

XN20-06 | XN20-12

TETRAFEED

Double-sided high feed milling solution

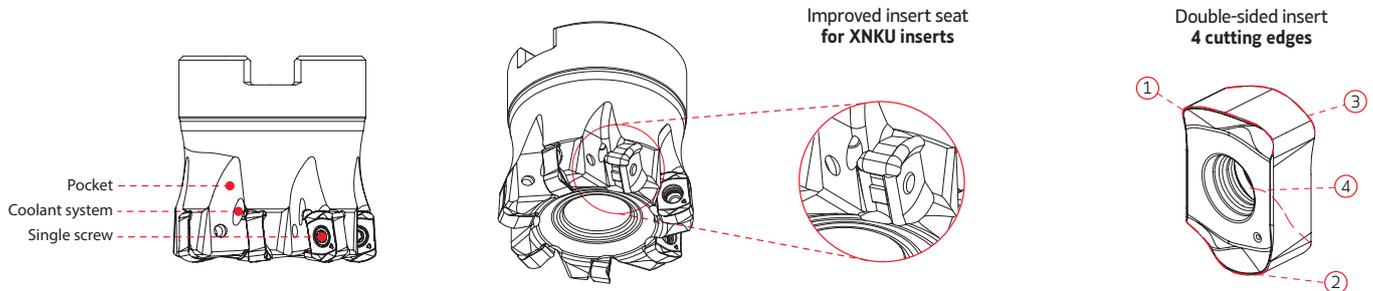
MILLING

Facing | Profiling | Copying



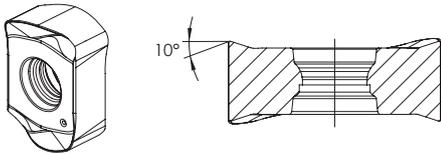
TETRAFEED XN20-06 | XN20-12

The Tetrafeed line is expanding! With XNKU 06 and XNKU 12, there are no limits for high feed machining of either small or large sized components. The 4 cutting edge negative insert enables you to achieve feeds of up to 0.059 in/t and depth of cut up to 0.059 in, leading to higher productivity.

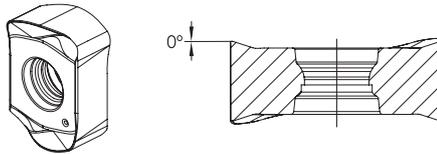


XNKU 06T3 | 1205

XNKU 06T310-MP



XNKU 06T310-MS

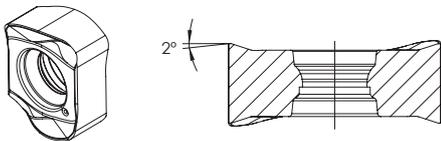


INSERT SIZE **06** XNKU 06T3

XNKU-MP

NEW
XNKU-MS

XNKU 120516-MP

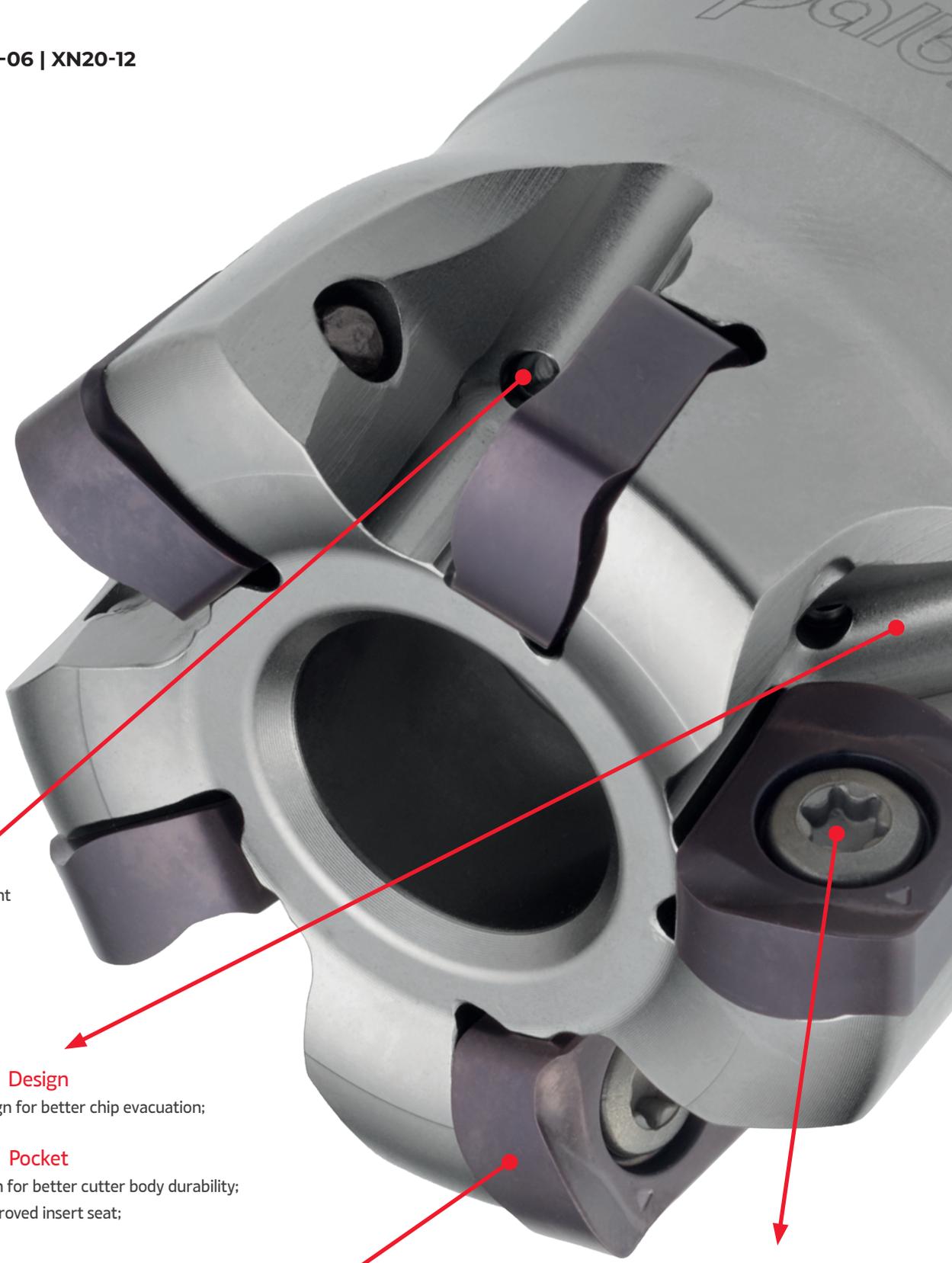


INSERT SIZE **12** XNKU 1205

NEW
XNKU-MP

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.
Geometry MS General machining	Geometry for stainless steel and HRSA. Suitable for alloy steel machining.



Internal coolant system

Design

- Optimized design for better chip evacuation;

Pocket

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

Insert Width

- Robust insert with large cross section;

Cutting edge

- Improved cutting edge;
- Improved wear resistance;

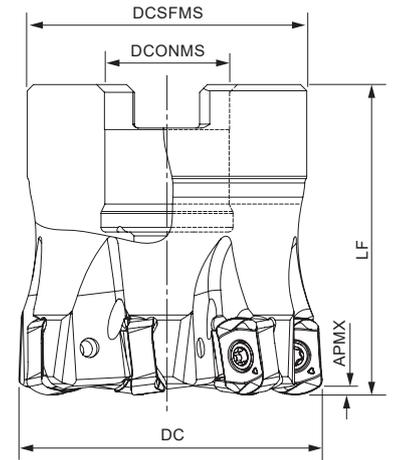
Double-sided insert

- Double-sided insert with 4 cutting edges;

Bigger screw size to withstand loads of demanding operations

TETRAFEED XN20-06

Proprietary milling line



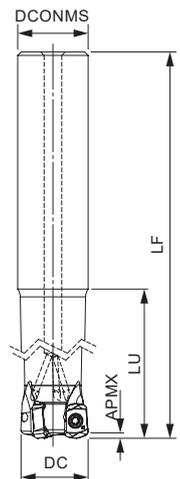
Arbor Mounting

KAPR=20° | GAMP=-7° | RP=0.071

Order code Código	Reference Referência Referencia	CICT	Dimensions Dimensões Dimensiones (in)				WT (lbs)	Specifications		Insert	Stock
			DC	DCONMS	DCSFMS	LF		Arbor Type	APMX (in)		
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 | Disponível sobre consulta | Disponible bajo consulta



Cylindrical Shank

KAPR=20° | GAMP=-7° | RP=0.071

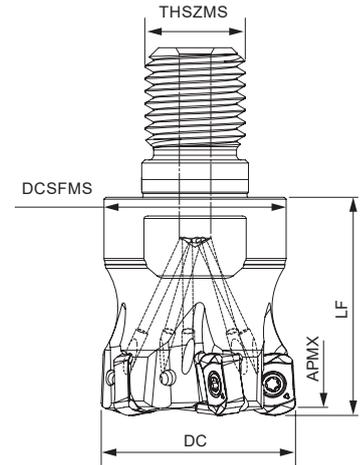
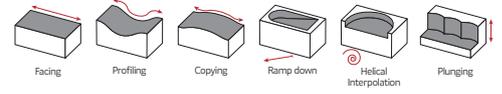
Order code Código	Reference Referência Referencia	CICT	Dimensions Dimensões Dimensiones (in)				WT (lbs)	Specifications		Insert	Stock
			DC	DCONMS	LF	LU		APMX (in)			
181170600	XN20 D.625-C.625/6.00-02-06	2	0.625	0.625	6.000	2.000	0.458	0.040	XNKU 06...	☺	
181170700	XN20 D.750-C.750/6.50-03-06	3	0.750	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 | Disponível sobre consulta | Disponible bajo consulta

TETRAFEED XN20-06

XN KU 06

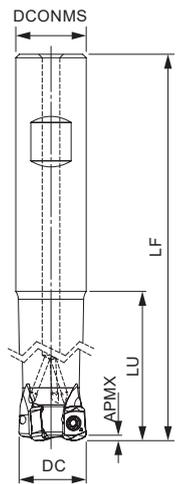


Threaded Coupling
KAPR=20° | GAMP=-7° | RP=0.071

Order code Código	Reference Referência Referencia	CICT	Dimensions Dimensões Dimensiones (in)				WT (lbs)	Specifications		Insert	Stock
			DC	THSZMS	DCSFMS	LF		APMX (in)			
181169400	XN20 D.625-R-08/.984-02-06	2	0.625	M8	0.580	0.985	0.050	0.040	XN KU 06...	☉	
181169500	XN20 D.750-R-10/1.18-03-06	3	0.750	M10	0.730	1.180	0.090	0.040	XN KU 06...	☉	
181169600	XN20 D1.00-R-12/1.18-04-06	4	1.000	M12	0.905	1.180	0.145	0.040	XN KU 06...	☉	
181169700	XN20 D1.25-R-16/1.38-05-06	5	1.250	M16	1.180	1.380	0.340	0.040	XN KU 06...	☉	
181169800	XN20 D1.50-R-20/1.58-06-06	6	1.500	M20	1.440	1.575	0.455	0.040	XN KU 06...	☉	

☉ Stock item | Produto de stock | Itens de stock

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



Weldon Shank
KAPR=20° | GAMP=-7° | RP=0.071

Order code Código	Reference Referência Referencia	CICT	Dimensions Dimensões Dimensiones (in)				WT (lbs)	Specifications		Insert	Stock
			DC	DCONMS	LF	LU		APMX (in)			
181170200	XN20 D.625-W.625/3.50-02-06	2	0.625	0.625	3.500	1.250	0.224	0.040	XN KU 06...	☉	
181170300	XN20 D.750-W.750/4.00-03-06	3	0.750	0.750	4.000	1.750	0.372	0.040	XN KU 06...	☉	
181170400	XN20 D1.00-W1.00/5.00-04-06	4	1.000	1.000	5.000	2.500	0.782	0.040	XN KU 06...	☉	
181170500	XN20 D1.25-W1.25/5.00-05-06	5	1.250	1.250	5.000	2.500	1.316	0.040	XN KU 06...	☉	

☉ Stock item | Produto de stock | Itens de stock

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

TETRAFEED XN20-06

Proprietary milling line

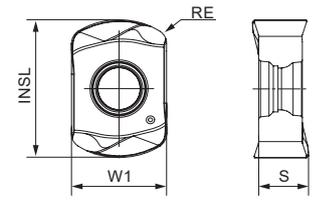
XNKU 06T3... Inserts | Pastilhas | Plaquetas



XNKU-MP



XNKU-MS



XNKU-MP | MS

		P					M				K		S			Dimensions Dimensões Dimensiones (in)			
		CVD	PVD				CVD	PVD			CVD	PVD	CVD	PVD					
(2) Grade code		T9	X5	T1	P4	Z2	T9	X9	Z2	Z3	T9	T1	T9	X9	Z3	W1	S	INSL	RE
(1) Geometry code	ISO Reference	PHS740	PHP910	PHP920	PHP930	PHP530	PHS740	PHH930	PHP530	PHH530	PHS740	PHP920	PHS740	PHH930	PHH530				
1112802	XNKU 06T310-MP	⊗	⊗	⊗	⊗		⊗	⊗			⊗	⊗	⊗	⊗		0.270	0.142	0.394	0.039
1113209	XNKU 06T310-MS					⊗			⊗	⊗				⊗		0.270	0.142	0.394	0.039

⊗ First choice | Primeira opção | 1ª opción

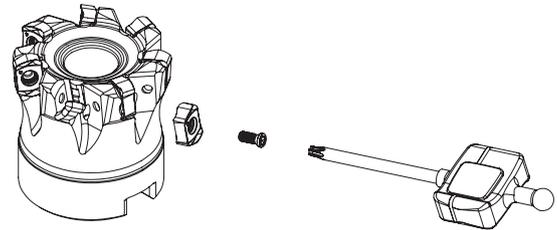
⊗ Stock item | Produto de stock | Itens de stock

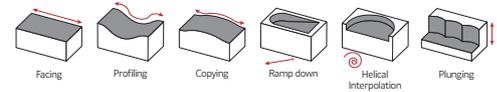
○ Available under request | Disponível sobre consulta
Disponível bajo consulta

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

SPARE PARTS Acessórios | Repuestos

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





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

ISO	PSM	Material	HB (Brinell)	Vc (SFM)							Feed fz (in/t)	
				← Wear Resistance				Toughness →			XNKU 06...-MP	XNKU 06...-MS
				PHP910	PHP920	PHP930	PHH930	PHS740	PHP530	PHH530		
P	1	Unalloyed Steel	125-220	590-820	590-820	525-754	-	525-754	590-1115	-	0.020-0.059	0.020-0.059
	2	Low-Alloyed Steel	220-280	525-787	558-689	492-623	-	492-623	590-1115	-	0.020-0.059	0.020-0.059
	3	High-Alloyed Steel	280-380	459-754	525-656	459-590	-	459-590	590-1082	-	0.020-0.059	0.020-0.059
M	4	SS - Ferritic / Martensitic	200-330	-	-	-	426-558	394-590	492-886	558-918	0.020-0.055	0.020-0.055
	5	SS - Austenitic	200-330	-	-	-	328-525	328-492	-	525-918	0.020-0.055	0.020-0.055
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	-	-	262-459	230-426	-	492-853	0.020-0.055	0.020-0.055
K	7	Malleable Cast Iron	130-230	590-984	590-1050	-	-	525-984	-	-	0.020-0.059	-
	8	Grey Cast Iron	180-245	525-820	558-918	-	-	492-853	-	-	0.020-0.059	-
	9	Nodular Cast iron	160-250	492-689	328-787	-	-	262-722	-	-	0.020-0.059	-
S	11	Heat Resistant Super Alloys	200-320	-	-	-	98-246	98-230	-	98-492	0.020-0.051	0.020-0.051

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

(Note 2) It's possible to occur vibrations in certain cases. Please reduce depth of cut and / or reduce cutting conditions in following cases:

- When using long shank;
- When using long tool overhang with arbor type;
- When application has poor clamping rigidity or when using a low rigidity machine.

(Note 3) When using $DC=16mm$ apply 70% or less feed (fz) from the table.

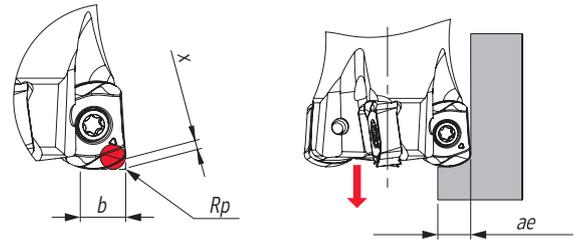
GRADES SELECTION GUIDE Guia para selecção de graus | Tabla para selección de calidades

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

● Good Conditions ● Average Conditions ● Difficult Conditions

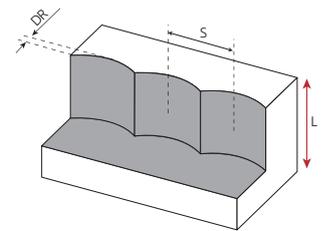
PROGRAMMING DATA Dados para programação | Datos para la programación

Insert	Programming Data			
	Rp	X	b	ae
XNKU 06T3...	0.071	0.016	0.142	0.134



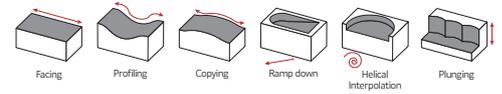
PLUNGING Mergulho | Plunge

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



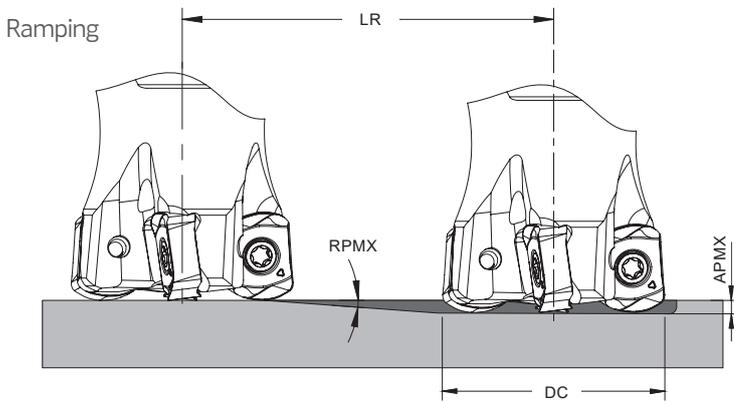
S max and DR corresponding cutting diameter DC (in)							
DR (in)	DC (in) XNKU 06...						
	0.625	0.750	1.000	1.250	1.500	2.000	2.500
0.040	0.155	0.170	0.195	0.220	0.240	0.280	0.315
0.080	0.210	0.230	0.270	0.305	0.335	0.390	0.440
0.120	0.245	0.275	0.325	0.370	0.405	0.475	0.535

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

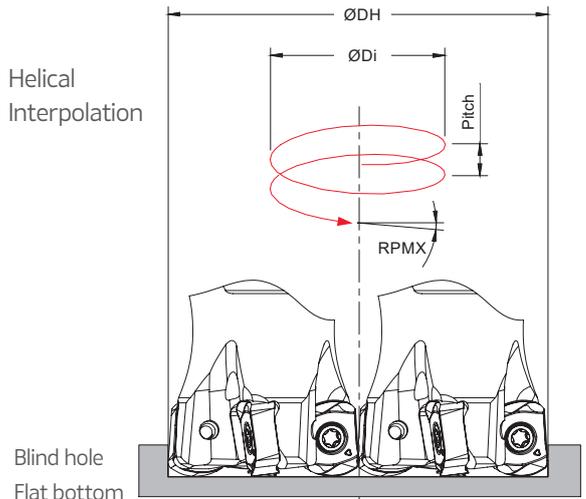


RAMPING AND HELICAL INTERPOLATION

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



Helical Interpolation



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

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

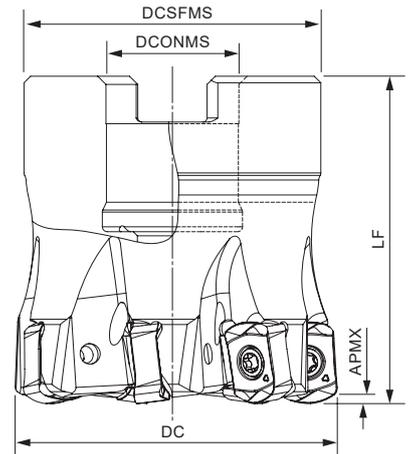
Note: During helical interpolation do not exceed APMX.

(*) Down cutting is recommended, tool pass rotation should be counter-clockwise.

(*) In case of ramping and helical interpolation, apply 70% or less feed (fz) from recommended cutting conditions table.

TETRAFEED XN20-12

Proprietary milling line



Arbor Mounting

KAPR=20° | GAMP=-7° | RP=0.130

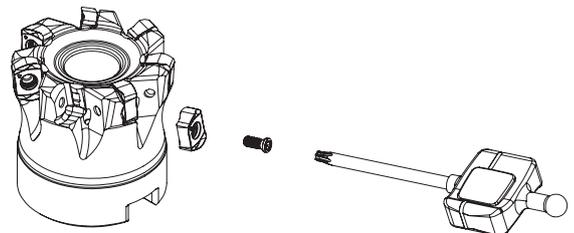
Order code Código	Reference Referência Referencia	CICT	Dimensions Dimensões Dimensiones (in)				WT	Specifications		Insert	Stock
			DC	DCONMS	DCSFMS	LF		Arbor Type	APMX (in)		
181187500	XN20 D2.00-A.750/1.97-05-12	5	2.000	0.750	1.772	1.969	0.919	0.059	A	XNKU 12...	○
181187600	XN20 D2.50-A.750/1.97-06-12	6	2.500	0.750	1.772	1.969	1.247	0.059	A	XNKU 12...	○
181187700	XN20 D3.00-A1.00/2.48-07-12	7	3.000	1.000	2.205	2.480	2.330	0.059	A	XNKU 12...	○
181187800	XN20 D4.00-A1.50/2.48-10-12	10	4.000	1.500	3.386	2.480	4.884	0.059	A	XNKU 12...	○

⊗ Stock item | Produto de stock | Itens de stock

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

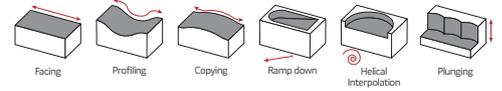
SPARE PARTS Acessórios | Repuestos

Cutter DC	Insert Screw	Key (Torx)	Order separately	
			Key (Torx - Nm)	Torque Value
XN20-12 - 2.00-4.00	P0451400	XT20	DT2050	43.3



TETRAFEED XN20-12

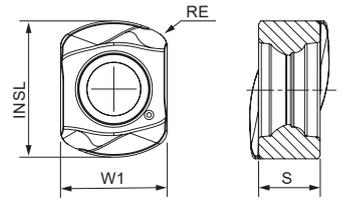
XNKU 12



XNKU 1205... Inserts | Pastilhas | Plaquetas



XNKU-MP



XNKU-MP | MS

		P					M				K		S			Dimensions Dimensões Dimensiones (in)			
		CVD	PVD				CVD	PVD			CVD	PVD	CVD	PVD					
⁽¹⁾ Grade code	⁽²⁾ Grade code	T9	X5	T1	P4	Z2	T9	X9	Z2	Z3	T9	T1	T9	X9	Z3	W1	S	INSL	RE
⁽¹⁾ Geometry code	ISO Reference	PHS740	PHP910	PHP920	PHP930	PHP530	PHS740	PHH930	PHP530	PHH530	PHS740	PHP920	PHS740	PHH930	PHH530				
1113071	XNKU 120516-MP	Ⓢ	Ⓢ	Ⓢ	○		Ⓢ	Ⓢ			Ⓢ	Ⓢ	Ⓢ	Ⓢ		0.461	0.232	0.591	0.063

Ⓢ 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

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

ISO	PSM	Material	HB (Brinell)	Vc (SFM)					Feed fz (in/t)
				← Wear Resistance			Toughness →		
				PHP910	PHP920	PHP930	PHH930	PHS740	XNKU 12...-MP
P	1	Unalloyed Steel	125-220	591-820	591-820	525-755	-	525-755	0.020-0.060
	2	Low-Alloyed Steel	220-280	525-788	558-689	492-624	-	492-624	0.020-0.060
	3	High-Alloyed Steel	280-380	460-755	525-656	460-591	-	460-591	0.020-0.060
M	4	SS - Ferritic / Martensitic	200-330	-	-	-	427-558	394-591	0.020-0.056
	5	SS - Austenitic	200-330	-	-	-	328-525	328-492	0.020-0.056
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	-	-	263-460	230-427	0.020-0.056
K	7	Malleable Cast Iron	130-230	591-984	591-1050	-	-	525-984	0.020-0.060
	8	Grey Cast Iron	180-245	525-820	558-919	-	-	492-853	0.020-0.060
	9	Nodular Cast iron	160-250	492-689	328-788	-	-	263-722	0.020-0.060
S	11	Heat Resistant Super Alloys	200-320	-	-	-	99-246	99-230	0.020-0.052

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

(Note 2) It's possible to occur vibrations in certain cases. Please reduce depth of cut and / or reduce cutting conditions in following cases:

- When using long shank;
- When using long tool overhang with arbor type;
- When application has poor clamping rigidity or when using a low rigidity machine.

(Note 3) When using $DC=16mm$ apply 70% or less feed (fz) from the table.

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

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



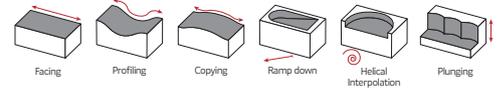
Good Conditions



Average Conditions

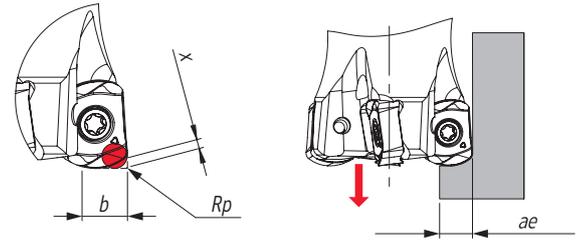


Difficult Conditions



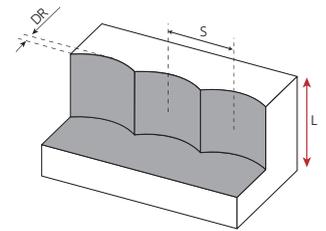
PROGRAMMING DATA Dados para programação | Datos para la programación

Insert	Programming Data			
	Rp	X	b	ae
XNKU 1206...	0.130	0.026	0.296	0.280



PLUNGING Mergulho | Plunge

L ≤ 3DC	L > 3DC	S max.
f _z (in/t)		
0.004-0.006	0.004-0.005	$S_{max} = \sqrt{D_c \cdot D_r \cdot D_r^2}$

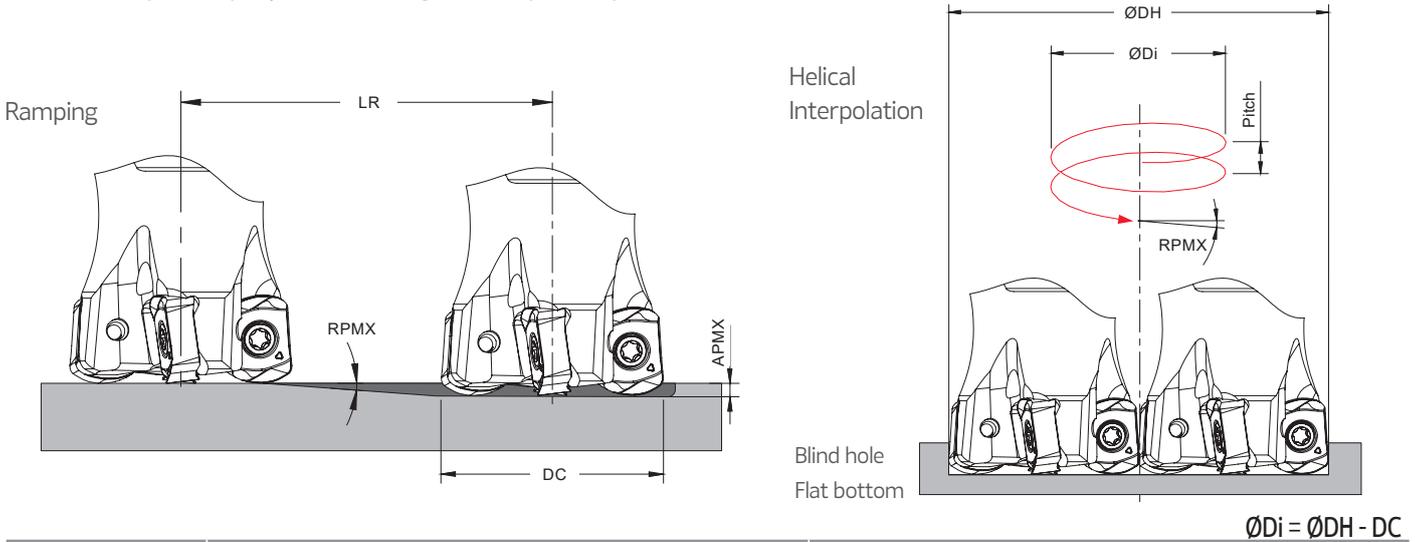


S max and DR corresponding cutting diameter D _c (in)				
DR (in)	D _c (in)			
	2.000	2.500	3.000	4.000
0.039	0.277	0.310	0.340	0.393
0.079	0.390	0.437	0.480	0.557
0.118	0.471	0.530	0.583	0.677
0.157	0.538	0.607	0.668	0.777
0.197	0.596	0.674	0.743	0.866
0.236	0.645	0.731	0.808	0.942
0.276	0.690	0.783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

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

RAMPING AND HELICAL INTERPOLATION

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



DC	Ramping			Helical Interpolation		
	RPMX	APMX	Min LR	$\varnothing DH_{min}$	$\varnothing DH_{max}$	Max Pitch/Rev.
2.000	0.8	0.059	4.225	3.716	-	0.059
				-	3.921	0.059
2.500	0.6	0.059	5.634	4.716	-	0.059
				-	4.921	0.059
3.000	0.5	0.059	6.761	5.716	-	0.059
				-	5.921	0.059
4.000	0.35	0.059	9.658	7.716	-	0.059
				-	7.921	0.059

Note: During helical interpolation do not exceed APMX.

(*) Down cutting is recommended, tool pass rotation should be counter-clockwise.

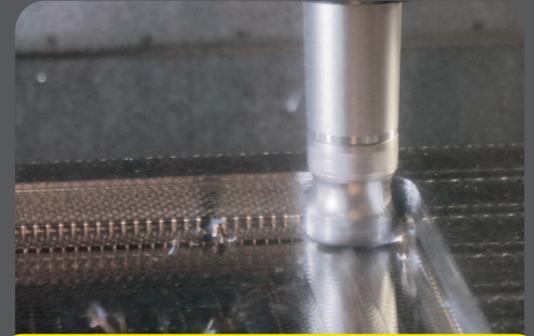
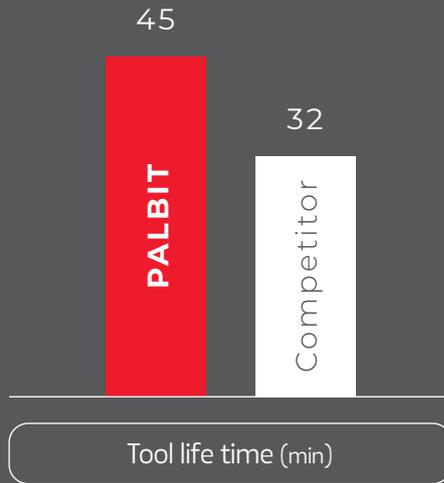
(*) In case of ramping and helical interpolation, apply 70% or less feed (f_z) from recommended cutting conditions table.

TEST REPORTS

TETRAFEED XN20-06

Toolholder XN20 D1.25-R-16/1.38-05-06
Insert XNKU 06T310-MP
Grade PHH930

+40%
Tool Life
Time



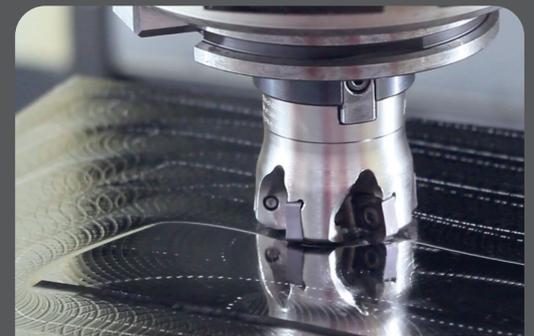
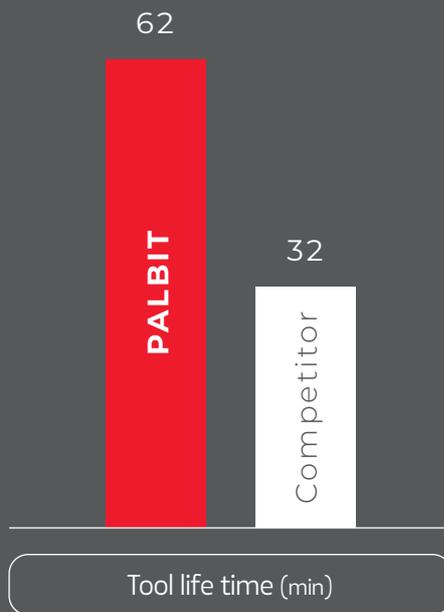
Workpiece Material Stainless steel, AISI 316

Cutting speed: Vc	394 SFM
Feed per tooth: fz	0.039 in/t
Depth of cut: ap	0.020 in
Width of cut: ae	0.945 in
Method of machining	Ramping and Helical Interpolation
Coolant	Dry

TETRAFEED XN20-12

Toolholder XN20 D2.00-A.750/2.00-05-12
Insert XNKU 120516-MP
Grade PHP920

+94%
Tool Life
Time



Workpiece Material 1.2738 | 34-36 HRC, Mould Steel

Cutting speed: Vc	656 SFM
Feed per tooth: fz	0.047 in/t
Depth of cut: ap	0.039 in
Width of cut: ae	60%
Method of machining:	Facing
Coolant	Air

XN20-06 | XN20-12

TETRAFEED

Double-sided high feed milling solution



Check the QrCode for more information



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