PRODUCT INFORMATION

VOL.IV

PHOENIX INDEXABLE SERIES

PFB PSE PRC PHC PDR PHP PSEL PAS PAO PXM

INDEX

TYPE		SPECIFICATION		
DRILLING				
PHP		3xD High Performance Indexable Drill, 2 flutes 3xD alta performance punta ad inserti	3xD Hochleistungswendeplattenbohrer Foret à plaquettes amovibles 3xD haute performance	3xD High Performance bor med vendeskær Broca insertable para altas prestaciones

TYPE		SPECIFICATION		
MILLING				
PXNL NEW		Unequal spacing, 4 flutes, variable helix, roughing type, low helix Passo variabile, 4 denti, elica variabile, sgrossatura, elica a bassa torsione	Ungleicher Drall, 4 schneiden, ungleich gedrallter spiralewinkel, schrupper, leichte spirale Espacement inégal, 4 lèvres, élice variable, ébauche, hélice réduite	Ulige inddeling, 4 skær,variabel snoning, skrubfræsning, let snoet spiral Paso constante, 4 labios, variable helice, desbaste, lenta helice
PXNH NEW		Unequal spacing, 4 flutes, variable helix, roughing type, high helix Passo variabile, 4 denti, elica variabile, sgrossatura, elica elevata torsione	Ungleicher Drall, 4 schneiden, ungleich gedrallter spiralewinkel, schrupper, langerspirale Espacement inégal, 4 lèvres, élice variable, ébauche, hélice haute	Ulige inddeling, 4 skær,variabel snoning, skrubfræsning, høj helix Paso constante, 4 labios, variable helice, desbaste, alta helice
PXSE New Sizes		Unequal spacing, 4 flutes, square type, corner radius type Passo variabile, 4 denti, piana, Tipo torico	Ungleicher Drall, 4 schneiden, Schaftfräser, Eckradiusfräser Espacement inégal, 4 lèvres, type carré, fraise à rayon	Ulige inddeling, 4 skær, skarp type, Hjørneradius Paso constante, 4 labios, escuadrado, Vertice radio
PXSM New Sizes		Unequal spacing, multi flutes, square type, corner radius type Passo variabile, multidenti, tipo piano, tipo torico	Ungleicher Drall, Vielzahnfräser, Schaftfräser, Eckradiusfräser Espacement inégal, lèvres multiples, type carré, fraise à rayon	Ulige inddeling, flerskærs, skarp type, Hjørneradius Paso constante, ranúras múltiples, tipo cuadrado, Vertice radio
PXRE		High feed corner radius type Tipo torico Alto Avanzamento	Hochvorschubsfräser Fraises grandes avances	High feed fræser med hjørneradius Radio en el vértice para alta velocidad
PXBE		Ball nose, 3 flutes Frese sferiche, 3 denti	Kopierfräser, 3 Schneiden Fraise hémisphérique, 3 lèvres	Radiusfræser, 3 skær Esferica, 3 labios
PXBM		Ball nose, multi flutes Frese sferiche, multidenti	Kopierfräser, mehrschneidig Fraise hémisphérique, lèvres multiples	Radiusfræser, flerskærs Esferica, ranúras múltiples
PAS BORE		Phoenix 45° Face Milling Square Insert Type with Bore Type Phoenix 45° spianare, a manicotto, inserto quadro	Phönix 45° Planfräser Vierkant Wendeplatte mit Aufschraubbohrung Poenix 45°, surfaçage, plaquettes de type carrées	Phoenix 45° planfræser til dorn med kvadratiske skær Planeado Phoenix a 45º con fresa hueca y placa cuadrada
PAO BORE		Phoenix 45° Face Milling Octagon Insert Type with Bore Type Phoenix 45° spianare, a manicotto inserto ottagonale	Phönix 45° Planfräser Achteck (Octagon) endeplatte mit Aufschraubbohrung Poenix 45°, surfaçage, plaquettes de type octogonales	Phoenix 45° planfræser til dorn med octagon skær Planeado Phoenix a 45º con fresa hueca y placa octagonal
PFB		Finishing ball nose cutter, 2 flutes Fresa sferica di finitura, 2 eliche	2 Schneider Kugelfräser für Schlichtbear-beitungen Finition hémisphérique 2 dents	Radiusfræser til sletbearbejdning, 2 skær Fresa de punta esférica 2 labios para acabado.
PSEL SS NEW		90° shoulder cutter, porcupine type 90° spallamento retto, a riccio	90° Schalterfräser, Igelfräser Surface à dresser à 90°, fraise hérisson	90° vendeskærsfræser, pindsvind type Fresa a 90° para escuadrar, tipo cocodrilo
PSEL BORE NEW		90° shoulder cutter, porcupine type 90° spallamento retto, a riccio	90° Schalterfräser, Igelfräser Surface à dresser à 90°, fraise hérisson	90° vendeskærsfræser, pindsvind type Fresa a 90° para escuadrar, tipo cocodrilo
PSE/WS/ SS		90° Shoulder cutter, Weldon shank 90° Fresa spallamento retto, gambo cilindrico Weldon	90° Schulterfräser, Weldonschaft Surfacer dresser à 90° queue weldon	90° vendeskærsfræser, Weldon skaft Fresa a 90° para escuadrar, mango Weldon
PSE Screw Fit		90° Shoulder cutter, screw fit type 90° Fresa spallamento retto, sistema modulare	90° Schulterfräser, Aufschraubschaft Surfacer dresser à 90° tête vissée	90° vendeskærsfræser, Indskrunings type Fresa a 90° para escuadrar, Cabeza roscada
PSE BORE		90° Shoulder cutter, bore type 90° Fresa spallamento retto, a manicotto	90 ° Schulterfräser, Aufnahmebohrung Surfacer dresser à 90° à trou lisse	90° vendeskærsfræser, til dorn Fresa a 90° para escuadrar, hueca
PRC-SS		Radius cutter, straight shank Fresa con inserto tondo, gambo cilindrico	Rundplattenfräser , Zylinderschaft Fraise à plaquettes rondes, queue cylindrique	Radius fræser, cylindrisk skaft Fresa tórica, mango cilíndrico.
PRC Screw Fit		Radius cutter, screw fit type Fresa con inserto tondo, sistema modulare	Rundplattenfräser , Aufschraubschaft Fraise à plaquettes rondes, tête vissée	Radius fræser, Indskrunings type Fresa tórica, Cabeza roscada
PRC BORE		Radius cutter, bore type Fresa con inserto tondo, a manicotto	Rundplattenfräser, Aufnahmebohrung Fraise à plaquettes rondes, trou lisse	Radius fræser, til dorn Fresa tórica, hueca
PHC-SS		High feed radius cutter, straight shank Fresa alto avanzamento, gambo cilindrico	Hochvorschubsfräser , Zylinderschaft Fraise grandes avances, queue cylindrique	High feed radius fræser, cylindrisk skaft Fresa de gran avance, mango cilíndrico

		DIAMETER RANGE	APPLICATION	PAGE
		Ø 8 Ø 60 Ø 125 Ø 200	**DRILLING**	
3xD high performance borr	3XD yüksek performanslı takma uçlu matkap, 2 ağızlı	Ø14 Ø40	Boring, Plunging	p.45
Broca insertable para altas prestaciones	3 x D Wysokiej jakości wiertła , dwuostrzowe			

		DIAMETER RANGE	APPLICATION	PAGE
		Ø 8 Ø 60 Ø 125 Ø 200	**MILLING**	
Differentierade skär, 4 skär, variabel helix, skrubbfräsning, liten helix	Dengesiz aralık, 4 ağızlı, değişken spiral kanallar, Kaba, düşük helis	Ø12 Ø25	Side Milling, Contouring, Slotting	p.9
неравномерно расположенный, 4 кромки, Черновая обработка, Пологая спираль	Nierównomierny rozstaw, 4-ostrzowy, zmienny kąt spirali, zgrubna			
Differentierade skär, 4 skär, variabel helix, skrubbfräsning, skärlängd	Dengesiz aralık, 4 ağızlı, değişken spiral kanallar, Kaba, yüksek helis açısı	Ø12 Ø25	Side Milling, Contouring, Slotting	p.9
неравномерно расположенный, 4 кромки, Черновая обработка, Пологая спираль	Nierównomierny rozstaw, 4-ostrzowy, zmienny kąt spirali, duża spirala			
Differentierade skär, 4 skär, skarp typ, hörnradie	Dengesiz aralık, 4 ağızlı, kare tip, Köşe radyüslu tipi	Ø12 Ø20	Face Milling, Side Milling, Side Milling, Contouring, Slotting, Slotting, Profile Milling	p.10
неравномерно расположенный, 4 кромки, В форме квадрата, Концевые фрезы с радиусом	Nierównomierny rozstaw, 4-ostrzowy, płytka kwadratowa, z promieniem naroża			
Differentierade skär, Flerskärs, skarp typ, hörnradie	Dengesiz aralık, çok ağızlı , kare tip, Köşe radyüslu tipi	Ø12 Ø20	Side Milling, Side Milling, Profile Milling	p.11
неравномерно расположенный, Многозубые, В форме квадрата, Концевые фрезы с радиусом	Nierównomierny rozstaw, wieloostrzowy, płytka kwadratowa, z promieniem naroża			
High feed fräs med hörnradie	Yüksek ilerlemeli freze	Ø12 Ø20	Face Milling, Contouring, Profile Milling	p.12
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Fullradie, 3 skär	Finiş küre uçlu kesici, 3 ağızlı	Ø12 Ø20	Profile Milling, Contouring, Slotting	p.13
сферические, 3 кромки	3-ostrzowy frez kulowy, obróbka wykańczająca			
Fullradie, flerskärs	Finiş küre uçlu kesici, çok ağızlı	Ø12 Ø20	Profile Milling	p.13
сферические, Многозубые	wieloostrzowy frez kulowy, obróbka wykańczająca			
Phoenix 45° planfräsar med kvadratiska skär	phoenix 45° kare uçlu yüzey frezeleme takımları, delme tipi ile birlikte	Ø50 Ø125	Face Milling	p.24
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Phoenix 45° planfräsar med oktagon skär	phoenix 45° sekizgen uçlu yüzey frezeleme takımları, delme tipi ile birlikte	Ø50 Ø200	Face Milling	p.25
Phoenix 45° торцовое фрезерование с восьмигранной пластиной (насадная фреза)	Phoenix 45 ° oktagonalna płytka z otworem do frezowania czołowego			
Finkörnings vändskärs fullradie fräs, 2 skär	Finiş küre uçlu kesici, 2 ağızlı	Ø8 Ø30	Profile Milling	p.26
Чистовая сферическая фреза, 2-зубая	2-ostrzowy frez kulowy, obróbka wykańczająca			
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Торцевая фреза 90°	90° Frez walcowo-czołowy, jeżozwierz			
90° vändskärsfräs, Igelkott typ	90° omuz frezesi, kirpi	Ø50 Ø80	Side Milling, Side Milling, Face Milling, Slotting	p.29
Торцевая фреза 90°	90° Frez walcowo-czołowy, jeżozwierz			
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90° vändskärsfräs huvud med gänginfästning	90° omuz frezesi, vidalı tip	Ø16 Ø40	Side Milling, Side Milling, Face Milling, Contouring, Slotting	p.32
Торцевая фреза 90°, резьбовая головка	90° Frez walcowo-czołowy, chwyt wkręcany walcowy			
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Торовая фреза, цилиндрический хвостовик	Frez na płytki okrągłe, chwyt walcowy			
Vändskärsfräs med runda skär huvud med gänginfästning	Radyus freze, vidalı tip	Ø20 Ø40	Side Milling, Face Milling, Contouring, Slotting, Profile Milling	p.36
Торовая фреза, резьбовая головка	Frez na płytki okrągłe, chwyt walcowy			
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Торовая фреза, насадная	Frez na płytki okrągłe, chwyt wkręcany			
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Фреза с высокой подачей, цилиндрический хвостовик	Frez do wysokich posuwów, chwyt walcowy			

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MILLING

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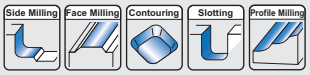
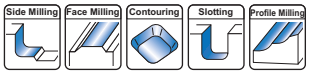
	Fresa alto avanzamento, sistema modulare	Fraise grandes avances, tête vissée	Fresa de gran avance, Cabeza roscada	
PHC BORE	High feed radius cutter, bore type	Hochvorschubsfräser , Aufnahmebohrung	High feed radius fræser, til dorn	
	Fresa alto avanzamento, a manicotto	Fraise grandes avances, trou lisse	Fresa de gran avance, hueca	
PDR-SS/ MT/NC	Deep feed radius cutter, shank type	Torusfräser für maximale Zustellungen, Zylinderschaft	Deep feed radiusfræser, cylindrisk skaft	
	Fresa ad alta asportazione, stelo	Fraise torique, grande avance, queue cylindrique	Fresa de gran avance con radio, con mango	
PDR BORE	Deep feed radius cutter, bore type	Torusfräser für maximale Zustellungen, Aufnahmebohrung	Deep feed radiusfræser, til dorn	
	Fresa ad alta asportazione, a manicotto	Fraise torique grande avance, trou lisse	Fresa de gran avance con radio, hueca	

		MILLING		
Högmatningsfräs med gänginfästning Фреза с высокой подачей, резьбовая головка	Yüksek ilerlemeli freze, vidalı tip Frez do wysokich posuwów, chwyt wkręcany	Ø25 Ø40		p.40
Högmatningsfräs med skruvfäste Фреза с высокой подачей, насадная	Yüksek ilerlemeli freze, delikli tip Frez do wysokich posuwów, nasadzany	Ø40 Ø100		p.41
Avverknings och hörnradie vändskärsfräs med skaft Фреза с высокой подачей и увеличенной глубиной резания, цилиндрический стовик	Derin ilerlemeli freze, şaft tip Frez do głębokich wybrań, chwyt typ	Ø40 Ø50		p.43
Avverknings och hörnradie vändskärs-fräshuvud med skruvfäste Фреза с высокой подачей и увеличенной глубиной резания, насадная	Derin ilerlemeli freze, şaft tip, delikli tip Frez do głębokich wybrań, nasadzany	Ø63 Ø105		p.44

ICONS

ICONS										
Face milling - Planfräsen - Spianatura - Surfaçage - Planfræsning - Planfräsning - Fresado plano - Фрезерование плоскостей - Yüzey frezeleme - Frezowanie czołowe										
	Face milling	Planfräsen	Spianatura	Surfaçage	Planfræsning	Planfräsning	Fresado plano	Фрезерование плоскостей	Yüzey frezeleme	Frezowanie czołowe
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	Side milling	Konturfräsen	Fresatura contornatura	Fraisage contournage	Sidefræsning	Valsfräsning	Contorneado	Боковое фрезерование	Kenar frezeleme	Frezowanie boczne
	Side milling	Konturfräsen	Fresatura contornatura	Fraisage contournage	Sidefræsning	Valsfräsning	Contorneado	Боковое фрезерование	Kenar frezeleme	Frezowanie boczne
	Side milling	Konturfräsen	Fresatura contornatura	Fraisage contournage	Sidefræsning	Valsfräsning	Contorneado	Боковое фрезерование	Kenar frezeleme	Frezowanie boczne
Slotting - Nutenfräsen - Per scanalature profonde - Rainurage - Skæredata - Skärdata - Ranurado - Фрезерование пазов - Slot kesme -										
	Slotting	Nutenfräsen	Per scanalature profonde	Rainurage	Skæredata	Skärdata	Ranurado	Фрезерование пазов	Slot kesme	Frezowanie rowków
	Slotting	Nutenfräsen	Per scanalature profonde	Rainurage	Skæredata	Skärdata	Ranurado	Фрезерование пазов	Slot kesme	Frezowanie rowków
	Slotting	Nutenfräsen	Per scanalature profonde	Rainurage	Skæredata	Skärdata	Ranurado	Фрезерование пазов	Slot kesme	Frezowanie rowków
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	Contouring	Konturfräsen	Contornatura	Contournage	Konturfræsning	Konturfräsning	Contorneado	фрезерования	Kontür dönme	Frezowanie konturowe
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	Profile milling	Profilfräsen	Copiatura	Usinage de forme	Profil fræsning	Profilfräsning	Copiado de figura	Профильное фрезерование	Profil frezeleme	Frezowanie profilowe
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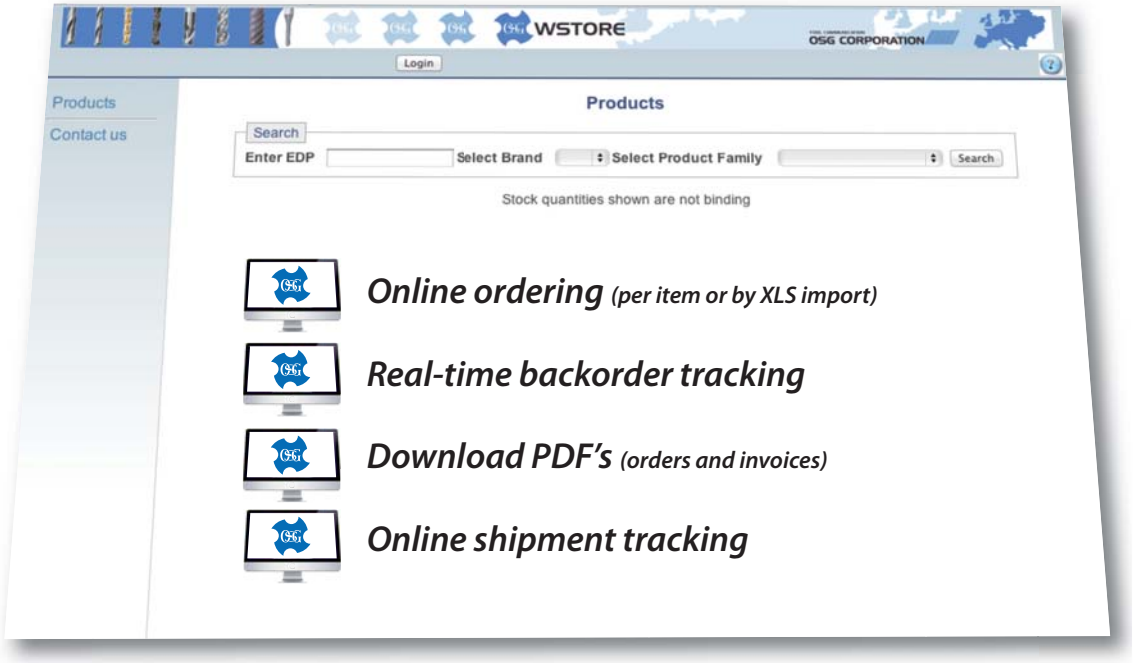
	Boring	Bohren	Foratura	Perçage	Boring	Borrning	Taladrado	Сверление	Delme	Wiercenie
	Plunging	Tauchfräsen	Fresatura in spinta	plongée	Plunging	Plunging	Penetración axial	Плунжерное фрезерование	Dalma	Frezowanie wgłębne – plunging
	Plunging	Tauchfräsen	Fresatura in spinta	plongée	Plunging	Plunging	Penetración axial	Плунжерное фрезерование	Dalma	Frezowanie wgłębne – plunging

WEBSTORE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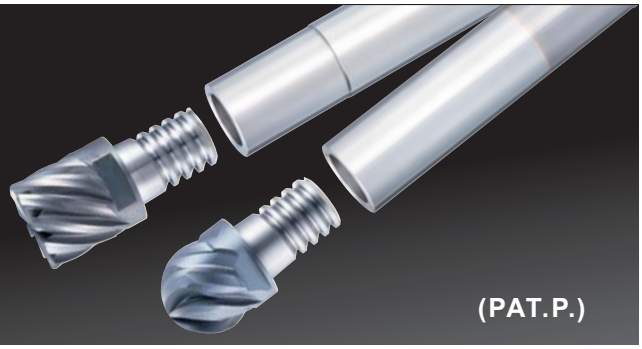
Phoenix Exchangeable Milling

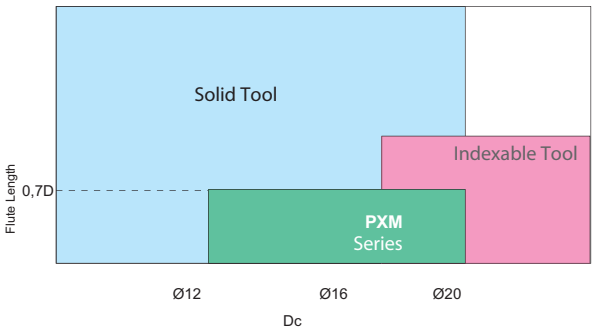


(PAT.P.)

- Held at two surfaces to ensure runout precision and strength.
- Provided with buttress screws to facilitate coupling.
- Shortened tool replacement time. (Replaceable on machine)
- Numerous variations are possible by combining different heads and bodies.
- The lineup of cutter forms, which is backed by OSG's experience with carbide solid end mills, supports various types of milling.

Held at two surfaces, the end face and the taper, to ensure a high level of rigidity and precision.

Precision = Runout under 0,015 mm
Axial direction ±0,03 mm



Compared to solid tools	The large diameter offers cost advantages. To reduce the tool changing time, only the cutter tip needs to be replaced.
Compared to indexable tools	It provides flute quantity advantages to improve productivity, as well as a selection of cutter tips. It offers additional advantages in terms of initial costs and running costs.

	PXNL	Unequal Spacing Variable helix Roughing Type-Low helix Type	Suitable for rough milling with a long tool life	Page 9
	PXNH	Unequal Spacing Variable helix Roughing Type-High helix Type	Suitable for rough milling in a wide range of cutting conditions	Page 9
	PXSE	Unequal Spacing Four flutes Square Type-Corner Radius Type	As a general-purpose tool, it can be used for heavy cutting from slotting to side milling	Page 10
	PXSM	Unequal Spacing Multiple flutes Square Type-Corner Radius Type	As a general-purpose tool, it can bring the advantages of multiple cutters into full play.	Page 11
	PXRE	High Feed Corner Radius Type	It can mill high hardness materials.	Page 11
	PXBE	Three flutes Ball nose Type	It can perform highly efficient roughing.	Page 12
	PXBM	Multiple flutes Ball nose Type	It can be used for intermediate-finish and finish milling.	Page 12

PXNL NEW

PHOENIX
- High performance
- Unequal spacing
- Variable helix
- Roughing type
- Low helix

PHOENIX
- High performance
- Ungleicher Drall
- Ungleich gedrallter spiralewinkel
- Schrupper
- Leichte spirale

PHOENIX
- Alta prestazione
- Passo variabile
- Elica variabile
- Sgrossatura
- Elica a bassa torsione

PHOENIX
- Haute performance
- Espacement inégal
- Hélice variable
- Ebauche
- Hélice réduite

PHOENIX
- Yüksek performans
- Dengesiz aralık
- Değişken spiral kanallar
- Kaba
- Düşük helis

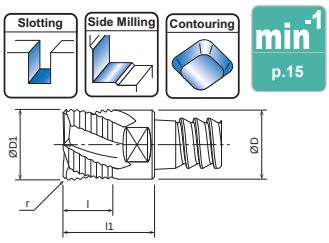
PHOENIX
- High performance
- Ulige inddeling
- Variabel snoning
- Skrubfræsning
- Let snoet spiral

DIA
- High performance
- Differentierade skär
- Variabel helix
- Skrubbfräsning
- Liten helix

PHOENIX
- Altas prestaciones
- Passo constante
- Variable helice
- Desbaste
- Lenta helice

PHOENIX
- Высокая производительность
- неравномерно расположенный
- Черновая обработка
- Черновая типа
- Температура спирали

PHOENIX
- Wysoka wydajność
- Nierównomierny rozstaw
- zmienny kąt spirali
- Zgrubna
- Mała spirala



	EDP	Designation	D1	r	ZΔ	l	l1	D	Helix Angle	Grades	Stock	Price
NEW	7830401	PXNL120C12-04C005	12	0,5	4	8,4	14,4	11,7	19/21	XP3225	●	
NEW	7830402	PXNL160C16-04C006	16	0,6	4	11,2	18,7	15,7	19/21	XP3225	●	
NEW	7830403	PXNL200C20-04C006	20	0,6	4	14	21,5	19,6	19/21	XP3225	●	
NEW	7830404	PXNL250C25-04C006	25	0,6	4	17,5	27,5	24	19/21	XP3225	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres - Liczba ostrzy
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок - Kanal sayısı

PXNH NEW

PHOENIX
- High performance
- Unequal spacing
- Variable helix
- Roughing type
- High helix

PHOENIX
- High performance
- Ungleicher Drall
- Ungleich gedrallter spiralewinkel
- Schrupper
- Leichte spirale

PHOENIX
- Alta prestazione
- Passo variabile
- Elica variabile
- Sgrossatura
- Elica elevata torsione

PHOENIX
- Haute performance
- Espacement inégal
- Hélice variable
- Ebauche
- Hélice haute

PHOENIX
- Yüksek performans
- Dengesiz aralık
- Değişken spiral kanallar
- Kaba
- Yüksek helis açısı

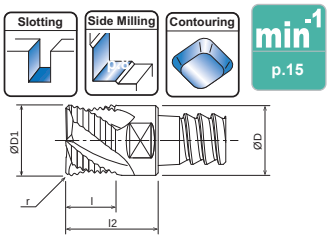
PHOENIX
- High performance
- Ulige inddeling
- Variabel snoning
- Skrubfræsning
- Høj helix

DIA
- High performance
- Differentierade skär
- Variabel helix
- Skrubbfräsning
- Skärlängd

PHOENIX
- Altas prestaciones
- Passo constante
- Variable helice
- Desbaste
- Alta helice

PHOENIX
- Высокая производительность
- неравномерно расположенный
- Черновая обработка
- Черновая типа
- Пологая спираль

PHOENIX
- Wysoka wydajność
- Nierównomierny rozstaw
- zmienny kąt spirali
- Zgrubna
- Duża spirala



	EDP	Designation	D1	r	ZΔ	l	l1	D	Helix Angle	Grades	Stock	Price
NEW	7830451	PXNH120C12-04C005	12	0,5	4	8,4	14,4	11,7	40/42	XP3225	●	
NEW	7830452	PXNH160C16-04C006	16	0,6	4	11,2	18,7	15,7	40/42	XP3225	●	
NEW	7830453	PXNH200C20-04C006	20	0,6	4	14	21,5	19,6	40/42	XP3225	●	
NEW	7830454	PXNH250C25-04C006	25	0,6	4	17,5	47,5	27,5	40/42	XP3225	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres - Liczba ostrzy
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок - Kanal sayısı

● on stock
○ available on short notice

PXSE New Sizes

PHOENIX
- High performance
- Unequal spacing
- 4 flutes
- Corner radius type
- Square Type

PHOENIX
- High performance
- Ungleicher Drall
- 4 schneiden
- Radiusfräser
- Schaftfräser

PHOENIX
- Alta prestazione
- Passo variabile
- 4 denti
- Tipo torico
- Tipo piano

PHOENIX
- Haute performance
- Espacement inégal
- 4 lèvres
- Fraise à rayon
- Type carré

PHOENIX
- Yüksek performans
- Dengesiz aralık
- 4 ağızlı
- Köşe radyuslu tipi
- Kare tip

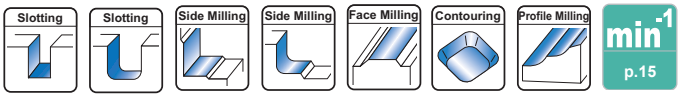
PHOENIX
- High performance
- Ulige inddeling
- 4 Skær
- Hjørneradius
- Skarp type

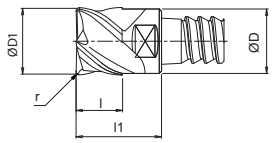
DIA
- High performance
- Differentierade skär
- 4 Skär
- Hörnradie
- Skarp typ

PHOENIX
- Altas prestaciones
- Passo constante
- 4 Labio
- Con radio en el vérice
- Escuadrado

PHOENIX
- Высокая производительность
- неравномерно расположенный
- 4 режущих кромки
- Концевые фрезы с радиусом
- В форме квадрата

PHOENIX
- Wysoka wydajność
- Nierównomierny rozstaw
- 4-ostrzowy
- Z promieniem naroża
- Kwadrat





EDP	Designation	D1	r	ZΔ	l	l1	D	Helix Angle	Grades	Stock	Price
7830004	PXSE120C12-04R000	12	0	4	8,4	14,4	11,7	38	XP3225	●	
7830005	PXSE120C12-04R005	12	0,5	4	8,4	14,4	11,7	38	XP3225	○	
7830006	PXSE120C12-04R010	12	1	4	8,4	14,4	11,7	38	XP3225	●	
7830007	PXSE120C12-04R020	12	2	4	8,4	14,4	11,7	38	XP3225	○	
7830008	PXSE120C12-04R030	12	3	4	8,4	14,4	11,7	38	XP3225	○	
7830009	PXSE160C16-04R000	16	0	4	11,2	18,7	15,7	38	XP3225	●	
7830010	PXSE160C16-04R005	16	0,5	4	11,2	18,7	15,7	38	XP3225	●	
7830011	PXSE160C16-04R010	16	1	4	11,2	18,7	15,7	38	XP3225	●	
7830012	PXSE160C16-04R015	16	1,5	4	11,2	18,7	15,7	38	XP3225	○	
7830013	PXSE160C16-04R020	16	2	4	11,2	18,7	15,7	38	XP3225	○	
7830014	PXSE160C16-04R030	16	3	4	11,2	18,7	15,7	38	XP3225	○	
7830015	PXSE200C20-04R000	20	0	4	14	21,5	19,6	38	XP3225	●	
7830016	PXSE200C20-04R005	20	0,5	4	14	21,5	19,6	38	XP3225	○	
7830017	PXSE200C20-04R010	20	1	4	14	21,5	19,6	38	XP3225	●	
7830018	PXSE200C20-04R020	20	2	4	14	21,5	19,6	38	XP3225	○	
7830019	PXSE200C20-04R030	20	3	4	14	21,5	19,6	38	XP3225	○	
New Sizes 7830020	PXSE250C25-04R000	25	0	4	17,5	27,5	24	38	XP3225	●	
New Sizes 7830021	PXSE250C25-04R010	25	1	4	17,5	27,5	24	38	XP3225	●	
New Sizes 7830022	PXSE250C25-04R020	25	2	4	17,5	27,5	24	38	XP3225	●	
New Sizes 7830023	PXSE250C25-04R030	25	3	4	17,5	27,5	24	38	XP3225	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres - Liczba ostrzy
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок - Kanal sayısı

● on stock
○ available on short notice

PXSM

New Sizes

PHOENIX
- High performance
- Unequal spacing
- Multi flutes
- Corner radius type
- Square Type

PHOENIX
- High performance
- Ungleicher Drall
- Vielzahnfräser
- Radiusfräser
- Schaftfräser

PHOENIX
- Alta prestazione
- Passo variabile
- Multidenti
- Tipo torico
- Tipo piano

PHOENIX
- Haute performance
- Espacement inégal
- Lèvres multiples
- Fraise à rayon
- Type carré

PHOENIX
- Yüksek performans
- Dengesiz aralık
- çok ağızlı
- Köşe radyuslu tipi
- Kare tip

PHOENIX
- High performance
- Ulige inddeling
- Flerskærs
- Hjørneradius
- Skarp type

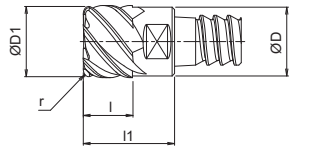
DIA
- High performance
- Differentierade skär
- Flerskärs
- Hörnradie
- Skarp typ

PHOENIX
- Altas prestaciones
- Passo constante
- Ranúras múltiples
- Con radio en el vérice
- Escuadrado

PHOENIX
- Высокая производительность
- неравномерно расположенный
- Многозубые
- Концевые фрезы с радиусом
- В форме квадрата

PHOENIX
- Wysoka wydajność
- Nierównomierny rozstaw
- Wieloostrzowy
- Z promieniem naroża
- Kwadrat

Side Milling | Side Milling | Profile Milling | min^{-1} p.16



EDP	Designation	D1	r	ZΔ	l	l1	D	Helix Angle	Grades	Stock	Price
7830104	PXSM120C12-06R000	12	0	6	8,4	14,4	11,7	38	XP3225	○	
7830105	PXSM120C12-06R005	12	0,5	6	8,4	14,4	11,7	38	XP3225	○	
7830106	PXSM120C12-06R010	12	1	6	8,4	14,4	11,7	38	XP3225	○	
7830107	PXSM120C12-06R020	12	2	6	8,4	14,4	11,7	38	XP3225	○	
7830108	PXSM120C12-06R030	12	3	6	8,4	14,4	11,7	38	XP3225	○	
7830109	PXSM160C16-06R000	16	0	6	11,2	18,7	15,7	38	XP3225	●	
7830110	PXSM160C16-06R005	16	0,5	6	11,2	18,7	15,7	38	XP3225	●	
7830111	PXSM160C16-06R010	16	1	6	11,2	18,7	15,7	38	XP3225	●	
7830112	PXSM160C16-06R015	16	1,5	6	11,2	18,7	15,7	38	XP3225	○	
7830113	PXSM160C16-06R020	16	2	6	11,2	18,7	15,7	38	XP3225	○	
7830114	PXSM160C16-06R030	16	3	6	11,2	18,7	15,7	38	XP3225	○	
7830115	PXSM160C16-08R000	16	0	8	11,2	18,7	15,7	42	XP3225	●	
7830116	PXSM160C16-08R005	16	0,5	8	11,2	18,7	15,7	42	XP3225	○	
7830117	PXSM160C16-08R010	16	1	8	11,2	18,7	15,7	42	XP3225	●	
7830118	PXSM160C16-08R015	16	1,5	8	11,2	18,7	15,7	42	XP3225	○	
7830119	PXSM160C16-08R020	16	2	8	11,2	18,7	15,7	42	XP3225	○	
7830120	PXSM160C16-08R030	16	3	8	11,2	18,7	15,7	42	XP3225	○	
7830121	PXSM200C20-10R000	20	0	10	14	21,5	19,6	42	XP3225	●	
7830122	PXSM200C20-10R005	20	0,5	10	14	21,5	19,6	42	XP3225	○	
7830123	PXSM200C20-10R010	20	1	10	14	21,5	19,6	42	XP3225	●	
7830124	PXSM200C20-10R020	20	2	10	14	21,5	19,6	42	XP3225	●	
7830125	PXSM200C20-10R030	20	3	10	14	21,5	19,6	42	XP3225	○	
New Sizes 7830126	PXSM250C25-10R000	25	0	10	17,5	27,5	24	42	XP3225	●	
New Sizes 7830127	PXSM250C25-10R010	25	1	10	17,5	27,5	24	42	XP3225	●	
New Sizes 7830128	PXSM250C25-10R020	25	2	10	17,5	27,5	24	42	XP3225	●	
New Sizes 7830129	PXSM250C25-10R030	25	3	10	17,5	27,5	24	42	XP3225	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres - Liczba ostrzy
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок - Kanal sayısı

PXRE

PHOENIX
- High performance
- Straight flute
- High feed corner radius type

PHOENIX
- High performance
- Gerade nut
- Hochvorschubsfräser

PHOENIX
- Alta prestazione
- Taglio diritto
- Tipo torico alto avanzamento

PHOENIX
- Haute performance
- Lèvre droite
- Fraise grandes avances

PHOENIX
- Yüksek performans
- Düz ağızlı
- Yüksek ilerlemeli freze

PHOENIX
- High performance
- Lige skærs
- High feed fræser med hjørneradius

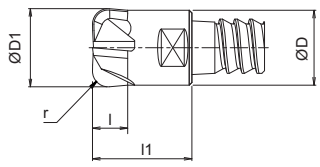
DIA
- High performance
- Rakt skär
- High feed fräs med hörnradie

PHOENIX
- Altas prestaciones
- Ranura recta
- Radio en el vértice para alta velocidad

PHOENIX
- Высокая производительность
- прямая канавка
- Фрезы с высокой подачей и радиусом на кромке

PHOENIX
- Wysoka wydajność
- Ostrzowy walcowy
- Frez do wysokich posuwów

Profile Milling | Face Milling | Contouring | min^{-1} p.16



EDP	Designation	D1	r	ZΔ	l	l1	D	Helix Angle	Grades	Stock	Price
7830201	PXRE120C12-04R020	12	2	4	5	14,4	11,7	-	XP6305	●	
7830202	PXRE160C16-06R030	16	3	6	7	18,7	15,7	-	XP6305	●	
7830203	PXRE200C20-06R030	20	3	6	10	21,5	19,6	-	XP6305	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres - Liczba ostrzy
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок - Kanal sayısı

● on stock
○ available on short notice

PXBE

PHOENIX
- High performance
- Three flutes
- Ball type

PHOENIX
- High performance
- 3 Schneiden
- Kopierfräser

PHOENIX
- Alta prestazione
- 3 Denti
- Frese sferiche

PHOENIX
- Haute performance
- 3 Lèvres
- Boule

PHOENIX
- Yüksek performans
- 3 ağızlı
- Küre tip

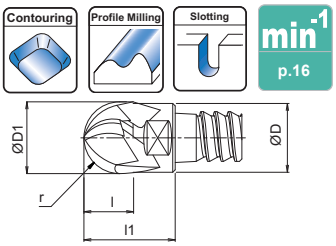
PHOENIX
- High performance
- 3 Skær
- Radiusfræser

DIA
- High performance
- 3 Skär
- Fullradie

PHOENIX
- Altas prestaciones
- 3 Labio
- Esferica

PHOENIX
- Высокая производительность
- 3 режущих кромки
- Сферическая фреза

PHOENIX
- Wysoka wydajność
- 3-ostrzowy
- Typ kulowy



EDP	Designation	D1	r	ZΔ	l	l1	D	Helix Angle	Grades	Stock	Price
7830251	PXBE120C12-03R060	12	6	3	8,4	14,4	11,7	45	XP3320	●	
7830252	PXBE160C16-03R080	16	8	3	11,2	18,7	15,7	45	XP3320	●	
7830253	PXBE200C20-03R100	20	10	3	14	21,5	19,6	45	XP3320	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres - Liczba ostrzy
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок - Kanal sayısı

PXBM

PHOENIX
- High performance
- Multiple flutes
- Ball type

PHOENIX
- High performance
- Mehrschneidig
- Kopierfräser

PHOENIX
- Alta prestazione
- Multitaglio
- Frese sferiche

PHOENIX
- Haute performance
- Multidents
- Boule

PHOENIX
- Yüksek performans
- çok ağızlı
- Küre tip

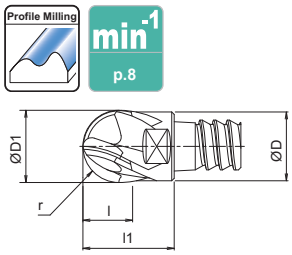
PHOENIX
- High performance
- Flerskærs
- Radiusfræser

DIA
- High performance
- Flerskärig
- Fullradie

PHOENIX
- Altas prestaciones
- Ranúras múltiples
- Esferica

PHOENIX
- Высокая производительность
- Многозубые
- Сферическая фреза

PHOENIX
- Wysoka wydajność
- Wieloostrzowy
- Typ kulowy



EDP	Designation	D1	r	ZΔ	l	l1	D	Helix Angle	Grades	Stock	Price
7830301	PXBM120C12-04R060	12	6	4	8,4	14,4	11,7	45	XP3320	●	
7830302	PXBM160C16-06R080	16	8	6	11,2	18,7	15,7	45	XP3320	●	
7830303	PXBM200C20-06R100	20	10	6	14	21,5	19,6	45	XP3320	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres - Liczba ostrzy
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок - Kanal sayısı

● on stock
○ available on short notice

PXMZ New Sizes

PHOENIX
- High performance
- Arbor for Replaceable head end mills
- Steel Shank

PHOENIX
- High performance
- HSS Schaft Adaption für Aufschraubfräser
- HSS Schaft

PHOENIX
- Alta prestazione
- Stelo intercambiabile per Frese
- Gambo in acciaio

PHOENIX
- Haute performance
- Barre de remplacement pour fraise
- Tige en acier

PHOENIX
- Yüksek performans
- Değiştirilebilir başlıklı/uçlu parmak freze için takım tutucu
- Çelik şaft

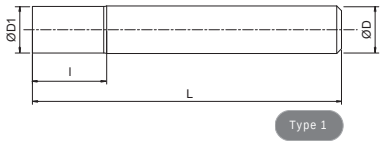
PHOENIX
- High performance
- Skaft til udskiftelige
- Fræsetyper Stål skaft

DIA
- High performance
- Skaft till utbytbara
- Frästyper Stål skaft

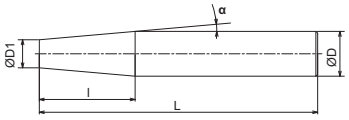
PHOENIX
- Altas prestaciones
- Fijación para cabeza
- Intercambiable Mango de acero

PHOENIX
- Высокая производительность
- Оправка для сменных головок концевой фрезы
- Стальной хвостовик

PHOENIX
- Wysoka wydajność
- Uchwyt do wymiany głowic i frezów
- Trzpień stalowy



Type 1



Type 2

Type 1

Type 2

Arbor with *Steel Shank*

EDP	Designation	Proper Head ø	D1	D	α°	L	l	Type	Stock	Price
7801801	PXMZ-C12SS12-S100	12	11,7	12	0°	100	19	1	●	
7801821	PXMZ-C12TP20-S145	12	11,7	20	5°	145	47,4	2	●	
7801802	PXMZ-C16SS16-S100	16	15,7	16	0°	100	23,4	1	●	
7801822	PXMZ-C16TP25-S155	16	15,7	25	5°	155	53,1	2	●	
7801803	PXMZ-C20SS20-S120	20	19,6	20	0°	120	28,8	1	●	
7801823	PXMZ-C20TP32-S170	20	19,6	32	5°	170	70,8	2	●	
7801804	PXMZ-C25SS25-S140	25	24	25	0°	140	36	1	●	

PHOENIX
- High performance
- Arbor for Replaceable head end mills
- Carbide Shank

PHOENIX
- High performance
- HSS Schaft Adaption für Aufschraubfräser
- Vollhartmetall Schaft

PHOENIX
- Alta prestazione
- Stelo intercambiabile per Frese
- Gambo in Metallo Duro

PHOENIX
- Haute performance
- Barre de remplacement pour fraise
- Queue en carbure

PHOENIX
- Yüksek performans
- Değiştirilebilir başlıklı/uçlu parmak freze için takım tutucu
- Karbür şaft

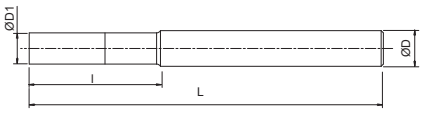
PHOENIX
- High performance
- Skaft til udskiftelige
- Hårdmetal skaft

DIA
- High performance
- Skaft till utbytbara
- Hårdmetall skaft

PHOENIX
- Altas prestaciones
- Fijación para cabeza
- Mango de metal duro

PHOENIX
- Высокая производительность
- Оправка для сменных головок концевой фрезы
- хвостовик из твердого сплава

PHOENIX
- Wysoka wydajność
- Uchwyt do wymiany głowic i frezów
- Chwyt węglik



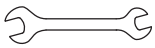
Type 1

Type 1

Arbor with *Carbide shank*

EDP	Designation	Proper Head ø	D1	D	α°	L	l	Type	Stock	Price
7801831	PXMZ-C12SS12-S075CS	12	11,7	12	0°	75	25	1	○	
7801811	PXMZ-C12SS12-L100CS	12	11,7	12	0°	100	46,3	1	●	
7801832	PXMZ-C12SS12-L115CS	12	11,7	12	0°	115	65	1	○	
7801841	PXMZ-C12TP16-LL135CS	12	11,7	16	1,5°	135	85	2	○	
7801833	PXMZ-C16SS16-S090CS	16	15,7	16	0°	90	40	1	○	
7801812	PXMZ-C16SS16-L130CS	16	15,7	16	0°	130	62	1	●	
7801834	PXMZ-C16SS16-L135CS	16	15,7	16	0°	135	85	1	○	
7801842	PXMZ-C16TP20-LL165CS	16	15,7	20	1,5°	165	115	2	○	
7801835	PXMZ-C20SS20-S090CS	20	19,6	20	0°	90	40	1	○	
7801813	PXMZ-C20SS20-L150CS	20	19,6	20	0°	150	79,3	1	●	
7801836	PXMZ-C20SS20-L180CS	20	19,6	20	0°	180	110	1	○	
7801843	PXMZ-C20SS20-L200CS	20	19,6	25	1,5°	200	140	2	○	

Accessories


Spanner

EDP	Designation	Proper head diameter	Recommended tightening torque	Stock	Price
7801890	PXMP8-10	ø 12	12 Nm	●	
7801891	PXMP13-16	ø 16 ø 20	30 Nm 50 Nm	●	
A spanner dedicated for PXM. Please purchase the spanner separately from the cutter.					

1.Please refer to Page11 for cautions during use.
2.Refer to the table above for tightening torque.

● on stock
○ available on short notice

PXMJ NEW

PHOENIX
- Joint

PHOENIX
- Joint

PHOENIX
- Adattatore

PHOENIX
- Joint

PHOENIX
- Ortaklik

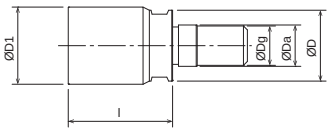
PHOENIX
- Adapter

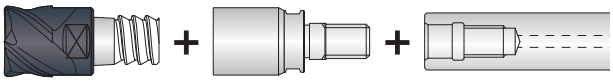
DIA
- Adapter

PHOENIX
- Junta

PHOENIX
- Адаптер

PHOENIX
- Wspólny





PXM SERIE PXMJ OP-SFA

By combining a joint holder (PXMJ) with the shank holder (OP-SFA) you have,it is possible to use the PXM serie

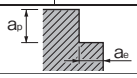
	EDP	Designation	D1	Dg	D	l	D2	Da	Grades	Stock	Price
NEW	7801893	PXMJ-C12SF06	12	6	11	18	11,7	6,5	PXMP8-10	●	
NEW	7801894	PXMJ-C16SF08	16	8	14,5	21,8	15,7	8,5	PXMP13-16	●	
NEW	7801895	PXMJ-C20SF10	20	10	18	26,5	19,6	10,5	PXMP13-16	●	
NEW	7801896	PXMJ-C25SF12	25	12	23	34	24	12,5	PXMP21	●	

● on stock
○ available on short notice

CONDITIONS

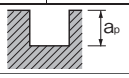
Side milling - Konturfräsen - Conturnatura - Coutournage / Semi-fi nishing - Semi-finitura - Semi-finition - Semi-finition - Kenar frezeleme - Sidefræsning - Valsfräsning - Contorneado - Боковое фрезерование / Sletfræsning - Finfräsning - Acabado - Получистовая - Frezowanie boczne

PXNL/PXNH

MILL DIA. (mm)	CAST IRON FC250 SPEED (min⁻¹)	CAST IRON FC250 FEED (mm/min)	CARBON STEEL SPEED (min⁻¹)	CARBON STEEL FEED (mm/min)	ALLOY STEEL SPEED (min⁻¹)	ALLOY STEEL FEED (mm/min)	HARDENED STEEL PREHARDENED STEEL SPEED (min⁻¹)	HARDENED STEEL PREHARDENED STEEL FEED (mm/min)	STAINLESS STEEL SUS304 SPEED (min⁻¹)	STAINLESS STEEL SUS304 FEED (mm/min)
12	2.390	600	3.180	700	2.650	440	2.390	290	2.120	230
16	1.790	620	2.390	720	1.990	450	1.790	300	1.590	240
20	1.430	660	1.910	760	1.590	480	1.430	310	1.270	250
25	1.150	580	1.530	670	1.270	420	1.150	280	1.020	220
DEPTH OF CUT		ap 0,5D	ae 0,3D				ap 0,5D	ae 0,2D		

Slotting - Nutenfräsen - Per scanalature profonde - Rainurage - Slot kesme Skæredata - Skärdata - Ranurado - Фрезерование пазов - Frezowanie rowków

PXNL/PXNH

MILL DIA. (mm)	CAST IRON FC250 SPEED (min⁻¹)	CAST IRON FC250 FEED (mm/min)	CARBON STEEL SPEED (min⁻¹)	CARBON STEEL FEED (mm/min)	ALLOY STEEL SPEED (min⁻¹)	ALLOY STEEL FEED (mm/min)	HARDENED STEEL PREHARDENED STEEL SPEED (min⁻¹)	HARDENED STEEL PREHARDENED STEEL FEED (mm/min)	STAINLESS STEEL SUS304 SPEED (min⁻¹)	STAINLESS STEEL SUS304 FEED (mm/min)
12	1.860	300	2.650	370	2.120	220	1.860	140	1.590	110
16	1.390	320	1.990	400	1.590	240	1.390	150	1.190	120
20	1.110	360	1.590	450	1.270	270	1.110	170	950	130
25	890	330	1.270	410	1.020	240	890	160	760	120
DEPTH OF CUT	ap=0,5D									

Side milling - Konturfräsen - Conturnatura - Coutournage / Semi-fi nishing - Semi-finitura - Semi-finition - Semi-finition - Kenar frezeleme - Sidefræsning - Valsfräsning - Contorneado - Боковое фрезерование / Sletfræsning - Finfräsning - Acabado - Получистовая - Frezowanie boczne

PXSE

MILL DIA. (mm)	MILD STEEL - CARBON STEEL CAST IRON SS400 - S55C - FC250 (~750N/mm²) SPEED (min⁻¹)	MILD STEEL - CARBON STEEL CAST IRON SS400 - S55C - FC250 (~750N/mm²) FEED (mm/min)	ALLOY STEEL TOOL STEEL SCM-SKT-SKS-SKD (~30HRC) SPEED (min⁻¹)	ALLOY STEEL TOOL STEEL SCM-SKT-SKS-SKD (~30HRC) FEED (mm/min)	STAINLESS STEEL HARDENED STEEL SUS304-SKD (~45HRC) SPEED (min⁻¹)	STAINLESS STEEL HARDENED STEEL SUS304-SKD (~45HRC) FEED (mm/min)	HARDENED STEEL TITANIUM ALLOY STEELS (45~55HRC) SPEED (min⁻¹)	HARDENED STEEL TITANIUM ALLOY STEELS (45~55HRC) FEED (mm/min)	HEAT STEEL INCONEL® SPEED (min⁻¹)	HEAT STEEL INCONEL® FEED (mm/min)
12	3.180	760	2.650	640	1.700	400	1.700	350	650	100
16	2.390	570	1.950	470	1.250	300	1.250	250	500	80
20	1.910	460	1.550	370	1.000	250	1.000	200	400	65
DEPTH OF CUT		ap 0,50Dc	ae 0,15Dc		ap 0,5Dc	ae 0,10Dc	ap 0,50Dc	ae 0,05Dc	ap 0,50Dc	ae 0,05Dc

Slotting - Nutenfräsen - Per scanalature profonde - Rainurage - Slot kesme Skæredata - Skärdata - Ranurado - Фрезерование пазов - Frezowanie rowków

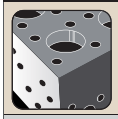
PXSE

MILL DIA. (mm)	MILD STEEL - CARBON STEEL CAST IRON SS400 - S55C - FC250 (~750N/mm²) SPEED (min⁻¹)	MILD STEEL - CARBON STEEL CAST IRON SS400 - S55C - FC250 (~750N/mm²) FEED (mm/min)	ALLOY STEEL TOOL STEEL SCM-SKT-SKS-SKD (~30HRC) SPEED (min⁻¹)	ALLOY STEEL TOOL STEEL SCM-SKT-SKS-SKD (~30HRC) FEED (mm/min)	STAINLESS STEEL HARDENED STEEL SUS304-SKD (~45HRC) SPEED (min⁻¹)	STAINLESS STEEL HARDENED STEEL SUS304-SKD (~45HRC) FEED (mm/min)	HARDENED STEEL TITANIUM ALLOY STEEL (45~55HRC) SPEED (min⁻¹)	HARDENED STEEL TITANIUM ALLOY STEEL (45~55HRC) FEED (mm/min)	HEAT STEEL INCONEL® SPEED (min⁻¹)	HEAT STEEL INCONEL® FEED (mm/min)
12	2.500	500	1.550	300	1.300	250	1.300	250	650	100
16	1.850	350	1.150	250	1.000	200	1.000	200	500	80
20	1.500	300	950	200	750	160	750	160	400	65
DEPTH OF CUT	ap ≤ 0,35 Dc				ap ≤ 0,30 Dc		ap ≤ 0,20 Dc		ap ≤ 0,10 Dc	

CONDITIONS

Side milling - Konturfräsen - Conturnatura - Coutournage / Semi-fi nishing - Semi-finitura - Semi-finition - Semi-finition - Kenar frezeleme - Sidefræsning - Valsfräsning - Contorneado - Боковое фрезерование / Sletfræsning - Finfräsning - Acabado - Получистовая - Frezowanie boczne

PXSM



MILL DIA. (mm)	MILD STEEL - CARBON STEEL CAST IRON SS400 - S55C - FC250 (~750N/mm²)		ALLOY STEEL TOOL STEEL SCM-SKT-SKS-SKD (~30HRC)		STAINLESS STEEL HARDENED STEEL SUS304-SKD (~45HRC)		HARDENED STEEL TITANIUM ALLOY STEELS (45~55HRC)		HEAT STEEL INCONEL®	
	SPEED (min⁻¹)	FEED (mm/min)	SPEED (min⁻¹)	FEED (mm/min)	SPEED (min⁻¹)	FEED (mm/min)	SPEED (min⁻¹)	FEED (mm/min)	SPEED (min⁻¹)	FEED (mm/min)
12	4.750	1.750	3.950	1.150	3.150	950	2.650	800	1.550	350
16-6F	3.550	1.310	2.950	860	2.350	710	1.950	600	1.150	260
16-8F	3.550	1.750	2.950	1.150	2.350	950	1.950	800	1.150	350
20	2.850	1.750	2.350	1.150	1.900	950	1.550	800	950	350
DEPTH OF CUT		ap ≤ 0,50Dc	ae ≤ 0,05Dc		ap ≤ 0,50Dc	ae ≤ 0,02Dc		ap ≤ 0,30Dc	ae ≤ 0,02Dc	

PXRE

MILL DIA. (mm)	MILD STEEL - CARBON STEEL CAST IRON SS400 - S55C - FC250 (~750N/mm²)		ALLOY STEEL TOOL STEEL SCM-SKT-SKS-SKD (~30HRC)		HARDENED STEEL PREHARDENED STEEL SKD-NAK80-HPM50		HARDENED STEEL (45~55HRC)		HARDENED STEEL (55~60HRC)	
	SPEED (min⁻¹)	FEED (mm/min)	SPEED (min⁻¹)	FEED (mm/min)	SPEED (min⁻¹)	FEED (mm/min)	SPEED (min⁻¹)	FEED (mm/min)	SPEED (min⁻¹)	FEED (mm/min)
12	5.800	10.600	4.000	6.500	3.200	4.900	2.700	3.300	2.300	2.200
16	4.000	11.900	3.000	7.700	2.400	5.900	2.000	3.900	1.700	2.700
20	3.200	9.550	2.400	6.500	1.900	4.900	1.600	3.300	1.400	2.200
DEPTH OF CUT				ap 0,10 x R (Corner R size)	ae 0,30Dc				ap 0,1 x R (Corner R size)	ae 0,30Dc

PXBE

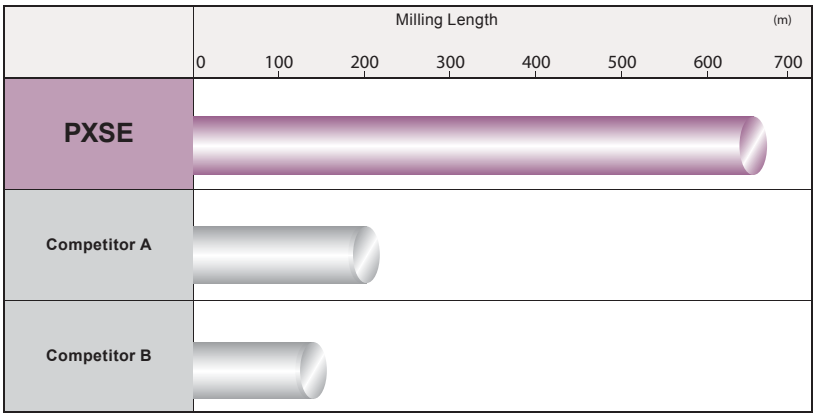
MILL DIA. (mm)	MILD STEEL - CARBON STEEL CAST IRON SS400 - S55C - FC250 (~750N/mm²)		ALLOY STEEL TOOL STEEL SCM-SKT-SKS-SKD (~30HRC)		STAINLESS STEEL HARDENED STEEL SUS304-SKD (~45HRC)		HARDENED STEEL TITANIUM ALLOY STEEL (45~55HRC)		HARDENED STEEL (55~60HRC)	
	SPEED (min⁻¹)	FEED (mm/min)	SPEED (min⁻¹)	FEED (mm/min)	SPEED (min⁻¹)	FEED (mm/min)	SPEED (min⁻¹)	FEED (mm/min)	SPEED (min⁻¹)	FEED (mm/min)
12	6.600	2.950	6.600	2.950	5.300	1.900	3.950	1.150	2.600	400
16	4.950	2.250	4.950	2.250	3.950	1.450	2.950	900	1.900	300
20	3.950	1.750	3.950	1.750	3.150	1.150	2.350	750	1.600	250
DEPTH OF CUT		Dc Ø 12: ap 0,07 Dc; Ø 16, Ø 20: ap 0,05 Dc; Pf 0,15 Dc; apMax=1 mm					Dc Ø 12: ap 0,05 Dc; Ø16,Ø20: ap 0,03 Dc; Pf 0,10 Dc; apMax=0,8 mm		ap 0,03 Dc; Pf 0,05 Dc; apMax=0,5 mm	

PXBM

MILL DIA. (mm)	MILD STEEL - CARBON STEEL CAST IRON SS400 - S55C - FC250 (~750N/mm²)		ALLOY STEEL TOOL STEEL SCM-SKT-SKS-SKD (~30HRC)		STAINLESS STEEL HARDENED STEEL SUS304-SKD (~45HRC)		HARDENED STEEL TITANIUM ALLOY STEEL (45~55HRC)		HARDENED STEEL (55~60HRC)	
	SPEED (min⁻¹)	FEED (mm/min)	SPEED (min⁻¹)	FEED (mm/min)	SPEED (min⁻¹)	FEED (mm/min)	SPEED (min⁻¹)	FEED (mm/min)	SPEED (min⁻¹)	FEED (mm/min)
12	6.600	3.900	6.600	3.900	5.300	2.500	3.950	1.500	2.600	550
16	4.950	4.500	4.950	4.500	3.950	2.900	2.950	1.800	1.900	600
20	3.950	3.500	3.950	3.500	3.150	2.300	2.350	1.500	1.600	500
DEPTH OF CUT				ap 0,02 Dc; Pf 0,05 Dc						

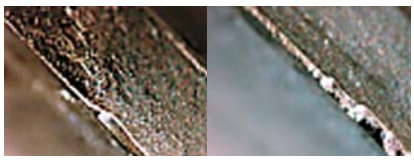
■ SCM440 - *Side milling in SCM440*

Tool	Head : PXSE120C12-04R000 Holder : PXMZ-C12SS12-S100
Size	Ø12
Work Material	SCM440 (180HB)
Cutting Speed	100m/min(2.650min^{-1})
Feed	1.060mm/min(0,1mm/t)
Milling Method	Side Milling
Depth of Cut	ap=5mm ae=3mm
Coolant	Air Blow
Machine	BT40 Vertical Machining Center

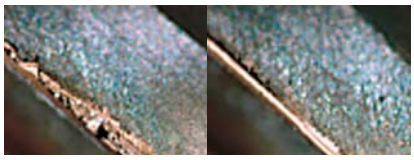


Durability that overwhelms the competitor's product. Heavy machining is possible.

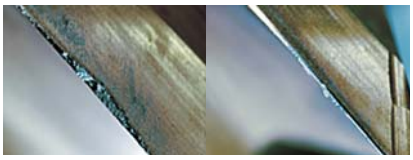
PXSE (619m)



Competitor A (178m)

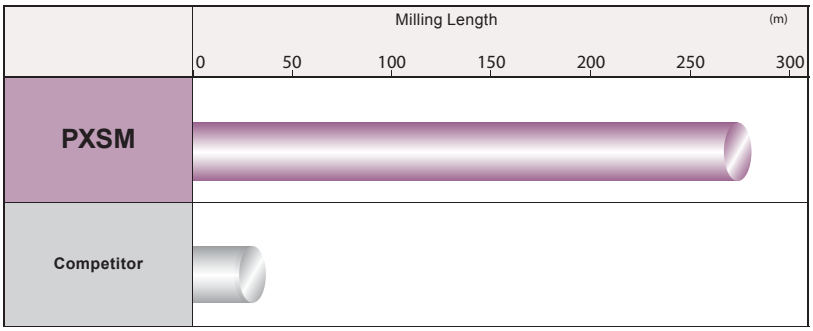


Competitor B (117m)



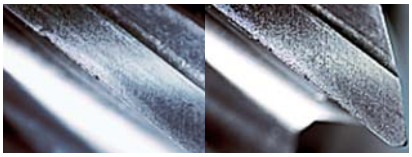
■ S50C - *Side milling in S50C*

Tool	Head : PXSM160C16-06R000 Holder : PXMZ-C16SS-S100
Size	Ø16
Work Material	S50C
Cutting Speed	100m/min(1,990min^{-1})
Feed	1,195mm/min(0.1mm/t)
Milling Method	Side Milling
Depth of Cut	ap=8mm ae=1.6mm
Coolant	Air Blow
Machine	BT40 Horizontal Machining Center

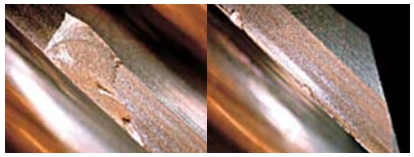


Unique design of PXSM gives stable machining.

PXSM (294m)



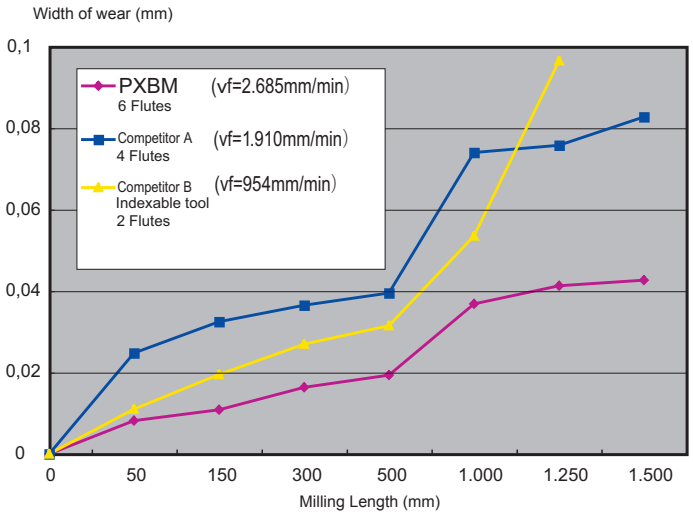
Competitor (42m)



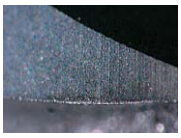
■ NAK80 - *NAK80 machining at slop face (comparison with the same feed rate)*

Tool	Head : PXBM160C16-06R080 Holder : PXMZ-C16SS16-S100
Size	Ø16
Work Material	NAK80(40HRC)
Cutting Speed	200m/min(3.980min^{-1})
Feed Per Tooth	0,12mm/t
Milling Method	Pick Milling
Depth of Cut	ap=0,32mm Pf=0,8mm
Coolant	Air Blow
Machine	BT50 Horizontal Machining Center

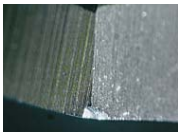
Materialized by more cutting edges for better productivity, longer tool life with superb durability.



PXBM (1,500m)



Competitor A (1,500m)



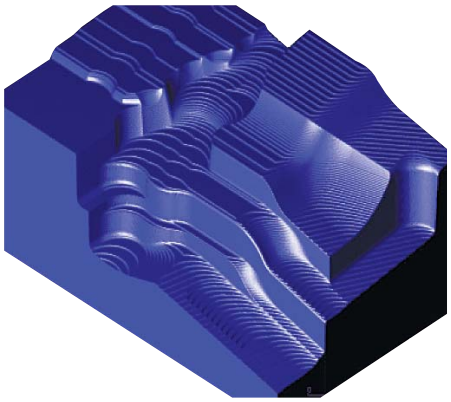
Competitor B Indexable tool (1,250m)

■ 1,8~ - *The multiple edge design helps increase efficiency by 1,8 times in die mold roughing processes*

Tool	Head : PXRE200C20-06R030 Holder : PXMZ-C20SS20-S120	Competitor High Feed Radius Cutter
Size	Ø20×R3 6 Flutes	Ø20×R3 2 Flutes
Grades	XP6305	Coated Carbide Chip
Work Material	SKD61 (43HRC)	
Cutting Speed	230m/min(3.700min^{-1})	120m/min(1.900min^{-1})
Feed	6.700mm/min(0,3mm/t)	3.100mm/min(0,8mm/t)
Depth of Cut	0,4mm	0,5mm
Width of Cut	10mm	
Coolant	Air Blow	
Machine	Horizontal Machining Center	

With high feed radius cutters, a simulated R value is inputted in the program during rough milling, resulting in large amounts of uncut areas. In contrast, with the high precision Corner R form PXRE, there are fewer uncut areas, which reduce the load of the next process, thereby increasing tool life and the precision of cut.

By replacing the high feed radius cutter with the PXRE, milling efficiency can be increased by 1,8 times

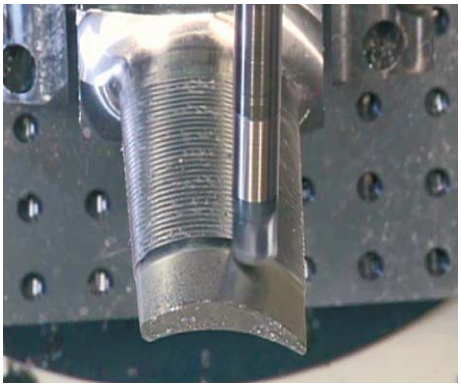


PROCESSING DATA

■ 2~ - *The multiple edge design helps double efficiency in the milling of blades*

Tool	Head : PXSM160C16-06R005 Holder : PXMZ-C16SS16-L130CS	Competitor Radius Cutter
Size	Ø16×R0,5 6 Flutes	Ø16×R2,5 2 Flutes
Grades	XP3225	Coated Carbide Chip
Work Material	13Cr Equivalent	
Cutting Speed	125m/min(2.500min^{-1})	
Feed	690mm/min(0,046mm/t)	350mm/min(0,07mm/t)
Depth of Cut	ap=1mm ae=0,25mm	
Coolant	Air Blow	
Machine	5-Axis Vertical Machining Center	

In finishing operations with settings that are difficult to modify, switching to the Phoenix Radius Cutter can double milling efficiency



■ Tightening procedure

1. Cleaning
Remove dirt and chips from the connecting thread and shank.

2. Initial Tightening
Tighten by hand

3. Final Tightening
Tighten with a spanner wrench

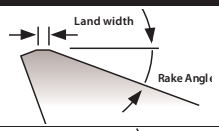
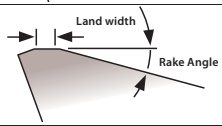
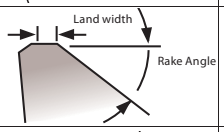
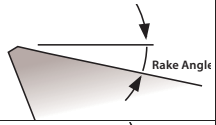
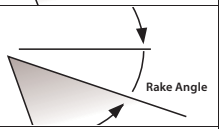
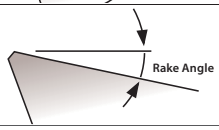
4. Confirmation
Confirm that there is no gap

Cautions during use

· Only use the spanner wrenches that are designed specifically for the PXM (P. 59). Please do not use alternative spanner wrenches sold on the market as a replacement.
· Please tighten until the head and the shank holder faces meet. Confirm that there is no gap.
· Degreasing the connecting thread may result in over tightening or a possible separation of the faces. Please do not degrease.
· Please make sure that the spanner wrench is inserted properly and turn it slowly during use.

GRADE & CHIPBREAKER

Application	Grades	Coolant / Dry	Coating Method	Hardness (HRA)	Surface Treatment		Features
					Main	Coating Thickness	
P Steel	XP3025	DRY	CVD	90,8	TiCN + TiN + Al_2O_3	4 µm	*For machining steel, stainless steel and cast irons* A strong carbide base material and excellent wear-resistant coating
	XP3035	DRY	PVD	90,7	TiAlN-TiN	4 µm	*For machining steel, stainless steel and cast irons* A grade for general-purpose milling. Made of a tough, high-strength carbide. Treated with chipping-resistant and wear-resistant coating
	XP3225	DRY	PVD	91,5	Cr	3 µm	*For machining steel, stainless steel and cast irons* A tough carbide base grade and excellent general purpose coating
	XP3320	DRY	PVD	91,5	SiC Silicon-based heat-resistant	3 µm	*For machining steel, stainless steel and cast irons* A tough carbide grade with a heat-resistant and wear-resistant coating
	XP3930	DRY	PVD	90,8	TiAlN	3 µm	*For machining steel, cast irons and stainless steel* Excellent balance, can accommodate a range of workpiece materials
	XP9040	DRY	PVD	91,9	TiAlN	3 µm	*For machining steel and stainless steel* A grade for hole drilling. A tough carbide grade with an anti-chipping and wear-resistant coating
M Stainless steel	XP2040	COOLANT	PVD	89,6	TiAlN	4 µm	*For machining stainless steel and steel* Grade for general-purpose milling. A tough, high-strength carbide grade with an anti-chipping and wear-resistant coating
	XC5035	DRY	CVD	89.3	TiN-Ti(CN)-Al_2O_3-Ti(BN)	6µm	*For machining heat-resistant alloy and stainless steel* Grade for machining heat-resistant steel. Tough, carbide grade with an oxidation-resistant and high-lubricity coating
	XC5040	COOLANT	CVD	89.3	TiN-TiB_2	4µm	*For machining heat-resistant alloy and stainless steel* Grade for machining heat-resistant steel. For wet machining. Tough, carbide grade with an oxidation-resistant and high-lubricity coating
K Cast iron	XC1015	DRY	CVD	92,0	TiCN-Al_2O_3	5 µm	*For machining cast irons* Grade for milling cast-iron. Tough, high-strength carbide grade with an anti-chipping and wear-resistant coating
	XP1020	DRY	PVD	91,5	Tin + TiAlSiN	2 µm	*For machining cast irons* A material for milling cast iron, it is made of a tough, high strength carbide material with an anti-chipping and wear-resistant coating
	XC9025	DRY	CVD	90,8	TiCN-Al_2O_3	6 µm	*For machining cast irons* A grade for hole drilling in cast-iron. Tough, high-strength carbide grade with an anti-chipping and wear-resistant coating
N Non-ferrous	CK010	COOLANT	-	92,0	-	-	*For machining non-ferrous materials* A non-coated carbide grade with both anti-chipping and wear resistant features
	XC4505	DRY	CVD	92.0	DIA	12µm	*For machining non-ferrous materials* The minute diamond crystals provide for a coating layer with excellent strength
H Hard materials	XP6305	DRY	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 Superalloys	XC5035	COOLANT	CVD	89.3	TiN-Ti(CN)-Al_2O_3-Ti(BN)	6µm	*For machining heat-resistant alloy and stainless steel* Grade for machining heat-resistant steel. Tough, carbide grade with an oxidation-resistant and high-lubricity coating
	XC5040	COOLANT	CVD	89.3	TiN-TiB_2	4µm	*For machining heat-resistant alloy and stainless steel* Grade for machining heat-resistant steel. For wet machining. Tough, carbide grade with an oxidation-resistant and high-lubricity coating

Chipbreaker		Application	Cutting edge cross section	Rake angle	Features
GL	MILLING	P M K		25°	*For milling stainless-steel* Chipbreaker with a large rake angle and a small flat land to reduce cutting force.
GM	MILLING	P M K		15° 35°	*For machining various materials (steel, stainless steel, cast iron)* Chipbreaker with a superior balance of rake angle and flat land.
GR	MILLING	P M K H		35°	*For machining various materials from steel to cast iron:* a highly rigid breaker with large rake angle and flat land to provide a sharp cutting edge and enable efficient milling.
SM	MILLING	K S		15°	*For machining difficult materials* Chipbreaker with a sharp cutting edge to reduce cutting force and provide smooth chip evacuation.
NM	MILLING	P N		30°	*For machining nonferrous materials* Chipbreaker with a sharp cutting edge and a large rake angle to suppress welding, improve the milling surface and prevent burrs.
DM	DRILLING	P M K		10°	*For drilling various materials (steel, stainless steel, cast iron).* A general-purpose breaker with an ideal rake angle.

DESIGNATION SYSTEM FOR MILLS

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

① Abbreviation

PHC = High Feed Cutter

③ Direction of cut

R = Right hand

L = Left hand

⑥ Mounting Diameter

Unit in mm

Hole diameter

42 = 42mm

⑦ Number of inserts

4 = 4 inserts

② Insert Size

Cutting edge length

12 = 12mm

④ Cutting Diameter

Effective cutter diameter

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

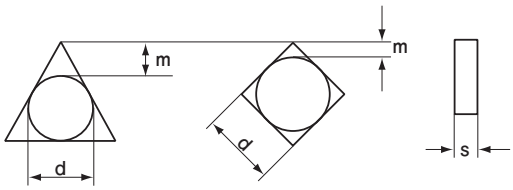
DESIGNATION SYSTEM FOR INSERTS

Z	D	K	T
①	②	③	④

Shape

C	80° diamond apex	
D	55° diamond apex	
O	octagon	
R	round	
S	square	
T	triangle	
V	35° diamond apex	
W	axonometric hexagon	
Z	other shapes	-

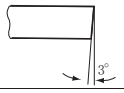
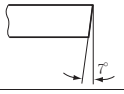
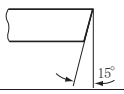
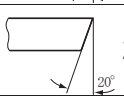
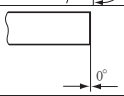
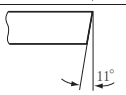
Accuracy



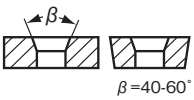
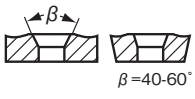
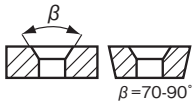
Symbol	dia d (mm) Inscribed circle tolerance	m (mm) Corner height tolerance	s (mm) Thickness tolerance
A	±0.025	±0.005	±0.025
C	±0.025	±0.013	±0.025
E	±0.025	±0.025	±0.025
H	±0.013	±0.013	±0.025
K*	±0.05 ~ ±0.15	±0.013	±0.025
M*	±0.05 ~ ±0.15	±0.08 ~ ±0.18	±0.13
N*	±0.05 ~ ±0.15	±0.08 ~ ±0.18	±0.025

* = sintered surface shown on the side

Relief angle

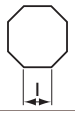
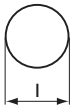
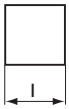
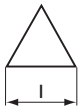
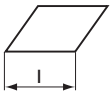
A		3°
C		7°
D		15°
E		20°
N		0°
P		11°
X	Special dimension	

Groove and hole

Symbol	Shape of Hole	Chipbreaker	Shape
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	

DESIGNATION SYSTEM FOR INSERTS

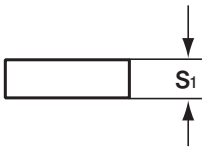
15	05	08	S	R	-	GM
⑤	⑥	⑦	⑧	⑨	-	⑩

Length of the cutting edge	
O	
R	
S	
T	
Z	

Corner radius	
Symbol	Corner radius
02	0.2
04	0.4
08	0.8
12	1.2
16	1.6
24	2.4

Hand of insert	
Symbol	Cutting Direction
R	Right hand
L	Left hand
N	Neutral

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

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

Type of chipbreaker	
Symbol	Material
GL	Stainless steel
GM	Steel, stainless steel, cast iron
GR	Steel - Cast Iron
NM	Non ferrous materials, sharp cutting edge
SM	Difficult materials, sharp cutting edge
DM	Steel, stainless steel, cast iron genaral purpose chipbreaker

PHOENIX
- High performance
- 45° Face milling
- Square Insert type

PHOENIX
- High performance
- 45° Planfräser
- Vierkant Wendeplatte

PHOENIX
- Alta prestazione
- 45° spianare
- Manicotto inserto quadro

PHOENIX
- Haute performance
- Surfaçage 45°
- Plaquettes carrées

PHOENIX
- Yüksek performans
- Phoenix 45°, yüzey frezeleme
- Kare uç

PHOENIX
- High performance
- 45° planfræser
- Kvadratiske skær

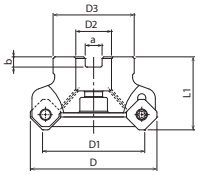
DIA
- High performance
- 45° planfräsar
- Kvadratiska skär

PHOENIX
- Altas prestaciones
- Planeado Phoenix a 45º
- Fresa hueca y placa cuadrada

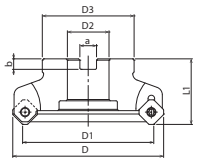
PHOENIX
- Высокая производительность
- 45° торцовое
- фрезерование
  Квадратной пластиной

PHOENIX
- Wysoka wydajność
- Phoenix 45°, frezowanie czołowe
- Płytka kwadratowa

Face Milling
min -1
p.47



Type 1 — ***With*** coolant hole



Type 2 — ***Without*** coolant hole

EDP	Type	Designation	D1	D	ZΔ	L1	D3	D2	a	b	Type	Stock	Price
7802000	For Metric holes	PAS15R050M22-4	50	65	4	45	45	22	10,4	6,3	1	●	
7802001	For Metric holes	PAS15R063M22-5	63	78	5	45	50	22	10,4	6,3	1	●	
47802002	For Metric holes	PAS15R080M27-6	80	95	6	50	60	27	12,4	7	1	●	
7802002	For inch	PAS15R080M25.4-6	80	95	6	50	60	25,4	9,5	6	1	○	
47802003	For Metric holes	PAS15R100M32-7	100	115	7	50	70	32	14,4	8	2	●	
7802003	For inch	PAS15R100M31.7-7	100	115	7	50	70	31,75	12,7	8	2	○	
47802004	For Metric holes	PAS15R125M40-8	125	140	8	63	90	40	16,4	9	2	●	
7802004	For inch	PAS15R125M38.1-8	125	140	8	63	90	38,1	15,9	10	2	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres - Liczba ostrzy
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок - Kanal sayısı

PHOENIX
- Applicable insert
  for Deep Feed Radius Cutter

PHOENIX
- Wendeplatten, für Torusfräser
  für maximale Zustellungen

PHOENIX
- Inserti applicabili per
  fresa ad alta asportazione

PHOENIX
- Choix de plaquettes
  pour fraise grande avance torique

PHOENIX
- Derin ilerlemeli freze
  uygun uç

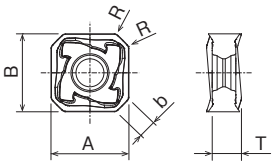
PHOENIX
- Anvendelige vendeskær
  til deep feed feed
  radiusfræser

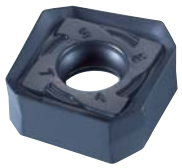
DIA
- Utbytbara vändskär för
  Avverknings och hörnradie
  vändskärsfräs

PHOENIX
- Plaquitas para fresa
  de gran avance con radio

PHOENIX
- Фреза с высокой
  подачей и увеличенной
  глубиной резания

PHOENIX
- Płytka do frez do
  głębokich wybrań





Designation	No. of cutting edges	Insert Size				Coated grade				Stock	Price
		A X B	T	R	b	XP3035	XP3025	XP2040	XC1015		
SNKU1505AZER-GM	8	15,88x15,88	7,18	1	3,65	7814061	7819061	7813061		●	
SNKU1505AZER-GR	8	15,88x15,88	7,18	1	3,65				7812060	●	

Order quantity - 10 pcs. in package

Accessories	EDP	Designation	Applicable Cutter	Stock	Price
Clamping Screw	7808131	FS645513P (Torx 20IP)	PAS BORE ø50~125	●	
T-Handle Wrench	7808000	20IP-T (Torx 20IP)	PAS BORE ø50~125	●	

● on stock
○ available on short notice

PAO BORE

PHOENIX
- High performance
- 45° Face milling
- Octagon Insert type

PHOENIX
- High performance
- 45° Planfräser
- Achteck (Octagon) Wendeplatte

PHOENIX
- Alta prestazione
- 45° spianare
- Manicotto inserto ottagonale

PHOENIX
- Haute performance
- Surfaçage 45°
- Plaquettes octogonales

PHOENIX
- Yüksek performans
- Phoenix 45°, yüzey frezeleme
- Sekizgen uç

PHOENIX
- High performance
- 45° planfræser
- Octagon skær

DIA
- High performance
- 45° planfräsar
- Oktagon skär

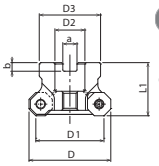
PHOENIX
- Altas prestaciones
- Planeado Phoenix a 45°
- Fresa hueca y placa octagonal

PHOENIX
- Высокая производительность
- 45° торцовое
- восьмигранной пластиной

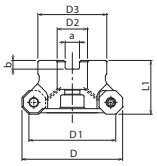
PHOENIX
- Wysoka wydajność
- Phoenix 45°, frezowanie czołowe
- Płytka oktagonalna

Face Milling
min-1
p.47

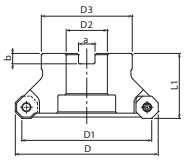
Type 1 — *With* coolant hole



Type 2 — *With* coolant hole



Type 3 — *Without* coolant hole



EDP	Type	Designation	D1	D	ZΔ	L1	D3	D2	a	b	Type	Stock	Price
7802020	For Metric holes	PAO06R050M22-5	50	60,2	5	40	45	22	10,4	6,3	1	●	
7802021	For Metric holes	PAO06R063M22-7	63	73,2	7	50	50	22	10,4	6,3	2	●	
7802085	For Metric holes	PAO06R080M27-8	80	90,2	8	50	60	27	12,4	7	2	●	
7802022	For inch	PAO06R080M25.4-8	80	90,2	8	50	60	25,4	9,5	6	2	○	
7802086	For Metric holes	PAO06R100M32-10	100	110,2	10	50	70	32	14,4	8	3	●	
7802023	For inch	PAO06R100M31.7-10	100	110,2	10	50	70	31,75	12,7	8	3	○	
7802087	For Metric holes	PAO06R125M40-12	125	135,2	12	63	90	40	16,4	9	3	●	
7802024	For inch	PAO06R125M38.1-12	125	135,2	12	63	90	38,1	15,9	10	3	○	
7802088	For Metric holes	PAO06R100M32W-14	100	110,2	14	50	70	32	14,4	8	3	●	
7802089	For inch	PAO06R100M31.7W-14	100	110,2	10	50	70	31,75	12,7	8	3	○	
7802090	For Metric holes	PAO06R125M40W-17	125	135,2	17	63	90	40	16,4	9	3	●	
7802091	For inch	PAO06R125M38.1W-17	125	135,2	12	63	90	38,1	15,9	10	3	○	
7802092	For Metric holes	PAO06R160M40W-20	160	170,2	20	63	100	40	16,4	9	3	●	
7802093	For inch	PAO06R160M50.8W-20	160	170,2	14	63	100	50,8	19	11	3	○	
7802094	For Metric holes	PAO06R200M60W-25	200	210,2	25	63	130	60	25,7	14	3	●	
7802095	For inch	PAO06R200M47.6W-25	200	210,2	25	63	130	47,625	25,4	14	3	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres - Liczba ostrzy
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок - Kanal sayısı

PHOENIX
- Applicable insert for Deep Feed Radius Cutter

PHOENIX
- Wendeplatten, für Torusfräser für maximale Zustellungen

PHOENIX
- Inserti applicabili per fresa ad alta asportazione

PHOENIX
- Choix de plaquettes pour fraise grande avance torique

PHOENIX
- Derin ilerlemeli freze uygun uç

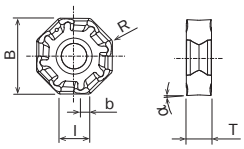
PHOENIX
- Anvendelige vendeskær til deep feed feed radiusfræser

DIA
- Utbytbara vändskär för Avverknings och hörnradie vändskärsfräs

PHOENIX
- Plaquitas para fresa de gran avance con radio

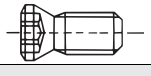
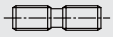
PHOENIX
- Фреза с высокой подачей и увеличенной глубиной резания

PHOENIX
- Płytka do frez do głębokich wybrań



Designation	No. of cutting edges	Insert Size						Coated grade				Stock	Price
		B	T	l	∂	R	b	XP3035	XP2040	XC1015	XP1020		
OZKU060508SR-GM	16	17,1	5,66	6	3°	0,8	2	7814062	7813062	7812062	7821062	●	

Order quantity - 10 pcs. in package

Accessories	EDP	Designation	Applicable Cutter	Stock	Price
 *Clamping Screw*	7808130	FS50614 (Torx 20)	PAO BORE ø50~125	●	
 *Power Screw*	7808151	PS1031 (M10x31)	PAO BORE ø50	●	

Accessories	EDP	Designation	Applicable Cutter	Stock	Price
Wrench	7808209	T20-D (Torx 20)	PAO BORE ø50~125	●	

● on stock
○ available on short notice

PHOENIX
- High performance
- Finish ball nose cutter
- 2 flutes

PHOENIX
- High performance
- Kugelfräser für Schlichtbearbeitungen
- 2 Schneider

PHOENIX
- Alta prestazione
- Fresa sferica di finitura
- 2 eliche

PHOENIX
- Haute performance
- Finition hémisphérique
- 2 dents

PHOENIX
- Yüksek performans
- Finiş küre freze
- 2 ağızlı

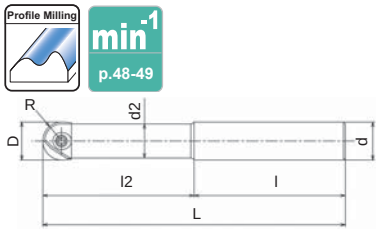
PHOENIX
- High performance
- Radiusfræser til sletbearbejdning
- 2 skær

DIA
- High performance
- Fullradiefräs för finishing
- 2 skär

PHOENIX
- Altas prestaciones
- Fresa de punta esférica
- 2 labios para acabado.

PHOENIX
- Высокая производительность
- Чистовая сферическая фреза
- 2-зубая

PHOENIX
- Wysoka wydajność
- Frez kulowy, obróbka wykańczająca
- 2-ostrzowy



Steel Shank

EDP	Tool Specification	D	R	l2	l2/D	l	L	d2	d	ZΔ	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	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres - Liczba ostrzy
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок - Kanal sayısı

Carbide Shank - *short*

EDP	Tool Specification	D	R	l2	l2/D	l	L	d2	d	ZΔ	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	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres - Liczba ostrzy
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок - Kanal sayısı

Carbide Shank - *long*

EDP	Tool Specification	D	R	l2	l2/D	l	L	d2	d	ZΔ	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	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres - Liczba ostrzy
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок - Kanal sayısı

● on stock
○ available on short notice

PFB SCREW FIT

PHOENIX
- High performance
- Finish ball nose cutter
- Screw fit type

PHOENIX
- High performance
- Kugelfräser für Schlichtbearbeitungen
- Aufschraubschaft

PHOENIX
- Alta prestazione
- Fresa sferica di finitura
- Sistema modulare

PHOENIX
- Haute performance
- Finition hémisphérique
- Tête vissée

PHOENIX
- Yüksek performans
- Finiş küre freze
- Vidalı tip

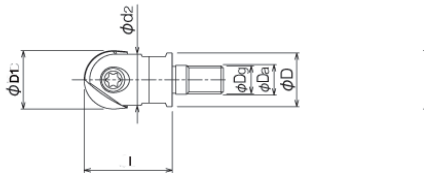
PHOENIX
- High performance
- Radiusfræser til sletbearbejdning
- Indskrunings type

DIA
- High performance
- Fullradiefräs för finishing
- Med gänginfästning

PHOENIX
- Altas prestaciones
- Fresa de punta esférica
- Cabeza roscada

PHOENIX
- Высокая производительность
- Чистовая сферическая фреза
- Резьбовая головка

PHOENIX
- Wysoka wydajność
- Frez kulowy, obróbka wykańczająca
- Chwyt wkręcany



EDP	Designation	D1	ZΔ	Da	Dg	Wrench	l	d2	D	Applicable Inserts	Price
7801490	PFB-R100SF6	10	2	6,5	6	7	26	9	9		●
7801491	PFB-R120SF6	12	2	6,5	6	7	26	11	11		●
7801492	PFB-R160SF8	16	2	8,5	8	10	32	14	14,5		●
7801493	PFB-R200SF10	20	2	10,5	10	14	38	18	18	PFB	●
7801494	PFB-R250SF12	25	2	12,5	12	17	38	22	23		●
7801495	PFB-R300SF16	30	2	17	16	22	43	27	28		●

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres - Liczba ostrzy
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок - Kanal sayısı

● on stock
○ available on short notice

PFB INSERTS NEW

PHOENIX
- Applicable insert for Finish Ball Nose Cutter

PHOENIX
- Wendeplatten, Kugelfräser PFB

PHOENIX
- Inserti applicabili per fresa sferica di finitura

PHOENIX
- Choix de plaquettes de finition hémisphérique

PHOENIX
- Finiş küre frezeye uygun uç

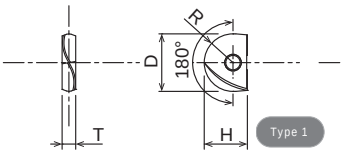
PHOENIX
- Anvendelige skær til radiusfræser

DIA
- Utbytbara skärinsatser för fullradiefräs

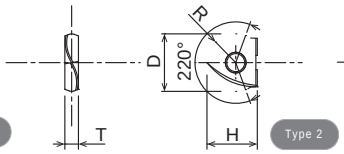
PHOENIX
- Plaquitas para fresa esférica de acabado

PHOENIX
- Сменные пластинки для чистовой сферической фрезы

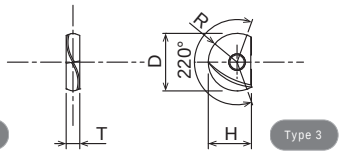
PHOENIX
- Płytka do frezów FTB,obróbka wykańczająca



Type 1



Type 2

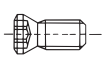


Type 3

	Appearance	Designation	No. of cutting edges	Spec.	R	Insert Size D	R	T	H	Grade of Coated material XP3225	XP3310	XP3320	XC4505	Stock	Price
		PFB080-SP	2	Spiral Type	180°	8	4	2,4	7	7820030		7820010		●	
		PFB100-SP	2			10	5	2,6	8,5	7820031		7820011		●	
		PFB120-SP	2			12	6	3	10	7820032		7820012		●	
		PFB160-SP	2			16	8	4	12	7820033		7820013		●	
		PFB200-SP	2			20	10	5	15	7820034		7820014		●	
New Sizes		PFB250-SP	2			25	12,5	6	18,5	7820035		7820015		●	
		PFB300-SP	2			30	15	7	22,5	7820036		7820016		●	
①		PFB080-SH	2	Spiral Type (Strengthened edge Type)		8	4	2,4	7		7820040			●	
		PFB100-SH	2			10	5	2,6	8,5		7820041			●	
		PFB120-SH	2			12	6	3	10		7820042			●	
		PFB160-SH	2			16	8	4	12		7820043			●	
NEW		PFB200-SH	2			20	10	5	15		7820044			●	
		PFB250-SH	2			25	12,5	6	18,5		7820045			●	
		PFB300-SH	2			30	15	7	22,5		7820046			●	
		PFB080-D	2	Spiral Type (Diamond coated)		8	4	2,4	7				7820020	●	
		PFB100-D	2			10	5	2,6	8,5				7820021	●	
		PFB120-D	2			12	6	3	10				7820022	●	
		PFB160-D	2			16	8	4	12				7820023	●	
		PFB200-D	2			20	10	5	15				7820024	●	
		PFB250-D	2			25	12,5	6	18,5				7820025	●	
		PFB300-D	2			30	15	7	22,5				7820026	●	
②		PFB080-Q	2	Spiral Type (Full Radius Type)	220°	8	4	2,4	7	7820050				●	
		PFB100-Q	2			10	5	2,6	8,5	7820051				●	
		PFB120-Q	2			12	6	3	10	7820052				●	
NEW		PFB160-Q	2			16	8	4	12	7820053				●	
③		PFB200-Q	2			20	10	5	15	7820054				●	
		PFB250-Q	2			25	12,5	6	18,5	7820055				●	
		PFB300-Q	2			30	15	7	22,5	7820056				●	

minimum order quantity = 1 pc.

Accessories - *Clamping Screw & Wrench*


Clamping Screw

Wrench

EDP	Designation	Size Ø	Rec. 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	●	

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	●	

● on stock
○ available on short notice

PSEL SS NEW

PHOENIX
- High performance
- 90° Shoulder cutter
- Porcupine type

PHOENIX
- High performance
- 90 ° Schulterfräser
- Igelfräser

PHOENIX
- Alta prestazione
- 90° Spallamento retto
- A riccio

PHOENIX
- Haute performance
- Surfacer dresser à 90°
- Fraise hérisson

PHOENIX
- Yüksek performans
- 90 ° sırt frezesi
- Kirpi

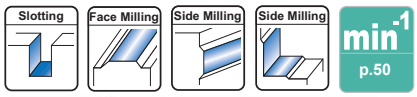
PHOENIX
- High performance
- 90° vendeskærsfræser
- Pindsvin type

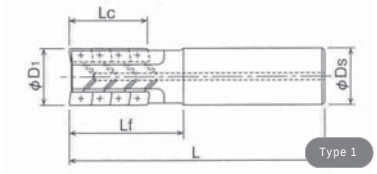
DIA
- High performance
- 90° vändskärsfräs
- Igelkott typ

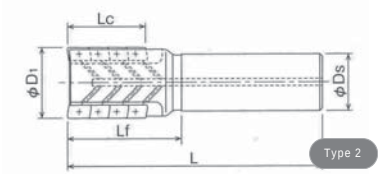
PHOENIX
- Altas prestaciones
- Fresa de 90° para escuadrar
- Tipo cocodrilo

PHOENIX
- Высокая производительность
- Торцевая фреза 90°
- дикобраз

PHOENIX
- Wysoka wydajność
- 90° Frez walcowo-czołowy
- Jeżozwierz







EDP	Designation	D1	ZΔ	Nb. Insert	Total amount Insert	Lc	Ds	L	Lf	Applicable Inserts	Type	Stock	Price
7802900	PSEL11R025SS25-2-27	25	2	3	6	27	25	125	50		1	●	
7802901	PSEL11R032SS32-2-37	32	2	4	8	37	32	140	60		1	●	
7802902	PSEL11R032SS32-3-45	32	3	5	15	45,5	32	140	60	①	1	●	
7802903	PSEL11R040SS42-3-37	40	3	4	12	37	42	140	60		1	●	
7802904	PSEL11R040SS42-4-45	40	4	5	20	45,5	42	140	60		1	●	
7802905	PSEL15R040SS42-2-38	40	2	3	6	38	42	140	60	②	1	●	
7802906	PSEL15R050SS42-3-50	50	3	4	12	50,5	42	144	64		1	●	
											2	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres - Liczba ostrzy
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок - Kanal sayısı

PSEL BORE NEW

PHOENIX
- High performance
- 90° Shoulder cutter
- Porcupine type

PHOENIX
- High performance
- 90 ° Schulterfräser
- Igelfräser

PHOENIX
- Alta prestazione
- 90° Spallamento retto
- A riccio

PHOENIX
- Haute performance
- Surfacer dresser à 90°
- Fraise hérisson

PHOENIX
- Yüksek performans
- 90 ° sırt frezesi
- Kirpi

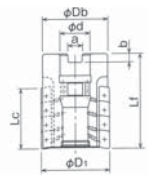
PHOENIX
- High performance
- 90° vendeskærsfræser
- Pindsvin type

DIA
- High performance
- 90° vändskärsfräs
- Igelkott typ

PHOENIX
- Altas prestaciones
- Fresa de 90° para escuadrar
- Tipo cocodrilo

PHOENIX
- Высокая производительность
- Торцевая фреза 90°
- дикобраз

PHOENIX
- Wysoka wydajność
- 90° Frez walcowo-czołowy
- Jeżozwierz



EDP	Designation	D1	ZΔ	n° Inserts	Total amount	Lc	Lf	Db	d	a	b	Applicable Inserts	Stock	Price
7802850	PSEL15R050M22-3-50	50	3	4	12	50,5	74	45	22	10,4	6,3		●	
7802851	PSEL15R063M27-3-50	63	3	4	12	50,5	74	60	27	12,4	7	②	●	
7802852	PSEL15R080M32-4-63	80	6	5	20	63	88	76	32	14,4	8		●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres - Liczba ostrzy
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок - Kanal sayısı

● on stock
○ available on short notice

PSEL INSERTS NEW

PHOENIX
- Applicable insert for 90° Shoulder cutter

PHOENIX
- Wendeplatten 90° Schulterfräser PSE

PHOENIX
- Inserti applicabili per fresa 90° spallamento retto

PHOENIX
- Surfacer dresser à 90°

PHOENIX
- 90 ° sırt frezesi için uygun uç

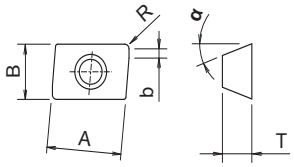
PHOENIX
- Anvendelige skær til 90° vendeskærsfræser

DIA
- Utbytbara vändskär för 90° vändskärsfräs

PHOENIX
- Plaquitas para fresa a 90º de escuadrar

PHOENIX
- Сменные пластинки для торцевой фрезы 90°

PHOENIX
- Płytka do frezów walcowo -czołowych 90°



Designation	No. of cutting edges	Insert Size					Uncoated	Coated Grade					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		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					
ZDKT11T308SR-GR	2	10x6,8	3,8	15°	0,8	1,4		7814033	7813033	7812033			
ZDKT11T304ER-SM	2	10x6,8	3,8	15°	0,4	1,8						7813034	
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			
ZDKT150508SR-GR	2	14x9,3	5,56	15°	0,8	1,6		7814058	7813058	7812058			
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						

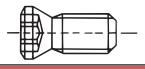
Recommended Grade / Material

Grade	Chipbreaker	Coolant / Dry	P	M	K	N	S	H
CK010	NM	Coolant / Dry				◉		
XP2040	GL/GM/GR	Dry	○					◉
		Coolant		◉			○	
XP3035	GL/GM/GR	Dry	◉	○	○			
XC1015	GM/GR	Dry			◉			
XC5035	SM	Dry		◉				○
		Coolant		○			○	
XC5040	SM	Coolant		○			◉	○

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

◉ First choice
○ Second choice

Accessories - *Clamping Screw, Coolant cap bolt & Wrench*



Clamping Screw

EDP	Designation	Applicable Inserts		Applicable Cutters	Stock	Price
7808107	FS25656P (Torx 8IP)	①	ZD-T11...	PSEL SS Ø 25	●	
7808109	FS25673P (Torx 8IP)	①	ZD-T11...	PSEL Ø 32~40	●	
7808115	FS35686P (Torx 15IP)	②	ZDKT15...	PSEL SS Ø 40~50	●	
				PSEL BORE Ø 50~80		

Coolant Cap Bolt

EDP	Designation	Applicable Inserts	Applicable Cutters	Stock	Price
7808132	OCB-M20-08	-	PSEL BORE Ø 50	●	
7808133	OCB-M24-10	-	PSEL BORE Ø 63	●	
7808134	OCB-M30-14	-	PSEL BORE Ø 80	●	

Wrench

EDP	Designation	Applicable Inserts		Applicable Cutters	Stock	Price
7808225	81P-D (Torx 8IP)	①	ZD-T11...	PSEL SS Ø 25~40	●	
7808228	15IP-D (Torx 15IP)	②	ZDK-T15...	PSEL SS Ø 40~50	●	
				PSEL BORE Ø 50~80		

● on stock
○ available on short notice

PSE-WS/SS

PHOENIX
- High performance
- 90° Shoulder cutter
- Weldon and Straight shank type

PHOENIX
- High performance
- 90 ° Schulterfräser
- Weldon und Zylinderschaft

PHOENIX
- Alta prestazione
- 90° Spallamento retto
- Gambo Weldon e cilindrico

PHOENIX
- Haute performance
- Surfacer dresser à 90°
- Queue weldon et cylindrique

PHOENIX
- Yüksek performans
- 90 ° sırt frezesi
- Veldon ve düz şaft tipi

PHOENIX
- High performance
- 90° vendeskærsfræser
- Med og uden Weldon flade

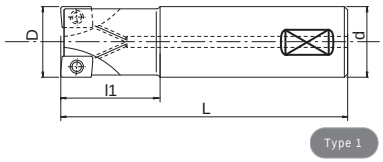
DIA
- High performance
- 90° vändskärsfräs
- Weldon och rakt skaft

PHOENIX
- Altas prestaciones
- Fresa de 90° para escuadrar
- Mango cilíndrico Weldon

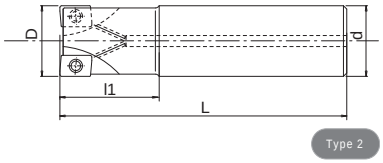
PHOENIX
- Высокая производительность
- Торцевая фреза 90°
- Weldon и цилиндрический хвостовик

PHOENIX
- Wysoka wydajność
- 90° Frez walcowo-czołowy
- Chwyt cylindryczny i Weldon

min-1 p.51



Type 1



Type 2

Weldon Shank

EDP	Type	Designation	D	ZΔ	d	L	l1	Applicable Inserts	Type	Stock	Price
47801100	Coarse Pitch	PSE11R016WS16-2S	16	2	16	75	25		1	●	
47801115	Close Pitch	PSE11R020WS20-3S	20	3	20	80	25	ZD-T11-①	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	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres - Liczba ostrzy
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок - Kanal sayısı

Straight Shank

EDP	Type	Designation	D	ZΔ	d	L	l1	Applicable Inserts	Type	Stock	Price
7801101	Coarse Pitch short	PSE11R020SS20-2S	20	2	20	100	30		2	●	
7801102	Coarse Pitch short	PSE11R025SS25-3S	25	3	25	120	35		2	●	
7801103	Coarse Pitch short	PSE11R032SS32-3S	32	3	32	130	45		2	●	
7801100	Close Pitch short	PSE11R016SS16-2S	16	2	16	90	25		2	●	
7801116	Close Pitch short	PSE11R018SS16-2S	18	2	16	90	25		2	○	
7801115	Close Pitch short	PSE11R020SS20-3S	20	3	20	100	30		2	●	
7801117	Close Pitch short	PSE11R022SS20-3S	22	3	20	110	30		2	●	
7801104	Close Pitch short	PSE11R025SS25-4S	25	4	25	120	35		2	●	
7801118	Close Pitch short	PSE11R028SS25-4S	28	4	25	120	35	ZD-T11-①	2	●	
7801119	Close Pitch short	PSE11R030SS32-4S	30	4	32	130	45		2	○	
7801105	Close Pitch short	PSE11R032SS32-5S	32	5	32	125	40		2	●	
7801120	Close Pitch short	PSE11R035SS32-5S	35	5	32	130	35		2	○	
7801121	Long	PSE11R016SS16-2L	16	2	16	150	50		2	●	
7801122	Long	PSE11R018SS16-2L	18	2	16	150	25		2	○	
7801123	Long	PSE11R020SS20-3L	20	3	20	160	60		2	●	
7801124	Long	PSE11R022SS20-3L	22	3	20	160	30		2	●	
7801125	Long	PSE11R025SS25-3L	25	3	25	170	70		2	●	
7801126	Long	PSE11R028SS25-3L	28	3	25	170	35		2	○	
7801127	Long	PSE11R030SS32-3L	30	3	32	190	90		2	○	
7801128	Long	PSE11R032SS32-3L	32	3	32	190	90		2	●	
7801129	Long	PSE11R035SS32-3L	35	3	32	190	35		2	○	
7801107	Coarse Pitch short	PSE15R032SS32-2S	32	2	32	130	45		2	○	
7801108	Coarse Pitch short	PSE15R040SS32-3S	40	3	32	140	50		2	○	
7801109	Coarse Pitch short	PSE15R050SS32-3S	50	3	32	130	45		2	○	
7801110	Coarse Pitch short	PSE15R063SS32-4S	63	4	32	130	45		2	○	
7801106	Close Pitch short	PSE15R025SS25-2S	25	2	25	120	35		2	●	
7801130	Close Pitch short	PSE15R028SS25-2S	28	2	25	120	35		2	○	
7801131	Close Pitch short	PSE15R030SS32-3S	30	3	32	130	45		2	○	
7801111	Close Pitch short	PSE15R032SS32-3S	32	3	32	130	45	ZD-T15-②	2	●	
7801132	Close Pitch short	PSE15R035SS32-3S	35	3	32	130	35		2	○	
7801112	Close Pitch short	PSE15R040SS32-4S	40	4	32	140	50		2	○	
7801113	Close Pitch short	PSE15R050SS32-5S	50	5	32	130	45		2	○	
7801114	Close Pitch short	PSE15R063SS32-6S	63	6	32	130	45		2	○	
7801133	Long	PSE15R025SS25-2L	25	2	25	170	70		2	●	
7801134	Long	PSE15R028SS25-2L	28	2	25	170	35		2	○	
7801135	Long	PSE15R030SS32-3L	30	3	32	190	90		2	○	
7801136	Long	PSE15R032SS32-3L	32	3	32	190	90		2	●	
7801137	Long	PSE15R035SS32-3L	35	3	32	190	45		2	○	
7801138	Long	PSE15R040SS32-3L	40	3	32	190	45		2	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres - Liczba ostrzy
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок - Kanal sayısı

● on stock
○ available on short notice

PSE SCREW FIT

PHOENIX
- High performance
- 90° Shoulder cutter
- Screw fit type

PHOENIX
- High performance
- 90 ° Schulterfräser
- Aufschraubschaft

PHOENIX
- Alta prestazione
- 90° Spallamento retto
- Sistema modulare

PHOENIX
- Haute performance
- Surfacer dresser à 90°
- Tête vissée

PHOENIX
- Yüksek performans
- 90 ° sırt frezesi
- Vidalı tip

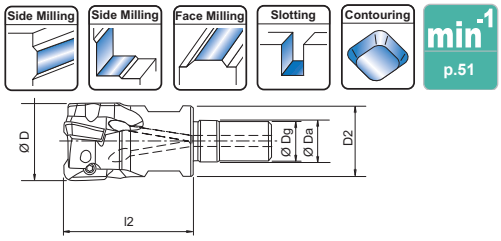
PHOENIX
- High performance
- 90° vendeskærsfræser
- Indskrunings type

DIA
- High performance
- 90° vändskärsfräs
- Med gänginfästning

PHOENIX
- Altas prestaciones
- Fresa de 90° para escuadrar
- Cabeza roscada

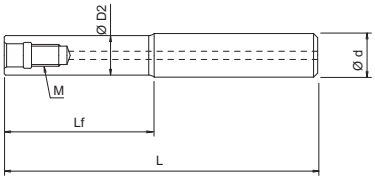
PHOENIX
- Высокая производительность
- Торцевая фреза 90°
- Резьбовая головка

PHOENIX
- Wysoka wydajność
- 90° Frez walcowo-czołowy
- Chwyt wkręcany



EDP	Designation	D	ZΔ	Da	Dg	l2	D2	Applicable Inserts	Stock	Price
7801600	PSE11R016SF8-2	16	2	8,5	8	27	14,5		●	
7801601	PSE11R020SF10-3	20	3	10,5	10	33	18		●	
7801602	PSE11R025SF12-4	25	4	12,5	12	35	23	ZD-T11-	●	
7801603	PSE11R028SF12-4	28	4	12,5	12	35	23	①	●	
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		●	
7801607	PSE15R025SF12-2	25	2	12,5	12	35	23		●	
7801608	PSE15R028SF12-2	28	2	12,5	12	35	23	ZD-T15-	●	
7801609	PSE15R032SF16-3	32	3	17	16	40	28	②	●	
7801610	PSE15R035SF16-3	35	3	17	16	40	28		●	
7801611	PSE15R040SF16-4	40	4	17	16	40	28		●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres - Liczba ostrzy
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок - Kanal sayısı



Straight arbor for screw fit tools - *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 for screw fit tools - *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	

● on stock
○ available on short notice

PSE BORE

PHOENIX
- High performance
- 90° Shoulder cutter
- Bore Type

PHOENIX
- High performance
- 90 ° Schulterfräser
- Aufnahmebohrung

PHOENIX
- Alta prestazione
- 90° Spallamento retto
- A manicotto

PHOENIX
- Haute performance
- Surfacer dresser à 90°
- Trou lisse

PHOENIX
- Yüksek performans
- 90 ° sırt frezesi
- Delikli tip

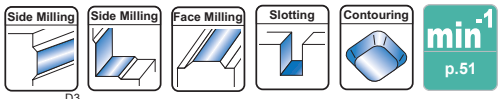
PHOENIX
- High performance
- 90° vendeskærsfræser
- Til dorn

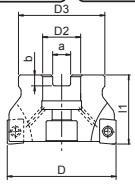
DIA
- High performance
- 90° vändskärsfräs
- Med skruvfäste

PHOENIX
- Altas prestaciones
- Fresa de 90° para escuadrar
- Hueca

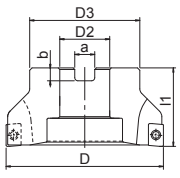
PHOENIX
- Высокая производительность
- Торцевая фреза 90°
- Насадная

PHOENIX
- Wysoka wydajność
- 90° Frez walcowo-czołowy
- Nasadzany

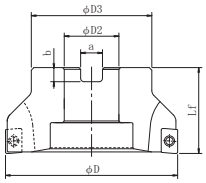




Type 1 — *With* coolant hole



Type 2 — *With* coolant hole



Type 3 — *Without* coolant hole

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

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres - Liczba ostrzy
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок - Kanal sayısı

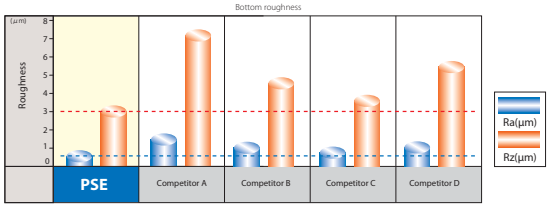
Bottom notch

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

High precision insert

Bottom roughness

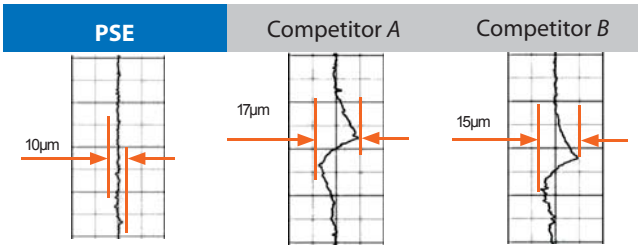
toolholder	PSE 11R032 SS 32-5S
insert	ZDKT 11T304 SR-GM XP3035
material	S50C
parameters	Vc = 180 m/min
	fz = 0,1 mm/t
	ap = 0,1 mm
	ae=25,6 mm Ra-0,5 µm-Rz-4 µm-PSE



results — PSE showed an improvement at the bottom flat surface finish. Rz 4µm and under

Side Milling Offset

toolholder	PSE 15R032 SS 32-3S
insert	ZDKT 150508 SR-GM XP3035
material	S50C
parameters	Vc = 180m/min
	fz = 0,1 mm/t
	ap = 0,1 mm
	ae=25,6 mm



results — PSE showed an improvement at side step machining as (measured) step as 10 µm

● on stock
○ available on short notice

PHOENIX
- Applicable insert for 90° Shoulder cutter

PHOENIX
- Wendeplatten 90° Schulterfräser PSE

PHOENIX
- Inserti applicabili per fresa 90° spallamento retto

PHOENIX
- Surfacer dresser à 90° Trou lisse

PHOENIX
- 90 ° sırt frezesi için uygun uç

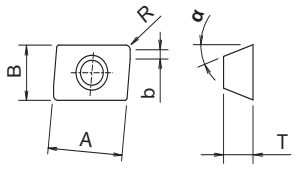
PHOENIX
- Anvendelige skær til 90° vendeskærsfræser

DIA
- Utbytbara vändskär för 90° vändskärsfräs

PHOENIX
- Plaquitas para fresa a 90º de escuadrar

PHOENIX
- Сменные пластинки для торцевой фрезы 90°

PHOENIX
- Płytka do frezów walcowo
- -czołowych 90°



Designation	No. of cutting edges	Insert Size					Uncoated	Coated Grade					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		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					
New Sizes ZDKT11T308SR-GR	2	10x6,8	3,8	15°	0,8	1,4		7814033	7813033	7812033			
New Sizes ZDKT11T304ER-SM	2	10x6,8	3,8	15°	0,4	1,8						7816034	
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			
New Sizes ZDKT150508SR-GR	2	14x9,3	5,56	15°	0,8	1,6		7814058	7813058	7812058			
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						

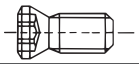
Recommended Grade / Material

Grade	Chipbreaker	Coolant / Dry	P	M	K	N	S	H
CK010	NM	Coolant / Dry			○	◉		
XP2040	GL/GM	Dry	○					◉
		Coolant		◉			○	
XP3035	GL/GM	Dry	◉	○	○			
XC1015	–	Dry			◉			
XC5035	SM	Dry		◉				○
		Coolant		○			○	
XC5040	SM	Coolant		○			◉	○

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

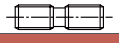
◉ First choice
○ Second choice

Accessories - *Clamping Screw, Power Screw & Wrench*



Clamping Screw

EDP	Designation	Applicable Inserts		Applicable 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	Applicable Inserts		Applicable 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		Applicable 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		

● on stock
○ available on short notice

PHOENIX
- High performance
- Radius Cutter
- Straight Shank

PHOENIX
- High performance
- Rundplattenfräser
- Zylinderschaft

PHOENIX
- Alta prestazione
- Fresa con inserto tondo
- Gambo cilindrico

PHOENIX
- Haute performance
- Fraise plaquettes rondes
- Queue cylindrique

PHOENIX
- Yüksek performans
- Radyus freze
- Düz şaft

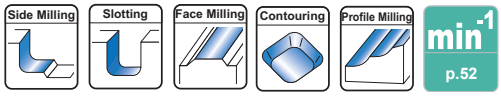
PHOENIX
- High performance
- Radius fræser
- Cylindrisk skaft

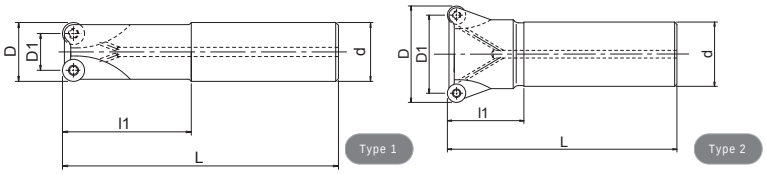
DIA
- High performance
- Vändskärsfräs med runda skär
- Rakt skaft

PHOENIX
- Altas prestaciones
- Fresa tórica
- Mango cilíndrico

PHOENIX
- Высокая производительность
- Торовая фреза
- Цилиндрический хвостовик

PHOENIX
- Wysoka wydajność
- Frez na płytki okrągłe
- Chwyt walcowy





EDP	Type	Designation	D1	D	ZΔ	d	L	l1	Applicable Inserts	Type	Stock	Price
7800300	Short	PRC10R020SS20-2S	10	20	2	20	130	50		1	●	
7800301	Short	PRC10R020SS25-3S	15	25	3	25	140	60		1	●	
7800302	Short	PRC10R032SS32-4S	22	32	4	32	150	70	RP-10-①	1	●	
7800303	Long	PRC10R020SS20-2L	10	20	2	20	180	80		1	○	
7800304	Long	PRC10R025SS25-3L	15	25	3	25	200	120		1	○	
7800305	Long	PRC10R032SS32-4L	22	32	4	32	200	120		1	○	
7800318	Short	PRC12R030SS32-2S	18	30	2	32	150	70		1	○	
7800306	Short	PRC12R032SS32-2S	20	32	2	32	150	70		1	●	
7800320	Short	PRC12R032SS32-3S	20	32	3	32	150	70		1	○	
7800307	Short	PRC12R040SS32-3S	28	40	3	32	150	50		2	●	
7800308	Short	PRC12R050SS42-4S	38	50	4	42	150	50		2	○	
7800319	Long	PRC12R030SS32-2L	18	30	2	32	200	120		1	○	
7800309	Long	PRC12R032SS32-2L	20	32	2	32	200	120	RP-12-②	1	○	
7800321	Long	PRC12R032SS32-3L	20	32	3	32	200	120		1	○	
7800310	Long	PRC12R040SS32-3L	28	40	3	32	250	50		2	○	
7800311	Long	PRC12R050SS42-4L	38	50	4	42	250	50		2	○	
7800312	Short	PRC16R040SS32-2S	24	40	2	32	150	50		2	●	
7800313	Short	PRC16R050SS42-3S	34	50	3	42	150	50		2	○	
7800314	Short	PRC16R063SS42-4S	47	63	4	42	150	50	RP-16-③	2	○	
7800315	Long	PRC16R040SS32-2L	24	40	2	32	250	50		2	○	
7800316	Long	PRC16R050SS42-3L	34	50	3	42	250	50		2	○	
7800317	Long	PRC16R063SS42-4L	47	63	4	42	250	50		2	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres - Liczba ostrzy
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок - Kanal sayısı

● on stock
○ available on short notice

PRC SCREW FIT

PHOENIX
- High performance
- Radius Cutter
- Screw fit type

PHOENIX
- High performance
- Rundplattenfräser
- Aufschraubschaft

PHOENIX
- Alta prestazione
- Fresa con inserto tondo
- sistema modulare

PHOENIX
- Haute performance
- Fraise plaquettes rondes
- tête vissée

PHOENIX
- Yüksek performans
- Radyus freze
- Vidalı tip

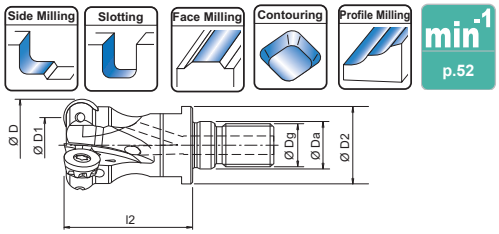
PHOENIX
- High performance
- Radius fræser
- Indskrunings type

DIA
- High performance
- Vändskärsfräs med runda skär
- Rakt skaft

PHOENIX
- Altas prestaciones
- Fresa tórica
- Cabeza roscada

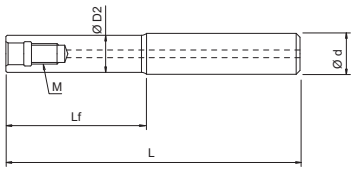
PHOENIX
- Высокая производительность
- Торовая фреза
- Крепление винтом

PHOENIX
- Wysoka wydajność
- Frez na płytki okrągłe
- Chwyt wkręcany



EDP	Designation	D1	D	ZΔ	Da	Dg	l2	D2	Applicable Inserts	Stock	Price
7801700	PRC10R020SF10-2	10	20	2	10,5	10	33	18		●	
7801701	PRC10R025SF12-3	15	25	3	12,5	12	35	23	RP-10-	●	
7801702	PRC10R030SF16-3	20	30	3	17	16	40	28	①	●	
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		●	
7801706	PRC12R032SF16-3	20	32	3	17	16	40	28	RP-12-	●	
7801707	PRC12R040SF16-3	28	40	3	17	16	40	28	②	●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres - Liczba ostrzy
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок - Kanal sayısı



Straight arbor for screw fit tools - *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 for screw fit tools - *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	

● on stock
○ available on short notice

PRC BORE

PHOENIX
- High performance
- Radius Cutter
- Bore type

PHOENIX
- High performance
- Rundplattenfräser
- Aufnahmebohrung

PHOENIX
- Alta prestazione
- Fresa con inserto tondo
- A manicotto

PHOENIX
- Haute performance
- Fraise plaquettes rondes
- Trou lisse

PHOENIX
- Yüksek performans
- Radyus freze
- Delikli tip

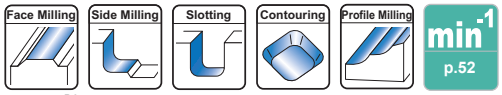
PHOENIX
- High performance
- Radius fræser
- Til dorn

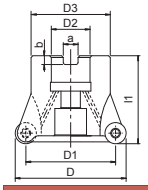
DIA
- High performance
- Vändskärsfräs med runda skär
- Med skruvfäste

PHOENIX
- Altas prestaciones
- Fresa tórica
- Hueca

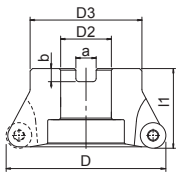
PHOENIX
- Высокая производительность
- Торовая фреза
- Насадная

PHOENIX
- Wysoka wydajność
- Frez na płytki okrągłe
- Nasadzany

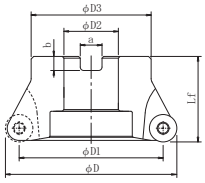




Type 1 — *With* coolant hole



Type 2 — *With* coolant hole



Type 3 — *Without* coolant hole

EDP	Type	Designation	D1	D	ZΔ	l1	D3	D2	a	b	Applicable Inserts	Type	Stock	Price
7800200	Coarse Pitch	PRC12R050M22-4	38	50	4	40	45	22	10,4	6,3		2	●	
7800201	Coarse Pitch	PRC12R063M22-4	51	63	4	40	50	22	10,4	6,3		2	○	
7800202	Coarse Pitch	PRC12R080M27-5	68	80	5	50	60	27	12,4	7		2	●	
7800209	Coarse Pitch	PRC12R080M25.4-5	68	80	5	50	60	25,4	9,5	6		2	○	
7800203	Coarse Pitch	PRC12R100M32-6	88	100	6	50	70	32	14,4	8		2	●	
7800210	Coarse Pitch	PRC12R100M31.7-6	88	100	6	50	70	31,75	12,7	8	RP-12-②	3	○	
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	●	
7800211	Close Pitch	PRC12R080M25.4-8	68	80	8	50	60	25,4	9,5	6		2	○	
7800208	Close Pitch	PRC12R100M32-10	88	100	10	50	70	32	14,4	8		2	●	
7800212	Close Pitch	PRC12R100M31.7-10	88	100	10	50	70	31,75	12,7	8		3	○	
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	●	
7800218	Close Pitch	PRC16R080M25.4-6	64	80	6	50	60	25,4	9,5	6		2	○	
7800217	Close Pitch	PRC16R100M32-7	84	100	7	50	70	32	14,4	8		2	●	
7800219	Close Pitch	PRC16R100M31.7-7	84	100	7	50	70	31,75	12,7	8		3	○	

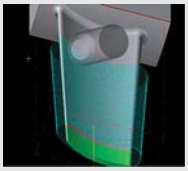
ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres - Liczba ostrzy
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок - Kanal sayısı

Features - *PRC*

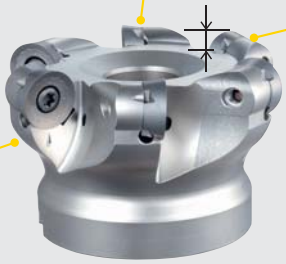
Improved chip ejection with wide chip pocket

Due to no extra insert clamping it allows smooth chip evacuation

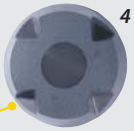
Body relief shape support 3 dimensional machining



Insert rotation stop



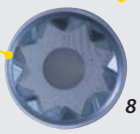
Inserts back side



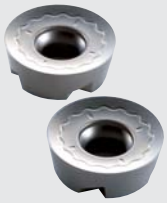
4 Corner type
SM chipbreaker

Setting to accommodate cutout

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



8 Corner type



● on stock
○ available on short notice

PHOENIX
- Applicable insert for Radius Cutter

PHOENIX
- Wendeplatten, Rundplattenfräser PRC

PHOENIX
- Inserti applicabili per fresa con inserto tondo

PHOENIX
- Choix de plaquettes rondes

PHOENIX
- Radyus freze için uygun uç

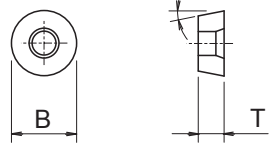
PHOENIX
- Anvendelige vendeskær til radiusfræser

DIA
- Utbytbara vändskär för vändskärsfräs med runda skär

PHOENIX
- Plaquitas para fresa tórica

PHOENIX
- Сменные пластинки для торовой фрезы

PHOENIX
- Płytka okrągła do frezów PRC

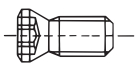


Designation	No. of corners	Insert size			Uncoated	Coated grade					Price
		B	T	α	CK010	XP3035	XP2040	XC1015	XC5035	XC5040	
RPHW10T3MOSN	8	10	3,97	11°		7814030					
RPHW10T3MOEN	8	10	3,97	11°				7812017			
① RPHT10T3MOEN-GL	8	10	3,97	11°			7813008				
RPHT10T3MOEN-SM	4	10	3,97	11°					7815010		
RPHT10T3M8EN-SM	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 Grade / Material

Grade	Chipbreaker	Coolant / Dry	P	M	K	N	S	H
CK010	NM	Coolant				◉		
XP2040	GL	Dry	○					◉
		Coolant		◉			○	
XP3035	–	Dry	◉	○	○			
XC1015	–	Dry			◉			
XC5035	SM	Dry		◉				○
		Coolant		○			○	
XC5040	SM	Coolant		○			◉	○

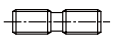
GL Light Cutting
GM Medium Cutting
NM Aluminum
SM Heat Resistance Alloy
◉ First choice
○ Second choice



Clamping Screw

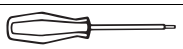
Accessories - *Clamping Screw, Power Screw & Wrench*

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



Wrench

EDP	Designation		Applicable Inserts	Applicable 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	●	

● on stock
○ available on short notice

PHC SS

PHOENIX
- High performance
- High Feed Radius Cutter
- Straight Shank

PHOENIX
- High performance
- Hochvorschubsfräser
- Zylinderschaft

PHOENIX
- Alta prestazione
- Fresa alto avanzamento
- Gambo cilindrico

PHOENIX
- Haute performance
- Fraise grandes avances
- Queue cylindrique

PHOENIX
- Yüksek performans
- Yüksek ilerlemeli freze
- Düz şaft

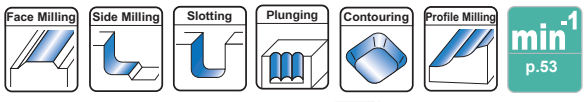
PHOENIX
- High performance
- High feed radiusfræser
- Cylindrisk skaft

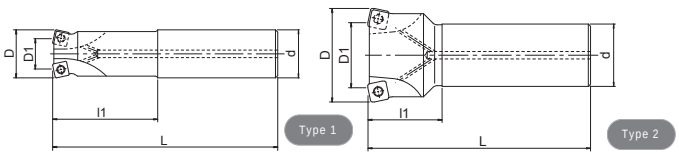
DIA
- High performance
- Högmatnings fräs med vändskär
- Rakt skaft

PHOENIX
- Altas prestaciones
- Fresa de gran avance
- Mango cilíndrico

PHOENIX
- Высокая производительность
- Фреза с высокой подачей
- Цилиндрический хвостовик

PHOENIX
- Wysoka wydajność
- Frez do wysokich posuwów
- Chwyt walcowy





EDP	Type	Designation	D1	D	ZΔ	d	L	l1	Applicable Inserts	Type	Stock	Price
7800700	Short	PHC09R025SS25-2S	13,2	25	2	25	140	60		1	O	
7800701	Short	PHC09R025SS25-3S	13,2	25	3	25	140	60		1	●	
7800716	Short	PHC09R028SS25-3S	16,2	28	3	25	140	40		2	O	
7800717	Short	PHC09R030SS32-3S	18,2	30	3	32	150	70		1	O	
7800702	Short	PHC09R032SS32-3S	20,2	32	3	32	150	70		1	●	
7800718	Short	PHC09R035SS32-3S	23,2	35	3	32	150	50		2	O	
7800703	Short	PHC09R040SS32-4S	28,2	40	4	32	150	50		2	●	
7800719	Short	PHC09R040SS42-4S	28,2	40	4	42	150	50		1	O	
7800704	Long	PHC09R025SS25-2L	13,2	25	2	25	200	120		1	O	
7800705	Long	PHC09R025SS25-3L	13,2	25	3	25	200	120		1	●	
7800720	Long	PHC09R028SS25-3L	16,2	28	3	25	200	40	SDMT09-	2	●	
7800721	Long	PHC09R030SS32-3L	18,2	30	3	32	200	120		1	O	
7800706	Long	PHC09R032SS32-3L	20,2	32	3	32	200	120	①	1	●	
7800722	Long	PHC09R035SS32-3L	23,2	35	3	32	200	50		2	O	
7800707	Long	PHC09R040SS32-4L	28,2	40	4	32	250	50		2	O	
7800723	Long	PHC09R040SS42-3L	28,2	40	3	42	250	70		1	O	
7800724	Extra long	PHC09R025SS25-2LL	13,2	25	2	25	300	180		1	O	
7800725	Extra long	PHC09R028SS25-2LL	16,2	28	2	25	300	40		2	O	
7800726	Extra long	PHC09R030SS32-2LL	18,2	30	2	32	300	180		1	O	
7800727	Extra long	PHC09R032SS32-2LL	20,2	32	2	32	300	180		1	O	
7800728	Extra long	PHC09R035SS32-2LL	23,2	35	2	32	300	50		2	O	
7800729	Extra long	PHC09R040SS42-2LL	28,2	40	2	42	300	70		1	O	
7800730	Short	PHC12R030SS32-2S	13,4	30	2	32	150	70		1	O	
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	O	
7800710	Short	PHC12R050SS42-4S	33,4	50	4	42	150	50		2	O	
7800711	Short	PHC12R063SS42-5S	46,4	63	5	42	150	50		2	O	
7800733	Long	PHC12R030SS32-2L	13,4	30	2	32	200	120		1	O	
7800712	Long	PHC12R032SS32-2L	15,4	32	2	32	200	120	SXMT12-	1	O	
7800734	Long	PHC12R035SS32-3L	18,4	35	3	32	200	50		2	O	
7800713	Long	PHC12R040SS32-3L	23,4	40	3	32	250	50	②	2	O	
7800735	Long	PHC12R040SS42-3L	23,4	40	3	42	250	70		1	O	
7800714	Long	PHC12R050SS42-4L	33,4	50	4	42	250	50		2	O	
7800715	Long	PHC12R063SS42-5L	46,4	63	5	42	250	50		2	O	
7800736	Extra long	PHC12R030SS32-2LL	13,4	30	2	32	300	180		1	O	
7800737	Extra long	PHC12R032SS32-2LL	15,4	32	2	32	300	180		1	O	
7800738	Extra long	PHC12R035SS32-2LL	18,4	35	2	32	300	50		2	O	
7800739	Extra long	PRC12R040SS42-2LL	23,4	40	2	42	300	70		1	O	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres - Liczba ostrzy
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок - Kanal sayısı

● on stock
○ available on short notice

PHC SCREW FIT

PHOENIX
- High performance
- High Feed Radius Cutter
- Screw fit type

PHOENIX
- High performance
- Hochvorschubsfräser
- Zylinderschaft

PHOENIX
- Alta prestazione
- Fresa alto avanzamento
- Sistema modulare

PHOENIX
- Haute performance
- Fraise grandes avances
- tête vissée

PHOENIX
- Yüksek performans
- Yüksek ilerlemeli freze
- Vidalı tip

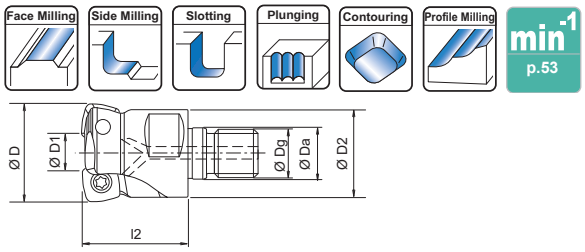
PHOENIX
- High performance
- High feed radiusfræser
- Indskruningstype

DIA
- High performance
- Högmatnings fräs med vändskär
- Med gänginfästning

PHOENIX
- Altas prestaciones
- Fresa de gran avance
- Cabeza roscada

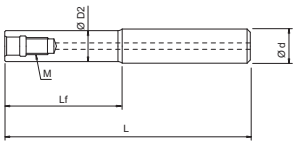
PHOENIX
- Высокая производительность
- Фреза с высокой подачей
- Резьбовая головка

PHOENIX
- Wysoka wydajność
- Frez do wysokich posuwów
- Chwyt wkręcany



EDP	Designation	D1	D	ZΔ	Da	Dg	l2	D2	Applicable Inserts	Stock	Price
7801500	PHC09R025SF12-3	13,2	25	3	12,5	12	35	23		●	
7801501	PHC09R028SF12-3	16,2	28	3	12,5	12	35	23		●	
7801502	PHC09R030SF16-3	18,2	30	3	17	16	40	28	SDMT09-	●	
7801503	PHC09R032SF16-3	20,2	32	3	17	16	40	28	①	●	
7801504	PHC09R035SF16-3	23,2	35	3	17	16	40	28		●	
7801505	PHC09R040SF16-4	28,2	40	4	17	16	40	28		●	
7801506	PHC12R030SF16-2	13,4	30	2	17	16	40	28		●	
7801507	PHC12R032SF16-2	15,4	32	2	17	16	40	28	SXMT12-	●	
7801508	PHC12R035SF16-3	18,4	35	3	17	16	40	28	②	●	
7801509	PHC12R040SF16-3	23,4	40	3	17	16	40	28		●	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres - Liczba ostrzy
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок - Kanal sayısı



Straight arbor for screw fit tools - *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 for screw fit tools - *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	

● on stock
○ available on short notice

PHC BORE

PHOENIX
- High performance
- High Feed Radius Cutter
- Bore Type

PHOENIX
- High performance
- Hochvorschubsfräser
- Aufnahmebohrung

PHOENIX
- Alta prestazione
- Fresa alto avanzamento
- A manicotto

PHOENIX
- Haute performance
- Fraise grandes avances
- Trou lisse

PHOENIX
- Yüksek performans
- Yüksek ilerlemeli freze
- Delikli tip

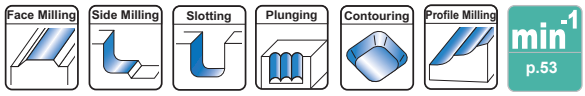
PHOENIX
- High performance
- High feed radiusfræser
- Til dorn

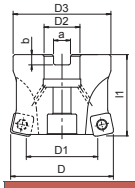
DIA
- High performance
- Högmatnings fräs med vändskär
- Med skruvfäste

PHOENIX
- Altas prestaciones
- Fresa de gran avance
- Hueca

PHOENIX
- Высокая производительность
- Фреза с высокой подачей
- Насадная

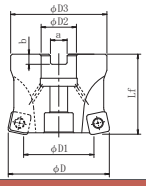
PHOENIX
- Wysoka wydajność
- Frez do wysokich posuwów
- Nasadzany





Type 1

With **coolant hole**



Type 2

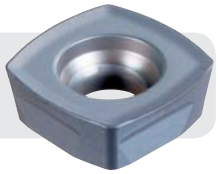
With **coolant hole**

EDP	Designation	D1	D	ZΔ	l1	D3	D2	a	b	Inserts	Type	Stock	Price
7800600	PHC09R040M16-4	28,2	40	4	40	38	16	8,4	5,6		1	●	
7800601	PHC09R050M22-5	38,2	50	5	50	47	22	10,4	6,3	SDMT09-	2	●	
7800605	PHC09R050M22.2-5	38,2	50	5	50	47	22,225	8	5	①	2	O	
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	O	
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		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	O	
7800609	PHC12R052M22-4	35,4	52	4	50	47	22	10,4	6,3	SXMT12-	2	●	
7800610	PHC12R063M22-5	46,4	63	5	50	60	22	10,4	6,3	②	2	●	
7800615	PHC12R0063M22.2-5	46,4	63	5	50	60	22,225	8	5		2	O	
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	O	
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	O	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres - Liczba ostrzy
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок - Kanal sayısı

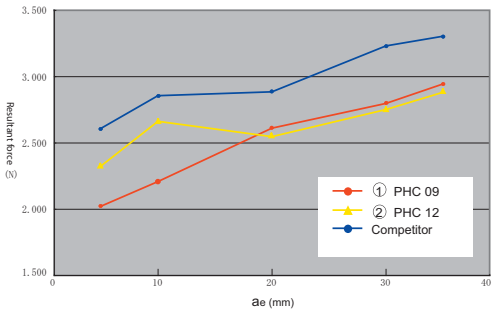
Ideal configuration for rough milling

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



PHC - *Processing data*

Tool	PHC 09R050 M22-5	PHC 12R050 M22-4
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	ap=1 mm ae=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 (ae)

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

Even if the depth of cut (ae) is increased for the PHC 09 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 has a lower cutting force compared to the competitor's product
PHC 09 Multiple cutters for highly efficient milling
PHC 12 Milling intermittently or with a long tool projection

● on stock
○ available on short notice

PHOENIX
- Applicable insert for High Feed Radius Cutter

PHOENIX
- Wendeplatten, Hochvorschubsfräser PHC

PHOENIX
- Inserti applicabili per fresa ad alto avanzamento

PHOENIX
- Choix de plaquettes pour la grande avance

PHOENIX
- Yüksek ilerlemeli frezeye uygun uç

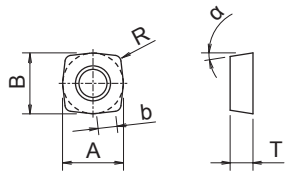
PHOENIX
- Anvendelige vendeskær til high feed radiusfræser

DIA
- Utbytbara vändskär för högmatningsfräs

PHOENIX
- Plaquitas para fresa de gran avance

PHOENIX
- Сменные пластинки для фрезы с высокой подачей

PHOENIX
- Płytka, frezy do wyskich posuwów PHC



Designation		No. of cutting edges	Insert Size					Coated grade					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	

Order quantity - 10 pcs. in package

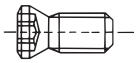
Recommended Grade / Material

Grade	Chipbreaker	Coolant / Dry	P	M	K	N	S	H
XP2040	GM	Dry	○					◉
		Coolant		◉			○	
XP3035	GM	Dry	◉	○	○			
XC1015	GM	Dry			◉			
XC5035	SM	Dry		◉				○
		Coolant		○			○	
XC5040	SM	Coolant		○			◉	○

GM Medium Cutting
SM Heat Resistance Alloy

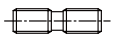
◉ First choice
○ Second choice

Accessories - *Clamping Screw, Power Screw & Wrench*



Clamping Screw

EDP	Designation	Appl. Inserts	Appl. 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... ② SXMT12...	PHC BORE Ø 40	●	

Wrench

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	●	

● on stock
○ available on short notice

PDR SS/MT/NC

PHOENIX
- High performance
- Deep Feed Radius Cutter
- Shank Type

PHOENIX
- High performance
- Torusfräser für maximale Zustellungen
- Zylinderschaft

PHOENIX
- Alta prestazione
- Fresa ad alta asportazione
- Stelo

PHOENIX
- Haute performance
- Fraise grande avance torique
- Queue cylindrique

PHOENIX
- Yüksek performans
- Derin ilerlemeli freze
- Delikli tip

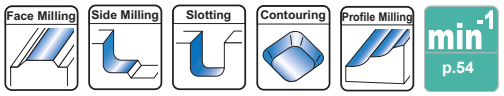
PHOENIX
- High performance
- Deep feed radiusfræser
- Cylindrisk skaft

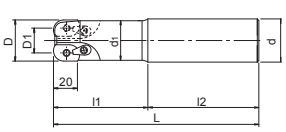
DIA
- High performance
- Avverknings och hörnradie vändskärsfräs
- Rakt skaft

PHOENIX
- Altas prestaciones
- Fresa de gran avance con radio
- Con mango

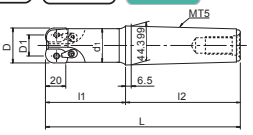
PHOENIX
- Высокая производительность
- Фреза с высокой подачей и увеличенной глубиной резания
- Цилиндрический хвостовик

PHOENIX
- Wysoka wydajność
- Frez do głębokich wybrań
- Nasadzany

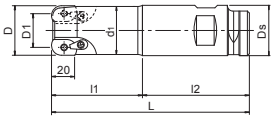




Straight Shank Type 1



Morse Taper Shank Type 2



Combination Shank Type 3

EDP	Type	Designation	D1	D	ZΔ	d	L	l1	d1	l2	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	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres - Liczba ostrzy
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок - Kanal sayısı

Solves traditional machining problems

Issues with traditional high-efficiency cutting tools

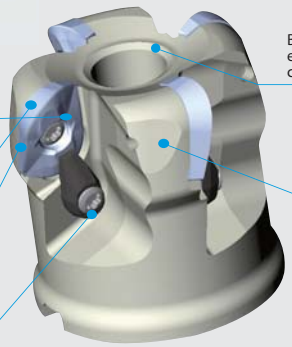
There is no radius tool that can perform large depths of cut.
Large variances in removal damage the tool.
The depth of cut is so small for black surface areas that air cutting becomes common.

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

Leading low depth of cut, high feed radius roughing tools

Variable negative form for edge rigidity
PREVENTION OF BREAKAGE

Spiral tool form
REDUCTION OF 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

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

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 φ50mm or less is recommended.

● on stock
○ available on short notice

PDR BORE

PHOENIX
- High performance
- Deep Feed Radius Cutter
- Bore Type

PHOENIX
- High performance
- Torusfräser für maximale Zustellungen
- Aufnahmebohrung

PHOENIX
- Alta prestazione
- Fresa ad alta asportazione
- A manicotto

PHOENIX
- Haute performance
- Fraise grande avance torique
- Trou lisse

PHOENIX
- Yüksek performans
- Derin ilerlemeli freze
- Delikli tip

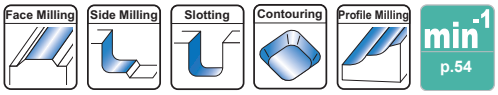
PHOENIX
- High performance
- Deep feed radiusfræser
- Til dorn

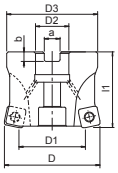
DIA
- High performance
- Avverknings och hörnradie vändskärsfräs
- Med skruvfäste

PHOENIX
- Altas prestaciones
- Fresa de gran avance con radio
- Hueca

PHOENIX
- Высокая производительность
- Фреза с высокой подачей и увеличенной глубиной резания
- Насадная

PHOENIX
- Wysoka wydajność
- Frez do głębokich wybrań
- Nasadzany





EDP	Type	Designation	D1	D	ZΔ	l1	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	○	

ZΔ= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres - Liczba ostrzy
Antal skær - Antal skär - Numero de ranuras - Число режущих кромок - Kanal sayısı

PHOENIX
- Applicable insert for Deep Feed Radius Cutter

PHOENIX
- Wendeplatten, für Torusfräser für maximale Zustellungen

PHOENIX
- Inserti applicabili per fresa ad alta asportazione

PHOENIX
- Choix de plaquettes pour fraise grande avance torique

PHOENIX
- Derin ilerlemeli freze uygun uç

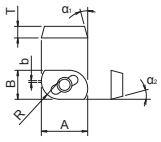
PHOENIX
- Anvendelige vendeskær til deep feed feed radiusfræser

DIA
- Utbytbara vändskär för Avverknings och hörnradie vändskärsfräs

PHOENIX
- Plaquitas para fresa de gran avance con radio

PHOENIX
- Фреза с высокой подачей и увеличенной глубиной резания

PHOENIX
- Płytka do frez do głębokich wybrań



Designation	No. of cutting edges	Insert Size						Coated grade	Price
		A X B	T	α1	α2	R	b	XP3930	
ADMT2006100PDR-GM	2	24,18x16	6,35	15°	15°	10	1	7810000	

Order quantity - 10 pcs. in package

Accessories	EDP	Designation	Stock	Price
Clamping Screw	7808001	CSPB-5 (Torx 20)	○	
T-Handle Wrench	7808000	20IP-T	○	
Metal weight set (washer)	7808002	CSY-20	○	

● on stock
○ available on short notice

PHOENIX
- High performance
- Drill
- 2 flutes

PHOENIX
- High performance
- Bohrer
- 2 Schneiden

PHOENIX
- Alta prestazione
- Foratura
- 2 denti

PHOENIX
- Haute performance
- Foret
- 2 lèvres

PHOENIX
- Yüksek performans
- Matkap
- 2 ağızlı

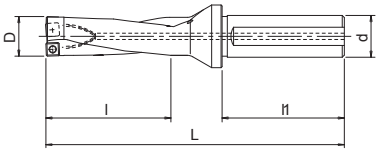
PHOENIX
- High performance
- Boring
- 2 skær

PHOENIX
- High performance
- Borr
- 2 skär

PHOENIX
- Altas prestaciones
- Taladrado
- 2 labios

PHOENIX
- Высокая производительность
- Сверло
- 2-зуба

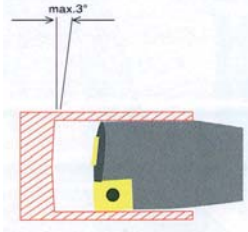
PHOENIX
- Wysoka wydajność
- Wiertło
- 2-ostrzowy

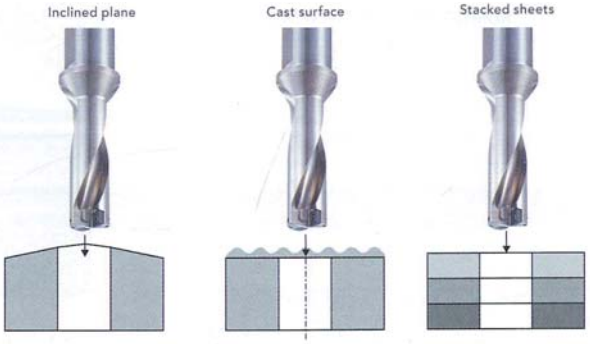


EDP	Designation	D	L	l	l1	d	Applicable Inserts	Stock	Price
7800100	PHP140FS20M04-3D	14	116	42	50	20		●	
7800101	PHP145FS20M04-3D	14,5	119	45	50	20		●	
7800102	PHP150FS20M04-3D	15	119	45	50	20	①	●	
7800103	PHP155FS20M04-3D	15,5	122	48	50	20		●	
7800104	PHP160FS20M04-3D	16	122	48	50	20		●	
7800105	PHP165FS20M05-3D	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

Point angle shape increases the machining range





● on stock
○ available on short notice

PHP INSERTS

PHOENIX
- Applicable insert for PHP drill

PHOENIX
- Wendeplatten, Bohrer PHP

PHOENIX
- Inserti applicabili per punta PHP

PHOENIX
- Choix de plaquettes pour le perçage

PHOENIX
- PHP matkap için uygun uç

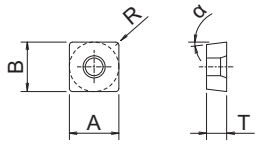
PHOENIX
- Anvendelige skær til PHP bor

PHOENIX
- Utbytbara vändskär för korthålsborr

PHOENIX
- Plaquitas para broca PHP

PHOENIX
- Сменные пластинки для PHP сверла

PHOENIX
- Płytka okrągła do PHP wiertło



Designation	No. of cutting edges	Application Diameter	Insert Size				Coated grade		Price
			A X B	T	α	R	XP9040	XP9025	
SCMT042204-DM	4	14.0 ~ 16.0	4,8 x 4,8	2,2	7°	0,4	7818001	7817001	
SCMT052404-DM	4	16.5 ~ 18.0	5,4 x 5,4	2,4	7°	0,4	7818002	7817002	
SCMT062806-DM	4	18.5 ~ 20.5	6,2 x 6,2	2,8	7°	0,6	7818003	7817003	
SCMT073206-DM	4	21.0 ~ 24.0	7,2 x 7,2	3,2	7°	0,6	7818004	7817004	
SCMT083608-DM	4	24.5 ~ 28.0	8,6 x 8,6	3,6	7°	0,8	7818005	7817005	
SCMT104208-DM	4	29.0 ~ 34.0	10 x 10	4,2	7°	0,8	7818006	7817006	
SCMT125008-DM	4	35.0 ~ 40.0	12,3 x 12,3	5	7°	0,8	7818007	7817007	

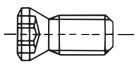
Order quantity - 10 pcs. in package

Recommended Grade / Material

Grade	Chipbreaker	Coolant / Dry	P	M	K	N	S
XP9040	DM	Coolant	◉	◉		◉	○
XC9025	DM	Coolant	○	○	◉	○	

◉ First choice
○ Second choice

Accessories - *Clamping Screw & Wrench*



Clamping Screw

EDP	Designation	Applicable 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	Applicable Inserts		Stock	Price
7808203	T6-D (Torx 6)	① SCMT042204-DM	② SCMT052404-DM	●	
7808204	T7-D (Torx 7)	③ SCMT062806-DM	-	●	
7808205	T8-D (Torx 8)	④ SCMT073206-DM	⑤ SCMT083608-DM	●	
7808208	T15-D (Torx 15)	⑥ SCMT104208-DM		●	
7808209	T20-D (Torx 20)	⑦ SCMT125008-DM		●	

● on stock
○ available on short notice

CONDITIONS

Phoenix 45° Face Milling - Phönix 45° Planfräser - Phoenix 45° spianare - Phoenix 45°, surfaçage - Phoenix 45°, Yüzey frezeleme - Phoenix 45° planfræser- Phoenix 45° planfrāsar- Planeado Phoenix a 45° - Phoenix 45° орцовое фрезерование - Phoenix 45° Frezowanie czołowe

PAS BORE

	Work Material	Tensile Strength / Hardness	Vc (m/min) Milling Speed	fz (mm/t) Feed Per Tooth	ap (m/min) Depth of Cut
P	Mild Steel-Carbon Steel (SS400-S10C)	~180HB	180 (100~ 250)	0,18 (0,15 ~ 0,35)	3
P	Carbon Steel-Alloy Steel (S50C-SCM440)	~280HB	180 (100 ~ 250)	0,18 (0,15 ~ 0,35)	3
P	Die Steel (SKD11-SKD61)	~280HB	150 (80 ~ 200)	0,15 (0,10 ~ 0,30)	3
M	Stainless Steel (Dry) (SUS304-SUS420)	~250HB	120 (80~ 180)	0,12 (0,08 ~ 0,25)	3
K	Cast Iron (FC250)	~300N/mm²	180 (100~ 350)	0,20 (0,15 ~ 0,35)	4
K	Ductile Cast Iron (FCD400)	~600N/mm²	180 (100~270)	0,20 (0,10 ~ 0,30)	3
H	Pre-hardened Steel (NAK80)	40~43HRC	100 (60~ 150)	0,12 (0,08 ~ 0,20)	1,5
H	Steel for Die Casting (DAC55-DH31)	43~48HRC	80 (40 ~ 120)	0,10 (0,05 ~ 0,15)	0,5
H	Hardened Steel (SKD11)	50~55HRC	60 (40 ~ 90)	0,08 (0,05 ~ 0,15)	0,5

Recommended Grade / Material

Grade	Chipbreaker	Coolant / Dry	P	M	K	N	S	H
XP3035	GM	Dry	◉	○	○			
XC3025	GM	Dry	◉		○			
XP2040	GM	Dry	○					○
		Coolant		◉				
XC5040	GR	Dry			◉			

GR Heavy Cutting GM Medium Cutting

◉ First choice
○ Second choice

Phoenix 45° Face Milling - Phönix 45° Planfräser - Phoenix 45° spianare - Phoenix 45°, surfaçage - Phoenix 45°, Yüzey frezeleme - Phoenix 45° planfræser- Phoenix 45° planfrāsar- Planeado Phoenix a 45° - Phoenix 45° орцовое фрезерование - Phoenix 45° Frezowanie czołowe

PAO BORE

	Work Material	Tensile Strength / Hardness	Vc (m/min) Milling Speed	fz (mm/t) Feed Per Tooth	ap (m/min) Depth of Cut
P	Mild Steel-Carbon Steel (SS400-S10C)	~180HB	180 (100~ 250)	0,25 (0,20 ~ 0,50)	2
P	Carbon Steel-Alloy Steel (S50C-SCM440)	~280HB	180 (100 ~ 250)	0,25 (0,20 ~ 0,50)	2
P	Die Steel (SKD11-SKD61)	~280HB	150 (80 ~ 200)	0,25 (0,15 ~ 0,40)	2
M	Stainless Steel (Dry) (SUS304-SUS420)	~250HB	120 (80~ 180)	0,20 (0,15 ~ 0,40)	2
K	Cast Iron (FC250)	~300N/mm²	200 (100~ 350)	0,30 (0,20 ~ 0,50)	2
K	Ductile Cast Iron (FCD400)	~600N/mm²	180 (100~270)	0,28 (0,15 ~ 0,40)	2
H	Pre-hardened Steel (NAK80)	40~43HRC	100 (60~ 150)	0,15 (0,10 ~ 0,25)	1,5
H	Steel for Die Casting (DAC55-DH31)	43~48HRC	80 (40 ~ 120)	0,12 (0,05 ~ 0,20)	0,5
H	Hardened Steel (SKD11)	50~55HRC	60 (40 ~ 90)	0,10 (0,05 ~ 0,20)	0,5

Recommended Grade / Material

Grade	Chipbreaker	Coolant / Dry	P	M	K	N	S	H
XP3035	GM	Dry	◉	○	○			
XP2040	GM	Dry	○					○
		Coolant		◉				
XC1015	GM	Dry			◉			
XP1020	GM	Dry			◉			

GM Medium Cutting

◉ First choice
○ Second choice

CONDITIONS

Finish Ball nose cutter - Kugelfräser für Schlichtbearbeitungen - Fresa sferica di finitura - Finition hémisphérique - Finiş küre uçlu kesici - Radiusfræser til sletbearbejdning - Fullradiefräs för finishing, 2-skär - Fresa de punta esférica para acabado - Чистовая сферическая фреза - Frez kulowy, obróbka wykańczająca

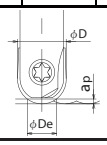
PFB

■ Depth of cut & 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

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			
P	Mild Steel-Carbon Steel	(SS400,S10C)	～180HB	300 (200～400)	0,02D	0,1	0,12	0,14	0,18
P	Carbon Steel-Alloy Steel	(S50C,SCM440)	～280HB	300 (200～400)	0,02D	0,07	0,1	0,12	0,14
P	Die Steel	(SKD11,SKD61)	～280HB	250 (150～350)	0,02D	0,07	0,1	0,12	0,14
M	Stainless Steel	(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
K	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
S	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
H	Steel for Die Casting	(DAC55・DH31)	43～48HRC	180 (90～200)	0,015D	0,05	0,06	0,07	0,07
H	Hardened Steel	(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			
N	Aluminium Alloy	(A7075)	～13% Si	500 (400～600)	0,03D	0,15	0,18	0,23	0,27
N	Copper Alloy	(C1100)	–	300 (200～400)	0,03D	0,11	0,13	0,17	0,2
N	Graphite		–	500 (400～600)	0,03D	0,14	0,17	0,21	0,25
N	CFRP		–	400 (300～500)	0,03D	0,11	0,13	0,17	0,2

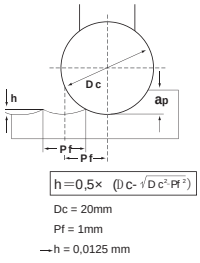
These numbers are typical values shown in the actual cutting speed. Please adjust accordingly to suit process environments.

■ Recommended Pick feed / Surface Finish

(unit:mm)

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

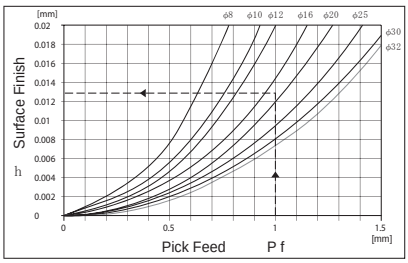


$h=0,5\times(Dc-\sqrt{Dc^2-Pf^2})$

Dc = 20mm

Pf = 1mm

→h = 0,0125 mm

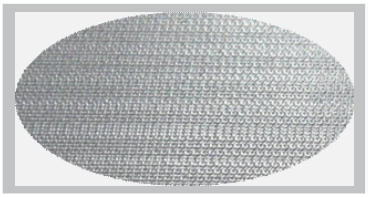
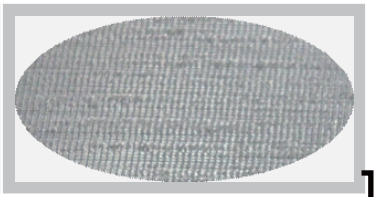


CONDITIONS

Finish Ball nose cutter - Kugelfräser für Schlichtbearbeitungen - Fresa sferica di finitura - Finition hémisphérique - Finiş küre uçlu kesici - Radiusfræser til sletbearbejdning - Fullradiefräs för finishing, 2-skär - Fresa de punta esférica para acabado - Чистовая сферическая фреза - Frez kulowy, obróbka wykańczająca

PFB

Surface finish - *PFB*

PFB	Competitor
	

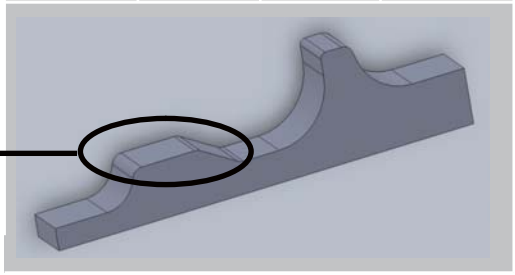
Machining Method	Product	2 4 6 8 10 (μm)	RZ (μm)
Copy Milling Flat Surface	**PFB**		6,171
	A		10,93
	B		6,021
	C		7,798
	D		6,963

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

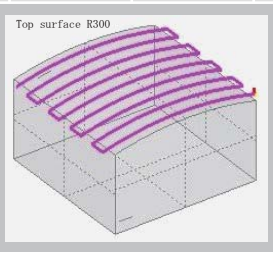
■ Machining Environment

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
a_p	0.3mm	Holder Size	BT50
Pf	0.3mm	Coolant Size	Water Soluble



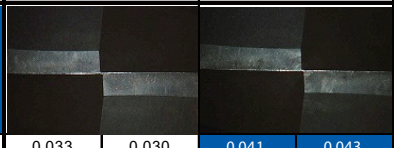
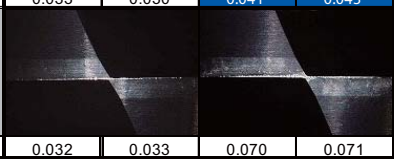
Comparison of tool wear - *PFB*

Machining Detail		Machining Parameters	
Size	R10	Name of Part	Blade
Overhang	110mm	Material	SUH600
Speed	1,500min	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



Comparison of tool wear after 200M of machining

■ Amount of wear

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

90° Shoulder cutter - 90 ° Schulterfräser - 90° Spallamento retto - Surfacer dresser à 90° - 90° omuz frezesi
90° vendeskærsfræser - 90° vändskärsfräs - Fresa de 90° para escuadrar - Торцевая фреза 90° - 90° Frez walcowo-czołowy

PSEL

	Work Material	Tensile Strength / Hardness	Insert Size			
			ZD·T11···		ZDKT15···	
			Vc (m/min) Milling Speed	fz (mm/t) Feed / Tooth	Vc (m/min) Milling Speed	fz (mm/t) Feed / Tooth
P	Mild Steel-Carbon Steel (SS400-S10C)	~180HB	160 (100~ 200)	0,25 (0,2 ~ 0,4)	160 (100~ 200)	0,3 (0,2 ~ 0,4)
P	Carbon Steel-Alloy Steel (S50C-SCM440)	~280HB	150 (100 ~ 200)	0,2 (0,15 ~ 0,3)	150 (100~ 200)	0,25 (0,15 ~ 0,3)
P	Die Steel (SKD11-SKD61)	~280HB	130 (80 ~ 180)	0,2 (0,15 ~ 0,3)	130 (80 ~ 180)	0,25 (0,15 ~ 0,3)
M	Stainless Steel (Dry) (SUS304-SUS420)	~250HB	150 (100 ~ 200)	0,12 (0,1 ~ 0,3)	150 (100 ~ 200)	0,15 (0,1 ~ 0,3)
M	Stainless Steel (Coolant) (SUS304-SUS420)	~250HB	80 (60 ~ 120)	0,12 (0,1 ~ 0,3)	80 (60 ~ 120)	0,15 (0,1 ~ 0,3)
K	Cast Iron (FC250)	~350N/mm²	160 (100 ~ 300)	0,2 (0,2 ~ 0,35)	160 (100 ~ 300)	0,25 (0,2 ~ 0,35)
K	Ductile Cast Iron (FCD400)	~800N/mm²	160 (100 ~ 250)	0,15 (0,2 ~ 0,3)	160 (100 ~ 250)	0,2 (0,2 ~ 0,3)
N	Aluminum Alloys	~13%Si	300 (200 ~ 1.000)	0,25 (0,1 ~ 0,4)	300 (200 ~ 1.000)	0,3 (0,1 ~ 0,4)
S	Heat Resistant Alloys (Inconel 718)	–	35 (25 ~ 60)	0,15 (0,1 ~ 0,3)	35 (25 ~ 60)	0,18 (0,1 ~ 0,3)
S	Titanium Alloy (Ti-6Al-4V)	–	40 (30 ~ 120)	0,18 (0,1 ~ 0,35)	40 (30 ~ 120)	0,18 (0,1 ~ 0,3)
H	Pre-hardened Steel (NAK80)	40~43HRC	100 (40 ~ 150)	0,15 (0,1 ~ 0,3)	100 (40 ~ 150)	0,18 (0,1 ~ 0,3)
H	Steel for Die Casting (DAC55-DH31)	43~48HRC	60 (40 ~ 120)	0,12 (0,05 ~ 0,2)	60 (40 ~ 120)	0,15 (0,05 ~ 0,2)

Maximum ramping angle (E)

Depth of cut	Maximum width of Cut ae (mm)	Ratio to adjust cutting speed Vp	Ratio to adjust feed rate fP
~ 0,2 D	1D	0,8	0,5
0,25 ~ 0,3 D	0,7D	0,8	0,6
0,4 ~ 0,5 D	0,5 D	0,9	0,7
0,6 ~ 0,7 D	0,3 D	0,9	0,8
0,8 ~ 1 D	0,2 D	1	0,9
1,1 ~ 1,5 D	0,1 D	1	1

Example :
Ø ap=30mm, S50C
Insert size ZD-T11..., for cutting Ø32, ap=30, side milling, for carbon steel (S50C) machining.

- 150m/min (Vc) x 1.0 (Vp) = 150m/min
- 0,2mm/t (fz) x 0,9 (fp) = 0,18mm/t
- ae: 0,2xØ32 = 6,4mm or lower

CONDITIONS

PSE

90° Shoulder cutter - 90 ° Schulterfräser - 90° Spallamento retto - Surfacer dresser à 90° - 90° omuz frezesi
90° vendeskærsfræser - 90° vändskärsfräs - Fresa de 90° para escuadrar - Торцевая фреза 90° - 90° Frez walcowo-czołowy

	Work Material	Tensile Strength / Hardness	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 Steel-Carbon Steel (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)
P	Carbon Steel-Alloy Steel (S50C-SCM440)	~280HB	XP3035	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)
P	Die Steel (SKD11-SKD61)	~280HB	XP3035	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 Steel (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)
M	Stainless Steel (Coolant) (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)
K	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 ~ 1.500)	0,3 (0,2 ~ 0,5)	300 (200 ~ 1.500)	0,15 (0,1 ~ 0,25)	300 (200 ~ 1.500)	0,35 (0,2 ~ 0,6)	300 (200 ~ 1.500)	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)
S	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)	100 (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)
H	Steel for Die Casting (DAC55-DH31)	43~48HRC	XP2040	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)
H	Hardened Steel (SKD11)	50~55HRC	XP2040	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)

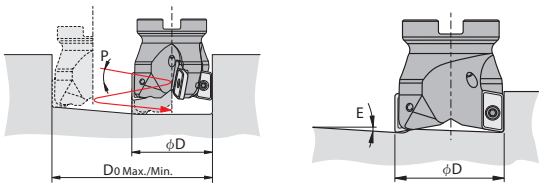
Recommended Grade / Material

Grade	Chipbreaker	Coolant / Dry	P	M	K	N	S	H
CK010	NM	Coolant / Dry			○	◉		
XP3035	GL GM	Dry	◉	○	○			
XP2040	GL GM	Dry	○					◉
		Coolant		◉			○	
XC1015	GM	Dry			◉			
XC5035	SM	Dry		◉				○
		Coolant		○			○	
XC5040	SM	Coolant		○			◉	○

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

◉ First choice
○ Second choice

Maximum ramping angle (E)



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
		Do Min.	Do Max.			Do Min.	Do 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°

PRC

Radius cutter - Rundplattenfräser - Fresa con inserto tondo - Fraise plaquettes rondes - Radyus freze
Radius fræser - Vändskärsfräs med runda skär - Fresa tórica - Торовая фреза - Frez na płytki okrągłe

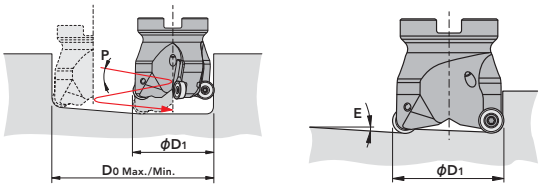
	Work Material	Tensile strength/ Hardness	Grade	Vc (m/min) Milling Speed	Insert Size					
					RPH.10..		RPH.12..		RPH.16..	
					fz (mm/t) Feed /Tooth	ap (mm) Depth of Cut	fz (mm/t) Feed /Tooth	ap (mm) Depth of Cut	fz (mm/t) Feed / Tooth	ap (mm) Depth of Cut
P	Mild Steel-Carbon Steel (SS400-S10C)	~180HB	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
P	Carbon Steel-Alloy Steel (S50C-SCM440)	~280HB		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
P	Die Steel (SKD11-SKD61)	~280HB		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 Steel (SUS304-SUS420)	~250HB	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)	~350N/mm²	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
K	Ductile Cast Iron (FCD400)	~800N/mm²	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	~13%Si	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
S	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)	40~43HRC	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
H	Steel for Die Casting (DAC55-DH31)	43~48HRC		80 (40 ~ 120)	0,15 (0,05 ~ 0,25)	1	0,2 (0,05 ~ 0,3)	1	0,25 (0,05 ~ 0,4)	1
H	Hardened Steel (SKD11)	50~55HRC		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 Grade / Material

Grade	Chipbreaker	Coolant / Dry	P	M	K	N	S	H
CK010	NM	Coolant / Dry			○	◉		
XP3035	–	Dry	◉	○	○			
XP2040	GL	Dry	○					◉
		Coolant		◉			○	
XC1015	–	Dry			◉			
XC5035	SM	Dry		◉				○
		Coolant		○			○	
XC5040	SM	Coolant		○			◉	○

◉ First choice
○ Second choice

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

CONDITIONS

PHC

High feed radius cutter - Hochvorschubsfräser - Fresa alto avanzamento - Fraise grandes avances - Yüksek ilerlemeli freze
High feed radiusfræser - Högmatnings fräs med vändskär - Fresa de gran avance - Фреза с высокой подачей - Frez do wysokich posuwów

	Work Material	Tensile strength/ Hardness	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 Steel-Low Carbon Steel (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
P	Carbon Steel-Alloy Steel (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
P	Die Steel (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 Steel (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
K	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
S	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
H	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
H	Hardened Steel (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

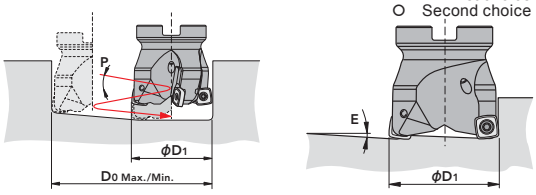
Recommended Grade / Material

Grade	Chipbreaker	Coolant / Dry	P	M	K	S	H
XP3035	GM	Dry	◉	○	○		
XP2040	GM	Dry	○				◉
		Coolant		◉		○	
XC1015	GM	Dry			◉		
XC5035	SM	Dry		◉			○
		Coolant		○		○	
XC5040	SM	Coolant		○		◉	○

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

◉ First choice
○ Second choice

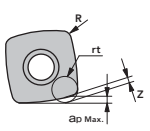
Maximum ramping angle (E)



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 dimmensions (for programming)

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 - Yüksek ilerlemeli freze
High feed radiusfræser - Högmatnings fräs med vändskär - Fresa de gran avance - Фреза с высокой подачей - Frez do wysokich posuwów

	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 Steel·Low Carbon Steel (SS400-S10C)	~180HB	180 (90~220)	0,7(0,3~1)	3	2	0,6(0,3~1)	3	3	2	2
P	Carbon Steel·Alloy Steel (S50C-SCM440)	~280HB	180 (90~220)	0,7(0,3~1)	3	2	0,6(0,3~1)	3	3	2	2
P	Die Steel (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/mm²	180 (100~250)	0,8(0,3~1,5)	3	3	0,7(0,3~1,5)	3	3	2	2
K	Ductile Cast Iron (FCD400)	~800N/mm²	150 (100~250)	0,7(0,3~1,2)	3	3	0,6(0,3~1,2)	3	3	2	2

Recommended Grade / Material

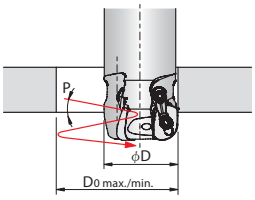
Grade	Chipbreaker	Coolant / Dry	P	K
XP3930	GM	Dry	◉	◉

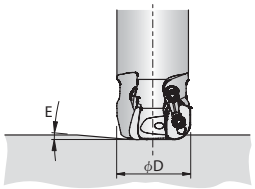
GM = General use

◉ First choice
○ Second choice

Maximum ramping angle (E)

(mm) D	Ramping Angle E	Helical Milling(mm)		Z Plunging(mm)
		Do min.	Do 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 kleine 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 à70% 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 spånor kan förekomma i början av fräsprocessen 2. Matningen bör ligga inom 40-70% av de rekommenderade villkoren 3. För att inte minska matningen, sätt rampvinkeln till 1 ° eller mindre 4. Vi rekommenderar luftkylning
1. Al inicio del proceso de fresado pueden producirse virutas largas 2. El avance debería ser entre 40 ý 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
1. Freze operasyonunun başında uzun talaşlar görülebilir 2. İlerleme tavsiye edilen kesme şartlarının 40-70% olmalıdır 3. Tavsiye edilen ilerlemeyi düşürmedem, 1° den düşük açı ayarı yapılmasıdır 4. Hava üflemesi kullanmanızı tavsiye ediyoruz	1. Długie wióry mogą występować na początku procesu frezowania 2. Posuw powinien mieścić się w 40-70% z zalecanych warunków frezowania. 3. Aby przejść bez obniżania posuwu należy ustawić kąt mniejszy niż 1 °. 4. Zalecamy korzystanie z nadmuchu powietrzem

CONDITIONS

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

PHP

	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 Steel·Carbon Steel 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)
P	Carbon Steel·Alloy Steel 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)
P	Die Steel 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 Steel (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)
K	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)
S	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 Grade / Material

Grade	Chipbreaker	Coolant / Dry	P	M	K	N	S
XP9040	DM	Coolant	◉	◉		◉	○
XC9025	DM	Coolant	○	○	◉	○	

◉ First choice
○ Second choice

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

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

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

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

1. De indikerede skæredata er ved brug af vandbaseret emulsion
2. Passende kølemiddel er vandbaseret med høj densitet (fortyndet mindre end 20 gange)
3. Ikke vandbaseret kølemiddel anbefales ikke
4. Disse skæredata er for boredybde mindre end 3 gange diameter
5. Fastspænd kun vendeskær i god kondition
6. Fastgør emnematerialet sikkert for at undgå deformation, vibrationer og lign.
7. Et tilstoppet kølehul kan forårsage brud. Sørg for at kølemidlet er filtreret

1. Den angivna varvtal och matningar är för vattenlbaserad emulsion
2. Lämplig skärvätska är vattenlösligt hög densitet olja (mindre än 20 gånger utspädning)
3. Ej vattenbaserad klmedel rekommenderas
4. Denna skärdata är för borrdjup mindre än 3xD
5. Använd endast vändskär som är i god kondition
6. Fäst arbetsstycket ordentligt för att undvika deformation, vibrationer och liknande.
7. Ett igensatt kylkanal kan orsaka brott. Filtrera helst kylvätskan

1. Al inicio del proceso de fresado pueden producirse virutas largas
2. El avance debería ser entre 40 ý 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

1. Belirtilen kesme hızı ve ilerleme kesme sıvısı kullanımına ögre verilmiştir
2. Uygun kesme sıvısı, suda çözünen yüksek yoğunluklu yağ (20 kat seyretmenden az olacak)
3. Suda çözülmeyen yağ kullanılması tavsiye edilmez
4. Belirtilen kesme değerler delme derinliğinin matkap çapının 3 katından küçük olduğunda geçerlidir
5. Ucu her bağlamada takıma sıkıcı tutturulması gerekir
6. İşlemin bozulması, işlenen yüzeyin sapması veya titreşim ihtimallerini azaltmak için iş parçasını sabitleyin.
7. Tıkanan bir yağ deliği kırılmaya neden olabilir. Yağ besleyicide filtre bulunduğundan emin olun.

1. Prędkości i posuwy podane są do pracy w emulsji
2. Odpowiednia emulsja w stosunku 1/20
3. Nie jest zalecane korzystanie z nierozpuszczalnego w wodzie oleju
4. Warunki te są podane dla wiercenia mniej niż 3 razy w średnicy wiertła.
5. Proszę przykręcać płytki ściśle, stosując niezużyte uchwyty
6. Właściwie zamocuj materiał aby zmniejszyć możliwość powstania deformacji , złej jakości powierzchni lub wibracji
7. Zatkany otwór chłodzący może doprowadzić do uszkodzenia. Proszę upewnić się, że filtr jest dołączony do podajnika emulsji

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TOOL COMMUNICATION
OSG CORPORATION

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