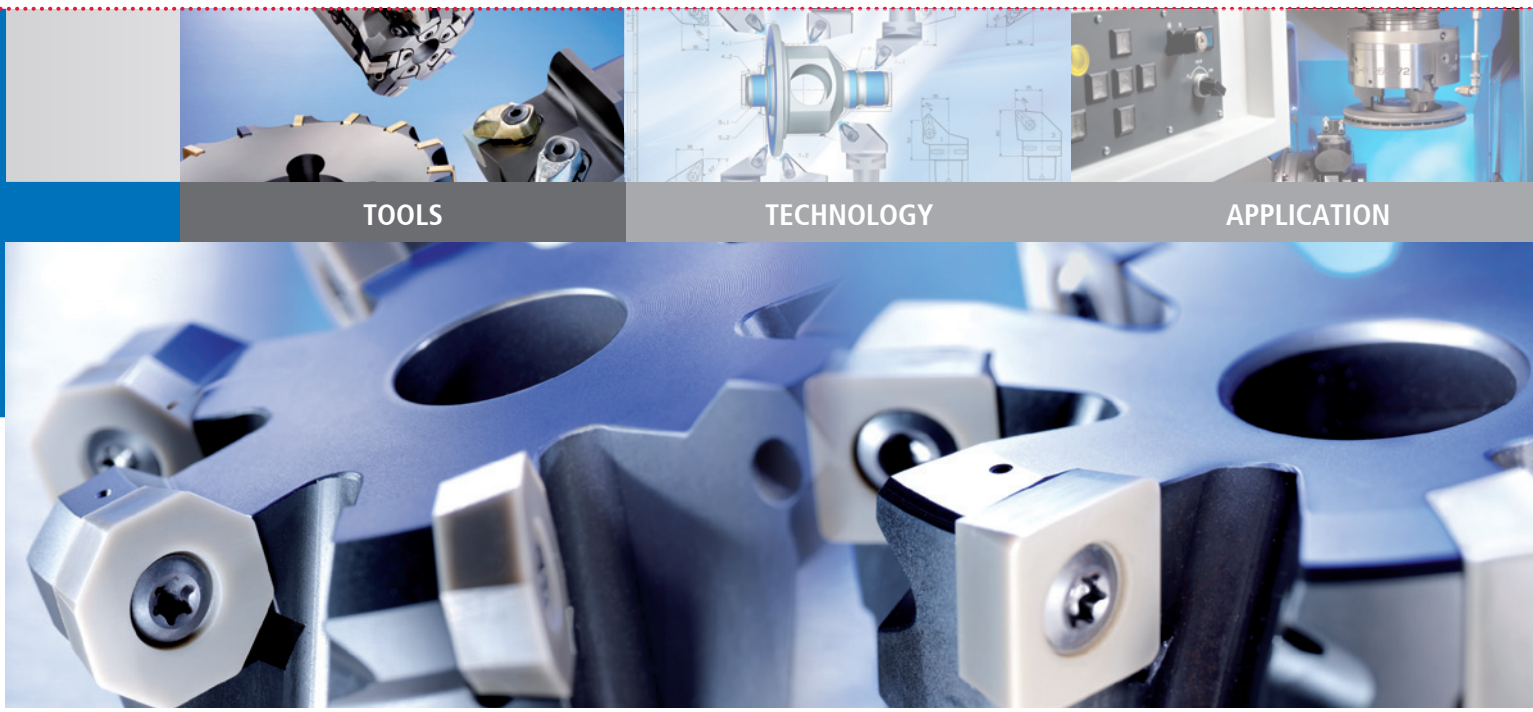
SPK INNOVATION
MILLING



PFL MILLING CUTTER SERIES
HIGH-SPEED FACE MILLING OF CAST IRON

SPK THE PRODUCTIVITY EXPERTS

CeramTec THE CERAMIC EXPERTS

PFL – NEW MILLING CUTTER GENERATION FOR HIGH-SPEED MACHINING WITH A POSITIVE GEOMETRY

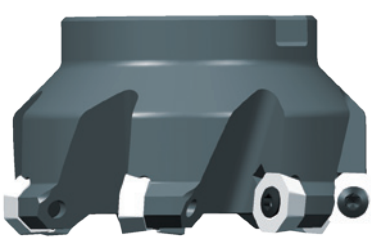
The PFL milling cutter family was especially designed for the highly-productive face milling of components made from GJL (grey cast iron) and GJS (ductile cast iron) with SiALON cutting materials.

The PFL milling cutter family comprises two classic series with a positive geometry:

- PFL-OP: the milling cutter line for rough milling and finishing
- PFL SP: this milling cutter series was designed for finishing and for medium rough milling operations with low axial forces.

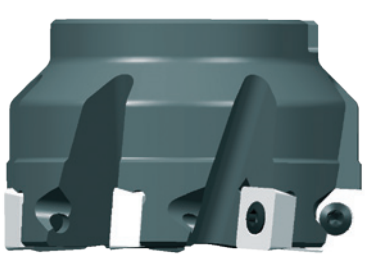
PFL-OP

This roughing and finishing specialist is equipped with positive octagon inserts. The design with eight cutting edges ensures a high level of efficiency. With a feed rate of up to 0.35 mm per tooth and a maximum cutting depth of approx. 4 mm, the milling cutters in the PFL-OP series offer extremely productive milling operations at high machining speeds.



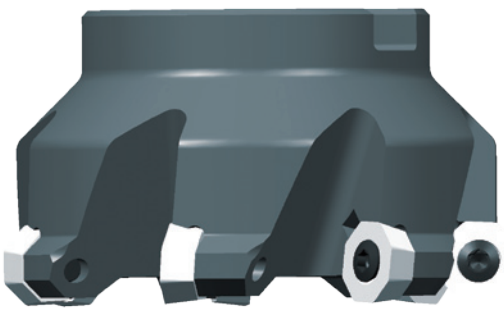
PFL-SP

With their positive quadratic cutting, the milling cutters of the PFL-SP series are ideal for machining even the most unstable or thin-walled workpieces under high-performance conditions. PFL-SP milling cutters are available with approach angles of 88°, 75° and 45°. Edge breakage and burr formation can be reduced, while low axial forces can be achieved. The milling cutter allows cut depths up to 6 mm and a maximum feed rate of up to 0.3 mm per tooth.



With the further expansion of the face milling cutter series with the PFL-OP and PFL-SP series, SPK Cutting Tools is bringing important innovations to the face milling industry. Minimum machining forces are obtainable with the highest cutting values – even under the most abrasive and unfavourable conditions. The positive milling cutter geometries open up a broad scope of applications for the milling cutters, ranging from thin-walled to unstable and stable components. High productivity and a high degree of process reliability were the most important criteria during the series' development.

PFL-OP FACE MILLING CUTTERS



Axial rake angle $\gamma_a = +5$
Radial rake angle: $\lambda_r = -6°$
Dimension table according to DIN 8030

Recommended application

GJL (grey cast iron) ■ GJS (ductile cast iron) ■

WORKPIECE
thin-walled ✓ unstable ✓ stable ✓

$f_z = 0.35$

12.5 • 6.3

PFL - OP 05	Dimensions	Standard	Special versions
	D	Tooth t	Coarse pitch t_{min}
PFL-050-05OP0543R	50	5	4
PFL-063-06OP0543R	63	6	4
PFL-080-07OP0543R	80	7	5
PFL-100-09OP0543R	100	9	6
PFL-125-11OP0543R	125	11	7
PFL-160-14OP0543R	160	14	9

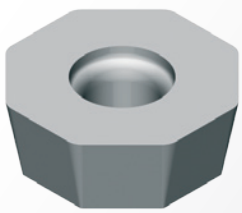
For types of insert: OPHX 05 05 ..

PFL - OP 06	Dimensions	Standard	Special versions
	D	Tooth t	Coarse pitch t_{min}
PFL-063-06OP0643R	63	6	4
PFL-080-07OP0643R	80	7	5
PFL-100-09OP0643R	100	9	6
PFL-125-11OP0643R	125	11	7
PFL-160-14OP0643R	160	14	9

For types of insert: OPHX 06 06 ..

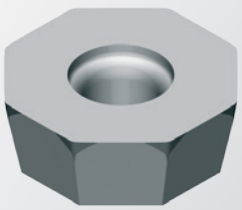
INSERTS FOR MILLING CUTTER PFL-OP

STANDARD-GEOMETRY



OPHX 05 05 ..
OPHX 06 06 ..

ZZ-GEOMETRY



OPHX 05 05 .. T-S 43Z150
OPHX 06 06 .. T-S 43Z150

Cutting Materials:
SiAlON SL808
SiAlON , coated SL858 C

PFL-SP FACE MILLING CUTTERS

Axial rake angle $\gamma_a = +5$
Radial rake angle: $\lambda_r = -6°$
Dimension table according to DIN 8030
For thin-walled and unstable parts

Recommended application

- GJL (grey cast iron)
- GJS (ductile cast iron)

WORKPIECE
thin-walled ✓ unstable ✓ stable ✓

$f_z = 0.3$

12.5 • 6.3

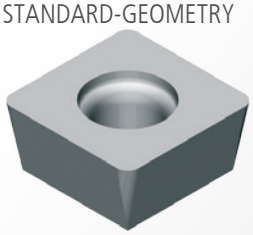
PFL - SP / 88°	Dimensions	Standard	Special versions
	D	Tooth t	Coarse pitch t_{min}
PFL-050-04SP1388R	50	4	4
PFL-063-05SP1388R	63	5	5
PFL-080-07SP1388R	80	7	5
PFL-100-09SP1388R	100	9	6
PFL-125-11SP1388R	125	11	7
PFL-160-13SP1388R	160	13	9

PFL - SP / 75°	Dimensions	Standard	Special versions
	D	Tooth t	Coarse pitch t_{min}
PFL-050-04SP1375R	50	4	4
PFL-063-05SP1375R	63	5	5
PFL-080-07SP1375R	80	7	5
PFL-100-09SP1375R	100	9	6
PFL-125-11SP1375R	125	11	7
PFL-160-13SP1375R	160	13	9

PFL - SP / 45°	Dimensions	Standard	Special versions
	D	Tooth t	Coarse pitch t_{min}
PFL-050-04SP1345R	50	4	3
PFL-063-05SP1345R	63	5	4
PFL-080-07SP1345R	80	7	5
PFL-100-09SP1345R	100	9	6
PFL-125-11SP1345R	125	11	7
PFL-160-13SP1345R	160	13	9

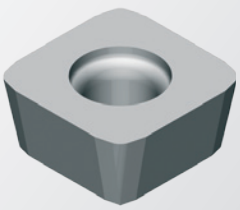
INSERTS FOR MILLING CUTTER PFL-SP

STANDARD-GEOMETRY



SPHX 13 06 ..

ZZ-GEOMETRY



SPHX 13 06 .. T 88Z150
SPHX 13 06 .. T 75Z150
SPHX 13 06 .. T 45Z150

Cutting Materials:
SiAlON SL808
SiAlON, coated SL858 C

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