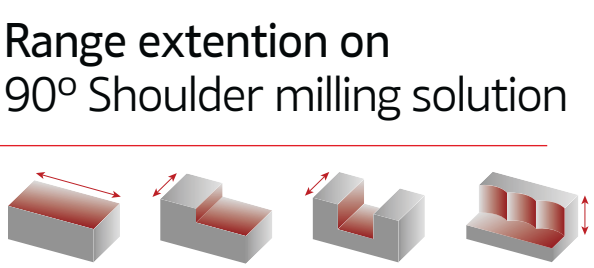
Range extention on
90° Shoulder milling solution

palbit
HARDMETAL TOOLS SOLUTIONS

PLUS
17190 | 17590 | 18190

NEW



INSERT SIZE 10 | ANHX 1004

INSERT SIZE 12 | ANHX 1206

NEW

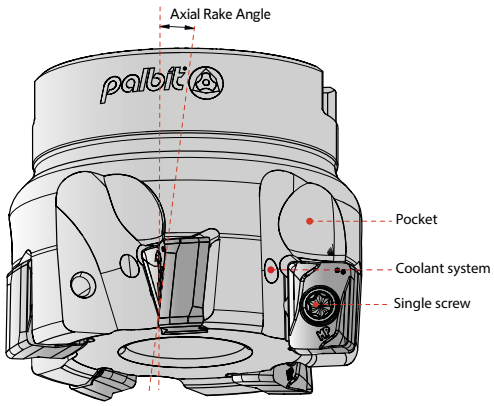
INSERT SIZE 16 | ANHX 1607

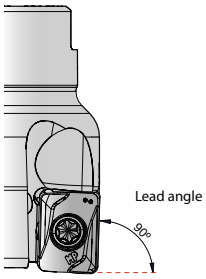
100 YEARS
SINCE 1916

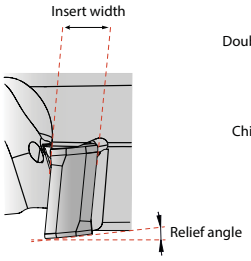
PLUS 17190 | 17590 | 18190

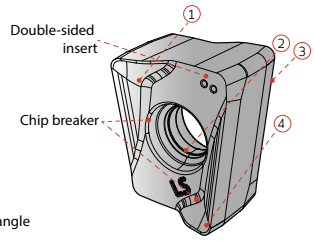
MAIN FEATURES

Coarse and fine pitch cutters suitable for steel, stainess steel and cast iron, for roughing and semi-finishing application.









Axial Rake Angle
- For a smooth cutting;
- For low cutting forces;

True 90º wall
- 90º allows multi applications;
- Excellent for shouldering;

Insert Width
- High thickness allows a stronger insert;

Single screw
- Strong clamping system;

Relief angle
- Reduce the cutting load;
- Low cutting forces;

Pocket
- Better chip evacuation due to a wide pocket;

Double-sided insert
- 4 cutting edges;
- Negative insert has a strong edge;

Coolant system
- Improvement of chip control and evacuation;
- Tool life improvement due to reduced cutting temperature;

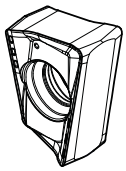
Chip Breaker
- Cutting load reduction due to high rake angle;
- Improvement of chip flow and evacuation in multiple applications and materials;
- New LS chip breaker (on ANHX12) for M and S class materials;

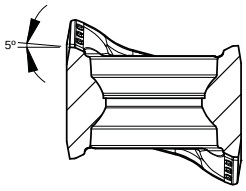
PLUS 17190

P M K N S

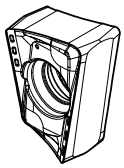
INSERT SIZE 10 ANHX 1004

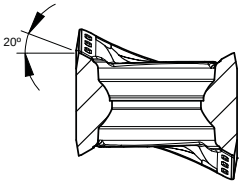
ANHX - LP



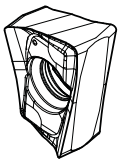


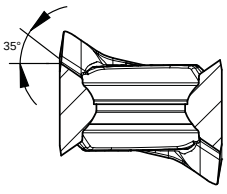
ANHX - LM





ANHX - LN





ANHX-LP

ANHX-LM

ANHX-LN

CHIP-BREAKERS | Quebra aparas | Rompevirutas

Chip Breaker	Features | Características | Características
Geometry LP Light machining	Positive top rake angle to promote a good chip flow and reduce power consumption on low alloy steels.
Geometry LM Light machining	High positive top rate to promote a good chip flow for machining stainess steels and HRSA.
Geometry LN Light machining	High positive chip-breaker, polished for applications of non ferrous materials (alluminium).

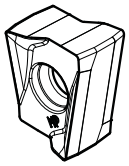
PLUS 17590

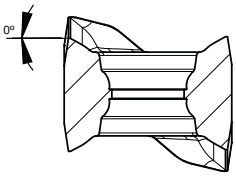
NEW

P M K S

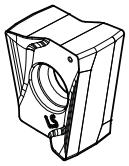
INSERT SIZE 12 ANHX 1206

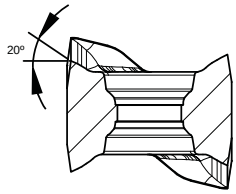
ANHX - MP





ANHX - LS





ANHX-MP

ANHX-LS

CHIP-BREAKERS ‖ Quebra aparas | Rompevirutas

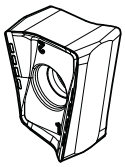
Chip Breaker	Features | Características | Características
Geometry LS Light Machining	Positive top rake angle to promote a good chip flow and reduce power consumption on stainless steel and HRSA.
Geometry MP General machining	Chip-breaker with a reinforced chanfer for general applications on steel and cast iron

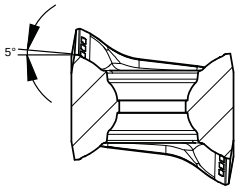
PLUS 18190

P K N

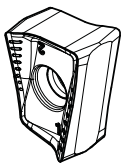
INSERT SIZE 16 ANHX 1607

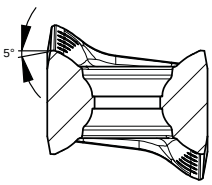
ANHX - LP



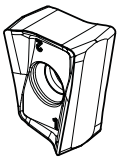


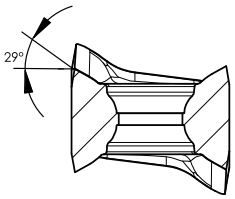
ANHX - MP





ANHX - LN





ANHX-LP

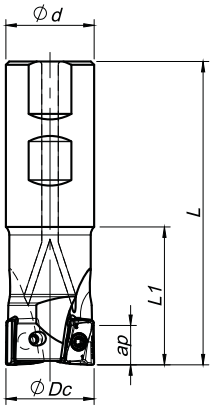
ANHX-MP

ANHX-LN

CHIP-BREAKERS ‖ Quebra aparas | Rompevirutas

Chip Breaker	Features | Características | Características
Geometry LP Light machining	Positive top rake angle to promote a good chip flow and reduce power consumption on low alloy steels.
Geometry MP General machining	Chip-breaker with a reinforced chanfer for general applications on steel and cast iron.
Geometry LN Light machining	High positive chip-breaker, polished for applications of non ferrous materials (alluminium).

PLUS 17190



Weldon Shank

κ_r = 90° | γ_p = -7° (-6°*)

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Specifications		Insert Pastilha Inserto	Stock
			ØDc	Ød/M	L	L1		Arbor Type	Ap max (mm)		
181075000	014W17190-01-06-016090*	1	14	16	90	23	0,12	-		ANHX 1004...	●
181075100	016W17190-01-06-016090*	1	16	16	90	25	0,12	-		ANHX 1004...	●
181075200	018W17190-02-06-016090*	2	18	16	90	23	0,13	-		ANHX 1004...	●
181071400	020W17190-02-06-020100*	2	20	20	100	30	0,21	-		ANHX 1004...	●
181071500	020W17190-03-06-020100*	3	20	20	100	30	0,21	-		ANHX 1004...	●
181074400	025W17190-02-06-025115*	2	25	25	115	35	0,40	-	9,0	ANHX 1004...	●
181074500	025W17190-03-06-025115*	3	25	25	115	35	0,39	-		ANHX 1004...	●
181074600	032W17190-03-06-032125*	3	32	32	125	40	0,70	-		ANHX 1004...	●
181074700	032W17190-04-06-032125*	4	32	32	125	40	0,70	-		ANHX 1004...	●
181074800	040W17190-04-07-032130	4	40	32	130	40	0,78	-		ANHX 1004...	●
181074900	040W17190-05-07-032130	5	40	32	130	40	0,78	-		ANHX 1004...	●

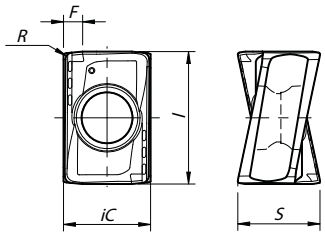
● Stock item | Itens de stock ○ Avaliable under request | Disponível sobre consulta | Disponible bajo consulta

ANHX 1004.. INSERTS | Pastilhas | Plaquitas

ANHX-LP

ANHX-LM

ANHX-LN



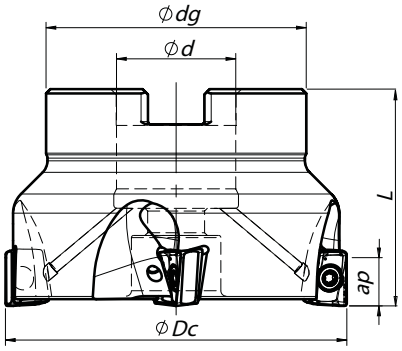
		P					M				K							N		S		H		Dimensions (mm) Dimensões (mm) Dimensiones (mm)				
	(2) Grade code	PVD					CVD	PVD			CVD			PVD				UNC	PCD	PVD		PVD	CBN					
		P7	G1	G4	P3	G6	R1	G4	P3	G6	L5	L6	L9	G1	G4	P3	G6	10	D6	P3	G6	P7	D4					
(1) Geometry code	ISO Reference	PH7603	PH7910	PH7920	PH7930	PH7740	PHM740	PH7920	PH7930	PH7740	PH5705	PH5320	PH5740	PH7910	PH7920	PH7930	PH7740	PH0910	PDP410	PH7930	PH7740	PH7603	P8H910	iC	S	l	R	F
1111652	ANHX 100405 PNR-LP		●	●	●									●	●	●								6,6	6,2	10	0,5	1,0
1111908	ANHX 100412 PNR-LP		●	●	●									●	●	●								6,6	6,2	10	1,2	1,0
1112005	ANHX 100405 PNER-LM			●	●	●			●	●					●	●	●			●	●			6,6	6,2	10	0,5	1,0
1112103	ANHX 100412 PNER-LM			●	●	●			●	●					●	●	●			●	●			6,6	6,2	10	1,2	1,0
1111997	ANHX 100405 PNFR-LN																	●						6,6	6,2	10	0,5	1,0
1112102	ANHX 100412 PNR-LN																	●						6,6	6,2	10	1,2	1,0

● First choice | primeira opção | 1ª opción

● Stock item | produto de stock | Itens de stock

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

Order code = (1) Geometry code + (2) Grade code
Código = (1) Código de geometria + (2) Código de calidad



Arbor Mounting

$\kappa_r = 90°$ | $\gamma_p = -7°$

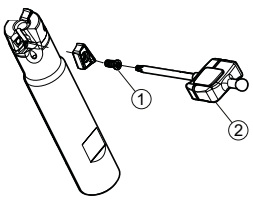
Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Specifications		Insert Pastilha Inserto	Stock
			ØDc	Ød/M	ØDg	L		Arbor Type	Ap max (mm)		
181075300	040A17190-04-07-016040	4	40	16	32	40	0,21	A	9,0	ANHX 1004...	◎
181075400	040A17190-05-07-016040	5	40	16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

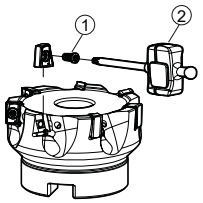
◎ Stock item | Itens de stock ○ Avaliable under request | Disponível sobre consulta | Disponible bajo consulta

SPARE PARTS | Complementos | Repuestos

Order separatly

Cutter ØDc	1 Insert Screw	2 Key (Torx)	Torque Value	Screw	DIN 6368 Wrench
W17190 – 14 - 40	P0300800	XT09	3,0	-	-
A17190 – 40 - 63	P0300800	XT09	3,0	-	-
A17190 – 80	P0300800	XT09	3,0	J0123510	SD6368-12
A17190 – 100	P0300800	XT09	3,0	J0164110	SD6368-16





PLUS 17190

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

ISO	PSM	Material	HB (Brinell) / Grade	V_c (m/min) ← Wear Resistance			V_c (m/min) Toughness →		Feed f_z (mm/t)		
				PH0910	PH7910	PH7920	PH7930	PH7740	ANHX 10... LP	ANHX 10... LM	ANHX 10... LN
P	1	Unalloyed steel	125-220	-	190-280	180-250	160-220	140-170	0,10-0,20	0,08-0,20	-
P	2	Low-alloyed steel	220-280	-	180-240	170-210	150-180	130-160	0,10-0,20	0,08-0,15	-
P	3	High-alloy steel	280-380	-	170-220	160-200	130-160	110-140	0,10-0,15	0,08-0,15	-
M	4	SS - Ferritic/martensitic	200-330	-	-	-	120-200	90-140	-	0,08-0,20	-
M	5	SS - Austenitic	200-330	-	-	-	100-190	80-120	-	0,08-0,15	-
M	6	SS - Austetenitic-ferretic (Duplex)	230-260	-	-	-	90-120	70-100	-	0,08-0,15	-
K	7	Malleable cast iron	130-230	-	180-320	170-300	160-280	130-250	0,10-0,25	0,08-0,20	-
K	8	Grey cast iron	180-245	-	170-280	150-250	140-240	110-220	0,10-0,25	0,08-0,20	-
K	9	Nodular cast iron	160-250	-	100-240	90-210	90-200	80-170	0,10-0,20	0,08-0,15	-
N	10	Aluminium and Non Ferrous	30-130	350-1200	-	-	-	-	-	-	0,10-0,20
S	11	Heat Resistant Super Alloys	200-320	-	-	-	35-70	30-60	-	0,08-0,10	-

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

(Note 2)

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

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

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

ISO	PSM	Material	HB (Brinell)	Chip Breaker Application	
				1st choice	Difficult Operations
P	1	Unalloyed steel	125-220	ANHX 10... LM	ANHX 10... LP
P	2	Low-alloyed steel	220-280	ANHX 10... LM	ANHX 10... LP
P	3	High-alloy steel	280-380	ANHX 10... LM	ANHX 10... LP
M	4	SS - Ferritic/martensitic	200-330	ANHX 10... LM	-
M	5	SS - Austenitic	200-330	ANHX 10... LM	-
M	6	SS - Austetenitic-ferretic (Duplex)	220-260	ANHX 10... LM	-
K	7	Malleable cast iron	130-230	ANHX 10... LM	ANHX 10... LP
K	8	Grey cast iron	180-245	ANHX 10... LM	ANHX 10... LP
K	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	-

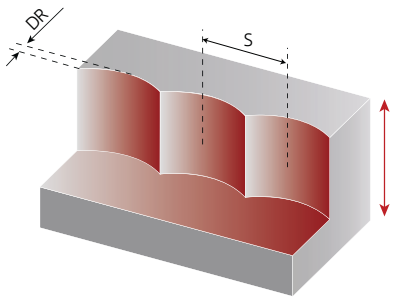
GRADES SELECTION GUIDE | Guia para selecção de graus | Tabla para selección de calidades

ISO	PSM	Material	HB (Brinell) / Grade	Grades ← Wear Resistance — Toughness →				
				PH0910	PH7910	PH7920	PH7930	PH7740
P	1	Unalloyed steel	125-220		●	●		✱
	2	Low-alloyed steel	220-280		●	●		✱
	3	High-alloy steel	280-380		●	●		✱
M	4	SS - Ferritic/martensitic	200-330				◐	✱
	5	SS - Austenitic	200-330				◐	✱
	6	SS - Austetenitic-ferretic (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

PLUNGING | Mergulho | Plunge

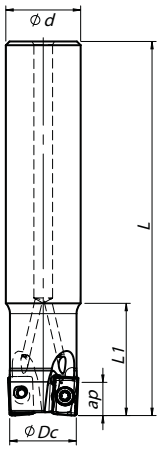
L≤3Dc	L>3Dc	S max.
f_z (mm/t)		
0,10-0,20	0,10-0,14	$Smax = \sqrt{DC.DR - DR^2}$



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

PLUS 17590

NEW

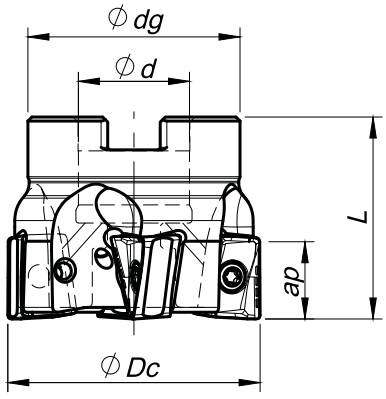


Cylindrical Shank

$\kappa_r = 90°$ | $\gamma_p = -6°$

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Specifications		Insert Pastilha Inserto	Stock
			ØDc	Ød/M	L	L1		Arbor Type	Ap max		
181116300	026E17590-02-06-025200	2	26	25	200	40	0,66	-	11	ANHX 1206...	●
181116200	033E17590-03-06-032250	3	33	32	250	40	1,40	-		ANHX 1206...	●

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



Arbor Mounting

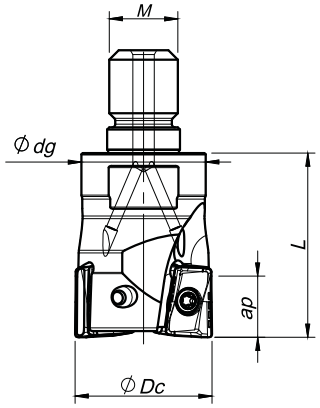
$\kappa_r = 90°$ | $\gamma_p = -6°$

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

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

NEW

Facing | Shouldering | Slotting | Plunging

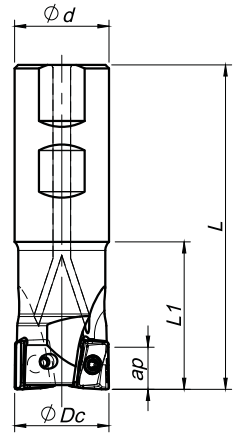


Threaded coupling

$K_r = 90°$ | $\gamma_p = -6°$

Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Specifications		Insert Pastilha Inserto	Stock
			ØDc	Ød/M	Ødg	L		Arbor Type	Ap max		
181117100	025R17590-02-06-M12035	2	25	M12	21	35	0,09	-	11	ANHX 1206...	◉
181117200	032R17590-03-06-M16043	3	32	M16	29	43	0,20	-		ANHX 1206...	◉
181117300	042R17590-04-06-M16043	4	42	M16	29	43	0,26	-		ANHX 1206...	○

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



Weldon Shank

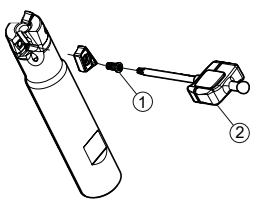
$K_r = 90°$ | $\gamma_p = -6°$

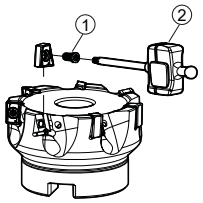
Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Specifications		Insert Pastilha Inserto	Stock
			ØDc	Ød/M	L	L1		Arbor Type	Ap max		
181116000	025W17590-02-06-025110	2	25	25	110	35	0,37	-	11	ANHX 1206...	◉
181120600	032W17590-03-06-032150	3	32	32	150	35	0,84	-		ANHX 1206...	◉
181116100	040W17590-04-06-032150	4	40	32	150	40	0,88	-		ANHX 1206...	◉

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

SPARE PARTS | Complementos | Repuestos

Cutter ØDc	1 Insert Screw	2 Key (Torx)	Torque Value Nm
E17590 - 26 - 33	P0350904	XT10	3,0
A17590 - 40 - 100	P0350904	XT10	3,0
A17590 - 125	P0350904	PT10	3,0
R17590 - 25 - 42	P0350904	XT10	3,0
W17590 - 25-40	P0350904	XT10	3,0





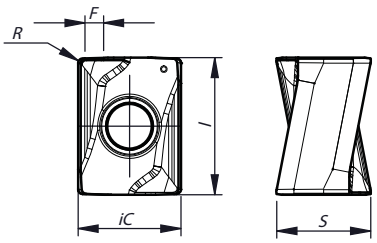
PLUS 17590

NEW

ANHX 1206.. INSERTS | Pastilhas | Plaquitas

ANHX-LS

ANHX-MP



		P					M				K							N		S		H	
		PVD					CVD	PVD			CVD			PVD				UNC	PCD	PVD		PVD	CBN
	(2) Grade code	P7	G1	G4	P3	G6	R1	G4	P3	G6	L5	L6	L9	G1	G4	P3	G6	10	D6	P3	G6	P7	D4
(1) Geometry code	ISO Reference	PH7603	PH7910	PH7920	PH7930	PH7740	PHM740	PH7920	PH7930	PH7740	PH5705	PH5320	PH5740	PH7910	PH7920	PH7930	PH7740	PH0910	PDP410	PH7930	PH7740	PH7603	PBH910
1112474	ANHX 120604 PNER-LS			◉	○	○			◉	○					◉		◉			◉	○		
1112237	ANHX 120608 PNER-LS			◉	○	○			◉	○					◉		◉			◉	○		
1112429	ANHX 120616 PNER-LS			◉	○	○			◉	○					◉		◉			◉	○		
1112473	ANHX 120604 PNSR-MP			◉		○					◉				○		◉						
1112238	ANHX 120608 PNSR-MP			◉		○					◉				○		◉						
1112430	ANHX 120616 PNSR-MP			◉		○					◉				○		◉						

Dimensions (mm) Dimensões (mm) Dimensiones (mm)				
iC	S	l	R	F
9,0	8,3	12,0	0,4	1,6
9,0	8,3	12,0	0,8	1,2
9,0	8,3	12,0	1,6	0,4
9,0	8,3	12,0	0,4	1,6
9,0	8,3	12,0	0,8	1,2
9,0	8,3	12,0	1,6	0,4

◉ First choice | primeira opção | 1ª opción

○ Stock item | produto de stock | Itens de stock

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

Order code = (1) Geometry code + (2) Grade code
Código = (1) Código de geometria + (2) Código de calidad

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

ISO	PSM	Material	HB (Brinell) / Grade	V_C (m/min) ← Wear Resistance — Toughness →				Feed f_Z (mm/t)	
				PH5320	PH7920	PH7930	PH7740	ANHX 12... LS	ANHX 12... MP
P	1	Unalloyed steel	125-220	-	150-230	150-180	130-160	0,10-0,20	0,10-0,30
	2	Low-alloyed steel	220-280	-	140-220	140-170	120-150	0,10-0,20	0,10-0,25
	3	High-alloy steel	280-380	-	130-180	120-150	100-130	0,10-0,15	0,10-0,20
M	4	SS - Ferritic/martensitic	200-330	-	-	90-150	100-120	0,10-0,20	-
	5	SS - Austenitic	200-330	-	-	80-130	80-110	0,10-0,15	-
	6	SS - Austetenitic-ferretic (Duplex)	230-260	-	-	70-100	70-100	0,10-0,15	-
K	7	Malleable cast iron	130-230	170-300	150-280	-	130-250	0,10-0,25	0,10-0,30
	8	Grey cast iron	180-245	150-250	130-230	-	100-200	0,10-0,25	0,10-0,30
	9	Nodular cast iron	160-250	90-210	80-190	-	50-150	0,10-0,20	0,10-0,25
S	11	Heat Resistant Super Alloys	200-320	-	-	25-100	20-80	0,07-0,10	-

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

(Note 2)

Operation	a_e	Vc & fz	a_p (mm)
Slotting	100%	<20%	2.5-4.0
Shouldering	<50%	>8%	4,0-7,0
	≤25%	>12%	7,0-10,0

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

NEW

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

ISO	PSM	Material	HB (Brinell) / Grade	Grades ← Wear Resistance — Toughness → PH5320	PH7920	PH7930	PH7740
P	1	Unalloyed steel	125-220		●	◐	✱
P	2	Low-alloyed steel	220-280		●	◐	✱
P	3	High-alloy steel	280-380		●	◐	✱
M	4	SS - Ferritic/martensitic	200-330			◐	✱
M	5	SS - Austenitic	200-330			◐	✱
M	6	SS - Austetenitic-ferretic (Duplex)	230-260			◐	✱
K	7	Malleable cast iron	130-230	●	●		✱
K	8	Grey cast iron	180-245	●	●		✱
K	9	Nodular cast iron	160-250	●	●		✱
S	11	Heat Resistant Super Alloys	200-320			◐	✱

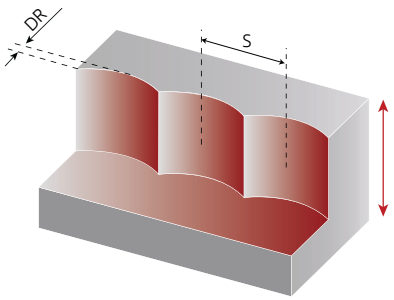
● Good Conditions
◐ Average Conditions
✱ Difficult Conditions

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

ISO	PSM	Material	HB (Brinell)	Chip Breaker Application 1st choice	Difficult Operations
P	1	Unalloyed steel	125-220	ANHX 12... -LS	ANHX 12... -MP
P	2	Low-alloyed steel	220-280	ANHX 12... -MP	-
P	3	High-alloy steel	280-380	ANHX 12... -MP	-
M	4	SS - Ferritic/martensitic	200-330	ANHX 12... -LS	-
M	5	SS - Austenitic	200-330	ANHX 12... -LS	-
M	6	SS - Austetenitic-ferretic (Duplex)	220-260	ANHX 12... -LS	-
K	7	Malleable cast iron	130-230	ANHX 12... -LS	ANHX 12... -MP
K	8	Grey cast iron	180-245	ANHX 12... -MP	-
K	9	Nodular cast iron	160-250	ANHX 12... -MP	-
S	11	Heat Resistant Super Alloys	200-320	ANHX 12... LS	-

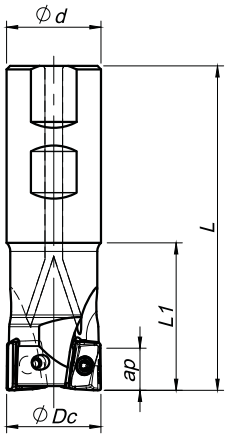
PLUNGING | Mergulho | Plunge

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



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

PLUS 18190

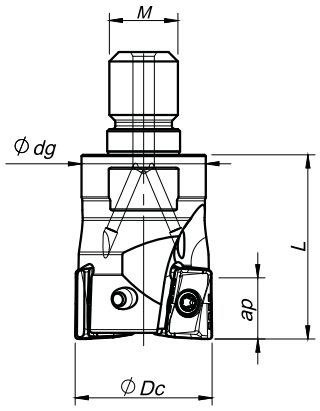


Weldon Shank

$K_r = 90°$ | $\gamma_p = -4°$

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

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



Threaded coupling

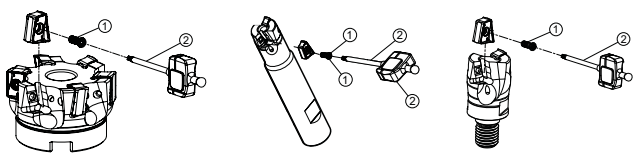
$K_r = 90°$ | $\gamma_p = -4°$

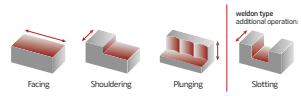
Order code Código	Reference Referência Referencia		Dimensions | Dimensões | Dimensiones (mm)				Kg	Specifications		Insert Pastilha Inserto	Stock
			ØDc	Ød/M	Ødg	L		Arbor Type	Ap max		
181082800	032R18190-02-04-M16043	2	32	M16	29	43	0,20	-	15,0	ANHX 1607...	●
181082900	040R18190-03-04-M16043	3	40	M16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

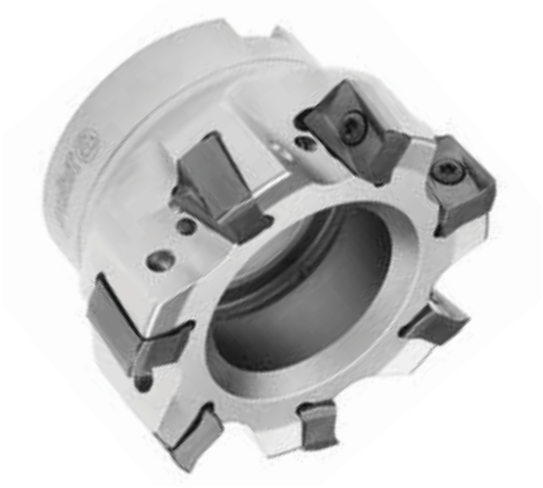
● Stock item | Itens de stock ○ Avaliable under request | Disponível sobre consulta | Disponible bajo consulta

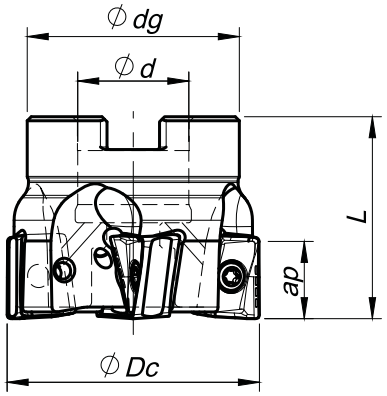
SPARE PARTS | Complementos | Repuestos

Cutter ØDc	1 Insert Screw	2 Key (Torx)	Torque Value	Screw	DIN 6368 Wrench
W18190 – 32 - 40	P0401200	XT15	3,0	-	-
R18190 – 32 - 40	P0401200	XT15	3,0	-	-
A18190 – 50 - 63	P0401200	XT15	3,0	-	-
A18190 – 80	P0401200	XT15	3,0	J0123510	SD6368-12
A18190 – 100	P0401200	XT15	3,0	J0164110	SD6368-16
A18190 – 125	P0401200	PT15*	3,0	J0204610	SD6368-20
A18190 – 160	P0401200	PT15*	3,0	-	-









Arbor Mounting

$K_r = 90°$ | $\gamma_p = -4°$

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

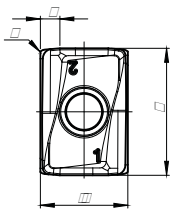
◈ Stock item | Itens de stock ○ Avaliable under request | Disponível sobre consulta | Disponible bajo consulta

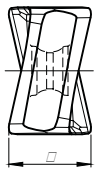
ANHX 1607... INSERTS | Pastilhas | Plaquitas

ANHX-LP

ANHX-MP

ANHX-LN





		P					M				K							N		S		H		Dimensions (mm) Dimensões (mm) Dimensiones (mm)				
	(2) Grade code	PVD					CVD	PVD			CVD			PVD				UNC	PCD	PVD		PVD	CBN					
		P7	G1	G4	P3	G6	R1	G4	P3	G6	L5	L6	L9	G1	G4	P3	G6	10	D6	P3	G6	P7	D4					
(1) Geometry code	ISO Reference	PH7603	PH7910	PH7920	PH7930	PH7740	PHM740	PH7920	PH7930	PH7740	PH5705	PH5320	PH5740	PH7910	PH7920	PH7930	PH7740	PH0910	PDP410	PH7930	PH7740	PH7603	PBH910	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 | primeira opção | 1ª opción

◈ Stock item | produto de stock | Itens de stock

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

Order code = (1) Geometry code + (2) Grade code
Código = (1) Código de geometria + (2) Código de calidad

PLUS 18190

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

ISO	PSM	Material	HB (Brinell) / Grade	V_c (m/min) ← Wear Resistance			Toughness →	Feed f_z (mm/t)		
				PH0910	PH7910	PH7920	PH7930	ANHX 16... LP	ANHX 16... MP	ANHX 16... LN
P	1	Unalloyed steel	125-220	-	190-280	180-250	160-220	0,10-0,22	0,08-0,25	-
	2	Low-alloyed steel	220-280	-	180-240	170-210	150-180	0,10-0,22	0,08-0,25	-
	3	High-alloy steel	280-380	-	170-220	160-200	130-160	0,10-0,20	0,08-0,22	-
K	7	Malleable cast iron	130-230	-	180-320	170-300	160-280	0,10-0,25	0,08-0,25	-
	8	Grey cast iron	180-245	-	170-280	150-250	140-240	0,10-0,25	0,08-0,25	-
	9	Nodular cast iron	160-250	-	100-240	90-210	90-200	0,10-0,20	0,08-0,22	-
N	10	Aluminium and Non Ferrous	30-130	300-1200	-	-	-	-	-	0,10-0,40

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

(Note 2)

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

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

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

ISO	PSM	Material	HB (Brinell)	Chip Breaker Application	
				1st choice	Difficult Operations
P	1	Unalloyed steel	125-220	ANHX 16... LP	ANHX 16... MP
	2	Low-alloyed steel	220-280	ANHX 16... LP	ANHX 16... MP
	3	High-alloy 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	-

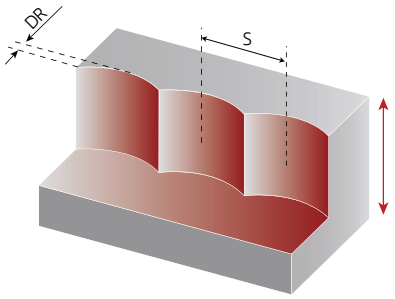
GRADES SELECTION GUIDE | Guia para selecção de graus | Guía para selección de calidades

ISO	PSM	Material	HB (Brinell) / Grade	Grades ← Wear Resistance			Toughness →
				PH0910	PH7910	PH7920	PH7930
P	1	Unalloyed steel	125-220		●	◐	◔
	2	Low-alloyed steel	220-280		●	◐	◔
	3	High-alloy 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

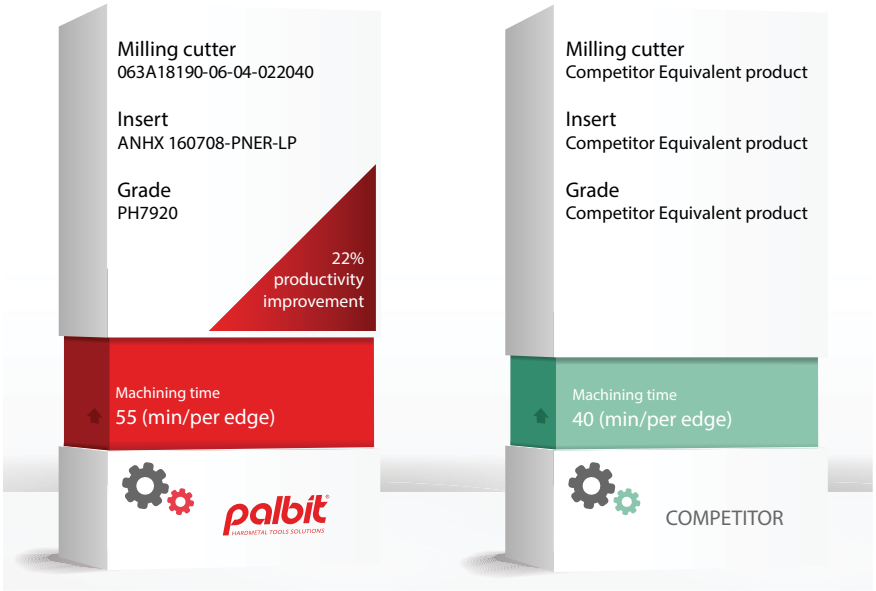
PLUNGING | Mergulho | Plunge

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



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

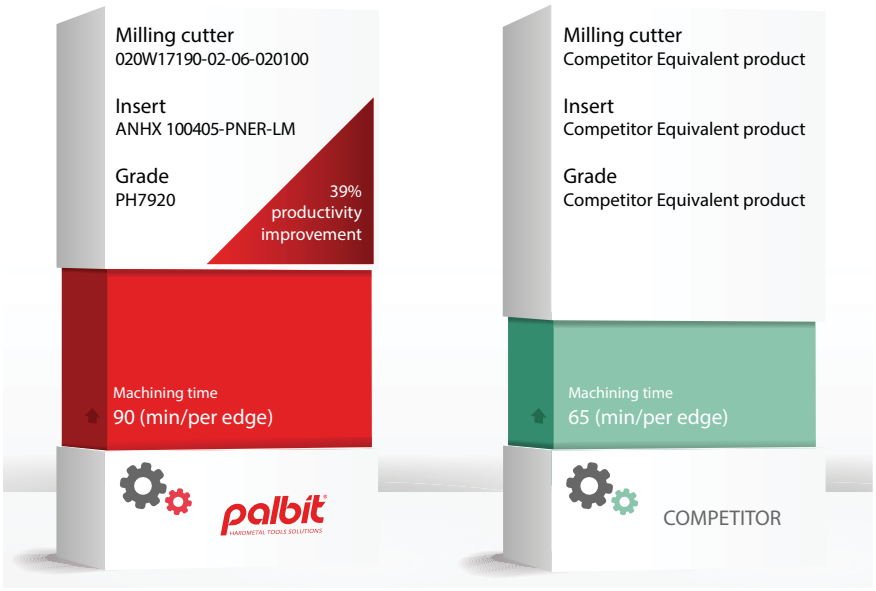
18190 TEST REPORT



Work material: EN-JL 1040 (0.6025)	
Cutting speed: Vc (m/min)	220
Feed per tooth: fz (mm/t)	0,18
Depth of cut: ap (mm)	8
Width of cut: ae (mm)	20
Method of machining	Shoulder milling
Coolant	Dry

PLUS 17190 | 17590

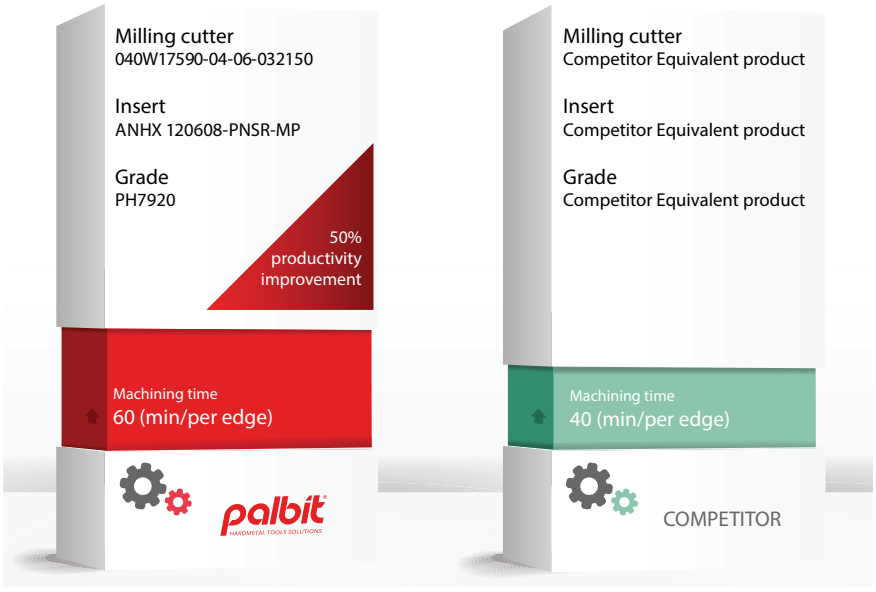
17190 TEST REPORT



Work material: 40CrMnNiMo8 (1.2738) - (34-38 HRC)

Cutting speed: Vc (m/min)	180
Feed per tooth: fz (mm/t)	0,2
Depth of cut: ap (mm)	3
Width of cut: ae (mm)	12
Method of machining	Shoulder milling
Coolant	Dry

17590 TEST REPORT NEW



Work material: 40CrMnNiMo8 (1.2738) - (34-38 HRC)

Cutting speed: Vc (m/min)	200
Feed per tooth: fz (mm/t)	0,18
Depth of cut: ap (mm)	5
Width of cut: ae (mm)	30
Method of machining	Shoulder milling
Coolant	Dry

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