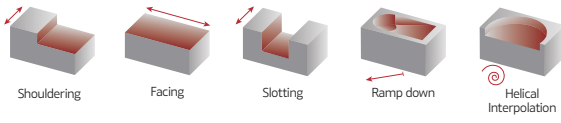
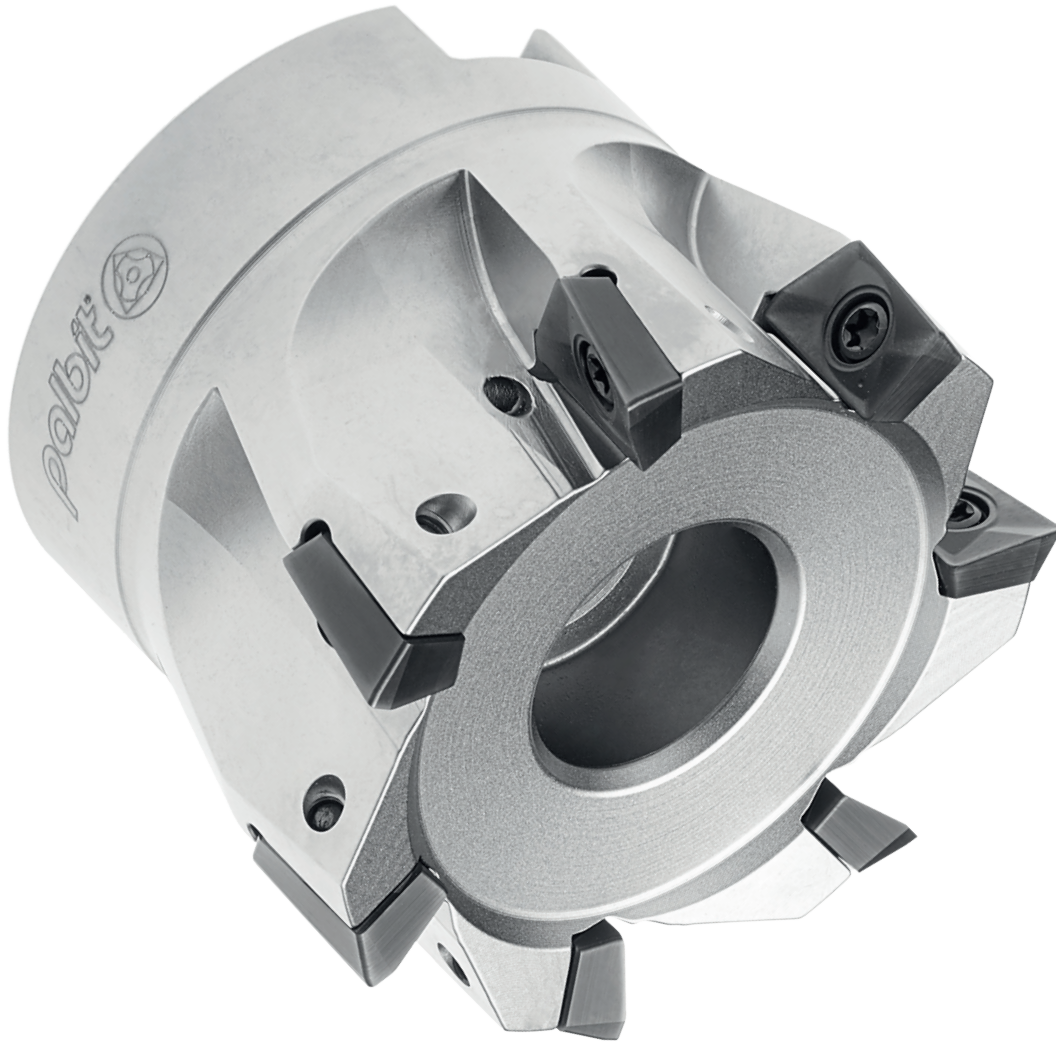


Square shoulder milling new generation



LINEPRO
XP90-06 | XP90-10 | XP90-17



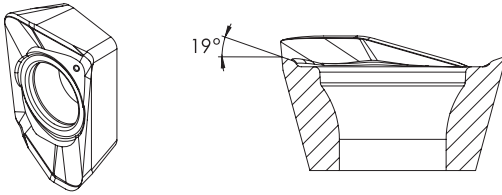
SINCE 1916

LINEPRO XP90-06

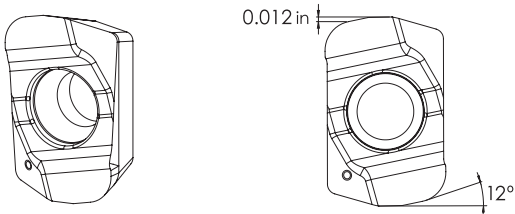
P M K S

INSERT SIZE
06 XPET
0602...

XPET-LP



XPET-HF

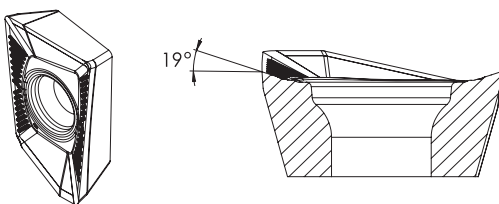


LINEPRO XP90-10

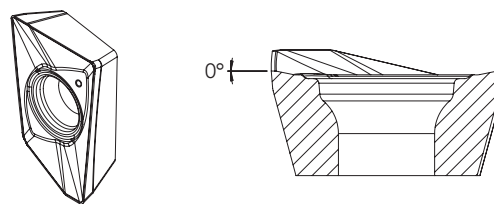
P M K N S

INSERT SIZE
10 XPET
1003...

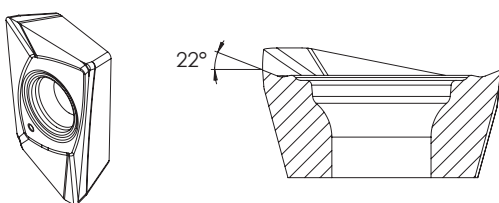
XPET-LP



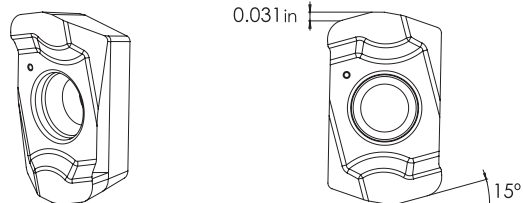
XPET-MP



XPET-LN



XPET-HF

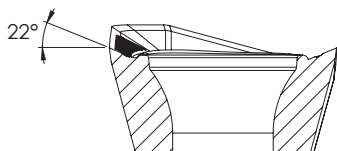
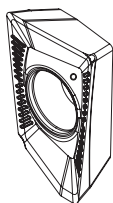


LINEPRO XP90-17

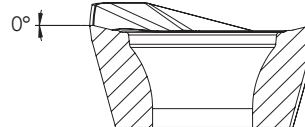
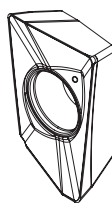
P M K N S

INSERT SIZE
17 XPET
1706...

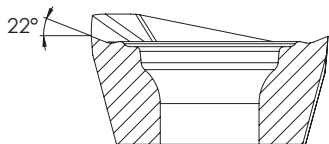
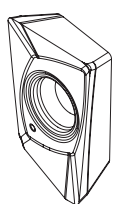
XPET-LP



XPET-MP



XPET-LN



XPET-LP



XPET-MP



XPET-LN



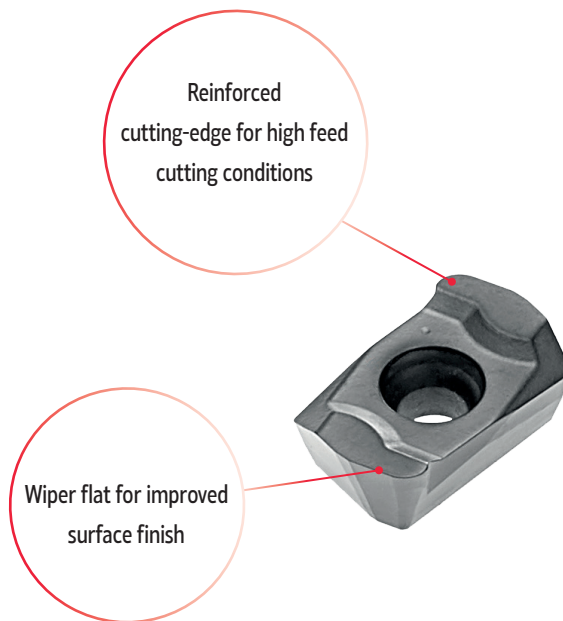
CHIP BREAKERS | Quebra- aparas | Rompevirutas

Chip Breaker	Features Características Características
Geometry HF Hifeed machine	New chipbreaker HF for Hifeed machining in all materials.
Geometry LP Light machine	Positive top rake angle to promote a good chip flow and reduce power consumption on low alloy steels.
Geometry MP Light machine	Chip-breaker with a reinforced chamfer for general applications on steel and cast iron.
Geometry LN Light machine	High positive chip-breaker, polished for applications of non ferrous materials (aluminum).

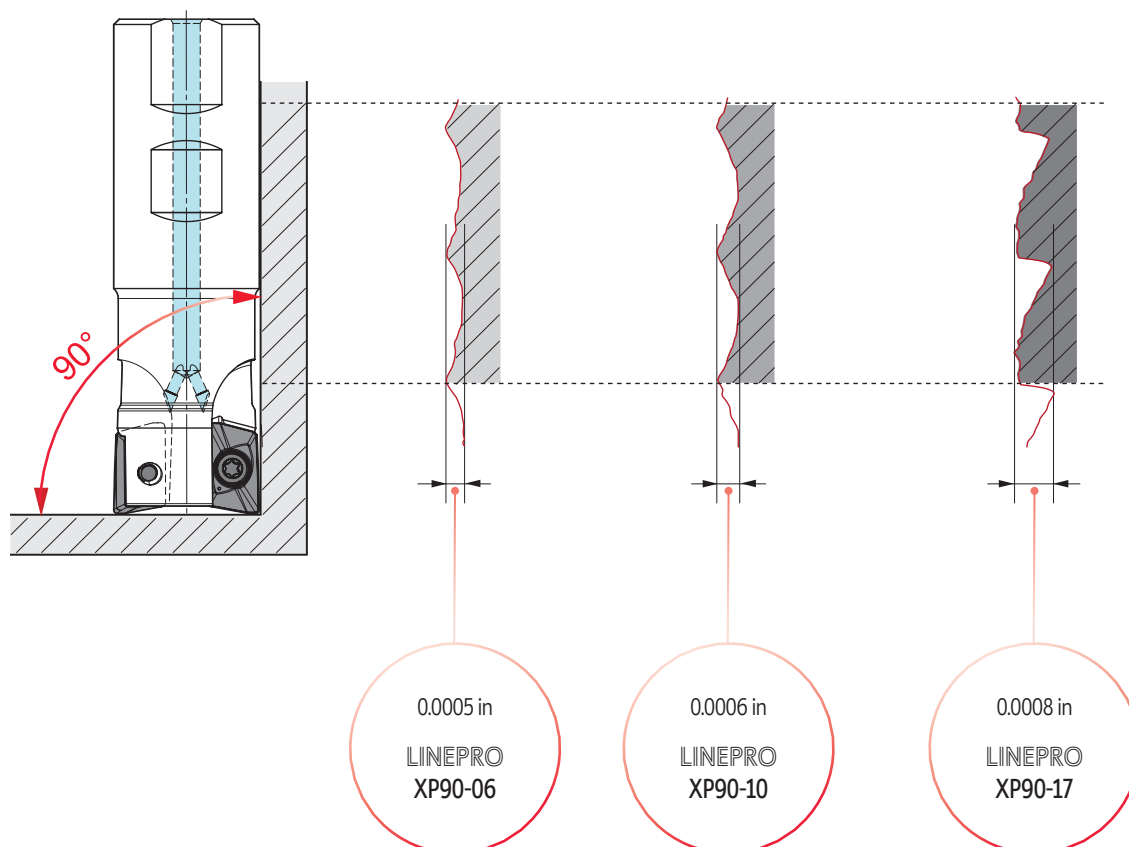
INSERTS FEATURES

Low cutting force

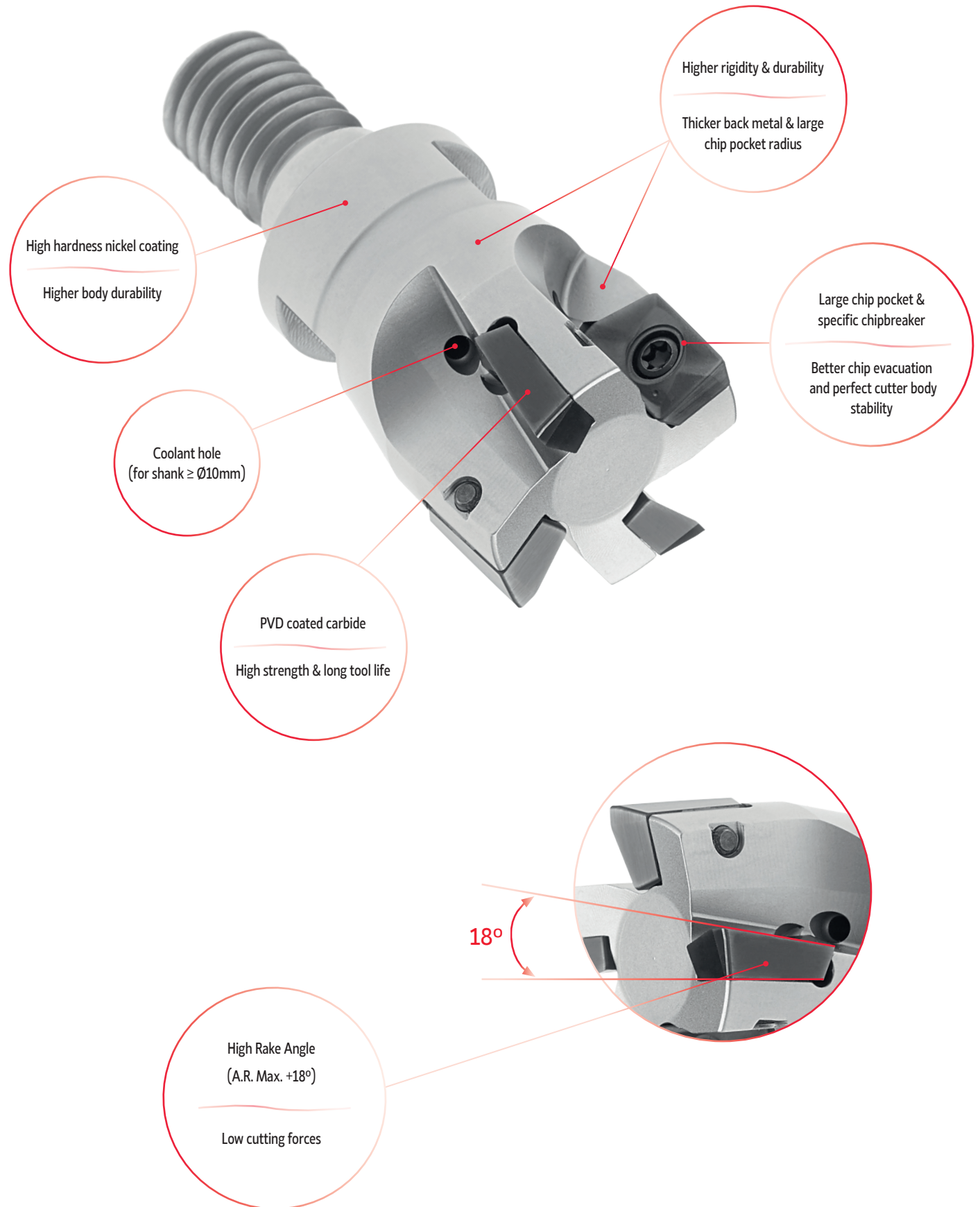
NEW

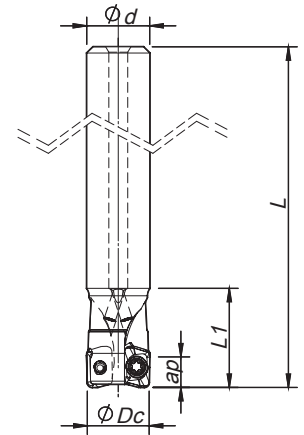


CUTTER FEATURES



CUTTER FEATURES





Cylindrical Shank

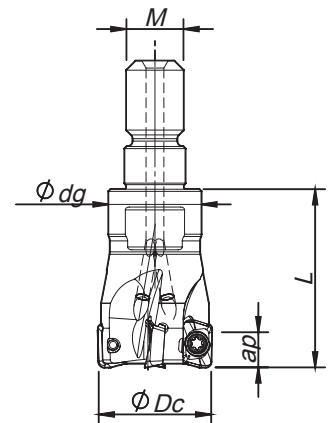
$K_r=90^\circ$ | $\gamma_p=+4^\circ$ | $R_p-HF=0.043$

Order code Código	Reference Referência Referencia		Dimensions Dimensões Dimensiones (in)				 lbs	Max ap (in)		Insert Pastilha Inserto	Stock
			ΦDc	$\Phi d/M$	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 | Disponível sobre consulta | Disponible bajo consulta

Inventory maintained. To be replaced by new item. | Item em stock. Será substituído por novo item. | Item en stock. Será reemplazado por nuevo item.



Threaded Coupling

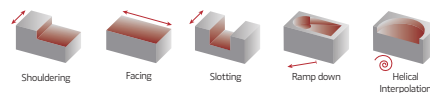
$K_r=90^\circ$ | $\gamma_p=+4^\circ$

Order code Código	Reference Referência Referencia		Dimensions Dimensões Dimensiones (in)				 lbs	Max ap (in)		Insert Pastilha Inserto	Stock
			ΦDc	$\Phi d/M$	Φdg	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 | Disponível sobre consulta | Disponible bajo consulta

Inventory maintained. To be replaced by new item. | Item em stock. Será substituído por novo item. | Item en stock. Será reemplazado por nuevo item.

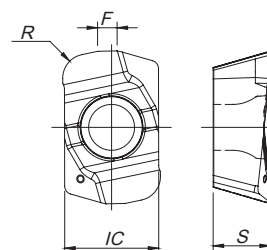


XPET 0602... || Inserts | Pastilhas | Plaquetas

XPET-HF



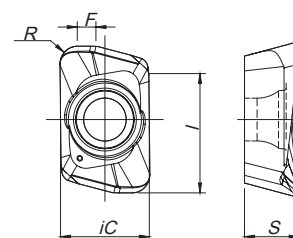
XPET-HF



XPET-LP



XPET-LP



Geometry code	ISO Reference	P					M			K				N		S		H		Dimensions (in)					
		PVD					CVD	PVD		CVD		PVD		UNC	PCD	PVD		PVD	CBN						
		P7	G1	G4	P3	G6	R1	G4	P3	L6	L9	G1	G4	P3	G6	10	D6	P3	G6						P7
1112049	XPET 060210 ZER-HF			⊗	⊗												⊗				0.154	0.094	-	0.039	0.031
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	0.024
1112004	XPET 060216 PDER-LP			⊗	⊗												⊗				0.154	0.094	0.209	0.063	0.020

⊗ Stock item | Produto de stock | Itens de stock
First choice | Primeira opção | 1ª opção

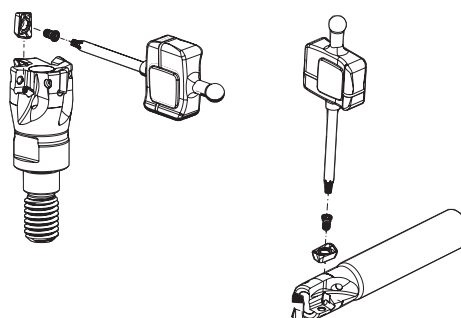
⊗ Stock item | Produto de stock | Itens de stock

○ Available under request | Disponível sobre consulta
Disponível bajo consulta

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



SPARE PARTS || Complementos | Complementos




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



LINEPRO XP90-06

GRADES SELECTION GUIDE

ISO	PSM	Material	HB (Brinell)	Grades	
				← Wear Resistance	Toughness →
				PH7920 	PH7930 
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 / Duplex	200-330		✓
	6	SS - 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

ISO	PSM	Material	HB (Brinell)	Vc (sfm)		Feed fz (in/t)	
				← Wear Resistance	Toughness →	XPET 0602...LP	XPET 0602...HF
				PH7920	PH7930		
P	1	Unalloyed Steel	125-220	591-788	525-722	0.002-0.003	0.016-0.031
	2	Low-Alloyed Steel	220-280	558-820	492-755	0.002-0.003	0.016-0.031
	3	High-Alloyed Steel	280-380	525-689	460-624	0.002-0.003	0.016-0.023
M	4	SS - Ferritic / Martensitic	200-330	-	-	0.002-0.003	0.016-0.031
	5	SS - Austenitic / Duplex	200-330	-	-	0.002-0.003	0.016-0.023
	6	SS - Duplex	230-260	-	-	0.002-0.003	0.016-0.023
K	7	Malleable Cast Iron	130-230	-	525-1148	0.002-0.003	0.020-0.031
	8	Grey Cast Iron	180-245	-	492-984	0.002-0.003	0.020-0.031
	9	Nodular Cast iron	160-250	-	394-853	0.002-0.003	0.020-0.031
S	11	Heat Resistant Super Alloys	200-320	-	115-214	0.002-0.003	0.016-0.023

(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) PH5... can be used wet or dry. PH7... only air thru.

(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.

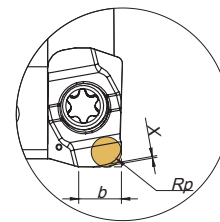
Operation	a_e	Vc & fz	a_p (in)
Slotting	100%	<20%	0.039-0.118
Shouldering	<50%	>8%	0.039-0.157
	≤25%	>12%	0.039-0.157

(Note 5) It's possible to occur vibrations in certain cases. Please reduce depth of cut and / or reduce cutting conditions in following cases:

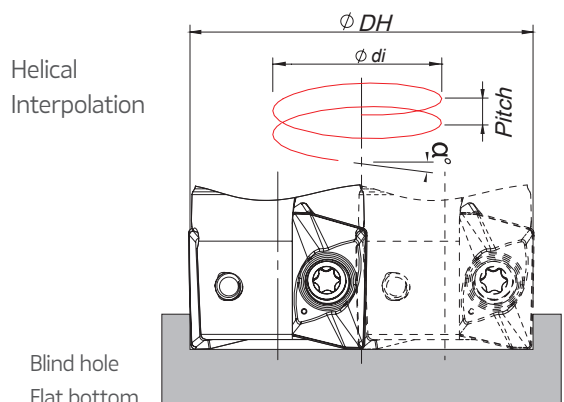
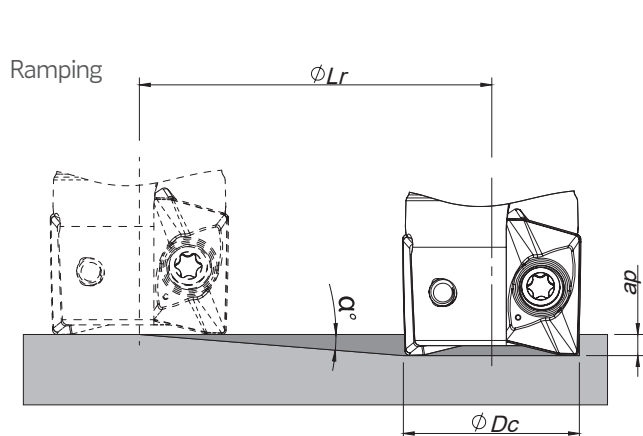
- When using long shank;
- When using long tool overhang with arbor type;
- When application has poor clamping rigidity or when using a low rigidity machine.

PROGRAMMING DATA

Insert	Programming Data		
	Rp	X	b
XPET 06 HF	0.043	0.033	0.091



RAMPING AND HELICAL INTERPOLATION



$$\phi di = \phi DH - \phi D_c$$

ϕD_c	Ramping			Helical Interpolation		
				Diameter for Blind Hole. Flat Bottom Face (1)		Max Pitch/Rev.
	Max Ramp a°	Max a_p	Min L_r	ϕDH_{min}	ϕDH_{max}	
0.375	5.5	0.012	0.125	0.568	-	0.050
				-	0.671	0.080
0.500	4.0	0.012	0.172	0.818	-	0.060
				-	0.921	0.090
0.625	2.5	0.012	0.275	1.068	-	0.060
				-	1.171	0.070
0.750	1.9	0.012	0.362	1.318	-	0.050
				-	1.421	0.060
1.000	1.3	0.012	0.529	1.818	-	0.050
				-	1.921	0.060
1.250	1.0	0.012	0.700	2.318	-	0.050
				-	2.421	0.060

(1) using LP insert with radius 0.031 in

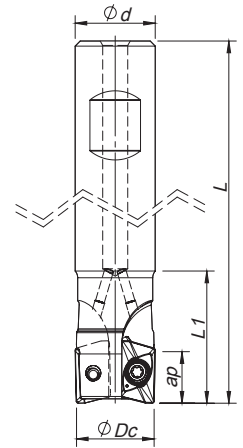
Note: During helical interpolation do not exceed maximum pitch

When using HF insert or other different insert radius to calculate the ϕDH_{min} and ϕDH_{max} use the below equation:

- Minimum Diameter: $\phi DH_{min} = 2 \times (\phi D_c - (R \text{ corner radius} + F \text{ width of edge wiper}))$

- Maximum Diameter: $\phi DH_{max} = 2 \times (\phi D_c - R \text{ corner radius})$

(On HF insert the corner radius should be corner radius programming)



Weldon Shank

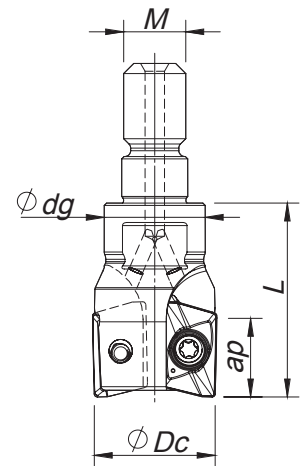
$K_r=90^\circ$ | $\gamma_p=+5^\circ$ | $R_p-HF=0.063$

Order code Código	Reference Referência Referencia		Dimensions Dimensões Dimensiones (in)				 lbs	Max ap (in)		Insert Pastilha Inserto	Stock
			ϕDc	$\phi d/M$	L	L1		LP/MP	HF		
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	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	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	XP... 1003...	

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. | Item em stock. Será substituído por novo item | Item en stock. Será reemplazado por nuevo item.



Threaded Coupling

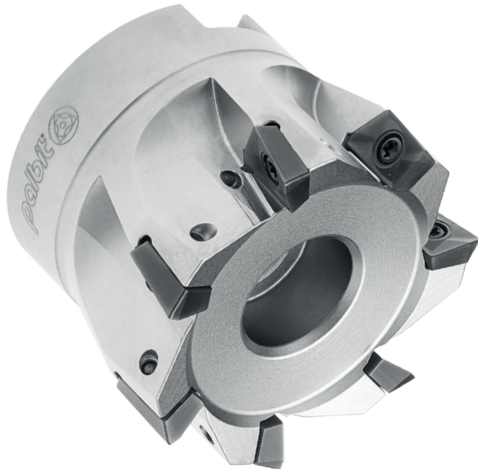
$K_r=90^\circ$ | $\gamma_p=+5^\circ \sim +6^\circ$

Order code Código	Reference Referência Referencia		Dimensions Dimensões Dimensiones (in)				 lbs	Max ap (in)		Insert Pastilha Inserto	Stock
			ϕDc	$\phi d/M$	ϕdg	L		LP/MP	HF		
181106600	XP90 D.625-R-08/1.00-02-10	2	0.625	M8	0.531	1.000	0.05	0.394	0.031	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	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	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	XP... 1003...	

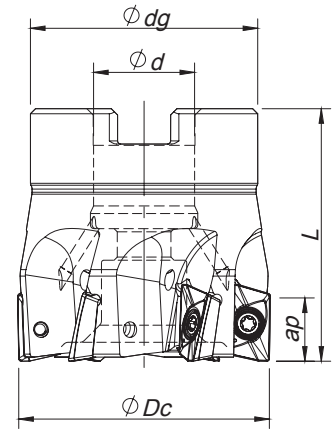
Stock item | Produto de stock | Itens de stock

Available under request | Disponível sobre consulta | Disponible bajo consulta

Inventory maintained. To be replaced by new item. | Item em stock. Será substituído por novo item | Item en stock. Será reemplazado por nuevo item.



Arbor Mounting
 $K_r=90^\circ$ | $\gamma_p=+7^\circ \sim +8^\circ$



Order code Código	Reference Referência Referencia		Dimensions Dimensões Dimensiones (in)					Max ap (in)		Arbor Style	Insert Pastilha Inserto	Stock
			ϕDc	$\phi d/M$	ϕdg	L		LP/MP	HF			
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	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	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	A	XP... 1003...	

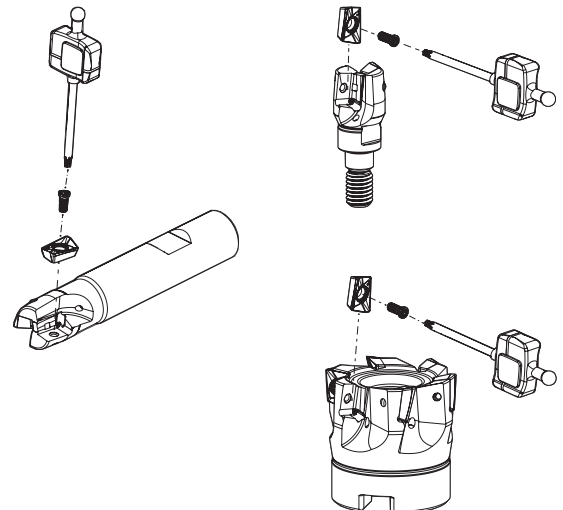
Stock item | Produto de stock | Itens de stock

Available under request | Disponível sobre consulta | Disponible bajo consulta

Inventory maintained. To be replaced by new item. | Iten em stock.
Será substituído por novo item | Iten en stock. Será reemplazado por nuevo item.

SPARE PARTS | Complementos | Complementos

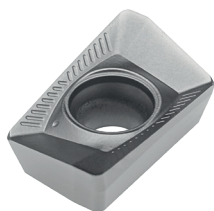
Cutter ϕDc	Insert Screw 	Key (Torx) 	Torque Value
			lbf/in
XP90-W-10 - 0.625-1.00	P0250704	XT08	10.6
XP90-R-10 - 0.625-1.25	P0250704	XT08	10.6
XP90-A-10 - 1.50-2.50	P0250704	XT08	10.6



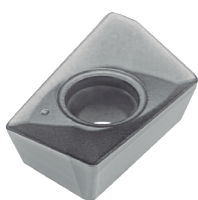
LINEPRO XP90-10

XPET... | Inserts | Pastilhas | Plaquetas

XPET-LP



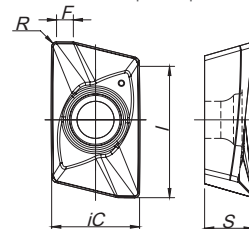
XPET-MP



XPET-LN



XPET-LP | MP | LN

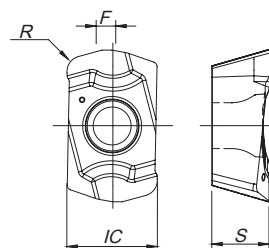


XPET-HF

NEW



XPET-HF



Geometry code	ISO Reference	P					M		K					N		S		H		Dimensions (in)						
		PVD					PVD		CVD			PVD		UNC	PCD	PVD		PVD	CBN							
		P7	G1	G4	P3	G6	P3	G6	L5	L6	L9	G1	G4	P3	G6	10	D6	P3	G6						P7	D4
1111980	XPET 100304 PDER-LP			⊗	⊗	⊗											⊗					0.274	0.156	0.413	0.016	0.047
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	0.031	0.020
1111982	XPET 100304 PDSR-MP		⊗	⊗	⊗	⊗		⊗		⊗	⊗	⊗	⊗									0.274	0.156	0.413	0.016	0.047
1111983	XPET 100308 PDSR-MP		⊗	⊗	⊗	⊗		⊗		⊗	⊗	⊗	⊗									0.274	0.156	0.413	0.031	0.055
1111984	XPET 100304 PDFR-LN														⊗							0.274	0.156	0.413	0.016	0.047
1111985	XPET 100312 PDFR-LN														⊗							0.274	0.156	0.413	0.047	0.047
NEW	1112376	XPET 100312 ZDR-HF		⊗	⊗	⊗	⊗											⊗				0.274	0.156	-	0.047	0.031

⊗ Stock item | Produto de stock | Itens de stock
First choice | Primeira opção | 1ª opção

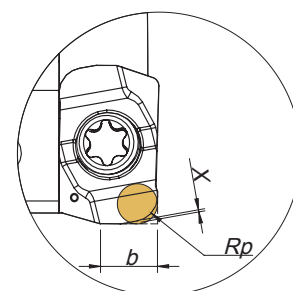
⊗ Stock item | Produto de stock | Itens de stock

○ Available under request | Disponível sobre consulta
Disponível bajo consulta

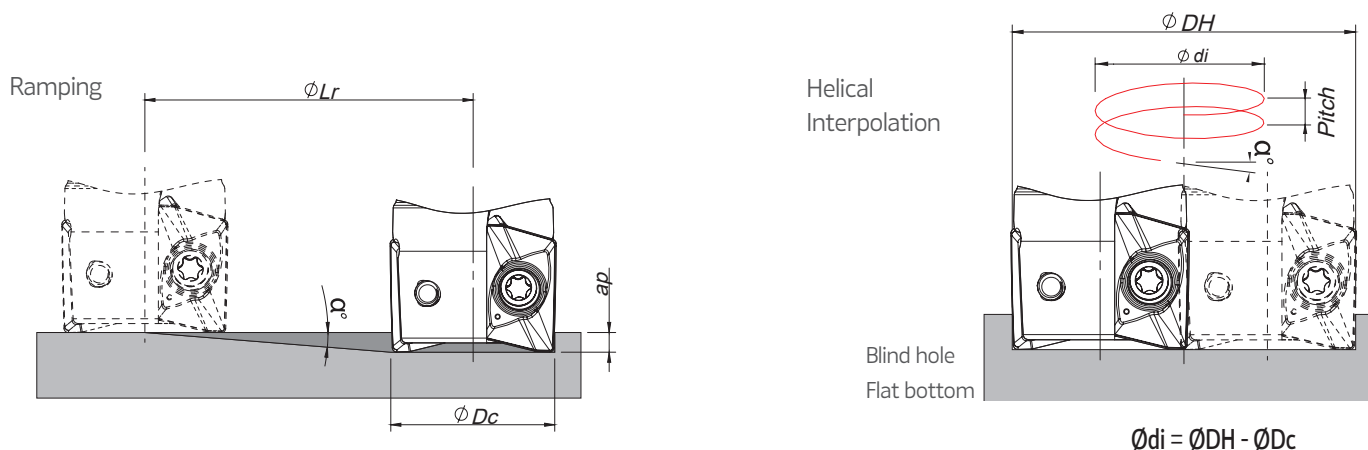
Insert order code = (1) Geometry Code + (2) Grade Code

PROGRAMMING DATA

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



RAMPING AND HELICAL INTERPOLATION



ϕD_c	Ramping			Helical Interpolation		
	Max Ramp a°	Max a_p	Min Lr	Diameter for Blind Hole. Flat Bottom Face (1)		Max Pitch/Rev.
				ϕDH_{min}	ϕDH_{max}	
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 ϕDH_{min} and ϕDH_{max} use the below equation:

- Minimum Diameter: $\phi DH_{min} = 2 \times (\phi D_c - (R \text{ corner radius} + F \text{ width of edge wiper}))$

- Maximum Diameter: $\phi DH_{max} = 2 \times (\phi D_c - R \text{ corner radius})$

LINEPRO XP90-10

GRADES SELECTION GUIDE

ISO	PSM	Material	HB (Brinell)	Grades					
				← Wear Resistance			Toughness →		
				PH0910	PH7910	PH5705	PH7920	PH7930	PH5740
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 / Duplex	200-330					●	
	6	SS - Duplex	230-260					●	
K	7	Malleable Cast Iron	130-230		●	●	●		●
	8	Grey Cast Iron	180-245		●	●	●		●
	9	Nodular Cast iron	160-250		●	●	●		●
N	10	Aluminum and Non Ferrous	30-130	●					
S	11	Heat Resistant Super Alloys	200-320					●	

● Good Conditions
 ● Average Conditions
 ● Difficult Conditions

RECOMMENDED CUTTING CONDITIONS

ISO	PSM	Material	HB (Brinell)	Vc (sfm)					
				← Wear Resistance			Toughness →		
				PH0910	PH7910	PH5705	PH7920	PH7930	PH5740
P	1	Unalloyed Steel	125-220	-	591-788	-	525-722	460-656	-
	2	Low-Alloyed Steel	220-280	-	558-820	-	492-755	427-591	-
	3	High-Alloyed Steel	280-380	-	525-689	-	460-624	328-558	-
M	4	SS - Ferritic / Martensitic	200-330	-	-	-	-	427-722	-
	5	SS - Austenitic / Duplex	200-330	-	-	-	-	394-591	-
	6	SS - Duplex	230-260	-	-	-	-	230-460	-
K	7	Malleable Cast Iron	130-230	-	558-1247	525-1280	525-1148	460-853	394-788
	8	Grey Cast Iron	180-245	-	525-1083	492-1050	492-984	427-722	361-656
	9	Nodular Cast iron	160-250	-	427-919	394-919	394-853	328-591	296-558
N	10	Aluminum and Non Ferrous	30-130	1148-4592	-	-	-	-	-
S	11	Heat Resistant Super Alloys	200-320	-	-	-	-	115-214	-

(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) PH5... can be used wet or dry. PH7... only air thru.

Operation	a_e	Vc & fz	a_p (in)
Slotting	100%	<20%	0.079-0.157
Shouldering	<50%	>8%	0.118-0.236
	≤25%	>12%	0.276-0.354

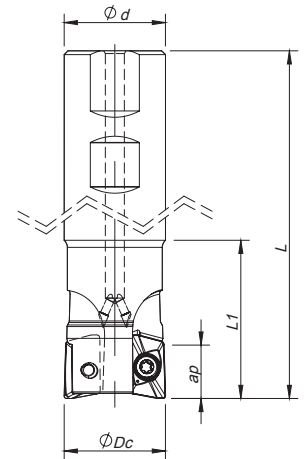
(Note 4) It's possible to occur vibrations in certain cases. Please reduce depth of cut and / or reduce cutting conditions in following cases:

- 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.

CHIP-BREAKER SELECTION GUIDE

ISO	PSM	Material	HB (Brinell)	Chip-Breaker Application	
				1st choice	Difficult 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 / Duplex	200-330	XPET 10 ... -LP/HF	-
	6	SS - 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	Aluminum and Non Ferrous	30-130	XPET 10 ... -LN	-
S	11	Heat Resistant Super Alloys	200-320	XPET 10 ... -LP/HF	-

Feed fz (in/t)			
XPET 10... LP	XPET 10... MP	XPET 10... LN	XPET 10... HF
0.004-0.008	0.004-0.010	-	0.016-0.032
0.004-0.008	0.004-0.008	-	0.016-0.032
0.004-0.006	0.004-0.008	-	0.016-0.024
0.004-0.008	0.004-0.008	-	0.016-0.028
0.004-0.008	0.004-0.008	-	0.016-0.028
0.004-0.006	0.004-0.008	-	0.016-0.024
0.004-0.008	0.004-0.010	-	0.020-0.032
0.004-0.008	0.004-0.010	-	0.020-0.032
0.004-0.008	0.004-0.008	-	0.020-0.024
-	-	0.003-0.010	-
0.002-0.003	-	-	0.016-0.024



Weldon Shank

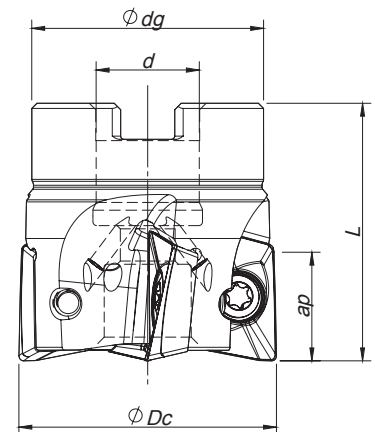
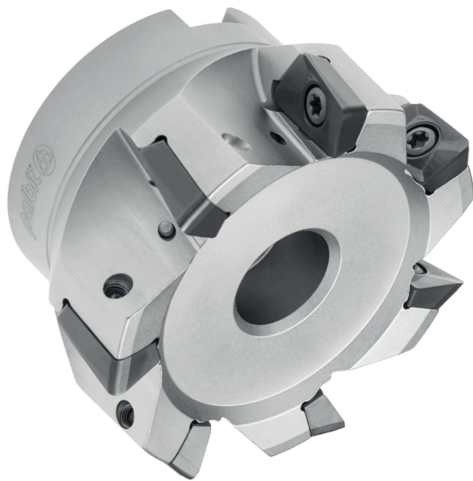
$K_r=90^\circ$ | $\gamma_p=+6^\circ \sim +7^\circ$

Order code Código	Reference Referência Referencia		Dimensions Dimensões Dimensiones (in)					Specifications		Insert Pastilha Inserto	Stock
			ϕDc	$\phi d/M$	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 | Disponível sobre consulta | Disponible bajo consulta

Inventory maintained. To be replaced by new item. | Iten em stock. Será substituído por novo item | Iten en stock. Será reemplazado por nuevo item.



Arbor Mounting

$K_r=90^\circ$ | $\gamma_p=+7^\circ \sim +8^\circ$

Order code Código	Reference Referência Referencia		Dimensions Dimensões Dimensiones (in)					Specifications		Insert Pastilha Inserto	Stock
			ϕDc	$\phi d/M$	ϕdg	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 | Disponível sobre consulta | Disponible bajo consulta

Inventory maintained. To be replaced by new item. | Iten em stock. Será substituído por novo item | Iten en stock. Será reemplazado por nuevo item.



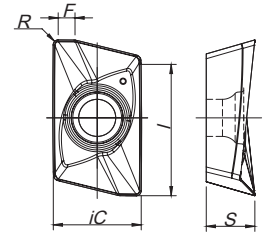
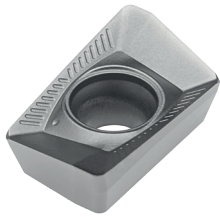
XPET 1706... | Inserts | Pastilhas | Plaquetas

XPET-LP

XPET-MP

XPET-LN

XPET-LP | MP | LN



(1) Geometry code	(2) Grade code ISO Reference	P				M			K						N		S		H		Dimensions (in)					
		PVD				CVD	PVD		CVD			PVD			UNC	PCD	PVD		PVD	CBN						
		P7	G4	P3	G6	R1	G4	G6	L5	L6	L9	G1	G4	P3	G6	10	D6	P3	G6	P7						D4
		PH7603	PH7920	PH7930	PH7740	PHM740	PH7920	PH7740	PH5705	PH5320	PH5740	PH7910	PH7920	PH7930	PH7740	PH0910	PDP410	PH7930	PH7740	PH7603	PBH910	iC	S	I	R	F
1111986	XPET 170608 PDER-LP		⊗		⊗			⊗						⊗	⊗				⊗			0.445	1/4	0.689	0.031	0.071
1111987	XPET 170616 PDER-LP		⊗		⊗			⊗						⊗	⊗				⊗			0.445	1/4	0.689	0.063	0.047
1111988	XPET 170608 PDSR-MP		⊗		⊗			⊗	⊗		⊗	⊗	⊗	⊗								0.445	1/4	0.689	0.031	0.071
1111989	XPET 170616 PDSR-MP		⊗		⊗			⊗	⊗		⊗	⊗	⊗	⊗								0.445	1/4	0.689	0.063	0.039
1111990	XPET 170608 PDFR-LN															⊗						0.445	1/4	0.689	0.031	0.047
1111991	XPET 170620 PDFR-LN															⊗						0.445	1/4	0.689	0.079	0.039
1111992	XPET 170632 PDFR-LN															⊗						0.445	1/4	0.689	0.126	0.031

⊗ Stock item | Produto de stock | Itens de stock
First choice | Primeira opção | 1ª opción

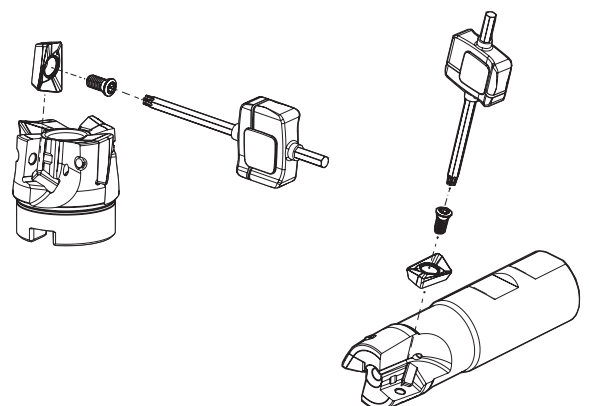
⊗ Stock item | Produto de stock | Itens de stock

○ Available under request | Disponível sobre consulta
Disponível bajo consulta

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

SPARE PARTS | Complementos | Complementos




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



LINEPRO XP90-17

GRADES SELECTION GUIDE

ISO	PSM	Material	HB (Brinell)	Grades				
				← Wear Resistance			Toughness →	
				PH0910	PH5705	PH7920	PH7740	PH5740
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 / Duplex	200-330				✓	
	6	SS - Duplex	230-260				✓	
K	7	Malleable Cast Iron	130-230		✓	✓	✓	✓
	8	Grey Cast Iron	180-245		✓	✓	✓	✓
	9	Nodular Cast iron	160-250		✓	✓	✓	✓
N	10	Aluminum and Non Ferrous	30-130	✓				
S	11	Heat Resistant Super Alloys	200-320				✓	

 Good Conditions
 Average Conditions
 Difficult Conditions

CHIP-BREAKER SELECTION GUIDE

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

RECOMMENDED CUTTING CONDITIONS

ISO	PSM	Material	HB (Brinell)	Vc (sfm)		
				← Wear Resistance		Toughness →
				PH0910	PH5705	PH7920
P	1	Unalloyed Steel	125-220	-	-	525-919
	2	Low-Alloyed Steel	220-280	-	-	492-755
	3	High-Alloyed Steel	280-380	-	-	460-624
M	4	SS - Ferritic / Martensitic	200-330	-	-	-
	5	SS - Austenitic / Duplex	200-330	-	-	-
	6	SS - Duplex	230-260	-	-	-
K	7	Malleable Cast Iron	130-230	-	525-1247	525-1148
	8	Grey Cast Iron	180-245	-	492-1050	492-984
	9	Nodular Cast iron	160-250	-	394-919	394-853
N	10	Aluminum and Non Ferrous	30-130	1148-4592	-	-
S	11	Heat Resistant Super Alloys	200-320	-	-	-

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

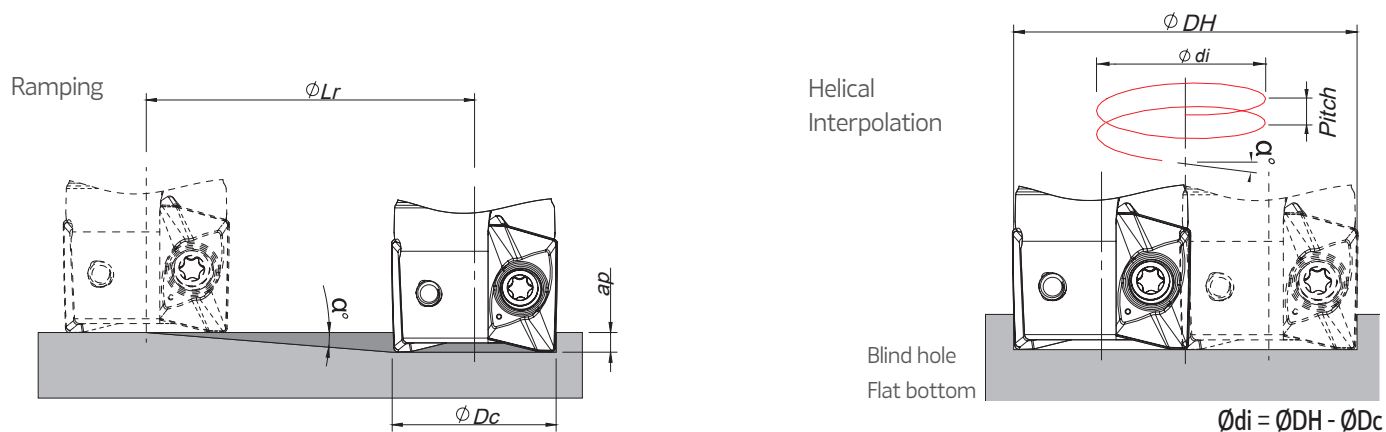
(Note 2) Cutting conditions should be adjusted according to the machine and work rigidity.

(Note 3):

Operation	a_e	Vc & fz	a_p (in)
Slotting	100%	<20%	0.079-0.236
	<50%	>8%	0.276-0.512
Shouldering	<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.

RAMPING AND HELICAL INTERPOLATION



ϕD_c	Ramping			Helical Interpolation		
	Max Ramp a°	Max a_p	Min L_r	Diameter for Blind Hole. Flat Bottom Face (1)		Max Pitch/Rev.
				ϕDH_{min}	ϕDH_{max}	
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 ϕDH_{min} and ϕDH_{max} use the below equation:

- Minimum Diameter: $\phi DH_{min} = 2 \times (\phi D_c - (R \text{ corner radius} + F \text{ width of edge wiper}))$

- Maximum Diameter: $\phi DH_{max} = 2 \times (\phi D_c - R \text{ corner radius})$

Vc (sfm)		Feed fz (in/t)		
← Wear Resistance	Toughness →	XPET 17... LP	XPET 17... MP	XPET 17... LN
PH7740	PH5740			
460-722	-	0.004-0.014	0.004-0.014	-
427-591	-	0.004-0.014	0.004-0.014	-
328-558	-	0.004-0.012	0.004-0.012	-
427-722	-	0.004-0.012	0.004-0.012	-
394-591	-	0.004-0.012	0.004-0.012	-
230-460	-	0.004-0.010	0.004-0.010	-
460-853	492-984	0.004-0.014	0.004-0.014	-
427-722	460-820	0.004-0.014	0.004-0.014	-
328-591	394-722	0.004-0.012	0.004-0.012	-
-	-	-	-	0.004-0.014
99-214	-	0.004-0.008	-	-



LINEPRO

XP90-06 | XP90-10 | XP90-17

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