



FACE MILLING

1 PLUS 28088

- > Suitable for machining **P M K**
- > See page A - 38

2 PLUS 90260

- > Suitable for machining **P K**
- > See page A - 42

3 PLUS 90845 | 90945 | 91245

- > Suitable for machining **P M K N S**
- > See page A - 46

4 LINEPRO 57045

- > Suitable for machining **P M K N S**
- > See page A - 60

5 LINEPRO 06045 | 09945

- > Suitable for machining **P M K S**
- > See page A - 66

28088

PLUS



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

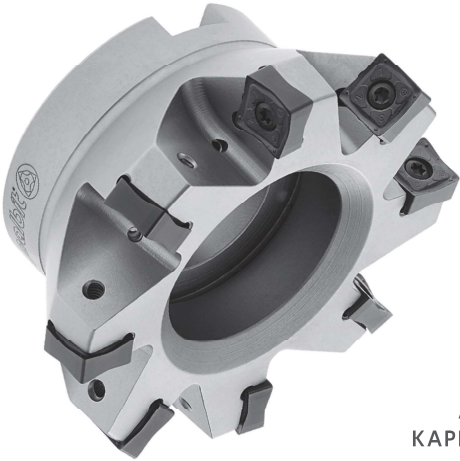
A linha PLUS 28088 apresenta 8 arestas de corte projetadas para operações de facejamento de desbaste a semi-acabamento, proporcionando alta eficiência. O ângulo da aresta de corte (88°) dessas fresas permite realizar facejamento muito próximo à parede lateral.

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

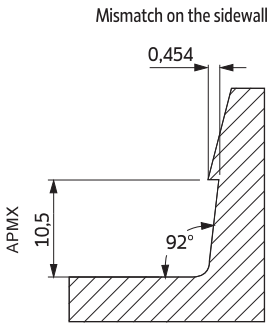
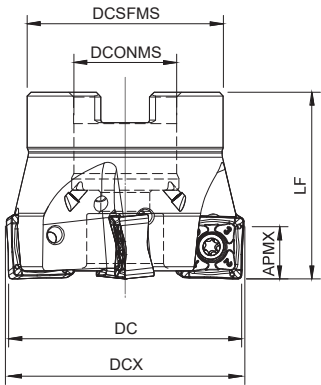
PLUS 28088 > page 40

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





Arbor Mounting
KAPR=88° | GAMP=-6°



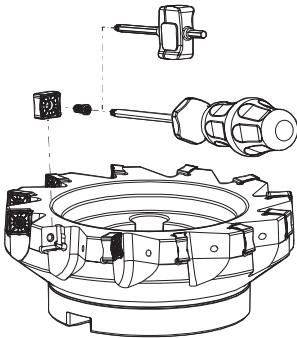
Order code Código	Reference Referência Referencia	CICT	Dimensions Dimensões Dimensiones (mm)						Specifications		Insert Pastilha Inserto	Stock
			DC	DCX	DCONMS	DCSFMS	LF	WT	Arbor Type	APMX (mm)		
181084300	050A28088-05-06-022040	5	50	50,9	22	42	40	0,4	A	10,5	SN... 1206...	⊗
181091600	063A28088-06-06-022040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

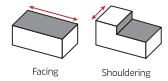
⊗ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

SPARE PARTS Acessórios | Repuestos

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

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





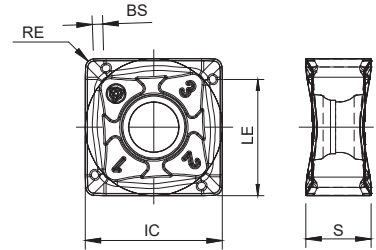
SNH(K)U 1206 Inserts | Pastilhas | Plaquetas



SNHU-LP



SNKU-LP



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

First choice | Primeira opção | 1ª opción
 Stock item | Produto de stock | Itens de stock
 Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire página A-9)
 Insert order code = (1) Geometry Code + (2) Grade Code

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

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

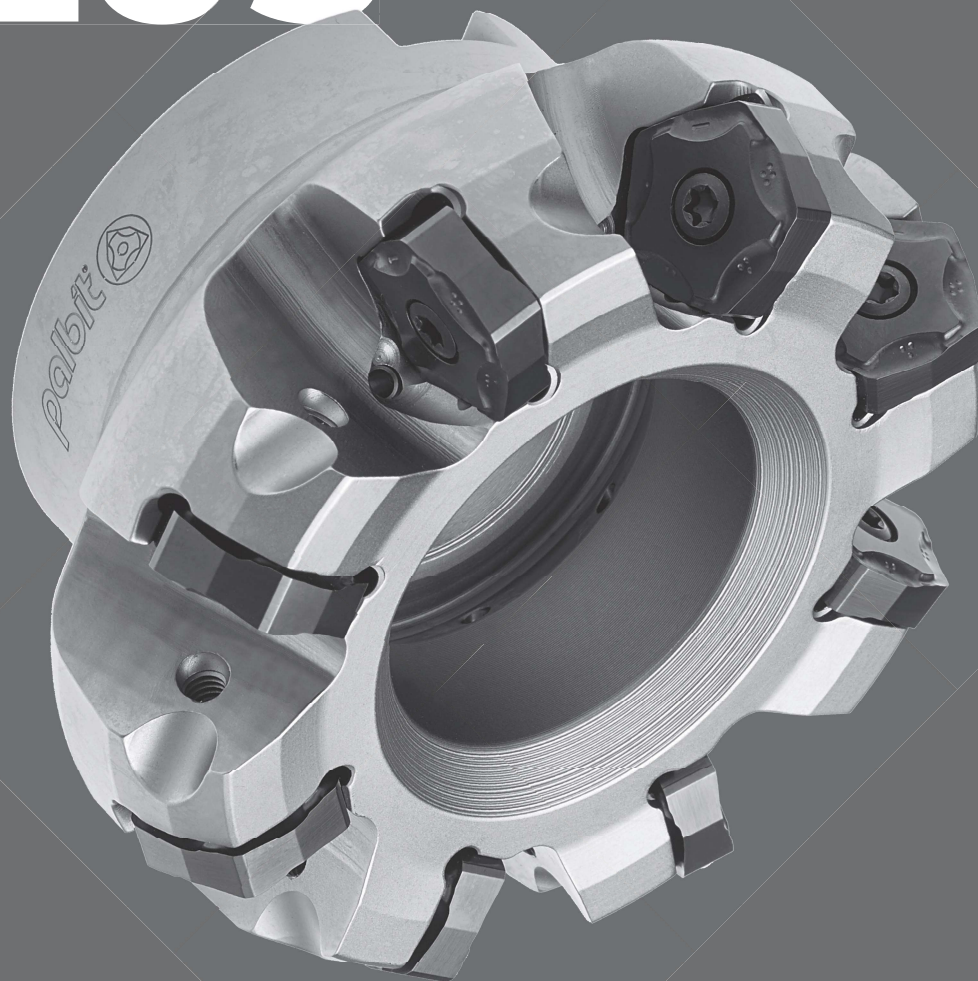
Good Conditions
 Average Conditions
 Difficult Conditions

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

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

90260

PLUS



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

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

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

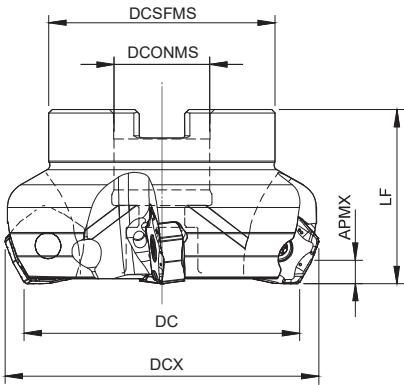
PLUS 90260 > page 44

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





Arbor Mounting
KAPR=60° | GAMP=-7°



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

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

PNH(K)X 1105 Inserts | Pastilhas | Plaquitas



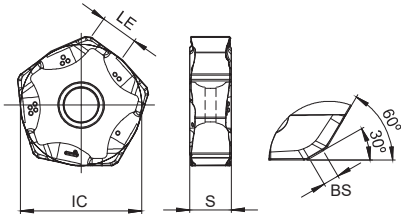
PNHX-MK



PNHX-HK



PNKX-MK



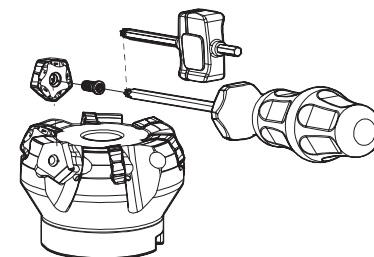
		P		K				Dimensions Dimensões Dimensiones (mm)				
		PVD		CVD		PVD						
		⁽²⁾ Grade code	G1	G4	L5	L9	G1					
⁽¹⁾ Geometry code	ISO Reference	PH7910	PH7920	PH5705	PH5740	PH7910	PH7920	IC	S	LE	RE	BS
1111374	PNHX 1105 ZNER-MK	Ⓢ	Ⓢ	Ⓢ	Ⓢ	Ⓢ	Ⓢ	16,50	5,66	5,70	-	1,30
1111998	PNHX 1105 ZNER-HK			Ⓢ	○			16,50	5,66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

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

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

SPARE PARTS Acessórios | Repuestos

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



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

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

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



Good Conditions



Average Conditions



Difficult Conditions

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

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

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

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

90845 | 90945 | 91245

PLUS



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

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

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

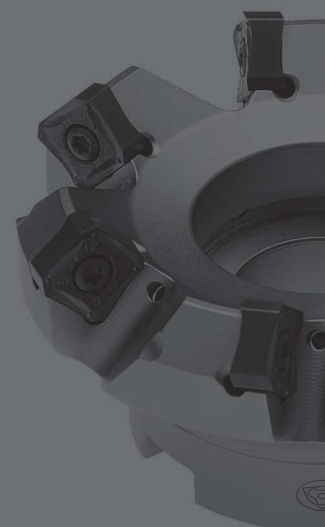
PLUS 90845 > page 48

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



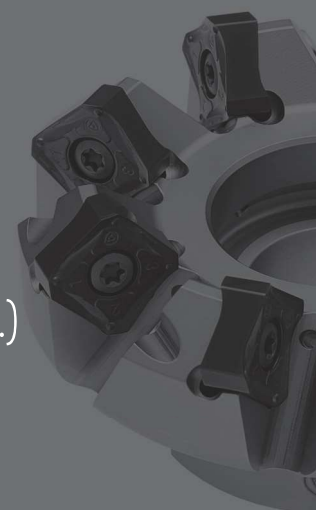
PLUS 90945 > page 52

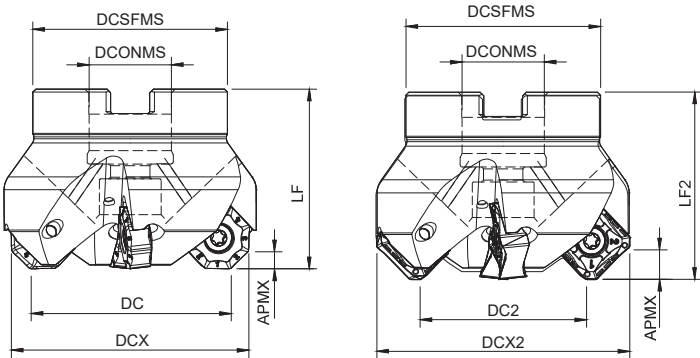
- > From DC 50mm to 250mm
De DC 50mm a 250mm | Desde DC 50mm hasta 250mm
- > Available in arbor mounting
Disponível em montagem tipo árvore | Disponible en fijación con tornillo central
- > Optimized line for SN.. 1206 Inserts
Linha otimizada para pastilhas SN.. 1206 / Línea optimizada para pastillas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



PLUS 91245 > page 56

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

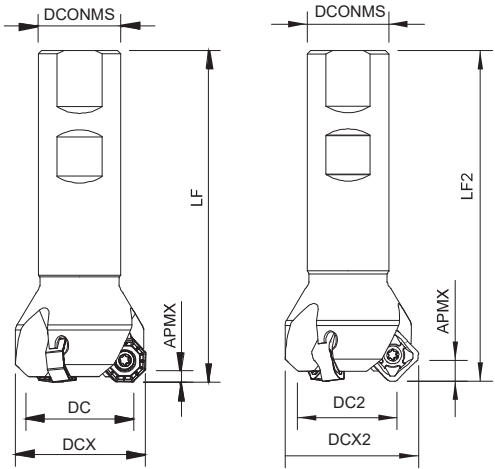




Arbor Mounting
KAPR=44,5°~46° | GAMP=-6°

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

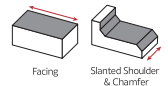
⊗ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)



Weldon Shank
KAPR=44,5°~46° | GAMP=-6°

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

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



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



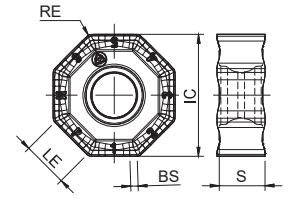
ONH(K)X-LP



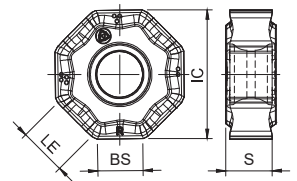
ONH(K)X-MP



ONH(K)X-MK



ONH(K)X-LP | MP | MK

ONHX-W
8 Cutting Edges (8R)

ONHX-W



SNH(K)X-MK



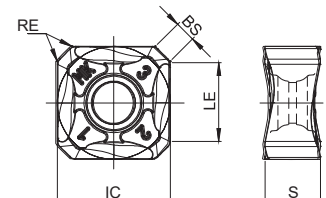
SNH(K)X-MP



SNHX-LP



SNHX-LN



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

		P						M		K										N		S		Dimensions Dimensões Dimensiones (mm)				
		CVD	PVD						PVD		CVD				PVD						UNC	PVD						
		⁽²⁾ Grade code	T9	X5	G4	T1	P3	P4	G6	X9	G6	L5	L6	L9	T9	X5	G4	T1	P3	P4	G6	10	X9					
(1) Geometry code	ISO Reference	PH5740	PHP910	PH7920	PHP920	PH7930	PHP930	PH7740	PHH930	PH7740	PH5705	PH5320	PH5740	PH5740	PHP910	PH7920	PHP920	PH7930	PHP930	PH7740	PHO910	PHH930	PH7740	IC	S	LE	RE	BS
1112302	ONHX 050505 ANEN-LP				⊗		⊗	⊗		⊗							⊗		⊗	⊗			⊗	12,70	5,20	5,30	0,50	-
1112304	ONHX 050505 ANSN-MP				⊗		⊗										⊗		⊗					12,70	5,20	5,30	0,50	-
1112301	ONKX 050505 ANEN-LP	○		⊗	⊗	⊗	⊗	○	⊗					○		⊗	⊗	⊗	⊗	○		⊗	○	12,70	5,20	5,30	0,50	-
1112303	ONKX 050505 ANSN-MP	⊗		⊗	⊗	⊗	⊗							⊗		⊗	⊗	⊗	⊗					12,70	5,20	5,30	0,50	-
1112305	ONKX 050500 ANEN-MK										○	⊗	⊗					⊗						12,70	5,20	5,30	-	-
1112307	ONHX 050500 ANER-W			⊗	⊗						⊗					⊗	⊗							12,70	5,20	5,30	-	4,30
1111452	SNHX 1206 ANEN-LP				⊗		⊗		⊗								⊗		⊗	○		⊗	○	12,70	6,35	9,30	0,80	2,00
1111502	SNHX 1206 ANSN-MP	⊗	⊗	⊗	⊗		⊗							⊗	⊗		⊗		⊗	○		○	○	12,70	6,35	9,30	0,80	2,00
1111503	SNHX 1206 ANEN-MK										⊗		⊗		⊗	⊗	⊗							12,70	6,35	9,30	0,80	2,00
1111504	SNHX 1206 ANFN-LN																				⊗			12,70	6,35	9,30	0,80	2,00
1112293	SNKX 1206 ANSN-MP	⊗		⊗	⊗		⊗						○	⊗		⊗	⊗		⊗			⊗		12,70	6,35	9,30	0,80	2,00
1112249	SNKX 1206 ANEN-MK										⊗	⊗	⊗											12,70	6,35	9,30	0,80	2,00

⊗ First choice | 1ª Escolha | 1ª Opción

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

⊗ Stock Items | Itens de stock

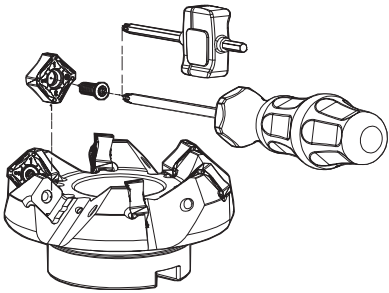
○ Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire pagina A-9)

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

SPARE PARTS

Acessórios | Repuestos

Cutter DC	Insert Screw	Key (Torx)	Key (Torx - Nm)	Torque Value	Order separately	
						
A90845 – 50 - 63	P0401200	XT15	DT1530	3,00	-	-
A90845 – 80	P0401200	XT15	DT1530	3,0	J0123510	SD6368-12
A90845 – 100	P0401200	PT15	DT1530	3,0	J0164110	SD6368-16
A90845 – 125	P0401200	PT15	DT1530	3,0	J0204610	SD6368-20
A90845 – 160 - 250	P0401200	PT15	DT1530	3,0	-	-
W90845 - 32 - 40	P0401200	XT15	DT1530	3,0	-	-



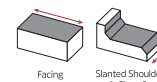
Note: The toolholder is supplied with the XT/PT key. To order the DT key please check the page A-301.
Check the procedures for the clamping screws on the page A-301.

GRADES SELECTION GUIDE

Guia para selecção de graus | Tabla para selección de calidades

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

● Good Conditions ● Average Conditions ● Difficult Conditions



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

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

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

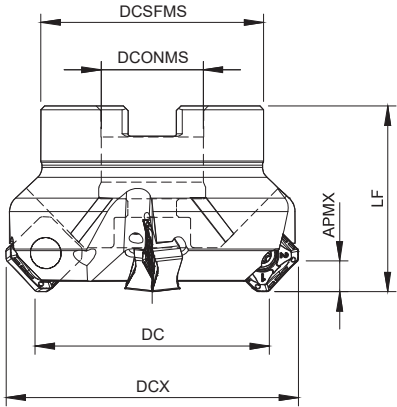
(Note 1) Cutting conditions $a_e/D_c=70\%$.

(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.

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



Arbor Mounting
KAPR=44,5°~46° | GAMP=-6°

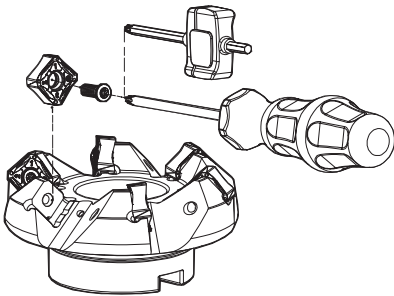
Order code Código	Reference Referência Referencia	CIC	Dimensions Dimensões Dimensiones (mm)					WT	Specifications		Insert Pastilha Inserto	Stock
			DC	DCX	DCONMS	DCSFMS	LF		Arbor Type	APMX (mm)		
181048200	050A90945-04-06-022040	4	50	63	22	48	40	0,424	A	6,0	SN... 1206	Ⓢ
181067000	050A90945-06-06-022040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

Ⓢ Stock item | Produto de stock | Itens de stock

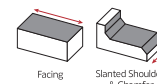
○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

SPARE PARTS Acessórios | Repuestos

Cutter DC	Order separately				Order separately	
	Insert Screw	Key (Torx)	Key (Torx - Nm)	Torque Value	Screw	DIN 6368 Wrench
A90945 – 50 - 63	P0401200	XT15	DT1530	3,00	-	-
A90945 – 80	P0401200	XT15	DT1530	3,0	J0123510	SD6368-12
A90945 – 100	P0401200	PT15	DT1530	3,0	J0164110	SD6368-16
A90945 – 125	P0401200	PT15	DT1530	3,0	J0204610	SD6368-20
A90945 – 160 - 250	P0401200	PT15	DT1530	3,0	-	-



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



SNH(K)X 12 Inserts | Pastilhas | Plaquitas



SNH(K)X-MK



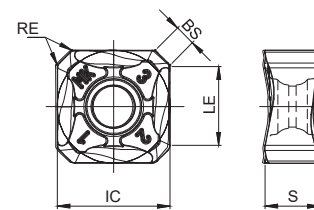
SNH(K)X-MP



SNHX-LP



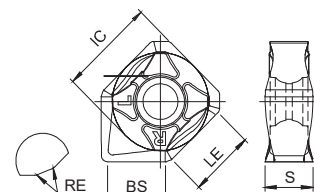
SNHX-LN



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



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



SNHX-W

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

⊗ First choice | 1ª Escolha | 1ª Opción

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

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

⊗ Stock Items | Itens de stock

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

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

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

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

ISO	PSM	Material	HB (Brinell)	Vc (m/min)		Feed fz (mm/t)					
				Toughness →							
				PH5740	PH7740	SNHX 12... LP	SNH(K)X 12... MP	SNH(K)X 12... MK	SNHX 12... LN	SNHX 12... W	
P	1	Unalloyed Steel	125-220	140-220	140-200	0,10-0,35	0,10-0,35	-	-	0,10-0,35	
	2	Low-Alloyed Steel	220-280	120-200	130-180	0,10-0,35	0,10-0,35	-	-	0,10-0,35	
	3	High-Alloyed Steel	280-380	100-190	100-170	0,10-0,30	0,10-0,30	-	-	0,10-0,30	
M	4	SS - Ferritic / Martensitic	200-330	-	130-180	0,10-0,30	-	-	-	-	
	5	SS - Austenitic	200-330	-	110-160	0,10-0,30	-	-	-	-	
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	90-150	0,10-0,25	-	-	-	-	
K	7	Malleable Cast Iron	130-230	-	140-220	0,10-0,35	-	0,10-0,35	-	0,10-0,40	
	8	Grey Cast Iron	180-245	-	120-210	0,10-0,35	-	0,10-0,35	-	0,10-0,40	
	9	Nodular Cast iron	160-250	-	100-190	0,10-0,30	-	0,10-0,30	-	0,10-0,40	
N	10	Aluminium and Non Ferrous	30-130	-	-	-	-	-	0,10-0,35	-	
S	11	Heat Resistant Super Alloys	200-320	-	30-100	0,07-0,20	-	-	-	-	

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

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

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

● Good Conditions ● Average Conditions ● Difficult Conditions

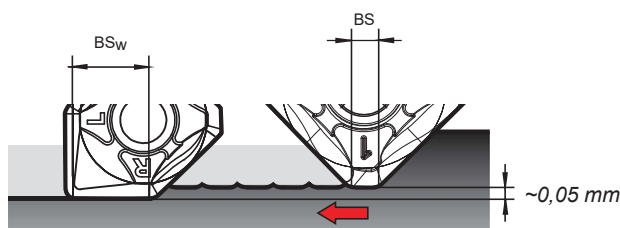
CHIP BREAKER SELECTION GUIDE Guia para aplicações do quebra-aparas | Guía para aplicación del rompevirutas

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

WIPER INSERTS

Recommended Cutting Conditions:

- f_n should be equal to $0,8 \times BS_w$
- Axial depth of cut is 0,5 to 0,8mm.



Example:

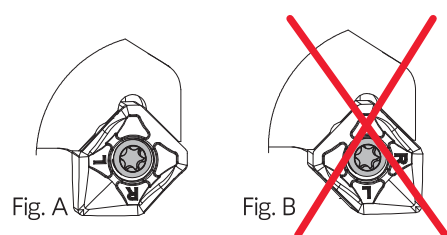
- The width of the parallel land (BS) of the insert is 2mm.
- To obtain a good surface finishing, the feed per revolution should be a maximum of 80% of 2mm = 1,6mm.
- The wiper insert will have a parallel land (BS_w) with a width of 7,6mm.
- Result: Feed per revolution (f_n) could be increased from 1,6mm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

Note:

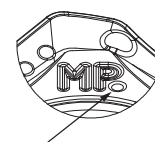
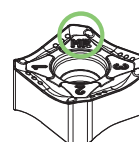
- Other limitations, such as machine power, must be taken into consideration.
- $f_n \leq 0,8 \times BS_w = f_z \leq 0,8 \times BS_w / Z$

How to use a wiper insert:

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

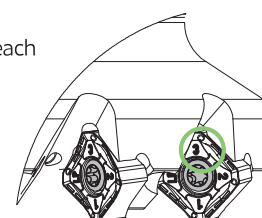


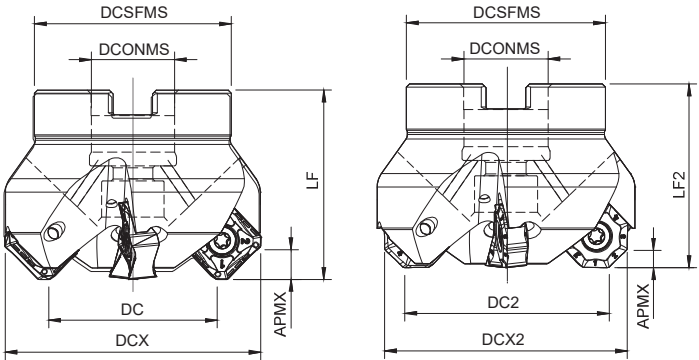
When using wiper insert, install the insert as shown on Fig. A if the insert is installed as shown on Fig. B breakage of the insert is inevitable and normal surface finish can not be obtained.



This point shows the SNKX insert difference to SNHX

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





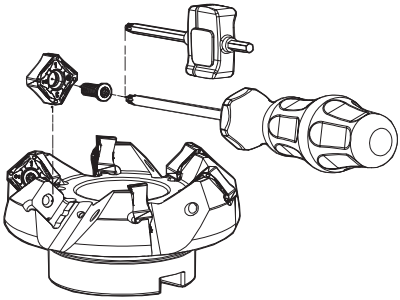
Arbor Mounting
KAPR=44,5°~46° | GAMP=-6°

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

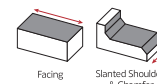
📦 Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

SPARE PARTS Acessórios | Repuestos

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



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



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



ONH(K)X-LP



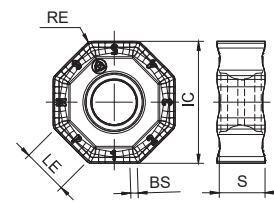
ONH(K)X-MP



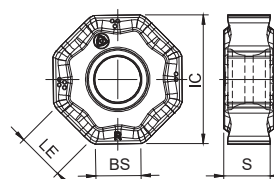
ONH(K)X-MK



ONHX-LS



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

ONHX-W
8 Cutting Edges (8R)

ONHX-W



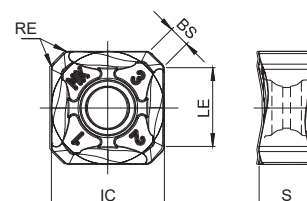
SNHX-LP



SNH(K)X-MP



SNH(K)X-MK



SNH(K)X-MK | LP | MP

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

First choice | Primeira opção | 1ª opción

Stock item | Produto de stock | Itens de stock

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

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

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

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

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

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

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

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

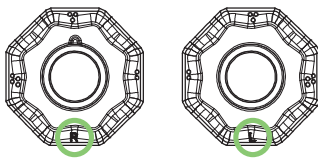
Good Conditions Average Conditions Difficult Conditions

CHIP BREAKER SELECTION GUIDE

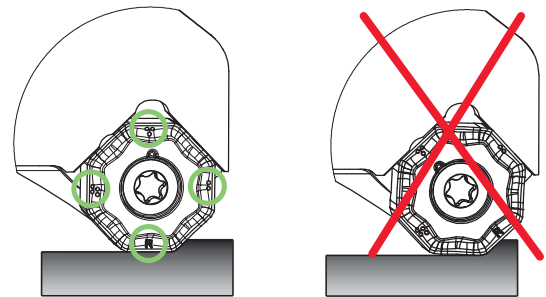
Guia para aplicações do quebra-aperas | Guía para aplicación del rompevirutas

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

WIPER INSERTS



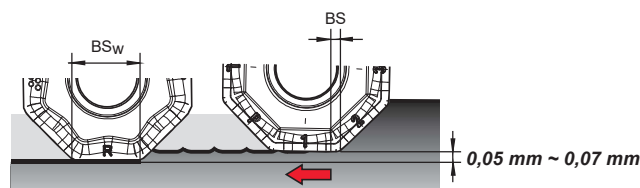
Wiper insert with 4 Right and 4 Left-hand cutting edges.
The side work of the insert it's indicated by the letter R (Right) & L (Left).



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

Recommended Cutting Conditions:

- f_n should be equal to $0,8 \times BS_w$
- Axial depth of cut is 0,5 to 0,8mm.



Example:

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

Note:

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

How to use a wiper insert:

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

NEW 57045

LINEPRO



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

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

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

NEW LINEPRO 57045 > page 62

> **From DC 20mm to 125mm**

De DC 20mm a 125mm | Desde DC 20mm hasta 125mm

> **Available in arbor, threaded, weldon and cylindrical shank**

Disponível em montagem tipo árvore, acoplamento roscado, haste weldon e cilíndrica | Disponible en fijación con tornillo central, fijación roscada, mango tipo weldon y cilíndrico

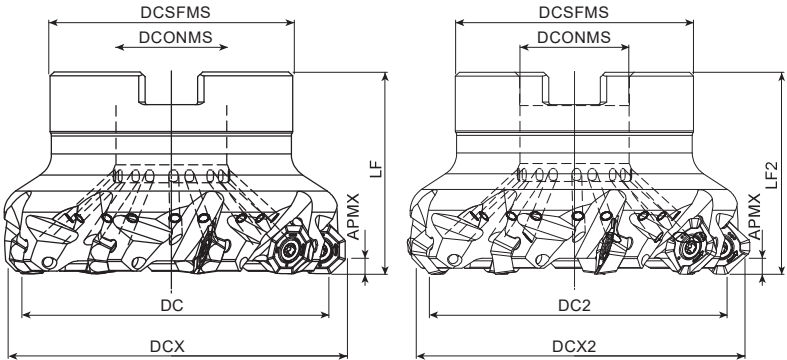
> **Two different geometries for same pocket (OFHX 0403.. and SFHX 1004..)**

Duas geometrias diferentes para o mesmo alojamento (OFHX 0403.. e SFHX 1004..) / Dos geometrías diferentes para el mismo alojamiento (OFHX 0403.. y SFHX 1004..)

> **Extremely positive rake angle**

Ângulo de ataque extremamente positivo | Ángulo de ataque extremadamente positivo





Arbor Mounting
KAPR=45° | GAMP=+18°

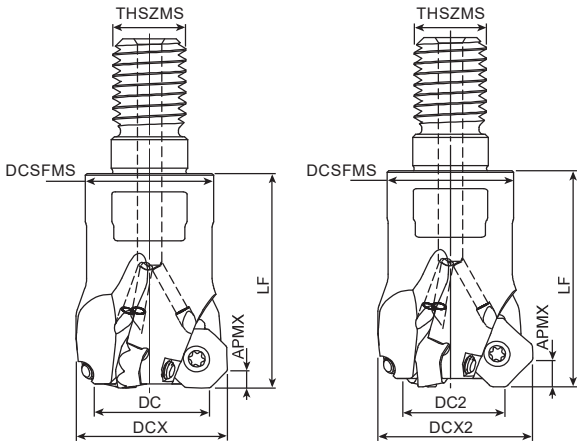
Order code Código	Reference Referência Referencia	CICT	Dimensions Dimensões Dimensiones (mm)								WT	Specifications		Insert Pastilha Inserto	Stock
			DC	DC2	DC3	DC4	Ød	DCS-FMS	L	L2		Arbor Type	APMX (mm)		
181164100	040A57045-04-18-016040	4	40	45,8	38,4	47,7	16	38	40	40,7	0,150	A	2,5 3,5	SF..10 OF..04	○
181164200	040A57045-06-18-016040	6	40	45,8	38,4	47,7	16	38	40	40,7	0,180	A	2,5 3,5	SF..10 OF..04	⊗
181164300	050A57045-05-18-022040	5	50	55,8	48,4	57,7	22	48	40	40,7	0,330	A	2,5 3,5	SF..10 OF..04	○
181164400	050A57045-07-18-022040	7	50	55,8	48,4	57,7	22	48	40	40,7	0,315	A	2,5 3,5	SF..10 OF..04	⊗
181164500	063A57045-06-18-022040	6	63	68,8	61,4	70,7	22	48	40	40,7	0,505	A	2,5 3,5	SF..10 OF..04	⊗
181164600	063A57045-09-18-022040	9	63	68,8	61,4	70,7	22	48	40	40,7	0,495	A	2,5 3,5	SF..10 OF..04	○
181164700	080A57045-07-18-027050	7	80	85,8	78,4	87,7	27	58	50	50,7	1,150	B	2,5 3,5	SF..10 OF..04	○
181164800	080A57045-11-18-027050	11	80	85,8	78,4	87,7	27	58	50	50,7	1,000	B	2,5 3,5	SF..10 OF..04	○
181164900	100A57045-09-18-032050	9	100	105,8	98,4	107,7	32	78	50	50,7	1,650	B	2,5 3,5	SF..10 OF..04	○
181165000	100A57045-13-18-032050	13	100	105,8	98,4	107,7	32	78	50	50,7	1,550	B	2,5 3,5	SF..10 OF..04	○
181165100	125A57045-12-18-040063	12	125	130,8	123,4	132,7	40	88	63	63,7	2,700	B	2,5 3,5	SF..10 OF..04	○

⊗ Stock item | Produto de stock | Itens de stock

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



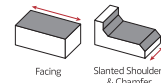
Threaded Coupling
KAPR=45° | GAMP=+18°



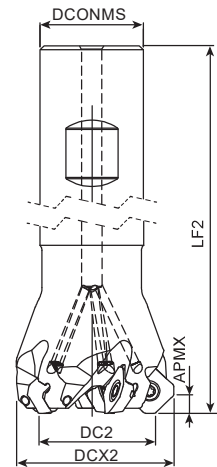
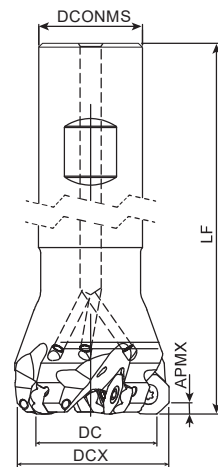
Order code Código	Reference Referência Referencia	CICT	Dimensions Dimensões Dimensiones (mm)								WT	Specifications	Insert Pastilha Inserto	Stock
			DC	DCX	DC2	DCX2	THSZMS	DCSFMS	LF	LF2		APMX (mm)		
181163800	020R57045-03-18-M12035	3	20	25,6	18,6	27,4	M12	21	35	35,7	0,100	2,5 3,5	SF..10 OF..04	○
181163900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

⊗ Stock item | Produto de stock | Itens de stock

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



Weldon Shank
KAPR=45° | GAMP=+18°



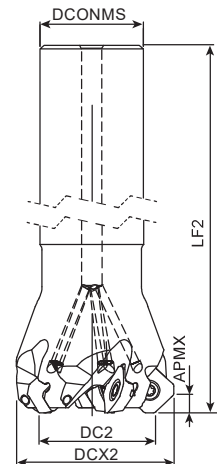
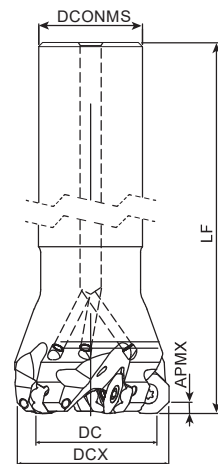
Order code Código	Reference Referência Referencia	CICT	Dimensions Dimensões Dimensiones (mm)							WT	Specifications	Insert Pastilha Inserto	Stock
			DC	DCX	DC2	DCX2	DCONMS	LF	LF2		APMX (mm)		
181165900	020W57045-03-18-020080	3	20	25,6	18,6	27,7	20	80	80,7	0,180	2,5 3,5	SF..10 OF..04	⊗
181166000	025W57045-04-18-020085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

⊗ Stock item | Produto de stock | Itens de stock

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



Cilindrical Shank
KAPR=45° | GAMP=+18°



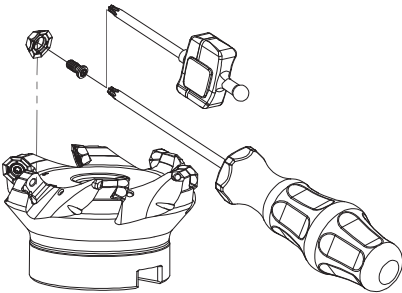
Order code Código	Reference Referência Referencia	CICT	Dimensions Dimensões Dimensiones (mm)							WT	Specifications	Insert Pastilha Inserto	Stock
			DC	DCX	DC2	DCX2	DCONMS	LF	LF2		APMX (mm)		
181165200	020E57045-03-18-020080	3	20	25,6	18,6	27,7	20	80	80,7	0,180	2,5 3,5	SF..10 OF..04	⊗
181165300	025E57045-04-18-020085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

⊗ Stock item | Produto de stock | Itens de stock

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

MILLING SPARE PARTS Acessórios | Repuestos

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



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

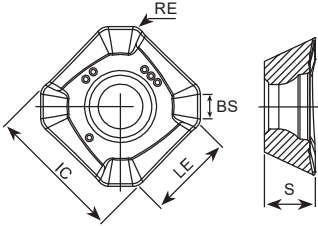
SFHX 100410 | OFHX 040305 Inserts | Pastilhas | Plaquitas



SFHX-LP



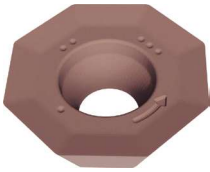
SFHX-LS



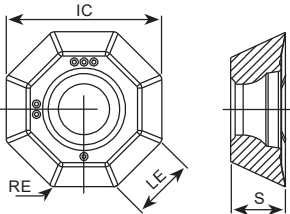
SFHX-LP | LS



OFHX-LP



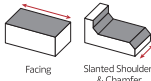
OFHX-LS



OFHX-LP | LS

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

First choice | Primeira opção | 1ª opción Stock item | Produto de stock | Itens de stock Available under request (see page A-9) | Disponível sobre consulta (consulte a página A-9) | Disponible bajo consulta (mire página A-9) Insert order code = (1) Geometry Code + (2) Grade Code



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

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



Good Conditions



Average Conditions



Difficult Conditions

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

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

(Note 1) Cutting conditions ae/DC=70%

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

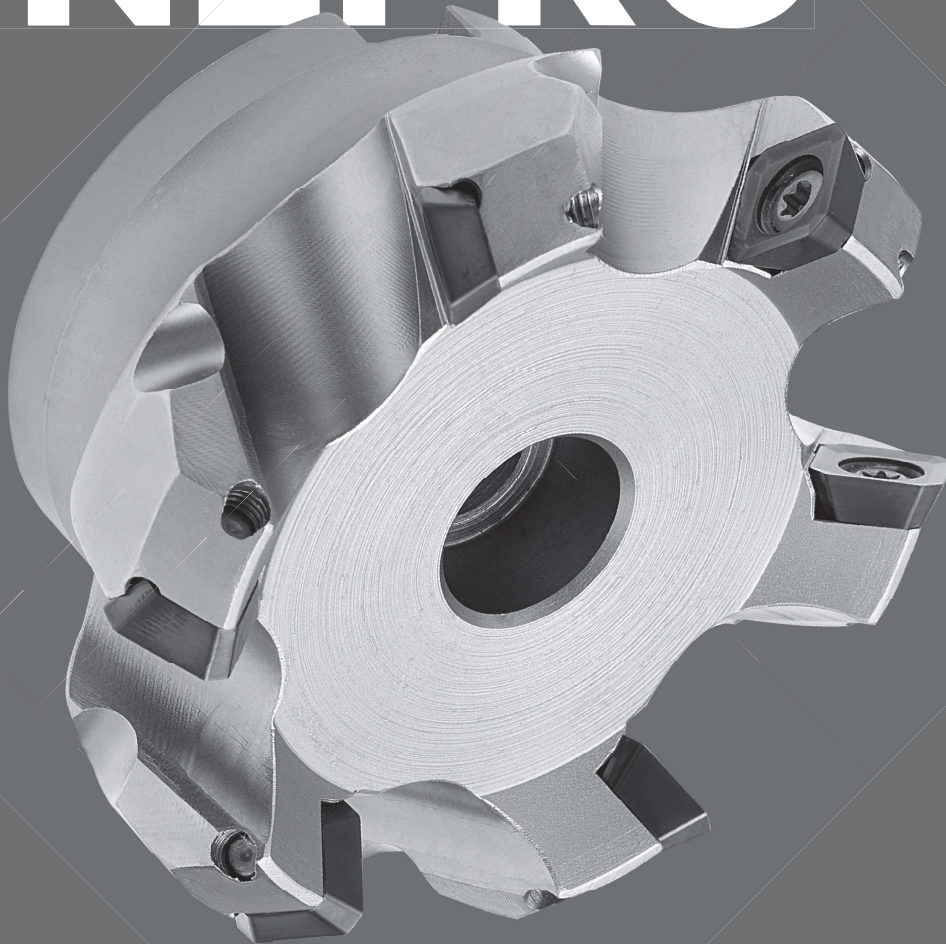
(Note 3) If chattering occurs, reduce ap and Vc by 30% and keep the same fz per tooth.

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

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

06045 | 09945

LINEPRO



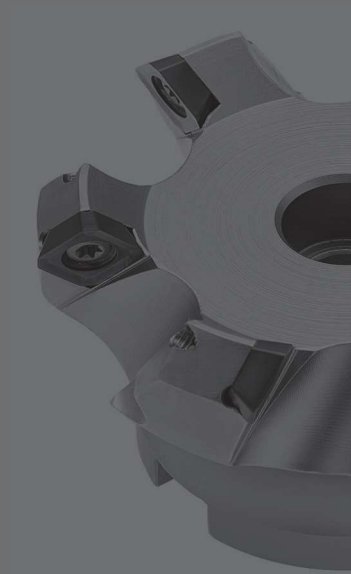
LINEPRO is a standard 45° face milling system designed for universal application. Its positive geometry ensures a sharp cutting edge that minimizes cutting forces while enhancing surface quality.

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

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

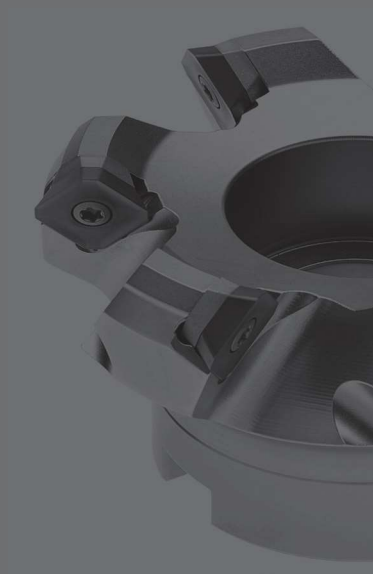
LINEPRO 06045 > page 68

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



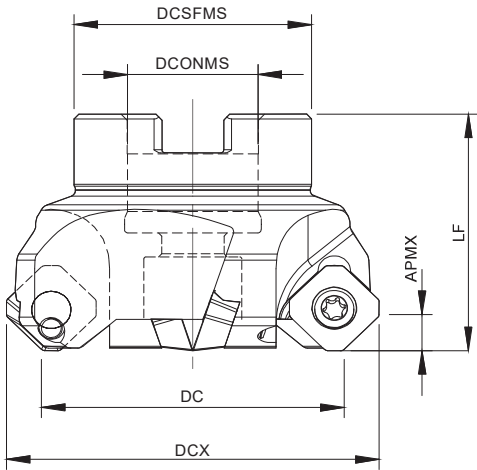
LINEPRO 09945 > page 70

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





Arbor Mounting
KAPR=45° | GAMP=+19°



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

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

SEH... 1204 Inserts | Pastilhas | Plaquetas



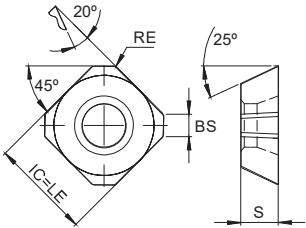
SEHW



SEHT



SEHT-LN

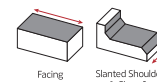


SEHW | SEHT | SEHT-LN

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

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

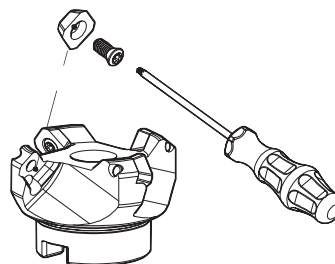
Insert order code = (1) Geometry Code + (2) Grade Code



SPARE PARTS Acessórios | Repuestos

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

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



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

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



Good Conditions



Average Conditions



Difficult Conditions

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

ISO	PSM	Material	HB (Brinell)	Vc (m/min)			Feed fz (mm/t)		
				← Wear Resistance	Toughness →		SEHT 1204...	SEHT 1204 LN	SEHW 1204...
				PH0910	PH6920	PH6740			
P	1	Unalloyed steel	125-220	-	150-230	130-160	0,10-0,20	-	0,10-0,20
	2	Low-alloyed steel	220-280	-	140-220	120-150	0,10-0,20	-	0,10-0,20
	3	High-alloy steel	280-380	-	130-180	100-130	0,10-0,20	-	0,10-0,20
M	4	SS - Ferritic / Martensitic	200-330	-	-	100-120	0,10-0,15	-	0,10-0,20
	5	SS - Austenitic	200-330	-	-	80-110	0,10-0,15	-	0,10-0,20
	6	SS - Austenitic-ferritic (Duplex)	230-260	-	-	70-100	0,10-0,15	-	0,10-0,20
K	7	Malleable cast iron	130-230	-	-	130-250	0,10-0,25	-	0,10-0,25
	8	Grey cast iron	180-245	-	-	110-220	0,10-0,25	-	0,10-0,25
	9	Nodular cast iron	160-250	-	-	80-170	0,10-0,25	-	0,10-0,25
N	10	Aluminium and Non Ferrous	30-130	350-1400	-	-	-	0,10-0,25	-

(Note 1) Cutting conditions ae/DC=70%

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

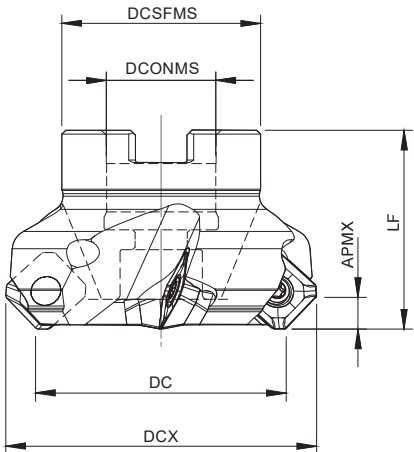
(Note 3) If chattering occurs, reduce ap and Vc by 30% and keep the same fz per tooth.

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

ISO	PSM	Material	HB (Brinell)	Chip breaker application	
				1st choice	Difficult Operations
P	1	Unalloyed Steel	125-220	SEHT 12... AFEN	SEHW 12... AFEN
	2	Low-Alloyed Steel	220-280	SEHT 12... AFTN	SEHW 12... AFTN
	3	High-Alloyed Steel	280-380	SEHT 12... AFTN	SEHW 12... AFTN
M	4	SS - Ferritic / Martensitic	200-330	SEHT 12... AFEN	SEHW 12... AFEN
	5	SS - Austenitic	200-330	SEHT 12... AFEN	SEHW 12... AFEN
	6	SS - Austenitic-ferritic (Duplex)	230-260	SEHW 12... AFEN	-
K	7	Malleable Cast Iron	130-230	SEHT 12... AFEN	SEHW 12... AFEN
	8	Grey Cast Iron	180-245	SEHT 12... AFEN	SEHW 12... AFEN
	9	Nodular Cast iron	160-250	SEHW 12... AFEN	SEHW 12... AFTN
N	10	Aluminium and Non Ferrous	30-130	SEHT 12... AFEN-LN	-



Arbor Mounting
KAPR=45° | GAMP=+20°~+21°



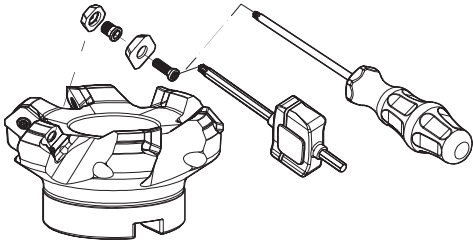
Order code Código	Reference Referência Referencia	CICT	Dimensions Dimensões Dimensiones (mm)					WT	Specifications		Insert Pastilha Inserto	Stock
			DC	DCX	DCONMS	DCSFMS	LF		Arbor Type	APMX (mm)		
181034700	050A09945-04-20-U022040	4	50	63	22	40	40	0,36	A	6,0	SE...13T3	⊗
181024200	063A09945-05-21-U022040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

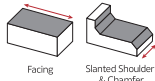
⊗ Stock item | Produto de stock | Itens de stock ○ Available under request (see page A-8) | Disponível sobre consulta (consulte a página A-8) | Disponible bajo consulta (mire pagina A-8)

SPARE PARTS Acessórios | Repuestos

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

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





SE... 13T3 Inserts | Pastilhas | Plaquitas



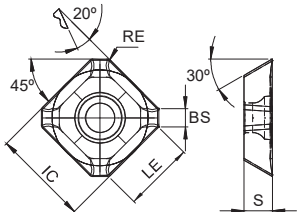
SEHT



SEHW



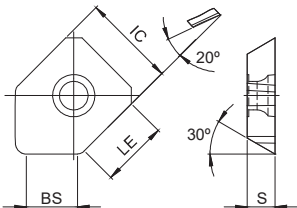
SEHT-LN



SEHT | SEHW | SEHT-LN



SEHT-W



SEHT-W

		P		M	K		N	Dimensions Dimensões Dimensiones (mm)			
		PVD		PVD	PVD		UNC				
		68	I5	I5	68	I5	10				
(1) Geometry code	(2) Grade code ISO Reference	PH6920	PH6740	PH6740	PH6920	PH6740	PH0910	IC	S	LE	BS
1110559	SEHT 13T3 AGSN	Ⓢ	Ⓢ	Ⓢ	Ⓢ	Ⓢ		13,35	3,97	10,00	2,00
1111586	SEHT 13T3 AGFN-LN						Ⓢ	13,35	3,97	10,00	2,30
1110627	SEHT 13T3 AGSN-W	Ⓢ			Ⓢ			13,35	3,97	10,00	8,20
1111146	SEHW 13T3 AGFN	Ⓢ			Ⓢ			13,35	3,97	10,00	2,00

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

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

GRADES SELECTION GUIDE

Guia para selecção de graus | Tabla para selección de calidades

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

 Good Conditions Average Conditions Difficult Conditions

RECOMMENDED CUTTING CONDITIONS

Condições de corte recomendadas | Condiciones de corte recomendables

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

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

CHIP BREAKER SELECTION GUIDE

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

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

WIPER INSERTS

Rec. Cutting Conditions

- BS_W at least 40% larger than f_n ($f_n = f_z \times Z$);
- Axial depth of cut is 0,5 - 0,8 mm;

Example:

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

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

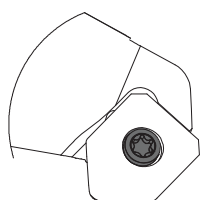


Fig. A

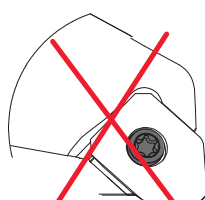


Fig. B

When using wiper insert, install the insert as shown on Fig. A.

If the insert is installed as shown on Fig. B breakage of the insert is inevitable and normal surface finish can not be obtained.