

Från 01/04/2013 till 30/09/2013

KAMPANJ



**PHOENIX  
INDEXABLE SERIE**  
PXM

**Promotion**  
**Buy Heads and**  
**Get Free Bodies!**



# Promotion

# Free Bodies



## Head Diameter 12mm

Page	EDP	Description	D	R	SEK	Joint	Steel Body			Carbide Body		
						7801893	7801801	7801821	7801831	7801811	7801832	7801841
						PXMJ-C 12SF06	PXMZ-C12SS 12-S100	PXMZ-C12TP 20-S145	PXMZ-C12SS 12-S075CS	PXMZ-C12SS 12-L100CS	PXMZ-C12SS 12-L115CS	PXMZ-C12TP 16-LL135CS
p.5	7830401	PXNL120C12-04C005	12		663,-	1	2	2	5	5	6	8
p.5	7830451	PXNH120C12-04C005	12		663,-	1	2	2	5	5	6	8
p.8	7830251	PXBE120C12-03R060	12	R6	1022,-	1	1	2	3	4	4	6
p.8	7830301	PXBM120C12-04R060	12	R6	1022,-	1	1	2	3	4	4	6
p.7	7830201	PXRE120C12-04R020	12	R2	1056,-	1	1	2	3	4	4	6
p.6	7830004	PXSE120C12-04R000	12		862,-	1	1	2	4	4	5	7
	7830005	PXSE120C12-04R005	12	R0,5	862,-	1	1	2	4	4	5	7
	7830006	PXSE120C12-04R010	12	R1	862,-	1	1	2	4	4	5	7
	7830007	PXSE120C12-04R020	12	R2	862,-	1	1	2	4	4	5	7
	7830008	PXSE120C12-04R030	12	R3	862,-	1	1	2	4	4	5	7
p.7	7830104	PXSM120C12-06R000	12	R	1013,-	1	1	2	3	4	4	6
	7830105	PXSM120C12-06R005	12		1013,-	1	1	2	3	4	4	6
	7830106	PXSM120C12-06R010	12	R1	1013,-	1	1	2	3	4	4	6
	7830107	PXSM120C12-06R020	12	R2	1013,-	1	1	2	3	4	4	6
	7830108	PXSM120C12-06R030	12	R3	1013,-	1	1	2	3	4	4	6

# Promotion

# Free Bodies



## Head Diameter 16mm

Page	EDP	Description	D	R	SEK	Joint	Steel Body			Carbide Body		
						7801894	7801802	7801822	7801833	7801812	7801834	7801842
						PXMJ-C 16SF08	PXMZ-C16SS 16-S100	PXMZ-C16TP 25-S155	PXMZ-C16SS 16-S090CS	PXMZ-C16SS 16-L130CS	PXMZ-C16SS 16-L135CS	PXMZ-C16TP 20-LL165CS
p.5	7830402	PXNL160C16-04C006	16		1082,-	1	1	2	4	4	4	6
p.5	7830452	PXNH160C16-04C006	16		1082,-	1	1	2	4	4	4	6
p.8	7830252	PXBE160C16-03R080	16	R8	1082,-	1	1	2	4	4	4	6
p.8	7830302	PXBM160C16-06R080	16	R8	1082,-	1	1	2	4	4	4	6
p.7	7830202	PXRE160C16-06R030	16	R3	1317,-	1	1	2	3	4	4	5
p.6	7830009	PXSE160C16-04R000	16		958,-	1	1	2	4	4	4	6
	7830010	PXSE160C16-04R005	16	R0,5	958,-	1	1	2	4	4	4	6
	7830011	PXSE160C16-04R010	16	R1	958,-	1	1	2	4	4	4	6
	7830012	PXSE160C16-04R015	16	R1.5	958,-	1	1	2	4	4	4	6
	7830013	PXSE160C16-04R020	16	R2	958,-	1	1	2	4	4	4	6
	7830014	PXSE160C16-04R030	16	R3	958,-	1	1	2	4	4	4	6
p.7	7830109	PXSM160C16-06R000	16		1066,-	1	1	2	3	4	4	6
	7830110	PXSM160C16-06R005	16	R0.5	1066,-	1	1	2	3	4	4	6
	7830111	PXSM160C16-06R010	16	R1	1066,-	1	1	2	3	4	4	6
	7830112	PXSM160C16-06R015	16	R1.5	1066,-	1	1	2	3	4	4	6
	7830113	PXSM160C16-06R020	16	R2	1066,-	1	1	2	3	4	4	6
	7830114	PXSM160C16-06R030	16	R3	1066,-	1	1	2	3	4	4	6
	7830115	PXSM160C16-08R000	16		1211,-	1	1	2	3	4	4	5
	7830116	PXSM160C16-08R005	16	R0.5	1211,-	1	1	2	3	4	4	5
	7830117	PXSM160C16-08R010	16	R1	1211,-	1	1	2	3	4	4	5
	7830118	PXSM160C16-08R015	16	R1.5	1211,-	1	1	2	3	4	4	5
	7830119	PXSM160C16-08R020	16	R2	1211,-	1	1	2	3	4	4	5
	7830120	PXSM160C16-08R030	16	R3	1211,-	1	1	2	3	4	4	5



# Promotion

# Free Bodies



## Head Diameter 20mm

Price	EDP	Description	D	R	SEK	Joint	Steel Body			Carbide Body		
						7801895	7801803	7801823	7801835	7801813	7801836	7801843
						PXMJ-C 20SF10	PXMZ-C20SS 20-S120	PXMZ-C20TP 32-S170	PXMZ-C20SS 20-S090CS	PXMZ-C20SS 20-L150CS	PXMZ-C20SS 20-L180CS	PXMZ-C20TP 25-LL200CS
p.5	7830403	PXNL200C20-04C006	20		1326,-	1	1	2	3	4	4	5
p.5	7830453	PXNH200C20-04C006	20		1326,-	1	1	2	3	4	4	5
p.8	7830253	PXBE200C20-03R100	20	R10	1234,-	1	1	2	3	5	5	6
p.8	7830303	PXBM200C20-06R100	20	R10	1234,-	1	1	2	3	5	5	6
p.7	7830203	PXRE200C20-06R030	20	R3	1573,-	1	1	2	3	4	4	5
p.6	7830015	PXSE200C20-04R000	20		1102,-	1	1	2	4	5	5	6
	7830016	PXSE200C20-04R005	20	R0.5	1102,-	1	1	2	4	5	5	6
	7830017	PXSE200C20-04R010	20	R1	1102,-	1	1	2	4	5	5	6
	7830018	PXSE200C20-04R020	20	R2	1102,-	1	1	2	4	5	5	6
	7830019	PXSE200C20-04R030	20	R3	1102,-	1	1	2	4	5	5	6
p.7	7830121	PXSM200C20-10R000	20		2004,-	1	1	2	2	3	3	4
	7830122	PXSM200C20-10R005	20	R0.5	2004,-	1	1	2	2	3	3	4
	7830123	PXSM200C20-10R010	20	R1	2004,-	1	1	2	2	3	3	4
	7830124	PXSM200C20-10R020	20	R2	2004,-	1	1	2	2	3	3	4
	7830125	PXSM200C20-10R030	20	R3	2004,-	1	1	2	2	3	3	4

# Promotion

# Free Bodies



## Head Diameter 25mm

Price	EDP	Description	D	R	SEK	Joint	Steel Body	Carbide Body
						7801896	7801804	7801814
						PXMJ-C 25SF12	PXMZ-C 20-S120	PXMZ-C25SS 25-L200CC
p.5	7830404	PXNL250C25-04C006	25		1826,-	1	1	4
p.5	7830454	PXNH250C25-04C006	25		1826,-	1	1	4
p.6	7830020	PXSE250C25-04R000	25	0	1418,-	1	1	5
	7830021	PXSE250C25-04R010	25	R1	1418,-	1	1	5
	7830022	PXSE250C25-04R020	25	R2	1418,-	1	1	5
	7830023	PXSE250C25-04R030	25	R3	1418,-	1	1	5
	7830126	PXSM250C25-10R000	25	0	2257,-	1	1	3
p.7	7830127	PXSM250C25-10R010	25	R1	2257,-	1	1	3
	7830128	PXSM250C25-10R020	25	R2	2257,-	1	1	3
	7830129	PXSM250C25-10R030	25	R3	2257,-	1	1	3

\* Exempel:

Köp 1 x



och få 1 st.



Utan kostnad!

Värde SEK 1035,-

Köp 4 x



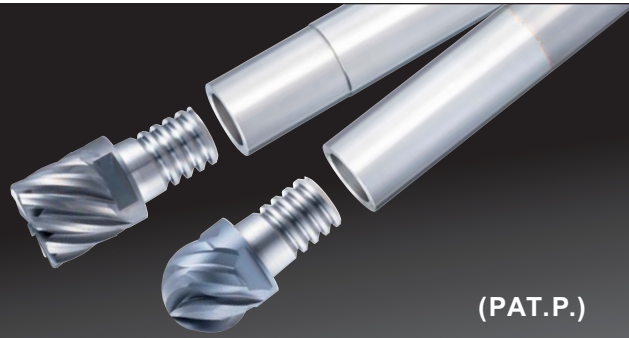
och få 1 st.



Utan kostnad!

Värde SEK 3528,-

# Phoenix Exchangeable Milling

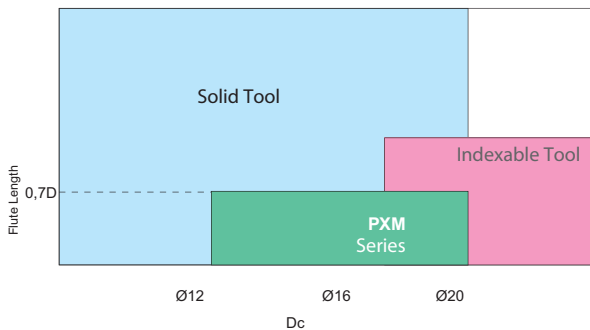


(PAT.P.)

- 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  $\pm 0,03$  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.

Image	Model	Specifications	Applications	Page
	<b>PXNL</b>	Unequal Spacing Variable helix Roughing Type-Low helix Type	Suitable for rough milling with a long tool life	Page 3
	<b>PXNH</b>	Unequal Spacing Variable helix Roughing Type-High helix Type	Suitable for rough milling in a wide range of cutting conditions	Page 3
	<b>PXSE</b>	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 4
	<b>PXSM</b>	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 5
	<b>PXRE</b>	High Feed Corner Radius Type	It can mill high hardness materials.	Page 5
	<b>PXBE</b>	Three flutes Ball nose Type	It can perform highly efficient roughing.	Page 6
	<b>PXBM</b>	Multiple flutes Ball nose Type	It can be used for intermediate-finish and finish milling.	Page 6

**PHOENIX**

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

**PHOENIX**

- High performance
- Ungleicher Drall
- Ungleich gedrahte Spiralwinkel
- Schruppfräser
- Kleiner Spiralwinkel

**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 sponing
- Skrubfræsning
- Let snoet spiral

**PHOENIX**

- High performance
- Differentierade skär
- Variabel helix
- Skrubbrfåsning
- Liten helix

**PHOENIX**

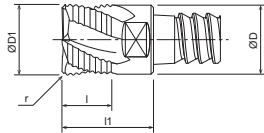
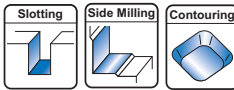
- Altas prestaciones
- Passo constante
- Variable helice
- Desbaste
- Lenta helice

**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
<b>NEW</b>	7830401	PXNL120C12-04C005	12	0,5	4	8,4	14,4	11,7	19/21	XP3225	●	
<b>NEW</b>	7830402	PXNL160C16-04C006	16	0,6	4	11,2	18,7	15,7	19/21	XP3225	●	
<b>NEW</b>	7830403	PXNL200C20-04C006	20	0,6	4	14	21,5	19,6	19/21	XP3225	●	
<b>NEW</b>	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 gedrahte Spiralwinkel
- Schruppfräser
- Großer Spiralwinkel

**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 sponing
- Skrubfræsning
- Høj helix

**PHOENIX**

- High performance
- Differentierade skär
- Variabel helix
- Skrubbrfåsning
- Skärålgång

**PHOENIX**

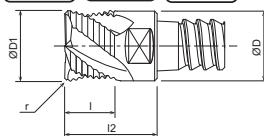
- Altas prestaciones
- Passo constante
- Variable helice
- Desbaste
- Alta helice

**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
<b>NEW</b>	7830451	PXNH120C12-04C005	12	0,5	4	8,4	14,4	11,7	40/42	XP3225	●	
<b>NEW</b>	7830452	PXNH160C16-04C006	16	0,6	4	11,2	18,7	15,7	40/42	XP3225	●	
<b>NEW</b>	7830453	PXNH200C20-04C006	20	0,6	4	14	21,5	19,6	40/42	XP3225	●	
<b>NEW</b>	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

**PHOENIX**

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

**PHOENIX**

- High performance
- Ungleicher Drill
- 4 Schneiden
- Eckradiusfräser
- Schafffräser

**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 açılızlı
- Köşe radyuslu tipi
- Kare tip

**PHOENIX**

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

**PHOENIX**

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

**PHOENIX**

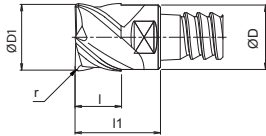
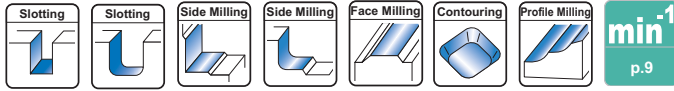
- Altas prestaciones
- Passo constante
- 4 Labio
- Con radio en el vértice
- Escuadrado

**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
- Walcowy



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	●	
<b>New Sizes</b> 7830020	PXSE250C25-04R000	25	0	4	17,5	27,5	24	38	XP3225	●	
<b>New Sizes</b> 7830021	PXSE250C25-04R010	25	1	4	17,5	27,5	24	38	XP3225	●	
<b>New Sizes</b> 7830022	PXSE250C25-04R020	25	2	4	17,5	27,5	24	38	XP3225	●	
<b>New Sizes</b> 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

**PHOENIX**

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

**PHOENIX**

- High performance
- Ungleicher Drill
- Vielzahnfräser
- Eckradiusfräser
- Schafffräser

**PHOENIX**

- Alta prestazione
- Passo variabile
- Multident
- Tipo torico
- Tipo piano

**PHOENIX**

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

**PHOENIX**

- Yüksek performans
- Dengesiz aralık
- Çok açgözlü
- Köşe radyuslu tipi
- Kare tip

**PHOENIX**

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

**PHOENIX**

- High performance
- Differentierede skår
- Flerskærs
- Hörnradie
- Skarp typ

**PHOENIX**

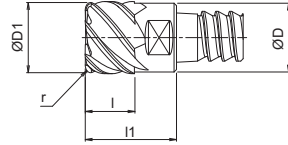
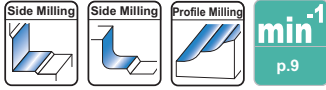
- Altas prestaciones
- Passo constante
- Ranúras múltiples
- Con radio en el vértice
- Escuadrado

**PHOENIX**

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

**PHOENIX**

- Wysoka wydajność
- Nierównomierny rozstaw
- Wielozęzowy
- Z promieniem naroża
- Walcowy



EDP	Designation	D1	r	Z <sub>Δ</sub>	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	●	
7830126	PXSM250C25-10R000	25	0	10	17,5	27,5	24	42	XP3225	●	
7830127	PXSM250C25-10R010	25	1	10	17,5	27,5	24	42	XP3225	●	
7830128	PXSM250C25-10R020	25	2	10	17,5	27,5	24	42	XP3225	●	
7830129	PXSM250C25-10R030	25	3	10	17,5	27,5	24	42	XP3225	●	

New Sizes  
New Sizes  
New Sizes  
New Sizes

Z<sub>Δ</sub>= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres - Liczba ostrzy  
Antal skær - Antal skår - Numero de ranuras - Число режущих кромок - Kanal sayısı

# PXRE

**PHOENIX**

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

**PHOENIX**

- High performance
- Ohne Drill
- Hochvorschubfräser

**PHOENIX**

- Alta prestazione
- Taglio diritto
- Tipo torico alto avanzamento

**PHOENIX**

- Haute performance
- Lèvre droite
- Fraise grandes avances

**PHOENIX**

- Yüksek performans
- Düz açgözlü
- Yüksek ilerlemeli freze

**PHOENIX**

- High performance
- Lige skærs
- High feed fræsers med hjørneradius

**PHOENIX**

- High performance
- Rakt skår
- High feed frås med hörnradie

**PHOENIX**

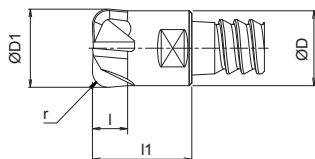
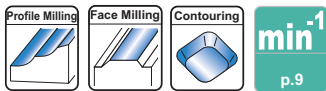
- Altas prestaciones
- Ranura recta
- Radio en el vértice para alta velocidad

**PHOENIX**

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

**PHOENIX**

- Wysoka wydajność
- Rowki proste
- Frez do wysokich posuwów



EDP	Designation	D1	r	Z <sub>Δ</sub>	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	●	

Z<sub>Δ</sub>= Number of flutes - Anzahl Schneiden - Numero di denti - Nombre de lèvres - Liczba ostrzy  
Antal skær - Antal skår - Numero de ranuras - Число режущих кромок - Kanal sayısı

 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

 PHOENIX

- High performance
- 3 Skär
- Fullradie

 PHOENIX

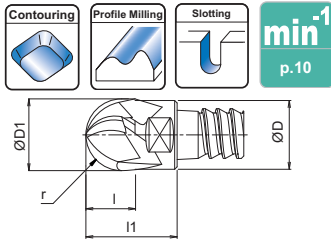
- Altas prestaciones
- 3 Labio
- Esferica

 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
- Flerskær
- Radiusfræser

 PHOENIX

- High performance
- Flerskärig
- Fullradie

 PHOENIX

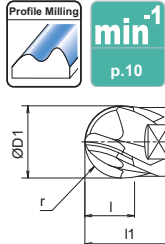
- Altas prestaciones
- Ranúras múltiples
- Esferica

 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



 PHOENIX

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

 PHOENIX

- High performance
- Für Aufschraubfräser

 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 shaft

 PHOENIX

- High performance
- Skaft til udskiftelige
- Fræsertyper Stål skaft

 PHOENIX

- High performance
- Skaft till utbytbara
- Frästyper Stål skaft

 PHOENIX

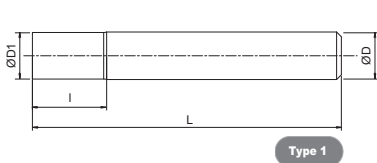
- Altas prestaciones
- Fijación para cabeza
- Intercambiable Mango de acero

 PHOENIX

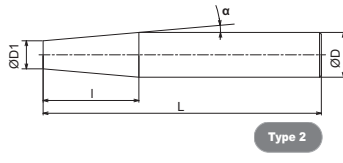
- Высокая производительность
- Оправка для сменных головок концевой фрезы
- Стальной хвостовик

 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	●	

New Sizes

 PHOENIX

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

 PHOENIX

- High performance
- Für Aufschraubfräser
- Vollhartmetall Skaft

 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 shaft

 PHOENIX

- High performance
- Skaft til udskiftelige
- Hårdmetal skaft

 PHOENIX

- High performance
- Skaft till utbytbara
- Hårdmetall skaft

 PHOENIX

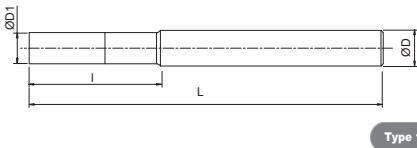
- Altas prestaciones
- Fijación para cabeza
- Mango de metal duro

 PHOENIX

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

 PHOENIX

- Wysoka wydajność
- Uchwyt do wymiany głowic i frezów
- Chwył węglík



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	●	
7801814	PXMZ-C25SS25-L200CS	25	24	25	0°	200	98	1	●	

New Sizes

### Accessories



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.



PHOENIX

■ Joint



PHOENIX

■ Joint



PHOENIX

■ Adattatore



PHOENIX

■ Joint



PHOENIX

■ Ortaklik



PHOENIX

■ Adapter



PHOENIX

■ Adapter



PHOENIX

■ Junta



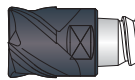
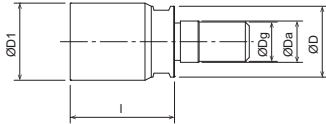
PHOENIX

■ Адаптер

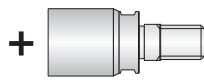


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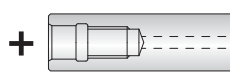
■ Adapter



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
<b>NEW</b>	7801893	PXMJ-C12SF06	12	6	11	18	11,7	6,5	PXMP8-10	●	
<b>NEW</b>	7801894	PXMJ-C16SF08	16	8	14,5	21,8	15,7	8,5	PXMP13-16	●	
<b>NEW</b>	7801895	PXMJ-C20SF10	20	10	18	26,5	19,6	10,5	PXMP13-16	●	
<b>NEW</b>	7801896	PXMJ-C25SF12	25	12	23	34	24	12,5	PXMP21	●	



# CONDITIONS

Side milling - Konturfräsen - Contornatura - Coutournage / Semi-finishing - Semi-finitura - Semi-finition - Semi-finition -  
 Kenar frezeleme - Sidefræsning - Valsfræsning - Contorneado - Боковое фрезерование / Sletfræsning - Finfræsning - Acabado - Получистовая - Frezowanie boczne

**PXNL/PXNH**

MILL DIA. (mm)	CAST IRON FC250		CARBON STEEL		ALLOY STEEL		HARDENED STEEL PREHARDENED STEEL		STAINLESS STEEL SUS304	
	SPEED (min <sup>-1</sup> )	FEED (mm/min)	SPEED (min <sup>-1</sup> )	FEED (mm/min)	SPEED (min <sup>-1</sup> )	FEED (mm/min)	SPEED (min <sup>-1</sup> )	FEED (mm/min)	SPEED (min <sup>-1</sup> )	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	$a_p$ 0,5D		$a_e$ 0,3D		$a_p$ 0,5D		$a_e$ 0,2D			

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

**PXNL/PXNH**

MILL DIA. (mm)	CAST IRON FC250		CARBON STEEL		ALLOY STEEL		HARDENED STEEL PREHARDENED STEEL		STAINLESS STEEL SUS304	
	SPEED (min <sup>-1</sup> )	FEED (mm/min)	SPEED (min <sup>-1</sup> )	FEED (mm/min)	SPEED (min <sup>-1</sup> )	FEED (mm/min)	SPEED (min <sup>-1</sup> )	FEED (mm/min)	SPEED (min <sup>-1</sup> )	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	$a_p=0,5D$									

Side milling - Konturfräsen - Contornatura - Coutournage / Semi-finishing - Semi-finitura - Semi-finition - Semi-finition -  
 Kenar frezeleme - Sidefræsning - Valsfræsning - Contorneado - Боковое фрезерование / Sletfræsning - Finfræsning - Acabado -  
 Получистовая - Frezowanie boczne

**PXSE**

MILL DIA. (mm)	MILD STEEL - CARBON STEEL CAST IRON SS400 - S55C - FC250 (~750N/mm <sup>2</sup> )		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 <sup>-1</sup> )	FEED (mm/min)	SPEED (min <sup>-1</sup> )	FEED (mm/min)	SPEED (min <sup>-1</sup> )	FEED (mm/min)	SPEED (min <sup>-1</sup> )	FEED (mm/min)	SPEED (min <sup>-1</sup> )	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	$a_p$ 0,50Dc		$a_e$ 0,15Dc		$a_p$ 0,5Dc		$a_e$ 0,10Dc		$a_p$ 0,50Dc		$a_e$ 0,05Dc	

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

**PXSE**

MILL DIA. (mm)	MILD STEEL - CARBON STEEL CAST IRON SS400 - S55C - FC250 (~750N/mm <sup>2</sup> )		ALLOY STEEL TOOL STEEL SCM-SKT-SKS-SKD (~30HRC)		STAINLESS STEEL HARDENED STEEL SUS304-SKD (~45HRC)		HARDENED STEEL TITANIUM ALLOY STEEL (45~55HRC)		HEAT STEEL INCONEL®	
	SPEED (min <sup>-1</sup> )	FEED (mm/min)	SPEED (min <sup>-1</sup> )	FEED (mm/min)	SPEED (min <sup>-1</sup> )	FEED (mm/min)	SPEED (min <sup>-1</sup> )	FEED (mm/min)	SPEED (min <sup>-1</sup> )	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	$a_p$ $\leq 0,35 Dc$		$a_p$ $\leq 0,30 Dc$		$a_p$ $\leq 0,20 Dc$		$a_p$ $\leq 0,10 Dc$			

Side milling - Konturfräsen - Conturnatura - Coutournage / Semi-finishing - Semi-finitura - Semi-finition - Semi-finition -  
 Kenar frezeleme - Sidefräsning - Valsfräsning - Contorneado - Боковое фрезерование / Sletfräsning - Finfräsning - Acabado -  
 Получистовая - Frezowanie boczne

**PXSM**

MILL DIA. (mm)	SPEED (min <sup>-1</sup> )	FEED (mm/min)	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 <sup>-1</sup> )	FEED (mm/min)	SPEED (min <sup>-1</sup> )	FEED (mm/min)	SPEED (min <sup>-1</sup> )	FEED (mm/min)	SPEED (min <sup>-1</sup> )	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	$a_p$		$a_e$		$a_p$		$a_p$		$a_e$	
	$\leq 0,50D_c$		$\leq 0,05D_c$		$\leq 0,50D_c$		$\leq 0,02D_c$		$\leq 0,30D_c$	

**PXRE**

MILL DIA. (mm)	SPEED (min <sup>-1</sup> )	FEED (mm/min)	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 <sup>-1</sup> )	FEED (mm/min)	SPEED (min <sup>-1</sup> )	FEED (mm/min)	SPEED (min <sup>-1</sup> )	FEED (mm/min)	SPEED (min <sup>-1</sup> )	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	$a_p$		$a_e$		$a_p$		$a_p$		$a_e$	
	$0,10 \times R$ Corner R size		$0,30D_c$		$0,1 \times R$ Corner R size		$0,30D_c$		$0,30D_c$	

**PXBE**

MILL DIA. (mm)	SPEED (min <sup>-1</sup> )	FEED (mm/min)	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 <sup>-1</sup> )	FEED (mm/min)	SPEED (min <sup>-1</sup> )	FEED (mm/min)	SPEED (min <sup>-1</sup> )	FEED (mm/min)	SPEED (min <sup>-1</sup> )	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	$D_c$		$a_p$		$P_f$		$D_c$		$a_p$		$P_f$	
	$\emptyset 12$		$0,07 D_c$		$0,15 D_c$		$\emptyset 12$		$0,05 D_c$		$0,10 D_c$	
	$\emptyset 16, \emptyset 20$		$0,05 D_c$				$\emptyset 16, \emptyset 20$		$0,03 D_c$		$0,05 D_c$	
			$a_{pMax}=1 \text{ mm}$				$a_{pMax}=0,8 \text{ mm}$		$a_{pMax}=0,5 \text{ mm}$			

**PXBM**

MILL DIA. (mm)	SPEED (min <sup>-1</sup> )	FEED (mm/min)	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 <sup>-1</sup> )	FEED (mm/min)	SPEED (min <sup>-1</sup> )	FEED (mm/min)	SPEED (min <sup>-1</sup> )	FEED (mm/min)	SPEED (min <sup>-1</sup> )	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	$a_p$		$P_f$		$a_p$		$P_f$		$a_p$	
	$0,02 D_c$		$0,05 D_c$		$0,02 D_c$		$0,05 D_c$		$0,02 D_c$	

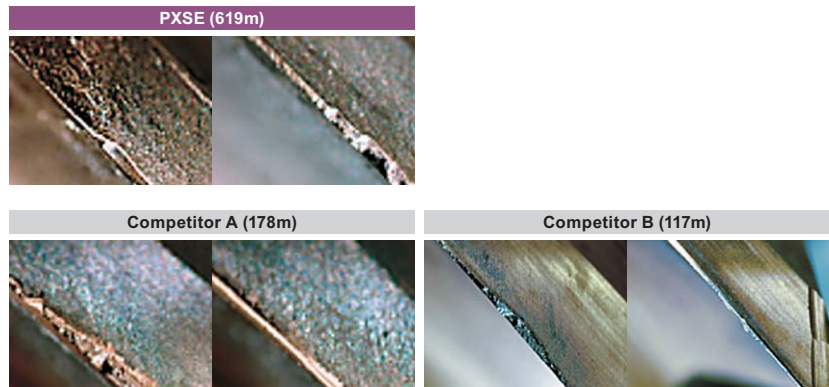


# PROCESSING DATA

## ■ SCM440 - Side milling in SCM440

Tool	Head : PXSE120C12-04R000	Milling Length (m)	0	100	200	300	400	500	600	700
	Holder : PXMZ-C12SS12-S100									
Size	Ø12									
Work Material	SCM440 (180HB)									
Cutting Speed	100m/min(2.650min <sup>-1</sup> )									
Feed	1.060mm/min(0,1mm/t)									
Milling Method	Side Milling									
Depth of Cut	a <sub>p</sub> =5mm a <sub>e</sub> =3mm									
Coolant	Air Blow									
Machine	BT40 Vertical Machining Center									

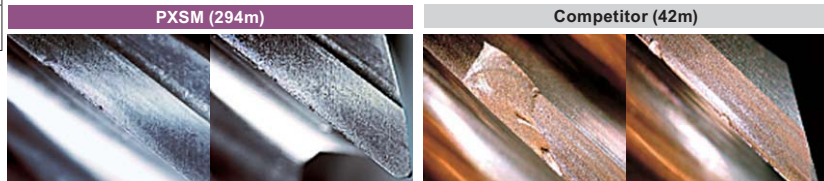
Durability that overwhelms the competitor's product. Heavy machining is possible.



## ■ S50C - Side milling in S50C

Tool	Head : PXSM160C16-06R000	Milling Length (m)	0	50	100	150	200	250	300	
	Holder : PXMZ-C16SS-S100									
Size	Ø16									
Work Material	S50C									
Cutting Speed	100m/min(1,990min <sup>-1</sup> )									
Feed	1,195mm/min(0.1mm/t)									
Milling Method	Side Milling									
Depth of Cut	a <sub>p</sub> =8mm a <sub>e</sub> =1.6mm									
Coolant	Air Blow									
Machine	BT40 Horizontal Machining Center									

Unique design of PXSM gives stable machining.



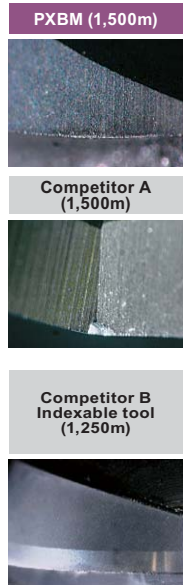
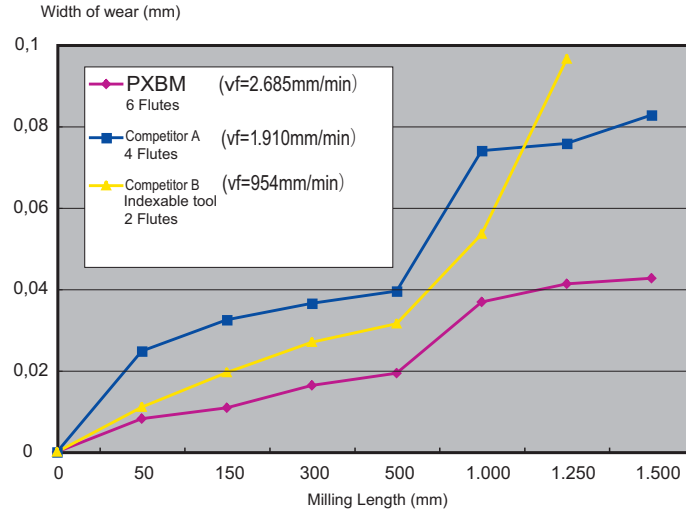


# PROCESSING DATA

## ■ 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 <sup>-1</sup> )
Feed Per Tooth	0,12mm/t
Milling Method	Pick Milling
Depth of Cut	a <sub>p</sub> =0,32mm Pf=0,8mm
Coolant	Air Blow
Machine	BT50 Horizontal Machining Center

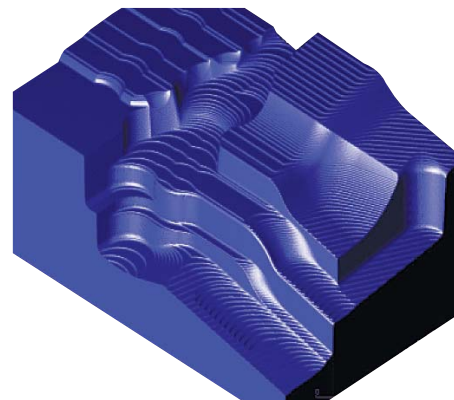
Materialized by more cutting edges for better productivity, longer tool life with superb durability.



## ■ 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 <sup>-1</sup> )	120m/min(1.900min <sup>-1</sup> )
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	

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



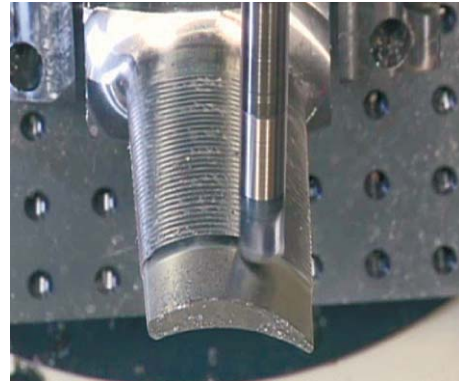
With high feed radius cutters, a simulated R value is inputted in the program during rough milling, resulting in large amounts of uncut areas. In contrast, with the high precision Corner R form PXRE, there are fewer uncut areas, which reduce the load of the next process, thereby increasing tool life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



# 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 <sup>-1</sup> )	
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

**With gap**

**No gap**

- 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.



**OSG EUROPE s.a.**

Avenue Lavoisier 1  
B-1300 Z.I. Wavre - Nord  
Belgium  
Tel.: +32 10 23 05 02  
Fax: +32 10 23 05 32  
[www.osgeurope.com](http://www.osgeurope.com)



■ **OSG TURKEY**  
**Mak.ve Tec. San.İç. ve Dış. Tic. A.Ş**  
Rami Kışla Cad. No:56 Eyüp  
İstanbul 34056  
Turkey  
Tel.: +90 212 565 24 00  
Fax: +90 212 565 44 00



■ **OSG FRANCE s.a.r.l.**  
Paris Nord 2 385 rue de la Belle Etoile,  
4 allée du Ponant  
BP 66191 Roissy en France  
F-95974 Roissy Ch. De Gaule Cedex  
France  
Tel.: +33 1 49 90 10 10  
Fax: +33 1 49 90 10 15



■ **OSG NEDERLAND**  
Bedrijfsweg 5 - 3481 MG Harmelen  
Postbus 50 - 3480 DB Harmelen  
The Netherlands  
Tel.: +31 348 44 2764  
Fax: +31 348 44 2144



■ **OSG UK Ltd.**  
Shelton house, 5 Bentalls  
Pipps Hill Ind Est, Basildon Essex SS14 3 BY  
United Kingdom  
Tel.: +44 845 305 1066  
Fax: +44 845 305 1067



■ **OSG GERMANY**  
Karl-Ehmann-Str.25  
D - 73037 Göppingen  
Germany  
Tel.: +49 7161 6064 - 0  
Fax: +49 7161 6064 - 444



■ **ROMSAN INTERNATIONAL CO. SRL**  
**Reprezentant exclusiv OSG**  
23-25, Nerva Traian Street  
031044 Bucuresti  
România  
Tel. + 40 021 322 07 47  
Fax + 40 021 321 56 00



**SWEDEN: Branch office of ■**  
**OSG Scandinavia A/S**  
Abrahams Gränd 8  
295 35 Bromölla  
Sweden  
Tel: +46 40 41 22 55



**OSG SCANDINAVIA A/S ■**  
(For Scandinavian countries)  
Langebjergvaenget 16  
4000 Roskilde  
Denmark  
Tel.: +45 46 75 65 55  
Fax: +45 46 75 67 00



**OSG - Comaher SL ■**  
Bekolarra 4  
E - 01010 Vitoria-Gasteiz  
Spain  
Tel.: +34 945 242 400  
Fax: +34 945 228 883



**OSG ITALIA s.r.l. ■**  
Via Cirenaica n. 52 int. 61/63  
I - 10142 Torino  
Italy  
Tel.: +39 0117705211  
Fax: +39 01177071402



**SLOVAKIA: Branch office of ■**  
**OSG Belgium s.a.**  
Slovakia  
Tel: +32 10 23 05 08  
[info@osg-belgium.com](mailto:info@osg-belgium.com)  
<http://ee.osgeurope.com>



**OSG POLAND ■**  
ul.Staropolska, 5  
05-074 Cisie  
Poland  
Tel: +48 601 535 200  
Fax: +48 227 606 410



■ **OSG BELGIUM s.a. - n.v.**  
Avenue Lavoisier 1  
B-1300 Z.I. Wavre - Nord  
Belgium  
Tel.: +32 10 23 05 04  
Fax: +32 10 23 05 31

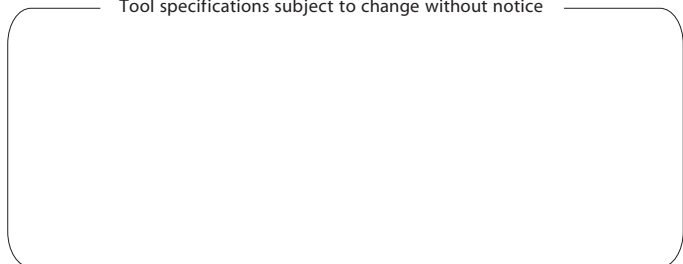
## OSG SCANDINAVIA A/S

Tel. + 46 4041 2255  
E-mail: [osg@osg-scandinavia.com](mailto:osg@osg-scandinavia.com)  
web: [se.osgeurope.com](http://se.osgeurope.com)



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