



PHOENIX INDEXABLE SERIES





NAME		SPECIFICATION	
DRILLING			
 PHP NEW	 3 x D High Performance Indexable Drill, 2 flutes	 3 x D Hochleistungswendeplattenbohrer	
	 3 xD alta performance punta ad inserti	 Foret à plaquettes amovibles 3D haute performance	
MILLING			
 PFB NEW	 Finishing Ball nose Cutter, 2 flutes	 2 Schneider Kugelfräser für Schlichtbearbeitungen	
	 Fresa sferica di finitura, 2 eliche	 Finition hémisphérique 2 dents	
 PSE/SS NEW	 90° Shoulder Cutter, straight shank	 90 ° Schulterfräser, Zylinderschaft	
	 90° Fresa spallamento retto, gambo cilindrico	 Surfacer dresser à 90° queue cylindrique	
 PSE/WS NEW	 90° Shoulder Cutter, Weldon shank	 90 ° Schulterfräser, Weldonschaft	
	 90° Fresa spallamento retto, gambo cilindrico Weldon	 Surfacer dresser à 90° queue weldon	
 PSE Scw Fit NEW	 90° Shoulder Cutter, screw fit type	 90 ° Schulterfräser, Aufschraubschaft	
	 90° Fresa spallamento retto, sistema modulare	 Surfacer dresser à 90° tête vissée	
 PSE BORE NEW	 90° Shoulder Cutter, Bore type	 90 ° Schulterfräser, Aufnahmebohrung	
	 90° Fresa spallamento retto, a manicotto	 Surfacer dresser à 90° à trou lisse	
 PRC-SS NEW	 Radius cutter, straight shank	 Rundplattenfräser , Zylinderschaft	
	 Fresa con inserto tondo, gambo cilindrico	 Fraise à plaquettes rondes, queue cylindrique	
 PRC Scw Fit NEW	 Radius cutter, screw fit type	 Rundplattenfräser , Aufschraubschaft	
	 Fresa con inserto tondo, sistema modulare	 Fraise à plaquettes rondes, tête vissée	
 PRC BORE NEW	 Radius cutter, Bore type	 Rundplattenfräser, Aufnahmebohrung	
	 Fresa con inserto tondo, a manicotto	 Fraise à plaquettes rondes, trou lisse	
 PHC-SS NEW	 High feed radius cutter, straight shank	 Hochvorschubsfräser , Zylinderschaft	
	 Fresa alto avanzamento, gambo cilindrico	 Fraise grandes avances, queue cylindrique	
 PHC-SS Screw Fit NEW	 High feed radius cutter, screw fit type	 Hochvorschubsfräser , Aufschraubschaft	
	 Fresa alto avanzamento, sistema modulare	 Fraise grandes avances, tête vissée	
 PHC BORE NEW	 High feed radius cutter, Bore type	 Hochvorschubsfräser , Aufnahmebohrung	
	 Fresa alto avanzamento, a manicotto	 Fraise grandes avances, trou lisse	
 PDR-SS/MT/CN NEW	 Deep feed radius cutter, shank type	 Torusfräser für maximale Zustellungen, Zylinderschaft	
	 Fresa ad alta asportazione, stelo	 Fraise torique, grande avance, queue cylindrique	
 PDR BORE NEW	 Deep feed radius cutter, Bore type	 Torusfräser für maximale Zustellungen, Aufnahmebohrung	
	 Fresa ad alta asportazione, a manicotto	 Fraise torique grande avance, trou lisse	

SPECIFICATION		RANGE		APPLICATION	PAGE
		8	60	125	DRILLING
 3 x D High Performance bor med vendeskær	 3 x D high performance borr			 	26~
 Broca insertable para altas prestaciones	 3D высокопроизводительное сверло со сменными пластинками	14	32		

SPECIFICATION		RANGE		APPLICATION	PAGE
		8	60	125	MILLING
 Radiusfræser til sletbearbejdning, 2 skær	 Finkörnings vändskärs fullradie fräs, 2 skär			    	6~
 Fresa de punta esférica 2 labios para acabado.	 Чистовая сферическая фреза, 2-зубая	8	30	    	
 90° vendeskærfræser, cylindrisk skaft	 90° vändskärsfräs, rakt skaft			    	12
 Fresa a 90° para escuadrar, mango cilíndrico.	 Торцевая фреза 90°, цилиндрический хвостовик	16	63	    	
 90° vendeskærfræser, Weldon skaft	 90° vändskärsfräs, Weldon skaft			    	12
 Fresa a 90° para escuadrar, mango Weldon	 Торцевая фреза 90°, хвостовик Weldon	16	32	    	
 90° vendeskærfræser, Indskrunings type	 90° vändskärsfräs huvud med gänginfästning			    	13
 Fresa a 90° para escuadrar, Cabeza roscada	 Торцевая фреза 90°, резьбовая головка	16	40	    	
 90° vendeskærfræser, til dorn	 90° vändskärsfräs huvud med skruvfäste			    	14
 Fresa a 90° para escuadrar, hueca	 Торцевая фреза 90°, насадная	40	125	    	
 Radius fræser, cylindrisk skaft	 Vändskärsfräs med runda skär, rakt skaft			    	16
 Fresa tórica, mango cilíndrico.	 Торовая фреза, цилиндрический хвостовик	20	63	    	
 Radius fræser, Indskrunings type	 Vändskärsfräs med runda skär huvud med gänginfästning			    	17
 Fresa tórica, Cabeza roscada	 Торовая фреза, резьбовая головка	20	40	    	
 Radius fræser, til dorn	 Vändskärsfräs med runda skär med skruvfäste			    	18
 Fresa tórica, hueca	 Торовая фреза, насадная	50	100	    	
 High feed radius fræser, cylindrisk skaft	 Högmåtningsfräs, rakt skaft			    	20
 Fresa de gran avance, mango cilíndrico	 Фреза с высокой подачей, цилиндрический хвостовик	25	63	    	
 High feed radius fræser, Indskrunings type	 Högmåtningsfräs med gänginfästning			    	21
 Fresa de gran avance, Cabeza roscada	 Фреза с высокой подачей, резьбовая головка	25	40	    	
 High feed radius fræser, til dorn	 Högmåtningsfräs med skruvfäste			    	22
 Fresa de gran avance, hueca	 Фреза с высокой подачей, насадная	40	100	    	
 Deep feed radiusfræser, cylindrisk skaft	 Avverknings och hörnradie vändskärsfräs med skaft			    	24
 Fresa de gran avance con radio, con mango	 Фреза с высокой подачей и увеличенной глубиной резания, цилиндрический стовик	40	50	    	
 Deep feed radiusfræser, til dorn	 Avverknings och hörnradie vändskärsfräshuvud med skruvfäste			    	25
 Fresa de gran avance con radio, hueca	 Фреза с высокой подачей и увеличенной глубиной резания, насадная	63	105	    	





ICONS								
Face milling - Planfräsen - Spianatura - Surfaçage - Planfræsning - Planfräsning - Fresado plano - Фрезерование плоскостей								
	Face milling	Planfräsen	Spianatura	Surfaçage	Planfræsning	Planfräsning	Fresado plano	Фрезерование плоскостей
Side milling - Konturfräsen - Fresatura contornatura - Fraisage contournage - Sidefræsning - Valsfräsning - Contorneado - Боковое фрезерование								
	Side milling	Konturfräsen	Fresatura contornatura	Fraisage contournage	Sidefræsning	Valsfräsning	Contorneado	Боковое фрезерование
	Side milling	Konturfräsen	Fresatura contornatura	Fraisage contournage	Sidefræsning	Valsfräsning	Contorneado	Боковое фрезерование
	Side milling	Konturfräsen	Fresatura contornatura	Fraisage contournage	Sidefræsning	Valsfräsning	Contorneado	Боковое фрезерование
Slotting - Nutenfräsen - Per scanalature profonde - Rainurage - Skæredata - Skärdata - Ranurado - Фрезерование пазов								
	Slotting	Nutenfräsen	Per scanalature profonde	Rainurage	Skæredata	Skärdata	Ranurado	Фрезерование пазов
	Slotting	Nutenfräsen	Per scanalature profonde	Rainurage	Skæredata	Skärdata	Ranurado	Фрезерование пазов
	Slotting	Nutenfräsen	Per scanalature profonde	Rainurage	Skæredata	Skärdata	Ranurado	Фрезерование пазов
Contouring - Konturfräsen - Contornatura - Contournage - Konturfræsning - Konturfräsning - Contorneado -								
	Contouring	Konturfräsen	Contornatura	Contournage	Konturfræsning	Konturfräsning	Contorneado	фрезерования
Profile milling - Profilfräsen - Copiatura - Usinage de forme - Profil fræsning - Profilfräsning - Copiado de figura - Профильное фрезерование								
	Profile milling	Profilfräsen	Copiatura	Usinage de forme	Profil fræsning	Profilfräsning	Copiado de figura	Профильное фрезерование
	Profile milling	Profilfräsen	Copiatura	Usinage de forme	Profil fræsning	Profilfräsning	Copiado de figura	Профильное фрезерование
Boring & Plunging - Bohren & Tauchfräsen - Foratura & Fresatura in spinta - Perçage et Plongée - Boring & Plunging - Borning & Plunging - Taladrado & Penetraci - Сверление								
	Boring	Bohren	Foratura	Perçage	Boring	Borning	Taladrado	Сверление
	Plunging	Tauchfräsen	Fresatura in spinta	plongée	Plunging	Plunging	Penetración axial	Плунжерное фрезерование
	Plunging	Tauchfräsen	Fresatura in spinta	plongée	Plunging	Plunging	Penetración axial	Плунжерное фрезерование



Webstore

Click Here



Products

Search
Enter EDP Select Brand Select Product Family

Stock quantities shown are not binding

VP-HO-GDR
VP-RELF
VP-RESF-SP
VPH-GDS
VPO-DC-MT
VPO-DC-SC-MT
VPS-EMS
VX-OT
VXL-SFT
WDO-100
WDO-3D
WDO-5D
WDO-PLT
WEBDS
WEDL
WEDS
WEML
WEMS
WETL
WETS

Search
Enter EDP Select Brand Select Product Family Search

Stock quantities shown are not binding

Products	EDP	Description	Qty	Replenishment Delay	Basket
	48149020	D 2 WDO-100	26		
	48149021	D 2.1 WDO-100	16		
	48149022	D 2.2 WDO-100	15		
	48149023	D 2.3 WDO-100	1		
	48149024	D 2.4 WDO-100	1		
	48149025	D 2.5 WDO-100	30		
	48149026	D 2.6 WDO-100	18		
	48149027	D 2.7 WDO-100	17		
	48149028	D 2.8 WDO-100	8		
	48149029	D 2.9 WDO-100	35		
	48149030	D 3 WDO-100	143		
	48149031	D 3.1 WDO-100	26		
	48149032	D 3.2 WDO-100	42		
	48149033	D 3.3 WDO-100	5		

Once you become a member, more convenient features will be available to you such as :

- ▶ real-time Backorder tracking,
- ▶ PDF downloads of Orders and invoices,
- ▶ Ordering per item or by XLS import,
- ▶ tracking Shipments.

Visit Us at :
<http://wstore.osgeurope.com>



**PFB****HIGH PERFORMANCE**

- Finish Ball nose Cutter
- 2 flutes

HIGH PERFORMANCE

- Kugelfräser für Schlichtbearbeitungen
- 2 Schneider

ALTA PRESTAZIONE

- Fresa sferica di finitura
- 2 eliche

HAUTE PERFORMANCE

- Finition hémisphérique
- 2 dents

HIGH PERFORMANCE

- Radiusfræser til sletbearbejdning
- 2 skær

HIGH PERFORMANCE

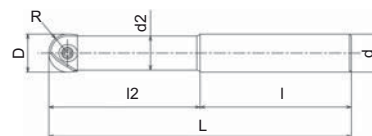
- Fullradiefräs för finishing
- 2 skär

ALTO RENDIMIENTO

- Fresa de punta esférica
- 2 labios para acabado.

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

- Чистовая сферическая фреза
- 2-зубая

**Steel Shanks**

EDP	Tool Specification	D	R	I2	I2/D	I	L	d2	d	Z Δ	Stock	Price
7801400	PFB-R080SS08-S120	8	4	36	4,5	84	120	7	8	2	●	
7801401	PFB-R100SS10-S130	10	5	45	4,5	85	130	9	10	2	●	
7801402	PFB-R120SS12-S130	12	6	54	4,5	76	130	11	12	2	●	
7801403	PFB-R160SS16-S140	16	8	64	4	76	140	14	16	2	●	
7801404	PFB-R200SS20-S160	20	10	80	4	80	160	18	20	2	●	
7801405	PFB-R250SS25-S160	25	12,5	75	3	85	160	22	25	2	●	
7801406	PFB-R300SS32-S170	30	15	90	3	80	170	27	32	2	●	

Z Δ = Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
 Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Carbide Shanks- Short

EDP	Tool Specification	D	R	I2	I2/D	I	L	d2	d	Z Δ	Stock	Price
7801430	PFB-R080SS08-S100CS	8	4	20	2,5	80	100	7	8	2	●	
7801431	PFB-R100SS10-S100CS	10	5	25	2,5	75	100	9	10	2	●	
7801432	PFB-R120SS12-S110CS	12	6	30	2,5	80	110	11	12	2	●	
7801433	PFB-R160SS16-S140CS	16	8	40	2,5	100	140	14	16	2	●	
7801434	PFB-R200SS20-S160CS	20	10	50	2,5	100	160	18	20	2	●	
7801435	PFB-R250SS25-S160CS	25	12,5	62,5	2,5	97,5	160	22	25	2	●	
7801436	PFB-R300SS32-S170CS	30	15	75	2,5	95	170	27	32	2	●	

Z Δ = Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
 Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Carbide Shanks- Long

EDP	Tool Specification	D	R	I2	I2/D	I	L	d2	d	Z Δ	Stock	Price
7801420	PFB-R080SS08-LL140CS	8	4	56	7	84	140	7	8	2	●	
7801421	PFB-R100SS10-LL150CS	10	5	70	7	80	150	9	10	2	●	
7801422	PFB-R120SS12-LL160CS	12	6	84	7	76	160	11	12	2	●	
7801423	PFB-R160SS16-LL200CS	16	8	96	6	104	200	14	16	2	●	
7801424	PFB-R200SS20-LL240CS	20	10	120	6	120	240	18	20	2	●	
7801425	PFB-R250SS25-LL260CS	25	12,5	137,5	5,5	122,5	260	22	25	2	●	
7801426	PFB-R300SS32-LL290CS	30	15	165	5,5	125	290	27	32	2	●	

Z Δ = Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
 Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

**PFB**

Applicable insert
for Finish Ball Nose
Cutter

Wendeplatten,
Kugelfräser PFB

Inserti applicabili per
fresa sferica di finitura

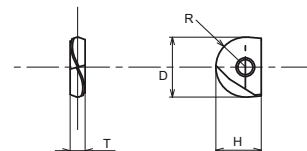
Choix de plaquettes
de finition hémisphérique

Anvendelige skær til
radiusfræser

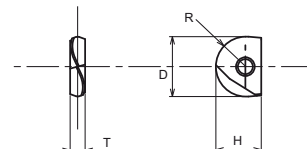
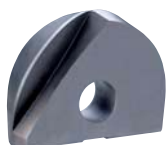
Utbytbara skärinsatser
för fullradiefräs

Plaquetas para fresa
esférica de acabado

Сменные пластинки для
чистой сферической
фрезы



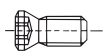
WXS Coated	Designation	Insert Size				No of Cutting Edges	Price
		D	R	T	H		
XP3320							
7820010	PFB080-SP	8	4	2,4	7	2	
7820011	PFB100-SP	10	5	2,6	8,5	2	
7820012	PFB120-SP	12	6	3	10	2	
7820013	PFB160-SP	16	8	4	12	2	
7820014	PFB200-SP	20	10	5	15	2	
7820015	PFB250-SP	25	12,5	6	18,5	2	
7820016	PFB300-SP	30	15	7	22,5	2	



Dia Coated	Designation	Insert Size				No of Cutting Edges	Price
		D	R	T	H		
XC4505							
7820020	PFB080-D	8	4	2,4	7	2	
7820021	PFB100-D	10	5	2,6	8,5	2	
7820022	PFB120-D	12	6	3	10	2	
7820023	PFB160-D	16	8	4	12	2	
7820024	PFB200-D	20	10	5	15	2	
7820025	PFB250-D	25	12,5	6	18,5	2	
7820026	PFB300-D	30	15	7	22,5	2	

Inserts are all sold 1 pieces per package

Accessories



Clamping Screw

EDP	Designation	Size Ø	Recommended Torque	Stock	Price
7808123	FS25669RB	8	1 Nm	●	
7808117	FS30686RB	10	1,2 Nm	●	
7808118	FS35610RB	12	2 Nm	●	
7808119	FS40613RB	16	3 Nm	●	
7808120	FS50615RB	20	5 Nm	●	
7808121	FS60620RB	25	5 Nm	●	
7808122	FS80624RB	30	6 Nm	●	



Wrench

OSG Phoenix

Information
Recycled Plastic Cases are used in all OSG Phoenix packaging.
Let's reduce, re-use and re-cycle!

EDP	Designation	Size Ø	Stock	Price
7808204	T7-D	8	●	
7808205	T8-D	10	●	
7808207	T10-D	12	●	
7808208	T15-D	16	●	
7808209	T20-D	20/ 25	●	
7808212	T30-D	30	●	



Table of Inserts

Classification	Grades	Coating Method	(HRA) Hardness	Surface treatment		Features
				Main Component	Coating thickness	
P	XP3035	PVD	90,7	TiAlN-TiN	4 µm	For machining steels, stainless steels and cast irons A grade for general-purpose milling, it is made of a tough, high-strength carbide material coated with chipping-resistant and wear-resistant coating.
	XP3225	PVD	91,5	Cr	3 µm	For machining steels, stainless steels and cast irons A tough carbide base material and excellent general purpose coating
	XP3320	PVD	91,5	SiC Silicon-based heat-resistant coating	3 µm	For machining steels, stainless steels and cast irons It is made of a tough carbide material with a heat-resistant and wear-resistant coating
	XP3930	PVD	90,8	TiAlN	3 µm	For machining steels, cast irons and stainless steels Excellent balance, can accommodate a range of workpiece materials
	XP9040	PVD	91,9	TiAlN	3 µm	For machining steels and stainless steels A grade for hole drilling, it is made of a tough carbide material with an anti-chipping and wear-resistant coating
M	XP2040	PVD	89,6	TiAlN	4 µm	For machining stainless steels and steels A grade for general-purpose milling, it is made of a tough, high-strength carbide material with an anti-chipping and wear-resistant coating
K	XC1015	CVD	92,0	TiCN-Al ₂ O ₃	5 µm	For machining cast irons A grade for milling cast-iron, it is made of a tough, high-strength carbide material with an anti-chipping and wear-resistant coating
	XC9025	CVD	90,8	TiCN-Al ₂ O ₃	6 µm	For machining cast irons A grade for hole drilling in cast-iron, it is made of a tough, high-strength carbide material with an anti-chipping and wear-resistant coating
N	CK010	-	92,0	-	-	For machining non-ferrous materials A non-coated carbide material with both anti-chipping and wear resistant properties
	XC4505	CVD	92,0	DIA	12µm	For machining non-ferrous materials The minute diamond crystals provide for a coating layer with excellent strength
H	XP6305	PVD	93,0	SiC Silicon-based heat-resistant coating	3µm	For machining high hardness materials High temperature hardness levels and excellent thermal conductivity for machining high hardness materials
S	XC5035	CVD	89,3	TiN-Ti(CN)-Al ₂ O ₃ -Ti(BN)	6µm	For machining heat-resistant alloy and stainless steels A grade for machining heat-resistant steel, it is made of a tough carbide material with an oxidation-resistant and high-lubricity coating
	XC5040	CVD	89,3	TiN-TiB ₂	4µm	For machining heat-resistant alloy and stainless steels A grade for machining heat-resistant steel, it can be used for wet machining. It is made of a tough carbide material with an oxidation-resistant and high-lubricity coating

Type of chip former and the application



	Chip Former	Cutting edge cross-section (approximate)	Rake Angle	Application
For Milling	GL		25°	For milling stainless-steel: a chipbreaker with a large rake angle and a small flat land to reduce cutting force
	GM		15°	For machining various materials from steel to cast iron: a chipbreaker with a superior balance of rake angle and flat land
	SM		15°	For machining difficult materials: a chipbreaker with a sharp cutting edge to reduce cutting force and provide smooth chip evacuation
	NM		30°	For machining nonferrous materials: a chipbreaker with a sharp cutting edge and a large rake angle to suppress welding, improve the milling surface and prevent burrs
For Drilling	DM		10°	For drilling various materials from steel to cast iron: a general-purpose chipbreaker with an ideal rake angle

Designation (Body)

PHC	12	R	050	SS	42	-	4	S
①	②	③	④	⑤	⑥		⑦	⑧

① Abbreviation
Example:
PHC= High Feed Cutter

③ Cutting Direction
R= Right hand
L= Left hand

⑥ Mounting Diameter
Example:
42=42mm

⑦ Number of flutes
Example:
4=4 Flutes

② Insert Size
Example:
12=12mm

④ Cutting Diameter
Example:
050=50mm

⑤ Mounting type

A	Bore Type (Inch)
M	Bore Type (Metric)
SS	Straight Shank (Metric)
WS	Weldon Shank (Metric)
SA	Straight Shank (Inch)
MT	Morse Taper Shank
SF	Screw Fit Type
FS	Flat Shank

⑧ Shank type

S	Short
L	Long
LL	Extra Long



Designation (Insert)

Z	D	K	T
①	②	③	④

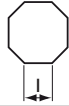
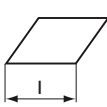
① Shape of insert		
C	80° Diamond apex 80°	
D	55° Diamond apex 55°	
O	octagon	
R	round	
S	square	
T	triangle	
V	35° diamond apex 35°	
W	axonomic hexagon	
Z	other shapes	-

③ Accuracy			
Symbol	dia d (mm) Inscribed circle tolerance	m (mm) Corner height tolerance	s (mm) Thickness tolerance
A	±0,025	±0,005	±0,025
C	±0,025	±0,013	±0,025
E	±0,025	±0,025	±0,025
H	±0,013	±0,013	±0,025
K*	±0,05 ~ ±0,15	±0,013	±0,025
M*	±0,05 ~ ±0,15	±0,08 ~ ±0,18	±0,13
N*	±0,05 ~ ±0,15	±0,08 ~ ±0,18	±0,025
* = Sintered surface shown on the side			

② Relief Angle		
C		7°
D		15°
E		20°
N		0°
P		11°
X	Special Dimension	

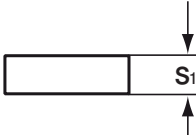
④ Special Cutting and Fastening Features			
Symbol	Shape of Hole	With or without Breaker	Insert cross section
W	40° - 60° Partial cylindrical hole	No breaker	
T		One side	
B	70° - 90° Partial cylindrical hole	No breaker	
N	-	No breaker	
R	-	One side	

15	05	08	S	R	-	GM
⑤	⑥	⑦	⑧	⑨	-	⑩

⑤ Length of the cutting edge	
O	
R	
S	
T	
Z	

⑦ Corner Radius	
Symbol	r
02	R 0,2
04	R 0,4
08	R 0,8
12	R 1,2
16	R 1,6
24	R 2,4

⑨ Cutting Direction	
Symbol	Cutting Direction
R	Right hand
L	Left hand
N	Both ways

⑥ Thickness of insert	
	
Symbol	S ₁ (mm) Thickness
02	2,38
03	3,18
T3	3,97
04	4,76
05	5,56
06	6,35

⑧ Type of cutting edge	
Symbol	Appearance
F	 Sharpe edge
E	 Round honing
T	 Chamfer honing
S	 Combination honing

⑩ Type of chip breaker	
Symbol	Name
GL	GL breaker
GM	GM breaker
GR	GR breaker
NM	NM breaker
SM	SM breaker
DM	DM breaker





PSE-WS/SS



HIGH PERFORMANCE

- 90° Shoulder cutter
- Weldon and Straight shank type

HIGH PERFORMANCE

- 90° Schulterfräser
- Weldon und Zylinderschaft

ALTA PRESTAZIONE

- 90° Spallamento retto
- Gambo Weldon e cilindrico

HAUTE PERFORMANCE

- Surfacer dresser à 90°
- Queue weldon et cylindrique

HIGH PERFORMANCE

- 90° vendeskærfræser
- Med og uden Weldon flade

HIGH PERFORMANCE

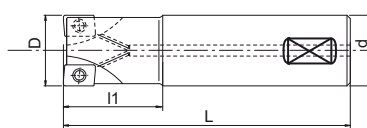
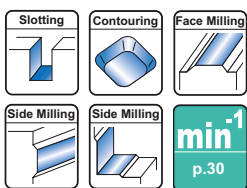
- 90° vändskärfräs
- Weldon och rakt skaft

ALTO RENDIMIENTO

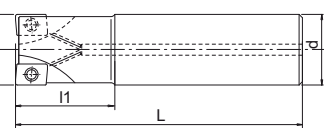
- Fresa de 90° para escuadrar
- Mango cilíndrico Weldon

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

- Торцевая фреза 90°
- Weldon и цилиндрический хвостовик



Type 1



Type 2

Weldon Shank

EDP	Type	Designation	D	Z Δ	d	L	I1	Applicable Inserts	Type	Stock	Price
47801100	Coarse Pitch	PSE11R016WS16-2S	16	2	16	75	25	ZD-T11- ①	1	●	
47801115	Close Pitch	PSE11R020WS20-3S	20	3	20	80	25		1	●	
47801104	Close Pitch	PSE11R025WS25-4S	25	4	25	90	35		1	●	
47801105	Close Pitch	PSE11R032WS32-5S	32	5	32	105	40		1	●	
47801106	Coarse Pitch	PSE15R025WS25-2S	25	2	25	100	32	ZD-T15- ②	1	●	
47801111	Close Pitch	PSE15R032WS32-3S	32	3	32	125	40		1	●	

Z Δ = Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

Straight Shank

EDP	Type	Designation	D	Z Δ	d	L	I1	Applicable Inserts	Type	Stock	Price
7801101	Coarse Pitch short	PSE11R020SS20-2S	20	2	20	100	30	ZD-T11- ①	2	o	
7801102	Coarse Pitch short	PSE11R025SS25-3S	25	3	25	120	35		2	o	
7801103	Coarse Pitch short	PSE11R032SS32-3S	32	3	32	130	45		2	o	
7801100	Close Pitch short	PSE11R016SS16-2S	16	2	16	90	25		2	●	
7801116	Close Pitch short	PSE11R018SS16-2S	18	2	16	90	25		2	o	
7801115	Close Pitch short	PSE11R020SS20-3S	20	3	20	100	30		2	●	
7801117	Close Pitch short	PSE11R022SS20-3S	22	3	20	110	30		2	o	
7801104	Close Pitch short	PSE11R025SS25-4S	25	4	25	120	35		2	●	
7801118	Close Pitch short	PSE11R028SS25-4S	28	4	25	120	35		2	o	
7801119	Close Pitch short	PSE11R030SS32-4S	30	4	32	130	45		2	o	
7801105	Close Pitch short	PSE11R032SS32-5S	32	5	32	125	40		2	●	
7801120	Close Pitch short	PSE11R035SS32-5S	35	5	32	130	35		2	o	
7801121	Long	PSE11R016SS16-2L	16	2	16	150	50	ZD-T15- ②	2	o	
7801122	Long	PSE11R018SS16-2L	18	2	16	150	25		2	o	
7801123	Long	PSE11R020SS20-3L	20	3	20	160	60		2	o	
7801124	Long	PSE11R022SS20-3L	22	3	20	160	30		2	o	
7801125	Long	PSE11R025SS25-3L	25	3	25	170	70		2	o	
7801126	Long	PSE11R028SS25-3L	28	3	25	170	35		2	o	
7801127	Long	PSE11R030SS32-3L	30	3	32	190	90		2	o	
7801128	Long	PSE11R032SS32-3L	32	3	32	190	90		2	o	
7801129	Long	PSE11R035SS32-3L	35	3	32	190	35		2	o	
7801107	Coarse Pitch short	PSE15R032SS32-2S	32	2	32	130	45		2	o	
7801108	Coarse Pitch short	PSE15R040SS32-3S	40	3	32	140	50		2	o	
7801109	Coarse Pitch short	PSE15R050SS32-3S	50	3	32	130	45		2	o	
7801110	Coarse Pitch short	PSE15R063SS32-4S	63	4	32	130	45	ZD-T15- ②	2	o	
7801106	Close Pitch short	PSE15R025SS25-2S	25	2	25	120	35		2	●	
7801130	Close Pitch short	PSE15R028SS25-2S	28	2	25	120	35		2	o	
7801131	Close Pitch short	PSE15R030SS32-3S	30	3	32	130	45		2	o	
7801111	Close Pitch short	PSE15R032SS32-3S	32	3	32	130	45		2	●	
7801132	Close Pitch short	PSE15R035SS32-3S	35	3	32	130	35		2	o	
7801112	Close Pitch short	PSE15R040SS32-4S	40	4	32	140	50		2	o	
7801113	Close Pitch short	PSE15R050SS32-5S	50	5	32	130	45		2	o	
7801114	Close Pitch short	PSE15R063SS32-6S	63	6	32	130	45		2	o	
7801133	Long	PSE15R025SS25-2L	25	2	25	170	70		2	o	
7801134	Long	PSE15R028SS25-2L	28	2	25	170	35		2	o	
7801135	Long	PSE15R030SS32-3L	30	3	32	190	90		2	o	
7801136	Long	PSE15R032SS32-3L	32	3	32	190	90		2	o	
7801137	Long	PSE15R035SS32-3L	35	3	32	190	45		2	o	
7801138	Long	PSE15R040SS32-3L	40	3	32	190	45		2	o	

Z Δ = Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

For Applicable insert type, see page 15





PSE Screw Fit



HIGH PERFORMANCE

- 90° Shoulder Cutter
- Screw fit type

HIGH PERFORMANCE

- 90° Schulterfräser
- Aufschraubschäft

ALTA PRESTAZIONE

- 90° Spallamento retto
- Sistema modulare

HAUTE PERFORMANCE

- Surfer dresser à 90°
- Tête vissée

HIGH PERFORMANCE

- 90° vendeskærfræser
- Indskrunings type

HIGH PERFORMANCE

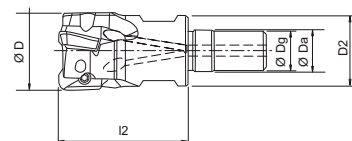
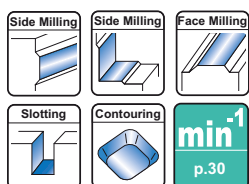
- 90° vändskärfräs
- Med gänginfästning

ALTO RENDIMIENTO

- Fresa de 90° para escuadrar
- Cabeza roscada

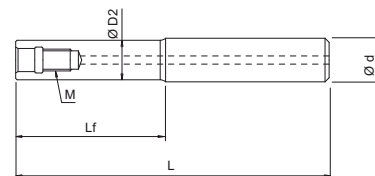
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

- Торцевая фреза 90°
- Резьбовая головка



EDP	Designation	D	Z Δ	Da	Dg	I2	D2	Applicable Inserts	Stock	Price
7801600	PSE11R016SF8-2	16	2	8,5	8	27	14,5	ZD-T11- ①	●	
7801601	PSE11R020SF10-3	20	3	10,5	10	33	18		●	
7801602	PSE11R025SF12-4	25	4	12,5	12	35	23		●	
7801603	PSE11R028SF12-4	28	4	12,5	12	35	23		●	
7801604	PSE11R032SF16-5	32	5	17	16	40	28		●	
7801605	PSE11R035SF16-5	35	5	17	16	40	28		●	
7801606	PSE11R040SF16-6	40	6	17	16	40	28	ZD-T15- ②	●	
7801607	PSE15R025SF12-2	25	2	12,5	12	35	23		●	
7801608	PSE15R028SF12-2	28	2	12,5	12	35	23		●	
7801609	PSE15R032SF16-3	32	3	17	16	40	28		●	
7801610	PSE15R035SF16-3	35	3	17	16	40	28		●	
7801611	PSE15R040SF16-4	40	4	17	16	40	28		●	

Z Δ = Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок



Straight arbor with steel shank

EDP	Designation	d	D2	M	L	Lf	Stock	Price
7801900	SF-M08SS16-15	16	14,5	8	95	15	o	
7801901	SF-M10SS20-20	20	18	10	120	20	o	
7801902	SF-M12SS25-35	25	23	12	135	35	o	
7801903	SF-M16SS32-35	32	28	16	155	35	o	

Straight arbor with carbide shank

EDP	Designation	d	D2	M	L	Lf	Stock	Price
7801910	SF-M08SS16-55CS	16	14,5	8	115	55	o	
7801911	SF-M08SS16-85CS	16	14,5	8	145	85	o	
7801912	SF-M10SS20-70CS	20	18	10	140	70	o	
7801913	SF-M10SS20-110CS	20	18	10	180	110	o	
7801914	SF-M12SS25-90CS	25	23	12	170	90	o	
7801915	SF-M12SS25-140CS	25	23	12	220	140	o	
7801916	SF-M16SS32-120CS	32	28	16	220	120	o	
7801917	SF-M16SS32-190CS	32	28	16	290	190	o	

For Applicable insert type, see page 15





PSE BORE



HIGH PERFORMANCE

- 90° Shoulder Cutter
- Bore Type

HIGH PERFORMANCE

- 90° Schulterfräser
- Aufnahmebohrung

ALTA PRESTAZIONE

- 90° Spallamento retto
- A manicotto

HAUTE PERFORMANCE

- Surfer dresser à 90°
- Trou lisse

HIGH PERFORMANCE

- 90° vendeskærfræser
- Til dorn

HIGH PERFORMANCE

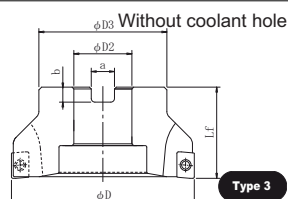
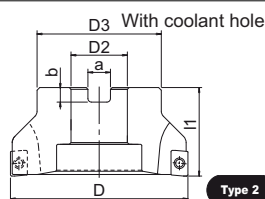
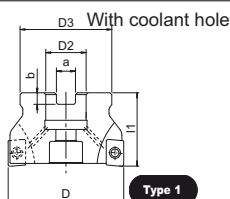
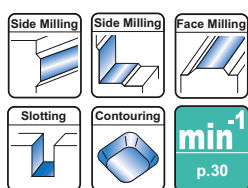
- 90° vändskärfräs
- Med skruvfäste

ALTO RENDIMIENTO

- Fresa de 90° para escuadrar
- Hueca

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

- Торцевая фреза 90°
- Насадная



EDP	Type	Designation	D	Z Δ	l1	D3	D2	a	b	Appl. Inserts	Type	Stock	Price
7801000	Coarse Pitch	PSE11R040M16-4	40	4	40	38	16	8,4	5,6		1	o	
7801001	Coarse Pitch	PSE11R050M22-5	50	5	40	45	22	10,4	6,3		1	o	
7801002	Coarse Pitch	PSE11R063M22-6	63	6	40	50	22	10,4	6,3		2	o	
7801003	Coarse Pitch	PSE11R080M27-7	80	7	50	60	27	12,4	7		2	o	
7801020	Coarse Pitch	PSE11R080M25.4-7	80	7	50	60	25,4	9,5	6	ZD-T11-	2	o	
7801004	Close Pitch	PSE11R040M16-6	40	6	40	38	16	8,4	5,6	①	1	●	
7801005	Close Pitch	PSE11R050M22-7	50	7	40	45	22	10,4	6,3		1	●	
7801006	Close Pitch	PSE11R063M22-8	63	8	40	50	22	10,4	6,3		2	●	
7801007	Close Pitch	PSE11R080M27-10	80	10	50	60	27	12,4	7		2	●	
7801021	Close Pitch	PSE11R080M25.4-10	80	10	50	60	25,4	9,5	6		2	o	
7801008	Coarse Pitch	PSE15R040M16-3	40	3	40	38	16	8,4	5,6		1	o	
7801009	Coarse Pitch	PSE15R050M22-3	50	3	40	45	22	10,4	6,3		1	o	
7801010	Coarse Pitch	PSE15R063M22-4	63	4	40	50	22	10,4	6,3		2	o	
7801011	Coarse Pitch	PSE15R080M27-5	80	5	50	60	27	12,4	7		2	o	
7801022	Coarse Pitch	PSE15R080M25.4-5	80	5	50	60	25,4	9,5	6		2	o	
7801012	Coarse Pitch	PSE15R100M32-7	100	7	50	70	32	14,4	8		3	o	
7801023	Coarse Pitch	PSE15R100M31.7-7	100	7	50	70	31,75	12,7	8	ZD-T15-	3	o	
7801024	Coarse Pitch	PSE15R125M38.1-8	125	8	63	90	38,1	15,9	10	②	3	o	
7801014	Close Pitch	PSE15R040M16-4	40	4	40	38	16	8,4	5,6		1	●	
7801015	Close Pitch	PSE15R050M22-5	50	5	40	45	22	10,4	6,3		1	●	
7801016	Close Pitch	PSE15R063M22-6	63	6	40	50	22	10,4	6,3		2	●	
7801017	Close Pitch	PSE15R080M27-8	80	8	50	60	27	12,4	7		2	o	
7801025	Close Pitch	PSE15R080M25.4-8	80	8	50	60	25,4	9,5	6		2	o	
7801018	Close Pitch	PSE15R100M32-10	100	10	50	70	32	14,4	8		3	o	
7801026	Close Pitch	PSE15R100M31.7-10	100	10	50	70	31,75	12,7	8		3	o	
7801027	Close Pitch	PSE15R125M38.1-11	125	11	63	90	38,1	15,9	10		3	o	

» Phoenix PSE

Phoenix Shoulder Cutter Series

Phoenix Shoulder End mill



Bottom notch

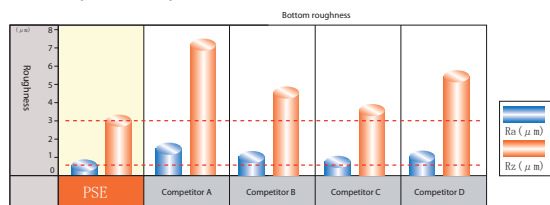
- The bottom notch breaks chips into small pieces.
- This prevents the jamming or wrapping of chips, enabling the tool to perform ramping and helical milling in a smooth manner.



High precision insert

—Bottom roughness

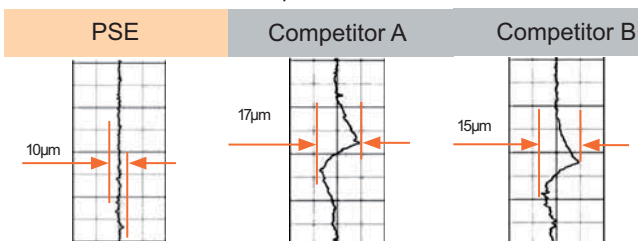
PSE11R032SS32-5S (ZDKT11T304SR-GM XP3035) S50C
Vc=180 m/min fz=0,1 mm/t ap=0,1 mm ae=25,6 mm
Ra=0,5 μ m-Rz=4 μ m-PSE



PSE showed an improvement at the bottom flat surface finish Rz 4 μ m and under.

—Side Milling Offset

PSE15R032SS32-3S (ZDKT150508SR-GHXP3035) S50C
Vc=180 m/min fz=0,1 mm/t ap=5 mm ae=0,2 mm



Showed improvement at side step machining as (measured) step as 10 μ m



PSE



Applicable insert
for 90° Shoulder cutter

Wendeplatten
90° Schulterfräser PSE

Inserti applicabili per fresa
90° spallamento retto

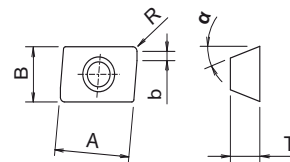
choix de plaquette pour
surfaçage-dressage à 90°

Anvendelige skær til 90°
vendeskersfræser

Utbytbara vändskär för 90°
vändskärsfräs

Plaquetas para fresa a
90° de escuadrar

Сменные пластинки для
торцевой фрезы 90°



Designation	No. of Cutting edges	Insert Size						Uncoated	Coated Grades					Price
		A X B	T	α	R	b		CK010	XP3035	XP2040	XC1015	XC5035	XC5040	
ZDKT11T308SR-GL	2	10x6,8	3,8	15°	0,8	1,4			7814026	7813026				
ZDKT11T304SR-GM	2	10x6,8	3,8	15°	0,4	1,8			7814025	7813025	7812025			
ZDKT11T308SR-GM	2	10x6,8	3,8	15°	0,8	1,4			7814032	7813032				
ZDKT11T312SR-GM	2	10x6,8	3,8	15°	1,2	1,0			7814053					
ZDKT11T320SR-GM	2	10x6,8	3,8	15°	2	2,1			7814038					
① ZDKT11T330SR-GM	2	10x6,8	3,8	15°	3	1,5			7814054					
ZDKT11T340SR-GM	2	10x6,8	3,8	15°	4	-			7814055					
ZDKT11T308ER-SM	2	10x6,8	3,8	15°	0,8	1,4						7815031	7816031	
ZDKT11T316ER-SM	2	10x6,8	3,8	15°	1,6	0,8						7815027	7816027	
ZDKT11T302FR-NM	2	10x6,8	3,8	15°	0,2	2	7811048							
ZDKT11T304FR-NM	2	10x6,8	3,8	15°	0,4	1,8	7811049							
ZDHT11T304FR-NM	2	10x6,8	3,5	15°	0,4	1,8	7811024							
ZDKT150508SR-GL	2	14x9,3	5,56	15°	0,8	1,6			7814057	7813057				
② ZDKT150508SR-GM	2	14x9,3	5,56	15°	0,8	1,6			7814029	7813028	7812029			
ZDKT150508ER-SM	2	14x9,3	5,56	15°	0,8	1,6						7815056	7816056	
ZDKT150508FR-NM	2	14x9,3	5,56	15°	0,8	1,6	7811046							

Recommended grades per material

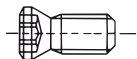
⊙ First recommended grade
○ Second recommended grade

Inserts are all sold 10 pieces per package

Inserts Grades	Chip Breaker	Coolant	P	M	K	N	S	H
CK010	NM	—			○	⊙		
XP2040	GL/GM	—	○					⊙
	yes		⊙				○	
XP3035	GL/GM	—	⊙	○	○			
XC1015	—	—			⊙			
XC5035	SM	—		⊙				○
	yes		○				○	
XC5040	SM	yes		○			⊙	○

GL:Light Cutting GM:Medium Cutting NM:Aluminum
SM:Heat Resistance Alloy

Accessories



Clamping Screw

EDP	Designation	Appl. Inserts	Appl. Cutters	Stock	Price
7808107	FS25656P (Torx 8IP)	① ZD-T11...	PSE SS/SF Ø 16~35	●	
7808109	FS25673P (Torx 8IP)	① ZD-T11...	PSE BORE Ø 40~80	●	
7808115	FS35686P (Torx 15IP)	② ZDKT15...	PSE SS/SF Ø 25~63	●	
			PSE BORE Ø 40~125		



Power Screw

EDP	Designation	Appl. Inserts	Appl. Cutters	Stock	Price
7808150	PS0830 (Mx30)	① ZD-T11...	PSE BORE Ø 40	●	
		② ZDKT15...			
7808151	PS1031 (M10x31)	① ZD-T11...	PSE BORE Ø 50	●	
		② ZDKT15...			



Wrench

EDP	Designation	Applicable Inserts	Appl. Cutters	Stock	Price
7808225	81P-D (Torx 8IP)	① ZD-T11...	PSE SS/SF Ø 16~35	●	
		② ZDKT15...	PSE BORE Ø 40~80		
7808228	15IP-D (Torx 15IP)	① ZD-T11...	PSE SS/SF Ø 25~63	●	
		② ZDKT15...	PSE BORE Ø 40~125		



PRC Screw Fit



HIGH PERFORMANCE

- Radius Cutter
- Screw fit type

HIGH PERFORMANCE

- Rundplattenfräser
- Aufschraubschäft

ALTA PRESTAZIONE

- Fresa con inserto tondo
- sistema modulare

HAUTE PERFORMANCE

- Fraise plaquettes rondes
- tête vissée

HIGH PERFORMANCE

- Radius fræser
- Indskrunings type

HIGH PERFORMANCE

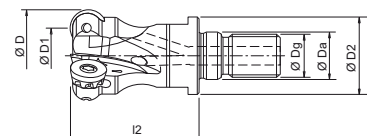
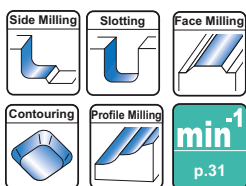
- Vändskärfräs med runda skär
- Rakt skäft

ALTO RENDIMIENTO

- Fresa tórica
- Cabeza roscada

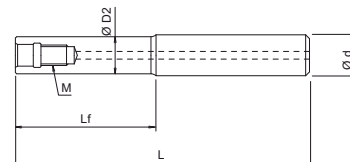
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

- Торовая фреза
- Крепление винтом



EDP	Designation	D1	D	Z Δ	Da	Dg	L2	D2	App. Inserts	Stock	Price
7801700	PRC10R020SF10-2	10	20	2	10,5	10	33	18	RP-10- ①	●	
7801701	PRC10R025SF12-3	15	25	3	12,5	12	35	23		●	
7801702	PRC10R030SF16-3	20	30	3	17	16	40	28		●	
7801703	PRC10R032SF16-4	22	32	4	17	16	40	28		●	
7801704	PRC10R040SF16-4	30	40	4	17	16	40	28		●	
7801705	PRC12R030SF16-2	18	30	2	17	16	40	28	RP-12- ②	●	
7801706	PRC12R032SF16-3	20	32	3	17	16	40	28		●	
7801707	PRC12R040SF16-3	28	40	3	17	16	40	28		●	

Z Δ = Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок



Straight arbor with steel shank

EDP	Designation	d	D2	M	L	Lf	Stock	Price
7801900	SF-M08SS16-15	16	14,5	8	95	15	o	
7801901	SF-M10SS20-20	20	18	10	120	20	o	
7801902	SF-M12SS25-35	25	23	12	135	35	o	
7801903	SF-M16SS32-35	32	28	16	155	35	o	

Straight arbor with carbide shank

EDP	Designation	d	D2	M	L	Lf	Stock	Price
7801910	SF-M08SS16-55CS	16	14,5	8	115	55	o	
7801911	SF-M08SS16-85CS	16	14,5	8	145	85	o	
7801912	SF-M10SS20-70CS	20	18	10	140	70	o	
7801913	SF-M10SS20-110CS	20	18	10	180	110	o	
7801914	SF-M12SS25-90CS	25	23	12	170	90	o	
7801915	SF-M12SS25-140CS	25	23	12	220	140	o	
7801916	SF-M16SS32-120CS	32	28	16	220	120	o	
7801917	SF-M16SS32-190CS	32	28	16	290	190	o	

Z Δ = Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

For Applicable insert type, see page 19



PRC BORE



HIGH PERFORMANCE

- Radius Cutter
- Bore type

HIGH PERFORMANCE

- Rundplattenfräser
- Aufnahmebohrung

ALTA PRESTAZIONE

- Fresa con inserto tondo
- A manicotto

HAUTE PERFORMANCE

- Fraise plaquettes rondes
- Trou lisse

HIGH PERFORMANCE

- Radius fræser
- Til dorn

HIGH PERFORMANCE

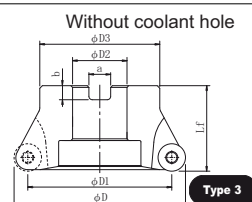
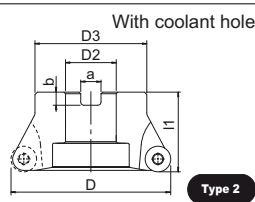
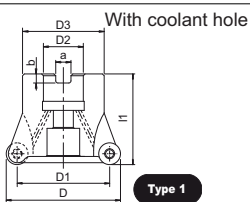
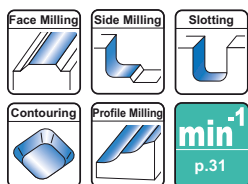
- Vändskärfräs med runda skär
- Med skruvfäste

ALTO RENDIMIENTO

- Fresa tórica
- Hueca

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

- Торовая фреза
- Насадная



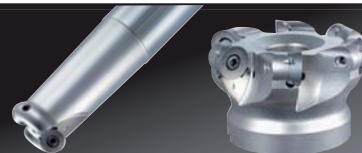
EDP	Type	Designation	D1	D	Z Δ	I1	D3	D2	a	b	Appl. Inserts	Type	Stock	Price
7800200	Coarse Pitch	PRC12R050M22-4	38	50	4	40	45	22	10,4	6,3		2	o	
7800201	Coarse Pitch	PRC12R063M22-4	51	63	4	40	50	22	10,4	6,3		2	o	
7800202	Coarse Pitch	PRC12R080M27-5	68	80	5	50	60	27	12,4	7		2	o	
7800209	Coarse Pitch	PRC12R080M25.4-5	68	80	5	50	60	25,4	9,5	6		2	o	
7800203	Coarse Pitch	PRC12R100M32-6	88	100	6	50	70	32	14,4	8		2	o	
7800210	Coarse Pitch	PRC12R100M31.7-6	88	100	6	50	70	31,75	12,7	8	RP-12- ②	3	o	
7800204	Close Pitch	PRC12R050M22-5	38	50	5	40	45	22	10,4	6,3		2	●	
7800206	Close Pitch	PRC12R063M22-6	51	63	6	40	50	22	10,4	6,3		2	●	
7800207	Close Pitch	PRC12R080M27-8	68	80	8	50	60	27	12,4	7		2	o	
7800211	Close Pitch	PRC12R080M25.4-8	68	80	8	50	60	25,4	9,5	6		2	o	
7800208	Close Pitch	PRC12R100M32-10	88	100	10	50	70	32	14,4	8		2	o	
7800212	Close Pitch	PRC12R100M31.7-10	88	100	10	50	70	31,75	12,7	8		3	o	
7800213	Close Pitch	PRC16R050M22-3	34	50	3	40	45	22	10,4	6,3		1	●	
7800214	Close Pitch	PRC16R063M33-5	47	63	5	40	50	22	10,4	6,3		2	●	
7800216	Close Pitch	PRC16R080M27-6	64	80	6	50	60	27	12,4	7	RP-16- ③	2	o	
7800218	Close Pitch	PRC16R080M25.4-6	64	80	6	50	60	25,4	9,5	6		2	o	
7800217	Close Pitch	PRC16R100M32-7	84	100	7	50	70	32	14,4	8		2	o	
7800219	Close Pitch	PRC16R100M31.7-7	84	100	7	50	70	31,75	12,7	8		3	o	



» Phoenix PRC

Phoenix Radius Cutter Series

Phoenix Radius Cutter



■ PRC Features of PRC

Due to no extra insert clamping it allows smooth chip evacuation.

Improved chip ejection with wide chip pocket

Insert rotation stop

Setting to accommodate cutout

Body relief shape support 3 dimensional machining

Back side

4 Corner type

Only SM breaker

8 Corner type

Depended on the cutting depth setting possible to choose number of corners. (4 or 8 corners)



For Applicable insert type, see page 19





PRC



Applicable insert
for Radius Cutter

Wendeplatten,
Rundplattenfräser PRC

Inserti applicabili per
fresa con inserto tondo

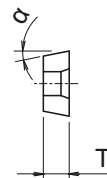
Choix de plaquettes
rondes

Anvendelige vendeskær
til radiusfræser

Utbytbara vändskär för
vändskärsfräs med
runda skär

Plaquetas para
fresa tórica

Сменные пластинки
для торовой фрезы



Designation	No. of corner	Insert Size			Uncoated	Coated Grades					Price
		B	T	α	CK010	XP3035	XP2040	XC1015	XC5035	XC5040	
RPHW10T3MOSN	8	10	3,97	11°		7814030					
RPHW10T3MOEN	8	10	3,97	11°				7812017			
① RPHT10T3MOEN-GL	8	10	3,97	11°			7813008				
RPHT10T3MOEN-SM	4	10	3,97	11°					7815010		
RPHT10T3M8EN-SM	8	10	3,97	11°					7815050	7816050	
RPHT10T3MOFN-NM	8	10	3,97	11°	7811009						
RPHW1204MOSN	8	12	4,76	11°				7812018			
RPHW1204MOSN	8	12	4,76	11°		7814018					
② RPHT1204MOEN-GL	8	12	4,76	11°			7813011				
RPHT1204MOEN-SM	4	12	4,76	11°					7815012		
RPHT1204M8EN-SM	8	12	4,76	11°					7815051	7816051	
RPHT1204MOFN-NM	8	12	4,76	11°	7811013						
RPHW1605MOSN	8	16	5,56	11°				7812019			
RPHW1605MOSN	8	16	5,56	11°		7814019					
③ RPHT1605MOEN-GL	8	16	5,56	11°			7813014				
RPHT1605MOEN-SM	4	16	5,56	11°					7815015		
RPHT1605M8EN-SM	8	16	5,56	11°					7815052	7816052	
RPHT1605MOFN-NM	8	16	5,56	11°	7811016						

Recommended Grades per Material

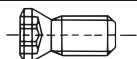
- First recommended grade
○ Second recommended grade

Inserts are all sold 10 pieces per package

Inserts Grades	Chip Breaker	Coolant	P	M	K	N	S	H
CK010	NM	—			○	●		
XP2040	GL	—	○					●
	yes			●			○	
XP3035	—	—	●	○	○			
XC1015	—	—			●			
XC5035	SM	—		●				○
	yes			○			○	
XC5040	SM	yes		○			●	○

GL:Light Cutting GM:Medium Cutting NM:Aluminum
SM:Heat Resistance Alloy

Accessories



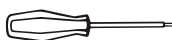
Clamping Screw

EDP	Designation	Appl. Inserts	Appl. Cutters	Stock	Price
7808116	FS30573A (Torx 10)	① RPH-10...	PRC SS/SF Ø 20~32	●	
7808112	FS35586 (Torx 15)	② RPH-12...	PRC SS/SF Ø 32~50 PRC BORE Ø 32~63	●	
7808113	FS45510 (Torx 20)	③ RPH-16...	PRC SS/SF Ø 40~63 PRC BORE Ø 50~100	●	



Power Screw

EDP	Designation	Appl. Inserts	App. Cutters	Stock	Price
7808151	PS1031 (M10x31)	③ RPH-16...	PRC BORE Ø 50	●	



Wrench

OSG Phoenix
Information

The Phoenix packaging is environmentally friendly as it uses a case made of recycled plastic.



EDP	Designation	Appl. Inserts	Appl. Cutters	Stock	Price
7808207	T10-D (Torx 10)	① RPH-10...	PRC SS/SF Ø 20~32	●	
7808208	T15-D (Torx 15)	② RPH-12...	PRC SS/SF Ø 32~50 PRC BORE Ø 32~63	●	
7808209	T20-D (Torx 20)	③ RPH-16...	PRC SS/SF Ø 40~63 PRC BORE Ø 50~100	●	



HIGH PERFORMANCE

- High Feed Radius Cutter
- Straight Shank

HIGH PERFORMANCE

- Hochvorschubsfräser
- Zylinderschaft

ALTA PRESTAZIONE

- Fresa alto avanzamento
- Gambo cilindrico

HAUTE PERFORMANCE

- Fraise grandes avances
- Queue cylindrique

HIGH PERFORMANCE

- High feed radiusfræser
- Cylindrisk skaft

HIGH PERFORMANCE

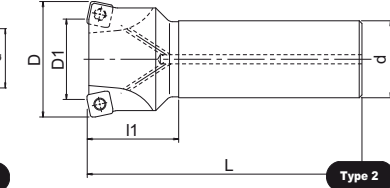
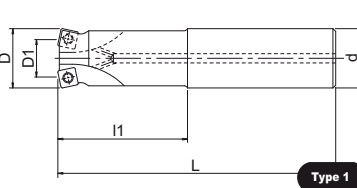
- Högmatnings fräs med vändskär
- Rakt skaft

ALTO RENDIMIENTO

- Fresa de gran avance
- Mango cilíndrico

**ВЫСОКАЯ
ПРОИЗВОДИТЕЛЬНОСТЬ**
■ Фреза с высокой подачей

- Фреза с высокой подачей
- Цилиндрический хвостовик



EDP	Type	Designation	D1	D	ZΔ	d	L	I1	Appl. Inserts	Type	Stock	Price
7800700	Short	PHC09R025SS25-2S	13,2	25	2	25	140	60	SDMT09- ①	1	○	
7800701	Short	PHC09R025SS25-3S	13,2	25	3	25	140	60		1	●	
7800716	Short	PHC09R028SS25-3S	16,2	28	3	25	140	40		2	○	
7800717	Short	PHC09R030SS32-3S	18,2	30	3	32	150	70		1	○	
7800702	Short	PHC09R032SS32-3S	20,2	32	3	32	150	70		1	●	
7800718	Short	PHC09R035SS32-3S	23,2	35	3	32	150	50		2	○	
7800703	Short	PHC09R040SS32-4S	28,2	40	4	32	150	50		2	●	
7800719	Short	PHC09R040SS42-4S	28,2	40	4	42	150	50		1	○	
7800704	Long	PHC09R025SS25-2L	13,2	25	2	25	200	120		1	○	
7800705	Long	PHC09R025SS25-3L	13,2	25	3	25	200	120	1	○		
7800720	Long	PHC09R028SS25-3L	16,2	28	3	25	200	40	2	○		
7800721	Long	PHC09R030SS32-3L	18,2	30	3	32	200	120	1	○		
7800706	Long	PHC09R032SS32-3L	20,2	32	3	32	200	120	1	○		
7800722	Long	PHC09R035SS32-3L	23,2	35	3	32	200	50	2	○		
7800707	Long	PHC09R040SS32-4L	28,2	40	4	32	250	50	2	○		
7800723	Long	PHC09R040SS42-3L	28,2	40	3	42	250	70	1	○		
7800724	Extra long	PHC09R025SS25-2LL	13,2	25	2	25	300	180	1	○		
7800725	Extra long	PHC09R028SS25-2LL	16,2	28	2	25	300	40	2	○		
7800726	Extra long	PHC09R030SS32-2LL	18,2	30	2	32	300	180	1	○		
7800727	Extra long	PHC09R032SS32-2LL	20,2	32	2	32	300	180	1	○		
7800728	Extra long	PHC09R035SS32-2LL	23,2	35	2	32	300	50	2	○		
7800729	Extra long	PHC09R040SS42-2LL	28,2	40	2	42	300	70	1	○		
7800730	Short	PHC12R030SS32-2S	13,4	30	2	32	150	70	1	○		
7800708	Short	PHC12R032SS32-2S	15,4	32	2	32	150	70	1	●		
7800731	Short	PHC12R035SS32-3S	18,4	35	3	32	150	50	2	○		
7800709	Short	PHC12R040SS32-3S	23,4	40	3	32	150	50	2	●		
7800732	Short	PHC12R040SS42-3S	23,4	40	3	42	150	50	1	○		
7800710	Short	PHC12R050SS42-4S	33,4	50	4	42	150	50	2	○		
7800711	Short	PHC12R063SS42-5S	46,4	63	5	42	150	50	2	○		
7800733	Long	PHC12R030SS32-2L	13,4	30	2	32	200	120	1	○		
7800712	Long	PHC12R032SS32-2L	15,4	32	2	32	200	120	1	○		
7800734	Long	PHC12R035SS32-3L	18,4	35	3	32	200	50	2	○		
7800713	Long	PHC12R040SS32-3L	23,4	40	3	32	250	50	2	○		
7800735	Long	PHC12R040SS42-3L	23,4	40	3	42	250	70	1	○		
7800714	Long	PHC12R050SS42-4L	33,4	50	4	42	250	50	2	○		
7800715	Long	PHC12R063SS42-5L	46,4	63	5	42	250	50	2	○		
7800736	Extra long	PHC12R030SS32-2LL	13,4	30	2	32	300	180	1	○		
7800737	Extra long	PHC12R032SS32-2LL	15,4	32	2	32	300	180	1	○		
7800738	Extra long	PHC12R035SS32-2LL	18,4	35	2	32	300	50	2	○		
7800739	Extra long	PRC12R040SS42-2LL	23,4	40	2	42	300	70	1	○		
				</								

Z_{Δ} = Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

For Applicable insert type, see page.23



PHC SS Screw Fit



HIGH PERFORMANCE

- High Feed Radius Cutter
- Screw fit type

HIGH PERFORMANCE

- Hochvorschubsfräser
- Zylinderschaft

ALTA PRESTAZIONE

- Fresa alto avanzamento
- Sistema modulare

HAUTE PERFORMANCE

- Fraise grandes avances
- tête vissée

HIGH PERFORMANCE

- High feed radiusfræser
- Indskræningstype

HIGH PERFORMANCE

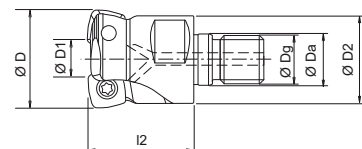
- Högmåtnings fräs med våndskår
- Med gänginfästning

ALTO RENDIMIENTO

- Fresa de gran avance
- Cabeza roscada

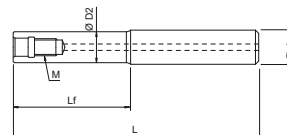
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

- Фреза с высокой подачей
- Резьбовая головка



EDP	Designation	D1	D	Z Δ	Da	Dg	L2	D2	Appl. Inserts	Stock	Price
7801500	PHC09R025SF12-3	13,2	25	3	12,5	12	35	23	SDMT09- ①	●	
7801501	PHC09R028SF12-3	16,2	28	3	12,5	12	35	23		●	
7801502	PHC09R030SF16-3	18,2	30	3	17	16	40	28		●	
7801503	PHC09R032SF16-3	20,2	32	3	17	16	40	28		●	
7801504	PHC09R035SF16-3	23,2	35	3	17	16	40	28		●	
7801505	PHC09R040SF16-4	28,2	40	4	17	16	40	28	SXMT12- ②	●	
7801506	PHC12R030SF16-2	13,4	30	2	17	16	40	28		●	
7801507	PHC12R032SF16-2	15,4	32	2	17	16	40	28		●	
7801508	PHC12R035SF16-3	18,4	35	3	17	16	40	28		●	
7801509	PHC12R040SF16-3	23,4	40	3	17	16	40	28		●	

Z Δ = Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок



Straight arbor with steel shank

EDP	Designation	d	D2	M	L	Lf	Stock	Price
7801900	SF-M08SS16-15	16	14,5	8	95	15	o	
7801901	SF-M10SS20-20	20	18	10	120	20	o	
7801902	SF-M12SS25-35	25	23	12	135	35	o	
7801903	SF-M16SS32-35	32	28	16	155	35	o	

Straight arbor with carbide shank

EDP	Designation	d	D2	M	L	Lf	Stock	Price
7801910	SF-M08SS16-55CS	16	14,5	8	115	55	o	
7801911	SF-M08SS16-85CS	16	14,5	8	145	85	o	
7801912	SF-M10SS20-70CS	20	18	10	140	70	o	
7801913	SF-M10SS20-110CS	20	18	10	180	110	o	
7801914	SF-M12SS25-90CS	25	23	12	170	90	o	
7801915	SF-M12SS25-140CS	25	23	12	220	140	o	
7801916	SF-M16SS32-120CS	32	28	16	220	120	o	
7801917	SF-M16SS32-190CS	32	28	16	290	190	o	

Z Δ = Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок

For Applicable insert type, see page 23





PHC BORE



HIGH PERFORMANCE

- High Feed Radius Cutter
- Bore Type

HIGH PERFORMANCE

- Hochvorschubsfräser
- Aufnahmebohrung

ALTA PRESTAZIONE

- Fresa alto avanzamento
- A manicotto

HAUTE PERFORMANCE

- Fraise grandes avances
- Trou lisse

HIGH PERFORMANCE

- High feed radiusfräser
- Til dorn

HIGH PERFORMANCE

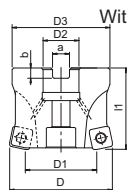
- Högmatnings fräs med vändskär
- Med skruvfäste

ALTO RENDIMIENTO

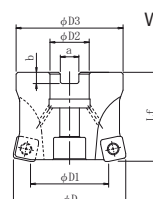
- Fresa de gran avance
- Hueca

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

- Фреза с высокой подачей
- Насадная



Type 1



Type 2

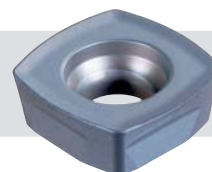
EDP	Designation	D1	D	Z Δ	I1	D3	D2	a	b	Appl. Inserts	Type	Stock	Price
7800600	PHC09R040M16-4	28,2	40	4	40	38	16	8,4	5,6	SDMT09- ①	1	○	
7800601	PHC09R050M22-5	38,2	50	5	50	47	22	10,4	6,3		2	●	
7800605	PHC09R050M22.2-5	38,2	50	5	50	47	22,225	8	5		2	○	
7800602	PHC09R052M22-5	40,2	52	5	50	47	22	10,4	6,3		2	●	
7800603	PHC09R063M22-6	51,2	63	6	50	60	22	10,4	6,3		2	●	
7800606	PHC09R063M22.2-6	51,2	63	6	50	60	22,225	8	5		2	○	
7800604	PHC09R066M22-7	54,2	66	7	50	60	22	10,4	6,3		2	●	
7800607	PHC12R040M16-3	23,4	40	3	40	38	16	8,4	5,6	SXMT12- ②	2	○	
7800608	PHC12R050M22-4	33,4	50	4	50	47	22	10,4	6,3		2	●	
7800614	PHC12R050M22.2-4	33,4	50	4	50	47	22,225	8	5		2	○	
7800609	PHC12R052M22-4	35,4	52	4	50	47	22	10,4	6,3		2	●	
7800610	PHC12R063M22-5	46,4	63	5	50	60	22	10,4	6,3		2	●	
7800615	PHC12R063M22.2-5	46,4	63	5	50	60	22,225	8	5		2	○	
7800611	PHC12R066M22-6	49,4	66	6	50	60	22	10,4	6,3		2	●	
7800612	PHC12R080M27-7	63,4	80	7	50	76	27	12,4	7		2	○	
7800616	PHC12R080M31.7-7	63,4	80	7	63	76	31,75	12,7	8		2	○	
7800613	PHC12R100M32-8	83,4	100	8	63	96	32	14,4	8		2	○	
7800617	PHC12R100M31.7-8	83,4	100	8	63	96	31,75	12,7	8		2	○	

Phoenix PHC

Phoenix High Feed Radius Cutter Series Phoenix High feed Cutter

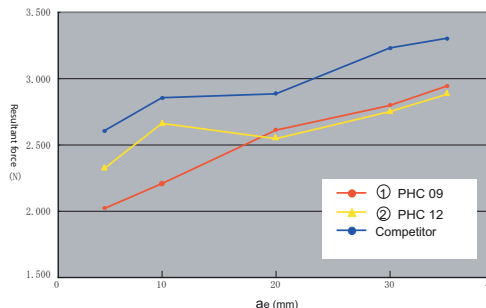
■ Ideal configuration for rough milling

- Economical four-corner type
- A breaker shape that enhances cutting performance while ensuring the rigidity of the cutter



■ Processing data of PHC dia 50: Cutting force is reduced by changing the depth of cut (a_e)

Tool	PHC09R050M22-5 5 flutes	PHC12R050M22-4 4 flutes
Insert (grade)	SDMT09T308SR-GM (XP3035)	SXMT120410SR-GM (XP3035)
Work Material	S50C	
Cutting Speed	180 m/min (1.150 min ⁻¹)	
Feed	5.000 mm/min	
Depth of Cut	a _p =1 mm a _e =5,10,20,30,35 mm	
Width of Cut	200 mm	
Coolant	Dry	
Machine	BT50 Vertical Machining Center	



Number of flutes making simultaneous contact through changes in the depth of cut (a_e)

	5mm	10mm	20mm	30mm	35mm
PHC 09 (type)	1 (flute)	2 (flutes)	3 (flutes)	3 (flutes)	4 (flutes)
PHC 12 (type)	1 (flute)	2 (flutes)	2 (flutes)	3 (flutes)	3 (flutes)

The PHC exhibited a lower cutting force compared to the competitor's product!

Proper tool selection

PHC 09 Multiple cutters for highly efficient milling. PHC 12 For milling intermittently or with a long tool projection

Even if the depth of cut (a_e) is increased for the PHC09 with cross pitch, the design of the cutting edge suppresses the cutting force. This suppresses the load and vibrations imparted on the machine, enabling high efficiency machining.



PHC-SS



Applicable insert
for High Feed Radius Cutter

Wendeplatten,
Hochvorschubsfräser PHC

Inserti applicabili per
fresa ad alto avanzamento

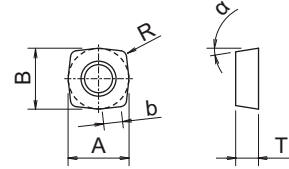
Choix de plaquettes
pour la grande avance

Anvendelige vendeskær
til high feed radiusfræser

Utbytbara vändskär för
högmatningsfräs

Plaquetas para fresa
de gran avance

Сменные пластины
для фрезы с
высокой подачей



Designation	No. of Cutting edges	Insert Size						Coated Grades					Price
		A X B	T	α	R	b		XP2040	XP3035	XC1015	XC5035	XC5040	
① SDMT09T308SR-GM	4	9,52x9,52	3,97	15°	0,8	1,9		7813020	7814020	7812020			
SDMT09T308ER-SM	4	9,52x9,52	3,97	15°	0,8	1,9					7815021	7816021	
② SXMT120410SR-GM	4	12,7x12,7	4,76	9°	1	1,3		7813022	7814022	7812022			
SXMT120410ER-SM	4	12,7x12,7	4,76	9°	1	1,3					7815023	7816023	

Recommended Grades per Material

- ◎ First recommended grade
 ○ Second recommended grade

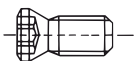
Inserts are all sold 10 pieces per package

Inserts Grades	Chip Breaker	Coolant	P	M	K	N	S	H
XP2040	GM	—	○					◎
	yes			◎			○	
XP3035	GM	—	◎	○	○			
XC1015	GM	—			◎			
XC5035	SM	—		◎				○
	yes			○			○	
XC5040	SM	yes		○			◎	○

GM:Medium Cutting
SM:Heat Resistance Alloy



Accessories



Clamping Screw

EDP	Designation	Appl. Inserts	App. Cutters	Stock	Price
7808111	FS35572 (Torx 15)	① SDMT09...	PHC SS/SF Ø 25	●	
7808112	FS35586 (Torx 15)	① SDMT09...	PHC SS/SF Ø 28~40 PHC BORE Ø 40~66	●	
7808113	FS45510 (Torx 20)	② SXMT12...	PHC SS/SF Ø 32~63 PRC BORE Ø 40~100	●	



Power Screw

EDP	Designation	Appl. Inserts	Appl. Cutters	Stock	Price
7808150	PS0830 (M8x30)	① SDMT09...	PHC BORE Ø 40	●	
		② SXMT12...			



Wrench

OSG Phoenix
Information

The Phoenix packaging is environmentally friendly and is made of recycled plastic.



EDP	Designation	Appl. Inserts	Appl. Cutters	Stock	Price
7808208	T15-D (Torx 15)	① SDMT09...	PHC SS/SF Ø 25~40 PHC BORE Ø 40~66	●	
7808209	T20-D (Torx 20)	② SXMT12...	PHC SS/SF Ø 32~63 PHC BORE Ø 40~100	●	



PDR SS/MT/CN



HIGH PERFORMANCE

- Deep Feed Radius Cutter
- Shank Type

HIGH PERFORMANCE

- Torusfräser für maximale Zustellungen
- Zylinderschaft

ALTA PRESTAZIONE

- Fresa ad alta asportazione
- Stelo

HAUTE PERFORMANCE

- Fraise grande avance torique
- Queue cylindrique

HIGH PERFORMANCE

- Deep feed radiusfræser
- cylindrisk skaft

HIGH PERFORMANCE

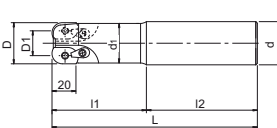
- Avverknings och hörnradie vändskärfräs
- Rakt skaft

ALTO RENDIMENTO

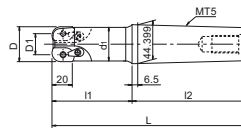
- Fresa de gran avance con radio
- Con mango

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

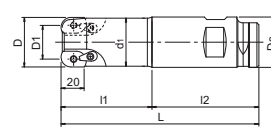
- Фреза с высокой подачей и увеличенной глубиной резания
- Цилиндрический хвостовик



Type 1



Type 2



Type 3

EDP	Type	Designation	D1	D	Z	d	L	I1	d1	I2	Type	Stock	Price
7800000	Regular	PDR20R040SS42-2S	20	40	2	42	150	50	38,9	100	1	○	
7800001	Regular	PDR20R040MT5M16-2S	20	40	2	MT5-M16	256	120	38,9	136	2	○	
7800003	Regular	PDR20R040MT5M24-2S	20	40	2	MT5-M24	256	120	38,9	136	2	○	
7800004	Regular	PDR20R050SS42-3S	30	50	3	42	150	50	48,5	100	1	○	
7800005	Regular	PDR20R050MT5M16-3S	30	50	3	MT5-M16	256	120	48,5	136	2	○	
7800007	Regular	PDR20R050MT5M24-3S	30	50	3	MT5-M24	256	120	48,5	136	2	○	
7800008	Regular	PDR20R050CN50.8-3S	30	50	3	CN50.8	150	65	48,5	85	3	○	
7800009	Long	PDR20R040SS42-2L	20	40	2	42	250	150	38,9	100	1	○	
7800010	Long	PDR20R040MT5M16-2L	20	40	2	MT5-M16	306	170	38,9	136	2	○	
7800012	Long	PDR20R040MT5M24-2L	20	40	2	MT5-M24	306	170	38,9	136	2	○	
7800013	Long	PDR20R050SS42-3L	30	50	3	42	250	150	48,5	100	1	○	
7800014	Long	PDR20R050MT5M16-3L	30	50	3	MT5-M16	306	170	48,5	136	2	○	
7800016	Long	PDR20R050MT5M24-3L	30	50	3	MT5-M24	306	170	48,5	136	2	○	
7800017	Long	PDR20R050CN50.8-3L	30	50	3	CN50.8	250	165	48,5	85	3	○	

» Phoenix PDR

Phoenix High Feed Radius Cutter Series Phoenix Deep feed Radius

■ Solves traditional machining problems

Issues with traditional high-efficiency cutting tools

- There is no radius tool that can perform large depths of cut.
- Large variances in removal damage the tool.
- The depth of cut is so small for black surface areas that air cutting becomes common.



Depth of cut is needed... but we don't want to reduce efficiency.

Leading low depth of cut, high feed radius roughing tools



PDR BORE



HIGH PERFORMANCE

- Deep Feed Radius Cutter
- Bore Type

HIGH PERFORMANCE

- Torusfräser für maximale Zustellungen
- Aufnahmebohrung

ALTA PRESTAZIONE

- Fresa ad alta asportazione
- A manicotto

HAUTE PERFORMANCE

- Fraise grande avance torique
- Trou lisse

HIGH PERFORMANCE

- Deep feed radiusfræser
- Til dorn

HIGH PERFORMANCE

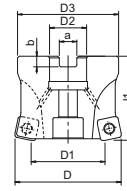
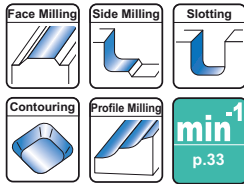
- Avverknings och hörnradie vändskärfräs
- Med skruvfäste

ALTO RENDIMIENTO

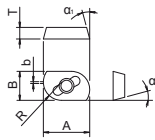
- Fresa de gran avance con radio
- Hueca

ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

- Фреза с высокой подачей и увеличенной глубиной резания
- Насадная



EDP	Type	Designation	D1	D	Z Δ	I1	D3	D2	a	b	Stock	Price
7800057	For Metric holes	PDR20R063M22-3	43	63	3	63	60	22	10,4	6,3	○	
7800058	For Metric holes	PDR20R063M22-4	43	63	4	63	60	22	10,4	6,3	○	
7800059	For Metric holes	PDR20R080M27-4	60	80	4	63	76	27	12,4	7	○	
7800060	For Metric holes	PDR20R080M27-5	60	80	5	63	76	27	12,4	7	○	
7800061	For Metric holes	PDR20R100M32-5	80	100	5	63	96	32	14,4	8	○	
7800062	For Metric holes	PDR20R100M32-6	80	100	6	63	96	32	14,4	8	○	
7800063	For Metric holes	PDR20R125M40-6	105	125	6	63	100	40	16,4	9	○	



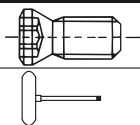
- Applicable insert for Deep Feed Radius Cutter
- Anvendelige vendeskær til deep feed radiusfræser

- Wendeplatten, für Torusfräser für maximale Zustellungen
- Utbytbara vändskär för Avverknings och hörnradie vändskärfräs

- Inserti applicabili per fresa ad alta asportazione
- Plaquetas para fresa de gran avance con radio

- Choix de plaquettes pour fraise grande avance torique
- Фреза с высокой подачей и увеличенной глубиной резания

Designation	Nb. of Cutting edges	Insert Size							Grade of Coated Materials		Price
		A X B	T	$\alpha 1$	$\alpha 2$	R	b		XP3930		
ADMT2006100PDR-GM	2	24,18x16	6,35	15°	15°	10	1		7810000		



Clamping Screw

7808001

Accessories

CSPB-5 (Torx 20)

Designation

20IP-T

Variable negative form for edge rigidity

→prevention of breakage

Spiral tool form

→reduction in cutting force

cutting tool capable of finish milling thanks to the wiping edge

Ideal chip formation when depth of cut is between 2-5mm (corner radius 10)

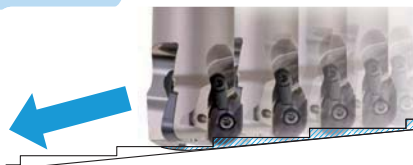
A cutting tool capable of side machining

Uses double clamping

Bottom relief (3,5mm) enable to approach casting rough surface

Body rigidity has been increased because of the enlarged back metal

- The work of a ball, cut by a radius!



In heavy roughing (contoured machining), machining steps become larger based on the depth of cut. Usually, the effect on the next cutting tool is great, and as machining processes are added, the overall production time increases. However, the tool form of the PDR is designed to increase the removal and leave stepovers similar to ball end mills while still maintaining the rigidity of a radius end mill. Roughing of contoured lines is restricted to ap3mm. Also, a diameter of $\phi 50\text{mm}$ or less is recommended.

The PDR can cut what was until now considered the work of ball end mills.



PHP



HIGH PERFORMANCE

- Drill
- 2 flutes

HIGH PERFORMANCE

- Bohrer
- 2 Schneiden

ALTA PRESTAZIONE

- Foratura
- 2 denti

HAUTE PERFORMANCE

- Foret
- 2 lèvres

HIGH PERFORMANCE

- Boring
- 2 skær

HIGH PERFORMANCE

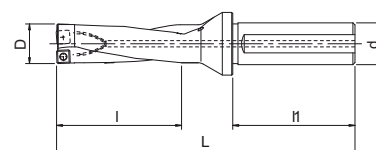
- Borr
- 2 skär

ALTO RENDIMIENTO

- Taladrado
- 2 labios

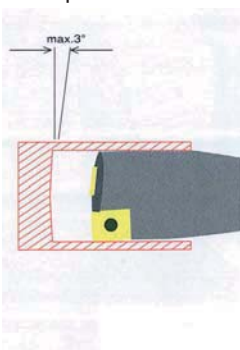
ВЫСОКАЯ ПРОИЗВОДИТЕЛЬНОСТЬ

- Сверло
- 2-зуба



EDP	Designation	D	L	l	l1	d	Appl. Inserts	Stock	Price
7800100	PHP140FS20M04-3D	14	116	42	50	20		●	
7800101	PHP145FS20M04-3D	14,5	119	45	50	20		●	
7800102	PHP150FS20M04-3D	15	119	45	50	20	①	●	
7800103	PHP155FS20M04-3D	15,5	122	48	50	20		●	
7800104	PHP160FS20M04-3D	16	122	48	50	20		●	
7800105	PHP165FS20M05-3D	16,5	125	51	50	20		●	
7800106	PHP170FS20M05-3D	17	125	51	50	20	②	●	
7800107	PHP175FS25M05-3D	17,5	134	54	56	25		●	
7800108	PHP180FS25M05-3D	18	134	54	56	25		●	
7800109	PHP185FS25M06-3D	18,5	137	57	56	25		●	
7800110	PHP190FS25M06-3D	19	137	57	56	25		●	
7800111	PHP195FS25M06-3D	19,5	140	60	56	25	③	●	
7800112	PHP200FS25M06-3D	20	140	60	56	25		●	
7800113	PHP205FS25M06-3D	20,5	143	63	56	25		●	
7800114	PHP210FS25M07-3D	21	143	63	56	25		●	
7800115	PHP215FS25M07-3D	21,5	146	66	56	25		●	
7800116	PHP220FS25M07-3D	22	146	66	56	25		●	
7800117	PHP225FS25M07-3D	22,5	149	69	56	25	④	●	
7800118	PHP230FS25M07-3D	23	149	69	56	25		●	
7800119	PHP235FS32M07-3D	23,5	156	72	60	32		●	
7800120	PHP240FS32M07-3D	24	156	72	60	32		●	
7800121	PHP245FS32M08-3D	24,5	159	75	60	32		●	
7800122	PHP250FS32M08-3D	25	159	75	60	32		●	
7800123	PHP255FS32M08-3D	25,5	162	78	60	32		●	
7800124	PHP260FS32M08-3D	26	162	78	60	32	⑤	●	
7800125	PHP265FS32M08-3D	26,5	165	81	60	32		●	
7800126	PHP270FS32M08-3D	27	165	81	60	32		●	
7800127	PHP280FS32M08-3D	28	168	84	60	32		●	
7800128	PHP290FS32M10-3D	29	171	87	60	32		●	
7800130	PHP300FS32M10-3D	30	179	90	60	32	⑥	●	
7800131	PHP310FS32M10-3D	31	182	93	60	32		●	
7800132	PHP320FS32M10-3D	32	185	96	60	32		●	
7800133	PHP330FS40M10-3D	33	196	99	68	40		○	
7800134	PHP340FS40M10-3D	34	199	102	68	40		○	
7800135	PHP350FS40M12-3D	35	202	105	68	40		○	
7800136	PHP360FS40M12-3D	36	205	108	68	40	⑦	○	
7800137	PHP370FS40M12-3D	37	218	111	68	40		○	
7800138	PHP380FS40M12-3D	38	221	114	68	40		○	
7800139	PHP390FS40M12-3D	39	224	117	68	40		○	
7800140	PHP400FS40M12-3D	40	227	120	68	40		○	

Point angle shape increases the machining range





PHP



Applicable insert
for PHP drill

Wendeplatten,
Bohrer PHP

Inserti applicabili
per punta PHP

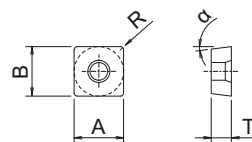
Choix de plaquettes
pour le perçage

Anvendelige skær til
PHP bor

Utbytbara vändskär för
korthålsborr

Plaquetas para
broca PHP

Сменные пластинки
для PHP сверла



Designation	No.. of Cutting edges	Appl. Cutter Dia.	Insert Size				Coated Grades		Price
			A X B	T	α	R	XP9040	XP9025	
1 SCMT042204-DM	4	14 ~16	4,8x 4,8	2,2	7°	0,4	7818001	7817001	
2 SCMT052404-DM	4	16,5~18	5,4x 5,4	2,4	7°	0,4	7818002	7817002	
3 SCMT062806-DM	4	18,5~20,5	6,2x 6,2	2,8	7°	0,6	7818003	7817003	
4 SCMT073206-DM	4	21 ~24	7,2x 7,2	3,2	7°	0,6	7818004	7817004	
5 SCMT083608-DM	4	24,5~28	8,6x 8,6	3,6	7°	0,8	7818005	7817005	
6 SCMT104208-DM	4	29 ~34	10 x10	4,2	7°	0,8	7818006	7817006	
7 SCMT125008-DM	4	35 ~40	12,3x12,3	5	7°	0,8	7818007	7817007	

Recommended Grades per material

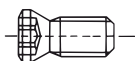
- ☒ First recommended grade
☐ Second recommended grade

Inserts are all sold 10 pieces per package

Inserts Grades	Chip Breaker	Coolant	P	M	K	N	S
XP9040	DM	yes	☒	☒	☐	☒	☐
XC9025	DM	yes	☐	☐	☒	☐	☐

DM : Center cutting Type Drill

Accessories



Clamping Screw

EDP	Designation	Appl. Inserts		Stock	Price
7808100	FS18538 (Torx 6)	①	SCMT042204-DM	●	
7808102	FS20540 (Torx 6)	②	SCMT052404-DM	●	
7808104	FS22550 (Torx 7)	③	SCMT062806-DM	●	
7808108	FS25560 (Torx 8)	④	SCMT073206-DM	●	
7808110	FS30573 (Torx 8)	⑤	SCMT083608-DM	●	
7808111	FS35572 (Torx 15)	⑥	SCMT104208-DM	●	
7808113	FS45510 (Torx 20)	⑦	SCMT125008-DM	○	



Wrench

EDP	Designation	Appl. Inserts		Stock	Price
7808203	T6-D (Torx 6)	①	SCMT042204-DM	●	
7808204	T7-D (Torx 7)	③	SCMT062806-DM	●	
7808205	T8-D (Torx 8)	④	SCMT073206-DM	●	
7808208	T15-D (Torx 15)	⑥	SCMT104208-DM	●	
7808209	T20-D (Torx 20)	⑦	SCMT125008-DM	○	



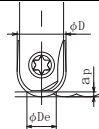
Finish Ball nose cutter - Kugelfräser für Schlichtbearbeitungen - Fresa sferica di finitura - Finition hémisphérique - Radiusfräser til sletbearbejdning - Fullradiefräs för finishing, 2-skär - Fresa de punta esférica para acabado - Чистовая сферическая фреза

■ Depth of Cut and Actual Cutting Diameter

(Unit : mm)

ap		(φDe)														
D	R	0,1	0,2	0,3	0,4	0,5	0,8	1	1,5	2	2,5	3	3,5	4	4,5	5
8	4	1,8	2,5	3	3,5	3,9	4,8									
10	5	2	2,8	3,4	3,9	4,4	5,4	6	7,1							
12	6	2,2	3,1	3,7	4,3	4,8	6	6,6	7,9	8,9						
16	8	2,5	3,6	4,3	5	5,6	7	7,7	9,3	10,6	11,6					
20	10	2,8	4	4,9	5,6	6,2	7,8	8,7	10,5	12	13,2	14,3	15,2			
25	12,5	3,2	4,5	5,4	6,3	7	8,8	9,8	11,9	13,6	15	16,2	17,3	18,3		
30	15	3,5	4,9	6	6,9	7,7	9,7	10,8	13,1	15	16,6	18	19,3	20,4	21,4	22,4

How to determine actual cutting diameter



$$De=2 \sqrt{ap \times (D - ap)}$$

■ Recommended conditions PFB-SP

Material		hardness	Vc (m/min)	ap (mm)	fz (mm/t)			
					D			
					φ 8	φ 10, 12	φ 16, 20	φ 25, 30
P	Mild Steels-Carbon Steels (SS400, S10C)	~180HB	300 (200~400)	0,02D	0,1	0,12	0,14	0,18
	Carbon Steels-Alloy Steels (S50C, SCM440)	~280HB	300 (200~400)	0,02D	0,07	0,1	0,12	0,14
	Die Steels (SKD11, SKD61)	~280HB	250 (150~350)	0,02D	0,07	0,1	0,12	0,14
M	Stainless Steels (SUS304, SUS420)	~250HB	250 (150~350)	0,02D	0,07	0,12	0,14	0,17
K	Cast Iron (FC250)	~300N/mm ²	400 (300~500)	0,02D	0,12	0,14	0,18	0,22
	Ductile Cast Iron (FCD400)	~600N/mm ²	300 (200~400)	0,02D	0,1	0,12	0,14	0,18
N	Aluminium Alloy (A7075)	~13%Si	500 (400~600)	0,03D	0,12	0,14	0,18	0,22
S	Heat Resistant Alloys (Inconel 718)	-	50 (20~80)	0,015D	0,04	0,05	0,06	0,06
	Titanium Alloy (Ti-6Al-4V)	-	90 (40~120)	0,02D	0,06	0,08	0,11	0,13
H	Pre-hardened Steel (NAK80 · STAVAX)	40~43HRC	200 (100~300)	0,015D	0,06	0,07	0,08	0,1
	Steel for Die Casting (DAC55 · DH31)	43~48HRC	180 (90~200)	0,015D	0,05	0,06	0,07	0,07
	Hardened Steels (SKD11)	50~60HRC	150 (100~250)	0,01D	0,05	0,06	0,07	0,07

These numbers are typical values shown in the actual cutting speed. Please adjust accordingly to suit process environments.

■ Recommended conditions PFB-D

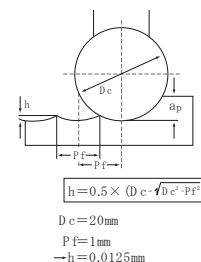
Material		hardness	Vc (m/min)	ap (mm)	fz (mm/t)			
					D			
					φ 8	φ 10, 12	φ 16, 20	φ 25, 30
N	Aluminium Alloy (A7075)	~13% Si	500 (400~600)	0,03D	0,15	0,18	0,23	0,27
	Copper Alloy (C1100)	-	300 (200~400)	0,03D	0,11	0,13	0,17	0,2
	Graphite	-	500 (400~600)	0,03D	0,14	0,17	0,21	0,25
	CFRP	-	400 (300~500)	0,03D	0,11	0,13	0,17	0,2

These numbers are typical values shown in the actual cutting speed. Please adjust accordingly to suit process environments.

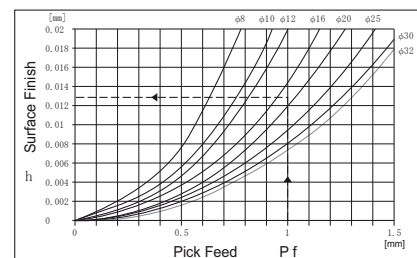
■ Recommended Pick Feed and resulting Surface Finish

(unit : m m)

Diameter Dc	Pick Feed Pf	Surface Finish h
8	0.5	0.008
10	0.6	0.009
12	0.7	0.01
16	0.8	0.01
20	1	0.012
25	1.2	0.014
30	1.3	0.014



■ Theoretical Surface Finish



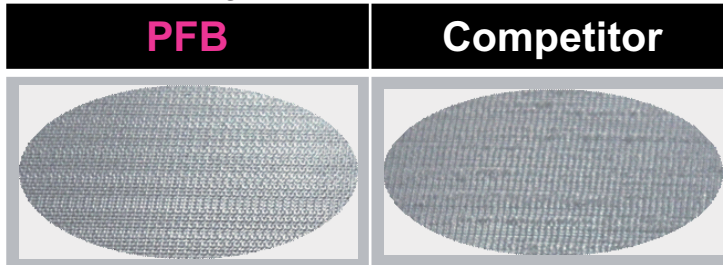


Finish Ball nose cutter - Kugelfräser für Schlichtbearbeitungen - Fresa sferica di finitura - Finition hémisphérique - Radiusfräser til sletbearbejdning - Fullradiefräs för finishing, 2-skär - Fresa de punta esférica para acabado - Чистовая сферическая фреза

CUTTING DATA

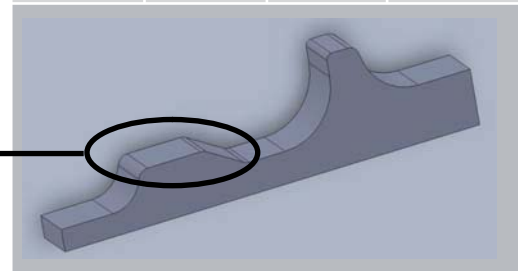
PFB has Improved Surface Finish

PFB has no tearing on flat surface



■ Machining Environment

Machining Detail		Machining Parameters	
Size	R10	Name of Part	Sample model
Overhang	80mm	Material	S50C
Speed	8,000min ⁻¹	Machining Method	Copy Milling
Feed	3,200mm/min	Machining Type	Horizontal Machine
ap	0.3mm	Holder Size	BT50
Pf	0.3mm	Coolant Size	Water Soluble

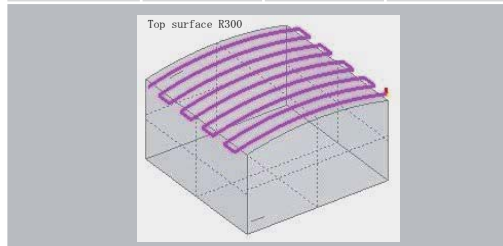


Machining Method	Product	2	4	6	8	10 (μm)	RZ (μm)
Copy Milling Flat Surface	PFB						6.171
	A						10.93
	B						6.021
	C						7.798
	D						6.963
Machining Method	Product	0.5	1	1.5	2	2.5 (μm)	RZ (μm)
Copy Milling Slanted Surface	PFB						1.967
	A						2.098
	B						2.083
	C						2.541
	D						1.827
Machining Method	Product	0.5	1	1.5	2	2.5 (μm)	RZ (μm)
Copy Milling Radial Surface	PFB						1.98
	A						1.9
	B						2.183
	C						2
	D						2.508

PFB has doubled Tool Life

Comparison of tool wear after 200M of machining

Machining Detail		Machining Parameters	
Size	R10	Name of Part	Blade
Overhang	110mm	Material	SUH600
Speed	1,500min ⁻¹	Machining Method	Copy Milling
Feed	2,000mm/min	Machining Type	Vertical Machining Center
ap	0.2mm	Holder Size	BT40
Pf	1mm	Coolant Size	Water Soluble



■ Amount of Wear

	70 minutes		140 minutes	
	100m		200m	
PFB				
Wear (mm)	0.033	0.030	0.041	0.043
Competitor				
Wear (mm)	0.032	0.033	0.070	0.071



CONDITIONS

PSE

90° Shoulder cutter - 90° Schulterfräser - 90° Spallamento retto - Surfacers dresser à 90° -
90° vendeskærfræser - 90° vändskärfräs - Fresa de 90° para escuadrar - Торцевая фреза 90°



Work Material		Tensile Strength Hardness	Insert Grade	Insert Size							
				ZD-T11...				ZDKT15...			
				ap:10mm ae:0,2D		ap:3mm ae:1,0D		ap:14mm ae:0,2D		ap:5mm ae:1,0D	
				Vc (m/min) Milling Speed	fz (mm/t) Feed / Tooth	Vc (m/min) Milling Speed	fz (mm/t) Feed / Tooth	Vc (m/min) Milling Speed	fz (mm/t) Feed / Tooth	Vc (m/min) Milling Speed	fz (mm/t) Feed / Tooth
P	Mild Steels-Carbon Steels (SS400-S10C)	~180HB	XP3035	180 (100 ~ 250)	0,25 (0,2 ~ 0,5)	180 (100 ~ 250)	0,12 (0,05 ~ 0,2)	180 (100 ~ 250)	0,3 (0,2 ~ 0,6)	180 (100 ~ 250)	0,15 (0,05 ~ 0,25)
	Carbon Steels-Alloy Steels (S50C-SCM440)	~280HB		180 (100 ~ 250)	0,2 (0,15 ~ 0,4)	180 (100 ~ 250)	0,11 (0,05 ~ 0,2)	180 (100 ~ 250)	0,25 (0,15 ~ 0,5)	180 (100 ~ 250)	0,12 (0,05 ~ 0,2)
	Die Steels (SKD11-SKD61)	~280HB		150 (80 ~ 200)	0,2 (0,15 ~ 0,4)	150 (80 ~ 200)	0,1 (0,05 ~ 0,18)	150 (80 ~ 200)	0,25 (0,15 ~ 0,5)	150 (80 ~ 200)	0,12 (0,05 ~ 0,2)
M	Stainless Steels(Dry) (SUS304-SUS420)	~250HB	XP2040	150 (80 ~ 200)	0,18 (0,15 ~ 0,4)	150 (80 ~ 200)	0,1 (0,05 ~ 0,18)	150 (80 ~ 200)	0,2 (0,15 ~ 0,45)	150 (80 ~ 200)	0,12 (0,05 ~ 0,2)
	Stainless Steels(Wet) (SUS304-SUS420)	~250HB	XC5035	80 (60 ~ 120)	0,18 (0,15 ~ 0,4)	80 (60 ~ 120)	0,1 (0,05 ~ 0,18)	80 (60 ~ 120)	0,2 (0,15 ~ 0,45)	80 (60 ~ 120)	0,12 (0,05 ~ 0,2)
K	Cast Iron (FC250)	~350N/mm²	XC1015	180 (100 ~ 300)	0,25 (0,15 ~ 0,5)	180 (100 ~ 300)	0,12 (0,05 ~ 0,2)	180 (100 ~ 300)	0,3 (0,2 ~ 0,6)	180 (100 ~ 300)	0,15 (0,05 ~ 0,25)
	Ductile Cast Iron (FCD400)	~800N/mm²	XC1015	180 (100~250)	0,15 (0,1 ~ 0,4)	180 (100 ~ 250)	0,12 (0,05 ~ 0,2)	180 (100 ~ 250)	0,2 (0,15 ~ 0,5)	180 (100 ~ 250)	0,15 (0,05 ~ 0,25)
N	Aluminum Alloys	~13%Si	CK010	300 (200 ~ 1500)	0,3 (0,2 ~ 0,5)	300 (200 ~ 1.500)	0,15 (0,1 ~ 0,25)	300 (200 ~ 1500)	0,35 (0,2 ~ 0,6)	300 (200 ~ 1500)	0,18 (0,1 ~ 0,3)
S	Heat Resistant Alloys (Inconel 718)	—	XC5040	35 (25 ~ 60)	0,15 (0,1 ~ 0,3)	35 (25 ~ 60)	0,1 (0,05 ~ 0,15)	35 (25 ~ 60)	0,2 (0,1 ~ 0,3)	35 (25 ~ 60)	0,12 (0,05 ~ 0,15)
	Titanium Alloy (Ti-6Al-4V)	—	XC5040	40 (30 ~ 120)	0,18 (0,1 ~ 0,35)	40 (30 ~ 120)	0,1 (0,08 ~ 0,25)	40 (30 ~ 120)	0,22 (0,1 ~ 0,35)	40 (30 ~ 120)	0,12 (0,08 ~ 0,25)
H	Pre-hardened Steel (NAK80)	40~43HRC	XP2040	100 (40 ~ 150)	0,18 (0,1~ 0,3)	90 (40~150)	0,1 (0,08~0,2)	100 (40~150)	0,22 (0,1~0,35)	90 (40~150)	0,12 (0,08~0,25)
	Steel for Die Casting (DAC55-DH31)	43~48HRC		80 (40 ~ 120)	0,12 (0,08~0,2)	70 (40~120)	0,08 (0,06~0,15)	80 (40~120)	0,15 (0,08~0,25)	70 (40~120)	0,1 (0,06~0,2)
	Hardened Steels (SKD11)	50~55HRC		60 (40 ~ 90)	0,1 (0,05~0,2)	50 (40~90)	0,06 (0,05~0,1)	60 (40~90)	0,12 (0,05~0,2)	50 (40~90)	0,08 (0,05~0,12)

Recommended Grades per material

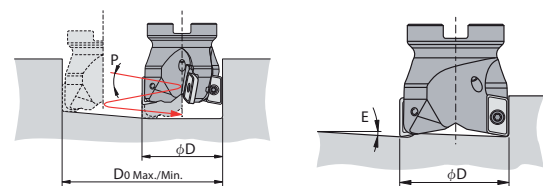
Inserts Grades	Chip Breaker	Coolant	P	M	K	N	S	H
CK010	NM	-			○	◎		
XP3035	GL GM	-	◎	○	○			
XP2040	GL GM	- yes	○	◎			○	◎
XC1015	GM	-			◎			
XC5035	SM	- yes		◎			○	○
XC5040	SM	yes		○			◎	○

◎ First recommended Grade
○ Second recommended Grade

GL:Light Cutting GM:Medium Cutting NM:Aluminum SM:Heat Resistance Alloy



Maximum Ramping angle (E)



OSG Phoenix

Information

The Phoenix packaging is environmentally friendly as it uses a case made of recycled plastic.



Insert Size		ZD-T11...			ZDKT15...			
(mm) D	Ramping Angle E	Helical Milling(mm)		Helical Angle P	Ramping Angle E	Helical Milling(mm)		Helical Angle P
		D0 Min.	D0 Max.			D0 Min.	D0 Max.	
16	10,8°	18	29	9,5°	-	-	-	-
18	9,1°	-	33	7°	-	-	-	-
20	9,8°	30	37	7°	-	-	-	-
22	6,3°	34	41	4,3°	-	-	-	-
25	7,5°	40	47	4,5°	9,5°	37	48	7,5°
28	6,3°	46	53	3,9°	8,3°	39	54	5,6°
30	5,5°	50	57	3,4°	7,4°	43	58	5,3°
32	4,8°	53	61	3,2°	6,8°	47	62	5°
35	3,2°	60	67	2,5°	5,9°	53	68	3,8°
40	2,9°	72	77	2,2°	5,1°	63	78	3,2°
50	2,2°	93	98	1,7°	2,5°	86	98	2,5°
63	1,8°	118	123	1,5°	2,5°	111	124	1,5°
80	1,4°	152	157	1°	2°	147	158	1,3°
100	-	-	-	-	1,5°	190	198	1,1°
125	-	-	-	-	0,9°	240	248	0,9°



CONDITIONS

PRC

Radius cutter - Rundplattenfräser - Fresa con inserto tondo - Fraise plaquettes rondes -
Radius fræser - Vändskärfräs med runda skär - Fresa tórica - Торговая фреза

Work Material	Tensile Strength Hardness	Insert Grade	Vc (m/min) Milling Speed	Insert Size					
				RPH.10..		RPH.12..		RPH.16..	
				fz (mm/t) Feed / Tooth	ap (mm) Depth of Cut	fz (mm/t) Feed / Tooth	ap (mm) Depth of Cut	fz (mm/t) Feed / Tooth	ap (mm) Depth of Cut
P	Mild Steels-Carbon Steels (SS400-S10C)	XP3035	200 (100 ~ 300)	0,25 (0,1 ~ 0,35)	2	0,3 (0,1 ~ 0,4)	2,4	0,35 (0,1 ~ 0,5)	3,2
	Carbon Steels-Alloy Steels (S50C-SCM440)		180 (100 ~ 250)	0,2 (0,1 ~ 0,3)	2	0,25 (0,1 ~ 0,35)	2,4	0,3 (0,1 ~ 0,45)	3,2
	Die Steels (SKD11-SKD61)		150 (80 ~ 200)	0,2 (0,1 ~ 0,3)	2	0,25 (0,1 ~ 0,35)	2,4	0,3 (0,1 ~ 0,45)	3,2
M	Stainless Steels (SUS304-SUS420)	XP2040 XC5035	200 (100 ~ 280)	0,25 (0,1 ~ 0,35)	2	0,3 (0,1 ~ 0,4)	2,4	0,35 (0,1 ~ 0,5)	3,2
K	Cast Iron (FC250)	XC1015	220 (100 ~ 350)	0,25 (0,05 ~ 0,4)	2	0,3 (0,1 ~ 0,5)	2,4	0,35 (0,1 ~ 0,6)	3,2
	Ductile Cast Iron (FCD400)	XC1015	150 (100 ~ 220)	0,2 (0,1 ~ 0,3)	2	0,25 (0,1 ~ 0,35)	2,4	0,3 (0,1 ~ 0,45)	3,2
N	Aluminum Alloys	CK010	600 (300 ~ 1.500)	0,4 (0,2 ~ 0,8)	2	0,6 (0,2 ~ 1)	2,4	0,8 (0,3 ~ 1,5)	3,2
S	Heat Resistant Alloys (Inconel 718)	XC5040	40 (25 ~ 60)	0,15 (0,05 ~ 0,25)	2	0,2 (0,05 ~ 0,3)	2,4	0,25 (0,05 ~ 0,4)	3,2
	Titanium Alloy (Ti-6Al-4V)	XC5040	80 (50 ~ 120)	0,2 (0,1 ~ 0,3)	2	0,25 (0,1 ~ 0,35)	2,4	0,3 (0,1 ~ 0,45)	3,2
H	Pre-hardened Steel (NAK80)	XP2040	120 (40 ~ 150)	0,15 (0,05 ~ 0,25)	1,5	0,2 (0,05 ~ 0,3)	1,5	0,25 (0,05 ~ 0,4)	1,5
	Steel for Die Casting (DAC55-DH31)		80 (40 ~ 120)	0,15 (0,05 ~ 0,25)	1	0,2 (0,05 ~ 0,3)	1	0,25 (0,05 ~ 0,4)	1
	Hardened Steels (SKD11)		60 (30 ~ 90)	0,15 (0,05 ~ 0,25)	0,5	0,2 (0,05 ~ 0,3)	0,5	0,25 (0,05 ~ 0,4)	0,5

Recommended Grades per material

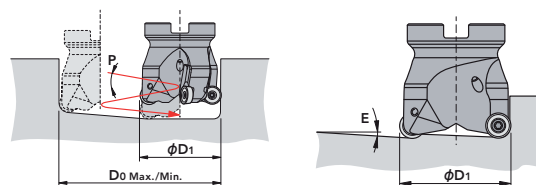
Inserts Grades	Chip Breaker	Coolant	P	M	K	N	S	H
CK010	NM	—			○	◎		
XP3035	—	—	◎	○	○			
XP2040	GL	—	○					◎
		yes		◎			○	
XC1015	—	—			◎			
XC5035	SM	—		◎				○
		yes		○			○	
XC5040	SM	yes		○			◎	○

◎ First recommended Grade
○ Second recommended Grade

GL: Light Cutting GM: Medium Cutting NM: Aluminum
SM: Heat Resistance Alloy



Maximum Ramping angle (E)



Insert Size		RPH-10...		RPH-12...			RPH-16...		
(mm) D	Ramping Angle E	Helical Milling(mm)		Ramping Angle E	Helical Milling(mm)		Ramping Angle E	Helical Milling(mm)	
		Do min.	Do max.		Do min.	Do max.		Do min.	Do max.
20	36,5°	24	40	—	—	—	—	—	—
25	17°	32	50	—	—	—	—	—	—
30	10°	42	60	10,3°	38	60	—	—	—
32	9,8°	46	64	10,1°	42	64	—	—	—
40	—	—	—	7,5°	58	80	12,5°	50	80
50	—	—	—	5,2°	78	100	8,4°	70	100
52	—	—	—	4,9°	82	104	—	—	—
63	—	—	—	3,8°	104	126	5,7°	96	126
66	—	—	—	—	—	—	5,3°	102	132
80	—	—	—	2,7°	138	160	4°	130	160
100	—	—	—	2°	178	200	3°	170	200



High feed radius cutter - Hochvorschubsfräser - Fresa alto avanzamento - Fraise grandes avances -
High feed radiusfræser - Högmatnings fräs med vändskär - Fresa de gran avance - Фреза с высокой подачей



Work Material		Tensile Strength Hardness	Insert Grade	Vc (m/min) Milling Speed	Insert Size							
					SDMT09...				SXMT12...			
					fz (mm/t) Feed /Tooth	ap (mm) Depth of Cut			fz (mm/t) Feed /Tooth	ap (mm) Depth of Cut		
						L/D=2	L/D=3	L/D=4		L/D=2	L/D=3	L/D=4
P	Mild Steels-Low Carbon Steels (SS400-S10C)	~180HB	XP3035	180 (60 ~250)	0,8 (0,3~1,8)	1	0,8	0,5	1,25 (0,5~3,2)	1,2	1,2	1
	Carbon Steels-Alloy Steels (S50C-SCM440)	~280HB		180 (60 ~250)	0,8 (0,3~1,5)	1	0,8	0,5	1,25 (0,5~ 3)	1,2	1,2	1
	Die Steels (SKD11-SKD61)	~280HB		180 (60 ~250)	0,8 (0,3~1,5)	0,8	0,6	0,4	1,25 (0,5~ 3)	1,2	1,2	1
M	Stainless Steels (SUS304-SUS420)	~250HB	XP2040 XC5035	120 (90 ~180)	0,5 (0,3~1,5)	0,8	0,6	0,4	1 (0,5~2,5)	1,2	1	1
K	Cast Iron (FC250)	~350N/mm²	XC1015	200 (100~300)	1 (0,5~1,8)	1	0,8	0,5	1,5 (0,5~3,5)	1,5	1,5	1
	Ductile Cast Iron (FCD400)	~800N/mm²	XC1015	180 (100~250)	0,9 (0,5~1,5)	1	0,8	0,5	1,35 (0,5~ 3)	1,2	1,2	0,9
S	Heat Resistant Alloys (Inconel 718)	–	XC5040	30 (25 ~ 60)	0,4 (0,2~0,8)	0,5	0,5	0,4	0,5 (0,2~ 1)	1	1	0,8
	Titanium Alloy (Ti-6Al-4V)	–	XC5040	80 (50 ~120)	0,5 (0,3~ 1)	0,5	0,5	0,3	0,7 (0,3~1,2)	0,8	0,8	0,4
H	Pre-hardened Steel (NAK80)	40~43HRC	XP2040	120 (40 ~150)	0,5 (0,2~ 1)	0,5	0,5	0,3	0,8 (0,3~1,5)	1	1	0,5
	Steel for Die Casting (DAC55-DH31)	43~48HRC		90 (40 ~120)	0,4 (0,2~0,8)	0,5	0,5	0,3	0,7 (0,3~1,2)	0,7	0,7	0,5
	Hardened Steels (SKD11)	50~55HRC		60 (40 ~ 90)	0,3 (0,2~0,7)	0,3	0,3	0,2	0,5 (0,3~0,8)	0,5	0,5	0,4

Recommended Grades per material

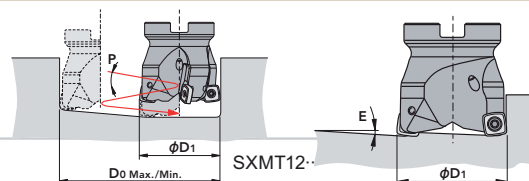
Inserts Grades	Chip Breaker	Coolant	P	M	K	S	H
XP3035	GM	-	⊙	○	○		
XP2040	GM	-	○				⊙
		yes		⊙		○	
XC1015	GM	-			⊙		
XC5035	SM	-		⊙			○
		yes		○		○	
XC5040	SM	yes		○		⊙	○

⊙ First recommended grade
○ Second recommended grade

GL:Light Cutting GM:Medium Cutting NM:Aluminum
SM:Heat Resistance Alloy



Maximum Ramping angle (E)

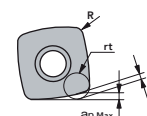


Insert Size	SDMT09...				SXMT12...			
(mm) D	Ramping Angle E	Helical Milling(mm)		Helical Angle P	Ramping Angle E	Helical Milling(mm)		Helical Angle P
		Do min.	Do max.			Do min.	Do max.	
25	3,6°	35	48	3,1°	-	-	-	-
28	2,6°	41	54	2,1°	-	-	-	-
30	2,2°	45	58	1,9°	7,9°	40	58	6,5°
32	2°	49	62	1,7°	7,2°	44	62	6,1°
35	1,6°	55	68	1,1°	4,6°	50	68	3,9°
40	1,2°	65	78	1°	2,9°	69	78	2,5°
50	0,9°	85	98	0,8°	1,5°	80	98	1,3°
52	0,8°	89	102	0,7°	1,5°	84	102	1,3°
63	0,8°	111	124	0,7°	1,1°	106	124	0,9°
66	0,7°	117	130	0,6°	1,1°	112	130	0,9°
80	-	-	-	-	1,3°	140	158	1,1°
100	-	-	-	-	0,7°	180	198	0,6°

Flute shape definitions for the purpose of creating a program

Insert Size	R	ap Max.	R rt	Z
SDMT09...	0,8	1	2	0,7
SXMT12...	1	2	3	1,15

For machining purposes, create machining programs for the respective simulated R radius cutters.





CONDITIONS

PDR SS/MT/CN

High feed radius cutter - Hochvorschubsfräser - Fresa alto avanzamento - Fraise grandes avances - High feed radiusfräser - Högmåtnings fräs med våndskär - Fresa de gran avance - Фреза с высокой подачей



	Work Material	Tensile Strength Hardness	Vc (m/min) Milling Speed	PDR SS/MT/CN		PDR BORE					
				fz (mm/t) Feed Per Tooth	ap (mm) Depth of Cut		fz (mm/t) Feed Per Tooth	ap (mm) Depth of Cut			
					120	170		100	200	300	400
P	Mild Steels-Low Carbon Steels (SS400-S10C)	~180HB	180 (90~220)	0,7(0,3~1)	3	2	0,6(0,3~1)	3	3	2	2
	Carbon Steels-Alloy Steels (S50C-SCM440)	~280HB	180 (90~220)	0,7(0,3~1)	3	2	0,6(0,3~1)	3	3	2	2
	Die Steels (SKD11-SKD61)	~280HB	150 (90~180)	0,6(0,3~1)	3	2	0,5(0,3~1)	3	2	2	2
K	Cast Iron (FC250)	~350N/mm ²	180 (100~250)	0,8(0,3~1,5)	3	3	0,7(0,3~1,5)	3	3	2	2
	Ductile Cast Iron (FCD400)	~800N/mm ²	150 (100~250)	0,7(0,3~1,2)	3	3	0,6(0,3~1,2)	3	3	2	2

Recommended Grades per material

◎ First recommended grade
○ Second recommended grade

Inserts Grade	Chip Breaker	Coolant	P	K
XP3930	GM	-	◎	◎

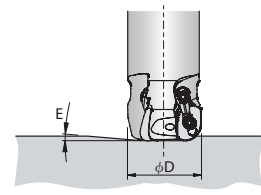
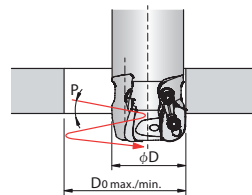
GM = General use



Maximum Ramping angle (E)

Maximum Ramping angle (E)

(mm) D	Ramping Angle E	Helical Milling(mm)		Z Plunging(mm)
		D ₀ min.	D ₀ max.	
40	5°	50	78	3
50	3°	70	98	3
63	2°	96	124	3
80	1°	130	158	3
100	0,5°	170	198	3
125	0,5°	220	248	3



- | | |
|---|--|
| 1. Long chips may occur in the beginning of the milling process.
2. The amount of feed should be within 40-70% of the recommended milling conditions.
3. To advance without dropping the feed rate, set an angle of less than 1°.
4. We recommend using air blow. | 1. Truciolo lungo può avvenire all'inizio del processo di fresatura
2. L'avanzamento deve essere mantenuto tra 40-70% delle condizioni raccomandate
3. Per lavorare senza diminuire l'avanzamento d'entrata, impostare un angolo di meno di 1°
4. Si consiglia di utilizzare raffreddamento ad aria |
| 1. Lange Späne können am Anfang der Fräsbearbeitung auftreten.
2. Die Schnittgeschwindigkeit sollte 40-70% der empfohlenen Schnittdaten betragen.
3. Wenn Sie beim Anfahren den Rampenwinkel kleiner 1° wählen müssen Sie die Schnittdaten nicht reduzieren.
4. Wir empfehlen Druckluft zu benutzen. | 1. Les copeaux longs peuvent se produire dans le début du processus de fraisage
2. La vitesse de coupe doit être au moins de 40 à 70% des conditions recommandées
3. Augmenter sans baisser l'avance et utiliser un angle de moins de 1°
4. Nous vous recommandons l'air soufflé |
| 1. Lange spåner kan opstå i begyndelsen af bearbejdningen
2. Tilspændingen skal være indenfor 40-70% af de anbefalede skæredata
3. Er rampevinklen lig eller mindre end 1° nedsættes tilspændingen ikke
4. Vi anbefaler luftkøling | 1. Långa spånar kan förekomma i början av fräsprocessen
2. Matningen bör ligga inom 40-70% av de rekommenderade villkoren
3. För att inte minska matningen, sätt rampevinkeln till 1° eller mindre
4. Vi rekommenderar luftkyllning |
| 1. Al inicio del proceso de fresado pueden producirse virutas largas
2. El avance debería ser entre 40 y 70% del recomendado
3. Para no reducir el avance el ángulo de rampa debería ser menor a 1°
4. Recomendable aire soplado. | 1. Длинная стружка может образовываться в начале фрезерования
2. Величина подачи должна быть в пределах 40-70% от рекомендованной
3. Для врезания без снижения подачи, установите угол врезания меньше 1°
4. Мы рекомендуем обдув воздухом |



Drill - Wendeplattenbohrer - Punta - Forets plaquettes -
Bor - Korthålsborr - Broca - Сверление

	Work Material	Tensile Strength Hardness	Drilling Speed Vc (m/min)	Feed Rate (mm/rev)			
				ø14~ø20.5	ø21~ø28	ø29~ø34	ø35~ø40
P	Mild Steels-Carbon Steels CK 15 St. 52-3	~180HB	200 (150 ~ 250)	0,09 (0,06 ~ 0,13)	0,13 (0,10 ~ 0,18)	0,18 (0,13 ~ 0,21)	0,25 (0,20 ~ 0,27)
	Carbon Steels-Alloy Steels Cf 53 42CrMo4	~280HB	160 (100 ~ 220)	0,09 (0,06 ~ 0,13)	0,13 (0,10 ~ 0,18)	0,18 (0,13 ~ 0,21)	0,25 (0,20 ~ 0,27)
	Die Steels X40CrMoV5 1	~280HB	140 (80 ~ 180)	0,08 (0,05 ~ 0,12)	0,12 (0,06 ~ 0,15)	0,14 (0,09 ~ 0,18)	0,15 (0,10 ~ 0,20)
M	Stainless Steels (SUS304 - SUS420)	~250HB	150 (100 ~ 180)	0,08 (0,05 ~ 0,12)	0,10 (0,06 ~ 0,12)	0,15 (0,10 ~ 0,17)	0,18 (0,15 ~ 0,20)
K	Cast Iron GG 25	~350N/mm²	150 (100 ~ 180)	0,09 (0,06 ~ 0,13)	0,13 (0,10 ~ 0,18)	0,18 (0,13 ~ 0,21)	0,25 (0,20 ~ 0,27)
	Ductile Cast Iron GGG 40	~800N/mm²	130 (80 ~ 150)	0,09 (0,06 ~ 0,13)	0,12 (0,08 ~ 0,16)	0,16 (0,1 ~ 0,20)	0,20 (0,15 ~ 0,25)
N	Aluminum Alloys	~13%Si	220 (100 ~ 800)	0,09 (0,06 ~ 0,20)	0,13 (0,10 ~ 0,25)	0,18 (0,13 ~ 0,30)	0,25 (0,20 ~ 0,35)
S	Heat Resistant Alloys(Wet) (Inconel 718)	-	30 (15 ~ 50)	0,04 (0,02 ~ 0,06)	0,06 (0,03 ~ 0,10)	0,08 (0,04 ~ 0,12)	0,10 (0,06 ~ 0,14)
	Titanium Alloy(Wet) (Ti-6Al-4V)	-	60 (30 ~ 100)	0,06 (0,04 ~ 0,08)	0,08 (0,06 ~ 0,12)	0,10 (0,08 ~ 0,15)	0,12 (0,10 ~ 0,15)

Recommended Grades per material

- ⊙ First recommended grade
○ Second recommended grade

Inserts Grades	Chip Breaker	Use of Coolant	P	M	K	N	S
XP9040	DM	Yes	⊙	⊙		⊙	○
XC9025	DM	Yes	○	○	⊙	○	

DM:Center Cutting Type Drill

- The indicated speeds and feeds are for water soluble oil.
- Suitable cutting fluid is water soluble high density oil (less than 20 times dilution).
- Using non-water soluble oil is not recommended.
- These conditions are for drilling depth less than 3 times the drill diameter.
- Inserts should be attached to the holder tightly in a very neat condition.
- Fasten the work material to reduce the possibility of work deformation, deflection of machined surface, or vibration.
- A clogged oil hole can lead to a breakage. Make sure that a filter is attached to the oil feeder.

- Die angegebenen Schnittdaten sind für die Verwendung von Emulsion.
- Die geeignete Emulsion sollte weniger als 20% Fettgehalt haben.
- Die Benützung von Schneidöl wird nicht empfohlen.
- Die angegebenen Schnittdaten sind für Bearbeitungen kleiner 3xD
- Die Wendeplattenschnittdaten sollten präzise im Halter fixiert werden.
- Um Vibrationen und Rattermarken an der Werkstückoberfläche zu vermeiden empfehlen wir eine sehr starre Werkstückspannung.
- Ein verschmutzte innere Kühlmittelzufuhr kann zum Werkzeugbruch führen. Bitte Kühlmittelfilter verwenden.

- De indikerede skæredata er ved brug af vandbaseret emulsion
- Passende kølemiddel er vandbaseret med høj densitet (fortyndet mindre end 20 gange)
- Ikke vandbaseret kølemiddel anbefales ikke
- Disse skæredata er for boret dybde mindre end 3 gange diameter
- Fastspænd kun vendskær i god kondition
- Fastgør emnematerialet sikkert for at undgå deformation, vibrationer og lign.
- Et tilstoppet kølehol kan forårsage brud. Sørg for at kølemidlet er filtreret

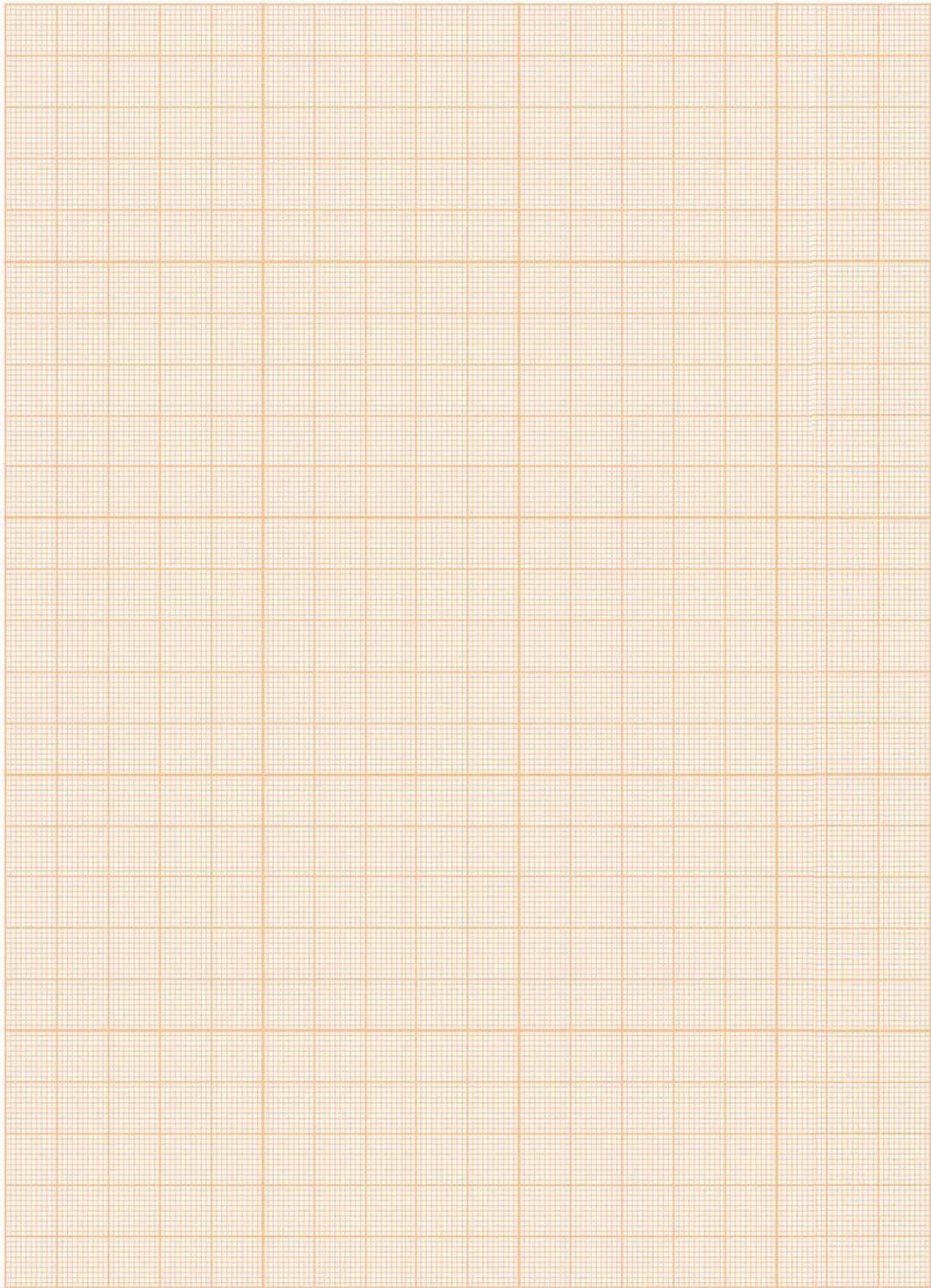
- Las velocidades y avances recomendados son para taladrina
- El refrigerante adecuado es taladrina concentrada al menos el 5%
- No se recomienda utilizar aceite de corte
- Condiciones de corte para taladrar menos de 3 veces el diámetro de corte
- Las plaquitas deben estar fuertemente fijadas en alojamiento limpio
- Fijar la pieza de forma que no permita la deformación, flexión de la cara mecanizada o vibración
- El agujero de refrigeración obstruido puede producir rotura. Asegúrese la aportación de refrigerante filtrado

- La velocità e avanzamento indicati si riferiscono a lavorazioni con emulsione solubile in acqua
- Opportuno fluido di taglio è emulsione solubile in acqua ad alta densità (inferiore a 20 volte di diluizione)
- Utilizzo di olio non solubile in acqua non è raccomandato
- Queste condizioni sono per profondità di foratura inferiore a 3 volte il diametro
- Gli Inserti dovrebbero essere applicati al corpo ermeticamente in una condizione molto pulita
- Fissare il materiale di lavoro per ridurre la possibilità di deformazione, deviazione o vibrazione di superficie lavorata
- Un foro di lubrificazione ostruito può portare alla rottura. Assicurarsi che sia applicato un filtro al sistema di refrigerazione.

- Les vitesses indiquées sont avec l'utilisation d'huile soluble.
- Un fluide de coupe à forte densité d'huile est recommandé
- L'usinage à sec n'est pas recommandé
- Ces conditions sont pour le perçage inférieur ou égal à 3xD
- Les plaquettes doivent être montées sur un support propre et en bonne état
- Bien monter et bien serrer la pièce à usiner réduit les risques de déformation matière, améliore la qualité de l'usinage, réduit les vibrations et les casses d'outils
- L'obstruction d'un trou d'huile peut entraîner la rupture de l'outil, assurez vous de la qualité de filtration de votre dispositif de lubrification

- Den angivna varvtal och matningar är för vattenbaserad emulsion
- Lämplig skärvätska är vattenlösligt hög densitet olja (mindre än 20 gånger utspädning)
- Ej vattenbaserad kmedel rekommenderas
- Denna skårdata är för borddjup mindre än 3xD
- Använd endast vändskär som är i god kondition
- Fäst arbetsstycket ordentligt för att undvika deformation, vibrationer och liknande.
- Ett igensatt kylkanal kan orsaka brott. Filtrera helst kylvätskan

- Указанные скорость и подача для охлаждения эмульсией
- Наиболее подходящая СОЖ — водная эмульсия высокой плотности (разбавление менее, чем 1/20)
- Использование не водной эмульсии не рекомендуется
- Указанные скорость и подача для сверления глубиной меньше чем 3 диаметра
- Сменные пластинки должны быть прикреплены к оправке плотно и очень аккуратно
- Зафиксируйте обрабатываемый материал, чтобы уменьшить возможность смещения, деформации или вибрации
- Засорение отверстий для охлаждения может привести к поломке. Убедитесь, что фильтр СОЖ установлен и исправен



OSG EUROPE s.a.

Av. Lavoisier 1
B-1300 Wavre Nord
Belgium

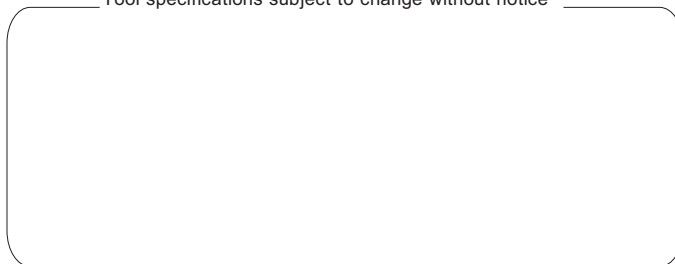
Tel. + 32.10.230508
Fax + 32.10.230531

E-mail: info@osgeurope.com
www.osgeurope.com



TOOL COMMUNICATION
OSG CORPORATION 

Tool specifications subject to change without notice



All rights reserved. ©OSG Europe 2011.
EURPHOENIX INDEXABLE SERIES08R11a

The contents of this catalogue are provided to you for viewing only. They are not intended for reproduction either in part or in whole in this or other medium. They cannot be copied, used to create derivation work or used for any reason, by means without the express, written permission of the copyright owner. If prices are stated, they are netto unit-prices and any eventual tax(es) have to be added. The company is not responsible for any printing error in technical, price and/or any other data.