







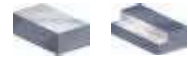


| Face milling · Planfräser | | Serie Serie | Approach Angle / max. depth of cut Einstellwinkel/ max. Schnitttiefe | Insert WSP | Application Anwendung | Features Merkmale |
|--|--------------|-----------------------------------|---|--|--|----------------------|
|  B72 | FMP02 | Kr=90° a _{pmax} =6.7 | SEET09T308PER-PF/PM SEET09T308PER-PR | Face and square shoulder milling of steel, alloy steel, stainless steel cast iron and Alu. | <ul style="list-style-type: none"> • Diameter range Ø50-Ø315 • Kr 90°, for square shoulder milling and face milling • Different pitch design: coarse pitch, close pitch and extra close pitch • High precision insert for, high surface quality • Optimized chipbreaker and grade, for finish machining, semi-finish machining and rough machining. | |
| | | Kr=90° a _{pmax} =10.8 | SEET120308PER-PF/PM SEET120308PER-PR SEET120308-LH | Plan- und Eckfräsen von Stahl, leg. Stahl, rostfr. Stahl Grauguss und Alu. | | |
|  B78 | FMP03 | Kr=89° a _{pmax} =7 | LNKT120608-ZR | Heavy duty face milling of steel, alloy steel, stainless steel and cast iron Schwerzerspan- nung von Stahl, leg. Stahl, rostfr. Stahl und Grauguss | <ul style="list-style-type: none"> • Diameter range Ø50-Ø315 • Kr 90°, for square shoulder milling and face milling with big cutting depth • positive rake reduces the cutting force | |
| | | Kr=89° a _{pmax} =8 | LNKT1506EN-ZR | | | |
| | | Kr=89° a _{pmax} =12 | LNKT2007DN-ZR | | | |
| | | Kr=89° a _{pmax} =15 | LNKT2510-ZR | | | |
|  B80 | FMR01 | a _{pmax} =5.0 | RCKT10T3MO-DM | Profile milling of steel, alloy steel, stainless steel and cast iron | <ul style="list-style-type: none"> • Diameter range Ø25-Ø50 • R-type inserts possess stronger cutting edges • Suitable for machining curved surface of mould • Economical milling cutters with screw clamping | |
| | | a _{pmax} =6.0 | RCKT1204MO-DM/DR/ ER RCGX1204MO-LH | Formfräsen von Stahl, leg. Stahl, rostfr. Stahl und Grauguss | | |
|  B83 | FMR02 | a _{pmax} =6.0 | RCKT1204MO-DM/DR/ER/ NM RCMW1204MO-PCBN | Face milling and profile milling of steel, alloy steel, stainless steel and cast iron Plan- und Formfräsen von Stahl, leg. Stahl, rostfreiem Stahl und Grauguss | <ul style="list-style-type: none"> • Diameter range Ø50-Ø250 • R-type inserts possess stronger cutting edges • Suitable for machining curved surface of mould • Economical milling tools with screw clamping | |
| | | a _{pmax} =8.0 | RCKT1606MO-DM/DR/ER | | | |
| | | a _{pmax} =10.0 | RCKT2006MO-DM/DR/ER | | | |
|  B86 | FMR03 | a _{pmax} =4.0 | RDKW0702MO | Profile milling of steel, alloy steel, stainless steel and cast iron Formfräsen von Stahl, leg. Stahl, rostfreiem Stahl und Grauguss | <ul style="list-style-type: none"> • Diameter range Ø15-Ø50 • R-type inserts possess stronger cutting edges • Suitable for machining curved surface of mould • Economical milling tools with screw clamping | |
| | | a _{pmax} =5.0 | RDKW0803MO RDKW1003MO RDKW10T3MO | | | |
| | | a _{pmax} =6.0 | RDKW1204MO | | | |
|  B88 | FMR03 | a _{pmax} =3.5 | RDKW0702MO | Formfräsen von Stahl, leg. Stahl, rostfreiem Stahl und Grauguss | <ul style="list-style-type: none"> • Durchmesserbereich: 15 – 50 mm Radiusfräser mit stabiler Schneidkante • Einsatz zur Bearbeitung von Formen und Gesenken • Wirtschaftliche Fräser mit Schraubklemmung | |
| | | a _{pmax} =5.0 | RDKW1003MO | | | |
|  B90 | FMR04 | a _{pmax} =6.0 | RDKW1204MO RDKW12T3MO | Face milling and profile milling of steel, alloy steel, stainless steel and cast iron | <ul style="list-style-type: none"> • Diameter range Ø42-Ø200 • R-type inserts possess stronger cutting edge • Suitable for machining curved surface of mould | |
| | | a _{pmax} =8.0 | RDKW1604MO RDKW1605MO | | | |
| | | a _{pmax} =10.0 | RDKW2006MO | | | |
|  B92 | FMR04 | a _{pmax} =5.0 | RDKW1003MO | Plan- und Formfräsen von Stahl, leg. Stahl, rostfreiem Stahl und Grauguss | <ul style="list-style-type: none"> • Durchmesserbereich: 42 – 200 mm • Radiusfräser mit stabiler Schneidkante • Einsatz zur Bearbeitung von Formen und Gesenken • Wirtschaftliche Fräser mit Schraubklemmung | |
| | | a _{pmax} =6.0 | RDKW12T3MO | | | |
| | | a _{pmax} =8.0 | RDKW1604MO | | | |

Milling · Fräsen

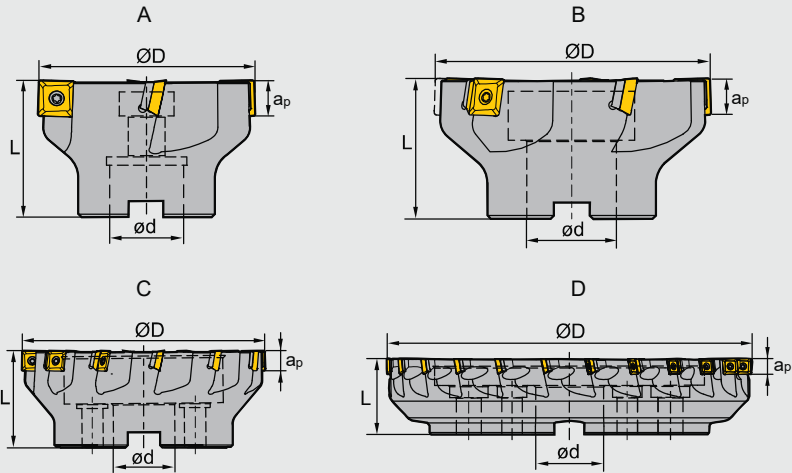
Indexable Milling Tools · Wendeplattenfräser

Kr:90°



Face Milling Tools · Planfräser

FMP02 P M K



Specification of tools · Werkzeug Beschreibung

| Type Typ | * | Stock Lager | Dimension (mm) Abmessung | | | | No. of teeth Zähne | Coupling Aufnahme | Weight Gewicht (kg) |
|-------------------------------|---|----------------|-----------------------------|-----|----|-------|-----------------------|----------------------|---------------------------|
| | | | Ø D | Ø D | L | apmax | | | |
| FMP02 -050-A22-SE09-05 | | ● | 50 | 22 | 40 | 6.7 | 5 | A | 0.3 |
| -050-A22-SE09-05C | * | ● | 50 | 22 | 40 | 6.7 | 5 | A | 0.3 |
| -063-A22-SE09-06 | | ● | 63 | 22 | 40 | 6.7 | 6 | A | 0.5 |
| -063-A22-SE09-06C | * | ● | 63 | 22 | 40 | 6.7 | 6 | A | 0.5 |
| -080-A27-SE09-08 | | ● | 80 | 27 | 50 | 6.7 | 8 | A | 0.9 |
| -080-A27-SE09-08C | * | ● | 80 | 27 | 50 | 6.7 | 8 | A | 0.9 |
| -100-B32-SE09-08 | | ○ | 100 | 32 | 50 | 6.7 | 8 | B | 1.7 |
| -100-B32-SE09-08C | * | ○ | 100 | 32 | 50 | 6.7 | 8 | B | 1.7 |
| -100-B32-SE09-10 | | ○ | 100 | 32 | 50 | 6.7 | 10 | B | 1.7 |
| -100-B32-SE09-10C | * | ○ | 100 | 32 | 50 | 6.7 | 10 | B | 1.7 |
| -125-B40-SE09-12 | | ● | 125 | 40 | 63 | 6.7 | 12 | B | 2.6 |
| -125-B40-SE09-12C | * | ● | 125 | 40 | 63 | 6.7 | 12 | B | 2.6 |

Spare Parts · Ersatzteile

| Diameter Durchmesser Ø D | Insert Platte | shim Unterlage | Screw Schraube | shim Unterlage Schraube | Wrench Schlüssel | Wrench Schlüssel |
|--------------------------------|------------------|-------------------|-------------------|-------------------------------|---------------------|---------------------|
| Ø50 ~ Ø125 | SE09 | -- | I60M3×7 | -- | WT09IS | -- |
| Ø50 | SE12 | -- | I60M3.5×10 | -- | WT15IS | -- |
| Ø63 ~ Ø315 | | S12BSX | I60M3.5×12 | SM5×7XA | | WH35L |

| Coupling Aufnahme | Diameter Durchmesser Ø D | Screw-Schraube | Ring-Dichtring |
|----------------------|--------------------------------|----------------|----------------|
| | | B32 | Ø100 |
| B40 | Ø125 | LDB40C | B40-002-CP |

● Ex Stock / ab Lager ○ On demand / auf Anfrage * With internal cooling · Mit Innenkühlung

■ Specification of tools · Werkzeug Beschreibung

| Type Typ | * | Stock Lager | Dimension (mm) Abmessung | | | | No. of teeth Zähne | Coupling Aufnahme | Weight Gewicht (kg) |
|-------------------|---|----------------|-----------------------------|-----|----|-------|-----------------------|----------------------|---------------------------|
| | | | Ø D | Ø D | L | apmax | | | |
| FMP02 | | ● | 50 | 22 | 40 | 10.8 | 3 | A | 0.3 |
| -050-A22-SE12-03C | * | ○ | 50 | 22 | 40 | 10.8 | 3 | A | 0.3 |
| -063-A22-SE12-04 | | ● | 63 | 22 | 40 | 10.8 | 4 | A | 0.4 |
| -063-A22-SE12-04C | * | ○ | 63 | 22 | 40 | 10.8 | 4 | A | 0.4 |
| -080-A27-SE12-04 | | ● | 80 | 27 | 50 | 10.8 | 4 | A | 0.9 |
| -080-A27-SE12-04C | * | ○ | 80 | 27 | 50 | 10.8 | 4 | A | 0.9 |
| -100-B32-SE12-05 | | ● | 100 | 32 | 50 | 10.8 | 5 | B | 1.2 |
| -100-B32-SE12-05C | * | ○ | 100 | 32 | 50 | 10.8 | 5 | B | 1.2 |
| -125-B40-SE12-06 | | ● | 125 | 40 | 63 | 10.8 | 6 | B | 3.1 |
| -125-B40-SE12-06C | * | ○ | 125 | 40 | 63 | 10.8 | 6 | B | 3.1 |
| -160-C40-SE12-08 | | ● | 160 | 40 | 63 | 10.8 | 8 | C | 4.1 |
| -250-C60-SE12-12 | | ○ | 250 | 60 | 63 | 10.8 | 12 | C | 11.1 |
| -050-A22-SE12-04 | | ● | 50 | 22 | 40 | 10.8 | 4 | A | 0.3 |
| -050-A22-SE12-04C | * | ● | 50 | 22 | 40 | 10.8 | 4 | A | 0.3 |
| -063-A22-SE12-05 | | ● | 63 | 22 | 40 | 10.8 | 5 | A | 0.4 |
| -063-A22-SE12-05C | * | ● | 63 | 22 | 40 | 10.8 | 5 | A | 0.4 |
| -080-A27-SE12-06 | | ● | 80 | 27 | 50 | 10.8 | 6 | A | 0.8 |
| -080-A27-SE12-06C | * | ● | 80 | 27 | 50 | 10.8 | 6 | A | 0.8 |
| -100-B32-SE12-07 | | ● | 100 | 32 | 50 | 10.8 | 7 | B | 1.2 |
| -100-B32-SE12-07C | * | ○ | 100 | 32 | 50 | 10.8 | 7 | B | 1.2 |
| -125-B40-SE12-08 | | ● | 125 | 40 | 63 | 10.8 | 8 | B | 3.0 |
| -125-B40-SE12-08C | * | ○ | 125 | 40 | 63 | 10.8 | 8 | B | 3.0 |
| -160-C40-SE12-12 | | ● | 160 | 40 | 63 | 10.8 | 12 | C | 3.9 |
| -050-A22-SE12-05 | | ● | 50 | 22 | 40 | 10.8 | 5 | A | 0.2 |
| -050-A22-SE12-05C | * | ○ | 50 | 22 | 40 | 10.8 | 5 | A | 0.2 |
| -063-A22-SE12-06 | | ● | 63 | 22 | 40 | 10.8 | 6 | A | 0.4 |
| -063-A22-SE12-06C | * | ○ | 63 | 22 | 40 | 10.8 | 6 | A | 0.4 |
| -080-A27-SE12-08 | | ● | 80 | 27 | 50 | 10.8 | 8 | A | 0.8 |
| -080-A27-SE12-08C | * | ○ | 80 | 27 | 50 | 10.8 | 8 | A | 0.8 |
| -100-B32-SE12-10 | | ● | 100 | 32 | 50 | 10.8 | 10 | B | 1.2 |
| -100-B32-SE12-10C | * | ○ | 100 | 32 | 50 | 10.8 | 10 | B | 1.2 |
| -125-B40-SE12-12 | | ● | 125 | 40 | 63 | 10.8 | 12 | B | 2.9 |
| -125-B40-SE12-12C | * | ○ | 125 | 40 | 63 | 10.8 | 12 | B | 2.9 |
| -200-C60-SE12-16 | | ● | 200 | 60 | 63 | 10.8 | 16 | C | 6.1 |
| -250-C60-SE12-18 | | ● | 250 | 60 | 63 | 10.8 | 18 | C | 10.9 |
| -315-D60-SE12-24 | | ● | 315 | 60 | 63 | 10.8 | 24 | D | 21.6 |

● Ex stock / ab Lager ○ On demand / auf Anfrage * With internal cooling · Mit Innenkühlung

Applicable tool
Werkzeug **B11-B18**

Tools code key
Werkzeug ISO **B26-B27**

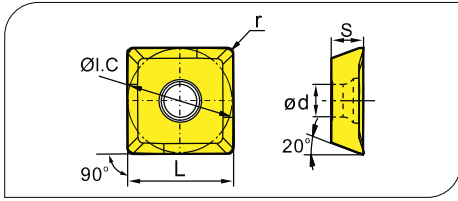
Grade selection guide
Sortenauswahl **B19-B23**

Technical data
Technische Daten **B236-B241**

Milling · Fräsen

Indexable Milling · Fräswendeplatten

Applicable inserts · Wendeschneidplatten



| Workpiece Material Werkstoffe | Ideal Machining Condition Gute Bearbeitungsbedingungen | | | Normal Machining Condition Normale Bearbeitungsbedingungen | | | Unfavorable Machining Condition Ungünstige Bearbeitungsbedingungen | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | M | K | N | S | P | M | K | N | S | P | M | K | N | S |
| P Steel Stahl | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| M Stainless Steel Rostfreier Stahl | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| K Cast iron Gusseisen | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| N Non-ferrite material Nf Metalle | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| S Heat-resistant steel Warmfester Stahl | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

| Insert shape Plattenform | Type Typ | Dimension (mm) Abmessung | | | | | CVD Coating CVD Beschicht. | | | | | | PVD Coating PVD Beschicht. | | | | | Cermet Cemet | Carbide uncoat. unbe. Hartmetall | | | | | | | | | | |
|-----------------------------|------------------|-----------------------------|--------|------|-----|-----|-------------------------------|--------|--------|--------|--------|--------|-------------------------------|--------|--------|--------|--------|-----------------|-------------------------------------|--------|--------|--------|--------|--------|--------|---------|-------|-------|-------|
| | | L | I.C | S | d | r | YBC302 | YBC301 | YBC401 | YBM253 | YBM251 | YBM351 | YBD152 | YBD252 | YBG102 | YB9320 | YBG205 | | | YBG202 | YBG212 | YBG302 | YBG152 | YBG252 | YNG151 | YNG151C | YC30S | YD101 | YD201 |
| | SEET09T308PER-PF | 9.525 | 9.525 | 4.01 | 3.3 | 0.8 | | | | | | | | | | | | | | | | | | | | | | | |
| | SEET09T308PER-PM | 9.525 | 9.525 | 4.01 | 3.3 | 0.8 | | | | | | | ● | | | | | | | | | | | | | | | | |
| | SEET09T308PER-PR | 9.525 | 9.525 | 4.01 | 3.3 | 0.8 | | | | | | | ● | | | | | | | | | | | | | | | | |
| | SEET120308PER-PF | 13.308 | 13.308 | 4.04 | 4.1 | 0.8 | ● | ● | | | | | | | | | | | | | | | | | | | | | |
| | SEET120308PER-PM | 13.308 | 13.308 | 4.04 | 4.1 | 0.8 | ● | | | ● | ● | ● | ● | ● | | | | | | | | | | | | | | | |
| | SEET120308PER-PR | 13.308 | 13.308 | 4.04 | 4.1 | 0.8 | ● | | | ● | ● | ● | ● | ○ | | | | | | | | | | | | | | | |
| | SEET120308-LH | 13.308 | 13.308 | 4.04 | 4.1 | 0.8 | | | | | | | | | | | | | | | | | | | | | | | ● |

Chipbreaker Selection FMP02 · Spanbrecher Auswahl FMP02

| Application Anwendung | Finishing Schlichten | Semi-Finishing Mittlere Bearbeitung | Roughing Schruppen |
|--------------------------|-------------------------|--|-----------------------|
| P | PF | PM | PR |
| M | | | |
| K | | | |
| N | | LH | |

● Ex Stock / ab Lager ○ On demand / auf Anfrage

Features of Merkmale



series milling cutters des Frässystems

High economical efficiency

Hohe wirtschaftliche Effizienz

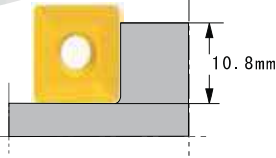


FMP02 series square shoulder mills can carry out a variety of cutting operations including face, vertical square shoulder, slot etc. Coarse pitch, fine pitch and extra fine pitch, each has a unique merit. Inserts' chipbreakers and grades are applied and optimized for a long tool life, they can achieve high efficiency machining in different condition. Each insert has 4 cutting edge, high economical efficiency.

Das universelle Frässystem FMP02 wird für unterschiedliche Fräsoperationen eingesetzt, z.B. Planfräsen, Eckfräsen, Nutenfräsen etc. Fräser mit weiter, enger und extraenger Teilung, Wendeschneidplatten in verschiedenen Sorten und Spanbrechern ermöglichen eine optimale Bearbeitung mit hoher Wirtschaftlichkeit; jede Wendeschneidplatte hat 4 Schneidkanten.

High productivity

Hohe Produktivität



The major cutting edge is a α -curve, therefore the S Type inserts makes the tool obtain a ideal 90° approach angle while the minor cutting edge angle is enough. It ensures stable cutting operation. The maximum cutting depth can reach 10.8 mm, and the maximum feed rate can reach 0.3mm/z

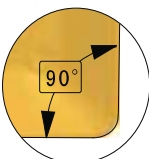
Die Hauptschneide ist wellenförmig ausgebildet, erzielt einen idealen 90 Grad Einstellwinkel und eine stabile Bearbeitung. Die maximale Schnitttiefe beträgt 10,8 mm bei einem maximalen Vorschub von 0,3 mm/z.

Special structure design and fine manufacture make the tools possess very high precision, greatly improve the workpiece precision and surface quality.

Die spezielle Konstruktion und die präzise Herstellung der Schneidplatte garantieren eine verbesserte Genauigkeit und Oberfläche des Werkstückes.

High precision

Hohe Präzision

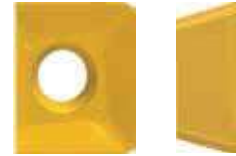


Large positive rake angle design makes cutting light and fast.

Großer positiver Spanwinkel für leichte und schnelle Bearbeitung.

Less cutting force

Geringe Schnittkräfte



Simple screw clamping, inserts displacement is convenient. The chip pocket of rake face is big enough for smooth chip removal.

Durch die Schraubenklemmung ist einfacher Schneiden- bzw. Schneidplattenwechsel gegeben.

Easy & convenient to apply

Einfacher & schneller Schneidenwechsel

Adopting the carbide shim machined precisely to protect tool body, enable tool durable and long life.

Die präzise Hartmetall-Zwischenlage schützt den Fräskörper und bringt eine hohe Werkzeuglebensdauer.

High reliability

Hohe Werkzeugstabilität & Sicherheit



Case study for FMP02 Bearbeitungsbeispiel für FMP02

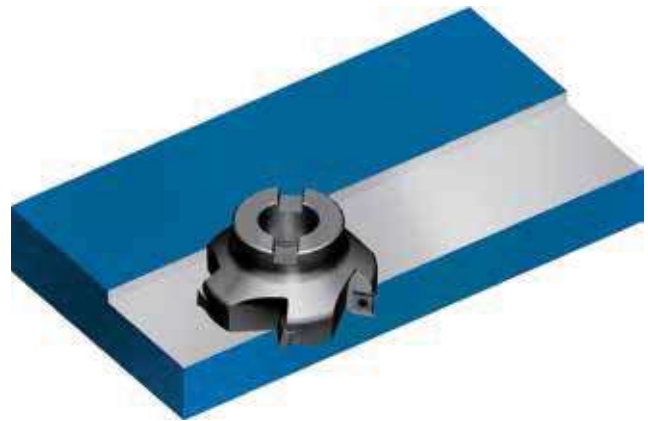


- Tool · Werkzeug: FMP02-100-B32-SE12-054
- Inserts · WSP: SEET120308PER-PM/YBD252

Workpiece material
Werkstoff: HT300/ GG30 (HB150)
Cooling system: dry cutting
Kühlsystem: trocken

Machine: vertical machining center
Maschine: vertikales Maschinen-Center

Cutting data
Schnittdaten:
 $V_c=200\text{m/min}$
 $a_p=3\text{mm}$
 $f_z=0.2\text{mm/z}$
 $a_e=80\text{mm}$



B

Milling Tools
Fräser

• Wear comparison of insert Verschleißvergleich der WSP

