G4	T1	U4	U5	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3	
			PHG105	PH5115	PHG115	PH5125	PHG125	PHG135	PH5740	PHG140	PH7910	PHP910	PH7920	PHP920	PHS215	PHS225	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920	
DCMW Finishing	1120302	DCMW 21.50.5																				●								
	1120303	DCMW 21.51																				●								
	1121422	DCMW 21.52																				●								
	1120304	DCMW 32.50.5																				●								
	1120305	DCMW 32.51																				●								
	1120306	DCMW 32.52																				●								
	1120878	DCMW 431																				●								
DCMT-FP Finishing	1121675	DCMT 21.50.5-FP					●																							
	1121678	DCMT 21.51-FP			●		●																							
	1121668	DCMT 32.50.5-FP					●						◎																	
	1121711	DCMT 32.51-FP			●		●																							
	1121713	DCMT 32.52-FP	◎		●		●																							
DCMT-FM Finishing	1121674	DCMT 21.50.5-FM																●	◎	●							●	◎	●	
	1121677	DCMT 21.51-FM														●		●	◎	●							●	◎	●	
	1121667	DCMT 32.50.5-FM																●	◎	●							●	◎	●	
	1121710	DCMT 32.51-FM														●		●		●							●		●	
	1121712	DCMT 32.52-FM														●	◎	●	◎	●						◎	●	◎	●	
DCMT-FK Finishing	1121673	DCMT 21.50.5-FK																				●								
	1121676	DCMT 21.51-FK																				●								
	1121714	DCMT 32.50.5-FK																				●								
	1121709	DCMT 32.51-FK																				●								
DCMT-FW Finishing Wiper	1121749	DCMT 21.51-FW			○								●						●			●						●		
	1121750	DCMT 21.52-FW			●								●						●			●						●		
	1121745	DCMT 32.51-FW			●								●						●			●						●		
	1121755	DCMT 32.52-FW			●								●						●			●						●		
DCMT-LM Medium to Finishing	1123802	DCMT 32.51-LM															◎	●	◎	●						◎	●	◎	●	
	1123803	DCMT 32.52-LM															◎	●	◎	●						◎	●	◎	●	
DCMT-MP Medium	1121681	DCMT 21.51-MP			●		●						●																	
	1121684	DCMT 21.52-MP			●		●																							
	1121648	DCMT 32.51-MP			●		●						●																	
	1121706	DCMT 32.52-MP			●		●						●																	
	1121708	DCMT 32.53-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

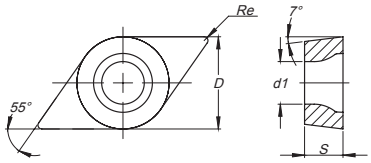
○ Available under request | Disponível sob consulta | Disponible bajo consulta

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

Technical Data page C - 518

palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

RELIEF ANGLE 7°

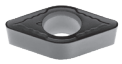
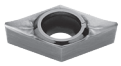


ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)				Cutting Conditions Condições de Corte Condiciones de Corte					
		D	S	Re	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
DCMW 21.50.5	DCMW 070202	1/4	3/32	0.008	0.110	0.063	0.002	0.126	0.004	0.002	0.005
DCMW 21.51	DCMW 070204	1/4	3/32	1/64	0.110	0.063	0.002	0.126	0.008	0.003	0.010
DCMW 21.52	DCMW 070208	1/4	3/32	1/32	0.110	0.063	0.002	0.126	0.016	0.006	0.021
DCMW 32.50.5	DCMW 11T302	3/8	5/32	0.008	0.173	0.094	0.002	0.189	0.004	0.002	0.005
DCMW 32.51	DCMW 11T304	3/8	5/32	1/64	0.173	0.094	0.002	0.189	0.008	0.003	0.010
DCMW 32.52	DCMW 11T308	3/8	5/32	1/32	0.173	0.094	0.002	0.189	0.016	0.006	0.021
DCMW 431	DCMW 150404	1/2	3/16	1/64	0.217	0.110	0.004	0.217	0.008	0.004	0.010
DCMT 21.50.5-FP	DCMT 070202-FP	1/4	3/32	0.008	0.110	0.010	0.002	0.059	0.002	0.001	0.004
DCMT 21.51-FP	DCMT 070204-FP	1/4	3/32	1/64	0.110	0.010	0.003	0.059	0.003	0.002	0.007
DCMT 32.50.5-FP	DCMT 11T302-FP	3/8	5/32	0.008	0.173	0.014	0.003	0.079	0.003	0.002	0.006
DCMT 32.51-FP	DCMT 11T304-FP	3/8	5/32	1/64	0.173	0.014	0.004	0.079	0.004	0.002	0.009
DCMT 32.52-FP	DCMT 11T308-FP	3/8	5/32	1/32	0.173	0.014	0.006	0.079	0.006	0.003	0.012
DCMT 21.50.5-FM	DCMT 070202-FM	1/4	3/32	0.008	0.110	0.010	0.002	0.059	0.002	0.001	0.004
DCMT 21.51-FM	DCMT 070204-FM	1/4	3/32	1/64	0.110	0.010	0.003	0.059	0.003	0.002	0.007
DCMT 32.50.5-FM	DCMT 11T302-FM	3/8	5/32	0.008	0.173	0.014	0.003	0.079	0.003	0.002	0.006
DCMT 32.51-FM	DCMT 11T304-FM	3/8	5/32	1/64	0.173	0.014	0.004	0.079	0.004	0.002	0.009
DCMT 32.52-FM	DCMT 11T308-FM	3/8	5/32	1/32	0.173	0.014	0.006	0.079	0.006	0.003	0.012
DCMT 21.50.5-FK	DCMT 070202-FK	1/4	3/32	0.008	0.110	0.010	0.002	0.059	0.002	0.001	0.004
DCMT 21.51-FK	DCMT 070204-FK	1/4	3/32	1/64	0.110	0.010	0.003	0.059	0.003	0.002	0.007
DCMT 32.50.5-FK	DCMT 11T302-FK	3/8	5/32	0.008	0.173	0.014	0.003	0.079	0.003	0.002	0.006
DCMT 32.51-FK	DCMT 11T304-FK	3/8	5/32	1/64	0.173	0.014	0.004	0.079	0.004	0.002	0.009
DCMT 21.51-FW	DCMT 070204-FW	1/4	3/32	1/64	0.110	0.028	0.012	0.079	0.005	0.002	0.010
DCMT 21.52-FW	DCMT 070208-FW	1/4	3/32	1/32	0.110	0.028	0.012	0.079	0.006	0.004	0.014
DCMT 32.51-FW	DCMT 11T304-FW	3/8	5/32	1/64	0.173	0.039	0.012	0.118	0.008	0.003	0.012
DCMT 32.52-FW	DCMT 11T308-FW	3/8	5/32	1/32	0.173	0.039	0.012	0.118	0.010	0.005	0.016
DCMT 32.51-LM	DCMT 11T304-LM	3/8	5/32	1/64	0.173	0.020	0.006	0.098	0.006	0.003	0.010
DCMT 32.52-LM	DCMT 11T308-LM	3/8	5/32	1/32	0.173	0.020	0.008	0.098	0.008	0.004	0.014
DCMT 21.51-MP	DCMT 070204-MP	1/4	3/32	1/64	0.110	0.024	0.007	0.089	0.004	0.002	0.007
DCMT 21.52-MP	DCMT 070208-MP	1/4	3/32	1/32	0.110	0.024	0.015	0.089	0.008	0.003	0.014
DCMT 32.51-MP	DCMT 11T304-MP	3/8	5/32	1/64	0.173	0.031	0.010	0.118	0.006	0.003	0.009
DCMT 32.52-MP	DCMT 11T308-MP	3/8	5/32	1/32	0.173	0.031	0.020	0.118	0.010	0.004	0.016
DCMT 32.53-MP	DCMT 11T312-MP	3/8	5/32	3/64	0.173	0.031	0.024	0.118	0.014	0.005	0.024

Technical Data
page C - 518

DC = RHOMBIC 55° POSITIVE

RÔMBICA 55° POSITIVA | RÓMBICA 55° POSITIVA

Inserts Pastilhas Plaquitas	(1) Geometry code	ANSI Reference	P												M						K				N	S				
			CVD								PVD				CVD		PVD				UNC	CVD			UNC	PVD				
		(2) Grade code	T6	L7	R2	L8	R3	S9	L9	V5	G1	X5	G4	T1	U4	U5	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3	
			PHG105	PH5115	PHG115	PH5125	PHG125	PHG135	PH5740	PHG140	PH7910	PHP910	PH7920	PHP920	PHS215	PHS225	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920	
DCMT-MM  Medium	1121680	DCMT 21.51-MM													●		◇	●	●	●						◇	●	●	●	
	1121683	DCMT 21.52-MM													●			●	●	●							●	●	●	
	1121647	DCMT 32.51-MM													●		◇	●	●	●						◇	●	●	●	
	1121705	DCMT 32.52-MM													●		◇	●	●	●						◇	●	●	●	
	1121707	DCMT 32.53-MM													●			●	●	●							●	●	●	
DCMT-MK  Medium	1121679	DCMT 21.51-MK																				●	●							
	1121682	DCMT 32.51-MK																				●	●							
	1121646	DCMT 32.51-MK																				●	●							
	1121704	DCMT 32.52-MK																				●	●							
	1121955	DCMT 32.53-MK																				●	●							
DCMT-MW  Medium to Finishing Wiper	1121414	DCMT 32.51-MW			○								●						●				●					●		
	1121756	DCMT 32.52-MW			●								●						●				●					●		
DCGT-FS  Finishing to Fine Finishing	1121747	DCGT 21.50.2-FS																●		●							●		●	
	1121748	DCGT 21.50.5-FS																●		●							●		●	
	1121872	DCGT 21.51-FS									◇						◇	●		●						◇	●		●	
	1121873	DCGT 32.50.2-FS																●		●							●		●	
	1121874	DCGT 32.50.5-FS									◇						◇	●		●						◇	●		●	
	1121875	DCGT 32.51-FS																●		●							●		●	
	1124101	DCGT 32.52-FS											◇					●	◇	●							●	◇	●	
DCGT-LN  Medium to Finishing	1121900	DCGT 21.50.5-LN															●								●	●				
	1121901	DCGT 21.51-LN															●								●	●				
	1111540	DCGT 32.50.5-LN																							●					
	1111534	DCGT 32.51-LN																							●					
	1121904	DCGT 32.52-LN																●							●		●			
	1124004	DCGT 32.53-LN																							●					

● 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 | Disponível sob consulta | Disponible bajo consulta

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

Technical Data page C - 518

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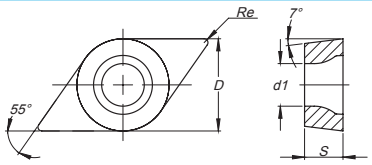
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

RELIEF ANGLE 7°

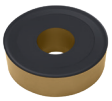


ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)				Cutting Conditions Condições de Corte Condiciones de Corte					
		D	S	Re	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
DCMT 21.51-MM	DCMT 070204-MM	1/4	3/32	1/64	0.110	0.024	0.007	0.089	0.004	0.002	0.007
DCMT 21.52-MM	DCMT 070208-MM	1/4	3/32	1/32	0.110	0.024	0.015	0.089	0.008	0.003	0.014
DCMT 32.51-MM	DCMT 11T304-MM	3/8	5/32	1/64	0.173	0.031	0.010	0.118	0.006	0.003	0.009
DCMT 32.52-MM	DCMT 11T308-MM	3/8	5/32	1/32	0.173	0.031	0.020	0.118	0.010	0.004	0.016
DCMT 32.53-MM	DCMT 11T312-MM	3/8	5/32	3/64	0.173	0.031	0.024	0.118	0.014	0.005	0.024
DCMT 21.51-MK	DCMT 070204-MK	1/4	3/32	1/64	0.110	0.024	0.007	0.089	0.004	0.002	0.007
DCMT 21.52-MK	DCMT 070208-MK	1/4	3/32	1/32	0.110	0.024	0.015	0.089	0.008	0.003	0.014
DCMT 32.51-MK	DCMT 11T304-MK	3/8	5/32	1/64	0.173	0.031	0.010	0.118	0.006	0.003	0.009
DCMT 32.52-MK	DCMT 11T308-MK	3/8	5/32	1/32	0.173	0.031	0.020	0.118	0.010	0.004	0.016
DCMT 32.53-MK	DCMT 11T312-MK	3/8	5/32	3/64	0.173	0.031	0.020	0.118	0.014	0.005	0.024
DCMT 32.51-MW	DCMT 11T304-MW	3/8	5/32	1/64	0.173	0.059	0.020	0.157	0.010	0.005	0.016
DCMT 32.52-MW	DCMT 11T308-MW	3/8	5/32	1/32	0.173	0.059	0.020	0.157	0.012	0.006	0.020
DCGT 21.50.2-FS	DCGT 070201-FS	1/4	3/32	0.004	0.110	0.012	0.004	0.039	0.001	0.000	0.002
DCGT 21.50.5-FS	DCGT 070202-FS	1/4	3/32	0.008	0.110	0.020	0.004	0.059	0.003	0.001	0.005
DCGT 21.51-FS	DCGT 070204-FS	1/4	3/32	1/64	0.110	0.031	0.006	0.059	0.006	0.003	0.010
DCGT 32.50.2-FS	DCGT 11T301-FS	3/8	5/32	0.004	0.173	0.020	0.004	0.059	0.001	0.000	0.002
DCGT 32.50.5-FS	DCGT 11T302-FS	3/8	5/32	0.008	0.173	0.039	0.004	0.079	0.003	0.001	0.005
DCGT 32.51-FS	DCGT 11T304-FS	3/8	5/32	1/64	0.173	0.059	0.006	0.118	0.006	0.003	0.010
DCGT 32.52-FS	DCGT 11T308-FS	3/8	5/32	1/32	0.173	0.079	0.008	0.138	0.007	0.004	0.012
DCGT 21.50.5-LN	DCGT 070202-LN	1/4	3/32	0.008	0.110	0.039	0.002	0.118	0.003	0.002	0.005
DCGT 21.51-LN	DCGT 070204-LN	1/4	3/32	1/64	0.110	0.081	0.004	0.157	0.006	0.004	0.008
DCGT 32.50.5-LN	DCGT 11T302-LN	3/8	5/32	0.008	0.173	0.080	0.002	0.157	0.003	0.002	0.005
DCGT 32.51-LN	DCGT 11T304-LN	3/8	5/32	1/64	0.173	0.100	0.004	0.197	0.006	0.004	0.009
DCGT 32.52-LN	DCGT 11T308-LN	3/8	5/32	1/32	0.173	0.100	0.004	0.197	0.009	0.006	0.020
DCGT 32.53-LN	DCGT 11T312-LN	3/8	5/32	3/64	0.173	0.106	0.006	0.197	0.014	0.006	0.028

Technical Data
page C - 518

RC = ROUND Rº POSITIVE

REDONDA Rº POSITIVA | REDONDA Rº POSITIVA

Inserts Pastilhas Plaquitas	(1) Geometry code	ANSI Reference	P												M						K				N	S				
			CVD								PVD				CVD		PVD				UNC	CVD			UNC	PVD				
		(2) Grade code	T6	L7	R2	L8	R3	S9	L9	V5	G1	X5	G4	T1	U4	U5	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
			PHG105	PH5115	PHG115	PH5125	PHG125	PHG135	PH5740	PHG140	PH7910	PHP910	PH7920	PHP920	PHS215	PHS225	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
NEW RCMT-GS  Medium to Finishing	1124495	RCMT 0803M0-GS																◬									◬		
	1124496	RCMT 1003M0-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

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

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

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

Technical Data page C - 518

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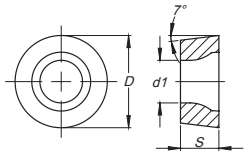
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

RELIEF ANGLE 7°



ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)				Cutting Conditions Condições de Corte Condiciones de Corte					
		D	S	Re	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
RCMT 0803M0-GS	RCMT 0803M0-GS	0.315	1/8	-	0.134	0.079	0.020	0.118	0.010	0.006	0.016
RCMT 1003M0-GS	RCMT 1003M0-GS	0.394	1/8	-	0.134	0.118	0.030	0.157	0.012	0.006	0.018
RCMT 0602M0-CP	RCMT 0602M0-CP	0.236	3/32	-	0.110	0.059	0.020	0.094	0.006	0.002	0.007
RCMT 0803M0-ST	RCMT 0803M0-ST	0.315	1/8	-	0.134	0.079	0.031	0.126	0.008	0.004	0.031
RCMT 1003M0-ST	RCMT 1003M0-ST	0.394	1/8	-	0.134	0.098	0.039	0.157	0.010	0.005	0.039
RCMT 10T3M0-ST	RCMT 10T3M0-ST	0.394	5/32	-	0.173	0.098	0.039	0.157	0.010	0.006	0.055
RCMT 1204M0-ST	RCMT 1204M0-ST	0.472	3/16	-	0.173	0.118	0.047	0.189	0.012	0.008	0.071
RCMT 1606M0-ST	RCMT 1606M0-ST	0.630	1/4	-	0.217	0.138	0.063	0.252	0.015	0.010	0.091
RCMT 2006M0-ST	RCMT 2006M0-ST	0.787	1/4	-	0.256	0.157	0.079	0.315	0.018	0.012	0.118
RCMT 2507M0-RF	RCMT 2507M0-RF	0.984	5/16	-	0.283	0.248	0.098	0.394	0.031	0.010	0.098
RCMT 2006M0-RM	RCMT 2006M0-RM	0.787	1/4	-	0.256	0.157	0.079	0.315	0.018	0.005	0.025
RCMX 1003M0-ST	RCMX 1003M0-ST	0.394	1/8	-	0.142	0.098	0.039	0.157	0.013	0.004	0.039
RCMX 1204M0-ST	RCMX 1204M0-ST	0.472	3/16	-	0.165	0.118	0.047	0.189	0.015	0.005	0.047
RCMX 1606M0-ST	RCMX 1606M0-ST	0.630	1/4	-	0.205	0.157	0.063	0.252	0.020	0.006	0.063
RCMX 2006M0-ST	RCMX 2006M0-ST	0.787	1/4	-	0.256	0.197	0.079	0.315	0.025	0.008	0.079
RCMX 2507M0-ST	RCMX 2507M0-ST	0.984	5/16	-	0.283	0.248	0.098	0.394	0.031	0.010	0.098
RCMX 3009M0-ST	RCMX 3009M0-ST	1.181	3/8	-	0.394	0.276	0.118	0.433	0.033	0.012	0.110
RCMX 3209M0-ST	RCMX 3209M0-ST	1.260	3/8	-	0.374	0.315	0.126	0.504	0.040	0.013	0.126
RCMX 3209M0-RM	RCMX 3209M0-RM	1.260	3/8	-	0.374	0.256	0.126	0.512	0.071	0.031	0.098
RCMX 2507M0-RR	RCMX 2507M0-RR	0.984	5/16	-	0.283	0.197	0.126	0.315	0.071	0.031	0.098
RCMX 3209M0-RR	RCMX 3209M0-RR	1.260	3/8	-	0.374	0.256	0.126	0.512	0.071	0.031	0.098

Technical Data
page C - 518

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	R2	L8	R3	S9	L9	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	ANSI Reference	PHG105	PH5115	PHG115	PH5125	PHG125	PHG135	PH5740	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																							◉				

◉ 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 | Disponível sob consulta | Disponible bajo consulta

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

Technical Data page C - 518

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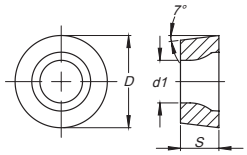
RELIEF ANGLE 7°



ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)				Cutting Conditions Condições de Corte Condiciones de Corte					
		D	S	Re	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
RCGT 0602M0-LN	RCGT 0602M0-LN	0.236	3/32	-	0.110	0.049	0.020	0.079	0.005	0.002	0.008
RCGT 0803M0-LN	RCGT 0803M0-LN	0.315	1/8	-	0.134	0.059	0.020	0.098	0.006	0.002	0.010
RCGT 1003M0-LN	RCGT 1003M0-LN	0.394	1/8	-	0.173	0.079	0.039	0.118	0.008	0.004	0.012
RCGT 1204M0-LN	RCGT 1204M0-LN	0.472	3/16	-	0.173	0.089	0.039	0.138	0.009	0.004	0.014

Technical Data
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SC = SQUARE 90° POSITIVE

QUADRADA 90° POSITIVA | ESCUADRA 90° POSITIVA

Inserts Pastilhas Plaquitas	(1) Geometry code	ANSI Reference	P												M						K				N	S				
			CVD								PVD				CVD		PVD				UNC	CVD			UNC	PVD				
		(2) Grade code	T6	L7	R2	L8	R3	S9	L9	V5	G1	X5	G4	T1	U4	U5	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
			PHG105	PH5115	PHG115	PH5125	PHG125	PHG135	PH5740	PHG140	PH7910	PHP910	PH7920	PHP920	PHS215	PHS225	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
SCMW Finishing	1120469	SCMW 32.51																				◈							
	1120470	SCMW 32.52																				◈							
	1120472	SCMW 432																				◈							
SCMT-FP Finishing	1121759	SCMT 32.51-FP			◈		◈																						
	1121765	SCMT 32.52-FP			◈		◈																						
SCMT-FM Finishing	1121758	SCMT 32.51-FM											◇			◈			◇	◈								◇	◈
	1121764	SCMT 32.52-FM														◈				◈									◈
SCMT-FK Finishing	1121757	SCMT 32.51-FK																				◈							
	1121763	SCMT 32.52-FK																				◈							
SCMT-MP Medium	1121762	SCMT 32.51-MP			◈		◈																						
	1121768	SCMT 32.52-MP			◈		◈																						
	1121770	SCMT 431-MP			◈		◈																						
	1121783	SCMT 432-MP			◈		◈																						
	1121785	SCMT 433-MP			◈		◈																						
SCMT-MM Medium	1121761	SCMT 32.51-MM											◈		◈				◈	◈								◈	◈
	1121767	SCMT 32.52-MM											◈		◈				◈	◈								◈	◈
	1121769	SCMT 431-MM											◈		◈				◈	◈								◈	◈
	1121782	SCMT 432-MM											◈		◈				◈	◈								◈	◈
	1121784	SCMT 433-MM													◈					◈									◈
SCMT-MK Medium	1121760	SCMT 32.51-MK																			◈	◈	◈						
	1121766	SCMT 32.52-MK																				◈	◈						
	1121781	SCMT 432-MK																				◈	◈	◈					
SCGT-LN Medium to Finishing	1124008	SCGT 32.51-LN																							◈				
	1124009	SCGT 32.52-LN																							◈				
	1124743	SCGT 430.5-LN																							○				
	1124010	SCGT 431-LN																							◈				
	1123685	SCGT 432-LN																							◈				

◈ 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 | Disponível sob consulta | Disponible bajo consulta

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

Technical Data page C - 518

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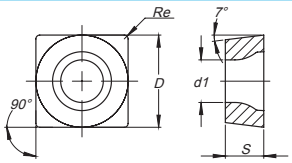
RELIEF ANGLE 7°



ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)				Cutting Conditions Condições de Corte Condiciones de Corte					
		D	S	Re	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
SCMW 32.51	SCMW 09T304	3/8	5/32	1/64	0.173	0.094	0.002	0.185	0.008	0.003	0.010
SCMW 32.52	SCMW 09T308	3/8	5/32	1/32	0.173	0.094	0.002	0.185	0.016	0.006	0.021
SCMW 432	SCMW 120408	1/2	3/16	1/32	0.217	0.126	0.002	0.248	0.016	0.006	0.021
SCMT 32.51-FP	SCMT 09T304-FP	3/8	5/32	1/64	0.173	0.014	0.004	0.079	0.004	0.002	0.009
SCMT 32.52-FP	SCMT 09T308-FP	3/8	5/32	1/32	0.173	0.014	0.006	0.079	0.006	0.003	0.012
SCMT 32.51-FM	SCMT 09T304-FM	3/8	5/32	1/64	0.173	0.014	0.004	0.079	0.004	0.002	0.009
SCMT 32.52-FM	SCMT 09T308-FM	3/8	5/32	1/32	0.173	0.014	0.006	0.079	0.006	0.003	0.012
SCMT 32.51-FK	SCMT 09T304-FK	3/8	5/32	1/64	0.173	0.014	0.004	0.079	0.004	0.002	0.009
SCMT 32.52-FK	SCMT 09T308-FK	3/8	5/32	1/32	0.173	0.014	0.006	0.079	0.006	0.003	0.012
SCMT 32.51-MP	SCMT 09T304-MP	3/8	5/32	1/64	0.173	0.031	0.010	0.118	0.006	0.003	0.009
SCMT 32.52-MP	SCMT 09T308-MP	3/8	5/32	1/32	0.173	0.031	0.020	0.118	0.010	0.004	0.016
SCMT 431-MP	SCMT 120404-MP	1/2	3/16	1/64	0.217	0.038	0.012	0.142	0.007	0.004	0.011
SCMT 432-MP	SCMT 120408-MP	1/2	3/16	1/32	0.217	0.038	0.024	0.142	0.010	0.005	0.018
SCMT 433-MP	SCMT 120412-MP	1/2	3/16	3/64	0.217	0.038	0.028	0.142	0.014	0.006	0.024
SCMT 32.51-MM	SCMT 09T304-MM	3/8	5/32	1/64	0.173	0.031	0.010	0.118	0.006	0.003	0.009
SCMT 32.52-MM	SCMT 09T308-MM	3/8	5/32	1/32	0.173	0.031	0.020	0.118	0.010	0.004	0.016
SCMT 431-MM	SCMT 120404-MM	1/2	3/16	1/64	0.217	0.038	0.012	0.142	0.007	0.004	0.011
SCMT 432-MM	SCMT 120408-MM	1/2	3/16	1/32	0.217	0.038	0.024	0.142	0.010	0.005	0.018
SCMT 433-MM	SCMT 120412-MM	1/2	3/16	3/64	0.217	0.038	0.028	0.142	0.014	0.006	0.024
SCMT 32.51-MK	SCMT 09T304-MK	3/8	5/32	1/64	0.173	0.031	0.010	0.118	0.006	0.003	0.009
SCMT 32.52-MK	SCMT 09T308-MK	3/8	5/32	1/32	0.173	0.031	0.020	0.118	0.010	0.004	0.016
SCMT 432-MK	SCMT 120408-MK	1/2	3/16	1/32	0.217	0.038	0.024	0.142	0.010	0.005	0.018
SCGT 32.51-LN	SCGT 09T304-LN	3/8	5/32	1/64	0.173	0.081	0.004	0.157	0.006	0.004	0.010
SCGT 32.52-LN	SCGT 09T308-LN	3/8	5/32	1/32	0.173	0.100	0.004	0.197	0.009	0.006	0.016
SCGT 430.5-LN	SCGT 120402-LN	1/2	3/16	0.008	0.217	0.098	0.004	0.177	0.006	0.003	0.010
SCGT 431-LN	SCGT 120404-LN	1/2	3/16	1/64	0.217	0.100	0.004	0.197	0.008	0.004	0.010
SCGT 432-LN	SCGT 120408-LN	1/2	3/16	1/32	0.217	0.100	0.004	0.197	0.012	0.006	0.020

Technical Data
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SP - SQUARE 90º POSITIVE

QUADRADA 90º POSITIVA | ESCUADRA 90º POSITIVA

			P												M						K				N	S			
			CVD								PVD				CVD		PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	L7	R2	L8	R3	S9	L9	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	ANSI Reference	PHG105	PH5115	PHG115	PH5125	PHG125	PHG135	PH5740	PHG140	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 421				◎																							
	1120581	SPUN 422				◎																							
	1120583	SPUN 423				◎																							
SPMR-12  Finishing to Fine Finishing	1120561	SPMR 322-12		○		◎																							
	1120563	SPMR 421-12		◎																									
	1120565	SPMR 422-12		◎																									
SPMR-13  Medium	1120562	SPMR 322-13		◎																									
	1120564	SPMR 421-13		◎		○																							
	1120566	SPMR 422-13		◎		○																							
	1120567	SPMR-423-13		◎		○																							

○ 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 | Disponível sob consulta | Disponible bajo consulta

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

Technical Data
page C - 518

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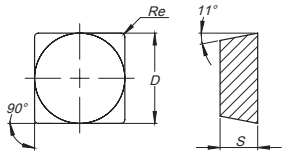
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

RELIEF ANGLE 11°

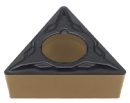
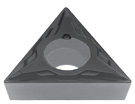


ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)				Cutting Conditions Condições de Corte Condiciones de Corte					
		D	S	Re	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
SPUN 421	SPUN 120304	1/2	1/8	1/64	-	0.118	0.039	0.197	0.008	0.004	0.012
SPUN 422	SPUN 120308	1/2	1/8	1/32	-	0.118	0.039	0.197	0.010	0.006	0.016
SPUN 423	SPUN 120312	1/2	1/8	3/64	-	0.118	0.039	0.197	0.014	0.008	0.020
SPMR 322-12	SPMR 090308-12	3/8	1/8	1/32	-	0.039	0.012	0.079	0.008	0.004	0.012
SPMR 421-12	SPMR 120304-12	1/2	1/8	1/64	-	0.051	0.020	0.079	0.006	0.003	0.010
SPMR 422-12	SPMR 120308-12	1/2	1/8	1/32	-	0.051	0.020	0.079	0.009	0.004	0.012
SPMR 322-13	SPMR 090308-13	3/8	1/8	1/32	-	0.087	0.039	0.138	0.010	0.004	0.016
SPMR 421-13	SPMR 120304-13	1/2	1/8	1/64	-	0.102	0.059	0.157	0.004	0.003	0.008
SPMR 422-13	SPMR 120308-13	1/2	1/8	1/32	-	0.102	0.059	0.157	0.012	0.008	0.016
SPMR-423-13	SPMR 120312-13	1/2	1/8	3/64	-	0.102	0.059	0.157	0.016	0.010	0.022

Technical Data
page C - 518

TC - TRIANGULAR 60º POSITIVE

TRIANGULAR 60º POSITIVA | TRIANGULAR 60º POSITIVA

			P												M						K				N	S			
			CVD								PVD				CVD		PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	L7	R2	L8	R3	S9	L9	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	ANSI Reference	PHG105	PH5115	PHG115	PH5125	PHG125	PHG135	PH5740	PHG140	PH7910	PHP910	PH7920	PHP920	PHS215	PHS225	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
TCMW	1120620	TCMW 21.51																				◈			○				
	1120622	TCMW 32.51																				◈			○				
	1120623	TCMW 32.52																				◈			○				
Finishing	1121846	TCMT 432																			◈	○							
TCMT-FP	1121788	TCMT 1.21.20.5-FP					◈																						
	1121798	TCMT 1.21.21-FP			◈		◈																						
	1121801	TCMT 1.21.22-FP			◈		◈																						
Finishing	1121804	TCMT 1.81.50.5-FP					◈																						
	1121807	TCMT 1.81.51-FP					◈																						
	1121961	TCMT 21.50.5-FP					◈																						
	1121962	TCMT 21.51-FP			◈		◈																						
	1121963	TCMT 21.52-FP			◈		◈																						
	1121669	TCMT 220.5-FP					○																						
	1121816	TCMT 221-FP			◈		○																						
	1121823	TCMT 222-FP			○		○																						
	1121832	TCMT 32.51-FP			◈		◈																						
TCMT-FM	1121787	TCMT 1.21.20.5-FM														◈			△	◈								△	◈
	1121797	TCMT 1.21.21-FM														◈				◈									◈
	1123637	TCMT 1.21.22-FM														◈			△	◈								△	◈
Finishing	1121803	TCMT 1.81.50.5-FM														◈		◈	△	◈							◈	△	◈
	1121806	TCMT 1.81.51-FM														◈		◈		◈							◈		◈
	1121960	TCMT 21.50.5-FM														◈		◈	△	◈							◈	△	◈
	1121958	TCMT 21.51-FM														◈		◈		◈							◈		◈
	1121959	TCMT 21.52-FM														◈			△	◈								△	◈
	1121881	TCMT 220.5-FM														◈				◈									◈
	1121815	TCMT 221-FM														◈			△	◈								△	◈
	1121822	TCMT 222-FM														◈			△	◈								△	◈
	1121831	TCMT 32.51-FM														◈		◈	△	◈							◈	△	◈

◈ 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

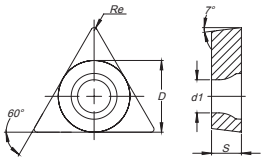
○ Available under request | Disponível sob consulta | Disponible bajo consulta

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

Technical Data page C - 518

palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

RELIEF ANGLE 7°



ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)				Cutting Conditions Condições de Corte Condiciones de Corte					
		D	S	Re	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
TCMW 21.51	TCMW 110204	1/4	3/32	1/64	0.110	0.059	0.002	0.122	0.008	0.003	0.010
TCMW 32.51	TCMW 16T304	3/8	5/32	1/64	0.173	0.091	0.002	0.185	0.008	0.003	0.010
TCMW 32.52	TCMW 16T308	3/8	5/32	1/32	0.173	0.091	0.002	0.185	0.016	0.006	0.021
TCMT 432	TCMT 220408	1/2	3/16	1/32	0.217	0.091	0.002	0.248	0.0.13	0.006	0.021
TCMT 1.21.20.5-FP	TCMT 06T102-FP	5/32	0.078	0.008	0.085	0.010	0.002	0.059	0.002	0.001	0.004
TCMT 1.21.21-FP	TCMT 06T104-FP	5/32	0.078	1/64	0.085	0.010	0.003	0.059	0.003	0.002	0.007
TCMT 1.21.22-FP	TCMT 06T108-FP	5/32	0.078	1/32	0.085	0.010	0.004	0.059	0.004	0.002	0.009
TCMT 1.81.50.5-FP	TCMT 090202-FP	7/32	3/32	0.008	0.098	0.012	0.002	0.067	0.002	0.001	0.005
TCMT 1.81.51-FP	TCMT 090204-FP	7/32	3/32	1/64	0.098	0.012	0.004	0.067	0.004	0.002	0.007
TCMT 21.50.5-FP	TCMT 110202-FP	1/4	3/32	0.008	0.110	0.012	0.002	0.067	0.002	0.001	0.005
TCMT 21.51-FP	TCMT 110204-FP	1/4	3/32	1/64	0.110	0.012	0.004	0.067	0.004	0.002	0.007
TCMT 21.52-FP	TCMT 110208-FP	1/4	3/32	1/32	0.110	0.012	0.005	0.067	0.005	0.003	0.010
TCMT 220.5-FP	TCMT 110302-FP	1/4	1/8	0.008	0.110	0.012	0.002	0.067	0.002	0.001	0.005
TCMT 221-FP	TCMT 110304-FP	1/4	1/8	1/64	0.110	0.012	0.004	0.067	0.004	0.002	0.007
TCMT 222-FP	TCMT 110308-FP	1/4	1/8	1/32	0.110	0.012	0.005	0.067	0.005	0.003	0.010
TCMT 32.51-FP	TCMT 16T304-FP	3/8	5/32	1/64	0.173	0.014	0.004	0.079	0.004	0.002	0.009
TCMT 1.21.20.5-FM	TCMT 06T102-FM	5/32	0.078	0.008	0.085	0.010	0.002	0.059	0.002	0.001	0.004
TCMT 1.21.21-FM	TCMT 06T104-FM	5/32	0.078	1/64	0.085	0.010	0.003	0.059	0.003	0.002	0.007
TCMT 1.21.22-FM	TCMT 06T108-FM	5/32	0.078	1/32	0.085	0.010	0.004	0.059	0.004	0.002	0.009
TCMT 1.81.50.5-FM	TCMT 090202-FM	7/32	3/32	0.008	0.098	0.012	0.002	0.067	0.002	0.001	0.005
TCMT 1.81.51-FM	TCMT 090204-FM	7/32	3/32	1/64	0.098	0.012	0.004	0.067	0.004	0.002	0.007
TCMT 21.50.5-FM	TCMT 110202-FM	1/4	3/32	0.008	0.110	0.012	0.002	0.067	0.002	0.001	0.005
TCMT 21.51-FM	TCMT 110204-FM	1/4	3/32	1/64	0.110	0.012	0.004	0.067	0.004	0.002	0.007
TCMT 21.52-FM	TCMT 110208-FM	1/4	3/32	1/32	0.110	0.012	0.005	0.067	0.005	0.003	0.010
TCMT 220.5-FM	TCMT 110302-FM	1/4	1/8	0.008	0.110	0.012	0.002	0.067	0.002	0.001	0.005
TCMT 221-FM	TCMT 110304-FM	1/4	1/8	1/64	0.110	0.012	0.004	0.067	0.004	0.002	0.007
TCMT 222-FM	TCMT 110308-FM	1/4	1/8	1/32	0.110	0.012	0.005	0.067	0.005	0.003	0.010
TCMT 32.51-FM	TCMT 16T304-FM	3/8	5/32	1/64	0.173	0.014	0.004	0.079	0.004	0.002	0.009

Technical Data
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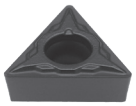
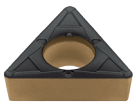
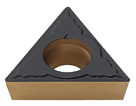
TC - TRIANGULAR 60º POSITIVE

TRIANGULAR 60º POSITIVA | TRIANGULAR 60º POSITIVA

			P												M						K				N	S				
			CVD							PVD					CVD		PVD				UNC	CVD			UNC	PVD				
		(2) Grade code	T6	L7	R2	L8	R3	S9	L9	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	ANSI Reference	PHG105	PH5115	PHG115	PH5125	PHG125	PHG135	PH5740	PHG140	PH7910	PHP910	PH7920	PHP920	PHS215	PHS225	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
TCMT-FK	1121786	TCMT 1.21.20.5-FK																				◈							
	1121789	TCMT 1.21.21-FK																				◈							
	1121800	TCMT 1.21.22-FK																				◈							
Finishing	1123668	TCMT 1.81.50.5-FK																				◈							
	1121805	TCMT 1.81.51-FK																				◈							
	1121956	TCMT 21.50.5-FK																				◈							
	1121957	TCMT 21.51-FK																				◈							
	1121813	TCMT 220.5-FK																				◈							
	1121814	TCMT 221-FK																				◈							
	1121830	TCMT 32.51-FK																				◈							
TCMT-FW	1121808	TCMT 1.81.51-FW			○								◈						◈			◈						◈	
	1121809	TCMT 1.81.52-FW			○								◈						◈			◈						◈	
	1121964	TCMT 21.51-FW			○								◈						◈			◈						◈	
	1121965	TCMT 21.52-FW			○								◈						◈			◈						◈	
Finishing Wiper	1121817	TCMT 221-FW			◈								◈						◈			◈						◈	
	1121824	TCMT 222-FW			◈								◈						◈			◈						◈	
	1121833	TCMT 32.51-FW			◈								◈						◈			◈						◈	
	1121837	TCMT 32.52-FW			◈								◈						◈			◈						◈	
TCMT-MP	1121703	TCMT 1.81.51-MP			◈		◈																						
	1121812	TCMT 1.81.52-MP			○		◈																						
	1121970	TCMT 21.51-MP			◈		◈						◈																
	1121971	TCMT 21.52-MP			◈		◈																						
	1121972	TCMT 21.53-MP			◈		◈																						
Medium	1121820	TCMT 221-MP			○		◈																						
	1121827	TCMT 222-MP			◈		○																						
	1121829	TCMT 223-MP			○		○																						
	1121836	TCMT 32.51-MP			◈		◈																						
	1121840	TCMT 32.52-MP			◈		◈						◈																
	1121844	TCMT 32.53-MP			◈		◈																						
	1121849	TCMT 432-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 | Disponível sob consulta | Disponible bajo consulta

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

Technical Data page C - 518

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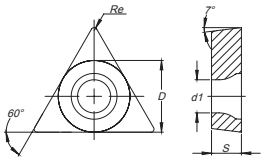
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

RELIEF ANGLE 7°



ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)				Cutting Conditions Condições de Corte Condiciones de Corte					
		D	S	Re	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
TCMT 1.21.20.5-FK	TCMT 06T102-FK	5/32	0.078	0.008	0.085	0.010	0.002	0.059	0.002	0.001	0.004
TCMT 1.21.21-FK	TCMT 06T104-FK	5/32	0.078	1/64	0.085	0.010	0.003	0.059	0.003	0.002	0.007
TCMT 1.21.22-FK	TCMT 06T108-FK	5/32	0.078	1/32	0.085	0.010	0.004	0.059	0.004	0.002	0.009
TCMT 1.81.50.5-FK	TCMT 090202-FK	7/32	3/32	0.008	0.098	0.012	0.002	0.067	0.002	0.001	0.005
TCMT 1.81.51-FK	TCMT 090204-FK	7/32	3/32	1/64	0.098	0.012	0.004	0.067	0.004	0.002	0.007
TCMT 21.50.5-FK	TCMT 110202-FK	1/4	3/32	0.008	0.110	0.012	0.002	0.067	0.002	0.001	0.005
TCMT 21.51-FK	TCMT 110204-FK	1/4	3/32	1/64	0.110	0.012	0.004	0.067	0.004	0.002	0.007
TCMT 220.5-FK	TCMT 110302-FK	1/4	1/8	0.008	0.110	0.012	0.002	0.067	0.002	0.001	0.005
TCMT 221-FK	TCMT 110304-FK	1/4	1/8	1/64	0.110	0.012	0.004	0.067	0.004	0.002	0.007
TCMT 32.51-FK	TCMT 16T304-FK	3/8	5/32	1/64	0.173	0.014	0.004	0.079	0.004	0.002	0.009
TCMT 1.81.51-FW	TCMT 090204-FW	7/32	3/32	1/64	0.098	0.028	0.012	0.079	0.005	0.002	0.012
TCMT 1.81.52-FW	TCMT 090208-FW	7/32	3/32	1/32	0.098	0.028	0.012	0.079	0.010	0.004	0.014
TCMT 21.51-FW	TCMT 110204-FW	1/4	3/32	1/64	0.110	0.039	0.012	0.098	0.008	0.003	0.012
TCMT 21.52-FW	TCMT 110208-FW	1/4	3/32	1/32	0.110	0.039	0.012	0.098	0.010	0.005	0.016
TCMT 221-FW	TCMT 110304-FW	1/4	1/8	1/64	0.110	0.039	0.012	0.098	0.008	0.003	0.012
TCMT 222-FW	TCMT 110308-FW	1/4	1/8	1/32	0.110	0.039	0.012	0.098	0.010	0.005	0.016
TCMT 32.51-FW	TCMT 16T304-FW	3/8	5/32	1/64	0.173	0.047	0.012	0.138	0.008	0.003	0.014
TCMT 32.52-FW	TCMT 16T308-FW	3/8	5/32	1/32	0.173	0.047	0.012	0.138	0.010	0.005	0.020
TCMT 1.81.51-MP	TCMT 090204-MP	7/32	3/32	1/64	0.098	0.024	0.007	0.089	0.004	0.002	0.007
TCMT 1.81.52-MP	TCMT 090208-MP	7/32	3/32	1/32	0.098	0.024	0.015	0.089	0.006	0.003	0.009
TCMT 21.51-MP	TCMT 110204-MP	1/4	3/32	1/64	0.110	0.026	0.008	0.098	0.005	0.002	0.007
TCMT 21.52-MP	TCMT 110208-MP	1/4	3/32	1/32	0.110	0.026	0.017	0.098	0.007	0.004	0.010
TCMT 21.53-MP	TCMT 110212-MP	1/4	3/32	3/64	0.110	0.026	0.020	0.098	0.008	0.004	0.016
TCMT 221-MP	TCMT 110304-MP	1/4	1/8	1/64	0.110	0.026	0.008	0.098	0.005	0.002	0.007
TCMT 222-MP	TCMT 110308-MP	1/4	1/8	1/32	0.110	0.026	0.017	0.098	0.008	0.004	0.016
TCMT 223-MP	TCMT 110312-MP	1/4	1/8	3/64	0.110	0.026	0.020	0.098	0.012	0.004	0.020
TCMT 32.51-MP	TCMT 16T304-MP	3/8	5/32	1/64	0.173	0.031	0.010	0.118	0.006	0.003	0.010
TCMT 32.52-MP	TCMT 16T308-MP	3/8	5/32	1/32	0.173	0.031	0.020	0.118	0.009	0.004	0.018
TCMT 32.53-MP	TCMT 16T312-MP	3/8	5/32	3/64	0.173	0.031	0.024	0.118	0.014	0.005	0.024
TCMT 432-MP	TCMT 220408-MP	1/2	3/16	1/32	0.217	0.038	0.024	0.142	0.010	0.005	0.018

Technical Data
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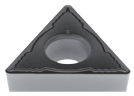
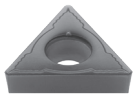
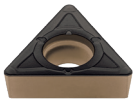
TC - TRIANGULAR 60º POSITIVE

TRIANGULAR 60º POSITIVA | TRIANGULAR 60º POSITIVA

			P												M						K				N	S				
			CVD								PVD				CVD		PVD				UNC	CVD			UNC	PVD				
		(2) Grade code	T6	L7	R2	L8	R3	S9	L9	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	ANSI Reference	PHG105	PH5115	PHG115	PH5125	PHG125	PHG135	PH5740	PHG140	PH7910	PHP910	PH7920	PHP920	PHS215	PHS225	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
TCMT-MM  Medium	1121702	TCMT 1.81.51-MM													●			●	●	●							●	●	●
	1121811	TCMT 1.81.52-MM													●			●	●	●							●	●	●
	1121968	TCMT 21.51-MM													●		◇	●	●	●						◇	●	●	●
	1121969	TCMT 21.52-MM													●			●	●	●							●	●	●
	1121819	TCMT 221-MM													●				◇	●								◇	●
	1121826	TCMT 222-MM													●				●	●								●	●
	1121835	TCMT 32.51-MM													●			●	●	●							●	●	●
	1121839	TCMT 32.52-MM													●		◇	●	●	●						◇	●	●	●
	1121843	TCMT 32.53-MM													●			●	●	●							●	●	●
	1121848	TCMT 432-MM													●				●	●								●	●
TCMT-MK  Medium	1121701	TCMT 1.81.51-MK																				●	●						
	1121810	TCMT 1.81.52-MK																				●	●						
	1121966	TCMT 21.51-MK																				●	●						
	1121967	TCMT 21.52-MK																				●	●						
	1121818	TCMT 221-MK																				●	●						
	1121825	TCMT 222-MK																				●	●						
	1121834	TCMT 32.51-MK																				●	●						
	1121838	TCMT 32.52-MK																				●	●						
	1121842	TCMT 32.53-MK																				●	●						
	1121847	TCMT 432-MK																				●	●						
TCMT-MW  Medium to Finishing Wiper	1121974	TCMT 21.52-MW			○								●						●				●					●	
	1121828	TCMT 222-MW			○								●						●				●					●	
	1121841	TCMT 32.52-MW			○								●						●				●					●	

● 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

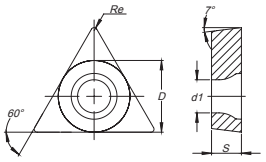
○ Available under request | Disponível sob consulta | Disponible bajo consulta

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

Technical Data page C - 518

palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

RELIEF ANGLE 7°



ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)				Cutting Conditions Condições de Corte Condiciones de Corte					
		D	S	Re	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
TCMT 1.81.51-MM	TCMT 090204-MM	7/32	3/32	1/64	0.098	0.024	0.007	0.089	0.004	0.002	0.007
TCMT 1.81.52-MM	TCMT 090208-MM	7/32	3/32	1/32	0.098	0.024	0.015	0.089	0.006	0.003	0.009
TCMT 21.51-MM	TCMT 110204-MM	1/4	3/32	1/64	0.110	0.026	0.008	0.098	0.005	0.002	0.007
TCMT 21.52-MM	TCMT 110208-MM	1/4	3/32	1/32	0.110	0.026	0.017	0.098	0.007	0.004	0.010
TCMT 221-MM	TCMT 110304-MM	1/4	1/8	1/64	0.110	0.026	0.008	0.098	0.005	0.002	0.007
TCMT 222-MM	TCMT 110308-MM	1/4	1/8	1/32	0.110	0.026	0.017	0.098	0.008	0.004	0.016
TCMT 32.51-MM	TCMT 16T304-MM	3/8	5/32	1/64	0.173	0.031	0.010	0.118	0.006	0.003	0.009
TCMT 32.52-MM	TCMT 16T308-MM	3/8	5/32	1/32	0.173	0.031	0.020	0.118	0.009	0.004	0.018
TCMT 32.53-MM	TCMT 16T312-MM	3/8	5/32	3/64	0.173	0.031	0.024	0.118	0.014	0.005	0.024
TCMT 432-MM	TCMT 220408-MM	1/2	3/16	1/32	0.217	0.038	0.024	0.142	0.010	0.005	0.018
TCMT 1.81.51-MK	TCMT 090204-MK	7/32	3/32	1/64	0.098	0.024	0.007	0.089	0.004	0.002	0.007
TCMT 1.81.52-MK	TCMT 090208-MK	7/32	3/32	1/32	0.098	0.024	0.015	0.089	0.006	0.003	0.009
TCMT 21.51-MK	TCMT 110204-MK	1/4	3/32	1/64	0.110	0.026	0.008	0.098	0.005	0.002	0.007
TCMT 21.52-MK	TCMT 110208-MK	1/4	3/32	1/32	0.110	0.026	0.017	0.098	0.007	0.004	0.010
TCMT 221-MK	TCMT 110304-MK	1/4	1/8	1/64	0.110	0.026	0.008	0.098	0.005	0.002	0.007
TCMT 222-MK	TCMT 110308-MK	1/4	1/8	1/32	0.110	0.026	0.017	0.098	0.008	0.004	0.016
TCMT 32.51-MK	TCMT 16T304-MK	3/8	5/32	1/64	0.173	0.031	0.010	0.118	0.006	0.003	0.009
TCMT 32.52-MK	TCMT 16T308-MK	3/8	5/32	1/32	0.173	0.031	0.020	0.118	0.009	0.004	0.018
TCMT 32.53-MK	TCMT 16T312-MK	3/8	5/32	3/64	0.173	0.031	0.024	0.118	0.014	0.005	0.024
TCMT 432-MK	TCMT 220408-MK	1/2	3/16	1/32	0.217	0.038	0.024	0.142	0.010	0.005	0.018
TCMT 21.52-MW	TCMT 110208-MW	1/4	3/32	1/32	0.110	0.047	0.020	0.118	0.012	0.006	0.020
TCMT 222-MW	TCMT 110308-MW	1/4	1/8	1/32	0.110	0.047	0.020	0.118	0.012	0.006	0.020
TCMT 32.52-MW	TCMT 16T308-MW	3/8	5/32	1/32	0.173	0.059	0.020	0.157	0.012	0.006	0.020

Technical Data
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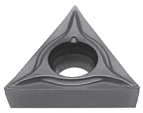
TC - TRIANGULAR 60º POSITIVE

TRIANGULAR 60º POSITIVA | TRIANGULAR 60º POSITIVA

Inserts Pastilhas Plaquitas	(1) Geometry code	ANSI Reference	P												M						K				N	S				
			CVD								PVD				CVD		PVD				UNC	CVD			UNC	PVD				
		(2) Grade code	T6	L7	R2	L8	R3	S9	L9	V5	G1	X5	G4	T1	U4	U5	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
			PHG105	PH5115	PHG115	PH5125	PHG125	PHG135	PH5740	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 1.81.50.5-FS															◬	◉		◉						◬	◉		◉
	1123866	TCGT 1.81.51-FS															◬	◉	◬	◉						◬	◉	◬	◉
	1123867	TCGT 21.50.2-FS															◬	◉	◬	◉						◬	◉	◬	◉
	1123868	TCGT 21.50.5-FS															◬	◉		◉						◬	◉		◉
	1123869	TCGT 21.51-FS															◬	◉	◬	◉						◬	◉	◬	◉
	1123870	TCGT 220.2-FS																◉		◉							◉		◉
	1123871	TCGT 220.5-FS																◉		◉							◉		◉
	1123872	TCGT 221-FS															◬	◉	◬	◉						◬	◉	◬	◉
TCGT-LN  Medium to Finishing	1124011	TCGT 1.81.50.5-LN																							◉				
	1123683	TCGT 1.81.51-LN																							◉				
	1121895	TCGT 21.50.5-LN																							◉				
	1121896	TCGT 21.51-LN															◉								◉	◉			
	1124012	TCGT 21.52-LN																							◉				
	1121897	TCGT 32.50.5-LN																							◉				
	1121898	TCGT 32.51-LN															◉								◉	◉			
	1121899	TCGT 32.52-LN																							◉				
	1124013	TCGT 32.53-LN																							◉				
	1124014	TCGT 32.54-LN																							◉				

◉ 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 | Disponível sob consulta | Disponible bajo consulta

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

Technical Data page C - 518

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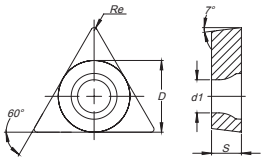
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

RELIEF ANGLE 7°



ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)				Cutting Conditions Condições de Corte Condiciones de Corte					
		D	S	Re	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
TCGT 1.81.50.5-FS	TCGT 090202-FS	7/32	3/32	0.008	0.098	0.020	0.004	0.059	0.003	0.001	0.005
TCGT 1.81.51-FS	TCGT 090204-FS	7/32	3/32	1/64	0.098	0.039	0.020	0.079	0.006	0.003	0.010
TCGT 21.50.2-FS	TCGT 110201-FS	1/4	3/32	0.008	0.110	0.012	0.004	0.039	0.001	0.000	0.003
TCGT 21.50.5-FS	TCGT 110202-FS	1/4	3/32	0.008	0.110	0.020	0.004	0.059	0.003	0.001	0.005
TCGT 21.51-FS	TCGT 110204-FS	1/4	3/32	1/64	0.110	0.051	0.012	0.098	0.006	0.003	0.010
TCGT 220.2-FS	TCGT 110301-FS	3/8	1/8	0.004	0.110	0.012	0.004	0.039	0.001	0.000	0.003
TCGT 220.5-FS	TCGT 110302-FS	3/8	1/8	0.008	0.110	0.020	0.004	0.059	0.003	0.001	0.005
TCGT 221-FS	TCGT 110304-FS	3/8	1/8	1/64	0.110	0.051	0.020	0.098	0.006	0.003	0.010
TCGT 1.81.50.5-LN	TCGT 090202-LN	7/32	3/32	0.008	0.098	0.039	0.002	0.098	0.004	0.003	0.006
TCGT 1.81.51-LN	TCGT 090204-LN	7/32	3/32	1/64	0.098	0.039	0.002	0.098	0.006	0.004	0.008
TCGT 21.50.5-LN	TCGT 110202-LN	1/4	3/32	0.008	0.110	0.080	0.002	0.157	0.005	0.003	0.006
TCGT 21.51-LN	TCGT 110204-LN	1/4	3/32	1/64	0.110	0.081	0.004	0.157	0.006	0.004	0.008
TCGT 21.52-LN	TCGT 110208-LN	1/4	3/32	1/32	0.110	0.081	0.004	0.157	0.010	0.006	0.020
TCGT 32.50.5-LN	TCGT 16T302-LN	3/8	5/32	0.008	0.173	0.100	0.002	0.197	0.004	0.003	0.006
TCGT 32.51-LN	TCGT 16T304-LN	3/8	5/32	1/64	0.173	0.110	0.004	0.217	0.006	0.004	0.008
TCGT 32.52-LN	TCGT 16T308-LN	3/8	5/32	1/32	0.173	0.110	0.004	0.217	0.010	0.006	0.020
TCGT 32.53-LN	TCGT 16T312-LN	3/8	5/32	3/64	0.173	0.118	0.006	0.217	0.018	0.006	0.028
TCGT 32.54-LN	TCGT 16T316-LN	3/8	5/32	1/16	0.173	0.118	0.006	0.217	0.026	0.008	0.035

Technical Data
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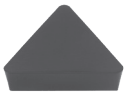
TP = TRIANGULAR 60º POSITIVE

TRIANGULAR 60º POSITIVA | TRIANGULAR 60º POSITIVA

			P												M						K				N	S				
			CVD								PVD				CVD		PVD				UNC	CVD			UNC	PVD				
		(2) Grade code	T6	L7	R2	L8	R3	S9	L9	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	ANSI Reference	PHG105	PH5115	PHG115	PH5125	PHG125	PHG135	PH5740	PHG140	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 321				●			●				●																
	1120766	TPUN 322				●			●				●																
	1120770	TPUN 323				●			●																				
	1120777	TPUN 431				●			●																				
	1120779	TPUN 432				●			●																				
	1120783	TPUN 433				●			●																				
TPMR-12  Finishing to Fine Finishing	1120740	TPMR 221-12		●		●																							
	1120743	TPMR 222-12		●		●																							
	1120745	TPMR 321-12		●		●	●																						
	1120748	TPMR 322-12		●		●	○																						
TPMR-13  Medium	1120734	TPMR 1.81.51-13		●		●																							
	1120741	TPMR 221-13		●		●																							
	1120744	TPMR 222-13		●		●																							
	1120746	TPMR 321-13		●		●																							
	1120749	TPMR 322-13		●		●																		○					
	1120752	TPMR 323-13		●		●																							
	1120753	TPMR 432-13		●		●																		○					

● 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 | Disponível sob consulta | Disponible bajo consulta

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

Technical Data page C - 518

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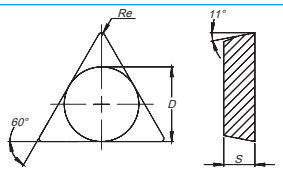
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

RELIEF ANGLE 11°



ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)				Cutting Conditions Condições de Corte Condiciones de Corte					
		D	S	Re	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
TPUN 321	TPUN 160304	3/8	1/8	1/64	-	0.138	0.039	0.197	0.006	0.004	0.012
TPUN 322	TPUN 160308	3/8	1/8	1/32	-	0.138	0.039	0.197	0.012	0.006	0.016
TPUN 323	TPUN 160312	3/8	1/8	3/64	-	0.138	0.059	0.197	0.014	0.008	0.020
TPUN 431	TPUN 220404	1/2	3/16	1/64	-	0.177	0.059	0.276	0.006	0.004	0.012
TPUN 432	TPUN 220408	1/2	3/16	1/32	-	0.177	0.059	0.276	0.012	0.006	0.016
TPUN 433	TPUN 220412	1/2	3/16	3/64	-	0.177	0.059	0.276	0.014	0.008	0.020
TPMR 221-12	TPMR 110304-12	1/4	1/8	1/64	-	0.035	0.012	0.059	0.004	0.002	0.008
TPMR 222-12	TPMR 110308-12	1/4	1/8	1/32	-	0.035	0.012	0.059	0.008	0.002	0.014
TPMR 321-12	TPMR 160304-12	3/8	1/8	1/64	-	0.051	0.020	0.079	0.005	0.003	0.008
TPMR 322-12	TPMR 160308-12	3/8	1/8	1/32	-	0.059	0.020	0.118	0.009	0.003	0.014
TPMR 1.81.51-13	TPMR 090204-13	7/32	3/32	1/64	-	0.039	0.008	0.059	0.004	0.003	0.008
TPMR 221-13	TPMR 110304-13	1/4	1/8	1/64	-	0.079	0.039	0.118	0.005	0.004	0.008
TPMR 222-13	TPMR 110308-13	1/4	1/8	1/32	-	0.079	0.039	0.118	0.010	0.005	0.016
TPMR 321-13	TPMR 160304-13	3/8	1/8	1/64	-	0.118	0.039	0.197	0.006	0.004	0.008
TPMR 322-13	TPMR 160308-13	3/8	1/8	1/32	-	0.118	0.039	0.197	0.012	0.005	0.016
TPMR 323-13	TPMR 160312-13	3/8	1/8	3/64	-	0.118	0.039	0.197	0.016	0.006	0.022
TPMR 432-13	TPMR 220408-13	1/2	3/16	1/32	-	0.197	0.059	0.276	0.012	0.006	0.016

Technical Data
page C - 518

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	L7	R2	L8	R3	S9	L9	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	ANSI Reference	PHG105	PH5115	PHG115	PH5125	PHG125	PHG135	PH5740	PHG140	PH7910	PHP910	PH7920	PHP920	PHS215	PHS225	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
VBMW Finishing	1120804	VBMW 331																				●							
	1120805	VBMW 332																				●							
VBMT-FP Finishing	1121852	VBMT 220.5-FP					●																						
	1121855	VBMT 221-FP			●		●																						
	1121858	VBMT 222-FP			●		●																						
	1121859	VBMT 223-FP			○		○																						
	1121862	VBMT 330.5-FP					●																						
	1121865	VBMT 331-FP			●		●																						
	1121670	VBMT 332-FP			●		●																						
	1121793	VBMT 333-FP			●		○																						
VBMT-FM Finishing	1121851	VBMT 220.5-FM														●		●	◬	●							●	◬	●
	1121854	VBMT 221-FM														●		●	◬	●							●	◬	●
	1121857	VBMT 222-FM														●	◬	●	◬	●						◬	●	◬	●
	1121861	VBMT 330.5-FM														●		●		●							●		●
	1121864	VBMT 331-FM														●		●	◬	●							●	◬	●
	1121870	VBMT 332-FM														●		●		●							●		●
	1121792	VBMT 333-FM														●		●	◬	●							●	◬	●
VBMT-FK Finishing	1121850	VBMT 220.5-FK																				●							
	1121853	VBMT 221-FK																				●							
	1121856	VBMT 222-FK																				●							
	1121860	VBMT 330.5-FK																				●							
	1121863	VBMT 331-FK																				●							
	1121869	VBMT 332-FK																				●							
VBMT-MP Medium	1121868	VBMT 331-MP			●		●				●		●																
	1121791	VBMT 332-MP			●		●				●		●																
	1121796	VBMT 333-MP			●		●																						
VBMT-MM Medium	1121867	VBMT 331-MM													●				●	●						◬	●		
	1121790	VBMT 332-MM													●				●	●						◬	●		
	1121795	VBMT 333-MM													●				●	●							●		
VBMT-MK Medium	1121866	VBMT 331-MK																				●	●						
	1121871	VBMT 332-MK																				●	●						
	1121794	VBMT 333-MK																				●	●						

● 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

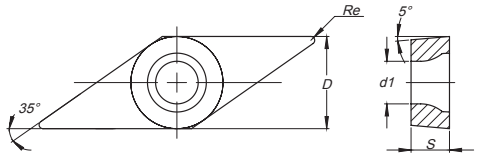
○ Available under request | Disponível sob consulta | Disponible bajo consulta

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

Technical Data page C - 518

palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

RELIEF ANGLE 5°



ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)				Cutting Conditions Condições de Corte Condiciones de Corte					
		D	S	Re	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
VBMW 331	VBMW 160404	3/8	3/16	1/64	0.173	0.091	0.002	0.185	0.008	0.004	0.010
VBMW 332	VBMW 160408	3/8	3/16	1/32	0.173	0.091	0.002	0.185	0.016	0.006	0.021
VBMT 220.5-FP	VBMT 110302-FP	1/4	1/8	0.008	0.110	0.012	0.002	0.067	0.002	0.001	0.005
VBMT 221-FP	VBMT 110304-FP	1/4	1/8	1/64	0.110	0.012	0.004	0.067	0.004	0.002	0.007
VBMT 222-FP	VBMT 110308-FP	1/4	1/8	1/32	0.110	0.012	0.005	0.067	0.005	0.003	0.010
VBMT 223-FP	VBMT 110312-FP	1/4	1/8	3/64	0.110	0.012	0.005	0.067	0.006	0.003	0.012
VBMT 330.5-FP	VBMT 160402-FP	3/8	3/16	0.008	0.173	0.013	0.003	0.071	0.003	0.002	0.006
VBMT 331-FP	VBMT 160404-FP	3/8	3/16	1/64	0.173	0.013	0.004	0.071	0.004	0.002	0.008
VBMT 332-FP	VBMT 160408-FP	3/8	3/16	1/32	0.173	0.013	0.006	0.071	0.006	0.003	0.011
VBMT 333-FP	VBMT 160412-FP	3/8	3/16	3/64	0.173	0.013	0.006	0.071	0.006	0.004	0.013
VBMT 220.5-FM	VBMT 110302-FM	1/4	1/8	0.008	0.110	0.012	0.002	0.067	0.002	0.001	0.005
VBMT 221-FM	VBMT 110304-FM	1/4	1/8	1/64	0.110	0.012	0.004	0.067	0.004	0.002	0.007
VBMT 222-FM	VBMT 110308-FM	1/4	1/8	1/32	0.110	0.012	0.005	0.067	0.005	0.003	0.010
VBMT 330.5-FM	VBMT 160402-FM	3/8	3/16	0.008	0.173	0.013	0.003	0.071	0.003	0.002	0.006
VBMT 331-FM	VBMT 160404-FM	3/8	3/16	1/64	0.173	0.013	0.004	0.071	0.004	0.002	0.008
VBMT 332-FM	VBMT 160408-FM	3/8	3/16	1/32	0.173	0.013	0.006	0.071	0.006	0.003	0.011
VBMT 333-FM	VBMT 160412-FM	3/8	3/16	3/64	0.173	0.013	0.006	0.071	0.006	0.004	0.013
VBMT 220.5-FK	VBMT 110302-FK	1/4	1/8	0.008	0.110	0.012	0.002	0.067	0.002	0.001	0.005
VBMT 221-FK	VBMT 110304-FK	1/4	1/8	1/64	0.110	0.012	0.004	0.067	0.004	0.002	0.007
VBMT 222-FK	VBMT 110308-FK	1/4	1/8	1/32	0.110	0.012	0.005	0.067	0.005	0.003	0.010
VBMT 330.5-FK	VBMT 160402-FK	3/8	3/16	0.008	0.173	0.013	0.003	0.071	0.003	0.002	0.006
VBMT 331-FK	VBMT 160404-FK	3/8	3/16	1/64	0.173	0.013	0.004	0.071	0.004	0.002	0.008
VBMT 332-FK	VBMT 160408-FK	3/8	3/16	1/32	0.173	0.013	0.006	0.071	0.006	0.003	0.011
VBMT 331-MP	VBMT 160404-MP	3/8	3/16	1/64	0.173	0.028	0.009	0.106	0.006	0.003	0.008
VBMT 332-MP	VBMT 160408-MP	3/8	3/16	1/32	0.173	0.028	0.018	0.106	0.007	0.004	0.011
VBMT 333-MP	VBMT 160412-MP	3/8	3/16	3/64	0.173	0.028	0.021	0.106	0.009	0.004	0.013
VBMT 331-MM	VBMT 160404-MM	3/8	3/16	1/64	0.173	0.028	0.009	0.106	0.006	0.003	0.008
VBMT 332-MM	VBMT 160408-MM	3/8	3/16	1/32	0.173	0.028	0.018	0.106	0.007	0.004	0.011
VBMT 333-MM	VBMT 160412-MM	3/8	3/16	3/64	0.173	0.028	0.021	0.106	0.009	0.004	0.013
VBMT 331-MK	VBMT 160404-MK	3/8	3/16	1/64	0.173	0.028	0.009	0.106	0.006	0.003	0.008
VBMT 332-MK	VBMT 160408-MK	3/8	3/16	1/32	0.173	0.028	0.018	0.106	0.007	0.004	0.011
VBMT 333-MK	VBMT 160412-MK	3/8	3/16	3/64	0.173	0.028	0.021	0.106	0.009	0.004	0.013

Technical Data
page C - 518

VC - RHOMBIC 35° POSITIVE

RÔMBICA 35° POSITIVA | RÓMBICA 35° POSITIVA

Inserts Pastilhas Plaquitas	(1) Geometry code	ANSI Reference	P												M						K				N	S				
			CVD								PVD				CVD		PVD				UNC	CVD			UNC	PVD				
		(2) Grade code	T6	L7	R2	L8	R3	S9	L9	V5	G1	X5	G4	T1	U4	U5	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3	
			PHG105	PH5115	PHG115	PH5125	PHG125	PHG135	PH5740	PHG140	PH7910	PHP910	PH7920	PHP920	PHS215	PHS225	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920	
VCMW Finishing	1120816	VCMW 331																				◈								
VCMT-FP Finishing	1121776	VCMT 220.5-FP					◈																							
	1121779	VCMT 221-FP			◈		◈																							
	1121977	VCMT 330.5-FP					◈																							
	1121978	VCMT 331-FP			◈		◈																							
	1121979	VCMT 332-FP	◈		◈		◈																							
	1121980	VCMT 333-FP			○																									
VCMT-FM Finishing	1121775	VCMT 220.5-FM														◈		◈	◇	◈							◈	◇	◈	
	1121778	VCMT 221-FM														◈		◈		◈							◈		◈	
	1121981	VCMT 330.5-FM														◈		◈	◇	◈							◈	◇	◈	
	1121982	VCMT 331-FM														◈		◈	◇	◈							◈	◇	◈	
	1121983	VCMT 332-FM														◈		◈	◇	◈						○	◈	◇	◈	
	1121984	VCMT 333-FM														◈		◈	◇	◈						○	◈	◇	◈	
VCMT-FK Finishing	1121777	VCMT 221-FK																				◈								
	1121985	VCMT 330.5-FK																				◈								
	1121986	VCMT 331-FK																				◈								
	1121987	VCMT 332-FK																				◈								
VCMT-MP Medium	1121754	VCMT 221-MP			◈		◈																							
	1121752	VCMT 222-MP			◈		◈																							
	1121988	VCMT 331-MP			◈		◈																							
	1121989	VCMT 332-MP			◈		◈																							
	1121990	VCMT 333-MP			○		◈																							
VCMT-MM Medium	1121780	VCMT 221-MM													◈			◈	◈	◈							◈	◈	◈	
	1121751	VCMT 222-MM													◈			◈	◈	◈							◈	◈	◈	
	1121991	VCMT 331-MM													◈			◈	◈	◈							◈	◈	◈	
	1121992	VCMT 332-MM													◈			◈	◈	◈							◈	◈	◈	
	1121993	VCMT 333-MM													◈			◈	◈	◈							◈	◈	◈	
VCMT-MK Medium	1121753	VCMT 222-MK																				◈	◈							
	1121994	VCMT 331-MK																				◈	◈							
	1121995	VCMT 332-MK																				◈	◈							
	1121996	VCMT 333-MK																				◈	◈							

◈ 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

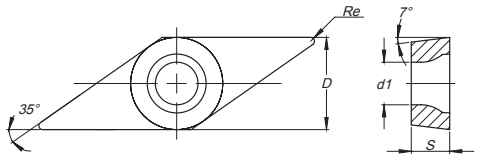
○ Available under request | Disponível sob consulta | Disponible bajo consulta

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

Technical Data page C - 518

palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

RELIEF ANGLE 7°



ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)				Cutting Conditions Condições de Corte Condiciones de Corte					
		D	S	Re	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
VCMW 331	VCMW 160404	3/8	3/16	1/64	0.173	0.091	0.002	0.185	0.008	0.003	0.010
VCMT 220.5-FP	VCMT 110302-FP	1/4	1/8	0.008	0.110	0.012	0.003	0.059	0.003	0.001	0.005
VCMT 221-FP	VCMT 110304-FP	1/4	1/8	1/64	0.110	0.012	0.004	0.059	0.004	0.002	0.008
VCMT 330.5-FP	VCMT 160402-FP	3/8	3/16	0.008	0.173	0.013	0.003	0.071	0.003	0.002	0.006
VCMT 331-FP	VCMT 160404-FP	3/8	3/16	1/64	0.173	0.013	0.004	0.071	0.004	0.002	0.008
VCMT 332-FP	VCMT 160408-FP	3/8	3/16	1/32	0.173	0.013	0.006	0.071	0.006	0.003	0.011
VCMT 333-FP	VCMT 160412-FP	3/8	3/16	3/64	0.173	0.013	0.006	0.071	0.006	0.004	0.013
VCMT 220.5-FM	VCMT 110302-FM	1/4	1/8	0.008	0.110	0.012	0.003	0.059	0.003	0.001	0.005
VCMT 221-FM	VCMT 110304-FM	1/4	1/8	1/64	0.110	0.012	0.004	0.059	0.004	0.002	0.008
VCMT 330.5-FM	VCMT 160402-FM	3/8	3/16	0.008	0.173	0.013	0.003	0.071	0.003	0.002	0.006
VCMT 331-FM	VCMT 160404-FM	3/8	3/16	1/64	0.173	0.013	0.004	0.071	0.004	0.002	0.008
VCMT 332-FM	VCMT 160408-FM	3/8	3/16	1/32	0.173	0.013	0.006	0.071	0.006	0.003	0.011
VCMT 333-FM	VCMT 160412-FM	3/8	3/16	3/64	0.173	0.013	0.006	0.071	0.006	0.004	0.013
VCMT 221-FK	VCMT 110304-FK	1/4	1/8	1/64	0.110	0.012	0.004	0.059	0.004	0.002	0.008
VCMT 330.5-FK	VCMT 160402-FK	3/8	3/16	0.008	0.173	0.013	0.003	0.071	0.003	0.002	0.006
VCMT 331-FK	VCMT 160404-FK	3/8	3/16	1/64	0.173	0.013	0.004	0.071	0.004	0.002	0.008
VCMT 332-FK	VCMT 160408-FK	3/8	3/16	1/32	0.173	0.013	0.006	0.071	0.006	0.003	0.011
VCMT 221-MP	VCMT 110304-MP	1/4	1/8	1/64	0.110	0.030	0.012	0.100	0.006	0.004	0.010
VCMT 222-MP	VCMT 110308-MP	1/4	1/8	1/32	0.110	0.030	0.024	0.100	0.008	0.005	0.013
VCMT 331-MP	VCMT 160404-MP	3/8	3/16	1/64	0.173	0.028	0.009	0.106	0.006	0.003	0.008
VCMT 332-MP	VCMT 160408-MP	3/8	3/16	1/32	0.173	0.028	0.018	0.106	0.007	0.004	0.011
VCMT 333-MP	VCMT 160412-MP	3/8	3/16	3/64	0.173	0.028	0.021	0.106	0.009	0.004	0.013
VCMT 221-MM	VCMT 110304-MM	1/4	1/8	1/64	0.110	0.030	0.012	0.100	0.006	0.004	0.010
VCMT 222-MM	VCMT 110308-MM	1/4	1/8	1/32	0.110	0.030	0.024	0.100	0.008	0.005	0.013
VCMT 331-MM	VCMT 160404-MM	3/8	3/16	1/64	0.173	0.028	0.009	0.106	0.006	0.003	0.008
VCMT 332-MM	VCMT 160408-MM	3/8	3/16	1/32	0.173	0.028	0.018	0.106	0.007	0.004	0.011
VCMT 333-MM	VCMT 160412-MM	3/8	3/16	3/64	0.173	0.028	0.021	0.106	0.009	0.004	0.013
VCMT 222-MK	VCMT 110308-MK	1/4	1/8	1/32	0.110	0.030	0.024	0.100	0.008	0.005	0.013
VCMT 331-MK	VCMT 160404-MK	3/8	3/16	1/64	0.173	0.028	0.009	0.106	0.006	0.003	0.008
VCMT 332-MK	VCMT 160408-MK	3/8	3/16	1/32	0.173	0.028	0.018	0.106	0.007	0.004	0.011
VCMT 333-MK	VCMT 160412-MK	3/8	3/16	3/64	0.173	0.028	0.021	0.106	0.009	0.004	0.013

Technical Data
page C - 518

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	L7	R2	L8	R3	S9	L9	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	PHG115	PH5125	PHG125	PHG135	PH5740	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 220.2-FS									△						△	◎		◉						△	◉		◎
	1123862	VCGT 220.5-FS									△		△				△	◎	△	◉						△	◉	△	◎
	1123863	VCGT 221-FS									△		△				△	◎	△	◉						△	◉	△	◎
VCGT-LN  Medium to Finishing	1124779	VCGT 21.51-LN																							◎				
	1123689	VCGT 220.2-LN																							◎				
	1121889	VCGT 220.5-LN																							◎				
	1121890	VCGT 221-LN																							◎				
	1121891	VCGT 222-LN																							◎				
	1124015	VCGT 2.520.5-LN																							◎				
	1124016	VCGT 2.521-LN																							◎				
	1124677	VCGT 2.522-LN																							◎				
	1111878	VCGT 330.5-LN																							◎				
	1111533	VCGT 331-LN																							◎	◎			
	1121893	VCGT 332-LN																							◎	◎			
	1121894	VCGT 333-LN																							◎				
	1121929	VCGT 43.57.5-LN																							◎				

◉ 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 | Disponível sob consulta | Disponible bajo consulta

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

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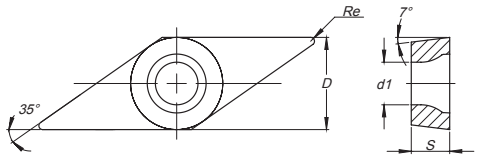
RELIEF ANGLE 7°



ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)				Cutting Conditions Condições de Corte Condiciones de Corte					
		D	S	Re	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
VCGT 220.2-FS	VCGT 110301-FS	1/4	1/8	0.004	0.110	0.012	0.004	0.039	0.001	0.000	0.003
VCGT 220.5-FS	VCGT 110302-FS	1/4	1/8	0.008	0.110	0.020	0.004	0.059	0.003	0.001	0.005
VCGT 221-FS	VCGT 110304-FS	1/4	1/8	1/64	0.110	0.039	0.012	0.098	0.006	0.003	0.010
VCGT 21.51-LN	VCGT 110204-LN	1/4	2/21	1/64	0.110	0.060	0.002	0.118	0.006	0.004	0.010
VCGT 220.2-LN	VCGT 110301-LN	1/4	1/8	0.004	0.110	0.060	0.002	0.118	0.002	0.001	0.002
VCGT 220.5-LN	VCGT 110302-LN	1/4	1/8	0.008	0.110	0.060	0.002	0.118	0.003	0.002	0.005
VCGT 221-LN	VCGT 110304-LN	1/4	1/8	1/64	0.110	0.060	0.002	0.118	0.006	0.004	0.010
VCGT 222-LN	VCGT 110308-LN	1/4	1/8	1/32	0.110	0.060	0.002	0.118	0.009	0.006	0.018
VCGT 2.520.5-LN	VCGT 130302-LN	5/16	1/8	0.008	0.134	0.079	0.004	0.157	0.003	0.002	0.005
VCGT 2.521-LN	VCGT 130304-LN	5/16	1/8	1/64	0.134	0.079	0.004	0.157	0.006	0.004	0.010
VCGT 2.522-LN	VCGT 130308-LN	5/16	1/8	1/32	0.134	0.098	0.006	0.177	0.007	0.004	0.012
VCGT 330.5-LN	VCGT 160402-LN	3/8	3/16	0.008	0.173	0.091	0.004	0.197	0.003	0.002	0.005
VCGT 331-LN	VCGT 160404-LN	3/8	3/16	1/64	0.173	0.100	0.004	0.197	0.006	0.004	0.010
VCGT 332-LN	VCGT 160408-LN	3/8	3/16	1/32	0.173	0.100	0.004	0.197	0.009	0.006	0.018
VCGT 333-LN	VCGT 160412-LN	3/8	3/16	3/64	0.173	0.100	0.004	0.197	0.016	0.006	0.024
VCGT 43.57.5-LN	VCGT 220530-LN	1/2	7/32	0.118	0.217	0.140	0.004	0.276	0.031	0.006	0.063

Technical Data
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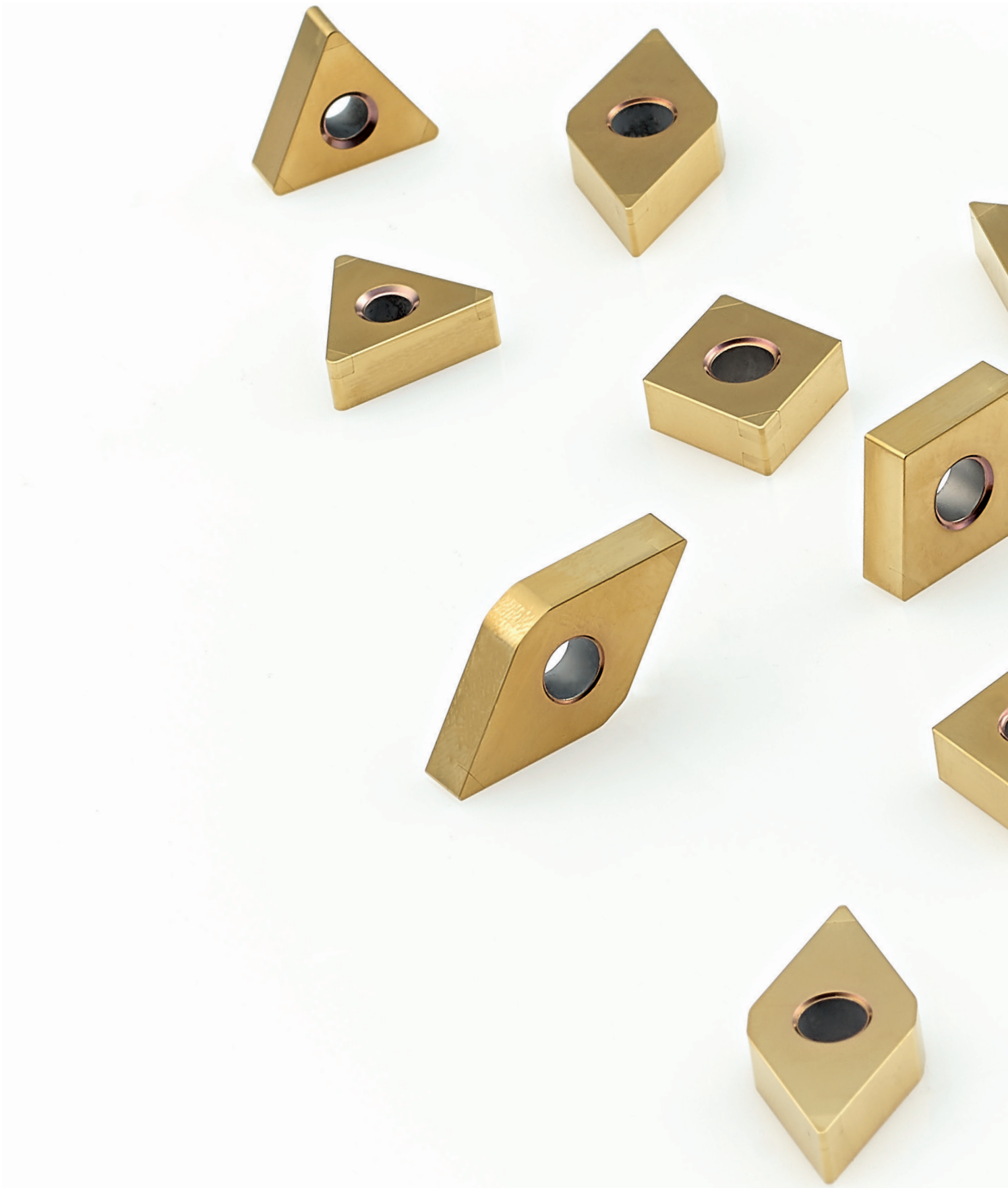

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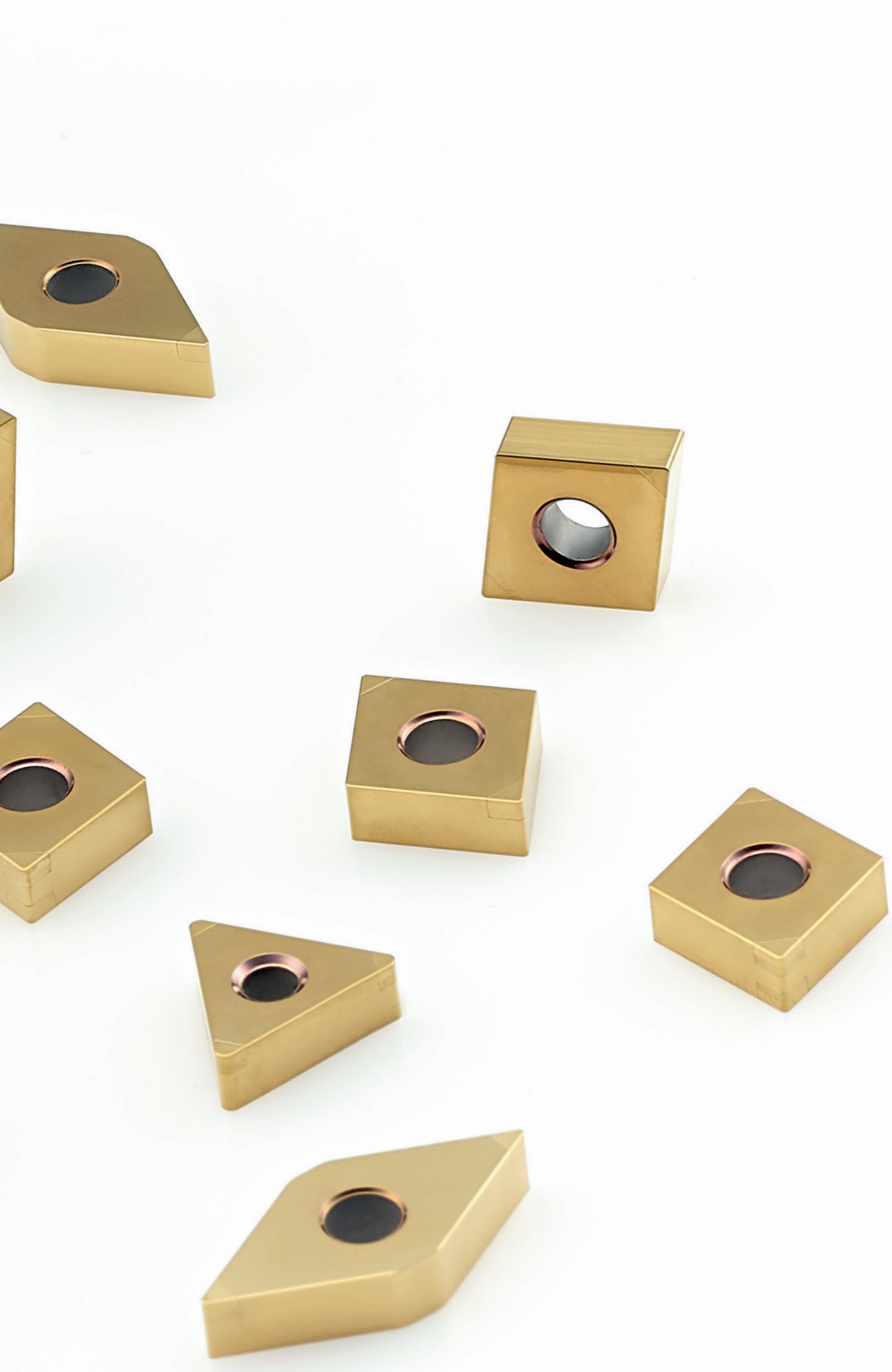

VIDEO

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 insert 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:

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).
PBH920	S4	High PCBN 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



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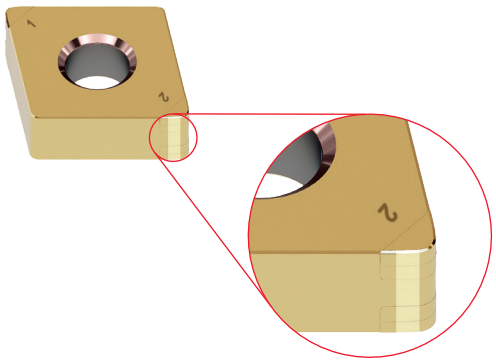
GEOMETRY SELECTION | Selecção da geometria | Selección de la geometria

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.

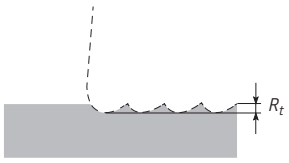
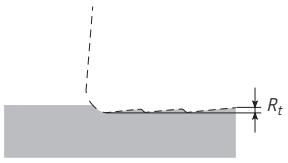
A large nose radius provides a greater edge strength and therefore extended tool life. For this reason, it is advised to use the largest allowed nose radius to each process requirements.

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 (r = 1/32 in)	Wiper (r = 1/32 in)
Insert type		
Surface Roughness (R_a)	32 µin	16 µin

Note:

This values were achieved with the next cutting conditions:

H Steel HRC60 | V_c = 426 in/min | f_n = 0.005 in/rev | a_p = 0.008 in | λ = 0.098 in / ISO 4287

FORMULAS FOR SURFACE ROUGHNESS CALCULATION

Fórmulas para calculo da rugosidade da superfície | Fórmulas para calcular la rugosidad de la superficie

$$R_a = 0.032 \times \frac{f_n^2}{r_\varepsilon} \times 1000 \quad \mu in$$

$$R_t = 3.91 \times R_a \ \mu in$$

R_a	- Mean Surface Roughness	(µin)
R_t	- Roughness Total Height	(µin)
f_n	- Feed Rate	(in/rev)
r_ε	- Insert Radius	(in)

EDGE PREPARATION SELECTION

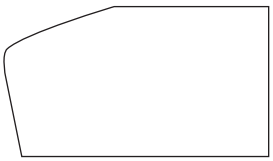
Selecção da preparação de aresta | Selección de la preparación de arista

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:

Cutting forces
Edge strength
+
-

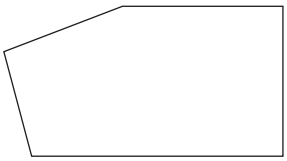
S-Land



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

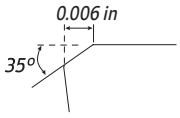
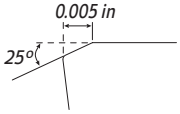
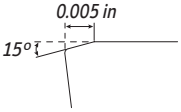
- Recommended for HRSA finishing operation;
- Honing helps strengthen the edge, giving resistance to chipping and fracturing;
- Feed rates must be greater than the hone size to allow actual cutting action to take place and prevent rubbing.

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.

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CHIPBREAKER TAILOR-MADE

Quebra-aparas personalizados | Rompevirutas personalizados

Our laser machining and grinding machining technology can reach a wide range of tailor-made solutions.
The Chipbreakers 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

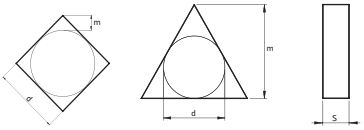
Workpiece material	Recommend grade for PCBN			Vc (SFM)	
	PBH920	PBY603	PBY620		
Hardened Steel (HRC 45-68) Tool-Steel, Case Hardened Steel, Continuous Cut (recommended without Coolants)		◉		Semi-finish Finish	263 - 656 263 - 591
Hardened Steel (HRC 45-68) Tool-Steel, Case Hardened Steel, Interrupted Cut (recommended without Coolants)	○		◉	Semi-finish Finish	230 - 591 230 - 525
Grey Cast Iron	◉			Semi-finish Finish	1640 - 3280 1968 - 6560
High Temperature Alloys (Inconel, Waspoloy, Hasteloy) Exotic and High Nickel + Cobalt basis	◉	◉		Finish	164 - 984

◉ Recommended ○ Second choice

ISO | ANSI PCBN INSERTS CODE KEY

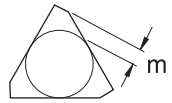
H	120°	M	86°
O	135°	V	35°
P	108°	W	80°
S	90°	L	90°
T	60°	A	85°
C	80°	B	82°
D	55°	K	55°
E	75°	R	
F	50°	X	Special

1- Insert shape symbol



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

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



Triangular inserts with a facet (secondary cutting edge)

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

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

Inscribed circle Tolerances (mm)

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

3 - Tolerances symbol

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

2 - Normal clearance symbol

ISO	C	N	G	A
ANSI	C	N	G	A

4 - Insert symbol

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

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

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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	11/4	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	*11	12
12	04	08	-	S	25	13					WG	Z4
4	3	2	-	S	25	13					WG	Z4

12 - 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)	S - Solid

*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

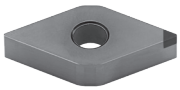
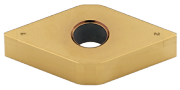
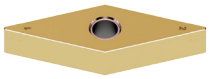
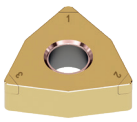
8 - Cutting edge information		
Shape	Honing	Symbol
	No honing	F
	With honing	E
	Chamfered No honing	T
	Chamfered with honing	S

9 - Angle of Chamfer (α)	
05	05°
10	10°
15	15°
20	20°
25	25°
30	30°
35	35°

10 - Width of Chamfer (T)		
05	0,05 mm	0.002 in
10	0,10 mm	0.004 in
13	0,13 mm	0.005 in
15	0,15 mm	0.006 in
20	0,20 mm	0.008 in
25	0,25 mm	0.010 in
30	0,30 mm	0.012 in
35	0,35 mm	0.014 in
40	0,40 mm	0.016 in

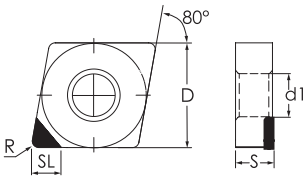
NEGATIVE INSERTS OVERVIEW

Vista genérica pastilhas negativas | Visión general de plaquitas negativas

SINGLE TIP	CNGA Z1  Size 12 Page 398	DNGA Z1  Size 15 Page 399				SOLID CBN RNGN S NEW  Size 06 | 09 | 12 Page 343
MULTIPLE TIPS	CNGA Z2 | Z4  Size 12 Page 399	DNGA Z2 | Z4  Size 11 | 15 Page 400	SNGA Z4  Size 12 Page 401	TNGA Z3 | Z6  Size 16 Page 402	VNGA Z2  Size 16 Page 403	WNGA Z3 | Z6  Size 08 Page 403	

CN - RHOMBIC 80° NEGATIVE

RÔMBICA 80° NEGATIVA | RÓMBICA 80° NEGATIVA



CNGA Z1 - SINGLE TIP

	(1) Geometry code	ANSI Reference	(2) Grade code	K S4 PBH920	H Y5 PBY603	H Y4 PBY620	Dimensions (in) Dimensões (in) Dimenciones (in) Z	D	S	R	d1	SL	Cutting conditions Condições de corte Condiciones de corte ap (in)	Min	Max	fn (in/r)	Min	Max
	1124300	CNGA 431-S2513 Z1		○			1	1/2	3/16	1/64	0.203	0.098	0.006	0.003	0.020	0.003	0.002	0.008
	1124111	CNGA 432-S2513 Z1		⟲			1	1/2	3/16	1/32	0.203	0.079	0.008	0.003	0.020	0.004	0.003	0.012
	1124301	CNGA 433-S2513 Z1		○			1	1/2	3/16	3/64	0.203	0.091	0.010	0.003	0.020	0.005	0.003	0.012
	1124302	CNGA 434-S2513 Z1		○			1	1/2	3/16	1/4	0.203	0.087	0.012	0.002	0.020	0.006	0.003	0.012

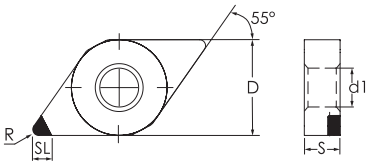
⟲ Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

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

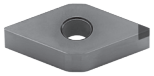
Technical Data page C - 518

DN - RHOMBIC 55° NEGATIVE

RÔMBICA 55° NEGATIVA | RÓMBICA 55° NEGATIVA



DNGA Z1 - SINGLE TIP

	(1) Geometry code	ANSI Reference	K S4 PBH920	H Y5 PBY603	H Y4 PBY620	Dimensions (in) Z	D	S	R	d1	SL	Cutting conditions ap (in)	Min	Max	fn (in/r)	Min	Max
	1124306	DNGA 431-S2513 Z1	○		○	1	1/2	3/16	1/64	0.203	0.098	0.006	0.003	0.020	0.003	0.002	0.008
	1124112	DNGA 432-S2513 Z1	⛁		○	1	1/2	3/16	1/32	0.203	0.098	0.008	0.003	0.020	0.004	0.003	0.012
	1124536	DNGA 433-S2513 Z1	○		○	1	1/2	3/16	3/64	0.203	0.087	0.010	0.003	0.020	0.005	0.003	0.012
	1124307	DNGA 442-S2513 Z1	○			1	1/2	1/4	1/31	0.203	0.098	0.008	0.003	0.020	0.004	0.003	0.012
	1124308	DNGA 443-S2513 Z1	○			1	1/2	1/4	4/85	0.203	0.087	0.010	0.003	0.020	0.005	0.003	0.012

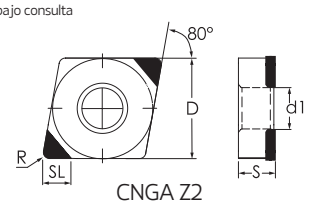
⛁ Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

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

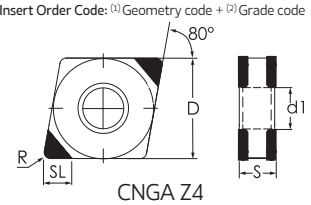
CN - RHOMBIC 80° NEGATIVE

RÔMBICA 80° NEGATIVA | RÓMBICA 80° NEGATIVA

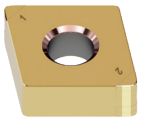
CNGA Z2 | CNGA Z4 - MULTIPLE TIPS



CNGA Z2



CNGA Z4

	(1) Geometry code	ANSI Reference	K S4 PBH920	H Y5 PBY603	H Y4 PBY620	Dimensions (in) Z	D	S	R	d1	SL	Cutting conditions ap (in)	Min	Max	fn (in/r)	Min	Max
	1124343	CNGA 431.5-S2513 Z2	○			2	1/2	3/16	0.008	0.203	0.102	0.006	0.003	0.015	0.002	0.002	0.008
	1124344	CNGA 431-S2513 Z2	⛁	⛁	⛁	2	1/2	3/16	1/64	0.203	0.098	0.006	0.003	0.016	0.003	0.002	0.008
	1124175	CNGA 432-S2513 Z2	⛁	⛁	⛁	2	1/2	3/16	1/32	0.203	0.094	0.008	0.003	0.020	0.004	0.003	0.012
	1124568	CNGA 432-S3515 Z2			⛁	2	1/2	3/16	1/32	0.203	0.094	0.008	0.003	0.020	0.004	0.003	0.012
	1124468	CNGA 433-S2513 Z2	⛁	⛁	⛁	2	1/2	3/16	3/64	0.203	0.091	0.010	0.003	0.020	0.005	0.003	0.012
	1124569	CNGA 433-S3515 Z2			○	2	1/2	3/16	3/64	0.203	0.091	0.010	0.003	0.020	0.005	0.003	0.012
	1124474	CNGA 431-S2513 Z4		⛁	○	4	1/2	3/16	1/64	0.203	0.098	0.006	0.003	0.016	0.003	0.002	0.008
	1124692	CNGA 432-S1513 Z4		○		4	1/2	3/16	1/31	0.203	0.094	0.008	0.003	0.020	0.004	0.003	0.012
	1124134	CNGA 432-S2513 Z4	○	⛁	○	4	1/2	3/16	1/32	0.203	0.094	0.008	0.003	0.020	0.004	0.003	0.012
	1124570	CNGA 432-S3515 Z4			○	4	1/2	3/16	1/31	0.203	0.094	0.008	0.003	0.020	0.004	0.003	0.012
	1124475	CNGA 433-S2513 Z4		⛁	○	4	1/2	3/16	3/64	0.203	0.091	0.010	0.003	0.020	0.005	0.003	0.012
	1124571	CNGA 433-S3515 Z4			○	4	1/2	3/16	3/64	0.203	0.091	0.010	0.003	0.020	0.005	0.003	0.012
	1124534	CNGA 431-S1513 WG Z4		○	○	4	1/2	3/16	1/64	0.203	0.094	0.006	0.003	0.020	0.003	0.002	0.008
	1124535	CNGA 431-S2513 WG Z4		○	○	4	1/2	3/16	1/64	0.203	0.094	0.006	0.003	0.020	0.003	0.002	0.008
	1124517	CNGA 432-S1513 WG Z4		⛁	○	4	1/2	3/16	1/32	0.203	0.094	0.008	0.003	0.020	0.004	0.003	0.012
	1124518	CNGA 432-S2513 WG Z4		⛁	⛁	4	1/2	3/16	1/32	0.203	0.094	0.008	0.003	0.020	0.004	0.003	0.012

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

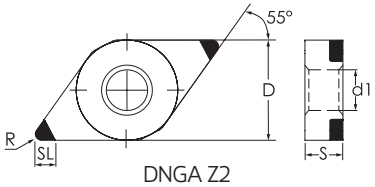
Insert Order Code: (1) Geometry code + (2) Grade code

Technical Data
page C - 518

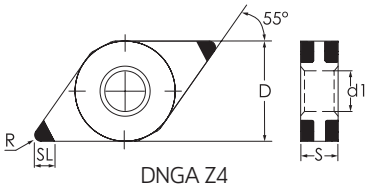
NEGATIVE INSERTS

DN - RHOMBIC 55° NEGATIVE

RÔMBICA 55° NEGATIVA | RÓMBICA 55° NEGATIVA

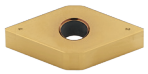
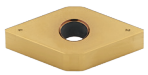


DNGA Z2



DNGA Z4

DNGA Z2 | DNGA Z4

			K	H		Dimensions (in) Dimensões (in) Dimenciones (in)						Cutting conditions Condições de corte Condiciones de corte					
		(2) Grade code	S4	Y5	Y4												
	(1) Geometry code	ANSI Reference	PBH920	PBY603	PBY620	Z	D	S	R	d1	SL	ap (in)	Min	Max	fn (in/r)	Min	Max
	1124616	DNGA 331-S2513 Z2		◈	◈	2	3/8	3/16	1/64	0.150	0.098	0.004	0.003	0.016	0.003	0.002	0.008
	1124615	DNGA 332-S2513 Z2		◈	◈	2	3/8	3/16	1/32	0.150	0.079	0.006	0.003	0.016	0.004	0.003	0.012
	1124617	DNGA 333-S2513 Z2		◈	◈	2	3/8	3/16	3/64	0.150	0.079	0.008	0.003	0.016	0.006	0.003	0.012
	1124482	DNGA 431-S2513 Z2		◈	◈	2	1/2	3/16	1/64	0.203	0.098	0.006	0.003	0.020	0.003	0.002	0.008
	1124483	DNGA 432-S2513 Z2		◈	◈	2	1/2	3/16	1/32	0.203	0.083	0.008	0.003	0.020	0.004	0.003	0.012
	1124537	DNGA 433-S2513 Z2		○	○	2	1/2	3/16	3/64	0.203	0.087	0.010	0.003	0.020	0.005	0.003	0.012
	1124348	DNGA 441-S2513 Z2	◈	◈	◈	2	1/2	1/4	1/64	0.203	0.098	0.006	0.003	0.020	0.003	0.002	0.008
	1124177	DNGA 442-S2513 Z2	◈	◈	◈	2	1/2	1/4	1/32	0.203	0.083	0.008	0.003	0.020	0.004	0.003	0.012
	1124572	DNGA 442-S3515 Z2			○	2	1/2	1/4	1/32	0.203	0.083	0.008	0.003	0.020	0.004	0.003	0.012
	1124377	DNGA 443-S2513 Z2	◈	◈	◈	2	1/2	1/4	3/64	0.203	0.079	0.010	0.003	0.020	0.005	0.003	0.012
	1124573	DNGA 443-S3515 Z2			○	2	1/2	1/4	3/64	0.203	0.079	0.010	0.003	0.020	0.005	0.003	0.012
	1124479	DNGA 441-S2513 Z4		◈	○	4	1/2	1/4	1/64	0.203	0.098	0.006	0.003	0.016	0.003	0.002	0.008
	1124133	DNGA 442-S2513 Z4	○	◈	○	4	1/2	1/4	1/32	0.203	0.083	0.008	0.003	0.020	0.004	0.003	0.012
	1124575	DNGA 442-S3515 Z4			○	4	1/2	1/4	1/32	0.203	0.083	0.008	0.003	0.020	0.004	0.003	0.012
	1124480	DNGA 443-S2513 Z4		◈	○	4	1/2	1/4	3/64	0.203	0.079	0.010	0.003	0.020	0.005	0.003	0.012
	1124576	DNGA 443-S3515 Z4			○	4	1/2	1/4	3/64	0.203	0.079	0.010	0.003	0.020	0.005	0.003	0.012

◈ Stock Itens | Itens de stock

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

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

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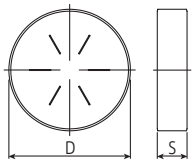
RNGN | SOLID CBN

NEW

	(1) Geometry code	(2) Grade code ANSI Reference	K W3 PBY930	K W4 PBY940	H W3 PBY930	H W4 PBY940	Dimensions (in) D	Dimensions (in) S	Cutting conditions ap (in)	Min	Max	fn (in/r)	Min	Max	Drawing
	1124631	RNGN 220-S2020 S	○	⛁	○	⛁	1/4	1/8	0.006	0.003	0.020	0.005	0.003	0.012	
	1124630	RNGN 320-S2020 S	○	⛁	○	⛁	3/8	1/8	0.008	0.003	0.020	0.006	0.003	0.012	
	1124629	RNGN 420-S2020 S	○	⛁	○	⛁	1/2	1/8	0.012	0.003	0.020	0.008	0.003	0.012	
	1124699	RNGN 430-S2020 S	○	⛁	○	⛁	1/2	3/16	0.012	0.003	0.020	0.008	0.003	0.012	

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

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

REGROUND INSERTS

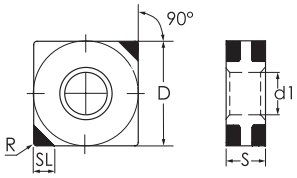
Repair Code	(2) Grade code Reference Referência Referencia	K W3 PBY930	K W4 PBY940	H W3 PBY930	H W4 PBY940	Final Dimensions (in) D	Final Dimensions (in) S	Raw Material
3120072	RNGN 21.30-S2020S (22)	○	○	○	○	1/4	3/35	RNGN 220-S2020 S
3120058	RNGN 210-S2020 S (32)	○	○	○	○	1/4	3/32	RNGN 320-S2020 S
3120068	RNGN 220-S2020 S (32)	○	○	○	○	1/4	1/8	RNGN 320-S2020 S
3120071	RNGN 220-S2020 S (42)	○	○	○	○	1/4	1/8	RNGN 420-S2020 S
3120057	RNGN 320-S2020 S (42)	○	○	○	○	3/8	1/8	RNGN 420-S2020 S
3120070	RNGN 330-S2020 S (43)	○	○	○	○	3/8	3/16	RNGN 430-S2020 S
3120056	RNGN 420-S2020 S (43)	○	○	○	○	1/2	1/8	RNGN 430-S2020 S

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

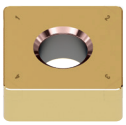
Insert Order Code: (1) Geometry code + (2) Grade code

SN = SQUARE 90° NEGATIVE

QUADRADA 90° NEGATIVA | ESQUADRA 90° NEGATIVA



SNGA Z4

	(1) Geometry code	(2) Grade code ANSI Reference	K S4 PBH920	H Y5 PBY603	H Y4 PBY620	Dimensions (in) Z	D	S	R	d1	SL	Cutting conditions ap (in)	Min	Max	fn (in/r)	Min	Max
	1124178	SNGA 431-S2513 Z4	○	○	⛁	4	1/2	3/16	1/64	0.203	0.094	0.006	0.003	0.016	0.003	0.002	0.008
	1124538	SNGA 431-T2513 Z4	○			4	1/2	3/16	1/64	0.203	0.094	0.006	0.003	0.016	0.003	0.002	0.008
	1124354	SNGA 432-S2513 Z4	○	○	⛁	4	1/2	3/16	1/32	0.203	0.079	0.008	0.003	0.020	0.004	0.003	0.012
	1124577	SNGA 432-S3515 Z4			○	4	1/2	3/16	1/32	0.203	0.079	0.008	0.003	0.020	0.004	0.003	0.012
	1124433	SNGA 432-T2513 Z4	⛁			4	1/2	3/16	1/32	0.203	0.079	0.008	0.003	0.020	0.004	0.003	0.012
	1124539	SNGA 433-S2513 Z4		○	⛁	4	1/2	3/16	3/64	0.203	0.091	0.010	0.003	0.020	0.005	0.003	0.012
	1124578	SNGA 433-S3515 Z4			○	4	1/2	3/16	3/64	0.203	0.091	0.010	0.003	0.020	0.005	0.003	0.012
	1124540	SNGA 433-T2513 Z4	○			4	1/2	3/16	3/64	0.203	0.091	0.010	0.003	0.020	0.005	0.003	0.012

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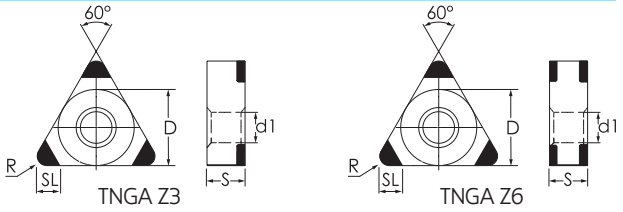
⛁ Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

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

TN = TRIANGULAR 60º NEGATIVE

TRIANGULAR 60º NEGATIVA | TRIANGULAR 60º NEGATIVA



TNGA Z3 | TNGA Z6

			K	H		Dimensions (in) Dimensões (in) Dimenciones (in)						Cutting conditions Condições de corte Condiciones de corte					
		[2] Grade code	S4	Y5	Y4												
	[1] Geometry code	ANSI Reference	PBH920	PBY603	PBY620	Z	D	S	R	d1	SL	ap (in)	Min	Max	fn (in/r)	Min	Max
	1124357	TNGA 331-S2513 Z3	○	◈	◈	3	3/8	3/16	1/64	0.150	0.091	0.006	0.003	0.020	0.003	0.002	0.008
	1124179	TNGA 332-S2513 Z3	○	◈	◈	3	3/8	3/16	1/32	0.150	0.079	0.008	0.003	0.020	0.004	0.003	0.012
	1124579	TNGA 332-S3515 Z3			○	3	3/8	3/16	1/32	0.150	0.079	0.008	0.003	0.020	0.004	0.003	0.012
	1124469	TNGA 333-S2513 Z3	○	◈	◈	3	3/8	3/16	3/64	0.150	0.079	0.010	0.003	0.024	0.005	0.003	0.012
	1124746	TNGA 333-S3515 Z3			◈	3	3/8	3/16	3/64	0.150	0.079	0.010	0.003	0.024	0.005	0.003	0.012
	1124603	TNGA 334-S2513 Z3		◈	◈	3	3/8	3/16	1/16	0.150	0.118	0.012	0.003	0.028	0.006	0.004	0.014
	1124604	TNGA 335-S2513 Z3		◈	◈	3	3/8	8/43	3/38	0.150	0.118	0.014	0.004	0.022	0.006	0.004	0.016
	1124477	TNGA 331-S2513 Z6	◈	◈	○	6	3/8	3/16	1/64	0.150	0.091	0.006	0.003	0.020	0.003	0.002	0.008
	1124097	TNGA 332-S2513 Z6	◈	◈	○	6	3/8	3/16	1/32	0.150	0.079	0.008	0.003	0.020	0.004	0.003	0.012
	1124581	TNGA 332-S3515 Z6			○	6	3/8	3/16	1/32	0.150	0.079	0.008	0.003	0.020	0.004	0.003	0.012
	1124478	TNGA 333-S2513 Z6		◈	○	6	3/8	3/16	3/64	0.150	0.079	0.010	0.003	0.024	0.005	0.003	0.012
	1124582	TNGA 333-S3515 Z6			○	6	3/8	3/16	3/64	0.150	0.079	0.010	0.003	0.024	0.005	0.003	0.012

◈ Stock Itens | Itens de stock

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

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

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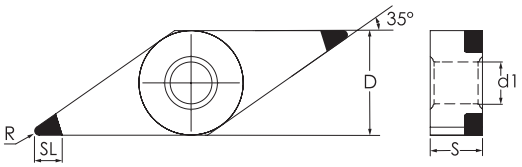
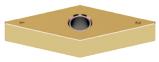
palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

VN = RHOMBIC 35° NEGATIVE

RÔMBICA 35° NEGATIVA | RÓMBICA 35° NEGATIVA



VNGA Z2

	(1) Geometry code	ANSI Reference	K S4 PBH920	H Y5 PBY603	H Y4 PBY620	Dimensions (in) Z	D	S	R	d1	SL	Cutting conditions ap (in)	Min	Max	fn (in/r)	Min	Max
	1124361	VNGA 331.5-S2513 Z2	○			2	3/8	3/16	3/32	0.150	0.118	0.005	0.003	0.020	0.002	0.002	0.008
	1124163	VNGA 331-S2513 Z2	○	ⓢ	ⓢ	2	3/8	3/16	1/32	0.150	0.110	0.006	0.003	0.020	0.003	0.002	0.008
	1124098	VNGA 332-S2513 Z2	○	ⓢ	ⓢ	2	3/8	3/16	1/64	0.150	0.079	0.008	0.003	0.020	0.004	0.003	0.012
	1124470	VNGA 333-S2513 Z2	○	ⓢ	ⓢ	2	3/8	3/16	3/64	0.150	0.075	0.010	0.003	0.020	0.005	0.003	0.012

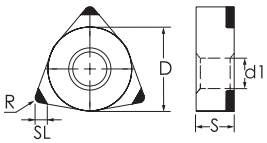
ⓢ Stock Itens | Itens de stock

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

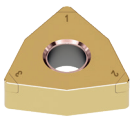
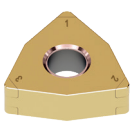
Insert Order Code: (1) Geometry code + (2) Grade code

WN = TRIGON 80° NEGATIVE

TRIGONAL 80° NEGATIVA | TRIGONA 80° NEGATIVA



WNGA Z3 | WNGA Z6

	(1) Geometry code	ANSI Reference	K S4 PBH920	H Y5 PBY603	H Y4 PBY620	Dimensions (in) Z	D	S	R	d1	SL	Cutting conditions ap (in)	Min	Max	fn (in/r)	Min	Max
	1124471	WNGA 431-S2513 Z3	○	ⓢ	ⓢ	3	1/2	3/16	1/64	0.203	0.091	0.006	0.003	0.016	0.003	0.002	0.008
	1124472	WNGA 432-S2513 Z3	○	ⓢ	ⓢ	3	1/2	3/16	1/32	0.203	0.079	0.008	0.003	0.020	0.004	0.003	0.012
	1124583	WNGA 432-S3515 Z3			○	3	1/2	3/16	1/32	0.203	0.079	0.008	0.003	0.020	0.004	0.003	0.012
	1124473	WNGA 433-S2513 Z3	○	ⓢ	ⓢ	3	1/2	3/16	3/64	0.203	0.079	0.010	0.003	0.024	0.005	0.003	0.012
	1124584	WNGA 433-S3515 Z3			○	3	1/2	3/16	3/64	0.203	0.079	0.010	0.003	0.024	0.005	0.003	0.012
	1124589	WNGA 431-S2513 Z6		○	○	6	1/2	3/16	3/64	0.203	0.079	0.010	0.003	0.016	0.005	0.003	0.012
	1124588	WNGA 432-S2513 Z6		○	○	6	1/2	3/16	1/32	0.203	0.079	0.008	0.003	0.020	0.004	0.003	0.012
	1124585	WNGA 432-S3515 Z6			○	6	1/2	3/16	1/32	0.203	0.079	0.008	0.003	0.020	0.004	0.003	0.012
	1124587	WNGA 433-S2513 Z6		○	○	6	1/2	3/16	1/64	0.203	0.091	0.006	0.003	0.024	0.003	0.002	0.008
	1124586	WNGA 433-S3515 Z6			○	6	1/2	3/16	3/64	0.203	0.079	0.010	0.003	0.024	0.005	0.003	0.012

ⓢ Stock Itens | Itens de stock

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

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

Technical Data
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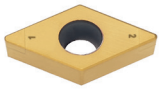
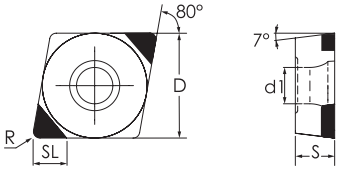
POSITIVE INSERTS OVERVIEW

Vista genérica pastilhas positivas | Visión general de plaquitas positivas

SINGLE TIP	TPGW Z1				
					
	Size 11				
	Page 406				
MULTIPLE TIPS	CCGW Z2	DCGW Z2	TCGW | TPGW Z3	VBGW Z2	VCGW Z2
					
	Size 06 | 09	Size 07 | 11	Size 09 | 11	Size 11 | 16	Size 16
	Page 404	Page 405	Page 406	Page 407	Page 407

CC - RHOMBIC 80º POSITIVE

RÔMBICA 80º POSITIVA | RÓMBICA 80º POSITIVA



CCGW Z2

			H		Dimensions (in) Dimensões (in) Dimenciones (in)						Cutting conditions Condições de corte Condiciones de corte					
		[2] Grade code	Y5	Y4												
	[1] Geometry code	ANSI Reference	PBY603	PBY620	Z	D	S	R	d1	SL	ap (in)	Min	Max	fn (in/r)	Min	Max
	1124605	CCGW 21.50.5-S1513 Z2	●	●	2	1/4	3/32	0.008	0.110	0.079	0.006	0.002	0.008	0.003	0.002	0.008
	1124635	CCGW 21.50.5-S2513 Z2	●	●	2	1/4	3/32	0.008	0.110	0.094	0.006	0.002	0.008	0.003	0.002	0.008
	1124606	CCGW 21.51-S1513 Z2	●	●	2	1/4	3/32	1/64	0.110	0.079	0.006	0.002	0.016	0.003	0.002	0.010
	1124555	CCGW 21.51-S2513 Z2	●	●	2	1/4	3/32	1/64	0.110	0.079	0.006	0.002	0.016	0.003	0.002	0.010
	1124607	CCGW 21.52-S1513 Z2	●	●	2	1/4	3/32	1/32	0.110	0.079	0.008	0.003	0.020	0.004	0.003	0.012
	1124636	CCGW 21.52-S2513 Z2	●	●	2	1/4	3/32	1/32	0.110	0.094	0.008	0.003	0.020	0.004	0.003	0.012
	1124638	CCGW 32.50.5-S2513 Z2	●	●	2	3/8	5/32	0.008	0.173	0.098	0.006	0.002	0.008	0.003	0.002	0.008
	1124640	CCGW 32.51-S2513 Z2	●	●	2	3/8	5/32	1/64	0.173	0.098	0.008	0.003	0.016	0.004	0.002	0.010
	1124632	CCGW 32.52-S2513 Z2	●	●	2	3/8	5/32	1/32	0.173	0.098	0.008	0.003	0.020	0.004	0.003	0.012
	1124637	CCGW 32.50.5-S2513 WG Z2	○	○	2	3/8	5/32	0.008	0.173	0.094	0.006	0.002	0.008	0.003	0.002	0.008
	1124639	CCGW 32.51-S2513 WG Z2	●	●	2	3/8	5/32	1/64	0.173	0.094	0.008	0.003	0.016	0.004	0.002	0.010
	1124641	CCGW 32.52-S2513 WG Z2	●	●	2	3/8	5/32	1/32	0.173	0.094	0.008	0.003	0.020	0.004	0.003	0.012
	1124608	CCGW 32.50.5-S1513 Z2	●	●	2	3/8	5/32	0.008	0.173	0.079	0.006	0.002	0.008	0.003	0.002	0.008
	1124609	CCGW 32.51-S1513 Z2	●	●	2	3/8	5/32	1/64	0.173	0.079	0.008	0.003	0.016	0.004	0.002	0.010
	1124610	CCGW 32.52-S1513 Z2	●	●	2	3/8	5/32	1/32	0.173	0.079	0.008	0.003	0.020	0.004	0.003	0.012

● Stock Itens | Itens de stock

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

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

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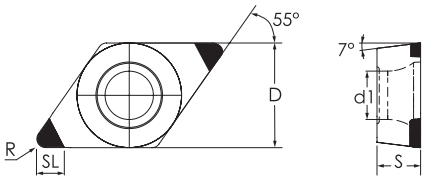
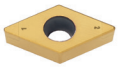
DC - RHOMBIC 55° POSITIVE

RÔMBICA 55° POSITIVA | RÓMBICA 55° POSITIVA



DCGW Z2

	(1) Geometry code	ANSI Reference	H (2) Grade code Y5 PBY603	H (2) Grade code Y4 PBY620	Dimensions (in) Z	D	S	R	d1	SL	Cutting conditions ap (in)	Min	Max	fn (in/r)	Min	Max
	1124642	DCGW 21.50.5-S1513 Z2	●	○	2	1/4	3/32	0.008	0.110	0.098	0.006	0.003	0.008	0.003	0.002	0.008
	1124611	DCGW 21.50.5-S2513 Z2	●	●	2	1/4	3/32	0.008	0.110	0.079	0.006	0.003	0.008	0.003	0.002	0.008
	1124643	DCGW 21.51-S1513 Z2	●	○	2	1/4	3/32	1/64	0.110	0.098	0.006	0.003	0.016	0.003	0.002	0.010
	1124436	DCGW 21.51-S2513 Z2	●	●	2	1/4	3/32	1/64	0.110	0.094	0.006	0.003	0.016	0.003	0.002	0.010
	1124644	DCGW 21.52-S1513 Z2	○	○	2	1/4	3/32	1/32	0.110	0.079	0.008	0.003	0.020	0.004	0.003	0.012
	1124612	DCGW 21.52-S2513 Z2	●	●	2	1/4	3/32	1/32	0.110	0.098	0.008	0.003	0.020	0.004	0.003	0.012
	1124613	DCGW 32.50.5-S2513 Z2	●	●	2	3/8	5/32	0.008	0.173	0.106	0.006	0.003	0.008	0.003	0.002	0.008
	1124554	DCGW 32.51-S2513 Z2	●	●	2	3/8	5/32	1/64	0.173	0.098	0.008	0.003	0.016	0.004	0.002	0.010
	1124744	DCGW 32.51-S3515 Z2		●	2	3/8	5/32	1/64	0.173	0.098	0.008	0.003	0.016	0.004	0.002	0.010
	1124614	DCGW 32.52-S2513 Z2	●	●	2	3/8	5/32	1/32	0.173	0.079	0.008	0.003	0.020	0.004	0.003	0.012
	1124745	DCGW 32.52-S3515 Z2		●	2	3/8	5/32	1/32	0.173	0.079	0.008	0.003	0.020	0.004	0.003	0.012
	1124645	DCGW 32.50.5-S1513 Z2	●	○	2	3/8	5/32	0.008	0.173	0.106	0.006	0.003	0.008	0.003	0.002	0.008
	1124647	DCGW 32.51-S1513 Z2	●	○	2	3/8	5/32	1/64	0.173	0.098	0.008	0.003	0.016	0.004	0.002	0.010
	1124649	DCGW 32.52-S1513 Z2	○	○	2	3/8	5/32	1/32	0.173	0.079	0.008	0.003	0.020	0.004	0.003	0.012

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

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

Technical Data
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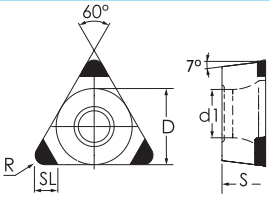
TC - TRIANGULAR 60º POSITIVE

TRIANGULAR 60º POSITIVA | TRIANGULAR 60º POSITIVA



TCGW Z3

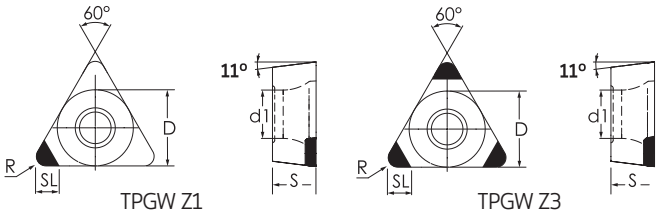
	(1) Geometry code	(2) Grade code ANSI Reference	H Y5 PBY603	H Y4 PBY620	Dimensions (in) Dimensões (in) Dimenciones (in) Z	D	S	R	d1	SL	Cutting conditions Condições de corte Condiciones de corte ap (in)	Min	Max	fn (in/r)	Min	Max
	1124715	TCGW 21.51-S2513 Z3	○		3	1/4	3/32	1/67	0.173	0.098	0.006	0.003	0.016	0.003	0.002	0.008
	1124434	TCGW 32.51-S2513 Z3	◈	◈	3	3/8	5/32	1/64	0.173	0.098	0.006	0.003	0.018	0.003	0.002	0.008
	1124651	TCGW 32.52-S2513 Z3	◈	◈	3	3/8	5/32	1/32	0.173	0.079	0.008	0.003	0.018	0.004	0.003	0.012

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

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

TP - TRIANGULAR 60º POSITIVE

TRIANGULAR 60º POSITIVA | TRIANGULAR 60º POSITIVA



TPGW Z1 | TPGW Z3

	(1) Geometry code	(2) Grade code ANSI Reference	H Y5 PBY603	H Y4 PBY620	Dimensions (in) Dimensões (in) Dimenciones (in) Z	D	S	R	d1	SL	Cutting conditions Condições de corte Condiciones de corte ap (in)	Min	Max	fn (in/r)	Min	Max
	1124657	TPGW 220.5-S2513 Z1	○	○	1	1/4	3/32	0.008	0.110	0.094	0.006	0.003	0.008	0.003	0.002	0.006
	1124660	TPGW 221-S2513 Z1	◈	○	1	1/4	3/32	1/64	0.110	0.091	0.006	0.003	0.016	0.003	0.002	0.008
	1124598	TPGW 222-S2513 Z1	◈	◈	1	1/4	3/32	1/32	0.110	0.094	0.008	0.003	0.018	0.004	0.003	0.008
	1124652	TPGW 1.81.50.5-S1513 Z3	◈	○	3	7/32	3/32	0.008	0.098	0.098	0.004	0.003	0.008	0.003	0.002	0.006
	1124653	TPGW 1.81.50.5-S2513 Z3	◈	○	3	7/32	3/32	0.008	0.098	0.098	0.004	0.002	0.008	0.003	0.002	0.006
	1124654	TPGW 1.81.51-S1513 Z3	◈	○	3	7/32	3/32	1/64	0.098	0.091	0.006	0.003	0.016	0.003	0.002	0.006
	1124655	TPGW 1.81.51-S2513 Z3	◈	◈	3	7/32	3/32	1/64	0.098	0.091	0.006	0.003	0.016	0.003	0.002	0.006
	1124658	TPGW 220.5-S2513 Z3	◈	◈	3	1/4	3/32	0.008	0.110	0.094	0.006	0.003	0.008	0.003	0.002	0.006
	1124661	TPGW 221-S2513 Z3	◈	◈	3	1/4	3/32	1/64	0.110	0.091	0.006	0.003	0.016	0.003	0.002	0.008
	1124663	TPGW 222-S2513 Z3	○	◈	3	1/4	3/32	1/32	0.110	0.079	0.008	0.003	0.020	0.004	0.003	0.008
	1124656	TPGW 220.5-S1513 Z3	◈	○	3	1/4	3/32	0.008	0.110	0.094	0.006	0.003	0.008	0.003	0.002	0.006
	1124659	TPGW 221-S1513 Z3	◈	○	3	1/4	3/32	1/64	0.110	0.091	0.006	0.003	0.016	0.003	0.002	0.008
	1124662	TPGW 222-S1513 Z3	○	○	3	1/4	3/32	1/32	0.110	0.079	0.008	0.003	0.020	0.004	0.003	0.008

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

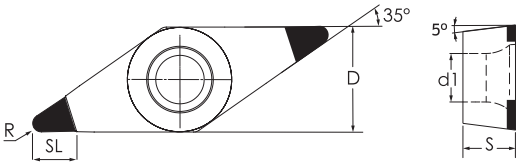
Insert Order Code: (1) Geometry code + (2) Grade code

Technical Data page C - 518

palbit PILOT Precision Products **Pilot Precision Products** | 15 Merrigan Way | South Deerfield, MA 01373

VB - RHOMBIC 35º POSITIVE

RÔMBICA 35º POSITIVA | RÓMBICA 35º POSITIVA



VBGW Z2

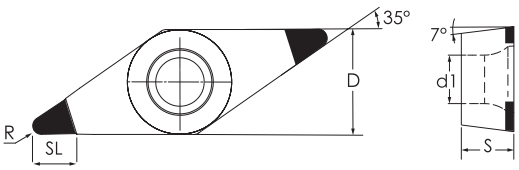
	(1) Geometry code	ANSI Reference	H Y5 PBY603	H Y4 PBY620	Dimensions (in) Z	D	S	R	d1	SL	Cutting conditions ap (in)	Min	Max	fn (in/r)	Min	Max
	1124664	VBGW 220.5-S2513 Z2	●	●	2	1/4	1/8	0008	0.110	0.126	0.004	0.003	0.008	0.002	0.002	0.006
	1124665	VBGW 221-S2513 Z2	●	●	2	1/4	1/8	1/64	0.110	0.110	0.006	0.003	0.016	0.003	0.002	0.008
	1124666	VBGW 222-S2513 Z2	○	●	2	1/4	1/8	1/32	0.110	0.079	0.006	0.003	0.020	0.004	0.003	0.010
	1124618	VBGW 330.5-S2513 Z2	●	●	2	3/8	3/16	0008	0.173	0.079	0.004	0.003	0.008	0.003	0.002	0.006
	1124619	VBGW 331-S2513 Z2	●	●	2	3/8	3/16	1/64	0.173	0.079	0.006	0.003	0.016	0.003	0.002	0.008
	1124620	VBGW 332-S2513 Z2	●	●	2	3/8	3/16	1/32	0.173	0.079	0.008	0.003	0.020	0.004	0.003	0.012
	1124621	VBGW 330.5-S1513 Z2	●	●	2	3/8	3/16	0008	0.173	0.079	0.004	0.003	0.008	0.003	0.002	0.006
	1124622	VBGW 331-S1513 Z2	●	●	2	3/8	3/16	1/64	0.173	0.079	0.006	0.003	0.016	0.003	0.002	0.008
	1124623	VBGW 332-S1513 Z2	●	●	2	3/8	3/16	1/32	0.173	0.079	0.008	0.003	0.020	0.004	0.003	0.012

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

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

VC - RHOMBIC 35º POSITIVE

RÔMBICA 35º POSITIVA | RÓMBICA 35º POSITIVA



VCGW Z2

	(1) Geometry code	ANSI Reference	H Y5 PBY603	H Y4 PBY620	Dimensions (in) Z	D	S	R	d1	SL	Cutting conditions ap (in)	Min	Max	fn (in/r)	Min	Max
	1124667	VCGW 331-S2513 Z2	●	●	2	3/8	3/16	1/64	0.173	0.110	0.006	0.003	0.016	0.003	0.002	0.008
	1124668	VCGW 332-S2513 Z2	●	●	2	3/8	3/16	1/32	0.173	0.079	0.008	0.003	0.020	0.004	0.003	0.012

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

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

Technical Data
page C - 518

PCD GRADES SELECTION

Selecção de graus | Selección de calidades

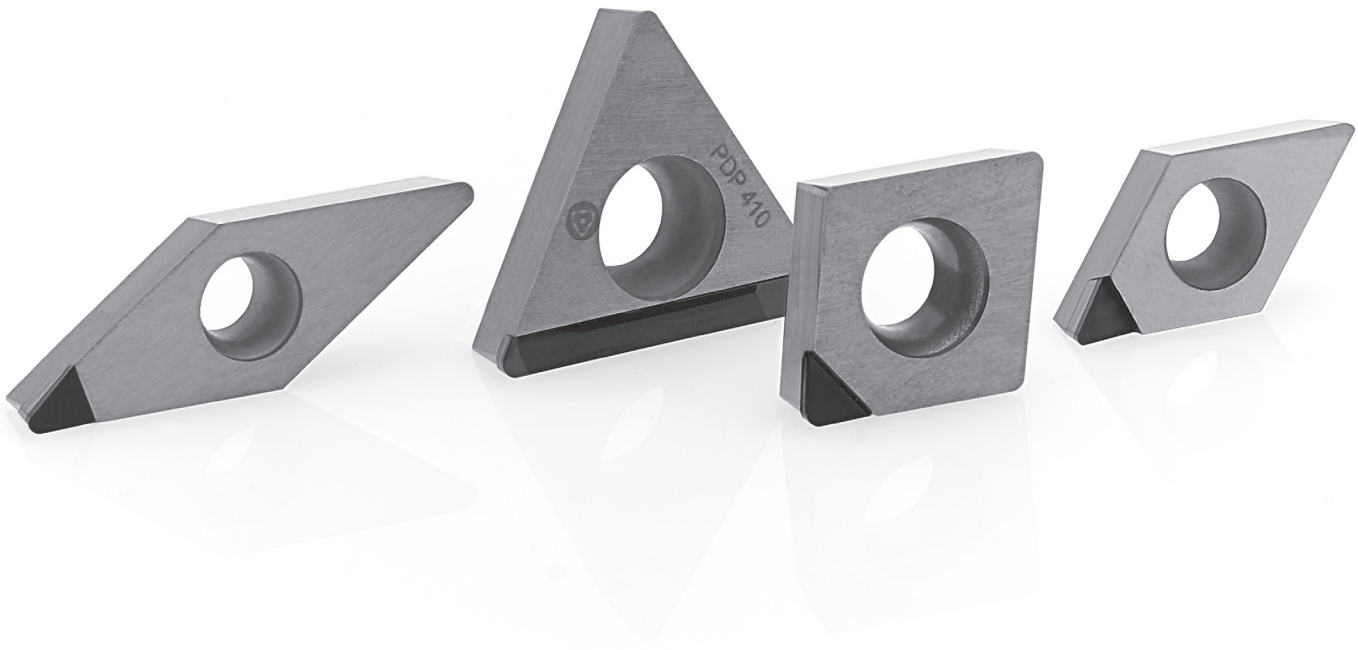
PCD (Polycristalline Diamond) is a composite of diamond particles that are sintered with a metallic binder creating the hardest and one of the most abrasion resistant materials used in cutting tools.
Its development achieved an extremely significance for the machining of Non-Ferrous Materials, such as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

Grade description:

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

PDP410
<14% silicon aluminium alloy

PDP403
>14% silicon aluminium alloy



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C - 408


DIATURN
PCD
RANGE
PDP 410
PDP 410
PDF

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..

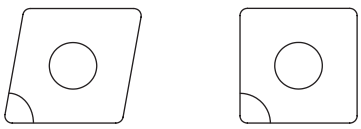
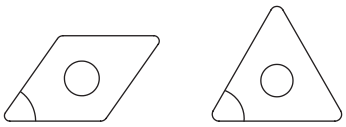
In general, a large nose radius provides greater edge strength and therefore extended tool life. For this reason, it is advised to use the largest and allowed nose radius based on the requirements of each process.

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.

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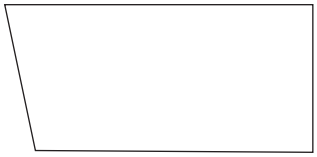
EDGE PREPARATION SELECTION

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

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

Edge preparation:

PCD: F type cutting edge preparation:

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

Note:

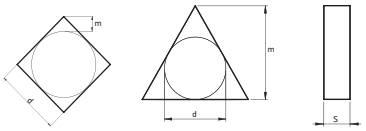
Based on our experience sometimes is necessary to define edge preparation during several tests to provide the best possible solution for each application.



ISO | ANSI PCD INSERTS CODE KEY

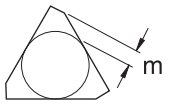
H	120°	M	86°
O	135°	V	35°
P	108°	W	80°
S	90°	L	90°
T	60°	A	85°
C	80°	B	82°
D	55°	K	55°
E	75°	R	
F	50°	X	Special

1- Insert shape symbol



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

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



Triangular inserts with a facet (secondary cutting edge)

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

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

Inscribed circle Tolerances (mm)

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

3 - Tolerances symbol

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

2 - Normal clearance symbol

ISO	D	C	G	W
ANSI	D	C	G	W

4 - Insert symbol

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

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

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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	11/4	10,00
32**	-	-	-	-	-	-	32,00	1,26	

5 - Insert size symbol

* ANSI designation only
(Radius Designation is 00)

** Metric designation only
(Radius Designation is M0)

According to International Standard ISO 1832 - 2012(E)

"Indexable inserts for cutting tools - Designation"

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

6 - Insert thickness symbol

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

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

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

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

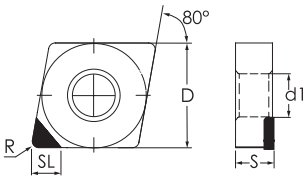
8* - Cutting edge information		
Shape	Honing	Symbol
	No honing	F
	With honing	E
	Chamfered No honing	T
	Chamfered with honing	S
*only when required.		

9 - Chipbreaker geometries	
NF	Finishing

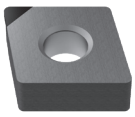
NEGATIVE INSERTS

CN = RHOMBIC 80º NEGATIVE

RÔMBICA 80º NEGATIVA | RÓMBICA 80º NEGATIVA



CNGA Z1



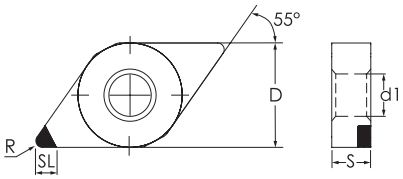
	(1) Geometry code	ANSI Reference	N D6 PDP410	N I3 PDP403	Dimensions (in) D	S	R	d1	W	SL	Cutting conditions ap (in)	Min	Max	fn (in/r)	Min	Max
	1124228	CNGA 431 Z1	◈	◈	1/2	3/16	1/64	0.203	-	0.138	0.004	0.003	0.016	0.004	0.002	0.008
	1124110	CNGA 432 Z1	◈	○	1/2	3/16	1/32	0.203	-	0.138	0.006	0.003	0.031	0.006	0.002	0.010
	1124229	CNGA 433 Z1	○	○	1/2	3/16	3/64	0.203	-	0.138	0.006	0.003	0.031	0.006	0.002	0.010
	1124230	CNGA 434 Z1	○	○	1/2	3/16	1/16	0.203	-	0.138	0.008	0.003	0.047	0.008	0.002	0.012

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

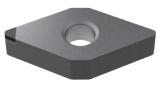
Insert Order Code: (1) Geometry code + (2) Grade code

DN = RHOMBIC 55º NEGATIVE

RÔMBICA 55º NEGATIVA | RÓMBICA 55º NEGATIVA



DNGA Z1



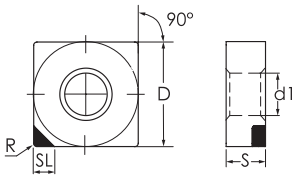
	(1) Geometry code	ANSI Reference	N D6 PDP410	N I3 PDP403	Dimensions (in) D	S	R	d1	W	SL	Cutting conditions ap (in)	Min	Max	fn (in/r)	Min	Max
	1124235	DNGA 431 Z1	○	○	1/2	3/16	1/64	0.203	-	0.138	0.004	0.003	0.016	0.004	0.002	0.008
	1124236	DNGA 432 Z1	○	○	1/2	3/16	1/32	0.203	-	0.138	0.006	0.003	0.031	0.006	0.002	0.010
	1124362	DNGA 442 Z1	○	○	1/2	1/4	1/32	0.203	-	0.138	0.006	0.003	0.031	0.006	0.002	0.010
	1124363	DNGA 443 Z1	○	○	1/2	1/4	3/64	0.203	-	0.138	0.008	0.003	0.047	0.008	0.002	0.012

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

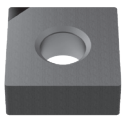
Insert Order Code: (1) Geometry code + (2) Grade code

SN = SQUARE 90º NEGATIVE

QUADRADA 90º NEGATIVA | ESQUADRA 90º NEGATIVA



SNGA Z1



	(1) Geometry code	ANSI Reference	N D6 PDP410	N I3 PDP403	Dimensions (in) D	S	R	d1	W	SL	Cutting conditions ap (in)	Min	Max	fn (in/r)	Min	Max
	1124243	SNGA 321 Z1	○	○	3/8	1/8	1/64	0.150	-	0.138	0.004	0.003	0.016	0.004	0.003	0.008
	1124244	SNGA 322 Z1	○	○	3/8	1/8	1/32	0.150	-	0.138	0.008	0.003	0.031	0.005	0.003	0.010
	1124245	SNGA 431 Z1	○	○	1/2	3/16	1/64	0.203	-	0.138	0.004	0.003	0.016	0.005	0.003	0.010
	1124246	SNGA 432 Z1	○	○	1/2	3/16	1/32	0.203	-	0.138	0.008	0.003	0.031	0.006	0.003	0.012

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

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

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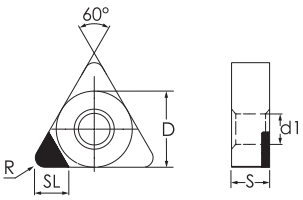
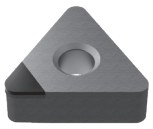
TN = TRIANGULAR 60º NEGATIVE

TRIANGULAR 60º NEGATIVA | TRIANGULAR 60º NEGATIVA



TNGA Z1

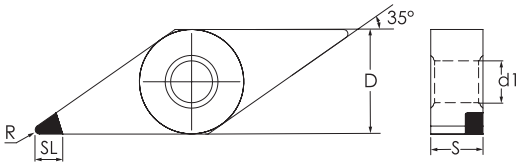
	(1) Geometry code	ANSI Reference	N (2) Grade code D6 PDP410	N (2) Grade code I3 PDP403	Dimensions (in) Dimensões (in) Dimenciones (in) D	S	R	d1	W	SL	Cutting conditions Condições de corte Condiciones de corte ap (in)	Min	Max	fn (in/r)	Min	Max
	1124256	TNGA 221 Z1	○	○	1/4	1/8	1/64	0.089	-	0.138	0.004	0.003	0.016	0.003	0.001	0.006
	1124257	TNGA 222 Z1	○	○	1/4	1/8	1/32	0.089	-	0.138	0.006	0.004	0.031	0.004	0.002	0.010
	1124258	TNGA 331 Z1	⚙	○	3/8	3/16	1/64	0.150	-	0.138	0.004	0.003	0.016	0.004	0.002	0.008
	1124259	TNGA 332 Z1	○	○	3/8	3/16	1/32	0.150	-	0.138	0.008	0.004	0.031	0.006	0.003	0.012
	1124385	TNGA 333 Z1	○	○	3/8	3/16	3/64	0.150	-	0.138	0.008	0.004	0.031	0.006	0.003	0.012

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

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

VN = RHOMBIC 35º NEGATIVE

RÔMBICA 35º NEGATIVA | RÓMBICA 35º NEGATIVA



VNGA Z1

	(1) Geometry code	ANSI Reference	N (2) Grade code D6 PDP410	N (2) Grade code I3 PDP403	Dimensions (in) Dimensões (in) Dimenciones (in) D	S	R	d1	W	SL	Cutting conditions Condições de corte Condiciones de corte ap (in)	Min	Max	fn (in/r)	Min	Max
	1124285	VNGA 331 Z1	○	○	3/8	3/16	1/64	0.150	-	0.138	0.004	0.003	0.016	0.004	0.003	0.008
	1124286	VNGA 332 Z1	○	○	3/8	3/16	1/32	0.150	-	0.138	0.008	0.003	0.031	0.006	0.003	0.012
	1124287	VNGA 333 Z1	○	○	3/8	3/16	3/64	0.150	-	0.138	0.010	0.004	0.047	0.007	0.004	0.014

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

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

Technical Data
page C - 518

POSITIVE INSERTS

OVERVIEW | VISTA GENÉRICA | VISIÓN GENERAL

SINGLE TIP

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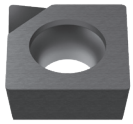	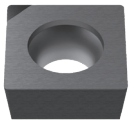
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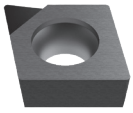
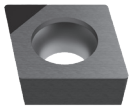
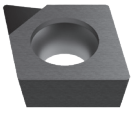
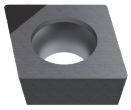
Page 417	

CCGT Z1	CCGW Z1	CPGT Z1	CPGW Z1
			
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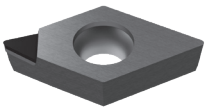
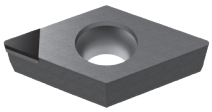
Page 418		Page 419	

DCGT Z1	DCGW Z1
	
Size 07 | 11	Size 07 | 11 | 15
Page 420	

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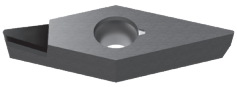	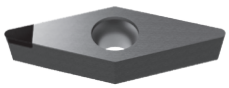
Size 07 | 11 | 16	Size 07 | 11 | 16
Page 421	

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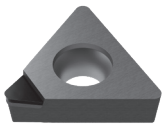
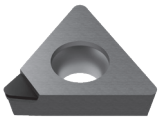
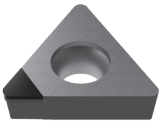
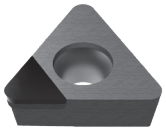
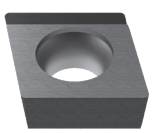
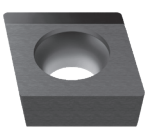
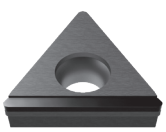
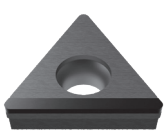
			
Size 09 | 11 | 16	Size 09 | 11 | 16	Size 11 | 16	Size 11 | 16
Page 422		Page 423	

FULL EDGE

CCGT FR/FL	CCGW FR/FL	TCGT FL	TCGW FL
			
Size 06 | 09 | 12	Size 06 | 09 | 12	Size 11 | 16	Size 11 | 16 | 22
Page 424		Page 425	

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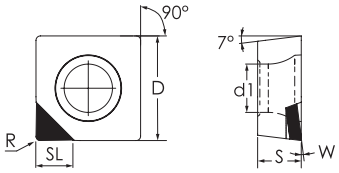
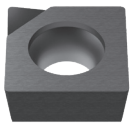
SC = SQUARE 90º POSITIVE

QUADRADA 90º POSITIVA | ESQUADRA 90º POSITIVA

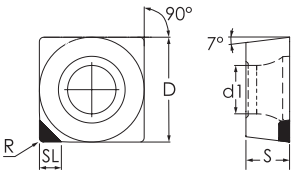


SCGT Z1

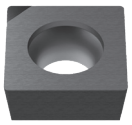
	(1) Geometry code	ANSI Reference	N (2) Grade code D6 PDP410	N (2) Grade code I3 PDP403	Dimensions (in) D	S	R	d1	W	SL	Cutting conditions ap (in)	Min	Max	fn (in/r)	Min	Max
	1124386	SCGT 21.50.5 Z1	○	○	1/4	3/32	0.008	0.110	7º	0.138	0.003	0.002	0.008	0.003	0.002	0.006
	1124387	SCGT 21.51 Z1	○	○	1/4	3/32	1/64	0.110	7º	0.138	0.004	0.002	0.016	0.004	0.002	0.008
	1124388	SCGT 32.51 Z1	○	○	3/8	5/32	1/64	0.173	10º	0.138	0.004	0.003	0.016	0.004	0.002	0.008
	1124389	SCGT 32.52 Z1	⛁	○	3/8	5/32	1/32	0.173	10º	0.138	0.008	0.003	0.031	0.006	0.003	0.012
	1124390	SCGT 431 Z1	○	○	1/2	3/16	1/64	0.217	10º	0.138	0.005	0.003	0.016	0.004	0.002	0.008
	1124391	SCGT 432 Z1	⛁	○	1/2	3/16	1/32	0.217	10º	0.138	0.009	0.003	0.031	0.006	0.003	0.012

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

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



SCGW Z1

	(1) Geometry code	ANSI Reference	N (2) Grade code D6 PDP410	N (2) Grade code I3 PDP403	Dimensions (in) D	S	R	L	W	SL	Cutting conditions ap (in)	Min	Max	fn (in/r)	Min	Max
	1124237	SCGW 21.50.5 Z1	○	○	1/4	3/32	0.008	0.250	-	0.138	0.003	0.002	0.008	0.003	0.002	0.006
	1124238	SCGW 21.51 Z1	○	○	1/4	3/32	1/64	0.250	-	0.138	0.004	0.002	0.016	0.004	0.002	0.008
	1124239	SCGW 32.51 Z1	○	○	3/8	5/32	1/64	0.375	-	0.138	0.004	0.003	0.016	0.004	0.002	0.008
	1124240	SCGW 32.52 Z1	○	○	3/8	5/32	1/32	0.375	-	0.138	0.008	0.003	0.031	0.006	0.003	0.012
	1124794	SCGW 32.53 Z1	○	○	3/8	5/32	3/64	0.250	-	0.138	0.012	0.004	0.047	0.008	0.004	0.016
	1124241	SCGW 431 Z1	○	○	1/2	3/16	1/64	0.500	-	0.138	0.005	0.003	0.016	0.004	0.002	0.008
	1124242	SCGW 432 Z1	○	○	1/2	3/16	1/32	0.500	-	0.138	0.009	0.003	0.031	0.006	0.003	0.012

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

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

Technical Data
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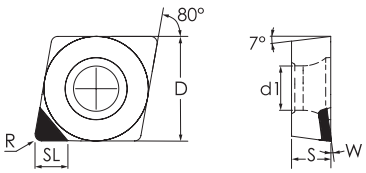
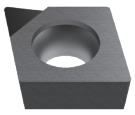
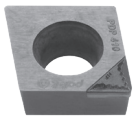
CC = RHOMBIC 80º POSITIVE

RÔMBICA 80º POSITIVA | RÓMBICA 80º POSITIVA

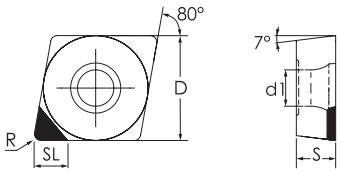


CCGT Z1

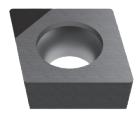
	(1) Geometry code	(2) Grade code ANSI Reference	N D6 PDP410	N I3 PDP403	Dimensions (in) D	S	R	d1	W	SL	Cutting conditions ap (in)	Min	Max	fn (in/r)	Min	Max
	1124113	CCGT 21.50.5 Z1	◈	○	1/4	3/32	0.008	0.110	7º	0.138	0.003	0.002	0.008	0.003	0.002	0.006
	1124209	CCGT 21.51 Z1	○	○	1/4	3/32	1/64	0.110	7º	0.138	0.004	0.003	0.016	0.005	0.003	0.010
	1124487	CCGT 21.55 Z1	○	○	1/4	3/32	5/64	0.110	10º	0.124	0.020	0.009	0.070	0.010	0.006	0.030
	1112592	CCGT 32.51 Z1	◈	○	3/8	5/32	1/64	0.173	10º	0.138	0.004	0.003	0.016	0.005	0.003	0.010
	1124210	CCGT 32.52 Z1	○	○	3/8	5/32	1/32	0.173	10º	0.138	0.008	0.003	0.031	0.006	0.003	0.012
	1124211	CCGT 431 Z1	◈	○	1/2	3/16	1/64	0.217	10º	0.138	0.004	0.003	0.016	0.005	0.003	0.010
	1112630	CCGT 432 Z1	◈	○	1/2	3/16	1/32	0.217	10º	0.138	0.008	0.003	0.031	0.006	0.003	0.012
	1124465	CCGT 32.51-NF Z1	◈	○	3/8	5/32	1/64	0.173	-	0.157	0.005	0.003	0.016	0.006	0.003	0.010
	1124726	CCGT 32.52-NF Z1	◈	○	3/8	5/32	1/32	0.173	-	0.157	0.008	0.003	0.031	0.006	0.003	0.012

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

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



CCGW Z1

	(1) Geometry code	(2) Grade code ANSI Reference	N D6 PDP410	N I3 PDP403	Dimensions (in) D	S	R	d1	W	SL	Cutting conditions ap (in)	Min	Max	fn (in/r)	Min	Max
	1124114	CCGW 21.50.5 Z1	◈	○	1/4	3/32	0.008	0.110	-	0.138	0.003	0.002	0.008	0.003	0.002	0.005
	1124218	CCGW 21.51 Z1	◈	○	1/4	3/32	1/64	0.110	-	0.138	0.004	0.003	0.016	0.004	0.003	0.009
	1124219	CCGW 32.50.5 Z1	○	○	3/8	5/32	0.008	0.173	-	0.138	0.003	0.002	0.008	0.003	0.002	0.006
	1112593	CCGW 32.51 Z1	◈	○	3/8	5/32	1/64	0.173	-	0.138	0.004	0.003	0.016	0.005	0.002	0.010
	1124220	CCGW 32.2 Z1	○	○	3/8	5/32	1/32	0.173	-	0.138	0.008	0.003	0.031	0.006	0.003	0.012
	1124221	CCGW 431 Z1	◈	○	1/2	3/16	1/64	0.217	-	0.138	0.004	0.003	0.016	0.005	0.002	0.010
	1112631	CCGW 432 Z1	◈	○	1/2	3/16	1/32	0.217	-	0.138	0.008	0.003	0.031	0.006	0.003	0.012

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

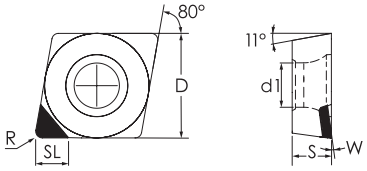
Insert Order Code: (1) Geometry code + (2) Grade code

Technical Data page C - 518

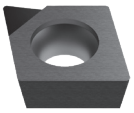
palbit PILOT Precision Products **Pilot Precision Products** | 15 Merrigan Way | South Deerfield, MA 01373

CP = RHOMBIC 80º POSITIVE

RÔMBICA 80º POSITIVA | RÓMBICA 80º POSITIVA



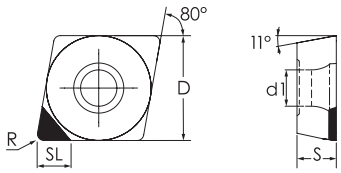
CPGT Z1

			N														
		(2) Grade code	D6	I3	Dimensions (in) Dimensões (in) Dimenciones (in)						Cutting conditions Condições de corte Condiciones de corte					
	(1) Geometry code	ANSI Reference	PDP410	PDP403	D	S	R	d1	W	SL	ap (in)	Min	Max	fn (in/r)	Min	Max
	1124392	CCGT 21.50.5 Z1	○	○	1/4	3/32	0.008	0.110	7º	0.138	0.003	0.002	0.008	0.003	0.002	0.006
	1124393	CCGT 21.51 Z1	○	○	1/4	3/32	1/64	0.110	7º	0.138	0.004	0.003	0.016	0.005	0.003	0.010
	1124394	CCGT 32.51 Z1	○	○	3/8	5/32	1/64	0.173	10º	0.138	0.004	0.003	0.016	0.005	0.003	0.010
	1124395	CCGT 32.52 Z1	○	○	3/8	5/32	1/32	0.173	10º	0.138	0.008	0.003	0.031	0.006	0.003	0.012
	1124396	CCGT 431 Z1	○	○	1/2	3/16	1/64	0.217	10º	0.138	0.004	0.003	0.016	0.005	0.003	0.010
	1124397	CCGT 432 Z1	○	○	1/2	3/16	1/32	0.217	10º	0.138	0.008	0.003	0.031	0.006	0.003	0.012

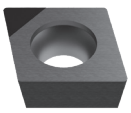
Stock Itens | Itens de stock

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

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



CPGW Z1

			N														
		(2) Grade code	D6	I3	Dimensions (in) Dimensões (in) Dimenciones (in)						Cutting conditions Condições de corte Condiciones de corte					
	(1) Geometry code	ANSI Reference	PDP410	PDP403	D	S	R	d1	W	SL	ap (in)	Min	Max	fn (in/r)	Min	Max
	1124398	CPGW 21.50.5 Z1	○	○	1/4	3/32	0.008	0,110	-	0,138	0,003	0,002	0,008	0,003	0,002	0,005
	1124399	CPGW 21.51 Z1	○	○	1/4	3/32	1/64	0,110	-	0,138	0,004	0,003	0,016	0,004	0,003	0,009
	1124400	CPGW 32.50.5 Z1	○	○	3/8	5/32	0.008	0,173	-	0,138	0,003	0,002	0,008	0,003	0,002	0,006
	1124401	CPGW 32.51 Z1	○	○	3/8	5/32	1/64	0,173	-	0,138	0,004	0,003	0,016	0,005	0,002	0,010
	1124402	CPGW 32.52 Z1	○	○	3/8	5/32	1/32	0,173	-	0,138	0,008	0,003	0,031	0,006	0,003	0,012
	1124403	CPGW 431 Z1	○	○	1/2	3/16	1/64	0,217	-	0,138	0,004	0,003	0,016	0,005	0,002	0,010
	1124404	CPGW 432 Z1	○	○	1/2	3/16	1/32	0,217	-	0,138	0,008	0,003	0,031	0,006	0,003	0,012

Stock Itens | Itens de stock

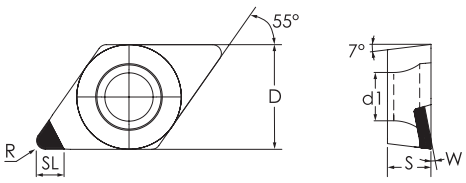
○ Available under request | Disponível sob consulta | Disponible bajo consulta

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

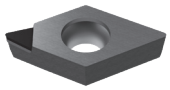
Technical Data
page C - 518

DC = RHOMBIC 55° POSITIVE

RÔMBICA 55° POSITIVA | RÓMBICA 55° POSITIVA



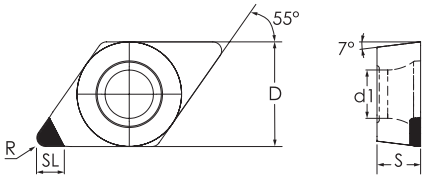
DCGT Z1



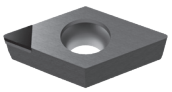
	(1) Geometry code	ANSI Reference	N D6 PDP410	N I3 PDP403	Dimensions (in) D	S	R	d1	W	SL	Cutting conditions ap (in)	Min	Max	fn (in/r)	Min	Max
	1124116	DCGT 21.50.5 Z1	●	○	1/4	3/32	0.008	0.110	7°	0.138	0.003	0.002	0.008	0.003	0.002	0.006
	1124231	DCGT 21.51 Z1	●	○	1/4	3/32	1/64	0.110	7°	0.138	0.004	0.003	0.016	0.004	0.002	0.008
	1112634	DCGT 32.501 Z1	●	○	3/8	5/32	1/64	0.173	10°	0.138	0.004	0.003	0.016	0.004	0.002	0.008
	1124380	DCGT 32.52 Z1	●	●	3/8	5/32	1/32	0.173	10°	0.138	0.008	0.003	0.031	0.006	0.003	0.012
	1124529	DCGT 432 Z1	●	○	1/2	3/16	1/32	0.217	10°	0.138	0.024	0.004	0.047	0.010	0.004	0.016

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

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



DCGW Z1



	(1) Geometry code	ANSI Reference	N D6 PDP410	N I3 PDP403	Dimensions (in) D	S	R	d1	W	SL	Cutting conditions ap (in)	Min	Max	fn (in/r)	Min	Max
	1124232	DCGW 21.50.5 Z1	●	○	1/4	3/32	0.008	0.110	-	0.138	0.003	0.002	0.008	0.003	0.002	0.006
	1124233	DCGW 21.51 Z1	●	○	1/4	3/32	1/64	0.110	-	0.138	0.004	0.003	0.016	0.004	0.002	0.008
	1124458	DCGW 32.50.5 Z1	●	○	3/8	5/32	0.008	0.173	-	0.138	0.004	0.002	0.014	0.004	0.002	0.006
	1112635	DCGW 32.51 Z1	●	○	3/8	5/32	1/64	0.173	-	0.138	0.004	0.003	0.016	0.004	0.002	0.008
	1124168	DCGW 32.52 Z1	●	○	3/8	5/32	1/32	0.173	-	0.138	0.008	0.003	0.031	0.006	0.003	0.012
	1124234	DCGW 431 Z1	○	○	1/2	3/16	1/64	0.217	-	0.138	0.004	0.003	0.016	0.004	0.002	0.008
	1124117	DCGW 432 Z1	●	○	1/2	3/16	1/32	0.217	-	0.138	0.008	0.004	0.031	0.006	0.003	0.012

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

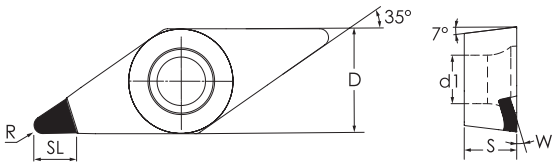
Insert Order Code: (1) Geometry code + (2) Grade code

Technical Data page C - 518

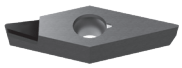
palbit PILOT Precision Products **Pilot Precision Products** | 15 Merrigan Way | South Deerfield, MA 01373

VC = RHOMBIC 35º POSITIVE

RÔMBICA 35º POSITIVA | RÓMBICA 35º POSITIVA

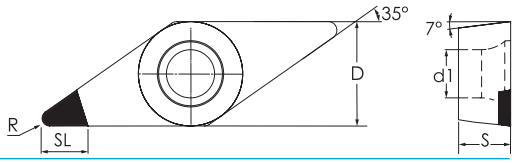


VCGT Z1

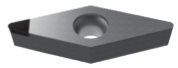
	(1) Geometry code	(2) Grade code ANSI Reference	N D6 PDP410	N I3 PDP403	Dimensions (in) Dimensões (in) Dimenciones (in) D	S	R	d1	W	SL	Cutting conditions Condições de corte Condiciones de corte ap (in)	Min	Max	fn (in/r)	Min	Max
	1124275	VCGT 1.31.50.5 Z1	○	○	5/32	3/32	0.008	0.087	7º	0.118	0.003	0.002	0.008	0.003	0.001	0.004
	1124276	VCGT 1.31.51 Z1	○	○	5/32	3/32	1/64	0.087	7º	0.118	0.004	0.003	0.016	0.004	0.002	0.008
	1124277	VCGT 220.5 Z1	◎	○	1/4	1/8	0.008	0.110	10º	0.138	0.003	0.002	0.008	0.003	0.001	0.004
	1124071	VCGT 221 Z1	◎	○	1/4	1/8	1/64	0.110	10º	0.138	0.004	0.003	0.016	0.004	0.002	0.008
	1124278	VCGT 331 Z1	◎	○	3/8	3/16	1/64	0.173	10º	0.138	0.004	0.003	0.016	0.004	0.002	0.008
	1112640	VCGT 332 Z1	◎	○	3/8	3/16	1/32	0.173	10º	0.138	0.008	0.003	0.031	0.006	0.003	0.012
	1124279	VCGT 333 Z1	○	○	3/8	3/16	3/64	0.173	10º	0.138	0.012	0.004	0.047	0.007	0.003	0.014

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

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



VCGW Z1

	(1) Geometry code	(2) Grade code ANSI Reference	N D6 PDP410	N I3 PDP403	Dimensions (in) Dimensões (in) Dimenciones (in) D	S	R	d1	W	SL	Cutting conditions Condições de corte Condiciones de corte ap (in)	Min	Max	fn (in/r)	Min	Max
	1124280	VCGW 1.31.50.5 Z1	○	○	5/32	3/32	0.008	0.087	-	0.118	0.003	0.002	0.008	0.003	0.001	0.004
	1124281	VCGW 1.31.51 Z1	◎	○	5/32	3/32	1/64	0.087	-	0.118	0.004	0.003	0.016	0.004	0.002	0.008
	1124796	VCGW 220.5 Z1	◎	○	1/4	1/8	0.008	0.110	-	0.138	0.005	0.002	0.008	0.004	0.002	0.006
	1124378	VCGW 221 Z1	◎	○	1/4	1/8	1/64	0.110	-	0.138	0.004	0.003	0.016	0.004	0.002	0.008
	1124282	VCGW 222 Z1	◎	○	1/4	1/8	1/32	0.110	-	0.138	0.008	0.003	0.031	0.006	0.003	0.012
	1124795	VCGW 330.5 Z1	◎	○	3/8	3/16	0.008	0.173	-	0.138	0.007	0.002	0.012	0.004	0.002	0.006
	1124283	VCGW 331 Z1	◎	○	3/8	3/16	1/64	0.173	-	0.138	0.004	0.003	0.016	0.004	0.002	0.008
	1112641	VCGW 332 Z1	◎	○	3/8	3/16	1/32	0.173	-	0.157	0.008	0.003	0.031	0.006	0.003	0.012
	1124284	VCGW 333 Z1	◎	○	3/8	3/16	3/64	0.173	-	0.138	0.012	0.004	0.047	0.007	0.003	0.014

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

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

Technical Data
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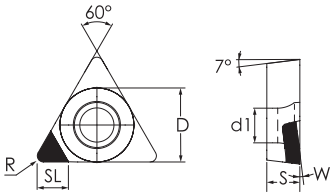
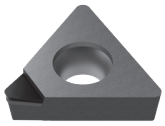
TC = TRIANGULAR 60º POSITIVE

TRIANGULAR 60º POSITIVA | TRIANGULAR 60º POSITIVA

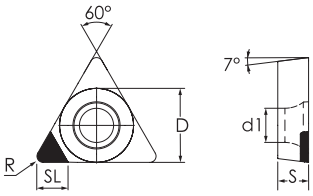


TCGT Z1

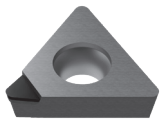
	(1) Geometry code	ANSI Reference	N (2) Grade code D6 PDP410	N (2) Grade code I3 PDP403	Dimensions (in) Dimensões (in) Dimenciones (in) D	S	R	d1	W	SL	Cutting conditions Condições de corte Condiciones de corte ap (in)	Min	Max	fn (in/r)	Min	Max
	1124186	TCGT 1.81.50.5 Z1	●	○	7/32	3/32	0.008	0.098	7º	0.118	0.003	0.002	0.008	0.003	0.001	0.004
	1124188	TCGT 1.81.51 Z1	●	○	7/32	3/32	1/64	0.098	7º	0.118	0.004	0.003	0.016	0.004	0.002	0.008
	1124501	TCGT 1.81.52 Z1	●	○	19/64	3/32	1/32	0.098	7º	0.118	0.018	0.004	0.031	0.007	0.003	0.012
	1124119	TCGT 21.51 Z1	●	○	1/4	3/32	1/64	0.110	7º	0.118	0.004	0.003	0.016	0.004	0.002	0.008
	1124190	TCGT 21.52 Z1	●	○	1/4	3/32	1/32	0.110	7º	0.118	0.008	0.003	0.031	0.006	0.003	0.012
	1124247	TCGT 32.51 Z1	○	○	3/8	5/32	1/64	0.173	10º	0.118	0.004	0.003	0.016	0.004	0.002	0.008
	1112637	TCGT 32.52 Z1	●	○	3/8	5/32	1/32	0.173	10º	0.118	0.008	0.003	0.031	0.006	0.003	0.012

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

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



TCGW Z1

	(1) Geometry code	ANSI Reference	N (2) Grade code D6 PDP410	N (2) Grade code I3 PDP403	Dimensions (in) Dimensões (in) Dimenciones (in) D	S	R	d1	W	SL	Cutting conditions Condições de corte Condiciones de corte ap (in)	Min	Max	fn (in/r)	Min	Max
	1124185	TCGW 1.81.50.5 Z1	●	○	7/32	3/32	0.008	0.098	-	0.118	0.003	0.002	0.008	0.003	0.001	0.004
	1124187	TCGW 1.81.51 Z1	●	○	7/32	3/32	1/64	0.098	-	0.118	0.004	0.003	0.016	0.004	0.002	0.008
	1124507	TCGW 21.50.5 Z1	●	○	1/4	3/32	0.008	0.110	-	0.118	0.003	0.002	0.008	0.003	0.001	0.004
	1124192	TCGW 21.51 Z1	●	○	1/4	3/32	1/64	0.110	-	0.138	0.004	0.003	0.016	0.004	0.002	0.008
	1124189	TCGW 21.52 Z1	●	○	1/4	3/32	1/32	0.110	-	0.138	0.008	0.003	0.031	0.006	0.003	0.012
	1124251	TCGW 32.51 Z1	●	○	3/8	5/32	1/64	0.173	-	0.138	0.004	0.003	0.016	0.004	0.002	0.008
	1112638	TCGW 32.52 Z1	●	○	3/8	5/32	1/32	0.173	-	0.138	0.008	0.003	0.031	0.006	0.003	0.012

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

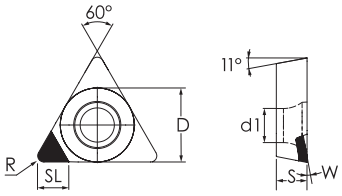
Insert Order Code: (1) Geometry code + (2) Grade code

Technical Data
page C - 518

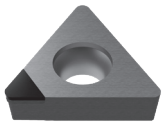
palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

TP = TRIANGULAR 60º POSITIVE

TRIANGULAR 60º POSITIVA | TRIANGULAR 60º POSITIVA

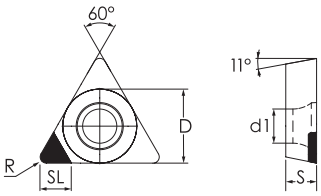


TPGT Z1

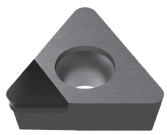
			N														
		(2) Grade code	D6	I3	Dimensions (in) Dimensões (in) Dimenciones (in)						Cutting conditions Condições de corte Condiciones de corte					
	(1) Geometry code	ANSI Reference	PDP410	PDP403	D	S	R	d1	W	SL	ap (in)	Min	Max	fn (in/r)	Min	Max
	1124260	TPGT 220.5 Z1	○	○	1/4	1/8	0.008	0.134	10º	0.138	0.003	0.002	0.008	0.003	0.002	0.004
	1124261	TPGT 221 Z1	○	○	1/4	1/8	1/64	0.134	10º	0.138	0.004	0.003	0.016	0.004	0.002	0.008
	1124262	TPGT 222 Z1	○	○	1/4	1/8	1/32	0.134	10º	0.138	0.008	0.003	0.031	0.006	0.003	0.012
	1124263	TPGT 32.51 Z1	○	○	3/8	5/32	1/64	0.169	10º	0.138	0.004	0.003	0.016	0.004	0.002	0.008
	1124174	TPGT 32.52 Z1	○	○	3/8	5/32	1/32	0.169	10º	0.138	0.008	0.003	0.031	0.006	0.003	0.012
	1124264	TPGT 331 Z1	○	○	3/8	3/16	1/64	0.169	10º	0.138	0.004	0.003	0.016	0.004	0.002	0.008
	1124265	TPGT 332 Z1	○	○	3/8	3/16	1/32	0.169	10º	0.138	0.008	0.003	0.031	0.006	0.003	0.012

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

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



TPGW Z1

			N														
		(2) Grade code	D6	I3	Dimensions (in) Dimensões (in) Dimenciones (in)						Cutting conditions Condições de corte Condiciones de corte					
	(1) Geometry code	ANSI Reference	PDP410	PDP403	D	S	R	d1	W	SL	ap (in)	Min	Max	fn (in/r)	Min	Max
	1124266	TPGW 21.50.5 Z1	○	○	1/4	3/32	0.008	0.110	-	0.138	0.003	0.002	0.008	0.003	0.002	0.004
	1124267	TPGW 21.51 Z1	○	○	1/4	3/32	1/64	0.110	-	0.138	0.004	0.003	0.016	0.004	0.002	0.008
	1124268	TPGW 21.52 Z1	○	○	1/4	3/32	1/32	0.110	-	0.138	0.008	0.003	0.031	0.006	0.003	0.012
	1124269	TPGW 220.5 Z1	○	○	1/4	1/8	0.008	0.110	-	0.138	0.003	0.002	0.008	0.003	0.002	0.004
	1124270	TPGW 221 Z1	◈	○	1/4	1/8	1/64	0.110	-	0.138	0.004	0.003	0.016	0.004	0.002	0.008
	1124379	TPGW 222 Z1	◈	○	1/4	1/8	1/32	0.110	-	0.138	0.008	0.003	0.031	0.006	0.003	0.012
	1124271	TPGW 32.51 Z1	○	○	3/8	5/32	1/64	0.169	-	0.138	0.004	0.003	0.016	0.004	0.002	0.008
	1124272	TPGW 32.52 Z1	○	○	3/8	5/32	1/32	0.169	-	0.138	0.008	0.003	0.031	0.006	0.003	0.012
	1124273	TPGW 331 Z1	○	○	3/8	3/16	1/64	0.169	-	0.138	0.004	0.003	0.016	0.004	0.002	0.008
	1124274	TPGW 332 Z1	○	○	3/8	3/16	1/32	0.169	-	0.138	0.008	0.003	0.031	0.006	0.003	0.012

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

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

Technical Data
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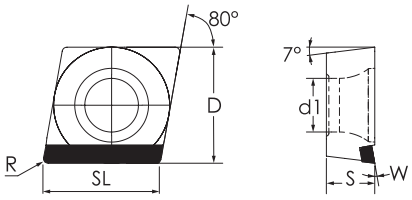
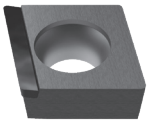
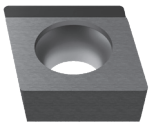
POSITIVE INSERTS

CC = RHOMBIC 80º POSITIVE

RÔMBICA 80º POSITIVA | RÓMBICA 80º POSITIVA

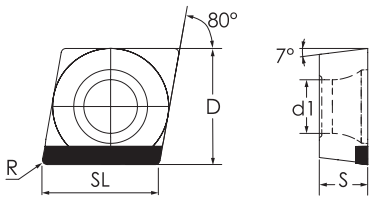


CCGT FR/FL

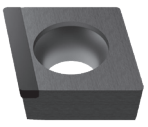
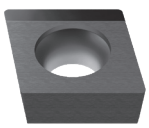
	(1) Geometry code	(2) Grade code ANSI Reference	N D6 PDP410	N I3 PDP403	Dimensions (in) L	S	R	D	W	SL	Cutting conditions ap (in)	Min	Max	fn (in/r)	Min	Max
CCGT FR 	1124212	CCGT 32.50.5 FR	○	○	3/8	5/32	0.008	0.173	10°	0.382	0.191	0.008	0.252	0.003	0.002	0.006
	1124165	CCGT 32.51 FR	ⓐ	○	3/8	5/32	1/64	0.173	10°	0.382	0.191	0.016	0.252	0.005	0.003	0.010
	1124213	CCGT 431 FR	○	○	1/2	3/16	1/64	0.217	10°	0.508	0.254	0.016	0.335	0.006	0.003	0.012
	1124214	CCGT 432 FR	○	○	1/2	3/16	1/32	0.217	10°	0.508	0.254	0.031	0.335	0.012	0.004	0.016
CCGT FL 	1124215	CCGT 32.50.5 FL	○	○	3/8	5/32	0.008	0.173	10°	0.382	0.191	0.008	0.252	0.003	0.002	0.006
	1124166	CCGT 32.51 FL	ⓐ	○	3/8	5/32	1/64	0.173	10°	0.382	0.191	0.016	0.252	0.005	0.003	0.010
	1124216	CCGT 431 FL	ⓐ	○	1/2	3/16	1/64	0.217	10°	0.508	0.254	0.016	0.335	0.006	0.003	0.012
	1124217	CCGT 432 FL	ⓐ	○	1/2	3/16	1/32	0.217	10°	0.508	0.254	0.031	0.335	0.012	0.004	0.016

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

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



CCGW FR/FL

	(1) Geometry code	(2) Grade code ANSI Reference	N D6 PDP410	N I3 PDP403	Dimensions (in) D	S	R	d1	W	SL	Cutting conditions ap (in)	Min	Max	fn (in/r)	Min	Max
CCGW FR 	1124547	CCGW 21.51 FR	ⓐ	○	3/8	5/32	1/64	0.173	-	0.382	0.191	0.016	0.252	0.005	0.003	0.010
	1124170	CCGW 32.51 FR	○	○	3/8	5/32	1/64	0.173	-	0.382	0.191	0.016	0.252	0.005	0.003	0.010
	1124222	CCGW 32.52 FR	○	○	3/8	5/32	1/32	0.173	-	0.382	0.191	0.031	0.252	0.006	0.004	0.014
	1124223	CCGW 431 FR	○	○	1/2	3/16	1/64	0.217	-	0.508	0.254	0.016	0.335	0.006	0.003	0.012
	1124224	CCGW 432 FR	○	○	1/2	3/16	1/32	0.217	-	0.508	0.254	0.031	0.335	0.012	0.004	0.016
CCGW FL 	1124548	CCGW 21.51 FL	ⓐ	○	1/4	3/32	1/64	0.110	-	0.256	0.128	0.016	0.165	0.003	0.003	0.010
	1124171	CCGW 32.51 FL	○	○	3/8	5/32	1/64	0.173	-	0.382	0.191	0.016	0.252	0.005	0.003	0.010
	1124225	CCGW 32.52 FL	○	○	3/8	5/32	1/32	0.173	-	0.382	0.191	0.031	0.252	0.006	0.004	0.014
	1124226	CCGW 431 FL	○	○	1/2	3/16	1/64	0.217	-	0.508	0.254	0.016	0.335	0.006	0.003	0.012
	1124227	CCGW 432 FL	ⓐ	○	1/2	3/16	1/32	0.217	-	0.508	0.254	0.031	0.335	0.012	0.004	0.016

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

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

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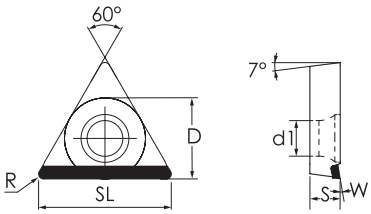
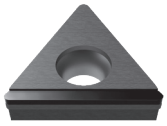
TC = TRIANGULAR 60º POSITIVE

TRIÂNGULAR 60º POSITIVA | TRIANGULAR 60º POSITIVA



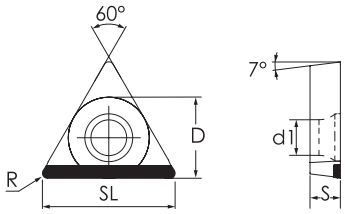
TCGT FL

	(1) Geometry code	(2) Grade code ANSI Reference	N D6 PDP410	N I3 PDP403	Dimensions (in) D	S	R	d1	W	SL	Cutting conditions ap (in)	Min	Max	fn (in/r)	Min	Max
	1124173	TCGT 21.51 FL	◈	○	1/4	3/32	1/64	0.110	7º	0.410	0.205	0.016	0.272	0.004	0.002	0.008
	1124248	TCGT 21.52 FL	○	○	1/4	3/32	1/32	0.110	7º	0.387	0.194	0.031	0.256	0.006	0.003	0.012
	1124249	TCGT 32.51 FL	○	○	3/8	5/32	1/64	0.173	10º	0.626	0.313	0.016	0.413	0.004	0.002	0.008
	1124250	TCGT 32.52 FL	○	○	3/8	5/32	1/32	0.173	10º	0.604	0.302	0.031	0.400	0.006	0.003	0.012

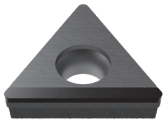
◈ Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

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

Note: Can be used as FR geometry.



TCGW FL

	(1) Geometry code	(2) Grade code ANSI Reference	N D6 PDP410	N I3 PDP403	Dimensions (in) D	S	R	d1	W	SL	Cutting conditions ap (in)	Min	Max	fn (in/r)	Min	Max
	1124252	TCGW 21.50.5 FL	○	○	1/4	3/32	0.008	0.110	-	0.422	0.205	0.016	0.272	0.004	0.002	0.008
	1112777	TCGW 21.51 FL	◈	○	1/4	3/32	1/64	0.110	-	0.410	0.205	0.031	0.256	0.006	0.003	0.012
	1124253	TCGW 32.51 FL	◈	○	3/8	5/32	1/64	0.173	-	0.626	0.313	0.016	0.413	0.004	0.002	0.008
	1124254	TCGW 32.52 FL	◈	○	3/8	5/32	1/32	0.173	-	0.604	0.302	0.031	0.400	0.006	0.003	0.012
	1124255	TCGW 431 FL	○	○	1/2	3/16	1/64	0.217	-	0.843	0.315	0.016	0.421	0.004	0.003	0.008
	1124382	TCGW 432 FL	◈	○	1/2	3/16	1/32	0.217	-	0.820	0.309	0.031	0.411	0.006	0.004	0.012

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

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

Note: Can be used as FR geometry.

Technical Data
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PCD RECOMMENDED CUTTING DATA

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

Workpiece material	Vc (SFM)		Recommend grade for PCD	
			PDP 410	PDP 403
Aluminium alloys: Aluminium, Si<14%	Roughing Finishing	2624-9484 2624-9484	◉ ◉	
Aluminium: Aluminium, Si≥14%	Roughing Finishing	984-2296 820-2296	○ ○	◉ ◉
Copper alloys: Copper, Zinc, Brass	Roughing Finishing	1968-3936 2296-4920	◉ ◉	
Metal matrix composites: Al (10-20%) SiC	Roughing Finishing	984-3772 1312-4133		◉ ◉
Tungsten carbide 10-16% Co: Unsintered	Roughing Finishing	164-656 197-722		◉ ◉
Tungsten carbide 10-16% Co: Sintered	Roughing Finishing	66-131 82-148		◉ ◉
Ebonite, Fiberglass, Plastic materials, Graphite, Glass.	Roughing Finishing	656-4920 984-6560	◉ ◉	◉ ◉
Ceramic: Unsintered	Roughing Finishing	164-492 164-656		◉ ◉
Ceramic: Sintered	Roughing Finishing	66-115 66-131		◉ ◉
Wood	Finishing	3280-13120	◉	

◉ Recomended ○ Second choice

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HEAVY TURNING tools solutions



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VIDEO

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BAR PEELING

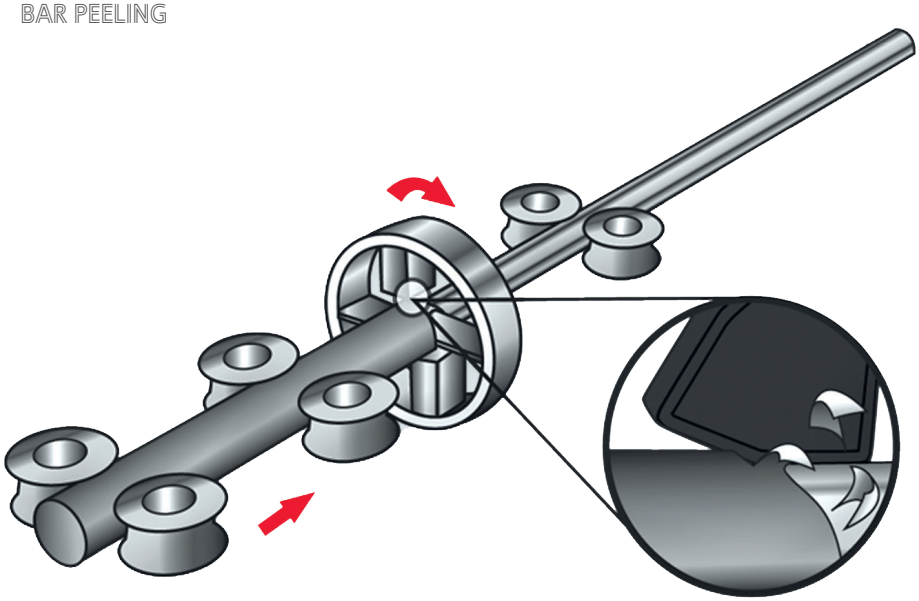


BAR PEELING

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.

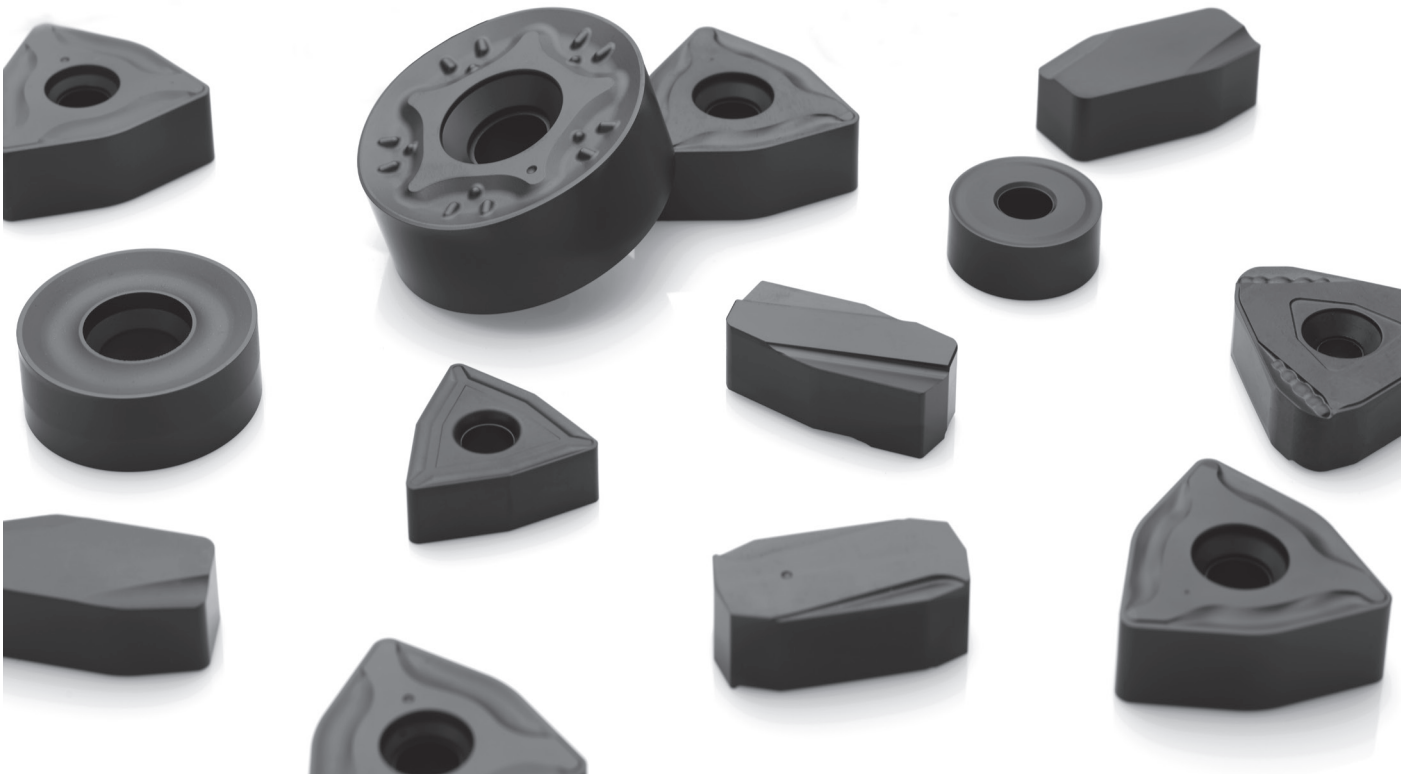


The size of blank bar can go from 4 mm (157 inch) to over 400 mm (15.75 inch) in diameter.

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.

This flyer has only a small portion of our possible range of production. Please don't hesitate to contact us regarding other possible geometries that we may have although not presented in this brochure.



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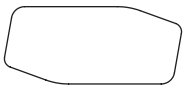
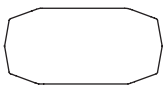
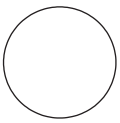
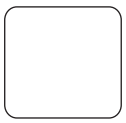
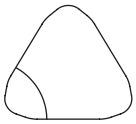
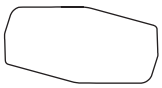
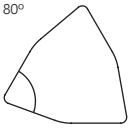
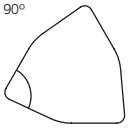
L	N	G	F	20	10	35	-	MP
1	2	3	4	5	6	7		8

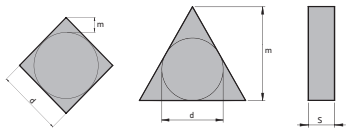
1 - Insert Shape

 I	 J	 L	 R	 S
60°  T	 U	75° / 80°  W	85° / 90°  X	

2 - Clearance Angle

N 

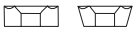
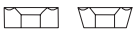
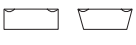
3 - Tolerances



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

5 - Length of Cutting Edge (ln)

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 - Chipbreaker

Chipbreaker according to Palbit geometries

FP	MH
ST	RP
MP	LH

BAR PEELING INSERTS RANGE

METRIC LINE

NEGATIVE INSERTS | PASTILHAS NEGATIVAS | PLAQUITAS NEGATIVAS

			P									M						K			Cutting conditions Condições de corte Condiciones de Corte					
		[2] Grade code	L7	R2	L8	R3	U5	P1	V8	N2	S9	L9	U4	L8	U5	N2	P1	V8	V6	L5	L6	L9						
	[1] Geometry code	ANSI | ISO Reference	PH5115	PHG115	PH5125	PHG125	PHS225	PH5228	PHS228	PH5135	PHG135	PH5740	PHS215	PH5125	PHS225	PH5135	PH5228	PHS228	PHS240	PH5705	PH5320	PH5740	ap (mm)	Min	Max	fn (mm/r)	Min	Max
INGR-MP Rectangular 90°	1123828	INGR 221240-MP	◈	○	○									○									2,00	0,40	4,00	3,50	1,00	8,00
JNGF-MP Rectangular 90°	1123830	JNGF 201220-MP	○		◈	○					○			◈									1,50	1,00	2,00	3,50	1,50	6,00
	1123996	JNGF 201220-MP SP1			○									○									1,50	1,00	2,00	3,50	1,50	6,00
	1123997	JNGF 201220-MP SP2	◈		◈									◈							○		1,50	1,00	2,00	3,50	1,50	6,00
	1124043	JNGF 271220-MP			◈							○		◈								○	1,50	1,00	2,00	3,50	1,50	6,00
JNGF-PM Rectangular 90°	1124452	JNGF 201220-PM		○									◈										1,50	1,00	2,00	4,00	2,00	6,00
	1124567	JNGF 201220-PM SP		○																			1,50	1,00	2,00	4,00	2,00	6,00
LNGF-MP Rectangular 90°	1123826	LNGF 201035-MP	○	◈	○			○						○			○				◈		2,00	0,80	3,50	2,50	1,00	6,50
	1123827	LNGF 201235-MP	◈	○	○									○									2,00	0,80	3,50	2,50	1,00	6,50
UNGF-MP Rectangular 90°	1123829	UNGF 171240-MP	○		○	◈								○									1,50	0,35	4,00	2,00	1,00	5,00
TNMJ-MP Triangular 60°	1123838	TNMJ 201025-MP	◈	◈	◈	◈	◈							◈	◈								1,00	0,70	2,50	3,00	1,00	5,50
	1123843	TNMJ 201425-MP			◈	○								◈									1,00	0,70	2,50	3,00	1,00	5,50
TNGM-MP Triangular 60°	1124104	TNGM 220812-MP			◈					◈	◈			◈		◈							0,70	0,20	1,30	14,00	5,00	18,00
TNMM-LH Triangular 60°	1124102	TNMM 441116-LH								○	◈					○							12,00	2,00	25,00	0,80	0,50	1,60

◈ 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 | Disponível sob consulta | Disponible bajo consulta

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

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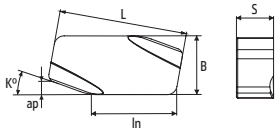
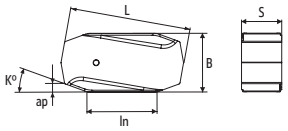
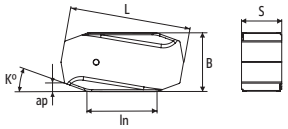
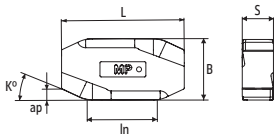
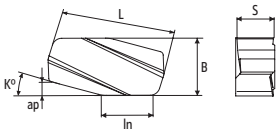
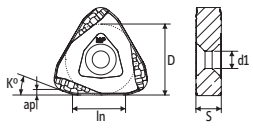
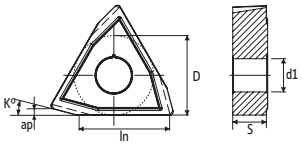
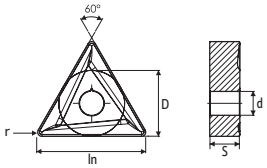
palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

Dimensions Dimensões Dimensions (mm)									Technical Drawing Desenho Técnico Diseño Técnico
L	D	ln	B	S	d1	r	ap	Kº	
38,25	-	22,00	17,50	12,00	-	-	4,00	20	
36,90	-	20,00	18,00	12,35	-	-	2,00	20	
36,30	-	20,00	18,00	12,45	-	-	2,00	20	
36,50	-	20,00	18,00	12,45	-	-	2,00	20	
36,90	-	27,00	18,00	12,45	-	-	2,00	20	
37,52	-	21,00	18,00	12,45	-	-	3,00	20	
37,52	-	21,00	18,00	12,45	-	-	3,00	20	
40,00	-	20,00	20,00	10,00	-	-	3,50	25	
40,00	-	20,00	20,00	12,00	-	-	3,50	25	
36,50	-	17,00	18,00	12,00	-	-	4,00	15	
-	28,60	20,00	-	10,00	7,00	-	2,50	20	
-	28,60	20,00	-	14,00	7,00	-	2,50	20	
-	19,05	22,00	-	8,00	7,96	-	1,20	15	
-	25,40	11,50	-	25,40	44,00	1,60	-	-	

Technical Data
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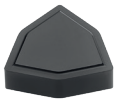
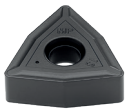
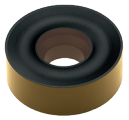
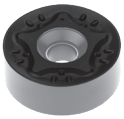
BAR PEELING INSERTS RANGE

METRIC LINE

NEGATIVE INSERTS | PASTILHAS NEGATIVAS | PLAQUITAS NEGATIVAS

			P										M							K			Cutting conditions Condições de corte Condiciones de Corte					
		(2) Grade code	L7	R2	L8	R3	U5	P1	V8	N2	S9	L9	U4	L8	U5	N2	P1	V8	V6	L5	L6	L9						
	(1) Geometry code	ANSI | ISO Reference	PH5115	PHG115	PH5125	PHG125	PHS225	PH5228	PHS228	PH5135	PHG135	PH5740	PHS215	PH5125	PHS225	PH5135	PH5228	PHS228	PHS240	PH5705	PH5320	PH5740	ap (mm)	Min	Max	fn (mm/r)	Min	Max
XNMJ-MP																												
	1123835	XNMJ 151380-MP	○		◈			◈		○			◈		○	◈							3,00	1,00	6,50	6,00	4,00	12,00
Special 85º																												
XNMJ-MH																												
	1123836	XNMJ 151380-MH	○	○	◈			◈				○	◈			◈						○	3,00	1,00	6,50	6,00	4,00	12,00
Special 85º																												
XNGF-FP																												
	1123837	XNGF 150980-FP			○					○			○		○	◈							3,00	1,00	4,50	6,00	4,00	12,00
Special 85º																												
XNGJ-RP																												
	1123834	XNGJ 151380-RP			○								○				◈						3,00	1,00	6,50	6,00	4,00	12,00
Special 85º																												
WNGJ-MP																												
	1124041	WNGJ 130950-MP			◈	○		◈					◈				◈			○	◈		3,00	0,50	5,00	6,00	3,00	11,00
Special 75º																												
RNMX-MP																												
	1123831	RNMX 381200-MP	○		○	◈			○				○				◈	○					4,00	2,00	8,00	2,00	1,00	4,00
	1123832	RNMX 5018M0-MP	○		○			◈					○				○	◈					6,00	2,00	12,00	3,50	2,50	6,50
Round Rº																												
RNMX-RP																												
	1123833	RNMX 5018M0-RP	○		○				○				○				◈	○					6,00	2,00	12,00	6,00	4,00	10,50
Round Rº																												

◈ 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 | Disponível sob consulta | Disponible bajo consulta

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

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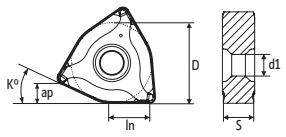
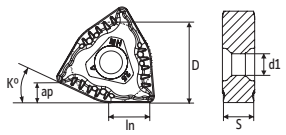
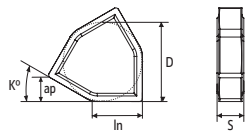
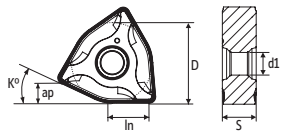
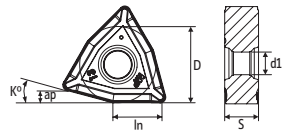
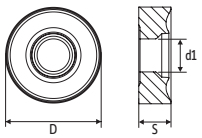
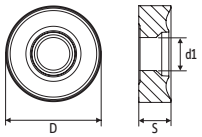
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

Dimensions Dimensões Dimensions (mm)									Technical Drawing Desenho Técnico Diseño Técnico
L	D	ln	B	S	d1	r	ap	Kº	
-	31,75	15,00	-	13,00	9,00	-	8,00	25	
-	31,75	15,00	-	13,00	9,00	-	8,00	25	
-	28,58	15,00	-	8,88	-	-	8,00	30,00	
-	31,75	15,00	-	13,00	9,00	-	8,00	25	
-	22,23	13,00	-	9,56	7,93	-	5,00	15	
-	38,10	-	-	12,70	13,00	-	-	-	
-	50,00	-	-	18,00	12,70	-	-	-	
-	50,00	-	-	18,00	12,70	-	-	-	

Technical Data
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RAILWAY TURNING tools solutions



RAILWAY

RAILWAY

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.



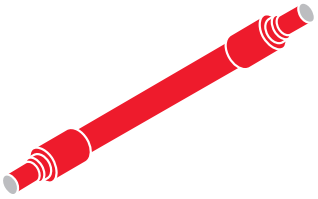


WHEEL TURNING

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.



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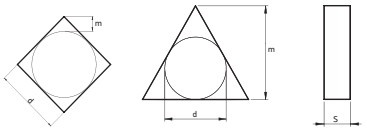
Railway Turning Tool Solutions



ISO RAILWAY INSERTS CODE KEY

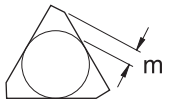
H	120°	M	86°
O	135°	V	35°
P	108°	W	80°
S	90°	L	90°
T	60°	A	85°
C	80°	B	82°
D	55°	K	55°
E	75°	R	
F	50°	X	Special

1- Insert shape symbol



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

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



Triangular inserts with a facet (secondary cutting edge)

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

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

3 - Tolerances symbol

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

2 - Normal clearance symbol

ISO	C	N	M	M
ANSI	C	N	M	M

4 - Insert symbol

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

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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	11/4	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

	19	06	12 / AN	E	N	-	HY	-	T
	6	4	3	E	N	-	HY	-	T

	10 - Chipbreaker geometries				
NEGATIVE Chipbreakers	HY	HZ	RMM	RRM	RHR
					
POSITIVE Chipbreakers	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.

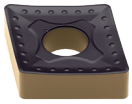
9* - Cutting direction

Shape	Hand	Symbol
	Right	R
	Left	L
	None	N

*only when required.

CN = RHOMBIC 80º NEGATIVE

RÔMBICA 80º NEGATIVA | RÓMBICA 80º NEGATIVA

			P						M							K				N	S			
			CVD					PVD	CVD			PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	R3	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	ANSI Reference	PHG105	PHG115	PHG125	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 643-HY		○	◈						◈													
	1121252	CNMM 644-HY		◈	◈						◈													
	1121434	CNMM 646-HY		○	◈	△																		
	1121248	CNMM 866-HY		○	◈	△																		
CNMM-HZ  Heavy to Roughing	1121607	CNMM 643-HZ		○	◈	◈												◈	◈					
	1121251	CNMM 644-HZ		◈	◈	◈												◈	◈					
	1121435	CNMM 646-HZ		◈	◈	◈												◈	◈					
	1121247	CNMM 866-HZ		○	◈		◈											◈						

◈ 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 | Disponível sob consulta | Disponible bajo consulta

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

SN = SQUARE 90º NEGATIVE

QUADRADA 90º NEGATIVA | ESQUADRA 90º NEGATIVA

			P						M							K				N	S			
			CVD					PVD	CVD			PVD				UNC	CVD			UNC	PVD			
		(2) Grade code	T6	R2	R3	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	ANSI Reference	PHG105	PHG115	PHG125	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 643-HY		◈	◈		◈				◈													
	1121250	SNMM 644-HY		◈	◈						○													
	1121452	SNMM 646-HY		○	○						○													
	1121160	SNMM 856-HY		○	◈		◈				◈													
	1121161	SNMM 866-HY		○	○		◈				◈													
SNMM-HZ  Heavy to Roughing	1121605	SNMM 643-HZ		◈	○													◈	◈					
	1121249	SNMM 644-HZ		○	◈		◈											◈	○					
	1121440	SNMM 646-HZ		○	◈	○												◈	◈					
	1121158	SNMM 856-HZ		◈	◈		◈											◈	○					
	1123786	SNMM 858-HZ		○	◈																			
	1121159	SNMM 866-HZ		○	◈		◈											◈	○					

◈ 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 | Disponível sob consulta | Disponible bajo consulta

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

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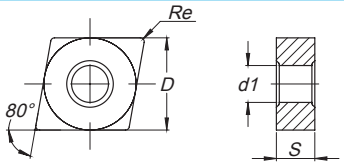
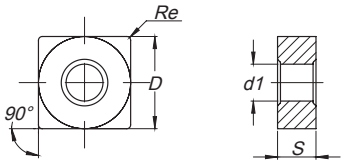
palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373



ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)				Cutting Conditions Condições de Corte Condiciones de Corte					
		D	S	Re	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
CNMM 643-HY	CNMM 190612-HY	3/4	1/4	3/64	0.313	0.236	0.079	0.472	0.020	0.014	0.031
CNMM 644-HY	CNMM 190616-HY	3/4	1/4	1/16	0.313	0.236	0.079	0.472	0.024	0.014	0.039
CNMM 646-HY	CNMM 190624-HY	3/4	1/4	1/32	0.313	0.236	0.079	0.472	0.024	0.014	0.047
CNMM 866-HY	CNMM 250924-HY	1	3/8	1/32	0.359	0.315	0.098	0.591	0.028	0.016	0.055
CNMM 643-HZ	CNMM 190612-HZ	3/4	1/4	3/64	0.313	0.394	0.094	0.472	0.026	0.020	0.031
CNMM 644-HZ	CNMM 190616-HZ	3/4	1/4	1/16	0.313	0.394	0.094	0.472	0.031	0.020	0.043
CNMM 646-HZ	CNMM 190624-HZ	3/4	1/4	1/32	0.313	0.394	0.126	0.472	0.039	0.024	0.063
CNMM 866-HZ	CNMM 250924-HZ	1	3/8	1/32	0.359	0.394	0.126	0.669	0.039	0.024	0.063



ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)				Cutting Conditions Condições de Corte Condiciones de Corte					
		D	S	Re	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
SNMM 643-HY	SNMM 190612-HY	3/4	1/4	3/64	0.313	0.236	0.079	0.472	0.024	0.014	0.035
SNMM 644-HY	SNMM 190616-HY	3/4	1/4	1/16	0.313	0.236	0.079	0.472	0.024	0.014	0.047
SNMM 646-HY	SNMM 190624-HY	3/4	1/4	1/32	0.313	0.236	0.079	0.472	0.039	0.024	0.063
SNMM 856-HY	SNMM 250724-HY	1	5/16	1/32	0.359	0.335	0.098	0.591	0.039	0.024	0.063
SNMM 866-HY	SNMM 250924-HY	1	3/8	1/32	0.359	0.335	0.118	0.591	0.039	0.024	0.063
SNMM 643-HZ	SNMM 190612-HZ	3/4	1/4	3/64	0.313	0.394	0.094	0.512	0.024	0.014	0.035
SNMM 644-HZ	SNMM 190616-HZ	3/4	1/4	1/16	0.313	0.394	0.094	0.512	0.024	0.014	0.047
SNMM 646-HZ	SNMM 190624-HZ	3/4	1/4	1/32	0.313	0.394	0.126	0.512	0.039	0.024	0.063
SNMM 856-HZ	SNMM 250724-HZ	1	5/16	1/32	0.359	0.394	0.126	0.669	0.039	0.024	0.063
SNMM 858-HZ	SNMM 250732-HZ	1	5/16	1/8	0.359	0.394	0.126	0.669	0.047	0.031	0.071
SNMM 866-HZ	SNMM 250924-HZ	1	3/8	1/32	0.359	0.394	0.126	0.669	0.039	0.024	0.063

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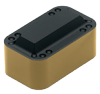
LNUX - RECTANGULAR 90º NEGATIVE

RECTANGULAR 90º NEGATIVA | RETANGULAR 90º NEGATIVA

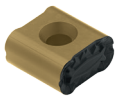
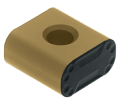
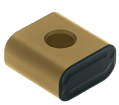
Inserts Pastilhas Plaquitas	(1) Geometry code	ANSI / ISO Reference	(2) Grade code	P										M							K		
				CVD-MT										CVD-MT							CVD-MT		
				L7	R2	L8	R3	U5	V8	N2	S9	L9	V5	U4	L8	U5	N2	P1	V8	V6	L5	L6	L9
				PH5115	PHG115	PH5125	PHG125	PHS225	PHS228	PH5135	PHG135	PH5740	PHG140	PHS215	PH5125	PHS225	PH5135	PH5228	PHS228	PHS240	PH5705	PH5320	PH5740
LNUX-RMM  Medium	1123640	LNUX 321248-RMM			◈		○																
LNUX-RRM  Roughing	1123639	LNUX 321248-RRM		◬	◈		○																○
LNUX-RHR  Heavy Roughing	1123643	LNUX 321248-RHR		◬	◈		○																

◈ 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 | Disponível sob consulta | Disponible bajo consulta

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

LNUX-T - TANGENTIAL 90º NEGATIVE

TANGENCIAL 90º NEGATIVA | TANGENCIAL 90º NEGATIVA

Inserts Pastilhas Plaquitas	(1) Geometry code	ANSI / ISO Reference	(2) Grade code	P										M							K		
				CVD-MT										CVD-MT							CVD-MT		
				L7	R2	L8	R3	U5	V8	N2	S9	L9	V5	U4	L8	U5	N2	P1	V8	V6	L5	L6	L9
				PH5115	PHG115	PH5125	PHG125	PHS225	PHS228	PH5135	PHG135	PH5740	PHG140	PHS215	PH5125	PHS225	PH5135	PH5228	PHS228	PHS240	PH5705	PH5320	PH5740
LNUX-RMM-T  Medium	1121953	LNUX 191940-RMM-T			◈		◈																
	1122005	LNUX 301940-RMM-T			◈	◬	◈																
LNUX-RRM-T  Roughing	1120404	LNUX 191940-RRM-T		◬	◈		◈																
	1123985	LNUX 301940-RRM-T		◬	◈		◈																
LNUX-RHR-T  Heavy Roughing	1191628	LNUX 191940-RHR-T			◈		◈																
	1191969	LNUX 301940-RHR-T		◬	◈		◈																

◈ 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 | Disponível sob consulta | Disponible bajo consulta

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

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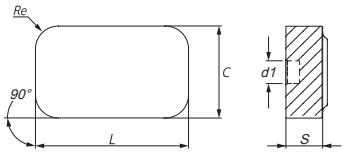
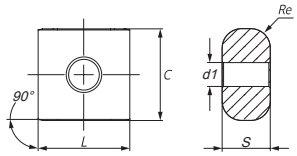
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373



ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)					Cutting Conditions Condições de Corte Condiciones de Corte					
		L	C	Re	S	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
LNUX 321248-RMM	LNUX 321248-RMM	1.250	3/4	3/16	0.500	0.310	0.118	0.059	0.709	0.031	0.012	0.059
LNUX 321248-RRM	LNUX 321248-RRM	1.250	3/4	3/16	0.500	0.310	0.118	0.059	0.709	0.039	0.031	0.059
LNUX 321248-RHR	LNUX 321248-RHR	1.250	3/4	3/16	0.500	0.310	0.118	0.059	0.709	0.047	0.020	0.071



ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)					Cutting Conditions Condições de Corte Condiciones de Corte					
		L	C	Re	S	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
LNUX 191940-RMM-T	LNUX 191940-RMM-T	3/4	3/4	3/19	0.394	0.250	0.098	0.063	0.315	0.031	0.012	0.059
LNUX 301940-RMM-T	LNUX 301940-RMM-T	1.181	3/4	3/19	0.472	0.250	0.118	0.063	0.472	0.031	0.012	0.059
LNUX 191940-RRM-T	LNUX 191940-RRM-T	3/4	3/4	3/19	0.394	0.250	0.217	0.098	0.394	0.039	0.031	0.059
LNUX 301940-RRM-T	LNUX 301940-RRM-T	1.181	3/4	3/19	0.472	0.250	0.177	0.098	0.512	0.039	0.020	0.079
LNUX 191940-RHR-T	LNUX 191940-RHR-T	3/4	3/4	3/19	0.394	0.250	0.217	0.098	0.394	0.047	0.020	0.071
LNUX 301940-RHR-T	LNUX 301940-RHR-T	1.181	3/4	3/19	0.472	0.250	0.256	0.118	0.591	0.047	0.020	0.071

Technical Data
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RC = ROUND Rº POSITIVE

REDONDA Rº POSITIVA | REDONDA Rº POSITIVA

Inserts Pastilhas Plaquitas	(1) Geometry code	(2) Grade code	P								M								K				N	S	
			CVD-MT						PVD		CVD-MT						PVD		UNC	CVD-MT			UNC	PVD	
			L7	R2	L8	R3	L9	V5	G1	G4	L7	U4	L8	U5	L9	V6	G1	G4	25	L5	L6	L9	10	G1	G4
		ANSI | ISO Reference	PH5115	PHG115	PH5125	PHG125	PH5740	PHG140	PH7910	PH7920	PH5115	PHS215	PH5125	PHS225	PH5740	PHS240	PH7910	PH7920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PH7920
RCMR-RR	1122009	RCMR 2507M0-RR	◈		◉																				
	1122008	RCMR 3209M0-RR	◈		◉																				
Roughing to Medium																									

◉ 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 | Disponível sob consulta | Disponible bajo consulta

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

RC = ROUND Rº POSITIVE

REDONDA Rº POSITIVA | REDONDA Rº POSITIVA

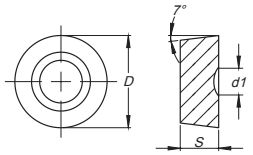
Inserts Pastilhas Plaquitas	(1) Geometry code	(2) Grade code	P											M						K				N	S			
			CVD							PVD				CVD		PVD				UNC	CVD			UNC	PVD			
			T6	L7	R2	L8	R3	S9	L9	V5	G1	X5	G4	T1	U4	U5	G1	X6	G4	Y3	25	L5	L6	L9	10	G1	X6	G4	Y3
		ANSI | ISO Reference	PHG105	PH5115	PHG115	PH5125	PHG125	PHG135	PH5740	PHG140	PH7910	PHP910	PH7920	PHP920	PHS215	PHS225	PH7910	PHH910	PH7920	PHH920	PH0705	PH5705	PH5320	PH5740	PH0910	PH7910	PHH910	PH7920	PHH920
RCMX-ST	1121428	RCMX 2006M0-ST			◉		◉	◉		◈												◉							
	1121429	RCMX 2507M0-ST			◉		◉																						
	1123910	RCMX 3009M0-ST			◯		◈																						
Roughing to Medium	1121430	RCMX 3209M0-ST			◯		◈																						
RCMX-RM	1123678	RCMX 3209M0-RM			◉		◉															◉							
Roughing to Medium																													
RCMX-RR	1123667	RCMX 2507M0-RR			◉		◉																						
	1123666	RCMX 3209M0-RR					◉			◈																			
Roughing to Medium																													

◉ 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 | Disponível sob consulta | Disponible bajo consulta

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

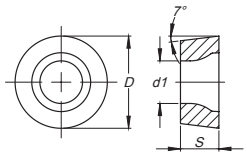
Technical Data page C - 518

RELIEF ANGLE 7°



ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)				Cutting Conditions Condições de Corte Condiciones de Corte					
		D	S	Re	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
RCMR 2507M0-RR	RCMR 2507M0-RR	0.984	0.313	-	0.354	0.197	0.126	0.315	0.071	0.031	0.098
RCMR 3209M0-RR	RCMR 3209M0-RR	1.260	0.375	-	0.472	0.256	0.126	0.512	0.071	0.031	0.098

RELIEF ANGLE 7°



ANSI Reference	ISO Reference	Dimensions (in) Dimensões (in) Dimensiones (in)				Cutting Conditions Condições de Corte Condiciones de Corte					
		D	S	Re	d1	ap (in)	Min	Max	fn (in/rev)	Min	Max
RCMX 2006M0-ST	RCMX 2006M0-ST	0.787	1/4	-	0.256	0.197	0.079	0.315	0.025	0.008	0.079
RCMX 2507M0-ST	RCMX 2507M0-ST	0.984	5/16	-	0.283	0.248	0.098	0.394	0.031	0.010	0.098
RCMX 3009M0-ST	RCMX 3009M0-ST	1.181	3/8	-	0.394	0.276	0.118	0.433	0.033	0.012	0.110
RCMX 3209M0-ST	RCMX 3209M0-ST	1.260	3/8	-	0.374	0.315	0.126	0.504	0.040	0.013	0.126
RCMX 3209M0-RM	RCMX 3209M0-RM	1.260	3/8	-	0.374	0.256	0.126	0.512	0.071	0.031	0.098
RCMX 2507M0-RR	RCMX 2507M0-RR	0.984	5/16	-	0.283	0.197	0.126	0.315	0.071	0.031	0.098
RCMX 3209M0-RR	RCMX 3209M0-RR	1.260	3/8	-	0.374	0.256	0.126	0.512	0.071	0.031	0.098

Technical Data
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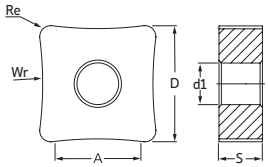
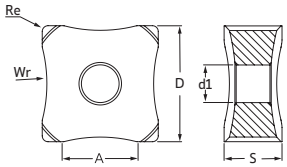


Inserts Pastilhas Plaquitas	(1) Geometry code	(2) Grade code ANSI Reference	ISO Reference	P CVD L8 PH5125	M CVD L8 PH5125	Dimensions (mm) Dimensões (mm) Dimensiones (mm) D	S	A	Re	d1	Wr	Tube Diameter (mm)
SNMA  Roughing	1123927	SNMA 543-R020	SNMA 150612-R020	◯	◯	15,88	6,35	10	1,2	6,35	20	23-29
	1123928	SNMA 543-R022	SNMA 150612-R022	◯	◯	15,88	6,35	10	1,2	6,35	22	25-32
	1123929	SNMA 543-R025	SNMA 150612-R025	◯	◯	15,88	6,35	10	1,2	6,35	25	29-36
	1123930	SNMA 543-R027	SNMA 150612-R027	◯	◯	15,88	6,35	10	1,2	6,35	27	31-39
	1123931	SNMA 543-R030	SNMA 150612-R030	◯	◯	15,88	6,35	10	1,2	6,35	30	35-44
	1123932	SNMA 543-R035	SNMA 150612-R035	◯	◯	15,88	6,35	10	1,2	6,35	35	40-51
	1123933	SNMA 543-R040	SNMA 150612-R040	◯	◯	15,88	6,35	10	1,2	6,35	40	46-58
	1123934	SNMA 543-R050	SNMA 150612-R050	◯	◯	15,88	6,35	10	1,2	6,35	50	58-73
	1123935	SNMA 543-R060	SNMA 150612-R060	◯	◯	15,88	6,35	10	1,2	6,35	60	69-87
	1123936	SNMA 543-R070	SNMA 150612-R070	◯	◯	15,88	6,35	10	1,2	6,35	70	80-95
	1123937	SNMA 643-R030	SNMA 190612-R030	◯	◯	19,05	6,35	12	1,2	7,94	30	35-44
	1123938	SNMA 643-R040	SNMA 190612-R040	◯	◯	19,05	6,35	12	1,2	7,94	40	46-58
	1123939	SNMA 643-R050	SNMA 190612-R050	◯	◯	19,05	6,35	12	1,2	7,94	50	58-73
	1123940	SNMA 643-R060	SNMA 190612-R060	◯	◯	19,05	6,35	12	1,2	7,94	60	69-87
	1123941	SNMA 643-R070	SNMA 190612-R070	◯	◯	19,05	6,35	12	1,2	7,94	70	80-95
	1123942	SNMA 643-R080	SNMA 190612-R080	◯	◯	19,05	6,35	12	1,2	7,94	80	92-116
	1123943	SNMA 643-R090	SNMA 190612-R090	◯	◯	19,05	6,35	12	1,2	7,94	90	104-131
	1123944	SNMA 866-R000	SNMA 250924-R000	◯	◯	25,40	9,52	17	2,4	9,12	0	-
	1123945	SNMA 866-R060	SNMA 250924-R060	◯	◯	25,40	9,52	17	2,4	9,12	60	69-87
	1123946	SNMA 866-R070	SNMA 250924-R070	◯	◯	25,40	9,52	17	2,4	9,12	70	80-95
	1123947	SNMA 866-R080	SNMA 250924-R080	◯	◯	25,40	9,52	17	2,4	9,12	80	92-116
	1123948	SNMA 866-R100	SNMA 250924-R100	◯	◯	25,40	9,52	17	2,4	9,12	100	115-145
	1123949	SNMA 866-R150	SNMA 250924-R150	◯	◯	25,40	9,52	17	2,4	9,12	150	165-215
	1123950	SNMA 866-R200	SNMA 250924-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 **Insert Order Code:** (1) Geometry code + (2) Grade code

Technical Data page C - 518

palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373



Inserts Pastilhas Plaquitas	(1) Geometry code	(2) Grade code ANSI Reference	ISO Reference	P CVD L8 PH5125	M CVD L8 PH5125	Dimensions (mm) Dimensões (mm) Dimensiones (mm) D	S	A	Re	d1	Wr	Tube Diameter (mm)
	1123879	SNMX 552-R000	SNMX 150708-R000	○	○	15,88	7,94	10	0,8	5,16	0	-
	1123880	SNMX 552-R007	SNMX 150708-R007	○	○	15,88	7,94	10	0,8	5,16	7	08-10
	1123881	SNMX 552-R009	SNMX 150708-R009	○	○	15,88	7,94	10	0,8	5,16	9	10-13
	1123882	SNMX 552-R011	SNMX 150708-R011	○	○	15,88	7,94	10	0,8	5,16	11	13-16
	1123883	SNMX 552-R013	SNMX 150708-R013	○	○	15,88	7,94	10	0,8	5,16	13	15-19
	1123884	SNMX 552-R015	SNMX 150708-R015	○	○	15,88	7,94	10	0,8	5,16	15	17-22
	1123885	SNMX 552-R018	SNMX 150708-R018	○	○	15,88	7,94	10	0,8	5,16	18	21-26
	1123886	SNMX 552-R020	SNMX 150708-R020	◎	◎	15,88	7,94	10	0,8	5,16	20	23-29
	1123887	SNMX 552-R022	SNMX 150708-R022	○	○	15,88	7,94	10	0,8	5,16	22	25-32
	1123888	SNMX 552-R025	SNMX 150708-R025	○	○	15,88	7,94	10	0,8	5,16	25	29-36
	1123889	SNMX 552-R027	SNMX 150708-R027	○	○	15,88	7,94	10	0,8	5,16	27	31-39
	1123890	SNMX 552-R030	SNMX 150708-R030	○	○	15,88	7,94	10	0,8	5,16	30	35-44
	1123891	SNMX 552-R035	SNMX 150708-R035	○	○	15,88	7,94	10	0,8	5,16	35	40-51
	1123892	SNMX 552-R040	SNMX 150708-R040	○	○	15,88	7,94	10	0,8	5,16	40	46-58
	1123893	SNMX 552-R045	SNMX 150708-R045	○	○	15,88	7,94	10	0,8	5,16	45	52-65
	1123894	SNMX 552-R050	SNMX 150708-R050	○	○	15,88	7,94	10	0,8	5,16	50	58-73
	1123895	SNMX 552-R060	SNMX 150708-R060	○	○	15,88	7,94	10	0,8	5,16	60	69-87
SNMX	1124461	SNMX 552-R070	SNMX 150708-R070	○	○	15,88	7,94	10	0,8	5,16	70	80-95
	1124462	SNMX 552-R075	SNMX 150708-R075	○	○	15,88	7,94	10	0,8	5,16	75	86-102
Medium to Finishing	1123896	SNMX 663-R000	SNMX 190912-R000	○	○	19,05	9,12	12	1,2	6,35	0	-
	1122012	SNMX 663-R020	SNMX 190912-R020	◎	◎	19,05	9,12	12	1,2	6,35	20	23-29
	1123897	SNMX 663-R030	SNMX 190912-R030	○	○	19,05	9,12	12	1,2	6,35	30	35-44
	1123898	SNMX 663-R040	SNMX 190912-R040	○	○	19,05	9,12	12	1,2	6,35	40	46-58
	1123899	SNMX 663-R050	SNMX 190912-R050	○	○	19,05	9,12	12	1,2	6,35	50	58-73
	1122013	SNMX 663-R060	SNMX 190912-R060	○	○	19,05	9,12	12	1,2	6,35	60	69-87
	1123900	SNMX 663-R070	SNMX 190912-R070	○	○	19,05	9,12	12	1,2	6,35	70	80-95
	1123901	SNMX 663-R080	SNMX 190912-R080	○	○	19,05	9,12	12	1,2	6,35	80	92-116
	1123902	SNMX 663-R090	SNMX 190912-R090	○	○	19,05	9,12	12	1,2	6,35	90	104-131
	1123903	SNMX 663-R100	SNMX 190912-R100	○	○	19,05	9,12	12	1,2	6,35	100	115-145
	1123864	SNMX 884-R000	SNMX 251216-R000	◎	◎	25,40	12,70	17	1,6	9,12	0	-
	1123904	SNMX 884-R050	SNMX 251216-R050	◎	◎	25,40	12,70	17	1,6	9,12	50	58-73
	1122015	SNMX 884-R080	SNMX 251216-R080	◎	◎	25,40	12,70	17	1,6	9,12	80	92-116
	1123905	SNMX 884-R090	SNMX 251216-R090	◎	◎	25,40	12,70	17	1,6	9,12	90	104-131
	1123906	SNMX 884-R100	SNMX 251216-R100	◎	◎	25,40	12,70	17	1,6	9,12	100	115-145
	1122016	SNMX 884-R120	SNMX 251216-R120	◎	◎	25,40	12,70	17	1,6	9,12	120	138-174
	1123907	SNMX 884-R150	SNMX 251216-R150	◎	◎	25,40	12,70	17	1,6	9,12	150	165-215
	1123908	SNMX 884-R200	SNMX 251216-R200	◎	◎	25,40	12,70	17	1,6	9,12	200	230-290
	1123909	SNMX 884-R250	SNMX 251216-R250	◎	◎	25,40	12,70	17	1,6	9,12	250	275-315

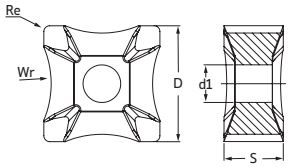
◎ First choice | 1ª Escolha | 1ª Opción ◎ Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta **Insert Order Code:** (1) Geometry code + (2) Grade code

Technical Data page C - 518

SCARFING - SNMG

METRIC LINE

Negative Inserts



Inserts Pastilhas Plaquitas	(1) Geometry code	(2) Grade code ANSI Reference	ISO Reference	P CVD L7 PH5115	M CVD L7 PH5115	D	S	A	Re	d1	Wr	Tube Diameter (mm)
	1123951	SNMG 55.12-R000	SNMG 15M808-R000	○	○	15,88	8,15	10	0,8	5,16	0	-
	1123952	SNMG 55.12-R007	SNMG 15M808-R007	○	○	15,88	8,15	10	0,8	5,16	7	08-10
	1123953	SNMG 55.12-R009	SNMG 15M808-R009	◎	◎	15,88	8,15	10	0,8	5,16	9	10-13
	1123954	SNMG 55.12-R011	SNMG 15M808-R011	◎	◎	15,88	8,15	10	0,8	5,16	11	13-16
	1123955	SNMG 55.12-R013	SNMG 15M808-R013	◎	◎	15,88	8,15	10	0,8	5,16	13	15-19
	1123956	SNMG 55.12-R015	SNMG 15M808-R015	◎	◎	15,88	8,15	10	0,8	5,16	15	17-22
	1123957	SNMG 55.12-R018	SNMG 15M808-R018	◎	◎	15,88	8,15	10	0,8	5,16	18	21-26
	1123958	SNMG 55.12-R020	SNMG 15M808-R020	◎	◎	15,88	8,15	10	0,8	5,16	20	23-29
	1123959	SNMG 55.12-R022	SNMG 15M808-R022	○	○	15,88	8,15	10	0,8	5,16	22	25-32
	1123960	SNMG 55.12-R025	SNMG 15M808-R025	◎	◎	15,88	8,15	10	0,8	5,16	25	29-36
	1123961	SNMG 55.12-R027	SNMG 15M808-R027	◎	◎	15,88	8,15	10	0,8	5,16	27	31-39
	1123962	SNMG 55.12-R030	SNMG 15M808-R030	◎	◎	15,88	8,15	10	0,8	5,16	30	35-44
SNMG  Finishing	1123963	SNMG 55.12-R035	SNMG 15M808-R035	◎	◎	15,88	8,15	10	0,8	5,16	35	40-51
	1123964	SNMG 55.12-R040	SNMG 15M808-R040	◎	◎	15,88	8,15	10	0,8	5,16	40	46-58
	1123965	SNMG 55.12-R045	SNMG 15M808-R045	◎	◎	15,88	8,15	10	0,8	5,16	45	52-65
	1123966	SNMG 55.12-R050	SNMG 15M808-R050	○	○	15,88	8,15	10	0,8	5,16	50	58-73
	1123967	SNMG 55.12-R060	SNMG 15M808-R060	◎	◎	15,88	8,15	10	0,8	5,16	60	69-87
	1123968	SNMG 65.13-R000	SNMG 19M808-R000	○	○	19,05	8,15	12	0,8	8,00	20	-
	1123969	SNMG 65.13-R010	SNMG 19M808-R010	○	○	19,05	8,15	12	0,8	8,00	10	12-15
	1123970	SNMG 65.13-R020	SNMG 19M808-R020	◎	◎	19,05	8,15	12	0,8	8,00	20	23-29
	1123971	SNMG 65.13-R030	SNMG 19M808-R030	◎	◎	19,05	8,15	12	0,8	8,00	30	35-44
	1123972	SNMG 65.13-R040	SNMG 19M808-R040	○	○	19,05	8,15	12	0,8	8,00	40	46-58
	1123973	SNMG 65.13-R050	SNMG 19M808-R050	○	○	19,05	8,15	12	0,8	8,00	50	58-73
	1123974	SNMG 65.13-R060	SNMG 19M808-R060	○	○	19,05	8,15	12	0,8	8,00	60	69-87
	1123975	SNMG 65.13-R070	SNMG 19M808-R070	○	○	19,05	8,15	12	0,8	8,00	70	80-95
	1123976	SNMG 65.13-R080	SNMG 19M808-R080	○	○	19,05	8,15	12	0,8	8,00	80	92-116
	1123977	SNMG 65.13-R090	SNMG 19M808-R090	○	○	19,05	8,15	12	0,8	8,00	90	104-131
	1123978	SNMG 65.13-R100	SNMG 19M808-R100	○	○	19,05	8,15	12	0,8	8,00	100	115-145

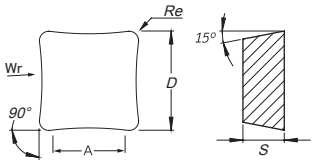
◎ First choice | 1ª Escolha | 1ª Opción ◎ Stock Itens | Itens de stock ○ Available under request | Disponível sob consulta | Disponible bajo consulta

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

Technical Data page C - 518

palbit PILOT Precision Products **Pilot Precision Products** | 15 Merrigan Way | South Deerfield, MA 01373

RELIEF ANGLE 15°



Inserts Pastilhas Plaquitas	(1) Geometry code	(2) Grade code ANSI Reference	ISO Reference	P CVD 9B PHY125	M CVD 9B PHY125	Dimensions (mm) Dimensões (mm) Dimensiones (mm) D	S	A	Re	d1	Wr	Tube Diameter (mm)
SDMX  Medium to Finishing	1124752	SDMX 250616-R000	SDMX 250616-R000	○	○	25,40	6,35	20	1,60	-	0	-
	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

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

Technical Data page C - 518



C - 452 | Top Clamp Toolholders (C)
C - 458 | Dimple Lock Toolholders (D)
C - 465 | Double Lock Toolholders (M)
C - 471 | Center Screw Toolholders (S)
C - 482 | External Threading Toolholders
C - 485 | PSC Toolholders

EXTERNAL TURNING

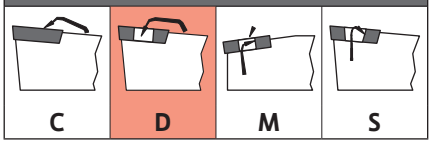
palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

CODE KEY FOR EXTERNAL TURNING TOOLHOLDERS

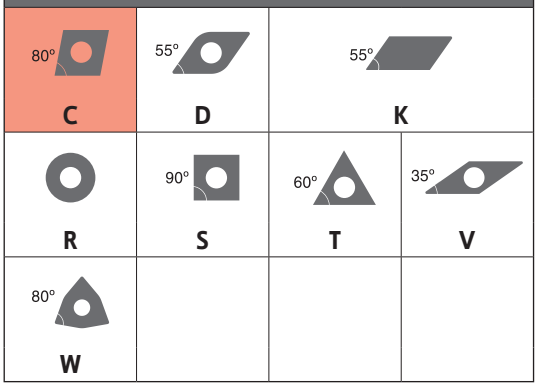
Sistema De Codificação Para Suportes De Torneamento Externo (ISO) | Codificación De Herramientas De Torneado Exterior (ISO)

D	C	L	N	R	.75	.75	M	.5
1	2	3	4	5	6	7	8	9

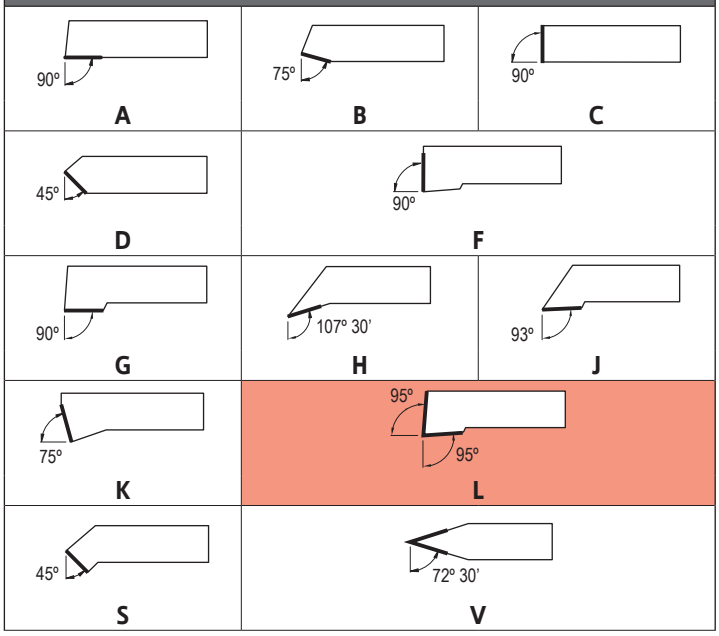
1 - Inserts Clamping System



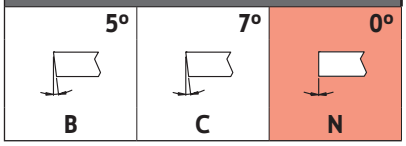
2 - Insert Shape



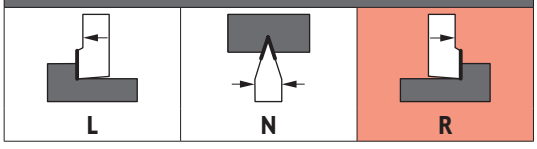
3 - Toolholder Leading Angle



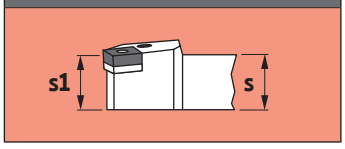
4 - Inserts Clearance Angle



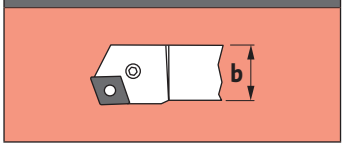
5 - Tool Hand



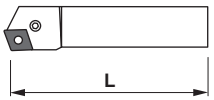
6 - Height of Shank (in)



7 - Width of Shank (in)

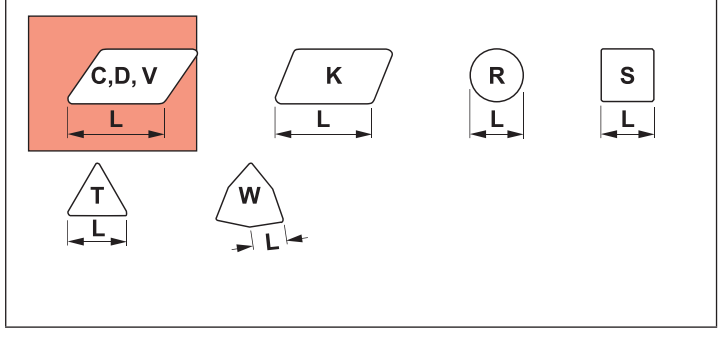


8 - Length of Holder (in)



D	2.5
G	3.5
H	4.0
I	4.5
K	5.0
X	Special

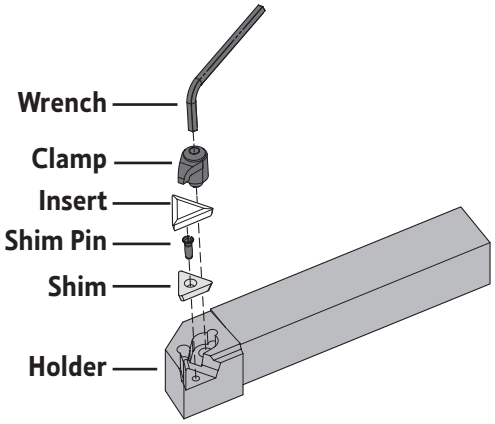
9 - Length of Inserts Cutting Edge (in)



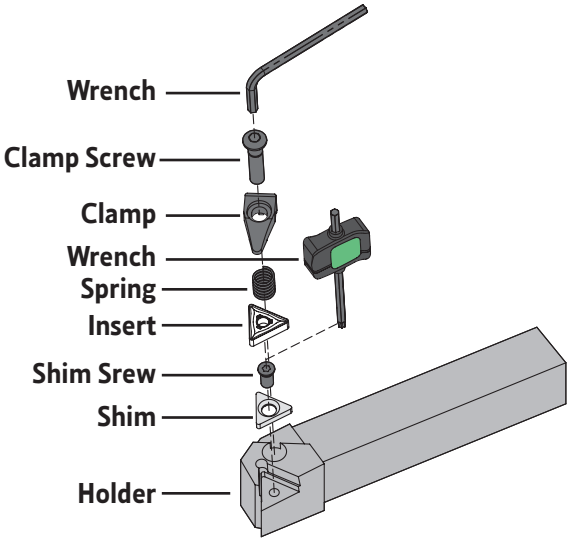
CLAMPING SYSTEMS FOR EXTERNAL TOOLHOLDERS

Sistemas De Fixação Para Ferramentas De Torneamento Externo | Sistemas De Fijación Para Herramientas De Torneado Exterior

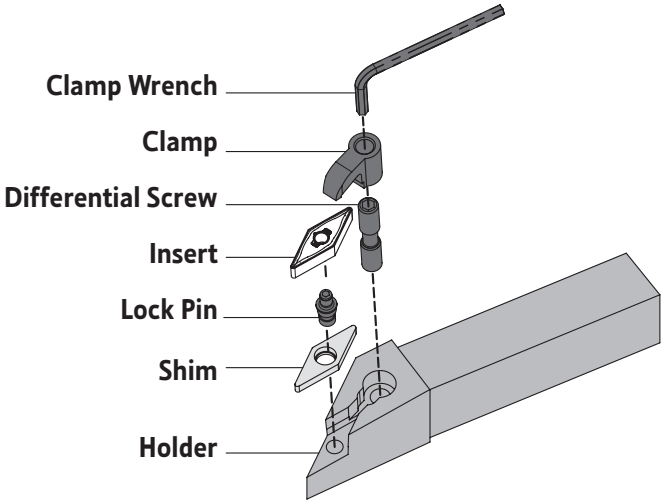
(C) TOP CLAMP SYSTEM



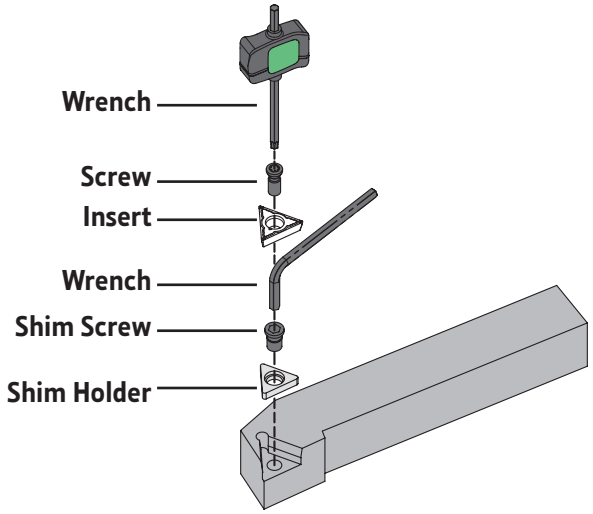
(D) DIMPLE LOCK SYSTEM



(M) DOUBLE LOCK SYSTEM



(S) CENTER SCREW SYSTEM



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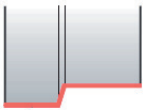
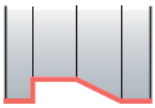
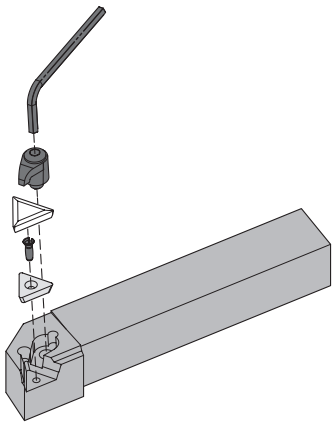
SUITABLE CLAMPING SYSTEM DEFINITION

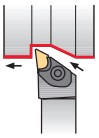
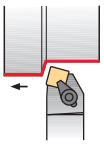
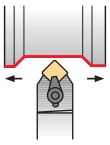
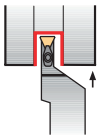
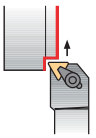
Definição do sistema de fixação | Definición del sistema de Fijación

External machining \ Operation		Longitudinal turning	Profiling	Facing	Plunging
					
Negative inserts	(C) TOP CLAMP SYSTEM	●	●	●	●
	(D) DIMPLE LOCK SYSTEM	●●	●●	●●	
	(M) DOUBLE LOCK SYSTEM	●	●	●	
Positive inserts	(C) TOP CLAMP SYSTEM	●	●	●	
	(S) CENTER SCREW SYSTEM	●	●	●	●

●● Recomended Insert Shape ● Alternative Insert Shape

(C) TOP CLAMP SYSTEM



CKJN 93°	CSBP 75°	CSDP 45°	CTCP 90°	CTFP 90°
				
PAGE C - 453 KNUX 1604...	PAGE C - 454 SP.. 0903.. SP.. 1203.. SP.. 1904..	PAGE C - 455 SP.. 0903.. SP.. 1203..	PAGE C - 456 TP.. 1103.. TP.. 1603.. TP.. 2204..	PAGE C - 457 TP.. 1103.. TP.. 1603.. TP.. 2204..

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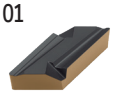
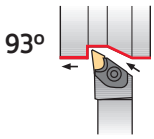
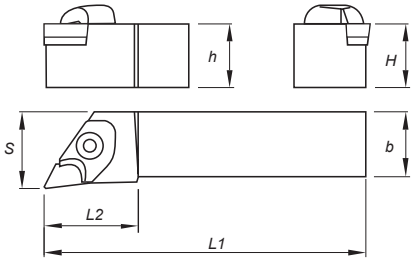
(C) TOP CLAMP TOOLHOLDERS

Finishing	Medium
01 	02 



Axial: 0°
Radial: -6°



Order Code		Reference	Dimensions (in)					Insert	Lbs
R	L		H=h	b	L1	L2	S		
2122683IN	2122680IN	CKJNR/L123B	0.75	0.75	5.00	1.34	1.00	KNUX1604..	0.86
2122684IN	2122681IN	CKJNR/L163D	1.00	1.00	6.00	1.34	1.25	KNUX1604..	1.54
2122686IN	2122682IN	CKJNR/L203E	1.25	1.25	7.00	1.34	1.50	KNUX1604..	2.20

SPARE PARTS | Complementos | Repuestos

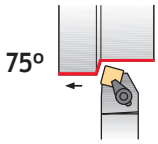
Order separately

Cutter Reference	Clamp 	Clamp Screw 	Wrench 	Spring 	Shim Pin Punch 	Shim 	Shim Pin 
CKJNR123B	GAW1400	DW142600	SS40	M09513	BF04813	CK160500	BE03000
CKJNR163D	GAW1400	DW142600	SS40	M09513	BF04815	CK160500	BE03000
CKJNR203E	GAW1400	DW142600	SS40	M09513	BF04815	CK160500	BE03000
CKJNL123B	GAW1401	DW142600	SS40	M09513	BF04813	CK160501	BE03000
CKJNL163D	GAW1401	DW142600	SS40	M09513	BF04815	CK160501	BE03000
CKJNL203E	GAW1401	DW142600	SS40	M09513	BF04815	CK160501	BE03000

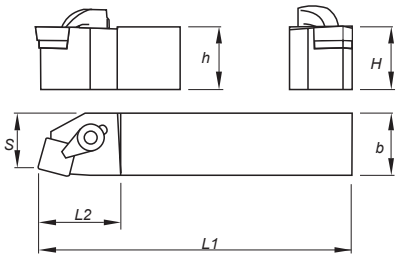
CSBP 75º | TOOLHOLDERS | Ferros de torno | Herramientas de torneado

(C) TOP CLAMP TOOLHOLDERS

Medium to Finishing	Finishing to Fine Finishing	Medium
Flat	12	13
		



Axial: 1,50º
Radial: 5,75º



Order Code		Reference	Dimensions (in)					Insert	Lbs
R	L		H=h	b	L1	L2	S		
2122694IN	2122688IN	CSBPR/L103	0.63	0.63	4.50	0.91	0.53	SP..32..	0.44
2122698IN	2122690IN	CSBPR/L123B	0.75	0.75	4.50	0.91	0.66	SP..32..	0.88
2122701IN	2122692IN	CSBPR/L124B	0.75	0.75	4.50	1.19	0.63	SP..42..	0.88
2122702IN	2122696IN	CSBPR/L164D	1.00	1.00	6.00	1.19	0.88	SP..42..	1.54

SPARE PARTS | Complementos | Repuestos

Complementary Accessories - Flat Inserts

Cutter Reference	Clamp	Shim Pin	Clamp	Shim	Shim Pin
					
CSBPR/L103	290092300	290093500	290091700	CS090300	BE02100
CSBPR/L123B	290092300	290093500	290091700	CS090300	BE02100
CSBPR/L124B	290092100	290093600	290091600	CS120300	BE02100
CSBPR/L164D	290092100	290093700	290091600	CS120300	BE02100

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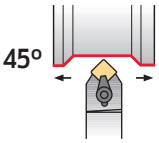
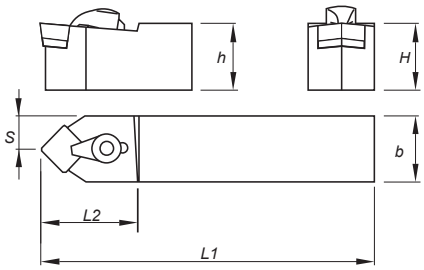
(C) TOP CLAMP TOOLHOLDERS

Medium to Finishing	Finishing to Fine Finishing	Medium
Flat	12	13
		



Axial: 4,25º
Radial: 4,25º



Order Code		Reference	Dimensions (in)					Insert	lbs
R	L		H=h	b	L1	L2	S		
2122704IN	2122704IN	CSDPN083	0.50	0.50	3.50	1.00	0.25	SP..32..	0.16
2120193IN	2120193IN	CSDPN103	0.63	0.63	4.50	1.00	0.31	SP..32..	0.44
2122707IN	2122707IN	CSDPN123B	0.75	0.75	4.50	1.00	0.38	SP..32..	0.88
2122709IN	2122709IN	CSDPN124B	0.75	0.75	4.50	1.31	0.38	SP..42..	0.88
2122700IN	2122700IN	CSDPN164D	1.00	1.00	6.00	1.31	0.50	SP..42..	1.54

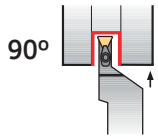
SPARE PARTS | Complementos | Repuestos

Complementary Accessories - Flat Inserts

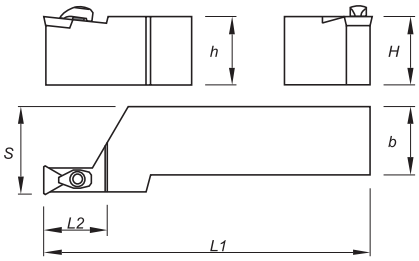
Cutter Reference	Clamp	Shim Pin	Wrench	Shim	Shim Pin
					
CSDPN083	290092400	290093400	290091700	CS090300	BE02100
CSDPN103	290092300	290093500	290091700	CS090300	BE02100
CSDPN123B	290092300	290093500	290091700	CS090300	BE02100
CSDPN124B	290092100	290093600	290091600	CS120300	BE02100
CSDPN164D	290092100	290093700	290091600	CS120300	BE02100

(C) TOP CLAMP TOOLHOLDERS

Medium to Finishing	Finishing to Fine Finishing	Medium
Flat	12	13
		



Axial: 6º
Radial: 0º



Order Code		Reference	Dimensions (in)					Insert	lbs
R	L		H=h	b	L1	L2	S		
2122725IN	2122717IN	CTCPR/L123B	0.75	0.75	4.50	1.13	1.00	TP..32..	0.88
2122721IN	2122723IN	CTCPR/L164D	1.00	1.00	6.00	1.38	1.25	TP..43..	1.54
2122727IN	2122719IN	CTCPR/L204D	1.25	1.25	6.00	1.38	1.50	TP..43..	2.76

SPARE PARTS ‖ Complementos | Repuestos

Order separately

Cutter Reference	Clamp	Shim Pin	Wrench	Shim	Shim Pin
					
CTCPR/L123B	290092200	290093600	290091600	CT160301	BE02100
CTCPR/L164D	GA5-1601 UNF	290093800	SS40	CT220301	BE03000
CTCPR/L204D	GA5-1601 UNF	290093800	SS40	CT220301	BE03000

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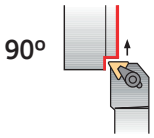
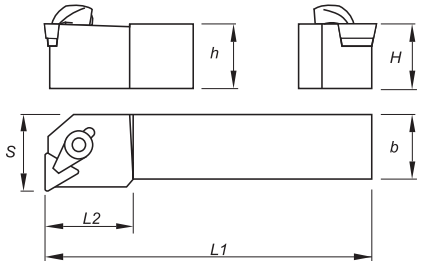
(C) TOP CLAMP TOOLHOLDERS

Medium to Finishing	Finishing to Fine Finishing	Medium
Flat	12	13
		



Axial: 6º
Radial: 0º



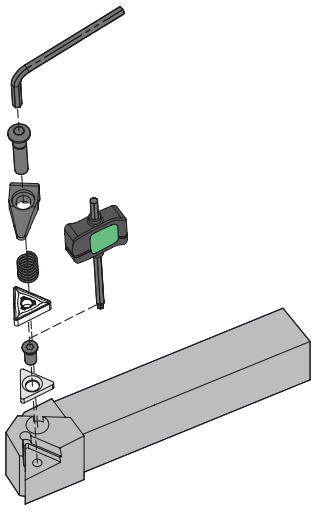
Order Code		Reference	Dimensions (in)					Insert	lbs
R	L		H=h	b	L1	L2	S		
2122720IN	2122722IN	CTFPR/L103	0.63	0.63	4.50	1.00	0.88	TP..32..	0.44
2122726IN	2122718IN	CTFPR/L123B	0.75	0.75	4.50	1.00	1.00	TP..32..	0.88
2122729IN	2122724IN	CTFPR/L163D	1.00	1.00	6.00	1.00	1.25	TP..32..	1.54

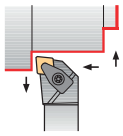
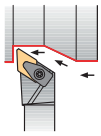
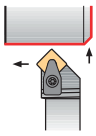
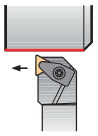
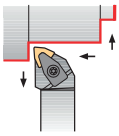
SPARE PARTS | Complementos | Repuestos

Complementary Accessories - Flat Inserts

Cutter Reference	Clamp	Shim Pin	Wrench	Shim	Shim Pin
					
CTFPR/L103	290092100	290093700	290091600	-	-
CTFPR/L123B	290092100	290093600	290091600	CT160301	BE02100
CTFPR/L163D	290092100	290093700	290091600	CT160301	BE02100

(D) DIMPLE LOCK SYSTEM



DCLN 95°	DDJN 93°	DSSN 45°	DTGN 90°	DWLN 95°
				
PAGE C - 459 CN.. 1204.. CN.. 1906..	PAGE C - 460 DN.. 1104.. DN.. 1506..	PAGE C - 462 SN.. 1204.. SN.. 1906..	PAGE C - 463 TN.. 1604.. TN.. 2204..	PAGE C - 464 WN.. 0604.. WN.. 0804..

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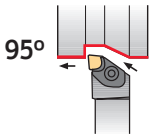
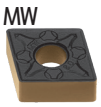
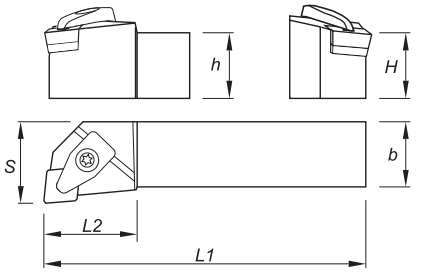
(D) DIMPLE LOCK TOOLHOLDERS



Axial: -6,5º
Radial: -6,5º

Roughing	Finishing	Medium to Finishing	Medium to Finishing	Medium	Medium	Medium	Roughing
Flat	MF	SF	LC	MS	MR	PM	GR
							
Medium	**Medium Wiper**	**Roughing to Medium**	**Roughing**	**Roughing**	**Heavy to Roughing**	**Heavy to Roughing**	
ST	MW	SS	HR	RP	HY	HZ	
							

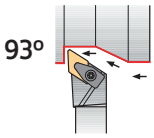


Order Code		Reference	Dimensions (in)					Insert	lbs
R	L		H=h	b	L1	L2	S		
2124290IN	2122756IN	DCLNR/L124BAN	0.75	0.75	4.50	1.25	1.00	CN..43..	0.88
2122758IN	2122466IN	DCLNR/L164DAN	1.00	1.00	6.00	1.25	1.25	CN..43..	1.54
2124230IN	2122492IN	DCLNR/L204DAN	1.25	1.25	6.00	1.25	1.50	CN..43..	2.76
2122762IN	2124293IN	DCLNR/L205DAN	1.25	1.25	6.00	1.38	1.50	CN..54..	2.76
2122494IN	2124286IN	DCLNR/L245EAN	1.50	1.50	7.00	1.38	2.00	CN..54..	6.62
2121680IN	2122761IN	DCLNR/L206DAN	1.25	1.25	6.00	1.65	1.50	CN..64..	2.76
2124229IN	2124288IN	DCLNR/L246EAN	1.50	1.50	7.00	1.65	2.00	CN..64..	6.62

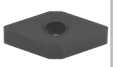
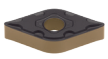
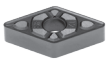
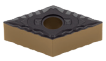
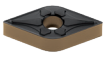
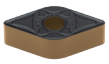
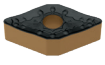
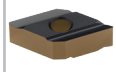
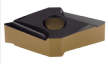
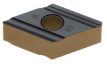
SPARE PARTS | Complementos | Repuestos

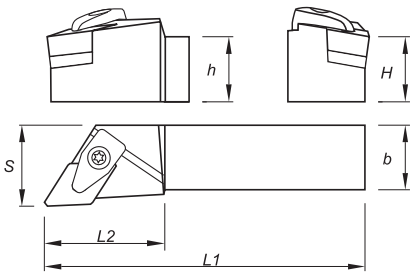
Cutter Reference	Shim	Shim Screw	Clamp	Clmap Screw	Spring	Wrench
						
DCLNR/L124BAN	CC120600	T06010000	GA07002	D0602900	M09513	SS40
DCLNR/L164DAN	CC120600	T06010000	GA07002	D0602900	M09513	SS40
DCLNR/L204DAN	CC120600	T06010000	GA07002	D0602900	M09513	SS40
DCLNR/L205DAN	CC160501	T0601575	GA07004	D0602900	M09513	SS40
DCLNR/L245EAN	CC160501	T0601575	GA07004	D0602900	M09513	SS40
DCLNR/L206DAN	CC190502	T06015000	GA07003	D0602900	M09513	SS40
DCLNR/L246EAN	CC190502	T06015000	GA07003	D0602900	M09513	SS40

(D) DIMPLE LOCK TOOLHOLDERS



Axial: -6,25º
Radial: -6,75º

Roughing	Finishing	Medium to Finishing	Medium to Finishing	Medium	Medium	Medium	Medium
Flat	MF	SF	LC	MS	MR	PM	ST
							
Medium Wiper	**Roughing to Medium**	**Roughing**	**Roughing to Medium**	**Medium to Finishing**	**Medium to Finishing**		
MW	SS	RP	01	02	03		
							



Order Code		Reference	Dimensions (in)					Insert	lbs
R	L		H=h	b	L1	L2	S		
1821400IN	2120659IN	DDJNR/L124BAN	0.75	0.75	4.50	1.54	1.00	DN..43..	0.88
1821000IN	2122193IN	DDJNR/L164DAN	1.00	1.00	6.00	1.54	1.25	DN..43..	1.54
2122764IN	2122763IN	DDJNR/L204DAN	1.25	1.25	6.00	1.54	1.50	DN..43..	2.76
2122765IN	1821200IN	DDJNR/L244EAN	1.50	1.50	7.00	1.54	2.00	DN..43..	6.62

SPARE PARTS | Complementos | Repuestos

Cutter Reference	Shim	Shim Screw	Clamp	Clamp Screw	Spring	Wrench
						
DDJNR/L124BAN	CD150600	T06010000	GA07002	D0602900	M09513	SS40
DDJNR/L164DAN	CD150600	T06010000	GA07002	D0602900	M09513	SS40
DDJNR/L204DAN	CD150600	T06010000	GA07002	D0602900	M09513	SS40
DDJNR/L244EAN	CD150600	T06010000	GA07002	D0602900	M09513	SS40

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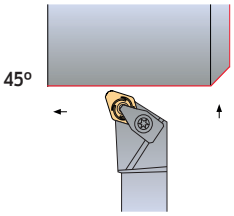
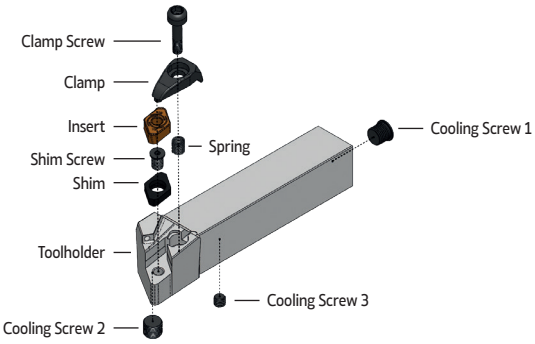
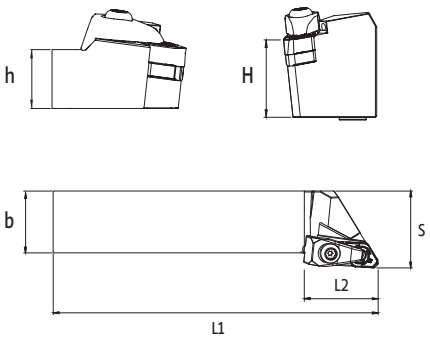
(D) DIMPLE LOCK TOOLHOLDERS

Roughing to Heavy Roughing	Roughing to Heavy Roughing
DOMX (L1)	DOMX (R1)
	
(15)	(15)



Axial: -6,25°
Radial: -6,75°





Order Code		Reference	Dimensions (in)					Insert	lbs
R	L		H=h	b	L1	L2	S		
182020400	182020700	DDJN R/L 124 BAN-DX1	0.750	0.750	4.500	1.535	1.000	DOMX 1506..	0.88
182020500	182020800	DDJN R/L 164 DAN-DX1	1.000	1.000	6.000	1.535	1.250	DOMX 1506..	1.54
182020600	182020900	DDJN R/L 204 DAN-DX1	1.250	1.250	6.000	1.535	1.500	DOMX 1506..	2.76

A = DDJN-DX1 45° | TOOLHOLDERS

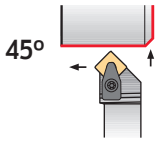
METRIC LINE

Order Code		Reference	Dimensions (mm)					Insert	Kg
R	L		H=h	b	L1	L2	S		
182000900	182001200	DDJN R/L 2020 K15-A-DX1	20	20	125	42	25	DOMX 1506..	0,40
182001000	182001300	DDJN R/L 2525 M15-A-DX1	25	25	150	42	32	DOMX 1506..	0,75
182001100	182001400	DDJN R/L 3232 P15-A-DX1	32	32	170	42	40	DOMX 1506..	1,30

SPARE PARTS | Complementos | Repuestos

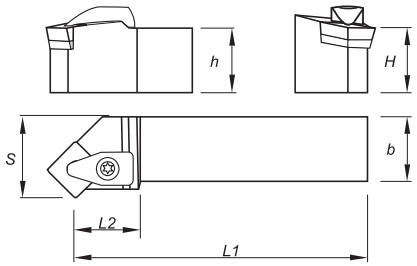
Cutter Reference	Shim R	Shim L	Shim Screw	Spring	Clamp	Clamp Screw	Wrench	Coolant Screw 1	Coolant Screw 2	Coolant Screw 3
										
DDJN R/L 2020 K15-A-DX1	CD150503	CD150502	T06010000	M09513	GA07002	D0602900	SS40	H0600475	H1000875	T1000875
DDJN R/L 2525 M15-A-DX1	CD150503	CD150502	T06010000	M09513	GA07002	D0602900	SS40	H0600475	H1000875	T1000875
DDJN R/L 3232 P15-A-DX1	CD150503	CD150502	T06010000	M09513	GA07002	D0602900	SS40	-	H1000875	-
Spare Part Order Code	116021723	116021623	290082400	290054100	290082100	290082900	290021200	290085800	290085900	290086000

(D) DIMPLE LOCK TOOLHOLDERS



Axial: -5,75º
Radial: -5,75º

Roughing	Finishing	Medium	Medium	Medium
Flat	MF	SF	MR	ST
				
Roughing to Medium	**Roughing**	**Roughing**	**Heavy to Roughing**	**Medium**
SS	HR	RP	HY	GS
				



Order Code		Reference	Dimensions (in)					Insert	lbs
R	L		H=h	b	L1	L2	S		
2122775IN	2122774IN	DSSNR/L124BN	0.75	0.75	4.50	1.46	1.00	SNM..43..	0.80
2122777IN	2122776IN	DSSNR/L164DN	1.00	1.00	6.00	1.46	1.25	SNM..43..	1.55
2124309IN	2122778IN	DSSNR/L204DN	1.25	1.25	6.00	1.46	1.50	SNM..43..	2.20
2124311IN	2122772IN	DSSNR/L206DN	1.25	1.25	6.00	1.77	1.50	SNM..64..	2.85
2124308IN	2122195IN	DSSNR/L246EN	1.50	1.50	7.00	1.77	2.00	SNM..64..	6.80

SPARE PARTS | Complementos | Repuestos

Cutter Reference	Shim	Clamp Screw	Clamp	Clamp Screw	Spring	Wrench
						
DSSNR/L124BN	CS120600	T06010000	GA07002	D0602900	M09513	SS40
DSSNR/L164DN	CS120600	T06010000	GA07002	D0602900	M09513	SS40
DSSNR/L204DN	CS120600	T06010000	GA07002	D0602900	M09513	SS40
DSSNR/L206DN	CS190501	T06015000	GA07003	D0602900	M09513	SS40
DSSNR/L246EN	CS190501	T06015000	GA07003	D0602900	M09513	SS40

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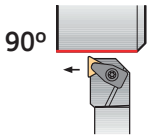
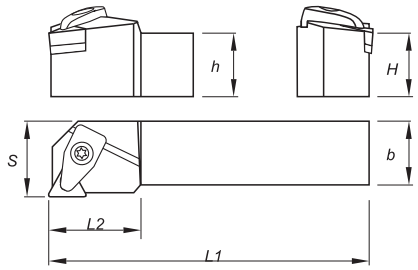
(D) DIMPLE LOCK TOOLHOLDERS



Axial: -6º
Radial: -6º

Roughing	Finishing	Medium to Finishing	Medium to Finishing	Medium	Medium
Flat	MF	SF	LC	MS	MR
					
Medium	**Medium**	**Roughing to Medium**	**Medium to Finishing**	**Medium Wiper**	
PM	ST	SS	01	MW	
					



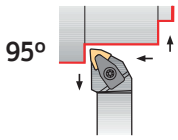
Order Code		Reference	Dimensions (in)					Insert	lbs
R	L		H=h	b	L1	L2	S		
2124320IN	2124310IN	DTGNR/L123BN	0.75	0.75	4.50	1.10	1.00	TNM..33..	0.90
2124322IN	2124321IN	DTGNR/L163DN	1.00	1.00	6.00	1.10	1.25	TNM..33..	1.65
2124324IN	2124323IN	DTGNR/L164DN	1.00	1.00	6.00	1.34	1.25	TNM..43..	1.65
2124252IN	2124325IN	DTGNR/L204DN	1.25	1.25	6.00	1.34	1.50	TNM..43..	2.90

SPARE PARTS | Complementos | Repuestos

Cutter Reference	Shim	Shim Screw	Clamp	Clamp Screw	Spring	Wrench
						
DTGNR/L123BN	CT160600	T05008000	GA05001	D0500801	M06511	SS40
DTGNR/L163DN	CT160600	T05008000	GA05001	D0500801	M06511	SS40
DTGNR/L164DN	CT220500	T06010000	GA07002	D0602900	M09513	SS40
DTGNR/L204DN	CT220500	T06010000	GA07002	D0602900	M09513	SS40

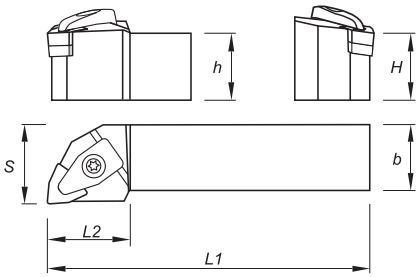
DWLN 95º | TOOLHOLDERS | Ferros de torno | Herramientas de torneado

(D) DIMPLE LOCK TOOLHOLDERS



Axial: -6º
Radial: -6º

Roughing	Finishing	Medium to Finishing	Medium to Finishing	Medium to Finishing	Medium
Flat	MF	SF	LC	MS	PM
					
Medium	**Medium**	**Medium Wiper**	**Roughing to Medium**		
MR	ST	MW	SS		
					



Order Code		Reference	Dimensions (in)					Insert	lbs
R	L		H=h	b	L1	L2	S		
2123220IN	2123181IN	DWLNR/L124BN	0.75	0.75	4.50	1.25	1.00	WNMG43..	0.88
2123262IN	2123213IN	DWLNR/L164DN	1.00	1.00	6.00	1.25	1.25	WNMG43..	1.54
2123184IN	2123261IN	DWLNR/L204DN	1.25	1.25	6.00	1.25	1.50	WNMG43..	2.76
2123222IN	2123174IN	DWLNR/L244EN	1.50	1.50	7.00	1.25	2.00	WNMG43..	6.62

SPARE PARTS | Complementos | Repuestos

Cutter Reference	Shim	Shim Screw	Clamp	Clamp Screw	Spring	Wrench
						
DWLNR/L124BN	CW080500	T06010000	GA07002	D0602900	M09513	SS40
DWLNR/L164DN	CW080500	T06010000	GA07002	D0602900	M09513	SS40
DWLNR/L204DN	CW080500	T06010000	GA07002	D0602900	M09513	SS40
DWLNR/L244EN	CW080500	T06010000	GA07002	D0602900	M09513	SS40

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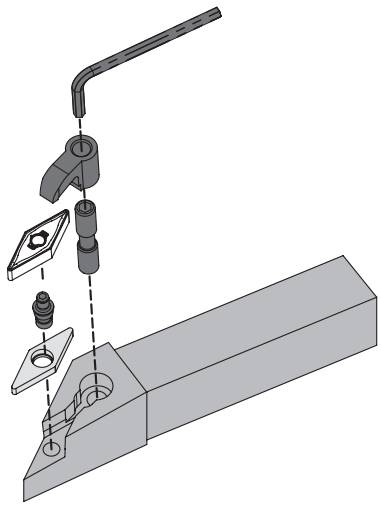
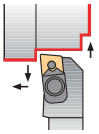
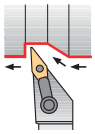
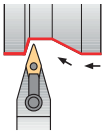
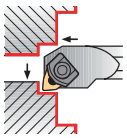
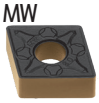
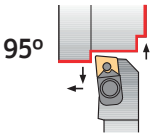
(M) DOUBLE LOCK SYSTEM



MCLN 95°	MDJN 93°	MVJN 93°	MVVN 72°30'	MWLN 95°
				
PAGE C - 466 CN.. 1204.. CN.. 1906..	PAGE C - 467 WN.. 0604.. WN.. 0804..	PAGE C - 468 VN.. 1604..	PAGE C - 469 VN.. 1604..	PAGE C - 470 WN.. 0804..

(M) DOUBLE LOCK SYSTEM

Roughing	Finishing	Medium to Finishing	Medium to Finishing	Medium	Medium	Medium	Roughing
Flat	MF	SF	LC	MS	MR	PM	GR
							
Medium	**Medium Wiper**	**Roughing to Medium**	**Roughing**	**Roughing**	**Heavy to Roughing**	**Heavy to Roughing**	
ST	MW	SS	HR	RP	HY	HZ	
							



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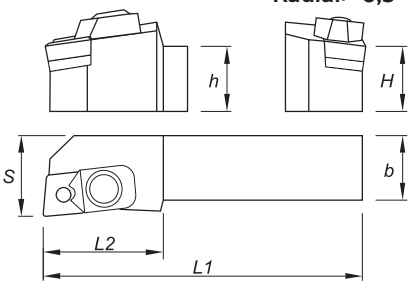
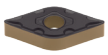
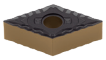
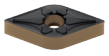


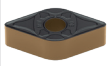
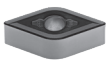
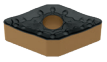
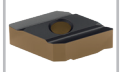
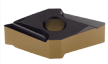
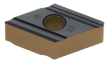
Order Code		Reference	Dimensions (in)					Insert	lbs
R	L		H=h	b	L1	L2	S		
2122818IN	2122808IN	MCLNR/L124B	0.75	0.75	4.50	1.13	1.00	CN..43..	0.88
2122821IN	2121697IN	MCLNR/L164D	1.00	1.00	6.00	1.13	1.25	CN..43..	1.54
2122894IN	2122817IN	MCLNR/L204D	1.25	1.25	6.00	1.13	1.50	CN..43..	2.76
2122832IN	2121688IN	MCLNR/L854D	1.25	1.00	6.00	1.13	1.25	CN..43..	2.20
2122824IN	2122814IN	MCLNR/L165D	1.00	1.00	6.00	1.47	1.25	CN..54..	1.54
2120477IN	2122820IN	MCLNR/L205D	1.25	1.25	6.00	1.47	1.50	CN..54..	2.76
2122830IN	2122826IN	MCLNR/L245D	1.50	1.50	6.00	1.47	2.00	CN..54..	6.62
2122827IN	2122812IN	MCLNR/L166D	1.00	1.00	6.00	1.51	1.25	CN..64..	1.54
2122895IN	2122823IN	MCLNR/L206D	1.25	1.25	6.00	1.51	1.50	CN..64..	2.76
2122896IN	2122806IN	MCLNR/L246D	1.50	1.50	6.00	1.51	2.00	CN..64..	6.62
2122828IN	2120548IN	MCLNR/L246E	1.50	1.50	7.00	1.50	2.00	CN..64..	6.62
2122898IN	2122810IN	MCLNR/L856D	1.25	1.00	6.00	1.51	1.25	CN..64..	2.20
2122834IN	2122815IN	MCLNR/L866E	1.50	1.00	7.00	1.51	1.25	CN..64..	3.10

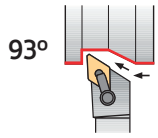
SPARE PARTS | Complementos | Repuestos

Cutter Reference	Clamp	Shim Pin	Wrench	Shim	Shim Pin	Wrench
						
MCLNR/L124B	290092100	290093700	290091600	CC120500	BS1-4 28 UN	290091700
MCLNR/L164D	290092100	290093700	290091600	CC120500	BS1-4 28 UN	290091700
MCLNR/L204D	290092100	290093700	290091600	CC120500	BS1-4 28 UN	290091700
MCLNR/L854D	290092100	290093700	290091600	CC120500	BS1-4 28 UN	290091700
MCLNR/L165D	GA5-1601 UNF	290093800	SS40	CC160501	290093100	290091600
MCLNR/L205D	GA5-1601 UNF	290093800	SS40	CC160501	290093100	290091600
MCLNR/L245D	GA5-1601 UNF	290093800	SS40	CC160501	290093100	290091600
MCLNR/L166D	GA5-1601 UNF	290093800	SS40	CC190502	290093200	290091800
MCLNR/L206D	GA5-1601 UNF	290093800	SS40	CC190502	290093200	290091800
MCLNR/L246D	GA5-1601 UNF	290093800	SS40	CC190502	290093200	290091800
MCLNR/L246E	GA5-1601 UNF	290093800	SS40	CC190502	290093200	290091800
MCLNR/L856D	GA5-1601 UNF	290093800	SS40	CC190502	290093200	290091800
MCLNR/L866E	GA5-1601 UNF	290093800	SS40	CC190502	290093200	290091800

(M) DOUBLE LOCK SYSTEM

Roughing	Finishing	Medium to Finishing	Medium to Finishing	Medium	Medium	Medium	Medium
Flat	MF	SF	LC	MS	MR	PM	ST
							

Medium Wiper	Roughing to Medium	Roughing	Roughing to Medium	Medium to Finishing	Medium to Finishing
MW	SS	RP	01	02	03
					



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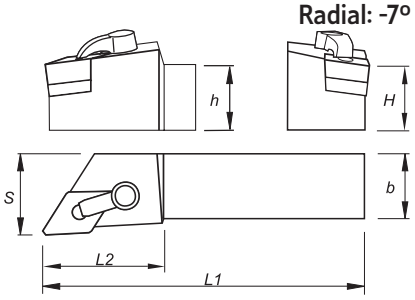
Radial: -7º

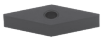
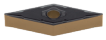
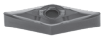
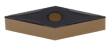
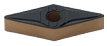
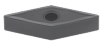


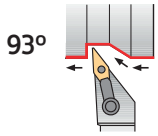
Order Code		Reference	Dimensions (in)					Insert	lbs
R	L		H=h	b	L1	L2	S		
2122847IN	2122844IN	MDJNR/L083A	0.50	0.50	4.00	1.06	0.63	DN..33..	0.16
2122849IN	2122842IN	MDJNR/L103B	0.63	0.63	4.50	1.25	0.88	DN..33..	0.44
2122851IN	2122846IN	MDJNR/L124B	0.75	0.75	4.50	1.50	1.00	DN..43..	0.88
2122873IN	2122848IN	MDJNR/L164D	1.00	1.00	6.00	1.50	1.25	DN..43..	1.54
2122877IN	2122852IN	MDJNR/L204D	1.25	1.25	6.00	1.50	1.50	DN..43..	2.76
2122874IN	2122840IN	MDJNR/L244D	1.50	1.50	6.00	1.50	2.00	DN..43..	6.62
2122825IN	2122841IN	MDJNR/L854D	1.25	1.00	6.00	1.50	1.25	DN..43..	2.20
2122875IN	2122850IN	MDJNR/L165D	1.00	1.00	6.00	1.44	1.25	DN..54..	1.54
2122872IN	2122838IN	MDJNR/L205D	1.25	1.25	6.00	1.44	1.50	DN..54..	2.76
2122876IN	2122843IN	MDJNR/L245D	1.50	1.50	6.00	1.44	2.00	DN..54..	6.62
2122908IN	2122845IN	MDJNR/L855D	1.25	1.00	6.00	1.44	1.25	DN..54..	2.20

SPARE PARTS | Complementos | Repuestos

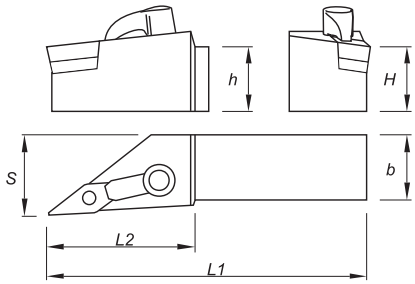
Cutter Reference	Clamp 	Lock Pin 	Lock Pin Wrench 	Clamp 	Shim Pin 	Clamp Wrench 
MDJNR/L083A	290092400	290093500	290091700	-	290093000	290091500
MDJNR/L103B	290092400	290093500	290091700	-	290093000	290091500
MDJNR/L124B	290092100	290093700	290091600	CD150501	BS1-4 28 UN	290091700
MDJNR/L164D	290092100	290093700	290091600	CD150501	BS1-4 28 UN	290091700
MDJNR/L204D	290092100	290093700	290091600	CD150501	BS1-4 28 UN	290091700
MDJNR/L244D	290092100	290093700	290091600	CD150501	BS1-4 28 UN	290091700
MDJNR/L854D	290092100	290093700	290091600	CD150501	BS1-4 28 UN	290091700
MDJNR/L165D	GA5-1601 UNF	290093800	SS40	290092500	290093100	290091600
MDJNR/L205D	GA5-1601 UNF	290093800	SS40	290092500	290093100	290091600
MDJNR/L245D	GA5-1601 UNF	290093800	SS40	290092500	290093100	290091600
MDJNR/L855D	GA5-1601 UNF	290093800	SS40	290092500	290093100	290091600

(M) DOUBLE LOCK SYSTEM

Roughing	Medium to Finishing	Medium to Finishing	Medium to Finishing
Flat	MF	SF	MS
			
Medium	**Medium**	**Medium**	**Medium**
MR	PM	ST	GS
			



Axial: -6°
Radial: -6°



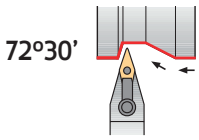
Order Code		Reference	Dimensions (in)					Insert	lbs
R	L		H=h	b	L1	L2	S		
2122890IN	2120577IN	MVJNR/L123B	0.75	0.75	4.50	1.62	1.00	VN..33..	0.88
2122885IN	2122882IN	MVJNR/L163D	1.00	1.00	6.00	1.62	1.25	VN..33..	1.54
2122889IN	2120501IN	MVJNR/L203D	1.25	1.25	6.00	1.62	1.50	VN..33..	2.76
2122887IN	2122884IN	MVJNR/L164D	1.00	1.00	6.00	1.88	1.25	VN..43..	1.54
2122891IN	2122461IN	MVJNR/L204D	1.25	1.25	6.00	1.88	1.50	VN..43..	2.76
2122892IN	2122883IN	MVJNR/L244E	1.50	1.50	7.00	1.88	2.00	VN..43..	6.62
2122886IN	2122804IN	MVJNR/L854D	1.25	1.00	6.00	1.88	1.25	VN..43..	2.20
2122855IN	2122888IN	MVJNR/L864D	1.50	1.00	6.00	1.88	1.25	VN..43..	3.10

SPARE PARTS | Complementos | Repuestos

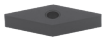
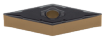
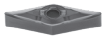
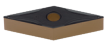
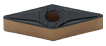
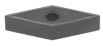
Cutter Reference	Clamp	Shim Pin	Wrench	Shim	Shim Pin	Wrench
						
MVJNR/L123B	290092200	290093700	290091600	CV160301	BS10-32 UNF	290091500
MVJNR/L163D	290092200	290093700	290091600	CV160301	BS10-32 UNF	290091500
MVJNR/L203D	290092200	290093700	290091600	CV160301	BS10-32 UNF	290091500
MVJNR/L164D	GA5-1601	290093800	SS40	290092800	BS1-4 28 UN	290091700
MVJNR/L204D	GA5-1601	290093800	SS40	290092800	BS1-4 28 UN	290091700
MVJNR/L244E	GA5-1601	290093800	SS40	290092800	BS1-4 28 UN	290091700
MVJNR/L854D	GA5-1601	290093800	SS40	290092800	BS1-4 28 UN	290091700
MVJNR/L864D	GA5-1601	290093800	SS40	290092800	BS1-4 28 UN	290091700

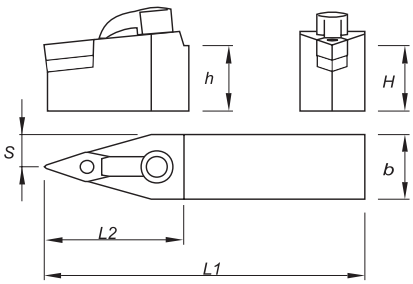
palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

(M) DOUBLE LOCK SYSTEM



Axial: 6°
Radial: 0°

Roughing	Medium to Finishing	Medium to Finishing	Medium to Finishing
Flat	MF	SF	MS
			
Medium	**Medium**	**Medium**	**Medium**
MR	PM	ST	GS
			



Order Code	Reference	Dimensions (in)					Insert	lbs
		H=h	b	L1	L2	S		
2122858IN	MVVNN123B	0.75	0.75	4.50	1.62	-	VN..33..	0.88
2122906IN	MVVNN163D	1.00	1.00	6.00	1.62	-	VN..33..	1.54
2120424IN	MVVNN203D	1.25	1.25	6.00	1.62	-	VN..33..	2.76
2122860IN	MVVNN243E	1.50	1.50	7.00	1.62	-	VN..33..	6.62
2122857IN	MVVNN164D	1.00	1.00	6.00	2.06	-	VN..43..	1.54
2122907IN	MVVNN204D	1.25	1.25	6.00	2.06	-	VN..43..	2.76
2122861IN	MVVNN244E	1.50	1.50	7.00	2.06	-	VN..43..	6.62

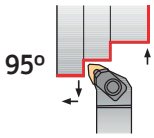
SPARE PARTS | Complementos | Repuestos

Cutter Reference	Clamp	Shim Pin	Wrench	Shim	Shim Pin	Wrench
						
MVVNN123B	290092200	290093700	290091600	CV160301	BS10-32 UNF	290091500
MVVNN163D	290092200	290093700	290091600	CV160301	BS10-32 UNF	290091500
MVVNN203D	290092200	290093700	290091600	CV160301	BS10-32 UNF	290091500
MVVNN243E	290092200	290093700	290091600	CV160301	BS10-32 UNF	290091500
MVVNN164D	GA5-1601	290093800	SS40	290092800	BS1-4 28 UN	290091700
MVVNN204D	GA5-1601	290093800	SS40	290092800	BS1-4 28 UN	290091700
MVVNN244E	GA5-1601	290093800	SS40	290092800	BS1-4 28 UN	290091700

MWLN 95º | TOOLHOLDERS | Ferros de torno | Herramientas de torneado

(M) DOUBLE LOCK SYSTEM

Roughing	Finishing	Medium to Finishing	Medium to Finishing	Medium to Finishing	Medium
Flat	MF	SF	LC	MS	PM
					
Medium	**Medium**	**Medium Wiper**	**Roughing to Medium**		
MR	ST	MW	SS		
					



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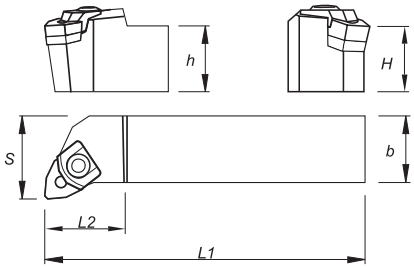
Radial: -6,5º



Order Code		Reference	Dimensions (in)					Insert	lbs
R	L		H=h	b	L1	L2	S		
2122856IN	2122868IN	MWLNR/L 123B	0.750	0.750	4.50	1.000	1.000	WNMG33..	0.880
212054IN0	2122909IN	MWLNR/L 163D	1.000	1.000	6.00	1.000	1.250	WNMG33..	1.540
2122502IN	2122853IN	MWLNR/L 124B	0.750	0.750	4.50	1.070	1.000	WNMG43..	0.880
2122859IN	2120482IN	MWLNR/L 164D	1.000	1.000	6.00	1.070	1.250	WNMG43..	1.540
2120108IN	2122462IN	MWLNR/L204D	1.250	1.250	6.00	1.070	1.500	WNMG43..	2.755
2122904IN	2122905IN	MWLNR/L244E	1.500	1.500	7.00	1.070	2.000	WNMG43..	6.615

SPARE PARTS | Complementos | Repuestos

Cutter Reference	Clamp	Shim Pin	Wrench	Shim	Shim Pin	Wrench
						
MWLNR/L 123B	290092300	290093500	290091700	CW060302	BS10-32 UNF	290091500
MWLNR/L 163D	290092300	290093500	290091700	CW060302	BS10-32 UNF	290091500
MWLNR/L 124B	290092100	290093700	290091600	CW080500	BS1-4 28 UN	290091700
MWLNR/L 164D	290092100	290093700	290091600	CW080500	BS1-4 28 UN	290091700
MWLNR/L204D	290092100	290093700	290091600	CW080500	BS1-4 28 UN	290091700
MWLNR/L244E	290092100	290093700	290091600	CW080500	BS1-4 28 UN	290091700

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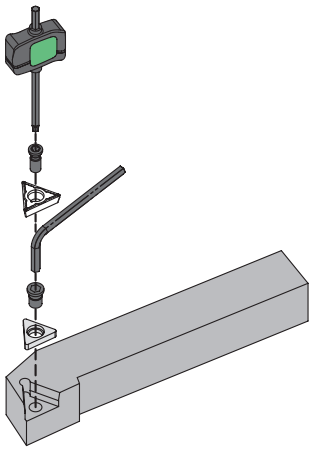
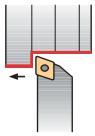
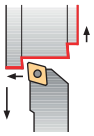
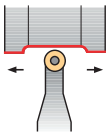
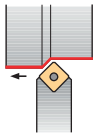
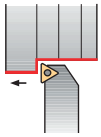
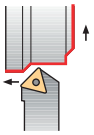
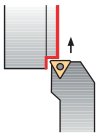
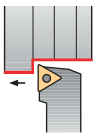
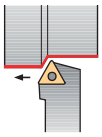
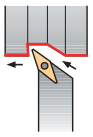
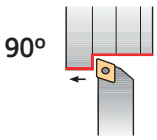
(S) CENTER SCREW SYSTEM



SCAC 90°	**SCLC 95°**	**SRDC**	**SSDC 45°**	**STAC 90°**	**STDC 45°**
					
PAGE C - 472 CC.. 0602.. CC.. 09T3.. CC.. 1204..	PAGE C - 473 CC.. 0602.. CC.. 09T3.. CC.. 1204..	PAGE C - 474 RC.. 0602M0.. ... RC.. 1204M0..	PAGE C - 475 SC.. 09T3.. SC.. 1204..	PAGE C - 476 TC.. 0902.. TC.. 1102.. TC.. 16T3..	PAGE C - 477 TC.. 0902.. TC.. 1102.. TC.. 16T3..
STFC 90°	**STGC 90°**	**STTC 60°**	**SVHC 107°30'**		
					
PAGE C - 478 TC.. 0902.. TC.. 1102.. TC.. 16T3..	PAGE C - 479 TC.. 0902.. TC.. 1102.. TC.. 16T3..	PAGE C - 480 TC.. 0902.. TC.. 1102.. TC.. 16T3..	PAGE C - 481 VC.. 1604..		

(S) CENTER SCREW TOOLHOLDERS



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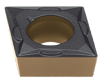
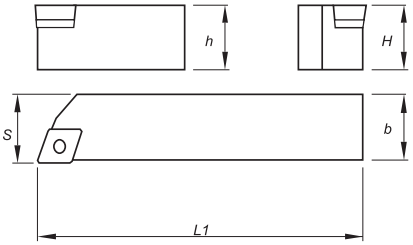
Radial: 0º

Finishing	Finishing	Finishing	Finishing	Finishing	Medium to Finishing
Flat	FP	BO	FM	FK	LM
					
Medium	**Medium**	**Medium**	**Medium to Finishing wiper**	**Finishing to Fine finishing**	**Medium to Finishing**
MP	MM	MK	MW	FS	LN
					



Order Code		Reference	Dimensions (in)					Insert	lbs
R	L		H=h	b	L1	L2	S		
2121404IN	2122522IN	SCACR/L4.5D	0.28	0.28	6.00	0.44	0.28	CC..21.5..	0.13
2121400IN	2121396IN	SCACR/L052D	0.31	0.31	6.00	0.44	0.31	CC..21.5..	0.15
2122520IN	2122516IN	SCACR/L062D	0.38	0.38	6.00	0.44	0.38	CC..21.5..	0.24
2122524IN	2121398IN	SCACR/L083D	0.50	0.50	6.00	0.50	0.50	CC..32.5..	0.33
2121402IN	2122518IN	SCACR/L103D	0.63	0.63	6.00	0.63	0.63	CC..32.5..	0.62

SPARE PARTS | Complementos | Repuestos

Cutter Reference	Clamp Screw	Wrench
		
SCACR/L4.5D	P0250700	XT07
SCACR/L052D	P0250700	XT07
SCACR/L062D	P0250700	XT07
SCACR/L083D	P0401100	XT15-S35
SCACR/L103D	P0401100	XT15-S35

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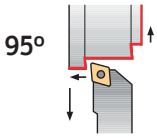
(S) CENTER SCREW TOOLHOLDERS



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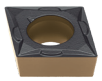
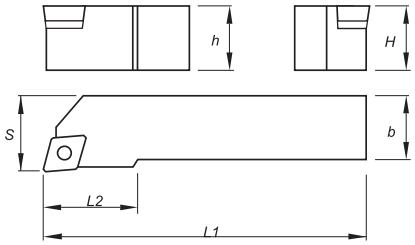
Radial: 0°

Finishing	Finishing	Finishing	Finishing	Finishing	Medium to Finishing
Flat	FP	BO	FM	FK	LM
					
Medium	**Medium**	**Medium**	**Medium to Finishing wiper**	**Finishing to Fine finishing**	**Medium to Finishing**
MP	MM	MK	MW	FS	LN
					



Order Code		Reference	Dimensions (in)					Insert	lbs
R	L		H=h	b	L1	L2	S		
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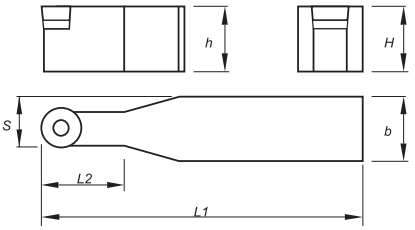
2120454IN	2121407IN	SCLCR/L083	0.50	0.50	3.50	0.63	0.63	CC..32.5..	0.16
2122534IN	2121406IN	SCLCR/L103	0.63	0.63	4.00	0.71	0.75	CC..32.5..	0.44
2121410IN	2122526IN	SCLCR/L123B	0.75	0.75	4.50	0.87	1.00	CC..32.5..	0.88
2122504IN	2122528IN	SCLCR/L163D	1.00	1.00	6.00	0.63	1.25	CC..32.5..	1.54
2122532IN	2121408IN	SCLCR/L124B	0.75	0.75	4.50	1.00	1.00	CC..43..	0.88
2121411IN	2121409IN	SCLCR/L164D	1.00	1.00	6.00	1.00	1.25	CC..43..	1.54
2121412IN	2122530IN	SCLCR/L204D	1.25	1.25	6.00	1.00	1.50	CC..43..	2.76

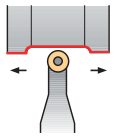
SPARE PARTS || Complementos | Repuestos

Cutter Reference	Clamp Screw 	Wrench 	Shim 	Clamp Screw 
SCLCR/L062	P0250700	XT07	-	-
SCLCR/L083	P0401100	XT15-S35	-	-
SCLCR/L103	P0401100	XT15-S35	-	-
SCLCR/L123B	P0401100	XT15-S35	-	-
SCLCR/L163D	P0401100	XT15-S35	-	-
SCLCR/L124B	P0401400	290092000	CC120401	T06004000
SCLCR/L164D	P0401400	290092000	CC120401	T06004000
SCLCR/L204D	P0401400	290092000	CC120401	T06004000

(S) CENTER SCREW TOOLHOLDERS

Medium	Roughing to Medium	Roughing to Medium	Finishing to Fine Finishing	Medium
CP	..MT-ST	..MX-ST	LN	GS
				





Axial: 0°
Radial: 0°

Order Code	Reference	Dimensions (in)					Insert	lbs
		H=h	b	L1	L2	S		
2121485IN	SRDCN082	0.50	0.50	3.50	0.50	0.41	RC..0803M0	0.16
2121486IN	SRDCN103	0.63	0.63	4.00	0.63	0.51	RC..10T3M0	0.44
2120587IN	SRDCN123B	0.75	0.75	4.50	1.00	0.57	RC..10T3M0	0.88
2121487IN	SRDCN164D	1.00	1.00	6.00	1.00	0.74	RC..1204M0	1.54
2120534IN	SRDCN204D	1.25	1.25	6.00	1.00	0.86	RC..1204M0	2.76

SPARE PARTS | Complementos | Repuestos

Cutter Reference	Clamp Screw	Wrench	Shim	Clamp Screw
				
SRDCN082	P0300900	XT08	-	-
SRDCN103	P0351500	290091900	CR100301	T05003500
SRDCN123B	P0351500	290091900	CR100301	T05003500
SRDCN164D	P0351500	290091900	CR120301	T05003500
SRDCN204D	P0351500	290091900	CR120301	T05003500

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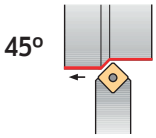
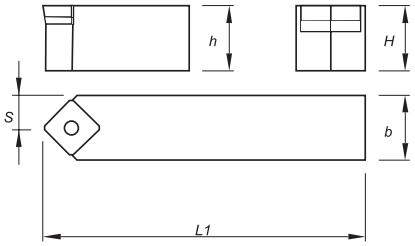
(S) CENTER SCREW TOOLHOLDERS



Axial: 0º
Radial: 0º

Finishing	Finishing	Finishing	Finishing
Flat	FP	FM	FK
			
Medium	**Medium**	**Medium to Finishing**	
MP	MK	LN	
			

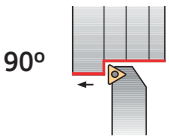


Order Code	Reference	Dimensions (in)				Insert	Lbs
		H=h	b	L1	S		
2120244IN	SSDCN083	0.50	0.50	3.50	0.26	SC..32.5..	0.16
2120495IN	SSDCN103	0.63	0.63	4.00	0.33	SC..32.5..	0.44
2122599IN	SSDCN124B	0.75	0.75	4.50	0.39	SC..43..	0.88

SPARE PARTS | Complementos | Repuestos

Cutter Reference	Shim	Shim Screw	Screw	Wrench
				
SSDCN083	P0401100	XT15-S35	-	-
SSDCN103	P0401100	XT15-S35	-	-
SSDCN124B	P0401400	290092000	CS120400	T06004000

(S) CENTER SCREW TOOLHOLDERS



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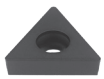
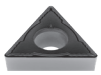
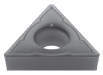
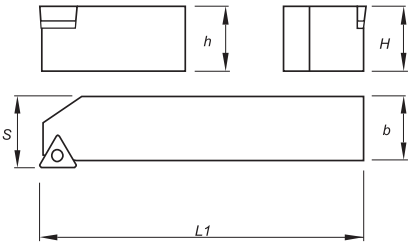
Finishing	Finishing	Finishing	Finishing
Flat	FP	FM	FK
			
Medium	**Medium**		
MM	MK		
			



Order Code		Reference	Dimensions (in)					Insert	Lbs
R	L		H=h	b	L1	L2	S		
2121521IN	2121513IN	STACR/L062D	0.38	0.38	6.00	0.63	0.38	TC..21.5..	0.22
2122601IN	2121515IN	STACR/L082D	0.50	0.50	6.00	0.63	0.50	TC..21.5..	0.31
2121524IN	2121517IN	STACR/L102D	0.63	0.63	6.00	0.63	0.63	TC..21.5..	0.62
2121514IN	2121519IN	STACR/L103D	0.63	0.63	6.00	0.75	0.63	TC..32.5..	0.59

SPARE PARTS | Complementos | Repuestos

Cutter Reference	Clamp Screw	Wrench
		
STACR/L062D	P0250700	XT07
STACR/L082D	P0250700	XT07
STACR/L102D	P0250700	XT07
STACR/L103D	P0401100	XT15-S35

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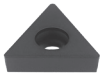
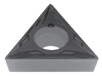
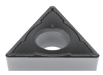
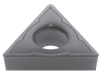
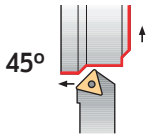
(S) CENTER SCREW TOOLHOLDERS

Finishing	Finishing	Finishing	Finishing
Flat	FP	FM	FK
			
Medium	**Medium**		
MM	MK		
			



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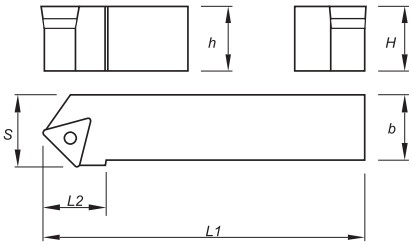
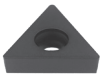
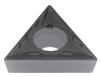
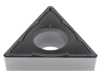
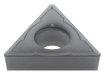


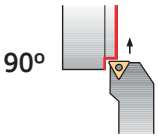
Order Code		Reference	Dimensions (in)					Insert	Lbs
R	L		H=h	b	L1	L2	S		
2121526IN	2121516IN	STDCR/L062	0.38	0.375	2.50	0.41	0.43	TC..21.5..	0.07
2121298IN	2121518IN	STDCR/L082	0.50	0.500	3.50	0.57	0.51	TC..21.5..	0.16
2121299IN	2121520IN	STDCR/L103	0.63	0.625	4.00	1.00	0.67	TC..32.5..	0.44
2120299IN	2121522IN	STDCR/L123B	0.75	0.750	4.50	1.00	0.87	TC..32.5..	0.88
2121304IN	2122600IN	STDCR/L163D	1.00	1.000	6.00	1.00	1.06	TC..32.5..	1.54

SPARE PARTS | Complementos | Repuestos

Cutter Reference	Shim	Shim Screw	Screw	Wrench
				
STDCR/L062	P0250700	XT07	-	-
STDCR/L082	P0250700	XT07	-	-
STDCR/L103	P0351500	290091900	CT160302	T05003500
STDCR/L123B	P0351500	290091900	CT160302	T05003500
STDCR/L163D	P0351500	290091900	CT160302	T05003500

(S) CENTER SCREW TOOLHOLDERS

Finishing	Finishing	Finishing	Finishing
Flat	FP	FM	FK
			
Medium	**Medium**		
MM	MK		
			



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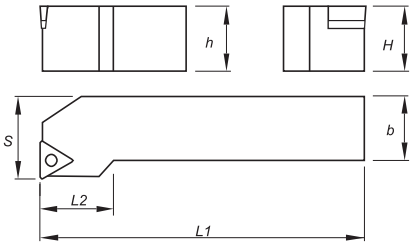

Order Code		Reference	Dimensions (in)					Insert	Lbs
R	L		H=h	b	L1	L2	S		
2121552IN	2121543IN	STFCR/L062	0.38	0.38	2.50	0.40	0.50	TC..21.5..	0.07
2121553IN	2121545IN	STFCR/L082	0.50	0.50	3.50	0.69	0.63	TC..21.5..	0.16
2121554IN	2121547IN	STFCR/L103	0.63	0.63	4.00	1.00	0.75	TC..32.5..	0.44
2121544IN	2121550IN	STFCR/L123B	0.75	0.75	4.50	1.00	1.00	TC..32.5..	0.88
2121546IN	2121549IN	STFCR/L163D	1.00	1.00	6.00	1.00	1.25	TC..32.5..	1.54

SPARE PARTS | Complementos | Repuestos

Cutter Reference	Clamp Screw	Wrench	Shim	Clamp Screw
				
STFCR/L062	P0250700	XT07	-	-
STFCR/L082	P0250700	XT07	-	-
STFCR/L103	P0351500	290091900	CT160302	T05003500
STFCR/L123B	P0351500	290091900	CT160302	T05003500
STFCR/L163D	P0351500	290091900	CT160302	T05003500

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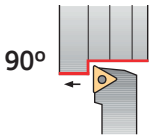
(S) CENTER SCREW TOOLHOLDERS



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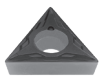
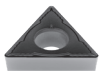
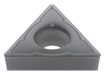
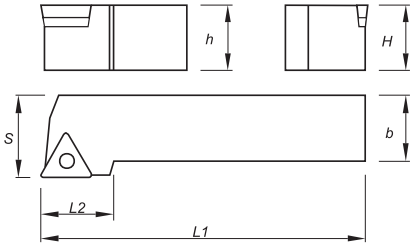
Finishing	Finishing	Finishing	Finishing
Flat	FP	FM	FK
			
Medium	**Medium**		
MM	MK		
			

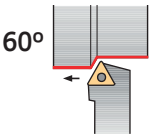


Order Code		Reference	Dimensions (in)					Insert	Lbs
R	L		H=h	b	L1	L2	S		
2121555IN	2121548IN	STGCR/L062	0.38	0.38	2.50	0.50	0.50	TC..21.5..	0.07
2121556IN	2121551IN	STGCR/L082	0.50	0.50	3.50	0.56	0.63	TC..21.5..	0.16
2121558IN	2120658IN	STGCR/L103	0.63	0.63	4.00	1.00	0.75	TC..32.5..	0.44
2121560IN	2120568IN	STGCR/L123B	0.75	0.75	4.50	1.00	1.00	TC..32.5..	0.88
2121563IN	2120566IN	STGCR/L163D	1.00	1.00	6.00	1.00	1.25	TC..32.5..	1.54

SPARE PARTS ‖ Complementos | Repuestos

Cutter Reference	Clamp Scew	Wrench	Shim	Clamp Screw
				
STGCR/L062	P0250700	XT07	-	-
STGCR/L082	P0250700	XT07	-	-
STGCR/L103	P0351500	290091900	CT160302	T05003500
STGCR/L123B	P0351500	290091900	CT160302	T05003500
STGCR/L163D	P0351500	290091900	CT160302	T05003500

(S) CENTER SCREW TOOLHOLDERS



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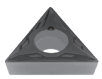
Finishing	Finishing	Finishing	Finishing
Flat	FP	FM	FK
			
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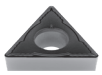
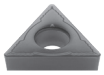
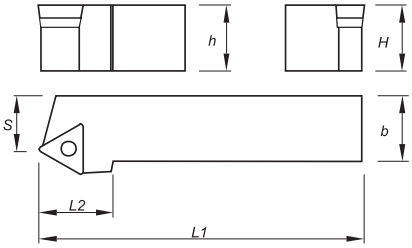
MM	MK		
			



Order Code		Reference	Dimensions (in)					Insert	Lbs
R	L		H=h	b	L1	L2	S		
2120461IN	2121561IN	STTCR/L123B	0.75	0.75	4.50	1.00	0.72	TC..32.5..	0.88
2121566IN	2121564IN	STTCR/L163D	1.00	1.00	6.00	1.00	0.86	TC..32.5..	1.54

SPARE PARTS | Complementos | Repuestos

Cutter Reference	Clamp Screw	Wrench	Shim	Clamp Screw
				
STTCR/L123B	P0351500	290091900	CT160302	T05003500
STTCR/L163D	P0351500	290091900	CT160302	T05003500

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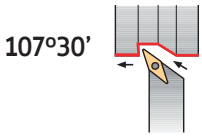
(S) CENTER SCREW TOOLHOLDERS



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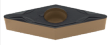
Radial: 0°

Finishing	Finishing	Finishing	Finishing
Flat	FP	FM	FK
			
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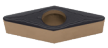
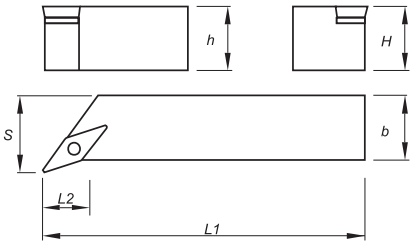
MP	MK	LN	FS
			



Order Code		Reference	Dimensions (in)					Insert	Lbs
R	L		H=h	b	L1	L2	S		
2121616IN	2121609IN	SVHCR/L123B	0.75	0.75	4.50	0.74	1.00	VC..33..	0.88
2121613IN	2121611IN	SVHCR/L163D	1.00	1.00	6.00	0.76	1.25	VC..33..	1.54

SPARE PARTS | Complementos | Repuestos

Cutter Reference	Clamp Screw	Wrench	Shim	Clamp Screw
				
SVHCR/L123B	P0351500	290091900	CV160300	T05003500
SVHCR/L163D	P0351500	290091900	CV160300	T05003500



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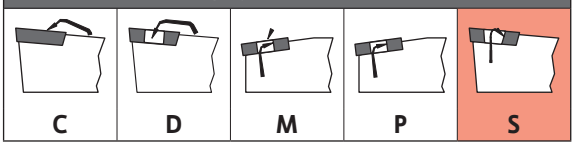
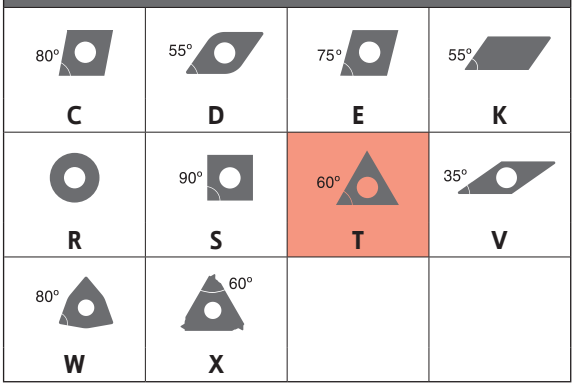
EXTERNAL THREADING TOOLHOLDERS CODE KEY

S	X	A	N	R	1.0	1.0	M	16
1	2	3	4	5	6	7	8	9

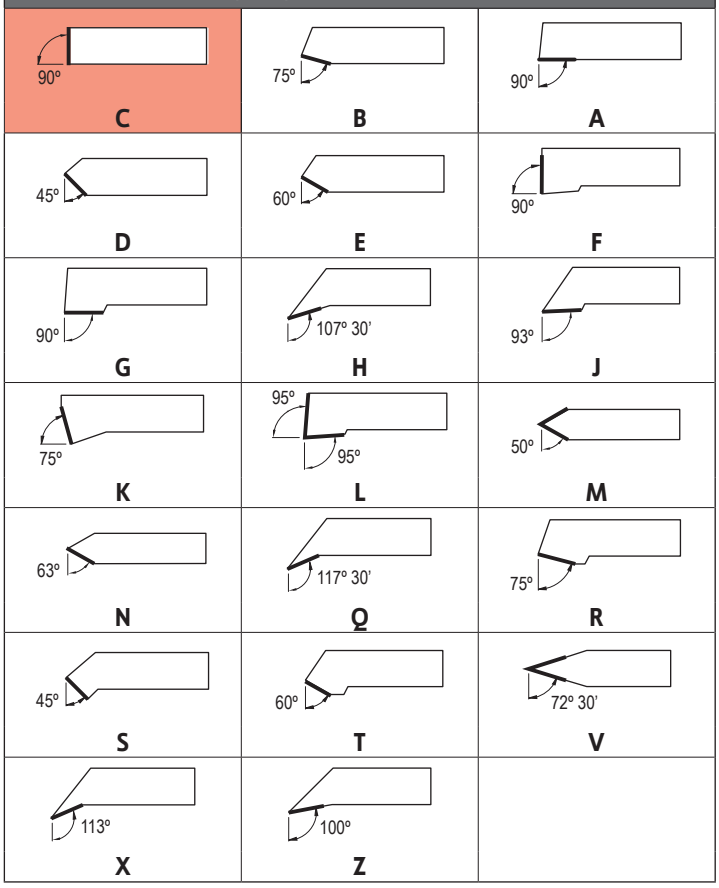
1 - Inserts Clamping System



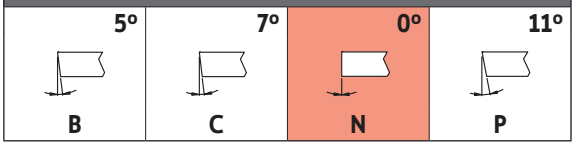
2 - Insert Shape



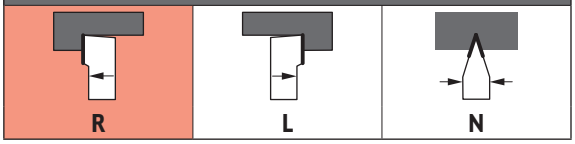
3 - Toolholder Leading Angle



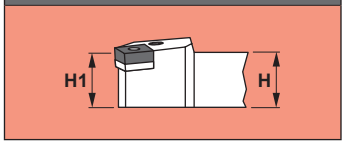
4 - Inserts Clearance Angle



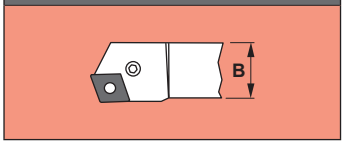
5 - Tool Hand



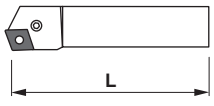
6 - Height of Shank (mm)



7 - Width of Shank (mm)

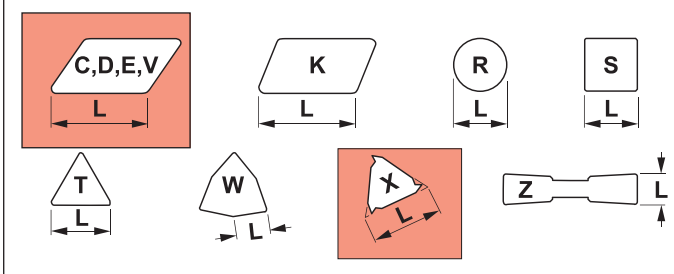


8 - Length of Holder (mm)

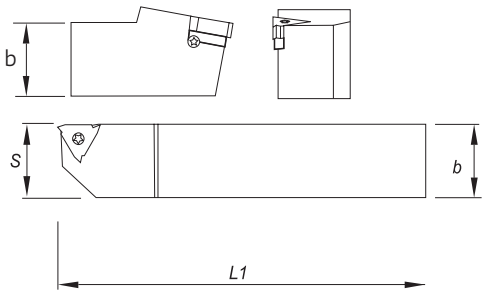


D	2.5
G	3.5
H	4.0
I	4.5
K	5.0
X	Special

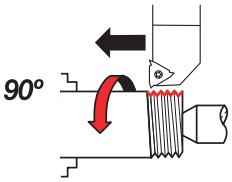
9 - Length of Inserts Cutting Edge (mm)



SXAN







Order Code		Reference	Dimensions (in)			Insert	Lbs
R	L		b	l1	S		
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1820032IN	2121232IN	SER/L0375H11	0.375	4.00	0.430	11ER/L..	0.220
2122448IN	2122444IN	SER/L0375D16	0.375	2.50	0.630	16ER/L..	0.220
2123838IN	2121234IN	SER/L0500F16	0.500	3.25	0.630	16ER/L..	0.308
1830196IN	1820037IN	SER/L0625H16	0.625	4.00	0.630	16ER/L..	0.440
1820033IN	2121235IN	SER/L0750K16	0.750	5.00	0.750	16ER/L..	0.880
2120538IN	1820031IN	SER/L1000M16	1.000	6.00	1.000	16ER/L..	1.540
1820049IN	2122445IN	SER/L1250P16	1.250	7.00	1.250	16ER/L..	2.860
1820048IN	2121238IN	SER/L1000M22	1.000	6.00	1.000	22ER/L..	1.540
2120532IN	2121244IN	SER/L1250P22	1.250	7.00	1.250	22ER/L..	2.860
2120530IN	2122446IN	SER/L1500R22	1.500	8.00	1.500	22ER/L..	3.740
2120531IN	2121239IN	SER/L1000M27	1.000	6.00	1.250	27ER/L..	1.540
1820034IN	2121242IN	SER/L1250P27	1.250	7.00	1.250	27ER/L..	2.860
2122449IN	2123847IN	SER/L1500R27	1.500	8.00	1.500	27ER/L..	3.740

SPARE PARTS | Complementos | Repuestos

Reference	Clamp Screw	Shim Screw	Shim R	Shim L
				
SER/L0310H11	P0250700	XT07	-	-
SER/L0375H11	P0250700	XT07	-	-
SER/L0375D16	P0501090	TORX XT10	ET160300	IT160300
SER/L0500F16	P0501390	TORX XT10	ET160300	IT160300
SER/L0625H16	P0501390	TORX XT10	ET160300	IT160300
SER/L0750K16	P0501390	TORX XT10	ET160300	IT160300
SER/L1000M16	P0501390	TORX XT10	ET160300	IT160300
SER/L1250P16	P0501390	TORX XT10	ET160300	IT160300
SER/L1000M22	P0801590	XT20-S40	ET220400	IT220400
SER/L1250P22	P0801590	XT20-S40	ET220400	IT220400
SER/L1500R22	P0801590	XT20-S40	ET220400	IT220400
SER/L1000M27	P1002290	TORX XT25	ET270600	IT270600
SER/L1250P27	P1002290	TORX XT25	ET270600	IT270600
SER/L1500R27	P1002290	TORX XT25	ET270600	IT270600

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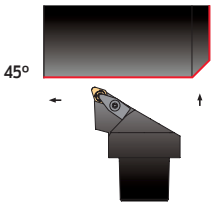
EXTERNAL TURNING QUICK CHANGE

PSC-DDJN 93 | TOOLHOLDERS

(D) DIMPLE LOCK TOOLHOLDERS

More Capto Holder Selection Available at PalbitUSA.com

Roughing to Heavy Roughing	Roughing to Heavy Roughing
DOMX (L1) 	DOMX (R1) 



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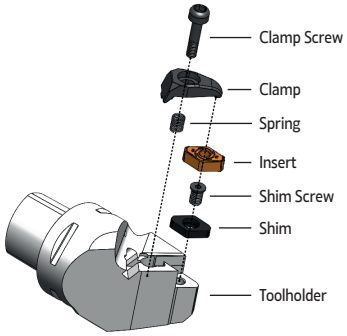
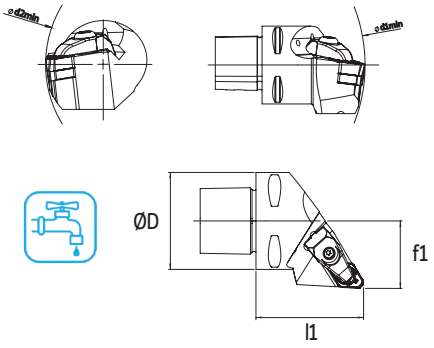
Radial: -7°





Order Code		Reference	Dimensions (in)					Insert	Lbs
L	R		$Ø_D$	$Ø_{d1}$	$Ø_{d2}$	f1	l1		
2124354IN	2124355IN	PSC32-DDJNR/L22045-11	1.260	2.362	4.764	0.866	1.772	DN..33..	0.530
2124389IN	2124371IN	PSC40-DDJNR/L27050-11	1.575	2.362	5.512	1.063	1.969	DN..33..	0.930
2124388IN	2124370IN	PSC40-DDJNR/L27055-15	1.575	4.331	5.709	1.063	2.165	DN..44..	0.930

SPARE PARTS | Complementos | Repuestos

Cutter Reference	Clamp Screw	Shim	Clamp	Clamp Screw	Spring	Wrench
						
PSC...-11	T05008000	CD110302	GA05001	D0500801	M06511	SS40
PSC...-15	T06010000	CD150501	GA07002	D0602900	M09513	SS40

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C - 491 | Top Clamp Toolholders (C)

C - 494 | Dimple Lock Toolholders (D)

C - 497 | Double Lock Toolholders (M)

C - 502 | Center Screw Toolholders (S)

C - 512 | Anti-vibration tools

INTERNAL TURNING

CODE KEY FOR INTERNAL TURNING TOOLHOLDERS

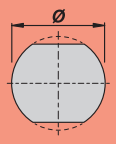
Sistema De Codificação Para Suportes De Torneamento Interno (ISO) | Codificación De Herramientas De Torneado Interior (ISO)

S	1.0	T	S	D	U	C	R	11
1	2	3	4	5	6	7	8	.5

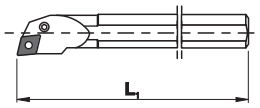
1 - Bar Type

A	Steel shank with internal coolant		
E	Anti-vibration shank (heavy metal) with internal coolant		
S	Steel shank		

2 - Bar Diameter (in)



3 - Bar Length (in)

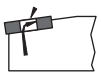


		T	12.0
		U	14.0
		V	15.75-16.0
		W	17.75
M	6.0		
		X	Special
R	6.0		
S	10.0		

4 - Inserts Clamping System



C



M



S

5 - Insert Shape



C



D



S

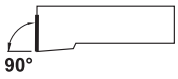


T



W

6 - Bar Leading Angle



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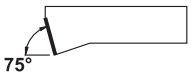

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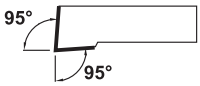
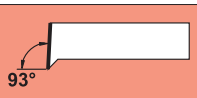


L

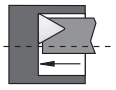


U

7 - Inserts Clearance Angle

7°	0°	11°
		
C	N	P

8 - Bar Hand



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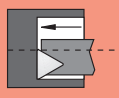
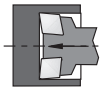
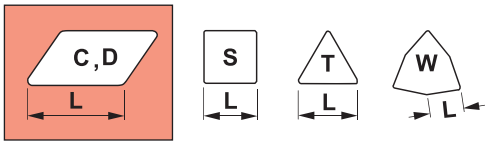


R



N

9 - Length of Inserts Cutting Edge (mm)



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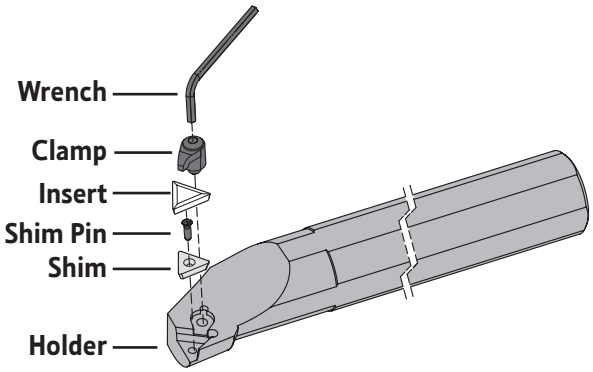
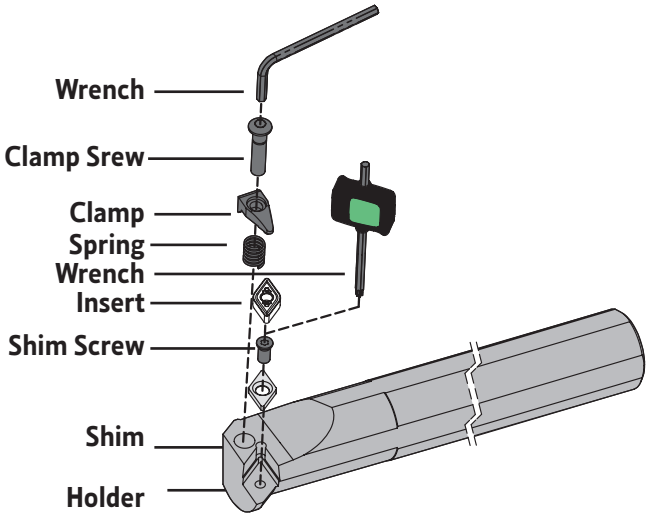
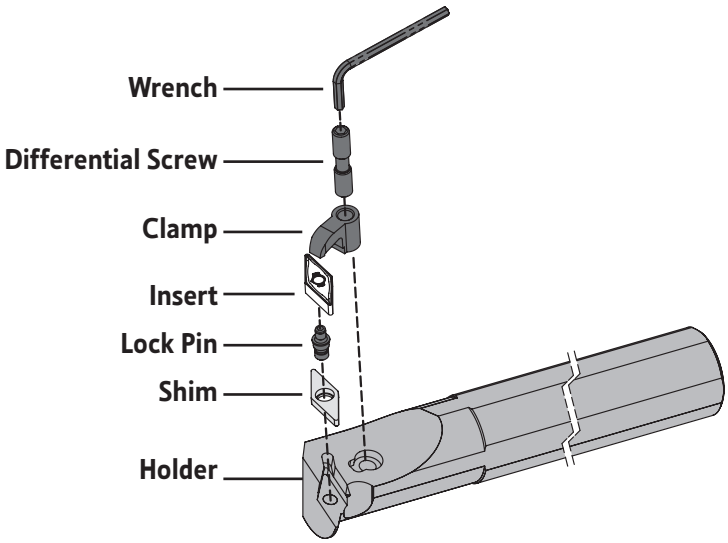
(C) TOP CLAMP SYSTEM



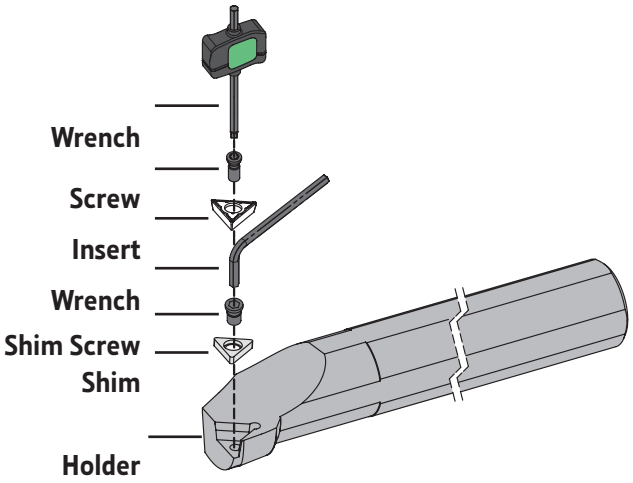
(D) DIMPLE LOCK SYSTEM



(M) DOUBLE LOCK SYSTEM



(S) CENTER SCREW SYSTEM



SUITABLE CLAMPING SYSTEM DEFINITION

Definição do sistema de fixação | Definición del sistema de Fijación

Insert Shape & page \ Operation		Longitudinal turning	Profiling	Facing
Negative inserts	(C) TOP CLAMP SYSTEM	●	●	
	(D) DIMPLE LOCK SYSTEM	●●	●	
	(M) DOUBLE LOCK SYSTEM	●	●	●
Positive inserts	(C) TOP CLAMP SYSTEM	●		
	(S) CENTER SCREW SYSTEM	●●	●●	●●

●● Recomended Insert Shape ● Alternative Insert Shape

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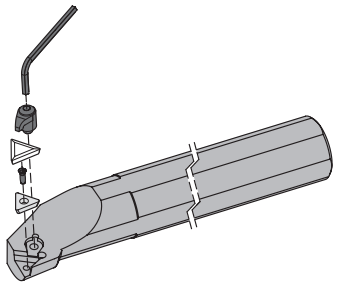
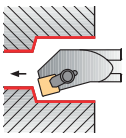
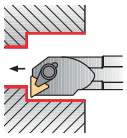
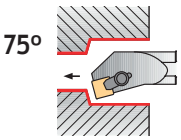
(C) TOP CLAMP SYSTEM



CSKP 75°	CTFP 90°
	
PAGE C - 492	PAGE C - 493
SP.. 0903.. SP.. 1203.. SP.. 1904..	TP.. 0903.. ... TP.. 2204..

(C) TOP CLAMP TOOLHOLDERS

Medium to Finishing	Finishing to Fine Finishing	Medium
Flat	12	13
		



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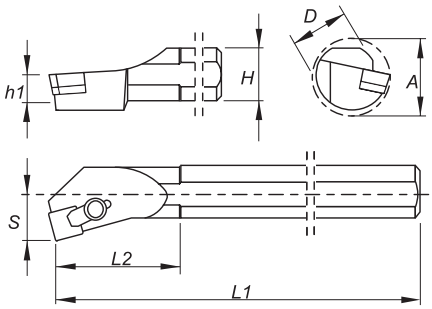
Radial: -1,25º



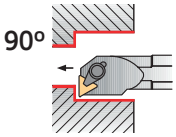
Order Code		Reference	Dimensions (in)							Insert	Lbs
R	L		D	H	h1	L1	L2	S	A		
2123153IN	2120291IN	S16T-CSKPR/L4	1.00	0.90	0.45	12.00	2.50	0.64	1.18	SP..42..	2.31
2120277IN	2120278IN	S20U-CSKPR/L4	1.25	1.18	0.59	14.00	3.00	0.77	1.15	SP..42..	4.51
2121662IN	2121652IN	S24U-CSKPR/L4	1.50	1.37	0.69	14.00	3.00	0.89	1.80	SP..42..	8.03
2120464IN	2123496IN	S28U-CSKPR/L4	1.75	1.63	0.82	14.00	4.00	1.02	2.04	SP..42..	9.30
2120282IN	2121663IN	S24U-CSKPR/L6	1.50	1.37	0.69	14.00	3.00	0.89	2.06	SP..63..	8.03
2121420IN	2122499IN	S28U-CSKPR/L6	1.75	1.63	0.82	14.00	3.00	1.02	2.34	SP..63..	9.30
2120458IN	2121507IN	S32V-CSKPR/L6	2.00	1.87	0.94	16.00	4.00	1.28	2.58	SP..63..	13.75
2123366IN	2123367IN	S40V-CSKPR/L6	2.50	2.38	1.19	16.00	4.00	1.53	3.08	SP..63..	21.80

SPARE PARTS | Complementos | Repuestos

Complementary Accessories - Flat Inserts

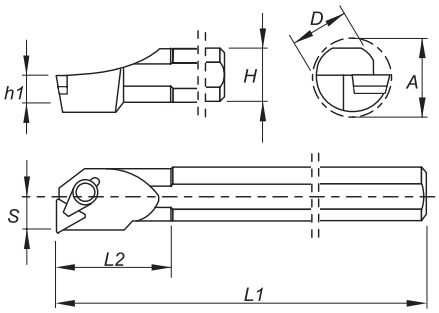
Cutter Reference	Clamp	Shim Pin	Wrench	Shim	Shim Pin
					
S16T-CSKPR/L4	290092100	290093600	290091600	-	-
S20U-CSKPR/L4	290092100	290093600	290091600	CS120300	BE02100
S24U-CSKPR/L4	290092100	290093700	290091600	CS120300	BE02100
S28U-CSKPR/L4	290092100	290093700	290091600	CS120300	BE02100
S24U-CSKPR/L6	290092200	290093600	SS40	CS190300	BE03000
S28U-CSKPR/L6	290092200	290093700	SS40	CS190300	BE03000
S32V-CSKPR/L6	290092200	290093700	SS40	CS190300	BE03000
S40V-CSKPR/L6	290092200	290093700	SS40	CS190300	BE03000

(C) TOP CLAMP TOOLHOLDERS



Axial: 6º
Radial: 0º

Medium to Finishing	Finishing to Fine Finishing	Medium
Flat	12	13



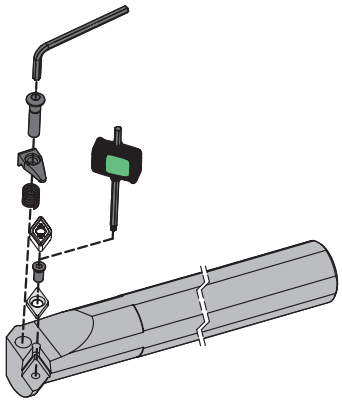
Order Code		Reference	Dimensions (in)							Insert	Lbs
R	L		D	H	h1	L1	L2	S	A		
2123199IN	2123152IN	S16T-CTFPR/L3	1.00	0.90	0.45	12.00	2.50	0.64	1.22	TP..32..	1.54
2123312IN	2120271IN	S20U-CTFPR/L3	1.25	1.18	0.59	14.00	3.00	0.77	1.60	TP..32..	4.51
2123297IN	2120383IN	S24U-CTFPR/L3	1.50	1.37	0.69	14.00	3.00	0.89	1.84	TP..32..	8.25
2121421IN	2121423IN	S28U-CTFPR/L3	1.75	1.63	0.82	14.00	4.00	1.02	2.10	TP..32..	9.30
2120272IN	2120279IN	S24U-CTFPR/L4	1.50	1.37	0.69	14.00	3.00	0.89	2.12	TP..43..	8.03
2120455IN	2121433IN	S28U-CTFPR/L4	1.75	1.63	0.82	14.00	3.00	1.02	2.38	TP..43..	9.30
2121603IN	2121602IN	S32V-CTFPR/L4	2.00	1.87	0.94	16.00	4.00	1.28	2.62	TP..43..	13.75
2123373IN	2123382IN	S40V-CTFPR/L4	2.50	2.38	1.19	16.00	4.00	1.53	3.12	TP..43..	21.80

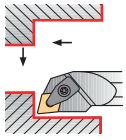
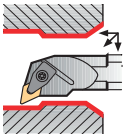
SPARE PARTS | Complementos | Repuestos

Complementary Accessories - Flat Inserts

Cutter Reference	Clamp	Shim Pin	Wrench	Shim	Clamp
S16T-CTFPR/L3	290092400	290093400	290091700	-	-
S20U-CTFPR/L3	290092400	290093400	290091700	CT160301	BE02100
S24U-CTFPR/L3	290092300	290093500	290091700	CT160301	BE02100
S28U-CTFPR/L3	290092300	290093500	290091700	CT160301	BE02100
S24U-CTFPR/L4	290092100	290093600	290091600	CT220301	BE03000
S28U-CTFPR/L4	290092100	290093700	290091600	CT220301	BE03000
S32V-CTFPR/L4	290092100	290093700	290091600	CT220301	BE03000
S40V-CTFPR/L4	290092100	290093700	290091600	CT220301	BE03000

(D) DIMPLE LOCK SYSTEM



DCLN 95°	DDUN 93°
	
PAGE C - 495 CN.. 1204..	PAGE C - 496 DN.. 1506..

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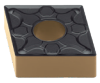
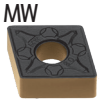
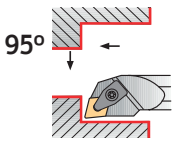
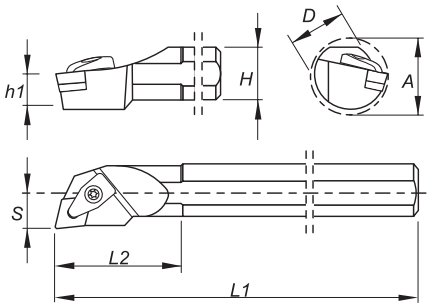
(D) DIMPLE LOCK TOOLHOLDERS

Roughing	Finishing	Medium to Finishing	Medium to Finishing	Medium	Medium	Medium	Roughing
Flat	MF	SF	LC	MS	MR	PM	GR
							
Medium	**Medium Wiper**	**Roughing to Medium**	**Roughing**	**Roughing**	**Heavy to Roughing**	**Heavy to Roughing**	
ST	MW	SS	HR	RP	HY	HZ	
							



Axial: -5°
Radial: -13,5°



Order Code		Reference	Dimensions (in)							Insert	Lbs
R	L		D	H	h1	L1	L2	S	A		
2123239IN	2123198IN	S16T-DCLNR/L4N	1.00	0.90	0.45	12.00	1.58	0.64	1.28	CN..43..	0.70
2123311IN	2120270IN	S20U-DCLNR/L4N	1.25	1.18	0.59	14.00	1.77	0.77	1.53	CN..43..	2.05
2123336IN	2120367IN	S24U-DCLNR/L4N	1.50	1.37	0.69	14.00	1.97	0.89	1.78	CN..43..	3.75

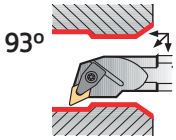
SPARE PARTS | Complementos | Repuestos

Cutter Reference	Shim	Shim Screw	Clamo	Screw	Spring	Wrench
						
S16T-DCLNR/L4N	CC120300	T06010000	GA07002	D0602900	M09513	SS40
S20U-DCLNR/L4N	CC120600	T06010000	GA07002	D0602900	M09513	SS40
S24U-DCLNR/L4N	CC120600	T06010000	GA07002	D0602900	M09513	SS40

DDUN 93º | TOOLHOLDERS | Ferros de torno | Herramientas de torneado

(D) DIMPLE LOCK TOOLHOLDERS

Roughing	Finishing	Medium to Finishing	Medium to Finishing	Medium	Medium	Medium	Medium
Flat	MF	SF	LC	MS	MR	PM	ST
(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)
Medium Wiper	Roughing to Medium	Roughing	Roughing	Roughing to Medium	Medium to Finishing	Medium to Finishing	
MW	SS	HR	RP	01	02	03	
(15)	(15)	(15)	(15)	(15)	(15)	(15)	



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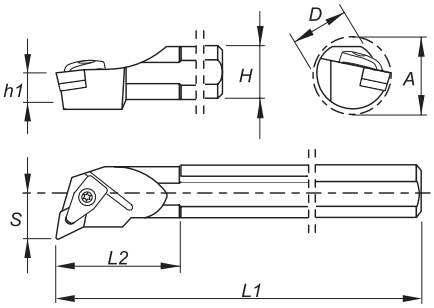
Radial: -14º



Order Code		Reference	Dimensions (in)							Insert	Lbs
R	L		D	H	h1	L1	L2	S	A		
2123335IN	2123331IN	S20U-DDUNR/L4N	1.25	1.18	0.59	14.00	1.77	0.77	1.53	DN..43..	2.05
2123347IN	2122456IN	S24U-DDUNR/L4N	1.50	1.37	0.69	14.00	1.97	0.89	1.78	DN..43..	3.75

SPARE PARTS | Complementos | Repuestos

Cutter Reference	Shim	Shim Screw	Spring	Clamp	Clamp Screw	Wrench
S20U-DDUNR/L4N	CD150501	T06010000	GA07002	D0602900	M09513	SS40
S24U-DDUNR/L4N	CD150501	T06010000	GA07002	D0602900	M09513	SS40

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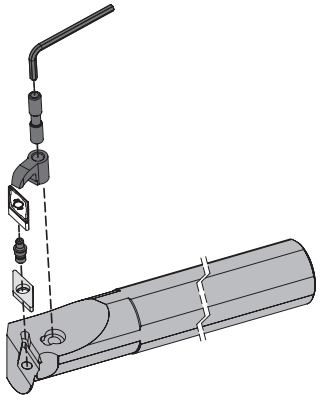
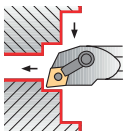
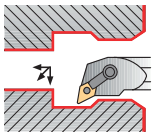
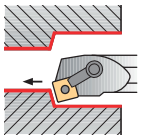
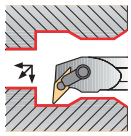
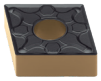
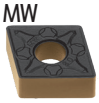
(M) DOUBLE LOCK SYSTEM

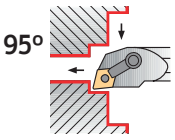


MCLN 95°	MDUN 93°	MSKN 75°	MVUN 93°
			
PAGE C - 498 CN.. 1204..	PAGE C - 499 DN.. 1506..	PAGE C - 500 SN.. 1204..	PAGE C - 501 VN.. 1604..

MCLN 95º | TOOLHOLDERS | Ferros de torno | Herramientas de torneado

(M) DOUBLE LOCK TOOLHOLDERS

Roughing	Finishing	Medium to Finishing	Medium to Finishing	Medium	Medium	Medium	Roughing
Flat	MF	SF	LC	MS	MR	PM	GR
							
Medium	**Medium Wiper**	**Roughing to Medium**	**Roughing**	**Roughing**	**Heavy to Roughing**	**Heavy to Roughing**	
ST	MW	SS	HR	RP	HY	HZ	
							



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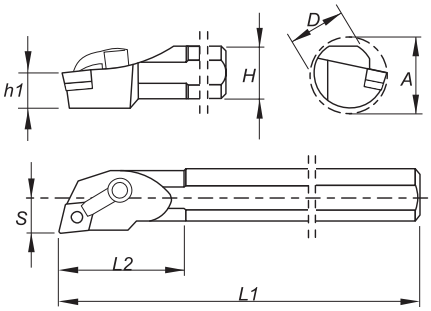

Order Code		Reference	Dimensions (in)							Insert	Lbs
R	L		D	H	h1	L1	L2	S	A		
2120276IN	2123238IN	S16T-MCLNR/L4	1.000	0.900	0.450	12.000	2.500	0.640	1.280	CN..43..	1.540
2123334IN	2123330IN	S20U-MCLNR/L4	1.250	1.180	0.590	14.000	3.000	0.765	1.530	CN..43..	4.510
2123357IN	2123346IN	S24U-MCLNR/L4	1.500	1.370	0.685	14.000	3.000	0.890	1.780	CN..43..	8.250
2121480IN	2121479IN	S28U-MCLNR/L4	1.750	1.630	0.815	14.000	4.000	1.015	2.030	CN..43..	9.300
2121659IN	2120297IN	S32V-MCLNR/L4	2.000	1.870	0.935	16.000	4.000	1.281	2.562	CN..43..	13.750
2123392IN	2121682IN	S40V-MCLNR/L4	2.500	2.380	1.190	16.000	4.000	1.531	3.062	CN..43..	21.800
2123276IN	2120296IN	S32V-MCLNR/L5	2.000	1.870	0.935	16.000	4.000	1.281	2.562	CN..54..	13.750
2123378IN	2123372IN	S40V-MCLNR/L5	2.500	2.380	1.190	16.000	4.000	1.531	3.062	CN..54..	21.800
2120562IN	2121658IN	S32V-MCLNR/L6	2.000	1.870	0.935	16.000	4.000	1.281	2.562	CN..64..	13.750
2123377IN	2123393IN	S40V-MCLNR/L6	2.500	2.380	1.190	16.000	4.000	1.531	3.062	CN..64..	21.800

SPARE PARTS | Complementos | Repuestos

Cutter Reference	Shim	Lock Pin	Lock Pin Punch	Clamp	Differential Screw	Clamp Wrench
						
S16T-MCLNR/L4	290092100	290093600	290091600	-	BS 1/4-28 UNF	290091700
S20U-MCLNR/L4	290092100	290093700	290091600	CC120500	BS1-4 28 UN	290091700
S24U-MCLNR/L4	290092100	290093700	290091600	CC120500	BS1-4 28 UN	290091700
S28U-MCLNR/L4	290092100	290093700	290091600	CC120500	BS1-4 28 UN	290091700
S32V-MCLNR/L4	290092100	290093700	290091600	CC120500	BS1-4 28 UN	290091700
S40V-MCLNR/L4	290092100	290093700	290091600	CC120500	BS1-4 28 UN	290091700
S32V-MCLNR/L5	GA5-1601 UNF	290093800	SS40	CC160501	290093100	290091600
S40V-MCLNR/L5	GA5-1601 UNF	290093800	SS40	CC160501	290093100	290091600
S32V-MCLNR/L6	GA5-1601 UNF	290093800	SS40	CC190502	290093200	290091800
S40V-MCLNR/L6	GA5-1601 UNF	290093800	SS40	CC190502	290093200	290091800

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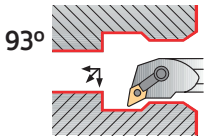
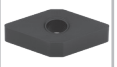
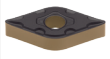
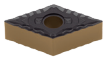
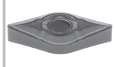
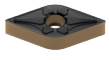
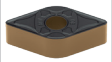
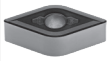
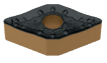
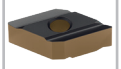
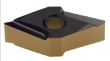
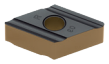
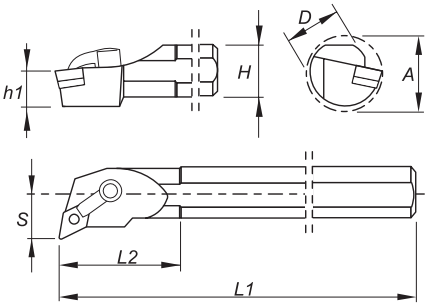
(M) DOUBLE LOCK TOOLHOLDERS



Axial: -6º
Radial: -12º

Roughing	Finishing	Medium to Finishing	Medium to Finishing	Medium	Medium	Medium	Medium
Flat	MF	SF	LC	MS	MR	PM	ST
							

Medium Wiper	Roughing to Medium	Roughing	Roughing to Medium	Medium to Finishing	Medium to Finishing
MW	SS	RP	01	02	03
					



Order Code		Reference	Dimensions (in)							Insert	Lbs
R	L		D	H	h1	L1	L2	S	A		
2120269IN	2120275IN	S16T-MDUNR/L4	1.00	0.90	0.45	12.00	2.50	0.88	1.75	DN..43..	1.54
2120505IN	2123402IN	S20U-MDUNR/L4	1.25	1.18	0.59	14.00	3.00	1.00	2.00	DN..43..	4.51
2123362IN	2123356IN	S24U-MDUNR/L4	1.50	1.37	0.69	14.00	3.00	1.13	2.25	DN..43..	8.25
2120284IN	2121664IN	S32V-MDUNR/L4	2.00	1.87	0.94	16.00	4.00	1.38	3.00	DN..43..	13.75
2120283IN	2123281IN	S32V-MDUNR/L5	2.00	1.87	0.94	16.00	4.00	1.50	3.00	DN..54..	13.75
2120440IN	2123406IN	S40V-MDUNR/L5	2.50	2.38	1.19	16.00	4.00	1.75	3.50	DN..54..	21.80

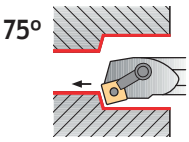
SPARE PARTS | Complementos | Repuestos

Cutter Reference	Clamp	Shim Pin	Lock Pin Punch	Shim	Shim Pin	Clamp Wrench
						
S16T-MDUNR/L4	290092100	290093600	290091600	-	BS 1/4-28 UNF	290091700
S20U-MDUNR/L4	290092100	290093700	290091600	CD150501	BS1-4 28 UN	290091700
S24U-MDUNR/L4	290092100	290093700	290091600	CD150501	BS1-4 28 UN	290091700
S32V-MDUNR/L4	290092100	290093700	290091600	CD150501	BS1-4 28 UN	290091700
S32V-MDUNR/L5	GA5-1601 UNF	290093800	SS40	290092500	290093100	290091600
S40V-MDUNR/L5	GA5-1601 UNF	290093800	SS40	290092500	290093100	290091600

MSKN 75° | TOOLHOLDERS | Ferros de torno | Herramientas de torneado

(M) DOUBLE LOCK TOOLHOLDERS

Roughing	Finishing	Medium	Medium	Medium
Flat	MF	SF	MR	ST
				
Roughing to Medium	**Roughing**	**Roughing**	**Heavy to Roughing**	**Medium**
SS	HR	RP	HY	GS
				



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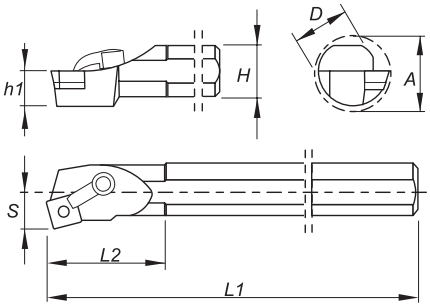
Radial: -11°



Order Code		Reference	Dimensions (in)							Insert	Lbs
R	L		D	H	h1	L1	L2	S	A		
2120506IN	2123431IN	S20U-MSKNR/L4	1.25	1.18	0.59	14.00	3.00	0.77	1.53	SNM..43..	4.51
2123381IN	2122453IN	S24U-MSKNR/L4	1.50	1.37	0.69	14.00	3.00	0.89	1.78	SNM..43..	8.25
2120274IN	2120281IN	S32V-MSKNR/L5	2.00	1.87	0.94	16.00	4.00	1.28	2.56	SNM..54..	13.75
2120273IN	2120280IN	S32V-MSKNR/L6	2.00	1.87	0.94	16.00	4.00	1.28	2.56	SNM..64..	13.75
2123405IN	2123415IN	S40V-MSKNR/L6	2.50	2.38	1.19	16.00	4.00	1.53	3.06	SNM..64..	21.80

SPARE PARTS | Complementos | Repuestos

Cutter Reference	Shim	Lock Pin	Lock Pin Punch	Clamp	Differential Screw	Clamp Wrench
						
S20U-MSKNR/L4	290092100	290093700	290091600	CS120500	BS1-4 28 UN	290091700
S24U-MSKNR/L4	290092100	290093700	290091600	CS120500	BS1-4 28 UN	290091700
S32V-MSKNR/L5	GA5-1601 UNF	290093800	SS40	CS150500	290093100	290091600
S32V-MSKNR/L6	GA5-1601 UNF	290093800	SS40	CS190501	290093200	290091800
S40V-MSKNR/L6	GA5-1601 UNF	290093800	SS40	CS190501	290093200	290091800

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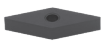
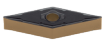
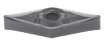
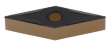
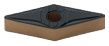
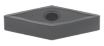
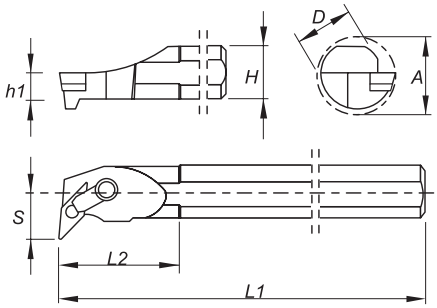
(M) DOUBLE LOCK TOOLHOLDERS

Roughing	Medium to Finishing	Medium to Finishing	Medium to Finishing
Flat	MF	SF	MS
			
Medium	**Medium**	**Medium**	**Medium**
MR	PM	ST	GS
			

93º



Axial: -5º
Radial: -15º

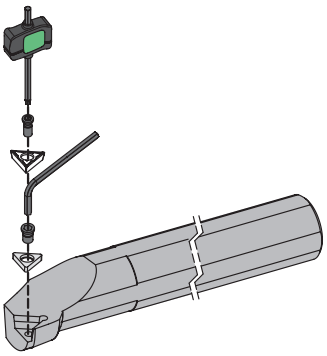


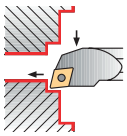
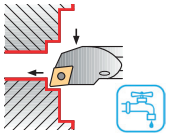
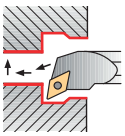
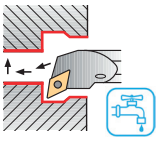
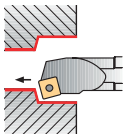
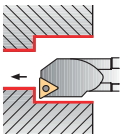
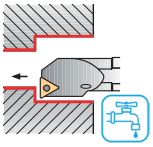
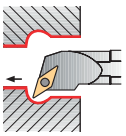
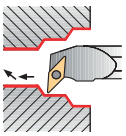
Order Code		Reference	Dimensions (in)							Insert	Lbs
R	L		D	H	h1	L1	L2	S	A		
2123328IN	2123333IN	S16T-MVUNR/L3	1.00	0.90	0.45	12.00	2.50	1.00	2.00	VN..33..	1.54
2121475IN	2120474IN	S20U-MVUNR/L3	1.25	1.18	0.59	14.00	3.00	1.13	2.25	VN..33..	4.51
2123352IN	2123353IN	S32V-MVUNR/L4	2.00	1.87	0.94	16.00	4.00	1.50	3.25	VN..43..	13.75
2123352IN	2123353IN	S32V-MVUNR/L4	2.00	1.87	0.94	16.00	4.00	1.50	3.25	VN..43..	13.75
2123422IN	2123423IN	S40V-MVUNR/L4	2.50	2.38	1.19	16.00	4.00	1.75	3.75	VN..43..	21.80

SPARE PARTS | Complementos | Repuestos

Cutter Reference	Clamp	Shim Pin	Lock Pin Wrench	Clamp	Shim Pin	Clamp Wrench
						
S16T-MVUNR/L3	290092200	290093600	290091600	CV160301	BS10-32 UNF	290091500
S20U-MVUNR/L3	290092200	290093700	290091600	CV160301	BS10-32 UNF	290091500
S24U-MVUNR/L3	290092200	290093700	290091600	CV160301	BS10-32 UNF	290091500
S32V-MVUNR/L4	GA5-1601 UNF	290093800	SS40	290092800	BS1-4 28 UN	290091700
S40V-MVUNR/L4	GA5-1601 UNF	290093800	SS40	290092800	BS1-4 28 UN	290091700

(S) CENTER SCREW SYSTEM



SCLC 95°	**A-SCLC 95°**	**SDUC 93°**	**A-SDUC 93°**	**SSKC 75°**	**STFC 90°**
					
PAGE C - 503 CC.. 0602.. CC.. 09T3.. CC.. 1204..	PAGE C - 504 CC.. 0602.. CC.. 09T3.. CC.. 1204..	PAGE C - 505 DC.. 0702.. DC.. 11T3..	PAGE C - 506 DC.. 0702.. DC.. 11T3..	PAGE C - 507 SC..09T3.. SC.. 1204..	PAGE C - 508 TC.. 0902.. TC.. 1102.. TC.. 16T3..
A-STFC 90°	**SVQC 107°30'**	**SVUC 93°**			
					
PAGE C - 509 TC.. 0902.. TC.. 1102.. TC.. 16T3..	PAGE C - 510 VC.. 1103.. VC.. 1604..	PAGE C - 511 VC.. 1103.. VC.. 1604..			

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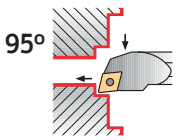
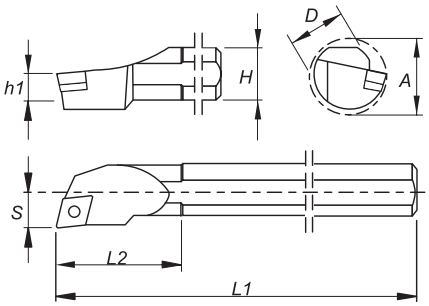
(S) CENTER SCREW TOOLHOLDERS



Axial: 0°
Radial: -6°

Finishing	Finishing	Finishing	Finishing	Finishing	Medium to Finishing
Flat	FP	BO	FM	FK	LM
					
Medium	**Medium**	**Medium**	**Medium to Finishing wiper**	**Finishing to Fine finishing**	**Medium to Finishing**
MP	MM	MK	MW	FS	LN
					



Order Code		Reference	Dimensions (in)							Insert	Lbs
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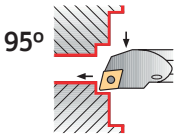
2120398IN	2121415IN	S08M-SCLCR/L2	0.50	0.46	0.23	6.00	0.91	0.31	0.63	CC..21.5..	0.33
2123307IN	2121594IN	S10R-SCLCR/L2	0.63	0.58	0.29	8.00	1.06	0.41	0.81	CC..21.5..	0.66
2123308IN	2121595IN	S10R-SCLCR/L3	0.63	0.58	0.29	8.00	1.06	0.41	0.81	CC..32.5..	0.66
2120473IN	2121430IN	S12S-SCLCR/L3M	0.75	0.71	0.36	10.00	1.58	0.50	1.00	CC..32.5..	1.21
2120463IN	2122470IN	S16T-SCLCR/L3M	1.00	0.90	0.45	12.00	1.81	0.64	1.28	CC..32.5..	1.21
2120442IN	2123493IN	S16T-SCLCR/L4	1.00	0.90	0.45	12.00	3.00	0.64	1.28	CC..43..	1.54
2121448IN	2121478IN	S20U-SCLCR/L4	1.25	1.18	0.59	14.00	3.00	0.77	1.53	CC..43..	4.51
2123448IN	2120484IN	S24V-SCLCR/L4	1.50	1.37	0.69	15.75	3.00	0.89	1.78	CC..43..	8.25

SPARE PARTS | Complementos | Repuestos

Cutter Reference	Clamp Screw	Wrench	Shim	Screw
				
S06M-SCLCR/L2	P0250701	XT07	-	-
S08M-SCLCR/L2	P0250701	XT07	-	-
S10R-SCLCR/L2	P0250701	XT07	-	-
S10R-SCLCR/L3	P0400802	XT15-S35	-	-
S12S-SCLCR/L3M	P0400802	XT15-S35	-	-
S16T-SCLCR/L3M	P0400802	XT15-S35	-	-
S16T-SCLCR/L4	P0501200	XT20-S40	-	-
S20U-SCLCR/L4	P0401400	290092000	CC120401	T06004000
S24V-SCLCR/L4	P0401400	290092000	CC120401	T06004000

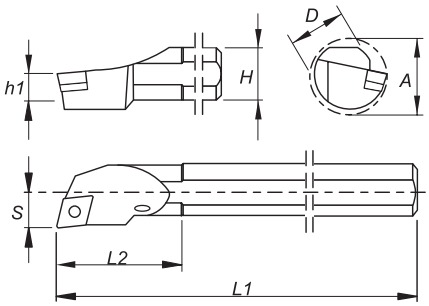
A-SCLC 95º | INTERNAL TOOLHOLDERS | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS



Axial: 0º
Radial: -6º

Finishing	Finishing	Finishing	Finishing	Finishing	Medium to Finishing
Flat	FP	BO	FM	FK	LM
					
Medium	**Medium**	**Medium**	**Medium to Finishing wiper**	**Finishing to Fine finishing**	**Medium to Finishing**
MP	MM	MK	MW	FS	LN
					



Order Code		Reference	Dimensions (in)							Insert	Lbs
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2123609IN	2123613IN	A08M-SCLCR/L2	0.50	0.46	0.23	6.00	0.91	0.31	0.63	CC..21.5..	0.33
2123606IN	2123598IN	A10R-SCLCR/L2	0.63	0.58	0.29	8.00	1.06	0.41	0.81	CC..21.5..	0.66
2123602IN	2122506IN	A10R-SCLCR/L3	0.63	0.58	0.29	8.00	1.06	0.41	0.81	CC..32.5..	0.66
2123603IN	2123607IN	A12S-SCLCR/L3M	0.75	0.71	0.36	10.00	1.58	0.50	1.00	CC..32.5..	1.21

SPARE PARTS | Complementos | Repuestos

Cutter Reference	Clamp Screw 	Wrench 
A06M-SCLCR/L2	P0250701	XT07
A08M-SCLCR/L2	P0250701	XT07
A10R-SCLCR/L2	P0250701	XT07
A10R-SCLCR/L3	P0400802	XT15-S35
A12S-SCLCR/L3M	P0400802	XT15-S35

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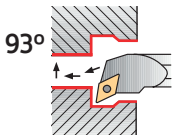
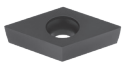
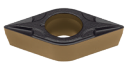
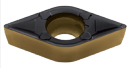
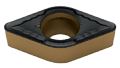
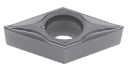
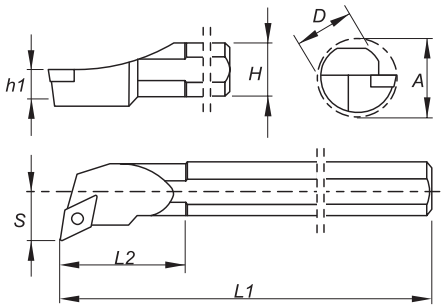
(S) CENTER SCREW TOOLHOLDERS



Axial: 0º
Radial: -6º

Finishing	Finishing	Finishing	Finishing	Finishing wiper
Flat	FP	FM	FK	FW
				
Medium	**Medium**	**Medium**	**Medium to Finishing wiper**	**Finishing to Fine Finishing**
MP	MM	MK	MW	FS
				



Order Code		Reference	Dimensions (in)							Insert	Lbs
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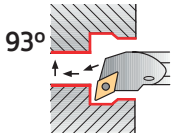
2121470IN	2121469IN	S08M-SDUCR/L2	0.50	0.46	0.23	6.00	0.91	0.44	0.88	DC..21.5..	0.33
2121702IN	2123306IN	S10R-SDUCR/L2	0.63	0.58	0.29	8.00	1.06	0.50	1.00	DC..21.5..	0.66
2120286IN	2121471IN	S12S-SDUCR/L3M	0.75	0.71	0.36	10.00	1.58	0.63	1.25	DC..32.5..	1.21
2121474IN	2120416IN	S16T-SDUCR/L3M	1.00	0.90	0.45	12.00	1.81	0.75	1.50	DC..32.5..	1.54
2121461IN	2121459IN	S20U-SDUCR/L3M	1.25	1.18	0.59	14.00	1.89	0.88	1.75	DC..32.5..	4.51

SPARE PARTS | Complementos | Repuestos

Cutter Reference	Clamp Screw	Wrench	ShimS	Clamp Screw
				
S06M-SDUCR/L2	P0250701	XT07	-	-
S08M-SDUCR/L2	P0250700	XT07	-	-
S10R-SDUCR/L2	P0250700	XT07	-	-
S12S-SDUCR/L3M	P0401100	XT15-S35	-	-
S16T-SDUCR/L3M	P0401100	XT15-S35	-	-
S20U-SDUCR/L3M	P0351500	290091900	CD110301	T05003500

(S) CENTER SCREW TOOLHOLDERS



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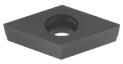
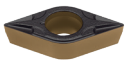
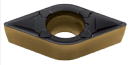
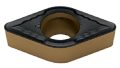
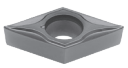
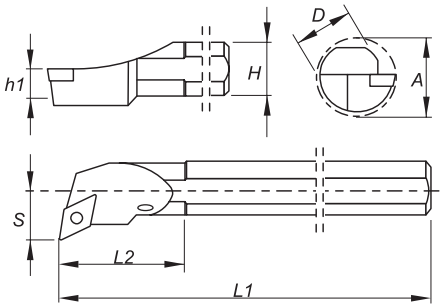
Radial: -6º

Finishing	Finishing	Finishing	Finishing	Finishing wiper
Flat	FP	FM	FK	FW
				
Medium	**Medium**	**Medium**	**Medium to Finishing wiper**	**Finishing to Fine Finishing**
MP	MM	MK	MW	FS
				



Order Code		Reference	Dimensions (in)							Insert	Lbs
R	L		D	H	h1	L1	L2	S	A		
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2123617IN	2123621IN	A08M-SDUCR/L2	0.50	0.46	0.23	6.00	0.91	0.44	0.88	DC..21.5..	0.33
2123610IN	2123614IN	A10R-SDUCR/L2	0.63	0.58	0.29	8.00	1.06	0.50	1.00	DC..21.5..	0.66
2123611IN	2123615IN	A12S-SDUCR/L3M	0.75	0.71	0.36	10.00	1.58	0.63	1.25	DC..32.5..	1.21

SPARE PARTS | Complementos | Repuestos

Cutter Reference	Shim	Shim Screw
		
A06M-SDUCR/L2	P0250701	XT07
A08M-SDUCR/L2	P0250700	XT07
A10R-SDUCR/L2	P0250700	XT07
A12S-SDUCR/L3M	P0401100	XT15-S35

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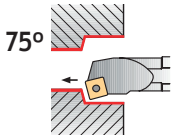
(S) CENTER SCREW TOOLHOLDERS

Finishing	Finishing	Finishing	Finishing
Flat	FP	FM	FK
			
Medium	**Medium**	**Medium to Finishing**	
MP	MK	LN	
			



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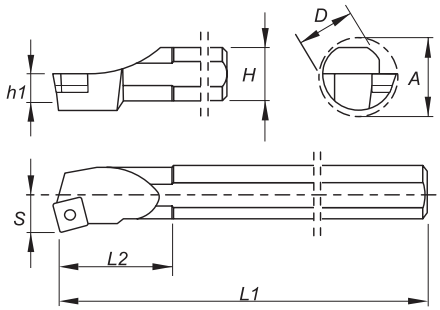
Radial: -8°



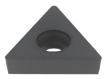
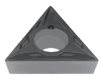
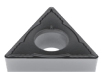
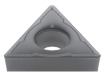
Order Code		Reference	Dimensions (in)							Insert	Lbs
R	L		D	H	h1	L1	L2	S	A		
2123327IN	2123325IN	S10R-SSKCR/L3	0.63	0.58	0.29	8.00	1.06	0.41	0.81	SC..32.5..	0.66
2120285IN	2121455IN	S12S-SSKCR/L3	0.75	0.71	0.36	10.00	1.58	0.50	1.00	SC..32.5..	1.21
2121457IN	2120288IN	S16T-SSKCR/L3	1.00	0.90	0.45	12.00	1.81	0.64	1.28	SC..32.5..	1.54

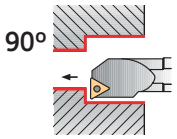
SPARE PARTS | Complementos | Repuestos

Cutter Reference	Screw	Wrench
		
S10R-SSKCR/L3	P0400802	XT15-S35
S12S-SSKCR/L3	P0401100	XT15-S35
S16T-SSKCR/L3	P0401100	XT15-S35

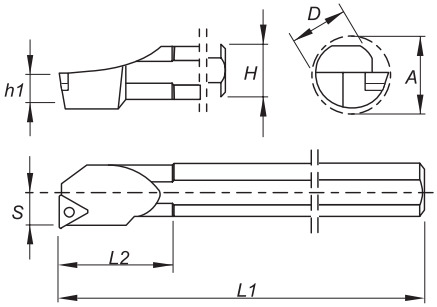
STFC 90º | INTERNAL TOOLHOLDERS | Ferros de torno | Herramientas de torneado

(S) CENTER SCREW TOOLHOLDERS

Finishing	Finishing	Finishing	Finishing
Flat	FP	FM	FK
			
Medium	**Medium**		
MM	MK		
			



Axial: 0º
Radial: -6º



Order Code		Reference	Dimensions (in)							Insert	Lbs
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2122455IN	2123323IN	S06M-STFCR/L2	0.38	0.34	0.17	6.00	0.85	0.25	0.50	TC..21.5..	0.13
2121447IN	2121446IN	S08M-STFCR/L2	0.50	0.46	0.23	6.00	0.80	0.31	0.63	TC..21.5..	0.33
2123326IN	2123324IN	S10R-STFCR/L2	0.63	0.58	0.29	8.00	0.96	0.41	0.81	TC..21.5..	0.66
2121596IN	2121456IN	S12S-STFCR/L2	0.75	0.71	0.36	10.00	1.42	0.50	1.00	TC..21.5..	1.21
2121458IN	2120287IN	S16T-STFCR/L3	1.00	0.90	0.45	12.00	1.93	0.64	1.28	TC..32.5..	1.54
2120368IN	2121460IN	S20U-STFCR/L3	1.25	1.18	0.59	14.00	1.97	0.77	1.53	TC..32.5..	4.51
2123464IN	2120793IN	S24V-STFCR/L3	1.50	1.37	0.69	15.75	2.36	0.89	1.78	TC..32.5..	8.25

SPARE PARTS | Complementos | Repuestos

Cutter Reference	Screw	Wrench	Shim	Clamp
				
S06M-STFCR/L2	P0250701	XT07	-	-
S08M-STFCR/L2	P0250701	XT07	-	-
S10R-STFCR/L2	P0250700	XT07	-	-
S12S-STFCR/L2	P0250700	XT07	-	-
S16T-STFCR/L3	P0401100	XT15-S35	-	-
S20U-STFCR/L3	P0351500	290091900	CT160302	T05003500
S24V-STFCR/L3	P0351500	290091900	CT160302	T05003500

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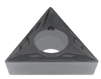
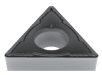
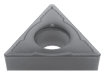
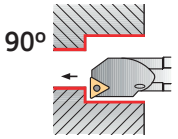
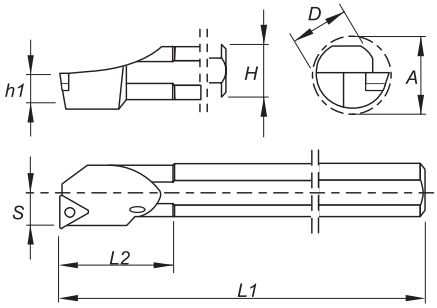
(S) CENTER SCREW TOOLHOLDERS

Finishing	Finishing	Finishing	Finishing
Flat	FP	FM	FK
			
Medium	**Medium**		
MM	MK		
			



Axial: 0º
Radial: -6º



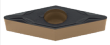
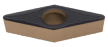
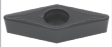
Order Code		Reference	Dimensions (in)							Insert	Lbs
R	L		D	H	h1	L1	L2	S	A		
2123601IN	2123605IN	A06M-STFCR/L2	0.38	0.34	0.17	6.00	0.85	0.25	0.50	TC..21.5..	0.13
2123154IN	2123155IN	A08M-STFCR/L2	0.50	0.46	0.23	6.00	0.80	0.31	0.63	TC..21.5..	0.33
2123618IN	2123622IN	A10R-STFCR/L2	0.63	0.58	0.29	8.00	0.96	0.41	0.81	TC..21.5..	0.66
2123619IN	2123623IN	A12S-STFCR/L2	0.75	0.71	0.36	10.00	1.42	0.50	1.00	TC..21.5..	1.21

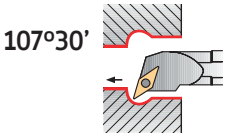
SPARE PARTS ‖ Complementos | Repuestos

Cutter Reference	Screw	Wrench
		
A06M-STFCR/L2	P0250701	XT07
A08M-STFCR/L2	P0250700	XT07
A10R-STFCR/L2	P0250700	XT07
A12S-STFCR/L2	P0250700	XT07

SVQC 107°30' | INTERNAL TOOLHOLDERS | Ferros de torno | Herramientas de torneado

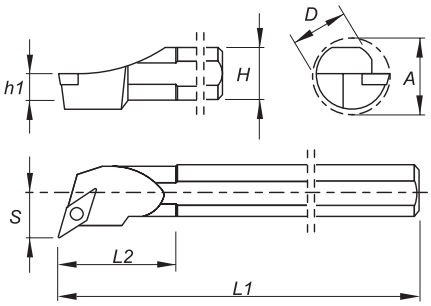
(S) CENTER SCREW TOOLHOLDERS

Finishing	Finishing	Finishing	Finishing
Flat	FP	FM	FK
			
Medium	**Medium**	**Medium to Finishing**	**Finishing to Fine Finishing**
MP	MK	LN	FS
			



107°30'

Axial: 0°
Radial: -6°



Order Code		Reference	Dimensions (in)							Insert	Lbs
R	L		D	H	h1	L1	L2	S	A		
2121504IN	2121503IN	S16T-SVQCR/L3	1.00	0.90	0.45	12.00	0.91	0.75	1.38	VC..33..	1.54
2121505IN	2121462IN	S20U-SVQCR/L3	1.25	1.18	0.59	14.00	1.06	0.88	1.63	VC..33..	4.51
2123481IN	2120507IN	S24V-SVQCR/L3	1.50	1.37	0.69	15.75	1.37	1.06	2.00	VC..33..	8.25

SPARE PARTS | Complementos | Repuestos

Cutter Reference	Screw	Wrench	Screw	Shim
				
S16T-SVQCR/L3	P0401100	XT15-S35	-	-
S20U-SVQCR/L3	P0351500	290091900	CV160300	T05003500
S24V-SVQCR/L3	P0351500	290091900	CV160300	T05003500

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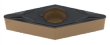
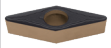
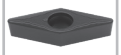
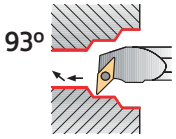
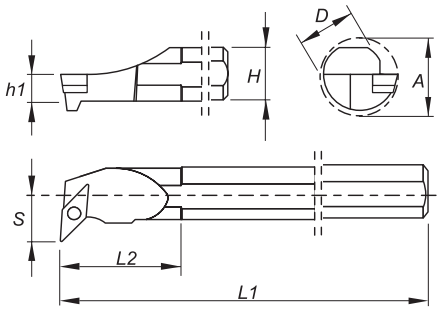
(S) CENTER SCREW TOOLHOLDERS

Finishing	Finishing	Finishing	Finishing
Flat	FP	FM	FK
			
Medium	**Medium**	**Medium to Finishing**	**Finishing to Fine Finishing**
MP	MK	LN	FS
			



Axial: 0°
Radial: -5°

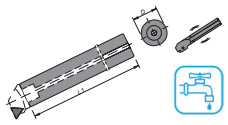


Order Code		Reference	Dimensions (in)							Insert	Lbs
R	L		D	H	h1	L1	L2	S	A		
2121417IN	2121416IN	S10R-SVUCR/L2E	0.63	0.58	0.29	8.00	1.06	0.50	0.87	VC..22..	0.66
2121597IN	2121598IN	S12S-SVUCR/L2E	0.75	0.71	0.36	10.00	1.58	0.63	1.06	VC..22..	1.21
2121600IN	2121599IN	S16T-SVUCR/L2D	1.00	0.90	0.45	12.00	1.81	0.75	1.30	VC..22..	1.54
2121601IN	2121506IN	S20U-SVUCR/L3	1.25	1.18	0.59	14.00	3.00	1.00	2.00	VC..33..	4.51
2123495IN	2120543IN	S24V-SVUCR/L3	1.50	1.37	0.69	15.75	3.00	1.13	2.25	VC..33..	8.25
2123363IN	2123364IN	S32W-SVUCR/L3	2.00	1.87	0.94	17.75	4.00	1.38	2.75	VC..33..	15.21

SPARE PARTS | Complementos | Repuestos

Cutter Reference	Screw	Wrench	Clmap	Screw
				
S10R-SVUCR/L2E	P0250700	XT07	-	-
S12S-SVUCR/L2E	P0250700	XT07	-	-
S16T-SVUCR/L2D	P0250700	XT07	-	-
S20U-SVUCR/L3	P0351500	290091900	CV160300	T05003500
S24V-SVUCR/L3	P0351500	290091900	CV160300	T05003500
S32W-SVUCR/L3	P0351500	290091900	CV160300	T05003500

AVB 7xØ



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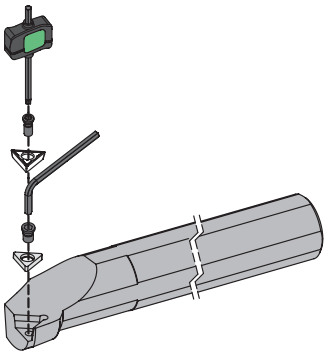
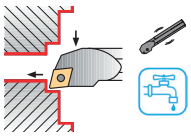
(S) CENTER SCREW ANTI VIBRATION FOR INTERNAL TURNING



SCLC 95°



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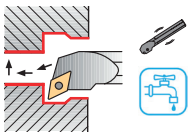
CC.. 0602..
CC.. 09T3..
CC.. 1204..

SDUC 93°



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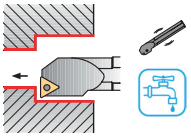
DC.. 0702..
DC.. 11T3..

STFC 90°



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TC.. 1102..
TC.. 16T3..

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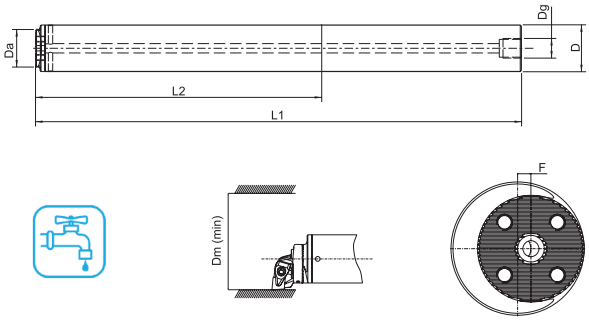
ANTI-VIBRATION CYLINDRICAL BARS | Barras anti-vibração cilindricas | Barras anti-vibración cilíndricas



* Maximum depth of cut: 7x Diameter

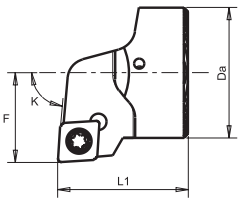


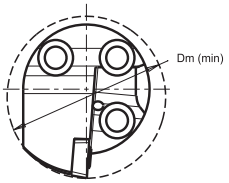
Order Code	Reference	Dimensions (mm)			
		ØD	ØDa	L1	lbs
2123101IN	J16/1200	1.00	.984	12.00	2.65
2123105IN	J20/1400	1.25	1.25	14.00	4.85
2123103IN	J24/1600	1.50	1.25	16.00	5.90

CUTTING HEADS FOR BARS | Cabeças de corte para barras | Cabezas de corte para barras

K = 85º







R	L	Reference	Dimensions (in)					
			ØD	L1	f	Da	Insert	lbs
2123559IN	2123560IN	A25X-SCLCR/L09-N	0.984	0.984	0.669	1.260	CC..32.5..	0.155
2123561IN	2123562IN	A32X-SCLCR/L12-N	1.260	1.811	0.866	1.575	CC.43..	0.330
2123563IN	2123564IN	A40X-SCLCR/L12-N	1.575	1.811	1.063	1.968	CC.43..	0.550
2123565IN	2123566IN	A50X-SCLCR/L12-N	1.968	1.575	1.378	2.480	CC.43..	1.435
2123567IN	2123568IN	A60X-SCLCR/L12-N	2.362	1.575	1.693	3.150	CC.43..	1.875

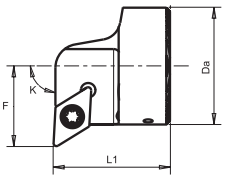
SPARE PARTS | Complementos | Repuestos

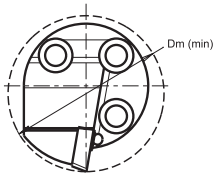
Reference	Clamp Screw	Wrench	Shim	Clamp Screw
				
A25X-SCLCR/L09-N	P0400802	XT15-S35	-	-
A32X-SCLCR/L12-N	P0401400	290092000	CC120401	T06004000
A40X-SCLCR/L12-N	P0401400	290092000	CC120401	T06004000
A50X-SCLCR/L12-N	P0401400	290092000	CC120401	T06004000
A60X-SCLCR/L12-N	P0401400	290092000	CC120401	T06004000

CUTTING HEADS FOR BARS | Cabeças de corte para barras | Cabezas de corte para barras

K = 87º







R	L	Reference	Dimensions (in)					
			ØD	L1	f	Da	Insert	lbs
2123571IN	2123572IN	A25X-SDUCR/L11-N	0.984	0.984	0.669	1.260	DC..32.5.	0.155
2123573IN	2123574IN	A32X-SDUCR/L11-N	1.260	1.811	0.866	1.575	DC..32.5.	0.330
2123575IN	2123576IN	A40X-SDUCR/L11-N	1.575	1.811	1.063	1.968	DC..32.5.	0.550
2123577IN	2123578IN	A50X-SDUCR/L11-N	1.968	1.575	1.378	2.480	DC..32.5.	1.435
2123579IN	2123580IN	A60X-SDUCR/L11-N	2.362	1.575	1.693	3.150	DC..32.5.	1.875

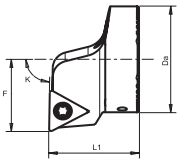
SPARE PARTS | Complementos | Repuestos

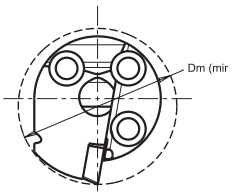
Reference	Clamp Screw	Wrench	Shim	Clamp Screw
				
A25X-SDUCR/L11-N	P0401100	XT15-S35	-	-
A32X-SDUCR/L11-N	P0351500	290091900	CD110301	T05003500
A40X-SDUCR/L11-N	P0351500	290091900	CD110301	T05003500
A50X-SDUCR/L11-N	P0351500	290091900	CD110301	T05003500
A60X-SDUCR/L11-N	P0351500	290091900	CD110301	T05003500

CUTTING HEADS FOR BARS | Cabeças de corte para barras | Cabezas de corte para barras

K = 89º







R	L	Reference	Dimensions (in)					
			ØD	L1	f	Da	Insert	lbs
2123583IN	2123584IN	A25X-STFCR/L16-N	0.984	0.984	0.669	1.260	TC..32.5..	0.155
2123585IN	2123586IN	A32X-STFCR/L16-N	1.260	1.811	0.866	1.575	TC..32.5..	0.330
2123587IN	2123588IN	A40X-STFCR/L16-N	1.575	1.811	1.063	1.968	TC..32.5..	0.550
2123589IN	2123590IN	A50X-STFCR/L16-N	1.968	1.575	1.378	2.480	TC..32.5..	1.435
2123591IN	2123592IN	A60X-STFCR/L16-N	2.362	1.575	1.693	3.150	TC..32.5..	1.875

SPARE PARTS | Complementos | Repuestos

Reference	Clamp Screw	Shim Screw	Shim	Clamp Screw
A25X-STFCR/L16-N	P0401100	XT15-S35	-	-
A32X-STFCR/L16-N	P0351500	290091900	CT160302	T05003500
A40X-STFCR/L16-N	P0351500	290091900	CT160302	T05003500
A50X-STFCR/L16-N	P0351500	290091900	CT160302	T05003500
A60X-STFCR/L16-N	P0351500	290091900	CT160302	T05003500

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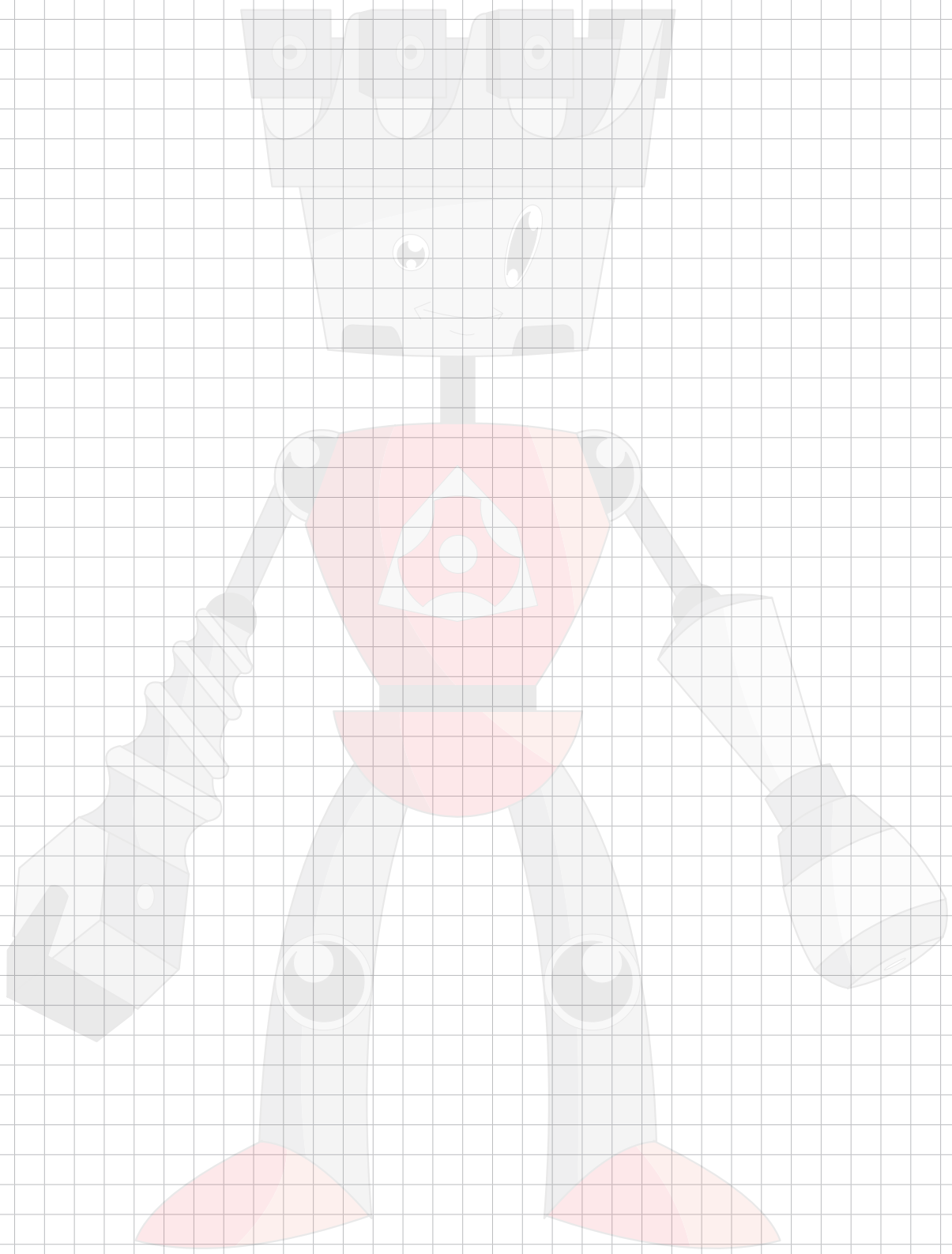
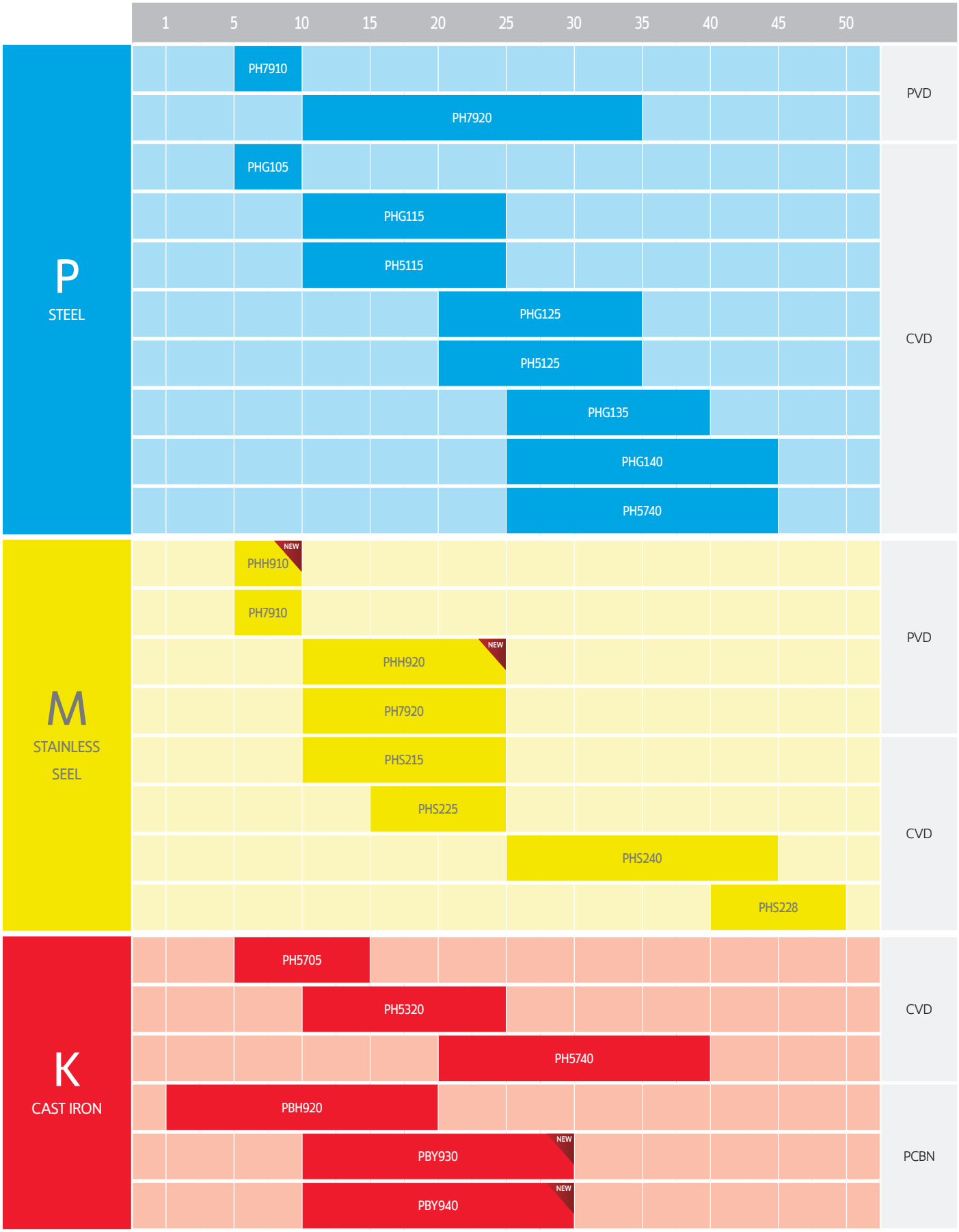
NOTES



TURNING GRADES



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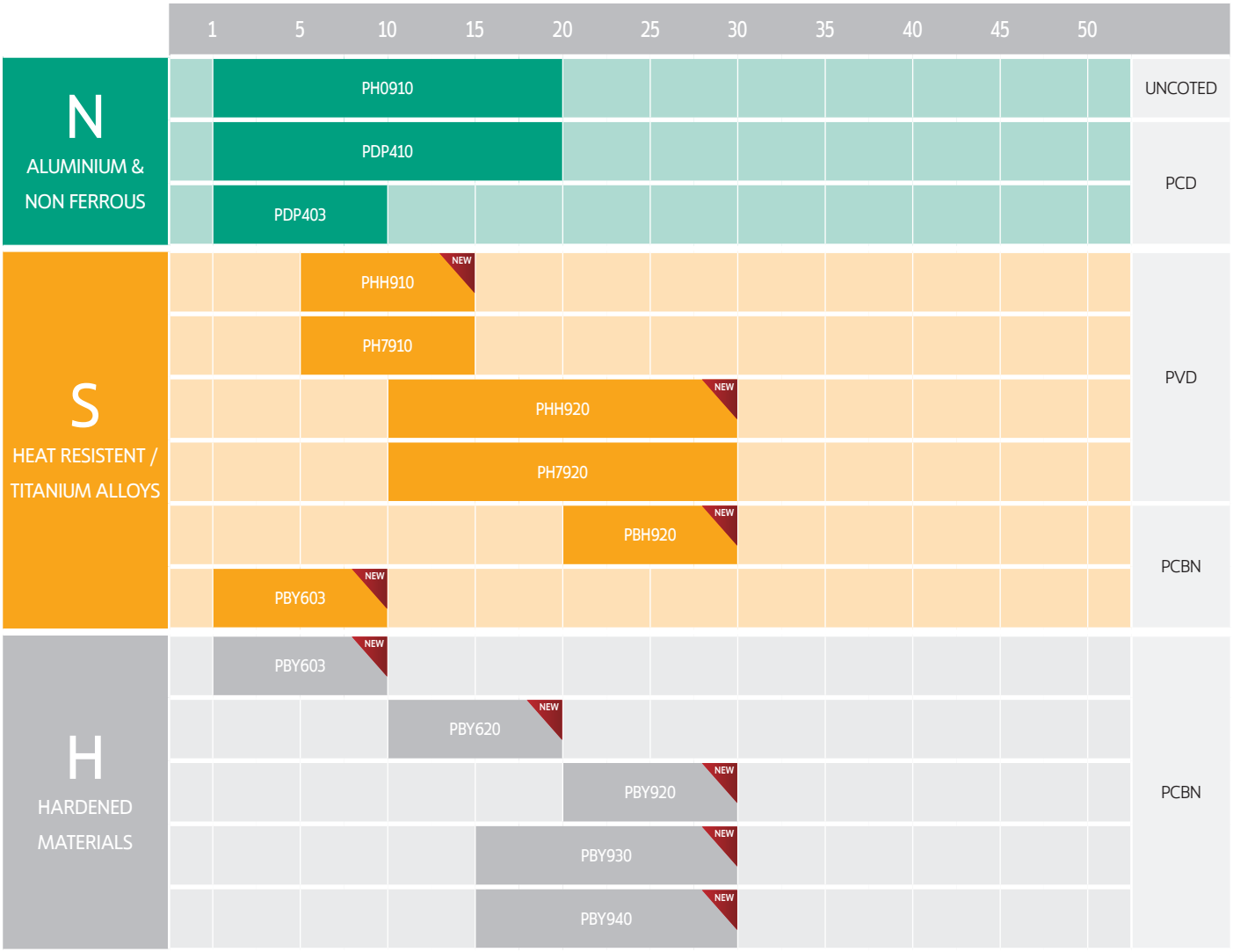
1
5
10
15
20
25
30
35
40
45
50
N
ALUMINIUM & NON FERROUS
PH0910
PDP410
PDP403
UNCOTED
PCD
S
HEAT RESISTENT / TITANIUM ALLOYS
PHH910
NEW
PH7910
PHH920
NEW
PH7920
PBH920
NEW
PBY603
NEW
PVD
PCBN
H
HARDENED MATERIALS
PBY603
NEW
PBY620
NEW
PBY920
NEW
PBY930
NEW
PBY940
NEW
PCBN

TURNING GRADES DESCRIPTION

PVD GRADES

PHH...

A thin PVD coating. 1st choice for finishing operations stainless steels and HRSA.

WEAR RESISTANCE ⟷ TOUGHNESS

PHH910 (NEW)
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 (NEW)
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.

PHH
NEW GRADE



PH7...

A thin PVD coating recommended for finishing operations on steels and suitable for stainless steels and HRSA. Work well on “gummy” materials.

WEAR RESISTANCE ⟷ TOUGHNESS

PH7910
P05-P10
M05-M10
S05-S15

PH7920
P10-P35
M05-M10
S05-S15

CVD GRADES

PHS...

A medium temperature CVD coating with great adhesion and great heat dissipation properties. 1st choice for machining stainless steels.

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.

PHS



PH0910

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

PH0910
N01-N20

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PHG...

A medium temperature CVD coating with great adhesion and great wear protection.
1st choice for machining steels.

PHG

WEAR RESISTANCE ← → TOUGHNESS

PHG105	PHG115	PHG125	PHG140
P05-P10	P10-P25	P20-P35	P25-P45
First option for continuous cut with hardness higher than 38HRC.	Suitable for high to medium cutting speeds on steels.	Ideal for general application in all kind of steels.	First choice for roughing to heavy roughing operations with interrupted cut at medium to low cutting speeds.



PH5...

A thick CVD coating with smooth surface. 1st choice for machining cast irons.

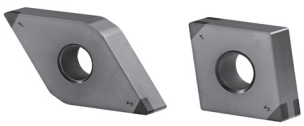
WEAR RESISTANCE ← → TOUGHNESS

PH5705	PH5320	PH5115	PH5125	PH5740
K05-K15	P01-P15 K10-K30	P10-P25	P20-P35	P25-P45 K20-K40

PCBN

PCBN insert excel in the finishing and semi-finishing process of hardened steels as well as hard cast iron and HRSA.



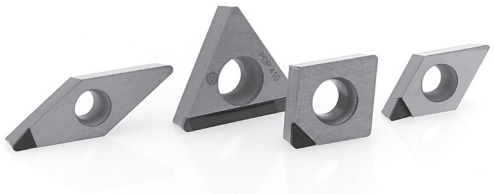


PBY603	PBY620	PBY930	PBY940	PBH920
H01-H10	H10-H20	H20-H30	H20-H30	K01-K30
Machining of hardened materials in high continuous cut up to 590SFM cutting speed.	Machining of hardened materials in light to heavy interrupted cuts.	High wear resistance and impact thougness. Excels in white iron and steel rolls 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

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

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



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C - 521

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	GC1005		IC520	TS2000 CP200	VP10MF			WSM10	PR915	TT5080		
	M10	PH7910	GC1005 GC1025 GC1125 GC1105	KC5010 KC5510 KC6005 KC6015	IC330 IC354 IC507 IC520 IC570 IC807 IC907 IC3028	CP200 TS2000	VP10MF		AH710	WSM20	PR915 PR1025 PR1225 PR1425	TT5030 PV3010 PV3030 TT9030	PC8110 PC9030	
	M20	PH7920	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	WSM30	PR1025 PR1125 PR1225 PR915 PR930	TT5030 PV3030 TT9020 TT9030	PC9030 PC8110 PC8115	CTP2120 CTP1235 SR226 GM127
	M30	PH7920	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

PH7910 = Best available choice

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ISO	Material	Palbit	Sandvik	Kennametal	Iscar	Seco	Mitsubishi	Sumitomo	Tungaloy	Walter	Kyocera	Taegutec	Korloy	Ceratizit
S	S01	**PH7910** **PHH910**			IC507 IC907		MP9005 VP05RT		AH905 AH905 SH730	WDSM10	PR915		PC8110	
HEAT RESISTENT / TITANIUM ALLOYS	S10	**PH7910** **PHH910**	GC1105 GC1005 GC1025	KC5010 KC5410 KC5510	IC507 IC903 IC300 IC808	CP200 CP250 TS2000 TS2500 CP250	MP9015 VP10RT MP9015	AC510U	AH110 AH120	WSM20	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	WSM30	PR1125	TT8020 TT8030	PC8815 PC5300	CTP2440 GM127
	S30	**PH7920** **PHH920**	GC1125				VP15TF	AC520U	AH725		PR1125	TT8020	PC5400	CTP2135

PHH910 = Best available choice

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**	GC4205 GC4005	KCP05 KC9105	IC9150 IC8150 IC428	TP0500 TP1500	UE6105	AC810P AC700G	T9105 T9005	WPP01	CA510 CA5505	TT1300	NC3010	
	P10	**PHG105** **PH5115** **PHG115**	GC4315 GC4215 GC4015 GC4325	KCP10B KCP10 KCP25 KC9110	IC9150 IC9015 IC8150 IC8250	TP1500 TP2500	UE6105 MC6015 UE6110 MY5015	AC810P AC700G AC820P AC2000	T9105 T9005 T9115	WPP01 WPP05	CAS510 CA5505 CA515 CA5515	TT1300 TT7310 TT7400	NC3215	CTC1110 CTC1115 CTC3110 TCC410
	P20	**PH5115** **PHG115** **PH5125** **PHG125**	GC4315 GC4215 GC4015 GC4325 GC4225 GC4025	KCP25B KCP25 KC9125	IC9015 IC8250 IC9050 IC9250 IC8350	TP2500	MC6015 UE6110 MC6025 UE6020 MY5015	AC820P AC2000 AC830P	T9115 T9125	WPP10S WPP20S	CA515 CA5515 CA525 CA5525 CR9025	TT3500 TT5100 TT7400 KT7300 TT7800	NC3220 NC3220 NC3120	CTC1110 CTC1115 CTC1125 CTC1130 CTC1425
	P30	**PH5125** **PHG125**	GC4325 GC4225 GC4025 GC4235 GC4035	KCP30 KCP40 KCP8050	IC8350 IC9250 IC9350	TP3500 TP3000	MC025 UE6020 UE6035 UH6400	AC830P AC630M	T9125 T9135 T9035	WPP30S	CA525 CA5525 CA530 CA5335 CR9025	TT3500 TT5100 TT7400 KT7300	NC3215 NC3225 NC3120	CTC1125 CTC1130 CTC1135 CTC1425
	P40	**PHG140** **PH5740**	GC4235 GC4035	KCP30 KCP40 KC9140 KC9040 KC9240 KC9245	IC9350	TP3500 TP3000	UE6035 UH6400	AC630M	T9135 T9035		CA530 CA5535	TT5100 TT7100 KT7300 TT7800	NC500H NC5330	CTC1135 CTC1435 CTC2135
M STAINESS STEEL	M10	**PHS215**	GC2015	KCM15	IC9250 IC6015 IC8250	TM2000	MC7015 US7020	AC610M	T9115	WAM20	CA6515		NC9020	CTC1110 CTC1115
	M20	**PHS215** **PHS225**	GC2015	KCM15 KC9225	IC9250 IC6015 IC9025 IC656	TM2000	MC7015 US7020 MC7025	AC610M AC6030M AC630M	T6020 T9125		CA6515 CA6525	TT5100	NC9020	CTC1115 CTC1125 CTC1130 CTC1135
	M30	**PHS225** **PHS240**	GC2025	KCM25 KC9230	IC9350 IC6025 IC635	TM4000	MC7025 US735	AC6030M AC630M	T6030		CA6525	TT5100 TT7100	NC9025	CTC1125 CTC1135 CTC1425 CTC1435 CTC2135
	M40	**PHS240**	GC2025	KCM35 KC9240 KC9245	IC6025 IC9350	TM4000	US735	AC6030M AC630M				TT7100	NC9025	CTC2135
	M50	**PHS228**	GC2035	KC9245	IC9350								NC9035	
K CAST IRON	K05	**PH5705**	GC3205 GC3210	KCK05	IC5005 IC9007	TH1500 TK1001 TK1000	MC5005 UC5105	AC405K AC410K	T5105	WAK10	CA4505 CA4010			
	K10	**PH5705** **PH5320**	GC3205 GC3210 GC3215	KCK15B KCK15B KC920 KC9315	IC5005 IC5010 IC9150 IC428 IC4028	TK1001 TK1000 TK2000 TK2001	MC5015 UC5115 MY5015	AC405K AC410K AC415K AC420K AC700G	T5115	WAK20	CA4515 CA4110 CA4115	TT3100 TT7310 TT8115	NC6205 NC6210 NC6215	CTC1110 CTC1115 CTC3110 TCC410 CTC3215
	K20	**PH5320**	GC3215	KCK20 KC9110 KC9325	IC5010 IC8150 IC9150 IC9015 IC418	TK2001 TK2000	MC5015 UC5115 UE6110 MY5015	AC415K AC420K AC700G AC820P	T5115 T5125	WAK30	CA4515 CA4115 CA4120	TT7310 TT8115	NC6215	CTC1115 CTC1125 CTC1130 CTC1425 CTC3215
	K30	**PH5740**		KC9125 KC9325	IC9015 IC418		UE6110	AC820P	T5125					TSC30

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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	

PH7910 = Best available choice

CHIPBREAKER COMPARATIVE CHART | Tabela de equivalências de quebra-aparas | Tabla de comparación de rompevirutas

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	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 chipbre-aker	Without chipbreaker		MR7, M5	CH Without Chipbreaker	RK Without Chipbre-aker	Without Chipbre-aker	Without Chipbre-aker	GC Without Chipbre-aker	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

MS = Best available choice *=Wiper "= Single face insert

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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**	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**	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**												

CHIPBREAKER 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 (in/rev)	Cutting Conditions** Deph of cut DOC (in)	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	2,6 / 4°	1 / 12°	0.008 to 0.014	0.039 to 0.236	●							
	Medium	U	P M K	02	3,7 / 4°	0,30 / 12°	0.016 to 0.028	0.059 to 0.236	●							
NEGATIVES - double side	Medium Finishing	M	P M	01	6°	12°	0.005 to 0.020	0.039 to 0.256			●			●		
	Roughing to Medium	M	P M	02	10°	12°	0.016 to 0.020	0.028 to 0.197			●					
	Medium Finishing	M	P M	03	0,20 / 15°	0,20 / 15°	0.006 to 0.020	0.031 to 0.236			●					
	Medium Finishing	M	P M	MF	15°	0,22 / 12°	0.002 to 0.024	0.004 to 0.098		●	●		●	●	●	●
	Medium Finishing	M	M N S	MS	13°	13°	0.004 to 0.031	0.008 to 0.177		●	●			●	●	●
	Medium Finishing		NEW M S	GS	0,4 / 15°	0,4 / 15°	0.004 to 0.024	0.016 to 0.079		●	●		●	●	●	●
	Medium Finishing	M	M S	SF	0,3 / 20° 10°	0,3 / 20° 10°	0.004 to 0,55	0.024 to 0.118		●	●		●	●	●	●
	Medium Finishing	M	P	LC	0,15 / 18°	0,2 / 10°	0.003 to 0.020	0.024 to 0.118		●	●			●	●	●
	Medium Finishing	M	K	ST	0,2 / 15°	0,2 / 15°	0.004 to 0.020	0.006 to 0.413		●	●	●	●	●	●	●
	Medium Finishing	M	P	MR	0,2 / 22° 6°	0,2 / 22° 6°	0.004 to 0.028	0.112 to 0.354		●	●		●	●	●	●

* T-Land varies according to the IC (IC reference used:1/2in)
** Cutting Conditions varies according to the Insert shape, IC and Nose Radius

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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 (in/rev)	Cutting Conditions** Deph of cut DOC (in)	Available Shapes KN _ _ 55°	CN _ _ 80°	DN _ _ 55°	RN _ _	SN _ _ 90°	TN _ _ 60°	VN _ _ 35°	WN _ _ 80°
NEGATIVES - double side	Medium Finishing	M	P	PM	0.25, 15°, 7°	0.25, 15°, 7°	0.004 to 0.024	0.112 to 0.354		●	●			●		●
	Medium Finishing	M	K	Flat	0°	0°	0.003 to 0.098	0.004 to 0.591		●	●	●	●	●	●	●
	Medium Wiper	M	P M K	MW	0.3, 16°	0.3, 16°	0.006 to 0.035	0.112 to 0.236		●	●			●		●
	Roughing to Medium roughing	M	M S	SS	0.3, 20°, 10°	0.3, 20°, 10°	0.004 to 0.039	0.112 to 0.335		●	●		●	●	●	●
	Roughing to Medium roughing	M	P NEW	MA	0.3, 25°	0.3, 25°	0.112 to 0.028	0.047 to 0.315		●						
	Roughing	M	P M K	HR	0.32, 18°	0.32, 18°	0.008 to 0.047	0.031 to 0.591		●	●		●	●		●
NEGATIVES - Single side	Roughing to Medium roughing	M	P NEW	GR	0.25, 20°	0.30, 20°	0.008 to 0.059	0.031 to 0.315		●						
	Roughing	M	P M	RP	0.25, 20°	0.30, 20°	0.112 to 0.059	0.079 to 0.472		●			●			
	Heavy Roughing to Roughing	M	P M	HY	0.5, 0.2, 17°, 8°	0.5, 0.2, 17°, 8°	0.014 to 0.063	0.079 to 0.591		●			●			
	Heavy Roughing	M	P K	HZ	0.53, 0.2, 18°, 15°	0.53, 0.2, 18°, 15°	0.014 to 0.063	0.094 to 0.669		●			●			

* T-Land varies according to the IC (IC reference used:1/2in)
** Cutting Conditions varies according to the Insert shape, IC and Nose Radius

CHIPBREAKER 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	Cutting Conditions** Feed Fn (in/rev)	Cutting Conditions** Deph of cut DOC (in)	Available Shapes CC __ 80°	DC __ 55°	RC __	SC __ 90°	TC __ 60°	VC __ 35°	VB __ 35°
POSITIVES - Clearance angle 5° and 7°	Fine Finishing	M	P	FP	6°	6°	0.001 to 0.018	0.002 to 0.094	●	●		●	●	●	●
		M	P M S	BO	5°	5°	0.002 to 0.112	0.112 to 0.059	●						
		M	M S	FM	6°	6°	0.001 to 0.018	0.002 to 0.094	●	●		●	●	●	●
		M	K	FK	6°	6°	0.001 to 0.112	0.002 to 0.094	●	●		●	●	●	●
	Fine Finishining wiper	M	P M K S	FW	0,07 18°	0,1 18°	0.002 to 0.020	0.112 to 0.138	●	●			●		
	Finishing	M	M S	LM	0,10 20° 8°	6°	0.003 to 0.014	0.008 to 0.118	●	●					
	Finishing to fine finishing	G	P M S	FS	0,13 8°	6°	0.001 to 0.010	0.004 to 0.118	●	●			●	●	
		G	N	LN	~25°	20°	0.002 to 0.063	0.002 to 0.276	●	●	●	●	●	●	
	Medium	M	K	Flat	0°	0°	0.002 to 0.031	0.002 to 0.248	●	●		●	●	●	●
		M	P	MP	0,12 24° 8°	7°	0.002 to 0.024	0.007 to 0.142	●	●		●	●	●	●
		M	M S	MM	0,12 24° 8°	7°	0.002 to 0.024	0.007 to 0.142	●	●		●	●	●	●
		M	K	MK	0,12 24° 8°	7°	0.002 to 0.024	0.007 to 0.142	●	●		●	●	●	●

* T-Land varies according to the IC (IC reference used:1/2in)
** Cutting Conditions varies according to the Insert shape, IC and Nose Radius

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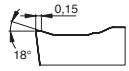
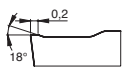
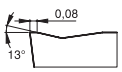
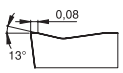
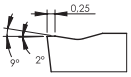
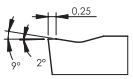
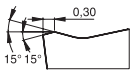
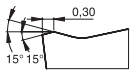
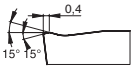
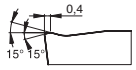
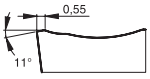
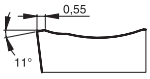
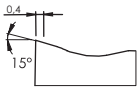
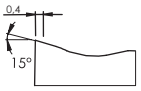
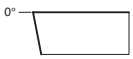
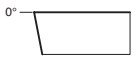
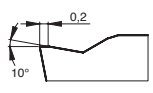
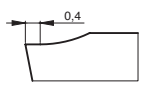
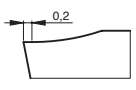
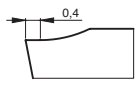
POSITIVES | POSITIVAS | POSITIVAS

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 (in/rev)	Cutting Conditions** Deph of cut DOC (in)	Available Shapes CC _ _ 80°	DC _ _ 55°	RC _ _	SC _ _ 90°	TC _ _ 60°	VC _ _ 35°	VB _ _ 35°
POSITIVES - Clearance angle 5º and 7º	Finishing Wiper	M	P M K S	MW			0.004 to 0.020	0.020 to 0.157	●	●			●		
	Medium	M	P M S	CP			0.002 to 0.007	0.020 to 0.094			●				
	Medium to finishing		P M	RF			0.010 to 0.098	0.098 to 0.394			●				
	Roughing to Medium	M	P M K	ST			0.002 to 0.126	0.031 to 0.504			●				
			P M K	RM			0.031 to 0.098	0.126 to 0.512			●				
			P M	RR			0.031 to 0.098	0.126 to 0.512			●				
	Medium to Roughing	M	M S	GS			0.002 to 0.157	0.016 to 0.197			●				

* T-Land varies according to the IC (IC reference used:1/2in)
** 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 (in/rev)	Cutting Conditions** Deph of cut DOC (in)	Available Shapes CC _ _ 80°	DC _ _ 55°
POSITIVES - Clearance angle 11º	Medium to Finishing	U	P M K S	Flat			0.002 to 0.087	0.039 to 0.394	●	●
	Finishing to Fine Finishing	M	P M K	12			0.001 to 0.022	0.004 to 0.118	●	●
	Medium	M	P M	13			0.001 to 0.022	0.008 to 0.276	●	●

* T-Land varies according to the IC (IC reference used:1/2in)
** Cutting Conditions varies according to the Insert shape, IC and Nose Radius

CUTTING SPEED (SFM) ‖ Velocidade de corte (SFM) | Velocidad de corte (SFM)

ISO	Material	Grade fn (in/r) / HB (brinell)	CVD Coating ← Wear Resistance — Toughness →														
			PHG105			PH5115			PHG115			PH5125			PHG125		
			0.008	0.016	0.031	0.008	0.016	0.031	0.008	0.016	0.031	0.008	0.016	0.031	0.008	0.016	0.031
P	Unalloyed steel	125-170	919-1247	689-984	656-820	788-1116	558-853	525-689	820-1148	591-886	558-722	624-935	525-755	460-673	656-968	558-788	492-706
	Low-alloy steel	180-350	722-919	656-853	558-689	591-788	525-722	427-558	624-820	558-755	460-591	525-722	427-656	361-591	558-755	460-689	394-624
	High-alloy steel	200-325	542-820	492-771	460-755	410-689	361-640	328-624	443-722	394-673	361-656	378-673	328-574	296-525	410-706	361-607	328-558

ISO	Material	Grade fn (in/r) / HB (brinell)	CVD Coating ← Wear Resistance — Toughness →						PVD Coating ← Wear Resistance — Toughness →					
			PHG140			PH5740			PH7910			PH7920		
			0.008	0.016	0.031	0.008	0.016	0.031	0.008	0.016	0.031	0.008	0.016	0.031
P	Unalloyed steel	125-170	443-755	394-689	378-656	410-722	361-656	345-624	460-804	427-738	378-722	427-755	394-722	361-689
	Low-alloy steel	180-350	410-673	345-607	312-607	378-640	312-574	279-574	427-755	410-738	410-706	410-722	378-689	328-656
	High-alloy steel	200-325	345-673	246-574	164-443	312-640	214-542	132-410	-	-	-	-	-	-

ISO	Material	Grade fn (in/r) / HB (brinell)	CVD Coating ← Wear Resistance — Toughness →								
			PHS215			PHS225			PHS240		
			0.008	0.016	0.024	0.008	0.016	0.024	0.008	0.016	0.024
M	SS - Ferritic/martensitic	200-330	410-853	328-722	263-656	378-755	296-591	230-525	361-755	279-574	230-460
	SS - Austenitic	180-330	394-837	312-706	246-640	361-738	279-574	214-509	345-738	263-558	214-443
	SS - Austenitic-ferritic (Duplex)	230-260	361-804	279-673	214-607	328-706	246-542	181-476	312-706	230-525	181-410

ISO	Material	Grade fn (in/r) / HB (brinell)	PVD Coating ← Wear Resistance — Toughness →											
			PH7910			PHH910			PH7920			PHH920		
			0.008	0.016	0.024	0.008	0.016	0.024	0.008	0.016	0.024	0.008	0.016	0.024
M	SS - Ferritic/martensitic	200-330	394-722	361-689	345-673	427-755	394-722	378-706	361-689	328-656	312-640	394-722	361-689	345-673
	SS - Austenitic	180-330	378-706	345-673	312-640	410-738	378-706	345-673	345-673	312-640	279-607	378-706	345-673	312-640
	SS - Austenitic-ferritic (Duplex)	230-260	345-663	328-640	296-607	378-696	361-673	328-640	312-630	296-607	263-574	345-663	328-640	296-607

ISO	Material	Grade fn (in/r) / HB (brinell)	CVD Coating ← Wear Resistance — Toughness →								
			PH5705			PH5320			PH5740		
			0.008	0.016	0.024	0.008	0.016	0.024	0.008	0.016	0.024
K	Marble cast iron	130-230	525-1181	460-919	394-771	492-1083	427-788	361-722	361-755	328-706	328-624
	Grey cast iron	180-220	722-1247	624-1083	492-952	656-1083	558-919	492-755	492-755	460-722	361-689
	Nodular cast iron	160-380	492-919	443-870	394-722	460-820	410-755	361-722	410-722	378-673	345-607

ISO	Material	Grade fn (in/r) / HB (brinell)	Uncoated	
			PH0910	
			0.006	0.031
N	Aluminium alloys	60-130	1230-7872	132-788
	Cooper and cooper alloys	90-110	1230-2067	115-214

ISO	Material	Grade fn (in/r) / HB (brinell)	PVD Coating ← Wear Resistance — Toughness →											
			PH7910			PHH910			PH7920			PHH920		
			0.004	0.012	0.020	0.008	0.016	0.024	0.004	0.012	0.020	0.008	0.016	0.024
S	Heat resistent super alloys (Iron base)	200-280	214-460	197-427	164-361	246-492	230-460	197-394	197-443	181-410	148-345	230-476	214-443	181-378
	Heat resistent super alloys (Nickel base)	250-320	148-394	132-361	99-328	181-427	164-394	132-361	132-378	115-345	82-312	164-410	148-378	115-345
	Heat resistent super alloys (Cobalt base)	200-320	148-378	132-345	99-296	181-410	164-378	132-328	132-361	115-328	82-279	164-394	148-361	115-312
	Titanium alloys (400<or<1050[MPa])	-	164-427	148-394	132-328	197-460	181-427	164-361	148-410	132-378	115-312	181-443	164-410	148-345

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SELECTION GUIDE (GRADES AND CHIPBREAKERS) FOR NEGATIVE INSERTS

Guia De Seleção (Graus E Quebra-Aparas) para pastilhas negativas| Guía De Selección (Calidades Y Rompevirutas) para plaquitas negativas

SELECTION GUIDE FOR NEGATIVE INSERTS - SINGLE SIDE ...NMM'S

ISO	Material workplace	Stability	Medium		Roughing		Medium roughing		Insert			Holders
			Chipbreaker	Grade	Chipbreaker	Grade	Chipbreaker	Grade	Type			Type
P	Unalloy steel HB 110 DIN C15 C45	●	RP	PH5125 PHG125	RP	PH5125 PHG125	HZ	PH5125 PHG125	Negative single side	Conventional Nose Radius	#NMM	D##N M##N M##N-K
		◐	RP	PH5125 PHG125	HY	PH5125 PHG125	HZ	PH5125 PHG125				
		✱	RP	PH5125 PHG125	HY	PH5740 PHG140	HZ	PH5740 PHG140				
	Low Alloyed Steel HB180 DIN 21NiCrM02 36CrNiM04	●	RP	PH5125 PHG125	RP	PH5125 PHG125	HZ	PH5125 PHG125	Negative single side	Conventional Nose Radius	#NMM	D##N M##N M##N-K
		◐	RP	PH5125 PHG125	HY	PH5125 PHG125	HZ	PH5125 PHG125				
		✱	RP	PH5125 PHG125	HY	PH5125 PHG125	HZ	PH5125 PHG125				
	High alloyed steel HB 200 DIN 34CrNiMo6 42CrMo4	●	RP	PH5125 PHG125	RP	PH5125 PHG125	HZ	PH5125 PHG125	Negative single side	Conventional Nose Radius	#NMM	D##N M##N M##N-K
		◐	RP	PH5125 PHG125	HY	PH5125 PHG125	HZ	PH5125 PHG125				
		✱	RP	PH5125 PHG125	HZ	PH5740 PHG140	HZ	PH5740 PHG140				
	High alloyed steel HB 400 DIN X40CrMoV5 X45GrSi93	●	RP	PH5125 PHG125	RP	PH5125 PHG125	HZ	PH5125 PHG125	Negative single side	Conventional Nose Radius	#NMM	D##N M##N M##N-K
		◐	RP	PH5125 PHG125	HY	PH5125 PHG125	HZ	PH5125 PHG125				
		✱	RP	PH5125 PHG125	HZ	PH5125 PHG125	HZ	PH5125 PHG125				
M	Ferritic/ martensitic stainless steel DIN X12CrMoS17 X6CrMo17	●	RP	PHS225	RP	PHS225	HY	PHS225	Negative single side	Conventional Nose Radius	#NMM	D##N M##N M##N-K
		◐	RP	PHS225	HY	PHS225	HY	PHS225				
		✱	RP	PHS225	HY	PHS240	HY	PHS240				
	Austenitic stainless steel DIN X5CrNi189 X5CrNiMo18	●	RP	PHS225	RP	PHS225	HS	PHS225	Negative single side	Conventional Nose Radius	#NMM	D##N M##N M##N-K
		◐	RP	PHS225	RP	PHS225	HY	PHS225				
		✱	RP	PHS225	HY	PHS240	HY	PHS240				
	Duplex stainless steel DIN X2CrNiMoSi19 X8CrNiMo27	●	RP	PHS225	RP	PHS225	HY	PHS225	Negative single side	Conventional Nose Radius	#NMM	D##N M##N M##N-K
		◐	RP	PHS225	RP	PHS225	HY	PHS240				
		✱	RP	PHS225	HY	PHS240	HY	PHS240				
K	Grey cast iron HB 220 DIN GG15 GG25 GG35	●	HZ	PH5320	HZ	PH5320	HY	PH5125	Negative single side	Conventional Nose Radius	#NMM	D##N M##N M##N-K
		◐	HZ	PH5320	HZ	PH5320	HY	PH5125				
		✱	HZ	PH5740	HZ	PH5740	HY	PH5740				
	Nodular cast iron HB 180 DIN GGG40 GGG50 GGG70	●	HZ	PH5320	HZ	PH5320	HY	PH5125	Negative single side	Conventional Nose Radius	#NMM	D##N M##N M##N-K
		◐	HZ	PH5740	HZ	PH5740	HY	PH5125				
		✱	HZ	PH5740	HZ	PH5740	HY	PH5740				

● Stable cutting ◐ General cutting ✱ Unstable cutting

SELECTION GUIDE (GRADES AND CHIPBREAKERS) FOR NEGATIVE INSERTS

SELECTION GUIDE FOR NEGATIVE INSERTS - DOUBLE SIDE ...NMG'S

ISO	Material workplace	Stability	Medium		Roughing		Medium roughing		Insert			Holders
			Chipbreaker	Grade	Chipbreaker	Grade	Chipbreaker	Grade	Type			Type
P	Unalloyed steel HB 110 DIN C15 C45 C60	●	MF	PH5115 PHG115	LC	PH5115 PHG115	MR PM	PH5115 PHG115	Negative double side	Conventional Nose Radius	#NMG	D##N M##N M##N-K P##N
		◐	MF	PH5115 PHG115	LC	PH5125 PHG125	MR PM	PH5125 PHG125				
		✱	MF	PH5125 PHG125	LC	PH5125 PHG125	MR	PH5740 PHG140				
		●	MW	PH5115 PHG115	MW	PH5115 PHG115	MW	PH5115 PHG115	Negative double side	Wiper Nose Radius	CNMG WNMG	D##N 95° M##N 95° M##N-K 95° P##N 95°
		◐	MW	PH5115 PHG115	MW	PH5115 PHG115	MW	PH5115 PHG115				
		✱	MW	PH5125 PHG125	MW	PH5125 PHG125	MW	PH5740 PHG140			DNMG TNMG	D##N 93° M##N 93° M##N-K 93° P##N 93°
	Low alloyed Steel HB 180 DIN 21NiCrMo2 36CrNiMo4 34CrMo4	●	MF	PH7910	MR PM	PH5115 PHG115	HR	PH5115 PHG115	Negative double side	Conventional Nose Radius	#NMG	D##N M##N M##N-K P##N
		◐	MF	PH5115 PHG115	MR PM	PH5125 PHG125	HR	PH5125 PHG125				
		✱	MF	PH5125 PHG125	MR / PM	PH5740 PHG140	HR	PH5740 PHG140				
		●	MW	PH5115 PHG115	MW	PH5115 PHG115	MW	PH5115 PHG115	Negative double side	Wiper Nose Radius	CNMG WNMG	D##N 95° M##N 95° M##N-K 95° P##N 95°
		◐	MW	PH5115 PHG115	MW	PH5115 PHG115	MW	PH5115 PHG115				
		✱	MW	PH5125 PHG125	MW	PH5125 PHG125	MW	PH5740 PHG140			DNMG TNMG	D##N 93° M##N 93° M##N-K 93° P##N 93°
	High alloyed steel HB 200 DIN 34CrNiMo6 42CrMo4	●	MF	PH7910	MR / PM	PH5115 PHG115	HR	PH5115 PHG115	Negative double side	Conventional Nose Radius	#NMG	D##N M##N M##N-K P##N
		◐	MF	PH5115 PHG115	MR / PM	PH5125 PHG125	HR	PH5125 PHG125				
		✱	MF	PH5125 PHG125	MR / PM	PH5740 PHG140	HR	PH5740 PHG140				
		●	MW	PH5115 PHG115	MW	PH5115 PHG115	MW	PH5115 PHG115	Negative double side	Wiper Nose Radius	CNMG WNMG	D##N 95° M##N 95° M##N-K 95° P##N 95°
		◐	MW	PH5115 PHG115	MW	PH5115 PHG115	MW	PH5115 PHG115				
		✱	MW	PH5125 PHG125	MW	PH5125 PHG125	MW	PH5740 PHG140			DNMG TNMG	D##N 93° M##N 93° M##N-K 93° P##N 93°
	High alloyed steel HB 400 DIN X40CrMoV5 X45GrSi93	●	MF ST	PH7910 PH5705	MR PM	PH5115 PHG115	HR	PH5115 PHG115	Negative double side	Conventional Nose Radius	#NMG	D##N M##N M##N-K P##N
		◐	MF ST	PH5115 PHG115 PH5320 PHG105	MR PM	PH5115 PHG125	HR	PH5115 PHG115				
		✱	MF	PH5115 PHG115	MR PM	PH5125 PHG125	HR	PH5125 PHG125				
		●	MW	PH5115 PHG115	MW	PH5115 PHG115	MW	PH5115 PHG115	Negative double side	Wiper Nose Radius	CNMG WNMG	D##N 95° M##N 95° M##N-K 95° P##N 95°
		◐	MW	PH5115 PHG115	MW	PH5115 PHG115	MW	PH5115 PHG115				
		✱	MW	PH5115 PHG115	MW	PH5115 PHG115	MW	PH5125 PHG125			DNMG TNMG	D##N 93° M##N 93° M##N-K 93° P##N 93°
M	Ferritic/ martensitic stainless steel DIN X12CrMoS17 X6CrMo17	●	SF, GS	PH7920 PHH920	SS	PH7920	HR	PHS225	Negative double side	Conventional Nose Radius	#NMG	D##N M##N M##N-K
		◐	SF, GS	PH7920 PHH920	SS	PH7920	HR	PHS225				
		✱	SF, GS	PH7920 PHH920	SS	PH7920	HR	PHS240				
		●	MW	PHS215	MW	PHS215	-	-	Negative double side	Wiper Nose Radius	CNMG WNMG	D##N 95° M##N 95° M##N-K 95° P##N 95°
		◐	MW	PHS215	MW	PHS225	-	-				
		✱	MW	PHS225	MW	PHS240	-	-			DNMG TNMG	D##N 93° M##N 93° M##N-K 93° P##N 93°

● Stable cutting ◐ General cutting ✱ Unstable cutting

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DOUBLE SIDE ...NMG'S

ISO	Material workplace	Stability	Medium		Roughing		Medium roughing		Insert			Holders
			Chipbreaker	Grade	Chipbreaker	Grade	Chipbreaker	Grade	Type			Type
M	Austenitic stainless steel DIN X5CrNi189 X5CrNiMo18 X15CrNiSi20	●	GS, SF	PH7920 PHH910	SS	PH7920	HR	PHS225	Negative double side 0°	Conventional Nose Radius	#NMG	D##N M##N M##N-K P##N
		●	GS, GS	PH7910 PHH7920	SS	PH7920	HR	PHS225				
		✱	GS, SF	PH7920 PHH920	SS	PH7920	HR	PHS240				
		●	MW	PHS215	MW	PHS215	-	-	Negative double side 0°	Wiper Nose Radius	CNMG WNMG	D##N 95° M##N 95° M##N-K 95° P##N 95°
		●	MW	PHS215	MW	PHS225	-	-				
		✱	MW	PHS225	MW	PHS240	-	-			DNMG TNMG	D##N 93° M##N 93° M##N-K 93° P##N 93°
	Duplex stainless steel DIN X2CrNiMoSi19 X8CrNiMo27 X2CrNiMoN22	●	GS, SF	PH7920 PHH920	SS	PH7910	HR	PHS225	Negative double side 0°	Conventional Nose Radius	#NMG	D##N M##N M##N-K P##N
		●	GS, SF	PH7920 PHH920	SS	PH7920	HR	PHS225				
		✱	GS, SF	PH7920 PHH920	SS HR	PHS240	HR	PHS240				
		●	MW	PHS215	-	-	-	-	Negative double side 0°	Wiper Nose Radius	CNMG WNMG	D##N 95° M##N 95° M##N-K 95° P##N 95°
		●	-	-	-	-	-	-				
		✱	-	-	-	-	-	-			DNMG TNMG	D##N 93° M##N 93° M##N-K 93° P##N 93°
K	Grey cast iron HB 220 DIN GG15 GG25 GG35	●	Flat	PH5705	Flat	PH5320	HR	PH5705	Negative double side 0°	Conventional Nose Radius	#NMG	D##N M##N M##N-K P##N
		●	ST	PH5320	ST	PH5705	HR	PH5705				
		✱	ST	PH5320	ST	PH5320	HR	PH5320				
		●	MW	PH5320	MW	PH5320	-	-	Negative double side 0°	Wiper Nose Radius	CNMG WNMG	D##N 95° M##N 95° M##N-K 95° P##N 95°
		●	MW	PH5320	MW	PH5320	-	-				
		✱	MW	PH5320	MW	PH5320	-	-			DNMG TNMG	D##N 93° M##N 93° M##N-K 93° P##N 93°
	Nodular cast iron HB 180 DIN GGG40 GGG50 GGG70	●	Flat	PH5705	ST	PH5705	HR	PH5705	Negative double side 0°	Conventional Nose Radius	#NMG	D##N M##N M##N-K P##N
		●	ST	PH5320	ST	PH5320	HR	PH5320				
		✱	ST	PH5320	ST	PH5320	HR	PH5320				
		●	MW	PH5320	MW	PH5320	-	-	Negative double side 0°	Wiper Nose Radius	CNMG WNMG	D##N 95° M##N 95° M##N-K 95° P##N 95°
		●	MW	PH5320	MW	PH5320	-	-				
		✱	MW	PH5320	MW	PH5320	-	-			DNMG TNMG	D##N 93° M##N 93° M##N-K 93° P##N 93°
S	Titanium Alloys DIN TiAl5Sn2.5 TiAl6V4 TiAl6V4ELI	●	GS, SF	PH7910 PHH910	MS	PH7910 PHH910	SS	PH7920	Negative double side 0°	Conventional Nose Radius	#NMG	D##N M##N M##N-K P##N
		●	GS, SF	PH7910 PHH910	MS	PH7910 PHH910	SS	PH7920				
		✱	GS, SF	PH7910 PHH910	MS	PH7910 PHH910	SS	PH7920				

● Stable cutting ● General cutting ✱ Unstable cutting

SELECTION GUIDE (GRADES AND CHIPBREAKERS) FOR NEGATIVE INSERTS

Guia De Seleção (Graus E Quebra-Aparas) para pastilhas negativas| Guía De Selección (Calidades Y Rompevirutas) para plaquitas negativas

DOUBLE SIDE ...NMG'S

ISO	Material Workplace	Stability	Medium		Roughing		Medium roughing		Insert			Holders
			Chipbreaker	Grade	Chipbreaker	Grade	Chipbreaker	Grade	Type			Type
S	Super Alloys DIN NiCr19Co11MoTi NiFe35Cr14MoTi CoCr20W15Ni	●	GS, SF	PH7910 PHH910	MS	PH7910 PHH910	SS	PH7920	Negative double side 0°	Conventional Nose Radius	#NMG	D##N M##N M##N-K P##N
		◐	GS, SF	PH7910 PHH910	MS SS	PH7910 PHH910	SS	PH7920				
		✱	GS, SF	PH7910 PHH910	MS SS	PH7910 PHH910	SS	PH7920				
N	Aluminium Alloys DIN AW7075 AlSi12 CuZn37	●	MS	PH0910	MS	PH0910	-	-	Negative double side 0°	Conventional Nose Radius	#NMG	D##N M##N M##N-K P##N
		◐	MS	PH0910	MS	PH0910	-	-				
		✱	MS	PH0910	MS	PH0910	-	-				

● Stable cutting ◐ General cutting ✱ Unstable cutting

SINGLE SIDE...CMT'S, BMT'S, CGT'S, RCMX'S, RCMT'S

ISO	Material Workplace	Stability	Medium		Roughing		Medium roughing		Insert			Holders
			Chipbreaker	Grade	Chipbreaker	Grade	Chipbreaker	Grade	Type			Type
P	Unalloyed steel HB 110 DIN C15 C45 C60	●	FP	PH5115 PHG115	MP	PH5115 PHG115	MP	PH5115 PHG115	Positive single side x°	Conventional nose radius	#CMT #BMT	S##C S##B
		◐	FP	PH5115 PHG115	MP	PH5125 PHG125	MP	PH5125 PHG125				
		✱	FP	PH5125 PHG125	MP	PH5125 PHG125	MP	PH5125 PHG125				
		●	FW	PH5115 PHG115	MW	PH5115 PHG115	-	-	Positive single side x°	Wiper nose radius	CCMT	S##C 95º
		◐	FW	PH5115 PHG115	MW	PH5115 PHG115	-	-			DCMT TCMT	S##C 93º
		✱	FW	PH5115 PHG115	MW	PH5115 PHG115	-	-				
	Low alloyed Steel HB 180 DIN 21NiCrMo2 36CrNiMo4 34CrMo4	●	FP	PH5115 PHG115	MP	PH5115 PHG115	MP	PH5115 PHG115	Positive single side x°	Conventional nose radius	#CMT #BMT	S##C S##B
		◐	FP	PH5115 PHG115	MP	PH5125 PHG125	MP	PH5125 PHG125				
		✱	FP	PH5125 PHG125	MP	PH5125 PHG125	MP	PH5125 PHG125				
		●	FW	PH5115 PHG115	MW	PH5115 PHG115	-	-	Positive single side x°	Wiper nose radius	CCMT	S##C 95º
		◐	FW	PH5115 PHG115	MW	PH5115 PHG115	-	-			DCMT TCMT	S##C 93º
		✱	FW	PH5115 PHG115	MW	PH5115 PHG115	-	-				
	High alloyed Steel HB 200 DIN 34CrNiMo6 42CrMo4	●	FP	PH5115 PHG115	MP	PH5115 PHG115	MP	PH5115 PHG115	Positive single side x°	Conventional nose radius	#CMT #BMT	S##C S##B
		◐	FP	PH5115 PHG115	MP	PH5125 PHG125	MP	PH5125 PHG125				
		✱	FP	PH5125 PHG125	MP	PH5125 PHG125	MP	PH5125 PHG125				
		●	FW	PH5115 PHG115	MW	PH5115 PHG115	-	-	Positive single side x°	Wiper nose radius	CCMT	S##C 95º
		◐	FW	PH5115 PHG115	MW	PH5115 PHG115	-	-			DCMT TCMT	S##C 93º
		✱	FW	PH5115 PHG115	MW	PH5115 PHG115	-	-				

● Stable cutting ◐ General cutting ✱ Unstable cutting

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SELECTION GUIDE (GRADES AND CHIPBREAKERS) FOR POSITIVE INSERTS

Guia De Seleção (Graus E Quebra-Aparas) para pastilhas positivas | Guía De Selección (Calidades Y Rompevirutas) para plaquitas positivas

SINGLE SIDE...CMT'S, BMT'S, CGT'S, RCMX'S, RCMT'S

ISO	Material Workplace	Stability	Medium		Roughing		Medium roughing		Insert			Holders
			Chipbreaker	Grade	Chipbreaker	Grade	Chipbreaker	Grade	Type			Type
P	High alloyed Steel HB 400 DIN X40CrMoV5 X45GrSi93	●	FP FK	PH5115 PHG115 PH5705	MP MK	PH5115 PHG115 PH5320 PHG105	MP	PH5115 PHG115	Positive single side	Conventional nose radius	#CMT #BMT	S##C S##B
		●	FP FK	PH5115 PHG115 PH5320 PHG105	MP MK	PH5115 PHG115 PH5320 PHG105	MP	PH5115 PHG115				
		✱	FP	PH5115 PHG115	MP	PH5125 PHG125	MP	PH5125 PHG125				
		●	FW	PH5115 PHG115	MW	PH5115 PHG115	-	-	Positive single side	Wiper nose radius	CCMT	S##C 95º
		●	FW	PH5115 PHG115	MW	PH5115 PHG115	-	-			DCMT TCMT	S##C 93º
		✱	FW	PH5115 PHG115	MW	PH5115 PHG115	-	-				
M	Duplex stainless steel DIN X2CrNiMoSi19 X8CrNiMo27 X2CrNiMoN22	●	FM	PH7910	LM MM	PH7910	MM	PHS215	Positive single side	Conventional nose radius	#CMT #BMT	S##C S##B
		●	FM LM	PH7910	MM	PH7910	MM	PHS215				
		✱	FM LM	PH7920	MM	PH7920	MM	PHS215				
		●	FW	PH7920	MW	PHS215	-	-	Positive single side	Wiper nose radius	CCMT	S##C 95º
		●	FW	PH7920	MW	PHS225	-	-			DCMT TCMT	S##C 93º
		✱	-	-	-	-	-	-				
	Austenitic stainless steel DIN X2CrNiMoSi19 X8CrNiMo27 X2CrNiMoN22	●	FM LM	PH7910 PHH910	LM MM	PH7910 PHH910	MM	PHS215	Positive single side	Conventional nose radius	#CMT #BMT	S##C S##B
		●	FM LM	PH7920 PHH920	MM	PH7920 PHH920	MM	PHS215				
		✱	FM LM	PHS225	MM	PHS215	MM	PHS215				
		●	MW	PH7920	MW	PH7920	-	-	Positive single side	Wiper nose radius	CCMT	S##C 95º
		●	MW	PHS215	MW	PHS215	-	-			DCMT TCMT	S##C 93º
		✱	MW	PHS215	MW	PHS215	-	-				
	Duplex stainless steel DIN X2CrNiMoSi19 X8CrNiMo27 X2CrNiMoN22	●	FM LM	PH7910 PHH910	LM MM	PH7910 PHH910	MM	PHS215	Positive single side	Conventional nose radius	#CMT #BMT	S##C S##B
		●	FM LM	PH7910	MM	PH7910	MM	PHS215				
		✱	FM LM	PHS225	MM	PHS215	MM	PHS215				
		●	-	-	-	-	-	-	Positive single side	Wiper nose radius	CCMT	S##C 95º
		●	-	-	-	-	-	-			DCMT TCMT	S##C 93º
		✱	-	-	-	-	-	-				

● Stable cutting ● General cutting ✱ Unstable cutting

SELECTION GUIDE (GRADES AND CHIPBREAKERS) FOR POSITIVE INSERTS

Guia De Seleção (Graus E Quebra-Aparas) para pastilhas positivas | Guía De Selección (Calidades Y Rompevirutas) para plaquitas positivas

SINGLE SIDE ...CMT'S, BMT'S, CGT'S, RCMX'S, RCMT'S

ISO	Material Workplace	Stability	Medium		Roughing		Medium roughing		Insert			Holders
			Chipbreaker	Grade	Chipbreaker	Grade	Chipbreaker	Grade	Type			Type
K	Grey cast iron HB 220 DIN GG15 GG25 GG35	●	FK	PH5705	MK	PH5705	MK	PH5705	Positive single side	Conventional nose radius	#CMT #BMT	S##C S##B
		◐	FK	PH5705	MK	PH5705	MK	PH5320				
		✱	MK	PH5320	MK	PH5320	MK	PH5320				
		●	FW	PH5705	MW	PH5320	-	-	Positive single side	Wiper nose radius	CCMT	S##C 95º
		◐	FW	PH5705	MW	PH5320	-	-			DCMT TCMT	S##C 93º
		✱	MW	PH5320	MW	PH5320	-	-				
	Nodular Cast Iron HB 220 DIN GG15 GG25 GG35	●	FK	PH5705	MK	PH5320	MK	PH5320	Positive single side	Conventional nose radius	#CMT #BMT	S##C S##B
		◐	FK	PH5705	MK	PH5320	MK	PH5320				
		✱	MK	PH5320	MK	PH5320	MK	PH5320				
		●	FW	PH5705	MW	PH5320	-	-	Positive single side	Wiper nose radius	CCMT	S##C 95º
		◐	FW	PH5705	MW	PH5320	-	-			DCMT TCMT	S##C 93º
		✱	MW	PH5320	MW	PH5320	-	-				
S	Titanium Alloys DIN TiAl5Sn2.5 TiAl6V4 TiAl6V4ELI	●	FS	PHH910	FM	PHH910	MM	PH7920	Positive single side	Conventional nose radius	#CMT #BMT	S##C S##B
		◐	FM	PH7920	MM	PH7920	MM	PH7920				
		✱	MM	PH7920	MM	PH7920	MM	PH7920				
		●	FW	PH7920	FW	PH7920	-	-	Positive single side	Wiper nose radius	CCMT	S##C 95º
		◐	FW	PH7920	MW	PH7920	-	-			DCMT TCMT	S##C 93º
		✱	MW	PH7920	MW	PH7920	-	-				
	Super alloys DIN NiCr19Co11MoTi NiFe35Cr14MoTi CoCr20W15Ni	●	FS	PHH910	FM	PHH910	MM	PHH920	Positive single side	Conventional nose radius	#CMT #BMT	S##C S##B
		◐	FM	PHH920	FM	PHH920	FM	PHH920				
		✱	MM	PHH920	MM	PHH920	MM	PHH920				
		●	FW	PH7920	FW	PH7920	-	-	Positive single side	Wiper nose radius	CCMT	S##C 95º
		◐	FW	PH7920	MW	PH7920	-	-			DCMT TCMT	S##C 93º
		✱	MW	PH7920	MW	PH7920	-	-				
N	Aluminium Alloys DIN AW7075 AlSi12 CuZn37	●	LN	PH0910	LN	PH0910	-	-	Positive single side	Conventional nose radius	#CMT #BMT	S##C S##B
		◐	LN	PH0910	LN	PH0910	-	-				
		✱	LN	PH0910	LN	PH0910	-	-				

● Stable cutting ◐ General cutting ✱ Unstable cutting

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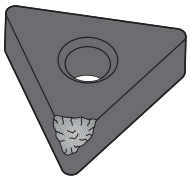
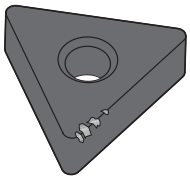
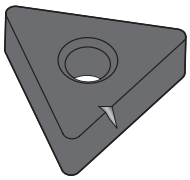
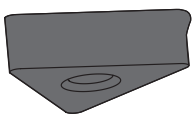
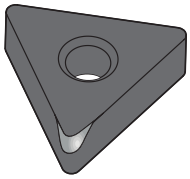
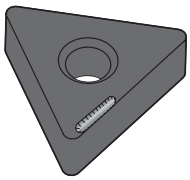
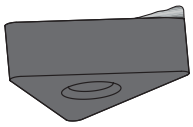
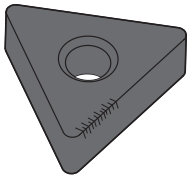
TOOL LIFE PROBLEMS ‖ Problemas na vida útil da ferramenta | Problemas con la vida útil de la herramienta

Problem | Problema	Possible Solution | Solução | Solución
• Breakage or too short tool life • Rotura ou vida útil muito curta • Rotura o vida de la herramienta demasiado corto	• Step 1. Reduce the cutting conditions (first feed rate, then cutting depth). • Step 2. Look at the wear pattern on the insert and use the table below as a guideline for improvement. • Passo 1. Reduza as condições de corte (primeiro o avanço / rotação depois a profundidade de corte). • Passo 2. Verique o desgaste da pastilha e use as recomendações abaixo para otimizar a operação. • Paso 1. Reducir las condiciones de corte (primero el avance, después la profundidad de corte). • Paso 2. Comprobar el patrón de desgaste en la plaquita y usar la siguiente tabla como guía para la mejora.
• Insert fracture • Fratura da Pastilha • Fractura de la Plaquita 	• Reduce the feed rate (Fn). • Reduce the depth of cut (Ap). • Select a tougher grade (ex: P10 -> ... -> P40). • Use a more rigid toolholder. • Increase nose radius (Re). • Select a stronger chipbreaker. • Reduce the toolholder length. • Select larger shank size. • Reduza o avanço/rotação (Fn). • Reduza a profundidade de corte (Ap). • Selecione uma classe mais tenaz (ex: P10 -> ... -> P40). • Use um suporte mais rigido. • Aumente o raio de canto (Re). • Selecione um quebra-aparas mais resistente. • Reduza o comprimento do suporte. • Escolha uma largura de haste superior. • Reducir el avance (Fn). • Reducir la profundidad de corte (Ap). • Seleccionar una calidad más tenaz (ex: P10 -> ... -> P40). • Utilice un portaherramientas más rígido. • Aumente el radio de punta (Re). • Seleccionar un rompevirutas más robusto. • Reducir la longitud del portaherramientas. • Elija un ancho de vara superior.
• Edge chipping • Fragmentação da aresta • Fragmentación de la arista 	• Increase the cutting speed (Vc). • Reduce the feed rate (Fn). • Select a stronger chipbreaker. • Select a tougher grade (ex: P10 -> ... -> P40). • Reduce the rake angle. • Increase honing edges. • Reduce the toolholder length. • Select larger shank size. • Aumente a velocidade de corte (Vc). • Reduza o avanço/rotação (Fn). • Selecione um quebra-aparas mais resistente. • Selecione uma classe mais tenaz (ex: P10 -> ... -> P40). • Diminua o ângulo de ataque. • Aumente arestas boleadas. • Reduza o comprimento do suporte. • Escolha uma largura de haste superior. • Reducir el ángulo de ataque. • Aumentar aristas redondeadas. • Reducir la longitud del portaherramientas. • Elija un ancho de vara superior. • Aumentar la velocidad de corte (Vc). • Reducir el avance (Fn). • Seleccionar un rompevirutas más robusto. • Seleccionar una calidad más tenaz (ex: P10 -> ... -> P40).
• Notch wear • Desgaste de entalhe • Mellado 	• Reduce the cutting speed (Vc). • Reduce the feed rate (Fn). • Select a tool with a smaller setting angle (Kr°). • Select a more wear-resistant grade (ex: P40 -> ... -> P10). • Reduza a velocidade de corte (Vc). • Reduza o avanço/rotação (Fn). • Selecione uma ferramenta com um ângulo de posição menor (Kr°). • Selecione uma classe mais resistente ao desgaste (ex: P40 -> ... -> P10). • Reducir la velocidad de corte (Vc). • Reducir el avance (Fn). • Seleccionar una herramienta con un ángulo de posición menor (Kr°). • Seleccionar una calidad más resistente al desgaste (ex: P40 -> ... -> P10).
• Plastic deformation • Deformação plástica • Deformación plástica 	• Reduce the cutting speed (Vc). • Reduce the feed rate (Fn). • Select a more wear-resistant grade (ex: P40 -> ... -> P10). • Use more coolant and correct it volume/accuracy. • Choose grade with better heat conductivity. • Increase the rake angle. • Increase nose radius (Re). • Increase relief angle. • Reduza a velocidade de corte (Vc). • Reduza o avanço/rotação (Fn). • Selecione uma classe mais resistente ao desgaste (ex: P40 -> ... -> P10). • Utilize refrigeração em abundância e corrija o seu volume/precisão. • Escolha um grau com melhor condutividade térmica. • Aumente o ângulo de ataque. • Aumente o raio de canto (Re). • Aumente o ângulo de alívio superior. • Reducir la velocidad de corte (Vc). • Reducir el avance (Fn). • Seleccionar una calidad más resistente al desgaste (ex: P40 -> ... -> P10). • Usar abundante caudal de refrigerante y corregir el volumen / precisión. • Elija un grado con una mejor conductividad térmica. • Aumente el ángulo de ataque. • Aumente el radio de punta (Re). • Aumente el ángulo de alivio superior.

TOOL LIFE PROBLEMS | Problemas na vida útil da ferramenta | Problemas con la vida útil de la herramienta

Problem | Problema	Possible Solution | Solução | Solución		
• Flank wear • Desgaste do flanco • Desgaste de la superficíe 	• Reduce the cutting speed (Vc). • Select a more wear-resistant grade (ex: P40 -> ... -> P10). • Select a toolholder or chipbreaker which allow a bigger relief angle. • Increase the rake angle. • Increase nose radius (Re). • Reduce honing edges.	• Reduza a velocidade de corte (Vc). • Selecione uma classe mais resistente ao desgaste (ex: P40 -> ... -> P10). • Selecione um suporte ou quebra-aparas que permita um ângulo de alívio superior. • Aumente o ângulo de ataque. • Aumente o raio de canto (Re). • Reduza arestas boleadas.	• Reducir la velocidad de corte (Vc). • Seleccionar una calidad más resistente al desgaste (ex: P40 -> ... -> P10). • Seleccione un portaherramientas o rompevirutas que permiten un ángulo de alivio superior. • Aumente el ángulo de ataque. • Aumente el radio de punta (Re). • Reducir aristas redondeadas.
• Crater wear • Craterização • Craterización 	• Reduce the cutting speed (Vc). • Reduce the feed rate (Fn). • Select a more wear-resistant grade (ex: P40 -> ... -> P10). • Use coolant. • Increase the rake angle. • Increase nose radius (Re).	• Reduza a velocidade de corte (Vc). • Reduza o avanço/rotação (Fn). • Selecione uma classe mais resistente ao desgaste (ex: P40 -> ... -> P10). • Utilize refrigeração. • Aumente o ângulo de ataque. • Aumente o raio de canto (Re).	• Reducir la velocidad de corte (Vc). • Reducir el avance (Fn). • Seleccionar una calidad más resistente al desgaste (ex: P40 -> ... -> P10). • Usar refrigerante. • Aumente el ángulo de ataque. • Aumente el radio de punta (Re).
• Built-up edge • Aresta postiça • Recrecimiento del filo 	• Increase the cutting speed (Vc). • Reduce the feed rate (Fn). • Use water-insoluble coolant fluid. • Select a more easy-cutting chipbreaker. • Increase the rake angle. • Reduce honing edges. • Select grade with low tendency to adhesion.	• Aumente a velocidade de corte (Vc). • Reduza o avanço/rotação (Fn). • Utilize fluido refrigerante insolúvel em água. • Selecione um quebra-aparas mais positivo. • Aumente o ângulo de ataque. • Reduza arestas boleadas. • Selecione um grau com baixa tendência a aderência.	• Aumentar la velocidad de corte (Vc). • Reducir el avance (Fn). • Utilice fluido refrigerante insoluble en agua. • Seleccionar un rompevirutas de corte más suave. • Aumente el ángulo de ataque. • Reducir aristas redondeadas. • Seleccione un grado con baja tendencia a la adhesión.
• Thermal cracks • Trincas térmicas • Grietas en el filo 	• Reduce the cutting speed (Vc). • Increase the feed rate (Fn). • Use more coolant and correct it volume/accuracy. • Reduce honing edges. • Select a tougher grade (ex: P10 -> ... -> P40). • Increase the rake angle.	• Reduza a velocidade de corte (Vc). • Aumente o avanço/rotação (Fn). • Utilize refrigeração em abundância e corrija o seu volume/precisão. • Reduza arestas boleadas. • Selecione uma classe mais tenaz (ex: P10 -> ... -> P40). • Aumente o ângulo de ataque.	• Reducir la velocidad de corte (Vc). • Aumentar el avance (Fn). • Usar abundante caudal de refrigerante y corregir el volumen / precisión. • Reducir aristas redondeadas. • Seleccionar una calidad más tenaz (ex: P10 -> ... -> P40). • Aumente el ángulo de ataque.

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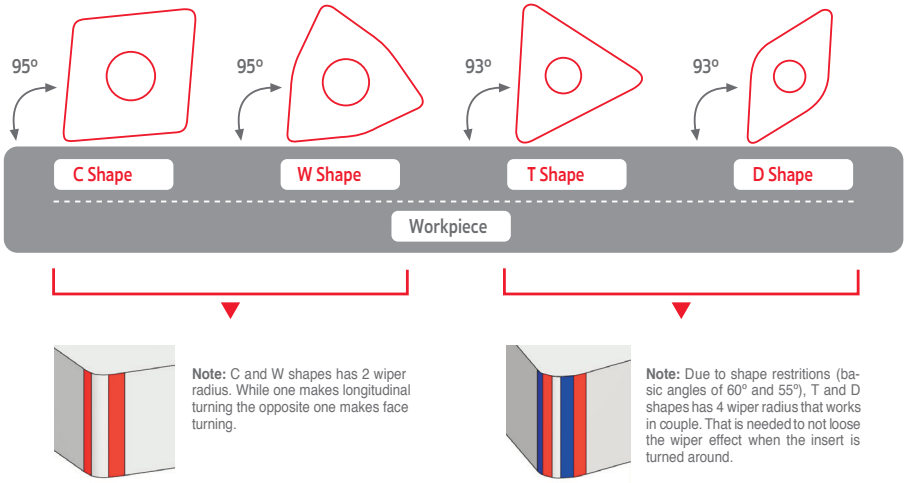
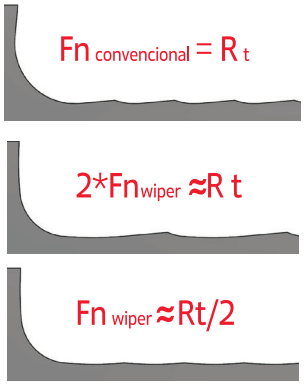
THE ANGLE POSITION (KR°)



Note: C and W shapes has 2 wiper radius. While one makes longitudinal turning the opposite one makes face turning.

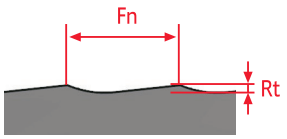
Note: Due to shape restritions (basic angles of 60° and 55°), T and D shapes has 4 wiper radius that works in couple. That is needed to not loose the wiper effect when the insert is turned around.

THE WIPER PURPOSE IS BASED ON PRODUCTIVITY:

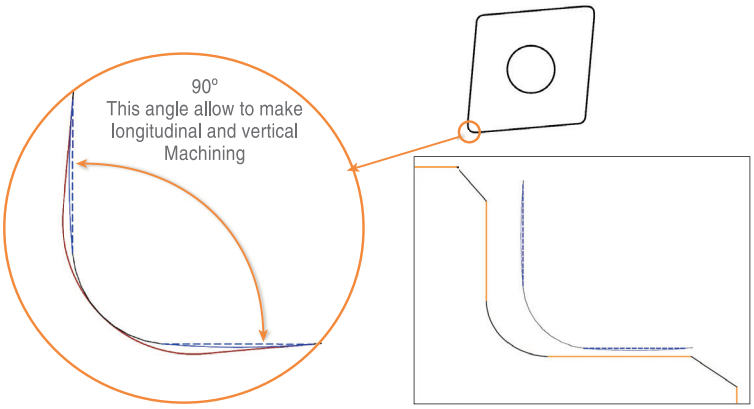


CNMG 432 - ##
VS
CNMG 432 - MW

Holder Angle Position (Kr°) = 95°

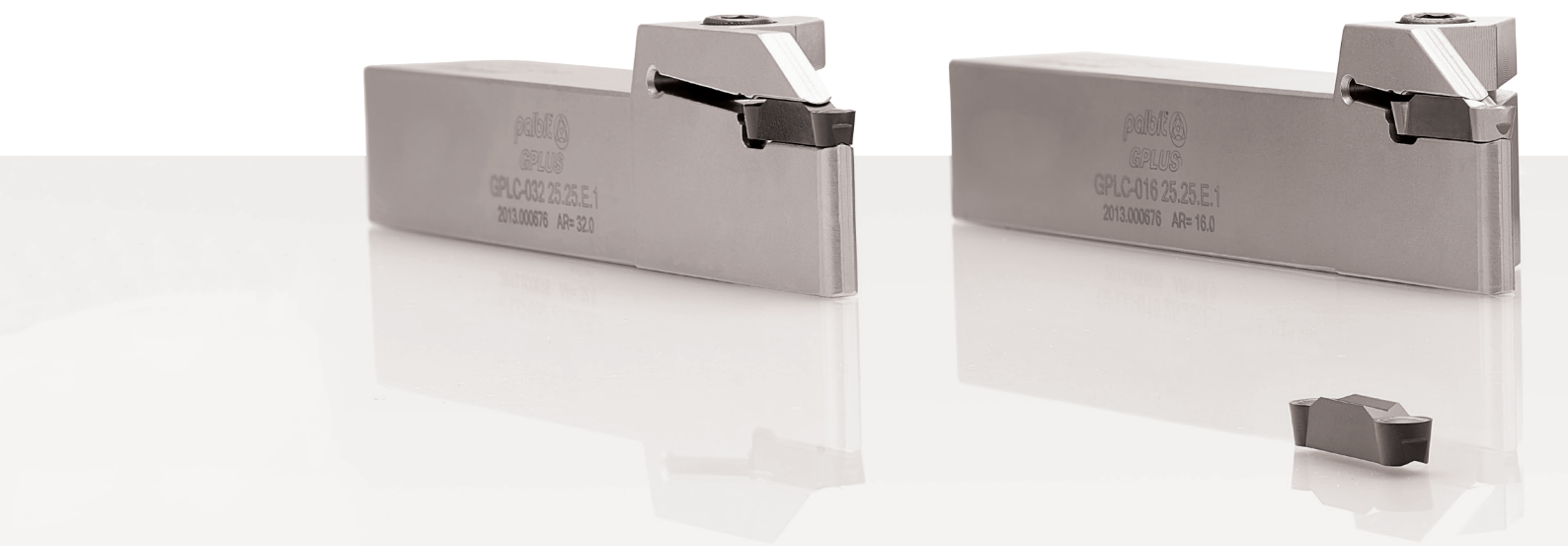


EXAMPLE CNMG 432-MW WITH ANGLE POSITION OF 95°



- 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.



D

D - GROOVING & PARTING OFF

D - 544 | General inserts overview

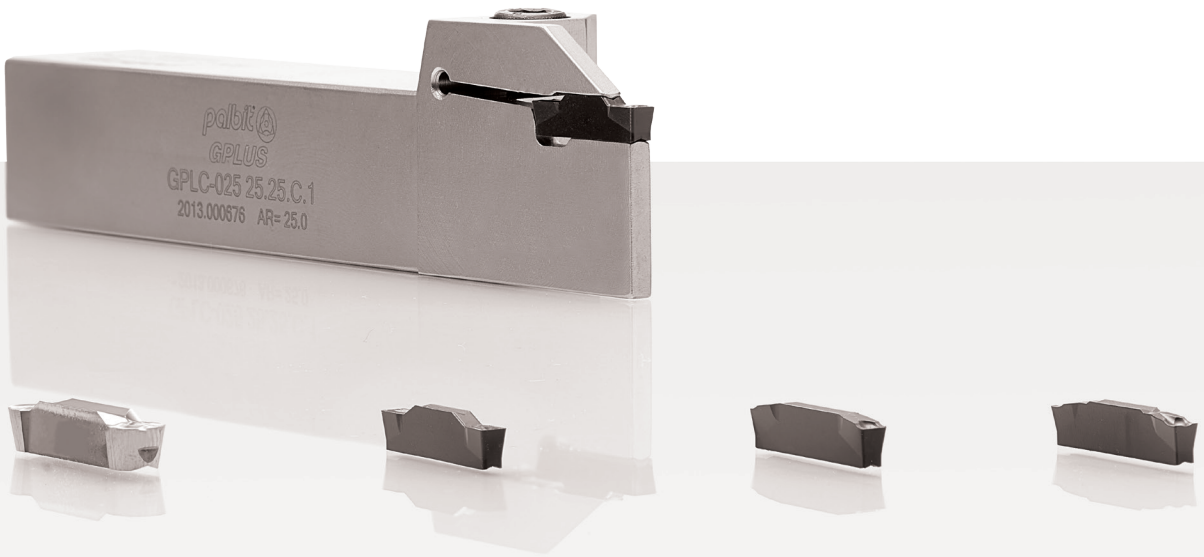
D - 546 | GROOVING PLUS

D - 546 | Inserts code key

D - 547 | GP Inserts

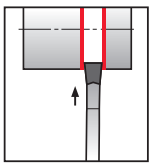
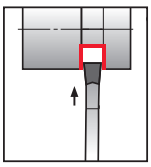
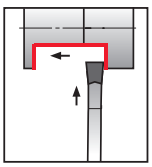
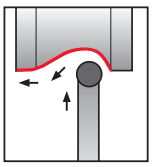
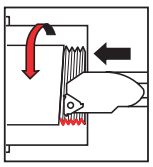
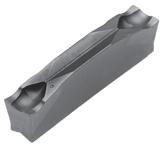
D - 550 | Blades & Toolholders code key

GROOVING & PARTING OFF



D - 556 | GROOVING & PARTING OFF
D - 556 | Inserts code key & overview
D - 558 | Inserts
D - 562 | Blades code key
D - 563 | Blades & Toolholders
D - 567 | Trigon Inserts
D - 570 | SAL (Swiss Automatic Lathes)
D - 574 | SAL Toolholders
D - 575 | SAL Inserts
D - 580 | LIGHT GROOVING
D - 584 | Spare Parts
D - 585 | Technical Data

GENERAL INSERTS OVERVIEW

Insert Type + Chipbreaker / Operation		Parting Off	General Grooving	Turning	Profiling	Threading
						
	GP...-N01-MC GP...-R01-MC GP...-L01-MC	◎	○			
	GP...-N02-MC GP...-R02-MC GP...-L02-MC	◎	○			
	GP...-N02-MG	○	◎			
	GP...-N02-MM	○	○	◎		
	GP...-N02-MP				◎	
	GP...-N02-NP				◎	
	GTN...	◎	○			
	SANCAR...	◎	○			

◎ First choice | Primeira opção | Primera opción

○ Alternative | Alternativa

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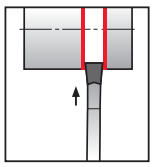
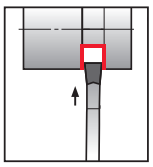
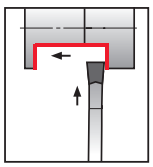
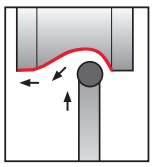
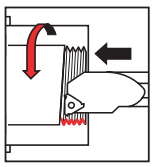
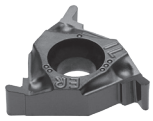
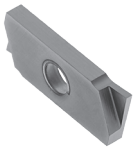
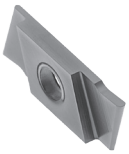
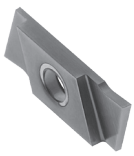
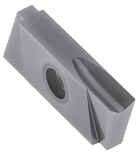
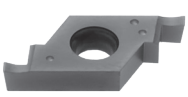
Insert Type + Chipbreaker / Operation		Parting Off	General Grooving	Turning	Profiling	Threading
						
	TRIGON		◎			○
	SAL GS		◎			
	SAL GR		◎		◎	
	SAL P	◎				
	SAL PT					◎
	SAL TP			○		
	LG 0602		◎			

◎ First choice | Primeira opção | Primera opción

○ Alternative | Alternativa

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

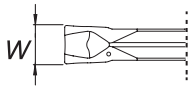
GP	0300	B	020	-	N	02	-	MC
1	2	3	4		6	7		8

1 - Product Line

GP - Grooving Plus

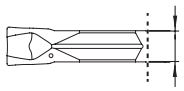
2 - Cutting Width

0200 - 0.079 in | 0300 - 0.118 in | 0400 - 0.157 in | 0500 - 0.197 in | 0600 - 0.236 in



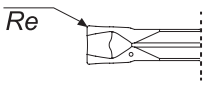
3 - Seat Size

A -1/16 in | B - 0.091 in | C - 0.130 in | D - 0.169 in | E - 0.193 in | F - 0.260 in

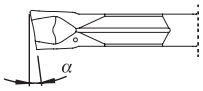


4 - Cutting Radius

020 - 0.008 in | 025 - 0.010 in | 040 - 0.016 in | 080 - 0.031 in | 300 - 0.118 in | 400 - 0.157 in

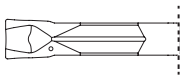


5 - Relief Angle

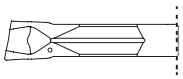


6 - Insert Type

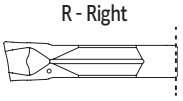
N - Neutral



L - Left

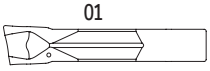


R - Right

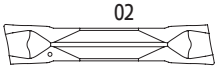


7 - Nº of Cutting Edges

01



02



8 - Chipbreaker

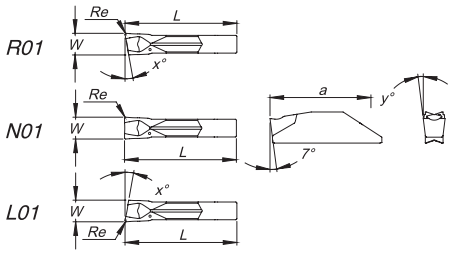
MC - Medium Cut Off | MG - Medium Grooving | MM - Medium Multi Function | MP - Medium Profiling | NP - Non-Ferrous Profiling

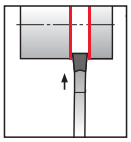
palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

GP...01-MC | Medium Cut Off



PHP NEW GRADE





		P				M			K			S		Dimensions | Dimensões | Dimensiones (in)							Cutting Conditions Condições de Corte Condiciones de Corte		
		CVD		PVD		CVD	PVD		CVD			PVD												
	[2] Grade code	N2	U6	G4	P4	U6	G4	P4	L6	N2	U6	G4	P4											
[1] Geometry code	ISO/ANSI Reference	PH5135	PHS135	PH7920	PHP930	PHS135	PH7920	PHP930	PH5320	PH5135	PHS135	PH7920	PHP930	W	Re	L	x°	a[1]	y°	Seat[2] Size	fn (in/r)	Min	Max
1130422	GP0200A020-N01-MC	◬	◉	◬	◉	◉	◬	◉	◉	◬	◉	◬	◉	0.079	0.008	0.795	-	-	6,0	A	0.002	0.002	0.004
1130423	GP0300B020-N01-MC	◬	◉	◬	◉	◉	◬	◉	◉	◬	◉	◬	◉	0.118	0.008	0.791	-	-	8,0	B	0.003	0.002	0.006
1130424	GP0400C020-N01-MC	◬	◉	◬	◉	◉	◬	◉	◉	◬	◉	◬	◉	0.157	0.008	0.807	-	-	7,0	C	0.005	0.002	0.010
1130425	GP0200A020-050R01-MC		○		○	○		○	○		○		○	0.079	0.008	0.795	5,0	-	6,0	A	0.002	0.002	0.003
1130426	GP0300B020-050R01-MC		○		○	○		○	○		○		○	0.118	0.008	0.791	5,0	-	8,0	B	0.003	0.002	0.005
1130427	GP0400C020-050R01-MC		○		○	○		○	○		○		○	0.157	0.008	0.807	5,0	-	7,0	C	0.004	0.002	0.008
1130428	GP0200A020-050L01-MC		○		○	○		○	○		○		○	0.079	0.008	0.795	5,0	-	6,0	A	0.002	0.002	0.003
1130429	GP0300B020-050L01-MC		○		○	○		○	○		○		○	0.118	0.008	0.791	5,0	-	8,0	B	0.003	0.002	0.005
1130430	GP0400C020-050L01-MC		○		○	○		○	○		○		○	0.157	0.008	0.807	5,0	-	7,0	C	0.004	0.002	0.008

◉ 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

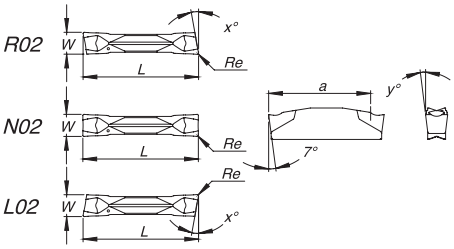
◬ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

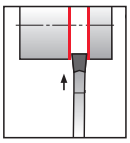
(1) - When using inserts with 1 Cutting edge, the "a" measure is given by the Toolholder | 2 - Correspond to a Specific Holder

GP...02-MC | Medium Cut Off



PHP NEW GRADE





		P				M			K			S		Dimensions | Dimensões | Dimensiones (in)							Cutting Conditions Condições de Corte Condiciones de Corte		
		CVD		PVD		CVD	PVD		CVD			PVD												
	[2] Grade code	N2	U6	G4	P4	U6	G4	P4	L6	N2	U6	G4	P4											
[1] Geometry code	ISO/ANSI Reference	PH5135	PHS135	PH7920	PHP930	PHS135	PH7920	PHP930	PH5320	PH5135	PHS135	PH7920	PHP930	W	Re	L	x°	a	y°	Seat[2] Size	fn (in/r)	Min	Max
1130383	GP0200A020-N02-MC				◉			◉	◉				◉	0.079	0.008	0.807	-	0.728	6,0	A	0.002	0.002	0.004
1130384	GP0300B020-N02-MC		◉		◉	◉		◉	◉		◉		◉	0.118	0.008	0.803	-	0.728	8,0	B	0.003	0.002	0.006
1130397	GP0400C020-N02-MC	◬	◉		◉	◉		◉	◉	◬	◉		◉	0.157	0.008	0.827	-	0.728	7,0	C	0.005	0.002	0.010
1130416	GP0200A020-050R02-MC		◉	◬	◉	◉	◬	◉	○		◉	◬	◉	0.079	0.008	0.807	5,0	0.728	6,0	A	0.002	0.002	0.003
1130417	GP0300B020-050R02-MC	◬	◉		◉	◉		◉	○	◬	◉		◉	0.118	0.008	0.803	5,0	0.728	8,0	B	0.003	0.002	0.005
1130418	GP0400C020-050R02-MC		○			○		○	○		○		○	0.157	0.008	0.827	5,0	0.728	7,0	C	0.004	0.002	0.008
1130419	GP0200A020-050L02-MC	◬	◉	◬	◉	◉	◬	◉	○	◬	◉	◬	◉	0.079	0.008	0.807	5,0	0.728	6,0	A	0.002	0.002	0.003
1130420	GP0300B020-050L02-MC	◬	◉	◬	◉	◉	◬	◉	○	◬	◉	◬	◉	0.118	0.008	0.803	5,0	0.728	8,0	B	0.003	0.002	0.005
1130421	GP0400C020-050L02-MC		○		○	○		○	○		○		○	0.157	0.008	0.827	5,0	0.728	7,0	C	0.004	0.002	0.008

◉ 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

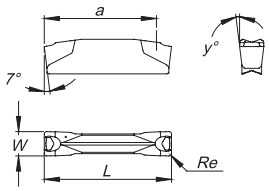
◬ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

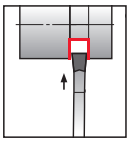
2 - Correspond to a Specific Holder

GP...02-MG | Medium Grooving



PHP NEW GRADE





(1) Geometry code	ISO/ANSI Reference	P				M			K		S		Dimensions | Dimensões | Dimensiones (in)						Cutting Conditions Condições de Corte Condiciones de Corte		
	(2) Grade code	CVD		PVD		CVD	PVD		CVD		PVD										
		L8	U6	G4	T1	U6	G4	T1	L6	U6	G4	T1									
		PH5125	PH5135	PH7920	PHP920	PH5135	PH7920	PHP920	PH5320	PH5135	PH7920	PHP920	W	Re	L	a	y°	Seat[2] Size	fn (in/r)	Min	Max
1130398	GP0300B020-N02-MG		◉	△	◉	◉	△	◉	◉	◉	◉	◉	0.118	0.008	0.827	0.728	6,5	B	0.002	0.002	0.004
1130399	GP0400C040-N02-MG	△	◉	△	◉	◉	△	◉	◉	◉	◉	◉	0.157	0.016	0.827	0.728	6,5	C	0.003	0.002	0.006
1130400	GP0500D040-N02-MG	△	◉	△	◉	◉	△	◉	◉	◉	◉	◉	0.197	0.016	0.827	0.728	6,0	D	0.005	0.002	0.010

◉ 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

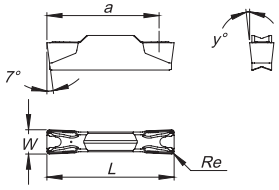
△ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

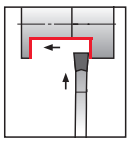
2 - Correspond to a Specific Holder

GP...02-MM | Medium Multi Function



PHP NEW GRADE





(1) Geometry code	ISO/ANSI Reference	P				M				K			S			Dimensions | Dimensões Dimensiones (in)						Cutting Conditions Condições de Corte Condiciones de Corte					
	(2) Grade code	CVD	PVD			CVD	PVD			CVD		UNC	PVD														
		U6	G4	T1	P4	U6	G4	T1	P4	L6	U6	25	G4	T1	P4												
		PH5135	PH7920	PHP920	PHP930	PH5135	PH7920	PHP920	PHP930	PH5320	PH5135	PH0705	PH7920	PHP920	PHP930	W	Re	L	a[1]	y°	Seat[2] Size	Ap (in)	Min	Max	fn (in/r)	Min	Max
1130401	GP0300B040-N02-MM	◉	△	◉	◉	◉	△	◉	◉	◉	◉	△	△	◉	◉	0.118	0.016	0.827	0.728	6,0	B	0.031	0.016	0.059	0.004	0.002	0.005
1130402	GP0400C040-N02-MM	◉		◉	◉	◉		◉	◉		◉		△	◉	◉	0.157	0.016	0.827	0.728	6,0	C	0.043	0.024	0.079	0.005	0.003	0.006
1130403	GP0500D040-N02-MM	◉	△	◉	◉	◉	△	◉	◉	◉	◉	△	△	◉	◉	0.197	0.016	0.827	0.728	5,5	D	0.059	0.031	0.098	0.006	0.004	0.007

◉ 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

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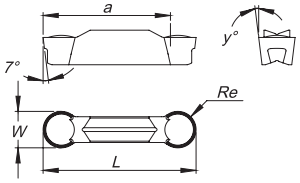
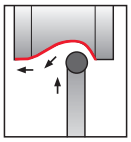
GP...02-MP | Medium Profiling



PHP NEW GRADE





(1) Geometry code	ISO/ANSI Reference	P PVD (2) Grade code G4	P PVD T1	M PVD G4	M PVD T1	K CVD L6	S PVD G4	S PVD T1	Dimensions | Dimensões | Dimensiones (in) W	Re	L	a	y°	Seat² Size	Cutting Conditions Condições de Corte Condiciones de Corte Ap (in)	Min	Max	fn (in/r)	Min	Max
1130607	GP0300B150-N02-MP		◉		◉			◉	0.118	0.059	0.831	0.728	7,0	B	0.028	0.002	0.043	0.004	0.002	0.005
1130404	GP0600E300-N02-MP	△	◉	△	◉	△	◎	◉	0.236	0.118	0.992	0.827	7,0	E	0.059	0.002	0.087	0.007	0.006	0.009

◉ First choice | Primeira opção | 1ª opción ◎ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

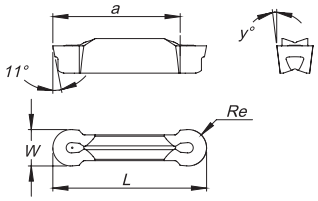
Insert order code = (1) Geometry Code + (2) Grade Code

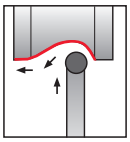
△ Stock available until sold out | Stock disponível até acabar o stock | Stock disponible hasta acabar el stock

2 - Correspond to a Specific Holder

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







(1) Geometry code	ISO/ANSI Reference	N UNC (2) Grade code 10 PH0910	Dimensions | Dimensões | Dimensiones (in) W	Re	L	a	y°	Seat² Size	Cutting Conditions Condições de Corte Condiciones de Corte Ap (in)	Min	Max	fn (in/r)	Min	Max
1130405	GP0600E300-N02-NP	◉	0.236	0.118	1.000	0.728	7,0	E	0.051	0.020	0.098	0.008	0.006	0.010

◉ 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

page D - 584 Technical Data page D - 585

BLADES & TOOLHOLDERS CODE KEY

Chave de codificação para lâminas | Llave de codificación de lamas

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 

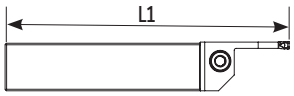
N - Neutral 

L - Left 

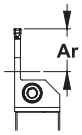
3 - Tool Type

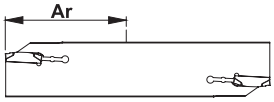
C - Frontal

4 - Total toolholder lenght

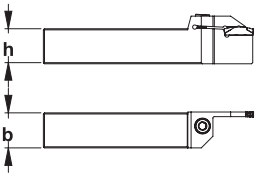


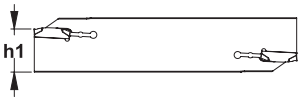
5 - Maximum Depth of Cut





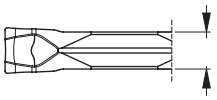
6 - Shaft | Cutting Unit Dimension



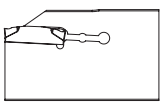


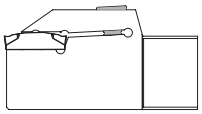
7 - Seat Size

A - 1/16 in | B - 0.091 in | C - 0.130 in | D - 0.169 in | E - 0.157 in | F - 0.260 in



8 - Clamping System

0 - Spring 

1 - Screw 

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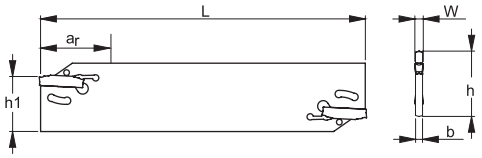
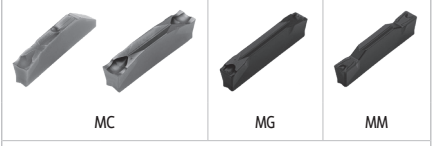
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

GPNC





GP02... | GP03... | GP04...



Seat Size A, B, C

Order separately

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (in)						Seat Size	Insert	Toolholder		Wrench*	Stock
		ar	L1	h	h1	b	W			CPTS	DPTS		
213010000	GPNC-020 25.A.0	0.787	5.906	1.260	0.984	0.059	0.079	A	GP02...	CPTS ...32	DPTS ...32	LE25-30	◎
213009900	GPNC-055 25.B.0	2.165	5.906	1.260	0.984	0.091	0.118	B	GP03...	CPTS ...32	DPTS ...32	LE25-30	◎
213009700	GPNC-055 25.C.0	2.165	5.906	1.260	0.984	0.091	0.157	C	GP04...	CPTS ...32	DPTS ...32	LE25-30	◎

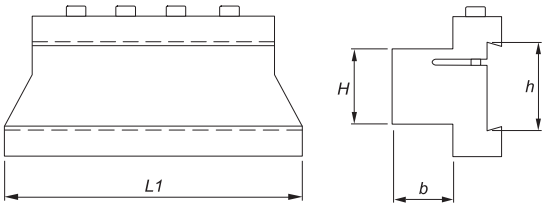
◎ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

*Note: Wrench must be ordered separately

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

CPTS

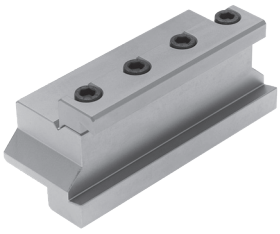


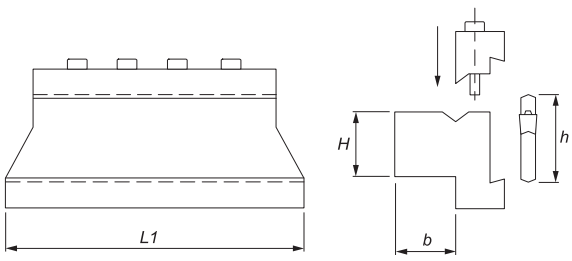


Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (in)				lbs	Screw	Wrench	Stock
		h	L1	H	b				
290007700	CPTS 1232	1.250	3.940	0.750	0.750	1.540	D0603600	SS50	○
290007800	CPTS 1632	1.250	4.330	1.000	1.000	2.090	D0603600	SS50	○
290087100	CPTS 2032	1.250	4.750	1.250	1.250	3.080	D0603600	SS50	○
213033300	CPTS 2432	1.250	4.750	1.500	1.640	3.080	D0603600	SS50	○

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

DPTS

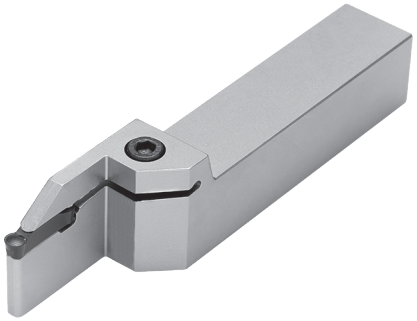


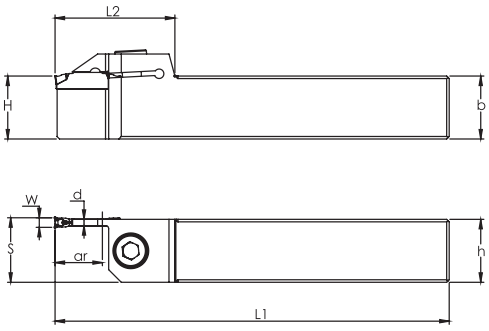


Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)				lbs	Screw	Wrench	Stock
		h	L1	H	b				
213033000	DPTS 1232	1.250	3.940	0.750	0.750	1.650	D0603600	SS50	○
213032400	DPTS 1632	1.250	4.330	1.000	1.000	2.200	D0603600	SS50	○
213033100	DPTS 2032	1.250	4.750	1.250	1.250	3.190	D0603600	SS50	○
213033200	DPTS 2432	1.250	4.750	1.500	1.640	3.190	D0603600	SS50	○

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

GPLC

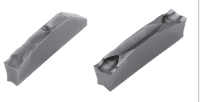
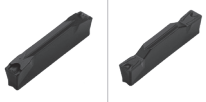
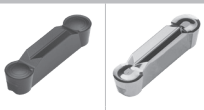




Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (in)								Seat Size	Insert	Screw	Wrench	lbf/in	Stock
		ar	L1	h	b	H	L2	S	W						
183027100	GPLC-4.00 0.59 0.625.0.625.A.1	0.59	4.00	0.625	0.625	0.625	1.496	0.635	2	A	GP02...	D0602200	SS50	18.0	○
183027200	GPLC-5.00 0.59 0.750.0.750.A.1	0.59	5.00	0.750	0.750	0.750	1.535	0.760	2		GP02...	D0602600	SS50	18.0	○
183027300	GPLC-6.00 0.39 1.000.1.000.A.1	0.39	6.00	1.000	1.000	1.000	1.260	1.010	2		GP02...	D0603100	SS50	18.0	○
183027400	GPLC-6.00 0.79 1.000.1.000.A.1	0.79	6.00	1.000	1.000	1.000	1.654	1.010	2		GP02...	D0603100	SS50	18.0	○
183027500	GPLC-4.00 0.59 0.625.0.625.B.1	0.59	4.00	0.625	0.625	0.625	1.496	0.640	3	B	GP03...	D0602200	SS50	18.0	○
183027600	GPLC-5.00 0.59 0.750.0.750.B.1	0.59	5.00	0.750	0.750	0.750	1.496	0.765	3		GP03...	D0602600	SS50	18.0	○
183027700	GPLC-6.00 0.39 1.000.1.000.B.1	0.39	6.00	1.000	1.000	1.000	1.260	1.015	3		GP03...	D0603100	SS50	18.0	○
183027800	GPLC-6.00 0.79 1.000.1.000.B.1	0.79	6.00	1.000	1.000	1.000	1.654	1.015	3		GP03...	D0603100	SS50	18.0	○
183027900	GPLC-5.00 0.75 0.750.0.750.C.1	0.75	5.00	0.750	0.750	0.750	1.496	0.765	4	C	GP04...	D0602600	SS50	26.0	○
183028000	GPLC-6.00 0.51 1.000.1.000.C.1	0.51	6.00	1.000	1.000	1.000	1.260	1.015	4		GP04...	D0603100	SS50	26.0	○
183028100	GPLC-6.00 0.91 1.000.1.000.C.1	0.91	6.00	1.000	1.000	1.000	1.654	1.015	4		GP04...	D0603100	SS50	26.0	○
1830282.00	GPLC-5.00 0.75 0.750.0.750.D.1	0.75	5.00	0.750	0.750	0.750	1.496	0.765	5	D	GP05...	D0602600	SS50	26.0	○
183028300	GPLC-6.00 0.51 1.000.1.000.D.1	0.51	6.00	1.000	1.000	1.000	1.260	1.015	5		GP05...	D0603100	SS50	26.0	○
183028400	GPLC-6.00 0.91 1.000.1.000.D.1	0.91	6.00	1.000	1.000	1.000	1.654	1.015	5		GP05...	D0603100	SS50	26.0	○
183028500	GPLC-6.00 0.59 1.000.1.000.E.1	0.59	6.00	1.000	1.000	1.000	1.339	1.054	6	E	GP06...	D0603100	SS50	35.0	○
183028600	GPLC-6.00 0.91 1.000.1.000.E.1	0.91	6.00	1.000	1.000	1.000	1.654	1.035	6		GP06...	D0603100	SS50	35.0	○

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	MP	NP
Seat Size A, B, C, D			Seat Size E	

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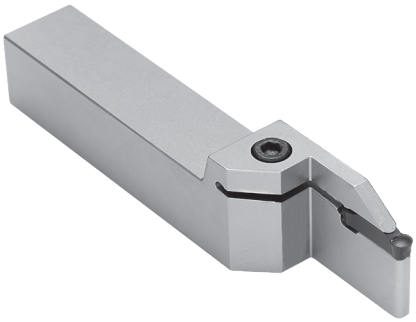
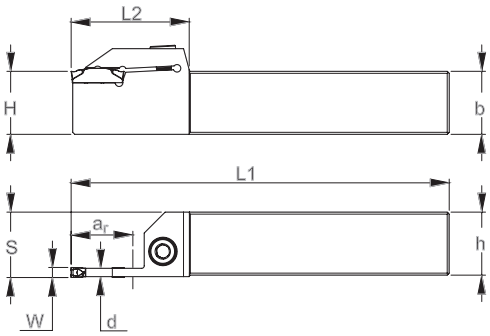
GPRC

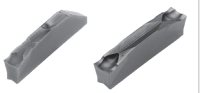




Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (in)								Seat Size	Insert	Screw	Wrench	lbf/in	Stock
		ar	L1	h	b	H	L2	S	W						
183025500	GPRC-4.00 0.59 0.625.0.625.A.1	0.59	4.00	0.625	0.625	0.625	1.496	0.635	2	A	GP02...	D0602200	SS50	18.0	●
183025600	GPRC-5.00 0.59 0.750.0.750.A.1	0.59	5.00	0.750	0.750	0.750	1.535	0.760	2		GP02...	D0602600	SS50	18.0	●
183025700	GPRC-6.00 0.39 1.000.1.000.A.1	0.39	6.00	1.000	1.000	1.000	1.260	1.010	2		GP02...	D0603100	SS50	18.0	●
183025800	GPRC-6.00 0.79 1.000.1.000.A.1	0.79	6.00	1.000	1.000	1.000	1.654	1.010	2		GP02...	D0603100	SS50	18.0	●
183025900	GPRC-4.00 0.59 0.625.0.625.B.1	0.59	4.00	0.625	0.625	0.625	1.496	0.640	3	B	GP03...	D0602200	SS50	18.0	●
183026000	GPRC-5.00 0.59 0.750.0.750.B.1	0.59	5.00	0.750	0.750	0.750	1.496	0.765	3		GP03...	D0602600	SS50	18.0	●
183026100	GPRC-6.00 0.39 1.000.1.000.B.1	0.39	6.00	1.000	1.000	1.000	1.260	1.015	3		GP03...	D0603100	SS50	18.0	●
183026200	GPRC-6.00 0.79 1.000.1.000.B.1	0.79	6.00	1.000	1.000	1.000	1.654	1.015	3		GP03...	D0603100	SS50	18.0	●
183026300	GPRC-5.00 0.75 0.750.0.750.C.1	0.75	5.00	0.750	0.750	0.750	1.496	0.765	4	C	GP04...	D0602600	SS50	26.0	●
183026400	GPRC-6.00 0.51 1.000.1.000.C.1	0.51	6.00	1.000	1.000	1.000	1.260	1.015	4		GP04...	D0603100	SS50	26.0	●
183026500	GPRC-6.00 0.91 1.000.1.000.C.1	0.91	6.00	1.000	1.000	1.000	1.654	1.015	4		GP04...	D0603100	SS50	26.0	●
183026600	GPRC-5.00 0.75 0.750.0.750.D.1	0.75	5.00	0.750	0.750	0.750	1.496	0.765	5	D	GP05...	D0602600	SS50	26.0	●
183026700	GPRC-6.00 0.51 1.000.1.000.D.1	0.51	6.00	1.000	1.000	1.000	1.260	1.015	5		GP05...	D0603100	SS50	26.0	●
183026800	GPRC-6.00 0.91 1.000.1.000.D.1	0.91	6.00	1.000	1.000	1.000	1.654	1.015	5		GP05...	D0603100	SS50	26.0	●
183026900	GPRC-6.00 0.59 1.000.1.000.E.1	0.59	6.00	1.000	1.000	1.000	1.339	1.054	6	E	GP06...	D0603100	SS50	35.0	●
183027000	GPRC-6.00 0.91 1.000.1.000.E.1	0.91	6.00	1.000	1.000	1.000	1.654	1.035	6		GP06...	D0603100	SS50	35.0	●

● 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	MP	NP
Seat Size A, B, C, D			Seat Size E	

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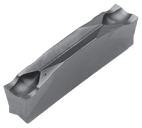
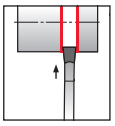
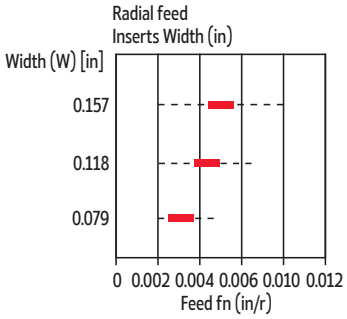
Feed recommendations and geometry descriptions	Grooving & Parting Off

GP...02-MC







Medium Parting Off

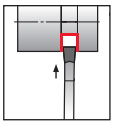
Recommended for parting off, thin walled tubes and small diameter components in all materials.

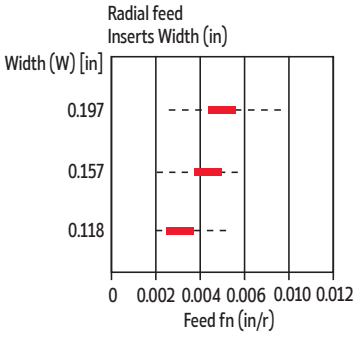
The positive geometry eliminates the risk of built-up edge.

Low cutting forces resulting in reduced vibration.

GP...02-MG







Medium Grooving

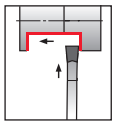
Outstanding chip control.

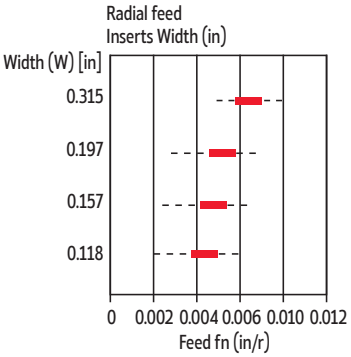
Reduces chip width giving good surfaces.

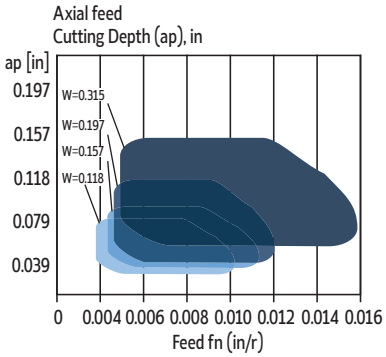
For all materials.

GP...02-MM







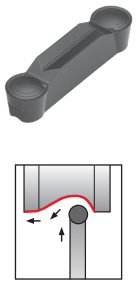
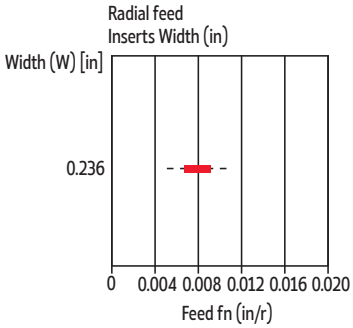
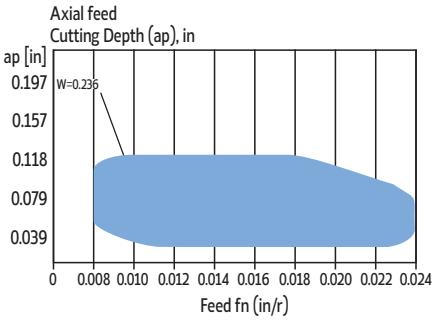
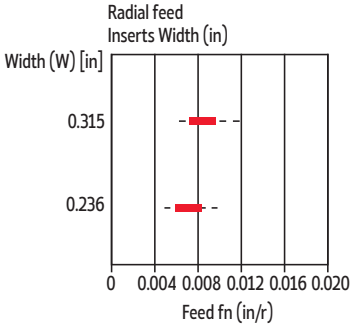
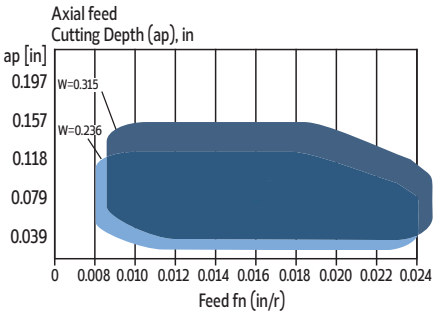


Medium Multi Function (Grooving & Turning)

For grooving and turning in all materials.

Good chip control.

Recommended starting value.
For cutting speed recommendations, see page D - 587.

Feed recommendations and geometry descriptions			Grooving & Parting Off
GP...02-MP 	Radial feed Inserts Width (in)  	Axial feed Cutting Depth (ap), in  	**Medium Profiling** For profiling all materials. Outstanding chip control even at low feeds and small depths of cut. Good surface finish.
GP...02-NP 	Radial feed Inserts Width (in)  	Axial feed Cutting Depth (ap), in  	**Medium Aluminium profiling** First choice for profiling in non-ferrous materials. Good chip flow provides a better surface finishing. Sharp cutting edge.

Recommended starting value.
For cutting speed recommendations, see page D - 587.

GTN & SANCAR INSERTS CODE KEY

Chave de codificação para pastilhas | Llave de codificación para plaquitas

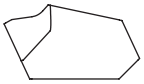
For GTN Inserts

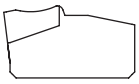
GTN	-	3	R	15
1		2	3	4

For SANCAR Inserts

SANCAR	-	3	R	5
1		2	3	4

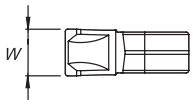
1 - Product Line

GTN 

SANCAR 

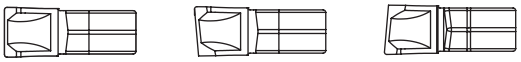
2 - Cutting Width

2 - 0.079 in | 2.4 - 0.094 in | 3 - 0.118 in | 4 - 0.157 in | 4.8 - 0.189 in | 5 - 0.197 in | 6 - 0.236 in | 8 - 0.315 in



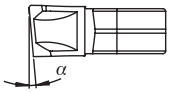
3 - Inserts Type

N - Neutral | R - Right | L - Left



4 - Relief Angle

4 - 4º | 5 - 5º | 8 - 8º | 15 - 15º



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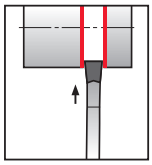
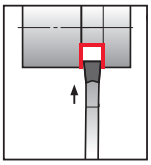
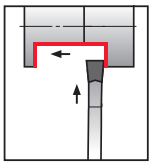
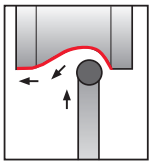
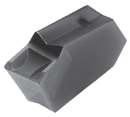
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

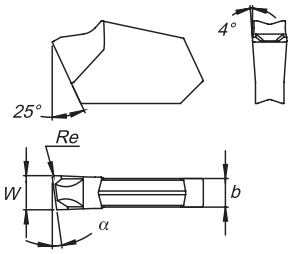
Insert Type + Chipbreaker / Operation		Parting Off	General Grooving	Turning	Profiling
					
	GTN-...	First choice	Alternative		
	SANCAR-...	First choice	Alternative		

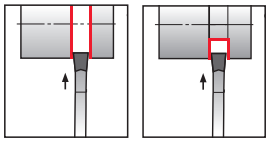
First choice | Primeira opção | Primera opción

Alternative | Alternative

GTN-R







(1) Geometry code	(2) Grade code ANSI Reference	ISO 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 (in) W	b	Re	α°	Cutting Conditions fn (in/r) Min	Max
1130166	GTN-2R 4	GCMX-2R 4	○	○	○	○	○	0.087	0.071	0.006	4	0.003	0.002	0.005
1130167	GTN-2R 8	GCMX-2R 8	○	○	○	○	○	0.087	0.071	0.006	8	0.002	0.002	0.004
1130255	GTN-2R 15	GCMX-2R 15	○	○	○	○	○	0.087	0.071	0.006	15	0.002	0.002	0.004
1130257	GTN-2.4R 4	GCMX-2.4R 4	○	○	○	○	○	0.094	0.079	0.006	4	0.003	0.002	0.006
1130233	GTN-2.4R 8	GCMX-2.4R 8	○	○	○	○	○	0.094	0.079	0.006	8	0.003	0.002	0.005
1130258	GTN-2.4R 15	GCMX-2.4R 15	○	○	○	○	○	0.094	0.079	0.006	15	0.002	0.002	0.004
1130170	GTN-3R 4	GCMX-3R 4	○	○	○	○	○	0.122	0.102	0.008	4	0.003	0.002	0.006
1130171	GTN-3R 8	GCMX-3R 8	○	○	○	○	○	0.122	0.102	0.008	8	0.003	0.002	0.005
1130253	GTN-3R 15	GCMX-3R 15	○	○	○	○	○	0.122	0.102	0.008	15	0.002	0.002	0.004
1130261	GTN-4R 4	GCMX-4R 4	○	○	○	○	○	0.161	0.138	0.010	4	0.005	0.003	0.008
1130222	GTN-4R 8	GCMX-4R 8	○	○	○	○	○	0.161	0.138	0.010	8	0.004	0.003	0.005
1130262	GTN-4R 15	GCMX-4R 15	○	○	○	○	○	0.161	0.138	0.010	15	0.004	0.003	0.005
1130264	GTN-4.8R 4	GCMX-4.8R 4	○	○	○	○	○	0.189	0.165	0.011	4	0.007	0.004	0.010
1130230	GTN-4.8R 8	GCMX-4.8R 8	○	○	○	○	○	0.189	0.165	0.011	8	0.005	0.004	0.007
1130265	GTN-4.8R 15	GCMX-4.8R 15	○	○	○	○	○	0.189	0.165	0.011	15	0.005	0.004	0.006
1130268	GTN-5R 4	GCMX-5R 4	○	○	○	○	○	0.201	0.177	0.011	4	0.007	0.004	0.010
1130224	GTN-5R 8	GCMX-5R 8	○	○	○	○	○	0.201	0.177	0.011	8	0.005	0.004	0.007
1130269	GTN-5R 15	GCMX-5R 15	○	○	○	○	○	0.201	0.177	0.011	15	0.005	0.004	0.006
1130272	GTN-6R 4	GCMX-6R 4	○	○	○	○	○	0.252	0.217	0.014	4	0.008	0.004	0.012
1130227	GTN-6R 8	GCMX-6R 8	○	○	○	○	○	0.252	0.217	0.014	8	0.007	0.005	0.008
1130276	GTN-6R 15	GCMX-6R 15	○	○	○	○	○	0.252	0.217	0.014	15	0.006	0.004	0.007

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

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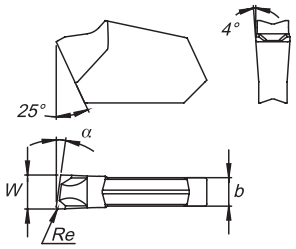
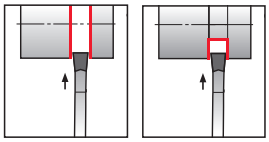
palbit PILOT Precision Products **Pilot Precision Products** | 15 Merrigan Way | South Deerfield, MA 01373

GTN-L







(1) Geometry code	(2) Grade code ANSI Reference	ISO 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 (in) W	b	Re	α°	Cutting Conditions fn (in/r) Min	Max
1130164	GTN-2L 4	GCMX-2L 4	○	○	○	○	○	0.087	0.071	0.006	4	0.003	0.002	0.005
1130220	GTN-2L 8	GCMX-2L 8	○	○	○	○	○	0.087	0.071	0.006	8	0.002	0.002	0.004
1130256	GTN-2L 15	GCMX-2L 15	○	○	○	○	○	0.087	0.071	0.006	15	0.002	0.002	0.004
1130259	GTN-2.4L 4	GCMX-2.4L 4	○	○	○	○	○	0.094	0.079	0.006	4	0.003	0.002	0.006
1130232	GTN-2.4L 8	GCMX-2.4L 8	○	○	○	○	○	0.094	0.079	0.006	8	0.003	0.002	0.005
1130260	GTN-2.4L 15	GCMX-2.4L 15	○	○	○	○	○	0.094	0.079	0.006	15	0.002	0.002	0.004
1130221	GTN-3L 4	GCMX-3L 4	○	○	○	○	○	0.122	0.102	0.008	4	0.003	0.002	0.006
1130168	GTN-3L 8	GCMX-3L 8	○	○	○	○	○	0.122	0.102	0.008	8	0.003	0.002	0.005
1130254	GTN-3L 15	GCMX-3L 15	○	○	○	○	○	0.122	0.102	0.008	15	0.002	0.002	0.004
1130173	GTN-4L 4	GCMX-4L 4	○	○	○	○	○	0.161	0.138	0.010	4	0.005	0.003	0.008
1130223	GTN-4L 8	GCMX-4L 8	○	○	○	○	○	0.161	0.138	0.010	8	0.004	0.003	0.005
1130263	GTN-4L 15	GCMX-4L 15	○	○	○	○	○	0.161	0.138	0.010	15	0.004	0.003	0.005
1130266	GTN-4.8L 4	GCMX-4.8L 4	○	○	○	○	○	0.189	0.165	0.011	4	0.007	0.004	0.010
1130231	GTN-4.8L 8	GCMX-4.8L 8	○	○	○	○	○	0.189	0.165	0.011	8	0.005	0.004	0.007
1130267	GTN-4.8L 15	GCMX-4.8L 15	○	○	○	○	○	0.189	0.165	0.011	15	0.005	0.004	0.006
1130270	GTN-5L 4	GCMX-5L 4	○	○	○	○	○	0.201	0.177	0.011	4	0.007	0.004	0.010
1130225	GTN-5L 8	GCMX-5L 8	○	○	○	○	○	0.201	0.177	0.011	8	0.005	0.004	0.007
1130271	GTN-5L 15	GCMX-5L 15	○	○	○	○	○	0.201	0.177	0.011	15	0.005	0.004	0.006
1130274	GTN-6L 4	GCMX-6L 4	○	○	○	○	○	0.252	0.217	0.014	4	0.008	0.004	0.012
1130226	GTN-6L 8	GCMX-6L 8	○	○	○	○	○	0.252	0.217	0.014	8	0.007	0.005	0.008
1130275	GTN-6L 15	GCMX-6L 15	○	○	○	○	○	0.252	0.217	0.014	15	0.006	0.004	0.007

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

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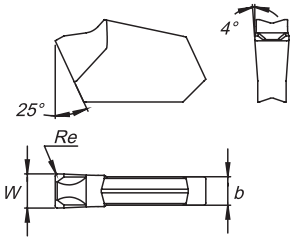
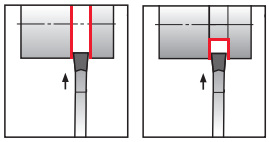
GTN-N







(1) Geometry code	(2) Grade code ANSI Reference	ISO 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 (in) W	b	Re	α °	Cutting Conditions fn (in/r) Min	Max
1130165	GTN-2N	GCMX-2N	◉	◉	◉	◉	◉	0.087	0.071	0.006	-	0.003	0.002	0.006
1130228	GTN-2.4N	GCMX-2.4N	○	○	○	○	○	0.094	0.079	0.006	-	0.004	0.002	0.007
1130169	GTN-3N	GCMX-3N	◉	◉	◉	◉	◉	0.122	0.102	0.008	-	0.006	0.004	0.010
1130174	GTN-4N	GCMX-4N	◉	◉	◉	◉	◉	0.161	0.138	0.010	-	0.007	0.004	0.012
1130229	GTN-4.8N	GCMX-4.8N	○	○	○	○	○	0.189	0.165	0.011	-	0.008	0.005	0.014
1130175	GTN-5N	GCMX-5N	◉	◉	◉	◉	◉	0.201	0.177	0.011	-	0.008	0.005	0.014
1130176	GTN-6N	GCMX-6N	◉	◉	◉	◉	◉	0.252	0.217	0.014	-	0.010	0.006	0.016
1130449	GTN-8N	GCMX-8N	○			○	○	0.315	0.280	0.016	-	0.011	0.007	0.018

◉ 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

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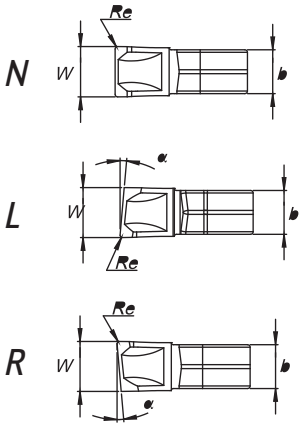
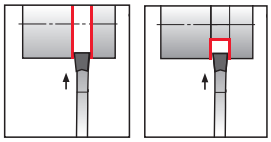
palbit PILOT Precision Products Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

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 (in) W	b	Re	α°	Cutting Conditions fn (in/r) Min	Max
1130186	SANCAR-3N	SANCAR-3N	◉	◉	◉	◉	◉	0.118	0.098	0.010	-	0.005	0.002	0.010
1130187	SANCAR-4N	SANCAR-4N	◉	◉	◉	◉	◉	0.157	0.130	0.010	-	0.007	0.004	0.012
1130189	SANCAR-5N	SANCAR-5N	◉	◉	◉	◉	◉	0.197	0.169	0.010	-	0.009	0.004	0.014
1130185	SANCAR-3L 5	SANCAR-3L 5	○	○	○	○	○	0.118	0.098	0.010	5	0.004	0.002	0.006
1130390	SANCAR-4L 5	SANCAR-4L 5	○	○	○	○	○	0.157	0.130	0.010	5	0.005	0.003	0.008
1130389	SANCAR-5L 5	SANCAL-5L 5	○	○	○	○	○	0.197	0.169	0.010	5	0.006	0.003	0.010
1130288	SANCAR-3R 5	SANCAR-3R 5	○	○	○	○	○	0.118	0.098	0.010	5	0.004	0.002	0.006
1130188	SANCAR-4R 5	SANCAR-4R 5	○	○	○	○	○	0.157	0.130	0.010	5	0.005	0.003	0.008
1130388	SANCAR-5R 5	SANCAR-5R 5	○	○	○	○	○	0.197	0.169	0.010	5	0.006	0.003	0.010

◉ 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

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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 

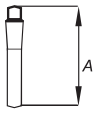
3 - Cutting Width

2 - 0.079 in | 3 - 0.118 in | 4 - 0.157 in | 5 - 0.197 in | 6 - 0.236 in



4 - Maximum Depth of Cut

19 - 0.748 in | 26 - 1.024 in | 32 - 1.260 in



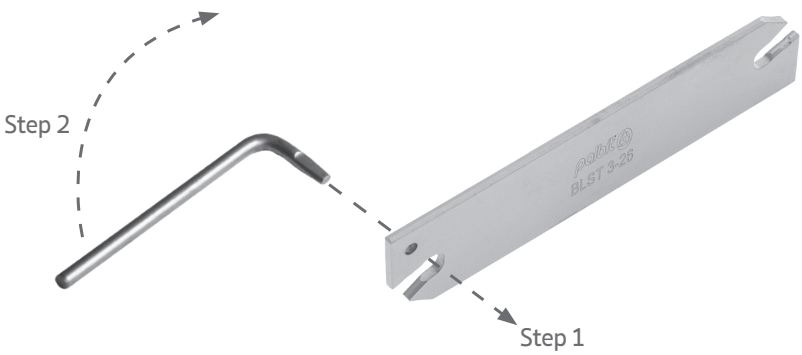
PROCEDURES FOR INSERTS EXTRACTION | Procedimentos para remoção de pastilha | Procedimientos para retirar plaquitas

1. Always use the right key to proceed to inserts extraction.
   Use sempre a chave adequada para rettirar as pastilhas.
   Utilice siempre la llave adecuada para retirar la plaquita.

2. Position 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**.

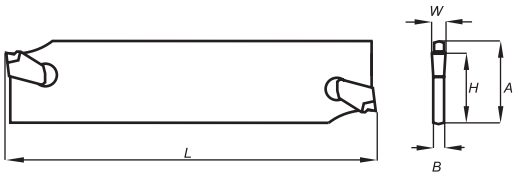
4. Always replace damaged inserts with new ones.
   Substitua sempre as pastilhas danificadas por pastilhas novas.
   Siempre reemplace las plaquitas dañadas por plaquitas nuevas.



palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

BLST (GTN)





GTN...



Hand Type
N, R, L

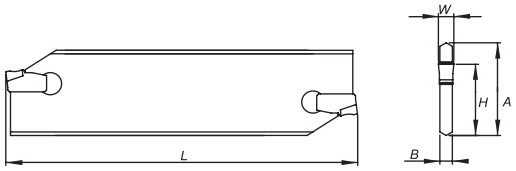
Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (in)					Inserts	Toolholder		Wrench	Stock
		A	W	H	B	L		CPTS	DPTS		
183008000	BLST 2-19	0.748	0.079	0.630	0.063	3.346	GTN-2...	CPTS ...19	DPTS ...19	LE05	⊛
183008100	BLST 2-26	1.024	0.079	0.843	0.063	4.331	GTN-2...	CPTS ...26	DPTS ...26	LE05	⊛
213008200	BLST 3-26	1.024	0.118	0.843	0.094	4.331	GTN-3...	CPTS ...26	DPTS ...26	LE05	⊛
213008300	BLST 4-26	1.024	0.157	0.843	0.126	4.331	GTN-4...	CPTS ...26	DPTS ...26	LE05	⊛
213008400	BLST 5-26	1.024	0.197	0.843	0.157	4.331	GTN-5...	CPTS ...26	DPTS ...26	LE05	⊛
213008500	BLST 6-26	1.024	0.236	0.843	0.205	4.331	GTN-6...	CPTS ...26	DPTS ...26	LE05	⊛
183008600	BLST 2-32	1.260	0.079	0.984	0.063	5.906	GTN-2...	CPTS ...32	DPTS ...32	LE05	⊛
213008700	BLST 3-32	1.260	0.118	0.984	0.094	5.906	GTN-3...	CPTS ...32	DPTS ...32	LE05	⊛
213008800	BLST 4-32	1.260	0.157	0.984	0.126	5.906	GTN-4...	CPTS ...32	DPTS ...32	LE05	⊛
213008900	BLST 5-32	1.260	0.197	0.984	0.157	5.906	GTN-5...	CPTS ...32	DPTS ...32	LE05	⊛
213009000	BLST 6-32	1.260	0.236	0.984	0.205	5.906	GTN-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-562.

BLS (SANCAR)





SANCAR...



Hand Type
N, R, L

Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (in)					Inserts	Toolholder		Wrench	Stock
		A	W	H	B	L		CPTS	DPTS		
213004600	BLS 3-32	1.260	0.118	0.984	0.094	5.906	SANCAR 3...	CPTS ...32	DPTS ...32	LE05	⊛
213004700	BLS 4-32	1.260	0.157	0.984	0.126	5.906	SANCAR 4...	CPTS ...32	DPTS ...32	LE05	⊛
213005500	BLS 5-32	1.260	0.197	0.984	0.157	5.906	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-562.

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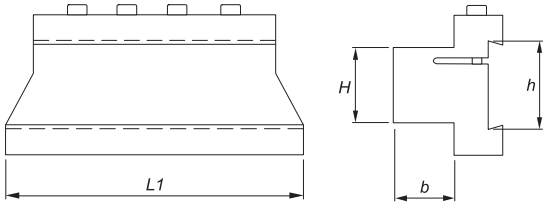
CPTS

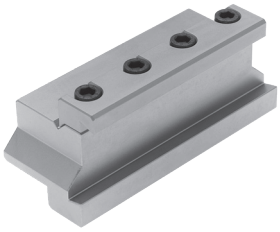


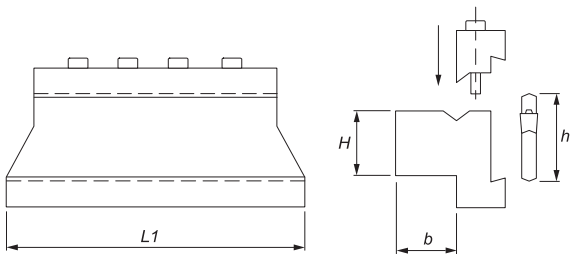


Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (in)				lbs	Screw	Wrench	Stock
		h	L1	H	b				
290087000	CPTS 1019	0.750	2.990	0.625	0.625	0.660	D0503000	SS40	○
290007600	CPTS 1026	1.020	3.430	0.625	0.625	0.990	D0603600	SS50	○
290086900	CPTS 1226	1.020	3.430	0.750	0.750	1.100	D0603600	SS50	○
290007700	CPTS 1232	1.250	3.940	0.750	0.750	1.540	D0603600	SS50	○
290007800	CPTS 1632	1.250	4.330	1.000	1.000	2.090	D0603600	SS50	○
290087100	CPTS 2032	1.250	4.750	1.250	1.250	3.080	D0603600	SS50	○
213033300	CPTS 2432	1.250	4.750	1.500	1.640	3.080	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 (in)				lbs	Screw	Wrench	Stock
		h	L1	H	b				
213032900	DPTS 1019	0.750	2.990	0.625	0.625	0.550	D0503000	SS40	○
213032200	DPTS 1026	1.020	3.430	0.625	0.625	1.210	D0603600	SS50	○
213032300	DPTS 1226	1.020	3.430	0.750	0.750	1.540	D0603600	SS50	○
213033000	DPTS 1232	1.250	3.940	0.750	0.750	1.650	D0603600	SS50	○
213032400	DPTS 1632	1.250	4.330	1.000	1.000	2.200	D0603600	SS50	○
213033100	DPTS 2032	1.250	4.750	1.250	1.250	3.190	D0603600	SS50	○
213033200	DPTS 2432	1.250	4.750	1.500	1.640	3.190	D0603600	SS50	○

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

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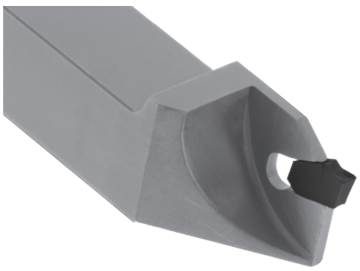
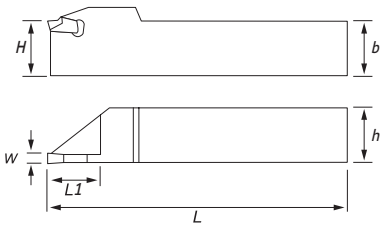
XLCF R



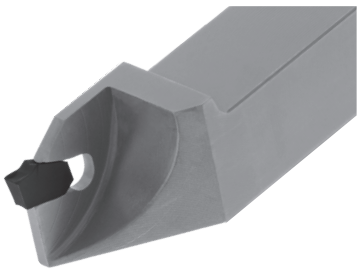


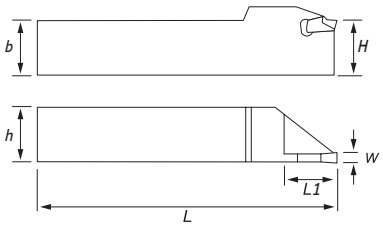
Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (in)						lbs	Insert	Wrench	Stock
		h	L1	L	H	b	W				
213033400	XLCF R 06-2B	0.375	0.709	4.331	0.375	0.375	0.078	0.176	GTN-2	LE05	○
213032500	XLCF R 08-2B	0.500	0.709	4.331	0.500	0.500	0.078	0.220	GTN-2	LE05	○
213032600	XLCF R 52-3B	0.500	0.787	4.331	0.500	0.500	0.118	0.330	GTN-3	LE05	○
213033500	XLCF R 52-4B	0.500	0.787	4.331	0.500	0.500	0.157	0.330	GTN-4	LE05	○
213032700	XLCF R 62-3C	0.500	0.787	4.921	0.500	0.500	0.118	0.440	GTN-3	LE05	○
213033600	XLCF R 62-4C	0.500	0.787	4.921	0.500	0.500	0.157	0.440	GTN-4	LE05	○
213033700	XLCF R 12-3C	0.750	0.787	4.921	0.750	0.750	0.118	0.770	GTN-3	LE05	○
213033800	XLCF R 12-4C	0.750	0.787	4.921	0.750	0.750	0.157	0.770	GTN-4	LE05	○
213033900	XLCF R 16-3D	1.000	0.787	5.906	1.000	1.000	0.118	1.430	GTN-3	LE05	○
213034000	XLCF R 16-4D	1.000	0.787	5.906	1.000	1.000	0.157	1.430	GTN-4	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-562.

XLCF L





Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (in)						lbs	Insert	Wrench	Stock
		h	L1	L	H	b	W				
213034100	XLCF L 06-2B	0.375	0.709	4.331	0.375	0.375	0.078	0.176	GTN-2	LE05	○
213034200	XLCF L 08-2B	0.500	0.709	4.331	0.500	0.500	0.078	0.220	GTN-2	LE05	○
213034300	XLCF L 52-3B	0.500	0.787	4.331	0.500	0.500	0.118	0.330	GTN-3	LE05	○
213034400	XLCF L 52-4B	0.500	0.787	4.331	0.500	0.500	0.157	0.330	GTN-4	LE05	○
213034500	XLCF L 62-3C	0.500	0.787	4.921	0.500	0.500	0.118	0.440	GTN-3	LE05	○
213034600	XLCF L 62-4C	0.500	0.787	4.921	0.500	0.500	0.157	0.440	GTN-4	LE05	○
213034700	XLCF L 12-3C	0.750	0.787	4.921	0.750	0.750	0.118	0.770	GTN-3	LE05	○
213034800	XLCF L 12-4C	0.750	0.787	4.921	0.750	0.750	0.157	0.770	GTN-4	LE05	○
213034900	XLCF L 16-3D	1.000	0.787	5.906	1.000	1.000	0.118	1.430	GTN-3	LE05	○
213035000	XLCF L 16-4D	1.000	0.787	5.906	1.000	1.000	0.157	1.430	GTN-4	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-562.

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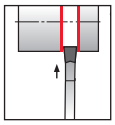
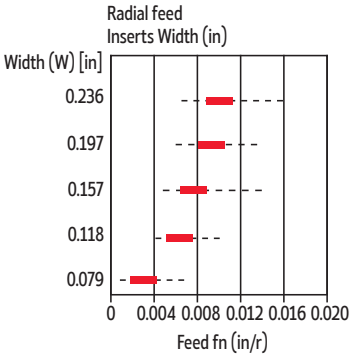
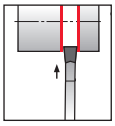
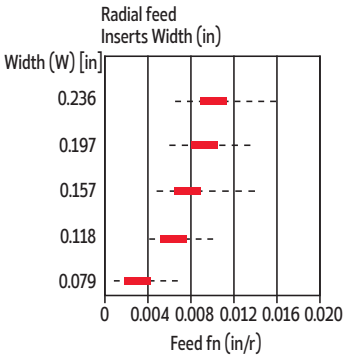
CUTTING PARAMETERS | Parâmetros de corte | Parámetros de corte

Feed recommendations and geometry descriptions	Grooving & Parting Off
GTN-...   	**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 - 587.

TRIGON INSERTS CODE KEY

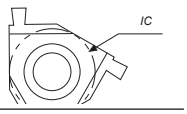
Chave de codificação para pastilhas | Llave de codificación para plaquitas

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

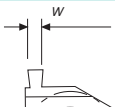
3 - Cutting Edge Type

W - Rectangular 

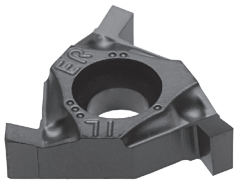
R - Rounded 

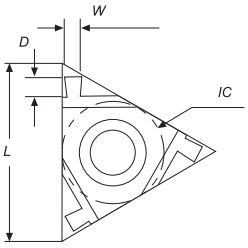
4 - Cutting Edge Length

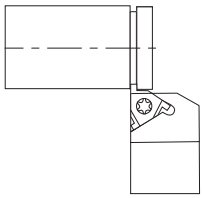
0,50 - 0,5mm | 2,25 - 2,25mm



FLAT GROOVING







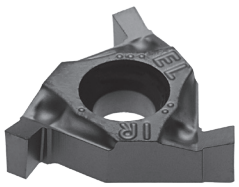
External

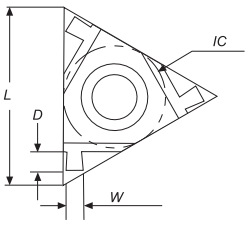
Inserts ER = IL

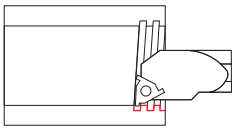
Order code Código	Reference Referência Referencia	Anvil	L (mm)	Dimensions | Dimensões | Dimensiones (in)			Stock - Grade Code (2)	
				IC	W	D	(68) PH6920	(D0) PH8920
1883721	11 ER W 0.50	-	11	0.250	0.020	0.055	○	○
1883722	11 ER W 0.60	-	11	0.250	0.024	0.055	○	○
1883723	11 ER W 0.70	-	11	0.250	0.028	0.055	○	○
1883724	11 ER W 0.80	-	11	0.250	0.031	0.055	○	○
1883725	11 ER W 1.00	-	11	0.250	0.039	0.055	○	○
1883726	16 ER W 0.50	EA 16	16	0.375	0.020	0.055	○	○
1881125	16 ER W 1.00	EA 16	16	0.375	0.039	0.055	◈	○
1883707	16 ER W 1.20	EA 16	16	0.375	0.047	0.063	◈	○
1883720	16 ER W 1.40	EA 16	16	0.375	0.055	0.071	◈	○
1881129	16 ER W 1.70	EA 16	16	0.375	0.067	0.079	◈	◈
1883711	16 ER W 1.95	EA 16	16	0.375	0.077	0.079	◈	◈
1883714	16 ER W 2.25	EA 16	16	0.375	0.089	0.089	◈	◈

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

Note: Select the toolholder "SXAN"







Internal

Inserts IR = EL

Order code Código	Reference Referência Referencia	Anvil	L (mm)	Dimensions | Dimensões | Dimensiones (in)			Stock - Grade Code (2)	
				IC	W	D	(68) PH6920	(D0) PH8920
1881142	11 IR W 0.50	-	11	0.250	0.020	0.055	◈	○
1883727	11 IR W 0.60	-	11	0.250	0.024	0.055	○	○
1883728	11 IR W 0.70	-	11	0.250	0.028	0.055	○	○
1883729	11 IR W 0.80	-	11	0.250	0.031	0.055	○	○
1881144	11 IR W 1.00	-	11	0.250	0.039	0.055	◈	○
1883730	16 IR W 0.50	EA 16	16	0.375	0.020	0.055	○	○
1881134	16 IR W 1.00	EA 16	16	0.375	0.039	0.055	◈	○
1883731	16 IR W 1.20	EA 16	16	0.375	0.047	0.063	◈	○
1883712	16 IR W 1.40	EA 16	16	0.375	0.055	0.071	◈	○
1881138	16 IR W 1.70	EA 16	16	0.375	0.067	0.079	◈	○
1883710	16 IR W 1.95	EA 16	16	0.375	0.077	0.079	◈	○
1883713	16 IR W 2.25	EA 16	16	0.375	0.089	0.089	◈	○

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

Note: Select the toolholder "SXFN"

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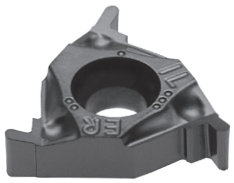
FULL RADIUS GROOVING



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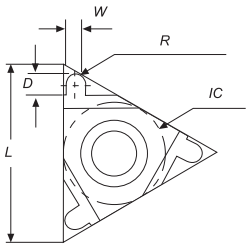
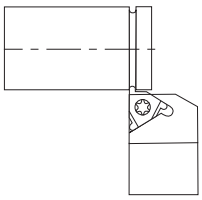


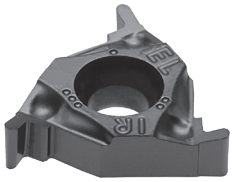


Inserts ER = IL

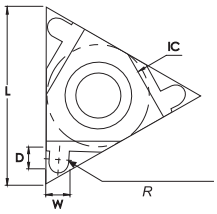
Order code Código	Reference Referência Referencia	Anvil	L (mm)	Dimensions | Dimensões | Dimensiones (in)				Stock - Grade Code (2)	
				IC	W	R	D	(68) PH6920	(D0) PH8920
1881149	16 ER R 0.50	EA 16	16	0.375	0.039	0.020	0.055	◉	○
1883732	16 ER R 0.60	EA 16	16	0.375	0.047	0.024	0.063	○	○
1883733	16 ER R 0.90	EA 16	16	0.375	0.071	0.035	0.079	○	○
1881151	16 ER R 1.00	EA 16	16	0.375	0.079	0.039	0.079	○	○
1883734	16 ER R 1.10	EA 16	16	0.375	0.087	0.043	0.085	○	○
1883735	16 ER R 1.20	EA 16	16	0.375	0.094	0.047	0.085	○	○

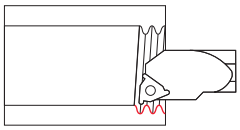
◉ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Note: Select the toolholder "SXAN"



Internal





Inserts IR = EL

Order code Código	Reference Referência Referencia	Anvil	L (mm)	Dimensions | Dimensões | Dimensiones (in)				Stock - Grade Code (2)	
				IC	W	R	D	(68) PH6920	(D0) PH8920
1881145	16 IR R 0.50	EA 16	16	0.375	0.039	0.020	0.055	○	○
1883736	16 IR R 0.60	EA 16	16	0.375	0.047	0.024	0.063	○	○
1883737	16 IR R 0.90	EA 16	16	0.375	0.071	0.035	0.079	○	○
1881147	16 IR R 1.00	EA 16	16	0.375	0.079	0.039	0.079	○	○
1883738	16 IR R 1.10	EA 16	16	0.375	0.087	0.043	0.085	○	○
1883739	16 IR R 1.20	EA 16	16	0.375	0.094	0.047	0.085	○	○

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

Note: Select the toolholder "SXFN"

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MAIN APLICATIONS | Aplicações principais | Aplicaciones principales

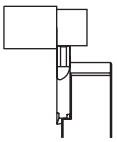
INSERTS

4 Different operations:

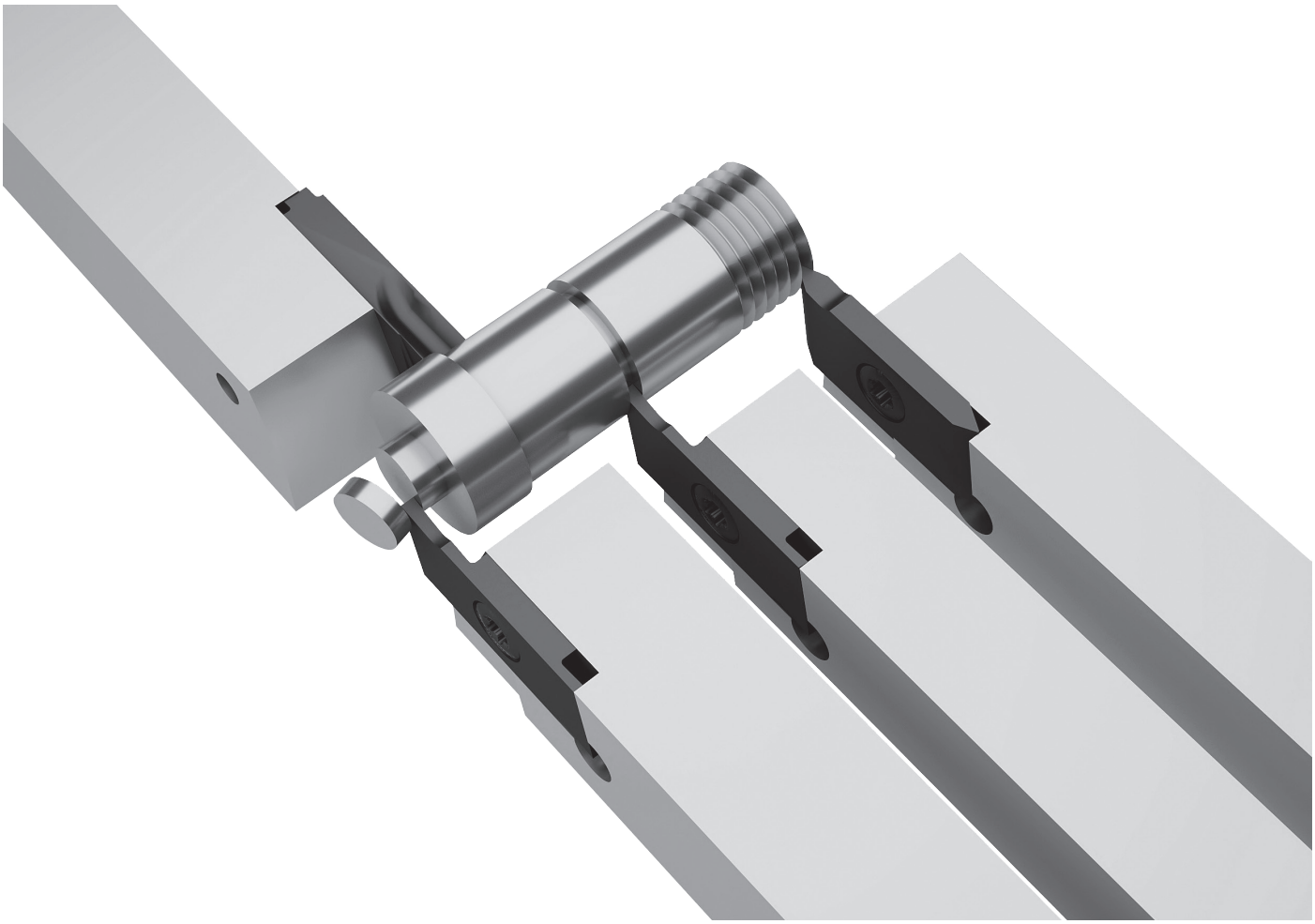
- Turning
- Parting off
- Grooving
- Threading

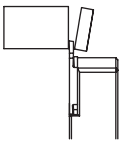
TOOLHOLDERS

Metric:	Inches:
- 08x08mm	- 0,625 x 0,625"
- 10x10mm	- 0,500 x 0,500"
- 12x12mm	- 0,375 x 0,375"
- 16x16mm	- 0,312 x 0,312"

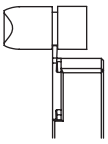


Turning

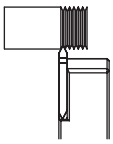




Parting off



Grooving



Threading

PDF
VIDEO

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

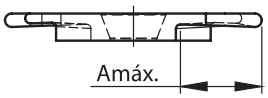
SAL	60	T	300	R		TP
1	2	5	6	8	-	11

1 - Product line

SAL - Swiss Automatic Lathes Line

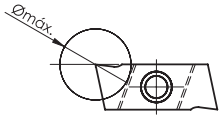
2 - Maximum depth of cut (Turning and Grooving inserts)

25 - 2,5mm | 60 - 6,0mm



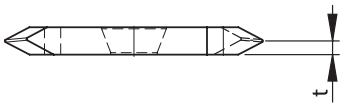
3 - Maximum Cutting Diameter (Parting Off Inserts)

11 - 11,0mm | 13 - 13,0mm



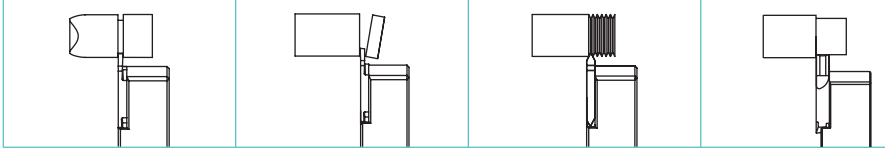
4 - Center distance (Threading Inserts)

050 - 0,5mm | 100 - 1,00mm



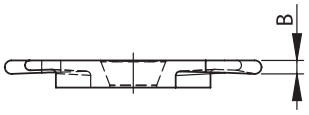
5 - Operations type

G - Grooving	P - Parting off	H - Threading	T - Turning



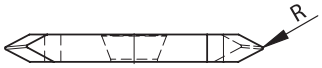
6 - Cut thickness (Grooving, Parting Off and Turning Inserts)

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



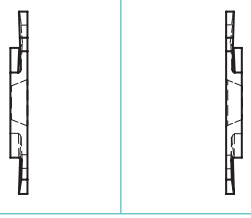
7 - Corner radius (Threading Inserts)

005 - 0,05mm | 010 - 0,10mm
012 - 0,12mm



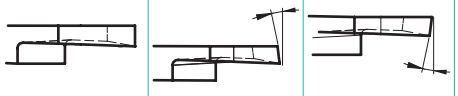
8- Insert / toolholder side

L - Left hand	R - Right hand



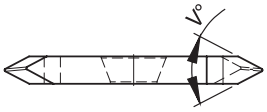
9 - Front angle (Parting off)

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

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PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

TOOLHOLDERS CODE KEY - Chave de codificação para suportes | Llave de codificación de herramienta

For convencional Toolholders (Metric)

SAL	H	E	R	-	08	08	-	M	07
1	2	3	4	-	5	6	-	7	8

For Convencional Toolholders (Imperial)

SAL	H	E	L	-	07	05
1	2	3	4	-	8	9

1 - Product line

SAL - Swiss Automatic Lathes Line

2 - Tool type

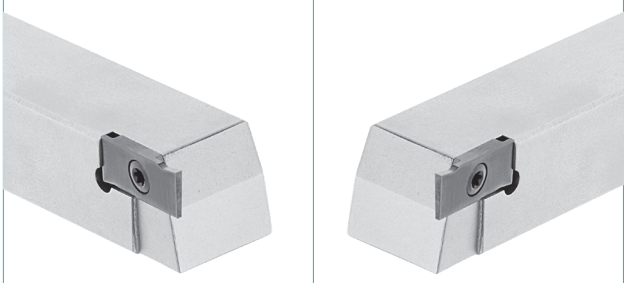
H - Holder

3 - Internal or External

E - External

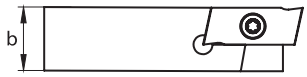
4 - Insert / toolholder side

L - Left hand	R - Right hand



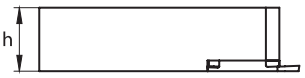
5 - Shank height (metric)

- 08 - 8 mm
- 10 - 10 mm
- 12 - 12 mm
- 16 - 16 mm



6 - Shank width (metric)

- 08 - 8 mm
- 10 - 10 mm
- 12 - 12 mm
- 16 - 16 mm



7 - Shank lenght

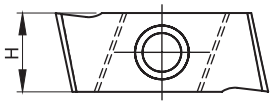
L - 140 mm

M - 150 mm



8 - Insert cutting edge lenght (mm)

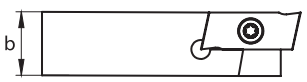
07 - 7,0 mm



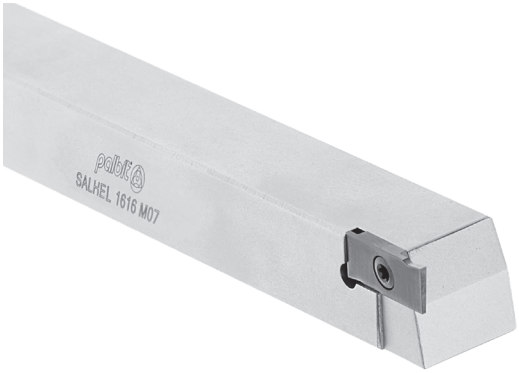
9 - Shank height (Imperial)

Imperial

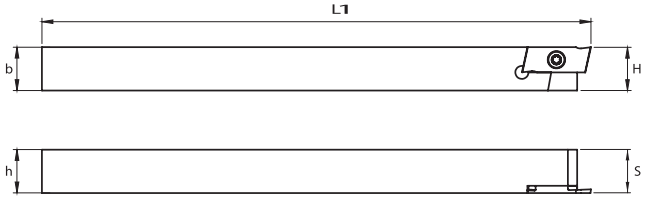
- 05 - 5/16´´x 5/16´´
- 06 - 3/8´´x 3/8´´
- 08 - 1/2´´x 1/2´´
- 10 - 5/8´´ x 5/8´´



EXTERNAL TOOLHOLDERS | Suportes exteriores | herramientas de tronzado exterior



Left hand style show



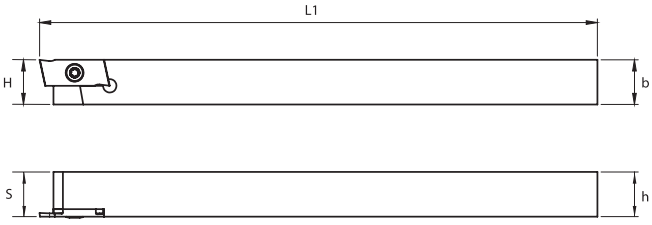
Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (in)					* Insert	Screw	Wrench	Stock
		h	b	H	L1	S				
213024700	SALHEL 05-07	0.312	0.312	0.312	6.00	0.312	SAL...L	P0300900	XT 08	⛭
213024800	SALHEL 06-07	0.375	0.375	0.375	6.00	0.375	SAL...L	P0300900	XT 08	⛭
213024900	SALHEL 08-07	0.500	0.500	0.500	6.00	0.500	SAL...L	P0300900	XT 08	⛭
213025000	SALHEL 10-07	0.625	0.625	0.625	6.00	0.625	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 (in)					* Insert	Screw	Wrench	Stock
		h	b	H	L1	S				
213024300	SALHER 05-07	0.312	0.312	0.312	6.00	0.312	SAL...R	P0300900	XT 08	⛭
213024400	SALHER 06-07	0.375	0.375	0.375	6.00	0.375	SAL...R	P0300900	XT 08	⛭
213024500	SALHER 08-07	0.500	0.500	0.500	6.00	0.500	SAL...R	P0300900	XT 08	⛭
213024600	SALHER 10-07	0.625	0.625	0.625	6.00	0.625	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

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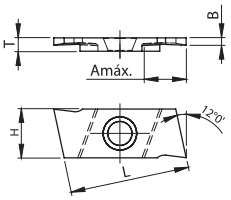
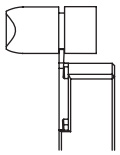
GS SERIES | Inserts | Pastilhas | Plaquitas



Right hand style show

For square grooving
Para grooving quadrado
Para ranurado quadrado





Grooving

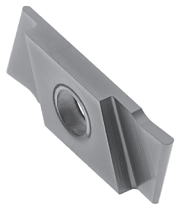
(1) Geometry code	(2) Grade code ANSI Reference	ISO Reference	P G1 PH7910	P G4 PH7920	M G4 PH7920	M P8 PH7135	K G4 PH7920	K P8 PH7135	S G4 PH7920	S P8 PH7135	Dimensions | Dimensões | Dimensiones (in) B	L	T	H	Amáx.	V°	Ømáx.	Cutting conditions Condições de corte Condiciones de corte fn (in/r)	Min.	Max.
1130441	SAL25G050R-GS	SAL25G050R-GS	○	◈	◈	○	◈	○	◈	○	0.020	0.669	0.079	0.276	0.098	-	-	0.002	0.001	0.002
1130475	SAL25G070R-GS	SAL25G070R-GS	○	◈	◈	○	◈	○	◈	○	0.028	0.669	0.079	0.276	0.098	-	-	0.002	0.001	0.003
1130477	SAL25G080R-GS	SAL25G080R-GS	○	◈	◈	○	◈	○	◈	○	0.031	0.669	0.079	0.276	0.098	-	-	0.002	0.001	0.004
1130479	SAL25G090R-GS	SAL25G090R-GS	○	◈	◈	○	◈	○	◈	○	0.035	0.669	0.079	0.276	0.098	-	-	0.002	0.001	0.004
1130488	SAL60G110R-GS	SAL60G110R-GS	○	◈	◈	○	◈	○	◈	○	0.043	0.669	0.079	0.276	0.236	-	-	0.002	0.001	0.004
1130490	SAL60G130R-GS	SAL60G130R-GS	○	◈	◈	○	◈	○	◈	○	0.051	0.669	0.079	0.276	0.236	-	-	0.003	0.001	0.005
1130442	SAL60G160R-GS	SAL60G160R-GS	○	◈	◈	○	◈	○	◈	○	0.063	0.669	0.079	0.276	0.236	-	-	0.003	0.001	0.005
1130495	SAL60G185R-GS	SAL60G185R-GS	○	◈	◈	○	◈	○	◈	○	0.073	0.669	0.079	0.276	0.236	-	-	0.003	0.001	0.006
1130473	SAL25G050L-GS	SAL25G050L-GS	○	◈	◈	○	◈	○	◈	○	0.020	0.669	0.079	0.276	0.098	-	-	0.002	0.001	0.002
1130474	SAL25G070L-GS	SAL25G070L-GS	○	◈	◈	○	◈	○	◈	○	0.028	0.669	0.079	0.276	0.098	-	-	0.002	0.001	0.003
1130476	SAL25G080L-GS	SAL25G080L-GS	○	◈	◈	○	◈	○	◈	○	0.031	0.669	0.079	0.276	0.098	-	-	0.002	0.001	0.004
1130478	SAL25G090L-GS	SAL25G090L-GS	○	◈	◈	○	◈	○	◈	○	0.035	0.669	0.079	0.276	0.098	-	-	0.002	0.001	0.004
1130487	SAL60G110L-GS	SAL60G110L-GS	○	◈	◈	○	◈	○	◈	○	0.043	0.669	0.079	0.276	0.236	-	-	0.002	0.001	0.004
1130489	SAL60G130L-GS	SAL60G130L-GS	○	◈	◈	○	◈	○	◈	○	0.051	0.669	0.079	0.276	0.236	-	-	0.003	0.001	0.005
1130493	SAL60G160L-GS	SAL60G160L-GS	○	◈	◈	○	◈	○	◈	○	0.063	0.669	0.079	0.276	0.236	-	-	0.003	0.001	0.005
1130494	SAL60G185L-GS	SAL60G185L-GS	○	◈	◈	○	◈	○	◈	○	0.073	0.669	0.079	0.276	0.236	-	-	0.003	0.001	0.006

◈ 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

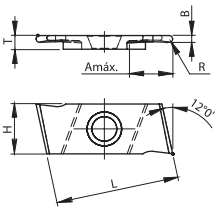
Order code = (1) Geometry code + (2) Grade code

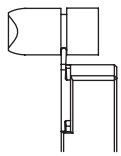
GR SERIES | Inserts | Pastilhas | Plaquitas



Right hand style show

For round grooving
Para grooving redondo
Para ranurado redondo





Grooving

(1) Geometry code	(2) Grade code ANSI Reference	ISO Reference	P G1 PH7910	P G4 PH7920	M G4 PH7920	M P8 PH7135	K G4 PH7920	K P8 PH7135	S G4 PH7920	S P8 PH7135	Dimensions | Dimensões | Dimensiones (in) B	L	T	H	Amáx.	V°	Ømáx.	Cutting conditions Condições de corte Condiciones de corte fn (in/r)	Min.	Max.
1130443	SAL60G100R-GR	SAL60G100R-GR	○	◈	◈	○	◈	○	◈	○	0.039	0.669	0.079	0.276	0.236	-	-	0.002	0.001	0.004
1130492	SAL60G150R-GR	SAL60G150R-GR	○	◈	◈	○	◈	○	◈	○	0.059	0.669	0.079	0.276	0.236	-	-	0.003	0.001	0.005
1130497	SAL60G200R-GR	SAL60G200R-GR	○	◈	◈	○	◈	○	◈	○	0.079	0.669	0.079	0.276	0.236	-	-	0.003	0.001	0.006
1130486	SAL60G100L-GR	SAL60G100L-GR	○	◈	◈	○	◈	○	◈	○	0.039	0.669	0.079	0.276	0.236	-	-	0.002	0.001	0.004
1130491	SAL60G150L-GR	SAL60G150L-GR	○	◈	◈	○	◈	○	◈	○	0.059	0.669	0.079	0.276	0.236	-	-	0.003	0.001	0.005
1130496	SAL60G200L-GR	SAL60G200L-GR	○	◈	◈	○	◈	○	◈	○	0.079	0.669	0.079	0.276	0.236	-	-	0.003	0.001	0.006

◈ 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

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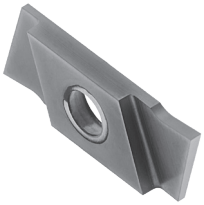
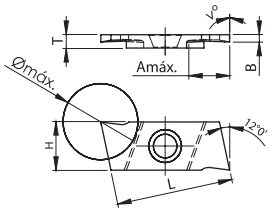
SAL - SWISS AUTOMATIC LATHES

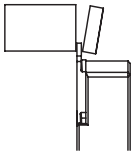
P(P00) SERIES | Inserts | Pastilhas | Plaquitas



Right hand style show

Without front angle
Sem ângulo frontal
Sín angulo frontal





Parting off

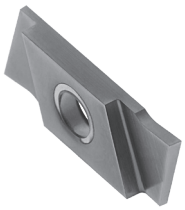
(1) Geometry code	(2) Grade code ANSI Reference	ISO Reference	P PVD G1 PH7910	P PVD G4 PH7920	M PVD G4 PH7920	M PVD P8 PH7135	K PVD G4 PH7920	K PVD P8 PH7135	S PVD G4 PH7920	S PVD P8 PH7135	Dimensions | Dimensões | Dimensiones (in) B	L	T	H	Amáx.	V°	Ømáx.	Cutting conditions Condições de corte Condiciones de corte fn (in/r)	Min.	Max.
1130444	SAL11P100RN-P00	SAL11P100RN-P00	○	◈	◈	○	◈	○	◈	○	0.039	0.669	0.079	0.276	0.236	0	0.433	0.002	0.001	0.004
1130462	SAL11P150RN-P00	SAL11P150RN-P00	○	◈	◈	○	◈	○	◈	○	0.059	0.669	0.079	0.276	0.236	0	0.433	0.003	0.001	0.005
1130468	SAL13P200RN-P00	SAL13P200RN-P00	○	◈	◈	○	◈	○	◈	○	0.079	0.669	0.079	0.276	0.236	0	0.276	0.003	0.001	0.006
1130456	SAL11P100LN-P00	SAL11P100LN-P00	○	◈	◈	○	◈	○	◈	○	0.039	0.669	0.079	0.276	0.236	0	0.433	0.002	0.001	0.004
1130459	SAL11P150LN-P00	SAL11P150LN-P00	○	◈	◈	○	◈	○	◈	○	0.059	0.669	0.079	0.276	0.236	0	0.433	0.003	0.001	0.005
1130465	SAL13P200LN-P00	SAL13P200LN-P00	○	◈	◈	○	◈	○	◈	○	0.079	0.669	0.079	0.276	0.236	0	0.276	0.003	0.001	0.006

◈ 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

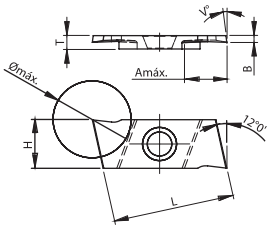
Order code = (1) Geometry code + (2) Grade code

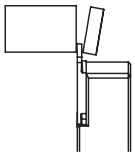
P(P07) SERIES | Inserts | Pastilhas | Plaquitas



Right hand style show

Front angle 7°
Ângulo frontal de 7°
Angulo frontal de 7°





Parting off

(1) Geometry code	(2) Grade code ANSI Reference	ISO 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 | Dimensões | Dimensiones (in) B	L	T	H	Amáx.	V°	Ømáx.	Cutting conditions Condições de corte Condiciones de corte fn (in/r)	Min.	Max.
1130445	SAL11P100RR-P07	SAL11P100RR-P07	○	◈	◈	○	◈	○	◈	○	0.039	0.669	0.079	0.276	0.236	7	0.433	0.002	0.001	0.003
1130446	SAL11P100RL-P07	SAL11P100RL-P07	○	◈	◈	○	◈	○	◈	○	0.039	0.669	0.079	0.276	0.236	7	0.433	0.002	0.001	0.003
1130463	SAL11P150RR-P07	SAL11P150RR-P07	○	◈	◈	○	◈	○	◈	○	0.059	0.669	0.079	0.276	0.236	7	0.433	0.002	0.001	0.004
1130461	SAL11P150RL-P07	SAL11P150RL-P07	○	◈	◈	○	◈	○	◈	○	0.059	0.669	0.079	0.276	0.236	7	0.433	0.002	0.001	0.004
1130469	SAL13P200RR-P07	SAL13P200RR-P07	○	◈	◈	○	◈	○	◈	○	0.079	0.669	0.079	0.276	0.236	7	0.276	0.002	0.001	0.005
1130467	SAL13P200RL-P07	SAL13P200RL-P07	○	◈	◈	○	◈	○	◈	○	0.079	0.669	0.079	0.276	0.236	7	0.276	0.002	0.001	0.005
1130457	SAL11P100LR-P07	SAL11P100LR-P07	○	◈	◈	○	◈	○	◈	○	0.039	0.669	0.079	0.276	0.236	7	0.433	0.002	0.001	0.003
1130455	SAL11P100LL-P07	SAL11P100LL-P07	○	◈	◈	○	◈	○	◈	○	0.039	0.669	0.079	0.276	0.236	7	0.433	0.002	0.001	0.003
1130460	SAL11P150LR-P07	SAL11P150LR-P07	○	◈	◈	○	◈	○	◈	○	0.059	0.669	0.079	0.276	0.236	7	0.433	0.002	0.001	0.004
1130458	SAL11P150LL-P07	SAL11P150LL-P07	○	◈	◈	○	◈	○	◈	○	0.059	0.669	0.079	0.276	0.236	7	0.433	0.002	0.001	0.004
1130466	SAL13P200LR-P07	SAL13P200LR-P07	○	◈	◈	○	◈	○	◈	○	0.079	0.669	0.079	0.276	0.236	7	0.276	0.002	0.001	0.005
1130464	SAL13P200LL-P07	SAL13P200LL-P07	○	◈	◈	○	◈	○	◈	○	0.079	0.669	0.079	0.276	0.236	7	0.276	0.002	0.001	0.005

◈ 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

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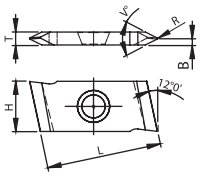
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

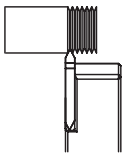
PT SERIES | Inserts | Pastilhas | Plaquitas



Right hand style show

For partial profile threading
Para perfil parcial de roscagem
Para perfil parcial de roscado





Threading

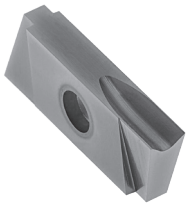
(1) Geometry code	(2) Grade code ANSI Reference	ISO Reference	P PVD G1 PH7910	P PVD G4 PH7920	M PVD G4 PH7920	M PVD P8 PH7135	K PVD G4 PH7920	K PVD P8 PH7135	S PVD G4 PH7920	S PVD P8 PH7135	Dimensions | Dimensões | Dimensiones (in) B	L	T	H	Amáx.	V°	Ømáx.	Cutting conditions Condições de corte Condiciones de corte fn (in/r)	Min.	Max.
1130472	SAL100H012R55-PT	SAL100H012R55-PT	○	◈	◈	○	◈	○	◈	○	0.043	0.669	0.079	0.276	0.005	2.165	-	0.031	0.008	0.079
1130447	SAL100H012R60-PT	SAL100H012R60-PT	○	◈	◈	○	◈	○	◈	○	0.043	0.669	0.079	0.276	0.005	2.362	-	0.031	0.008	0.079
1130470	SAL100H012L55-PT	SAL100H012L55-PT	○	◈	◈	○	◈	○	◈	○	0.043	0.669	0.079	0.276	0.005	2.165	-	0.031	0.008	0.079
1130471	SAL100H012L60-PT	SAL100H012L60-PT	○	◈	◈	○	◈	○	◈	○	0.043	0.669	0.079	0.276	0.005	2.362	-	0.031	0.008	0.079

◈ 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

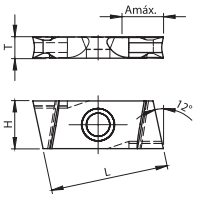
Order code = (1) Geometry code + (2) Grade code

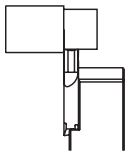
TP SERIES | Inserts | Pastilhas | Plaquitas



Right hand style show

For turning
Para torneamento
Para torneado





Turning

(1) Geometry code	(2) Grade code ANSI Reference	ISO 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 | Dimensões | Dimensiones (in) B	L	T	H	Amáx.	V°	Ømáx.	Cutting conditions Condições de corte Condiciones de corte fn (in/r)	Min.	Max.
1130501	SAL60T300R-TP	SAL60T300R-TP	○	◈	◈	○	◈	○	◈	○	-	0.669	0.125	0.276	0.236	-	-	0.003	0.001	0.005
1130499	SAL60T300L-TP	SAL60T300L-TP	○	◈	◈	○	◈	○	◈	○	-	0.669	0.125	0.276	0.236	-	-	0.003	0.001	0.005

◈ Stock item | Produto de stock | Itens de stock

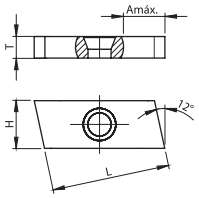
○ Available under request with delivery time 4 weeks
Disponível sobre consulta com prazo de entrega de 4 semanas
Disponible bajo consulta, con fecha de entrega en 4 semanas

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 ANSI Reference	ISO Reference	Uncoated 10 PH0910	Uncoated 12 PH0920	Uncoated 14 PH0135	Dimensions | Dimensões | Dimensiones (in) B	L	T	H	Amáx.	V°	Ømáx.
1130440	BLANK SALR 17x7x2	BLANK SALR 17x7x2	◈	◈	◈	-	0.689	0.079	0.295	-	-	-
1130504	BLANK SALR 17x7x3,17	BLANK SALR 17x7x3,17	◈	◈	◈	-	0.689	0.125	0.295	-	-	-
1130453	BLANK SALL 17x7x2	BLANK SALL 17x7x2	◈	◈	◈	-	0.689	0.079	0.295	-	-	-
1130505	BLANK SALL 17x7x3,17	BLANK SALL 17x7x3,17	◈	◈	◈	-	0.689	0.125	0.295	-	-	-

◈ 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

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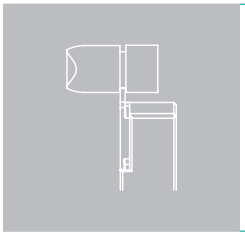
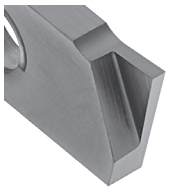
Technical Data page D - 585

GROOVING | Canais | Ranurado



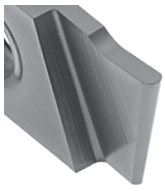
- High precision
- Close tolerances
- Wide variety of insert widths

GS

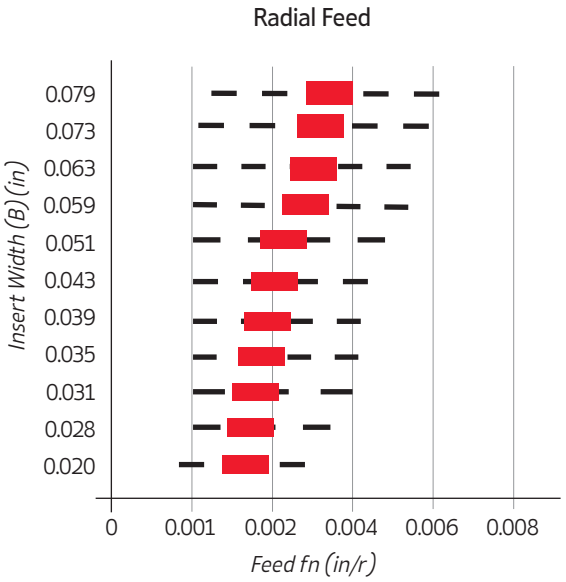


Square grooving

GR



Round grooving



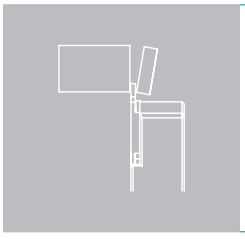
Recomended cutting conditions

P	M	K	S
197-656	197-591	197-492	66-164

Recomended grade PH7920, (Vc) SFM.

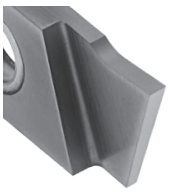
Grade PH7910 and PH7135
Available under request (4 weeks delivery time)

PARTING OFF | Corte | Tronzado



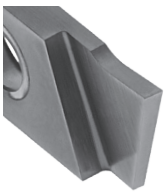
- When parting off with a sub-spindle, it is more productive to use a straight cutting edge. This is a more stable parting method and will generate the best surface finish.
- When parting off without a sub-spindle, we recommend you use an insert with a maximum 7° front angle to minimize the risk of burr and pips on the component.
- When parting off with 7° front angled inserts, we recommend reducing the feed rate by approximately 30%.

P00

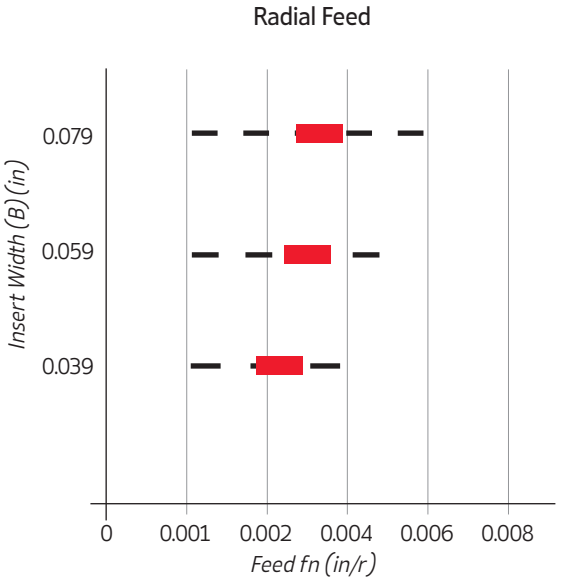


0° Relief angle

P07



7° Relief angle



Recomended cutting conditions

P	M	K	S
197-656	197-591	197-492	66-164

Recomended grade PH7920, (Vc) SFM.

Grade PH7910 and PH7135
Available under request (4 weeks delivery time)

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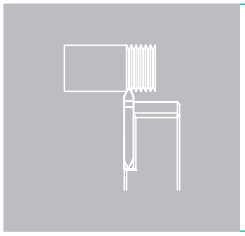
THREADING ‖ Roscagem | Roscado



Two types of threading:

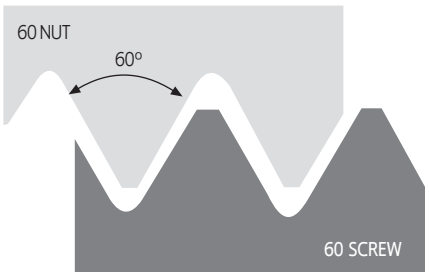
- Partial profile 55º
- Partial profile 60º

Pitch from 12 - 94 TPI / 0.010 - 0.078 in

PT



Partial profile



Recomended cutting conditions

P	M	K	S
197-656	197-591	197-492	66-164

Recomended grade PH7920, (Vc) SFM.

Grade PH7910 and PH7135
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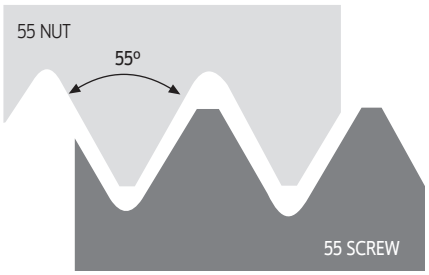
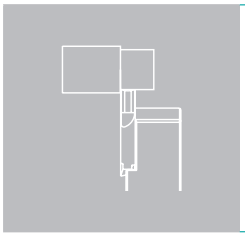


TURNING ‖ Torneamento | Torneado

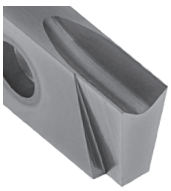


- Insert for turning

- Maximum deep of cut is 0.098 in

- Too low cutting speed will result in inadequate tool life and it is advisable to follow cutting speed recommendations.

TP



Turning steel

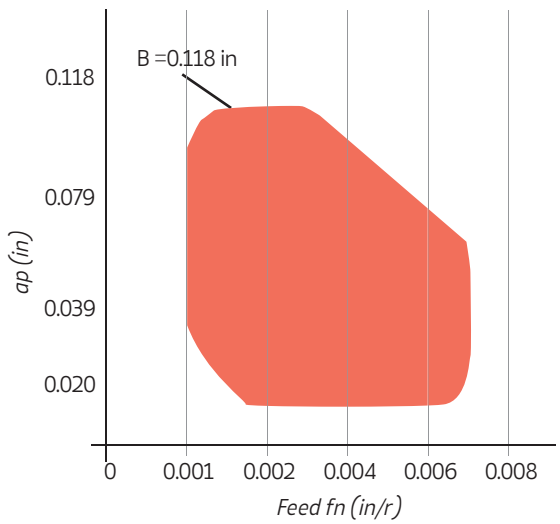
Recomended cutting conditions

P	M	K	S
197-656	197-591	197-492	66-164

Recomended grade PH7920, (Vc) SFM.

Grade PH7910 and PH7135
Available under request (4 weeks delivery time)

Radial Feed



Machining field



PDF

INSERTS | Pastilhas | Plaquitas

LG	06	02	R	110
1	2	3	4	5

1 - Product Line

LG - Light Grooving

2 - Insert size

06 - IC=6,35 mm | 0.250 in

3 - Cutting edges

02 - 2 cutting edges

4 - Work side

R - Right
L - Left

5 - Edge width

110=1,1 mm | 0.043 in

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=6,35 mm | 0.250 in

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 - 150 mm | 5.906 in

8 - Shank dimenson

Internal: 16 - Ø16 mm | 0.630 in
External: 2020 - 20 mm x 20 mm | 0.787 x 0.787 in

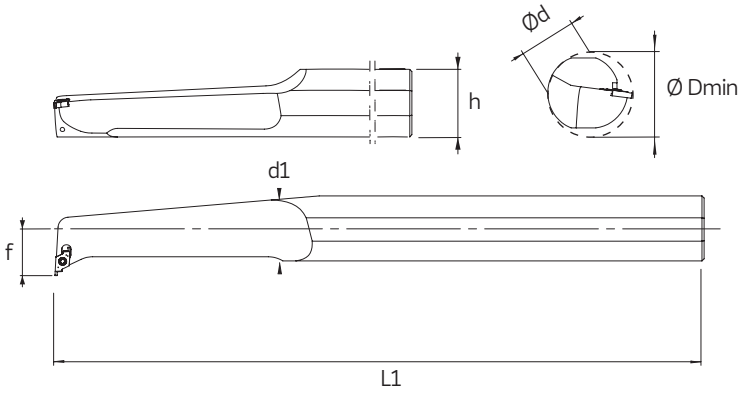
LGH-ER/L



Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)					Insert	Stock
		h	b1	L1	L2	f		
Right Toolholder								
183031100	LGH 0602-ER 100 1616	16	16	100	21	20	LG 0602R	●
183031200	LGH 0602-ER 125 2020	20	20	125	25	25	LG 0602R	●
183031300	LGH 0602-ER 150 2525	25	25	150	32	32	LG 0602R	●
Left Toolholder								
183030300	LGH 0602-EL 100 1616	16	16	100	21	20	LG 0602L	●
183030400	LGH 0602-EL 125 2020	20	20	125	25	25	LG 0602L	●
183030500	LGH 0602-EL 150 2525	25	25	150	32	32	LG 0602L	●

● 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	ØDmin	Stock
		Ød	h	d1	L1	f			
Right Toolholder									
183031400	LGH 0602-IR 150 12	12	11	11,5	150	9	LG 0602R	16	●
183031500	LGH 0602-IR 150 16	16	15	15	150	11	LG 0602R	20	●
183031600	LGH 0602-IR 170 20	20	18	19	170	13	LG 0602R	25	●
183031700	LGH 0602-IR 200 25	25	23	24	200	17	LG 0602R	32	●
183031800	LGH 0602-IR 300 32	32	30	31	300	22	LG 0602R	40	●
Left Toolholder									
183030600	LGH 0602-IL 150 12	12	11	11,5	150	9	LG 0602L	16	●
183030700	LGH 0602-IL 150 16	16	15	15	150	11	LG 0602L	20	●
183030800	LGH 0602-IL 170 20	20	18	19	170	13	LG 0602L	25	●
183030900	LGH 0602-IL 200 25	25	23	24	200	17	LG 0602L	32	●
183031000	LGH 0602-IL 300 32	32	30	31	300	22	LG 0602L	40	●

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

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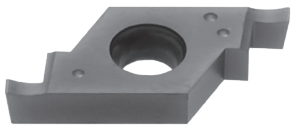
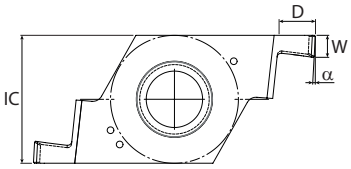
LG-R

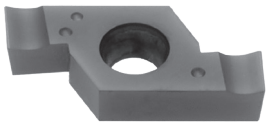


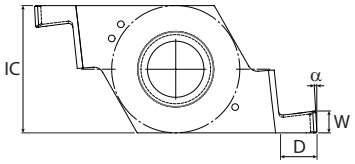


Order code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)				For circlip widht	Stock
		IC	α	W	D		PH7920
1130597G4	LG 0602R110	6,35	3	1,10	0,8	1,0	●
1130598G4	LG 0602R130	6,35	3	1,30	1,4	1,2	●
1130599G4	LG 0602R160	6,35	3	1,60	1,7	1,5	●
1130600G4	LG 0602R185	6,35	3	1,85	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	α	W	D		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

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SCREWS & KEYS





Screws

Order code Código	Reference Referência Referencia	Sock
290074100	D0503000	◈
290020700	D0603600	◈
290062900	D0602200	◈
290087400	D0602600	◈
290087500	D0603100	◈
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	◈

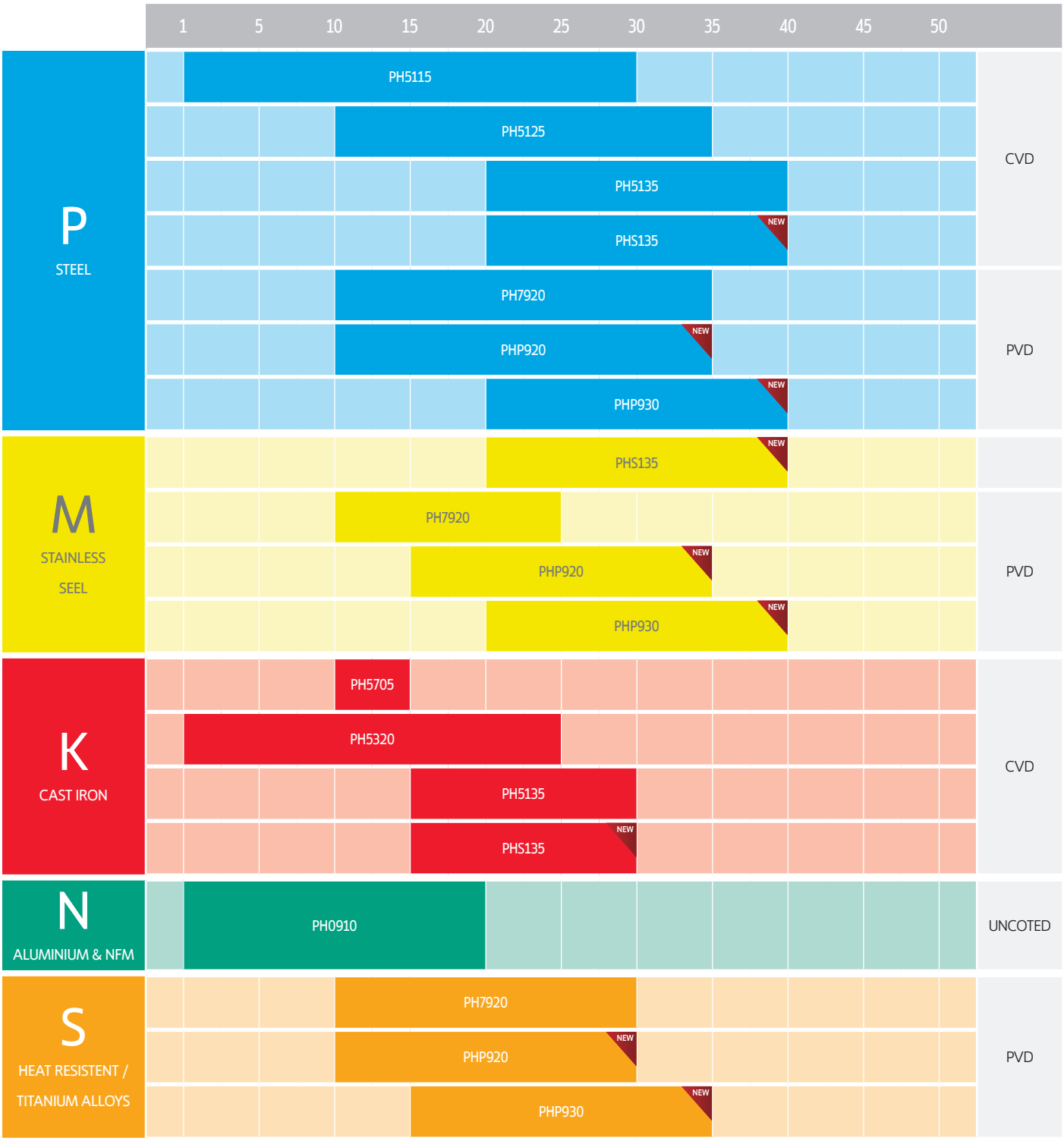
Order code Código	Reference Referência Referencia	Sock
290074400	LE05	◈

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

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.

NEW
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.

NEW
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.

PHP
NEW
GRADE

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

NEW
PHS135
P20-P40
M15-M35
K15-K30

PHS

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.

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PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

RECOMMENDED GRADES AND CUTTING SPEEDS (SFM)

Graus recomendados e velocidades de corte (SFM) | Calidades recomendadas y velocidades de corte (SFM)

ISO	Material	Grade fn (in/r) / HB (brinell)	CVD Coating				PVD Coating		
			← Wear Resistence						Toughness →
			PH5115	PH5125	PH5135	PHS135	PH7920	PHP920	PHP930
			0.002 - 0.020	0.002 - 0.020	0.002 - 0.020	0.002 - 0.020	0.002 - 0.020	0.002 - 0.020	0.002 - 0.020
P	Unalloyed steel	125-170	296-591	263-558	230-525	230-525	197-525	197-525	164-492
	Low-alloy steel	180-350	230-525	197-492	197-460	197-492	197-460	197-492	164-460
	High-alloy steel	200-325	164-492	132-460	132-427	132-460	164-427	164-460	132-427

ISO	Material	Grade fn (in/r) / HB (brinell)	CVD Coating	PVD Coating		
			← Wear Resistence			Toughness →
			PHS135	PH7920	PHP920	PHP930
			0.002 - 0.020	0.002 - 0.020	0.002 - 0.020	0.002 - 0.020
M	SS - Ferritic / Martensitic	200-330	230-492	197-460	197-460	164-427
	SS - Austenitic / Duplex	180-330	197-427	197-394	197-427	164-361
	SS - Ferritic / Duplex	230-260	132-394	132-361	132-394	132-361

ISO	Material	Grade fn (in/r) / HB (brinell)	CVD Coating			
			← Wear Resistence			Toughness →
			PH5705	PH5320	PH5115	PHS135
			0.002 - 0.020	0.002 - 0.020	0.002 - 0.020	0.002 - 0.020
K	Marble cast iron	130-230	328-722	296-689	296-656	263-558
	Grey cast iron	180-220	328-656	296-624	263-591	230-492
	Nodular cast iron	160-380	263-558	263-525	230-492	164-460

ISO	Material	Grade fn (in/r) / HB (brinell)	Uncoated
			PH0910
			0.002 - 0.018
N	Aluminium alloys	60-130	623-5904

ISO	Material	Grade fn (in/r) / HB (brinell)	PVD Coating		
			← Wear Resistence		Toughness →
			PH7920	PHP920	PHP930
			0.002 - 0.012	0.002 - 0.012	0.002 - 0.012
S	Heat resistent super alloys (Iron base)	200-280	115-296	-	-
	Heat resistent super alloys (Nickel base)	250-320	73-197	-	-
	Heat resistent super alloys (Cobalt base)	200-320	99-296	99-296	66-263



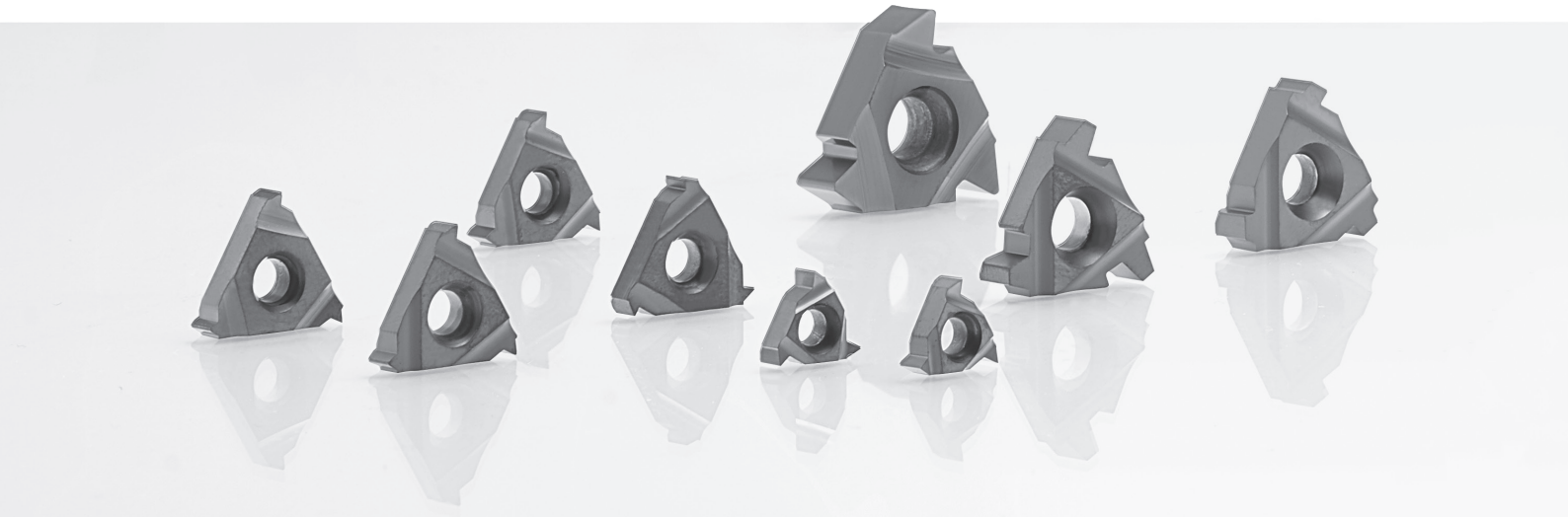
E - THREAD MILLING

E - 590 | Inserts

E - 600 | Toolholders

E - 604 | Technical data

THREADING



E - THREAD TURNING

E - 608 | Step by step - example

E - 610 | Inserts Overview

E - 612 | Partial Profile Inserts

E - 616 | Full Profile Inserts

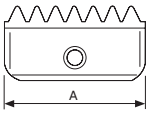
E - 656 | Tangential Profile Inserts

E - 658 | Technical Data

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

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THREAD MILLING

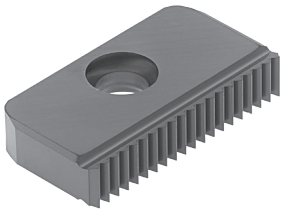
E - 596 | Inserts code key

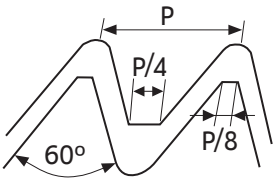
E - 598 | Inserts program

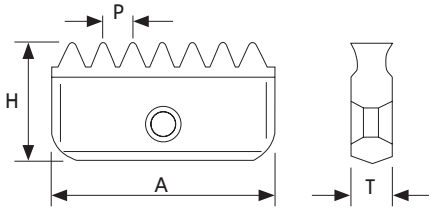
E - 606 | Toolholders code key

E - 607 | Toolholders program

E - 610 | Technical data







A	T	H
A 12	2,9	6,3
A 14	3,1	7,5
A 21	4,7	12
A 30	5,5	16
A 40	6,3	20

External

P (Pitch)	Dimensions | Dimensões | Dimensiones (mm)								Stock grade code (2)
	A 14		A 21		A 30		A 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

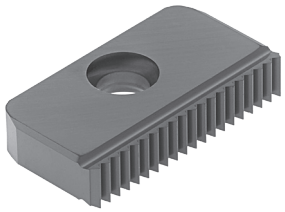
Insert order code = (1) Geometry Code + (2) Grade Code

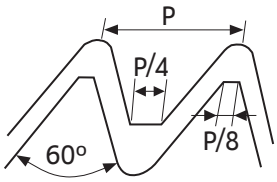
Internal

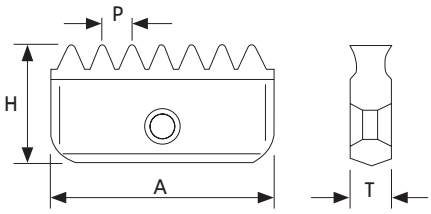
P (Pitch)	Dimensions | Dimensões | Dimensiones (mm)										Stock grade code (2)
	A 12		A 14		A 21		A 30		A 40		
	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	(G4) PH7920
0.50 INT	2123967	12 I 0.50 ISO	2123979	14 I 0.50 ISO							◎
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







A	T	H
A 12	2,9	6,3
A 14	3,1	7,5
A 21	4,7	12
A 30	5,5	16
A 40	6,3	20

External

P (Pitch)	Dimensions | Dimensões | Dimensiones (mm)								Stock grade code (2)
	A 14		A 21		A 30		A 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	2124042	14 E 10 UN	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

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

Internal

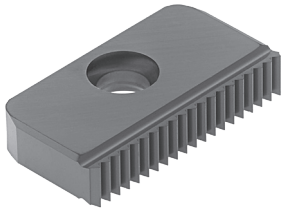
P (Pitch)	Dimensions | Dimensões | Dimensiones (mm)										Stock grade code (2)
	A 12		A 14		A 21		A 30		A 40		
	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	(G4) PH7920
32.00 INT	2124027	12 I 32 UN	2124043	14 I 32 UN							◎
28.00 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	◎
11.00 INT			2124052	14 I 11 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	◎

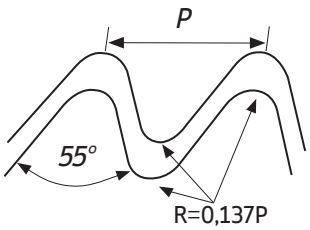
◎ Stock item | Produto de stock | Itens de stock

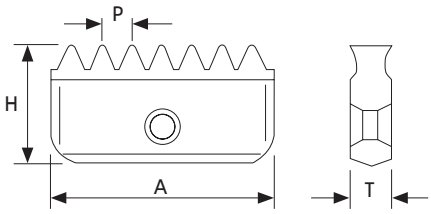
Insert order code = (1) Geometry Code + (2) Grade Code

WHIT BSW, BSF, BSP Two cutting edges | Duas arestas de corte | Dos filos de corte

METRIC LINE







A	T	H
A 12	2,9	6,3
A 14	3,1	7,5
A 21	4,7	12
A 30	5,5	16
A 40	6,3	20

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)
	A 12		A 14		A 21		A 30		A 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	⊛

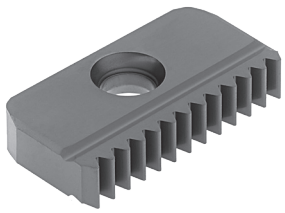
*One cutting edge | Uma aresta de corte | Un filo de corte

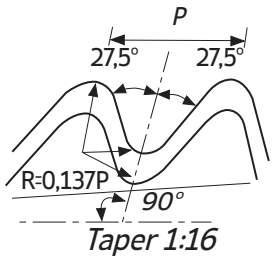
⊛ Stock item | Produto de stock | Itens de stock

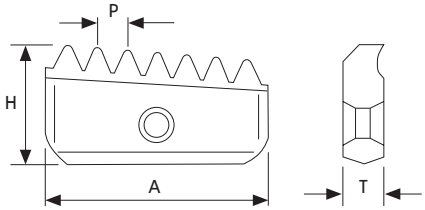
Insert order code = (1) Geometry Code + (2) Grade Code

BSPT One cutting edge | Uma aresta de corte | Un filo de corte

METRIC LINE







A	T	H
A 12	2,9	6,3
A 14	3,1	7,5
A 21	4,7	12
A 30	5,5	16
A 40	6,3	20

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)
	A 12		A 14		A 21		A 30		A 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

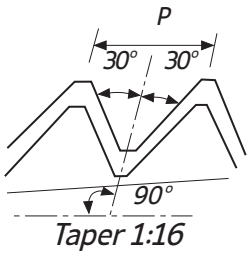
Insert order code = (1) Geometry Code + (2) Grade Code

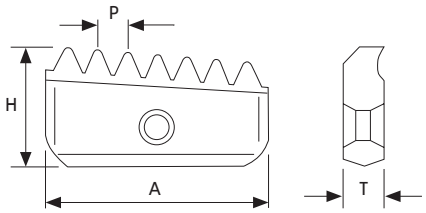
palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

NPT One cutting edge | Uma aresta de corte | Un filo de corte

METRIC LINE







A	T	H
A 12	2,9	6,3
A 14	3,1	7,5
A 21	4,7	12
A 30	5,5	16
A 40	6,3	20

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.

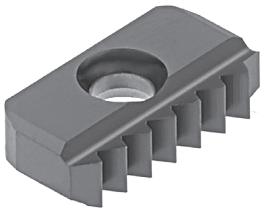
P (Pitch)	Dimensions | Dimensões | Dimensiones (mm)										Stock grade code (2)
	A 12		A 14		A 21		A 30		A 40		
	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	(G4) PH7920
18.00	2124127	12 I/E 18 NPT	2124128	14 I/E 18 NPT							◎
14.00			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	◎

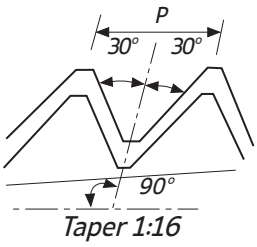
◎ Stock item | Produto de stock | Itens de stock

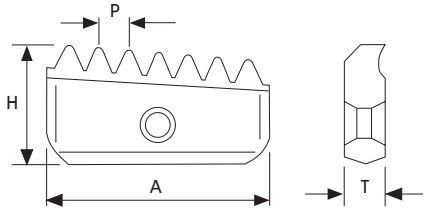
Insert order code = (1) Geometry Code + (2) Grade Code

NPTF One cutting edge | Uma aresta de corte | Un filo de corte

METRIC LINE







A	T	H
A 12	2,9	6,3
A 14	3,1	7,5
A 21	4,7	12
A 30	5,5	16
A 40	6,3	20

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.

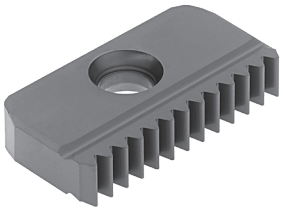
P (Pitch)	Dimensions | Dimensões | Dimensiones (mm)										Stock grade code (2)
	A 12		A 14		A 21		A 30		A 40		
	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	Geometry code (1)	Ref.	(G4) PH7920
18.00	2124136	12 I/E 18 NPTF	2124137	14 I/E 18 NPTF							◎
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	◎

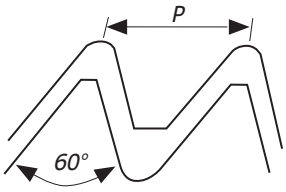
◎ Stock item | Produto de stock | Itens de stock

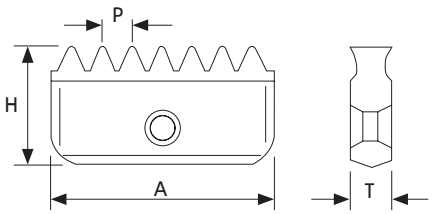
Insert order code = (1) Geometry Code + (2) Grade Code

NPS Two cutting edges | Duas arestas de corte | Dos filos de corte

METRIC LINE







A	T	H
A 12	2,9	6,3
A 14	3,1	7,5
A 21	4,7	12
A 30	5,5	16
A 40	6,3	20

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)
	A 12		A 14		A 21		A 30		A 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	

*One cutting edge | Uma aresta de corte | Un filo de corte

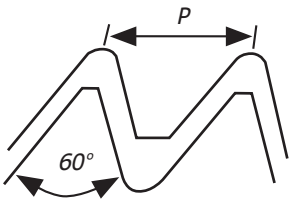
Stock item | Produto de stock | Itens de stock

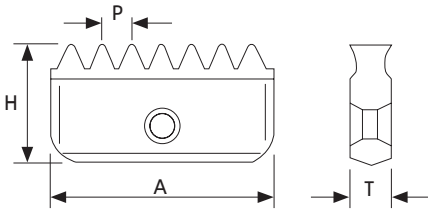
Insert order code = (1) Geometry Code + (2) Grade Code

NPSF Two cutting edges | Duas arestas de corte | Dos filos de corte

METRIC LINE







A	T	H
A 12	2,9	6,3
A 14	3,1	7,5
A 21	4,7	12
A 30	5,5	16
A 40	6,3	20

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)
	A 12		A 14		A 21		A 30		A 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	

*One cutting edge | Uma aresta de corte | Un filo de corte

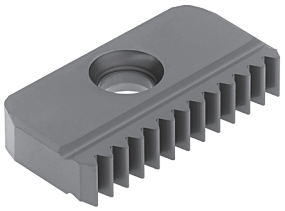
Stock item | Produto de stock | Itens de stock

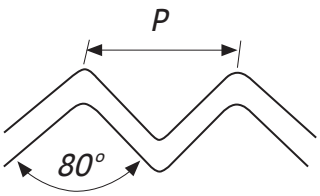
Insert order code = (1) Geometry Code + (2) Grade Code

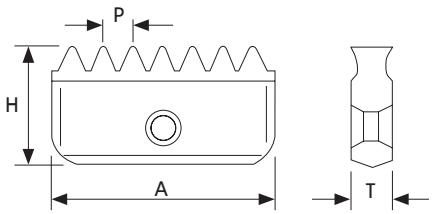
palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

PG DIN 40430 Two cutting edges | Duas arestas de corte | Dos filos de corte

METRIC LINE







A	T	H
A 14	3,1	7,5
A 21	4,7	12
A 30	5,5	16

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]
	A 14		A 21		A 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	ⓢ

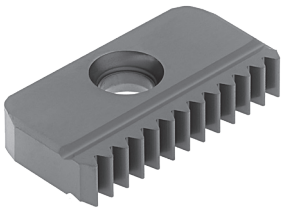
*One cutting edge | Uma aresta de corte | Un filo de corte

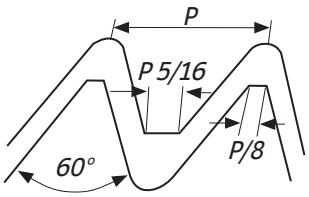
ⓢ Stock item | Produto de stock | Itens de stock

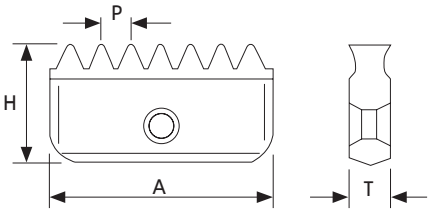
Insert order code = (1) Geometry Code + (2) Grade Code

UNJ Two cutting edges | Duas arestas de corte | Dos filos de corte

METRIC LINE







A	T	H
A 14	3,1	7,5
A 21	4,7	12

Same insert for external and internal thread | Mesma pastilha para roscagem externa e interna | Misma plaquita para roscado externo e interno

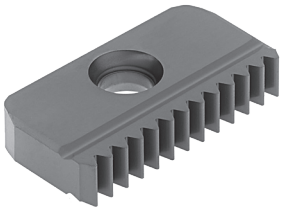
P (Pitch)	Dimensions | Dimensões | Dimensiones (mm)				Stock grade code [2]
	A 14		A 21		
	Geometry code [1]	Ref.	Geometry code [1]	Ref.	(G4) PH7920
24.00	2124168	14 E 24 UNJ	2124174	21 E 24 UNJ	ⓢ
20.00	2124169	14 E 20 UNJ	2124175	21 E 20 UNJ	ⓢ
18.00	2124170	14 E 18 UNJ			ⓢ
16.00	2124171	14 E 16 UNJ			ⓢ
14.00	2124172	14 E 14 UNJ			ⓢ
12.00	2124173	14 E 12 UNJ	2124179	21 E 12 UNJ	ⓢ

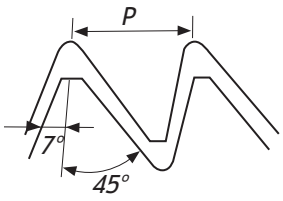
ⓢ Stock item | Produto de stock | Itens de stock

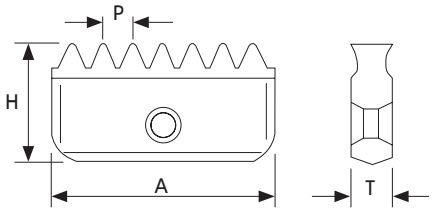
Insert order code = (1) Geometry Code + (2) Grade Code

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 METRIC LINE







A	T	H
21	4,7	12
30	5,5	16

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]
	A 21		A 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

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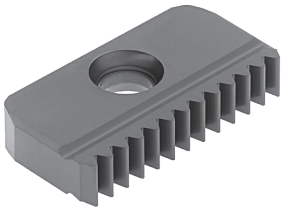

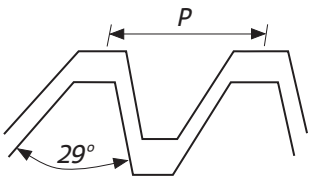

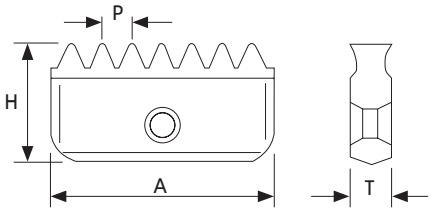

A	T	H
21	4,7	12
30	5,5	16
40	6,3	20

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)
	A 21		A 30		A 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 CODE KEY

METRIC LINE

Codificação ISO para suportes de fresagem de roscar | Codificación ISO para herramientas de fresado de roscar

A	S	S	N	063	050	A21	-	5
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 : 063 = 63 mm

6 - Toolholder lenght (L - mm)
Example : 050 = 50 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**

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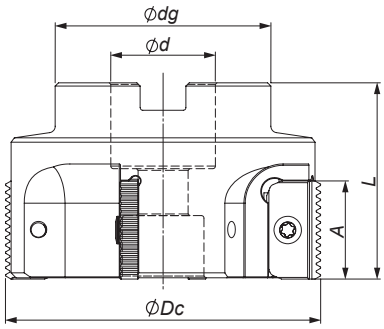
MULTI INSERT TOOLHOLDERS

Suportes de múltiplas pastilhas | Herramientas de múltiples plaquitas

INTERNAL TOOLHOLDERS | Suportes internos | Herramientas internas





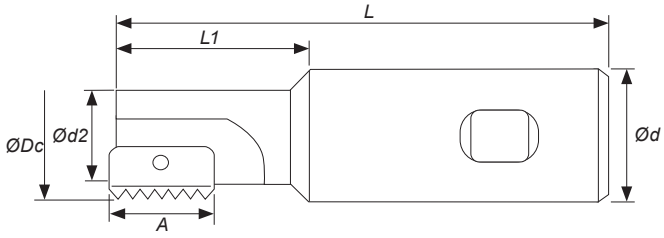
Order Code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)					Number of inserts	Stock
		A	ØDc	Ød	Ødg	L		
182007100	ASSN 063 050 A21-5	21	63	22	40	50	5	●
182007200	ASSN 063 050 A30-4	30	63	22	55	50	4	●
182004200	ASSN 080 055 A30-4	30	80	27	58	55	4	●
182007300	ASSN 100 060 A30-4	30	100	32	66	60	4	●
182019100	ASSN 080 065 A40-4	40	80	27	58	65	4	○
182019300	ASSN 100 070 A40-4	40	100	32	66	70	4	○

● Stock item | Produto de stock | Itens de stock

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

WSSN-1





Order Code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)						Number of inserts	Stock
		A	ØDc	Ød	Ød2	L	L1		
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	○

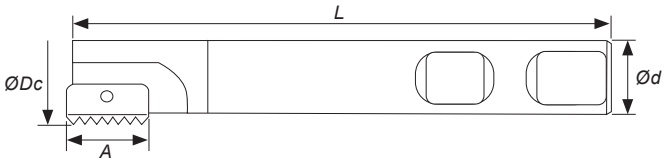
⚙ Stock item | Produto de stock | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

***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

METRIC LINE





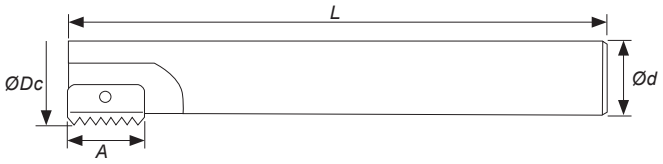
Order Code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)				Number of inserts	Stock
		A	ØDc	Ød	L		
182008600	WSSN 025 125 A21-1	21	25	20	125	1	⚙
182008700	WSSN 031 150 A30-1	30	31	25	150	1	⚙
182019500	WSSN 038 150 A30-1	30	38	32	150	1	⚙
182019700	WSSN 048 210 A40-1	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.

ECSN-1 ‖ Long carbide shank





Order Code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)				Number of inserts	Stock
		A	ØDc	Ød	L		
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.

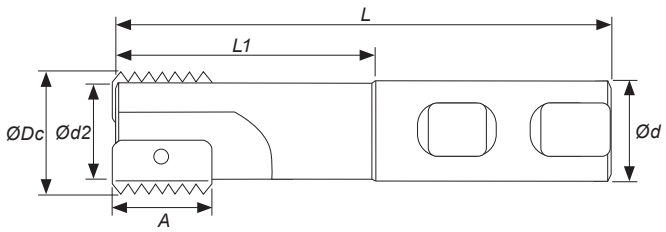
DOUBLE INSERT TOOLHOLDERS

Suportes de duas pastilhas | Herramientas de dos plaquitas

METRIC LINE

WSSN-2





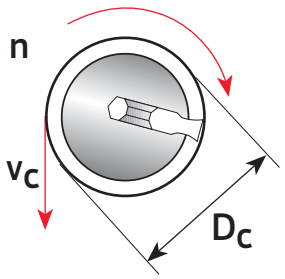
Order Code Código	Reference Referência Referencia	Dimensions | Dimensões | Dimensiones (mm)						Number of inserts	Stock
		A	ØDc	Ød	Ød2	L	L1		
182004300	WSSN 020 093 A14-2	14	20	20	16	93	41	2	◉
182008400	WSSN 030 108 A21-2	21	30	25	24	108	52	2	◉
182008500	WSSN 040 130 A30-2	30	40	32	30	130	70	2	◉
182019800	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

Conversion of selected cutting speed to rotational speed is calculated using the following formulas:

Spindle Speed (rev/min)

$$n = \frac{v_c \cdot 1000}{\pi \cdot D_c} \quad \text{(RPM)}$$



Cutting Speed (m/min)

$$v_c = \frac{n \cdot \pi \cdot D_c}{1000} \quad \text{(m/min)}$$

Nomenclature

D_c - Cutter diameter (mm)
n - Spindle Speed (rev/min)
V_c - Cutting Speed (m/min)

Example for the following values:
V_c = 120 m/min
D_c = 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

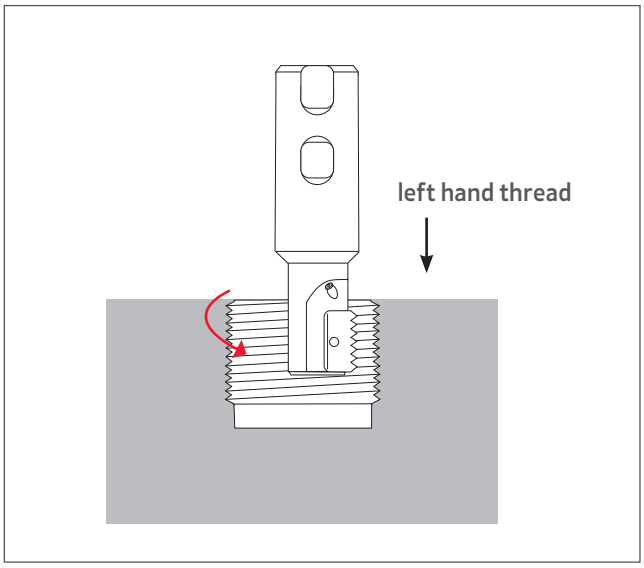
TiAlN – Sub-Micron Grade with Titanium Aluminium Nitride multi-layer coating (ISO K10-K20). This is a general purpose grade, which can be used with all materials, it should be run at medium to high cutting speeds.

Recommended Feed Rate: 0.05 - 0.15 mm

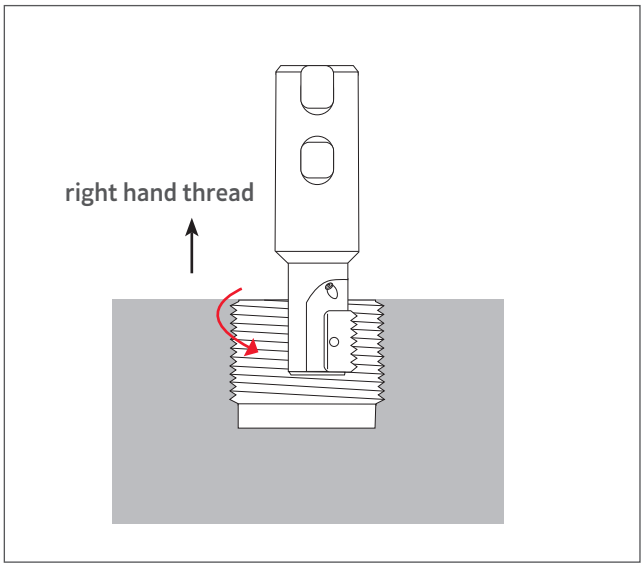
ISO	Material	Cutting Speed Vc (m/min) TiAlN
P	Low and Medium Carbon Steels	115 - 280
	High Carbon Steels	130 - 200
	Treated Steels	105 - 180
M	Stainless Steels, Cast Stainless Steels	130 - 190
	Cast Steels	150 - 190
K	Cast Iron	80 - 170
N	Non-Ferrous and Aluminium	180 - 340
	Synthetics, Duroplastics, Thermoplastics	115 - 460
S	Nickel Alloys, Titanium Alloys	25 - 90

INTERNAL THREAD | Roscagem interna | Roscado interno

Left hand thread | Rosca esquerda | Rosca izquierda

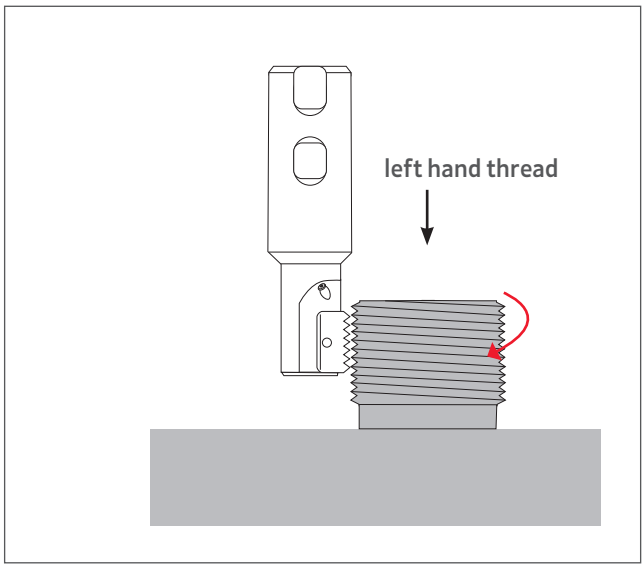


Right hand thread | Rosca direita | Rosca derecha

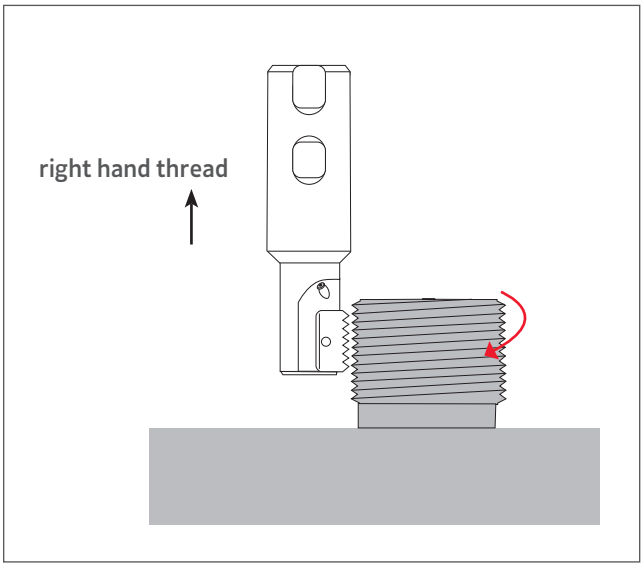


EXTERNAL THREAD | Roscagem externa | Roscado externo

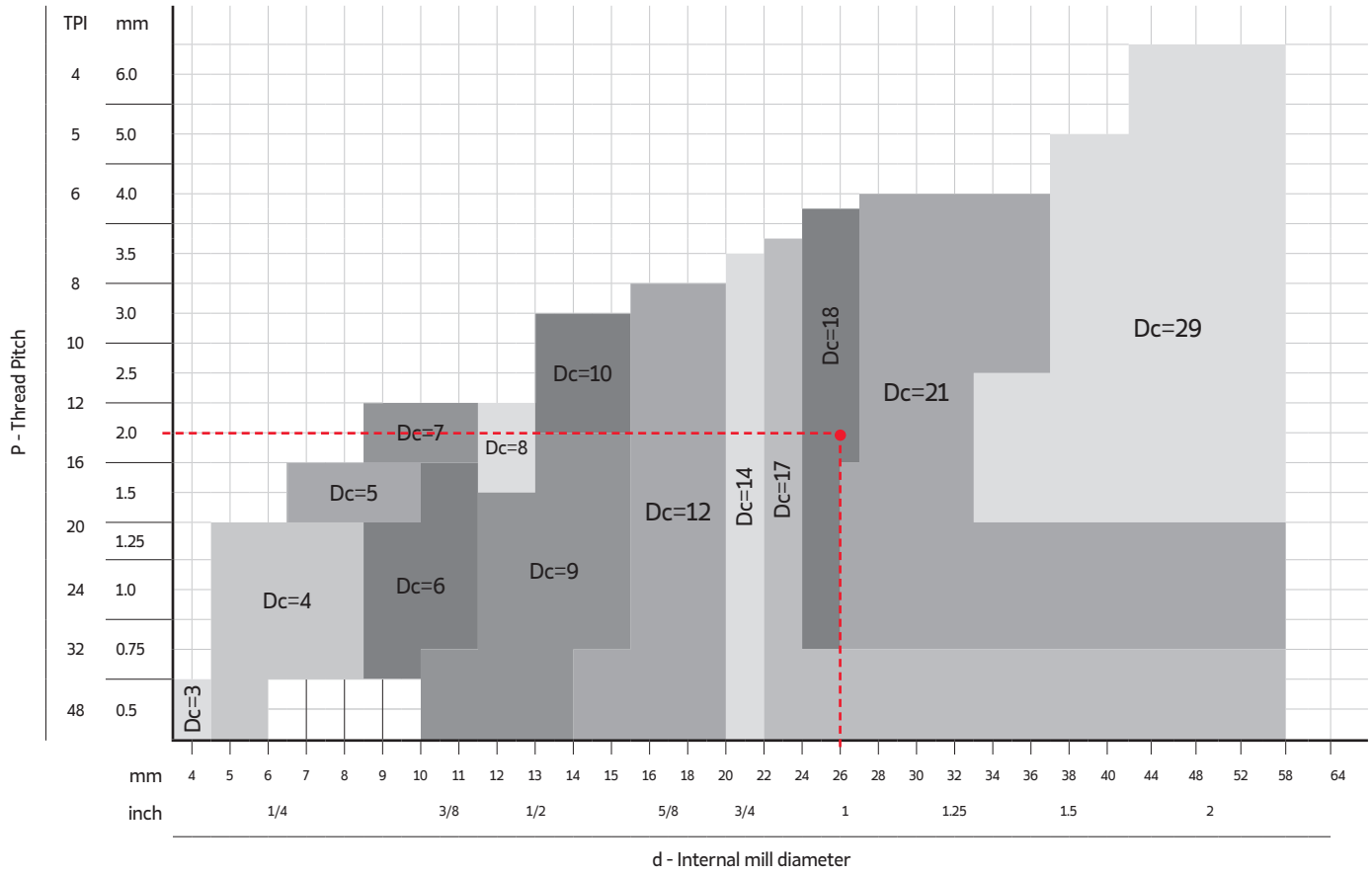
Left hand thread | Rosca esquerda | Rosca izquierda



Right hand thread | Rosca direita | Rosca derecha

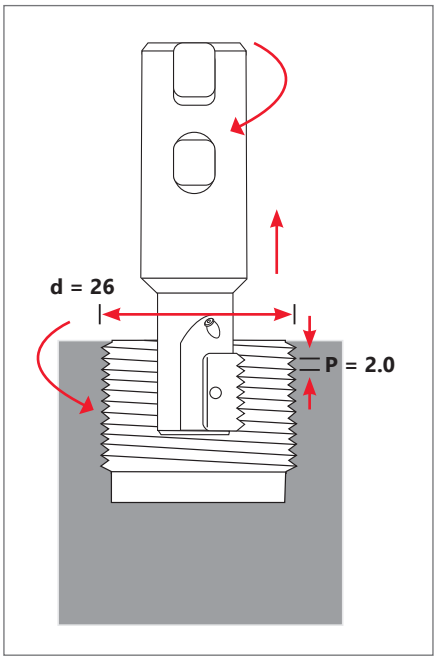


The chart bellow provide a accurate visual selection tool for internal threading.
(Suitable for the thread forms: ISO, UN, WHIT, NPT, NPTF, BSPT and PG)



Any tool with a small diameter can produce larger diameter threads.

Right hand Thread
Rosca direita | Rosca derecha



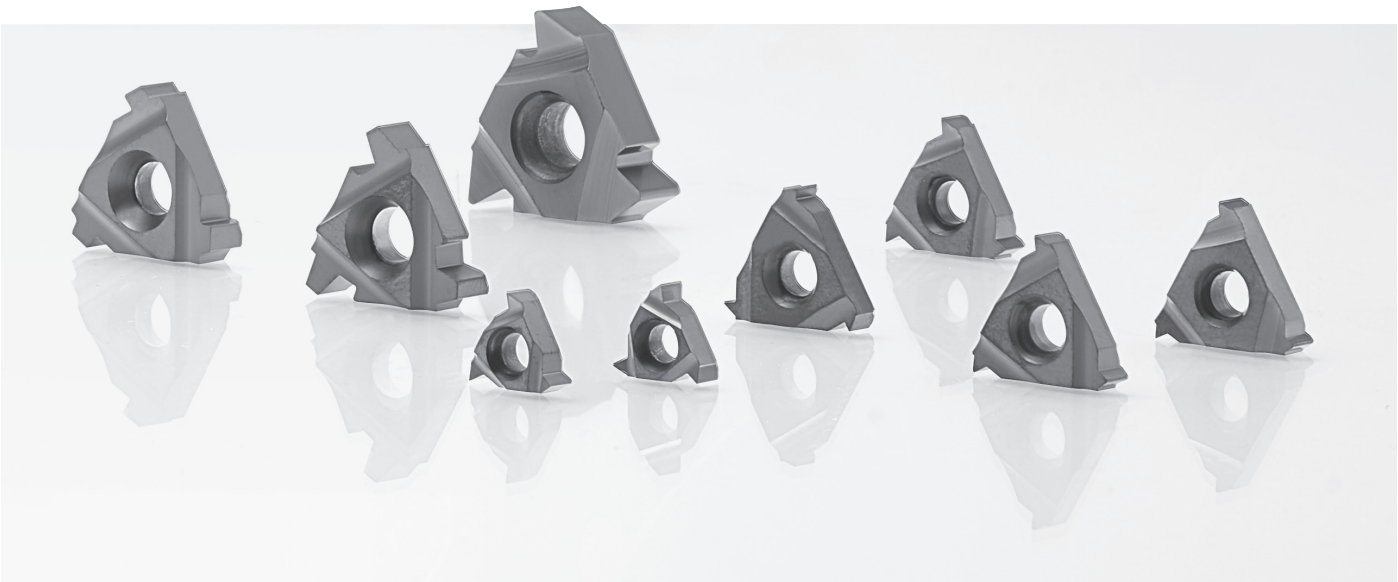
Example:

Internal thread: M26 x 2.0
Find a milling tool to produce **d = 26 internal**
right hand ISO thread with a tread pitch **P = 2.0mm.**

Internal mill diameter **d = 26 mm**
+
Thread pitch **P = 2.0 mm**

As you can see above, the two red lines intersect at a selected tool
with a cutting diameter of **Dc = 18 mm**

Chosen toolholder - order code: 212395200 | Reference: WSSN 018 085 A21-1
Chosen insert - order code: 2123995G4 | Reference: 21 I 2.0 ISO PH7920



THREAD TURNING

E - THREAD TURNING

E - 614 | Step by step - example

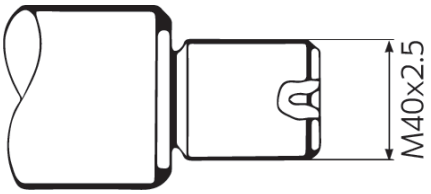
E - 616 | Inserts Overview

E - 618 | Partial Profile Inserts

E - 622 | Full Profile Inserts

E - 622 | Tangential Profile Inserts

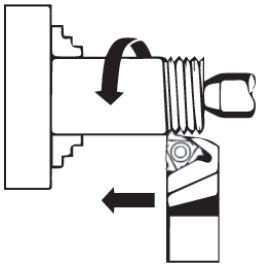
E - 664 | Technical Data



Application:

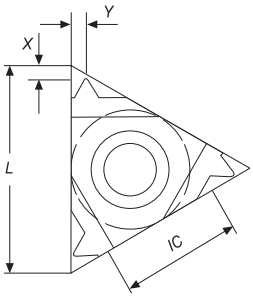
Thread: External Right Hand
ISO MetricM40x2,5
Material: 4140 (25HRc)

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.

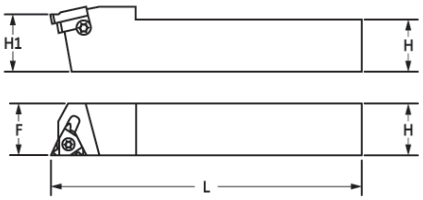
2 - Choose the Insert Size



Chosen insert: **16ER 2.50ISO**

Insert Size		Pitch	Reference	Anvil	Toolholder
IC	L mm	mm		RH	
3/8	16	2.50	16ER 2.50ISO	EA16	STCNL 2525 M16

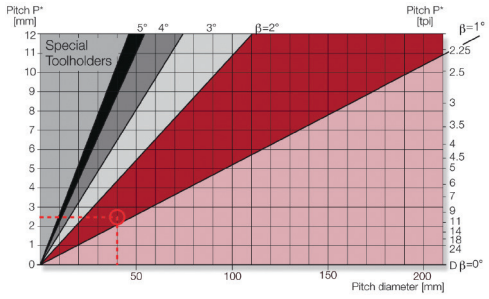
3 - Choose the Toolholder



Chosen toolholder: **SXANR 2525 M16**

Insert Size	Reference	Dimensions mm		
IC		H=H1=B	F	L
3/8	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°**

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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					
3/8	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: **460 SFM**

	Material:		Hardness Brinell HB	PH6920
P	Low alloy steel (alloying elements ≤ 5%)	Non hardened	180	**279-476**
		Hardened	275	240-460
		Hardened	350	230-443

7 - Determine the Number of Passes

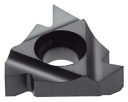
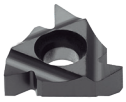
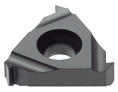
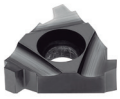
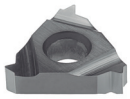
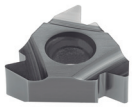
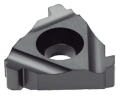
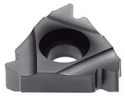
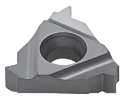
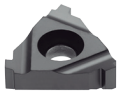
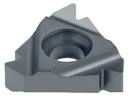
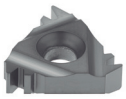
Number of passes; 10

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:	1,5º
5	Anvil:	EA16
6	Cutting Speed:	460 SFM
7	Number of Passes;	14

	Insert Image	Description	Page
Partial Profile		PARTIAL PROFILE 60°	613
		PARTIAL PROFILE 55°	614
Full Profile		AMERICAN BUTTRESS | ANSI B1.9-1973	649
		AMERICAN ACME | ANSI/ASME: 1.5-1988	640
		AMERICAN UN (UNC, UNF, UNEF) | ANSI B1.1-1982	621
		API | API SPEC 7:2001 (0.040 | 0.038R | 0.050)	651
		API | BUTTRESS CASING | API SPEC 5B:2008 | OIL THREADS	652
		API ROUND CASING & TUBING | API SPEC 5B:2008	653
		BSPT | B.S.21: 1985	631
		EXTREME LINE CASING | API SPEC 5B:2008 - OIL THREADS	654
		ISO METRIC ISO 965-1: 1999-11 | DIN 13: 2005-08	617
		METRIC BUTTRESS SAGENGEWINDE (DIN 513:1985) SAW THREAD	650

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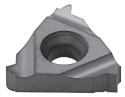
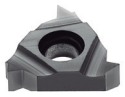
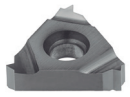
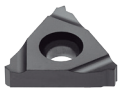
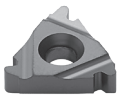
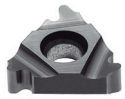
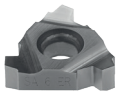
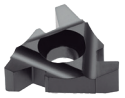
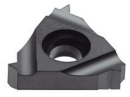
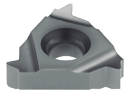
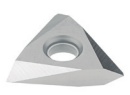
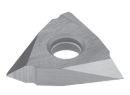
	Insert Image	Description	Page
Full Profile		MJ | ISO 5855-1:1989	648
		NPT | ANSI/ASME B 1.20.1-1983	632
		NPTF | ANSI B 1.20.3-1976	634
		PG | DIN 40430; 1971	655
		ROUND (DIN 20400) | DIN 20400:1990	637
		ROUND (DIN 405) | DIN 405:1997	636
		STUB ACME | ANSI/ASME: 1.8-1988	642
		TRAPEZ | DIN 103:1977 | ISO 2901:1993	638
		UNJ | MIL-S-8879A	644
		WITHWORTH FOR BSW, BSF, BSP, B.S.84: 1956, DIN 259, ISO 228-1:1994	626
Tangential Profile		TNMC	657
		TPMC	657

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 (mm)	06	08	11	16	22	27
IC (inch)	0.236	0.315	0.433	0.630	0.866	1.063

2 - Insert Hand Type	
ER	External Right Holder
EL	External Left Holder
IR	Internal Right Holder
IL	Internal Left Holder

3 - Profile Type		
symbol	Pitch (mm)	Pitch (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

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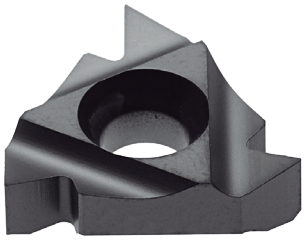
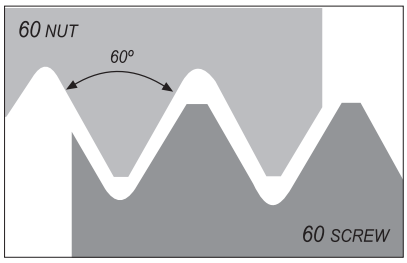
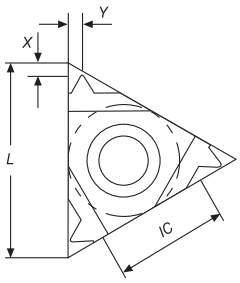
PARTIAL PROFILE 60°







External

Order code Código (1)	Reference Referência Referencia	Pitch		L (mm)	Dimensions | Dimensões | Dimensiones (in)			Stock - Grade Code (2)
		mm	TPI		IC	X	Y	(68) PH6920
1880592	11 ER A60	0.5-1.5	48-16	11	1/4	0.031	0.035	◈
1880429	16 ER A60	0.5-1.5	48-16	16	3/8	0.031	0.035	◈
1880431	16 ER G60	1.75-3.0	14-8	16	3/8	0.047	0.067	◈
1880388	16 ER AG60	0.5-3.0	48-8	16	3/8	0.047	0.067	○
1880046	22 ER N60	3.5-5.0	7-5	22	1/2	0.067	0.098	◈
1882486	27 ER Q60	5.5-6.0	4.5-4	27	5/8	0.083	0.122	○
1881851	11 EL A60	0.5-1.5	48-16	11	1/4	0.031	0.035	○
1880771	16 EL A60	0.5-1.5	48-16	16	3/8	0.031	0.035	◈
1880773	16 EL G60	1.75-3.0	14-8	16	3/8	0.047	0.067	◈
1880524	16 EL AG60	0.5-3.0	48-8	16	3/8	0.047	0.067	◈
1880853	22 EL N60	3.5-5.0	7-5	22	1/2	0.067	0.098	○
1882155	27 EL Q60	5.5-6.0	4.5-4	27	5/8	0.083	0.122	○

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

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

Internal

Order code Código (1)	Reference Referência Referencia	Pitch		L (mm)	Dimensions | Dimensões | Dimensiones (in)			Stock - Grade Code (2)
		mm	TPI		IC	X	Y	(68) PH6920
1881730	06 IR A60	0.5-1.25	48-20	0.236	5/32	0.024	0.024	○
1881773	08 IR A60	0.5-1.5	48-16	0.315	3/16	0.024	0.028	○
1880595	11 IR A60	0.5-1.5	48-16	0.433	1/4	0.031	0.035	○
1880045	16 IR A60	0.5-1.5	48-16	0.630	3/8	0.031	0.035	◈
1880435	16 IR G60	1.75-3.0	14-8	0.630	3/8	0.047	0.067	◈
1880437	16 IR AG60	0.5-3.0	48-8	0.630	3/8	0.047	0.067	◈
1880769	22 IR N60	3.5-5.0	7-5	0.866	1/2	0.067	0.098	◈
1882487	27 IR Q60	5.5-6.0	4.5-4	1.063	5/8	0.083	0.122	○
1881716	06 IL A60	0.5-1.25	48-20	0.236	5/32	0.024	0.024	○
1882199	08 IL A60	0.5-1.5	48-16	0.315	3/16	0.024	0.028	○
1880855	11 IL A60	0.5-1.5	48-16	0.433	1/4	0.031	0.035	◈
1880772	16 IL A60	0.5-1.5	48-16	0.630	3/8	0.031	0.035	◈
1880774	16 IL G60	1.75-3.0	14-8	0.630	3/8	0.047	0.067	◈
1880775	16 IL AG60	0.5-3.0	48-8	0.630	3/8	0.047	0.067	◈
1880854	22 IL N60	3.5-5.0	7-5	0.866	1/2	0.067	0.098	◈
1882179	27 IL Q60	5.5-6.0	4.5-4	1.063	5/8	0.083	0.122	○

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

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

Technical Data
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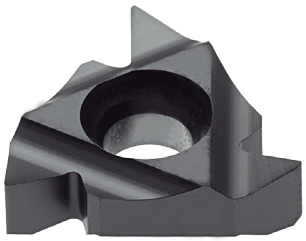

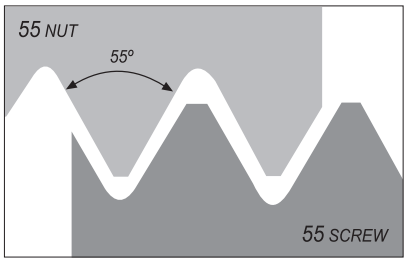

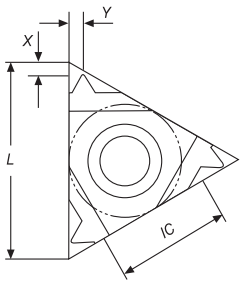

External

Order code Código (1)	Reference Referência Referencia	Pitch		L (mm)	Dimensions | Dimensões | Dimensiones (in)			Stock - Grade Code (2)
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1880430	16 ER A55	0.5-1.5	48-16	16	3/8	0.031	0.035	◈
1880432	16 ER G55	1.75-3.0	14-8	16	3/8	0.047	0.067	◈
1880433	16 ER AG55	0.5-3.0	48-8	16	3/8	0.047	0.067	◈
1880770	22 ER N55	3.5-5.0	7-5	22	1/2	0.067	0.098	◈
1882167	27 ER Q55	5.5-6.0	4.5-4	27	5/8	0.079	0.114	○
1881850	11 EL A55	0.5-1.5	48-16	11	1/4	0.031	0.035	○
1880776	16 EL A55	0.5-1.5	48-16	16	3/8	0.031	0.035	◈
1880778	16 EL G55	1.75-3.0	14-8	16	3/8	0.047	0.067	◈
1880780	16 EL AG55	0.5-3.0	48-8	16	3/8	0.047	0.067	◈
1880858	22 EL N55	3.5-5.0	7-5	22	1/2	0.067	0.098	○
1882154	27 EL Q55	5.5-6.0	4.5-4	27	5/8	0.079	0.114	○

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

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

Technical Data
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Internal

Order code Código (1)	Reference Referência Referencia	Pitch		L (mm)	Dimensions | Dimensões | Dimensiones (in)			Stock - Grade Code (2)
		mm	TPI		IC	X	Y	(68) PH6920
1881729	06 IR A55	0.5-1.25	48-20	06	5/32	0.020	0.024	○
1881772	08 IR A55	0.5-1.5	48-16	08	3/16	0.024	0.028	○
1880006	11 IR A55	0.5-1.5	48-16	11	1/4	0.031	0.035	◈
1880434	16 IR A55	0.5-1.5	48-16	16	3/8	0.031	0.035	○
1880436	16 IR G55	1.75-3.0	14-8	16	3/8	0.047	0.067	◈
1880438	16 IR AG55	0.5-3.0	48-8	16	3/8	0.047	0.067	◈
1880047	22 IR N55	3.5-5.0	7-5	22	1/2	0.067	0.098	◈
1882189	27 IR Q55	5.5-6.0	4.5-4	27	5/8	0.079	0.114	○
1881715	06 IL A55	0.5-1.25	48-20	06	5/32	0.020	0.024	○
1881751	08 IL A55	0.5-1.5	48-16	08	3/16	0.024	0.028	○
1880856	11 IL A55	0.5-1.5	48-16	11	1/4	0.031	0.035	◈
1880777	16 IL A55	0.5-1.5	48-16	16	3/8	0.031	0.035	◈
1880779	16 IL G55	1.75-3.0	14-8	16	3/8	0.047	0.067	◈
1880781	16 IL AG55	0.5-3.0	48-8	16	3/8	0.047	0.067	◈
1880857	22 IL N55	3.5-5.0	7-5	22	1/2	0.067	0.098	○
1882178	27 IL Q55	5.5-6.0	4.5-4	27	5/8	0.079	0.114	○

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

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

Technical Data
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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 (mm)	06	08	11	16	22	27
IC (inch)	0.236	0.315	0.433	0.630	0.866	1.063

2 - Insert Hand Type	
ER	External Right Holder
EL	External Left Holder
IR	Internal Right Holder
IL	Internal Left Holder

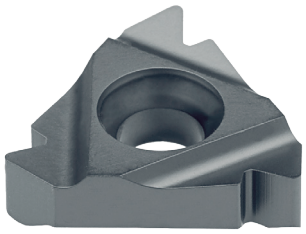
3 - Pitch	
mm	TPI
0.35 - 7.0	72 - 3

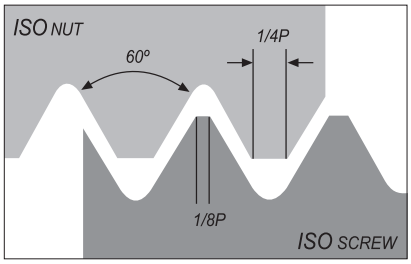
4 - Profile Type							
symbol	profile type	symbol	profile type	symbol	profile type	symbol	profile type
ISO	ISO METRIC	**NPTF**	NPTF	**STACME**	STUB ACME	**API**	API
UN	AMERICAN UN	**RD**	ROUND (DIN 405)	**UNJ**	UNJ	**BUT**	API BUTTRESS CASING
W	WITHWORTH	**RD20400**	ROUND (DIN 20400)	**MJ**	MJ	**API 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

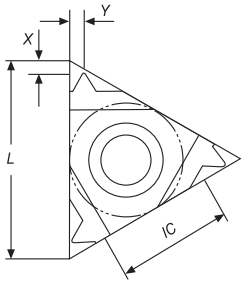
5 - Grades
PH6920

palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

ISO METRIC ISO 965-1: 1999-11 | DIN 13: 2005-08







External

Geometry code (1) Código	Reference Referência Referencia	Pitch mm	L (mm)	Dimensions | Dimensões | Dimensiones (in) IC	X	Y	Stock - Grade Code (2) (68) PH6920
1881852	11 ER 0.35 ISO	0.35	11	1/4	0.031	0.016	○
1881853	11 ER 0.40 ISO	0.40	11	1/4	0.028	0.016	○
1881854	11 ER 0.45 ISO	0.45	11	1/4	0.028	0.016	○
1881855	11 ER 0.50 ISO	0.50	11	1/4	0.024	0.024	○
1881856	11 ER 0.60 ISO	0.60	11	1/4	0.024	0.024	○
1881857	11 ER 0.70 ISO	0.70	11	1/4	0.024	0.024	○
1881858	11 ER 0.75 ISO	0.75	11	1/4	0.024	0.024	○
1881859	11 ER 0.80 ISO	0.80	11	1/4	0.024	0.024	○
1880602	11 ER 1.00 ISO	1.00	11	1/4	0.028	0.028	◈
1881861	11 ER 1.25 ISO	1.25	11	1/4	0.031	0.035	○
1880603	11 ER 1.50 ISO	1.50	11	1/4	0.031	0.039	◈
1881864	11 ER 1.75 ISO	1.75	11	1/4	0.031	0.043	◈
1881881	11 ER 2.00 ISO	2.00	11	1/4	0.031	0.043	◈
1882030	16 ER 0.35 ISO	0.35	16	3/8	0.031	0.016	○
1882031	16 ER 0.40 ISO	0.40	16	3/8	0.028	0.016	○
1882032	16 ER 0.45 ISO	0.45	16	3/8	0.028	0.016	○
1880819	16 ER 0.50 ISO	0.50	16	3/8	0.024	0.024	◈
1882033	16 ER 0.60 ISO	0.60	16	3/8	0.024	0.024	○
1882034	16 ER 0.70 ISO	0.70	16	3/8	0.024	0.024	○
1880447	16 ER 0.75 ISO	0.75	16	3/8	0.024	0.024	○
1880804	16 ER 0.80 ISO	0.80	16	3/8	0.024	0.024	○
1880479	16 ER 1.00 ISO	1.00	16	3/8	0.028	0.028	◈
1880007	16 ER 1.25 ISO	1.25	16	3/8	0.031	0.035	◈
1880262	16 ER 1.50 ISO	1.50	16	3/8	0.031	0.039	◈
1880732	16 ER 1.75 ISO	1.75	16	3/8	0.035	0.047	◈
1880018	16 ER 2.00 ISO	2.00	16	3/8	0.039	0.051	◈
1880020	16 ER 2.50 ISO	2.50	16	3/8	0.043	0.059	◈
1880022	16 ER 3.00 ISO	3.00	16	3/8	0.047	0.063	◈
1883740	16 ER 3.50 ISO	3.50	16	3/8	0.047	0.067	○
1880823	22 ER 3.50 ISO	3.50	22	1/2	0.063	0.091	◈
1880811	22 ER 4.00 ISO	4.00	22	1/2	0.063	0.091	◈
1880824	22 ER 4.50 ISO	4.50	22	1/2	0.067	0.094	◈
1880649	22 ER 5.00 ISO	5.00	22	1/2	0.067	0.098	◈
1883741	22 ER 5.50 ISO	5.50	22	1/2	0.067	0.102	○
1883742	22 ER 6.00 ISO	6.00	22	1/2	0.075	0.106	○
1882163	27 ER 5.50 ISO	5.50	27	5/8	0.063	0.091	○
1882164	27 ER 6.00 ISO	6.00	27	5/8	0.071	0.098	○

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

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

Technical Data
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External

Geometry code [1]	Reference Referência Referencia	Pitch	Dimensions | Dimensões | Dimensiones (in)				Stock - Grade Code [2]
		mm	IC	L	X	Y	(68) PH6920
1881794	11 EL 0.35 ISO	0.35	0,250	0,433	0,031	0,016	○
1881795	11 EL 0.40 ISO	0.40	0,250	0,433	0,028	0,016	○
1881796	11 EL 0.45 ISO	0.45	0,250	0,433	0,028	0,016	○
1881797	11 EL 0.50 ISO	0.50	0,250	0,433	0,024	0,024	○
1881798	11 EL 0.60 ISO	0.60	0,250	0,433	0,024	0,024	○
1881799	11 EL 0.70 ISO	0.70	0,250	0,433	0,024	0,024	○
1881800	11 EL 0.75 ISO	0.75	0,250	0,433	0,024	0,024	○
1881801	11 EL 0.80 ISO	0.80	0,250	0,433	0,024	0,024	○
1881802	11 EL 1.00 ISO	1.00	0,250	0,433	0,028	0,028	○
1881803	11 EL 1.25 ISO	1.25	0,250	0,433	0,031	0,035	○
1881804	11 EL 1.50 ISO	1.50	0,250	0,433	0,031	0,039	○
1881806	11 EL 1.75 ISO	1.75	0,250	0,433	0,031	0,043	○
1880654	11 EL 2.00 ISO	2.00	0,250	0,433	0,031	0,043	◈
1881977	16 EL 0.35 ISO	0.35	0,375	0,630	0,031	0,016	○
1881978	16 EL 0.40 ISO	0.40	0,375	0,630	0,028	0,016	○
1881979	16 EL 0.45 ISO	0.45	0,375	0,630	0,028	0,016	○
1881980	16 EL 0.50 ISO	0.50	0,375	0,630	0,024	0,024	○
1881981	16 EL 0.60 ISO	0.60	0,375	0,630	0,024	0,024	○
1881982	16 EL 0.70 ISO	0.70	0,375	0,630	0,024	0,024	○
1881983	16 EL 0.75 ISO	0.75	0,375	0,630	0,024	0,024	○
1881984	16 EL 0.80 ISO	0.80	0,375	0,630	0,024	0,024	○
1880782	16 EL 1.00 ISO	1.00	0,375	0,630	0,028	0,028	◈
1880651	16 EL 1.25 ISO	1.25	0,375	0,630	0,031	0,035	◈
1880652	16 EL 1.50 ISO	1.50	0,375	0,630	0,031	0,039	◈
1880653	16 EL 1.75 ISO	1.75	0,375	0,630	0,035	0,047	◈
1882519	16 EL 2.00 ISO	2.00	0,375	0,630	0,039	0,051	○
1880788	16 EL 2.50 ISO	2.50	0,375	0,630	0,043	0,059	◈
1880488	16 EL 3.00 ISO	3.00	0,375	0,630	0,047	0,063	◈
1883743	16 EL 3.50 ISO	3.50	0,375	0,630	0,047	0,067	○
1880844	22 EL 3.50 ISO	3.50	0,500	0,866	0,063	0,091	◈
1880845	22 EL 4.00 ISO	4.00	0,500	0,866	0,063	0,091	◈
1880846	22 EL 4.50 ISO	4.50	0,500	0,866	0,067	0,094	◈
1880847	22 EL 5.00 ISO	5.00	0,500	0,866	0,067	0,098	◈
1883744	22 EL 5.50 ISO	5.50	0,500	0,866	0,067	0,102	○
1883745	22 EL 6.00 ISO	6.00	0,500	0,866	0,075	0,106	○
1882150	27 EL 5.50 ISO	5.50	0,625	1,063	0,063	0,091	○
1882151	27 EL 6.00 ISO	6.00	0,625	1,063	0,071	0,098	○

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

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

Technical Data
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Internal

Geometry code (1) Código	Reference Referência Referencia	Pitch mm	L (mm)	Dimensions | Dimensões | Dimensiones (in) IC	X	Y	Stock - Grade Code (2) (68) PH6920
1881717	06 IR 0.50 ISO	0.50	06	5/32	0.035	0.020	○
1881718	06 IR 0.75 ISO	0.75	06	5/32	0.031	0.020	○
1881719	06 IR 1.00 ISO	1.00	06	5/32	0.028	0.024	◎
1881720	06 IR 1.25 ISO	1.25	06	5/32	0.024	0.024	○
1881752	08 IR 0.35 ISO	0.35	08	3/16	0.028	0.016	○
1881753	08 IR 0.50 ISO	0.50	08	3/16	0.024	0.020	○
1881754	08 IR 0.75 ISO	0.75	08	3/16	0.024	0.020	○
1881755	08 IR 1.00 ISO	1.00	08	3/16	0.024	0.024	◎
1881756	08 IR 1.25 ISO	1.25	08	3/16	0.024	0.028	○
1881757	08 IR 1.50 ISO	1.50	08	3/16	0.024	0.028	○
1881758	08 IR 1.75 ISO	1.75	08	3/16	0.024	0.031	○
1881937	11 IR 0.35 ISO	0.35	11	1/4	0.031	0.012	○
1881938	11 IR 0.40 ISO	0.40	11	1/4	0.031	0.016	○
1881939	11 IR 0.45 ISO	0.45	11	1/4	0.031	0.016	○
1880825	11 IR 0.50 ISO	0.50	11	1/4	0.024	0.024	◎
1881940	11 IR 0.60 ISO	0.60	11	1/4	0.024	0.024	○
1881941	11 IR 0.70 ISO	0.70	11	1/4	0.024	0.024	○
1880762	11 IR 0.75 ISO	0.75	11	1/4	0.024	0.024	◎
1881942	11 IR 0.80 ISO	0.80	11	1/4	0.024	0.024	○
1880604	11 IR 1.00 ISO	1.00	11	1/4	0.031	0.028	◎
1880827	11 IR 1.25 ISO	1.25	11	1/4	0.031	0.031	◎
1880605	11 IR 1.50 ISO	1.50	11	1/4	0.031	0.039	◎
1880828	11 IR 1.75 ISO	1.75	11	1/4	0.031	0.043	◎
1880829	11 IR 2.00 ISO	2.00	11	1/4	0.031	0.035	◎
1883746	11 IR 2.50 ISO	2.50	11	1/4	0.031	0.047	○
1882108	16 IR 0.35 ISO	0.35	16	3/8	0.031	0.012	○
1882109	16 IR 0.40 ISO	0.40	16	3/8	0.031	0.016	○
1882110	16 IR 0.45 ISO	0.45	16	3/8	0.031	0.016	◎
1880830	16 IR 0.50 ISO	0.50	16	3/8	0.024	0.024	○
1882112	16 IR 0.60 ISO	0.60	16	3/8	0.024	0.024	○
1882113	16 IR 0.70 ISO	0.70	16	3/8	0.024	0.024	○
1880831	16 IR 0.75 ISO	0.75	16	3/8	0.024	0.024	◎
1880832	16 IR 0.80 ISO	0.80	16	3/8	0.024	0.024	◎
1880025	16 IR 1.00 ISO	1.00	16	3/8	0.024	0.028	◎
1880026	16 IR 1.25 ISO	1.25	16	3/8	0.031	0.035	◎
1880619	16 IR 1.50 ISO	1.50	16	3/8	0.031	0.039	◎
1880733	16 IR 1.75 ISO	1.75	16	3/8	0.035	0.047	◎
1880039	16 IR 2.00 ISO	2.00	16	3/8	0.039	0.051	◎
1880041	16 IR 2.50 ISO	2.50	16	3/8	0.043	0.059	◎
1880042	16 IR 3.00 ISO	3.00	16	3/8	0.043	0.059	◎
1883747	16 IR 3.50 ISO	3.50	16	3/8	0.047	0.067	○
1880834	22 IR 3.50 ISO	3.50	22	1/2	0.063	0.091	◎
1880818	22 IR 4.00 ISO	4.00	22	1/2	0.063	0.091	◎
1880835	22 IR 4.50 ISO	4.50	22	1/2	0.063	0.094	◎
1880650	22 IR 5.00 ISO	5.00	22	1/2	0.063	0.091	◎
1883748	22 IR 5.50 ISO	5.50	22	1/2	0.063	0.091	○
1883749	22 IR 6.00 ISO	6.00	22	1/2	0.063	0.094	○
1882185	27 IR 5.50 ISO	5.50	27	5/8	0.063	0.091	○
1882186	27 IR 6.00 ISO	6.00	27	5/8	0.071	0.098	○

◎ Stock Itens | 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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ISO METRIC ISO 965-1: 1999-11 | DIN 13: 2005-08

Internal

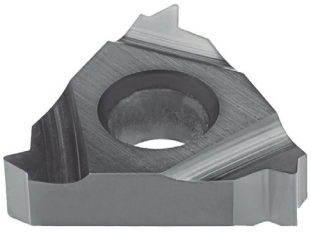
Geometry code (1) Código	Reference Referência Referencia	Pitch mm	L (mm)	Dimensions | Dimensões | Dimensiones (in) IC	X	Y	Stock - Grade Code (2) (68) PH6920
1881703	06 IL 0.50 ISO	0.50	06	5/32	0.035	0.020	○
1881704	06 IL 0.75 ISO	0.75	06	5/32	0.031	0.020	○
1881705	06 IL 1.00 ISO	1.00	06	5/32	0.028	0.024	○
1881706	06 IL 1.25 ISO	1.25	06	5/32	0.024	0.024	○
1881732	08 IL 0.50 ISO	0.50	08	3/16	0.024	0.020	○
1881733	08 IL 0.75 ISO	0.75	08	3/16	0.024	0.020	○
1881734	08 IL 1.00 ISO	1.00	08	3/16	0.024	0.024	○
1881735	08 IL 1.25 ISO	1.25	08	3/16	0.024	0.028	○
1881736	08 IL 1.50 ISO	1.50	08	3/16	0.024	0.028	○
1881737	08 IL 1.75 ISO	1.75	08	3/16	0.024	0.031	○
1881911	11 IL 0.35 ISO	0.35	11	1/4	0.031	0.012	○
1881912	11 IL 0.40 ISO	0.40	11	1/4	0.031	0.016	○
1881913	11 IL 0.45 ISO	0.45	11	1/4	0.031	0.016	○
1880837	11 IL 0.50 ISO	0.50	11	1/4	0.024	0.024	◈
1881914	11 IL 0.60 ISO	0.60	11	1/4	0.024	0.024	○
1881915	11 IL 0.70 ISO	0.70	11	1/4	0.024	0.024	○
1880838	11 IL 0.75 ISO	0.75	11	1/4	0.024	0.024	◈
1881916	11 IL 0.80 ISO	0.80	11	1/4	0.024	0.024	○
1880839	11 IL 1.00 ISO	1.00	11	1/4	0.031	0.028	◈
1880840	11 IL 1.25 ISO	1.25	11	1/4	0.031	0.031	◈
1880841	11 IL 1.50 ISO	1.50	11	1/4	0.031	0.039	◈
1880842	11 IL 1.75 ISO	1.75	11	1/4	0.031	0.043	◈
1880843	11 IL 2.00 ISO	2.00	11	1/4	0.031	0.035	◈
1883750	11 IL 2.50 ISO	2.50	11	1/4	0.031	0.047	○
1882058	16 IL 0.35 ISO	0.35	16	3/8	0.031	0.012	○
1882059	16 IL 0.40 ISO	0.40	16	3/8	0.031	0.016	○
1882060	16 IL 0.45 ISO	0.45	16	3/8	0.031	0.016	○
1882061	16 IL 0.50 ISO	0.50	16	3/8	0.024	0.024	○
1882062	16 IL 0.60 ISO	0.60	16	3/8	0.024	0.024	○
1882063	16 IL 0.70 ISO	0.70	16	3/8	0.024	0.024	○
1882064	16 IL 0.75 ISO	0.75	16	3/8	0.024	0.024	○
1882065	16 IL 0.80 ISO	0.80	16	3/8	0.024	0.024	○
1880783	16 IL 1.00 ISO	1.00	16	3/8	0.024	0.028	◈
1880784	16 IL 1.25 ISO	1.25	16	3/8	0.031	0.035	◈
1880785	16 IL 1.50 ISO	1.50	16	3/8	0.031	0.039	◈
1880786	16 IL 1.75 ISO	1.75	16	3/8	0.035	0.047	◈
1880787	16 IL 2.00 ISO	2.00	16	3/8	0.039	0.051	◈
1880789	16 IL 2.50 ISO	2.50	16	3/8	0.043	0.059	◈
1880790	16 IL 3.00 ISO	3.00	16	3/8	0.043	0.059	◈
1883751	16 IL 3.50 ISO	3.50	16	3/8	0.047	0.067	○
1880848	22 IL 3.50 ISO	3.50	22	1/2	0.063	0.091	◈
1880849	22 IL 4.00 ISO	4.00	22	1/2	0.063	0.091	◈
1880850	22 IL 4.50 ISO	4.50	22	1/2	0.063	0.094	◈
1880851	22 IL 5.00 ISO	5.00	22	1/2	0.063	0.091	○
1883752	22 IL 5.50 ISO	5.50	22	1/2	0.063	0.091	○
1883753	22 IL 6.00 ISO	6.00	22	1/2	0.063	0.094	○
1882174	27 IL 5.50 ISO	5.50	27	5/8	0.063	0.091	○
1882175	27 IL 6.00 ISO	6.00	27	5/8	0.071	0.098	○

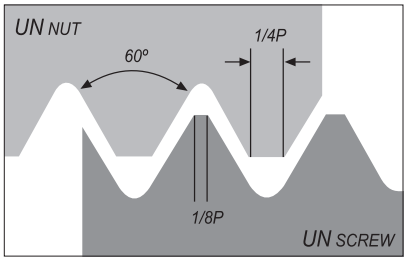
◈ Stock Itens | Itens de stock ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

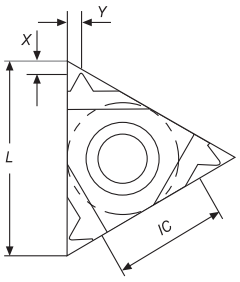
Insert Order Code: (1)Geometry code + (2)Grade code

Technical Data page E - 658

AMERICAN UN (UNC, UNF, UNEF) | ANSI B1.1-1982







External

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions | Dimensões | Dimensiones (in)			Stock - Grade Code (2)
		TPI		IC	X	Y	(68) PH6920
1881907	11 ER 72 UN	72	11	1/4	0.031	0.016	○
1881906	11 ER 64 UN	64	11	1/4	0.031	0.016	○
1881903	11 ER 56 UN	56	11	1/4	0.028	0.016	◎
1881901	11 ER 48 UN	48	11	1/4	0.024	0.024	○
1881900	11 ER 44 UN	44	11	1/4	0.024	0.024	○
1881898	11 ER 40 UN	40	11	1/4	0.024	0.024	○
1881896	11 ER 36 UN	36	11	1/4	0.024	0.024	◎
1881894	11 ER 32 UN	32	11	1/4	0.024	0.024	○
1881892	11 ER 28 UN	28	11	1/4	0.024	0.028	○
1881890	11 ER 27 UN	27	11	1/4	0.028	0.031	○
1881885	11 ER 24 UN	24	11	1/4	0.028	0.031	○
1881882	11 ER 20 UN	20	11	1/4	0.031	0.035	○
1881877	11 ER 18 UN	18	11	1/4	0.031	0.039	○
1881873	11 ER 16 UN	16	11	1/4	0.035	0.043	◎
1881869	11 ER 14 UN	14	11	1/4	0.035	0.043	○
1882055	16 ER 72 UN	72	16	3/8	0.031	0.012	○
1882054	16 ER 64 UN	64	16	3/8	0.031	0.016	○
1882051	16 ER 56 UN	56	16	3/8	0.028	0.016	○
1882049	16 ER 48 UN	48	16	3/8	0.024	0.024	○
1882048	16 ER 44 UN	44	16	3/8	0.024	0.024	○
1882046	16 ER 40 UN	40	16	3/8	0.024	0.024	○
1882044	16 ER 36 UN	36	16	3/8	0.024	0.024	○
1880870	16 ER 32 UN	32	16	3/8	0.024	0.024	◎
1880869	16 ER 28 UN	28	16	3/8	0.024	0.028	◎
1882041	16 ER 27 UN	27	16	3/8	0.028	0.031	○
1880868	16 ER 24 UN	24	16	3/8	0.028	0.031	◎
1880021	16 ER 20 UN	20	16	3/8	0.031	0.035	◎
1880867	16 ER 18 UN	18	16	3/8	0.031	0.039	◎
1880616	16 ER 16 UN	16	16	3/8	0.035	0.043	◎
1880014	16 ER 14 UN	14	16	3/8	0.039	0.047	◎
1880866	16 ER 13 UN	13	16	3/8	0.039	0.051	◎
1880865	16 ER 12 UN	12	16	3/8	0.043	0.055	◎
1883754	16 ER 11.5 UN	11.5	16	3/8	0.043	0.059	○
1880864	16 ER 11 UN	11	16	3/8	0.043	0.059	◎
1880863	16 ER 10 UN	10	16	3/8	0.043	0.059	◎
1880862	16 ER 9 UN	9	16	3/8	0.047	0.067	◎

◎ Stock Itens | 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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AMERICAN UN (UNC, UNF, UNEF) | ANSI B1.1-1982

External

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions | Dimensões | Dimensiones (in)			Stock - Grade Code (2)
		TPI		IC	X	Y	(68) PH6920
1880024	16 ER 8 UN	8	16	3/8	0.047	0.063	◈
1880861	22 ER 7 UN	7	22	1/2	0.063	0.091	◈
1880860	22 ER 6 UN	6	22	1/2	0.063	0.091	◈
1880859	22 ER 5 UN	5	22	1/2	0.067	0.098	○
1882157	27 ER 4.5 UN	4.5	27	5/8	0.075	0.106	○
1882161	27 ER 4 UN	4	27	5/8	0.083	0.118	○
1881848	11 EL 72 UN	72	11	1/4	0.031	0.016	○
1881847	11 EL 64 UN	64	11	1/4	0.031	0.016	○
1882200	11 EL 56 UN	56	11	1/4	0.028	0.016	○
1881843	11 EL 48 UN	48	11	1/4	0.024	0.024	○
1881842	11 EL 44 UN	44	11	1/4	0.024	0.024	○
1881840	11 EL 40 UN	40	11	1/4	0.024	0.024	○
1881838	11 EL 36 UN	36	11	1/4	0.024	0.024	○
1881836	11 EL 32 UN	32	11	1/4	0.024	0.024	○
1881834	11 EL 28 UN	28	11	1/4	0.024	0.028	◈
1881832	11 EL 27 UN	27	11	1/4	0.028	0.031	◈
1881827	11 EL 24 UN	24	11	1/4	0.028	0.031	○
1881824	11 EL 20 UN	20	11	1/4	0.031	0.035	○
1881819	11 EL 18 UN	18	11	1/4	0.031	0.039	◈
1881815	11 EL 16 UN	16	11	1/4	0.035	0.043	○
1881811	11 EL 14 UN	14	11	1/4	0.035	0.043	◈
1882022	16 EL 72 UN	72	16	3/8	0.031	0.012	○
1882020	16 EL 64 UN	64	16	3/8	0.031	0.016	○
1882017	16 EL 56 UN	56	16	3/8	0.028	0.016	○
1882015	16 EL 48 UN	48	16	3/8	0.024	0.024	○
1882014	16 EL 44 UN	44	16	3/8	0.024	0.024	○
1882012	16 EL 40 UN	40	16	3/8	0.024	0.024	○
1882010	16 EL 36 UN	36	16	3/8	0.024	0.024	○
1880886	16 EL 32 UN	32	16	3/8	0.024	0.024	○
1880885	16 EL 28 UN	28	16	3/8	0.024	0.028	○
1882007	16 EL 27 UN	27	16	3/8	0.028	0.031	○
1880884	16 EL 24 UN	24	16	3/8	0.028	0.031	◈
1880883	16 EL 20 UN	20	16	3/8	0.031	0.035	◈
1880882	16 EL 18 UN	18	16	3/8	0.031	0.039	◈
1880881	16 EL 16 UN	16	16	3/8	0.035	0.043	◈
1880880	16 EL 14 UN	14	16	3/8	0.039	0.047	◈
1880879	16 EL 13 UN	13	16	3/8	0.039	0.051	◈
1880878	16 EL 12 UN	12	16	3/8	0.043	0.055	◈
1883755	16 EL 11.5 UN	11.5	16	3/8	0.043	0.059	○
1880877	16 EL 11 UN	11	16	3/8	0.043	0.059	◈
1880876	16 EL 10 UN	10	16	3/8	0.043	0.059	◈
1880875	16 EL 9 UN	9	16	3/8	0.047	0.067	○
1880874	16 EL 8 UN	8	16	3/8	0.047	0.063	○
1880873	22 EL 7U N	7	22	1/2	0.063	0.091	○
1880872	22 EL 6 UN	6	22	1/2	0.063	0.091	○
1880871	22 EL 5 UN	5	22	1/2	0.067	0.098	○
1882144	27 EL 4.5 UN	4.5	27	5/8	0.075	0.106	○
1882148	27 EL 4 UN	4	27	5/8	0.083	0.118	○

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

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

Technical Data page E - 664

palbit PILOT Precision Products **Pilot Precision Products** | 15 Merrigan Way | South Deerfield, MA 01373

Internal

Geometry code (1) Código	Reference Referência Referencia	Pitch TPI	L (mm)	Dimensions | Dimensões | Dimensiones (in) IC	X	Y	Stock - Grade Code (2) (68) PH6920
1881726	06 IR 32 UN	32	06	5/32	0.031	0.020	○
1881725	06 IR 28 UN	28	06	5/32	0.031	0.024	○
1881722	06 IR 24 UN	24	06	5/32	0.028	0.024	○
1883756	06 IR 20 UN	20	06	5/32	0.024	0.024	○
1881721	06 IR 18 UN	18	06	5/32	0.024	0.028	○
1881769	08 IR 32 UN	32	08	3/16	0.024	0.020	○
1881768	08 IR 28 UN	28	08	3/16	0.024	0.024	○
1881765	08 IR 24 UN	24	08	3/16	0.024	0.024	○
1881764	08 IR 20 UN	20	08	3/16	0.024	0.028	○
1881762	08 IR 18 UN	18	08	3/16	0.024	0.028	○
1881760	08 IR 16 UN	16	08	3/16	0.024	0.028	○
1881759	08 IR 14 UN	14	08	3/16	0.024	0.031	○
1881956	11 IR 72 UN	72	11	1/4	0.031	0.012	○
1881955	11 IR 64 UN	64	11	1/4	0.031	0.016	○
1881954	11 IR 56 UN	56	11	1/4	0.028	0.016	○
1881953	11 IR 48 UN	48	11	1/4	0.024	0.024	○
1881952	11 IR 44 UN	44	11	1/4	0.024	0.024	○
1881951	11 IR 40 UN	40	11	1/4	0.024	0.024	○
1881950	11 IR 36 UN	36	11	1/4	0.024	0.024	○
1880910	11 IR 32 UN	32	11	1/4	0.024	0.024	○
1880909	11 IR 28 UN	28	11	1/4	0.024	0.028	○
1881948	11 IR 27 UN	27	11	1/4	0.028	0.031	○
1880908	11 IR 24 UN	24	11	1/4	0.028	0.031	○
1880907	11 IR 20 UN	20	11	1/4	0.031	0.035	◈
1880906	11 IR 18 UN	18	11	1/4	0.031	0.039	◈
1880905	11 IR 16 UN	16	11	1/4	0.035	0.043	◈
1880904	11 IR 14 UN	14	11	1/4	0.035	0.043	◈
1880903	11 IR 13 UN	13	11	1/4	0.031	0.039	◈
1880902	11 IR 12 UN	12	11	1/4	0.035	0.043	○
1880901	11 IR 11 UN	11	11	1/4	0.031	0.043	◈
1882126	16 IR 72 UN	72	16	3/8	0.031	0.012	○
1882124	16 IR 64 UN	64	16	3/8	0.031	0.016	○
1882123	16 IR 56 UN	56	16	3/8	0.028	0.016	○
1882122	16 IR 48 UN	48	16	3/8	0.024	0.024	○
1882121	16 IR 44 UN	44	16	3/8	0.024	0.024	○
1882120	16 IR 40 UN	40	16	3/8	0.024	0.024	○
1882118	16 IR 36 UN	36	16	3/8	0.024	0.024	◈
1880900	16 IR 32 UN	32	16	3/8	0.024	0.024	◈
1880899	16 IR 28 UN	28	16	3/8	0.024	0.028	◈
1882117	16 IR 27 UN	27	16	3/8	0.028	0.031	○
1880898	16 IR 24 UN	24	16	3/8	0.028	0.031	◈
1880618	16 IR 20 UN	20	16	3/8	0.031	0.035	◈
1880897	16 IR 18 UN	18	16	3/8	0.031	0.039	◈
1880037	16 IR 16 UN	16	16	3/8	0.035	0.043	○
1880034	16 IR 14 UN	14	16	3/8	0.039	0.047	◈
1882116	16 IR 13 UN	13	16	3/8	0.039	0.051	○

◈ Stock Itens | 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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Internal

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions | Dimensões | Dimensiones (in)			Stock - Grade Code (2)
		TPI		IC	X	Y	(68) PH6920
1880894	16 IR 12 UN	12	16	3/8	0.043	0.055	◈
1883757	16 IR 11.5 UN	11.5	16	3/8	0.043	0.059	○
1880893	16 IR 11 UN	11	16	3/8	0.043	0.059	◈
1880892	16 IR 10 UN	10	16	3/8	0.043	0.059	◈
1880891	16 IR 9 UN	9	16	3/8	0.047	0.067	◈
1880044	16 IR 8 UN	8	16	3/8	0.047	0.063	◈
1880889	22 IR 7 UN	7	22	1/2	0.063	0.091	◈
1880888	22 IR 6 UN	6	22	1/2	0.063	0.091	◈
1880887	22 IR 5 UN	5	22	1/2	0.063	0.091	◈
1882181	27 IR 4.5 UN	4.5	27	5/8	0.067	0.094	○
1882184	27 IR 4 UN	4	27	5/8	0.071	0.106	○
1881712	06 IL 32 UN	32	06	5/32	0.031	0.020	○
1881711	06 IL 28 UN	28	06	5/32	0.031	0.024	○
1881708	06 IL 24 UN	24	06	5/32	0.028	0.024	○
1883758	06 IL 20 UN	20	06	5/32	0.024	0.024	○
1881707	06 IL 18 UN	18	06	5/32	0.024	0.028	○
1881748	08 IL 32 UN	32	08	3/16	0.024	0.020	○
1881747	08 IL 28 UN	28	08	3/16	0.024	0.024	○
1881744	08 IL 24 UN	24	08	3/16	0.024	0.024	○
1881743	08 IL 20 UN	20	08	3/16	0.024	0.028	○
1881741	08 IL 18 UN	18	08	3/16	0.024	0.028	○
1881739	08 IL 16 UN	16	08	3/16	0.024	0.028	○
1881738	08 IL 14 UN	14	08	3/16	0.024	0.031	○
1881936	11 IL 72 UN	72	11	1/4	0.031	0.012	○
1881935	11 IL 64 UN	64	11	1/4	0.031	0.016	○
1881934	11 IL 56 UN	56	11	1/4	0.028	0.016	○
1881933	11 IL 48 UN	48	11	1/4	0.024	0.024	○
1881932	11 IL 44 UN	44	11	1/4	0.024	0.024	○
1881931	11 IL 40 UN	40	11	1/4	0.024	0.024	○
1881930	11 IL 36 UN	36	11	1/4	0.024	0.024	○
1880935	11 IL 32 UN	32	11	1/4	0.024	0.024	○
1880934	11 IL 28 UN	28	11	1/4	0.024	0.028	◈
1881928	11 IL 27 UN	27	11	1/4	0.028	0.031	○
1880933	11 IL 24 UN	24	11	1/4	0.028	0.031	○
1880932	11 IL 20 UN	20	11	1/4	0.031	0.035	○
1880931	11 IL 18 UN	18	11	1/4	0.031	0.039	○
1880930	11 IL 16 UN	16	11	1/4	0.035	0.043	○
1880929	11 IL 14 UN	14	11	1/4	0.035	0.043	◈
1880928	11 IL 13 UN	13	11	1/4	0.031	0.039	◈
1880927	11 IL 12 UN	12	11	1/4	0.035	0.043	◈
1880926	11 IL 11 UN	11	11	1/4	0.031	0.043	○
1882101	16 IL 72 UN	72	16	3/8	0.031	0.012	○
1882098	16 IL 64 UN	64	16	3/8	0.031	0.016	○
1882097	16 IL 56 UN	56	16	3/8	0.028	0.016	○
1882096	16 IL 48 UN	48	16	3/8	0.024	0.024	○
1882095	16 IL 44 UN	44	16	3/8	0.024	0.024	○

◈ Stock Itens | 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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Internal

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions | Dimensões | Dimensiones (in)			Stock - Grade Code (2)
		TPI		IC	X	Y	(68) PH6920
1882094	16 IL 40 UN	40	16	3/8	0.024	0.024	○
1882092	16 IL 36 UN	36	16	3/8	0.024	0.024	○
1880925	16 IL 32 UN	32	16	3/8	0.024	0.024	○
1880924	16 IL 28 UN	28	16	3/8	0.024	0.028	○
1882089	16 IL 27 UN	27	16	3/8	0.028	0.031	○
1880923	16 IL 24 UN	24	16	3/8	0.028	0.031	○
1880922	16 IL 20 UN	20	16	3/8	0.031	0.035	○
1880921	16 IL 18 UN	18	16	3/8	0.031	0.039	○
1880920	16 IL 16 UN	16	16	3/8	0.035	0.043	○
1880919	16 IL 14 UN	14	16	3/8	0.039	0.047	○
1882074	16 IL 13 UN	13	16	3/8	0.039	0.051	○
1880918	16 IL 12 UN	12	16	3/8	0.043	0.055	◈
1883759	16 IL 11.5 UN	11.5	16	3/8	0.043	0.059	○
1880917	16 IL 11 UN	11	16	3/8	0.043	0.059	○
1880916	16 IL 10 UN	10	16	3/8	0.043	0.059	○
1880915	16 IL 9 UN	9	16	3/8	0.047	0.067	○
1880914	16 IL 8 UN	8	16	3/8	0.047	0.063	○
1880913	22 IL 7 UN	7	22	1/2	0.063	0.091	○
1880912	22 IL 6 UN	6	22	1/2	0.063	0.091	○
1880911	22 IL 5 UN	5	22	1/2	0.063	0.091	◈
1882170	27 IL 4.5 UN	4.5	27	5/8	0.067	0.094	○
1882173	27 IL 4 UN	4	27	5/8	0.071	0.106	○

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

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

Technical Data
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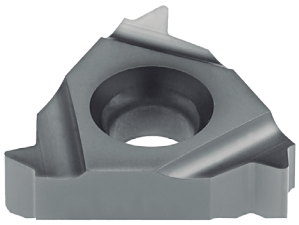
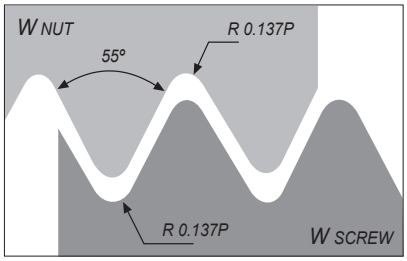
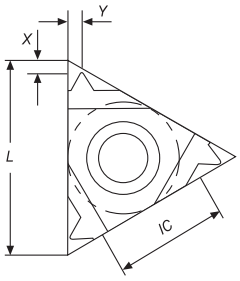
WITHWORTH FOR BSW, BSF, BSP, B.S.84: 1956, DIN 259, ISO 228-1:1994







External

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions | Dimensões | Dimensiones (in)			Stock - Grade Code (2)
		TPI		IC	X	Y	(68) PH6920
1881908	11 ER 72 W	72	11	1/4	0.028	0.016	○
1881905	11 ER 60 W	60	11	1/4	0.028	0.016	○
1881904	11 ER 56 W	56	11	1/4	0.028	0.016	○
1881902	11 ER 48 W	48	11	1/4	0.024	0.024	○
1881899	11 ER 40 W	40	11	1/4	0.024	0.024	○
1881897	11 ER 36 W	36	11	1/4	0.024	0.024	○
1881895	11 ER 32 W	32	11	1/4	0.024	0.024	○
1881893	11ER 28 W	28	11	1/4	0.024	0.028	○
1881887	11 ER 26 W	26	11	1/4	0.028	0.028	○
1881886	11 ER 24 W	24	11	1/4	0.028	0.031	○
1881884	11 ER 22 W	22	11	1/4	0.031	0.035	○
1881883	11 ER 20 W	20	11	1/4	0.031	0.035	○
1881880	11 ER 19 W	19	11	1/4	0.031	0.039	○
1881878	11 ER 18 W	18	11	1/4	0.031	0.039	○
1881874	11 ER 16 W	16	11	1/4	0.035	0.043	○
1881870	11 ER 14 W	14	11	1/4	0.035	0.043	○
1882056	16 ER 72 W	72	16	3/8	0.028	0.016	○
1882053	16 ER 60 W	60	16	3/8	0.028	0.016	○
1882052	16 ER 56 W	56	16	3/8	0.028	0.016	○
1882050	16 ER 48 W	48	16	3/8	0.024	0.024	○
1882047	16 ER 40 W	40	16	3/8	0.024	0.024	○
1882045	16 ER 36 W	36	16	3/8	0.024	0.024	○
1882043	16 ER 32 W	32	16	3/8	0.024	0.024	○
1880940	16 ER 28 W	28	16	3/8	0.024	0.028	○
1882040	16 ER 26 W	26	16	3/8	0.028	0.028	○
1880939	16 ER 24 W	24	16	3/8	0.028	0.031	○
1882039	16 ER 22 W	22	16	3/8	0.031	0.035	○
1880938	16 ER 20 W	20	16	3/8	0.031	0.035	○
1880017	16 ER 19 W	19	16	3/8	0.031	0.039	◈
1880937	16 ER 18 W	18	16	3/8	0.031	0.039	◈
1880609	16 ER 16 W	16	16	3/8	0.035	0.043	◈
1880015	16 ER 14 W	14	16	3/8	0.039	0.047	◈
1880611	16 ER 12 W	12	16	3/8	0.043	0.055	◈
1880613	16 ER 11 W	11	16	3/8	0.043	0.059	◈
1880614	16 ER 10 W	10	16	3/8	0.043	0.059	◈
1880936	16 ER 9 W	9	16	3/8	0.047	0.067	◈

◈ Stock Itens | 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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palbit PILOT Precision Products **Pilot Precision Products** | 15 Merrigan Way | South Deerfield, MA 01373

External

Geometry code (1) Código	Reference Referência Referencia	Pitch TPI	L (mm)	Dimensions | Dimensões | Dimensiones (in) IC	X	Y	Stock - Grade Code (2) (68) PH6920
1880646	16 ER 8 W	8	16	3/8	0.047	0.059	◈
1880941	22 ER 7 W	7	22	1/2	0.063	0.091	◈
1880942	22 ER 6 W	6	22	1/2	0.063	0.091	◈
1880943	22 ER 5 W	5	22	1/2	0.067	0.094	◈
1882158	27 ER 4.5 W	4.5	27	5/8	0.071	0.102	○
1882162	27 ER 4 W	4	27	5/8	0.079	0.114	○
1881849	11 EL 72 W	72	11	1/4	0.028	0.016	○
1881846	11 EL 60 W	60	11	1/4	0.028	0.016	○
1881845	11 EL 56 W	56	11	1/4	0.028	0.016	○
1881844	11 EL 48 W	48	11	1/4	0.024	0.024	○
1881841	11 EL 40 W	40	11	1/4	0.024	0.024	○
1881839	11 EL 36 W	36	11	1/4	0.024	0.024	○
1881837	11 EL 32 W	32	11	1/4	0.024	0.024	○
1881835	11 EL 28 W	28	11	1/4	0.024	0.028	○
1881829	11 EL 26 W	26	11	1/4	0.028	0.028	○
1881828	11 EL 24 W	24	11	1/4	0.028	0.031	○
1881826	11 EL 22 W	22	11	1/4	0.031	0.035	○
1881825	11 EL 20 W	20	11	1/4	0.031	0.035	○
1881822	11 EL 19 W	19	11	1/4	0.031	0.039	◈
1881820	11 EL 18 W	18	11	1/4	0.031	0.039	◈
1881816	11 EL 16 W	16	11	1/4	0.035	0.043	◈
1881812	11 EL 14 W	14	11	1/4	0.035	0.043	○
1882023	16 EL 72 W	72	16	3/8	0.028	0.016	○
1882019	16 EL 60 W	60	16	3/8	0.028	0.016	○
1882018	16 EL 56 W	56	16	3/8	0.028	0.016	○
1882016	16 EL 48 W	48	16	3/8	0.024	0.024	○
1882013	16 EL 40 W	40	16	3/8	0.024	0.024	○
1882011	16 EL 36 W	36	16	3/8	0.024	0.024	○
1882009	16 EL 32 W	32	16	3/8	0.024	0.024	○
1880955	16 EL 28 W	28	16	3/8	0.024	0.028	○
1882004	16 EL 26 W	26	16	3/8	0.024	0.028	○
1880954	16 EL 24 W	24	16	3/8	0.028	0.031	○
1882003	16 EL 22 W	22	16	3/8	0.031	0.035	◈
1880953	16 EL 20 W	20	16	3/8	0.031	0.035	○
1880952	16 EL 19 W	19	16	3/8	0.031	0.039	○
1880951	16 EL 18 W	18	16	3/8	0.031	0.039	○
1880950	16 EL 16 W	16	16	3/8	0.035	0.043	○
1880949	16 EL 14 W	14	16	3/8	0.039	0.047	○
1880948	16 EL 12 W	12	16	3/8	0.043	0.055	○
1880947	16 EL 11 W	11	16	3/8	0.043	0.059	○
1880946	16 EL 10 W	10	16	3/8	0.043	0.059	◈
1880945	16 EL 9 W	9	16	3/8	0.047	0.067	◈
1880944	16 EL 8 W	8	16	3/8	0.047	0.059	◈
1880956	22 EL 7 W	7	22	1/2	0.063	0.091	○
1880957	22 EL 6 W	6	22	1/2	0.063	0.091	○
1880958	22 EL 5 W	5	22	1/2	0.067	0.094	○
1882145	27 EL 4.5 W	4.5	27	5/8	0.071	0.102	○
1882149	27 EL 4 W	4	27	5/8	0.079	0.114	○

◈ Stock Itens | 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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Internal

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions | Dimensões | Dimensiones (in)			Stock - Grade Code (2)
		TPI		IC	X	Y	(68) PH6920
1882203	06 IR 26 W	26	06	5/32	0.028	0.024	○
1882207	06 IR 22 W	22	06	5/32	0.024	0.024	○
1883760	06 IR 20 W	20	06	5/32	0.024	0.028	○
1882211	06 IR 18 W	18	06	5/32	0.024	0.028	○
1882213	08 IR 28 W	28	08	3/16	0.024	0.024	○
1882217	08 IR 24 W	24	08	3/16	0.024	0.024	○
1882219	08 IR 20 W	20	08	3/16	0.024	0.028	○
1882221	08 IR 19 W	19	08	3/16	0.024	0.028	○
1882223	08 IR 18 W	18	08	3/16	0.024	0.028	○
1882225	08 IR 16 W	16	08	3/16	0.024	0.028	○
1882227	11 IR 72 W	72	11	1/4	0.028	0.016	○
1882229	11 IR 60 W	60	11	1/4	0.028	0.016	○
1882231	11 IR 56 W	56	11	1/4	0.028	0.016	○
1882233	11 IR 48 W	48	11	1/4	0.024	0.024	○
1882235	11 IR 40 W	40	11	1/4	0.024	0.024	○
1883761	11 IR 36 W	36	11	1/4	0.024	0.024	○
1882237	11 IR 32 W	32	11	1/4	0.024	0.024	○
1880972	11 IR 28 W	28	11	1/4	0.024	0.028	○
1882239	11 IR 26 W	26	11	1/4	0.028	0.028	○
1880971	11 IR 24 W	24	11	1/4	0.028	0.031	○
1883762	11 IR 22 W	22	11	1/4	0.031	0.035	○
1880970	11 IR 20 W	20	11	1/4	0.031	0.035	○
1880005	11 IR 19 W	19	11	1/4	0.031	0.039	◈
1880968	11 IR 18 W	18	11	1/4	0.031	0.039	○
1880967	11 IR 16 W	16	11	1/4	0.035	0.043	◈
1880004	11 IR 14 W	14	11	1/4	0.035	0.043	◈
1883763	11 IR 12 W	12	11	1/4	0.039	0.043	○
1883764	11 IR 11 W	11	11	1/4	0.035	0.047	○
1882241	16 IR 72 W	72	16	3/8	0.028	0.016	○
1882498	16 IR 60 W	60	16	3/8	0.028	0.016	○
1882244	16 IR 56 W	56	16	3/8	0.028	0.016	○
1882246	16 IR 48 W	48	16	3/8	0.024	0.024	○
1882248	16 IR 40 W	40	16	3/8	0.024	0.024	○
1882250	16 IR 36 W	36	16	3/8	0.024	0.024	○
1882252	16 IR 32 W	32	16	3/8	0.024	0.024	○
1880965	16 IR 28 W	28	16	3/8	0.024	0.028	○
1882254	16 IR 26 W	26	16	3/8	0.024	0.028	○
1880964	16 IR 24 W	24	16	3/8	0.028	0.031	○
1882256	16 IR 22 W	22	16	3/8	0.031	0.035	○
1880963	16 IR 20 W	20	16	3/8	0.031	0.035	○
1880608	16 IR 19 W	19	16	3/8	0.031	0.039	◈
1880962	16 IR 18 W	18	16	3/8	0.031	0.039	○
1880610	16 IR 16 W	16	16	3/8	0.035	0.043	◈
1880035	16 IR 14 W	14	16	3/8	0.039	0.047	◈
1880612	16 IR 12 W	12	16	3/8	0.043	0.055	◈
1880031	16 IR 11 W	11	16	3/8	0.043	0.059	◈

◈ Stock Itens | 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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palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

Internal

Geometry code (1) Código	Reference Referência Referencia	Pitch TPI	L (mm)	Dimensions | Dimensões | Dimensiones (in) IC	X	Y	Stock - Grade Code (2) (68) PH6920
1880615	16 IR 10 W	10	16	3/8	0.043	0.059	◈
1882258	16 IR 9 W	9	16	3/8	0.047	0.067	○
1880672	16 IR 8 W	8	16	3/8	0.047	0.059	○
1880959	22 IR 7 W	7	22	1/2	0.063	0.091	○
1880960	22 IR 6 W	6	22	1/2	0.063	0.091	○
1880961	22 IR 5 W	5	22	1/2	0.067	0.094	○
1882259	27 IR 4.5 W	4.5	27	5/8	0.071	0.102	○
1882261	27 IR 4 W	4	27	5/8	0.079	0.114	○
1882204	06 IL 26 W	26	06	5/32	0.028	0.024	○
1882208	06 IL 22 W	22	06	5/32	0.024	0.024	○
1883765	06 IL 20 W	20	06	5/32	0.024	0.028	○
1882212	06 IL 18 W	18	06	5/32	0.024	0.028	○
1882214	08 IL 28 W	28	08	3/16	0.028	0.028	○
1882218	08 IL 24 W	24	08	3/16	0.028	0.028	○
1882220	08 IL 20 W	20	08	3/16	0.028	0.028	○
1882222	08 IL 19 W	19	08	3/16	0.028	0.028	○
1882224	08 IL 18 W	18	08	3/16	0.028	0.028	○
1882226	08 IL 16 W	16	08	3/16	0.028	0.028	○
1882228	11 IL 72 W	72	11	1/4	0.028	0.016	○
1882230	11 IL 60 W	60	11	1/4	0.028	0.016	○
1882232	11 IL 56 W	56	11	1/4	0.028	0.016	○
1882234	11 IL 48 W	48	11	1/4	0.024	0.024	○
1882236	11 IL 40 W	40	11	1/4	0.024	0.024	○
1883766	11 IL 36 W	36	11	1/4	0.024	0.024	○
1882238	11 IL 32 W	32	11	1/4	0.024	0.024	○
1880994	11 IL 28 W	28	11	1/4	0.024	0.028	○
1882240	11 IL 26 W	26	11	1/4	0.028	0.028	○
1880993	11 IL 24 W	24	11	1/4	0.028	0.031	○
1883767	11 IL 22 W	22	11	1/4	0.031	0.035	○
1880992	11 IL 20 W	20	11	1/4	0.031	0.035	○
1880991	11 IL 19 W	19	11	1/4	0.031	0.039	○
1880990	11 IL 18 W	18	11	1/4	0.031	0.039	○
1880989	11 IL 16 W	16	11	1/4	0.035	0.043	○
1880988	11 IL 14 W	14	11	1/4	0.035	0.043	○
1883768	11 IL 12 W	12	11	1/4	0.039	0.043	○
1883769	11 IL 11 W	11	11	1/4	0.035	0.047	○
1882242	16 IL 72 W	72	16	3/8	0.028	0.016	○
1882243	16 IL 60 W	60	16	3/8	0.028	0.016	○
1882245	16 IL 56 W	56	16	3/8	0.028	0.016	○
1882247	16 IL 48 W	48	16	3/8	0.024	0.024	○

◈ Stock Itens | 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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Internal

Geometry code (1) Código	Reference Referência Referencia	Pitch TPI	L (mm)	Dimensions | Dimensões | Dimensiones (in) IC	X	Y	Stock - Grade Code (2) (68) PH6920
1882249	16 IL 40 W	40	16	3/8	0.024	0.024	◎
1882251	16 IL 36 W	36	16	3/8	0.024	0.024	○
1882253	16 IL 32 W	32	16	3/8	0.024	0.024	○
1880987	16 IL 28 W	28	16	3/8	0.024	0.028	○
1882255	16 IL 26 W	26	16	3/8	0.024	0.028	◎
1880986	16 IL 24 W	24	16	3/8	0.028	0.031	○
1882257	16 IL 22 W	22	16	3/8	0.031	0.035	○
1880985	16 IL 20 W	20	16	3/8	0.031	0.035	○
1880984	16 IL 19 W	19	16	3/8	0.031	0.039	○
1880983	16 IL 18 W	18	16	3/8	0.031	0.039	◎
1880982	16 IL 16 W	16	16	3/8	0.035	0.043	◎
1880981	16 IL 14 W	14	16	3/8	0.039	0.047	○
1880980	16 IL 12 W	12	16	3/8	0.043	0.055	◎
1880979	16 IL 11 W	11	16	3/8	0.043	0.059	○
1880978	16 IL 10 W	10	16	3/8	0.043	0.059	○
1880977	16 IL 9 W	9	16	3/8	0.047	0.067	○
1880976	16 IL 8 W	8	16	3/8	0.047	0.059	○
1880975	22 IL 7 W	7	22	1/2	0.063	0.091	◎
1880974	22 IL 6 W	6	22	1/2	0.063	0.091	◎
1880973	22 IL 5 W	5	22	1/2	0.067	0.094	○
1882260	27 IL 4.5 W	4.5	27	5/8	0.071	0.102	○
1882262	27 IL 4 W	4	27	5/8	0.079	0.114	○

◎ Stock Itens | 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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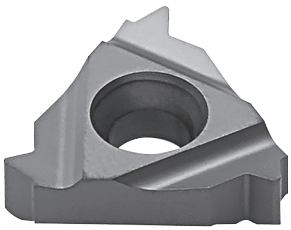

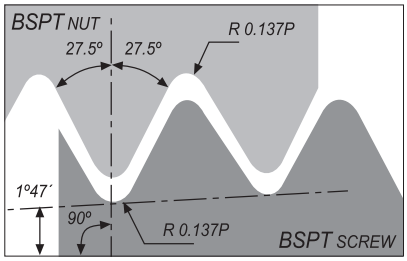

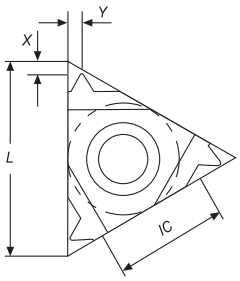

External

Geometry code (1) Código	Reference Referência Referencia	Pitch TPI	L (mm)	Dimensions | Dimensões | Dimensiones (in) IC	X	Y	Stock - Grade Code (2) (68) PH6920
1880998	16 ER 28 BSPT	28	16	3/8	0.024	0.024	○
1880997	16 ER 19 BSPT	19	16	3/8	0.031	0.035	○
1880996	16 ER 14 BSPT	14	16	3/8	0.039	0.047	○
1880995	16 ER 11 BSPT	11	16	3/8	0.043	0.059	○
1882008	16 EL 28 BSPT	28	16	3/8	0.024	0.024	○
1882001	16 EL 19 BSPT	19	16	3/8	0.031	0.035	○
1881993	16 EL 14 BSPT	14	16	3/8	0.039	0.047	◈
1881989	16 EL 11 BSPT	11	16	3/8	0.043	0.059	○

◈ Stock Itens | 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) Código	Reference Referência Referencia	Pitch TPI	L (mm)	Dimensions | Dimensões | Dimensiones (in) IC	X	Y	Stock - Grade Code (2) (68) PH6920
1881724	06 IR 28 BSPT	28	06	5/32	0.028	0.024	○
1881767	08 IR 28 BSPT	28	08	3/16	0.024	0.024	○
1881763	08 IR 19 BSPT	19	08	3/16	0.024	0.024	○
1881949	11 IR 28 BSPT	28	11	1/4	0.024	0.024	○
1881004	11 IR 19 BSPT	19	11	1/4	0.031	0.035	○
1881003	11 IR 14 BSPT	14	11	1/4	0.035	0.039	○
1883770	11 IR 11 BSPT	11	11	1/4	0.035	0.047	○
1881002	16 IR 28 BSPT	28	16	3/8	0.024	0.024	○
1881001	16 IR 19 BSPT	19	16	3/8	0.031	0.035	○
1881000	16 IR 14 BSPT	14	16	3/8	0.039	0.047	○
1880999	16 IR 11 BSPT	11	16	3/8	0.043	0.059	○
1881710	06 IL 28 BSPT	28	06	5/32	0.028	0.024	○
1881746	08 IL 28 BSPT	28	08	3/16	0.024	0.024	○
1881742	08 IL 19 BSPT	19	08	3/16	0.024	0.024	○
1881929	11 IL 28 BSPT	28	11	1/4	0.024	0.024	○
1881925	11 IL 19 BSPT	19	11	1/4	0.031	0.035	○
1881918	11 IL 14 BSPT	14	11	1/4	0.035	0.039	○
1883771	11 IL 11 BSPT	11	11	1/4	0.035	0.047	○
1882090	16 IL 28 BSPT	28	16	3/8	0.024	0.024	○
1882084	16 IL 19 BSPT	19	16	3/8	0.031	0.035	○
1882076	16 IL 14 BSPT	14	16	3/8	0.039	0.047	○
1882071	16 IL 11 BSPT	11	16	3/8	0.043	0.059	○

◈ Stock Itens | 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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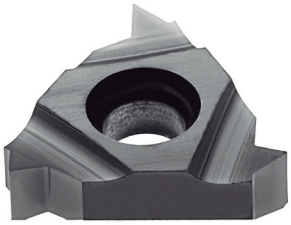

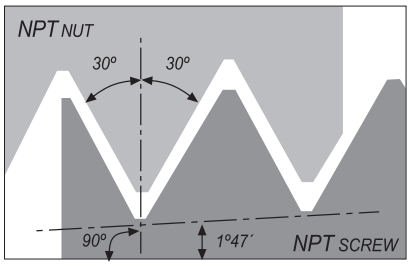

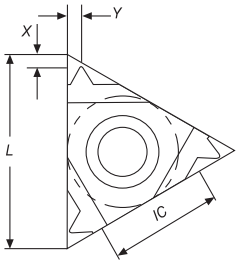

External

Geometry code (1) Código	Reference Referência Referencia	Pitch TPI	L (mm)	Dimensions | Dimensões | Dimensiones (in) IC	X	Y	Stock - Grade Code (2) (68) PH6920
1881888	11 ER 27 NPT	27	11	1/4	0.028	0.031	○
1881875	11 ER 18 NPT	18	11	1/4	0.031	0.039	◈
1881867	11 ER 14 NPT	14	11	1/4	0.031	0.039	○
1881017	16 ER 27 NPT	27	16	3/8	0.028	0.031	◈
1881016	16 ER 18 NPT	18	16	3/8	0.031	0.039	○
1880013	16 ER 14 NPT	14	16	3/8	0.035	0.047	◈
1880009	16 ER 11.5 NPT	11.5	16	3/8	0.043	0.059	◈
1880023	16 ER 8 NPT	8	16	3/8	0.051	0.071	◈
1881830	11 EL 27 NPT	27	11	1/4	0.028	0.031	○
1881817	11 EL 18 NPT	18	11	1/4	0.031	0.039	○
1881809	11 EL 14 NPT	14	11	1/4	0.031	0.039	○
1882005	16 EL 27 NPT	27	16	3/8	0.028	0.031	○
1881999	16 EL 18 NPT	18	16	3/8	0.031	0.039	○
1881994	16 EL 14 NPT	14	16	3/8	0.035	0.047	○
1881987	16 EL 11.5 NPT	11.5	16	3/8	0.043	0.059	○
1882025	16 EL 8 NPT	8	16	3/8	0.051	0.071	○

◈ Stock Itens | 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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Internal

Geometry code (1) Código	Reference Referência Referencia	Pitch TPI	L (mm)	Dimensions | Dimensões | Dimensiones (in) IC	X	Y	Stock - Grade Code (2) (68) PH6920
1881723	06 IR 27 NPT	27	06	5/32	0.024	0.024	○
1881766	08 IR 27 NPT	27	08	3/16	0.024	0.024	○
1881761	08 IR 18 NPT	18	08	3/16	0.024	0.024	○
1881946	11 IR 27 NPT	27	11	1/4	0.028	0.031	○
1881020	11 IR 18 NPT	18	11	1/4	0.031	0.039	◈
1880003	11 IR 14 NPT	14	11	1/4	0.031	0.039	◈
1881019	16 IR 27 NPT	27	16	3/8	0.028	0.031	◈
1881018	16 IR 18 NPT	18	16	3/8	0.031	0.039	◈
1880033	16 IR 14 NPT	14	16	3/8	0.035	0.047	◈
1880029	16 IR 11.5 NPT	11.5	16	3/8	0.043	0.059	◈
1880043	16 IR 8 NPT	8	16	3/8	0.051	0.071	○
1881709	06 IL 27 NPT	27	06	5/32	0.024	0.024	○
1881745	08 IL 27 NPT	27	08	3/16	0.024	0.024	○
1881740	08 IL 18 NPT	18	08	3/16	0.024	0.024	○
1881926	11 IL 27 NPT	27	11	1/4	0.028	0.031	○
1881923	11 IL 18 NPT	18	11	1/4	0.031	0.039	○
1881919	11 IL 14 NPT	14	11	1/4	0.031	0.039	○
1882087	16 IL 27 NPT	27	16	3/8	0.028	0.031	○
1882082	16 IL 18 NPT	18	16	3/8	0.031	0.039	○
1882077	16 IL 14 NPT	14	16	3/8	0.035	0.047	○
1882069	16 IL 11.5 NPT	11.5	16	3/8	0.043	0.059	○
1882103	16 IL 8 NPT	8	16	3/8	0.051	0.071	○

◈ Stock Itens | 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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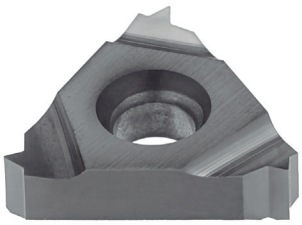

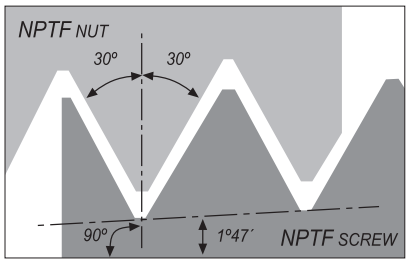

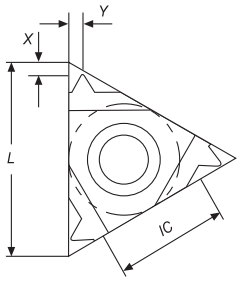

External

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions | Dimensões | Dimensiones (in)			Stock - Grade Code (2)
		TPI		IC	X	Y	(68) PH6920
1881889	11 ER 27 NPTF	27	11	1/4	0.028	0.028	○
1881876	11 ER 18 NPTF	18	11	1/4	0.031	0.039	○
1881868	11 ER 14 NPTF	14	11	1/4	0.031	0.039	○
1881030	16 ER 27 NPTF	27	16	3/8	0.028	0.028	○
1881029	16 ER 18 NPTF	18	16	3/8	0.031	0.039	○
1881028	16 ER 14 NPTF	14	16	3/8	0.035	0.047	◈
1881027	16 ER 11.5 NPTF	11.5	16	3/8	0.043	0.059	○
1882057	16 ER 8 NPTF	8	16	3/8	0.051	0.071	○
1881831	11 EL 27 NPTF	27	11	1/4	0.028	0.028	◈
1881818	11 EL 18 NPTF	18	11	1/4	0.031	0.039	◈
1881810	11 EL 14 NPTF	14	11	1/4	0.031	0.039	○
1882006	16 EL 27 NPTF	27	16	3/8	0.028	0.031	○
1882000	16 EL 18 NPTF	18	16	3/8	0.031	0.039	◈
1881995	16 EL 14 NPTF	14	16	3/8	0.035	0.047	○
1881988	16 EL 11.5 NPTF	11.5	16	3/8	0.043	0.059	○
1882026	16 EL 8 NPTF	8	16	3/8	0.051	0.071	○

◈ Stock Itens | 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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palbit PILOT Precision Products **Pilot Precision Products** | 15 Merrigan Way | South Deerfield, MA 01373

Internal

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions | Dimensões | Dimensiones (in)			Stock - Grade Code (2)
		TPI		IC	X	Y	(68) PH6920
1883772	06 IR 27 NPTF	27	06	5/32	0.028	0.024	○
1883773	08 IR 18 NPTF	18	08	3/16	0.024	0.024	○
1883774	08 IR 14 NPTF	14	08	3/16	0.024	0.024	○
1881947	11 IR 27 NPTF	27	11	1/4	0.028	0.028	○
1881026	11 IR 18 NPTF	18	11	1/4	0.031	0.039	○
1881025	11 IR 14 NPTF	14	11	1/4	0.031	0.039	○
1881024	16 IR 27 NPTF	27	16	3/8	0.028	0.028	○
1881023	16 IR 18 NPTF	18	16	3/8	0.031	0.039	○
1881022	16 IR 14 NPTF	14	16	3/8	0.035	0.047	○
1881021	16 IR 11.5 NPTF	11.5	16	3/8	0.043	0.059	○
1882127	16 IR 8 NPTF	8	16	3/8	0.051	0.071	○
1883775	06 IL 27 NPTF	27	06	5/32	0.028	0.024	○
1883776	08 IL 18 NPTF	18	08	3/16	0.024	0.024	○
1883777	08 IL 14 NPTF	14	08	3/16	0.024	0.024	○
1881927	11 IL 27 NPTF	27	11	1/4	0.028	0.028	○
1881924	11 IL 18 NPTF	18	11	1/4	0.031	0.039	○
1881920	11 IL 14 NPTF	14	11	1/4	0.031	0.039	○
1882088	16 IL 27 NPTF	27	16	3/8	0.028	0.028	○
1882083	16 IL 18 NPTF	18	16	3/8	0.031	0.039	○
1882078	16 IL 14 NPTF	14	16	3/8	0.035	0.047	○
1882070	16 IL 11.5 NPTF	11.5	16	3/8	0.043	0.059	○
1882104	16 IL 8 NPTF	8	16	3/8	0.051	0.071	○

Stock Itens | 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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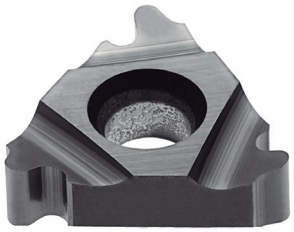
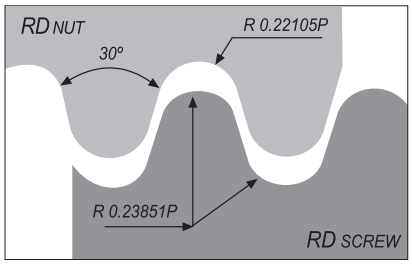
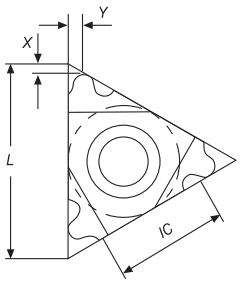
ROUND (DIN 405) | DIN 405:1997







External

Geometry code (1) Código	Reference Referência Referencia	Pitch TPI	L (mm)	Dimensions | Dimensões | Dimensiones (in) IC	X	Y	Stock - Grade Code (2) (68) PH6920
1881031	16 ER 10 RD	10	16	3/8	0.043	0.047	○
1881032	16 ER 8 RD	8	16	3/8	0.055	0.055	○
1881033	16 ER 6 RD	6	16	3/8	0.055	0.059	○
1881034	22 ER 6 RD	6	22	1/2	0.059	0.067	○
1881035	22 ER 4 RD	4	22	1/2	0.087	0.091	○
1882332	27 ER 4 RD	4	27	5/8	0.087	0.091	○
1882333	16 EL 10 RD	10	16	3/8	0.043	0.047	○
1882334	16 EL 8 RD	8	16	3/8	0.055	0.055	◈
1882335	16 EL 6 RD	6	16	3/8	0.055	0.059	○
1882336	22 EL 6 RD	6	22	1/2	0.059	0.067	◈
1882337	22 EL 4 RD	4	22	1/2	0.087	0.091	○
1882338	27 EL 4 RD	4	27	5/8	0.087	0.091	○

◈ Stock Itens | 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) Código	Reference Referência Referencia	Pitch TPI	L (mm)	Dimensions | Dimensões | Dimensiones (in) IC	X	Y	Stock - Grade Code (2) (68) PH6920
1881039	16 IR 10 RD	10	16	3/8	0.043	0.047	○
1881040	16 IR 8 RD	8	16	3/8	0.055	0.055	○
1881041	16 IR 6 RD	6	16	3/8	0.055	0.059	○
1881042	22 IR 6 RD	6	22	1/2	0.059	0.067	○
1881043	22 IR 4 RD	4	22	1/2	0.087	0.091	○
1882339	27 IR 4 RD	4	27	5/8	0.087	0.091	○
1882340	16 IL 10 RD	10	16	3/8	0.043	0.047	○
1882341	16 IL 8 RD	8	16	3/8	0.055	0.055	◈
1882342	16 IL 6 RD	6	16	3/8	0.055	0.059	○
1882343	22 IL 6 RD	6	22	1/2	0.059	0.067	○
1882344	22 IL 4 RD	4	22	1/2	0.087	0.091	○
1882345	27 IL 4 RD	4	27	5/8	0.087	0.091	○

◈ Stock Itens | 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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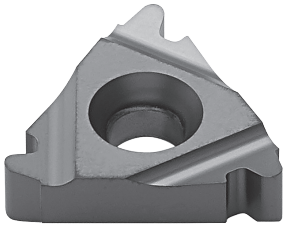
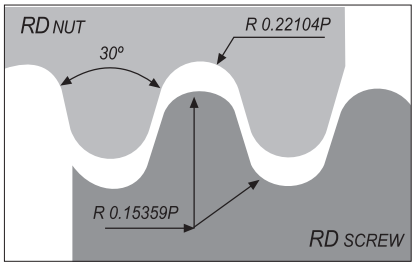
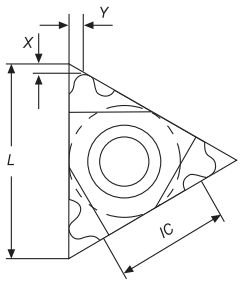
ROUND (DIN 20400) | DIN 20400:1990







External

Geometry code (1) Código	Reference Referência Referencia	Pitch mm	L (mm)	Dimensions | Dimensões | Dimensiones (in) IC	X	Y	Stock - Grade Code (2) (68) PH6920
1882347	22 ER 4.0 RD20400	4.0	22	1/2	0.055	0.055	○
1882348	22 ER 5.0 RD20400	5.0	22	1/2	0.067	0.071	○
1882349	22 ER 6.0 RD20400	6.0	22	1/2	0.067	0.079	○
1882351	22 EL 4.0 RD20400	4.0	22	1/2	0.055	0.055	○
1882352	22 EL 5.0 RD20400	5.0	22	1/2	0.067	0.071	○
1882353	22 EL 6.0 RD20400	6.0	22	1/2	0.067	0.079	○

Stock Itens | 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) Código	Reference Referência Referencia	Pitch mm	L (mm)	Dimensions | Dimensões | Dimensiones (in) IC	X	Y	Stock - Grade Code (2) (68) PH6920
1882355	22 IR 4.0 RD20400	4.0	22	1/2	0.055	0.055	○
1882356	22 IR 5.0 RD20400	5.0	22	1/2	0.067	0.071	○
1882357	22 IR 6.0 RD20400	6.0	22	1/2	0.067	0.079	○
1882359	22 IL 4.0 RD20400	4.0	22	1/2	0.055	0.055	○
1882360	22 IL 5.0 RD20400	5.0	22	1/2	0.067	0.071	○
1882361	22 IL 6.0 RD20400	6.0	22	1/2	0.067	0.079	○

Stock Itens | 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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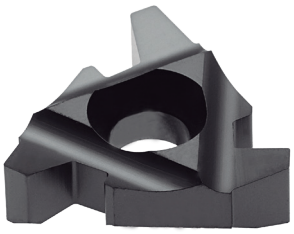

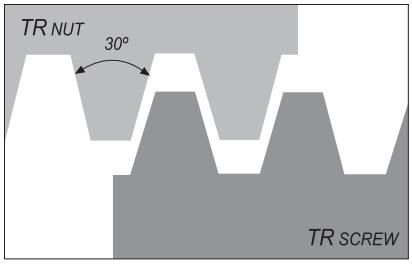

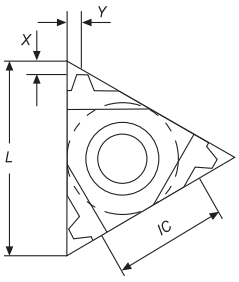

External

Geometry code (1) Código	Reference Referência Referencia	Pitch mm	L (mm)	Dimensions | Dimensões | Dimensiones (in) IC	X	Y	Stock - Grade Code (2) (68) PH6920
1881044	16 ER 1.5 TR	1.5	16	3/8	0.039	0.043	◉
1881045	16 ER 2.0 TR	2.0	16	3/8	0.039	0.051	◉
1881046	16 ER 3.0 TR	3.0	16	3/8	0.051	0.059	○
1883778	16 ER 4.0 TR	4.0	16	3/8	0.051	0.059	○
1881047	22 ER 4.0 TR	4.0	22	1/2	0.071	0.075	○
1881049	22 ER 5.0 TR	5.0	22	1/2	0.079	0.094	○
1883779	22 ER 6.0 TR	6.0	22	1/2	0.079	0.094	○
1882165	27 ER 6.0 TR	6.0	27	5/8	0.091	0.106	○
1882166	27 ER 7.0 TR	7.0	27	5/8	0.087	0.102	○
1881050	16 EL 1.5 TR	1.5	16	3/8	0.039	0.043	◉
1881051	16 EL 2.0 TR	2.0	16	3/8	0.043	0.051	○
1881052	16 EL 3.0 TR	3.0	16	3/8	0.051	0.059	○
1883780	16 EL 4.0 TR	4.0	16	3/8	0.051	0.059	○
1881053	22 EL 4.0 TR	4.0	22	1/2	0.071	0.075	○
1882130	22 EL 5.0 TR	5.0	22	1/2	0.079	0.094	○
1883781	22 EL 6.0 TR	6.0	22	1/2	0.079	0.094	○
1882152	27 EL 6.0 TR	6.0	27	5/8	0.091	0.106	○
1882153	27 EL 7.0 TR	7.0	27	5/8	0.087	0.102	○

◉ Stock Itens | 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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Internal

Geometry code (1) Código	Reference Referência Referencia	Pitch mm	L (mm)	Dimensions | Dimensões | Dimensiones (in) IC	X	Y	Stock - Grade Code (2) (68) PH6920
1883782	08 IR 1.5 TR	1.5	08	3/16	0.024	0.024	○
1881055	16 IR 1.5 TR	1.5	16	3/8	0.039	0.043	◈
1881056	16 IR 2.0 TR	2.0	16	3/8	0.039	0.051	○
1881057	16 IR 3.0 TR	3.0	16	3/8	0.051	0.059	○
1882119	16 IR 4.0 TR	4.0	16	3/8	0.051	0.059	○
1881058	22 IR 4.0 TR	4.0	22	1/2	0.071	0.075	○
1881059	22 IR 5.0 TR	5.0	22	1/2	0.079	0.094	○
1881060	22 IR 6.0 TR	6.0	22	1/2	0.079	0.094	○
1882187	27 IR 6.0 TR	6.0	27	5/8	0.091	0.106	○
1882188	27 IR 7.0 TR	7.0	27	5/8	0.087	0.102	○
1883783	08 IL 1.5 TR	1.5	08	3/16	0.024	0.024	○
1881062	16 IL 2.0 TR	2.0	16	3/8	0.039	0.051	○
1881063	16 IL 3.0 TR	3.0	16	3/8	0.051	0.059	○
1882093	16 IL 4.0 TR	4.0	16	3/8	0.051	0.059	○
1881064	22 IL 4.0 TR	4.0	22	1/2	0.071	0.075	○
1881065	22 IL 5.0 TR	5.0	22	1/2	0.079	0.094	○
1881066	22 IL 6.0 TR	6.0	22	1/2	0.079	0.094	○
1882176	27 IL 6.0 TR	6.0	27	5/8	0.091	0.106	○
1882177	27 IL 7.0 TR	7.0	27	5/8	0.087	0.102	○

◈ Stock Itens | 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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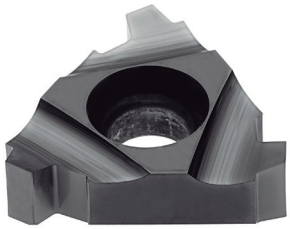
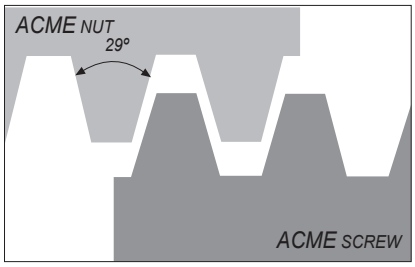
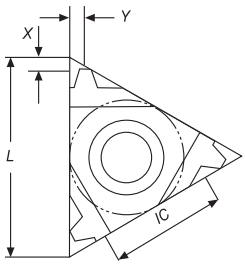
AMERICAN ACME | ANSI/ASME: 1.5-1988







External

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions | Dimensões | Dimensiones (in)			Stock - Grade Code (2)
		TPI		IC	X	Y	(68) PH6920
1881871	11 ER 16 ACME	16	11	1/4	0.035	0.039	○
1881078	16 ER 16 ACME	16	16	3/8	0.035	0.039	○
1881077	16 ER 14 ACME	14	16	3/8	0.039	0.047	◈
1881076	16 ER 12 ACME	12	16	3/8	0.043	0.047	○
1881075	16 ER 10 ACME	10	16	3/8	0.051	0.051	○
1881079	16 ER 8 ACME	8	16	3/8	0.059	0.059	○
1883784	16 ER 6 ACME	6	16	3/8	0.067	0.071	○
1881080	22 ER 6 ACME	6	22	1/2	0.071	0.083	○
1881081	22 ER 5 ACME	5	22	1/2	0.079	0.091	○
1883826	22 ER 4 ACME	4	22	1/2	0.083	0.087	○
1882159	27 ER 4 ACME	4	27	5/8	0.091	0.106	○
1881813	11 EL 16 ACME	16	11	1/4	0.035	0.039	○
1881997	16 EL 16 ACME	16	16	3/8	0.035	0.039	○
1881992	16 EL 14 ACME	14	16	3/8	0.039	0.047	○
1881990	16 EL 12 ACME	12	16	3/8	0.043	0.047	○
1881985	16 EL 10 ACME	10	16	3/8	0.051	0.051	○
1882024	16 EL 8 ACME	8	16	3/8	0.059	0.059	○
1883827	16 EL 6 ACME	6	16	3/8	0.067	0.071	○
1882133	22 EL 6 ACME	6	22	1/2	0.071	0.083	○
1882131	22 EL 5 ACME	5	22	1/2	0.079	0.091	○
1883785	22 EL 4 ACME	4	22	1/2	0.083	0.087	○
1882146	27 EL 4 ACME	4	27	5/8	0.091	0.106	○

◈ Stock Itens | 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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palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

Internal

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions | Dimensões | Dimensiones (in)			Stock - Grade Code (2)
		TPI		IC	X	Y	(68) PH6920
1883786	08 IR 16 ACME	16	08	3/16	0.024	0.024	○
1881944	11 IR 16 ACME	16	11	1/4	0.035	0.039	○
1881107	16 IR 16 ACME	16	0.9	3/8	0.039	0.043	○
1881106	16 IR 14 ACME	14	1.0	3/8	0.047	0.047	○
1881105	16 IR 12 ACME	12	1.1	3/8	0.047	0.047	○
1881104	16 IR 10 ACME	10	1.3	3/8	0.051	0.055	○
1881103	16 IR 8 ACME	8	1.5	3/8	0.059	0.059	○
1881885	16 IR 6 ACME	6	1.7	3/8	0.071	0.059	○
1881083	22 IR 6 ACME	6	22	1/2	0.071	0.083	○
1881082	22 IR 5 ACME	5	22	1/2	0.079	0.091	○
1881102	22 IR 4 ACME	4	22	1/2	0.083	0.087	○
1882182	27 IR 4 ACME	4	27	5/8	0.091	0.106	○
1883787	08 IL 16 ACME	16	08	3/16	0.024	0.024	◈
1881921	11 IL 16 ACME	16	11	1/4	0.035	0.039	○
1882080	16 IL 16 ACME	16	0.9	3/8	0.039	0.043	○
1882075	16 IL 14 ACME	14	1.0	3/8	0.047	0.047	○
1882072	16 IL 12 ACME	12	1.1	3/8	0.047	0.047	○
1882067	16 IL 10 ACME	10	1.3	3/8	0.051	0.055	○
1882102	16 IL 8 ACME	8	1.5	3/8	0.059	0.059	○
1882099	16 IL 6 ACME	6	1.7	3/8	0.071	0.059	○
1882140	22 IL 6 ACME	6	22	1/2	0.071	0.083	○
1882138	22 IL 5 ACME	5	22	1/2	0.079	0.091	○
1882136	22 IL 4 ACME	4	22	1/2	0.083	0.087	○
1882171	27 IL 4 ACME	4	27	5/8	0.091	0.106	○

◈ Stock Itens | 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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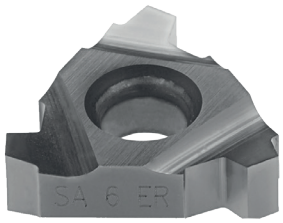
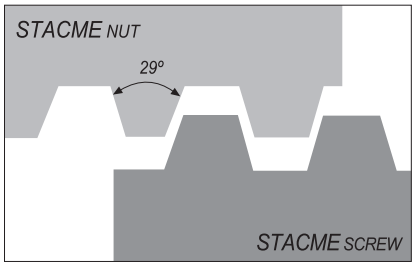
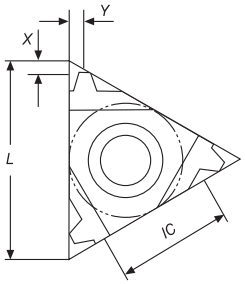
STUB ACME | ANSI/ASME: 1.8-1988







External

Geometry code (1) Código	Reference Referência Referencia	Pitch TPI	L (mm)	Dimensions | Dimensões | Dimensiones (in) IC	X	Y	Stock - Grade Code (2) (68) PH6920
1881872	11 ER 16 STACME	16	11	3/16	0.039	0.039	○
1881116	16 ER 16 STACME	16	16	1/4	0.039	0.039	○
1881117	16 ER 14 STACME	14	16	3/8	0.043	0.043	○
1881118	16 ER 12 STACME	12	16	3/8	0.047	0.047	◈
1881119	16 ER 10 STACME	10	16	3/8	0.051	0.051	○
1881120	16 ER 8 STACME	8	16	3/8	0.059	0.059	◈
1881121	16 ER 6 STACME	6	16	3/8	0.071	0.071	◈
1882135	22 ER 6 STACME	6	22	3/8	0.071	0.083	○
1881122	22 ER 5 STACME	5	22	1/2	0.079	0.091	◈
1881123	22 ER 4 STACME	4	22	1/2	0.091	0.094	○
1882160	27 ER 4 STACME	4	27	1/2	0.091	0.094	○
1882156	27 ER 3 STACME	3	27	5/8	0.110	0.114	○
1881814	11 EL 16 STACME	16	11	3/16	0.039	0.039	○
1881998	16 EL 16 STACME	16	16	1/4	0.039	0.039	○
1881996	16 EL 14 STACME	14	16	3/8	0.043	0.043	○
1881991	16 EL 12 STACME	12	16	3/8	0.047	0.047	○
1881986	16 EL 10 STACME	10	16	3/8	0.051	0.051	○
1882027	16 EL 8 STACME	8	16	3/8	0.059	0.059	○
1882021	16 EL 6 STACME	6	16	3/8	0.071	0.071	○
1882134	22 EL 6 STACME	6	22	3/8	0.071	0.083	○
1882132	22 EL 5 STACME	5	22	1/2	0.079	0.091	○
1881889	22 EL 4 STACME	4	22	1/2	0.091	0.094	○
1882147	27 EL 4 STACME	4	27	1/2	0.091	0.094	○
1882143	27 EL 3 STACME	3	27	5/8	0.110	0.114	○

◈ Stock Itens | 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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palbit TOOLING SOLUTIONS EXPERTS
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

Internal

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions | Dimensões | Dimensiones (in)			Stock - Grade Code (2)
		TPI		IC	X	Y	(68) PH6920
1883788	08 IR 16 STACME	16	08	3/16	0.024	0.024	◈
1881108	16 IR 16 STACME	16	16	3/8	0.039	0.039	○
1881109	16 IR 14 STACME	14	16	3/8	0.043	0.043	○
1881110	16 IR 12 STACME	12	16	3/8	0.047	0.047	○
1881111	16 IR 10 STACME	10	16	3/8	0.051	0.051	○
1881112	16 IR 8 STACME	8	16	3/8	0.059	0.059	○
1881113	16 IR 6 STACME	6	16	3/8	0.071	0.071	○
1882142	22 IR 6 STACME	6	22	1/2	0.071	0.083	○
1881114	22 IR 5 STACME	5	22	1/2	0.079	0.091	○
1881115	22 IR 4 STACME	4	22	1/2	0.091	0.094	○
1882183	27 IR 4 STACME	4	27	5/8	0.091	0.094	○
1882180	27 IR 3 STACME	3	27	5/8	0.110	0.114	○
1883789	08 IL 16 STACME	16	08	3/16	0.024	0.024	◈
1882081	16 IL 16 STACME	16	16	3/8	0.039	0.039	○
1882079	16 IL 14 STACME	14	16	3/8	0.043	0.043	○
1882073	16 IL 12 STACME	12	16	3/8	0.047	0.047	○
1882068	16 IL 10 STACME	10	16	3/8	0.051	0.051	○
1882105	16 IL 8 STACME	8	16	3/8	0.059	0.059	○
1882100	16 IL 6 STACME	6	16	3/8	0.071	0.071	○
1882141	22 IL 6 STACME	6	22	1/2	0.071	0.083	○
1882139	22 IL 5 STACME	5	22	1/2	0.079	0.091	○
1882137	22 IL 4 STACME	4	22	1/2	0.091	0.094	○
1882172	27 IL 4 STACME	4	27	5/8	0.091	0.094	○
1882169	27 IL 3 STACME	3	27	5/8	0.110	0.114	○

◈ Stock Itens | 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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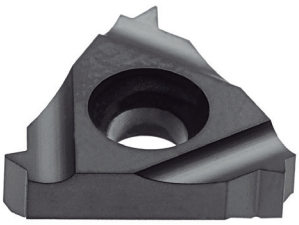

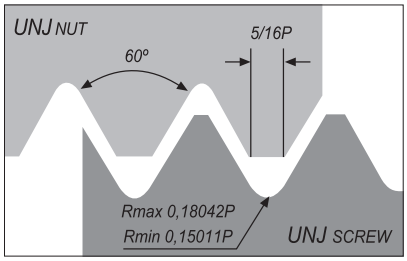

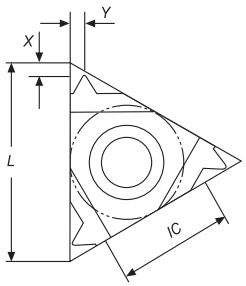

External

Geometry code (1) Código	Reference Referência Referencia	Pitch TPI	L (mm)	Dimensions | Dimensões | Dimensiones (in) IC	X	Y	Stock - Grade Code (2) (68) PH6920
1883790	11 ER 48 UNJ	48	11	1/4	0.024	0.024	○
1883791	11 ER 44 UNJ	44	11	1/4	0.024	0.024	○
1883792	11 ER 40 UNJ	40	11	1/4	0.024	0.024	○
1883793	11 ER 36 UNJ	36	11	1/4	0.024	0.024	○
1882318	11 ER 32 UNJ	32	11	1/4	0.024	0.024	○
1882319	11 ER 28 UNJ	28	11	1/4	0.024	0.024	○
1882320	11 ER 24 UNJ	24	11	1/4	0.028	0.031	○
1882321	11 ER 20 UNJ	20	11	1/4	0.031	0.035	○
1882322	11 ER 18 UNJ	18	11	1/4	0.031	0.039	○
1882323	11 ER 16 UNJ	16	11	1/4	0.031	0.039	○
1882324	11 ER 14 UNJ	14	11	1/4	0.035	0.039	○
1883794	16 ER 48 UNJ	48	16	3/8	0.024	0.024	○
1883795	16 ER 44 UNJ	44	16	3/8	0.024	0.024	○
1883796	16 ER 40 UNJ	40	16	3/8	0.024	0.024	◈
1883797	16 ER 36 UNJ	36	16	3/8	0.024	0.024	◈
1881165	16 ER 32 UNJ	32	16	3/8	0.024	0.024	○
1881164	16 ER 28 UNJ	28	16	3/8	0.024	0.024	○
1881163	16 ER 24 UNJ	24	16	3/8	0.028	0.031	◈
1881162	16 ER 20 UNJ	20	16	3/8	0.031	0.035	○
1881161	16 ER 18 UNJ	18	16	3/8	0.031	0.039	○
1881160	16 ER 16 UNJ	16	16	3/8	0.031	0.039	○
1881159	16 ER 14 UNJ	14	16	3/8	0.039	0.047	○
1881158	16 ER 13 UNJ	13	16	3/8	0.039	0.051	○
1881157	16 ER 12 UNJ	12	16	3/8	0.043	0.055	○
1881156	16 ER 11 UNJ	11	16	3/8	0.043	0.059	○
1881155	16 ER 10 UNJ	10	16	3/8	0.043	0.059	○
1881154	16 ER 9 UNJ	9	16	3/8	0.047	0.063	○
1881153	16 ER 8 UNJ	8	16	3/8	0.047	0.063	◈
1883798	11 EL 48 UNJ	48	11	1/4	0.024	0.024	○
1883799	11 EL 44 UNJ	44	11	1/4	0.024	0.024	○
1883800	11 EL 40 UNJ	40	11	1/4	0.024	0.024	○
1883801	11 EL 36 UNJ	36	11	1/4	0.024	0.024	○
1882325	11 EL 32 UNJ	32	11	1/4	0.024	0.024	○
1882326	11 EL 28 UNJ	28	11	1/4	0.024	0.024	○
1882327	11 EL 24 UNJ	24	11	1/4	0.028	0.031	○
1882328	11 EL 20 UNJ	20	11	1/4	0.031	0.035	○

◈ Stock Itens | 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) Código	Reference Referência Referencia	Pitch TPI	L (mm)	Dimensions | Dimensões | Dimensiones (in) IC	X	Y	Stock - Grade Code (2) (68) PH6920
1882329	11 EL 18 UNJ	18	11	1/4	0.031	0.039	○
1882330	11 EL 16 UNJ	16	11	1/4	0.031	0.039	○
1882331	11 EL 14 UNJ	14	11	1/4	0.035	0.039	○
1883802	16 ER 48 UNJ	48	16	3/8	0.024	0.024	○
1883803	16 ER 44 UNJ	44	16	3/8	0.024	0.024	○
1883804	16 ER 40 UNJ	40	16	3/8	0.024	0.024	○
1883805	16 ER 36 UNJ	36	16	3/8	0.024	0.024	○
1881179	16 EL 32 UNJ	32	16	3/8	0.024	0.024	◈
1881178	16 EL 28 UNJ	28	16	3/8	0.024	0.024	◈
1881177	16 EL 24 UNJ	24	16	3/8	0.028	0.031	◈
1881176	16 EL 20 UNJ	20	16	3/8	0.031	0.035	○
1881175	16 EL 18 UNJ	18	16	3/8	0.031	0.039	○
1881174	16 EL 16 UNJ	16	16	3/8	0.031	0.039	○
1881173	16 EL 14 UNJ	14	16	3/8	0.039	0.047	○
1881172	16 EL 13 UNJ	13	16	3/8	0.039	0.051	○
1881170	16 EL 12 UNJ	12	16	3/8	0.043	0.055	◈
1881169	16 EL 11 UNJ	11	16	3/8	0.043	0.059	◈
1881168	16 EL 10 UNJ	10	16	3/8	0.043	0.059	○
1881167	16 EL 9 UNJ	9	16	3/8	0.047	0.063	○
1881166	16 EL 8 UNJ	8	16	3/8	0.047	0.063	○

◈ Stock Itens | 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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Internal

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions | Dimensões | Dimensiones (in)			Stock - Grade Code (2)
		TPI		IC	X	Y	(68) PH6920
1883806	11 IR 48 UNJ	48	11	1/4	0.024	0.024	○
1883807	11 IR 44 UNJ	44	11	1/4	0.024	0.024	○
1883808	11 IR 40 UNJ	40	11	1/4	0.024	0.024	○
1883809	11 IR 36 UNJ	36	11	1/4	0.024	0.024	○
1881198	11 IR 32 UNJ	32	11	1/4	0.024	0.024	○
1881197	11 IR 28 UNJ	28	11	1/4	0.024	0.024	◈
1881196	11 IR 24 UNJ	24	11	1/4	0.028	0.031	○
1881195	11 IR 20 UNJ	20	11	1/4	0.031	0.035	◈
1881194	11 IR 18 UNJ	18	11	1/4	0.031	0.039	◈
1881193	11 IR 16 UNJ	16	11	1/4	0.031	0.039	◈
1881192	11 IR 14 UNJ	14	11	1/4	0.035	0.039	◈
1883810	16 IR 48 UNJ	48	16	3/8	0.024	0.024	○
1883811	16 IR 44 UNJ	44	16	3/8	0.024	0.024	○
1883812	16 IR 40 UNJ	40	16	3/8	0.024	0.024	○
1883813	16 IR 36 UNJ	36	16	3/8	0.024	0.024	○
1881191	16 IR 32 UNJ	32	16	3/8	0.024	0.024	○
1881190	16 IR 28 UNJ	28	16	3/8	0.024	0.024	○
1881189	16 IR 24 UNJ	24	16	3/8	0.028	0.031	○
1881188	16 IR 20 UNJ	20	16	3/8	0.031	0.035	○
1881187	16 IR 18 UNJ	18	16	3/8	0.031	0.039	○
1881186	16 IR 16 UNJ	16	16	3/8	0.031	0.039	○
1881185	16 IR 14 UNJ	14	16	3/8	0.039	0.047	◈
1883814	16 IR 13 UNJ	13	16	3/8	0.039	0.051	◈
1881184	16 IR 12 UNJ	12	16	3/8	0.043	0.055	◈
1881183	16 IR 11 UNJ	11	16	3/8	0.043	0.059	◈
1881182	16 IR 10 UNJ	10	16	3/8	0.043	0.059	◈
1881181	16 IR 9 UNJ	9	16	3/8	0.047	0.063	◈
1881180	16 IR 8 UNJ	8	16	3/8	0.047	0.063	◈
1883815	11 IL 48 UNJ	48	11	1/4	0.024	0.024	◈
1883816	11 IL 44 UNJ	44	11	1/4	0.024	0.024	○
1883817	11 IL 40 UNJ	40	11	1/4	0.024	0.024	◈
1883818	11 IL 36 UNJ	36	11	1/4	0.024	0.024	○
1881217	11 IL 32 UNJ	32	11	1/4	0.024	0.024	○
1881216	11 IL 28 UNJ	28	11	1/4	0.024	0.024	○
1881215	11 IL 24 UNJ	24	11	1/4	0.028	0.031	○
1881214	11 IL 20 UNJ	20	11	1/4	0.031	0.035	○
1881213	11 IL 18 UNJ	18	11	1/4	0.031	0.039	◈
1881188	11 IL 16 UNJ	16	11	1/4	0.031	0.039	○
1881211	11 IL 14 UNJ	14	11	1/4	0.035	0.039	○
1883819	16 IL 48 UNJ	48	16	3/8	0.024	0.024	○
1883820	16 IL 44 UNJ	44	16	3/8	0.024	0.024	○
1883821	16 IL 40 UNJ	40	16	3/8	0.024	0.024	◈
1883822	16 IL 36 UNJ	36	16	3/8	0.024	0.024	○
1881210	16 IL 32 UNJ	32	16	3/8	0.024	0.024	○
1881209	16 IL 28 UNJ	28	16	3/8	0.024	0.024	○
1881208	16 IL 24 UNJ	24	16	3/8	0.028	0.031	○

◈ Stock Itens | 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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palbit PILOT Precision Products **Pilot Precision Products** | 15 Merrigan Way | South Deerfield, MA 01373

Internal

Geometry code (1) Código	Reference Referência Referencia	Pitch	L (mm)	Dimensions | Dimensões | Dimensiones (in)			Stock - Grade Code (2)
		TPI		IC	X	Y	(68) PH6920
1881207	16 IL 20 UNJ	20	16	3/8	0.031	0.035	○
1881206	16 IL 18 UNJ	18	16	3/8	0.031	0.039	○
1881205	16 IL 16 UNJ	16	16	3/8	0.031	0.039	○
1881204	16 IL 14 UNJ	14	16	3/8	0.039	0.047	○
1883823	16 IR 13 UNJ	13	16	3/8	0.039	0.051	○
1881203	16 IL 12 UNJ	12	16	3/8	0.043	0.055	◈
1881202	16 IL 11 UNJ	11	16	3/8	0.043	0.059	◈
1881201	16 IL 10 UNJ	10	16	3/8	0.043	0.059	◈
1881200	16 IL 9 UNJ	9	16	3/8	0.047	0.063	◈
1881199	16 IL 8 UNJ	8	16	3/8	0.047	0.063	◈

◈ Stock Itens | 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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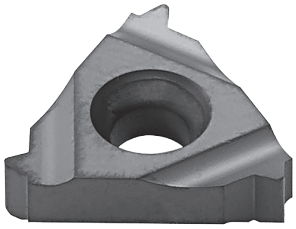

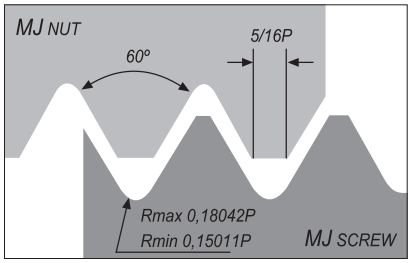

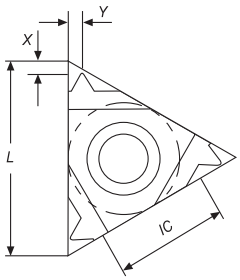

External

Geometry code (1) Código	Reference Referência Referencia	Pitch TPI	L (mm)	Dimensions | Dimensões | Dimensiones (in) IC	X	Y	Stock - Grade Code (2) (68) PH6920
1881067	16 ER 1.0 MJ	1.0	16	3/8	0.028	0.031	○
1881068	16 ER 1.25 MJ	1.25	16	3/8	0.031	0.035	○
1881069	16 ER 1.5 MJ	1.5	16	3/8	0.031	0.039	○
1881070	16 ER 2.0 MJ	2.0	16	3/8	0.039	0.051	○

Stock Itens | 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) Código	Reference Referência Referencia	Pitch TPI	L (mm)	Dimensions | Dimensões | Dimensiones (in) IC	X	Y	Stock - Grade Code (2) (68) PH6920
1882370	11 IR 1.0 MJ	1.0	11	1/4	0.028	0.031	○
1882371	11 IR 1.25 MJ	1.25	11	1/4	0.031	0.035	○
1882372	11 IR 1.5 MJ	1.5	11	1/4	0.031	0.039	○
1883824	11 IR 2.0 MJ	2.0	11	1/4	0.035	0.039	○
1881071	16 IR 1.0 MJ	1.0	16	3/8	0.028	0.031	○
1881072	16 IR 1.25 MJ	1.25	16	3/8	0.031	0.035	○
1881073	16 IR 1.5 MJ	1.5	16	3/8	0.031	0.039	○
1881074	16 IR 2.0 MJ	2.0	16	3/8	0.039	0.051	○

Stock Itens | 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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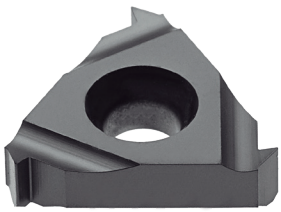

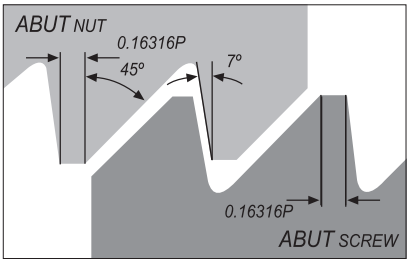

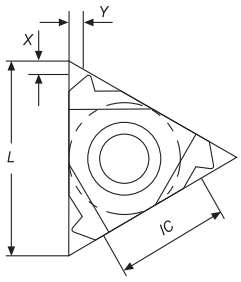

External

Geometry code (1) Código	Reference Referência Referencia	Pitch TPI	L (mm)	Dimensions | Dimensões | Dimensiones (in) IC	X	Y	Stock - Grade Code (2) (68) PH6920
1882298	11 ER 20 ABUT	20	11	1/4	0.039	0.051	○
1882299	11 ER 16 ABUT	16	11	1/4	0.039	0.059	○
1881007	16 ER 20 ABUT	20	16	3/8	0.039	0.051	○
1880754	16 ER 16 ABUT	16	16	3/8	0.039	0.059	◈
1881006	16 ER 12 ABUT	12	16	3/8	0.055	0.079	○
1881005	16 ER 10 ABUT	10	16	3/8	0.059	0.091	○
1881008	22 ER 8 ABUT	8	22	1/2	0.083	0.130	○
1881009	22 ER 6 ABUT	6	22	1/2	0.083	0.134	○
1882300	11 EL 20 ABUT	20	11	1/4	0.039	0.055	○
1882301	11 EL 16 ABUT	16	11	1/4	0.043	0.063	○
1882302	16 EL 20 ABUT	20	16	3/8	0.039	0.051	○
1882303	16 EL 16 ABUT	16	16	3/8	0.039	0.059	○
1882304	16 EL 12 ABUT	12	16	3/8	0.055	0.079	○
1882305	16 EL 10 ABUT	10	16	3/8	0.059	0.091	○
1882306	22 EL 8 ABUT	8	22	1/2	0.083	0.130	○
1882307	22 EL 6 ABUT	6	22	1/2	0.083	0.134	○

◈ Stock Itens | 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) Código	Reference Referência Referencia	Pitch TPI	L (mm)	Dimensions | Dimensões | Dimensiones (in) IC	X	Y	Stock - Grade Code (2) (68) PH6920
1882308	11 IR 20 ABUT	20	11	1/4	0.039	0.055	○
1882309	11 IR 16 ABUT	16	11	1/4	0.043	0.063	○
1881015	16 IR 20 ABUT	20	16	3/8	0.039	0.051	◈
1881014	16 IR 16 ABUT	16	16	3/8	0.039	0.059	○
1881013	16 IR 12 ABUT	12	16	3/8	0.055	0.079	○
1881012	16 IR 10 ABUT	10	16	3/8	0.059	0.091	○
1881011	22 IR 8 ABUT	8	22	1/2	0.083	0.130	○
1881010	22 IR 6 ABUT	6	22	1/2	0.083	0.134	○
1882310	11 IL 20 ABUT	20	11	1/4	0.039	0.055	○
1882311	11 IL 16 ABUT	16	11	1/4	0.043	0.063	○
1882312	16 IL 20 ABUT	20	16	3/8	0.039	0.051	◈
1882313	16 IL 16 ABUT	16	16	3/8	0.039	0.059	○
1882314	16 IL 12 ABUT	12	16	3/8	0.055	0.079	○
1882315	16 IL 10 ABUT	10	16	3/8	0.059	0.091	○
1882316	22 IL 8 ABUT	8	22	1/2	0.083	0.130	○
1882317	22 IL 6 ABUT	6	22	1/2	0.083	0.134	○

◈ Stock Itens | 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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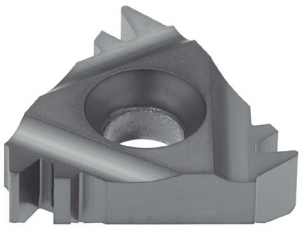
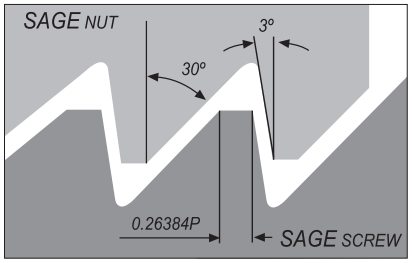
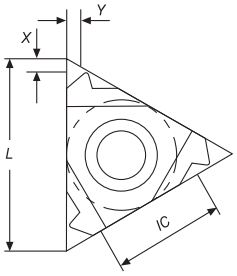
METRIC BUTTRESS SAGENGEWINDE (DIN 513:1985) SAW THREAD







External

Geometry code (1) Código	Reference Referência Referencia	Pitch TPI	L (mm)	Dimensions | Dimensões | Dimensiones (in) IC	X	Y	Stock - Grade Code (2) (68) PH6920
1882384	16 ER 2.0 SAGE	2.0	16	3/8	0.043	0.063	○
1882385	22 ER 3.0 SAGE	3.0	22	1/2	0.059	0.094	○
1882386	22 ER 4.0 SAGE	4.0	22	1/2	0.075	0.122	○
1882387	16 EL 2.0 SAGE	2.0	16	3/8	0.043	0.063	○
1882388	22 EL 3.0 SAGE	3.0	22	1/2	0.059	0.094	○
1882389	22 EL 4.0 SAGE	4.0	22	1/2	0.075	0.122	○

Stock Itens | 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) Código	Reference Referência Referencia	Pitch TPI	L (mm)	Dimensions | Dimensões | Dimensiones (in) IC	X	Y	Stock - Grade Code (2) (68) PH6920
1882390	16 IR 2.0 SAGE	2.0	16	3/8	0.047	0.067	○
1882391	22 IR 3.0 SAGE	3.0	22	1/2	0.075	0.114	○
1882392	22 IR 4.0 SAGE	4.0	22	1/2	0.091	0.138	○
1882393	16 IL 2.0 SAGE	2.0	16	3/8	0.047	0.067	○
1882394	22 IL 3.0 SAGE	3.0	22	1/2	0.075	0.114	○
1882395	22 IL 4.0 SAGE	4.0	22	1/2	0.091	0.138	○

Stock Itens | 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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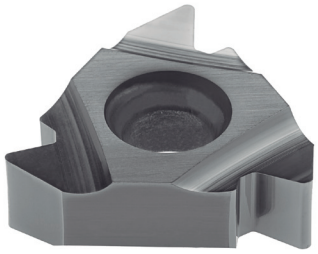
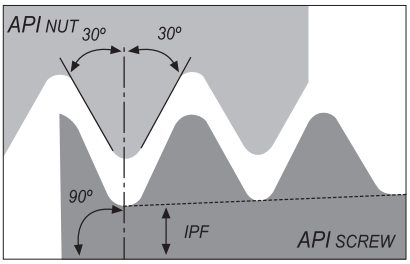
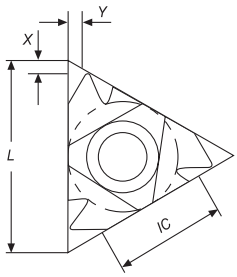
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

API | API SPEC 7:2001 (0.040 | 0.038R | 0.050)







External

Geometry code (1) Código	Reference Referência Referencia	Pitch TPI	Thread	Taper IPF	Size	L (mm)	Dimensions | Dimensões | Dimensiones (in) IC	X	Y	Stock - Grade Code (2) (68) PH6920
1881326	22 ER 5.00 API 403	5	V-0.040	3	2 3/8" - 4 1/2" REG	22	1/2	0.071	0.098	○
1881322	22 ER 4.00 API 382	4	V-0.038R	2	NC23-NC50	22	1/2	0.079	0.102	◎
1881323	22 ER 4.00 API 383	4	V-0.038R	3	NC56-NC77	1/2	1/2	0.078	0.102	◎
1881324	22 ER 4.00 API 502	4	V-0.050	2	6 5/8" REG	22	1/2	0.075	0.110	◎
1882396	27 ER 5.00 API 403	5	V-0.040	3	2 3/8" - 4 1/2" REG	27	5/8	0.075	0.106	○
1882397	27 ER 4.00 API 382	4	V-0.038R	2	NC23-NC50	27	5/8	0.083	0.110	○
1882398	27 ER 4.00 API 383	4	V-0.038R	3	NC56-NC77	27	5/8	0.083	0.110	○
1882399	27 ER 4.00 API 502	4	V-0.050	2	6 5/8" REG	27	5/8	0.079	0.118	○

◎ Stock Itens | 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) Código	Reference Referência Referencia	Pitch TPI	Thread	Taper IPF	Size	L (mm)	Dimensions | Dimensões | Dimensiones (in) IC	X	Y	Stock - Grade Code (2) (68) PH6920
1881335	22 IR 5.00 API 403	5	V-0.040	3	2 3/8" - 4 1/2" REG	22	1/2	0.071	0.098	◎
1881331	22 IR 4.00 API 382	4	V-0.038R	2	NC23-NC50	22	1/2	0.079	0.102	◎
1881333	22 IR 4.00 API 502	4	V-0.050	2	6 5/8" REG	22	1/2	0.075	0.110	◎
1882401	27 IR 5.00 API 403	5	V-0.040	3	2 3/8" - 4 1/2" REG	27	5/8	0.075	0.106	○
1882402	27 IR 4.00 API 382	4	V-0.038R	2	NC23-NC50	27	5/8	0.083	0.110	○
1882403	27 IR 4.00 API 383	4	V-0.038R	3	NC56-NC77	27	5/8	0.083	0.110	○
1882404	27 IR 4.00 API 502	4	V-0.050	2	6 5/8" REG	27	5/8	0.079	0.118	○
1882405	27 IR 4.00 API 503	4	V-0.050	3	5 1/2" . 7 5/8" . 8 5/8" REG	27	5/8	0.079	0.118	○

◎ Stock Itens | 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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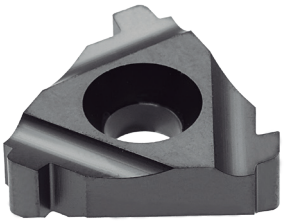

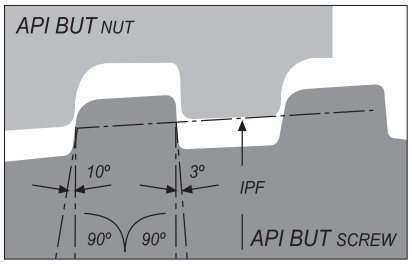

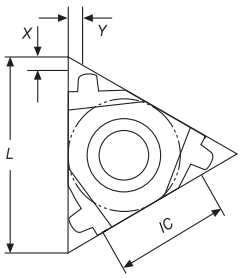

External

Geometry code (1) Código	Reference Referência Referencia	Pitch	Taper	Size	L	Dimensions | Dimensões | Dimensiones (in)			Stock - Grade Code (2)
		TPI	IPF		(mm)	IC	X	Y	(68) PH6920
1881327	22 ER 5 BUT 0.75	5	0.75	4 1/2" - 13 3/8"	22	1/2	0.087	0.094	◈
1881328	22 ER 5 BUT 1.00	5	1.00	16" - 20"	22	1/2	0.091	0.094	◈

◈ Stock Itens | 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) Código	Reference Referência Referencia	Pitch	Taper	Size	L	Dimensions | Dimensões | Dimensiones (in)			Stock - Grade Code (2)
		TPI	IPF		(mm)	IC	X	Y	(68) PH6920
1881336	22 IR 5 BUT 0.75	5	0.75	4 1/2" - 13 3/8"	22	1/2	0.087	0.094	○
1881337	22 IR 5 BUT 1.00	5	1.00	16" - 20"	22	1/2	0.091	0.094	○

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

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

Technical Data
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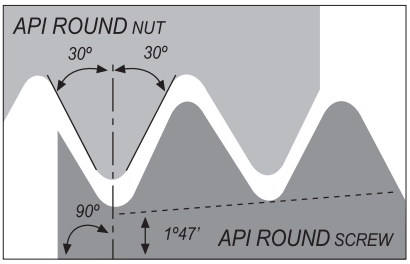
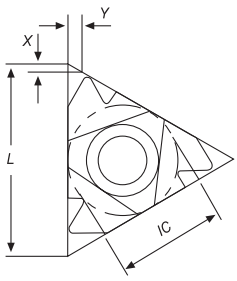
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

API ROUND CASING & TUBING | API SPEC 5B:2008







External

Geometry code (1) Código	Reference Referência Referencia	Pitch	Taper	L	Dimensions | Dimensões | Dimensiones (in)			Stock - Grade Code (2)
		TPI	IPF	(mm)	IC	X	Y	(68) PH6920
1881318	16 ER 10 API RD	10	0.75	16	3/8	0.059	0.055	⊛
1881320	16 ER 8 API RD	8	0.75	16	3/8	0.051	0.063	○

⊛ Stock Itens | 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) Código	Reference Referência Referencia	Pitch	Taper	L	Dimensions | Dimensões | Dimensiones (in)			Stock - Grade Code (2)
		TPI	IPF	(mm)	IC	X	Y	(68) PH6920
1881319	16 IR 10 API RD	10	0.75	16	3/8	0.059	0.055	○
1881321	16 IR 8 API RD	8	0.75	16	3/8	0.051	0.063	⊛

⊛ Stock Itens | 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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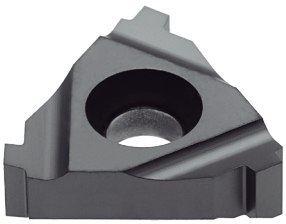

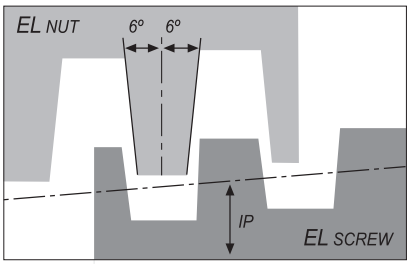

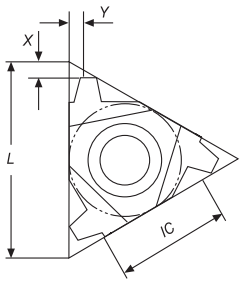

External

Geometry code (1) Código	Reference Referência Referencia	Pitch	Taper	Size	L	Dimensions | Dimensões | Dimensiones (in)			Stock - Grade Code (2)
		TPI	IPF		(mm)	IC	X	Y	(68) PH6920
1881329	22 ER 6 EL 1.5	6	1.5	5" - 7 5/8"	22	1/2	0.075	0.075	◈
1881330	22 ER 5 EL 1.25	5	1.25	8 5/8" - 10 3/4"	22	1/2	0.094	0.091	◈

◈ Stock Itens | 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) Código	Reference Referência Referencia	Pitch	Taper	Size	L	Dimensions | Dimensões | Dimensiones (in)			Stock - Grade Code (2)
		TPI	IPF		(mm)	IC	X	Y	(68) PH6920
1881339	22 IR 6 EL 1.5	6	1.5	5" - 7 5/8"	22	1/2	0.075	0.075	◯
1881338	22 IR 5 EL 1.25	5	1.25	8 5/8" - 10 3/4"	22	1/2	0.094	0.091	◈

◈ Stock Itens | 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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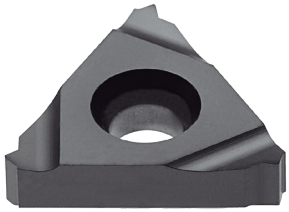
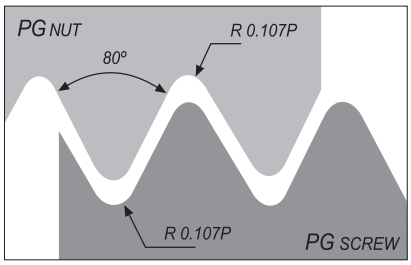
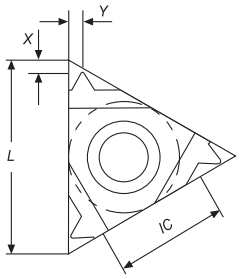
PILOT Precision Products
Pilot Precision Products | 15 Merrigan Way | South Deerfield, MA 01373

PG | DIN 40430; 1971







External

Geometry code (1) Código	Reference Referência Referencia	Pitch TPI	Size	L (mm)	Dimensions | Dimensões | Dimensiones (in) IC	X	Y	Stock - Grade Code (2) (68) PH6920
1882290	16 ER 20 PG	20	PG7	16	3/8	0.028	0.031	○
1882291	16 ER 18 PG	18	PG9, PG11, PG13.5, PG16	16	3/8	0.031	0.035	○
1882292	16 ER 16 PG	16	PG21, PG29, PG36, PG42, PG48	16	3/8	0.031	0.039	○

Stock Itens | 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) Código	Reference Referência Referencia	Pitch TPI	Size	L (mm)	Dimensions | Dimensões | Dimensiones (in) IC	X	Y	Stock - Grade Code (2) (68) PH6920
1883825	08 IR 20 PG	20	PG7	8	3/16	0.024	0.028	○
1882294	11 IR 18 PG	18	PG9, PG11, PG13.5, PG16	11	1/4	0.031	0.035	○
1882296	16 IR 18 PG	18	PG9, PG11, PG13.5, PG16	16	3/8	0.031	0.035	○
1882297	16 IR 16 PG	16	PG21, PG29, PG36, PG42, PG48	16	3/8	0.031	0.039	○

Stock Itens | 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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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 (L - 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

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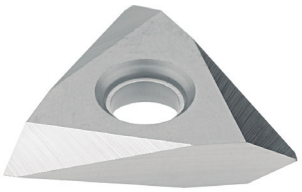
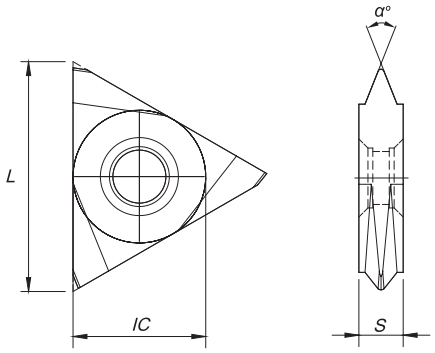
TNMC (TANGENTIAL INSERTS)



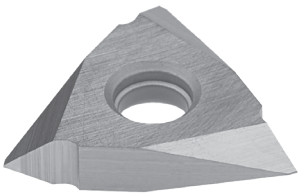


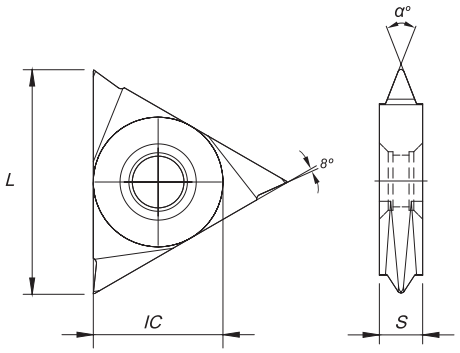
Geometry code (1) Código	Reference Referência Referencia	L (mm)	Dimensions | Dimensões | Dimensiones (in)		Stock - Grade Code (2)
			IC	S	(68) PH6920
1110401	TNMC 1603 55	16.50	3/8	0.125	◯
1110402	TNMC 1603 60	16.50	3/8	0.125	◯
1110530	TNMC 2204 55	22.00	1/2	0.187	◯
1110404	TNMC 2204 60	22.00	1/2	0.187	◯

Stock Itens | 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) Código	Reference Referência Referencia	L (mm)	Dimensions | Dimensões | Dimensiones (in)		Stock - Grade Code (2)
			IC	S	(68) PH6920
1110481	TPMC 1603 55	16.50	3/8	0.125	◯
1110480	TPMC 1603 60	16.50	3/8	0.125	◯
1110541	TPMC 2204 55	22.00	1/2	0.187	◯
1110542	TPMC 2204 60	22.00	1/2	0.187	◯

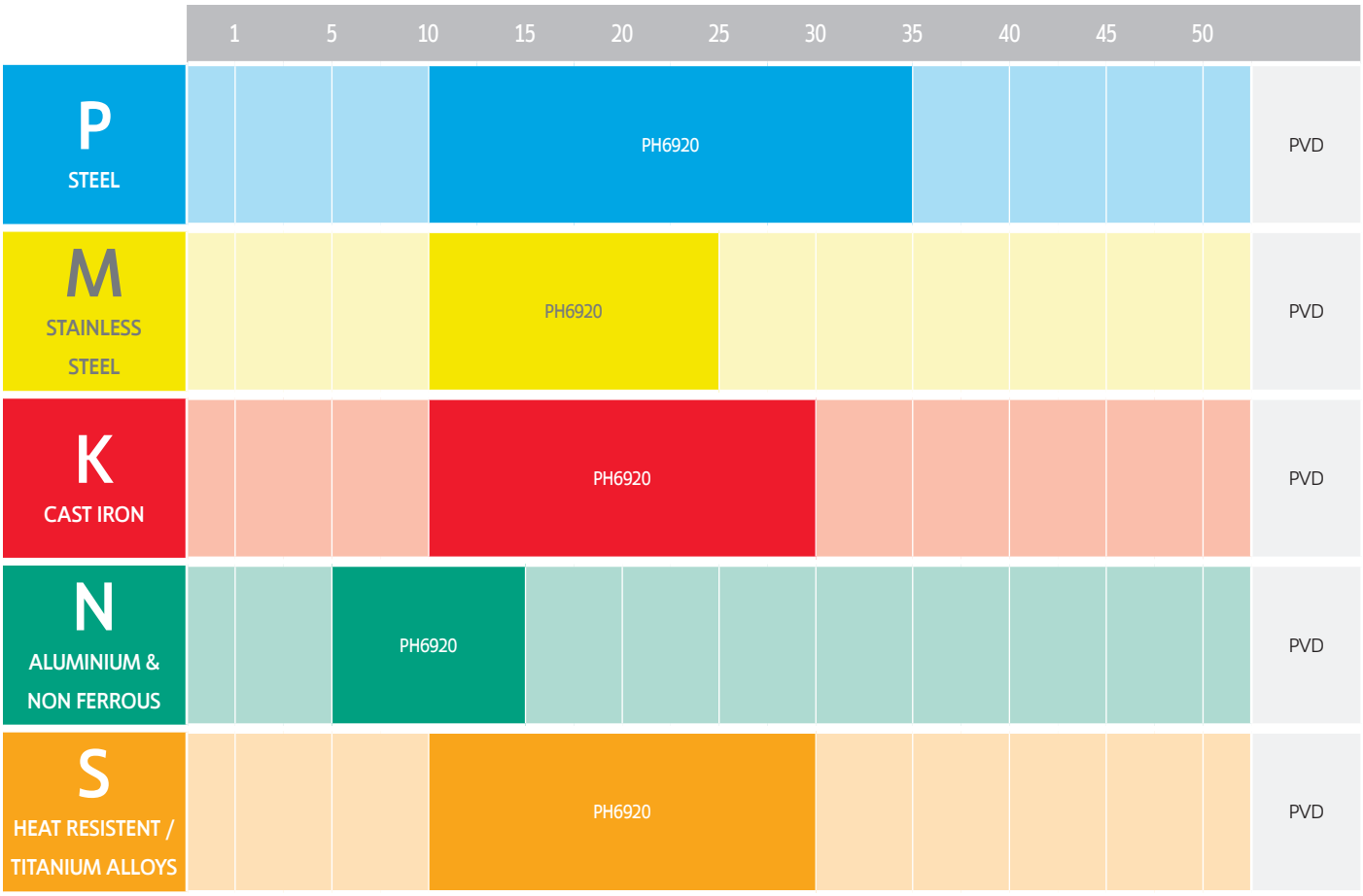
Stock Itens | Itens de stock ◯ Available under request | Disponível sobre consulta | Disponible bajo consulta

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

Technical Data
page E - 658

THREADING TECHNICAL DATA

THREADING GRADES | Graus de roscagem | Calidades para roscado



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GRADES DESCRIPTION | Descrição de graus | Descripción de calidades

PH6920

P10-P35
M10-M25
K10-K30
N05-N15
S10-S30

Multi purpose PVD coated grade with good balance between wear resistance and toughness.

RECOMMENDED GRADES AND CUTTING SPEEDS (SFM)

Graus recomendados e velocidades de corte (SFM) | Calidades recomendadas y velocidades de corte (SFM)

ISO	Material	Hardness HB	Coated PH6920 Vc (SFM)
P	UNALLOYED STEEL	130	394-656
	LOW-ALLOYED STEEL	200	361-591
	HIGH-ALLOY STEEL	240	328-558
	STEEL CASTINGS	270	230-394
	HEAT TREATED STEEL	400	164-296
M	300 STAINLESS STEEL: (303,304,316)	200	230-460
	400 STAINLESS STEEL: (420,440)	240	263-394
	17-4 PH, 15-5 PH, 13-8MO PH	400	164-361
K	GREY CAST IRON	190	230-492
	NODULAR CAST IRON	180	328-460
	MALLEABLE CAST IRON	240	296-492
N	WROUGHT ALUMINIUM: (2024, 6061, 7075...)	80	328-1312
	CAST ALUMINIUM:	90	492-1312
	COPPER & COPPER: BRASS, BRONZE, COPPER SILICON	100	263-591
	NON METALIC: Rubber, Polypropylene, Thermoplastics (PVC), Thermoplastics Plastics (FIBERGLASS), Polyamides		656-1640
S	TITANIUM:		-
	PURE TITANIUM: 99,0Ti		328-492
	ALPHA ALLOYS: Ti5A12.5Sn		132-197
	BETA ALLOYS: Ti 13V11Cr3A1		99-164
	ALPHA - BETA ALLOYS: Ti 6A14V		99-164
	COBALT BASE ALLOYS: STELLITE		66-132
	NIKEL BASE ALLOYS: INCONEL, HASTELLOY, WASPALLOY, KOVAR		66-132
	HIGH TEMPERATURE ALLOYS: IRON BASED: INCOLOY		99-197
H	HARDENED STEEL	56 HRc	-
	HARDENED CAST IRON	50 HRc	-

THREADING TECHNICAL DATA

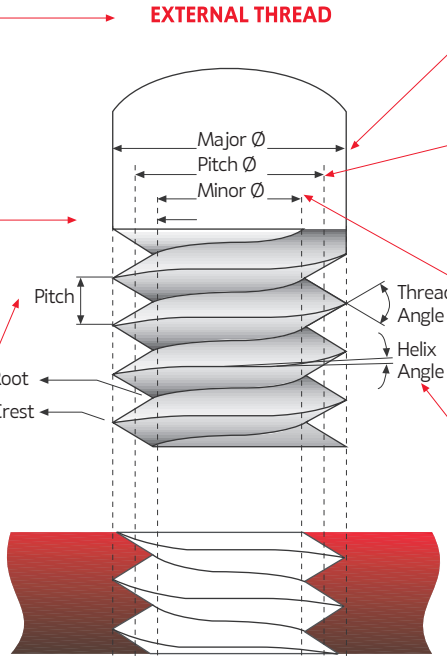
THREAD TERMINOLOGY | Terminologia da roscagem | Terminología del roscado

External Thread
A thread on the external surface of a cylinder screw or cone.

Depth of Thread
The distance between crest and root measured normal to the axis.

Pitch
The distance between corresponding points on adjacent thread forms measured parallel to the axis. This distance can be defined in millimeters or by the tpi (threads per inch), which is he reciprocal of the pitch

Nominal Diameter
The diameter from which the diameter limits are derived by the application of deviation allowances and tolerances.



Internal Thread
A thread on the internal surface of a cylinder or cone.

Major Diameter
The largest diameter of a screw thread.

Pitch Diameter
On a straight thread, the diameter of an imaginary cylinder, the surface of which cuts the thread forms where the width of the thread and groove are equal.

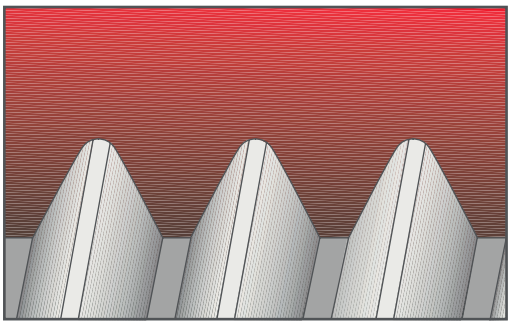
Minor Diameter
The smallest diameter of a screw thread.

Helix Angle
For a straight thread, where the lead of the thread and the pitch diameter circle circumference form a right angled triangle, the helix angle is the angle opposite the lead.

Straight Thread
A thread formed on a cylinder.

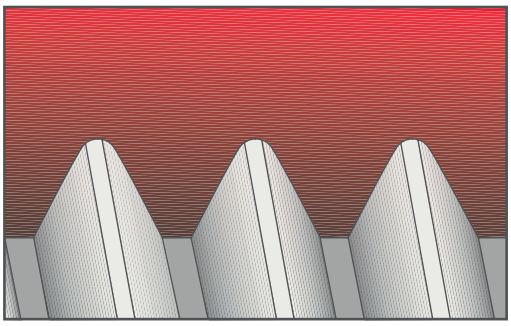
Taper Thread
A thread formed on a cone.

LEFT-HAND THREAD



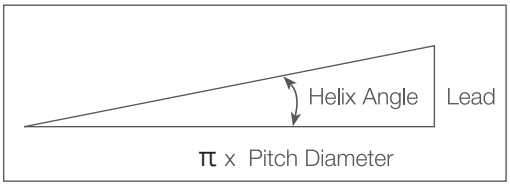
A thread which, when viewed axially, winds in a counter-clockwise and receding direction. All left-hand threads are designated LH.

RIGHT-HAND THREAD



A thread which, when viewed axially, winds in a clockwise and receding direction. Threads are always right hand unless otherwise specified.

THE HELIX ANGLE



Lead
The distance a threaded part moves axially, with respect to a fixed mating part, in one complete revolution.
The lead is equal to the pitch multiplied by the number of thread starts.

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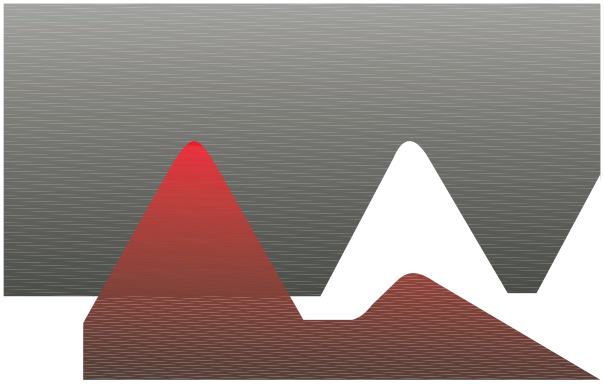
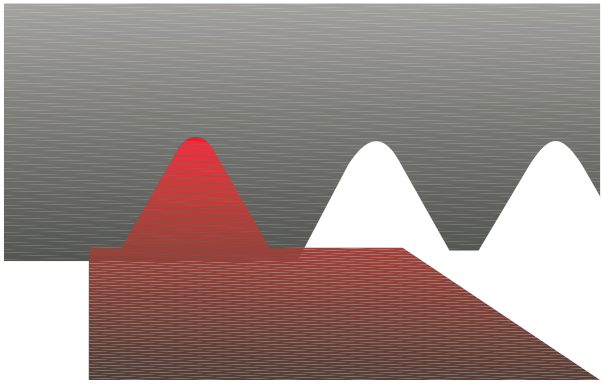
INSERT PROFILE STYLES | Estilos de perfis das pastilhas | Estilos de perfiles de las plaquitas

PARTIAL PROFILE



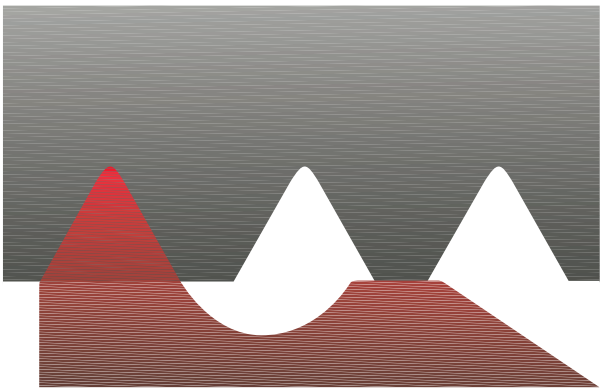
The V partial profile insert cuts without topping the outer diameter of the thread. The same insert can be used for a range of different thread pitches which have a common thread angle.

FULL PROFILE



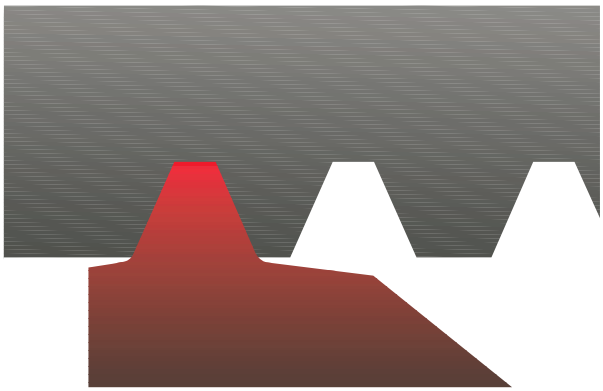
The full profile insert will form a complete thread profile including the crest. For every thread pitch and standard, a separate insert is required.

FULL PROFILE FOR FINE PITCHES



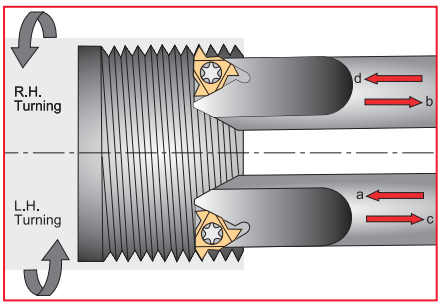
The full profile for Fine Pitches will form a complete thread.
The topping of the outer diameter is generated by second tooth.

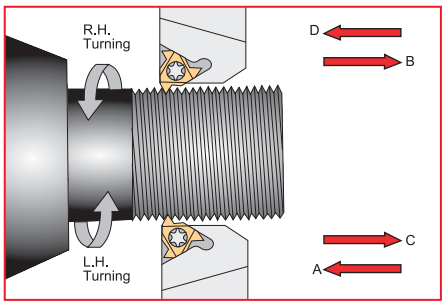
SEMI FULL



The Semi profile insert will form a complete thread including crest radius but without topping the outer diameter.
Mainly used for trapezoidal profiles.

THREAD WORK METHODS | Métodos de trabalho de roscagem | Métodos de trabajo de roscado

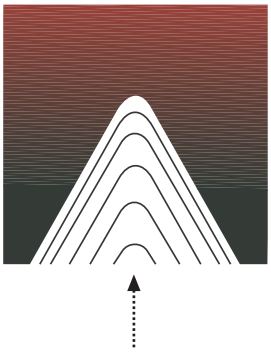




Thread	Inserts & Toolholders	Rotation	Feed Direction	Helix Method	Method
Right Hand external	EX RH	Anticlockwise	Towards chuck	Regular	A
	EX LH	Clockwise	From chuck	Reversed	B
Right Hand Internal	IN RH	Anticlockwise	Towards chuck	Regular	a
	IN LH	Clockwise	From chuck	Reversed	b
Left Hand External	EX LH	Clockwise	Towards chuck	Regular	D
	EX RH	Anticlockwise	From chuck	Reversed	C
Left Hand Internal	IN LH	Clockwise	Towards chuck	Regular	d
	IN RH	Anticlockwise	From chuck	Reversed	c

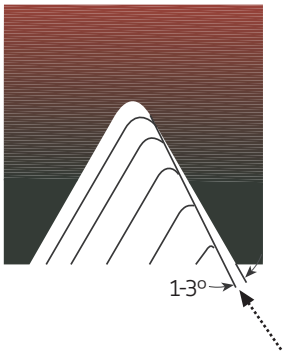
THREAD INFEED METHODS | Métodos de roscagem infeed | Métodos de roscado infeed

RADIAL INFEED



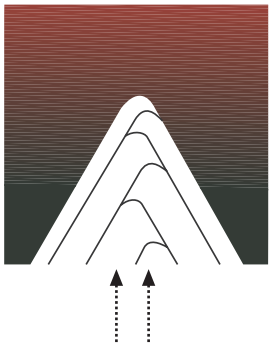
Radial infeed is the simplest and quickest method.
The feed is perpendicular to the turning axis, and both flanks of the insert perform the cutting operation.
Radial infeed is recommended in 3 cases:
• when the pitch is smaller than 16 tpi
• for material with short chips
• for work with hardened material

FLANK INFEED (modified)



Flank infeed is recommended in the following cases:
• when the thread pitch is greater than 16 tpi., using the radial method, the effective cutting edge length is too large, resulting in chatter.
• for TRAPEZ and ACME. The radial method result in three cutting edges, making chip flow very difficult.

ALTERNATE FLANK INFEED



Use of the alternate flank method is recommended especially in large pitches and for materials with long cihps.
This method divides the load equally on both flanks, resulting in equal wear along the cutting edges. Alternate flank infeed requires more complicated programming, and is not available on all lathes.

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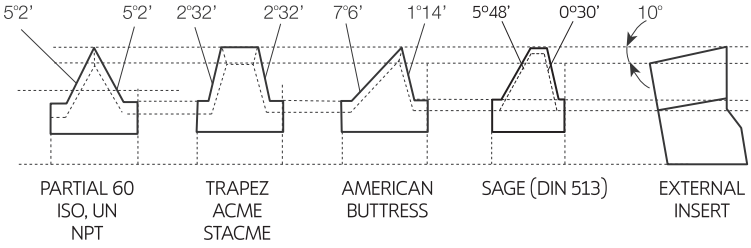
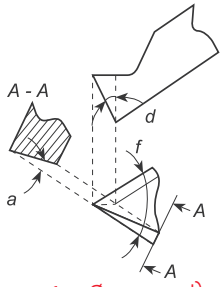
CALCULATE THE HELIX ANGLE AND CHOOSE THE RIGHT ANVIL

Calcular o ângulo de hélice e escolher o colchão adequado | Calcular el ángulo de hélice y elegir el colchón adecuado

FLANK CLEARANCE ANGLE (a)





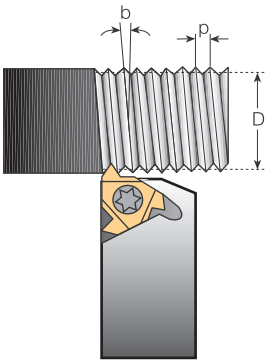
Palbit toolholders are designed to tilt the insert when seated in the toolholder (10° for external, 15° for internal tooling). This results in the differing flank clearance angles, based on the geometry of insert. To ensure that the side of the insert cutting edge will not rub on the workpiece, it is most important that the insert helix angle be correct - especially in profiles with small enclosed flank angles. This correction is provided by Palbit anvils.

$$a = \arctan\left(\tan\frac{\varnothing}{2} \times \tan d\right)$$

Where:
a - flank clearance angle
d - Tilt angle
Ø - Enclosed flank angle

CALCULATING THE HELIX ANGLE (b)

FORMULA

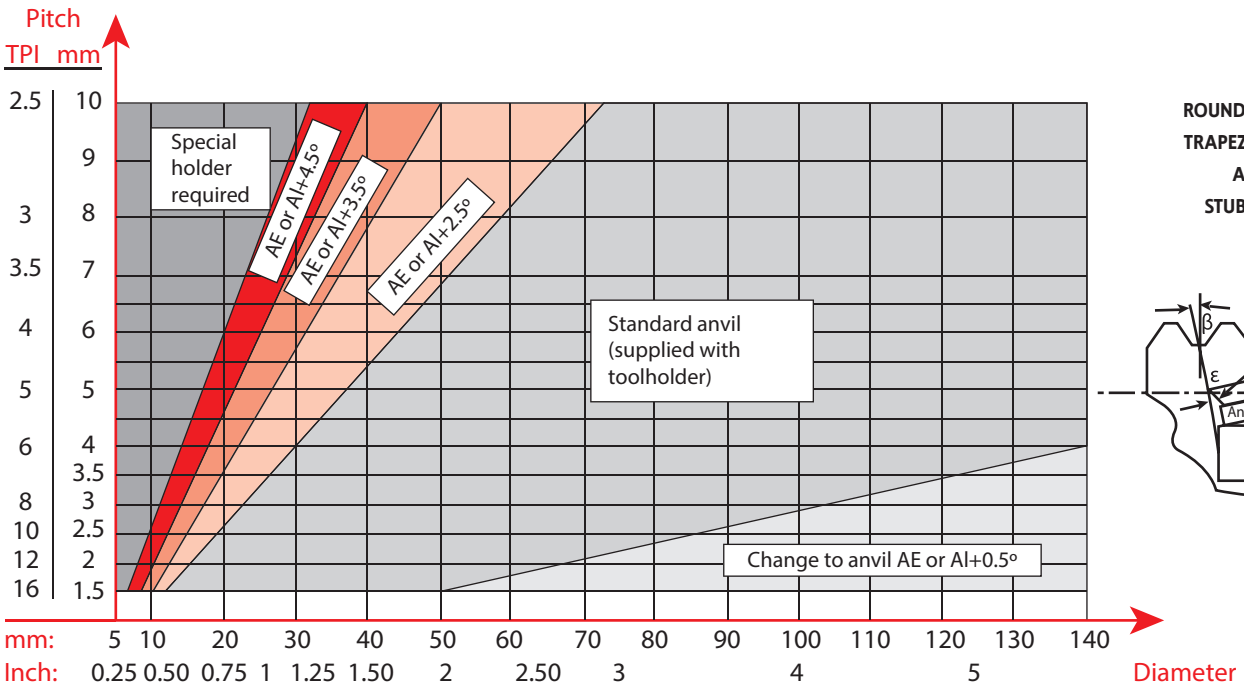


The helix angle is calculated by the following formula:

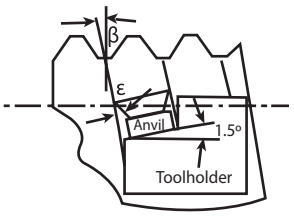
$$b = \arctan\frac{P \times N}{\pi \times D}$$

b - Helix angle (°)
P - Pitch (1/TPI)
N - No. of starts
D - Pitch diameter (in)
Lead = P x N
TPI = Threads per inches

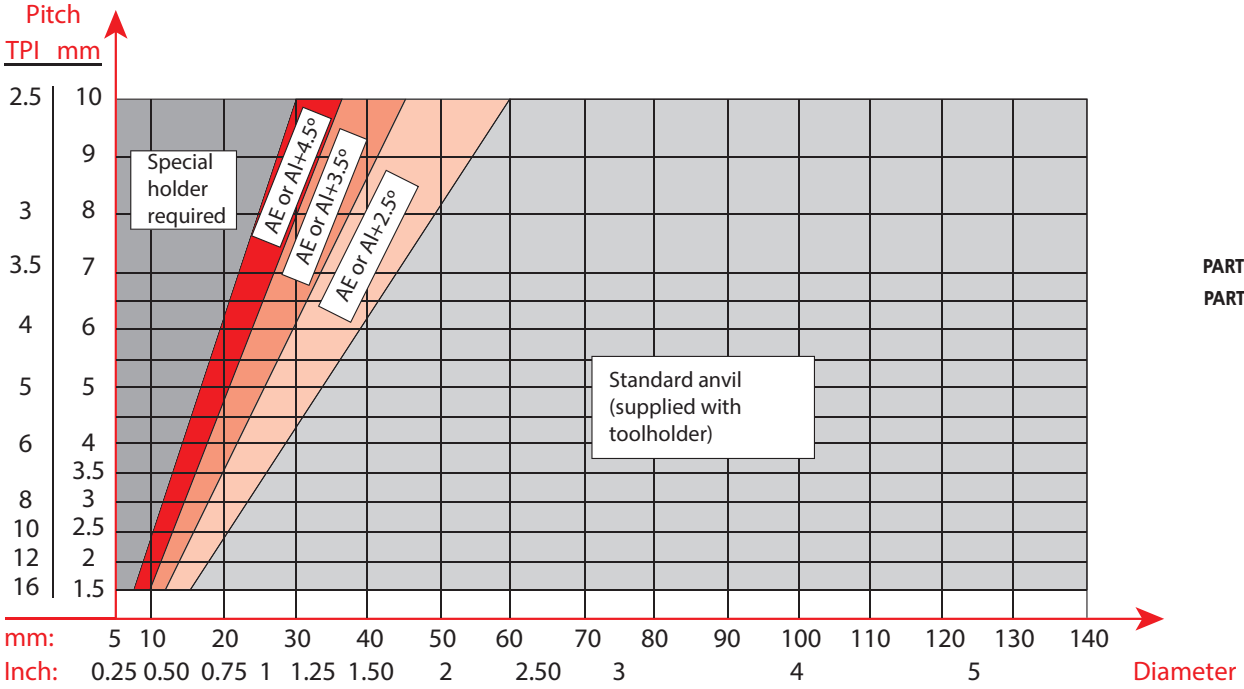
The chart below represents the relation between diameter, pitch and anvil choice. When change of anvil is required, use EA anvils for ER and IL toolholders and IA anvils for IR and EL toolholders.



ROUND (DIN 405)
TRAPEZ (DIN 103)
ACME
STUBE ACME



The majority of applications do not require an anvil change as it can be seen in the chart below. When change is required, use EA anvils for ER and IL toolholders and IA anvils for IR and EL toolholders.



ISO
UN
WHIT.
BSPT
NPT
PARTIAL PROFILE 60°
PARTIAL PROFILE 55°

Note: ER=External Right | IR=Internal Right | EL=External Left | IL=Internal Left

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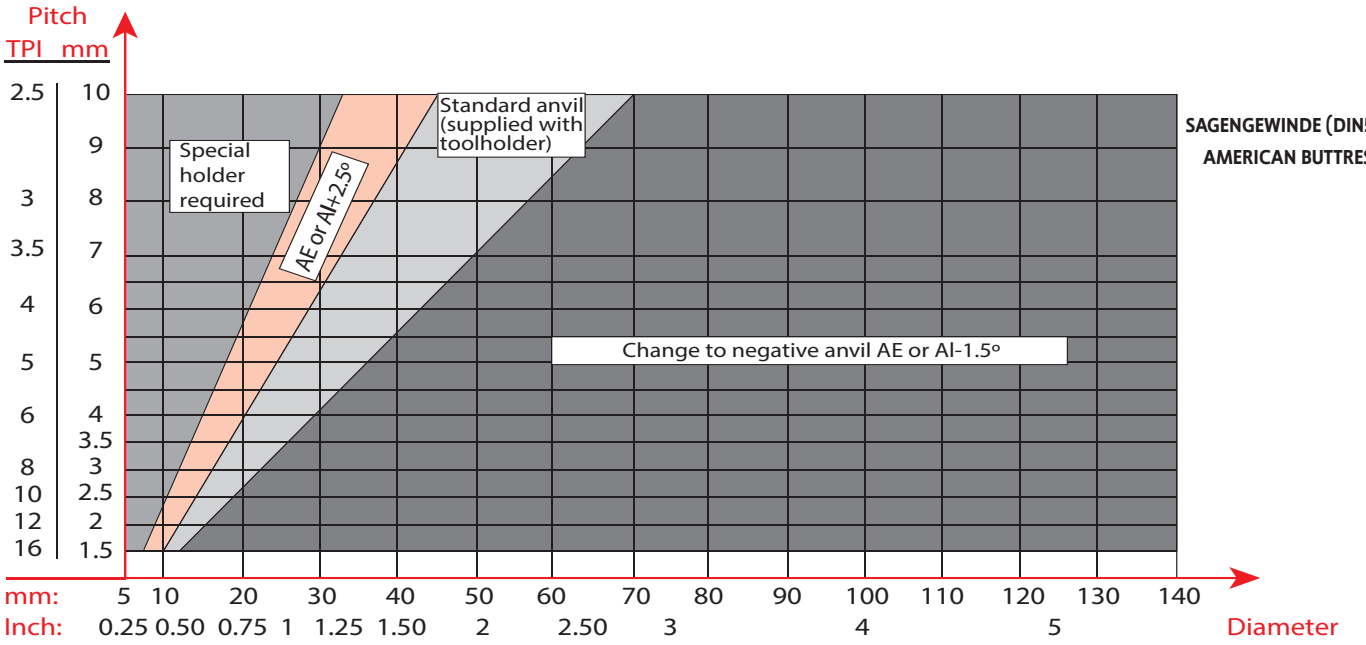
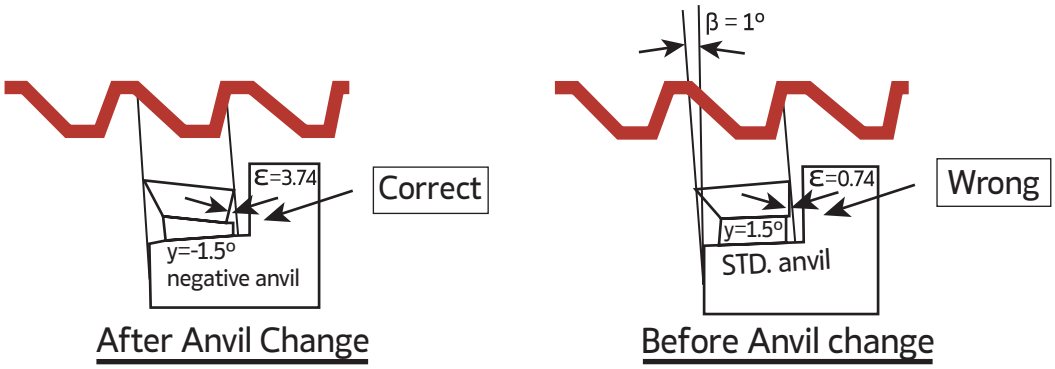
The chart below shows that most applications require an anvil change. In most cases a negative anvil is required. Use EA anvils for ER and IL toolholders and IA anvils for IR and EL toolholders.



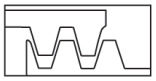
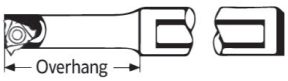
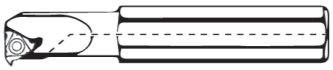
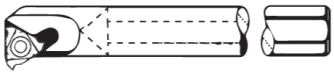


Change from a standard anvil to a negative angle anvil will eliminate the side rubbing.

Note: ER=External Right | IR=Internal Right | EL=External Left | IL=Internal Left

THREADING TECHNICAL DATA

CUTTING CONDITIONS DEPENDS ON | | Condições de corte dependem de | Las condiciones de corte dependen de

Workpiece	Material Type	
	Material Dimension: Diameter and Length	
	Chipflow Character	
	Material Hardeness	
Thread Application	External or Internal	
	Profile Shape	
	Surface Finish	
Machine	Machine Stability	
	Max. RPM	
	Clamping System Stability	
Coolant	Coolant Type	
Holders	Holder Cross Section Area	
	Holder Overhang	
	Through Coolant Option	
	Shank Type: Carbide, Alloy, Carbide Implant	
Partial Profile	Grade	
	Profile Shape: Pitch and Depth	
	Nose Radius	
	Chipbreaker Style	

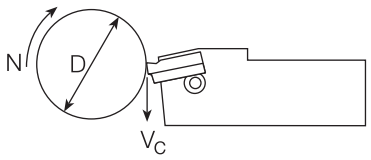
NUMBER OF CUTTING PASSES | Número de passos de corte | Número de pasos de corte

Pitch																
MM	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	8.00
TPI	48	32	24	20	16	14	12	10	8	7	6	5.5	5	4.5	4	3
No. of Passes	4 - 6	4 - 7	4 - 8	5 - 9	6 - 10	7 - 12	7 - 12	8 - 14	9 - 16	10 - 18	11 - 18	11 - 19	12 - 20	12 - 20	12 - 20	15 - 24

CALCULATE THE N (RPM) | Calcular o N (RPM) | Calcular el N (RPM)

$$N = \frac{1000 \times V_C}{\pi \times D}$$

$$V_C = \frac{N \times \pi \times D}{1000}$$



N - Revolution Per Minute [RPM]
V_C - Cutting Speed [SFM]
D - Workpiece Diameter [in]

ANVILS | Colchões | Colchones

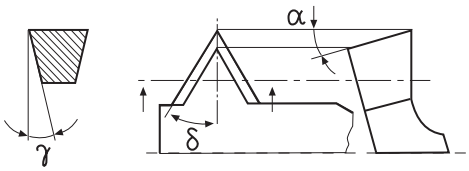
Insert Size		Holder Type	Resultant Helix Angle							
IC	L (mm)		4.5	3.5	2.5	1.5 standard	0.5	0	-0.5	-1.5
3,8"	16	ER/IL	EA16 3P	EA16 2P	EA16 1P	EA16	EA16 1N	EA16 1,5N	EA16 2N	EA16 3N
		EL/IR	IA16 3P	IA16 2P	IA16 1P	IA16	IA16 1N	IA16 1,5N	IA16 2N	IA16 3N
1/2"	22	ER/IL	EA22 3P	EA22 2P	EA22 1P	EA22	EA22 1N	EA22 1,5N	EA22 2N	EA22 3N
		EL/IR	IA22 3P	IA22 2P	IA22 1P	IA22	IA22 1N	IA22 1,5N	IA22 2N	IA22 3N
5/8"	27	ER/IL	EA27 3P	EA27 2P	EA27 1P	EA27	EA27 1N	EA27 1,5N	EA27 2N	EA27 3N
		EL/IR	IA27 3P	IA27 2P	IA27 1P	IA27	IA27 1N	IA27 1,5N	IA27 2N	IA27 3N

FLANK CLEARANCE ANGLE - γ

γ = tg -1[tgα x tgδ]

α = 10° for external

α = 15° for internal



THREADING TECHNICAL DATA - RECOMMENDED N° OF PASSES

ISO METRIC EXTERNAL THREAD

No. of Passes	Pitch (mm)															
	6	5.5	5	4.5	4	3.5	3	2.5	2	1.75	1.5	1.25	1	0.75	0.5	0.35
1	0.45	0.43	0.42	0.39	0.34	0.34	0.27	0.26	0.24	0.23	0.23	0.20	0.19	0.17	0.11	0.10
2	0.37	0.36	0.37	0.33	0.30	0.31	0.23	0.22	0.23	0.21	0.21	0.18	0.16	0.15	0.09	0.08
3	0.33	0.31	0.31	0.29	0.25	0.24	0.20	0.20	0.19	0.16	0.18	0.14	0.13	0.11	0.08	0.06
4	0.28	0.27	0.28	0.25	0.21	0.20	0.18	0.17	0.17	0.14	0.16	0.12	0.10	0.06	0.06	
5	0.26	0.25	0.25	0.23	0.19	0.19	0.17	0.16	0.15	0.12	0.11	0.10	0.06			
6	0.24	0.23	0.23	0.20	0.18	0.17	0.16	0.14	0.12	0.10	0.06	0.06				
7	0.23	0.22	0.21	0.19	0.16	0.16	0.15	0.13	0.10	0.08						
8	0.22	0.20	0.20	0.18	0.15	0.15	0.13	0.12	0.06	0.06						
9	0.20	0.19	0.19	0.16	0.15	0.14	0.12	0.10								
10	0.19	0.18	0.18	0.15	0.14	0.12	0.11	0.06								
11	0.18	0.17	0.16	0.14	0.13	0.10	0.09									
12	0.17	0.16	0.14	0.12	0.12	0.06	0.06									
13	0.16	0.15	0.10	0.10	0.10											
14	0.14	0.12	0.06	0.06	0.06											
15	0.13	0.10														
16	0.10	0.06														
17	0.06															
18																
Total	3.71	3.40	3.10	2.79	2.48	2.18	1.87	1.56	1.26	1.10	0.95	0.80	0.64	0.49	0.34	0.24

ISO METRIC INTERNAL THREAD

No. of Passes	Pitch (mm)															
	6	5.5	5	4.5	4	3.5	3	2.5	2	1.75	1.5	1.25	1	0.75	0.5	0.35
1	0.44	0.43	0.42	0.36	0.32	0.32	0.25	0.25	0.23	0.22	0.22	0.19	0.18	0.16	0.10	0.09
2	0.36	0.34	0.37	0.32	0.27	0.29	0.22	0.21	0.21	0.20	0.20	0.16	0.15	0.14	0.09	0.08
3	0.32	0.29	0.28	0.28	0.22	0.23	0.19	0.19	0.18	0.15	0.17	0.13	0.12	0.10	0.07	0.06
4	0.27	0.24	0.26	0.25	0.20	0.19	0.17	0.16	0.16	0.13	0.15	0.11	0.10	0.06	0.06	
5	0.25	0.23	0.24	0.22	0.19	0.18	0.16	0.15	0.14	0.11	0.10	0.10	0.06			
6	0.23	0.22	0.21	0.19	0.18	0.16	0.16	0.13	0.11	0.09	0.06	0.06				
7	0.22	0.21	0.20	0.18	0.16	0.15	0.14	0.12	0.09	0.08						
8	0.21	0.20	0.19	0.17	0.15	0.14	0.12	0.11	0.06	0.06						
9	0.19	0.18	0.18	0.15	0.14	0.13	0.11	0.09								
10	0.17	0.16	0.16	0.14	0.14	0.11	0.10	0.06								
11	0.16	0.16	0.14	0.12	0.12	0.09	0.08									
12	0.15	0.15	0.12	0.10	0.10	0.06	0.06									
13	0.14	0.14	0.09	0.09	0.09											
14	0.13	0.11	0.06	0.06	0.06											
15	0.11	0.09														
16	0.09	0.06														
17	0.06															
18																
Total	3.50	3.21	2.92	2.63	2.34	2.05	1.76	1.47	1.18	1.04	0.90	0.75	0.61	0.46	0.32	0.23

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UN EXTERNAL THREAD

No. of Passes	Pitch (TPI)																		
	4	4.5	5	6	7	8	9	10	11	12	13	14	16	18	20	24	28	32	48
1	0.44	0.43	0.42	0.37	0.33	0.29	0.29	0.26	0.25	0.25	0.24	0.23	0.22	0.21	0.20	0.20	0.18	0.18	0.13
2	0.38	0.35	0.37	0.32	0.28	0.22	0.24	0.22	0.22	0.23	0.22	0.20	0.20	0.19	0.16	0.17	0.15	0.16	0.09
3	0.33	0.30	0.32	0.27	0.23	0.20	0.23	0.20	0.19	0.20	0.18	0.18	0.18	0.17	0.15	0.14	0.11	0.12	0.07
4	0.29	0.28	0.27	0.25	0.22	0.18	0.22	0.17	0.17	0.18	0.16	0.14	0.14	0.16	0.13	0.11	0.09	0.06	0.06
5	0.27	0.26	0.26	0.24	0.21	0.17	0.18	0.16	0.16	0.16	0.14	0.12	0.11	0.11	0.11	0.06	0.06		
6	0.26	0.23	0.24	0.18	0.19	0.16	0.16	0.15	0.15	0.14	0.13	0.11	0.09	0.06	0.06				
7	0.24	0.22	0.22	0.17	0.18	0.16	0.15	0.14	0.13	0.11	0.10	0.10	0.06						
8	0.23	0.21	0.20	0.16	0.15	0.15	0.12	0.12	0.12	0.06	0.06	0.06							
9	0.21	0.20	0.19	0.15	0.14	0.14	0.11	0.11	0.06										
10	0.20	0.19	0.18	0.13	0.14	0.14	0.06	0.06											
11	0.19	0.18	0.17	0.12	0.12	0.11													
12	0.18	0.17	0.14	0.10	0.06	0.06													
13	0.18	0.15	0.11	0.11															
14	0.17	0.14	0.06	0.06															
15	0.16	0.12																	
16	0.13	0.06																	
17	0.06																		
Total	3.92	3.49	3.15	2.63	2.25	1.98	1.76	1.59	1.45	1.33	1.23	1.14	1.00	0.90	0.81	0.68	0.59	0.52	0.35

UN INTERNAL THREAD

No. of Passes	Pitch (TPI)																		
	4	4.5	5	6	7	8	9	10	11	12	13	14	16	18	20	24	28	32	48
1	0.43	0.43	0.42	0.34	0.31	0.29	0.29	0.25	0.24	0.24	0.23	0.22	0.21	0.20	0.19	0.19	0.17	0.17	0.12
2	0.34	0.35	0.37	0.28	0.27	0.22	0.23	0.21	0.20	0.21	0.21	0.20	0.19	0.18	0.16	0.16	0.14	0.15	0.09
3	0.32	0.29	0.28	0.26	0.22	0.19	0.20	0.19	0.18	0.19	0.17	0.17	0.17	0.16	0.14	0.13	0.10	0.11	0.07
4	0.28	0.24	0.26	0.22	0.20	0.17	0.20	0.16	0.16	0.17	0.15	0.13	0.13	0.15	0.11	0.10	0.08	0.06	0.06
5	0.26	0.23	0.24	0.21	0.19	0.16	0.16	0.15	0.15	0.15	0.13	0.11	0.10	0.09	0.10	0.06	0.06		
6	0.25	0.22	0.21	0.18	0.18	0.16	0.15	0.13	0.14	0.13	0.12	0.10	0.09	0.06	0.06				
7	0.23	0.21	0.20	0.17	0.16	0.14	0.14	0.12	0.12	0.10	0.09	0.09	0.06						
8	0.21	0.20	0.19	0.16	0.15	0.14	0.13	0.12	0.10	0.06	0.06	0.06							
9	0.20	0.19	0.18	0.15	0.14	0.13	0.11	0.11	0.06										
10	0.19	0.18	0.16	0.13	0.14	0.12	0.06	0.06											
11	0.18	0.17	0.16	0.12	0.10	0.08													
12	0.17	0.16	0.13	0.10	0.06	0.06													
13	0.16	0.14	0.10	0.09															
14	0.16	0.12	0.06	0.06															
15	0.14	0.10																	
16	0.12	0.06																	
17	0.06																		
Total	3.70	3.29	2.96	2.47	2.12	1.86	1.67	1.50	1.35	1.25	1.16	1.08	0.95	0.84	0.76	0.64	0.55	0.49	0.34

THREADING TECHNICAL DATA - RECOMMENDED N° OF PASSES

W. EXTERNAL THREAD

No. of Passes	Pitch (TPI)																		
	4	4.5	5	6	7	8	9	10	11	12	14	16	18	19	20	24	28	32	48
1	0.45	0.44	0.43	0.38	0.34	0.30	0.28	0.27	0.26	0.26	0.24	0.22	0.24	0.22	0.21	0.20	0.18	0.19	0.16
2	0.40	0.36	0.38	0.33	0.29	0.24	0.25	0.23	0.23	0.23	0.21	0.18	0.21	0.19	0.19	0.18	0.15	0.16	0.14
3	0.35	0.31	0.33	0.28	0.24	0.21	0.22	0.21	0.20	0.21	0.17	0.15	0.16	0.17	0.15	0.16	0.12	0.13	0.06
4	0.31	0.29	0.28	0.27	0.23	0.19	0.21	0.18	0.18	0.19	0.15	0.13	0.15	0.14	0.13	0.11	0.10	0.06	
5	0.28	0.27	0.27	0.25	0.22	0.18	0.20	0.17	0.17	0.17	0.14	0.12	0.11	0.11	0.10	0.06	0.06		
6	0.27	0.24	0.25	0.19	0.20	0.17	0.17	0.16	0.16	0.15	0.12	0.10	0.06	0.06	0.06				
7	0.25	0.23	0.23	0.18	0.19	0.17	0.17	0.14	0.13	0.12	0.10	0.09							
8	0.24	0.22	0.21	0.17	0.16	0.16	0.15	0.13	0.12	0.06	0.06	0.06							
9	0.22	0.21	0.20	0.16	0.15	0.14	0.13	0.11	0.06										
10	0.21	0.20	0.19	0.14	0.15	0.13	0.06	0.06											
11	0.20	0.19	0.18	0.12	0.12	0.11													
12	0.19	0.18	0.15	0.10	0.06	0.06													
13	0.18	0.16	0.12	0.11															
14	0.18	0.15	0.06	0.06															
15	0.17	0.13																	
16	0.13	0.06																	
17	0.06																		
Total	4.09	3.64	3.28	2.74	2.35	2.06	1.84	1.66	1.51	1.39	1.19	1.05	0.93	0.89	0.84	0.71	0.61	0.54	0.36

W. INTERNAL THREAD

No. of Passes	Pitch (TPI)																		
	4	4.5	5	6	7	8	9	10	11	12	14	16	18	19	20	24	28	32	48
1	0.45	0.44	0.43	0.38	0.34	0.30	0.28	0.27	0.26	0.26	0.24	0.22	0.24	0.22	0.21	0.20	0.18	0.19	0.16
2	0.40	0.36	0.38	0.33	0.29	0.24	0.25	0.23	0.23	0.23	0.21	0.18	0.21	0.19	0.19	0.18	0.15	0.16	0.14
3	0.35	0.31	0.33	0.28	0.24	0.21	0.22	0.21	0.20	0.21	0.17	0.15	0.16	0.17	0.15	0.16	0.12	0.13	0.06
4	0.31	0.29	0.28	0.27	0.23	0.19	0.21	0.18	0.18	0.19	0.15	0.13	0.15	0.14	0.13	0.11	0.10	0.06	
5	0.28	0.27	0.27	0.25	0.22	0.18	0.20	0.17	0.17	0.17	0.14	0.12	0.11	0.11	0.10	0.06	0.06		
6	0.27	0.24	0.25	0.19	0.20	0.17	0.17	0.16	0.16	0.15	0.12	0.10	0.06	0.06	0.06				
7	0.25	0.23	0.23	0.18	0.19	0.17	0.17	0.14	0.13	0.12	0.10	0.09							
8	0.24	0.22	0.21	0.17	0.16	0.16	0.15	0.13	0.12	0.06	0.06	0.06							
9	0.22	0.21	0.20	0.16	0.15	0.14	0.13	0.11	0.06										
10	0.21	0.20	0.19	0.14	0.15	0.13	0.06	0.06											
11	0.20	0.19	0.18	0.12	0.12	0.11													
12	0.19	0.18	0.15	0.10	0.06	0.06													
13	0.18	0.16	0.12	0.11															
14	0.18	0.15	0.06	0.06															
15	0.17	0.13																	
16	0.13	0.06																	
17	0.06																		
Total	4.09	3.64	3.28	2.74	2.35	2.06	1.84	1.66	1.51	1.39	1.19	1.05	0.93	0.89	0.84	0.71	0.61	0.54	0.36

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NPT EXTERNAL & INTERNAL

No. of Passes	Pitch (TPI)				
	4	11.5	14	18	27
1	0.32	0.23	0.22	0.18	0.14
2	0.25	0.19	0.18	0.15	0.11
3	0.21	0.17	0.15	0.13	0.11
4	0.17	0.16	0.14	0.13	0.10
5	0.16	0.15	0.13	0.12	0.09
6	0.16	0.13	0.12	0.11	0.08
7	0.15	0.12	0.10	0.09	0.06
8	0.15	0.10	0.10	0.08	
9	0.14	0.10	0.09	0.06	
10	0.13	0.10	0.08		
11	0.13	0.09	0.06		
12	0.12	0.08			
13	0.12	0.06			
14	0.10				
15	0.08				
16	0.06				
Total	2.45	1.68	1.37	1.05	0.69

NPTF EXTERNAL & INTERNAL

No. of Passes	Pitch (TPI)				
	8	11.5	14	18	27
1	0.31	0.22	0.21	0.17	0.14
2	0.24	0.17	0.17	0.14	0.10
3	0.20	0.16	0.14	0.13	0.09
4	0.16	0.16	0.14	0.12	0.09
5	0.16	0.14	0.14	0.11	0.08
6	0.15	0.13	0.12	0.10	0.08
7	0.15	0.12	0.10	0.09	0.06
8	0.14	0.11	0.10	0.08	
9	0.14	0.10	0.09	0.06	
10	0.13	0.10	0.08		
11	0.13	0.09	0.06		
12	0.12	0.08			
13	0.12	0.06			
14	0.10				
15	0.08				
16	0.06				
Total	2.39	1.64	1.35	1.00	0.64

TR EXTERNAL & INTERNAL

No. of Passes	Pitch (mm)						
	7.0	6.0	5.0	4.0	3.0	2.0	1.5
1	0.38	0.36	0.34	0.32	0.31	0.30	0.24
2	0.34	0.32	0.30	0.28	0.26	0.26	0.22
3	0.28	0.28	0.25	0.23	0.23	0.22	0.17
4	0.26	0.25	0.23	0.20	0.19	0.18	0.14
5	0.25	0.24	0.22	0.19	0.19	0.16	0.12
6	0.23	0.23	0.21	0.18	0.18	0.12	0.06
7	0.22	0.22	0.19	0.17	0.15	0.06	
8	0.21	0.20	0.18	0.16	0.12		
9	0.20	0.19	0.17	0.15	0.11		
10	0.19	0.17	0.16	0.14	0.06		
11	0.19	0.16	0.14	0.12			
12	0.18	0.15	0.13	0.10			
13	0.18	0.13	0.12	0.06			
14	0.16	0.13	0.10				
15	0.16	0.12	0.06				
16	0.15	0.12					
17	0.15	0.11					
18	0.14	0.11					
19	0.12	0.06					
20	0.06						
Total	4.05	3.55	2.80	2.30	1.80	1.30	0.95

THREADING TECHNICAL DATA - RECOMMENDED N° OF PASSES

ACME EXTERNAL & INTERNAL

No. of Passes	Pitch (TPI)							
	4	5	6	8	10	12	14	16
1	0.36	0.34	0.31	0.27	0.26	0.26	0.25	0.24
2	0.32	0.30	0.29	0.23	0.23	0.22	0.21	0.22
3	0.28	0.25	0.25	0.19	0.20	0.18	0.18	0.18
4	0.25	0.23	0.21	0.18	0.19	0.16	0.15	0.15
5	0.24	0.22	0.18	0.17	0.16	0.14	0.13	0.12
6	0.23	0.21	0.17	0.16	0.14	0.12	0.10	0.06
7	0.22	0.19	0.16	0.15	0.12	0.10	0.06	
8	0.20	0.19	0.15	0.14	0.11	0.06		
9	0.19	0.18	0.15	0.12	0.10			
10	0.17	0.17	0.14	0.12	0.06			
11	0.15	0.15	0.13	0.10				
12	0.14	0.13	0.12	0.06				
13	0.13	0.12	0.10					
14	0.12	0.10	0.06					
15	0.11	0.06						
16	0.11							
17	0.10							
18	0.10							
19	0.06							
Total	3.48	2.84	2.42	1.89	1.57	1.24	1.08	0.97

STUB ACME EXTERNAL & INTERNAL

No. of Passes	Pitch (TPI)							
	4	5	6	8	10	12	14	16
1	0.31	0.30	0.27	0.23	0.23	0.22	0.21	0.18
2	0.26	0.26	0.23	0.19	0.17	0.17	0.18	0.16
3	0.21	0.21	0.20	0.16	0.14	0.14	0.15	0.13
4	0.19	0.18	0.16	0.15	0.13	0.12	0.12	0.12
5	0.17	0.16	0.15	0.13	0.12	0.10	0.06	0.06
6	0.17	0.15	0.14	0.12	0.11	0.06		
7	0.16	0.15	0.13	0.11	0.10			
8	0.15	0.13	0.12	0.10	0.06			
9	0.15	0.12	0.10	0.06				
10	0.14	0.10	0.06					
11	0.13	0.06						
12	0.11							
13	0.06							
Total	2.21	1.82	1.56	1.25	1.06	0.81	0.72	0.65

UNJ EXTERNAL THREAD

No. of Passes	Pitch (TPI)												
	8	9	10	11	12	13	14	16	18	20	24	28	32
1	0.29	0.29	0.26	0.25	0.25	0.24	0.23	0.22	0.21	0.20	0.20	0.18	0.18
2	0.22	0.24	0.22	0.22	0.23	0.22	0.20	0.20	0.19	0.16	0.17	0.14	0.15
3	0.20	0.22	0.19	0.19	0.19	0.18	0.17	0.17	0.16	0.14	0.13	0.10	0.11
4	0.18	0.20	0.17	0.16	0.17	0.15	0.14	0.13	0.15	0.12	0.10	0.09	0.06
5	0.16	0.17	0.15	0.15	0.15	0.13	0.11	0.10	0.10	0.10	0.06	0.06	
6	0.16	0.16	0.14	0.14	0.13	0.12	0.10	0.09	0.06	0.06			
7	0.15	0.14	0.13	0.12	0.10	0.09	0.09	0.06					
8	0.14	0.12	0.11	0.11	0.06	0.06	0.06						
9	0.13	0.10	0.10	0.06									
10	0.12	0.06	0.06										
11	0.10												
12	0.06												
Total	1.91	1.70	1.53	1.40	1.28	1.19	1.10	0.97	0.87	0.78	0.66	0.57	0.50

UNJ INTERNAL THREAD

No. of Passes	Pitch (TPI)												
	8	9	10	11	12	13	14	16	18	20	24	28	32
1	0.29	0.29	0.26	0.25	0.25	0.24	0.23	0.22	0.21	0.20	0.20	0.18	0.18
2	0.22	0.24	0.22	0.22	0.23	0.22	0.20	0.20	0.19	0.16	0.17	0.14	0.15
3	0.20	0.22	0.19	0.19	0.19	0.18	0.17	0.17	0.16	0.14	0.13	0.10	0.11
4	0.18	0.20	0.17	0.16	0.17	0.15	0.14	0.13	0.15	0.12	0.10	0.09	0.06
5	0.16	0.17	0.15	0.15	0.15	0.13	0.11	0.10	0.10	0.10	0.06	0.06	
6	0.16	0.16	0.14	0.14	0.13	0.12	0.10	0.09	0.06	0.06			
7	0.15	0.14	0.13	0.12	0.10	0.09	0.09	0.06					
8	0.14	0.12	0.11	0.11	0.06	0.06	0.06						
9	0.13	0.10	0.10	0.06									
10	0.12	0.06	0.06										
11	0.10												
12	0.06												
Total	1.91	1.70	1.53	1.40	1.28	1.19	1.10	0.97	0.87	0.78	0.66	0.57	0.50

THREADING TECHNICAL DATA - RECOMMENDED N° OF PASSES

MJ INTERNAL THREAD

No. of Passes	Pitch (mm)					
	1.0	1.25	1.5	2.0	2.5	3.0
1	0.16	0.17	0.22	0.23	0.24	0.24
2	0.13	0.14	0.19	0.21	0.21	0.20
3	0.11	0.12	0.14	0.18	0.18	0.18
4	0.09	0.10	0.11	0.16	0.16	0.17
5	0.06	0.09	0.09	0.14	0.14	0.16
6		0.06	0.06	0.10	0.13	0.15
7				0.06	0.12	0.13
8					0.10	0.12
9					0.06	0.10
10						0.09
11						0.06
12						
Total	0.55	0.68	0.81	1.08	1.34	1.60

MJ EXTERNAL THREAD

No. of Passes	Pitch (mm)					
	1.0	1.25	1.5	2.0	2.5	3.0
1	0.18	0.18	0.22	0.23	0.25	0.26
2	0.15	0.16	0.20	0.22	0.21	0.22
3	0.13	0.14	0.18	0.18	0.19	0.19
4	0.10	0.12	0.15	0.16	0.16	0.17
5	0.06	0.10	0.11	0.14	0.15	0.16
6		0.06	0.06	0.12	0.14	0.15
7				0.10	0.13	0.14
8				0.06	0.12	0.13
9					0.10	0.12
10					0.06	0.11
11						0.09
12						0.06
Total	0.62	0.76	0.92	1.21	1.51	1.80

RD (DIN 20400) EXTERNAL & INTERNAL THREAD

No. of Passes	Pitch (mm)			
	6.0	5.0	4.0	3.0
1	0.35	0.32	0.25	0.24
2	0.33	0.28	0.24	0.23
3	0.32	0.27	0.23	0.21
4	0.31	0.26	0.22	0.20
5	0.30	0.25	0.21	0.19
6	0.29	0.24	0.20	0.18
7	0.26	0.22	0.19	0.14
8	0.23	0.20	0.18	0.11
9	0.22	0.19	0.16	0.10
10	0.19	0.16	0.14	0.09
11	0.17	0.15	0.12	0.06
12	0.15	0.13	0.10	
13	0.12	0.12	0.06	
14	0.10	0.06		
15	0.06			
Total	3.40	2.85	2.30	1.75

RD (DIN 405) EXTERNAL & INTERNAL THREAD

No. of Passes	Pitch (TPI)			
	4	6	8	10
1	0.35	0.25	0.24	0.23
2	0.32	0.24	0.22	0.21
3	0.31	0.22	0.20	0.19
4	0.30	0.21	0.19	0.18
5	0.29	0.20	0.18	0.16
6	0.28	0.19	0.16	0.14
7	0.25	0.18	0.14	0.11
8	0.22	0.16	0.11	0.09
9	0.21	0.15	0.10	0.06
10	0.18	0.13	0.09	
11	0.16	0.12	0.06	
12	0.13	0.11		
13	0.12	0.06		
14	0.10			
15	0.06			
Total	3.28	2.22	1.69	1.37

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PG INTERNAL & EXTERNAL

No. of Passes	Pitch (TPI)		
	20	18	16
1	0.17	0.18	0.19
2	0.15	0.14	0.16
3	0.14	0.12	0.13
4	0.10	0.10	0.11
5	0.06	0.09	0.10
6		0.06	0.09
7			0.06
Total	0.62	0.69	0.78

AMERICAN BUTTRESS EXTERNAL & INTERNAL

No. of Passes	Pitch (TPI)					
	6	8	10	12	16	20
1	0.28	0.25	0.22	0.21	0.20	0.18
2	0.24	0.22	0.20	0.19	0.18	0.16
3	0.21	0.19	0.19	0.18	0.17	0.14
4	0.20	0.19	0.17	0.16	0.14	0.13
5	0.20	0.17	0.16	0.15	0.13	0.12
6	0.19	0.16	0.15	0.14	0.12	0.10
7	0.19	0.16	0.13	0.13	0.10	0.06
8	0.18	0.15	0.12	0.12	0.06	
9	0.17	0.14	0.12	0.11		
10	0.16	0.13	0.11	0.06		
11	0.15	0.12	0.10			
12	0.14	0.11	0.06			
13	0.14	0.10				
14	0.13	0.06				
15	0.12					
16	0.10					
17	0.06					
Total	2.86	2.15	1.73	1.45	1.10	0.89

THREADING TECHNICAL DATA - RECOMMENDED N° OF PASSES

SAGENGEWINDE (DIN 513) EXTERNAL

No. of Passes	Pitch (mm)		
	4.0	3.0	2.0
1	0.32	0.30	0.29
2	0.30	0.28	0.26
3	0.27	0.26	0.24
4	0.25	0.24	0.19
5	0.23	0.22	0.18
6	0.21	0.21	0.17
7	0.20	0.20	0.15
8	0.19	0.18	0.14
9	0.18	0.17	0.11
10	0.17	0.15	0.06
11	0.16	0.14	
12	0.15	0.13	
13	0.15	0.11	
14	0.15	0.06	
15	0.14		
16	0.14		
17	0.13		
18	0.12		
19	0.06		
Total	3.52	2.65	1.79

SAGENGEWINDE (DIN 513) INTERNAL

No. of Passes	Pitch (mm)		
	4.0	3.0	2.0
1	0.32	0.31	0.29
2	0.30	0.29	0.27
3	0.27	0.27	0.25
4	0.24	0.24	0.21
5	0.23	0.23	0.18
6	0.21	0.22	0.16
7	0.20	0.20	0.12
8	0.19	0.19	0.06
9	0.18	0.16	
10	0.17	0.13	
11	0.16	0.06	
12	0.15		
13	0.14		
14	0.13		
15	0.10		
16	0.06		
Total	3.05	2.30	1.54

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API EXTERNAL & INTERNAL

No. of Passes	VO.038R 4 TPI		VO.050 4 TPI		VO.040 5 TPI	Buttress casing 5 TPI	
	2 IPF	3 IPF	2 IPF	3 IPF	3 IPF	0.75 IPF	1.0 IPF
1	0.45	0.45	0.44	0.44	0.41	0.24	0.24
2	0.38	0.38	0.39	0.39	0.36	0.22	0.22
3	0.33	0.33	0.34	0.34	0.32	0.18	0.18
4	0.30	0.30	0.31	0.31	0.28	0.14	0.14
5	0.28	0.28	0.28	0.28	0.26	0.12	0.12
6	0.24	0.24	0.26	0.26	0.24	0.12	0.12
7	0.22	0.22	0.24	0.24	0.22	0.12	0.12
8	0.20	0.20	0.23	0.23	0.20	0.10	0.10
9	0.18	0.18	0.21	0.21	0.18	0.10	0.10
10	0.14	0.14	0.19	0.19	0.14	0.10	0.10
11	0.13	0.13	0.18	0.18	0.13	0.10	0.10
12	0.12	0.12	0.16	0.16	0.12	0.06	0.06
13	0.11	0.10	0.14	0.14	0.11		
14	0.06	0.06	0.13	0.13	0.06		
15			0.12	0.12			
16			0.10	0.11			
17			0.06	0.06			
Total	3.14	3.13	3.79	3.78	3.03	1.60	1.60

API EXTERNAL & INTERNAL

No. of Passes	Extreme Line Casing 6 TPI 1.5 IPF		Extreme Line Casing 5 TPI 1.5 IPF		Round API 0.75 IPF 8 TPI		Round API 0.75 IPF 10 TPI	
	External	Internal	External	Internal	External	Internal	External	Internal
1	0.23	0.25	0.25	0.25	0.25	0.25	0.25	0.25
2	0.20	0.20	0.22	0.23	0.22	0.22	0.20	0.20
3	0.16	0.17	0.20	0.21	0.20	0.20	0.17	0.17
4	0.15	0.15	0.18	0.19	0.18	0.18	0.15	0.15
5	0.13	0.14	0.15	0.16	0.16	0.16	0.14	0.14
6	0.12	0.13	0.14	0.15	0.15	0.15	0.13	0.13
7	0.11	0.12	0.13	0.14	0.14	0.14	0.12	0.12
8	0.10	0.12	0.12	0.13	0.13	0.13	0.12	0.12
9	0.06	0.10	0.11	0.12	0.12	0.12	0.10	0.10
10		0.06	0.10	0.11	0.11	0.11	0.06	0.06
11			0.10	0.11	0.11	0.11		
12			0.06	0.10	0.06	0.06		
13				0.06				
Total	1.26	1.44	1.76	1.96	1.83	1.83	1.44	1.44

TAPER PIPE THREAD: NPT / ANSI/ASME B 1.20.1-1983 - INTERNAL THREAD
AMERICAN NATIONAL STANDARD TAPER PIPE THREADS

Thread Size	Pitch TPI	Pitch mm	Profile Depth	Recommended Tools	
				Insert	Toolholder
NPT 1/16	27	0.941	0.69	06IR 27NPT	S12H SXFNR 06
NPT 1/8	27	0.941	0.69	08IR 27NPT	S16K SXFNR 08
NPT 1/4	18	1,411	1.05	08IR 18NPT	S16K SXFNR 08
NPT 3/8	18	1,411	1.05	11IR 18NPT	S10K SXFNR 11
NPT 1/2	14	1,814	1.37	16IR 14NPT	S13M SXFNR 16
NPT 3/4	14	1,814	1.37	16IR 14NPT	S16P SXFNR 16
NPT 1	11.5	2,209	1.68	16IR 11.5NPT	S20P SXFNR 16
NPT 1 1/4	11.5	2,209	1.68	16IR 11.5NPT	S25R SXFNR 16
NPT 1 1/2	11.5	2,209	1.68	16IR 11.5NPT	S32S SXFNR 16
NPT 2	11.5	2,209	1.68	16IR 11.5NPT	S32S SXFNR 16
NPT 2 1/2	8	3,175	2.45	16IR 8NPT	S40T SXFNR 16
NPT 3	8	3,175	2.45	16IR 8NPT	S40T SXFNR 16
NPT 3 1/2	8	3,175	2.45	16IR 8NPT	S40T SXFNR 16
NPT 4	8	3,175	2.45	16IR 8NPT	S40T SXFNR 16
NPT 5	8	3,175	2.45	16IR 8NPT	S40T SXFNR 16

TAPER PIPE THREAD: NPTF / ANSI B 1.20.3-1976 - INTERNAL THREAD
AMERICAN NATIONAL STANDARD DRYSEAL PIPE THREADS

Thread Size	Pitch TPI	Pitch mm	Profile Depth	Recommended Tools	
				Insert	Toolholder
NPTF 1/16	27	0.941	0.64	06IR 27NPTF	S12H SXFNR 06
NPTF 1/8	27	0.941	0.64	08IR 27NPTF	S16K SXFNR 08
NPTF 1/4	18	1,411	1.00	08IR 18NPTF	S16K SXFNR 08
NPTF 3/8	18	1,411	1.00	11IR 18NPTF	S10K SXFNR 11
NPTF 1/2	14	1,814	1.35	16IR 14NPTF	S13M SXFNR 16
NPTF 3/4	14	1,814	1.35	16IR 14NPTF	S16P SXFNR 16
NPTF 1	11.5	2,209	1.64	16IR 11.5NPTF	S20P SXFNR 16
NPTF 1 1/4	11.5	2,209	1.64	16IR 11.5NPTF	S25R SXFNR 16
NPTF 1 1/2	11.5	2,209	1.64	16IR 11.5NPTF	S32S SXFNR 16
NPTF 2	11.5	2,209	1.64	16IR 11.5NPTF	S32S SXFNR 16
NPTF 2 1/2	8	3,175	2.39	16IR 08NPTF	S40T SXFNR 16
NPTF 3	8	3,175	2.39	16IR 08NPTF	S40T SXFNR 16

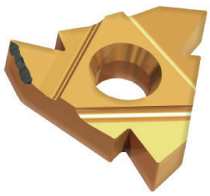
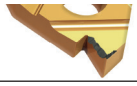
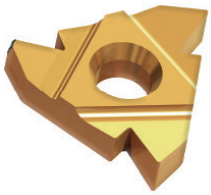
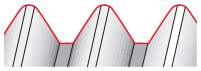
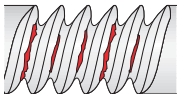
PARALLEL PIPE THREAD / BSP (G) - INTERNAL THREAD

Thread Size	Pitch TPI	Pitch mm	Profile Depth	Bore Diameter	Recommended Tools	
					Insert	Toolholder
G1/16	28	0.907	0.581	6,561	06IR 28W	S12H SXFNR 06
G1/8	28	0.907	0.581	8,556	08IR 28W	S16K SXFNR 08
G1/4	19	1,337	0.856	11,445	08IR 19W	S16K SXFNR 08
G3/8	19	1,337	0.856	14,950	11IR 19W	S10K SXFNR 11
G1/2	14	1,814	1,162	18,631	16IR 14W	S13M SXFNR 16
G5/8	14	1,814	1,162	20,587	16IR 14W	S16P SXFNR 16
G3/4	14	1,814	1,162	24,117	16IR 14W	S16P SXFNR 16
G7/8	11	1,814	1,162	27,877	16IR 14W	S20P SXFNR 16
G1	11	2,309	1,479	30,291	16IR 11W	S20P SXFNR 16
G1 1/8	11	2,309	1,479	34,939	16IR 11W	S25R SXFNR 16
G1 1/4	11	2,309	1,479	38,952	16IR 11W	S25R SXFNR 16
G1 1/2	11	2,309	1,479	44,845	16IR 11W	S32S SXFNR 16
G1 3/4	11	2,309	1,479	50,788	16IR 11W	S32S SXFNR 16
G2	11	2,309	1,479	56,656	16IR 11W	S32S SXFNR 16

TAPER PIPE THREAD / B SPT (RC) - INTERNAL THREAD

Thread Size	Pitch TPI	Pitch mm	Profile Depth	Bore Diameter	Recommended Tools	
					Insert	Toolholder
Rc 1/16	28	0.907	0.581	6,561	06IR 28BSPT	S12H SXFNR 06
Rc 1/8	28	0.907	0.581	8,556	08IR 28BSPT	S16K SXFNR 08
Rc 1/4	19	1,337	0.856	11,445	08IR 19BSPT	S16K SXFNR 08
Rc 3/8	19	1,337	0.856	14,950	11IR 19BSPT	S10K SXFNR 11
Rc 1/2	14	1,814	1,162	18,631	16IR 14BSPT	S13M SXFNR 16
Rc 5/8	14	1,814	1,162	20,587	16IR 14BSPT	S16P SXFNR 16
Rc 3/4	14	1,814	1,162	24,117	16IR 14BSPT	S16P SXFNR 16
Rc 7/8	14	1,814	1,162	27,877	16IR 14BSPT	S20P SXFNR 16
Rc 1	11	2,309	1,479	30,291	16IR 11BSPT	S20P SXFNR 16
Rc 1 1/8	11	2,309	1,479	34,939	16IR 11BSPT	S25R SXFNR 16
Rc 1 1/4	11	2,309	1,479	38,952	16IR 11BSPT	S25R SXFNR 16
Rc 1 1/2	11	2,309	1,479	44,845	16IR 11BSPT	S32S SXFNR 16
Rc 1 3/4	11	2,309	1,479	50,788	16IR 11BSPT	S32S SXFNR 16
Rc 2	11	2,309	1,479	56,656	16IR 11BSPT	S32S SXFNR 16

TROUBLESHOOTING | Solução de problemas | Solución de problemas

Problem | Problema	Possible Cause | Causa Possível | Causa Possible	Solution | Solução | Solucíon
Increased flank wear Desgaste da aresta Desgaste del flanco 	• Cutting speed too high • Velocidade de corte alta • Alta velocidad de corte	• Reduce cutting speed / Use coated insert • Reduza a velocidade de corte / Use uma pastilha revestida • Reducir la velocidad de corte / Utilice un inserto recubierto
	• Depth of cut too low/ too many passes • Profundidade de corte demasiado baixa / demasiados passos • Profundidad de corte demasiado baja / demasiados pasos	• Increase the depth of cut per pass • Aumente a profundidade de corte por passo • Aumento de la profundidad de corte por paso
	• Unsuitable carbide grade • Grau desajustado • Grado desajustado	• Use a coated carbide grade • Use um grau revestido • Utilice un grado recubierto
	• Insufficient cooling • Refrigeração insuficiente • Insuficiente refrigeración	• Increase coolant flow rate • Aumente o fluxo de refrigeração • Aumentar el flujo de refrigeración
Uneven cutting edge wear Deformação da aresta de corte Deformación del flanco de corte 	• Incorrect helix angle • Ângulo da helice incorrecto • Ángulo de hélice incorrecta	• Choose the correct anvil • Escolha o ângulo correcto • Elija el ángulo correcto
	• Wrong infeed method • Método de avanço incorrecto • Método incorrecto de avance	• Use the Alternating Flank Infeed method • Use um método alternativo de avanço • Utilizar un método alternativo de avance
Extreme plastic deformation Deformação plástica extrema Deformación plástica extrema 	• Depth of cut too large • Profundidade de corte demasiado larga • Profundidad de corte demasiado grande	• Decrease depth of cut / Increase number of passes • Diminua a profundidade de corte / Aumente o número de passos • Reducir la profundidad de corte / Aumentar el número de pasos
	• Insufficient cooling • Refrigeração insuficiente • Insuficiente refrigeración	• Increase coolant flow rate • Aumente o fluxo de refrigeração • Aumentar el flujo de refrigeración
	• Cutting speed too high • Velocidade de corte alta • Alta velocidad de corte	• Reduce cutting speed • Reduza a velocidade de corte • Reducir la velocidad de corte
	• Unsuitable carbide grade • Grau não aconselhável • Grado no es aconsejable	• Use a tougher carbide • Use um grau mais macio • Usar un grado más suave
	• Nose radius too small • Raio demasiado pequeno • Radio demasiado pequeño	• Use an insert with a larger radius, if possible • Use uma pastilha com um raio mais largo, se possível • Utilice un inserto con un radio más amplio, si es posible
Cutting edge breakage Quebra da aresta de cortex Rotura del flanco de corte 	• Depth of cut too large • Profundidade de corte demasiado larga • Profundidad de corte demasiado grande	• Decrease depth of cut / Increase number of passes • Diminua a profundidade de corte / Aumente o numero de passos • Reducir la profundidad de corte / Aumentar el número de pasos
	• Extreme plastic deformation • Deformação plástica extrema • Deformacíon plastica extrema	• Use a tougher carbide • Use um grau mais macio • Usar un grado más suave
	• Insufficient cooling • Refrigeração insuficiente • Insuficiente refrigeración	• Increase flow rate and/ or correct flow direction • Aumento o fluxo ou melhore o direcionamento da refrigeração • Aumentar o mejorar la dirección del flujo de la refrigeración
	• Unsuitable carbide grade • Grau não aconselhável • Grado no es aconsejable	• Use a tougher carbide • Use um grau mais macio • Usar un grado más suave
	• Instability • Instabilidade • Inestabilidad	• Check stability of the system • Verifique a estabilidade do sistema • Compruebe la estabilidad del sistema
Built-up edge Aresta postiça Filos recrescidos 	• Incorrect cutting speed • Velocidade de corte incorrecta • Velocidad de corte incorrecta	• Change the cutting speed • Altere a velocidade de corte • Cambiar la velocidad de corte
	• Unsuitable carbide grade • Grau não aconselhável • Grado no es aconsejable	• Use a coated carbide • Utilize um grau revestido • Utilice un grado recubierto
Thread profile is too shallow Perfil da rosca muito irregular Perfil de la rosca muy irregular 	• The tool is not at the workpiece axis height • A pastilha não está a maquinar a crista da rosca • El inserto no está mecanizando	• Change tool height • Altere o posicionamento em altura da ferramenta • Cambiar la posición en la altura de la herramienta
	• Insert is not machining the thread crest • A ferramenta não está posicionada correctamente • La herramienta no está colocada correctamente a cresta de la rosca	• Measure the workpiece diameter • Medir o diâmetro correcto da peça de trabalho • Medir el diámetro de la pieza de trabajo
	• Worn insert • Pastilha gasta • Inserto pasado	• Change the cutting edge sooner • Mudar antecipadamente a aresta de corte • Cambiar el flanco de corte en antecipo
Thread profile is too shallow Má qualidade superfície Acabado de superficie malo 	• Cutting speed too low • Velocidade de corte baixa • Velocidad de corte baja	• Increase cutting speed • Aumente a velocidade de corte • Aumentar la velocidad de corte
	• Wrong anvil • Colchão errado • Colchón cambiado	• Choose correct anvil • Escolha um colchão mais apropriado • Elija un colchón más apropiado
	• Flank infeed method is not appropriate • Posição de avanço inapropriada • Posición de avance inadecuada	• Use the alternate flank or radial infeed method • Use um método de flanqueamento ou radial alternativo • Utilice un método flanqueamento o radial alternativo

WOKPIECE 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 Resistent 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.

WORKPIECE MATERIALS - PALBIT SELECTION MATERIALS, PSM

ISO	DIN	W.-Nr	EN	EN-Nr	AFNOR	BS	UNI
1	20Mn5	1.1133			20M5	120M19	G22Mn3
	30Mn5	1.1165	G28Mn6	1.1165		120M36	
	C10	1.0301	C10	1.0301	AF34C 10;XC10	045M10	C10
	C15	1.0401			AF37C 12;XC18	080M15	C15;C16
	C22	1.0402	C22+N	1.0402	C20	050A20	C20;C21
	C25	1.0406	C25+N	1.0406	AF50C30	070M26	C25
	Ck10	1.1121	C10E	1.1121	XC10	040A10	C10
	Ck15	1.1141	C15R	1.1141	XC15;XC18	080M15	15;C16
	Ck22	1.1151	C22E	1.1151	XC25;XC18	040A22	C20
	Ck25	1.1158			XC25	060A25	C25
	St37-2	1.0037	S235JR	1.0037	E24-2		Fe360B
	St37-3	1.0116	S235JRG2	1.0038	E24-3;E24-4	4360-40C	Fe360DFF
	St44-2	1.0044	S275J0H	1.0149	E28-2	4360-43B	Fe430BFN
	St44-3N	1.0144	S275J2G3	1.0144	E28-3;E28-4	4360-43C	Fe430DFF
	10S20	1.0721	10S20	1.0721	10F1	210M15	CF10S20
	10SPb20	1.0722			10PbF2		CF10SPb20
	15S20	1.0723	15SMn13	1.0725		210A15	
	35S20	1.0726	35S20	1.0726	35MF4	212M36	
	46S20	1.0727	46S20	1.0727	45MF4	212M44	
	60S20	1.0728	60S20	1.0728	60MF4		
	9S20	1.0711				220M07	CF9S22
	9SMn28	1.0715	11SMn30	1.0715	S250	230M07	CF9SMn28
	9SMn36	1.0736	11SMn37	1.0736	S300	240M07	CF9SMn36
	9SMnPb28	1.0718	11SMnPb30	1.0718	S250Pb		CF9SMnPb28
	9SMnPb36	1.0737	11SMnPb37	1.0737	S300Pb		CF9SMnPb36
	14Ni6	1.5622			16N6		14Ni6
	16Mo5	1.5423				1503-245-420	16Mo5
	36Mn5	1.1167	G28Mn6+QT	1.1165	40M5	150M36	
	40Mn4	1.1157			35M5	150M36	
	C30	1.0528			C30	080A30	
	C35	1.0501	C35+N		AF55C35	060A35	C35
	C40	1.0511	C40+N		AF60C40	080M40	C40
	C45	1.0503	E335	1.0503	AF65C45	80M46	C45
	C50	1.0540	C50+N		C50	080M50	
	Ck30	1.1178	C30E	1.1178		060A30	
	Ck35	1.1181	C35E	1.1181	XC38H1:XC32	080M36	C35
	Ck40	1.1186	C40E	1.1186	XC42H1	080M40	C40
	Ck50	1.1206	C50E	1.1206	XC48H1	080M50	
	Ck55	1.1203	C55E	1.1203	XC55	070M55	C50
	St52-3	1.0570	S355JR	1.0570	E36-3;E36-4	4360-50C	Fe510B;C;D
	St70-2	1.0535	E360	1.0070	A70-2		Fe690
2	12Ni19	1.5680			Z18N5		
	13Cr2	1.7012					
	13CrMo44	1.7335	13CrMo45	1.7335	15CD3.5	1501-620Gr.27	14CrMo45
	14MoV63	1.7715				1503-660-440	
	14NiCr10	1.5732			14NC11		16NiCr11
	14NiCr14	1.5752	14NiCr14	1.5752	12NC15	655M13	
	15Cr3	1.7015			12C3	523M15	
	15CrMo5	1.7262			12CD4		12CrMo4
	15CrMoV59	1.8521					
	15CrNi6	1.5919			16NC6	S107	16CrNi4
	15Mo3	1.5415	16Mo3	1.5415	15D3	1501-240	16Mo3
	15NiCr14	1.2735			10NC12		
	16CrMo44	1.7337			15CD4.5	1501-620Gr.27	14CrMo45
	16MnCr5	1.7131	16MnCr5	1.5715	16MC5	527M17	16MnCr5
	16MnCrS5	1.7139	16MnCrS5	1.7139			
	18CrNi8	1.5920			20NC6		
	18CrNiMo6	1.6587	17CrNiMo6	1.6587	18NCD6	820A16	18NiCrMo7
	20CrMo2	1.7311					
	20CrMo5	1.7264	20CrMo5	1.7264	18CD4		
	20MnCr5	1.7147	20MnCr5	1.7147	20MC5		20MnCr5
	20MnCrS5	1.7149	20MnCrS5	1.7149	20MnCrS5		
	20MoCr4	1.7321					
	20MoCrS4	1.7323					
	21MnCr5	1.2162			20NC5		

JIS	SS	UNS	AISI/ASTM	Misc. Brand	Condition	Form	Structure
SMnC420		G10220	1022;1518				
SMn1H;SCMn2		G13300	1330				
S10C		G10100	1010				
	1350	G10170	1015				
	1450	G10200	1023				
S25C			1025				
S10C;S9CK	1265	G10100	1010				
S15C;S15CK	1370	G10170	1015				
S22C;S20CK			1022				
S25C		G10250	1025				
STKM12C	1311						
	1312;1313		A573Gr.58				
SM41B	1412		A570Gr.40				
SM41C	1412;1414		A573Gr.70				
			1108				
			11L08				
SUM32	1922						
	1957	G11400	1140				
	1973	G11460	1146				
SUM21		G12120	1212				
SUM22	1912	G12130	1213				
		G12150	1215				
SUM22L	1914	G12134	12L13				
	1926	G12144	12L14				
			A350-LF5				
SB450M		G45200	4520				
SMn438(H);SCMn3	2120	G13350	1335				
		G10390	1039				
S30C							
	1550	G10350	1035				
S40C			1040				
S45C	1650	G10430	1045				
S50C			1049				
S30C			1030				
S35C	1572	G10340	1035				
S40C			1040				
			1050				
S55C			1055				
SM50YA	2172;2132						
	1655		1055				
			2515				
	2216		A182-F11;F12				
SNC415(H)			3415				
SNC815(H)		G33106	3310;9314				
SCr415(H)		G50150	5015				
SCM415(H)							
			4320				
	2912		A204Gr.A				
SNC22		T51606	P6				
	2216		A387Gr.12Cl.2				
SCR415	2511	G51170	5115				
SCM421							
SMnC420(H)		G51200	5120				
SMnC21H			5120H				
SCR420H							

ISO	DIN	W.-Nr	EN	EN-Nr	AFNOR	BS	UNI
2	21NiCrMo2	1.6523	20NiCrMoS22	1.6526	20NCD2	805M20	20NiCrMo2
	23CrMoB33	1.7271					
	25CrMo4	1.7218	25CrMo4	1.7218	25CD4S	1717CDS110	25CrMo4(KB)
	25MoCr4	1.7325					
	25MoCrS4	1.7326					
	28Cr4	1.7030	28Cr4	1.7030		530A30	
	28NiCrMo4	1.6513					
	30CrMoV9	1.7707					
	30CrNiMo8	1.6580			30CND8	823M30	30NiCrMo8
	31CrMoV9	1.8519	31CrMoV9	1.8519	32CDV12		
	31NiCr14	1.5755			30NC11	653M31	
	32Cr2	1.7020					
	32CrMo12	1.7361			30CD12	722M24	32CrMo12
	34Cr4	1.7033	34Cr4	1.7033	32C4	530A32	34Cr4(KB)
	34CrMo4	1.7220	34CrMo4	1.7220	35CD4	708A37	35CrMo4
	35CrMo4	1.2330			34CD4	708A37	35CrMo4
	35NiCr18	1.5864					
	36CrNiMo4	1.6511	36CrNiMo4+TA		40NCD3	816M40	38NiCrMo4(KB)
	36NiCr10	1.5736			35NC11		35NiCr9
	36NiCr6	1.5710			35NC6	640A35	
	37Cr4	1.7034			38C4	530A36	38Cr4
	37MnSi4	1.5122					
	38Cr2	1.7003	38Cr2	1.7003	38C2		38Cr2
	38MnSi4	1.5120					
	39CrMoV139	1.8523				897M39	36CrMoV139
	40CrMnMo7	1.2311					
	40CrMnMoS86	1.2312			40CMD8S		
	40CrMnNiMo8	1.2738			40CND8		
	41Cr4	1.7035	41Cr4	1.7035	42C4	530M40	41Cr4
	41CrMo4	1.7223			42CD4TS	708M40	41CrMo4
	42Cr4	1.7045			42C4TS	530A40	41Cr4
	42CrMo4	1.7225	42CrMo4	1.7225	42CD4	708M40	42CrMo4
	42CrV6	1.7561					
	42MnV7	1.5223					
	43CrMo4	1.3563					
	44Cr2	1.3561					
	46Cr2	1.7006			42C2		45Cr2
	46MnSi4	1.5121					
	48CrMo4	1.3565					
	50CrMo4	1.7228				708A47	
	50CrV4	1.8159	50CrV4	1.8159	50CV4	735A50	51CrV4
	50MnSi4	1.5131	50MnSi4	1.5131			
	53MnSi4	1.5141					
	55Cr3	1.7176	55Cr3	1.7176	55C3	527A60	55Cr3
	55Si7	1.0904	55SiCr7	1.7100	55S7	250A53	55Si8
	58SiCr8	1.2103					
	60SiCr7	1.0961			60SC7		60SiCr8
	62SiMnCr4	1.2101					
	C45W	1.1730			Y342		
	C55W	1.1820					
	C60	1.0601	C60+N	1.0601	CC55	080A62	C60
	C60W	1.1740			Y355		
	C67W	1.1744					
	C70W1	1.1520					
	C70W2	1.1620					
	C75W	1.1750	C75W	1.1750		BW1A	
	C80W1	1.1525			Y190;Y180		C80KU
	C80W2	1.1625			Y180	BW1B	C80KU
	C85W	1.1830			Y390		
	Ck45	1.1191	C45E	1.1191	XC42	080M46	C45
	Ck60	1.1221	C60E	1.1221	XC60	080A62	C60
	Ck67	1.1231	C67S	1.1231	XC68	060A67	C70
	Ck75	1.1248	C75S	1.1248	XC75	060A78	C75
	GS-50CrV4	1.8159					
	St60-2	1.0060	E335	1.0060	A60-2	4360-SSE;SSC	Fe590;Fe60-2

JIS	SS	UNS	AISI/ASTM	Misc. Brand	Condition	Form	Structure
SUS410	2506	G86170	8620				
SUS405							
SUH442	2225	G41300	4130				
SUS410							
SUS430F							
SUS416			5130				
SUS410J1							
SCS5							
SUH409							
SUS403	2240						
SUS430		G51320	5132				
SUS405	2234	G41350	4135;4137				
	2234	T51620	4135				
SUS430LX							
SUS430LX		G98400	9840				
			3435				
SUJ2			3135				
SKS3			5135				
SKS43							
SKS31							
			P20				
			P20+S				
			P20+Ni				
		G51400	5140				
	2244	G41420	4142;4140				
	2245*)		5140				
	2244	G41400	4142;4140				
SNCM447							
SNCM240							
SNCM439							
SACM645			5045				
			5045				
		G41470	4150				
	2230	H61500	6150				
	2253	G51550	5155				
	2085;2090		9255				
			9262				
SK3							
SK2							
SK1		G10600	1060				
SUP4							
		T72301	W1				
			W108				
SUS420J1							
SUS431	1672	G10420					
	1665;1678	G10640	1064				
SUS420J2	1770	G10700	1070				
	1774;1778	G10780	1078;1080				
			6150H				
SUS420							

WORKPIECE MATERIALS - PALBIT SELECTION MATERIALS, PSM

ISO	DIN	W.-Nr	EN	EN-Nr	AFNOR	BS	UNI
2	X10Cr13	1.4006	X12Cr13	1.4006	Z12C13	410S21	X12Cr13
	X10CrAl13	1.4724	X10CrAl13	1.4724	Z10C13	BH12	X10CrAl12
	X10CrAl24	1.4762	X10CrAl24	1.4762	Z10CAS24		X16Cr26
	X12Cr13	1.4006	X12Cr13	1.4006		410S21	
	X12CrMoS17	1.4104	X14CrMoS17	1.4104	Z10CF17	441S29	X10CrS17
	X12CrS 13	1.4005	X12CrS 13	1.4005	Z12CF13	416S21	X12CrS13
	X15Cr13	1.4024	X12Cr13	1.4024	Z12C13	420S29	
	X2CrMoTi182	1.4521	X2CrMoTi182	1.4521			
	X2CrMoTi182	1.4521	X2CrMoTi182	1.4521			
	X2CrNi12	1.4003	X2CrNi13	1.4003			
	X5CrNi134	1.4313	X3CrNIMo133	1.4313	Z5CN13.4	425C11	X6CrNi1304
	X5CrTi12	1.4512	X5CrTi12	1.4512	Z6CT12	409S19	X6CrTi12
	X6Cr13	1.4000	X6Cr13	1.4000	Z6C12	403S17	X6 Cr13
	X6Cr17	1.4016	X6Cr17	1.4016	Z8C17	430S15	X8 Cr17
	X6CrAl13	1.4002	X6CrAl13	1.4002	Z6CA13	405S17	X6CrAl13
	X6CrMo4	1.2341	X6CrMo4	1.2341			
	X6CrTi17	1.4510	X6CrTi17	1.4510	Z8CT17		X6CrTi17
	X8CrNb 17	1.4511	X3CrNb 17	1.4511	Z8CNb17		X6CrNb17
	10CrMo910	1.7380	10CrMo910	1.7380	10CD9.10	1501-622Gr.31;45	12CrMo910
	100Cr6	1.3505	100Cr6	1.3505	100C6	534A99	100Cr6
	100MnCrW4	1.2510			90MWCV5	BO1	95MnWCr5KU
	100V1	1.2833			Y1105V	BW2	102V2KU
	105WCr6	1.2419	105WCr6	1.2419	105WC13		107WCr5KU
	115CrV3	1.2210	107CrV3	1.2210	100C3		107CrV3KU
	120WV4	1.2516			110WC20	BF1	110W4KU
	14CrMoV69	1.7735	14CrMoV69	1.7735	20CDV5.07		
	14NiCr18	1.5860					
	21CrMoV57	1.7709					
	32NiCrMo145	1.6746			35NCD14	830M31	
	34CrAl6	1.8504	34CrAl6	1.8504			
	34CrAlMo5	1.8507			30CAD6.12	905M31	34CrAlMo7
	34CrAlNi7	1.8550	34CrAlNi7	1.8550	34CAND7		
	34CrAlS5	1.8506					
	34CrNiMo6	1.6582	34CrNiMo6	1.6582	35NCD6	817M40	35NiCrMo6(KW)
	40NiCrMo22	1.6546			40NCD2	311-Type7	40NiCrMo2(KB)
	40NiCrMo6	1.6565				311-Type6	
3	41CrAlMo7	1.8509	41CrAlMo710	1.8509	40CAD6.12	905M39	41CrAlMo7
	45WCrV7	1.2542				BS1	45WCrV8KU
	50NiCr13	1.2721					
	58CrV4	1.8161					
	60MnSiCr4	1.2826					
	60WCrV7	1.2550			55WC20		55WCrV8KU
	67SiCr5	1.7103					
	90CrSi5	1.2108					
	90Mn4	1.1273					
	90MnCrV8	1.2842	90MnCrV8	1.2842	90MV8	BO2	90MnVCr8KU
	C105W1	1.1545	C105U	1.1545	Y1105		C100KU
	C105W2	1.1645			Y1105		C100KU
	C110W	1.1654					
	C125W	1.1663			Y2120		C120KU
	C135W	1.1673			Y2140		C140KU
	Ck101	1.1274	C100S	1.1274		060A96	
	GS-34CoCrMoV1912	1.2887					
	G-X28CrMoV51	1.2392					
	G-X37CrMoW51	1.2606					
	X18CrN28	1.4749	X18CrN28	1.4749	Z18C25		
	X19NiCrMo4	1.2764					
	X20Cr13	1.4021	X20Cr13	1.4021	Z20C13	420S37	X20Cr13
	X20CrMoWV121	1.4935	X20CrMoWV121	1.4935			
	X20CrNi172	1.4057	X20CrNi172	1.4057	Z15CN16.02	431S29	X16CrNi16
	X22CrMoV121	1.4923	X22CrMoV121	1.4923	Z21CDV12	762	X22CrMoV121
	X30Cr13	1.4028	X30Cr13	1.4028	Z30C13	420S45	X30Cr13
	X36CrMo17	1.2316	X38CrMo16	1.2316	Z35CD17		X38CrMo 161KU
	X4CrNiMo165	1.4418	X4CrNiMo165	1.4418	Z6CND16.05.01		
	X40Cr13	1.4031	X39Cr13	1.4031	Z40C14	(420S45)	X40Cr14

JIS	SS	UNS	AISI/ASTM	Misc. Brand	Condition	Form	Structure
SUS410	2302	S41000	410;CA-15				Martensite
SUS405		S40500	405				Ferrite
SUH442		S44600	446				Ferrite
SUS410	2302	S41000	410S				Martensite
SUS430F	2383	S43020	430F				Ferrite
SUS416	2380	S41600	416				Martensite
SUS410J1		J91201					Martensite
	2326		444				Ferrite
	2326		444				Ferrite
		S40977	309				Ferrite
SCS5	2385	S41500		F6NM			Martensite
SUH409		S40900	409L				Ferrite
SUS403	2301	S41008	403				Ferrite
SUS430	2320	S43000	430				Ferrite
SUS405		S40500	405				Ferrite
SUS430LX		S43036	430Ti				Ferrite
SUS430LX			430Nb				Ferrite
	2218	J21890	A182-F22				
SUJ2	2258	G51986	52100				
SKS3	2140	T31501	O1				
SKS43		T72302	W210				
SKS31							
		T61202	L2				
		K23545	A355Cl.D				
		K52440					
		K23745					
SNCM447	2541		4340				
SNCM240		G87400	8740				
SNCM439			4340				
SACM645	2940	K24065	A355Cl.A				
	2710	T41901	S1				
		T31502	O2				
	1880		W110				
SK3							
SK2			W112				
SK1							
SUP4	1870	G10950	1095				
	2322	S44600	446				Ferrite
SUS420J1	2303	S42000	420				Martensite
		S42200					Martensite
SUS431	2321-03	S43100	431				Martensite
	2317						Martensite
SUS420J2	2304	J91153	420				Martensite
			422				
	2387	–					Martensite
SUS420	2304,2314	S40280	420				Martensite

ISO	DIN	W.-Nr	EN	EN-Nr	AFNOR	BS	UNI
3	X45Cr13	1.4034	X45Cr13	1.4034	Z40C14	(420S45)	
	X45CrNiW189	1.4873	X45CrNiW189	1.4873	Z35CNWS18.09	331S40	X45CrNiW189
	X45NiCrMo4	1.2767	X45NiCrMo4	1.2767	45NCD17	EN20B	42NiCrMo157
	X65CrMo14	1.4109	X70CrMo15	1.4109	Z70D14		
	X80CrNiSi20	1.4747	X80CrNiSi20	1.4747	Z80CSN20.02	443S65	X80CrSiNi20
	X90CrMoV18	1.4112	X90CrMoV18	1.4112	Z2CND1805	409S19	XCrTi12
	54NiCrMoV6	1.2711	54NiCrMoV6	1.2711	55NCDV6	BH224	
	55NiCrMoV6	1.2713			55NCDV7		
	57NiCrMoV77	1.2744					
	75CrMoNiW67	1.2762					
	81CrMov4216	1.2369					
	G-X165CrCoMo12	1.2880					
	G-X165CrMoV12	1.2601					
	G-X165CrV12	1.2201					
	S10-4-3-10	1.3207	HS10-4-3-10	1.3207	Z130WKCDV10-4-3-10	BT42	HS10-4-3-10
	S12-1-2	1.3318	HS12-1-2	1.3318			
	S12-1-4	1.3302	HS12-1-4	1.3302			
	S12-1-4-5	1.3202	HS12-1-4-5	1.3202			
	S18-0-1	1.3355	HS18-0-1	1.3355	Z80WCV18-04-01	BT1	HS18-0-1
	S18-1-2-10	1.3265	HS18-1-2-10	1.3265		BT5	HS18-0-1-10
	S18-1-2-15	1.3257	HS18-1-2-15	1.3257			
	S18-1-2-5	1.3255	HS18-1-2-5	1.3255	Z80WKCV18-05-04-0	BT4	HS18-1-1-5
	S2-10-1-8	1.3247	HS2-10-1-8	1.3247	Z110DKCWV09-08-04	BM42	HS2-9-1-8
	S2-9-1	1.3346	HS2-9-1	1.3346	Z85DCWV08-04-02-0	BM1	HS1-8-1
	S2-9-2	1.3348	HS2-9-2	1.3348	Z100DCWV09-04-02-		HS2-9-2
	S2-9-2-8	1.3249				BM34	
	S3-3-2	1.3333	HS3-3-2	1.3333			HS3-3-2
	S6-5-2	1.3343	HS6-5-2	1.3343	Z85WDCV06-05-04-0	BM2	HS6-5-2
	S6-5-2-5	1.3243	HS6-5-2-5	1.3243	Z85WDKCV06-05-05-04-02		HS6-5-2-5
	S6-5-3	1.3344	HS6-5-3	1.3344	Z120WDCV06-05-04-	BM4	HS6-5-3
	S6-5-3C	1.3345	S-6-5-3C	1.3345			
	S7-4-2-5	1.3246	HS7-4-2-5	1.3246	Z110WKCDV07-05-04		HS7-4-2-5
	X100CrMoV51	1.2363	X100CrMoV5	1.2363	Z100CDV5	BA2	X100CrMoV51KU
	X105CrMo17	1.4125	X105CrMo17	1.4125	Z100CD17		X105CrMo17
	X155CrVMo121	1.2379	X155CrVMo121		Z160CDV12	BD2	X155CrVMo121KU
	X165CrMoV12	1.2601					X165CrMoW12KU
	X2NiCoMoTi1895	1.2709			Z2NKD19-09		
	X210Cr12	1.2080	X210Cr12	1.2080	Z200C12	BD3	X210Cr13KU
	X210CrW12	1.2436					X215CrW121KU
	X3NiCrMo1885	1.2706			E-Z2NKD18		
	X30WCrV53	1.2567			Z32WCV5		X30WCrV53KU
	X30WCrV93	1.2581			Z30WCV9	BH21	X30WCrV93KU
	X32CrMoCoV333	1.2885					
	X32CrMoV33	1.2365			32DCV28	BH10	30CrMoV1227KU
	X38CrMoV51	1.2343			Z38CDV5	BH11	X37CrMoV51KU
	X38CrMoV53	1.2367					
	X40CrMoV51	1.2344	X40CrMoV51	1.2344	Z40CDV5	BH13	X40CrMo511KU
4	X10CrNiS189	1.4305	X8CrNiS189	1.4305	Z10CNF18.09	303S31	X10CrNi1809
	X12CrNi177	1.4310	X9CrNi188	1.4310	Z12CN17.07	301S21	X12CrNi1707
	X12CrNi188	1.4300	X12CrNi188	1.4300	Z12CN18	302S25	
	X5CrNiNb1810	1.4546	X5CrNiNb1810	1.4546		347S31	X6CrNiNb1811
	X6CrNi1810	1.4301	X5CrNi189	1.4301	Z6CN18.09	304S31	X5CrNi1811
	X6CrNi1811	1.4948	X6CrNi18 11	1.4948	Z6CN18.09	304S51	X5CrNi1810KW
	X6CrNi1812	1.4303	X4CrNi18 11	1.4303	Z8CN18.11FF	305S19	X7CrNi1810
	X6CrNiNb1810	1.4550	X6CrNiNb1810	1.4550	Z6CNNb18.10	347S31	X6CrNiNb1811
5	X10CrNiMoNb1812	1.4583	X5CrNiMoNb19112	1.4583	Z6CNDNb17.13	318C17	X6CrNiMoNb1713
	X12CrNi2521	1.4335	X12CrNi2521	1.4335	Z12CN25.20	310S24	X6CrNi2620
	X12CrNiTi189	1.4541	X6CrNiTi1810	1.4878	Z6CNT18.12	321S51	X6CrNiTi1811
	X12CrNiWTi163	1.4962	X12CrNiWTi163	1.4962	Z6CNNb18.10		
	X15CrNiSi2012	1.4828	X15CrNiSi2012	1.4828	Z17CNS20.12	309S24	
	X2CrNi1911	1.4306	X2CrNi19 11	1.4306	Z2CN18.10	304S12	X3CrNi1811
	X2CrNiMo17132	1.4404	X2CrNiMo17122	1.4404	Z2CND17.12.02	316S11	X2CrNiMo17122
	X2CrNiMo18143	1.4435	X3CrNiMo18143	1.4435	Z2CND17.13	316S12	X2CrNiMo17132
	X2CrNiMo18164	1.4438	X2CrNiMo18154	1.4438	Z2CND19.15.4	317S12	X2CrNiMo1816

JIS	SS	UNS	AISI/ASTM	Misc. Brand	Condition	Form	Structure
	[2304]						Martensite
SUH31			SAEHNV3				Martensite
			6F7				
SUS440A		S44002	440A				Martensite
SUH4		S65006	SAEHNV6	sol.treated			PH
SUS440B	2327	S44003	440B				Martensite
			6F2				
SKT4		T61206	L6				
SKH57							
		T12015	T15				
SKH2		T12001	T1				
SKH4A		T12005	T5				
SKH3		T12004	T4				
SKH51		T11342	M42				
		T11301	H41;M1				
	2782	T11307	M7				
		T11333	M33;M34				
SKH9;SKH51	2722	T11302	M2				
SKH53	2723		M35				
SKH52;SKH53		T11323	M3Cl.2				
SKH55		T11323	M3				
		T11341	M41				
SKD12	2260	T30102	A2				
SUS440C		S44004	440C				Martensite
SKD11		T30402	D2				
	2310						
			18MAR300				
SKD1		T30403	D3				
SKD2	2312						
		K93120					
SKD4							
SKD5		T20821	H21				
SKD7		T20810	H10				
SKD6		T20811	H11				
SKD61	2242	T20813	H13				
SUS303	2346	S30300	303				Austenite
SUS301	(2331)	S30100	301				Austenite
SUS302	2331	S30200	302				Austenite
		S34800	348				Austenite
SUS304	2333	S30400	304;304H				Austenite
SUS304H	2333	S30480	304H				Austenite
SUS305	2333	S30500	308;305				Austenite
SUS347	2338	S34700	347				Austenite
SCS22			318				Austenite
SUH310;SUS310S	2361	S31008	310S				Austenite
SUS321	2337	S32100	321;321H				Austenite
		S34700	347H				Austenite
SUH309		S30900	309				Austenite
SUS304L	2352	S30403	304L				Austenite
SUS316L	2348	S31603	316L				Austenite
SCS16;SUS316L	2353	S31603	316L				Austenite
SUS317L	2367	S31703	317L				Austenite

ISO	DIN	W.-Nr	EN	EN-Nr	AFNOR	BS	UNI
5	X2CrNiN1911	1.4311	X2CrNiN1810	1.4311	Z2CN18.10Az	304S62	X2CrNiN1811
	X5CrNiMo17133	1.4436	X5CrNiMo17133	1.4436	Z6CND18.12.03	316S33	X5CrNiMo17132
	X6CrNi189	1.4308	X5CrNi19 10	1.4308	Z6CN18.10M	304C15	
	X6CrNiMoNb17122	1.4580	X6CrNiMoNb17122	1.4580	Z6CNDNb17.12	318S17	X6CrNiMoNb1712
	X6CrNiMoTi17122	1.4571	X6CrNiMoTi17122	1.4571	Z6CNDT17.12	320S31	X6CrNiMoTi1712
	X15CrNiSi2520	1.4841	X15CrNiSi2520	1.4841	Z15CNS25.20	314S25	X16CrNiSi2520
	X5CrNiMo1810	1.4401	X5CrNiMo17122	1.4401	Z3CND17.11.1	316S31	X5CrNiMo1712
6	X1CrNiMoN20187	1.4547	X1CrNiMoN20187	1.4547		X1CrNiMoN20187	X1CrNiMoN20187
	X1NiCrMoCuN31274	1.4563	X1NiCrMoCuN31274	1.4563			
	X10NiCrAlTi3220	1.4876	X10NiCrAlTi3220	1.4876	Incoloy800	Z10NC32.21	
	X12NiCrSi3616	1.4864	X12NiCrSi3516	1.4864	Z20NCS33.16	NA17	
	X2CrNiMoN2574	1.4410	X2CrNiMoN 2574	1.4410	Z3CND25.07Az		X2CrNiMoN2574
	X2CrMoNiCuN2563	1.4507	X2CrMoNiCuN2563	1.4507			
	X2CrNiMoCuWN2574	1.4501	X2CrNiMoCuWN2574	1.4501	Z3CND25.06Az		
	X2CrNiMoN17122	1.4406	X2CrNiMoN17112	1.4406	Z2CND17.12Az	316S61	X2CrNiMoN1712
	X2CrNiMoN17133	1.4429	X2CrNiMoN17133	1.4429	Z2CND17.13Az	316S62	X2CrNiMoN17133
	X2CrNiMoN17133	1.4439	X2CrNiMoN17135	1.4439	Z3CND18.14.05Az	(316S63)	
	X2CrNiMoN225	1.4462	X2CrNiMoN 2253	1.4462	Z2CND22.05Az	332S15	X2CrNiMoN225
	X2CrNiMoN225	1.4462	X2CrNiMoN225	1.4462	Z2CND22.05Az	318S13	X2CrNiMoN225
	X2CrNiMoN25227	1.4652	X1CrNiMoN25228	1.4652			
	X2CrNiN234	1.4362	X2CrNiN234	1.4362			
	X2NiCrMoCu25205	1.4539	X2NiCrMoCu25205	1.4539	Z2NCDU2520	904S13	
	X2NiCrMoCu25205	1.4539	X1NiCrMoCu25205	1.4539			
	X4CrNiCuNb164	1.4540	X4CrNiCuNb164	1.4540	Z4CNUNb16.4M		
	X4CrNiMo2752	1.4460	X3CrNiMo2752	1.4460	Z3CND25.7Az		X3CrNiMo2752
	X5CrNiCuNb174	1.4542	X5CrNiCuNb164	1.4548	Z6CNU17.4		
7	GG-10	0.6100	EN-GJL-100	0.6100	Ft10D	Grade100	G10
	GG-15	0.6150	EN-GJL-150	0.6150	Ft15D	Grade150	G15
	GGG-35.3	0.7033	EN-GJS-350-22	0.7033	FGS370-17	Grade350/22	
	GGG-40	0.7040	EN-GJS-400-15	0.7040	FGS400-12	Grade420/12	GS400-12
	GGG-40.3	0.7043	EN-GJS-400-18	0.7043	FGS-370-17	Grade370/17	GSO42/17
	GTS-35-10		EN-GJMB-350-10	0.8135	B340/12	B340/12	B35-12
	GTS-45-06		EN-GJMB-450-6	0.8145	P440/7	P440/7	P45-06
	GTS-55-04		EN-GJMB-550-4	0.8155	P540/5	P540/5	P55-04
8	GG-20	0.6200	EN-GJL-200	0.6200	Ft20D	Grade220	G20
	GG-25	0.6250	EN-GJL-250	0.6250	Ft25D	Grade260	G25
	GGG-50	0.7050	EN-GJS-500-7	0.7050	FGS500-7	Grade500/7	GS500-7
	GGG-60	0.7060	EN-GJS-600-3	0.7060	FGS600-3	Grade600/3	GS600-3
	GGG-NiCr202	0.7660	EN-GJSA-XNiCr20-2	0.7660	FGSNi20Cr2	GradeS2	
	GGG-NiCr203	0.7661	EN-GJSA-XNiCr20-3	0.7661	FGSNi20Cr3	GradeS2B	
	GGG-NiMn137	0.7652	EN-GJSA-XNiMn13-7	0.7652	FGSNi13Mn7	GradeS6	
	GGL-NiCr202	0.6660	EN-GJLA-XNiCr20-2	0.6660	FGLNi20Cr2	GradeF2	
	GGL-NiCr203	0.6661	EN-GJLA-XNiCr20-3	0.6661	FGLNi20Cr3		
	GTS-65-02		EN-GJMB-600-3	0.8165	P570/3	P570/3	P65-02
9	GG-30	0.6300	EN-GJL-300	0.6300	Ft30D	Grade300	G30
	GGG-70	0.7070	EN-GJS-700-2	0.7070	FGS700-2	Grade700/2	GS700-2
	GGL-NiCuCr1562	0.6655	EN-GJLA-XNiCuCr15-6-2	0.6655	FGLNi15Cu6Cr2	GradeF1	
	GGL-NiCuCr1563	0.6656	EN-GJLA-XNiCuCr15-6-3	0.6656	FGLNi15Cu6Cr3		
	GTS-70-02		EN-GJMB-700-2	0.8170	P690/2	P690/2	P70-02
	GG-35	0.6350	EN-GJL-350	0.6350	Ft35D	Grade350	G35
	GG-40	0.6040	–	0.6040	Fgl400	Grade400	
	GGG-80	0.7080	EN-GJS-800-2	0.7080	FGS800-2		GS800-2
	GGG-Ni22	0.7670	EN-GJSA-XNi22	0.7670	FGSNi22		
	GGG-Ni35	0.7683	EN-GJSA-XNi35	0.7683	FGSNi35		
	GGG-NiCr301	0.7677	–	0.7677	FGSNi30Cr1		
	GGG-NiCr303	0.7676	EN-GJSA-XNiCr30-3	0.7676	FGSNi30Cr3	GradeS3	
	GGG-NiCr353	0.7683	EN-GJSA-XNiCr35-3	0.7683	FGSNi35Cr3		
	GGG-NiMn234	0.7673	EN-GJSA-XNiMn23-4	0.7673	FGSNi23Mn4	GradeS2M	
	GGG-NiSiCr2052	0.7665	EN-GJSA-XNiSiCr20-5-2	0.7665	FGSNi20Si5Cr2		
	GGG-NiSiCr3055	0.7680	EN-GJSA-XNiSiCr30-5-5	0.7680	FGSNi30Si5Cr5		
	GGL-NiCr303	0.6676	EN-GJLA-XNiCr30-3	0.6676	FGLNi30Cr3	GradeF3	
	GGL-NiSiCr2053	0.6667	EN-GJLA-XNiSiCr20-5-3	0.6667	FGLNi20Si5Cr3		
	GGL-NiSiCr3055	0.6680	–	0.6680	FGLNi30Si5Cr5		

JIS	SS	UNS	AISI/ASTM	Misc. Brand	Condition	Form	Structure
SUS304LN	2371	S30453	304LN				Austenite
SUS316	2343	S31600	316				Austenite
SCS13	2333		CF8				Austenite
		S31640	316Cb				Austenite
SUS316Ti	2350		316Ti				Austenite
SUH310		S31000	314;310				Austenite
SUS316	2347	S31600	316				Austenite
	2778	S31254		254SMO			Superaustenite
		N08028		Sanicro28			Superaustenite
NCF800		N08800		Alloy800	sol.treated		PH
SUH330		N08330	330	IncoloyDS			Austenite
	2328	S32750	F53	SAF2507			Superduplex
		S32550	255	Ferralium			Superduplex
		S32760	F55	Zeron100			Superduplex
SUS316LN		S31653	316LN				Austenite
SUS316LN	2375	S31653	316LN				Austenite
(SUS316LN)		(S31653)	(316LN)				Austenite
	2377	S31803	329LN	SAF2205			Duplex
SUS329J3L	2377	S32205	318	SAF2205			Duplex
		S32654		654SMO			Superaustenite
	2327	S32304	–	SAF2304			Duplex
	2562	N08904	904L				Superaustenite
	2564		CN7M				Superaustenite
		S15500	XM-12	15-5-PH	sol.treated		PH
SUS329J1	2324	S32900	329				Duplex
SCS24;SUS630		S17400	630	17-4-PH	sol.treated		Superaustenite
FC100	0110-00	F11401	A1820B				GCI
FC150	0115-00	F11601	A4825B				GCI
FCD350-22L	0717-15						DCI
FCD400-18L	0717-02	F32800	60-40-18				DCI
	0717-12	F32800	60-40-18				DCI
FCMB35-10	0815-00	F22200	A4732510				Martensite
PCMP45-06	0852-00	F23130	A22045008				Martensite
PCMP55-04	0854-00	F24130	A22060004				Martensite
FC200	0120-00	F12101	A4830B				GCI
FC250	0125-00	F12401	A4835B				GCI
FCD500-7	0727-02	F33800	A53680-55-6				DCI
FCD600-3	0732-03	F34100	A47680-60-03				DCI
		F43000	A436TypeD-2				Austenite
		F43001	A436TypeD-2B				Austenite
	0772-00	–	–				Austenite
	0523-00	F41002	A436 Type2				Austenite
		F41003	A436Type2b				Austenite
PCMP60-03	0856-00	F24830	A22070003				Martensite
FC300	0130-00	F13101	A4845B				GCI
FCD700-2	0737-01	F34800	A536100-70-03				DCI
		F41000	A436 Type1				Austenite
		F41001	A436 Type1b				Austenite
PCMP70-02	0862-00	F26230	A22090001				Martensite
FC350	0135-00	F13502	A4850B				GCI
	0140-00	F14102	A27860B				GCI
FCD800-2		F36200	A536120-90-02				Martensite
			A439TypeD-2B				Austenite
		F43006	A439TypeD-5				Austenite
		F43004	A436TypeD-3A				Austenite
		F43003	A436TypeD-3				Austenite
		F43007	A436TypeD-5B				Austenite
		F43010	A439TypeD-2M				Austenite
		–	NicrosilalSpheronic				Austenite
		F43005	A439TypeD-4				Austenite
		F41004	A436 Type3				Austenite
			Nicrosilal				Austenite
			A436TypeD-4				Austenite

ISO	DIN	W.-Nr	EN	EN-Nr	AFNOR	BS	UNI
10	Al99	3.0205	AW-1200	Al99	A-4/1200	1C/1200	
	Al99.5	3.0255	AW-105 0A	Al99.5	A-5/1050A	1B/1050A	
	Al99.7	3.0275	AW-1070	Al99.7	A-7/1070		
	Al99.8	3.0285	AW-1080	Al99.8	A-8/1080	1A	
	AlCu2.5Mg0.5	3.1305			A-U2G	2L69	
	AlCuBiPb	3.1655	AW-2011	AlCuBiPb	A-U5PbBi/2011	FC1/2011	
	AlCuMg1	3.1325	AW-2024	AlCuMg1	A-U4G/2024	H14	
	AlCuMg2	3.1355			A-U4G1	2L97/98	
	AlCuSiMn	3.1255	AW-2014	AlCuSiMn	A-U4SG/2014	H15/2014	
	AlMg1	3.3315	AW-5005A	AlMg1	A-G0.6	N41/5005	
	AlMg1.5	3.3316			A-G1.5		
	AlMg1SiCu	3.3211	AW-6061	AlMg1SiCu	(6061)	H20	
	AlMg2.5	3.3523	AW-5052	AlMg2.5	A-G2.5C/5052	(N4)	
	AlMg2.7Mn	3.3537	AW-5454	AlMg2.7Mn	A-G2.5MC/5454	N51/5454	
	AlMg2Mn0.3	3.3525	AW-5251	AlMg2Mn0.3	A-G2M	N4/5251	
	AlMg2Mn0.8	3.3527	AW-5049	AlMg2Mn0.8	A-G2Mn0.8		
	AlMg3	3.3535	AW-5754	AlMg3	A-G3M		
	AlMg4.5	3.3345					
	AlMg4.5Mn	3.3547	AW-5083	AlMg4.5Mn	A-G4.5MC	N8/5083	
	AlMg4Mn	3.3545	AW-5086	AlMg4Mn	A-G4MC/5086	(N5/6)	
	AlMgSi0.5	3.3206	AW-6060	AlMgSi0.5	A-GS/6060	(H9)/(6060)	
	AlMgSi0.7	3.3210	AW-6063	AlMgSi0.7	A-GSUC/6061	(H10)	
	AlMgSi1	3.2315	AW-6082	AlMgSi1	A-SGM0.7/6082	H30/6082	
	AlMgSiPb	3.0615			A-SGPb		
	AlMn0.5Mg0.5	3.0505	AW-3105	AlMn0.5Mg0.5		N31	
	AlMn0.5Mg0.5	3.0525	AW-3005	AlMn0.5Mg0.5	A-MG0.5/3005		
	AlMn1	3.0515	AW-3103	AlMn1		N3/3103	
	AlMn1Cu	3.0517	AW-3003	AlMn1Cu	A-M1/3003		
	AlMn1Mg1	3.0526	AW-3004	AlMn1Mg1	A-M1G/3004		
	AlZn4.5Mg1	3.4335	AW-7020	AlZn4.5Mg1	A-Z5G/7020	H17/7020	
	AlZnMgCu0.5	3.4345			A-Z4GU		
	AlZnMgCu1.5	3.4365	AW-7075		A-Z5GU/7075	2L95/96	
	G-AlCu4Ti	3.1841	AC-21100	AlCu4Ti			
	G-AlCu4TiMg	3.1371	AC-21000	AlCu4TiMg	A-U5GT	2L91/92	
	G-AlMg3	3.3541	AC-51100	AlMg3	A-G3T		
	G-AlMg3Si	3.3241					
	G-AlMg5	3.3261	AC-51400	AlMg5(Si)			
	G-AlMg5	3.3555	AC-51400	AlMg5		LM5	
	G-AlMg9	3.3292	AC-51200	AlMg9			
	G-AlSi10Mg	3.2381	AC-43400	AlSi10Mg(Fe)	A-S10G	LM9	
	G-AlSi5Mg	3.2341	AC-42000		A-S7G	LM25	
	G-AlSi6Cu4	3.2151	AC-45000	AlSi6Cu4			
	G-AlSi7Mg	3.2371	AC-42100	AlSi7Mg	A-S7GO3	2L99	
	G-AlSi8Cu3	3.2161	AC-46200	AlSi8Cu3(Si)			
	G-AlSi9Mg	3.2373	AC-43200	AlSi9Mg	A-S10G		
	G-MgAg3Se2Zr1	3.5106					
	G-MgAl3Zn	3.5314	MG-P-62	MgAl3Zn	G-A3-Z1	MAG-E-111	
	G-MgAl6Mn	3.5662	MC21230	MgAl6Mn			
	G-MgAl6Zn	3.5612	MG-P-63	MgAl6Zn	G-A6-Z1	MAG-E-121	
	G-MgAl8Zn	3.5812	MG-P-61	MgAl8Zn	G-A9	MAG1-M	
	G-MgAl8Zn1	3.5812	MC21110	MgAl8Zn1	G-A92	A82	
	G-MgAl9Zn1	3.5912	MC21120	MgAl9Zn1	G-A92	MAG3	
	G-MgMn2	3.5200			G-M2	MAG-E-101	
	G-MgSe3Zn2Zr1	3.5103	MB65110	MgSe3Zn2Zr1	ZRE1	MAG6-TE	
	G-MgTh3Zn2Zr1	3.5105					
	G-AlSi10Mg(Cu)	3.2383	AC-43200	AlSi10Mg(Cu)			
	GD-AlSi12	3.2382	AC-44200	AlSi12			
			AC-46100	AlSi11Cu2(Fe)		LM9	
			AC-47100	AlSi12Cu1(Fe)			
				AlSi17Cu5			
	Cu		CW004A				
	CuAg0.1	2.1203	CW013A	CuAg0.1		Cu-Ag-4	
	CuAl10Fe	2.0940.01	CC331G		CuAl10Fe	AB1	
	CuAl10Fe5Ni5		CC333G-GZ				
	CuAl10Ni	2.0975.01	CC333G		CuAl10Ni5Fe5	AB2	
	CuAl10Ni5Fe4	2.0966	CW307G	CuAl10Ni5Fe4	CuAl10Ni	CA104	

JIS	SS	UNS	AISI/ASTM	Misc. Brand	Condition	Form	Structure
A1200	4010	AA1200					
(A1050)	4007	AA1050A					
	4005	AA1070A					
	4004	AA1080A					
		AA2117					
A2011	4355	AA2011					
A2017		AA2017A					
		AA2024					
	4338	AA2014					
	4106	AA5005A					
		AA5050B					
A6061		AA6061					
A5052	4120	AA5052					
A5454		AA5454					
		AA5251					
	4115	AA5049					
	4125	AA5754					
A5082		AA5082					
	4140	AA5083					
		AA5086					
	4103	AA6060					
(A6063	4104,4107	AA6005					
	4212	AA6082					
		AA6012					
		AA3105					
–		AA3005					
	4054	AA3103					
A3003		AA3003					
–		AA3004					
	4425	AA7020					
		AA7022					
A7075		AA7075					
	4337	A02040	204				
		A05140	5140				
			5056A				
	4163						
	4253	A13600	B85				
	4244		B26				
	4245	A13560					
	4251		A380				
			359,2				
			4418				
		AZ31B					
	4633	AM60A					
		AZ61A					
		AZ80A					
	4637	AZ81A					
	4635	AZ91A/B	4437				
		M1A					
		B80	4442				
		B80					
			A413.2				
ADC12			A384.0				
		AA384					
ADC14			B390.0				
	5015						
	5030	C11600					
	5710	C95200	CA952				
	5716	C95500	CA955				
C6301		C62730					

ISO	DIN	W.-Nr	EN	EN-Nr	AFNOR	BS	UNI
10	CuAl5	2.0916					
	CuAl5As	2.0918	CW300G	CuAl5As			
	CuAl8Fe3	2.0932					
	CuCr	2.1291					
	CuFe2P	2.1310	CW107C	CuFe2P			
	CuNi1.5Si	2.0853	CW109C	CuNi1Si			
	CuNi10Fe1Mn	2.0872		CuNi10Fe1Mn	CuNi10Fe1Mn	CN102	
	CuNi10Zn45						
	CuNi12Zn30Pb1	2.0780	CW406J	CuNi12Zn30Pb1			
	CuNi18Zn19Pb	2.0790		CW408J	CuNi18Zn19Pb1		
	CuNi18Zn19Pb1	2.0790	CW408J	CuNi18Zn19Pb1	CuNi18Zn19Pb1		
	CuNi18Zn20	2.0740	CW409J	CuNi18Zn20	CuNi18Zn20	NS106	
	CuNi18Zn27	2.0742	CW410J	CuNi18Zn27		NS107	
	CuNi20	2.0822					
	CuNi25	2.0830			CuNi25	CN105	
	CuNi30	2.0835					CuNi30
	CuNi30Fe2Mn2	2.0883					
	CuNi30FeMn						
	CuNi30Mn1Fe	2.0882	CW354H	CuNi30Mn1Fe	CuNi30Mn1Fe	CN107	
	CuNi3Si	2.0857	CW112C	CuNi3Si			
	CuNi44Mn1	2.0842			CuNi44Mn		
	CuNi5Fe1Mn				CuNi5Fe1Mn		
	CuNi9Sn2	2.0875	CW351H	CuNi9Sn2			
	CuPb10Sn	2.1176	CW352H		CuSn10Pb10	LB2	
	CuPb15Sn	2.1183	CC496K-GZ				
	CuPb1P	2.1160	CW113C	CuPb1P			
	CuPb20Sn	2.1189					
	CuSn10	2.1050.01	CC480K		CuSn10	CT1	
	CuSn10Zn	2.1087					
	CuSn12	2.1051.01	CC483K		CuSn12	PB2	
	CuSn14				CuSn14		
	CuSn4	2.1016	CW450K	CuSn4	CuSn4P	PB101	
	CuSn5			CW451K			
	CuSn6	2.1020	CW452K	CuSn6	CuSn6	PB103	
	CuSn6Zn6	2.1080					
	CuSn7						CuSn7
	CuSn7ZnPb	2.1090.03	CC493K-GZ				
	CuSn8	2.1030	CW453K	CuSn8	CuSn8P	PB104	
	CuZn10	2.0230	CW501L	CuZn10	CuZn10	CZ101	
	CuZn15	2.0240	CW502L	CuZn15	CuZn15	CZ102	
	CuZn20	2.0250	CW503L	CuZn20		CZ103	
	CuZn20Al2	2.0460	CW702R	CuZn20Al2	CuZn22Al2	CZ110	
	CuZn25Al15						
	CuZn28	2.0261	CW504L	CuZn28		CZ105	
	CuZn28Sn1	2.0470	CW706R	CuZn28Sn1	CuZn29Sn1		
	CuZn30	2.0265	CW505L	CuZn30	CuZn30	CZ106	
	CuZn30AlFeMn				CuZn30AlFeMn		
	CuZn31Si1	2.0490	CW708R	CuZn31Si1			
	CuZn33	2.0280	CW506L	CuZn33		CZ107	
	CuZn35Al1	2.0592.01	CC765S		CuZn30AlFeMn	HTB1	
	CuZn35Ni2	2.0540	CW710R	CuZn35Ni2			
	CuZn36	2.0335	CW507L	CuZn36	CuZn36	CZ108	
	CuZn36Pb1.5	2.0331	CW601N	CuZn35Pb2	CuZn35Pb2	CZ131	
	CuZn36Pb3	2.0375	CW602N	CuZn36Pb3	CuZn36Pb3	CZ124	
	CuZn37	2.0321	CW508L	CuZn37	CuZn37	CZ108	
	CuZn37Pb0.5	2.0332	CW604N	CuZn37Pb0.5		CZ118	
	CuZn38Pb1.5	2.0371	CW607N	CuZn38Pb1.5	(CuZn38Pb2)	CZ119	
	CuZn38Sn1	2.0530	CW717R	CuZn38Sn1			
	CuZn38SnAl	2.0525	CW715R	CuZn38SnAl			
	CuZn39AlFeMn						
	CuZn39Pb0.5	2.0372	CW610N	CuZn39Pb0.5	CuZn39Pb0.8	CZ123	
	CuZn39Pb2	2.0380	CW612N	CuZn39Pb2		CZ128	
	CuZn39Pb3	2.0401	CW614N	CuZn39Pb3	CuZn39Pb3	CZ121	
	CuZn40	2.0360	CW509	CuZn40	CuZn40	CZ109	
	CuZn40Al2	2.0550	CW713R				

JIS	SS	UNS	AISI/ASTM	Misc. Brand	Condition	Form	Structure
		C60800					
C6140							
		C18400					
		C19400					
	5667	C70600					
		C79300					
		C76300					
		C76300					
C7451		C75200					
		C77000					
		C71300					
		C71580					
	5682	C70600					
		C70250					
		C72150					
		C72500					
	5640	C93700	CA937				
		C93800					
		C19000					
		C94100					
	5443	C90700					
	5458	C90500					
	5465		CA907				
	5475	C91000					
C5111		C51100					
		C51000					
C5191	5428	C51900					
		C93200					
		C83600					
C5210		C52100					
C2200		C22000					
C2300	5112	C23000					
C2400		C24000					
	5217	C68700					
		C86300					
C4430		C25600					
	5220	C44300					
C2600	5122	C26000					
C2680		C26800					
	5256	C96500	CA865				
C2720		C27200					
		C34200					
		C36000					
	5150	C27200					
		C33500					
	5165	C35300					
		C46400					
		C47000					
		C36500					
		C37700					
	5170	C38500					
C2800		C28000					
		C67410					

ISO	DIN	W.-Nr	EN	EN-Nr	AFNOR	BS	UNI
10	CuZn40Mn1	2.0572	CW723R	CuZn40Mn1			
	CuZn40Mn1Pb	2.0580	CW720R	CuZn40Mn1Pb			
	CuZn40Pb2	2.0402	CW612N	CuZn40Pb2	CuZn39Pb2		
	CuZn44Pb2	2.0410	CW622N	CuZn44Pb2			
	CuZn5	2.0220	CW500L	CuZn5		CZ136	
						CZ120	
						CZ104	
						CZ125	
11		1.4876	X2NiCrAlTi3220				
		2.4810	NiMo30				
		2.4810	NiMo30				
		2.4602					
		2.4819	NiMo16Cr15W				
		2.4610	NiMo16Cr16Ti				
		2.4619					
			NiCr21Fe18Mo9				
		2.4665					

JIS	SS	UNS	AISI/ASTM	Misc. Brand	Condition	Form	Structure
	5168	C37800					
	5272	C68700					
C2100		C21000					
				AMPCO15			
				AMPCO18			
				AMPCO18.136			
				AMPCO18.22			
				AMPCO18.23			
				AMPCO21			
				AMPCO22			
				AMPCO25			
				AMPCO26			
				AMPCO45			
				AMPCO483			
				AMPCO642			
				AMPCO673			
				AMPCO674			
				AMPCO8			
				AMPCO863			
				AMPCOM4			
		S66286		A286	precip.hardened		
		S35000		AM350		cast	
		S35000		AM350	heattreated		
		S35500		AM355			
		S45500		Custom455			
				Discalloy			
		N08800		Incoloy800			
				Incoloy801			
		N19909		Incoloy909			
				Lapelloy			
				M-308			
		R30155		N-155		bar,forge,ring	
		R30155		N-155			
				Air Resist13			
				FSX-414			
				H531			
				Haynes188		bar,forge,ring	
				Haynes188		tube	
				Haynes25			
				Mar-M-302			
				Mar-M-509			
		R30195		MP159			
				MP35N			
				Stellite21			
				Stellite30			
				Stellite31			
				W152			
				W162			
				Astroloy		allforms	
				GTD222			
		N10665		HastelloyB-2			
		N10002		HastelloyC		plate	
		N10002		HastelloyC		cast	
				HastelloyC-22			
		N10276		HastelloyC-276			
		N06455		HastelloyC-4			
		N06007		HastelloyG			
		N06985		HastelloyG-3			
		N10003		HastelloyN		bar,forge,ring	
		N10003		HastelloyN		cast	
		N06635		HastelloyS		allforms	
		N10004		HastelloyW			
		N06002		HastelloyX		allforms	

ISO	DIN	W.-Nr	EN	EN-Nr	AFNOR	BS	UNI
11							
		2.4816	NiCr15Fe				
		2.4851					
		2.4856	NiCr22Mo9Nb				
		2.4856	NiCr22Mo9Nb				
		2.4856	NiCr22Mo9Nb				
			NiFe38Cr16Nb				
		2.4668	NiCr19Fe19Nb5Mo3				
		2.4668	NiCr19Fe19Nb5Mo3				
		2.4668	NiCr19Fe19Nb5Mo3				
		2.4669					
		2.4669					
		2.4061	Ni99.6				
		2.4634					
		2.4636					
		2.4650					
		2.4631	NiCr20TiAl				
		2.4632					
		2.4662					
		ppm					
			NiCr19Co18Mo4Ti3Al3				
		2.4654	NiCr20Co13Mo4Ti3Al				
		2.4654	NiCr20Co13Mo4Ti3Al				
		3.7024					
		3.7024					
	TiV10Fe2Al3						
		3.7124	TiCu2				
			TiAl5Sn2.5				
			TiAl5Sn2.5				
			TiAl5Sn2.5				
		3.7164	TiAl6V4				
		3.7164	TiAl6V4				
			TiAl6V4				
		3.7164	TiAl6V4				
		3.7164	TiAl6V4				

JIS	SS	UNS	AISI/ASTM	Misc. Brand	Condition	Form	Structure
				IN100			
		N06600		Inconel600		allforms	
		N06601		Inconel601		allforms	
		N06625		Inconel625		bar,forge,ring	
		N06625		Inconel625		tube	
		N06625		Inconel625		cast	
		N09706		Inconel706			
				Inconel708		bar,forge,ring	
		N07713		Inconel713			
				Inconel713LC			
		N07718		Inconel718		bar,forge,ring	
		N07718		Inconel718		tube	
		N07718		Inconel718		cast	
				Inconel901			
		N07750		InconelX-750	sol.treated		
		N07750		InconelX-750	precip.hardened		
				Mar-M-200			
				Mar-M-247		allforms	
				Mod.IN100			
				Mod.IN792			
		N02205		Nickel201			
				Nimonic101			
				Nimonic105			
				Nimonic115			
		N07263		Nimonic263			
		N07080		Nimonic80A			
				Nimonic81			
				Nimonic86			
		N07090		Nimonic90			
		N09901		Nimonic901			
				Nimonic91			
				René95			
		N03260		TDNickel			
		N07500		Udimet500			
				Udimet520			
				Udimet700			
				Udimet720			
		N07001		Waspalloy		bar,forge	
		N07001		Waspalloy		cast	
				Ti(pure)		pure-tube	Ti(?)
			AMS4900,-01,-21	Ti(pure)(grd1-4)		pure-plate,bar,forge	Ti(?)
			AMS4986	Ti10V-2Fe-3Al			Ti(?)
		R58210	ASTMGrade21	Ti15Mo-3Nb-3Al-0.2Si			Ti(?)
		R58650	AMS4995	Ti17			Ti(a+b)
				Ti2Cu			Ti(?)
		R56320	AMS4943	Ti3Al-2.5V	annealed	tube	Ti(?+?)
		R56320	AMS4943	Ti3Al-2.5V		bar,forge	Ti(?+?)
		R54520	AMS4910	Ti5Al-2.5Sn	ELI		Ti(?)
		R54521	AMS4909	Ti5Al-2.5Sn			Ti(?)
		R54520	AMS4910	Ti5Al-2.5Sn	annealed		Ti(?)
		R54620	AMS4919	Ti6-2-4-2	annealed		Ti(?)
		R54621	AMS4919	Ti6-2-4-2	precip.hardened		Ti(?)
		R56260	AMS4981	Ti6-2-4-6	annealied		Ti(?+?)
		R56260	AMS4981	Ti6-2-4-6	precip.hardened		Ti(?+?)
		R56400	AMS4920	Ti6Al-4V	annealed		Ti(?+?)
		R56400	AMS4920,Grd5	Ti6Al-4V	annealed		Ti(?+?)
		R56401	AMS4981	Ti6Al-4V	ELI	ELI	Ti(?+?)
		R56400	AMS4920	Ti6Al-4V		extrusion	Ti(?+?)
		R56400	AMS4920	Ti6Al-4V	precip.hardened		Ti(?+?)

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GRADES CODIFICATION SYSTEM | Sistema de codificação de graus | Codificación de calidad

PH

PH - Palbit Hardmetal

PD - Palbit diamond

PB - Palbit PCBN

X

Coating

PCD | PCBN Grade

X

1 - Steel

2 - Stainess steel

3 - Cast Iron

4 - Non Ferrous

5 - Super Alloys

6 - Hardened Materials

7 - Wearparts

9 - Universal Range

XX

01 - ISO Field

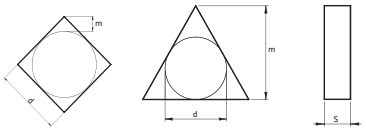
(...)

50 - ISO Field

ISO | ANSI MILLING INSERTS CODE KEY

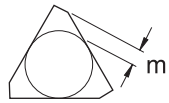
H	120°	M	86°
O	135°	V	35°
P	108°	W	80°
S	90°	L	90°
T	60°	A	85°
C	80°	B	82°
D	55°	K	55°
E	75°	R	
F	50°	X	Special

1- Insert shape symbol



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

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



Triangular inserts with a facet (secondary cutting edge)

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

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

3 - Tolerances symbol

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

2 - Normal clearance symbol

ISO | 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 bre-aker	
R		-	Chip breaker on one side	
F		-	Chip breaker on both sides	
X	-	-	-	On request

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

5 - Insert size symbol

* ANSI designation only (Radius Designation is 00)

** Metric designation only (Radius Designation is M0)

According to International Standard ISO 1832 - 2012(E)

"Indexable inserts for cutting tools - Designation"

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

6 - Insert thickness symbol

12 06 00 AN 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

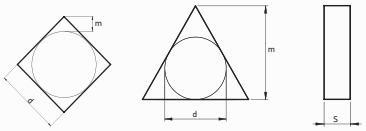
8* - Cutting edge information		
Shape	Honing	Symbol
	No honing	F
	With honing	E
	Chamfered No honing	T
	Chamfred with honing	S
*only when required.		

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

ISO DRILLING INSERTS CODE KEY

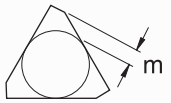
H	120°	M	86°
O	135°	V	35°
P	108°	W	80°
S	90°	L	90°
T	60°	A	85°
C	80°	B	82°
D	55°	K	55°
E	75°	R	
F	50°	X	Special

1- Insert shape symbol



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

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



Triangular inserts with a facet (secondary cutting edge)

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

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

3 - Tolerances symbol

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

2 - Normal clearance symbol

ISO **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	
H	with hole	Round hole / one countersink (70°~90°)	Chipbreaker on one side	
C		Round hole / double countersink (70°~90°)	Without chipbreaker	
J			Chipbreaker on both sides	
A		Round hole	Without chipbreaker	
M			Chipbreaker on one side	
G	with hole	Round hole	Chipbreaker on both sides	
N	without hole	-	Without chipbreaker	
R		-	Chipbreaker on one side	
F		-	Chipbreaker on both sides	
X	-	-	-	On request

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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

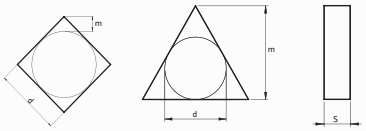
8 - Cutting edge information

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

ISO | ANSI TURNING INSERTS CODE KEY

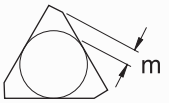
H	120°	M	86°
O	135°	V	35°
P	108°	W	80°
S	90°	L	90°
T	60°	A	85°
C	80°	B	82°
D	55°	K	55°
E	75°	R	
F	50°	X	Special

1 - Insert shape symbol



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

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



Triangular inserts with a facet (secondary cutting edge)

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

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

Inscribed circle Tolerances (mm)

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

3 - Tolerances symbol

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

2 - Normal clearance symbol

ISO	T	N	M	G
ANSI	T	N	M	G

4 - Insert symbol

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

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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	11/4	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 - Chipbreaker geometries

NEGATIVE Chipbreakers

FLAT	MF	GS	SF	LC	MS
MR	PM	ST	MW	SS	HR
MA	RP	HY	HZ	GR	

POSITIVE Chipbreakers

FLAT	FP	BO	FM	FK	FW	LM	MP	MM
MK	MW	FS	LN	GS	ST	RF	RM	RR

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

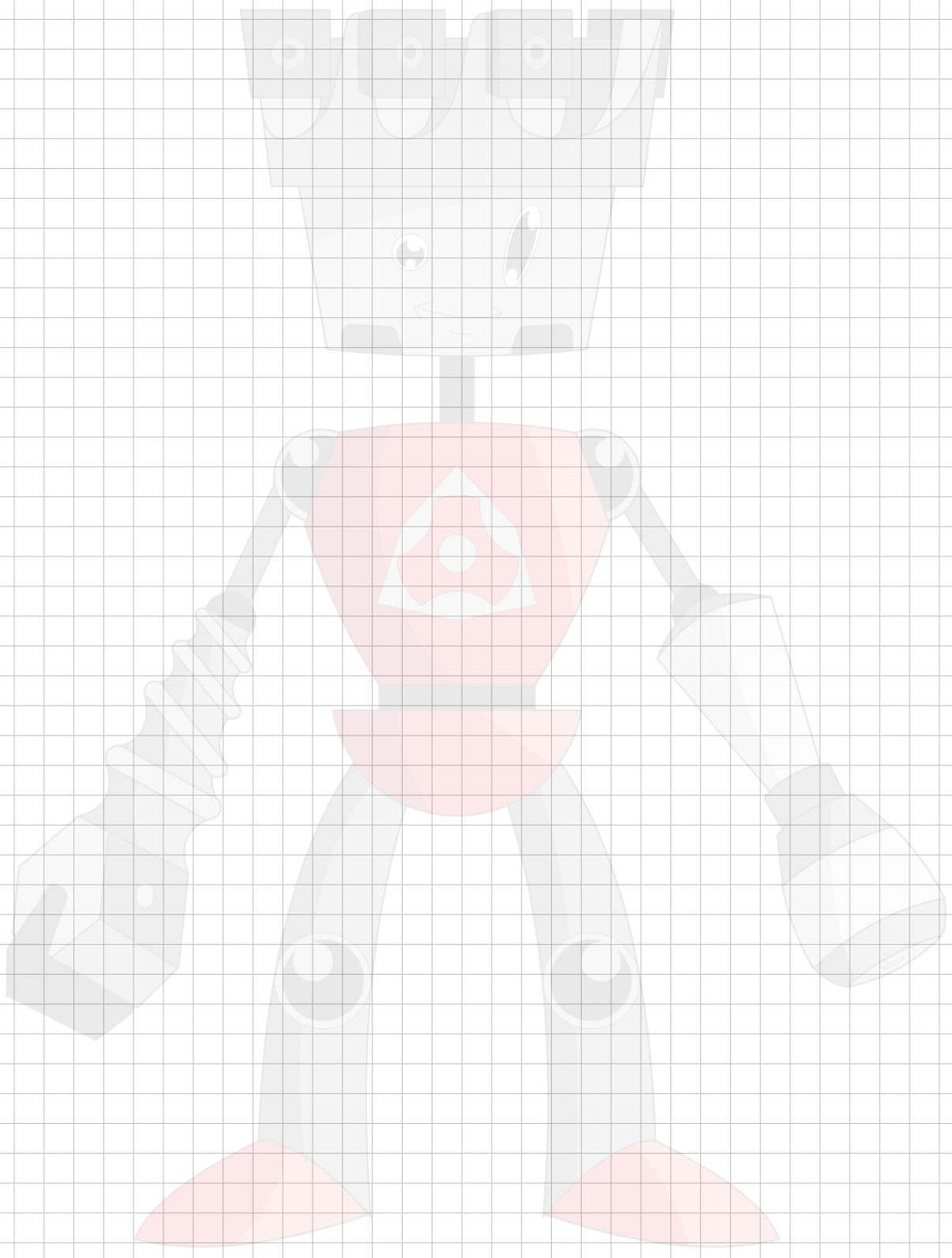
*only when required.

9* - Cutting direction

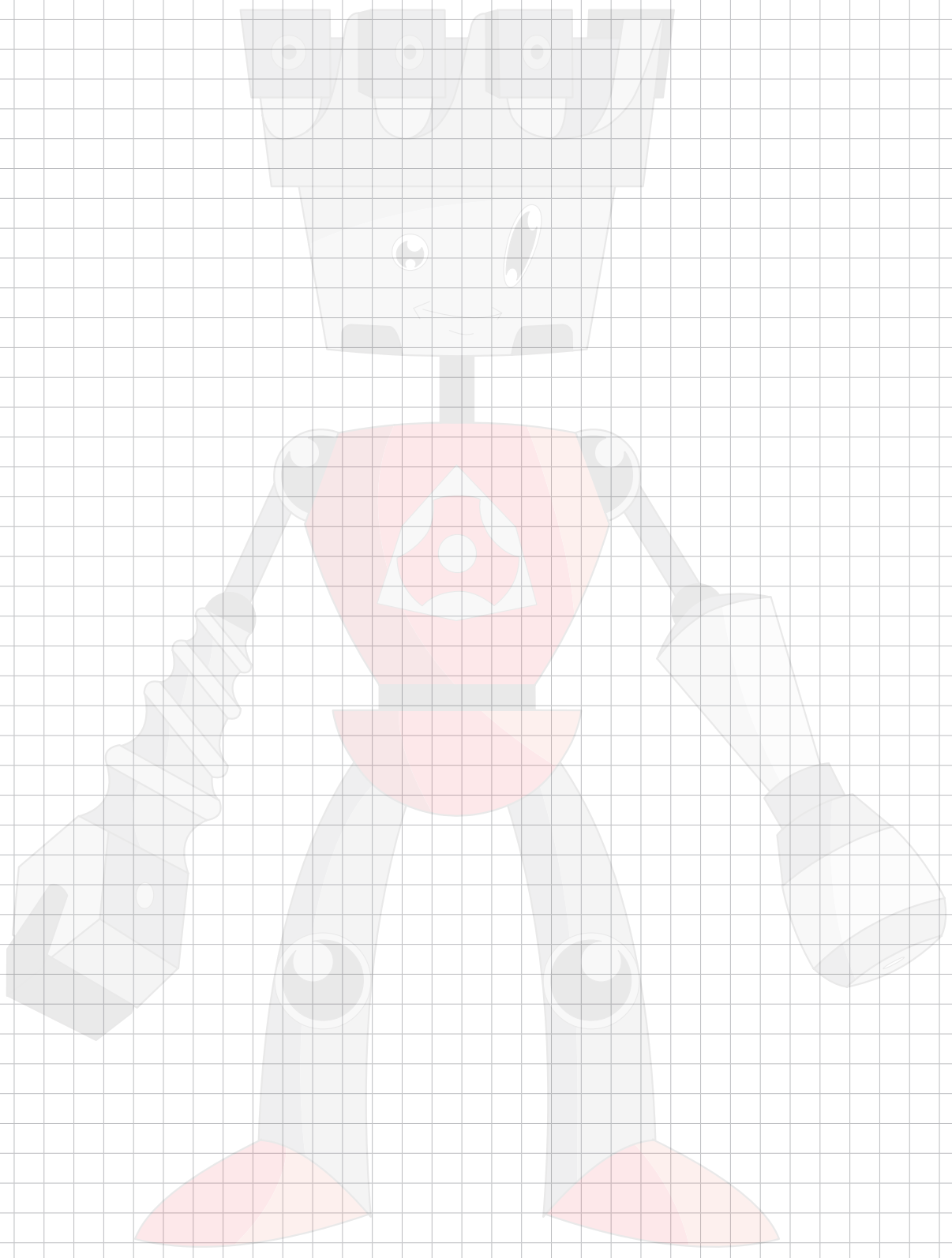
Shape	Hand	Symbol
	Right	R
	Left	L
	None	N

*only when required.

NOTES



NOTES





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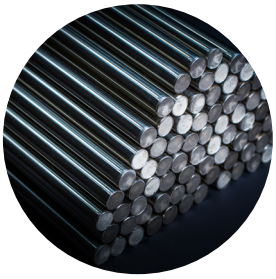

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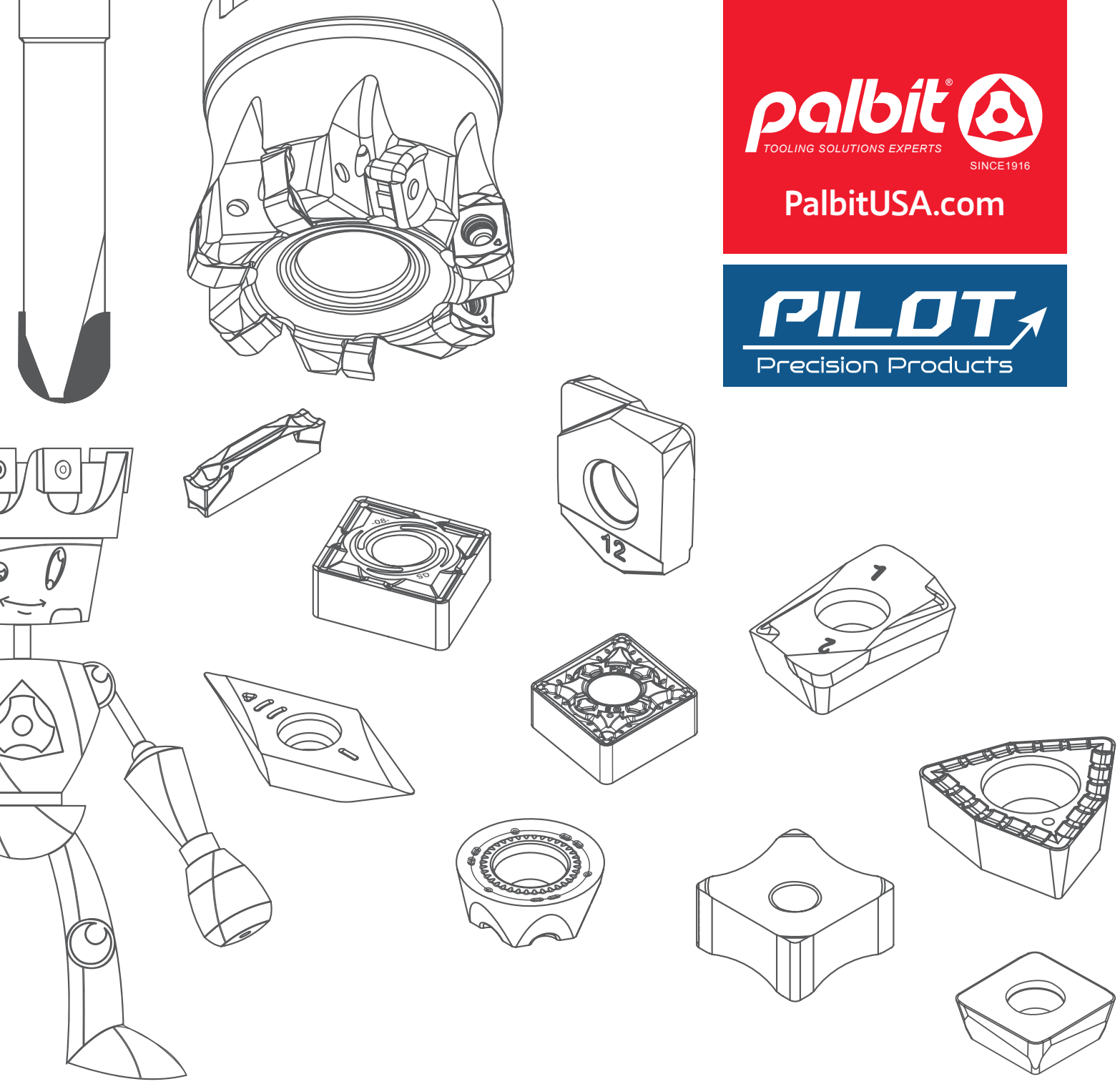

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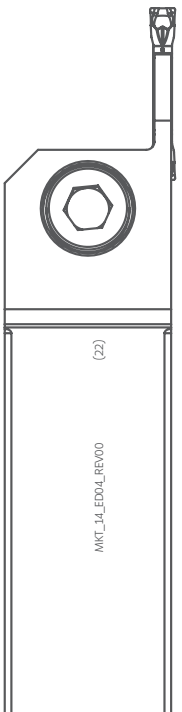

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