NEU/NEW

# MESSERKÖPFE UND FRÄSPLATTEN
# MILLING HEADS AND INSERTS

**SCHWARZ GmbH**

**Vollhartmetall Präzisionswerkzeuge**

Unsere Leistungen bestehen aus Planung, Konstruktion, 3D-Simulation, Herstellung und Qualitätskontrolle von Präzisionswerkzeugen.

Wir sind spezialisiert auf Dreh- und Fräswerkzeuge, HPC-Fräser und HPC-Bohrer. Gerne verwirklichen wir Ihnen auch spezielle Anfertigungen von Präzisionswerkzeugen.

*Our services consist of planning, construction, 3D-simulation, manufacturing and quality control of high precision tools.*

*We are specialized in Turning, Milling, Threading, HPC Endmills and HPC Drills. We are also happy to realize any wishes for special tools.*


In unserem hochmodernen Maschinenpark benutzen wir ausschließlich CNC-Schleifzentren der neusten Generation, von namhaften Herstellern wie Walter und Saake.
Durch Messmaschinen der Firma Zoller, sind wir in der Lage, Ihre Bedürfnisse von Präzisions- und Sonderwerkzeugen so schnell wie möglich zu realisieren.

*In our machine park, we exclusively use CNC grinding centers of the latest generation from well-known manufacturers such as Walter and Saake.*
*Due to our measuring machines from Zoller, we are able to realize your needs of precision and special tools as quickly as possible.*

# SCHWARZ

***SCHWARZ*** ist ein Hersteller von hochpräzisen und langlebigen Zerspanungswerkzeugen. Namhafte Unternehmen der Automobilbranche sowie Unternehmen aus der Luft- und Raumfahrttechnik zählen zu unseren Kunden.
Wir möchten Ihnen unsere Qualität und Technologie näher bringen und stehen Ihnen gerne auch bei der Auswahl und Verwendung unserer Werkzeuge mit Rat und Tat zur Seite.
Unsere Werkzeuge werden nach DIN ISO 9001:2008 gefertigt und erfüllen somit alle Industriestandards. Wir entwickeln sie stetig weiter, damit wir unsere Kunden mit zeitgemäßen Arbeitsmitteln ausstatten können.

***SCHWARZ*** garantiert Ihnen ausgezeichnete Qualität und hohe Standzeiten. Mit dem Kauf unserer Werkzeuge leisten Sie außerdem einen wertvollen Beitrag zum Schutz unserer Umwelt, da wir bei der Herstellung ausschließlich grüne, saubere Technologien einsetzen.

Wir freuen uns darauf, demnächst auch Sie von unserer Kompetenz überzeugen zu dürfen!

***SCHWARZ*** *is a producer of high-precision and long-lasting cutting tools. Among our customers, there are well-known companies from the automobile industry as well as such from the aerospace technology. We would like to present our quality and technology to you by providing technical support from the choice to the usage of our tools.*
*Our tools are produced in accordance with DIN ISO 9001:2008 and thereby all industry standards are fulfilled. Furthermore, they are always in development enabling us to meet our customer´s contemporary needs.*

***SCHWARZ*** *guarantees you an excellent quality and very high durability. Buying our tools also means to protect our environment through the exclusive use of clean and green technologies during the production process.*

*We look forward to an opportunity to convince you of our competence, too!*

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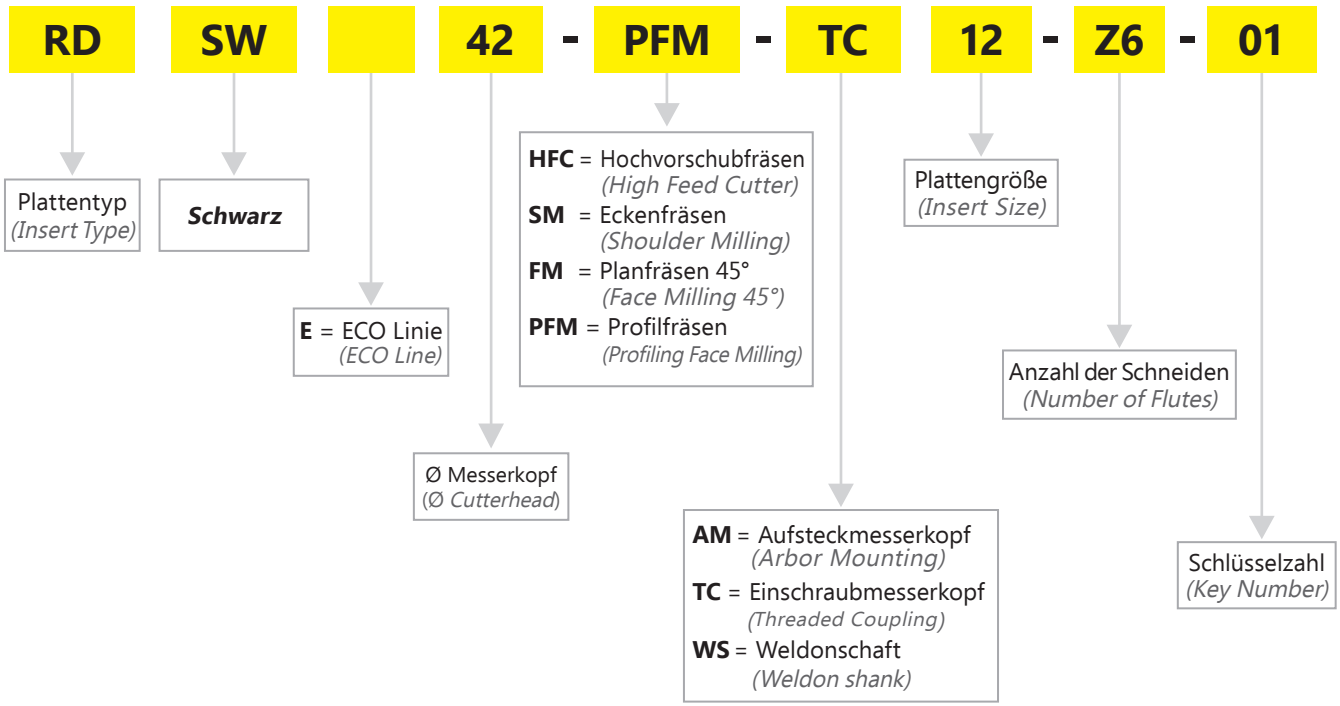
FORCE LINE

## PRODUKTBEZEICHNUNG *(PRODUCT IDENTIFICATION)*

**BEISPIEL *(EXAMPLE)*: RDSW 42-PFM-TC 12-Z6-01**



# FORCE LINE

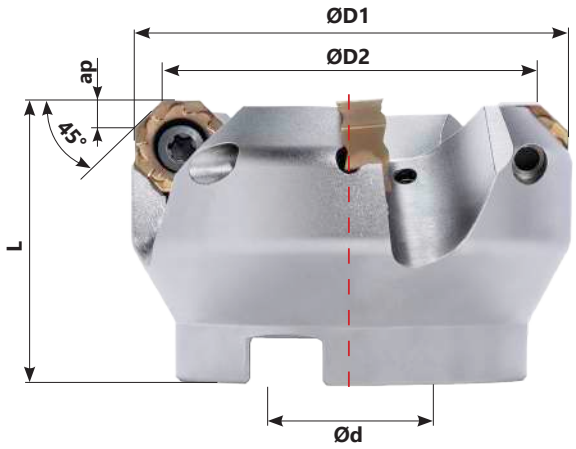
## PLANFRÄSEN 45°

## *(FACE MILLING 45°)*

## ONSW...AM...

Aufsteckmesserkopf
*(Arbor Mounting)*

IK
*IC*

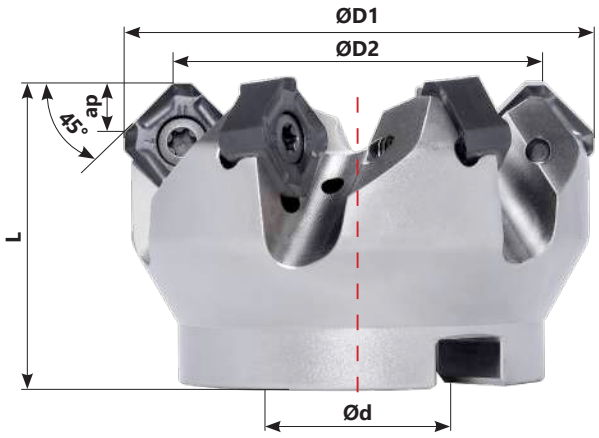



| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | ØD1 | ØD2 | Ød | L | ap | |
| SW136-50 | ONSNSW50-FM45-AM12-Z4-02 | ON...12... | 4 | 50 | 63 | 22 | 40 | 0,3-5,0 | 0,4-3,0 |
| SW136-63 | ONSNSW63-FM45-AM12-Z6-02 | ON...12... | 6 | 63 | 76 | 22 | 40 | 0,3-5,0 | 0,4-3,0 |
| SW136-80 | ONSNSW80-FM45-AM12-Z7-02 | ON...12... | 7 | 80 | 93 | 27 | 50 | 0,3-5,0 | 0,4-3,0 |
| SW136-100 | ONSNSW100-FM45-AM12-Z8-02 | ON...12... | 8 | 100 | 113 | 32 | 50 | 0,3-5,0 | 0,4-3,0 |
| SW136-125 | ONSNSW125-FM45-AM12-Z10-02 | ON...12... | 10 | 125 | 138 | 40 | 63 | 0,3-5,0 | 0,4-3,0 |
| SW136-160 | ONSNSW160-FM45-AM12-Z12-02 | ON...12... | 12 | 160 | 173 | 40 | 63 | 0,3-5,0 | 0,4-3,0 |

## ONSW...AM...

Aufsteckmesserkopf
*(Arbor Mounting)*

IK
*IC*

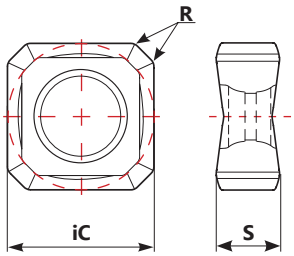



| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | | Maße *(Dimensions)* in mm | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | ØD1 | ØD2 | Ød | L | ap | |
| SW137-50 | ONSNSW50-FM45-AM12-Z6-02 | ON...12... | 6 | 63 | 50 | 22 | 40 | 0,3-5,0 | 0,4-3,0 |
| SW137-63 | ONSNSW63-FM45-AM12-Z8-02 | ON...12... | 8 | 76 | 63 | 22 | 40 | 0,3-5,0 | 0,4-3,0 |
| SW137-80 | ONSNSW80-FM45-AM12-Z10-02 | ON...12... | 10 | 93 | 80 | 27 | 50 | 0,3-5,0 | 0,4-3,0 |
| SW137-100 | ONSNSW100-FM45-AM12-Z12-02 | ON...12... | 12 | 113 | 100 | 32 | 50 | 0,3-5,0 | 0,4-3,0 |
| SW137-125 | ONSNSW125-FM45-AM12-Z16-02 | ON...12... | 16 | 138 | 125 | 40 | 63 | 0,3-5,0 | 0,4-3,0 |

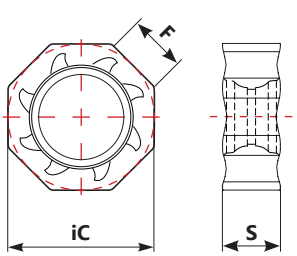
| Bestellcode *(Ordering Code)* | Qualität *(Grades)* | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | | | M | | | K | | | N | H |
| | PVD | | | | PVD | | | PVD | | | UNC | PVD |
| | SW11020 | SW11030 | SW11130 | SW11140 | SW11030 | SW11130 | SW11140 | SW11020 | SW11130 | SW11140 | SW00115 | SW00115 |
|  SNEX 1206 ANN-MA ALU | | | | | | | | | | | ▲ | ▲ |
|  SNKX 1206 ANN-MM1 | | | | ▲ | | | ▲ | | | ▲ | | |
|  SNMX 1206 ANN-MM1 | ▲ | ▲ | ▲ | | ▲ | ▲ | | ▲ | ▲ | | | |
|  SNMU 1260 ANER | ▲ | ▲ | ▲ | | ▲ | ▲ | | ▲ | ▲ | | | |
|  ONMU 1205 ANN | ▲ | ▲ | ▲ | | ▲ | ▲ | | ▲ | ▲ | | | |

## PLATTEN - TECHNISCHE DATEN *(INSERTS - TECHNICAL DETAILS)*

**SN...**




**ONMU ....**




| Bestellcode *(Ordering Code)* | Maße *(Dimensions)* in mm | | |
|---|---|---|---|
| | iC | S | F |
| SN... | 12,7 | 6,4 | - |
| ONMU... | 12,7 | 6,0 | 4,8 |

| | Zu bearbeitendes Material *(Material to be machined)* | HB | Verschleißfestigkeit *(Wear Resistance)* — Vc (m/min) — Zähigkeit *(Toughness)* | | | | |
|---|---|---|---|---|---|---|---|
| | | | SW11020 | SW11030 | SW11130 | SW11140 | SW00115 |
| P | Unlegierter Stahl *(Unalloyed Steel)* | 155-220 | 200-280 | 150-190 | 180-220 | 140-200 | - |
| P | Niedrig legierter Stahl *(Low-Alloyed Steel)* | 220-280 | 170-220 | 140-170 | 140-210 | 120-180 | - |
| P | Hoch legierter Stahl *(High-Alloyed Steel)* | 280-380 | 170-220 | 110-160 | 110-170 | 110-170 | - |
| M | Rostfreier Stahl, ferritisch *(Stainless Steels-Ferritic)* | 200-330 | - | - | 120-160 | 120-150 | - |
| M | Rostfreier Stahl, austenitisch *(Stainless Steel-Austenitic)* | 200-330 | - | - | 90-140 | 70-130 | - |
| K | Temperguss *(Malleable Cast Iron)* | 130-230 | 190-270 | - | 140-200 | 160-200 | - |
| K | Grauguss *(Grey Cast Iron)* | 180-245 | 190-240 | - | 130-170 | 130-180 | - |
| K | Gusseisen mit Kugelgraphit *(Spheroidal Cast Iron)* | 160-250 | 160-220 | - | 120-160 | 120-170 | - |
| N | Aluminium und NE-Metalle *(Aluminium and Non Ferrous)* | 30-130 | - | - | - | - | 200-350 |
| | **Vorschub/Zahn *(feed/tooth)* in mm** | - | 00,5-0,25 | 0,1-0,3 | 0,05-0,25 | 0,05-0,25 | 0,08-0,35 |

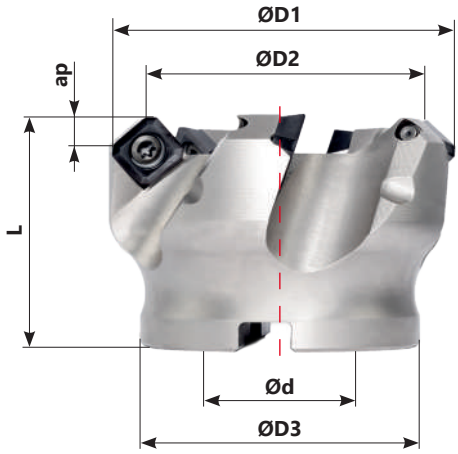
Alle Schnittdaten dienen zur Orientierung
*(All cutting datas serve to orientation)*

## ERSATZTEILE *(SPARE PARTS)*

| Werkzeugdurchmesser *(Tool Diameter)* ØDc | Spannschraube *(Insert Screw)* | Torx Schlüssel *(Torx Key)* | Unterlegplatte / Unterlegscheibe *(Shim / Washer)* | Klemmschraube *(Screw Clamp)* |
|---|---|---|---|---|
| |  |  |  |  |
| ONSW...AM... | SW5408795 | BT20 | - | - |
| - | - | - | - | - |

## SESW...AM12...

**Aufsteckmesserkopf**
*(Arbor Mounting)*

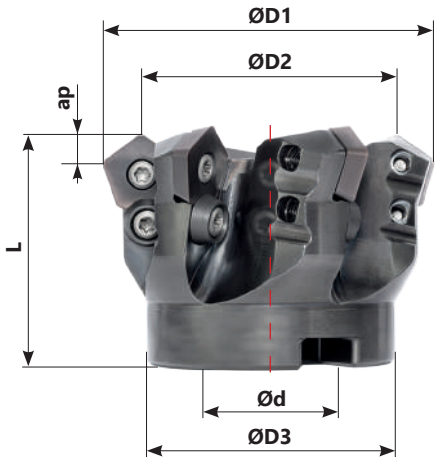



| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | ØD1 | ØD2 | ØD3 | Ød | L | ap |
| SW100-50 | SESW50-FM45-AM12-Z4-03 | SE...1204... | 4 | 62 | 50 | 42 | 22 | 40 | 0,1-6,0 |
| SW100-63 | SESW63-FM45-AM12-Z5-03 | SE...1204... | 5 | 75 | 63 | 42 | 22 | 50 | 0,1-6,0 |
| SW100-80 | SESW80-FM45-AM12-Z6-03 | SE...1204... | 6 | 92 | 80 | 50 | 27 | 50 | 0,1-6,0 |
| SW100-100 | SESW100-FM45-AM12-Z6-03 | SE...1204... | 6 | 112 | 100 | 64 | 32 | 50 | 0,1-6,0 |

## PDSW...AM12...

**Aufsteckmesserkopf**
*(Arbor Mounting)*

**IK**
*IC*



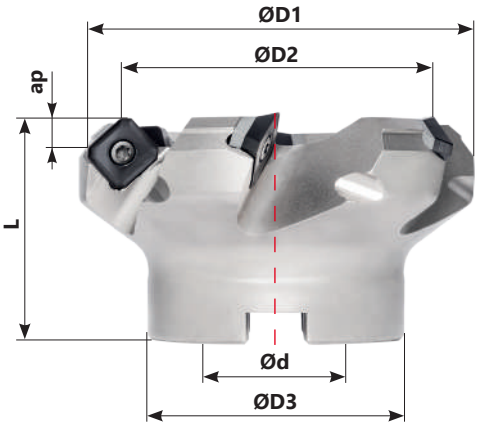

| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | ØD1 | ØD2 | ØD3 | Ød | L | ap |
| SW102-66 | PDSW66-FM45-AM12-Z5-03 | PD...1204... | 5 | 66 | 47,5 | 48 | 27 | 55 | 0,2-5,5 |
| SW102-80 | PDSW80-FM45-AM12-Z6-03 | PD...1204... | 6 | 80 | 61,5 | 60 | 27 | 55 | 0,2-5,5 |
| SW102-100 | PDSW100-FM45-AM12-Z7-03 | PD...1204... | 7 | 100 | 81,5 | 70 | 32 | 55 | 0,2-5,5 |

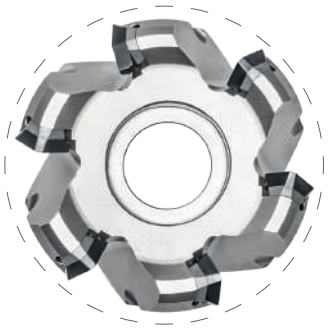
## SESW...AM13...

**Aufsteckmesserkopf**
*(Arbor Mounting)*

**Anwendung mit einer Wiper-Platte:**
Montieren Sie einen Plattensitz mit einer Wiper-Platte und die restlichen Plattensitze mit den Standard-Platten.

***Application with an Wiper-Insert:***
*Mount one Wiper Insert into the pocket and mount the remaining pockets with Standard-Inserts.*



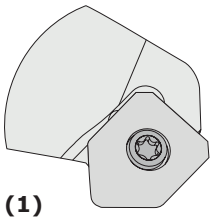
| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | ØD1 | ØD2 | ØD3 | Ød | L | ap |
| SW101-50 | SESW50-FM45-AM13-Z4-03 | SE...13T3... | 4 | 63 | 50 | 40 | 22 | 40 | 0,2-6,0 |
| SW101-63 | SESW63-FM45-AM13-Z5-03 | SE...13T3... | 5 | 76 | 63 | 48 | 22 | 40 | 0,2-6,0 |
| SW101-80 | SESW80-FM45-AM13-Z6-03 | SE...13T3... | 6 | 93 | 80 | 60 | 27 | 50 | 0,2-6,0 |
| SW101-100 | SESW100-FM45-AM13-Z7-03 | SE...13T3... | 7 | 113 | 100 | 70 | 32 | 50 | 0,2-6,0 |
| SW101-125 | SESW125-FM45-AM13-Z8-03 | SE...13T3... | 8 | 138 | 125 | 90 | 40 | 63 | 0,2-6,0 |

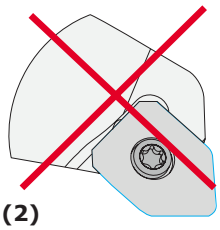
### Empfohlene Schnittdaten *(Recommended Cutting Conditions)*

- Erhöhen Sie den Vorschub bei Verwendung einer Wiper-Platte um mindestens 40%, da die Wiper-Platte eine größere Schnittfläche hat, ist ein höherer Vorschub als bei Standartplatten notwendig.
  *(Increase the feedrate when using an wiper insert by at least 40%, because the wiper insert has a larger cutting area as the standard insert and therfore a higher feedrate is necessary.)*

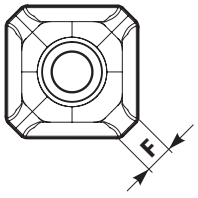
- Die empfohlene axiale Zustelltiefe beträgt 0,5mm bis 0,8mm.
  *(The recommended axial depth of cut is 0,5mm - 0,8mm.)*

! Berücksichtigen Sie in Ihren Berechnungen immer auch die Leistung Ihrer Maschine. !
! *(Always consider the performance of your machine in your calculations.)* !

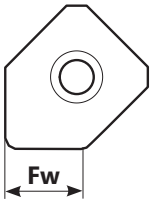

**(1)**


**(2)**

**SEHT / SEHW / SEHT-LN**

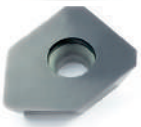



**SEHT - W**




Setzen Sie die Wiper-Platte wie in Abbildung **(1)** ein.
*(When using an wiper insert, install as shown on **(1)**.)*

## SE...

| | Bestellcode *(Ordering Code)* | Qualität *(Grades)* | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | | | | | M | | K | | | N | S |
| | | PVD | | | | | PVD | | PVD | | | UNC | PVD |
| | | SW11910 | SW11920 | SW11740 | SW11125 | SW11135 | SW11920 | SW11740 | SW11910 | SW11920 | SW11740 | SW00910 | SW11740 |
|  | SEHT 1204 AFEN | | ▲ | ▲ | | | | ▲ | | ▲ | ▲ | | ▲ |
| | SEHT 1204 AFTN | | ▲ | ▲ | | | | ▲ | | ▲ | ▲ | | ▲ |
|  | SEHT 1204 AFFN-LN | | | | | | | | | | | ▲ | |
|  | SEHW 1204 AFEN | | ▲ | ▲ | | | | ▲ | | ▲ | ▲ | | ▲ |
| | SEHW 1204 AFTN | | ▲ | ▲ | | | | ▲ | | ▲ | ▲ | | ▲ |
|  | SEHT 13T3 AGSN | | ▲ | ▲ | | | | ▲ | | ▲ | ▲ | | ▲ |
|  | SEHT 13T3 AGFN-LN | | | | | | | | | | | ▲ | |
|  | SEHT 13T3 AGSN-W | | ▲ | | | | | | | ▲ | | | |
|  | SEHW 13T3 AGFN | | ▲ | | | | | | | ▲ | | | |

## PD...

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | PDMW 120420 T | | | | ▲ | ▲ | | | | | | | |
|  | PDHW 120420 T | | ▲ | | ▲ | ▲ | | | | ▲ | | | |

## SE...

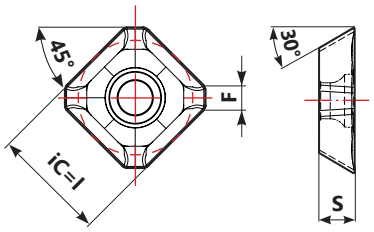
| | Zu bearbeitendes Material *(Material to be machined)* | HB | Verschleißfestigkeit *(Wear Resistance)* Zähigkeit *(Toughness)* Vc (m/min) | | | Vorschub/Zahn *(feed/tooth)* in mm | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | SW11920 | SW11740 | SW00910 | SEHT 1204... | SEHT 1204 LN | SEHW 1204... | SEHT 13T3 AGSN | SEHW 13T3 AGFN | SEHT 13T3 AGTN-LN | SEHT 13T3 AGSN-W |
| P | Unlegierter Stahl *(Unalloyed Steel)* | 125-220 | **150-230** | **130-160** | - | **0,10-0,20** | - | **0,10-0,20** | **0,10-0,25** | - | - | **0,10-0,30** |
| P | Niedrig legierter Stahl *(Low-Alloyed Steel)* | 220-280 | 140-220 | 120-150 | - | 0,10-0,20 | - | 0,10-0,20 | 0,10-0,20 | - | - | 0,10-0,30 |
| P | Hoch legierter Stahl *(High-Alloyed Steel)* | 280-380 | 130-180 | 100-130 | - | 0,10-0,20 | - | 0,10-0,20 | 0,10-0,20 | - | - | 0,10-0,30 |
| M | Rostfreier Stahl, ferritisch *(Stainless Steels-Ferritic)* | 200-330 | - | 100-120 | - | 0,10-0,15 | - | 0,10-0,20 | 0,10-0,20 | - | - | - |
| M | Rostfreier Stahl, austenitisch *(Stainless Steel-Austenitic)* | 200-330 | - | 80-110 | - | 0,10-0,15 | - | 0,10-0,20 | 0,10-0,20 | - | - | - |
| K | Temperguss *(Malleable Cast Iron)* | 130-230 | **150-280** | **130-250** | - | **0,10-0,25** | - | **0,10-0,25** | **0,10-0,25** | **0,10-0,25** | - | **0,10-0,30** |
| K | Grauguss *(Grey Cast Iron)* | 180-245 | 130-230 | 110-220 | | 0,10-0,25 | - | 0,10-0,25 | 0,10-0,25 | 0,10-0,25 | - | 0,10-0,30 |
| K | Gusseisen mit Kugelgraphit *(Spheroidal Cast Iron)* | 160-250 | 80-190 | 80-170 | | 0,10-0,25 | - | 0,10-0,25 | 0,10-0,20 | 0,10-0,20 | - | 0,10-0,30 |
| N | Aluminium und NE-Metalle *(Aluminium and Non Ferrous)* | 30-130 | - | - | **350-1400** | - | **0,10-0,25** | - | - | - | **0,10-0,20** | - |

## PD...

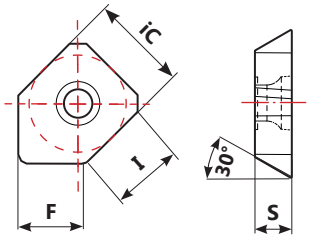
| | Zu bearbeitendes Material *(Material to be machined)* | HB | Verschleißfestigkeit *(Wear Resistance)* Vc (m/min) Zähigkeit *(Toughness)* | | | Vorschub/Zahn *(feed/tooth)* in mm |
|---|---|---|---|---|---|---|
| | | | SW11920 | SW11125 | SW11135 | PDHW / PDMW |
| P | Unlegierter Stahl *(Unalloyed Steel)* | 125-220 | **150-230** | **160-190** | **150-180** | **0,25-0,50** |
| P | Niedrig legierter Stahl *(Low-Alloyed Steel)* | 220-280 | 140-220 | 140-180 | 140-170 | 0,25-0,50 |
| P | Hoch legierter Stahl *(High-Alloyed Steel)* | 280-380 | 130-180 | 130-160 | 120-150 | 0,25-0,40 |
| K | Temperguss *(Malleable Cast Iron)* | 130-230 | **150-280** | - | - | **0,25-0,60** |
| K | Grauguss *(Grey Cast Iron)* | 180-245 | 130-230 | - | - | 0,25-0,60 |
| K | Gusseisen mit Kugelgraphit *(Spheroidal Cast Iron)* | 160-250 | 80-190 | - | - | 0,25-0,60 |

## PLATTEN - TECHNISCHE DATEN *(INSERTS - TECHNICAL DETAILS)*

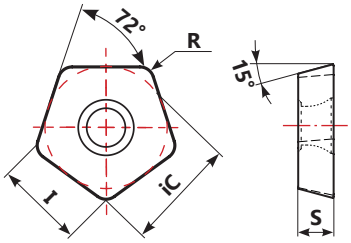
**SEHT / SEHW / SEHT-LN**




**SEHT - W**



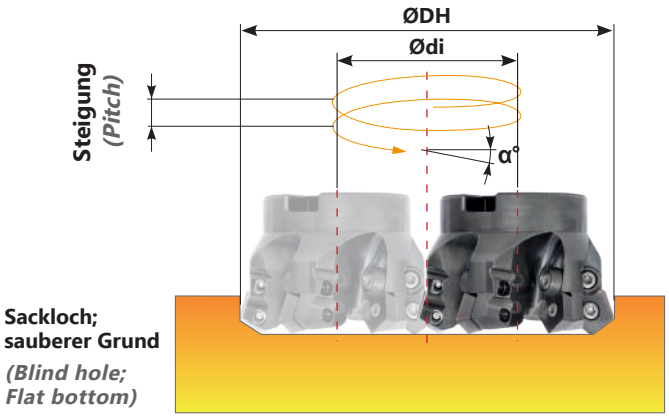

**PDMW / PDHW**



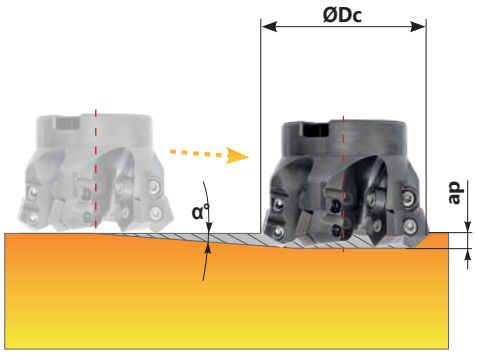

| Bestellcode *(Ordering Code)* | Maße *(Dimensions)* in mm | | | | |
|---|---|---|---|---|---|
| | iC | S | I | F | R |
| SEH...12... | 12,70 | 4,76 | 12,70 | 2,80 | - |
| SEHT 1204 AFFN-LN | 12,70 | 4,76 | 12,70 | 2,00 | - |
| SEH...13... | 13,35 | 3,97 | 10,0 | 2,0 | - |
| SEHT 13T3 AGFN-LN | 13,35 | 3,97 | 10,0 | 2,3 | - |
| SEHT 13T3 AGSN-W | 13,35 | 3,97 | 10,0 | 8,2 | - |
| PD...12...T | 16,52 | 4,76 | 12,0 | - | 2,0 |

## SCHRÄGEINTAUCHEN UND HELIXINTERPOLATION *(RAMPING & HELICAL INTERPOLATION)*

**Helixinterpolation** *(Helical Interpolation)*




**Schrägeintauchen** *(Ramping)*




| ØDc | ØDHmin | ØDHmax | Max Pitch/Rev. | Max Ramp α° | Max ap |
|---|---|---|---|---|---|
| 66 | 113,3 | 130,4 | 28,4 | 8 | 5,5 |
| 80 | 141,3 | 158,4 | 25,9 | 6 | 5,5 |
| 100 | 181,3 | 198,4 | 23,2 | 4,3 | 5,5 |
| 125 | 231,3 | 248,4 | 21,7 | 3,2 | 5,5 |
| 160 | 301,3 | 318,4 | 20,8 | 2,4 | 5,5 |

Während der Helixinterpolation oder des Schrägeintauchens darf der maximale Steigungswinkel **α°** nicht überschritten werden
*(During helical interpolation or ramping do not exceed max Pitch **α°**)*

## ERSATZTEILE *(SPARE PARTS)*

| Werkzeugdurchmesser *(Tool Diameter)* ØDc | Spannschraube *(Insert Screw)* | Torx Schlüssel *(Torx Key)* | Unterlegplatte / Unterlegscheibe *(Shim / Washer)* | Klemmschraube *(Screw Clamp)* |
|---|---|---|---|---|
| |  |  |  |  |
| SESW...AM12...Ø50-Ø160 | SW5001100 | PT20 | - | - |
| SESW...AM13...Ø50-Ø80 | SW5051200 | XT15 | SW1303004 | SW2503509 |
| SESW...AM13...Ø100-Ø125 | SW5051200 | PT15 | SW1303004 | SW2503509 |
| PDSW...AM12...Ø66-Ø80 | SW5051001 | XT20 | SW3701200 | SW5051001 |
| PDSW...AM12...Ø100 | SW5051001 | PT20 | SW3701200 | SW5051001 |

## HPSW...WS...

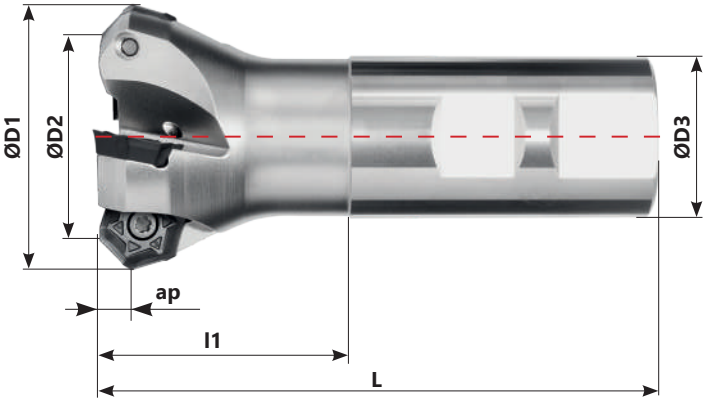
**Weldonschaft**
*(Weldon Shank)*

IK
*IC*

Facing

Slotting

Chamfering




| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | ØD1 | ØD2 | ØD3 | L | l1 | ap |
| SW120-40-1 | HPSW40-FM45-WS06-Z4-01 | HP...06... | 4 | 52,2 | 40 | 32 | 110 | 50 | 0,2-4,0 |

## HPSW...AM...

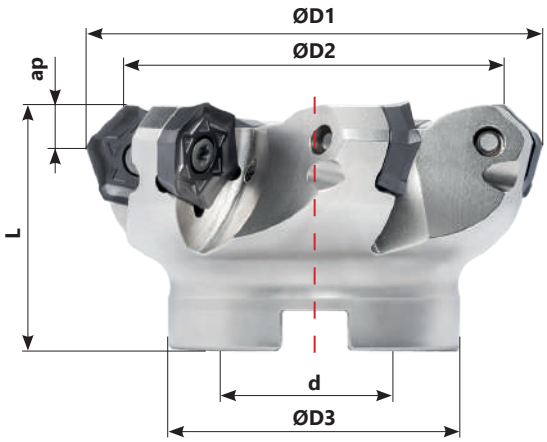
**Aufsteckmesserkopf**
*(Arbor Mounting)*

IK
*IC*

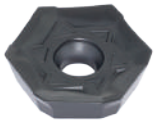
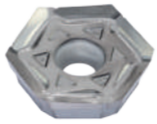
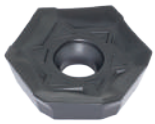
Facing

Slotting

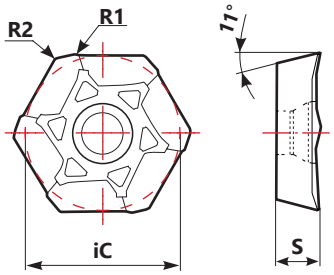
Chamfering




| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | ØD1 | ØD2 | ØD3 | Ød | L | ap |
| SW120-40-2 | HPSW40-FM45-AM06-Z4-01 | HP...06... | 4 | 52,2 | 40 | 38 | 16 | 40 | 0,2-4,0 |
| SW120-50 | HPSW50-FM45-AM06-Z5-01 | HP...06... | 5 | 62,2 | 50 | 43 | 22 | 40 | 0,2-4,0 |
| SW120-63 | HPSW63-FM45-AM06-Z6-01 | HP...06... | 6 | 75,2 | 63 | 48 | 22 | 40 | 0,2-4,0 |
| SW120-80 | HPSW80-FM45-AM06-Z7-01 | HP...06... | 7 | 92,2 | 80 | 58 | 27 | 50 | 0,2-4,0 |
| SW120-100 | HPSW100-FM45-AM06-Z9-01 | HP...06... | 9 | 112,2 | 100 | 78 | 32 | 50 | 0,2-4,0 |
| SW120-125 | HPSW125-FM45-AM06-Z10-01 | HP...06... | 10 | 137,2 | 125 | 88 | 40 | 63 | 0,2-4,0 |

| Bestellcode *(Ordering Code)* | Qualität *(Grades)* | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | P | | M | | K | | | N | S | H |
| | CVD | | PVD | | PVD | | | UNC | PVD | PVD |
| | SW22230 | SW22535 | SW11245 | SW11235 | - | - | - | SW00915 | - | - |
|  HPKT 0604AZER-HCM | ▲ | ▲ | | | | | | | | |
|  HPKT 0604AZER-SCM | | | ▲ | ▲ | | | | | | |
|  HPCT 0604AZFR-LMM | | | | | | | | ▲ | | |
|  HOKT 0604AZER-HCM | ▲ | ▲ | | | | | | | | |
|  HOCT 0604AZER-SCM | | | ▲ | ▲ | | | | | | |

## PLATTEN - TECHNISCHE DATEN *(INSERTS - TECHNICAL DETAILS)*




| Bestellcode *(Ordering Code)* | Maße *(Dimensions)* in mm | | | | |
|---|---|---|---|---|---|
| | iC | S | R1 | R2 | B |
| HP...0604... | 16,3 | 4,5 | 0,4 | 0,5 | - |

| | Zu bearbeitendes Material *(Material to be machined)* | HB | Verschleißfestigkeit *(Wear Resistance)* / Vc (m/min) / Zähigkeit *(Toughness)* | | | | | | Vorschub/Zahn *(feed/tooth)* in mm |
|---|---|---|---|---|---|---|---|---|---|
| | | | SW22230 | SW11235 | SW11245 | SW22535 | SW22415 | SW00915 | |
| P | Unlegierter Stahl *(Unalloyed Steel)* | 155-220 | **110-280** | **100-240** | **-** | **150-260** | **-** | **-** | **0,1-0,37** |
| P | Niedrig legierter Stahl *(Low-Alloyed Steel)* | 220-280 | 100-250 | 90-220 | - | 80-220 | - | - | |
| P | Hoch legierter Stahl *(High-Alloyed Steel)* | 280-380 | 60-130 | 60-110 | - | 90-180 | - | - | |
| M | Rostfreier Stahl, ferritisch *(Stainless Steels-Ferritic)* | 200-330 | - | 110-150 | 110-160 | 220-350 | - | - | 0,1-0,25 |
| M | Rostfreier Stahl, austenitisch *(Stainless Steel-Austenitic)* | 200-330 | - | 110-150 | 110-170 | 150-240 | - | - | |
| K | Temperguss *(Malleable Cast Iron)* | 130-230 | **100-190** | **-** | **-** | **-** | **200-320** | **120 - 200** | **0,05-0,33** |
| K | Grauguss *(Grey Cast Iron)* | 180-245 | 100-310 | - | - | - | 100 - 190 | 90 - 160 | |
| K | Gusseisen mit Kugelgraphit *(Spheroidal Cast Iron)* | 160-250 | 90-200 | - | - | - | 100 - 180 | 90 - 170 | |
| N | Aluminium und NE-Metalle *(Aluminium and Non Ferrous)* | 30-130 | **-** | **-** | **-** | **-** | **-** | **60 - 1500** | **0,05-0,35** |
| S | Heat Resistant Super Alloys *(Heat Resistant Super Alloys)* | 200-320 | **-** | **-** | **-** | **25-75** | **-** | **-** | **0,05-0,13** |

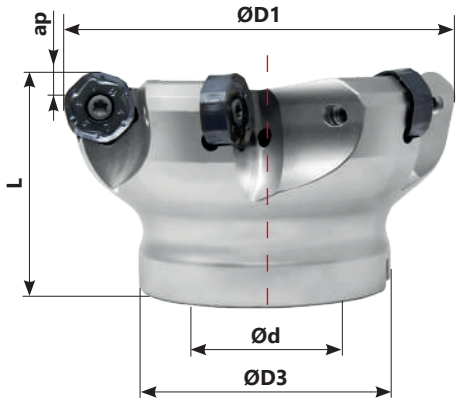
Alle Schnittdaten dienen zur Orientierung
*(All cutting datas serve to orientation)*

## ERSATZTEILE *(SPARE PARTS)*

| Werkzeugdurchmesser *(Tool Diameter)* ØDc | Spannschraube *(Insert Screw)* | Torx Schlüssel *(Torx Key)* | Unterlegplatte / Unterlegscheibe *(Shim / Washer)* | Klemmschraube *(Screw Clamp)* |
|---|---|---|---|---|
| |  |  |  |  |
| HPSW...Ø52,2-Ø137,2 | SW5401115 M4,0 x 11 | T15 | - | - |
| HPSW...AM...Ø52,2 | SW5781826 M8,0 x 30,0 | - | - | - |

## HNKU...AM08...

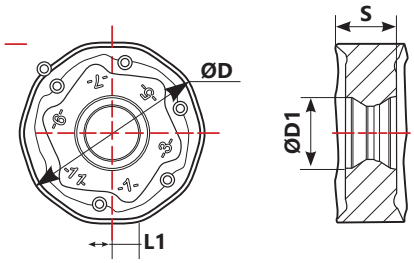
**Aufsteckmesserkopf**
**(Arbor Mounting)**


| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | D1 | D3 | d | L | ap |
| SW141-40 | HNSW40-FM-AM08-Z4-01 | HN...08 | 4 | 40 | 38 | 16 | 40 | 0.2- 4.5 |
| SW141-50 | HNSW50-FM-AM08-Z4-01 | HN...08 | 4 | 50 | 43 | 22 | 40 | 0.2- 4.5 |
| SW141-63 | HNSW63-FM-AM08-Z5-01 | HN...08 | 5 | 63 | 48 | 22 | 40 | 0.2- 4.5 |
| SW141-80 | HNSW80-FM-AM08-Z6-01 | HN...08 | 6 | 80 | 58 | 27 | 50 | 0.2- 4.5 |

| Bestellcode (Ordering Code) | Qualität (Grades) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | P | | M | | K | | | N | S | H |
| | CVD | PVD | PVD | CVD | PVD | | | UNC | - | PVD |
| | SW22230 | SW11245 | SW12240 | SW22535 | - | - | - | - | - | - |
|  HNKU 0806AZER-HCM | ▲ | ▲ | | | | | | | | |
| HNKU 0806AZER-SCM | | | | ▲ | | | | | | |
|  HOKU 0806AZER-HCM | ▲ | ▲ | | | | | | | | |
| HOKU 0806AZER-SCM | | | ▲ | | | | | | | |
| HOKU 0806AZER-SCM | | | | ▲ | | | | | | |

## PLATTEN - TECHNISCHE DATEN *(INSERTS - TECHNICAL DETAILS)*



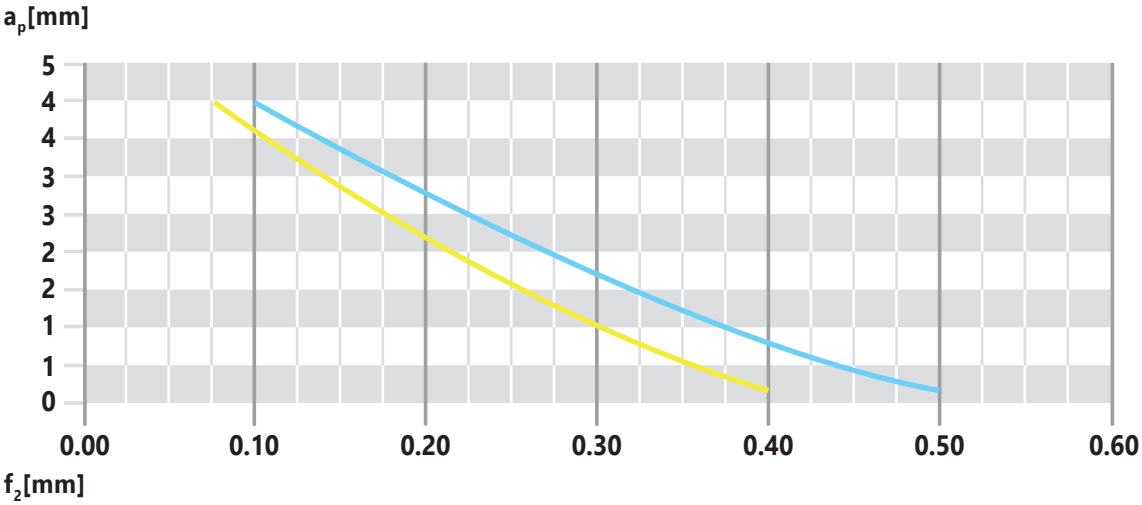

| Bestellcode *(Ordering Code)* | Maße *(Dimensions)* in mm | | | |
|---|---|---|---|---|
| | D | S | L1 | D1 |
| HN... 08... | 14.7 | 5.3 | 1.5 | 4.1 |
| HO... 08... | 14.7 | 5.3 | 1.5 | 4.1 |

| Zu bearbeitendes Material *(Material to be machined)* | | HB | Verschleißfestigkeit *(Wear Resistance)* — Vc (m/min) — Zähigkeit *(Toughness)* | | | | | | Vorschub/Zahn *(feed/tooth)* in mm |
|---|---|---|---|---|---|---|---|---|---|
| | | | SW22230 | SW11235 | SW22535 | SW12240 | SW11245 | - | |
| P | Unlegierter Stahl *(Unalloyed Steel)* | 155-220 | 160-220 | 160-220 | - | - | - | - | 0,1-0,5 |
| | Niedrig legierter Stahl *(Low-Alloyed Steel)* | 220-280 | 100-200 | 100-200 | - | - | - | - | |
| | Hoch legierter Stahl *(High-Alloyed Steel)* | 280-380 | 60-120 | 60-120 | - | - | - | - | |
| M | Rostfreier Stahl, ferritisch *(Stainless Steels-Ferritic)* | 200-330 | - | - | 120-200 | - | - | - | 0,08-0,4 |
| | Rostfreier Stahl, austenitisch *(Stainless Steel-Austenitic)* | 200-330 | - | - | 60-160 | - | - | - | |

Alle Schnittdaten dienen zur Orientierung *(All cutting datas serve to orientation)*

## SCHNITTDATEN HNKU/HOKU *(CUTTING DATA HNKU/HOKU)*

Startparameter *(Starting parameters)*

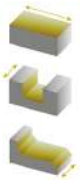


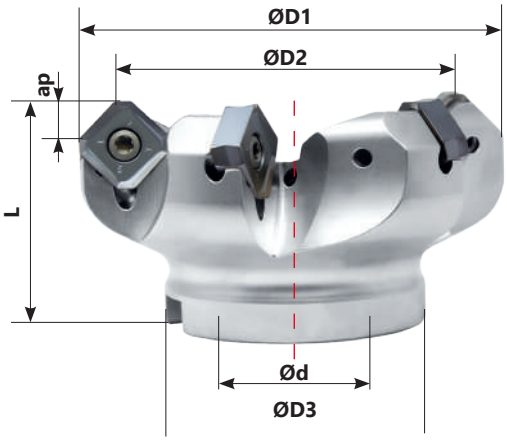
## ERSATZTEILE *(SPARE PARTS)*

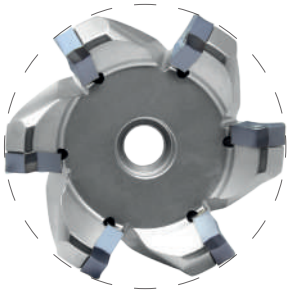
| **Werkzeugdurchmesser** *(Tool Diameter)* **ØDc** | **Spannschraube** *(Insert Screw)* | **Torx Schlüssel** *(Torx Key)* | **Unterlegplatte / Unterlegscheibe** *(Shim / Washer)* | **Klemmschraube** *(Screw Clamp)* |
|---|---|---|---|---|
| |  |  |  |  |
| **HNSW...** | SW1345432 | T15 | **-** | **-** |

## SOSW

**Aufsteckmesserkopf**
*(Arbor Mounting)*



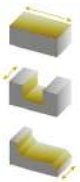



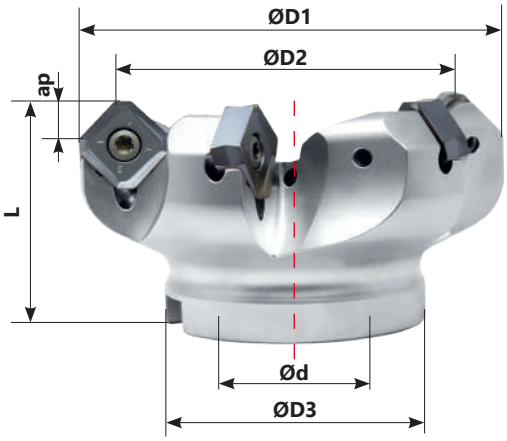



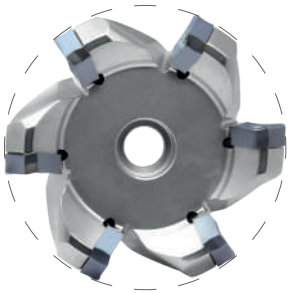
| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | D1 | D2 | d | L | ap |
| SW151-40 | SOSW40-FM-AM12-Z4-01 | SO... 12... | 4 | 52,4 | 40 | 16 | 45 | 0,2 - 6,0 |
| SW151-50 | SOSW50-FM-AM12-Z5-01 | SO... 12... | 5 | 62,4 | 50 | 22 | 45 | 0,2 - 6,0 |
| SW151-63 | SOSW63-FM-AM12-Z6-01 | SO... 12... | 6 | 75,4 | 63 | 22 | 45 | 0,2 - 6,0 |
| SW151-80 | SOSW80-FM-AM12-Z8-01 | SO... 12... | 8 | 92,4 | 80 | 27 | 50 | 0,2 - 6,0 |
| SW151-100 | SOSW100-FM-AM12-Z10-01 | SO... 12... | 10 | 112,4 | 100 | 32 | 50 | 0,2 - 6,0 |
| SW151-125 | SOSW125-FM-AM12-Z12-01 | SO... 12... | 12 | 137,4 | 125 | 40 | 63 | 0,2 - 6,0 |

## SOSW

**Aufsteckmesserkopf**
*(Arbor Mounting)*



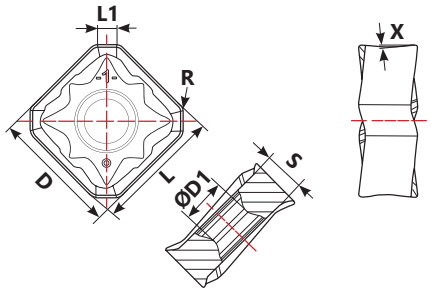



| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | D1 | D2 | D3 | d | L | ap |
| SW152-40 | SOSW40-FM-AM15-Z4-01 | SO... 15... | 4 | 55 | 40 | 38 | 16 | 45 | 0.2 -6.5 |
| SW152-50 | SOSW50-FM-AM15-Z4-01 | SO... 15... | 4 | 65 | 50 | 43 | 22 | 45 | 0.2 -6.5 |
| SW152-63 | SOSW63-FM-AM15-Z5-01 | SO... 15... | 5 | 78 | 63 | 48 | 22 | 45 | 0.2 -6.5 |
| SW152-80 | SOSW80-FM-AM15-Z6-01 | SO... 15... | 6 | 95 | 80 | 58 | 27 | 50 | 0.2 -6.5 |
| SW152-100 | SOSW100-FM-AM15-Z7-01 | SO... 15... | 7 | 115 | 100 | 78 | 32 | 50 | 0.2 -6.5 |
| SW152-125 | SOSW125-FM-AM15-Z8-01 | SO... 15... | 8 | 140 | 125 | 88 | 40 | 63 | 0.2 -6.5 |
| SW152-160 | SOSW160-FM-AM15-Z10-01 | SO... 15... | 10 | 175 | 160 | 93.4 | 40 | 63 | 0.2 -6.5 |

| Bestellcode (Ordering Code) | Qualität (Grades) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | | M | | K | | N | S | | H |
| | CVD | | PVD | PVD | CVD | CVD | PVD | UNC | CVD | | PVD |
| | SW22230 | SW22535 | SW11235 | SW11245 | SW22535 | SW22415 | SW12220 | SW00915 | SW22535 | SW22540 | SW12115 |
|  | | | | | | | | | | | | |
| SOKU 1205AZER-HCM | ▲ | ▲ | ▲ | | | | | | | | | |
| SOKU 1205AZER-SCM | | | | ▲ | ▲ | | | | | | | |
|  | | | | | | | | | | | | |
| SOKU 1505AZER-HCM | ▲ | ▲ | ▲ | | | | | | | | | |
| SOKU 1505AZER-SCM | | | | ▲ | ▲ | | | | | | | |
| SOKU 1505AZER-CCM | | | | | | ▲ | ▲ | | | | | |

## PLATTEN - TECHNISCHE DATEN *(INSERTS - TECHNICAL DETAILS)*




| Bestellcode (Ordering Code) | Maße (Dimensions) in mm | | | | | | |
|---|---|---|---|---|---|---|---|
| | D | D1 | S | L | L1 | R | x |
| SO... 12... | 13 | 4.55 | 5 | 13 | 2 | 0.8 | 6 |
| SO... 15... | 15.875 | 5.74 | 6.0 | 15.875 | 2.7 | 1.0 | 6 |

| | Zu bearbeitendes Material *(Material to be machined)* | HB | Verschleißfestigkeit *(Wear Resistance)* / Vc (m/min) / Zähigkeit *(Toughness)* | | | | | | | Vorschub/Zahn *(feed/tooth)* in mm |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | SW22230 | SW22235 | SW11235 | SW11245 | SW22535 | SW22415 | SW22415 | |
| P | Unlegierter Stahl *(Unalloyed Steel)* | 155-220 | 120-220 | 120-220 | 120-220 | - | - | - | - | 0,1-0,3 |
| P | Niedrig legierter Stahl *(Low-Alloyed Steel)* | 220-280 | 80-180 | 80-180 | 80-180 | - | - | - | - | |
| P | Hoch legierter Stahl *(High-Alloyed Steel)* | 280-380 | 60-160 | 60-160 | 60-160 | - | - | - | - | |
| M | Rostfreier Stahl, ferritisch *(Stainless Steels-Ferritic)* | 200-330 | - | - | - | 100-200 | 100-200 | - | - | 0,08-0,2 |
| M | Rostfreier Stahl, austenitisch *(Stainless Steel-Austenitic)* | 200-330 | - | - | - | 60-160 | 60-160 | - | - | |
| K | Temperguss *(Unalloyed Steel)* | 130-230 | - | - | - | - | - | 200- 320 | 200- 320 | 0,08-0,45 |
| K | Grauguss *(Grey Cast Iron)* | 180-245 | - | - | - | - | - | 150- 280 | 150- 280 | |
| K | Gusseisen mit Kugelgraphit *(Spheroidal Cast Iron)* | 160-250 | - | - | - | - | - | 100- 220 | 100- 220 | |

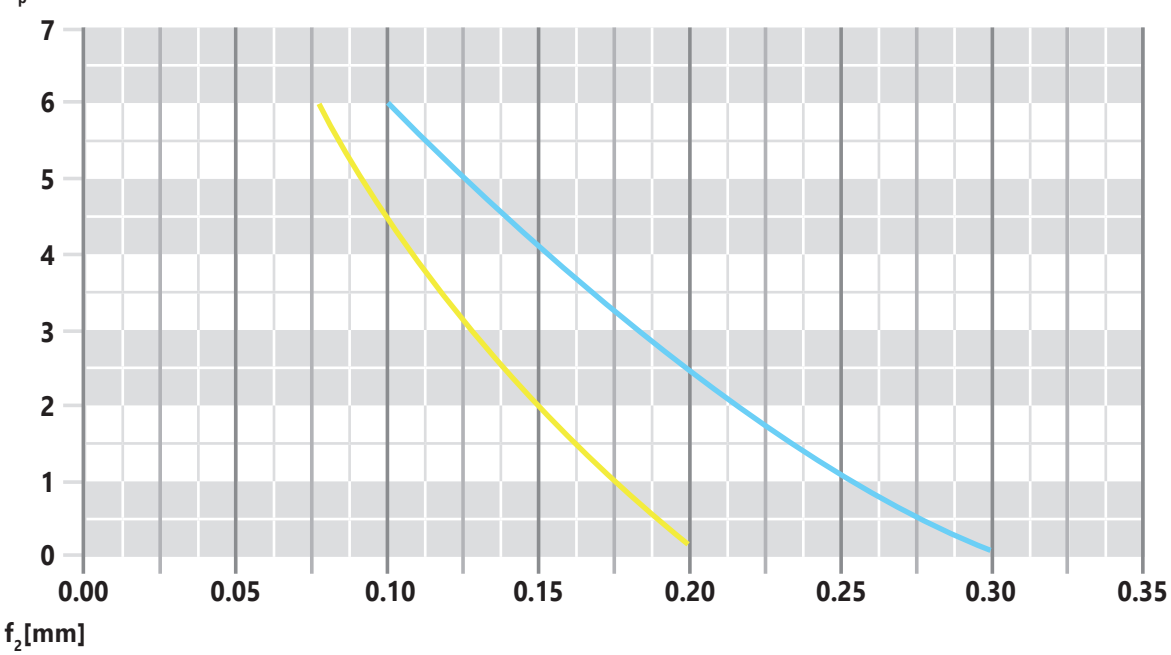
Alle Schnittdaten dienen zur Orientierung *(All cutting datas serve to orientation*

## ERSATZTEILE *(SPARE PARTS)*

| Werkzeugdurchmesser *(Tool Diameter)* ØDc | Spannschraube *(Insert Screw)* | Torx Schlüssel *(Torx Key)* | Unterlegplatte / Unterlegscheibe *(Shim / Washer)* | Klemmschraube *(Screw Clamp)* |
|---|---|---|---|---|
| |  |  |  |  |
| AM... | SW1345432 | - | - | - |
| WS... | SW11037484 | - | - | - |

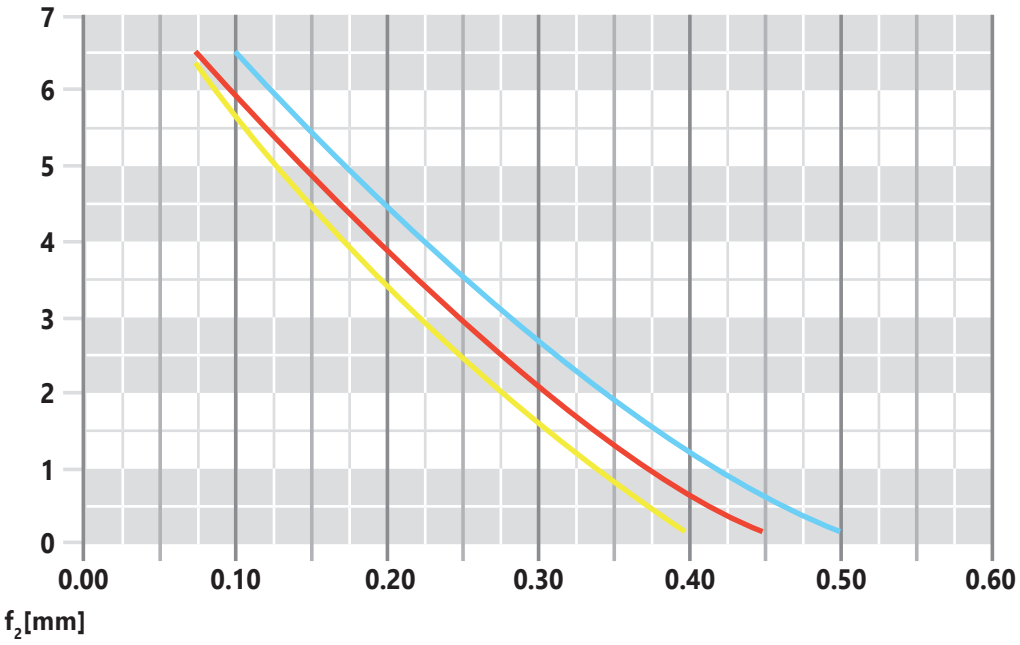
## SCHNITTDATEN SDMX *(CUTTING DATA SOKU12)*

Startparameter *(Starting parameters)*




## SCHNITTDATEN SDMX *(CUTTING DATA SOKU15)*

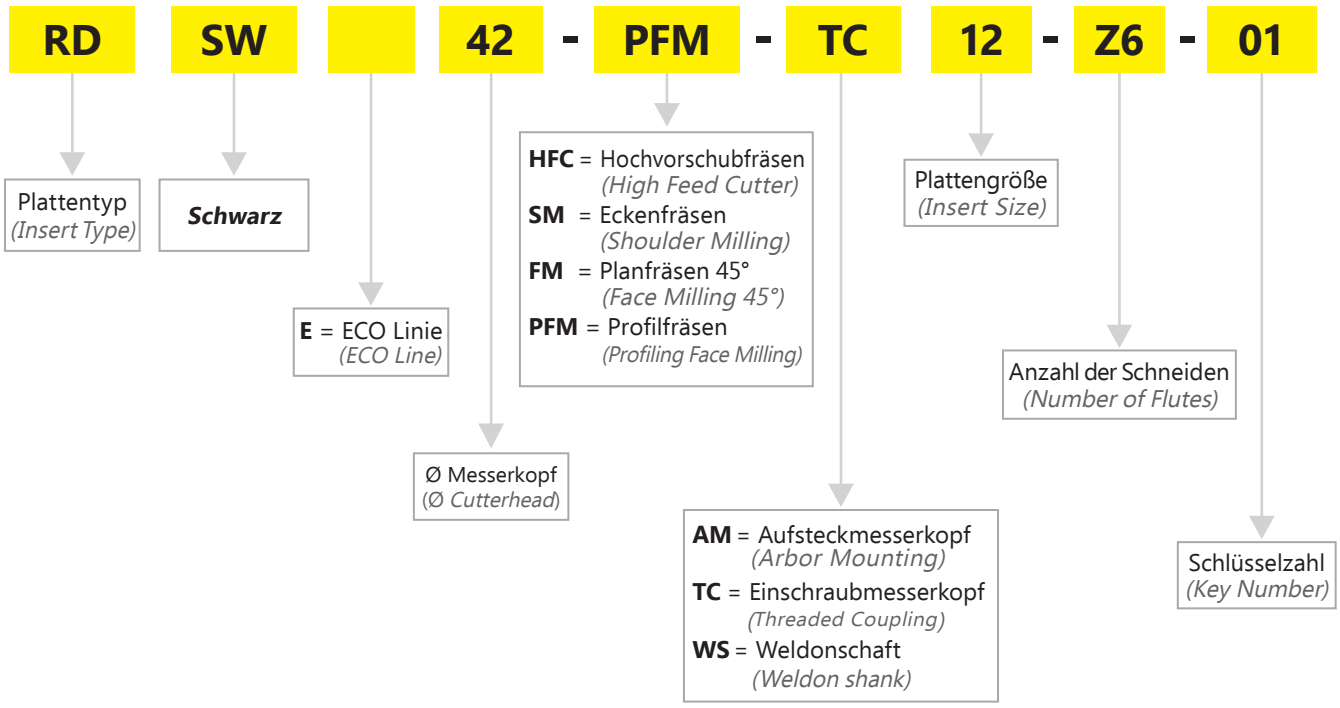
Startparameter *(Starting parameters)*



FORCE LINE

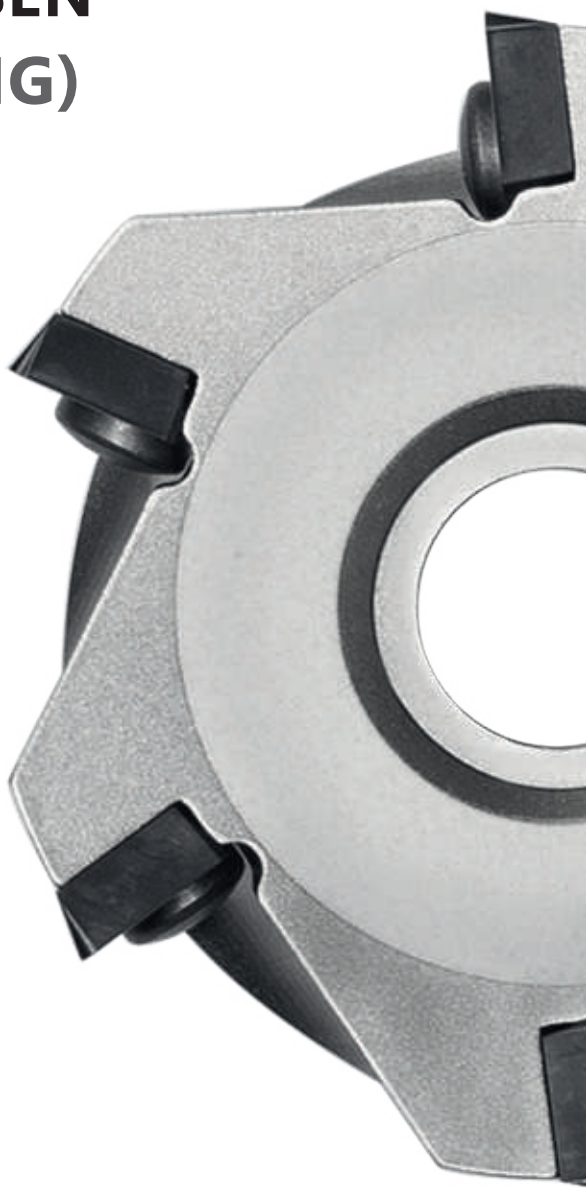
## PRODUKTBEZEICHNUNG *(PRODUCT IDENTIFICATION)*

**BEISPIEL *(EXAMPLE)*: RDSW 42-PFM-TC 12-Z6-01**



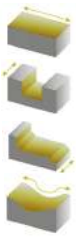
# FORCE LINE

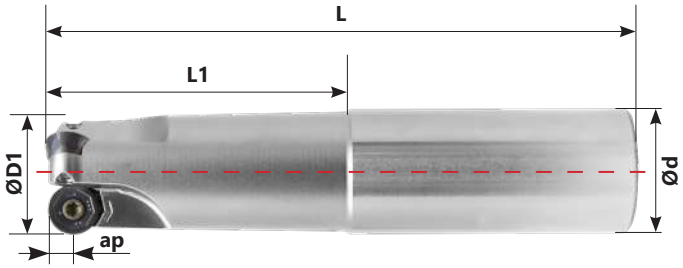
## PLANFRÄSEN / PROFILFRÄSEN
## (FACE MILLING / PROFILING)



## SDMX, EOMT, RPMX,

**Weldonschaft**
*(Weldon Shank)*

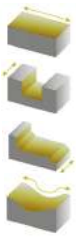


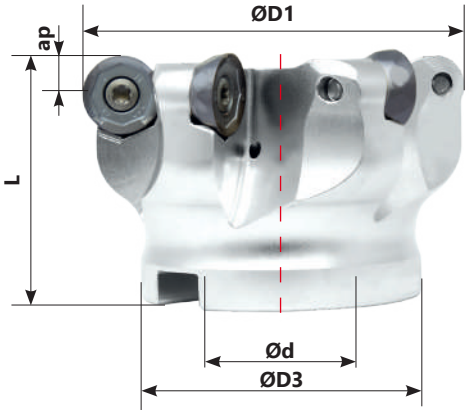




| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | D1 | d | L | L1 | ap |
| SW153-25-1 | SDRPEOSW25-PFM-WS11-Z2-01 | SD... EO... RP... | 2 | 25 | 25 | 86,3 | 30,3 | 0,1 - 5,5 |
| SW153-25-2 | SDRPEOSW25-PFM-WS11-Z2-01 | SD... EO... RP... | 2 | 25 | 25 | 116,3 | 60,3 | 0,1 - 5,5 |
| SW153-32-1 | SDRPEOSW32-PFM-WS11-Z3-01 | SD... EO... RP... | 3 | 32 | 32 | 100,3 | 40,3 | 0,1 - 5,5 |
| SW153-32-2 | SDRPEOSW32-PFM-WS11-Z3-01 | SD... EO... RP... | 3 | 32 | 32 | 70,3 | 70,3 | 0,1 - 5,5 |

## SDMX, EOMT, RPMX,

**Aufsteckmesserkopf**
*(Arbor Mounting)*



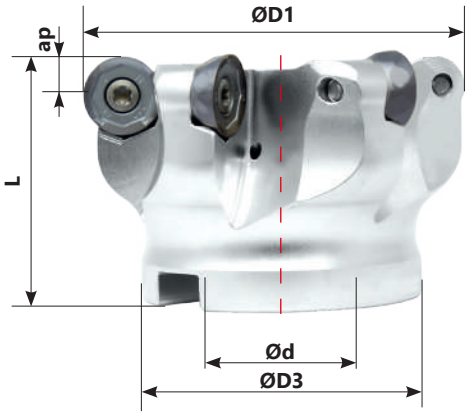




| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | D1 | D2 | D3 | L | ap |
| SW154-40 | SDRPEOSW40-PFM-AM11-Z4-01 | SD.EO.RP11/12 | 4 | 40 | 32,5 | 38 | 40,3 | 0,1 - 5,5 |
| SW154-50 | SDRPEOSW50-PFM-AM11-Z5-01 | SD.EO.RP11/12 | 5 | 50 | 42,5 | 43 | 40,3 | 0,1 - 5,5 |
| SW154-63 | SDRPEOSW63-PFM-AM11-Z6-01 | SD.EO.RP11/12 | 6 | 63 | 55,5 | 48 | 40,3 | 0,1 - 5,5 |
| SW154-80 | SDRPEOSW80-PFM-AM11-Z8-01 | SD.EO.RP11/12 | 8 | 80 | 72,5 | 58 | 50,3 | 0,1 - 5,5 |
| SW154-100 | SDRPEOSW100-PFM-AM11-Z10-01 | SD.EO.RP11/12 | 10 | 100 | 92,5 | 78 | 50,3 | 0,1 - 5,5 |

## SDMX, EOMT, RPMX,

**Aufsteckmesserkopf**
*(Arbor Mounting)*

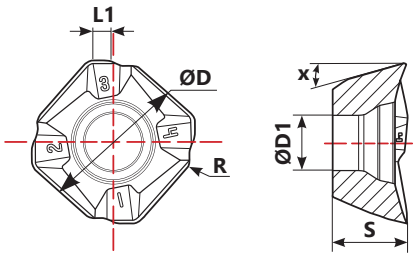
Facing
Slotting
Chamfering
Profiling



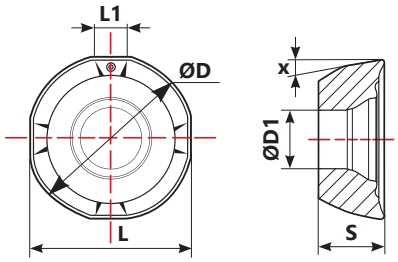

| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | D1 | D2 | D3 | L | ap |
| SW155-50 | SDRPEOSW50-PFM-AM15-Z3-01 | SD... EO... RP... | 3 | 50 | 39,8 | 48 | 40,5 | 0,1 - 5,5 |
| SW155-63 | SDRPEOSW63-PFM-AM15-Z5-01 | SD... EO... RP... | 5 | 63 | 52,8 | 48 | 40,5 | 0,1 - 5,5 |
| SW155-80 | SDRPEOSW80-PFM-AM15-Z6-01 | SD... EO... RP... | 6 | 80 | 69,8 | 58 | 50,5 | 0,1 - 5,5 |
| SW155-100 | SDRPEOSW100-PFM-AM15-Z7-01 | SD... EO... RP... | 7 | 100 | 89,8 | 78 | 50,5 | 0,1 - 5,5 |
| SW155-125 | SDRPEOSW125-PFM-AM15-Z8-01 | SD... EO... RP... | 8 | 125 | 114,8 | 88 | 63,4 | 0,1 - 5,5 |

| Bestellcode (Ordering Code) | | Qualität (Grades) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | | | M | | K | | N | S | | H | |
| | | CVD | PVD | | PVD | CVD | PVD | | UNC | CVD | | PVD | |
| | | SW22230 | SW11235 | - | SW11245 | SW22535 | - | - | SW00915 | SW22535 | SW22540 | SW12115 | |
|  | EOMT 120416-HCM | ▲ | ▲ | | | | | | | | | | |
| | EOMT 120416-SCM | | | | ▲ | ▲ | | | | | | | |
|  | RPMX 1204MO-MFHCM | ▲ | ▲ | | | | | | | | | | |
| | RPMX 1204MO-MFSCM | | | | ▲ | ▲ | | | | | | | |
|  | RPMX 1605MO-MFHCM | ▲ | ▲ | | | | | | | | | | |
| | RPMX 1605MO-MFSCM | | | | ▲ | ▲ | | | | | | | |
|  | SDMX 1105AEER-HCM | ▲ | ▲ | | | | | | | | | | |
| | SDMX 1105AEER-SCM | | | | ▲ | ▲ | | | | | | | |
|  | SDMX 1506AEER-HCM | ▲ | ▲ | | | | | | | | | | |
| | SDMX 1506AEER-SCM | | | | ▲ | ▲ | | | | | | | |

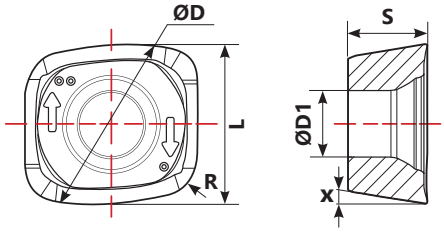
## PLATTEN - TECHNISCHE DATEN *(INSERTS - TECHNICAL DETAILS)*




| Bestellcode *(Ordering Code)* | Maße *(Dimensions)* in mm | | | | | |
|---|---|---|---|---|---|---|
| | D | D1 | S | L1 | R | x |
| SDMX... 11... | 11.4 | 4.4 | 5.9 | 1.0 | 0.8 | 15 |
| SDMX... 15... | 15 | 5.5 | 6.5 | 1.5 | 0.8 | 15 |




| Bestellcode *(Ordering Code)* | Maße *(Dimensions)* in mm | | | | | |
|---|---|---|---|---|---|---|
| | D | D1 | S | L | L1 | X |
| RPMX... 12... | 12 | 4.4 | 4.76 | 11.75 | 2.4 | 11 |
| RPMX... 16... | 16 | 5.5 | 5.56 | 15.8 | 2.5 | 11 |



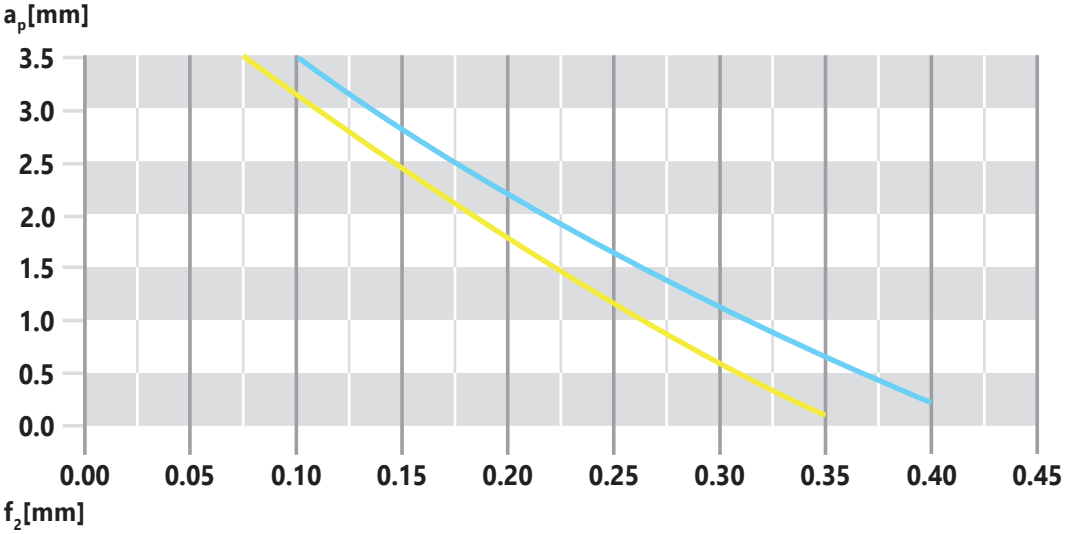

| Bestellcode *(Ordering Code)* | Maße *(Dimensions)* in mm | | | | | |
|---|---|---|---|---|---|---|
| | D | D1 | S | L | R | X |
| EOMT... 12... | 12 | 4.4 | 5 | 10.5 | 16 | 9 |

| Zu bearbeitendes Material *(Material to be machined)* | | HB | Verschleißfestigkeit *(Wear Resistance)* — Vc (m/min) — Zähigkeit *(Toughness)* | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | SW22230 | SW11235 | SW11245 | SW22535 | Vorschub/Zahn *(feed/tooth)* in mm | | | | |
| | | | | | | | SDMX11 | SDMX15 | R...12 | R...16 | EOMT12 |
| **P** | Unlegierter Stahl *(Unalloyed Steel)* | 155-220 | 120-220 | 120-220 | - | - | 0,1-0,4 | 0,1-0,5 | 0,12-0,45 | 0,25-0,8 | 0,1-2,5 |
| | Niedrig legierter Stahl *(Low-Alloyed Steel)* | 220-280 | 100-200 | 100-200 | - | - | | | | | |
| | Hoch legierter Stahl *(High-Alloyed Steel)* | 280-380 | 60-160 | 60-160 | - | - | | | | | |
| **M** | Rostfreier Stahl, ferritisch *(Stainless Steels-Ferritic)* | 200-330 | - | - | 100-200 | 100-200 | 0,08-0,35 | 0,08-0,4 | 0,1-0,4 | 0,2-0,6 | 0,08-1,5 |
| | Rostfreier Stahl, austenitisch *(Stainless Steel-Austenitic)* | 200-330 | - | - | 60-150 | 60-150 | | | | | |

Alle Schnittdaten dienen zur Orientierung *(All cutting datas serve to orientation)*

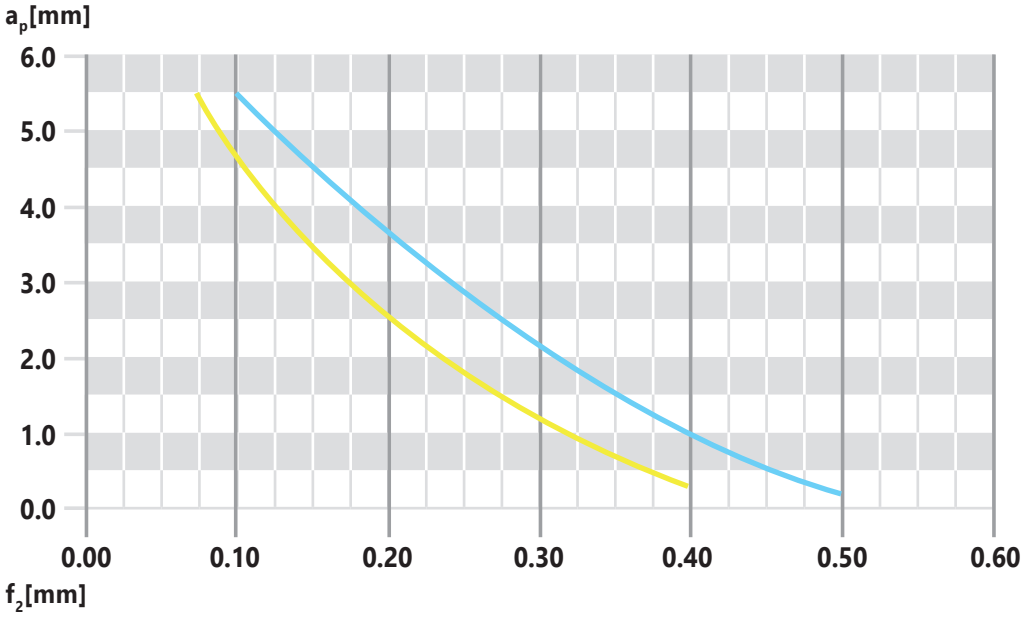
## SCHNITTDATEN SDMX... 11 *(CUTTING DATA SDMX... 11)*

Startparameter *(Starting parameters)*



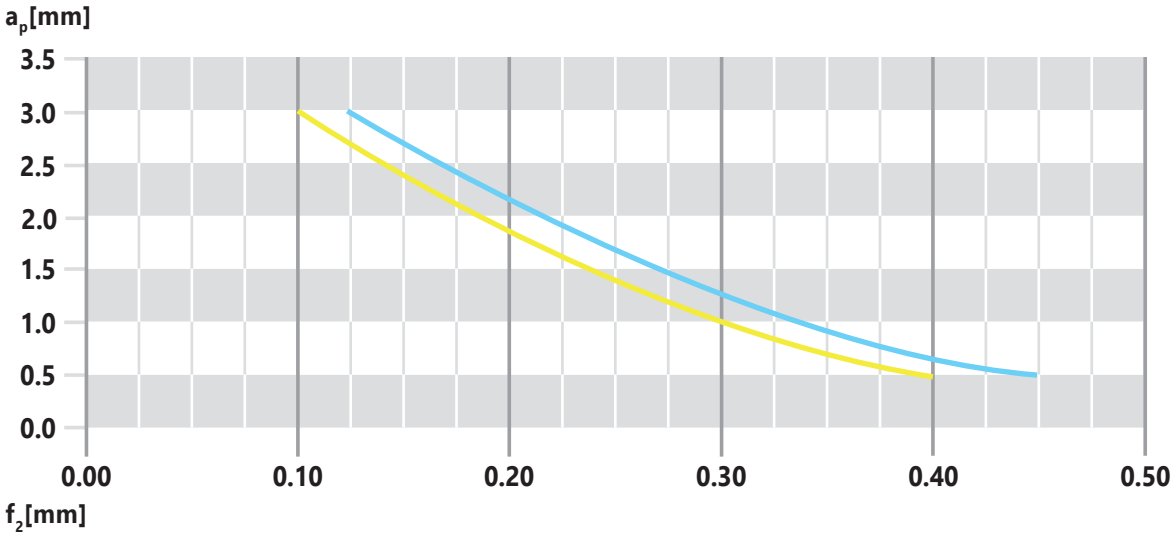
## SCHNITTDATEN RPMX... 15 *(CUTTING DATA RPMX... 15)*

Startparameter *(Starting parameters)*




## SCHNITTDATEN RPMX... 12 *(CUTTING DATA RPMX... 12)*

Startparameter *(Starting parameters)*

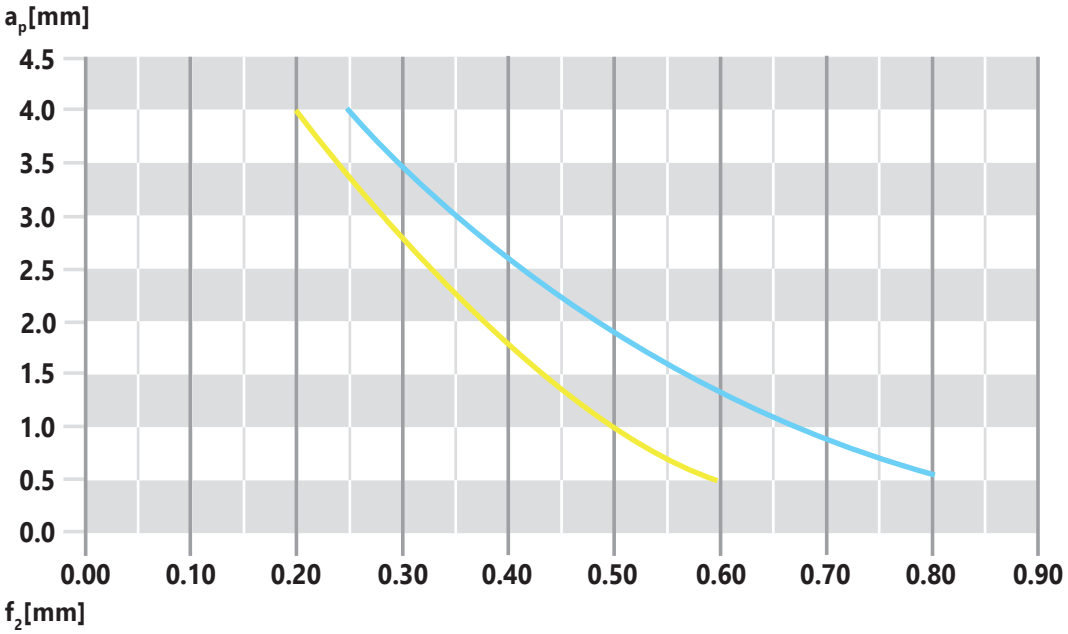



## EMPFOHLENE SCHNITTWERTE *(RECOMMENDED PARAMETERS)*

| Indexing *(4 times)* | | |
|---|---|---|
| Ø | ap | ap max |
| 12 | 3.0 | 5.5 |
| 16 | 4.0 | 7.5 |

## SCHNITTDATEN RPMX... 16 *(CUTTING DATA RPMX... 16)*

Startparameter *(Starting parameters)*

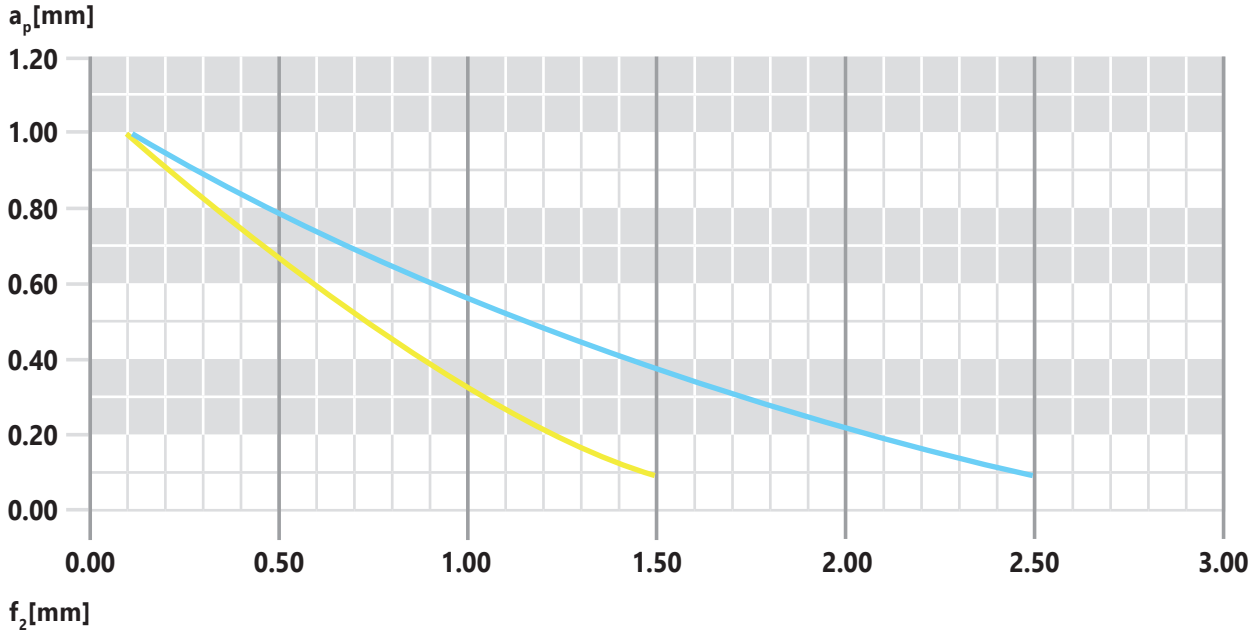



## EMPFOHLENE SCHNITTWERTE *(RECOMMENDED PARAMETERS)*

| Indexing *(4 times)* | | |
|---|---|---|
| Ø | ap | ap max |
| 12 | 3.0 | 5.5 |
| 16 | 4.0 | 7.5 |

## SCHNITTDATEN EOMT *(CUTTING DATA EOMT)*

Startparameter *(Starting parameters)*



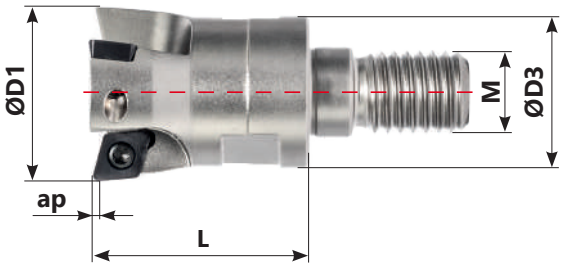

## ERSATZTEILE *(SPARE PARTS)*

| Werkzeugdurchmesser *(Tool Diameter)* ØDc | Spannschraube *(Insert Screw)* | Torx Schlüssel *(Torx Key)* | Unterlegplatte / Unterlegscheibe *(Shim / Washer)* | Klemmschraube *(Screw Clamp)* |
|---|---|---|---|---|
| |  |  |  |  |
| AM... | SW1345432 | - | - | - |
| WS... | SW11037484 | - | - | - |
| SDRPEOSW40-PFM-AM11-Z4-01 | - | - | - | SW11036880 |

## XDSW...TC...

**Einschraubmesserkopf**
*(Threaded Coupling)*

IK
*IC*

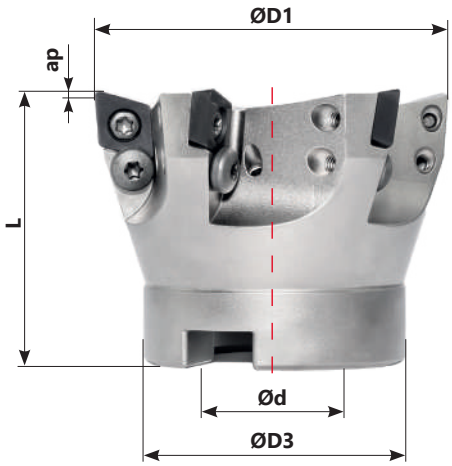



| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | ØD1 | ØD3 | M | L | ap |
| SW103-10 | XDSW10-PFM-TC04-Z2-03 | XD...0401... | 2 | 10 | 9,8 | M6 | 20 | 0,1-0,8 |
| SW103-12 | XDSW12-PFM-TC04-Z2-03 | XD...0401... | 2 | 12 | 9,8 | M6 | 20 | 0,1-0,8 |
| SW103-16 | XDSW16-PFM-TC06-Z2-03 | XD...0602... | 2 | 16 | 13 | M8 | 23 | 0,1-1,0 |
| SW103-20 | XDSW20-PFM-TC06-Z3-03 | XD...0602... | 3 | 20 | 18 | M10 | 28 | 0,1-1,0 |
| SW103-25-1 | XDSW25-PFM-TC06-Z3-03 | XD...0602... | 3 | 25 | 21 | M12 | 30 | 0,1-1,0 |
| SW103-25-2 | XDSW25-PFM-TC06-Z4-03 | XD...0602... | 4 | 25 | 21 | M12 | 30 | 0,1-1,0 |
| SW103-25-3 | XDSW25-PFM-TC10-Z2-03 | XD...10T3... | 2 | 25 | 21 | M12 | 35 | 0,1-1,0 |
| SW103-35 | XDSW35-PFM-TC10-Z3-03 | XD...10T3... | 3 | 35 | 29 | M16 | 43 | 0,1-1,0 |
| SW103-42 | XDSW42-PFM-TC10-Z4-03 | XD...10T3... | 4 | 42 | 29 | M16 | 43 | 0,1-1,0 |

## XDSW...AM...

**Aufsteckmesserkopf**
*(Arbor Mounting)*

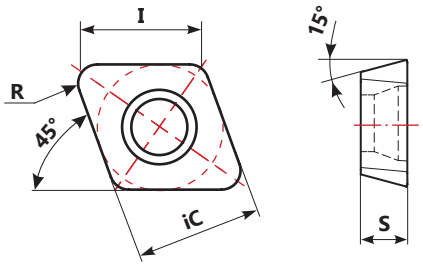
IK
*IC*




| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | ØD1 | ØD3 | Ød | L | ap |
| SW104-52 | XDSW52-PFM-AM10-Z5-03 | XD...10T3... | 5 | 52 | 40 | 22 | 50 | 0,1-1,0 |
| SW104-66 | XDSW66-PFM-AM10-Z6-03 | XD...10T3... | 6 | 66 | 48 | 27 | 50 | 0,1-1,0 |
| SW104-80 | XDSW80-PFM-AM10-Z7-03 | XD...10T3... | 7 | 80 | 60 | 27 | 50 | 0,1-1,0 |

| Bestellcode *(Ordering Code)* | Qualität *(Grades)* | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | | | M | K | | | N | S | H |
| | PVD | | | | PVD | PVD | | | UNC | PVD | PVD |
| | SW11103 | SW11910 | SW11125 | SW11135 | SW11920 | SW11910 | SW11920 | SW11125 | - | SW11740 | SW11103 |
|  XDHW 040110 | ▲ | ▲ | ▲ | | | ▲ | | ▲ | | | ▲ |
|  XDHW 060210 | ▲ | ▲ | ▲ | ▲ | | ▲ | | ▲ | | | ▲ |
|  XDHW 10T310 | ▲ | ▲ | ▲ | ▲ | | ▲ | | ▲ | | | ▲ |

## PLATTEN - TECHNISCHE DATEN *(INSERTS - TECHNICAL DETAILS)*



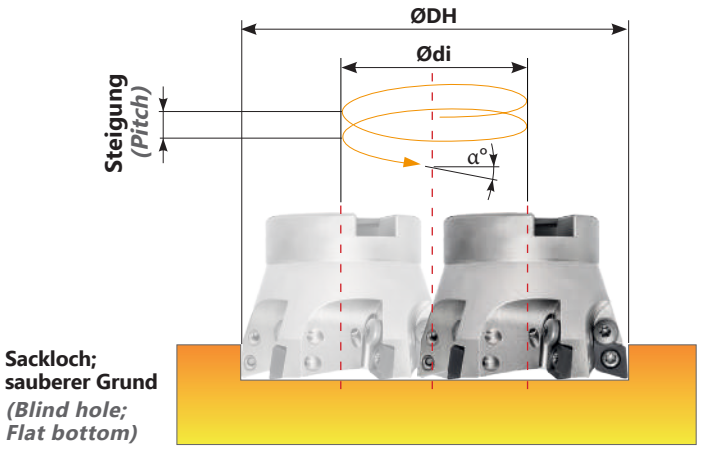

| Bestellcode *(Ordering Code)* | Maße *(Dimensions)* in mm | | | | |
|---|---|---|---|---|---|
| | iC | S | I | B | R |
| XDHW 040105 | 4,00 | 1,59 | 4,00 | - | 0,50 |
| XDHW 040110 | 4,00 | 1,59 | 4,00 | - | 1,00 |
| XDHW 060210 | 6,50 | 2,38 | 6,20 | - | 1,00 |
| XDHW 10T310 | 10,00 | 3,97 | 9,90 | - | 1,00 |

| Zu bearbeitendes Material *(Material to be machined)* | | HB | Verschleißfestigkeit *(Wear Resistance)* — Vc (m/min) — Zähigkeit *(Toughness)* | | | |
|---|---|---|---|---|---|---|
| | | | SW11103 | SW11910 | SW11125 | SW11135 |
| P | Unlegierter Stahl *(Unalloyed Steel)* | 125-220 | 180-300 | 180-250 | 160-190 | 150-180 |
| P | Niedrig legierter Stahl *(Low-Alloyed Steel)* | 220-280 | 180-250 | 170-210 | 140-180 | 140-170 |
| P | Hoch legierter Stahl *(High-Alloyed Steel)* | 280-380 | 180-230 | 160-200 | 130-160 | 120-150 |
| K | Temperguss *(Malleable Cast Iron)* | 130-230 | - | 170-300 | 160-290 | - |
| K | Grauguss *(Grey Cast Iron)* | 180-245 | - | 150-250 | 140-240 | - |
| K | Gusseisen mit Kugelgraphit *(Spheroidal Cast Iron)* | 160-250 | - | 90-210 | 80-200 | - |
| N | Aluminium und NE-Metalle *(Aluminium and Non Ferrous)* | 30-130 | - | - | - | - |
| H | Gehärteter Stahl *(Hardened Steel)* | 40-55 HRc | 120-160 | - | - | - |

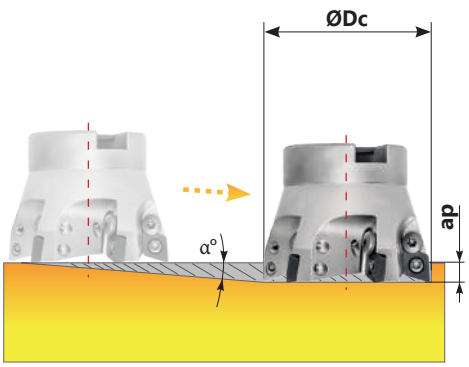
| Platte *(Insert)* | Vorschub/Zahn *(feed/tooth)* in mm | | ap Rec. |
|---|---|---|---|
| | *Roughing* | *Finishing* | |
| **XD...04...** | **0,10-0,20** | **0,10-0,15** | **0,1-0,5** |
| **XD...06...** | **0,15-0,30** | **0,10-0,25** | **0,2-0,8** |
| **XD...10...** | **0,15-0,35** | **0,10-0,30** | **0,2-0,8** |

Alle Schnittdaten dienen zur Orientierung
*(All cutting datas serve to orientation)*

**Helixinterpolation** *(Helical Interpolation)*




**Schrägeintauchen** *(Ramping)*




| Platte *(Insert)* | ØDc | ØDHmin | ØDHmax | Max Pitch/Rev | Max Ramp α° | Max ap |
|---|---|---|---|---|---|---|
| XD...04... | 10 | 18,0 | 20,0 | 4,0 | 7,3° | 0,8 |
| | 12 | 22,0 | 24,0 | 3,5 | 5,3° | 0,8 |
| XD...06... | 16 | 30,0 | 32,0 | 7,1 | 8° | 1,0 |
| | 20 | 38,0 | 40,0 | 6,3 | 5,7° | 1,0 |
| | 25 | 48,0 | 50,0 | 5,5 | 4° | 1,0 |
| XD...10... | 25 | 48,0 | 50,0 | 12,0 | 8,7° | 1,0 |
| | 35 | 68,0 | 70,0 | 10,0 | 5,2° | 1,0 |
| | 42 | 82,0 | 84,0 | 9,2 | 4° | 1,0 |
| | 52 | 102,0 | 104,0 | 8,6 | 3° | 1,0 |
| | 66 | 130,0 | 132,0 | 8,3 | 2,3° | 1,0 |
| | 80 | 158,0 | 160,0 | 7,9 | 1,8° | 1,0 |

Während der Helixinterpolation oder des Schrägeintauchens darf der maximale Steigungswinkel α° nicht überschritten werden
*(During helical interpolation or ramping do not exceed max Pitch α°)*

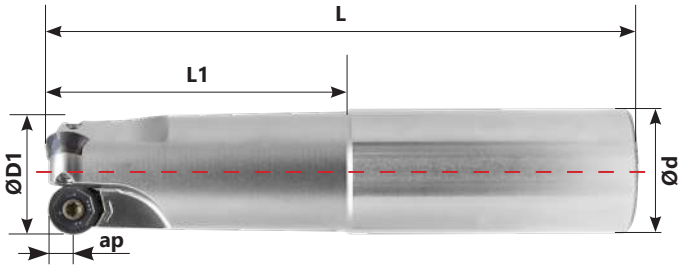
## ERSATZTEILE FÜR SW103-104 *(SPARE PARTS FOR SW103-104)*

| Werkzeugdurchmesser *(Tool Diameter)* ØDc | Spannschraube *(Insert Screw)* | Torx Schlüssel *(Torx Key)* | Unterlegplatte / Unterlegscheibe *(Shim / Washer)* | Klemmschraube *(Screw Clamp)* |
|---|---|---|---|---|
| |  |  |  |  |
| XDSW...TC...Ø10-Ø12 | SW5180401 | XT06 | - | - |
| XDSW...TC...Ø16-Ø25 | SW5250503 | XT08 | - | - |
| XDSW...TC...Ø25-Ø42 | SW5350800 | XT15 | - | - |
| XDSW...TC...Ø52-Ø80 | SW5350800 | XT15 | SW4350750 | - |

## RP...RD...

**Weldonschaft**
*(Weldon Shank)*

- Facing
- Slotting
- Profiling
- Helical Interpolation
- Plunging

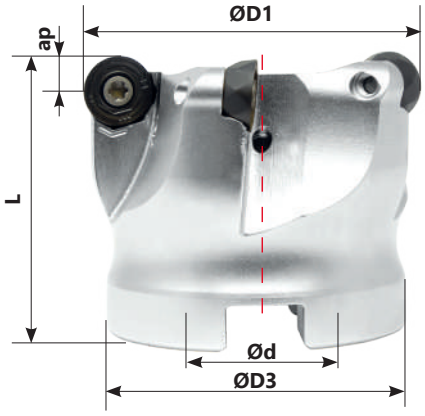



| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | d | D1 | L | L1 | ap |
| SW146-20-1 | RDSW20102-PFM-WS10-Z2-01 | RP... RD... 10 | 2 | 20 | 20 | 102 | 50 | 0.1 - 5 |
| SW146-20-2 | RDSW20165-PFM-WS10-Z2-01 | RP... RD... 10 | 2 | 20 | 20 | 165 | 50 | 0.1 - 5 |
| SW146-25-1 | RDSW25116-PFM-WS10-Z3-01 | RP... RD... 10 | 3 | 25 | 25 | 116 | 60 | 0.1 - 5 |
| SW146-25-2 | RDSW25165-PFM-WS10-Z3-01 | RP... RD... 10 | 3 | 25 | 25 | 165 | 60 | 0.1 - 5 |
| SW146-32-1 | RDSW32130-PFM-WS10-Z4-01 | RP... RD... 10 | 4 | 32 | 32 | 130 | 70 | 0.1 - 5 |
| SW146-32-2 | RDSW32165-PFM-WS10-Z4-01 | RP... RD... 10 | 4 | 32 | 32 | 165 | 70 | 0.1 - 5 |

## RP...RD...

**Aufsteckmesserkopf**
*(Arbor Mounting)*

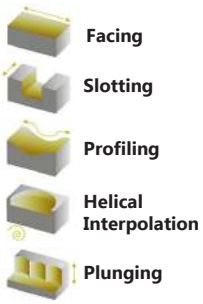
- Facing
- Slotting
- Profiling
- Helical Interpolation
- Plunging

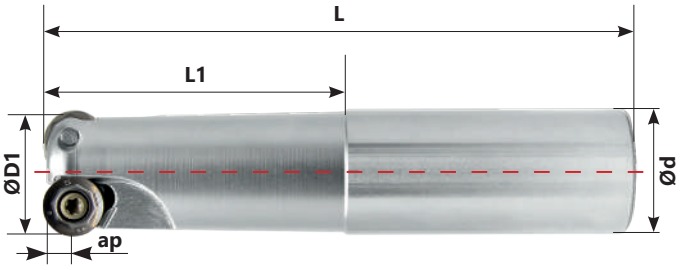



| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | D1 | D3 | d | L | ap |
| SW147-40 | RDSW40-PFM-AM10-Z4-01 | RP... RD... 10 | 4 | 40 | 38 | 16 | 40 | 0.1 - 5 |
| SW147-50 | RDSW50-PFM-AM10-Z5-01 | RP... RD... 10 | 5 | 50 | 43 | 22 | 40 | 0.1 - 5 |

## RP...RD...

**Weldonschaft**
*(Weldon Shank)*

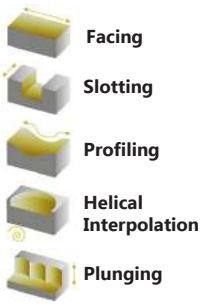


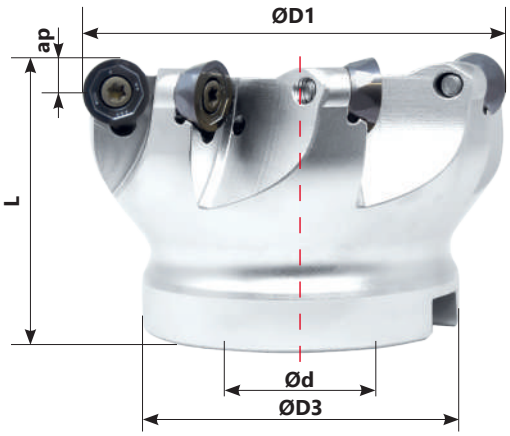




| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | d | D1 | L | L1 | ap |
| SW148-25-1 | RDSW2586-PFM-WS12-Z2-01 | RP... RD... 12 | 2 | 25 | 25 | 86 | 30 | 0.1 - 6 |
| SW148-25-2 | RDSW25116-PFM-WS12-Z2-01 | RP... RD... 12 | 2 | 25 | 25 | 116 | 60 | 0.1 - 6 |
| SW148-32-1 | RDSW32100-PFM-WS12-Z3-01 | RP... RD... 12 | 3 | 32 | 32 | 100 | 40 | 0.1 - 6 |
| SW148-32-2 | RDSW32130-PFM-WS12-Z3-01 | RP... RD... 12 | 3 | 32 | 32 | 130 | 70 | 0.1 - 6 |

## RP...RD...

**Aufsteckmesserkopf**
*(Arbor Mounting)*

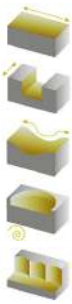


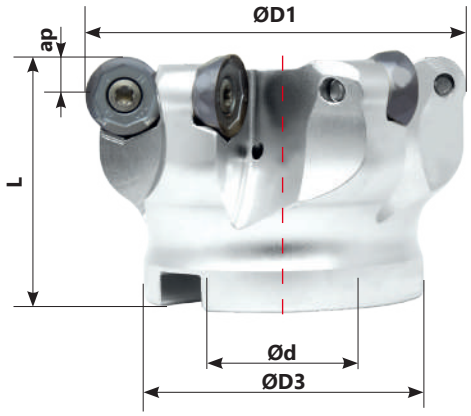

| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | D1 | D3 | d | L | ap |
| SW149-40 | RDSW40-PFM-AM12-Z4-01 | RP... RD... 12 | 4 | 40 | 38 | 16 | 40 | 0.1 - 6 |
| SW149-50 | RDSW50-PFM-AM12-Z5-01 | RP... RD... 12 | 5 | 50 | 43 | 22 | 40 | 0.1 - 6 |
| SW149-63 | RDSW63-PFM-AM12-Z6-01 | RP... RD... 12 | 6 | 63 | 48 | 22 | 40 | 0.1 - 6 |
| SW149-80 | RDSW80-PFM-AM12-Z8-01 | RP... RD... 12 | 8 | 80 | 58 | 27 | 50 | 0.1 - 6 |
| SW149-100 | RDSW100-PFM-AM12-Z10-01 | RP... RD... 12 | 10 | 100 | 78 | 32 | 50 | 0.1 - 6 |

## RP...RD...

**Aufsteckmesserkopf**
*(Arbor Mounting)*



Facing
Slotting
Profiling
Helical Interpolation
Plunging



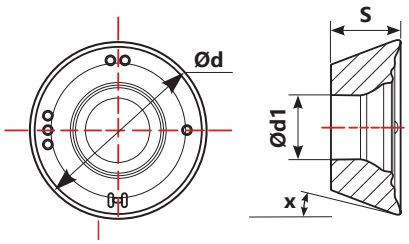

| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | D1 | D3 | d | L | ap |
| SW150-50 | RDSW50-PFM-AM16-Z3-01 | RP... RD... 16 | 3 | 50 | 48 | 22 | 40 | 0.1 - 8 |
| SW150-63 | RDSW63-PFM-AM16-Z5-01 | RP... RD... 16 | 5 | 63 | 48 | 22 | 40 | 0.1 - 8 |
| SW150-80 | RDSW80-PFM-AM16-Z6-01 | RP... RD... 16 | 6 | 80 | 58 | 27 | 50 | 0.1 - 8 |
| SW150-100 | RDSW100-PFM-AM16-Z7-01 | RP... RD... 16 | 7 | 100 | 78 | 32 | 50 | 0.1 - 8 |
| SW150-125 | RDSW125-PFM-AM16-Z8-01 | RP... RD... 16 | 8 | 125 | 88 | 40 | 63 | 0.1 - 8 |

| Bestellcode (Ordering Code) | Qualität (Grades) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | | M | | K | | N | S | | H |
| | CVD | PVD | | PVD | CVD | PVD | | UNC | CVD | | PVD |
| | SW22230 | SW11235 | - | SW11245 | SW22535 | - | - | SW00915 | SW22535 | SW22540 | SW12115 |
|  RPMX 10T3MO-HCM | ▲ | ▲ | | | | | | | | | |
| RPMX 10T3MO-SCM | | | | ▲ | ▲ | | | | | | |
|  RDHX 10T3MO-LMM | | | | | | | | ▲ | | | |
| RPHX 10T3MO-XCM | | | | | | | | | ▲ | ▲ | |
|  RDHW 10T3MOSN | | | | | | | | | | | ▲ |
|  RPMX 1204MO-HCM | ▲ | ▲ | | | | | | | | | |
| RPMX 1204MO-SCM | | | | ▲ | ▲ | | | | | | |
|  RDHX 1204MO-LMM | | | | | | | | ▲ | | | |
| RPHX 1204MO-XCM | | | | | | | | | ▲ | ▲ | |
|  RDHW 1204MOSN | | | | | | | | | | | ▲ |
|  RPMX 1605MO-HCM | ▲ | ▲ | | | | | | | | | |
| RPMX 1605MO-SCM | | | | ▲ | ▲ | | | | | | |
|  RPHX 1605MO-XCM | | | | | | | | | ▲ | ▲ | |

| Zu bearbeitendes Material *(Material to be machined)* | | HB | Verschleißfestigkeit *(Wear Resistance)* Vc (m/min) Zähigkeit *(Toughness)* | | | | | | | Plattengröße *(Insert size)* | fz (mm) | ap(mm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | SW22230 | SW11235 | SW11245 | SW22535 | SW22540 | SW00915 | SW12115 | | | |
| P | Unlegierter Stahl *(Unalloyed Steel)* | 155-220 | 120-220 | 120-220 | - | - | - | - | - | RD... 10<br>RD... 12<br>RD... 16 | ≤0,15<br>≤0,20<br>≤0,25 | ≤0,50<br>≤0,80<br>≤0,80 |
| | Niedrig legierter Stahl *(Low-Alloyed Steel)* | 220-280 | 90-190 | 90-190 | - | - | - | - | - | | | |
| | Hoch legierter Stahl *(High-Alloyed Steel)* | 280-380 | 60-160 | 60-160 | - | - | - | - | - | | | |
| M | Rostfreier Stahl, ferritisch *(Stainless Steels-Ferritic)* | 200-330 | - | - | 100-200 | 100-200 | - | - | - | RD... 10<br>RD... 12<br>RD... 16 | ≤0,10<br>≤0,10<br>≤0,20 | ≤0,15<br>≤0,20<br>≤0,25 |
| | Rostfreier Stahl, austenitisch *(Stainless Steel-Austenitic)* | 200-330 | - | - | 60-160 | 60-160 | - | - | - | | | |
| N | Aluminium und NE-Metalle *(Aluminium and Non Ferrous)* | 30-130 | - | - | - | - | - | <2000 | - | RD... 10<br>RD... 12 | ≤0,10<br>≤0,10 | ≤0,40<br>≤0,50 |
| S | Heat Resistant Super Alloys *(Heat Resistant Super Alloys)* | 200-320 | - | - | - | 25-75 | 25-75 | - | - | RD... 10<br>RD... 12<br>RD... 16 | ≤0,08<br>≤0,10<br>≤0,10 | ≤0,25<br>≤0,30<br>≤0,30 |
| H | Gehärteter Stahl *(Hardened Steel)* | 40-55 HRc | - | - | - | - | - | - | 100-180 | RD... 10<br>RD... 12 | ≤0,10<br>≤0,10 | ≤0,20<br>≤0,25 |

Alle Schnittdaten dienen zur Orientierung *(All cutting datas serve to orientation)*

## PLATTEN - TECHNISCHE DATEN *(INSERTS - TECHNICAL DETAILS)*



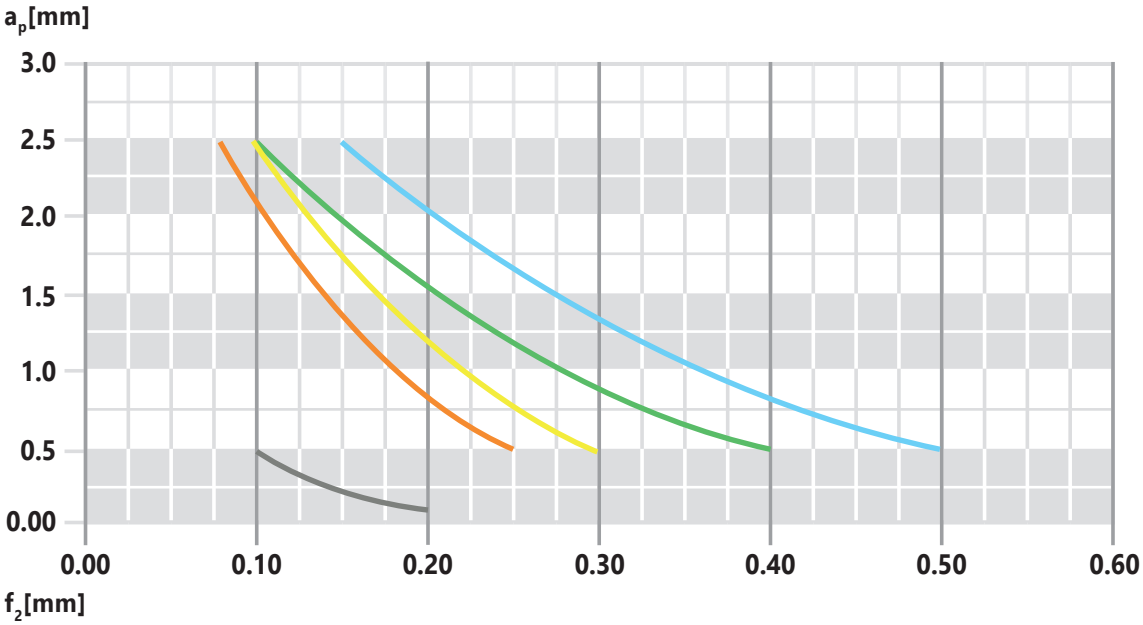

| Bestellcode *(Ordering Code)* | Maße *(Dimensions)* in mm | | | |
|---|---|---|---|---|
| | d | S | d1 | x |
| RP... 10... | 10 | 3.97 | 3.4 | 11 |
| RD... 10... | 10 | 3.97 | 3.4 | 15 |
| RP... 12... | 12 | 4.76 | 4.4 | 11 |
| RD... 12... | 12 | 4.76 | 4.4 | 15 |
| RP... 16... | 16 | 5.56 | 5.5 | 11 |

## EMPFOHLENE SCHNITTWERTE *(RECOMMENDED PARAMETERS)*

| Platte *(Insert)* | Indexing *(4 times)* | | Indexing *(8 times)* |
|---|---|---|---|
| | ap | ap max | ap max |
| RD...10 | 2,50 | 4,50 | 1,40 |
| RD...12 | 3,00 | 5,50 | 1,70 |
| RD...16 | 4,00 | 7,50 | 2,30 |

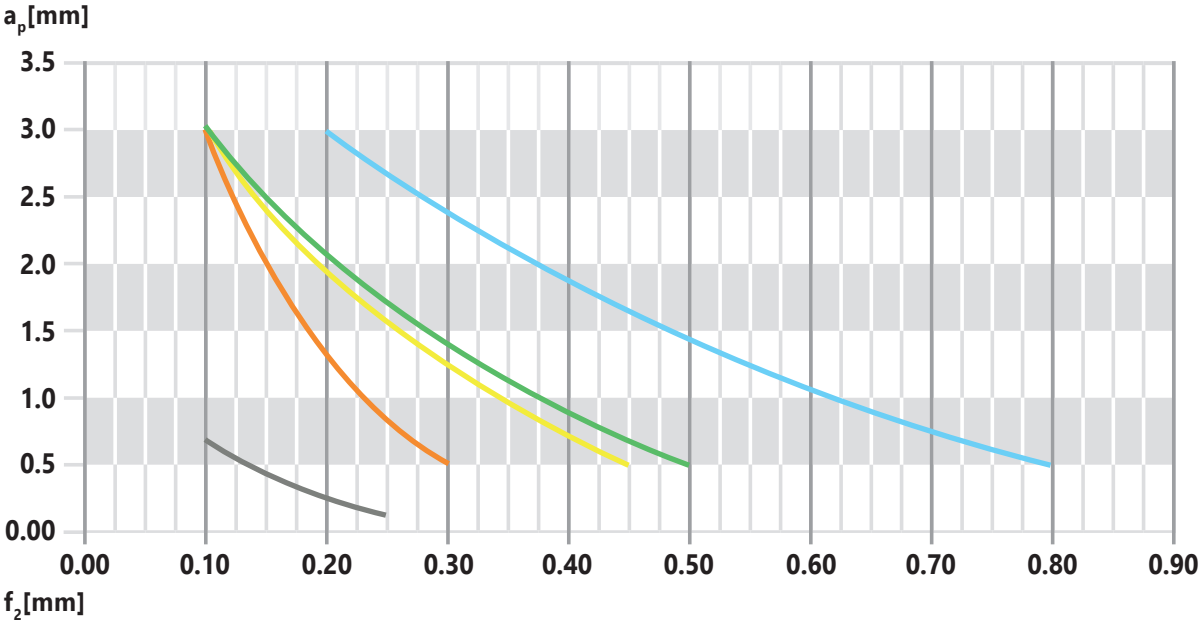
## SCHNITTDATEN R10 *(CUTTING DATA R10)*

Startparameter *(Starting parameters)*



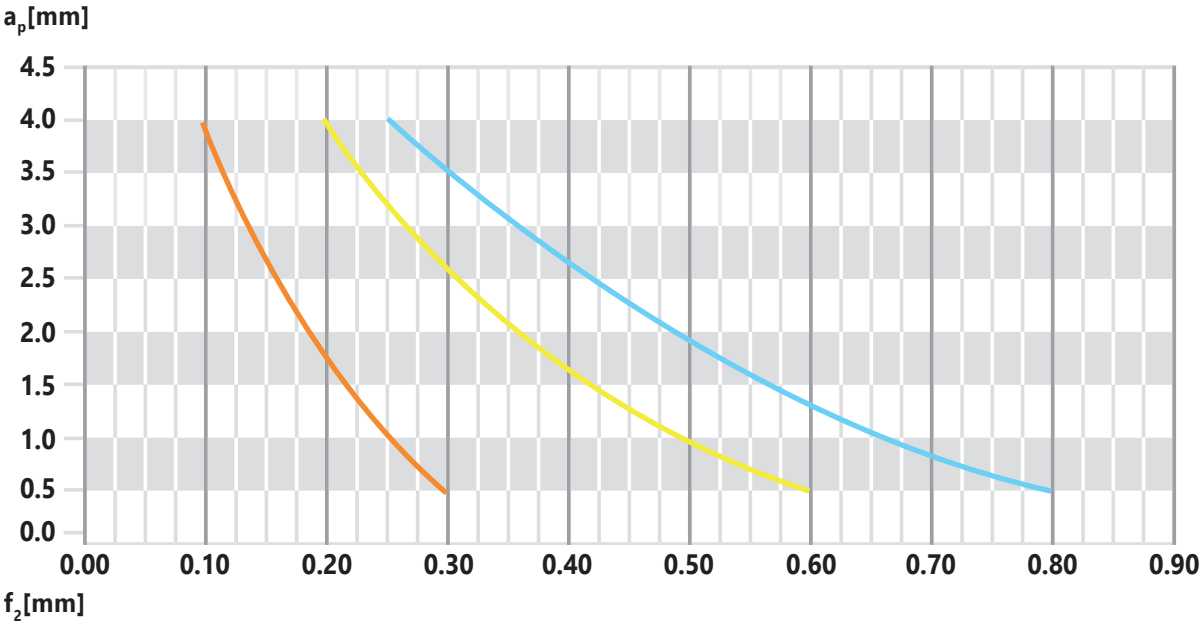
## SCHNITTDATEN R12 *(CUTTING DATA R12)*

Startparameter *(Starting parameters)*




## SCHNITTDATEN R16 *(CUTTING DATA R16)*

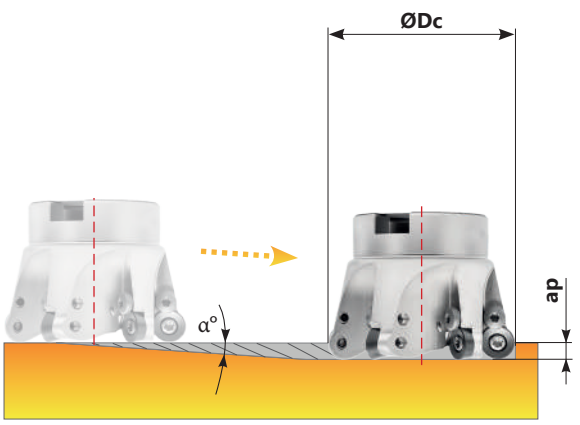
Startparameter *(Starting parameters)*



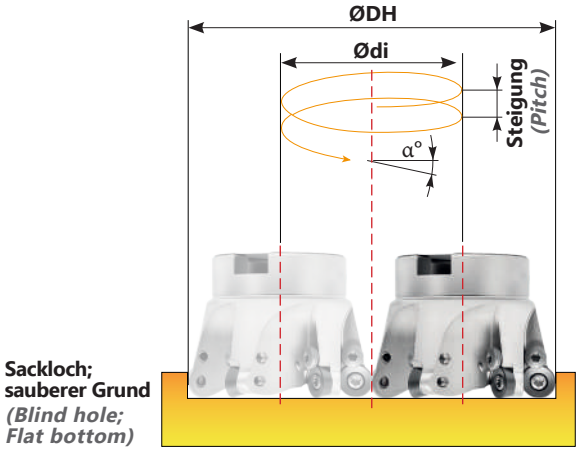
## ERSATZTEILE *(SPARE PARTS)*

| Werkzeugdurchmesser *(Tool Diameter)* ØDc | Spannschraube *(Insert Screw)* | Torx Schlüssel *(Torx Key)* | Unterlegplatte / Unterlegscheibe *(Shim / Washer)* | Klemmschraube *(Screw Clamp)* |
|---|---|---|---|---|
| |  |  |  |  |
| R...10... | SW11689894 | - | - | - |
| R...10... | - | - | - | SW11036880 |
| R...12...AM... | SW4011654 | - | - | - |
| R...12...WS... | SW7818428 | - | - | - |
| RDSW40-PFM-AM12-Z4-01 | - | - | - | SW7818267 |
| R...16... | SW4513250 | - | - | - |
| R...16... | SW7818268 | - | - | - |

**Schrägeintauchen** *(Ramping)*




**Helixinterpolation** *(Helical Interpolation)*



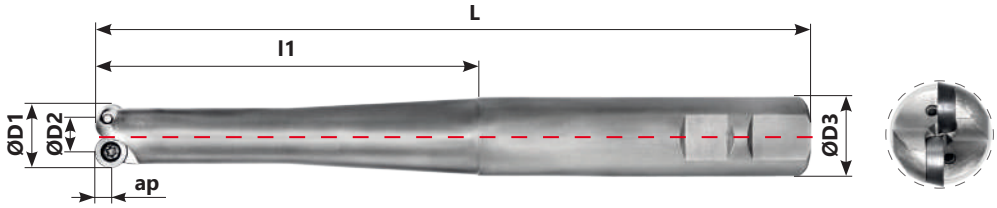

| Platte *(Insert)* | ØDc | Max Ramp α° | Max ap | ØDHmin | ØDHmax | Max Pitch/Rev. |
|---|---|---|---|---|---|---|
| RD... 10... | 20 | 1,3 | 5 | 26 | 30 | 1,3 |
| | 25 | 2,0 | 5 | 37 | 40 | 1,8 |
| | 32 | 3,0 | 5 | 50 | 54 | 1,5 |
| | 40 | 3,3 | 5 | 64 | 70 | 1,1 |
| | 50 | 2,4 | 5 | 68 | 74 | 1,1 |
| RD... 12... | 25 | 6,4 | 6 | 31 | 38 | 2,2 |
| | 32 | 4,0 | 6 | 46 | 52 | 1,7 |
| | 40 | 2,8 | 6 | 62 | 68 | 1,4 |
| | 50 | 2,6 | 6 | 81 | 88 | 1,1 |
| | 63 | 1,9 | 6 | 107 | 114 | 0,9 |
| | 80 | 1,3 | 6 | 142 | 148 | 0,7 |
| | 100 | 1,0 | 6 | 181 | 188 | 0,5 |
| RD... 16... | 50 | 4,0 | 8 | 75 | 84 | 1,5 |
| | 63 | 2,8 | 8 | 101 | 110 | 1,1 |
| | 80 | 2,0 | 8 | 135 | 144 | 0,9 |
| | 100 | 1,5 | 8 | 175 | 184 | 0,7 |
| | 125 | 1,0 | 8 | 225 | 234 | 0,5 |

Während der Helixinterpolation oder des Schrägeintauchens darf der maximale Steigungswinkel α° nicht überschritten werden
*(During helical interpolation or ramping do not exceed max Pitch α°)*

## RDSW...WS...

Weldonschaft
*(Weldon Shank)*

IK
*IC*

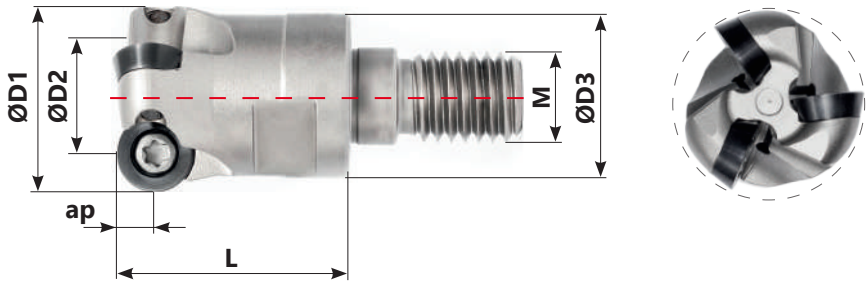



| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | ØD1 | ØD2 | ØD3 | L | l1 | ap |
| SW105-15-1 | RDSW15160-PFM-WS07-Z2-03 | RD...0702... | 2 | 15 | 8 | 16 | 160 | 60 | 0,1-3,5 |
| SW105-15-2 | RDSW15220-PFM-WS07-Z2-03 | RD...0702... | 2 | 15 | 8 | 25 | 220 | 120 | 0,1-3,5 |
| SW105-20-1 | RDSW20160-PFM-WS10-Z2-03 | RD...1003... | 2 | 20 | 10 | 20 | 160 | 60 | 0,1-5,0 |
| SW105-20-2 | RDSW20220-PFM-WS10-Z2-03 | RD...1003... | 2 | 20 | 10 | 25 | 220 | 120 | 0,1-5,0 |
| SW105-25-1 | RDSW25220-PFM-WS12-Z2-03 | RD...12T3... | 2 | 25 | 13 | 25 | 220 | 120 | 0,1-6,0 |
| SW105-25-2 | RDSW25230-PFM-WS12-Z2-03 | RD...12T3... | 2 | 25 | 13 | 32 | 230 | 130 | 0,1-6,0 |

## RDSW...TC...

Einschraubmesserkopf
*(Threaded Coupling)*

IK
*IC*

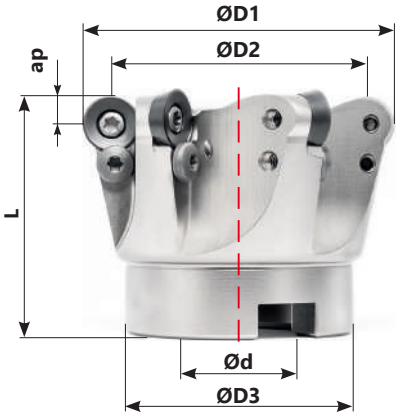



| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | ØD1 | ØD2 | ØD3 | M | L | ap |
| SW106-15 | RDSW15-PFM-TC07-Z3-03 | RD...0702... | 3 | 15 | 8 | 13 | M8 | 20 | 0,1-3,5 |
| SW106-16-1 | RDSW16-PFM-TC07-Z2-03 | RD...0702... | 2 | 16 | 9 | 13 | M8 | 20 | 0,1-3,5 |
| SW106-16-2 | RDSW16-PFM-TC07-Z3-03 | RD...0702... | 3 | 16 | 9 | 13 | M8 | 20 | 0,1-3,5 |
| SW106-20-1 | RDSW20-PFM-TC10-Z4-03 | RD...0702... | 4 | 20 | 13 | 18 | M10 | 25 | 0,1-3,5 |
| SW106-20-2 | RDSW20-PFM-TC10-Z2-03 | RD...1003... | 2 | 20 | 10 | 18 | M10 | 25 | 0,1-5,0 |
| SW106-25 | RDSW25-PFM-TC10-Z3-03 | RD...1003... | 3 | 25 | 15 | 21 | M12 | 30 | 0,1-5,0 |
| SW106-30 | RDSW30-PFM-TC10-Z4-03 | RD...1003... | 4 | 30 | 20 | 29 | M16 | 35 | 0,1-5,0 |
| SW106-35-1 | RDSW35-PFM-TC10-Z5-03 | RD...1003... | 5 | 35 | 25 | 29 | M16 | 43 | 0,1-5,0 |
| SW106-42-1 | RDSW42-PFM-TC10-Z5-03 | RD...1003... | 5 | 42 | 32 | 29 | M16 | 40 | 0,1-5,0 |
| SW106-24 | RDSW24-PFM-TC12-Z2-03 | RD...12T3... | 2 | 24 | 12 | 21 | M16 | 32 | 0,1-6,0 |
| SW106-35-2 | RDSW35-PFM-TC12-Z3-03 | RD...12T3... | 3 | 35 | 23 | 29 | M16 | 42 | 0,1-6,0 |
| SW106-42-2 | RDSW42-PFM-TC12-Z4-03 | RD...12T3... | 4 | 42 | 30 | 29 | M16 | 42 | 0,1-6,0 |

## RDSW...AM...

**Aufsteckmesserkopf**
*(Arbor Mounting)*

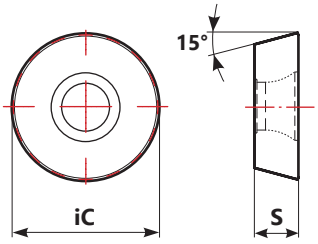
**IK**
*IC*




| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | ØD1 | ØD2 | ØD3 | Ød | L | ap |
| SW107-42 | RDSW42-PFM-AM10-Z6-03 | RD...1003... | 6 | 42 | 36 | 32 | 16 | 44 | 0,1-5,0 |
| SW107-52 | RDSW52-PFM-AM10-Z7-03 | RD...1003... | 7 | 52 | 40 | 42 | 22 | 50 | 0,1-5,0 |
| **AXIAL ANGLE = 0°** | | | | | | | | | |
| SW107-52-1 | RDSW52A0-PFM-AM12-Z5-03 | RD...12T3... | 5 | 52 | 40 | 40 | 22 | 50 | 0,1-6,0 |
| SW107-66-1 | RDSW66A0-PFM-AM12-Z6-03 | RD...12T3... | 6 | 66 | 48 | 54 | 27 | 50 | 0,1-6,0 |
| SW107-80-1 | RDSW80A0-PFM-AM12-Z7-03 | RD...12T3... | 7 | 80 | 60 | 68 | 27 | 50 | 0,1-6,0 |
| **AXIAL ANGLE = 7°** | | | | | | | | | |
| SW107-50 | RDSW50A7-PFM-AM12-Z5-03 | RD...12T3... | 5 | 50 | 40 | 38 | 22 | 50 | 0,1-6,0 |
| SW107-52-2 | RDSW52A7-PFM-AM12-Z5-03 | RD...12T3... | 5 | 52 | 40 | 40 | 22 | 50 | 0,1-6,0 |
| SW107-66-2 | RDSW66A7-PFM-AM12-Z6-03 | RD...12T3... | 6 | 66 | 48 | 54 | 27 | 50 | 0,1-6,0 |
| SW107-80-2 | RDSW80A7-PFM-AM12-Z7-03 | RD...12T3... | 7 | 80 | 60 | 68 | 27 | 52,5 | 0,1-6,0 |

| Bestellcode *(Ordering Code)* | Qualität *(Grades)* | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | | | | | M | K | | | N | S | H |
| | PVD | | | | | | PVD | PVD | | | UNC | PVD | PVD |
| | SW11103 | SW11910 | SW11920 | SW11125 | SW11135 | SW11740 | SW11920 | SW11910 | SW11920 | SW11740 | SW00910 | SW11740 | SW11103 |
| RDHW 0702 M0T | ▲ | ▲ | ▲ | | | | | ▲ | ▲ | | | | ▲ |
| RDHW 1003 M0T | ▲ | ▲ | ▲ | | ▲ | | | ▲ | ▲ | | | | ▲ |
| RDHT 1003 M0T | | | | ▲ | ▲ | | | | | | | | |
| RDMT 1003 M0T | | | | ▲ | ▲ | | | | | | | | |
| RDMW 1003 M0T | | | ▲ | ▲ | ▲ | | | | ▲ | | | | |
| RDHW 12T3 M0T | ▲ | ▲ | ▲ | | ▲ | | | ▲ | ▲ | | | | ▲ |
| RDHT 12T3 M0S-MP | | | ▲ | | | ▲ | | | ▲ | ▲ | | ▲ | |
| RDHT 12T3 M0T | | | | ▲ | ▲ | | | | | | | | |
| RDMT 12T3 M0T | | | | ▲ | ▲ | | | | | | | | |
| RDMW 12T3 M0T | | | ▲ | ▲ | ▲ | | | | ▲ | | | | |

## PLATTEN - TECHNISCHE DATEN *(INSERTS - TECHNICAL DETAILS)*



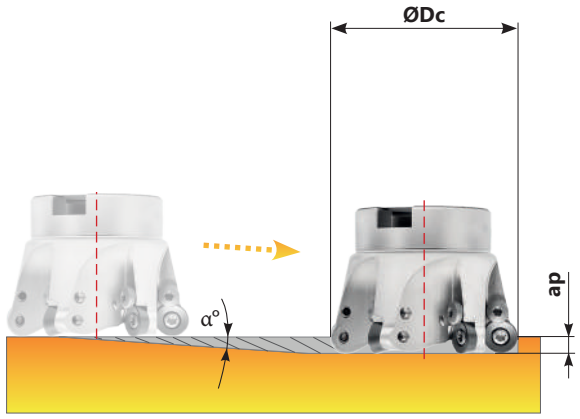

| Bestellcode *(Ordering Code)* | Maße *(Dimensions)* in mm | |
|---|---|---|
| | iC | S |
| RD...07... | 7,00 | 2,38 |
| RD...10... | 10,00 | 3,18 |
| RD...12... | 12,00 | 3,97 |

| Zu bearbeitendes Material *(Material to be machined)* | | HB | Verschleißfestigkeit *(Wear Resistance)* Vc (m/min) Zähigkeit *(Toughness)* | | | | | | Vorschub/Zahn *(feed/tooth)* in mm | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | SW11103 | SW11910 | SW11920 | SW11125 | SW11135 | SW11740 | Plattengröße *(Insert size)* | fz (mm) | ap (mm) |
| P | Unlegierter Stahl *(Unalloyed Steel)* | 125-220 | 180-300 | 180-250 | 150-230 | 160-190 | 150-180 | 130-160 | RD...07 | ≤0,18 | ≤1,50 |
| | | | | | | | | | RD...10 | ≤0,24 | ≤2,50 |
| | | | | | | | | | RD...12 | ≤0,27 | ≤2,50 |
| | Niedrig legierter Stahl *(Low-Alloyed Steel)* | 220-280 | 180-250 | 170-210 | 140-220 | 140-180 | 140-170 | 120-150 | RD...07 | ≤0,18 | ≤1,50 |
| | | | | | | | | | RD...10 | ≤0,24 | ≤2,50 |
| | | | | | | | | | RD...12 | ≤0,25 | ≤2,50 |
| | Hoch legierter Stahl *(High-Alloyed Steel)* | 280-380 | 180-230 | 160-200 | 130-180 | 130-160 | 120-150 | 100-130 | RD...07 | ≤0,15 | ≤1,50 |
| | | | | | | | | | RD...10 | ≤0,21 | ≤2,50 |
| | | | | | | | | | RD...12 | ≤0,20 | ≤2,50 |
| K | Temperguss *(Malleable Cast Iron)* | 130-230 | - | 170-300 | 150-280 | - | - | 130-250 | RD...07 | ≤0,20 | ≤1,50 |
| | | | | | | | | | RD...10 | ≤0,25 | ≤2,50 |
| | | | | | | | | | RD...12 | ≤0,24 | ≤2,50 |
| | Grauguss *(Grey Cast Iron)* | 180-245 | - | 150-250 | 130-230 | - | - | 110-220 | RD...07 | ≤0,20 | ≤1,50 |
| | | | | | | | | | RD...10 | ≤0,25 | ≤2,50 |
| | | | | | | | | | RD...12 | ≤0,24 | ≤2,50 |
| | Gusseisen mit Kugelgraphit *(Spheroidal Cast Iron)* | 160-250 | - | 90-210 | 80-190 | - | - | 80-170 | RD...07 | ≤0,18 | ≤1,50 |
| | | | | | | | | | RD...10 | ≤0,22 | ≤2,50 |
| | | | | | | | | | RD...12 | ≤0,22 | ≤2,50 |
| N | Aluminium und NE-Metalle *(Aluminium and Non Ferrous)* | 30-130 | - | - | - | - | - | - | RD...07 | ≤0,45 | ≤1,50 |
| | | | | | | | | | RD...10 | ≤0,80 | ≤2,50 |
| | | | | | | | | | RD...12 | - | - |
| H | Gehärteter Stahl *(Hardened Steel)* | 40-55 HRc | 120-240 | - | - | - | - | - | RD...07 | ≤0,12 | ≤1,50 |
| | | | | | | | | | RD...10 | ≤0,18 | ≤2,50 |
| | | | | | | | | | RD...12 | ≤0,18 | ≤2,50 |

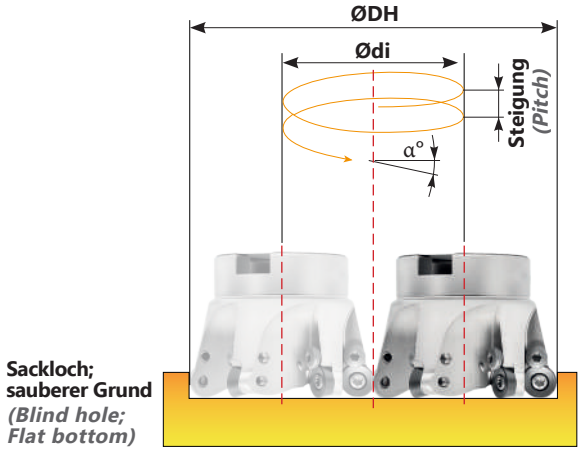
| Platte *(Insert)* | Vorschub/Zahn *(feed/tooth)* | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 0,20-0,50 | 0,50-1,00 | 2,00 | 3,00 | 4,00 | 5,00 | 6,00 | 7,00 | 8,00 |
| RD...07 | 0,35 | 0,25 | 0,10 | 0,07 | - | - | - | - | - |
| RD...10 | - | 0,40 | 0,35 | 0,30 | 0,20 | - | - | - | - |
| RD...12 | - | 0,50 | 0,45 | 0,30 | 0,25 | 0,22 | - | - | - |

Alle Schnittdaten dienen zur Orientierung
*(All cutting datas serve to orientation)*

**Schrägeintauchen** *(Ramping)*




**Helixinterpolation** *(Helical Interpolation)*




| Platte *(Insert)* | ØDc | Max Ramp α° | Max ap | ØDHmin | ØDHmax | Max Pitch/Rev. |
|---|---|---|---|---|---|---|
| RD...07... | 15 | 9,4° | 3,5 | 23,0 | 30,0 | 7,0 |
| | 16 | 8° | 3,5 | 25,0 | 32,0 | 7,0 |
| | 20 | 6° | 3,5 | 33,0 | 40,0 | 6,0 |
| RD...10... | 20 | 25,0° | 5,0 | 30,0 | 40,0 | 29,0 |
| | 25 | 22,0° | 5,0 | 40,0 | 50,0 | 31,0 |
| | 30 | 13,5° | 5,0 | 50,0 | 60,0 | 22,0 |
| | 35 | 12,0° | 5,0 | 60,0 | 70,0 | 23,0 |
| | 42 | 10,0° | 5,0 | 74,0 | 84,0 | 23,0 |
| | 52 | 7,0° | 5,0 | 94,0 | 104,0 | 20,0 |
| RD...12... | 24 | 17,0° | 6,0 | 36,0 | 48,0 | 23,0 |
| | 25 | 16,2° | 6,0 | 38,0 | 50,0 | 22,0 |
| | 35 | 12,0° | 6,0 | 58,0 | 70,0 | 23,0 |
| | 42 | 10,3° | 6,0 | 72,0 | 84,0 | 23,0 |
| | 50 | 6,4° | 6,0 | 88,0 | 100,0 | 17,0 |
| | 52 | 6,0° | 6,0 | 92,0 | 104,0 | 17,0 |
| | 66 | 3,5° | 6,0 | 120,0 | 132,0 | 15,0 |
| | 80 | 2,5° | 6,0 | 148,0 | 160,0 | 14,0 |

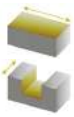
Während der Helixinterpolation oder des Schrägeintauchens darf der maximale Steigungswinkel α° nicht überschritten werden
*(During helical interpolation or ramping do not exceed max Pitch α°)*

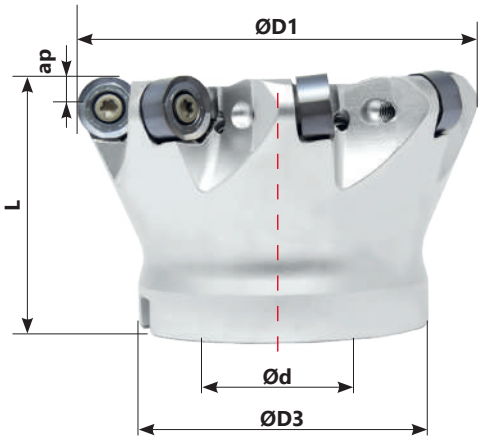
## ERSATZTEILE *(SPARE PARTS)*

| Werkzeugdurchmesser *(Tool Diameter)* ØDc | Spannschraube *(Insert Screw)* | Torx Schlüssel *(Torx Key)* | Unterlegplatte / Unterlegscheibe *(Shim / Washer)* | Klemmschraube *(Screw Clamp)* |
|---|---|---|---|---|
| |  |  |  |  |
| RDSW...WS/TC...Ø15-Ø20 | SW5250503 | XT08 | - | - |
| RDSW...TC/AM...Ø20-Ø52 | SW5350800 | XT15 | - | - |
| RDSW...A7/A0...Ø50-Ø80 | SW5350800 | XT15 | - | - |
| - | - | - | - | - |

## *RN...RO...*

**Aufsteckmesserkopf**
*(Arbor Mounting)*

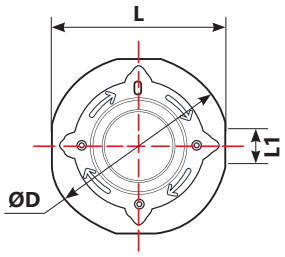


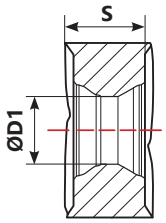




| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | d | D1 | D3 | L | ap |
| SW143-63 | RNROSW63-FM-AM16-Z5-01 | RN... RO... | 5 | 22 | 63 | 38 | 40 | 0.5-4.0 |

| Bestellcode (Ordering Code) | Qualität (Grades) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | P | | M | | K | | | N | S | H |
| | CVD | PVD | PVD | CVD | PVD | | | UNC | CVD | PVD |
| | SW22230 | SW11235 | SW11245 | SW22535 | - | - | - | SW00915 | SW22535 | - |
|  RNKU 1204MOER-HCM | ▲ | ▲ | | | | | | | | |
|  ROHU 1204MOER-SCM | | | ▲ | ▲ | | | | | | |
|  RNKU 1604MOER-HCM | ▲ | ▲ | | | | | | | | |
|  ROHU 1604MOER-SCM | | | ▲ | ▲ | | | | | | |

## PLATTEN - TECHNISCHE DATEN *(INSERTS - TECHNICAL DETAILS)*



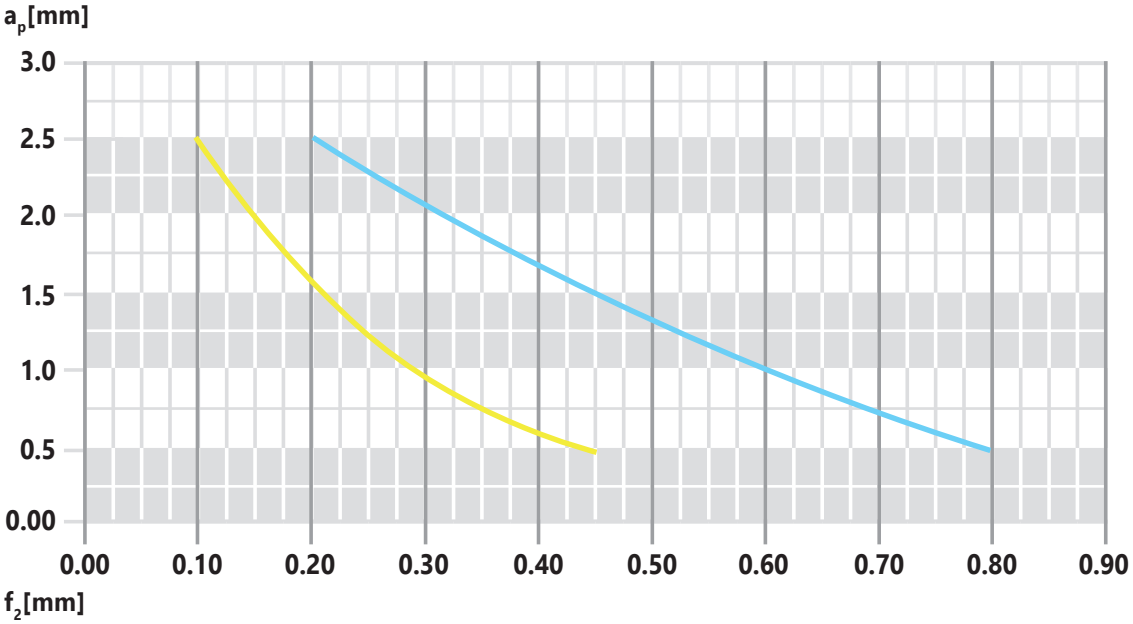

| Bestellcode (Ordering Code) | Maße (Dimensions) in mm | | | | |
|---|---|---|---|---|---|
| | D | D1 | S | L1 | X |
| RNKU... 12... | 12 | 4.5 | 5.9 | 11.8 | 0 |
| ROHU... 12... | 12 | 4.5 | 5.9 | 11.8 | 3 |
| RNKU... 16... | 16 | 5.8 | 6.7 | 15.7 | 0 |
| ROHU... 16... | 16 | 5.8 | 6.7 | 15.7 | 3 |

| Zu bearbeitendes Material *(Material to be machined)* | | HB | Verschleißfestigkeit *(Wear Resistance)* Vc (m/min) Zähigkeit *(Toughness)* | | | | | Vorschub/Zahn *(feed/tooth)* in mm | |
|---|---|---|---|---|---|---|---|---|---|
| | | | SW22230 | SW11235 | SW12240 | SW22535 | SW22415 | R...12... | R...16... |
| P | Unlegierter Stahl *(Unalloyed Steel)* | 155-220 | 120-220 | 120-220 | - | - | - | 0,2-0,8 | 0,25-0,8 |
| | Niedrig legierter Stahl *(Low-Alloyed Steel)* | 220-280 | 100-200 | 100-20 | - | - | - | | |
| | Hoch legierter Stahl *(High-Alloyed Steel)* | 280-380 | 60-150 | 60-150 | - | - | - | | |
| M | Rostfreier Stahl, ferritisch *(Stainless Steels-Ferritic)* | 200-330 | - | - | 100-200 | 100-200 | - | 0,1-0,45 | 0,2-0,6 |
| | Rostfreier Stahl, austenitisch *(Stainless Steel-Austenitic)* | 200-330 | - | - | 60-150 | 60-150 | - | | |

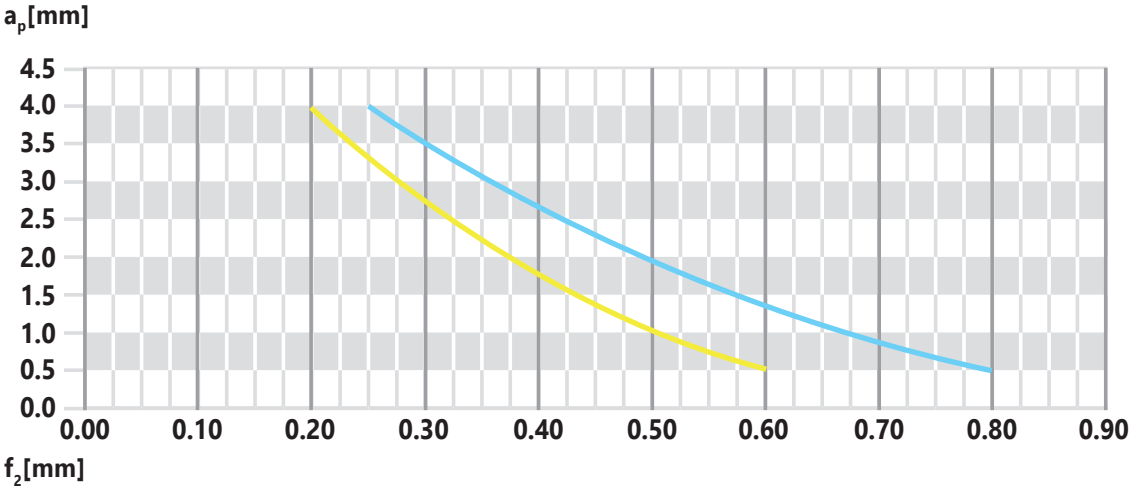
Alle Schnittdaten dienen zur Orientierung *(All cutting datas serve to orientation)*

## SCHNITTDATEN RNKU/ROHU *(CUTTING DATA RNKU/ROHU)*

Startparameter R12 *(Starting parameters R12)*




Startparameter R16 *(Starting parameters R16)*



## EMPFOHLENE SCHNITTWERTE *(RECOMMENDED PARAMETERS)*

| Platte *(Insert)* | Indexing *(4 times)* | | Indexing *(8 times)* |
|---|---|---|---|
| | ap | ap max | ap max |
| RN... RO... 12... | 3.0 | 5.5 | 1.7 |
| RN... RO... 16... | 4.0 | 7.5 | 2.3 |

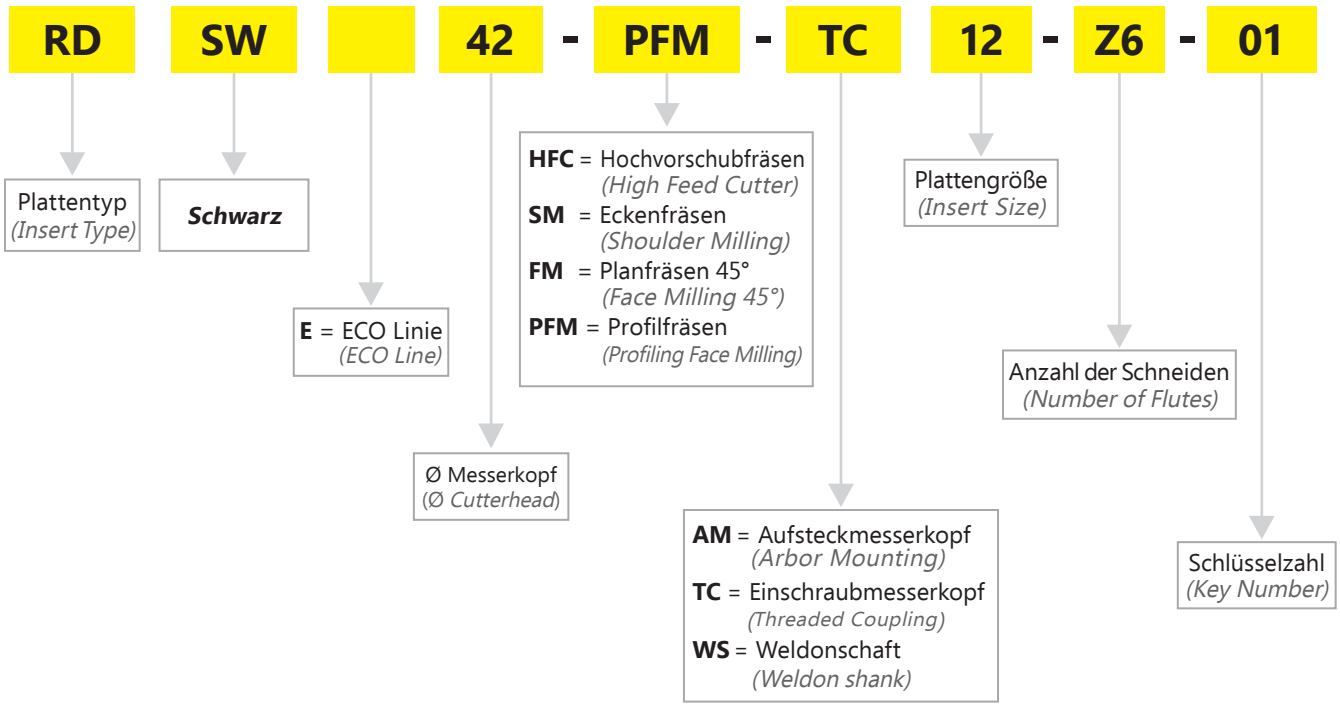
## ERSATZTEILE *(SPARE PARTS)*

| Werkzeugdurchmesser *(Tool Diameter)* ØDc | Spannschraube *(Insert Screw)* | Torx Schlüssel *(Torx Key)* | Unterlegplatte / Unterlegscheibe *(Shim / Washer)* | Klemmschraube *(Screw Clamp)* |
|---|---|---|---|---|
| |  |  |  |  |
| RNROSW...AM... | SW1345432 | | - | - |
| RNROSW...WS... | SW11037484 | - | - | - |

FORCE LINE

## PRODUKTBEZEICHNUNG *(PRODUCT IDENTIFICATION)*

**BEISPIEL *(EXAMPLE)*: RDSW 42-PFM-TC 12-Z6-01**



# FORCE LINE

## HOCHVORSCHUBFRÄSEN
## (HIGH-FEED)

## XSW...WS...

**Weldonschaft**
*(Weldon Shank)*

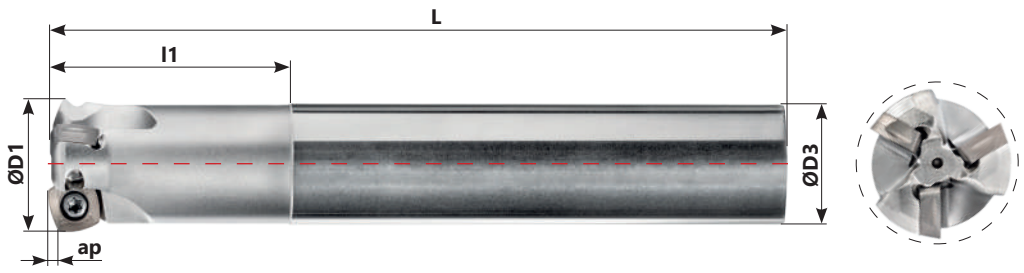
**IK**
*IC*

Facing

Helical Interpolation

Plunging & Recessing

Slotting




| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | ØD1 | ØD3 | L | l1 | ap |
| SW115-16 | XSW16-HFC-WS07-Z2-01 | X...07... | 2 | 16 | 16 | 200 | 50 | 0,1-0,8 |
| SW115-20 | XSW20-HFC-WS07-Z3-01 | X...07... | 3 | 20 | 20 | 200 | 50 | 0,1-0,8 |
| SW115-25 | XSW25-HFC-WS07-Z4-01 | X...07... | 4 | 25 | 25 | 200 | 50 | 0,1-0,8 |
| SW117-25 | XSW25-HFC-WS10-Z3-01 | X...10... | 3 | 25 | 25 | 225 | 50 | 0,1-1,0 |
| SW119-35 | XSW35-HFC-WS13-Z3-01 | X...13... | 3 | 35 | 32 | 250 | 63 | 0,1-2,0 |

## XSW...TC...

**Einschraubmesserkopf**
*(Threaded Coupling)*

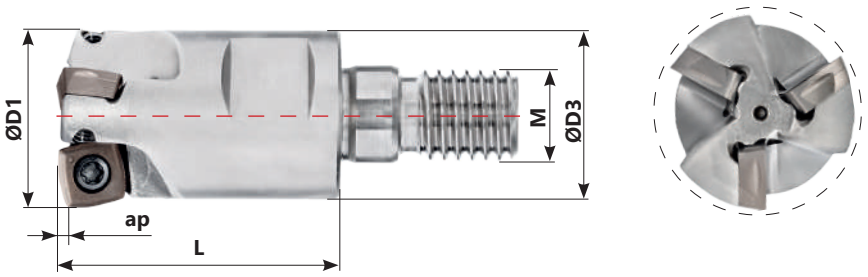
**IK**
*IC*

Facing

Helical Interpolation

Plunging & Recessing

Slotting



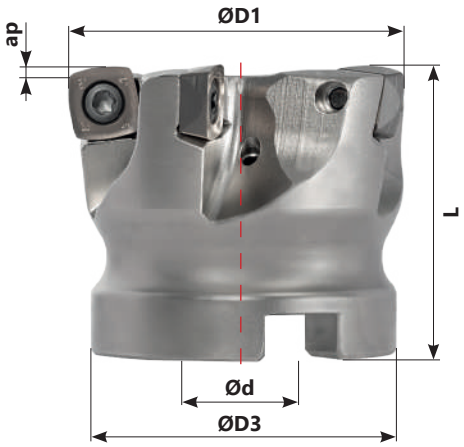

| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | ØD1 | ØD3 | M | L | ap |
| SW116-16 | XSW16-HFC-TC07-Z2-01 | X...07... | 2 | 16 | 13,8 | M8 | 26 | 0,1-0,8 |
| SW116-20 | XSW20-HFC-TC07-Z3-01 | X...07... | 3 | 20 | 18 | M10 | 30 | 0,1-0,8 |
| SW116-25 | XSW25-HFC-TC07-Z4-01 | X...07... | 4 | 25 | 21 | M12 | 34 | 0,1-0,8 |

## XSW...AM...

**Aufsteckmesserkopf**
*(Arbor Mounting)*

**IK**
*IC*

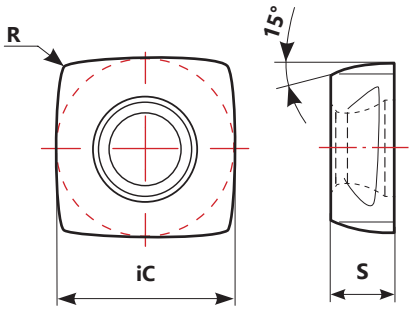
- Facing
- Helical Interpolation
- Plunging & Recessing
- Slotting




| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | ØD1 | ØD3 | Ød | L | ap |
| SW118-40 | XSW40-HFC-AM10-Z4-01 | X...10... | 4 | 40 | 38 | 16 | 40 | 0,1-1,0 |
| SW118-50 | XSW50-HFC-AM10-Z5-01 | X...10... | 5 | 50 | 43 | 22 | 40 | 0,1-1,0 |
| SW118-63 | XSW63-HFC-AM10-Z6-01 | X...10... | 6 | 63 | 48 | 22 | 40 | 0,1-1,0 |
| SW119-50 | XSW50-HFC-AM13-Z4-01 | X...13... | 4 | 50 | 43 | 22 | 40 | 0,1-2,0 |
| SW119-63 | XSW63-HFC-AM13-Z5-01 | X...13... | 5 | 63 | 48 | 22 | 40 | 0,1-2,0 |
| SW119-80 | XSW80-HFC-AM13-Z7-01 | X...13... | 7 | 80 | 58 | 27 | 50 | 0,1-2,0 |

| Bestellcode *(Ordering Code)* | Qualität *(Grades)* | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | | M | | K | | | N | S | H | |
| | CVD | PVD | | PVD | CVD | PVD | | | UNC | PVD | PVD | |
| | SW22230 | SW11235 | - | SW11245 | SW22535 | - | - | - | SW00915 | - | - | |
|  | XPLT 070305SR-HCM | ▲ | ▲ | | | | | | | | | |
|  | XPLT 070305ER-SCM | | | | ▲ | ▲ | | | | | | |
|  | XDLT 10T308SR-HCM | ▲ | ▲ | | | | | | | | | |
|  | XDLT 10T308ER-SCM | | | | ▲ | ▲ | | | | | | |
|  | XDLX 10T308SR-HCM | ▲ | ▲ | | | | | | | | | |
|  | XDLX 10T308SR-SCM | | | | ▲ | ▲ | | | | | | |
|  | XOLT 130410SR-HCM | ▲ | ▲ | | | | | | | | | |
|  | XOLT 130410ER-SCM | | | | ▲ | ▲ | | | | | | |

## PLATTEN - TECHNISCHE DATEN *(INSERTS - TECHNICAL DETAILS)*

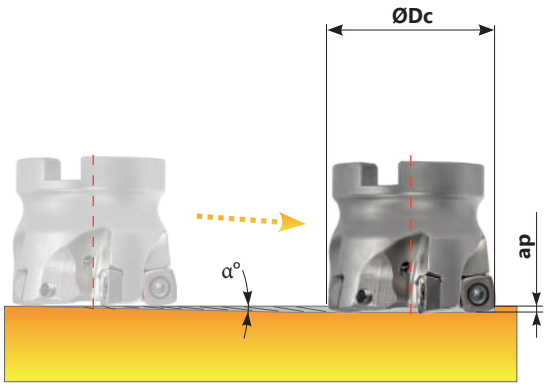



| Bestellcode *(Ordering Code)* | Maße *(Dimensions)* in mm | | |
|---|---|---|---|
| | iC | S | R |
| XPLT 070305SR-HCM | 7 | 2,75 | 0,5 |
| XPLT 070305ER-SCM | 7 | 2,75 | 0,5 |
| XDLT 10T308SR-HCM | 10 | 3,97 | 0,8 |
| XDLT 10T308ER-SCM | 10 | 3,97 | 0,8 |
| XOLT 130410SR-HCM | 13 | 4,76 | 1,0 |
| XOLT 130410ER-SCM | 13 | 4,76 | 1,0 |

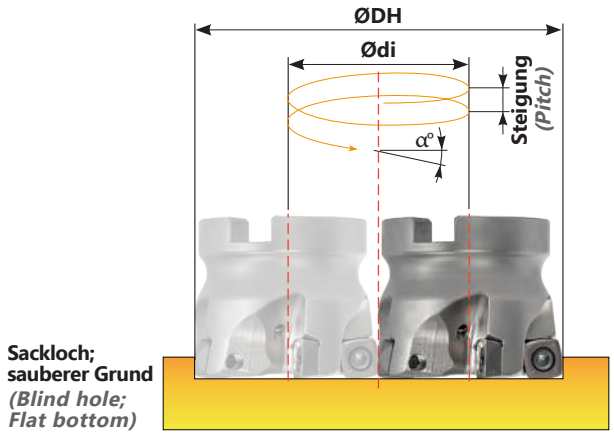
| Zu bearbeitendes Material *(Material to be machined)* | | HB | Verschleißfestigkeit *(Wear Resistance)* – Vc (m/min) – Zähigkeit *(Toughness)* | | | | | | Vorschub/Zahn *(feed/tooth)* in mm | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | SW22230 | SW11235 | SW11245 | SW22535 | SW22415 | SW00915 | HFC07 | HFC10 | HFC13 |
| P | Unlegierter Stahl *(Unalloyed Steel)* | 155-220 | 110-280 | 100-240 | - | 150-260 | - | - | 0,1-1,5 | 0,1-2,5 | 0,1-3,0 |
| | Niedrig legierter Stahl *(Low-Alloyed Steel)* | 220-280 | 100-250 | 90-220 | - | 80-220 | - | - | | | |
| | Hoch legierter Stahl *(High-Alloyed Steel)* | 280-380 | 60-130 | 60-110 | - | 90-180 | - | - | | | |
| M | Rostfreier Stahl, ferritisch *(Stainless Steels-ferritic)* | 200-330 | - | 110-150 | 110-160 | 220-350 | - | - | 0,1-1,5 | 0,1-2,5 | 0,1-3,0 |
| | Rostfreier Stahl, austenitisch *(Stainless Steel-austenitic)* | 200-330 | - | 110-150 | 110-170 | 150-240 | - | - | | | |
| K | Temperguss *(Malleable Cast Iron)* | 130-230 | 100-190 | - | - | - | 200-320 | 120 - 200 | - | 0,1-2,5 | 0,1-3,0 |
| | Grauguss *(Grey Cast Iron)* | 180-245 | 100-310 | - | - | - | 100 - 190 | 90 - 160 | | | |
| | Gusseisen mit Kugelgraphit *(Spheroidal Cast Iron)* | 160-250 | 90-200 | - | - | - | 100 - 180 | 90 - 170 | | | |
| N | Aluminium und NE-Metalle *(Aluminium and Non Ferrous)* | 30-130 | - | - | - | - | - | 60 - 1500 | 0,1-3,0 | 0,1-3,0 | 0,1-3,0 |
| S | Hitzebeständige Superlegierungen *(Heat Resistant Super Alloys)* | 200-320 | - | - | - | 25-75 | - | - | 0,1-0,5 | 0,1-0,8 | 0,1-1,0 |

Alle Schnittdaten dienen zur Orientierung
*(All cutting datas serve to orientation)*

**Schrägeintauchen** *(Ramping)*




**Helixinterpolation** *(Helical Interpolation)*




| Platte *(Insert)* | ØDc | Max Ramp α° | Max ap | ØDHmin | ØDHmax | Max Pitch/Rev. |
|---|---|---|---|---|---|---|
| XP...07... | 16 | 5.9° | 0,8 | 22 | 31 | 4,5 |
| | 20 | 3.2° | 0,8 | 30 | 39 | 2,3 |
| | 25 | 2.0° | 0,8 | 40 | 49 | 1,3 |
| | 16 | 5.9° | 0,8 | 22 | 31 | 4,5 |
| | 20 | 3.2° | 0,8 | 30 | 39 | 2,3 |
| | 25 | 2.0° | 0,8 | 40 | 49 | 1,3 |
| XD...10... | 25 | 3.6° | 1,0 | 35 | 48 | 3,1 |
| | 40 | 1.2° | 1,0 | 65 | 78 | 1,0 |
| | 50 | 0.9° | 1,0 | 85 | 98 | 0,8 |
| | 63 | 0.8° | 1,0 | 111 | 124 | 0,7 |
| XO...13... | 35 | 4.4° | 2,0 | 50 | 68 | 3,7 |
| | 50 | 1.5° | 2,0 | 80 | 98 | 1,3 |
| | 63 | 1.1° | 2,0 | 106 | 124 | 0,9 |
| | 80 | 1.3° | 2,0 | 140 | 158 | 1,1 |

Während der Helixinterpolation oder des Schrägeintauchens darf der maximale Steigungswinkel α° nicht überschritten werden
*(During helical interpolation or ramping do not exceed max Pitch α°)*

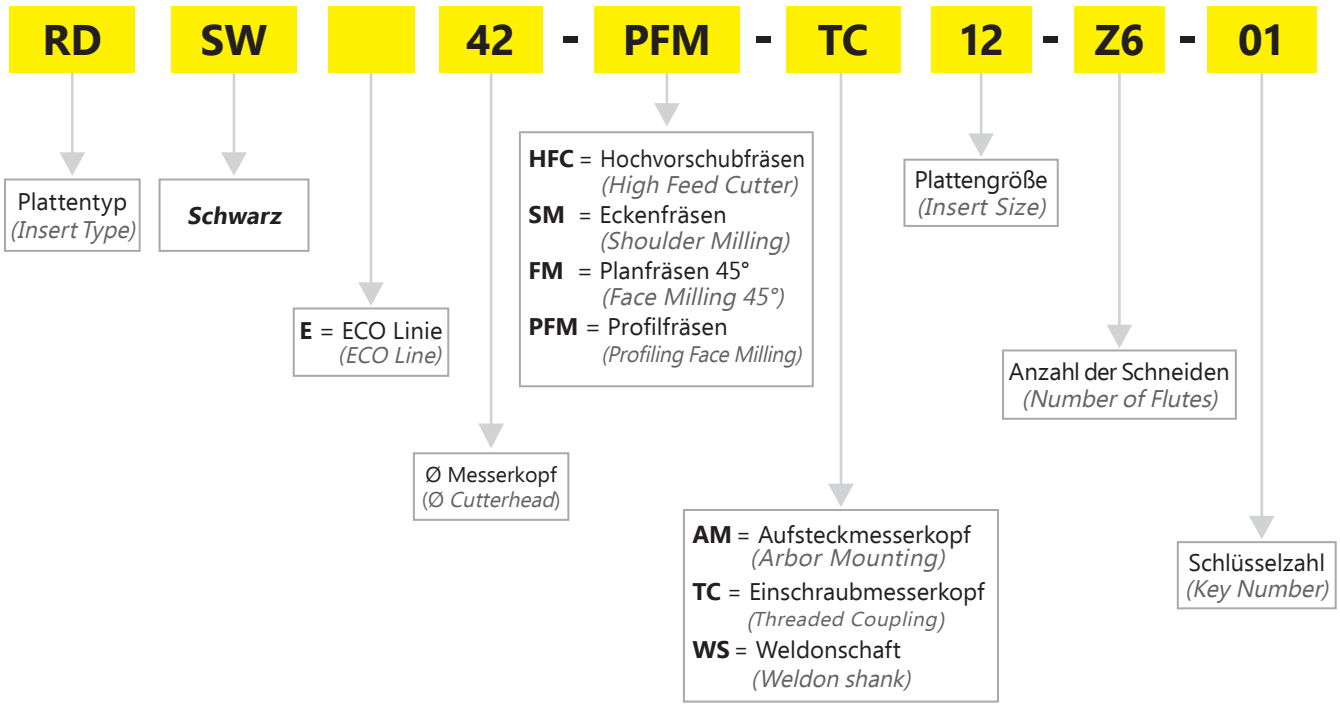
## ERSATZTEILE *(SPARE PARTS)*

| Werkzeugdurchmesser *(Tool Diameter)* ØDc | Spannschraube *(Insert Screw)* | Torx Schlüssel *(Torx Key)* | Unterlegplatte / Unterlegscheibe *(Shim / Washer)* | Klemmschraube *(Screw Clamp)* |
|---|---|---|---|---|
| |  |  |  |  |
| XSW...07... | SW5255008 M2,5 x 5,0 | T08 | - | - |
| XSW...WS10... | SW5772211 M3,5 x 7,2 | T15 | - | - |
| XSW...AM10... | SW5788320 M3,5 x 8,6 | T15 | - | - |
| XSW...AM10...Ø40 | SW5781826 M8,0 x 30.0 | - | - | - |
| XSW...AM13... | SW5782211 M4.5 x 10.5 | T20 | - | - |

FORCE LINE

## PRODUKTBEZEICHNUNG *(PRODUCT IDENTIFICATION)*

**BEISPIEL *(EXAMPLE)*: RDSW 42-PFM-TC 12-Z6-01**



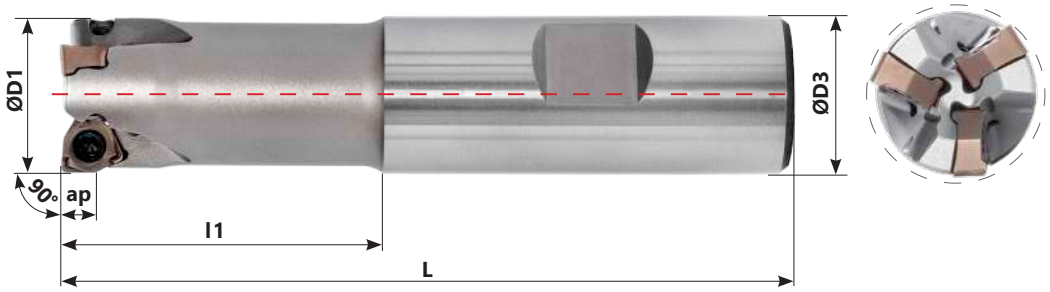
# FORCE LINE

## ECKFRÄSEN
## (SHOULDER MILLING)

## WNSW...WS...

Weldonschaft
*(Weldon Shank)*

IK
*IC*

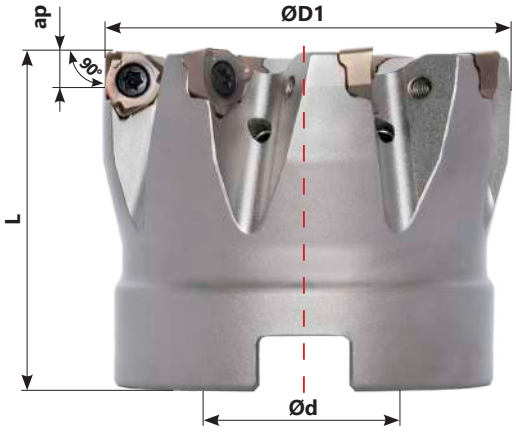



| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | ØD1 | ØD3 | L | l1 | ap |
| SW132-20 | WNSW20-PFM-WS04-Z3-02 | WN...04... | 3 | 20 | 20 | 100 | 30 | 0,4-4,0 |
| SW132-25 | WNSW25-PFM-WS04-Z3-02 | WN...04... | 4 | 25 | 25 | 115 | 35 | 0,4-4,0 |
| SW132-32 | WNSW32-PFM-WS04-Z5-02 | WN...04... | 5 | 32 | 25 | 125 | 40 | 0,4-4,0 |
| SW133-20 | WNSW20-PFM-WS04-Z3-02 | WN...04... | 3 | 20 | 20 | 150 | 40 | 0,4-4,0 |
| SW133-25 | WNSW25-PFM-WS04-Z4-02 | WN...04... | 4 | 25 | 25 | 170 | 50 | 0,4-4,0 |
| SW133-32 | WNSW32-PFM-WS04-Z5-02 | WN...04... | 5 | 32 | 32 | 195 | 70 | 0,4-4,0 |

## WNSW...AM04...

Aufsteckmesserkopf
*(Arbor Mounting)*

IK
*IC*

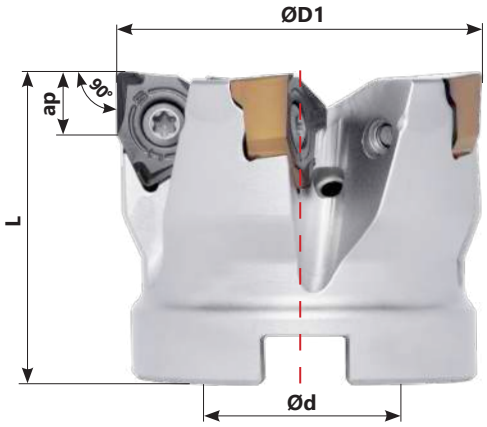



| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | |
|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | ØD1 | Ød | L | ap |
| SW134-32 | WNSW32-PFM-AM04-Z6-02 | WN...04... | 6 | 32 | 16 | 40 | 0,4-4,0 |
| SW134-40 | WNSW40-PFM-AM04-Z6-02 | WN...04... | 6 | 40 | 16 | 40 | 0,4-4,0 |
| SW134-50 | WNSW50-PFM-AM04-Z8-02 | WN...04... | 8 | 50 | 22 | 50 | 0,4-4,0 |

## WNSW...AM08...

**Aufsteckmesserkopf**
*(Arbor Mounting)*

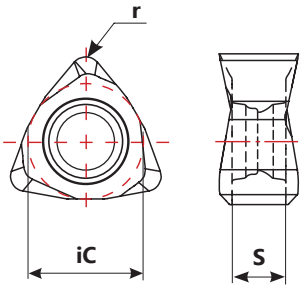
IK
*IC*




| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | |
|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | ØD1 | Ød | L | ap |
| SW135-50 | WNSW50-PFM-AM08-Z5-02 | WN...08... | 5 | 50 | 22 | 40 | 0,4-7,0 |
| SW135-63 | WNSW63-PFM-AM08-Z6-02 | WN...08... | 6 | 63 | 22 | 40 | 0,4-7,0 |
| SW135-80 | WNSW80-PFM-AM08-Z7-02 | WN...08... | 7 | 80 | 27 | 50 | 0,4-7,0 |
| SW135-100 | WNSW100-PFM-AM08-Z8-02 | WN...08... | 8 | 100 | 32 | 50 | 0,4-7,0 |
| SW135-125 | WNSW125-PFM-AM08-Z10-02 | WN...08... | 10 | 125 | 40 | 63 | 0,4-7,0 |
| SW135-160 | WNSW160-PFM-AM08-Z11-02 | WN...08... | 11 | 160 | 40 | 63 | 0,4-7,0 |

| Bestellcode *(Ordering Code)* | Qualität *(Grades)* | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | | | M | | K | | | N | S | H |
| | PVD | | | | PVD | | PVD | | | UNC | PVD | PVD |
| | SW11020 | SW11030 | SW11130 | SW00040 | SW11030 | - | SW11020 | SW11130 | SW11140 | SW00115 | - | - |
| WNEU 040308-M | ▲ | ▲ | ▲ | | ▲ | | ▲ | ▲ | | | | |
| WNEU 080608-MB | ▲ | ▲ | ▲ | | ▲ | | ▲ | ▲ | | | | |

## PLATTEN - TECHNISCHE DATEN *(INSERTS - TECHNICAL DETAILS)*




| Bestellcode *(Ordering Code)* | Maße *(Dimensions)* in mm | | |
|---|---|---|---|
| | iC | S | R |
| WNEU...04... | 6,7 | 3,3 | 0,8 |
| WNEU...MB... | 12,5 | 6,56 | 0,8 |

| | Zu bearbeitendes Material *(Material to be machined)* | HB | Verschleißfestigkeit *(Wear Resistance)* Vc (m/min) Zähigkeit *(Toughness)* | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | SW11020 | SW11030 | SW11130 | SW11140 | SW11819 | SW11314 | SW00115 | SW00025 | SW00040 |
| P | Unlegierter Stahl *(Unalloyed Steel)* | 155-220 | 140-220 | 130-200 | 160-200 | - | - | - | - | - | - |
| P | Niedrig legierter Stahl *(Low-Alloyed Steel)* | 220-280 | 140-200 | 130-180 | 130-180 | - | - | - | - | - | - |
| P | Hoch legierter Stahl *(High-Alloyed Steel)* | 280-380 | 110-180 | 110-150 | 110-160 | - | - | - | - | - | - |
| M | Rostfreier Stahl, ferritisch *(Stainless Steels-ferritic)* | 200-330 | - | 90-130 | 80-120 | - | - | - | - | - | - |
| M | Rostfreier Stahl, austenitisch *(Stainless Steel-austenitic)* | 200-330 | - | 60-110 | 50-100 | - | - | - | - | - | - |
| K | Temperguss *(Malleable Cast Iron)* | 130-230 | 170-220 | - | 150-200 | - | - | - | - | - | - |
| K | Grauguss *(Grey Cast Iron)* | 180-245 | 150-200 | - | 130-170 | - | - | - | - | - | - |
| K | Gusseisen mit Kugelgraphit *(Spheroidal Cast Iron)* | 160-250 | 100-170 | - | 120-160 | - | - | - | - | - | - |
| | **Vorschub/Zahn *(feed/tooth)* in mm** | - | 0,1-0,3 | 0,1-0,3 | 0,1-0,3 | - | - | - | - | - | - |

Alle Schnittdaten dienen zur Orientierung
*(All cutting datas serve to orientation)*

## ERSATZTEILE FÜR SW132-135 *(SPARE PARTS FOR SW132-135)*

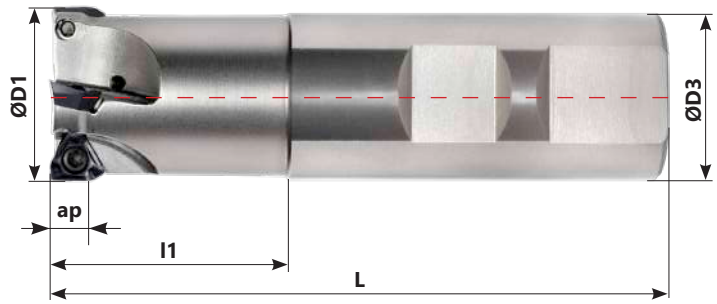
| Werkzeugdurchmesser *(Tool Diameter)* ØDc | Spannschraube *(Insert Screw)* | Torx Schlüssel *(Torx Key)* | Unterlegplatte / Unterlegscheibe *(Shim / Washer)* | Klemmschraube *(Screw Clamp)* |
|---|---|---|---|---|
| |  |  |  |  |
| WNSW...AM...Ø20-Ø50... | SW5258305 | BT08 | - | - |
| WNSW...AM...Ø50-Ø160... | SW5408354 | BT15 | - | - |

## TOSW...WS...

**Weldonschaft**
*(Weldon Shank)*

**IK**
*IC*

- Facing
- Helical Interpolation
- Slanted Shoulder & Chamfer
- Slotting



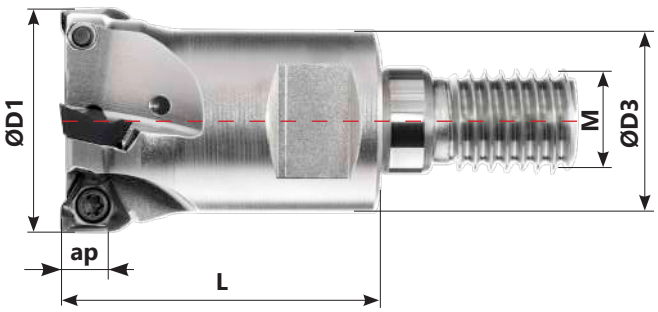

| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | ØD1 | ØD3 | L | l1 | ap |
| SW108-20 | TOSW20-SM-WS07-Z3-01 | TO...07... | 3 | 20 | 20 | 77 | 25 | 0,8-5,0 |
| SW108-25 | TOSW25-SM-WS07-Z4-01 | TO...07... | 4 | 25 | 25 | 90 | 34 | 0,8-5,0 |
| SW108-32 | TOSW32-SM-WS07-Z5-01 | TO...07... | 5 | 32 | 32 | 102 | 40 | 0,8-5,0 |
| SW110-32 | TOSW32-SM-WS09-Z3-01 | TO...09... | 3 | 32 | 32 | 102 | 40 | 1,0-8,0 |

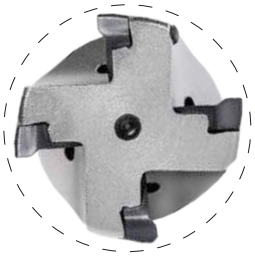
## TOSW...TC...

**Einschraubmesserkopf**
*(Threaded Coupling)*

**IK**
*IC*

- Facing
- Helical Interpolation
- Slanted Shoulder & Chamfer
- Slotting



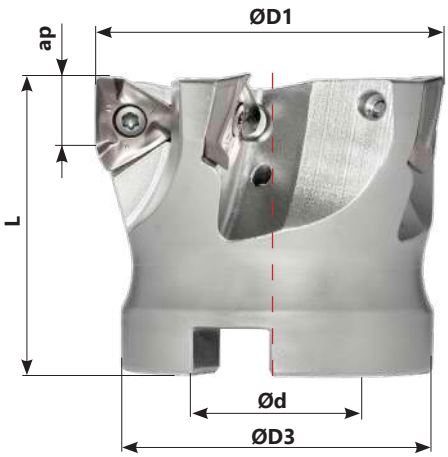
| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | ØD1 | ØD3 | M | L | ap |
| SW109-20 | TOSW20-SM-TC07-Z3-01 | TO...07... | 3 | 20 | 18 | M10 | 33 | 0,8-5,0 |
| SW109-25 | TOSW25-SM-TC07-Z4-01 | TO...07... | 4 | 25 | 21 | M12 | 36 | 0,8-5,0 |
| SW109-32 | TOSW32-SM-TC07-Z5-01 | TO...07... | 5 | 32 | 29 | M16 | 17 | 0,8-5,0 |

## *TOSW...AM...*

**Aufsteckmesserkopf**
***(Arbor Mounting)***

**IK**
***IC***

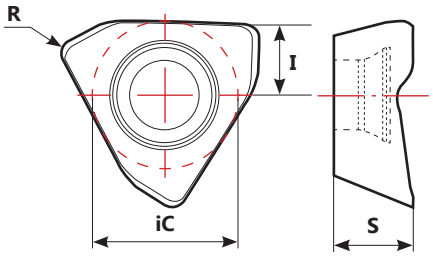
- **Facing**
- **Helical Interpolation**
- **Slanted Shoulder & Chamfer**
- **Slotting**




| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | ØD1 | ØD3 | Ød | L | ap |
| SW111-40 | TOSW40-SM-AM09-Z4-01 | TO...09... | 4 | 40 | 38 | 16 | 40 | 0,8-5,0 |
| SW111-50 | TOSW50-SM-AM09-Z5-01 | TO...09... | 5 | 50 | 43 | 22 | 40 | 0,8-5,0 |
| SW111-63 | TOSW63-SM-AM09-Z6-01 | TO...09... | 6 | 63 | 48 | 22 | 40 | 0,8-5,0 |

| Bestellcode (Ordering Code) | Qualität (Grades) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | | M | | K | | | N | S | H | |
| | CVD | PVD | | PVD | CVD | PVD | | | UNC | CVD | PVD | |
| | SW22230 | SW11235 | - | SW11245 | SW22535 | - | - | - | SW00915 | SW22535 | - | |
|  | TOKX 070305PDER-HCM | ▲ | ▲ | | | | | | | | | |
| | TOKX 070308PDER-HCM | ▲ | ▲ | | | | | | | | | |
|  | TOKX 070305PDER-SCM | | | | ▲ | ▲ | | | | | ▲ | |
| | TOKX 070308PDER-SCM | | | | ▲ | ▲ | | | | | ▲ | |
|  | TOKX 09T308PDER-HCM | ▲ | ▲ | | | | | | | | | |
| | TOKX 09T312PDER-HCM | ▲ | ▲ | | | | | | | | | |
| | TOKX 09T316PDER-HCM | ▲ | ▲ | | | | | | | | | |
|  | TOKX 09T308PDER-SCM | | | | ▲ | ▲ | | | | | ▲ | |
| | TOKX 09T312PDER-SCM | | | | | ▲ | | | | | ▲ | |
| | TOKX 09T316PDER-SCM | | | | ▲ | ▲ | | | | | ▲ | |

## PLATTEN - TECHNISCHE DATEN *(INSERTS - TECHNICAL DETAILS)*




| Bestellcode (Ordering Code) | Maße (Dimensions) in mm | | | |
|---|---|---|---|---|
| | iC | S | I | R |
| TO...070305... | 5,9 | 3,15 | 1 | 0,5 |
| TO...070308... | 5,9 | 3,15 | 1 | 0,8 |
| TO...09T308... | 9,525 | 3,8 | 1,5 | 0,8 |
| TO...09T312... | 9,525 | 3,8 | 1,5 | 1,2 |
| TO...09T316... | 9,525 | 3,8 | 1,5 | 1,6 |

## ERSATZTEILE FÜR SW108-111 *(SPARE PARTS FOR SW108-111)*

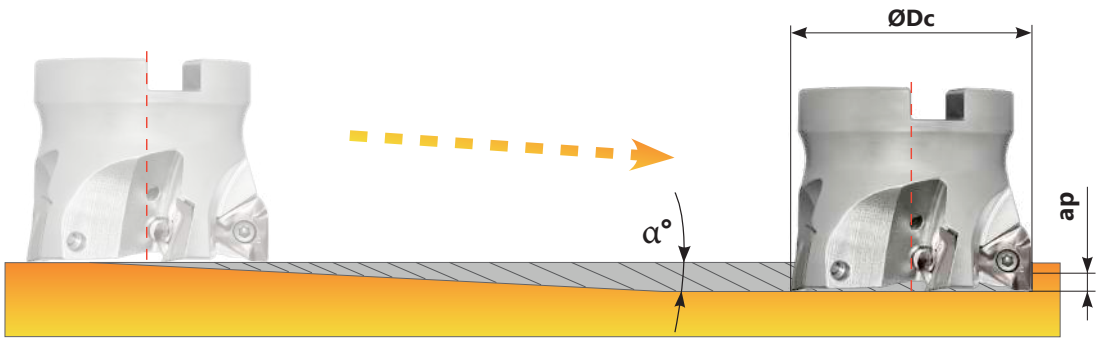
| Werkzeugdurchmesser (Tool Diameter) ØDc | Spannschraube (Insert Screw) | Torx Schlüssel (Torx Key) | Unterlegplatte / Unterlegscheibe (Shim / Washer) | Klemmschraube (Screw Clamp) |
|---|---|---|---|---|
| |  |  |  |  |
| TO...07... | SW5256008 M2.5 x 6.0 | T08 | - | - |
| TO...09... | SW5307308 M3.0 x 7.3 | T08 | - | - |
| TO...09... | SW5781826 M8.0 x 30.0 | T08 | - | - |

| Zu bearbeitendes Material *(Material to be machined)* | | HB | Verschleißfestigkeit *(Wear Resistance)* Vc (m/min) Zähigkeit *(Toughness)* | | | | Vorschub/Zahn *(feed/tooth)* (mm) | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | SW22230 | SW11235 | SW11245 | SW22535 | Plattengröße *(Insert size)* | fz (mm) | ap (mm) |
| P | Unlegierter Stahl *(Unalloyed Steel)* | 125-220 | 110-280 | 100-240 | - | 150-260 | T07 | 0,08-0,15 | 0,8-5,0 |
| | Niedrig legierter Stahl *(Low-Alloyed Steel)* | 220-280 | 100-250 | 90-220 | - | 80-220 | | | |
| | Hoch legierter Stahl *(High-Alloyed Steel)* | 280-380 | 60-130 | 60-110 | - | 90-180 | T09 | 0,08-0,20 | 1,0-8,0 |
| M | Rostfreier Stahl, ferritisch *(Stainless Steels-ferritic)* | 200-330 | - | 110-150 | 110-160 | 220-350 | T07 | 0,08-0,13 | 0,8-5,0 |
| | Rostfreier Stahl, austenitisch *(Stainless Steel-austenitic)* | 200-330 | - | 110-150 | 110-170 | 150-240 | T09 | 0,08-0,17 | 1,0-8,0 |
| K | Temperguss *(Malleable Cast Iron)* | 130-230 | 100-190 | - | - | - | T07 | 0,07-0,16 | 0,8-5,0 |
| | Grauguss *(Grey Cast Iron)* | 180-245 | 100-310 | - | - | - | | | |
| | Gusseisen mit Kugelgraphit *(Spheroidal Cast Iron)* | 160-250 | 90-200 | - | - | - | T09 | 0,08-0,22 | 1,0-8,0 |
| S | Heat Resistant Super Alloys *(Heat Resistant Super Alloys)* | 200-320 | - | - | - | 25-75 | - | - | 0,05-0,13 |

Alle Schnittdaten dienen zur Orientierung
*(All cutting datas serve to orientation)*

## SCHRÄGEINTAUCHEN *(RAMPING)*

**Schrägeintauchen** *(Ramping)*




| Platte *(Insert)* | ØDc | Max Ramp α° | Max ap |
|---|---|---|---|
| TO...07... | 20 | 1,4° | 5,0 |
| | 25 | 1,2° | 5,0 |
| | 32 | 0,8° | 5,0 |
| | 20 | 1,4° | 5,0 |
| | 25 | 1,2° | 5,0 |
| | 32 | 0,8° | 5,0 |
| T...09.... | 32 | 1.1° | 8,0 |
| | 40 | 0.8° | 8,0 |
| | 50 | 0.5° | 8,0 |
| | 63 | 0.5° | 8,0 |

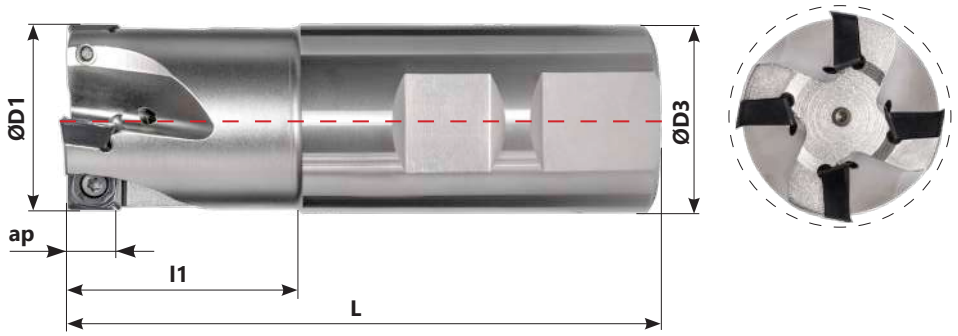
Während der Helixinterpolation oder des Schrägeintauchens darf der maximale Steigungswinkel α° nicht überschritten werden
*(During helical interpolation or ramping do not exceed max Pitch α°)*

## SDSW...WS...

**Weldonschaft**
*(Weldon Shank)*

**IK**
*IC*

- Facing
- Helical Interpolation
- Slanted Shoulder & Chamfer
- Slotting



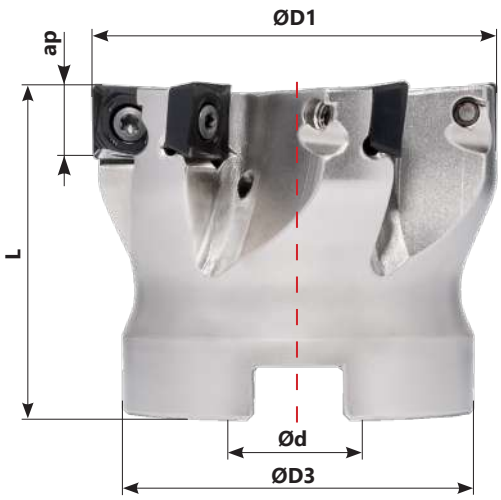

| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | ØD1 | ØD3 | L | l1 | ap |
| SW112-25 | SDSW25-SM-WS09-Z3-01 | SD...09... | 3 | 25 | 25 | 88 | 32 | 0,1-4,0 |
| SW112-32 | SDSW32-SM-WS09-Z4-01 | SD...09... | 4 | 32 | 32 | 100 | 40 | 0,1-4,0 |
| SW114-32 | SDSW32-SM-WS12-Z3-01 | SD...12... | 3 | 32 | 32 | 100 | 40 | 0,5-10,0 |

## SDSW...AM...

**Aufsteckmesserkopf**
*(Arbor Mounting)*

**IK**
*IC*

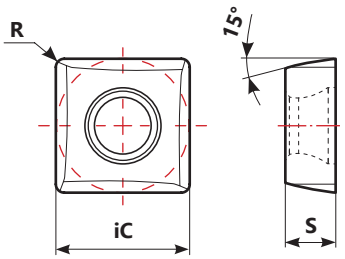
- Facing
- Helical Interpolation
- Slanted Shoulder & Chamfer
- Slotting




| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | ØD1 | ØD3 | Ød | L | ap |
| SW113-40 | SDSW40-SM-AM09-Z5-01 | SD...09... | 5 | 40 | 38 | 16 | 40 | 0,1-4,0 |
| SW113-50 | SDSW50-SM-AM09-Z6-01 | SD...09... | 6 | 50 | 43 | 22 | 40 | 0,1-4,0 |
| SW113-63 | SDSW63-SM-AM09-Z7-01 | SD...09... | 7 | 63 | 48 | 22 | 40 | 0,1-4,0 |
| SW113-80 | SDSW80-SM-AM09-Z9-01 | SD...09... | 9 | 80 | 58 | 27 | 50 | 0,1-4,0 |
| SW114-40 | SDSW40-SM-AM12-Z4-01 | SD...12... | 4 | 40 | 38 | 16 | 40 | 0,5-10,0 |
| SW114-50 | SDSW50-SM-AM12-Z5-01 | SD...12... | 5 | 50 | 43 | 22 | 40 | 0,5-10,0 |
| SW114-63 | SDSW63-SM-AM12-Z6-01 | SD...12... | 6 | 63 | 48 | 22 | 40 | 0,5-10,0 |
| SW114-80 | SDSW80-SM-AM12-Z7-01 | SD...12... | 7 | 80 | 58 | 27 | 50 | 0,5-10,0 |

| Bestellcode *(Ordering Code)* | Qualität *(Grades)* | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | | M | | K | | | N | S | H | |
| | CVD | PVD | | PVD | CVD | CVD | | | UNC | CVD | PVD | |
| | SW22230 | SW11235 | - | SW11245 | SW22535 | - | SW22415 | - | SW00915 | SW22540 | - | |
|  | SDKT 09T308SR-HCM | ▲ | ▲ | | | | | | | | | |
| | SDKT 09T308SR-SCM | | | | ▲ | ▲ | | | | | | |
| | SDKT 09T308SR-SCM | | | | | | | | | ▲ | | |
|  | SDKT 09T308SR-CCM | | | | | | | ▲ | | | | |
| | SDHT 09T308FR-LMM | | | | | | | | ▲ | | | |
|  | SDKT 120508SR-HCM | ▲ | ▲ | | | | | | | | | |
| | SDKT 120508SR-SCM | | | | ▲ | ▲ | | | | | | |
| | SDKT 120508SR-SCM | | | | | | | | | ▲ | | |
|  | SDKT 120508SR-CCM | | | | | | | ▲ | | | | |
| | SDHT 120508FR-LMM | | | | | | | | ▲ | | | |

## PLATTEN - TECHNISCHE DATEN *(INSERTS - TECHNICAL DETAILS)*

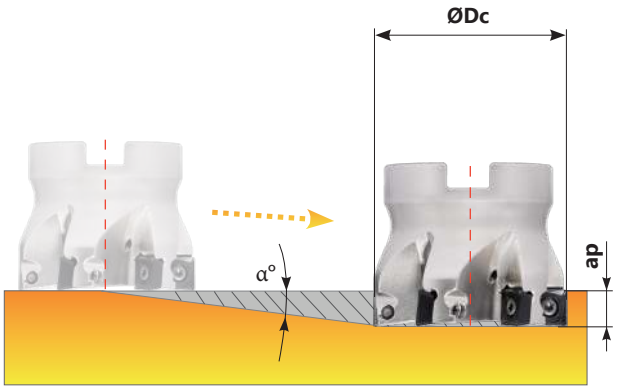



| Bestellcode *(Ordering Code)* | Maße *(Dimensions)* in mm | | | | |
|---|---|---|---|---|---|
| | iC | S | I | B | R |
| SDSW...WS/AM09... | 9 | 3,97 | 9 | - | 0,8 |
| SDSW...WS/AM12... | 12,3 | 5 | 12,3 | - | 0,8 |

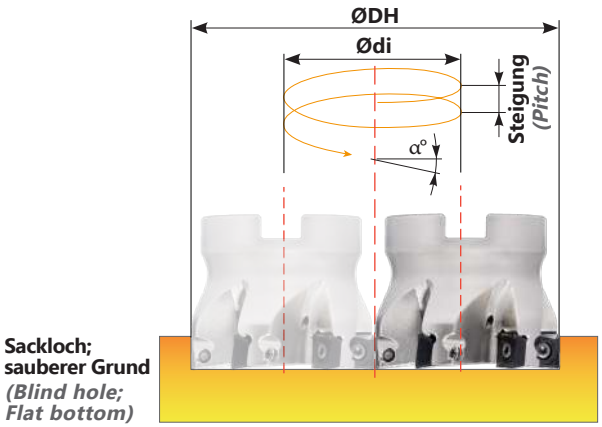
| | Zu bearbeitendes Material *(Material to be machined)* | HB | Verschleißfestigkeit *(Wear Resistance)* Vc (m/min) Zähigkeit *(Toughness)* | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | SW22230 | SW11235 | SW11245 | SW22535 | SW22415 | SW00915 |
| P | Unlegierter Stahl *(Unalloyed Steel)* | 155-220 | 110-280 | 100-240 | - | 150-260 | - | - |
| P | Niedrig legierter Stahl *(Low-Alloyed Steel)* | 220-280 | 100-250 | 90-220 | - | 80-220 | - | - |
| P | Hoch legierter Stahl *(High-Alloyed Steel)* | 280-380 | 60-130 | 60-110 | - | 90-180 | - | - |
| M | Rostfreier Stahl, ferritisch *(Stainless Steels-ferritic)* | 200-330 | - | 110-150 | 110-160 | 220-350 | - | - |
| M | Rostfreier Stahl, austenitisch *(Stainless Steel-austenitic)* | 200-330 | - | 110-150 | 110-170 | 150-240 | - | - |
| K | Temperguss *(Malleable Cast Iron)* | 130-230 | 100-190 | - | - | - | 200-320 | 120 - 200 |
| K | Grauguss *(Grey Cast Iron)* | 180-245 | 100-310 | - | - | - | 100 - 190 | 90 - 160 |
| K | Gusseisen mit Kugelgraphit *(Spheroidal Cast Iron)* | 160-250 | 90-200 | - | - | - | 100 - 180 | 90 - 170 |
| N | Aluminium und NE-Metalle *(Aluminium and Non Ferrous)* | 30-130 | - | - | - | - | - | 60 - 1500 |
| S | Heat Resistant Super Alloys *(Heat Resistant Super Alloys)* | 200-320 | - | - | - | 25-75 | - | - |
| | **Vorschub/Zahn *(feed/tooth)* in mm** | - | 0,5-0,25 | 0,5-0,25 | 0,5-0,25 | 0,05-0,28 | 0,05-0,30 | 0,05-0,30 |

Alle Schnittdaten dienen zur Orientierung
*(All cutting datas serve to orientation)*

**Schrägeintauchen** *(Ramping)*




**Helixinterpolation** *(Helical Interpolation)*




| Platte *(Insert)* | ØDc | Max Ramp α° | Max ap | ØDHmin | ØDHmax | Max Pitch/Rev. |
|---|---|---|---|---|---|---|
| SD...09... | 25 | 4,4° | 4 | 37 | 48 | 4,4 |
| | 32 | 2,2° | 4 | 47 | 62 | 2,2 |
| | 40 | 0,75° | 4 | 63 | 78 | 0,75 |
| | 50 | 0,5° | 4 | 83 | 98 | 0,5 |
| | 63 | 0,35° | 4 | 109 | 124 | 0,35 |
| | 80 | 0,25° | 4 | 143 | 158 | 0,25 |
| SD...12... | 32 | 2,0° | 10 | 41 | 62 | 2,0 |
| | 40 | 2,0° | 10 | 57 | 78 | 2,0 |
| | 50 | 1,2° | 10 | 77 | 98 | 1,2 |
| | 63 | 0,7° | 10 | 103 | 124 | 0,7 |
| | 80 | 0,6° | 10 | 137 | 158 | 0,6 |

Während der Helixinterpolation oder des Schrägeintauchens darf der maximale Steigungswinkel α° nicht überschritten werden
*(During helical interpolation or ramping do not exceed max Pitch α°)*

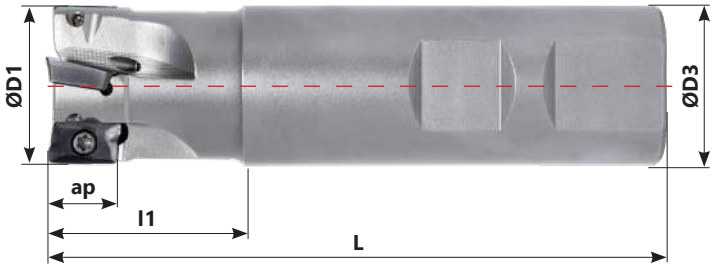
## ERSATZTEILE FÜR SW112-114 *(SPARE PARTS FOR SW112-114)*

| Werkzeugdurchmesser *(Tool Diameter)* ØDc | Spannschraube *(Insert Screw)* | Torx Schlüssel *(Torx Key)* | Unterlegplatte / Unterlegscheibe *(Shim / Washer)* | Klemmschraube *(Screw Clamp)* |
|---|---|---|---|---|
| |  |  |  |  |
| SDSW...WS/AM09... | SW5255008 M2.5 x 5.0 | T08 | - | - |
| SDSW...AM09...Ø40 | SW5818267 M8.0 x 30.0 | - | - | - |
| SDSW...WS/AM12... | SW5401115 M4,0 x 11 | T15 | - | - |
| SDSW...WS12...Ø32 | SW5123203 M4,0 x 8,5 | T15 | - | - |
| SDSW...WS/AM12... | SW5818267 M8,0 x 30,0 | - | - | - |

## APSWE...WS10...

Weldonschaft
*(Weldon Shank)*

IK
*IC*

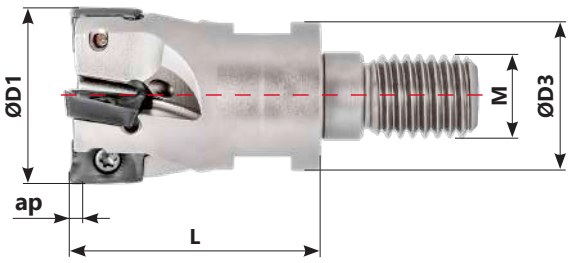



| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | ØD1 | ØD3 | L | l1 | ap |
| SW121-16-1 | APSWE1685-SM-WS10-Z2-03 | AP...10... | 2 | 16 | 16 | 85 | 26 | 0,2-9,0 |
| SW121-16-2 | APSWE16150-SM-WS10-Z2-03 | AP...10... | 2 | 16 | 16 | 150 | 26 | 0,2-9,0 |
| SW121-20-1 | APSWE2090-SM-WS10-Z3-03 | AP...10... | 3 | 20 | 20 | 90 | 28 | 0,2-9,0 |
| SW121-20-2 | APSWE20150-SM-WS10-Z3-03 | AP...10... | 3 | 20 | 20 | 150 | 28 | 0,2-9,0 |
| SW121-25-1 | APSWE25150-SM-WS10-Z4-03 | AP...10... | 4 | 25 | 20 | 150 | 26 | 0,2-9,0 |
| SW121-25-2 | APSWE2590-SM-WS10-Z4-03 | AP...10... | 4 | 25 | 25 | 95 | 30 | 0,2-9,0 |

## APSWE...TC10...

Einschraubmesserkopf
*(Threaded Coupling)*

IK
*IC*

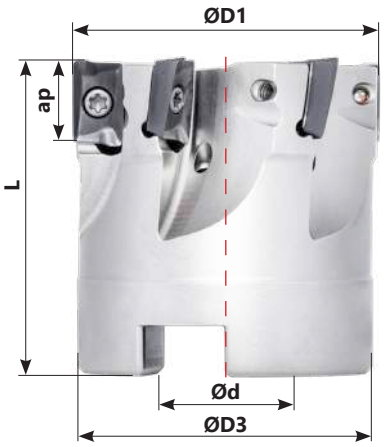



| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | ØD1 | ØD3 | M | L | ap |
| SW122-16 | APSWE16-SM-TC10-Z2-03 | AP...10... | 2 | 16 | 13 | M8 | 25 | 0,2-9,0 |
| SW122-20 | APSWE20-SM-TC10-Z3-03 | AP...10... | 3 | 20 | 18 | M10 | 30 | 0,2-9,0 |
| SW122-25 | APSWE25-SM-TC10-Z4-03 | AP...10... | 4 | 25 | 21 | M12 | 35 | 0,2-9,0 |

## APSWE...AM10...

**Aufsteckmesserkopf**
*(Arbor Mounting)*

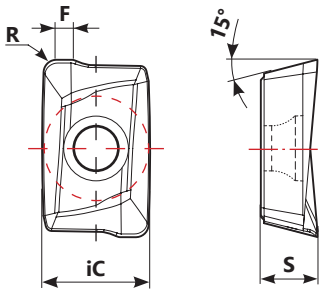
IK
*IC*




| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | ØD1 | ØD3 | Ød | L | ap |
| SW123-40 | APSWE40-SM-AM10-Z6-03 | AP...10... | 6 | 40 | 39 | 22 | 40 | 0,2-9,0 |
| SW123-50 | APSWE50-SM-AM10-Z7-03 | AP...10... | 7 | 50 | 40 | 22 | 40 | 0,2-9,0 |
| SW123-63 | APSWE63-SM-AM10-Z8-03 | AP...10... | 8 | 63 | 48 | 22 | 40 | 0,2-9,0 |

| Bestellcode *(Ordering Code)* | Qualität *(Grades)* | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | | | | M | | K | | | N |
| | PVD | | | | | PVD | | PVD | | | UNC |
| | SW11910 | SW11920 | SW11930 | SW11125 | SW11135 | SW11920 | SW11930 | SW11920 | SW11930 | SW11740 | SW00910 |
|  | | | | | | | | | | | |
| APKT 100305 PDER-X1 | | ▲ | ▲ | | | | ▲ | ▲ | ▲ | | |
| APKT 100305 PDSR-X1 | | ▲ | ▲ | | | | | ▲ | ▲ | | |
|  | | | | | | | | | | | |
| APKT 100308 PDER-X | | ▲ | ▲ | | | | ▲ | ▲ | ▲ | | |
| APKT 100308 PDSR-X | | ▲ | | | | | | ▲ | | | |
| APKT 100308 PDTR-X | | ▲ | ▲ | | | | | ▲ | ▲ | | |
| APKT 100312 PDER-X | | ▲ | ▲ | | | | ▲ | ▲ | ▲ | | |
| APKT 100312 PDSR-X | | ▲ | | | | | | ▲ | | | |
| APKT 100312 PDTR-X | | ▲ | ▲ | | | | | ▲ | ▲ | | |
|  | | | | | | | | | | | |
| APET 100305 PDFR-LN | | | | | | | | | | | ▲ |

## PLATTEN - TECHNISCHE DATEN *(INSERTS - TECHNICAL DETAILS)*



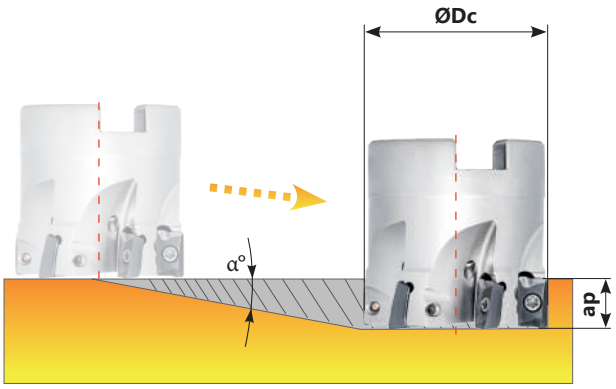

| Bestellcode *(Ordering Code)* | Maße *(Dimensions)* in mm | | | | |
|---|---|---|---|---|---|
| | iC | S | I | R | F |
| AP...100305... | 6,70 | 3,50 | 10,0 | 0,50 | 1,20 |
| AP...100308... | 6,70 | 3,50 | 10,0 | 0,80 | 0,90 |
| AP...100312... | 6,70 | 3,50 | 10,0 | 1,20 | - |

| | Zu bearbeitendes Material *(Material to be machined)* | HB | Verschleißfestigkeit *(Wear Resistance)* / Vc (m/min) / Zähigkeit *(Toughness)* | | | | Vorschub/Zahn *(feed/tooth)* in mm | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | SW11920 | SW11930 | SW11740 | SW00910 | APKT 10... PDER-X/X1 | APKT 10... PDS(T)R-X/X1 | APET 10... PDFR-LN |
| P | Unlegierter Stahl *(Unalloyed Steel)* | 125-220 | 150-230 | 150-180 | | - | 0,07-0,15 | 0,10-0,25 | - |
| P | Niedrig legierter Stahl *(Low-Alloyed Steel)* | 220-280 | 140-220 | 140-170 | | - | 0,07-0,10 | 0,10-0,20 | - |
| P | Hoch legierter Stahl *(High-Alloyed Steel)* | 280-380 | 130-180 | 120-150 | | - | 0,07-0,10 | 0,10-0,20 | - |
| M | Rostfreier Stahl, ferritisch *(Stainless Steels-ferritic)* | 200-330 | - | 90-150 | | - | 0,07-0,10 | 0,10-0,20 | - |
| M | Rostfreier Stahl, austenitisch *(Stainless Steel-austenitic)* | 200-330 | - | 80-130 | | - | 0,07-0,10 | 0,10-0,20 | - |
| K | Temperguss *(Malleable Cast Iron)* | 130-230 | 150-280 | 80-230 | | - | 0,07-0,15 | 0,10-0,25 | - |
| K | Grauguss *(Grey Cast Iron)* | 180-245 | 130-230 | 120-225 | | - | 0,07-0,15 | 0,10-0,25 | - |
| K | Gusseisen mit Kugelgraphit *(Spheroidal Cast Iron)* | 160-250 | 80-190 | 80-180 | | - | - | 0,10-0,20 | - |
| N | Aluminium und NE-Metalle *(Aluminium and Non Ferrous)* | 30-130 | - | - | | 350-1400 | - | - | 0,07-0,20 |
| S | Heat Resistant Super Alloys *(Heat Resistant Super Alloys)* | 200-320 | - | - | 30-70 | - | 0,10-0,20 | - | - |

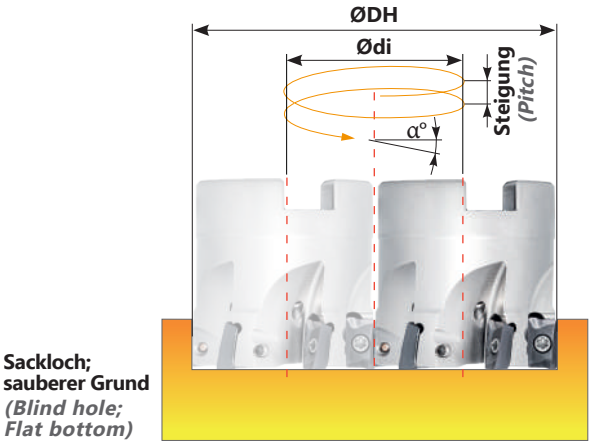
| Operation *(Operation)* | ae | $V_c$ & $f_z$ | ap (mm) |
|---|---|---|---|
| **Slotting** *(Schlitzfräsen)* | **100%** | **<20%** | **3,0-4,0** |
| **Eckbearbeitung** *(Shouldering)* | **<50%** | **>8%** | **5,0-6,0** |
| | **≤25%** | **>12%** | **7,0-8,0** |

Alle Schnittdaten dienen zur Orientierung
*(All cutting datas serve to orientation)*

**Schrägeintauchen** *(Ramping)*




**Helixinterpolation** *(Helical Interpolation)*




| ØDc | Max Ramp α° | Max ap | ØDHmin | ØDHmax | Max Pitch/Rev |
|---|---|---|---|---|---|
| 16 | 1,3° | 9,0 | 29,2 | 31,0 | 1,1 |
| 20 | 0,9° | 9,0 | 37,2 | 39,0 | 0,9 |
| 25 | 0,6° | 9,0 | 47,2 | 49,0 | 0,8 |
| 40 | 0,4° | 9,0 | 77,2 | 79,0 | 0,9 |
| 50 | 0,25° | 9,0 | 97,2 | 99,0 | 0,7 |
| 63 | 0,2° | 9,0 | 123,2 | 125,0 | 0,7 |

Während der Helixinterpolation oder des Schrägeintauchens darf der maximale Steigungswinkel α° nicht überschritten werden
*(During helical interpolation or ramping do not exceed max Pitch α°)*

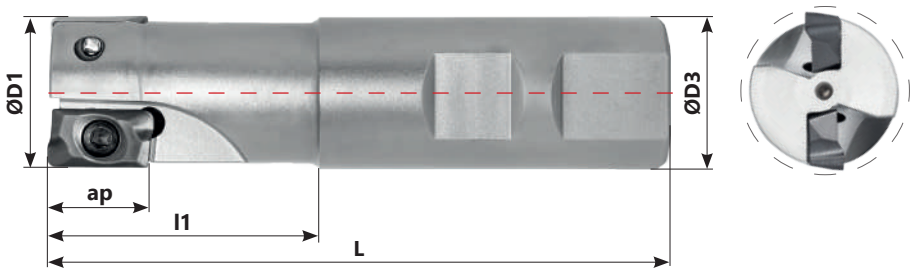
## ERSATZTEILE *(SPARE PARTS)*

| Werkzeugdurchmesser *(Tool Diameter)* ØDc | Spannschraube *(Insert Screw)* | Torx Schlüssel *(Torx Key)* | Unterlegplatte / Unterlegscheibe *(Shim / Washer)* | Klemmschraube *(Screw Clamp)* |
|---|---|---|---|---|
| |  |  |  |  |
| APSW...Ø16-Ø25 | SW5250503 | XT08 | - | - |
| APSW...Ø40-Ø63 | SW5250503 | XT08 | - | - |

## APSWE...WS16...

**Weldonschaft**
*(Weldon Shank)*

IK
*IC*

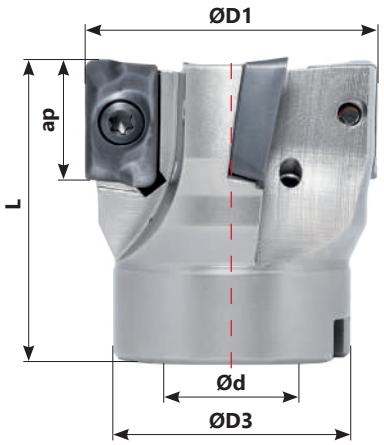


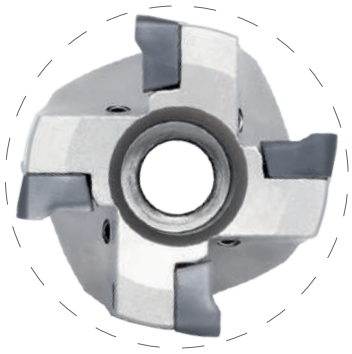

| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | ØD1 | ØD3 | L | l1 | ap |
| SW124-25-1 | APSWE25100-SM-WS16-Z2-03 | AP...16... | 2 | 25 | 25 | 100 | 44 | 0,3-14,5 |
| SW124-25-2 | APSWE25200-SM-WS16-Z2-03 | AP...16... | 2 | 25 | 25 | 200 | 60 | 0,3-14,5 |
| SW124-32-1 | APSWE32110-SM-WS16-Z3-03 | AP...16... | 3 | 32 | 32 | 110 | 50 | 0,3-14,5 |
| SW124-32-2 | APSWE32200-SM-WS16-Z3-03 | AP...16... | 3 | 32 | 32 | 200 | 60 | 0,3-14,5 |
| SW124-40-1 | APSWE40115-SM-WS16-Z4-03 | AP...16... | 4 | 40 | 32 | 115 | 40 | 0,3-14,5 |
| SW124-40-2 | APSWE40200-SM-WS16-Z4-03 | AP...16... | 4 | 40 | 32 | 200 | 40 | 0,3-14,5 |

## APSWE...AM16...

**Aufsteckmesserkopf**
*(Arbor Mounting)*

IK
*IC*

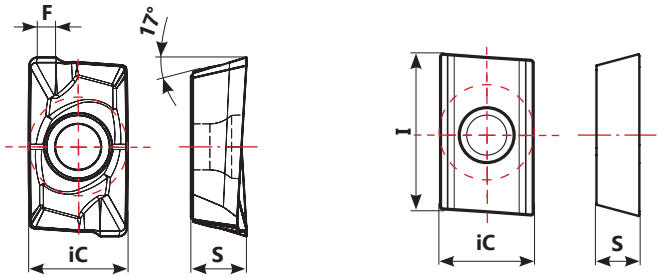


| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | ØD1 | ØD3 | Ød | L | ap |
| SW125-40 | APSWE40-SM-AM16-Z4-03 | AP...16... | 4 | 40 | 32 | 16 | 40 | 0,3-14,5 |
| SW125-50 | APSWE50-SM-AM16-Z5-03 | AP...16... | 5 | 50 | 42 | 22 | 40 | 0,3-14,5 |
| SW125-63 | APSWE63-SM-AM16-Z6-03 | AP...16... | 6 | 63 | 52 | 22 | 40 | 0,3-14,5 |
| SW125-80 | APSWE80-SM-AM16-Z7-03 | AP...16... | 7 | 80 | 60 | 27 | 50 | 0,3-14,5 |
| SW125-100 | APSWE100-SM-AM16-Z8-03 | AP...16... | 8 | 100 | 80 | 32 | 50 | 0,3-14,5 |
| SW125-125 | APSWE125-SM-AM16-Z9-03 | AP...16... | 9 | 125 | 90 | 40 | 63 | 0,3-14,5 |

| Bestellcode *(Ordering Code)* | Qualität *(Grades)* | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | | | | M | | K | | | | N | S |
| | PVD | | | | PVD | | PVD | | | | UNC | PVD |
| | SW11920 | SW12920 | SW11930 | SW12930 | SW11930 | SW12930 | SW11920 | SW12920 | SW11930 | SW12930 | SW00910 | SW11740 |
|  APKT 160408 PDER-X1 | ▲ | | ▲ | | ▲ | | ▲ | | ▲ | | | |
| APKT 160408 PDSR-X1 | ▲ | | ▲ | | ▲ | | ▲ | | ▲ | | | |
|  APKT 160408 PDER-X2 | | ▲ | | ▲ | | ▲ | | ▲ | | ▲ | | |
| APKT 160408 PDSR-X2 | | ▲ | | ▲ | | ▲ | | ▲ | | ▲ | | |
|  APKT 160416 PDER-X | ▲ | | | | | | ▲ | | | | | |
| APKT 160416 PDSR-X | ▲ | | ▲ | | | | ▲ | | ▲ | | | |
| APKT 160432 PDER-X | ▲ | | | | | | ▲ | | | | | |
| APKT 160432 PDSR-X | ▲ | | | | | | ▲ | | | | | |
|  APHT 1604 PDFR-LN | | | | | | | | | | | ▲ | |
|  APKT 160408 PDFR-LN | | | | | | | | | | | ▲ | |

## PLATTEN - TECHNISCHE DATEN *(INSERTS - TECHNICAL DETAILS)*

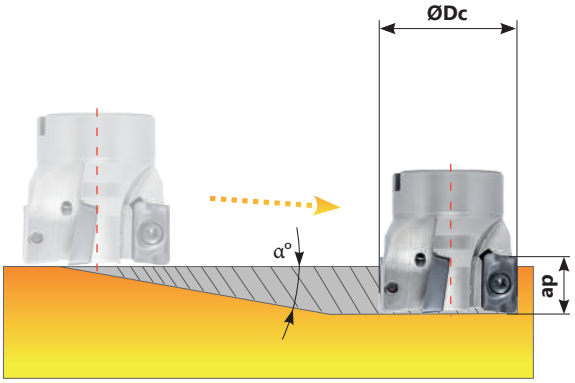


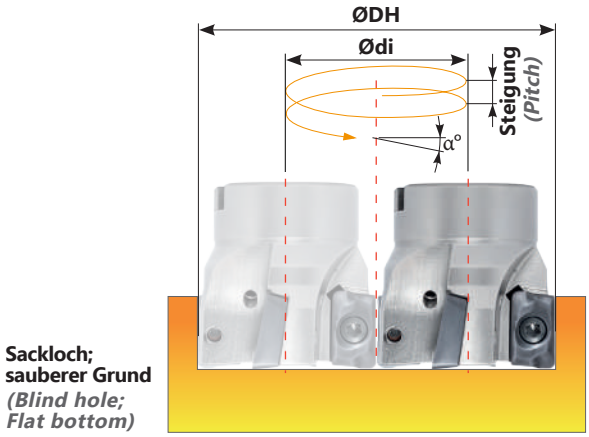

| Bestellcode *(Ordering Code)* | Maße *(Dimensions)* in mm | | | | |
|---|---|---|---|---|---|
| | iC | S | I | F | R |
| AP...160408... | 9,45 | 5,35 | 16 | 1,8 | 0,8 |
| AP...160416... | 9,45 | 5,35 | 16 | 1,2 | 1,6 |
| AP...160432... | 9,45 | 5,35 | 16 | - | 3,2 |
| AP...1604... | 9,45 | 5,35 | 16 | 1,74 | - |

| Zu bearbeitendes Material *(Material to be machined)* | | HB | Verschleißfestigkeit *(Wear Resistance)* Vc (m/min) Zähigkeit *(Toughness)* | | | Vorschub/Zahn *(feed/tooth)* in mm | | |
|---|---|---|---|---|---|---|---|---|
| | | | SW11920 | SW11930 | SW00910 | APKT 16... PDER-X/X2 | APKT 16... PDS(T)R-X/X2 | AP...T 16... PDFR-LN |
| **P** | Unlegierter Stahl *(Unalloyed Steel)* | 125-220 | 150-230 | 150-180 | - | 0,07-0,15 | 0,10-0,25 | - |
| | Niedrig legierter Stahl *(Low-Alloyed Steel)* | 220-280 | 140-220 | 140-170 | - | 0,07-0,10 | 0,10-0,20 | - |
| | Hoch legierter Stahl *(High-Alloyed Steel)* | 280-380 | 130-180 | 120-150 | - | 0,07-0,10 | 0,10-0,20 | - |
| **M** | Rostfreier Stahl, ferritisch *(Stainless Steels-ferritic)* | 200-330 | - | 90-150 | - | 0,07-0,10 | 0,10-0,20 | - |
| | Rostfreier Stahl, austenitisch *(Stainless Steel-austenitic)* | 200-330 | - | 80-130 | - | 0,07-0,10 | 0,10-0,20 | - |
| **K** | Temperguss *(Malleable Cast Iron)* | 130-230 | 150-280 | 80-230 | - | 0,07-0,15 | 0,10-0,25 | - |
| | Grauguss *(Grey Cast Iron)* | 180-245 | 130-230 | 120-225 | - | 0,07-0,15 | 0,10-0,25 | - |
| | Gusseisen mit Kugelgraphit *(Spheroidal Cast Iron)* | 160-250 | 80-190 | 80-180 | - | - | 0,10-0,20 | - |
| **N** | Aluminium und NE-Metalle *(Aluminium and Non Ferrous)* | 30-130 | - | - | 350-1400 | - | - | 0,07-0,20 |
| **S** | Heat Resistant Super Alloys *(Heat Resistant Super Alloys)* | 200-320 | - | - | - | 0,10-0,20 | - | - |

Alle Schnittdaten dienen zur Orientierung
*(All cutting datas serve to orientation)*

| Schrägeintauchen *(Ramping)* | Helixinterpolation *(Helical Interpolation)* |
|---|---|




| ØDc | Max Ramp α° | Max ap | ØDHmin | ØDHmax | Max Pitch/Rev |
|---|---|---|---|---|---|
| 25 | 3° | 14,5 | 46,1 | 48,4 | 3,9 |
| 32 | 2° | 14,5 | 60,1 | 62,4 | 3,3 |
| 40 | 1,5° | 14,5 | 76,1 | 78,4 | 3,2 |
| 50 | 1,1° | 14,5 | 96,1 | 98,4 | 2,9 |
| 63 | 0,85° | 14,5 | 122,1 | 124,4 | 2,9 |
| 80 | 0,64° | 14,5 | 156,1 | 158,4 | 2,7 |
| 100 | 0,5° | 14,5 | 196,1 | 198,4 | 2,7 |
| 125 | 0,38° | 14,5 | 246,1 | 248,4 | 2,6 |

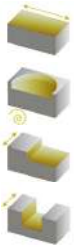
Während der Helixinterpolation oder des Schrägeintauchens darf der maximale Steigungswinkel α° nicht überschritten werden
*(During helical interpolation or ramping do not exceed max Pitch α°)*

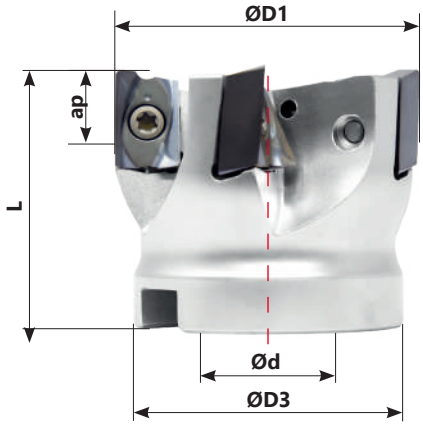
## ERSATZTEILE FÜR SW124-125 *(SPARE PARTS FOR SW124-125)*

| Werkzeugdurchmesser *(Tool Diameter)* ØDc | Spannschraube *(Insert Screw)* | Torx Schlüssel *(Torx Key)* | Unterlegplatte / Unterlegscheibe *(Shim / Washer)* | Klemmschraube *(Screw Clamp)* |
|---|---|---|---|---|
| |  |  |  |  |
| APSW...WS...Ø25-Ø40 | SW5400900 | XT15 | - | - |
| APSW...AM...Ø40-Ø80 | SW5400900 | XT15 | - | - |
| APSW...AM...Ø100-Ø125 | SW5400900 | XT15 | - | - |

## *LNKU...*

**Aufsteckmesserkopf**
*(Arbor Mounting)*



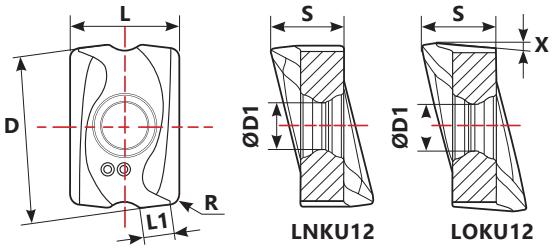




| Bestellcode *(Ordering Code)* | Bezeichnung *(Identification)* | Platten *(Inserts)* | | Maße *(Dimensions)* in mm | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Typ *(Type)* | Anzahl *(Number)* | D1 | D3 | d | L | ap |
| SW142-50 | LNSW50-SM-AM12-Z5-01 | L... 12... | 5 | 50 | 43 | 22 | 40 / 40.44* | 2.0 - 12 |

***mit LOKU Platte** *(with LOKU insert)*

| Bestellcode (Ordering Code) | Qualität (Grades) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | P | | M | | K | | | N | S | H |
| | CVD | PVD | PVD | CVD | PVD | | | UNC | CVD | PVD |
| | SW22230 | SW11235 | SW11245 | SW22535 | - | - | - | SW00915 | SW22535 | - |
| LNKU 120608-HCM | ▲ | ▲ | | | | | | | | |
| LNKU 120608-SCM | | | ▲ | | | | | | | |
| LOKU 120608-SCM | | | ▲ | | | | | | | |

## PLATTEN - TECHNISCHE DATEN *(INSERTS - TECHNICAL DETAILS)*



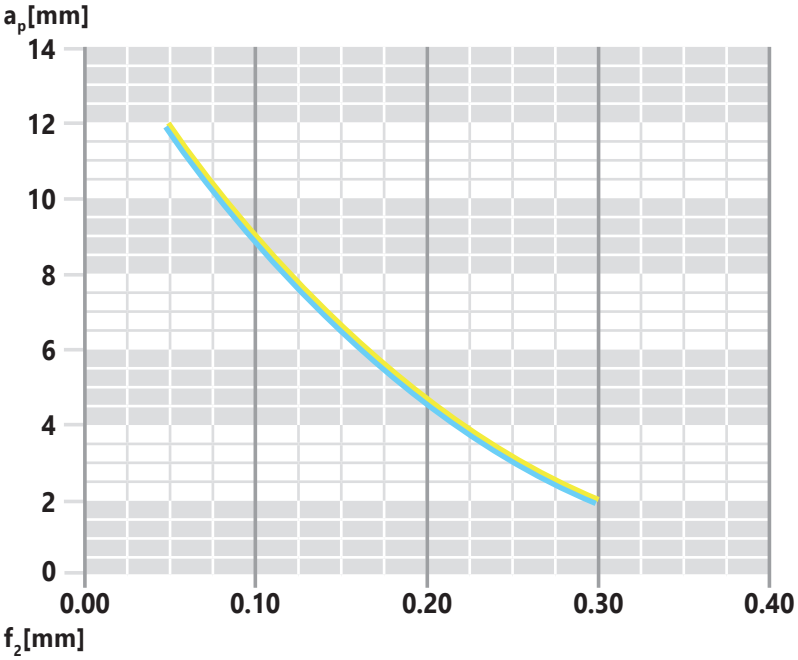

| Bestellcode *(Ordering Code)* | Maße *(Dimensions)* in mm | | | | | | |
|---|---|---|---|---|---|---|---|
| | D | D1 | S | L | L1 | R | X |
| LKNU... 12... | 15.27 | 4.4 | 6.78 | 10 | 2.84 | 0.8 | - |
| LOKU... 12... | 15.86 | 4.4 | 6.87 | 10 | 2.57 | 0.8 | 5 |

| Zu bearbeitendes Material *(Material to be machined)* | | HB | Verschleißfestigkeit *(Wear Resistance)* — Vc (m/min) — Zähigkeit *(Toughness)* | | | | | | Vorschub/Zahn *(feed/tooth)* in mm |
|---|---|---|---|---|---|---|---|---|---|
| | | | SW22230 | SW11235 | SW12240 | SW22535 | SW22415 | SW00915 | |
| P | Unlegierter Stahl *(Unalloyed Steel)* | 155-220 | 150-220 | 150-220 | - | - | - | - | 0,05-0,3 |
| | Niedrig legierter Stahl *(Low-Alloyed Steel)* | 220-280 | 100-200 | 100-200 | - | - | - | - | |
| | Hoch legierter Stahl *(High-Alloyed Steel)* | 280-380 | 60-150 | 60-150 | - | - | - | - | |
| M | Rostfreier Stahl, ferritisch *(Stainless Steels-Ferritic)* | 200-330 | - | - | 100-200 | - | - | - | 0,05-0,3 |
| | Rostfreier Stahl, austenitisch *(Stainless Steel-Austenitic)* | 200-330 | - | - | 60-150 | - | - | - | |

Alle Schnittdaten dienen zur Orientierung *(All cutting datas serve to orientation)*

## SCHNITTDATEN LNKU/LOKU *(CUTTING DATA LNKU/LOKU)*

Startparameter *(Starting parameters)*



## ERSATZTEILE *(SPARE PARTS)*

| Werkzeugdurchmesser *(Tool Diameter)* ØDc | Spannschraube *(Insert Screw)* | Torx Schlüssel *(Torx Key)* | Unterlegplatte / Unterlegscheibe *(Shim / Washer)* | Klemmschraube *(Screw Clamp)* |
|---|---|---|---|---|
| |  |  |  |  |
| LNSW... | SW11042274 | - | - | - |
| LNSW... | - | - | - | SW11040298 |

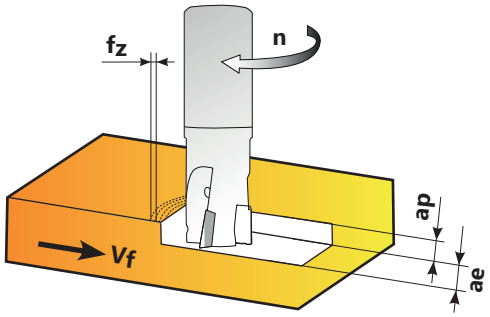
## FORMELN
*(FORMULAS)*

**Drehzahl (UPM)**
*(Spindle Speed) (RPM)*

$$n = \frac{V_c \cdot 1000}{\pi \cdot D_c}$$

**Schnittgeschwindigkeit**
*(Cutting Speed)* **(m/min)**

$$V_c = \frac{n \cdot \pi \cdot D_c}{1000}$$




**Vorschubgeschwindigkeit**
*(Feed Speed)* **(mm/min)**

$$V_f = n \cdot Z_n \cdot f_z$$

**Vorschub pro Umdrehung (mm/U)**
*(Feed per Revolution) (mm/rev)*

$$f = \frac{V_f}{n \cdot Z_n}$$

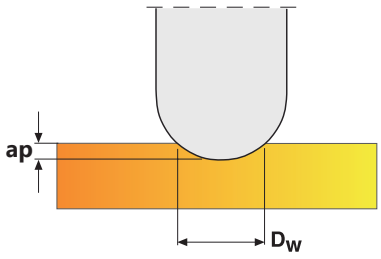
**Vorschub pro Zahn (mm/Zahn)**
*(Feed per Tooth) (mm/tooth)*

$$f_z = \frac{V_f}{n \cdot Z_n}$$

**Materialabtragrate**
*(Metal removal Rate)* **(cm³/min)**

$$Q = \frac{a_e \cdot a_p \cdot V_f}{1000}$$

## SCHNITTGESCHWINDIGKEIT UND DREHZAHL FÜR DAS KOPIERFRÄSEN
*(CUTTING SPEED AND SPINDLE SPEED FOR COPYING)*




$$V_c = \frac{n \cdot \pi \cdot D_w}{1000}$$ m/min

$$n = \frac{V_c \cdot 1000}{\pi \cdot D_w}$$ UPM *(RPM)*

$$D_w = 2 \cdot \sqrt{a_p\,(D_c - a_p)}$$ mm

**ae** - Schnittbreite / radiale Schnitttiefe
*(Width of cut) / (radial depth of cut)* (mm)

**ap** - Schnitttiefe / axiale Schnitttiefe
*(Depth of cut) / (axial depth of cut)* (mm)

**Dc** - Werkzeugdurchmesser
*(Cutter Diameter)* (mm)

**f** - Vorschub pro Umdrehung (mm/U)
*(Feed per Revolution) (mm/rev)*

**fz** - Vorschub pro Zahn (mm/Zahn)
*(Feed per Tooth) (mm/tooth)*

**n** - Drehzahl (UPM)
*(Spindle Speed) (RPM)*

**Q** - Materialabtragrate
*(Material removal Rate)* (cm³/min)

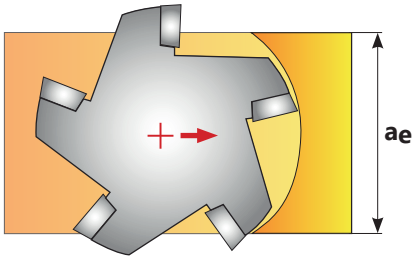
**Vc** - Schnittgeschwindigkeit
*(Cutting Speed)* (m/min)

**Vf** - Vorschubgeschwindigkeit
*(Feed Speed)* (mm/min)

**Zn** - Anzahl der Zähne
*(Number of teeth)*

## BERECHNUNG DES LEISTUNGSBEDARFS
*(CALCULATING THE POWER DEMAND)*

$$P_c = \frac{a_p \cdot a_e \cdot v_f}{60\,000\,000 \cdot \eta} \cdot k_c$$



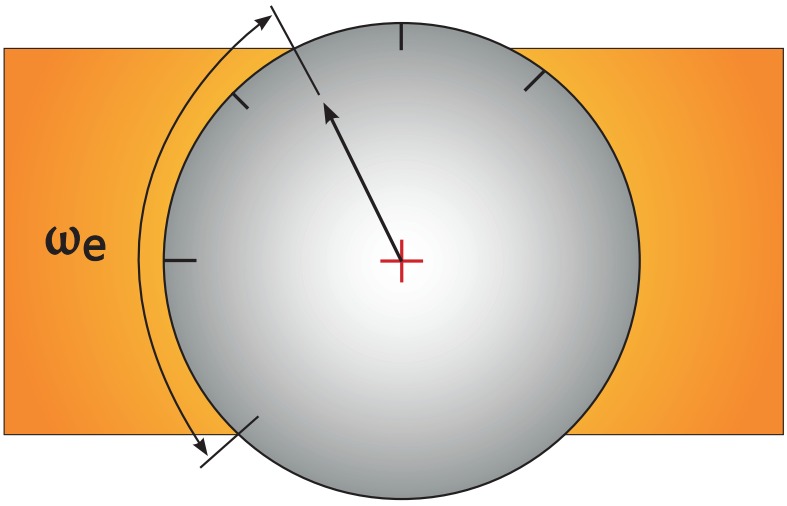

**Pc** - Leistung
*(Power)* (kW)
**ap** - Schnitttiefe
*(Depth of cut)* (mm)
**ae** - Schnittbreite
*(Width of cut)* (mm)
**vf** - Vorschubgeschwindigkeit
*(Feed speed)* (mm/min)
**η** - Effizienz
*(Efficiency)*
**kc** - Schnittkraft
*(Cutting force)* (N/mm²)

## BERECHNUNG DER MITTLEREN SPANDICKE (hm)
*CALCULATING AVERAGE CHIP THICKNESS (hm)*

$$h_m = \frac{360 \cdot f_z \cdot a_e}{\pi \cdot D_c \cdot \omega_e} \cdot \sin k_r$$

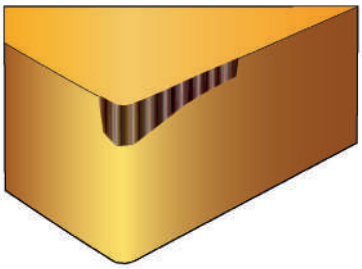
**hm** - Durchschnittliche Spandicke
*(Average chip thickness)* (mm)
**fz** - Vorschub pro Zahn (mm/Zahn)
*(Feed per tooth) (mm/tooth)*
**Dc** - Werkzeugdurchmesser
*(Cutter diameter)* (mm)
**ωe** - Eingriffswinkel
*(Engagement angle)* (mm/min)
**kr** - Steigungswinkel
*(Lead angle)*

## EINGRIFFSWINKEL
*(ENGAGEMENT ANGLE)*



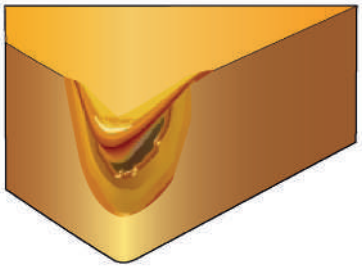

| Eingriffsbreite *(Engagement)* ae / Dc | Eingriffswinkel *(Engagement angle)* ωe |
|---|---|
| 5% | 26° |
| 10% | 37° |
| 25% | 60° |
| 70% | 89° |
| 100% | 180° |

## FLANKENVERSCHLEISS
## *(EDGE WEAR)*



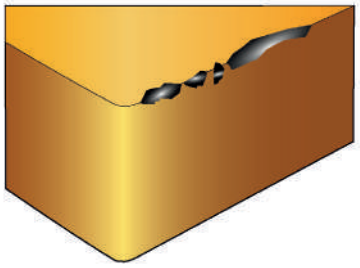
- Vorschub erhöhen
  *(Increase feed rate)*
- Schnittgeschwindigkeit reduzieren
  *(Reduce cutting speed)*
- Verschleißfestere Sorte wählen
  *(Use more wear resistant grade)*
- Kühlung optimieren
  *(Apply coated grade)*

## PLASTISCHE DEFORMATION
## *(HEAT DEFORMATION/UPSET)*



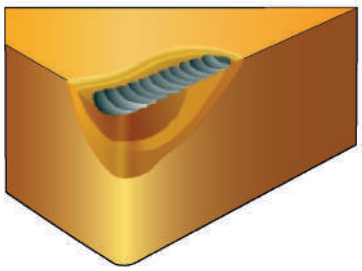
- Schnittgeschwindigkeit reduzieren
  *(Reduce cutting speed)*
- Vorschub reduzieren
  *(Reduce feed)*
- Schnitttiefe reduzieren
  *(Reduce depth of cut)*
- Sorte mit höherer Warmfestigkeit wählen
  *(Use grade with higher hot hardness)*

## AUSBRÜCHE
## *(THERMAL CRACKING)*



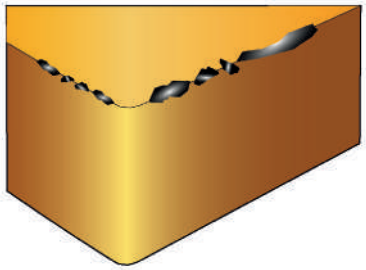
- Kühlung optimieren
  *(Properly apply coolant)*
- Schnittgeschwindigkeit erhöhen
  *(Increase cutting speed)*
- Vorschub reduzieren
  *(Reduce feed)*
- Einen zäheren Schneidstoff verwenden
  *(Use a tougher cutting material)*

## KOLKVERSCHLEISS
## *(CRATER)*



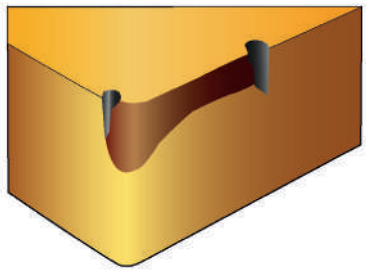
- Verschleißfestere Schneidstoffsorte wählen
  *(Select a more wear resistant grade)*
- Schnittgeschwindigkeit reduzieren
  *(Reduce cutting speed)*
- Schmalere Fase einsetzen oder den Vorschub auf den entsprechenden Bereich der Fase erhöhen
  *(Use a narrower chamfer or move the feed to the appropriate area of the machine increase chamfer)*

## KAMMRISSE
## *(COMB CRACKS)*



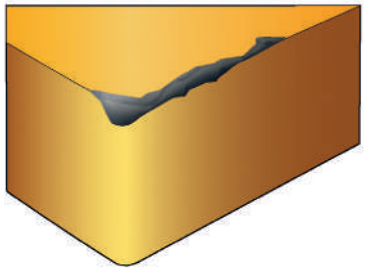
- Schnittgeschwindigkeit reduzieren
  *(Reduce cutting speed)*
- Reduzierung des Zahnvorschubs
  *(Reduction of tooth feed)*
- Kühlmittel abstellen
  *(Turn off the coolant)*
- Beschichtete Schneidstoffe verwenden, die für Nassbearbeitung geeignet sind
  *(Use coated cutting materials that are suitable for wet machining)*

## KERB- ODER OXIDATIONSVERSCHLEISS
## *(DEPTH-OF-CUT NOTCHING)*



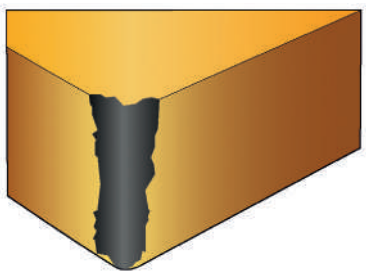
- Fräser mit kleinerem Einstellwinkel wählen
  *(Select a cutter with a smaller setting angle)*
- Ecken vorbearbeiten
  *(Consider edge preparation)*
- Verschleißfestere Schneidstoffsorte wählen
  *(Select a more wear resistant grade)*
- Reduzierung des Zahnvorschubs
  *(Reduction of tooth feed)*

## AUFBAUSCHNEIDE
## *(BUILT-UP EDGE)*



- Schnittgeschwindigkeit erhöhen
  *(Increase cutting speed)*
- Vorschub erhöhen
  *(Increase feed rate)*
- Kühlung optimieren
  *(Utilize coolant)*
- Scharfe Schneiden, PVD-beschichtete Schneidplatten mit positivem Spanwinkel oder polierte Schneidplaten verwenden
  *(Use sharp edges, PVD-coated inserts with positive rake angle or polished inserts)*

## SCHNEIDENBRUCH
## *(CATASTROPHIC BREAKAGE)*



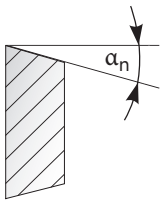
- Stärkere Beschichtung / Geometry wählen
  *(Select stronger grade / geometry)*
- Vorschub reduzieren
  *(Reduce feed rate)*
- Schnitttiefe reduzieren
  *(Reduce depth of cut)*
- Plattensitz und generelle Stabilität des Werkzeugs überprüfen
  *(Check rigidity of system)*

### A
**Grundform**
*(Insert shape)*

| | | |
|---|---|---|
| A |  | 85° |
| B |  | 82° |
| C |  | 80° |
| D |  | 55° |
| E |  | 75° |
| H |  | 120° |
| K |  | 55° |
| L |  | 90° |
| M |  | 86° |
| O |  | 135° |
| P |  | 108° |
| R |  | - |
| S |  | 90° |
| T |  | 60° |
| V |  | 35° |
| W |  | 80° |

Der Eckenwinkel ist bei ungleichwinkligen Grundformen immer der kleinere Winkel.
*(The corner angle is in the case of not equiangular basic forms always the smaller angle.)*

### P
**Freiwinkel**
*(Clearance angle)*




| | $\alpha_n$ |
|---|---|
| A | 3° |
| B | 5° |
| C | 7° |
| D | 15° |
| E | 20° |
| F | 25° |
| G | 30° |
| N | 0° |
| P | 11° |

**O**

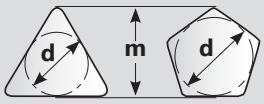
Normalfreiwinkel, die eine besondere Beschreibung erfordern.
*(Normal clearance angles, which require a special description.)*

### K
**Toleranzen**
*(Tolerances)*

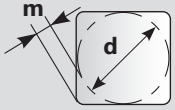
| | m | s | d |
|---|---|---|---|
| A | ± 0,005 | ± 0,025 | ± 0,025 |
| C | ± 0,013 | ± 0,025 | ± 0,025 |
| E | ± 0,025 | ± 0,025 | ± 0,025 |
| F | ± 0,005 | ± 0,025 | ± 0,013 |
| G | ± 0,025 | ± 0,13 | ± 0,025 |
| H | ± 0,013 | ± 0,025 | ± 0,013 |
| J | ± 0,005 | ± 0,025 | siehe *see* Tab. 4 |
| K | ± 0,013 | ± 0,025 | siehe *see* Tab. 4 |
| L | ± 0,025 | ± 0,025 | siehe see Tab. 4 |
| M | siehe see Tab. 5 | ± 0,13 | siehe see Tab. 4 |
| N | siehe see Tab. 5 | ± 0,025 | siehe see Tab. 4 |
| U | siehe see Tab. 5 | ± 0,13 | siehe see Tab. 4 |

| Tab. 4: d<br>d<br>über (*over*) | bis (*up to*) | J, K, L, M, N | U |
|---|---|---|---|
| 3,9 | 10,0 | ± 0,05 | ± 0,08 |
| 10,0 | 15,0 | ± 0,08 | ± 0,13 |
| 15,0 | 20,0 | ± 0,10 | ± 0,18 |
| 20,0 | 26,0 | ± 0,13 | ± 0,25 |
| 26,0 | 32,0 | ± 0,15 | ± 0,25 |

| Tab. 5: m<br>d<br>über (*over*) | bis (*up to*) | M,N | U |
|---|---|---|---|
| 3,9 | 10,0 | ±0,08 | ±0,13 |
| 10,0 | 15,0 | ±0,13 | ±0,20 |
| 15,0 | 20,0 | ±0,15 | ±0,27 |
| 20,0 | 26,0 | ±0,18 | ±0,38 |
| 26,0 | 32,0 | ±0,20 | ±0,38 |

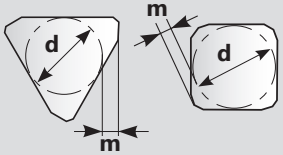



Eckenrundung, ungerade Seitenzahl
*(Corner rounding uneven number of sides)*

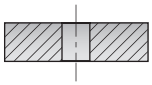
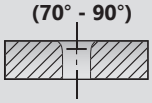
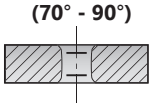
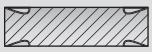
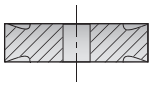
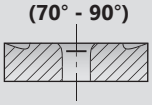
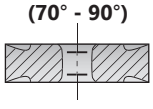
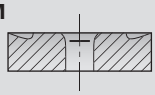
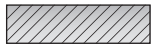
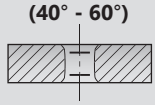
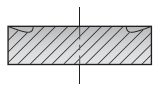
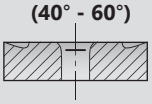
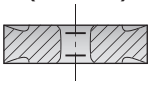
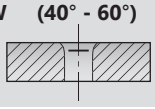



Eckenrundung, gerade Seitenzahl
*(Corner rounding, even number of sides)*

Fasenplatten
*(Chamfered inserts)*



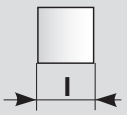

### T
**Spanformer, Befestigung**
*(Chip breaker, clamp type)*

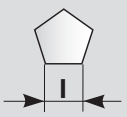
| | | |
|---|---|---|
| A | |  |
| B | (70° - 90°) |  |
| C | (70° - 90°) |  |
| F | |  |
| G | |  |
| H | (70° - 90°) |  |
| J | (70° - 90°) |  |
| M | |  |
| N | |  |
| Q | (40° - 60°) |  |
| R | |  |
| T | (40° - 60°) |  |
| U | (40° - 60°) |  |
| W | (40° - 60°) |  |

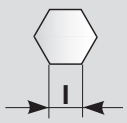
**X**
mit Besonderheit nach Zeichnung
*(with special feature acc. to drawing)*

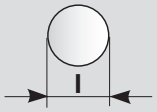
### 16
**Schneidenlänge**
*(Cutting edge length)*

| | l |
|---|---|
| 06 | 6,350 |
| 07 | 7,938 |
| 09 | 9,525 |
| 11 | 11,000 |
| 12 | 12,700 |
| 15 | 15,875 |
| 16 | 16,500 |
| 19 | 19,050 |
| 22 | 22,000 |
| 25 | 25,400 |
| 31 | 31,750 |
| 38 | 38,100 |

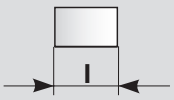



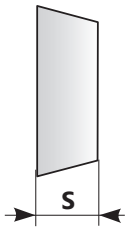







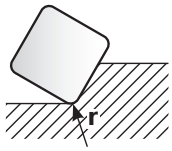
## 04 Dicke *(Thickness)*




| | S |
|---|---|
| 02 | 2,38 |
| 03 | 3,18 |
| T3 | 3,97 |
| 04 | 4,76 |
| 05 | 5,56 |
| 06 | 6,35 |
| 07 | 7,94 |
| 08 | 8,00 |
| 09 | 9,52 |

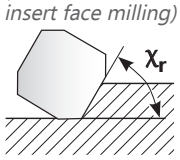
## PD Schneidenecke *(Cutting edge corner)*

Für Radiusplatten *(For radius inserts)*



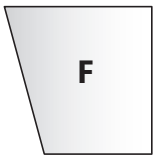

| | Eckradius-r *(Corner radius-r)* |
|---|---|
| 00 | scharfkantig *(sharp-edged)* |
| 02 | 0,2 |
| 04 | 0,4 |
| 08 | 0,8 |
| 12 | 1,2 |
| 16 | 1,6 |
| 20 | 2,0 |
| | usw. etc. |

Für Fasenplatten Planschneiden *(For chamfered insert face milling)*

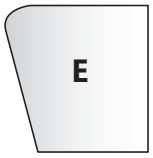



| | Einstellwinkel *(Setting angle)* $\chi_r$ |
|---|---|
| A | 45° |
| D | 60° |
| E | 75° |
| F | 85° |
| P | 90° |
| Z | Sonder *(Special)* |
| | Frei der Planschneide *(Clearance of face milling edge)* |
| $\alpha_n$ | |
| A | 3° |
| B | 5° |
| C | 7° |
| D | 15° |
| E | 20° |
| F | 25° |
| G | 30° |
| N | 0° |
| P | 11° |
| Z | Sonder *(Special)* |
| MO | Rundwende-platte metrisch *(Round insert metric)* |
| 00 | Rundwendeplatte Zoll *(Round insert inch)* |

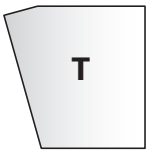
## S Schneidenausführung 1) *Cutting edge type 1)*




scharfkantig *(sharp-edged)*

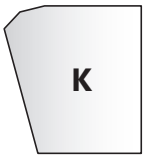



gerundet *(rounded)*

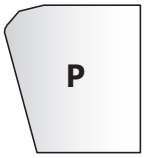



gefast *(chamfered)*


gefast und gerundet *(chamfered & rounded)*



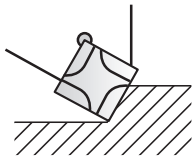

doppelgefast *(double chamfered)*




doppelgefast und gerundet *(double chamfered & rounded)*

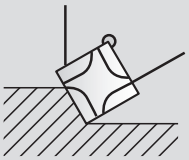
## R Schneidrichtung 1) *Direction of cut 1)*

**R**



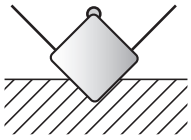
nur rechtsschneidend *(RH cut only)*

**L**



nur linksschneidend *(LH cut only)*

**N**



rechts- und linksschneidend *(RH and LH cut)*

1) Die Anwendung dieser Kennbuchstaben ist freigestellt. *1) The use of these reference letters is left open.*

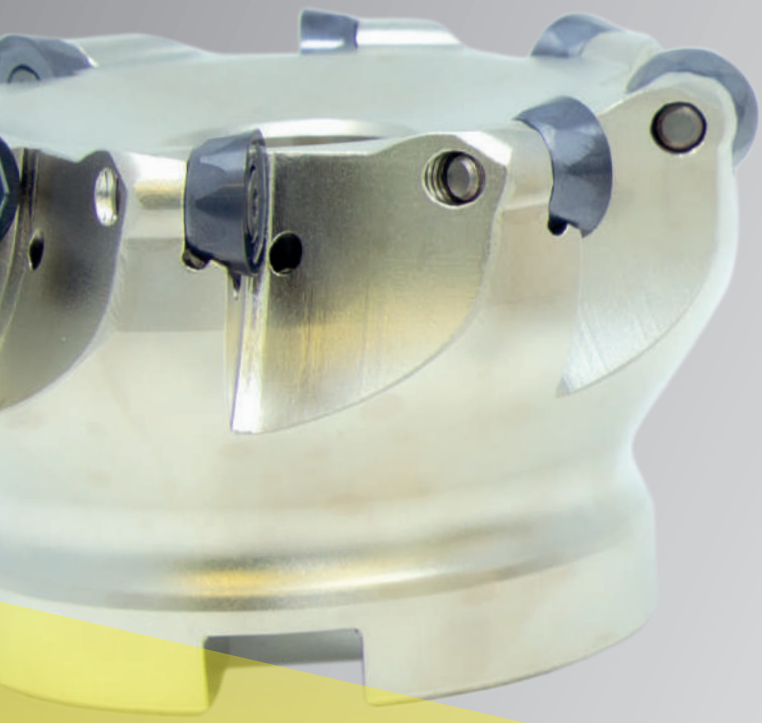
## – BP LMT-Norm *LMT-Standard*

| | |
|---|---|
| ALC | Al-Geometrie *(Al geometry)* |
| ALM | Al-Geometrie, Formenbau *(Al geometry die and mould)* |
| BM | Geometrie für rostfreien Stahl *(Geometry for stainless steel)* |
| BP | Hochleistungsgeometrie für Stahl *(High performance geometry for steel)* |

Beispiel *(Example)* :

| A | P | K | T | 16 | 04 | PD | S | R | -BP |
|---|---|---|---|---|---|---|---|---|---|
| # 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

| | | |
|---|---|---|
| 1 | Grundform *(Basic form)* | rhomboid |
| 2 | Freiwinkel *(Clearance angle)* | 11° |
| 3 | Toleranzen *(Tolerances)* | m ± 0,013 mm<br>s ± 0,025 mm<br>d ± 0,05 mm |
| 4 | Befestigung *(Fixing)*<br>Spanfläche *(Cutting face)* | Kegelschraube *(fixation screw)*<br>einseitig *(one side)* |
| 5 | Schneidenlänge *(Cutting edge length)* | 16,5 mm |
| 6 | Dicke *Thickness* | 4,76 mm |
| 7 | Schneidenecke *Cutting edge corner* | 90° Fase *(chamfer)* |
| 8 | Schneidenkante *Cutting edge* | gefast, gerundet *(chamfered, rounded)* |
| 9 | Schneidrichtung *(Direction of cut)* | rechts schneidend *(righthand cutting)* |
| 10 | Interne Bezeichnung *(Internal designation)* | BP= Spanflächen-topographie *(Geometry)* |



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