



SHARK-Cut®

- Systemvorstellung
- Bezeichnungssystem
- Werkzeugauswahl
- SHARK-Cut® Mini
- SHARK-Cut® Standard
- SHARK-Cut® Rebore
- Wendeschneidplatten
 - Geometriebeschreibung
 - Sortenbeschreibung
- Ersatzteile
- Schnittwerte
- Anwendungshinweise

SHARK-Cut®

- Introduction
- Designation system
- Tool shank options
- SHARK-Cut® Mini
- SHARK-Cut® Standard
- SHARK-Cut® Rebore
- Inserts
 - Geometry description
 - Grade description
- Spare parts
- Cutting data
- Application reference

SHARK-Cut®

- Caratteristiche del sistema
- Sistema di numerazione
- Tipologie di numerazione
- SHARK-Cut® Mini
- SHARK-Cut® Standard
- SHARK-Cut® Rebore
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ARNO Multifunktionswerkzeug SHARK-Cut®

ARNO Multi purpose tool SHARK-Cut®

ARNO Utensile multifunzione SHARK-Cut®

Vorteile des SHARK-CUT®-Systems:

DREHEN und BOHREN mit nur 1 Werkzeug!

Advantages of the Shark-Cut® system:

Turning and boring with only 1 tool!

Vantaggi del sistema SHARK-Cut®:

Foratura e barenatura con un unico utensile!

- Erzeugt ebenen Bohrungsgrund
- Problemlöser bei fehlenden Werkzeugplätzen an der Maschine
- Weniger Programmieraufwand
- Kürzere Rüstzeiten
- Reduzierte Voreinstellzeiten
- Reduzierte Lagerhaltung von Werkzeugen und Wendeschneidplatten
- Geringere Kosten für die Werkzeugbeschaffung
- Produces a flat bottom hole
- Problem solver for insufficient machine tool posts
- Less programming
- Shorter set-up times
- Reduced pre-setting times
- Reduced stock-keeping costs for tools and indexable inserts
- Lower tool purchasing costs
- Foratura con fondo piano
- Risolutore di problemi nei casi di limitate posizioni utensili
- Riduce la programmazione macchina
- Riduce i tempi di setup utensili
- Riduce i tempi di setup
- Riduce i costi di magazzino di utensili ed inserti
- Riduce i costi di utensileria

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SHARK-CUT® Mini:

DREHEN und BOHREN $\geq \varnothing 4 \text{ mm}$

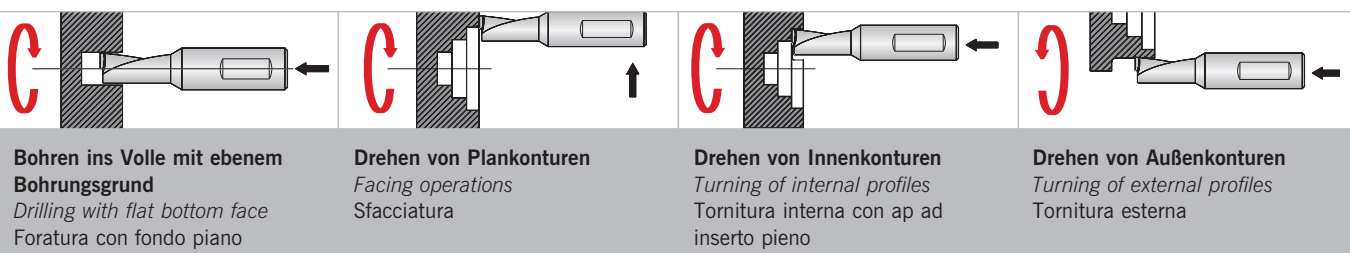
Vollhartmetallwerkzeug

Turning and boring $\geq \varnothing 4 \text{ mm}$

Solid carbide tool

Foratura e barenatura $\geq \varnothing 4 \text{ mm}$

Utensile in metallo duro integrale

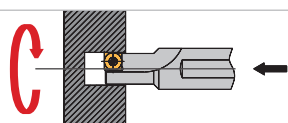


SHARK-CUT® Standard:**DREHEN und BOHREN $\geq \varnothing 8$ mm***Turning and boring $\geq \varnothing 8$ mm*Foratura e barenatura $\geq \varnothing 8$ mm

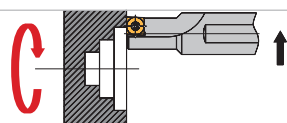
1,5 x D

2,25 x D

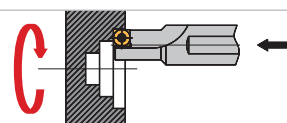
3 x D



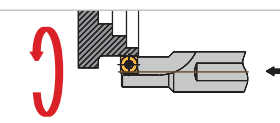
**Bohren ins Volle mit ebenem
Bohrungsgrund**
Drilling with flat bottom face
Foratura con fondo piano



Drehen von Plankonturen
Facing operations
Sfacciatura



Drehen von Innenkonturen
Turning of internal profiles
Tornitura interna con ap ad
inserto pieno



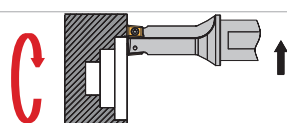
Drehen von Außenkonturen
Turning of external profiles
Tornitura esterna

SHARK-CUT® Rebore:**2-schneidig $\geq \varnothing 12$ mm***2 flute $\geq \varnothing 12$ mm*2 taglienti $\geq \varnothing 12$ mm

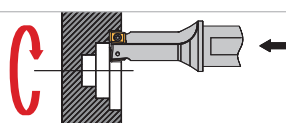
2,25 x D

3-schneidig $\geq \varnothing 24$ mm*3 flute $\geq \varnothing 24$ mm*3 taglienti $\geq \varnothing 24$ mm

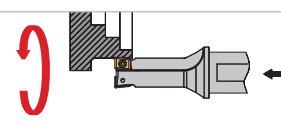
2,25 x D



Drehen von Plankonturen
Facing operations
Sfacciatura



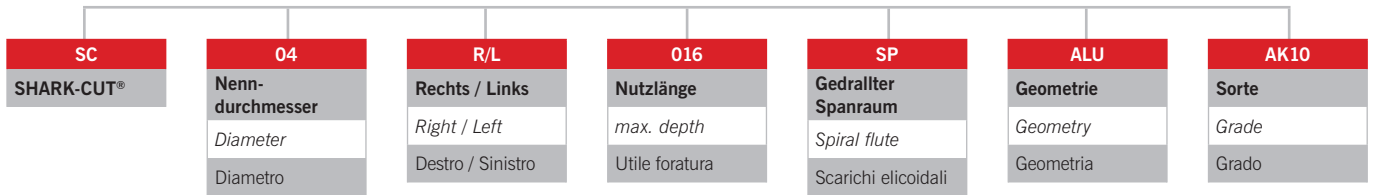
Drehen von Innenkonturen
Turning of internal profiles
Tornitura interna con ap ad
inserto pieno



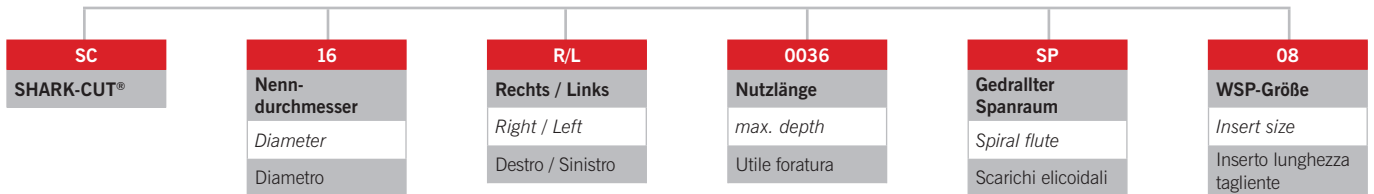
Drehen von Außenkonturen
Turning of external profiles
Tornitura esterna

We have a passion for precision.

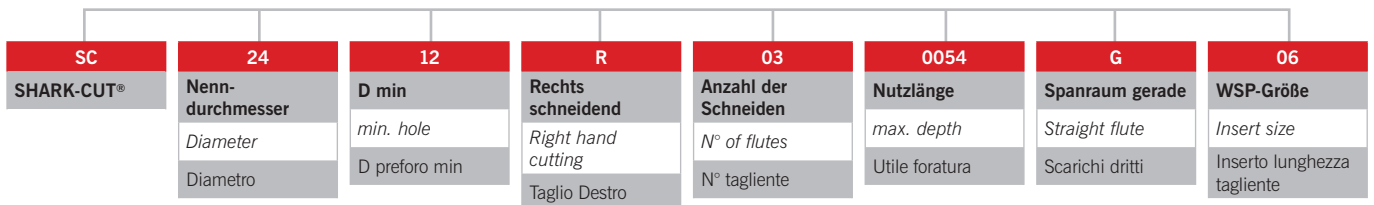
SHARK-CUT® Mini



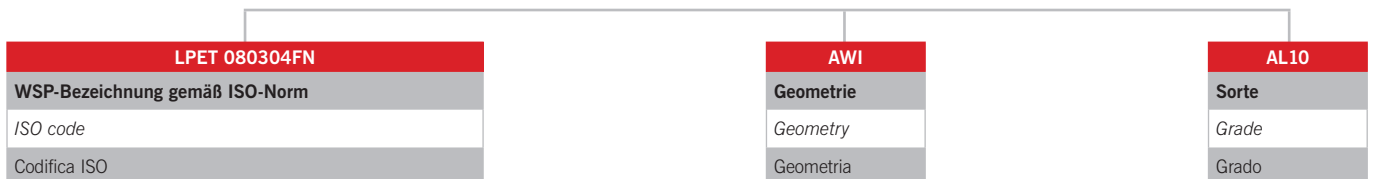
SHARK-CUT® Standard



SHARK-CUT® Rebore



SHARK-CUT® Wendeschneidplatten / Inserts / Inserti



4

We have a passion for precision.



SHARK-CUT® Mini

| | | |
|----------|----------------|-----|
| 2,25 x D | Ø 4,0 – 8,0 mm | 172 |
| 4 x D | Ø 4,0 – 8,0 mm | 172 |



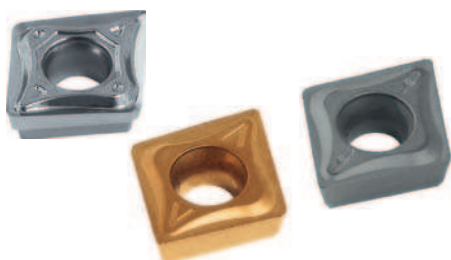
SHARK-CUT® Standard

| | | |
|----------|-----------------|-----|
| 1,5 x D | Ø 8,0 – 32,0 mm | 173 |
| 2,25 x D | Ø 8,0 – 32,0 mm | 174 |
| 3 x D | Ø 8,0 – 32,0 mm | 175 |
| | Densimet | |



SHARK-CUT® Rebore

| | | |
|-------------------------------------|------------------|-----|
| 2-schneidig / 2 flute / 2 taglienti | | |
| 2,25 x D | Ø 12,0 – 50,0 mm | 176 |
| 3-schneidig / 3 flute / 3 taglienti | | |
| 2,25 x D | Ø 24,0 – 50,0 mm | 177 |



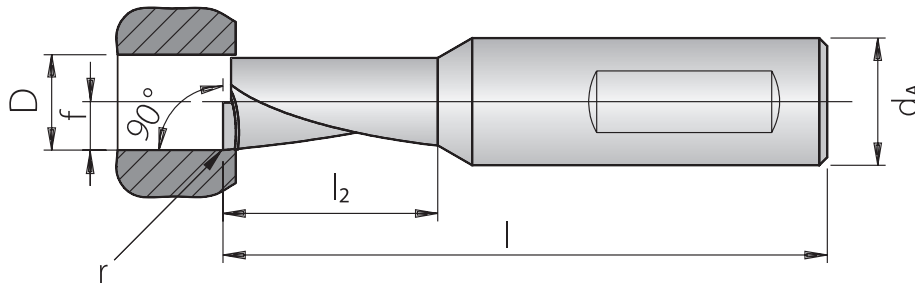
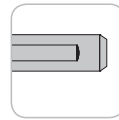
SHARK-CUT® Wendeschneidplatten

Inserts
Inserti

| | |
|------|-----|
| LPET | 181 |
| LPNT | 182 |

Solid carbide cutter
Utensile in Metallo Duro

We have a passion for precision.



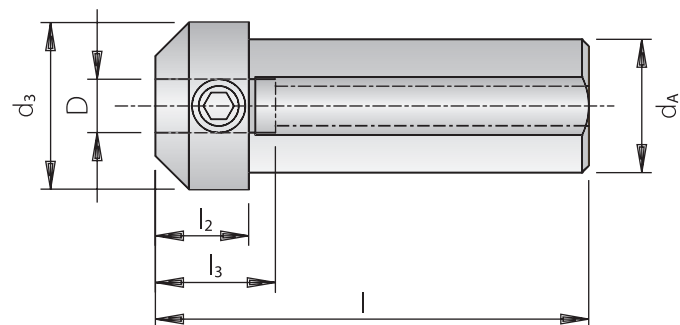
Schneideinsatz / Insert / Inserto

Rechte Ausführung abgebildet
Right-hand execution shown
Versione Destra in figura

| Bezeichnung Designation Articolo | D | l | l ₂ | d _A | f | r | beschichtet coated rivestito | | unbeschichtet uncoated non rivestito | |
|--|---|----|----------------|----------------|-----|-----|------------------------------------|-------|--|------|
| | | | | | | | AL350 | AM35C | AK10 | AP40 |
| SC04R/L-009SP | 4 | 35 | 9,00 | 6 | 2,0 | 0,2 | ● | | | |
| SC04R/L-009SP-ALU | 4 | 35 | 9,00 | 6 | 2,0 | 0,2 | | | ● | |
| SC04R/L-016SP | 4 | 41 | 16,00 | 6 | 2,0 | 0,2 | ● | | | |
| SC04R/L-016SP-ALU | 4 | 41 | 16,00 | 6 | 2,0 | 0,2 | | | ● | |
| SC05R/L-011SP | 5 | 37 | 11,25 | 6 | 2,5 | 0,2 | ● | | | |
| SC05R/L-011SP-ALU | 5 | 37 | 11,25 | 6 | 2,5 | 0,2 | | | ● | |
| SC05R/L-020SP | 5 | 45 | 20,00 | 6 | 2,5 | 0,2 | ● | | | |
| SC05R/L-020SP-ALU | 5 | 45 | 20,00 | 6 | 2,5 | 0,2 | | | ● | |
| SC06R/L-013SP | 6 | 38 | 13,50 | 8 | 3,0 | 0,2 | ● | | | |
| SC06R/L-013SP-ALU | 6 | 38 | 13,50 | 8 | 3,0 | 0,2 | | | ● | |
| SC06R/L-024SP | 6 | 49 | 24,00 | 8 | 3,0 | 0,2 | ● | | | |
| SC06R/L-024SP-ALU | 6 | 49 | 24,00 | 8 | 3,0 | 0,2 | | | ● | |
| SC07R/L-015SP | 7 | 42 | 15,75 | 8 | 3,5 | 0,2 | ● | | | |
| SC07R/L-015SP-ALU | 7 | 42 | 15,75 | 8 | 3,5 | 0,2 | | | ● | |
| SC07R/L-028SP | 7 | 53 | 28,00 | 8 | 3,5 | 0,2 | ● | | | |
| SC07R/L-028SP-ALU | 7 | 53 | 28,00 | 8 | 3,5 | 0,2 | | | ● | |
| SC08R/L-018SP | 8 | 45 | 18,00 | 8 | 4,0 | 0,2 | ● | | | |
| SC08R/L-018SP-ALU | 8 | 45 | 18,00 | 8 | 4,0 | 0,2 | | | ● | |
| SC08R/L-032SP | 8 | 57 | 32,00 | 8 | 4,0 | 0,2 | ● | | | |
| SC08R/L-032SP-ALU | 8 | 57 | 32,00 | 8 | 4,0 | 0,2 | | | ● | |

4

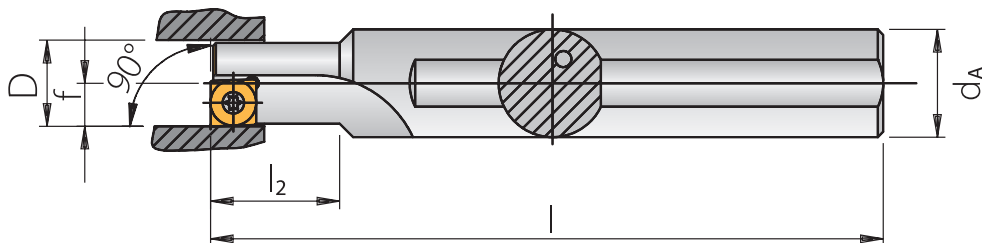
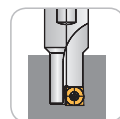
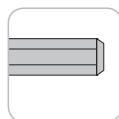
Adapter / Holder / Adattatore



Trägerwerkzeug / Holder / Utensile

| Bezeichnung Designation Articolo | D | d ₃ | l | l ₂ | l ₃ | d _A | Klemmschraube Clamingscrew Vite |
|--|---|----------------|----|----------------|----------------|----------------|---------------------------------------|
| SC AD20-06 | 6 | 25 | 65 | 14 | 18 | 20 | 7897990 |
| SC AD20-08 | 8 | 25 | 65 | 14 | 18 | 20 | 7897990 |

We have a passion for precision.



Trägerwerkzeug / Holder / Utensile

Rechte Ausführung abgebildet

Right-hand execution shown

Versione Destra in figura

| Bezeichnung Designation Articolo | D | l | l ₂ | d _A | f | Wendeschneidplatte Insert Inserto |
|--|----|-----|----------------|----------------|------|---|
| SC08R/L-0012G-04* | 8 | 80 | 12,0 | 12 | 4,0 | LPET / LPNT 0401.. |
| SC10R/L-0015G-05 | 10 | 90 | 15,0 | 12 | 5,0 | LPET / LPNT 0502.. |
| SC12R/L-0018G-06 | 12 | 100 | 18,0 | 16 | 6,0 | LPET / LPNT 0602.. |
| SC14R/L-0021G-07 | 14 | 110 | 21,0 | 16 | 7,0 | LPET / LPNT 0703.. |
| SC16R/L-0024G-08 | 16 | 125 | 24,0 | 20 | 8,0 | LPET / LPNT 0803.. |
| SC18R/L-0027G-09 | 18 | 135 | 27,0 | 25 | 9,0 | LPET / LPNT 09T3.. |
| SC20R/L-0030G-10 | 20 | 150 | 30,0 | 25 | 10,0 | LPET / LPNT 10T3.. |
| SC25R/L-0038G-13 | 25 | 180 | 37,5 | 32 | 12,5 | LPET / LPNT 1304.. |
| SC32R/L-0048G-17 | 32 | 200 | 48,0 | 40 | 16,0 | LPET / LPNT 1705.. |

* Rechter Halter → Rechte Wendeschneidplatte

Linker Halter → Linke Wendeschneidplatte

* Right-hand holder → Right-hand indexable insert

Left-hand holder → Left-hand indexable insert

* Utensile Destro → Inserto Destro

Utensile Sinistro → Inserto Sinistro

HINWEIS:

Trägerwerkzeuge werden mit Klemmschrauben und Ersatzschrauben geliefert, jedoch ohne Schlüssel.

Ersatzteile und Zubehör siehe Seite 183.

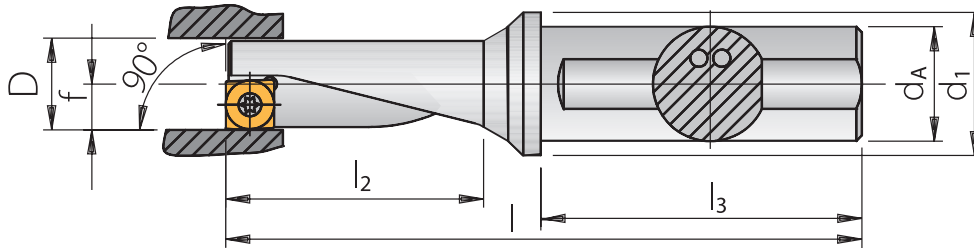
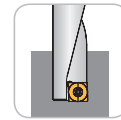
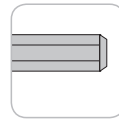
INFORMATION: Holders will be supplied with clamping screws and spare screws, however without key. Spare parts and accessories see page 183.

NOTA:

L'utensile é fornito completo di vite, 1 vite di ricambio, ma SENZA chiave. Ricambi a pagina 183.

Drilling depth up to 2.25 x D
Foratura fino a 2,25 x D

We have a passion for precision.



2,25
xD

Trägerwerkzeug / Holder / Utensile

Rechte Ausführung abgebildet

Right-hand execution shown

Versione Destra in figura

| Bezeichnung Designation Articolo | D | l | l ₂ | l ₃ | d ₁ | d _A | f | Wendeschneidplatte Insert Inserto |
|--|----|-------|----------------|----------------|----------------|----------------|------|---|
| SC08R/L-0018SP-04* | 8 | 60,0 | 18,0 | 38 | 12 | 10 | 4,0 | LPET / LPNT 0401.. |
| SC10R/L-0023SP-05 | 10 | 69,5 | 22,5 | 42 | 16 | 12 | 5,0 | LPET / LPNT 0502.. |
| SC12R/L-0027SP-06 | 12 | 78,0 | 27,0 | 45 | 20 | 16 | 6,0 | LPET / LPNT 0602.. |
| SC14R/L-0032SP-07 | 14 | 83,5 | 31,5 | 45 | 20 | 16 | 7,0 | LPET / LPNT 0703.. |
| SC16R/L-0036SP-08 | 16 | 94,0 | 36,0 | 50 | 25 | 20 | 8,0 | LPET / LPNT 0803.. |
| SC18R/L-0041SP-09 | 18 | 109,5 | 40,5 | 56 | 32 | 25 | 9,0 | LPET / LPNT 09T3.. |
| SC20R/L-0045SP-10 | 20 | 111,0 | 45,0 | 56 | 32 | 25 | 10,0 | LPET / LPNT 10T3.. |
| SC25R/L-0057SP-13 | 25 | 129,0 | 56,5 | 60 | 40 | 32 | 12,5 | LPET / LPNT 1304.. |
| SC32R/L-0072SP-17 | 32 | 158,0 | 72,0 | 70 | 50 | 40 | 16,0 | LPET / LPNT 1705.. |

* Rechter Halter → Rechte Wendeschneidplatte

Linker Halter → Linke Wendeschneidplatte

* Right-hand holder → Right-hand indexable insert

Left-hand holder → Left-hand indexable insert

* Utensile Destro → Inserto Destro

Utensile Sinistro → Inserto Sinistro

HINWEIS:

Trägerwerkzeuge werden mit Klemmschrauben und Ersatzschrauben geliefert, jedoch ohne Schlüssel.

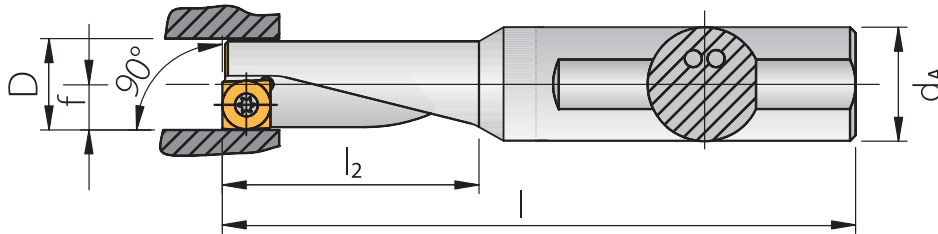
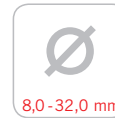
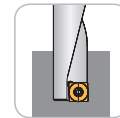
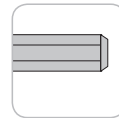
Ersatzteile und Zubehör siehe Seite 183.

INFORMATION: Holders will be supplied with clamping screws and spare screws, however without key. Spare parts and accessories see page 183.

NOTA:

L'utensile é fornito completo di vite, 1 vite di ricambio, ma SENZA chiave. Ricambi a pagina 183.

We have a passion for precision.



Schwingungsarm!
Vibration damped!
Stop alle vibrazioni!



Trägerwerkzeug / Holder / Utensile

Rechte Ausführung abgebildet
Right-hand execution shown
Versione Destra in figura

| Bezeichnung Designation Articolo | D | l | l ₂ | d _A | f | Wendeschneidplatte Insert Inserto |
|--|----|-----|----------------|----------------|------|---|
| SC08R/L-0024SP-04* | 8 | 80 | 24 | 12 | 4,0 | LPET / LPNT 0401.. |
| SC10R/L-0030SP-05 | 10 | 85 | 30 | 12 | 5,0 | LPET / LPNT 0502.. |
| SC12R/L-0036SP-06 | 12 | 95 | 36 | 16 | 6,0 | LPET / LPNT 0602.. |
| SC14R/L-0042SP-07 | 14 | 100 | 42 | 16 | 7,0 | LPET / LPNT 0703.. |
| SC16R/L-0048SP-08 | 16 | 110 | 48 | 20 | 8,0 | LPET / LPNT 0803.. |
| SC18R/L-0054SP-09 | 18 | 125 | 54 | 25 | 9,0 | LPET / LPNT 09T3.. |
| SC20R/L-0060SP-10 | 20 | 130 | 60 | 25 | 10,0 | LPET / LPNT 10T3.. |
| SC25R/L-0075SP-13 | 25 | 150 | 75 | 32 | 12,5 | LPET / LPNT 1304.. |
| SC32R/L-0096SP-17 | 32 | 185 | 96 | 40 | 16,0 | LPET / LPNT 1705.. |

* Rechter Halter → Rechte Wendeschneidplatte
Linker Halter → Linke Wendeschneidplatte

* Right-hand holder → Right-hand indexable insert
Left-hand holder → Left-hand indexable insert

* Utensile Destro → Inserto Destro
Utensile Sinistro → Inserto Sinistro

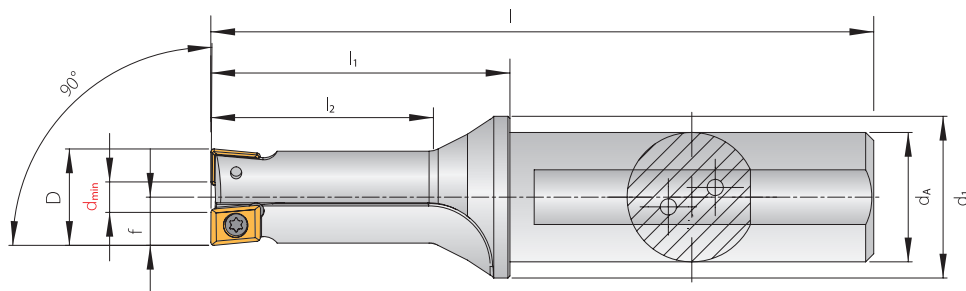
HINWEIS: Trägerwerkzeuge werden mit Klemmschrauben und Ersatzschrauben geliefert, jedoch ohne Schlüssel.
Ersatzteile und Zubehör siehe Seite 183.

INFORMATION: Holders will be supplied with clamping screws and spare screws, however without key. Spare parts and accessories see page 183.

NOTA: L'utensile é fornito completo di vite, 1 vite di ricambio, ma SENZA chiave. Ricambi a pagina 183.

Drilling depth up to 2.25 x D – 2 flute
Foratura fino a 2,25 x D – 2 taglienti

We have a passion for precision.



Trägerwerkzeug / Holder / Utensile

Rechte Ausführung abgebildet
Right-hand execution shown
Versione Destra in figura

| Bezeichnung Designation Articolo | D | d _{min} | l | l ₁ | l ₂ | d ₁ | d _A | f | z | Wendeschneidplatte Insert Inserto |
|--|------|------------------|-----|----------------|----------------|----------------|----------------|------|---|---|
| SCR1204R02-0027G-04* | 12,0 | 4,0 | 82 | 37 | 27 | 20 | 16 | 5,0 | 2 | LPET / LPNT 0401.. |
| SCR1305R02-0029G-04* | 13,0 | 5,0 | 84 | 39 | 29 | 20 | 16 | 6,0 | 2 | LPET / LPNT 0401.. |
| SCR1406R02-0032G-04* | 14,0 | 6,0 | 86 | 41 | 32 | 20 | 16 | 7,0 | 2 | LPET / LPNT 0401.. |
| SCR1507R02-0034G-04* | 15,0 | 7,0 | 88 | 43 | 34 | 20 | 16 | 8,0 | 2 | LPET / LPNT 0401.. |
| SCR1606R02-0036G-05 | 16,0 | 6,0 | 97 | 47 | 36 | 25 | 20 | 7,0 | 2 | LPET / LPNT 0502.. |
| SCR1707R02-0038G-05 | 17,0 | 7,0 | 99 | 49 | 38 | 25 | 20 | 8,0 | 2 | LPET / LPNT 0502.. |
| SCR17575R02-0039G-05 | 17,5 | 7,5 | 101 | 51 | 39 | 25 | 20 | 8,5 | 2 | LPET / LPNT 0502.. |
| SCR1806R02-0041G-06 | 18,0 | 6,0 | 102 | 52 | 41 | 25 | 20 | 7,0 | 2 | LPET / LPNT 0602.. |
| SCR1907R02-0043G-06 | 19,0 | 7,0 | 104 | 54 | 43 | 25 | 20 | 8,0 | 2 | LPET / LPNT 0602.. |
| SCR2006R02-0045G-07 | 20,0 | 6,0 | 114 | 58 | 45 | 32 | 25 | 7,0 | 2 | LPET / LPNT 0703.. |
| SCR2107R02-0047G-07 | 21,0 | 7,0 | 116 | 60 | 47 | 32 | 25 | 8,0 | 2 | LPET / LPNT 0703.. |
| SCR2208R02-0050G-07 | 22,0 | 8,0 | 118 | 62 | 50 | 32 | 25 | 9,0 | 2 | LPET / LPNT 0703.. |
| SCR2309R02-0052G-07 | 23,0 | 9,0 | 120 | 64 | 52 | 32 | 25 | 10,0 | 2 | LPET / LPNT 0703.. |
| SCR2408R02-0054G-08 | 24,0 | 8,0 | 122 | 66 | 54 | 32 | 25 | 9,0 | 2 | LPET / LPNT 0803.. |
| SCR2509R02-0056G-08 | 25,0 | 9,0 | 130 | 70 | 56 | 40 | 32 | 10,0 | 2 | LPET / LPNT 0803.. |
| SCR2608R02-0059G-09 | 26,0 | 8,0 | 134 | 74 | 59 | 40 | 32 | 9,0 | 2 | LPET / LPNT 09T3.. |
| SCR2709R02-0061G-09 | 27,0 | 9,0 | 137 | 77 | 61 | 40 | 32 | 10,0 | 2 | LPET / LPNT 09T3.. |
| SCR2810R02-0063G-09 | 28,0 | 10,0 | 140 | 80 | 63 | 40 | 32 | 11,0 | 2 | LPET / LPNT 09T3.. |
| SCR2909R02-0065G-10 | 29,0 | 9,0 | 144 | 84 | 65 | 40 | 32 | 10,0 | 2 | LPET / LPNT 10T3.. |
| SCR3010R02-0068G-10 | 30,0 | 10,0 | 146 | 86 | 68 | 40 | 32 | 11,0 | 2 | LPET / LPNT 10T3.. |
| SCR3111R02-0070G-10 | 31,0 | 11,0 | 149 | 89 | 70 | 40 | 32 | 12,0 | 2 | LPET / LPNT 10T3.. |
| SCR3212R02-0072G-10 | 32,0 | 12,0 | 151 | 91 | 72 | 40 | 32 | 13,0 | 2 | LPET / LPNT 10T3.. |
| SCR3313R02-0074G-10 | 33,0 | 13,0 | 154 | 94 | 75 | 40 | 32 | 13,0 | 2 | LPET / LPNT 10T3.. |
| SCR3414R02-0077G-10 | 34,0 | 14,0 | 156 | 96 | 77 | 40 | 32 | 15,0 | 2 | LPET / LPNT 1304.. |
| SCR3510R02-0079G-13 | 35,0 | 10,0 | 166 | 96 | 79 | 50 | 40 | 10,0 | 2 | LPET / LPNT 1304.. |
| SCR3611R02-0081G-13 | 36,0 | 11,0 | 168 | 98 | 81 | 50 | 40 | 11,0 | 2 | LPET / LPNT 1304.. |
| SCR3712R02-0083G-13 | 37,0 | 12,0 | 170 | 100 | 83 | 50 | 40 | 12,0 | 2 | LPET / LPNT 1304.. |
| SCR3813R02-0086G-13 | 38,0 | 13,0 | 173 | 103 | 86 | 50 | 40 | 13,0 | 2 | LPET / LPNT 1304.. |
| SCR3914R02-0088G-13 | 39,0 | 14,0 | 175 | 105 | 88 | 50 | 40 | 14,0 | 2 | LPET / LPNT 1304.. |
| SCR4015R02-0090G-13 | 40,0 | 15,0 | 177 | 107 | 90 | 50 | 40 | 15,0 | 2 | LPET / LPNT 1304.. |
| SCR4116R02-0092G-13 | 41,0 | 16,0 | 179 | 109 | 92 | 50 | 40 | 16,0 | 2 | LPET / LPNT 1304.. |
| SCR4217R02-0095G-13 | 42,0 | 17,0 | 182 | 112 | 95 | 50 | 40 | 17,0 | 2 | LPET / LPNT 1304.. |
| SCR4318R02-0097G-13 | 43,0 | 18,0 | 185 | 115 | 97 | 50 | 40 | 18,0 | 2 | LPET / LPNT 1304.. |
| SCR4419R02-0099G-13 | 44,0 | 19,0 | 187 | 117 | 99 | 50 | 40 | 19,0 | 2 | LPET / LPNT 1304.. |
| SCR4513R02-0101G-17 | 45,0 | 13,0 | 192 | 122 | 101 | 55 | 40 | 13,0 | 2 | LPET / LPNT 1705.. |
| SCR4614R02-0104G-17 | 46,0 | 14,0 | 194 | 124 | 104 | 55 | 40 | 14,0 | 2 | LPET / LPNT 1705.. |
| SCR4715R02-0106G-17 | 47,0 | 15,0 | 196 | 126 | 106 | 55 | 40 | 15,0 | 2 | LPET / LPNT 1705.. |
| SCR4816R02-0108G-17 | 48,0 | 16,0 | 198 | 128 | 108 | 55 | 40 | 16,0 | 2 | LPET / LPNT 1705.. |
| SCR4917R02-0110G-17 | 49,0 | 17,0 | 200 | 130 | 110 | 55 | 40 | 17,0 | 2 | LPET / LPNT 1705.. |
| SCR5018R02-0113G-17 | 50,0 | 18,0 | 203 | 133 | 113 | 55 | 40 | 18,0 | 2 | LPET / LPNT 1705.. |

* Rechter Halter → Rechte Wendeschneidplatte
* Right-hand holder → Right-hand indexable insert
* Utensile Destro → Inserto Destro

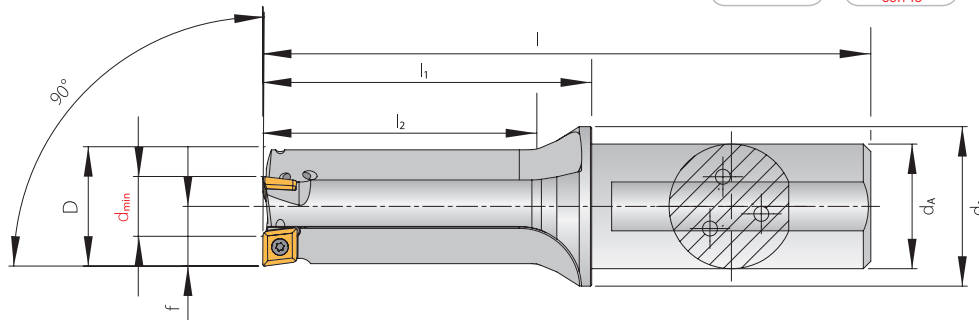
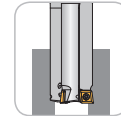
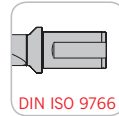
HINWEIS: Trägerwerkzeuge werden mit Klemmschrauben und Ersatzschrauben geliefert, jedoch ohne Schlüssel. Ersatzteile und Zubehör siehe Seite 183.

INFORMATION: Holders will be supplied with clamping screws and spare screws, however without key. Spare parts and accessories see page 183.

NOTA: L'utensile é fornito completo di vite, 1 vite di ricambio, ma SENZA chiave. Ricambi a pagina 183.

Drilling depth up to 2.25 x D – 3 flute
Foratura fino a 2,25 x D – 3 taglienti

We have a passion for precision.



Trägerwerkzeug / Holder / Utensile

Rechte Ausführung abgebildet
Right-hand execution shown
Versione Destra in figura

| Bezeichnung Designation Articolo | D | d _{min} | l | l ₁ | l ₂ | d ₁ | d _A | f | z | Wendeschneidplatte Insert Inserto |
|--|----|------------------|-----|----------------|----------------|----------------|----------------|----|---|---|
| SCR2412R03-0054G-06 | 24 | 12 | 122 | 66 | 54 | 32 | 25 | 13 | 3 | LPET / LPNT 0602.. |
| SCR2513R03-0056G-06 | 25 | 13 | 130 | 70 | 56 | 40 | 32 | 14 | 3 | LPET / LPNT 0602.. |
| SCR2612R03-0059G-07 | 26 | 12 | 134 | 74 | 59 | 40 | 32 | 13 | 3 | LPET / LPNT 0703.. |
| SCR2713R03-0061G-07 | 27 | 13 | 137 | 77 | 61 | 40 | 32 | 14 | 3 | LPET / LPNT 0703.. |
| SCR2814R03-0063G-07 | 28 | 14 | 140 | 80 | 63 | 40 | 32 | 15 | 3 | LPET / LPNT 0703.. |
| SCR2913R03-0065G-08 | 29 | 13 | 144 | 84 | 65 | 40 | 32 | 14 | 3 | LPET / LPNT 0803.. |
| SCR3014R03-0068G-08 | 30 | 14 | 146 | 86 | 68 | 40 | 32 | 15 | 3 | LPET / LPNT 0803.. |
| SCR3115R03-0070G-08 | 31 | 15 | 149 | 89 | 70 | 40 | 32 | 16 | 3 | LPET / LPNT 0803.. |
| SCR3216R03-0072G-08 | 32 | 16 | 151 | 91 | 72 | 40 | 32 | 17 | 3 | LPET / LPNT 0803.. |
| SCR3317R03-0074G-08 | 33 | 17 | 154 | 94 | 74 | 40 | 32 | 18 | 3 | LPET / LPNT 0803.. |
| SCR3418R03-0077G-08 | 34 | 18 | 156 | 96 | 77 | 40 | 32 | 19 | 3 | LPET / LPNT 0803.. |
| SCR3517R03-0079G-09 | 35 | 17 | 166 | 96 | 79 | 50 | 40 | 18 | 3 | LPET / LPNT 09T3.. |
| SCR3618R03-0081G-09 | 36 | 18 | 168 | 98 | 81 | 50 | 40 | 19 | 3 | LPET / LPNT 09T3.. |
| SCR3719R03-0083G-09 | 37 | 19 | 170 | 100 | 83 | 50 | 40 | 20 | 3 | LPET / LPNT 09T3.. |
| SCR3820R03-0086G-09 | 38 | 20 | 173 | 103 | 86 | 50 | 40 | 21 | 3 | LPET / LPNT 09T3.. |
| SCR3921R03-0088G-09 | 39 | 21 | 175 | 105 | 88 | 50 | 40 | 22 | 3 | LPET / LPNT 09T3.. |
| SCR4022R03-0090G-09 | 40 | 22 | 177 | 107 | 90 | 50 | 40 | 23 | 3 | LPET / LPNT 09T3.. |
| SCR4121R03-0092G-10 | 41 | 21 | 179 | 109 | 92 | 50 | 40 | 22 | 3 | LPET / LPNT 10T3.. |
| SCR4222R03-0095G-10 | 42 | 22 | 182 | 112 | 95 | 50 | 40 | 23 | 3 | LPET / LPNT 10T3.. |
| SCR4323R03-0097G-10 | 43 | 23 | 185 | 115 | 97 | 50 | 40 | 24 | 3 | LPET / LPNT 10T3.. |
| SCR4424R03-0099G-10 | 44 | 24 | 187 | 117 | 99 | 50 | 40 | 25 | 3 | LPET / LPNT 10T3.. |
| SCR4525R03-0101G-10 | 45 | 25 | 190 | 120 | 101 | 50 | 40 | 26 | 3 | LPET / LPNT 10T3.. |
| SCR4626R03-0104G-10 | 46 | 26 | 192 | 122 | 104 | 50 | 40 | 27 | 3 | LPET / LPNT 10T3.. |
| SCR4727R03-0106G-10 | 47 | 27 | 195 | 125 | 106 | 50 | 40 | 28 | 3 | LPET / LPNT 10T3.. |
| SCR4823R03-0108G-13 | 48 | 23 | 198 | 128 | 108 | 55 | 40 | 23 | 3 | LPET / LPNT 1304.. |
| SCR4924R03-0110G-13 | 49 | 24 | 200 | 130 | 110 | 55 | 40 | 24 | 3 | LPET / LPNT 1304.. |
| SCR5025R03-0113G-13 | 50 | 25 | 203 | 133 | 113 | 55 | 40 | 25 | 3 | LPET / LPNT 1304.. |

HINWEIS: Trägerwerkzeuge werden mit Klemmschrauben und Ersatzschrauben geliefert, jedoch ohne Schlüssel.
Ersatzteile und Zubehör siehe Seite 184.

INFORMATION: Holders will be supplied with clamping screws and spare screws, however without key. Spare parts and accessories see page 184.

NOTA: L'utensile é fornito completo di vite, 1 vite di ricambio, ma SENZA chiave. Ricambi a pagina 184.

We have a passion for precision.

- ALU

- Hochglänzende, polierte Oberfläche der Wendeschneidplatte für minimale Verklebung und optimales Zerspanungsverhalten
- Hochpositive Schneidengeometrie
- Spezielle Geometrie für die Bearbeitung von Aluminiumwerkstoffen, NE-Metallen und Kunststoffen



- ALU

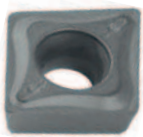
- *Ground and polished insert surface for minimum friction and optimum cutting performance*
- *Highpositive geometry*
- *Special geometry for machining aluminium, non-ferrous materials and synthetics*

- ALU

- Geometria lappata per un ottimo taglio del materiale e per ridurre incollaggi sulla superficie
- Geometria con spoglia superiore molto positiva
- Geometria dedicata alla lavorazione di materiali non ferrosi, ghise e plastiche

- EN/ER/EL

- Standardgeometrie für die Bearbeitung von Stahl, Guss und rostfreiem Stahl



- EN/ER/EL

- *Standard geometry for machining steel, stainless steel and cast iron*

- EN/ER/EL

- Geometria Standard per la lavorazione di acciai, acciai inossidabili e ghise acciai

- WI/AWI

- Extrem hochwertige Oberflächen durch Schleppschnide
- Breitschlichtgeometrie
- Erhöhter Vorschub für optimalen Spanbruch, geringere Bearbeitungszeiten und somit höhere Wirtschaftlichkeit



- WI/AWI

- *Extremely good surface finish with wiper geometry*
- *Wiper edge geometry*
- *Increased feed rate for better chip breaking, reduced machine time and therefore better productivity*

- WI/AWI

- Geometria con tecnologia wiper per ottime finiture superficiali
- Grazie al raschiante è possibile incrementare avanzamenti e ridurre tempi ciclo
- Geometria raschiante con tecnologia wiper su inserto -ALU per una migliorata finitura superficiale di leghe non ferrose, alluminio e plastiche

Hartmetall beschichtet / Carbide grade coated / Metallo duro rivestito**AK2015** Erste Wahl für die **Bearbeitung von Gusswerkstoffen.***First choice for machining cast materials.*

Qualità per la lavorazione di materiali non ferrosi, ghise e plastiche.

AM35C Erste Wahl für die **Bearbeitung von Stahl.***First choice for machining steel.*

Qualità per la lavorazione di acciai generici.

AM5035 Erste Wahl für die **Bearbeitung rostfreier Stähle.***First choice for machining stainless steel.*

Qualità per la lavorazione di acciai inossidabili.

AM5035 (AL350) – HC - P40, HC - M35**PVD-Mehrlagenbeschichtung,
Substrat + TiAlN****Hartmetallsorte für die Bearbeitung von rostfreien Stählen. Sorte ist auch zum Bearbeiten von Stahlwerkstoffen im niedrigen bis mittleren Festigkeitsbereich, sowie hochwarmfester Legierungen geeignet. Optimale Schneidkantenstabilität. Auch im mittleren und niedrigen Schnittgeschwindigkeitsbereich sehr gute Ergebnisse.***PVD-multilayer coating,
substrate + TiAlN**Grade for machining stainless steel, but can also be used for steel materials with low to medium hardness as well as high temperature alloys. Optimum cutting edge stability. Excellent results at low to medium cutting speeds.*Rivestimento multistrato PVD,
substrato + TiAlN

Qualità di metallo duro per lavorazione di acciaio inossidabile, anche idonea per acciai con durezza medio-bassa e per leghe altamente legate. Ottima stabilità tagliente. Eccellenti risultati a velocità di taglio medio basse.

AK2015 – HC - P15, HC - K15 - CVD**CVD-Mehrlagenbeschichtung,****Substrat + TiCN + TiCN + TiCNB + Al₂O₃****Das Hauptanwendungsgebiet dieser Sorte ist die Bearbeitung von Gusswerkstoffen aller Art. Sie eignet sich aber auch zum Bearbeiten von Stahlwerkstoffen. Das neue Substrat gewährleistet die erforderliche Zähigkeit und Warmfestigkeit.***CVD-multilayer coating,**substrate + TiCN + TiCN + TiCNB + Al₂O₃**The main application area for this grade is the machining of all cast materials. It is also suitable for machining steel. The new substrate offers the necessary toughness and heat resistance.*

Rivestimento multistrato CVD,

substrato + TiCN + TiCN + TiCNB + Al₂O₃

Grado studiato per lavorare materiali teneri stampati o da fusione. In alcune applicazioni idoneo anche alla lavorazione di acciai. Lo speciale substrato offre il giusto compromesso tra tenacità e resistenza all'usura.

AL10 – HC - P10, HC - M15, HC - K10, HC - N15, HC - S10**PVD-Mehrlagenbeschichtung,****Substrat + AlTiN****Extrem verschleißfeste Sorte zur Bearbeitung von Stählen und Grauguss. Diese Sorte zeichnet sich durch hohe Beschichtungshärte und äußerst hohe Verschleißfestigkeit aus. Besonders geeignet für sehr hohe Schnittgeschwindigkeiten.***PVD-multilayer coating,**substrate + AlTiN**Extremely wear resistant grade for machining steel materials, cast iron and non-ferrous products. Due to high hardness in coating, high wear-resistance can be achieved. Specially suitable for high cutting speeds.*

Rivestimento multistrato PVD,

substrato + AlTiN

Grado dall'elevata resistente all'usura per la lavorazione di acciai, ghise e materiali non ferrosi. Il rivestimento di elevata durezza assicura un'ottima resistenza all'usura. Valido per elevate velocità di taglio.

AM35C – HC - P35, HC - M30**CVD-Mehrlagenbeschichtung,****Substrat + TiC + TiCN + TiN****Hartmetallsorte mit hoher Zähigkeit für die Stahlbearbeitung im mittleren Schnittgeschwindigkeitsbereich.***CVD-multilayer coating,**substrate + TiC + TiCN + TiN**Carbide grade with high toughness for machining steel materials at medium cutting speeds.*

Rivestimento multistrato CVD,

substrato + TiC + TiCN + TiN

Grado di metallo duro universale per la lavorazione di acciai a medie velocità di taglio.

AR26C – HC - P25, HC - K20**CVD-Mehrlagenbeschichtung,****Substrat + TiN + TiCN + Al₂O₃****Hartmetallsorte mit hoher Verschleißfestigkeit für die Bearbeitung von Guss- und Stahlwerkstoffen.***CVD-multilayer coating,**substrate + TiN + TiCN + Al₂O₃**Carbide grade with high wear-resistance for machining cast iron and steel materials.*

Rivestimento multistrato CVD,

substrato + TiC + TiCN + Al₂O₃

Qualità di metallo duro con alta resistenza all'usura per la lavorazione di ghise ed alcuni acciai teneri debolmente legati o dal basso tenore di carbonio.

Hartmetall unbeschichtet / Carbide grade uncoated / Metallo duro non rivestito

AK10 – HW - K10, HW - N10, HW - S10

Hartmetallsorte für die Bearbeitung von Aluminium, Aluminiumlegierungen, Nichteisenmetallen und Kunststoffen. Die Sorte ist auch bedingt geeignet für die Bearbeitung von Gusswerkstoffen, Titan und Titanlegierungen. Die Wendeschneidplatte ist umfangsseitig geschliffen und die Spanfläche poliert.

Grade for machining aluminium, aluminium alloys, non-ferrous metals and plastics. Grade can also be used for machining cast iron and temperature metals. Insert is periphery-ground and the chipbreaker is polished.

Metallo duro micrograna per la lavorazione di alluminio, leghe di alluminio, metalli non ferrosi e leghe plastiche. Valido anche in determinate condizioni di stabilità per la finitura di ghisa e leghe altamente legate. Gli inserti sono lappati sulla superficie e rettificati sul perimetro.

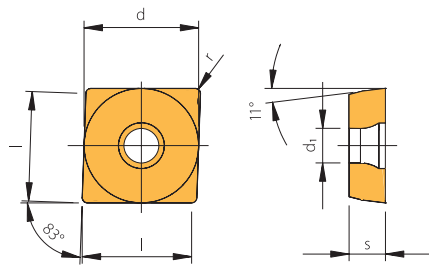
AP40 – HW - P40, HW - M35

Speziell für die Stahlbearbeitung bei Schnittgeschwindigkeiten unter 80 m/min oder bei ungünstigen Stabilitätsverhältnissen.

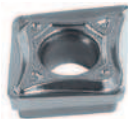
Special carbide grade for steel materials at cutting speeds below 80 m/min and unstable machining conditions.

Grado di metallo duro tenace per lavorare acciai a velocità di taglio inferiori agli 80 m/min ed in condizioni instabili di lavoro.

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LPET



| Bezeichnung Designation Articolo | l | d° | s | r | d ₁ | beschichtet coated rivestito | | | unbeschichtet uncoated non rivestito |
|--|------|------|------|-----|----------------|------------------------------------|-------|-------|--|
| | | | | | | AL10 | AM35C | AR26C | AK10 |
| LPET 050204FN-ALU | 5,0 | 5,8 | 2,10 | 0,4 | 2,25 | ● | | | ● |
| LPET 060204FN-ALU | 6,0 | 6,5 | 2,38 | 0,4 | 2,50 | ● | | | ● |
| LPET 070304FN-ALU | 7,0 | 7,6 | 3,18 | 0,4 | 2,80 | ● | | | ● |
| LPET 080304FN-ALU | 8,0 | 8,5 | 3,18 | 0,4 | 3,40 | ● | | | ● |
| LPET 09T304FN-ALU | 9,0 | 9,6 | 3,00 | 0,4 | 3,40 | ● | | | ● |
| LPET 10T304FN-ALU | 10,0 | 10,6 | 3,97 | 0,4 | 4,40 | ● | | | ● |
| LPET 130404FN-ALU | 12,5 | 13,5 | 4,76 | 0,4 | 5,30 | ● | | | ● |
| LPET 170508FN-ALU | 16,0 | 17,5 | 5,56 | 0,8 | 5,30 | ● | | | ● |
| LPET 040102FL-AWI* | 4,0 | 4,5 | 1,80 | 0,2 | 2,10 | ● | | | ● |
| LPET 040102FR-AWI* | 4,0 | 4,5 | 1,80 | 0,2 | 2,10 | ● | | | ● |
| LPET 040104FL-AWI* | 4,0 | 4,5 | 1,80 | 0,4 | 2,10 | ● | | | ● |
| LPET 040104FR-AWI* | 4,0 | 4,5 | 1,80 | 0,4 | 2,10 | ● | | | ● |
| LPET 050202FN-AWI | 5,0 | 5,8 | 2,10 | 0,2 | 2,25 | ● | | | ● |
| LPET 050204FN-AWI | 5,0 | 5,8 | 2,10 | 0,4 | 2,25 | ● | | | ● |
| LPET 060202FN-AWI | 6,0 | 6,5 | 2,38 | 0,2 | 2,50 | ● | | | ● |
| LPET 060204FN-AWI | 6,0 | 6,5 | 2,38 | 0,4 | 2,50 | ● | | | ● |
| LPET 070304FN-AWI | 7,0 | 7,6 | 3,18 | 0,4 | 2,80 | ● | | | ● |
| LPET 080304FN-AWI | 8,0 | 8,5 | 3,18 | 0,4 | 3,40 | ● | | | ● |
| LPET 09T304FN-AWI | 9,0 | 9,6 | 3,97 | 0,4 | 3,40 | ● | | | ● |
| LPET 10T304FN-AWI | 10,0 | 10,6 | 3,97 | 0,4 | 4,40 | ● | | | ● |
| LPET 10T308FN-AWI | 10,0 | 10,6 | 3,97 | 0,8 | 4,40 | ● | | | ● |
| LPET 130404FN-AWI | 12,5 | 13,5 | 4,76 | 0,4 | 5,30 | ● | | | ● |
| LPET 130408FN-AWI | 12,5 | 13,5 | 4,76 | 0,8 | 5,30 | ● | | | ● |
| LPET 170508FN-AWI | 16,0 | 17,5 | 5,56 | 0,8 | 5,30 | ● | | | ● |
| LPET 060204EN-WI | 6,0 | 6,5 | 2,38 | 0,4 | 2,5 | | ● | ● | |
| LPET 070304EN-WI | 7,0 | 7,6 | 3,18 | 0,4 | 2,8 | | ● | ● | |
| LPET 080304EN-WI | 8,0 | 8,5 | 3,18 | 0,4 | 3,4 | | ● | ● | |
| LPET 09T304EN-WI | 9,0 | 9,6 | 3,97 | 0,4 | 3,4 | | ● | ● | |
| LPET 10T304EN-WI | 10,0 | 10,6 | 3,97 | 0,4 | 4,4 | | ● | ● | |
| LPET 130404EN-WI | 12,5 | 13,5 | 4,76 | 0,4 | 5,3 | | ● | ● | |
| LPET 170508EN-WI | 16,0 | 17,5 | 5,56 | 0,8 | 5,3 | | ● | ● | |

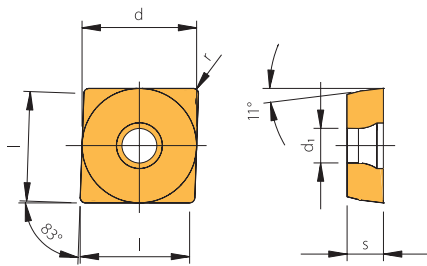
- * Rechter Halter → Rechte Wendeschneidplatte
- * Right-hand holder → Right-hand indexable insert
- * Utensile Destro → Inserto Destro

- Maß „d“ gemessen auf Höhe Maß „s“
- Dimension “d” measured to height “s”
- Dimensione “d” misurata ad altezza “s”

- Hauptanwendung
Main application
Applicazione principale
- Nebenanwendung
Secondary application
Applicazione secondaria

| | | | | |
|---|---|---|---|---|
| P | ● | ● | ● | |
| M | ● | ○ | ● | |
| K | ○ | | ● | ○ |
| N | | | | ● |
| S | ○ | ○ | | |
| H | ○ | | | |

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LPNT



| Bezeichnung Designation Articolo | l | d ^o | s | r | d ₁ | beschichtet coated rivestito | | | | | unbeschichtet uncoated non rivestito |
|--|------|----------------|------|-----|----------------|------------------------------------|--------|-------|-------|-------|--|
| | | | | | | AM5035 | AK2015 | AL350 | AM35C | AR26C | AP40 |
| LPNT 040102ER* | 4,0 | 4,5 | 1,80 | 0,2 | 2,10 | | | ● | ● | ● | ● |
| LPNT 040104ER* | 4,0 | 4,5 | 1,80 | 0,4 | 2,10 | ● | ● | ● | ● | ● | ● |
| LPNT 040102EL | 4,0 | 4,5 | 1,80 | 0,2 | 2,10 | | | ● | ● | ● | ● |
| LPNT 040104EL | 4,0 | 4,5 | 1,80 | 0,4 | 2,10 | ● | ● | ● | ● | ● | ● |
| LPNT 050202EN | 5,0 | 5,8 | 2,10 | 0,2 | 2,25 | | | ● | ● | ● | ● |
| LPNT 050204EN | 5,0 | 5,8 | 2,10 | 0,4 | 2,25 | ● | ● | ● | ● | ● | ● |
| LPNT 060202EN | 6,0 | 6,5 | 2,38 | 0,2 | 2,50 | | | ● | ● | ● | ● |
| LPNT 060204EN | 6,0 | 6,5 | 2,38 | 0,4 | 2,50 | ● | ● | ● | ● | ● | ● |
| LPNT 070304EN | 7,0 | 7,6 | 3,18 | 0,4 | 2,80 | ● | ● | ● | ● | ● | ● |
| LPNT 080304EN | 8,0 | 8,5 | 3,18 | 0,4 | 3,40 | ● | ● | ● | ● | ● | ● |
| LPNT 09T304EN | 9,0 | 9,6 | 3,97 | 0,4 | 3,40 | ● | ● | ● | ● | ● | ● |
| LPNT 10T304EN | 10,0 | 10,6 | 3,97 | 0,4 | 4,40 | ● | ● | ● | ● | ● | ● |
| LPNT 10T308EN | 10,0 | 10,6 | 3,97 | 0,8 | 4,40 | | | ● | ● | ● | ● |
| LPNT 130404EN | 12,5 | 13,5 | 4,76 | 0,4 | 5,30 | ● | ● | ● | ● | ● | ● |
| LPNT 130408EN | 12,5 | 13,5 | 4,76 | 0,8 | 5,30 | | | ● | ● | ● | ● |
| LPNT 170508EN | 16,0 | 17,5 | 5,56 | 0,8 | 5,30 | ● | ● | ● | ● | ● | ● |

- * Rechter Halter → Rechte Wendeschneidplatte
- * Right-hand holder → Right-hand indexable insert
- * Utensile Destro → Inserto Destro

- Maß „d“ gemessen auf Höhe Maß „s“
- Dimension “d” measured to height “s”
- Dimensione “d” misurata ad altezza “s”

- Hauptanwendung
Main application
Applicazione principale
- Nebenanwendung
Secondary application
Applicazione secondaria

| | | | | | | |
|---|---|---|---|---|---|---|
| P | ○ | ○ | ○ | ● | ● | ● |
| M | ● | | ● | ○ | ● | |
| K | | ● | | | ● | |
| N | | | | | | |
| S | ○ | | ○ | ○ | | |
| H | | | | | | |

SHARK-CUT® Standard

| Halter Holder Utensile | Schraube Srew Vite | Anzugsmoment Torque Momento di serraggio | Schlüssel Key Chiave |
|------------------------------|--------------------------|--|----------------------------|
| SC08R/L- ..SP04 | 7815108 | 0,6 Nm | T 5106 |
| SC10R/L- ..SP05 | 7815110 | 0,6 Nm | T 5106 |
| SC12R/L- ..SP06 | SS 5151 | 1,0 Nm | T 5107 |
| SC14R/L- ..SP07 | SS 1751 | 1,3 Nm | T 5108 |
| SC16R/L- ..SP08 | SS 8831 | 2,2 Nm | T 5108 |
| SC18R/L- ..SP09 | SS 8831 | 2,2 Nm | T 5108 |
| SC20R/L- ..SP10 | SS 2314 | 3,4 Nm | T 5115 |
| SC25R/L- ..SP13 | 7822114 | 6,2 Nm | T 5120 |
| SC32R/L- ..SP17 | 7822114 | 6,2 Nm | T 5120 |

SHARK-CUT® Rebore 2-schneidig / 2 flute / 2 taglienti

| Halter Holder Utensile | Schraube Srew Vite | Anzugsmoment Torque Momento di serraggio | Schlüssel Key Chiave |
|------------------------------|--------------------------|--|----------------------------|
| SCR 1204 R02.. | 7815108 | 0,6 Nm | T 5106 |
| SCR 1305 R02.. | 7815108 | 0,6 Nm | T 5106 |
| SCR 1406 R02.. | 7815108 | 0,6 Nm | T 5106 |
| SCR 1507 R02.. | 7815108 | 0,6 Nm | T 5106 |
| SCR 1606 R02.. | 7815110 | 0,6 Nm | T 5106 |
| SCR 1707 R02.. | 7815110 | 0,6 Nm | T 5106 |
| SCR 17575 R02.. | 7815110 | 0,6 Nm | T 5106 |
| SCR 1806 R02.. | SS 5151 | 1,0 Nm | T 5107 |
| SCR 1907 R02.. | SS 5151 | 1,0 Nm | T 5107 |
| SCR 2006 R02.. | SS 1751 | 1,3 Nm | T 5108 |
| SCR 2107 R02.. | SS 1751 | 1,3 Nm | T 5108 |
| SCR 2208 R02.. | SS 1751 | 1,3 Nm | T 5108 |
| SCR 2309 R02.. | SS 1751 | 1,3 Nm | T 5108 |
| SCR 2408 R02.. | SS 8831 | 2,2 Nm | T 5108 |
| SCR 2509 R02.. | SS 8831 | 2,2 Nm | T 5108 |
| SCR 2608 R02.. | SS 8831 | 2,2 Nm | T 5108 |
| SCR 2709 R02.. | SS 8831 | 2,2 Nm | T 5108 |
| SCR 2810 R02.. | SS 8831 | 2,2 Nm | T 5108 |
| SCR 2909 R02.. | SS 2314 | 3,4 Nm | T 5115 |
| SCR 3010 R02.. | SS 2314 | 3,4 Nm | T 5115 |
| SCR 3111 R02.. | SS 2314 | 3,4 Nm | T 5115 |
| SCR 3212 R02.. | SS 2314 | 3,4 Nm | T 5115 |
| SCR 3313 R02.. | SS 2314 | 3,4 Nm | T 5115 |
| SCR 3414 R02.. | SS 2314 | 3,4 Nm | T 5115 |
| SCR 3510 R02.. | 7822114 | 6,2 Nm | T 5120 |
| SCR 3611 R02.. | 7822114 | 6,2 Nm | T 5120 |
| SCR 3712 R02.. | 7822114 | 6,2 Nm | T 5120 |
| SCR 3813 R02.. | 7822114 | 6,2 Nm | T 5120 |
| SCR 3914 R02.. | 7822114 | 6,2 Nm | T 5120 |
| SCR 4015 R02.. | 7822114 | 6,2 Nm | T 5120 |
| SCR 4116 R02.. | 7822114 | 6,2 Nm | T 5120 |
| SCR 4217 R02.. | 7822114 | 6,2 Nm | T 5120 |
| SCR 4318 R02.. | 7822114 | 6,2 Nm | T 5120 |
| SCR 4419 R02.. | 7822114 | 6,2 Nm | T 5120 |
| SCR 4513 R02.. | 7822114 | 6,2 Nm | T 5120 |
| SCR 4614 R02.. | 7822114 | 6,2 Nm | T 5120 |
| SCR 4715 R02.. | 7822114 | 6,2 Nm | T 5120 |
| SCR 4816 R02.. | 7822114 | 6,2 Nm | T 5120 |
| SCR 4917 R02.. | 7822114 | 6,2 Nm | T 5120 |
| SCR 5018 R02.. | 7822114 | 6,2 Nm | T 5120 |

HINWEIS: Drehmoment-Schraubendreher siehe Seite 281.

INFORMATION: For torque screw drivers see page 281.

NOTA: Chiavi dinamometriche a pagina 281.



SHARK-CUT® Rebore 3-schneidig / 3 flute / 3 taglienti

| Halter Holder Utensile | Schraube Srew Vite | Anzugsmoment Torque Momento di serraggio | Schlüssel Key Chiave |
|------------------------------|--------------------------|--|----------------------------|
| SCR 2412 R03.. | SS 5151 | 1,0 Nm | T 5107 |
| SCR 2513 R03.. | SS 5151 | 1,0 Nm | T 5107 |
| SCR 2612 R03.. | SS 1751 | 1,3 Nm | T 5108 |
| SCR 2713 R03.. | SS 1751 | 1,3 Nm | T 5108 |
| SCR 2814 R03.. | SS 1751 | 1,3 Nm | T 5108 |
| SCR 2913 R03.. | SS 8831 | 2,2 Nm | T 5108 |
| SCR 3014 R03.. | SS 8831 | 2,2 Nm | T 5108 |
| SCR 3115 R03.. | SS 8831 | 2,2 Nm | T 5108 |
| SCR 3216 R03.. | SS 8831 | 2,2 Nm | T 5108 |
| SCR 3317 R03.. | SS 8831 | 2,2 Nm | T 5108 |
| SCR 3418 R03.. | SS 8831 | 2,2 Nm | T 5108 |
| SCR 3517 R03.. | SS 8831 | 2,2 Nm | T 5108 |
| SCR 3618 R03.. | SS 8831 | 2,2 Nm | T 5108 |
| SCR 3719 R03.. | SS 8831 | 2,2 Nm | T 5108 |
| SCR 3820 R03.. | SS 8831 | 2,2 Nm | T 5108 |
| SCR 3921 R03.. | SS 8831 | 2,2 Nm | T 5108 |
| SCR 4022 R03.. | SS 8831 | 2,2 Nm | T 5108 |
| SCR 4121 R03.. | SS 2314 | 3,4 Nm | T 5115 |
| SCR 4222 R03.. | SS 2314 | 3,4 Nm | T 5115 |
| SCR 4323 R03.. | SS 2314 | 3,4 Nm | T 5115 |
| SCR 4424 R03.. | SS 2314 | 3,4 Nm | T 5115 |
| SCR 4525 R03.. | SS 2314 | 3,4 Nm | T 5115 |
| SCR 4626 R03.. | SS 2314 | 3,4 Nm | T 5115 |
| SCR 4727 R03.. | SS 2314 | 3,4 Nm | T 5115 |
| SCR 4823 R03.. | 7822114 | 6,2 Nm | T 5120 |
| SCR 4924 R03.. | 7822114 | 6,2 Nm | T 5120 |
| SCR 5025 R03.. | 7822114 | 6,2 Nm | T 5120 |

HINWEIS: Drehmoment-Schraubendreher siehe Seite 281.**INFORMATION:** For torque screw drivers see page 281.**NOTA:** Chiavi dinamometriche a pagina 281.

We have a passion for precision.

| ISO | Werkstoff | Zugfestigkeit [N/mm ²] | Schnittgeschwindigkeit V _c [m/min] | | | | | | | | |
|-------------------------------------|--|--|---|-----------|-----------|------------|-----------|-----------|-----------|-----------|----------|
| | | | AM5035 | AK2015 | AL10 | AL350 | AM35C | AR26C | AK10 | AP40 | |
| P | Unlegierter Stahl und Stahlguss | ca. 0,15 % C, geglüht | 340 | 120 - 230 | 120 - 220 | 200 - 300 | 120 - 230 | 140 - 250 | 150 - 280 | - | 80 - 140 |
| | | ca. 0,45 % C, geglüht | 640 | 80 - 160 | 100 - 160 | 170 - 280 | 80 - 160 | 100 - 180 | 120 - 200 | - | 70 - 100 |
| | | ca. 0,45 % C, vergütet | 830 | 80 - 160 | 100 - 160 | 160 - 250 | 80 - 160 | 100 - 180 | 120 - 200 | - | 70 - 100 |
| | | ca. 0,75 % C, geglüht | 900 | 60 - 130 | 80 - 140 | 150 - 250 | 60 - 130 | 80 - 150 | 100 - 180 | - | 60 - 100 |
| | | ca. 0,75 % C, vergütet | 1000 | 50 - 130 | 80 - 130 | 150 - 250 | 50 - 130 | 70 - 150 | 100 - 170 | - | 50 - 100 |
| | Niedrig legierter Stahl und Stahlguss | geglüht | 600 | 80 - 160 | 100 - 160 | 170 - 270 | 80 - 160 | 100 - 180 | 120 - 200 | - | 60 - 100 |
| | | vergütet | 920 | 60 - 130 | 70 - 130 | 160 - 250 | 60 - 130 | 80 - 150 | 90 - 160 | - | 50 - 90 |
| | | vergütet | 1000 | 60 - 120 | 60 - 130 | 150 - 250 | 60 - 120 | 80 - 150 | 80 - 160 | - | 50 - 80 |
| | | vergütet | 1170 | 60 - 100 | 60 - 110 | 150 - 220 | 60 - 100 | 70 - 120 | 80 - 140 | - | 50 - 80 |
| | Hochlegierter Stahl, hochlegierter Werkzeugstahl und Stahlguss | geglüht | 670 | 80 - 140 | 90 - 140 | - | 80 - 140 | 100 - 160 | 110 - 180 | - | 60 - 80 |
| gehärtet und angelassen | | 1100 | 50 - 100 | 60 - 110 | - | 50 - 100 | 60 - 120 | 80 - 140 | - | - | |
| Nichtrostender Stahl und Stahlguss | ferritisch/martensitisch, geglüht | 670 | 50 - 200 | - | 160 - 280 | 50 - 200 | 100 - 180 | - | - | - | |
| | martensitisch, vergütet | 1000 | 50 - 150 | - | 140 - 280 | 50 - 150 | 80 - 150 | - | - | - | |
| M | Nichtrostender Stahl und Stahlguss | austenitisch und austenitisch/ferritisch, abgeschreckt | 450 - 600 | 50 - 190 | - | 140 - 280 | 50 - 190 | 100 - 190 | - | - | 50 - 150 |
| | | 600 - 900 | 50 - 100 | - | - | 50 - 100 | - | - | - | - | 40 - 90 |
| K | Grauguss | perlitisch, ferritisch | 500 - 700 | - | 140 - 240 | 170 - 300 | - | - | 120 - 200 | 100 - 150 | - |
| | | perlitisch, martensitisch | 700 - 850 | - | 140 - 240 | 150 - 270 | - | - | 120 - 200 | 100 - 150 | - |
| | | | 800 - 1100 | - | 120 - 190 | 120 - 240 | - | - | 100 - 160 | 80 - 120 | - |
| | Gusseisen mit Kugelgraphit | ferritisch | 550 | - | 130 - 240 | 140 - 230 | - | - | 110 - 200 | 100 - 140 | - |
| | | perlitisch | 800 | - | 130 - 240 | 120 - 170 | - | - | 110 - 200 | 100 - 140 | - |
| | Temperguss | ferritisch | 450 | - | 120 - 240 | 150 - 200 | - | - | 100 - 200 | 100 - 160 | - |
| perlitisch | | 750 | - | 120 - 240 | 140 - 200 | - | - | 100 - 200 | 100 - 160 | - | |
| N | Aluminium-Knetlegierungen | nicht aushärtbar | 200 | - | - | 800 - 1300 | - | - | - | 100 - 500 | - |
| | | aushärtbar, ausgehärtet | 350 | - | - | 400 - 900 | - | - | - | 100 - 300 | - |
| | Aluminium-Gusslegierungen | ≤ 12% Si, ausgehärtet | 250 | - | - | 250 - 800 | - | - | - | 100 - 500 | - |
| | | ≤ 12% Si, aushärtbar, ausgehärtet | 300 | - | - | 200 - 550 | - | - | - | 100 - 300 | - |
| | | ≤ 12% Si, nicht aushärtbar | 450 | - | - | 200 - 550 | - | - | - | 100 - 300 | - |
| | Kupfer und Kupferlegierungen (Bronze/Messing) | Automatenlegierung, Pb > 1% | 400 | - | - | - | - | - | - | 100 - 500 | - |
| | | Messing, Rotguss | 300 | - | - | - | - | - | - | 100 - 500 | - |
| | | Aluminiumbronze | 500 | - | - | - | - | - | - | 100 - 300 | - |
| Kupfer und Elektrolytkupfer | | 200 | - | - | - | - | - | - | 100 - 300 | - | |
| Nichtmetallische Werkstoffe | Duroplaste | | - | - | - | - | - | - | 80 - 180 | - | |
| | Faserverstärkte Kunststoffe | | - | - | - | - | - | - | 60 - 150 | - | |
| | Hartgummi | | - | - | - | - | - | - | 100 - 250 | - | |
| S | Warmfeste Legierungen | Fe-Basis geglüht | 700 | 20 - 50 | - | 20 - 50 | 20 - 50 | - | - | - | - |
| | | Fe-Basis ausgehärtet | 950 | 20 - 40 | - | 20 - 50 | 20 - 40 | - | - | - | - |
| | | Ni- oder Co-Basis geglüht | 800 | 15 - 25 | - | 15 - 40 | 15 - 25 | - | - | - | - |
| | | Ni- oder Co-Basis gegossen | 1100 | 10 - 20 | - | 15 - 30 | - | - | - | - | - |
| | | Ni- oder Co-Basis ausgehärtet | 1200 | 10 - 20 | - | 15 - 30 | - | - | - | - | - |
| | Titanlegierungen | Reintitan | 500 - 700 | 50 - 120 | - | - | 50 - 120 | - | - | 50 - 120 | - |
| Alpha+Beta-Legierungen, ausgehärtet | 700 - 1000 | 30 - 50 | - | - | 30 - 50 | - | - | 30 - 50 | - | | |
| H | Gehärteter Stahl | gehärtet und angelassen | 1000 - 1350 | - | - | - | - | - | - | - | - |
| | | gehärtet und angelassen | 1350 - 1700 | - | - | - | - | - | - | - | - |
| | Hartguss | gegossen | 1350 | - | - | - | - | - | - | - | - |
| Gehärtetes Gusseisen | gehärtet und angelassen | 1900 | - | - | - | - | - | - | - | - | |

Die Tabellenwerte sind Richtwerte. Es kann notwendig sein, die Werte den jeweiligen Bearbeitungsumständen anzupassen.

We have a passion for precision.

| ISO | Material | Tensile strength [N/mm ²] | Cutting speed V _c (m/min) | | | | | | | | |
|---------------------------------|---|--|--------------------------------------|-----------|-----------|------------|-----------|-----------|-----------|-----------|----------|
| | | | AM5035 | AK2015 | AL10 | AL350 | AM35C | AR26C | AK10 | AP40 | |
| P | Unalloyed steel and cast steel | ca. 0,15 % C, annealed | 340 | 120 - 230 | 120 - 220 | 200 - 300 | 120 - 230 | 140 - 250 | 150 - 280 | - | 80 - 140 |
| | | ca. 0,45 % C, annealed | 640 | 80 - 160 | 100 - 160 | 170 - 280 | 80 - 160 | 100 - 180 | 120 - 200 | - | 70 - 100 |
| | | ca. 0,45 % C, hardened and tempered | 830 | 80 - 160 | 100 - 160 | 160 - 250 | 80 - 160 | 100 - 180 | 120 - 200 | - | 70 - 100 |
| | | ca. 0,75 % C, annealed | 900 | 60 - 130 | 80 - 140 | 150 - 250 | 60 - 130 | 80 - 150 | 100 - 180 | - | 60 - 100 |
| | | ca. 0,75 % C, hardened and tempered | 1000 | 50 - 130 | 80 - 130 | 150 - 250 | 50 - 130 | 70 - 150 | 100 - 170 | - | 50 - 100 |
| | Low alloyed steel and cast steel | annealed | 600 | 80 - 160 | 100 - 160 | 170 - 270 | 80 - 160 | 100 - 180 | 120 - 200 | - | 60 - 100 |
| | | hardened and tempered | 920 | 60 - 130 | 70 - 130 | 160 - 250 | 60 - 130 | 80 - 150 | 90 - 160 | - | 50 - 90 |
| | | hardened and tempered | 1000 | 60 - 120 | 60 - 130 | 150 - 250 | 60 - 120 | 80 - 150 | 80 - 160 | - | 50 - 80 |
| | | hardened and tempered | 1170 | 60 - 100 | 60 - 110 | 150 - 220 | 60 - 100 | 70 - 120 | 80 - 140 | - | 50 - 80 |
| | High alloyed steel, high alloyed toolsteel and cast steel | annealed | 670 | 80 - 140 | 90 - 140 | - | 80 - 140 | 100 - 160 | 110 - 180 | - | 60 - 80 |
| hardened and tempered | | 1100 | 50 - 100 | 60 - 110 | - | 50 - 100 | 60 - 120 | 80 - 140 | - | - | |
| Stainless steel and cast steel | ferritic / martensitic, annealed | 670 | 50 - 200 | - | 160 - 280 | 50 - 200 | 100 - 180 | - | - | - | |
| | martensitic, hardened and tempered | 1000 | 50 - 150 | - | 140 - 280 | 50 - 150 | 80 - 150 | - | - | - | |
| M | Stainless steel and cast steel | austenitic and | 450 - 600 | 50 - 190 | - | 140 - 280 | 50 - 190 | 100 - 190 | - | - | 50 - 150 |
| | | austenitic/ferritic, chilled | 600 - 900 | 50 - 100 | - | - | 50 - 100 | - | - | - | 40 - 90 |
| K | Cast iron | pearlitic, ferritic | 500 - 700 | - | 140 - 240 | 170 - 300 | - | - | 120 - 200 | 100 - 150 | - |
| | | pearlitic, martensitic | 700 - 850 | - | 140 - 240 | 150 - 270 | - | - | 120 - 200 | 100 - 150 | - |
| | | | 800 - 1100 | - | 120 - 190 | 120 - 240 | - | - | 100 - 160 | 80 - 120 | - |
| | Cast iron with nodular graphite | ferritic | 550 | - | 130 - 240 | 140 - 230 | - | - | 110 - 200 | 100 - 140 | - |
| | | pearlitic | 800 | - | 130 - 240 | 120 - 170 | - | - | 110 - 200 | 100 - 140 | - |
| | Malleable cast iron | ferritic | 450 | - | 120 - 240 | 150 - 200 | - | - | 100 - 200 | 100 - 160 | - |
| pearlitic | | 750 | - | 120 - 240 | 140 - 200 | - | - | 100 - 200 | 100 - 160 | - | |
| N | Aluminium alloys, long chipping | not heat treatable | 200 | - | - | 800 - 1300 | - | - | - | 100 - 500 | - |
| | | heat treatable, heat - treated | 350 | - | - | 400 - 900 | - | - | - | 100 - 300 | - |
| | Casted aluminium alloys | ≤ 12% Si, hardened | 250 | - | - | 250 - 800 | - | - | - | 100 - 500 | - |
| | | ≤ 12% Si, heat treatable | 300 | - | - | 200 - 550 | - | - | - | 100 - 300 | - |
| | | ≤ 12% Si, not heat treatable | 450 | - | - | 200 - 550 | - | - | - | 100 - 300 | - |
| | Copper and copper alloys (brass/bronze) | Lead alloys, Pb > 1 % | 400 | - | - | - | - | - | - | 100 - 500 | - |
| | | Brass, bronze | 300 | - | - | - | - | - | - | 100 - 500 | - |
| Aluminium bronze | | 500 | - | - | - | - | - | - | 100 - 300 | - | |
| Copper and electrolyte copper | | 200 | - | - | - | - | - | - | 100 - 300 | - | |
| Non ferrous materials | Duroplastics | | - | - | - | - | - | - | 80 - 180 | - | |
| | Re- inforced plastics | | - | - | - | - | - | - | 60 - 150 | - | |
| | Hard rubber | | - | - | - | - | - | - | 100 - 250 | - | |
| S | High temperature resistant alloys | Fe-alloyed, annealed | 700 | 20 - 50 | - | 20 - 50 | 20 - 50 | - | - | - | |
| | | Fe-alloyed, heat-treated | 950 | 20 - 40 | - | 20 - 50 | 20 - 40 | - | - | - | |
| | | Ni- or annealed | 800 | 15 - 25 | - | 15 - 40 | 15 - 25 | - | - | - | |
| | | Co - based, casting | 1100 | 10 - 20 | - | 15 - 30 | - | - | - | - | |
| | | Co - based, heat-treated | 1200 | 10 - 20 | - | 15 - 30 | - | - | - | - | |
| | Titanium alloys, high strength | Pure titan | 500 - 700 | 50 - 120 | - | - | 50 - 120 | - | - | 50 - 120 | |
| Alpha-and Beut-alloys, hardened | | 700 - 1000 | 30 - 50 | - | - | 30 - 50 | - | - | 30 - 50 | | |
| H | Hardened steel | hardened and tempered | 1000 - 1350 | - | - | - | - | - | - | - | |
| | | hardened and tempered | 1350 - 1700 | - | - | - | - | - | - | - | |
| | Hard cast iron | casting | 1350 | - | - | - | - | - | - | - | |
| | Hardened cast iron | hardened and tempered | 1900 | - | - | - | - | - | - | - | |

The datas given are only approximate values. It can be necessary to adjust these datas to the individual machining operation.

We have a passion for precision.

| ISO | Materiale | Resistenza [N/mm²] | Velocità di taglio V _c (m/min) | | | | | | | | |
|--------------------------------|--|-------------------------------------|---|-----------|-----------|------------|-----------|-----------|-----------|-----------|----------|
| | | | AM5035 | AK2015 | AL10 | AL350 | AM35C | AR26C | AK10 | AP40 | |
| P | Acciaio non legati o debolmente legati | ca. 0,15 % C, ricotto | 340 | 120 - 230 | 120 - 220 | 200 - 300 | 120 - 230 | 140 - 250 | 150 - 280 | - | 80 - 140 |
| | | ca. 0,45 % C, ricotto | 640 | 80 - 160 | 100 - 160 | 170 - 280 | 80 - 160 | 100 - 180 | 120 - 200 | - | 70 - 100 |
| | | ca. 0,45 % C, temprato | 830 | 80 - 160 | 100 - 160 | 160 - 250 | 80 - 160 | 100 - 180 | 120 - 200 | - | 70 - 100 |
| | | ca. 0,75 % C, ricotto | 900 | 60 - 130 | 80 - 140 | 150 - 250 | 60 - 130 | 80 - 150 | 100 - 180 | - | 60 - 100 |
| | | ca. 0,75 % C, temprato | 1000 | 50 - 130 | 80 - 130 | 150 - 250 | 50 - 130 | 70 - 150 | 100 - 170 | - | 50 - 100 |
| | Acciaio debolmente legati | ricotto | 600 | 80 - 160 | 100 - 160 | 170 - 270 | 80 - 160 | 100 - 180 | 120 - 200 | - | 60 - 100 |
| | | temprato | 920 | 60 - 130 | 70 - 130 | 160 - 250 | 60 - 130 | 80 - 150 | 90 - 160 | - | 50 - 90 |
| | | temprato | 1000 | 60 - 120 | 60 - 130 | 150 - 250 | 60 - 120 | 80 - 150 | 80 - 160 | - | 50 - 80 |
| | | temprato | 1170 | 60 - 100 | 60 - 110 | 150 - 220 | 60 - 100 | 70 - 120 | 80 - 140 | - | 50 - 80 |
| | Acciai fortemente legati, acciai da utensili | ricotto | 670 | 80 - 140 | 90 - 140 | - | 80 - 140 | 100 - 160 | 110 - 180 | - | 60 - 80 |
| temprato e rinvenuto | | 1100 | 50 - 100 | 60 - 110 | - | 50 - 100 | 60 - 120 | 80 - 140 | - | - | |
| Acciai inossidabili e stampati | ferritico / martensitico, ricotto | 670 | 50 - 200 | - | 160 - 280 | 50 - 200 | 100 - 180 | - | - | - | |
| | martensitico, temprato | 1000 | 50 - 150 | - | 140 - 280 | 50 - 150 | 80 - 150 | - | - | - | |
| M | Acciai inossidabili e stampati | austenitico e austenitico/ferritico | 450 - 600 | 50 - 190 | - | 140 - 280 | 50 - 190 | 100 - 190 | - | - | 50 - 150 |
| | | trattato o temprato | 600 - 900 | 50 - 100 | - | - | 50 - 100 | - | - | - | 40 - 90 |
| K | Ghisa grigia | perlitica, ferritica | 500 - 700 | - | 140 - 240 | 170 - 300 | - | - | 120 - 200 | 100 - 150 | - |
| | | perlitica, martensitica | 700 - 850 | - | 140 - 240 | 150 - 270 | - | - | 120 - 200 | 100 - 150 | - |
| | | | 800 - 1100 | - | 120 - 190 | 120 - 240 | - | - | 100 - 160 | 80 - 120 | - |
| | Ghisa sferoidale | ferritica | 550 | - | 130 - 240 | 140 - 230 | - | - | 110 - 200 | 100 - 140 | - |
| | | perlitica | 800 | - | 130 - 240 | 120 - 170 | - | - | 110 - 200 | 100 - 140 | - |
| | Ghisa malleabile | ferritica | 450 | - | 120 - 240 | 150 - 200 | - | - | 100 - 200 | 100 - 160 | - |
| perlitica | | 750 | - | 120 - 240 | 140 - 200 | - | - | 100 - 200 | 100 - 160 | - | |
| N | Leghe di alluminio a truciolo lungo | non trattabile | 200 | - | - | 800 - 1300 | - | - | - | 100 - 500 | - |
| | | temprabile, trattato | 350 | - | - | 400 - 900 | - | - | - | 100 - 300 | - |
| | Fusioni di Alluminio | ≤ 12% Si, temprato | 250 | - | - | 250 - 800 | - | - | - | 100 - 500 | - |
| | | ≤ 12% Si, temprabile, trattato | 300 | - | - | 200 - 550 | - | - | - | 100 - 300 | - |
| | | ≤ 12% Si, non trattabile | 450 | - | - | 200 - 550 | - | - | - | 100 - 300 | - |
| | Leghe di Rame (Bronzo, Ottone) | Leghe di Piombo, Pb > 1 % | 400 | - | - | - | - | - | - | 100 - 500 | - |
| | | Ottone, Bronzo | 300 | - | - | - | - | - | - | 100 - 500 | - |
| | | Bronzo alluminio | 500 | - | - | - | - | - | - | 100 - 300 | - |
| | | Rame e rame elettrolitico | 200 | - | - | - | - | - | - | 100 - 300 | - |
| | Materiali non ferrosi | Plastiche dure | | - | - | - | - | - | - | 80 - 180 | - |
| Plastiche rinforzate | | | - | - | - | - | - | - | 60 - 150 | - | |
| Gomme dure | | | - | - | - | - | - | - | 100 - 250 | - | |
| S | Leghe refrattarie, Superleghe | a base di Fe, ricotto | 700 | 20 - 50 | - | 20 - 50 | 20 - 50 | - | - | - | - |
| | | a base di Fe, temprato | 950 | 20 - 40 | - | 20 - 50 | 20 - 40 | - | - | - | - |
| | | a base di Ni, ricotto | 800 | 15 - 25 | - | 15 - 40 | 15 - 25 | - | - | - | - |
| | | a base di Co, da fusione | 1100 | 10 - 20 | - | 15 - 30 | - | - | - | - | - |
| | | a base di Co, temprato | 1200 | 10 - 20 | - | 15 - 30 | - | - | - | - | - |
| | Leghe di Titanio | titanio puro | 500 - 700 | 50 - 120 | - | - | 50 - 120 | - | - | 50 - 120 | - |
| Leghe Alfa e Beta, trattate | | 700 - 1000 | 30 - 50 | - | - | 30 - 50 | - | - | 30 - 50 | - | |
| H | Acciaio temprato | temprato e rinvenuto | 1000 - 1350 | - | - | - | - | - | - | - | - |
| | | temprato e rinvenuto | 1350 - 1700 | - | - | - | - | - | - | - | - |
| | Ghisa temprata | da fusione | 1350 | - | - | - | - | - | - | - | - |
| | Ghisa trattata | temprato e rinvenuto | 1900 | - | - | - | - | - | - | - | - |

I parametri di tagli indicati sono solo indicativi. E' necessario ottimizzarli ad ogni applicazione sulle specifiche condizioni di lavoro.

ISO-Application area
ISO-Campi di applicazione

We have a passion for precision.

| ISO | Hartmetall beschichtet Carbide coated Metallo duro rivestito | Hartmetall unbeschichtet Carbide uncoated Metallo duro non rivestito | Schneidstoff Cutting material Materiale da taglio | Anwendung Application Parametri |
|--|---|--|--|--|
| P Stahl, Stahlguss, langspanender Temperguss <i>Steel, cast steel, long chipping malleable iron</i> Acciaio, acciaio colato, ghisa temprata a truciolo lungo | 10 AL10 20 AR26C, AM35C, AK2015 30 AL10, AM5035 40 AM35C, AL350 50 AP40 | AP40 | Zähigkeit Toughness / Tenacità Verschleißbeständigkeit / Wear resistance / Resistenza all'usura Vorschub Feed rate / Avanzamento Schnittgeschwindigkeit Cutting speed / Velocità di taglio | Zähigkeit Toughness / Tenacità Verschleißbeständigkeit / Wear resistance / Resistenza all'usura Vorschub Feed rate / Avanzamento Schnittgeschwindigkeit Cutting speed / Velocità di taglio |
| M Rostfreier Stahl, Stahlguss, Manganstahl, Automatenstahl <i>Stainless steel, cast steel, manganese steel, free cutting steel</i> Acciaio inossidabile, acciaio colato, acciaio al manganese, ghisa legata, ghisa temprata, acciaio automatico, leghe refrattarie | 10 AL10 20 AM35C 30 AL350, AM5035 40 AM35C, AL350 50 | | Zähigkeit Toughness / Tenacità Verschleißbeständigkeit / Wear resistance / Resistenza all'usura Vorschub Feed rate / Avanzamento Schnittgeschwindigkeit Cutting speed / Velocità di taglio | Zähigkeit Toughness / Tenacità Verschleißbeständigkeit / Wear resistance / Resistenza all'usura Vorschub Feed rate / Avanzamento Schnittgeschwindigkeit Cutting speed / Velocità di taglio |
| K Grauguss, Kokillenhartguss, kurzspanender Temperguss <i>Grey cast iron, chilled hard cast iron, short chipping malleable iron</i> Ghisa grigia, ghisa fusa in conchiglia, ghisa temprata a truciolo corto, acciaio temprato, metalli non ferrosi, plastica, legno | 10 AR26C, AL10, AK2015 20 AL10, AK2015 30 40 50 | AK10 | Zähigkeit Toughness / Tenacità Verschleißbeständigkeit / Wear resistance / Resistenza all'usura Vorschub Feed rate / Avanzamento Schnittgeschwindigkeit Cutting speed / Velocità di taglio | Zähigkeit Toughness / Tenacità Verschleißbeständigkeit / Wear resistance / Resistenza all'usura Vorschub Feed rate / Avanzamento Schnittgeschwindigkeit Cutting speed / Velocità di taglio |
| N Aluminium und Al-Legierungen, nichtmetallische Werkstoffe <i>Aluminium and Al-alloys, non ferrous materials</i> Alluminio e leghe di alluminio, materiali non metallici | | AK10 | Zähigkeit Toughness / Tenacità Verschleißbeständigkeit / Wear resistance / Resistenza all'usura Vorschub Feed rate / Avanzamento Schnittgeschwindigkeit Cutting speed / Velocità di taglio | Zähigkeit Toughness / Tenacità Verschleißbeständigkeit / Wear resistance / Resistenza all'usura Vorschub Feed rate / Avanzamento Schnittgeschwindigkeit Cutting speed / Velocità di taglio |
| S Warmfeste Legierungen, Titanlegierungen <i>High temperature resistant alloys, Titanium alloys</i> Leghe refrattarie, leghe di titanio | 10 AL10 20 AL350, AM5035 30 AL350, AM5035 40 50 | AK10 | Zähigkeit Toughness / Tenacità Verschleißbeständigkeit / Wear resistance / Resistenza all'usura Vorschub Feed rate / Avanzamento Schnittgeschwindigkeit Cutting speed / Velocità di taglio | Zähigkeit Toughness / Tenacità Verschleißbeständigkeit / Wear resistance / Resistenza all'usura Vorschub Feed rate / Avanzamento Schnittgeschwindigkeit Cutting speed / Velocità di taglio |
| H Gehärteter Stahl, Hartguss <i>Hardened Steel, hard cast iron</i> Acciaio temprato, ghisa conchigliata | | | Zähigkeit Toughness / Tenacità Verschleißbeständigkeit / Wear resistance / Resistenza all'usura Vorschub Feed rate / Avanzamento Schnittgeschwindigkeit Cutting speed / Velocità di taglio | Zähigkeit Toughness / Tenacità Verschleißbeständigkeit / Wear resistance / Resistenza all'usura Vorschub Feed rate / Avanzamento Schnittgeschwindigkeit Cutting speed / Velocità di taglio |

Hauptanwendungsbereich / Main application area / Applicazione principale

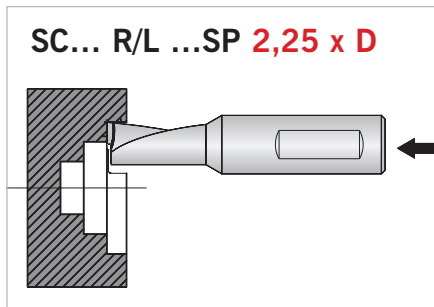
Nebenanwendungsbereich / Secondary application area / Applicazione secondaria

AM35C — Sorte / Grade / Qualità
Empfohlener Anwendungsbereich / Recommended application area / Applicazione consigliata

AR26C — Sorte / Grade / Qualità
Empfohlener Anwendungsbereich / Recommended application area / Applicazione consigliata

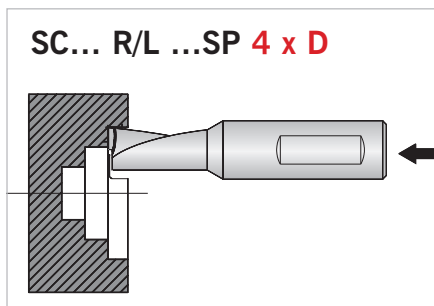
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Längsdrehen / Turning / Tornitura



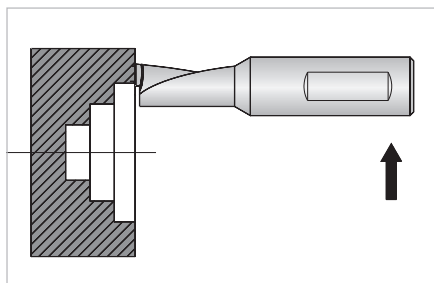
| SHARK-Cut®-Ø [mm] | Spantiefe ap [mm] / Depth of cut / Profondità di passata | | | | | | | |
|---|--|------|------|------|------|------|------|------|
| | 0,5 | 1 | 1,5 | 2 | 2,5 | 3 | 3,5 | 4 |
| Vorschub f [mm/U] / Feed rate / Velocità di avanzamento | | | | | | | | |
| SC04 | 0,10 | 0,10 | 0,08 | 0,05 | - | - | - | - |
| SC05 | 0,10 | 0,10 | 0,09 | 0,06 | 0,04 | - | - | - |
| SC06 | 0,10 | 0,10 | 0,10 | 0,08 | 0,06 | 0,04 | - | - |
| SC07 | 0,10 | 0,10 | 0,10 | 0,10 | 0,08 | 0,06 | 0,04 | - |
| SC08 | 0,10 | 0,10 | 0,10 | 0,10 | 0,10 | 0,08 | 0,06 | 0,04 |

Längsdrehen / Turning / Tornitura



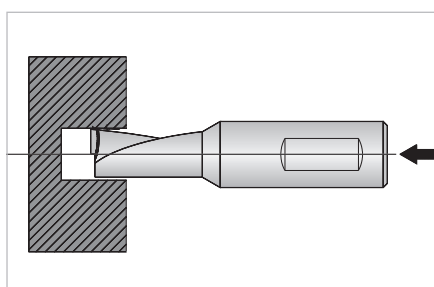
| SHARK-Cut®-Ø [mm] | Spantiefe ap [mm] / Depth of cut / Profondità di passata | | | | | |
|---|--|------|-------|-------|-------|-------|
| | 0,5 | 1 | 1,5 | 2 | 2,5 | 3 |
| Vorschub f [mm/U] / Feed rate / Velocità di avanzamento | | | | | | |
| SC04 | 0,10 | 0,08 | 0,050 | - | - | - |
| SC05 | 0,10 | 0,09 | 0,060 | 0,040 | - | - |
| SC06 | 0,10 | 0,09 | 0,060 | 0,040 | - | - |
| SC07 | 0,10 | 0,10 | 0,080 | 0,060 | 0,040 | - |
| SC08 | 0,10 | 0,10 | 0,085 | 0,075 | 0,055 | 0,040 |

Plandrehen / Facing / Sfacciatura



| SHARK-Cut®-Ø [mm] | SC...R/L...SP (2,25 x D) | | SC...R/L...SP-ALU (4 x D) | |
|-------------------|--------------------------|----------|---------------------------|----------|
| | ap [mm] | f [mm/U] | ap [mm] | f [mm/U] |
| SC04 | 0,7 | 0,07 | 0,7 | 0,05 |
| SC05 | 0,7 | 0,07 | 0,7 | 0,05 |
| SC06 | 0,7 | 0,07 | 0,7 | 0,05 |
| SC07 | 1,0 | 0,08 | 1,0 | 0,06 |
| SC08 | 1,0 | 0,08 | 1,0 | 0,06 |

Bohren / Drilling / Foratura

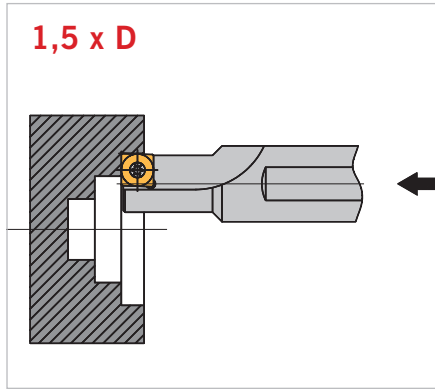


| SHARK-Cut®-Ø [mm] | SC...R/L...SP (2,25 x D) | SC...R/L...SP-ALU (4 x D) |
|-------------------|--------------------------|---------------------------|
| | f [mm/U] | |
| SC04 | 0,005 - 0,030 | 0,005 - 0,020 |
| SC05 | 0,005 - 0,030 | 0,005 - 0,020 |
| SC06 | 0,005 - 0,030 | 0,005 - 0,020 |
| SC07 | 0,005 - 0,035 | 0,005 - 0,025 |
| SC08 | 0,005 - 0,040 | 0,005 - 0,030 |

4

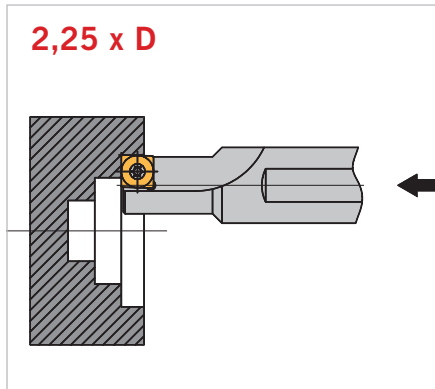
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Längsdrehen / Turning / Tornitura



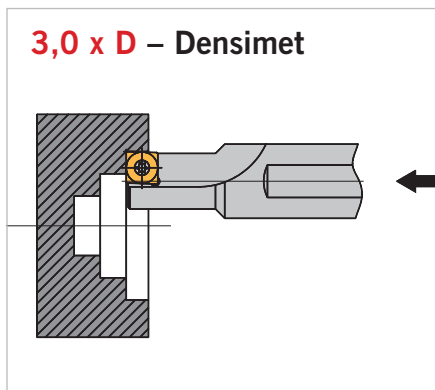
| SHARK-Cut®-Ø [mm] | Spantiefe ap [mm] / Depth of cut / Profondità di passata | | | | | | | | | | | |
|---|--|------|------|------|------|------|------|------|------|------|------|------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 12 | 14 |
| Vorschub f [mm/U] / Feed rate / Velocità di avanzamento | | | | | | | | | | | | |
| SC08...(LP...04) | 0,12 | 0,11 | 0,10 | 0,07 | - | - | - | - | - | - | - | - |
| SC10...(LP...05) | 0,15 | 0,15 | 0,12 | 0,10 | 0,09 | - | - | - | - | - | - | - |
| SC12...(LP...06) | 0,16 | 0,16 | 0,15 | 0,13 | 0,12 | 0,10 | - | - | - | - | - | - |
| SC14...(LP...07) | 0,18 | 0,18 | 0,18 | 0,15 | 0,13 | 0,11 | - | - | - | - | - | - |
| SC16...(LP...08) | 0,20 | 0,20 | 0,20 | 0,19 | 0,17 | 0,15 | 0,14 | 0,12 | - | - | - | - |
| SC18...(LP...09) | 0,21 | 0,21 | 0,21 | 0,21 | 0,19 | 0,17 | 0,16 | 0,14 | - | - | - | - |
| SC20...(LP...10) | 0,22 | 0,22 | 0,22 | 0,22 | 0,22 | 0,21 | 0,19 | 0,17 | 0,16 | 0,15 | - | - |
| SC25...(LP...13) | 0,26 | 0,26 | 0,26 | 0,26 | 0,26 | 0,26 | 0,25 | 0,23 | 0,22 | 0,20 | 0,16 | - |
| SC32...(LP...17) | 0,30 | 0,30 | 0,30 | 0,30 | 0,30 | 0,30 | 0,30 | 0,28 | 0,27 | 0,25 | 0,17 | 0,18 |

Längsdrehen / Turning / Tornitura



| SHARK-Cut®-Ø [mm] | Spantiefe ap [mm] / Depth of cut / Profondità di passata | | | | | | | | |
|---|--|------|------|------|------|------|------|------|------|
| | 1 | 2 | 2,5 | 3 | 3,5 | 4 | 5 | 6 | 7 |
| Vorschub f [mm/U] / Feed rate / Velocità di avanzamento | | | | | | | | | |
| SC08...(LP...04) | 0,12 | 0,09 | 0,07 | - | - | - | - | - | - |
| SC10...(LP...05) | 0,15 | 0,12 | 0,10 | 0,09 | - | - | - | - | - |
| SC12...(LP...06) | 0,16 | 0,16 | 0,13 | 0,12 | 0,10 | - | - | - | - |
| SC14...(LP...07) | 0,18 | 0,18 | 0,16 | 0,14 | 0,11 | - | - | - | - |
| SC16...(LP...08) | 0,20 | 0,20 | 0,18 | 0,16 | 0,14 | 0,12 | - | - | - |
| SC18...(LP...09) | 0,21 | 0,21 | 0,20 | 0,18 | 0,16 | 0,14 | - | - | - |
| SC20...(LP...10) | 0,22 | 0,22 | 0,22 | 0,21 | 0,19 | 0,17 | 0,12 | - | - |
| SC25...(LP...13) | 0,28 | 0,28 | 0,28 | 0,28 | 0,25 | 0,23 | 0,20 | 0,17 | - |
| SC32...(LP...17) | 0,30 | 0,30 | 0,30 | 0,30 | 0,28 | 0,28 | 0,25 | 0,20 | 0,18 |

Längsdrehen / Turning / Tornitura



| SHARK-Cut®-Ø [mm] | Spantiefe ap [mm] / Depth of cut / Profondità di passata | | | | | | | | |
|---|--|------|------|------|------|------|------|------|------|
| | 1 | 2 | 2,5 | 3 | 3,5 | 4 | 5 | 6 | 7 |
| Vorschub f [mm/U] / Feed rate / Velocità di avanzamento | | | | | | | | | |
| SC08...(LP...04) | 0,12 | 0,09 | 0,07 | - | - | - | - | - | - |
| SC10...(LP...05) | 0,13 | 0,11 | 0,09 | 0,07 | - | - | - | - | - |
| SC12...(LP...06) | 0,15 | 0,13 | 0,12 | 0,11 | 0,10 | - | - | - | - |
| SC14...(LP...07) | 0,16 | 0,16 | 0,15 | 0,13 | 0,11 | - | - | - | - |
| SC16...(LP...08) | 0,18 | 0,18 | 0,17 | 0,15 | 0,13 | 0,12 | - | - | - |
| SC18...(LP...09) | 0,20 | 0,20 | 0,18 | 0,17 | 0,15 | 0,14 | - | - | - |
| SC20...(LP...10) | 0,22 | 0,22 | 0,22 | 0,21 | 0,19 | 0,16 | 0,14 | - | - |
| SC25...(LP...13) | 0,25 | 0,25 | 0,25 | 0,25 | 0,23 | 0,22 | 0,18 | 0,16 | - |
| SC32...(LP...17) | 0,28 | 0,28 | 0,28 | 0,28 | 0,28 | 0,28 | 0,22 | 0,19 | 0,16 |

Längsdrehen / Turning / Tornitura

| Werkstoff Material Materiale | Elastizitätsmodul [kg/mm²] Modulus of elasticity Modulo di elasticità | Dichte [g/cm³] Thickness Peso specifico |
|------------------------------------|---|---|
| Densimet | 360 | 17,50 |
| Stahl | 210 | 7,85 |

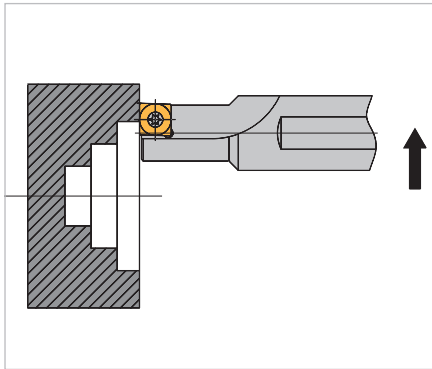
Höchste Präzision bei hervorragender Oberflächengüte und gesteigerten Standzeiten werden durch hohes Elastizitätsmodul und hohe Dichte erreicht, da diese besonders schwingungsdämpfend wirken.

Absolute precision, excellent surface quality and improved tool life have been achieved as a result of the high modulus of elasticity and density since these particularly reduce vibrations.

Assoluta precisione, eccellente finitura superficiale ed incremento delle vita utensile sono ottenute da un materiale antivibrante risultato di un abbinamento tra un elevato modulo di elasticità ed un elevato peso specifico.

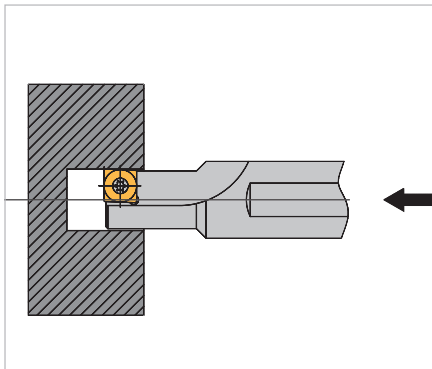
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Plandrehen / Facing / Sfacciatura



| SHARK-Cut®-Ø [mm] | 1,5 x D | | 2,25 x D | | 3 x D – Densimet | |
|-------------------|---------|----------|----------|----------|------------------|----------|
| | ap [mm] | f [mm/U] | ap [mm] | f [mm/U] | ap [mm] | f [mm/U] |
| SC08...(LP...04) | 2,00 | 0,10 | 1,50 | 0,07 | 1,00 | 0,10 |
| SC10...(LP...05) | 2,50 | 0,12 | 2,00 | 0,12 | 1,20 | 0,12 |
| SC12...(LP...06) | 3,00 | 0,15 | 2,50 | 0,14 | 1,50 | 0,15 |
| SC14...(LP...07) | 3,50 | 0,16 | 3,00 | 0,15 | 1,70 | 0,16 |
| SC16...(LP...08) | 4,00 | 0,17 | 3,50 | 0,16 | 2,00 | 0,17 |
| SC18...(LP...09) | 5,00 | 0,18 | 3,50 | 0,17 | 2,30 | 0,18 |
| SC20...(LP...10) | 5,00 | 0,20 | 4,00 | 0,18 | 2,50 | 0,20 |
| SC25...(LP...13) | 6,00 | 0,24 | 5,00 | 0,22 | 3,00 | 0,24 |
| SC32...(LP...17) | 8,00 | 0,27 | 6,00 | 0,26 | 3,50 | 0,27 |

Bohren / Drilling / Foratura



| SHARK-Cut®-Ø [mm] | 1,5 - 2,25 x D | 3 x D – Densimet |
|-------------------|----------------|------------------|
| | f [mm/U] | f [mm/U] |
| SC08...(LP...04) | 0,01 - 0,04 | 0,01 - 0,02 |
| SC10...(LP...05) | 0,01 - 0,05 | 0,01 - 0,03 |
| SC12...(LP...06) | 0,01 - 0,05 | 0,01 - 0,04 |
| SC14...(LP...07) | 0,01 - 0,07 | 0,01 - 0,05 |
| SC16...(LP...08) | 0,02 - 0,08 | 0,02 - 0,06 |
| SC18...(LP...09) | 0,03 - 0,09 | 0,03 - 0,07 |
| SC20...(LP...10) | 0,03 - 0,10 | 0,03 - 0,08 |
| SC25...(LP...13) | 0,03 - 0,12 | 0,04 - 0,09 |
| SC32...(LP...17) | 0,05 - 0,15 | 0,05 - 0,11 |

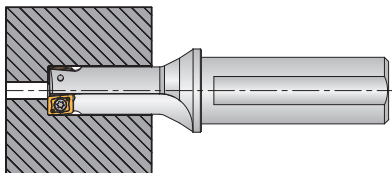
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Aufbohren / Boring / Barenatura

2-schneidig

2 flute

2 taglienti



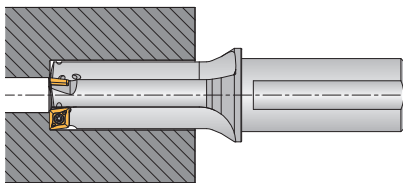
| SHARK-Cut® Rebore- Ø [mm] | Spantiefe ap [mm] / Depth of cut / Profondità di passata | | | | | | | | | | | | | |
|---|--|------|------|------|------|------|------|------|------|------|------|------|------|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 12 | 14 | | |
| Vorschub f [mm/U] / Feed rate / Velocità di avanzamento | | | | | | | | | | | | | | |
| 12 - 15 (LP..04) | 0,25 | 0,22 | 0,20 | 0,16 | - | - | - | - | - | - | - | - | - | - |
| 16 - 17,5 (LP..05) | 0,30 | 0,30 | 0,28 | 0,24 | 0,20 | - | - | - | - | - | - | - | - | - |
| 18 - 19 (LP..06) | 0,34 | 0,34 | 0,34 | 0,30 | 0,25 | 0,20 | - | - | - | - | - | - | - | - |
| 20 - 23 (LP..07) | 0,36 | 0,36 | 0,36 | 0,33 | 0,30 | 0,26 | 0,22 | - | - | - | - | - | - | - |
| 24 - 25(LP..08) | 0,42 | 0,42 | 0,42 | 0,42 | 0,38 | 0,34 | 0,30 | 0,25 | - | - | - | - | - | - |
| 26 - 28 (LP..09) | 0,44 | 0,44 | 0,44 | 0,44 | 0,44 | 0,40 | 0,35 | 0,32 | 0,28 | - | - | - | - | - |
| 29 - 24(LP..10) | 0,48 | 0,48 | 0,48 | 0,48 | 0,48 | 0,45 | 0,40 | 0,36 | 0,32 | 0,30 | - | - | - | - |
| 35 - 44 (LP..13) | 0,52 | 0,52 | 0,52 | 0,52 | 0,52 | 0,52 | 0,50 | 0,47 | 0,43 | 0,38 | 0,30 | - | - | - |
| 45 - 50 (LP..17) | 0,60 | 0,60 | 0,60 | 0,60 | 0,60 | 0,60 | 0,60 | 0,60 | 0,60 | 0,55 | 0,50 | 0,42 | 0,35 | - |

Aufbohren / Boring / Barenatura

3-schneidig

3 flute

3 taglienti

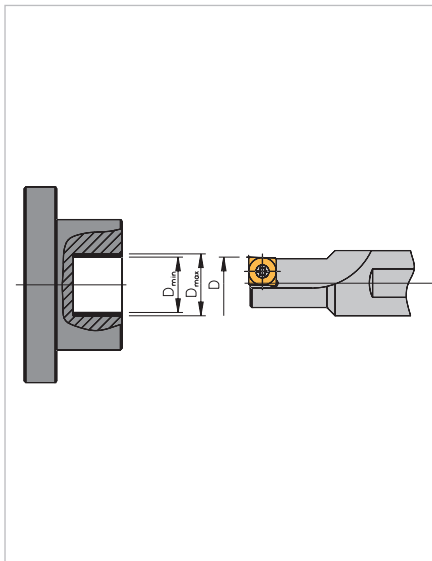


| SHARK-Cut® Rebore- Ø [mm] | Spantiefe ap [mm] / Depth of cut / Profondità di passata | | | | | | | | | | | | | |
|---|--|------|------|------|------|------|------|------|------|------|------|----|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 12 | 14 | | |
| Vorschub f [mm/U] / Feed rate / Velocità di avanzamento | | | | | | | | | | | | | | |
| 24 - 25 (LP..06) | 0,51 | 0,51 | 0,51 | 0,45 | 0,38 | 0,30 | - | - | - | - | - | - | - | - |
| 26 - 28 (LP..07) | 0,54 | 0,54 | 0,54 | 0,49 | 0,45 | 0,39 | 0,33 | - | - | - | - | - | - | - |
| 29 - 34 (LP..08) | 0,63 | 0,63 | 0,63 | 0,63 | 0,57 | 0,51 | 0,45 | 0,38 | - | - | - | - | - | - |
| 35 - 40 (LP..09) | 0,66 | 0,66 | 0,66 | 0,66 | 0,66 | 0,60 | 0,53 | 0,48 | 0,42 | - | - | - | - | - |
| 41 - 47 (LP..10) | 0,72 | 0,72 | 0,72 | 0,72 | 0,72 | 0,68 | 0,60 | 0,54 | 0,48 | 0,45 | - | - | - | - |
| 48 - 50 (LP..13) | 0,78 | 0,78 | 0,78 | 0,78 | 0,78 | 0,78 | 0,75 | 0,70 | 0,65 | 0,57 | 0,45 | - | - | - |

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Maximale Bohrtiefen / Maximum drilling depth / Massima profondità di foratura

| Maximale Bohrtiefen / Maximum drilling depth / Massima profondità di foratura | | | | | |
|---|-------------------------|--------------------------|-----------------|------------------|---------------|
| SHARK-Cut®-Ø [mm] | Mini (2,25 x D) [mm] | Mini ALU (4 x D) [mm] | 1,5 x D [mm] | 2,25 x D [mm] | 3 x D [mm] |
| 4 | 9,00 | 16 | - | - | - |
| 5 | 11,25 | 20 | - | - | - |
| 6 | 13,50 | 24 | - | - | - |
| 7 | 15,75 | 28 | - | - | - |
| 8 | 18,00 | 32 | 12 | 18,0 | 24 |
| 10 | - | - | 15 | 22,0 | 30 |
| 12 | - | - | 18 | 27,0 | 36 |
| 14 | - | - | 21 | 31,5 | 42 |
| 16 | - | - | 24 | 36,0 | 48 |
| 18 | - | - | 27 | 40,5 | 54 |
| 20 | - | - | 30 | 45,0 | 60 |
| 25 | - | - | 38 | 56,0 | 75 |
| 32 | - | - | 48 | 72,0 | 96 |

Bohren aus der Mitte / Drilling off centre / Foratura fuori centro

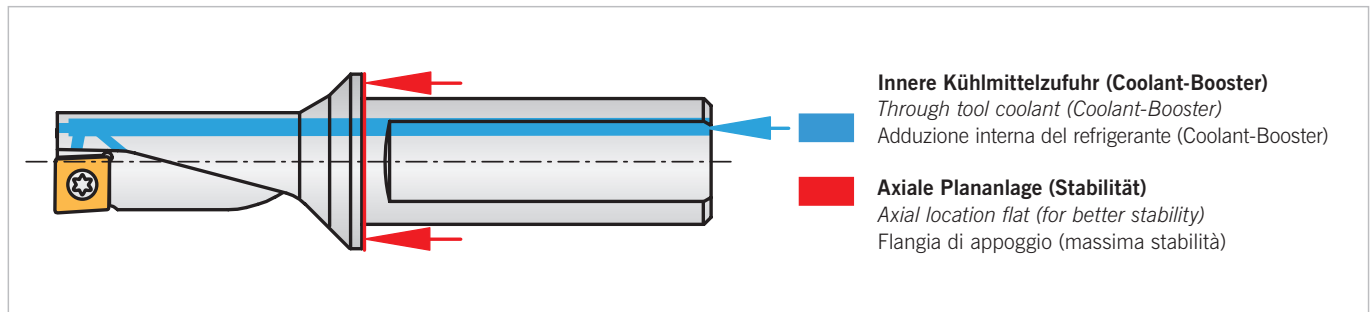
| Werkzeugtyp Type of tool Tipo di utensile | Werkzeug-Nenn Durchmesser Nominal tool diameter Diametro Nominale utensile | Werkstück-Bohrdurchmesser Drilling diameter Diametri ottenibili | |
|---|--|---|-----------------------|
| | D [mm] | D _{min} [mm] | D _{max} [mm] |
| SC 04 R/L-...SP...(Mini) | 4 | 3,90 | 4,2 |
| SC 05 R/L-...SP...(Mini) | 5 | 4,90 | 5,2 |
| SC 06 R/L-...SP...(Mini) | 6 | 5,90 | 6,2 |
| SC 07 R/L-...SP...(Mini) | 7 | 6,90 | 7,2 |
| SC 08 R/L-...SP...(Mini) | 8 | 7,90 | 8,2 |
| SC 08 R/L-...04 | 8 | 7,85 | 8,3 |
| SC 10 R/L-...05 | 10 | 9,85 | 10,5 |
| SC 12 R/L-...06 | 12 | 11,85 | 12,5 |
| SC 14 R/L-...07 | 14 | 13,85 | 14,5 |
| SC 16 R/L-...08 | 16 | 15,85 | 16,5 |
| SC 18 R/L-...09 | 18 | 17,85 | 18,5 |
| SC 20 R/L-...10 | 20 | 19,80 | 20,5 |
| SC 25 R/L-...13 | 25 | 24,80 | 25,8 |
| SC 32 R/L-...17 | 32 | 31,80 | 33,0 |

Durch die speziell entwickelte und aufeinander abgestimmte Ausführung von Werkzeug und Wendschneidplatte ist es möglich außer Mitte zu bohren. Es können somit Abweichungen zum Werkzeugdurchmesser erreicht werden.

Because of the special design of the holder and indexable inserts, it is possible to drill off centre.

Grazie allo speciale profilo dell'inserto e utensile è possibile forare fuori centro.

Coolant-Booster / Coolant-Booster / Ugelli Booster



Kühlmitteldruck

Als innovative Detaillösung bietet der SHARK-Cut® eine spezielle Kühlmittelzufuhr zur besseren Ausbringung der Späne aus der Bohrung. Ein eigener, rückwärtsgerichteter Kühlmittelstrahl sorgt für einen verbesserten Spänetransport. Der Kühlmitteldruck muss dafür, unabhängig vom Durchmesser, ca. 1,5–3 bar (optimal 5–7 bar) betragen.

Coolant pressure

The SHARK-Cut® tool offer a unique detail when it comes to swarf evacuation. A "return" (pointing back up the flute) coolant channel ensures optimum swarf evacuation, therefore the coolant pressure, no matter the diameter, must be 1.5–3 bar (optimum 5–7 bar).

Pressione del refrigerante

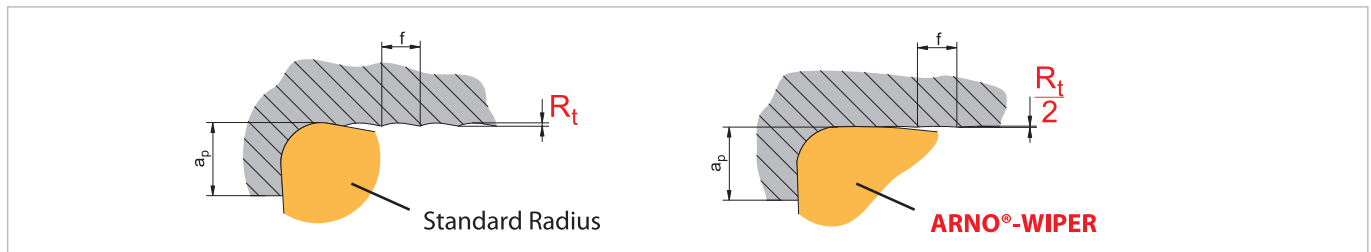
Lo SHARK-Cut® offre un dettaglio unico per l'aiuto nell'evacuazione truciolo. Un ugello orientato in direzioni di uscita del foro aiuta il truciolo ad incanalarsi e ad essere espulso. La pressione suggerita, indipendente dal diametro deve essere di almeno 1,5–3 bar (optimale 5–7 bar).

Achsversatz der Maschine / Displacement of the machine / Montaggio sulla macchina utensile

4

| | | |
|---|--|--|
| <p>Situation / Situation / Condizione</p> <p>Versatz in X-Richtung Displacement in X-direction Collisione lungo l'asse X</p> | | <p>Lösung / Solution / Soluzione</p> <p>Werkzeugkorrektur anpassen Correct tool positioning Correggere posizione</p> |
| <p>Situation / Situation / Condizione</p> <p>Winkelfehler Angle error Orientamento errato</p> | | <p>Lösung / Solution / Soluzione</p> <p>Revolver und/oder Spindelstock ausrichten Turret and/or spindle adjustment Registrazione torretta e/o mandrino</p> |
| <p>Situation / Situation / Condizione</p> <p>Revolver-Positionierfehler Turret positioning error Posizionamento della torretta errato</p> | | <p>Lösung / Solution / Soluzione</p> <p>Revolverscheibe ausrichten (Y-Achse) Adjust turret plate (Y-axis) Registrazione piano torretta (Asse Y)</p> |

WIPER-Geometrie / WIPER-Geometry / WIPER-Geometria
Funktionsprinzip (Nutzen) / Information / Obiettivi



Bessere Oberfläche

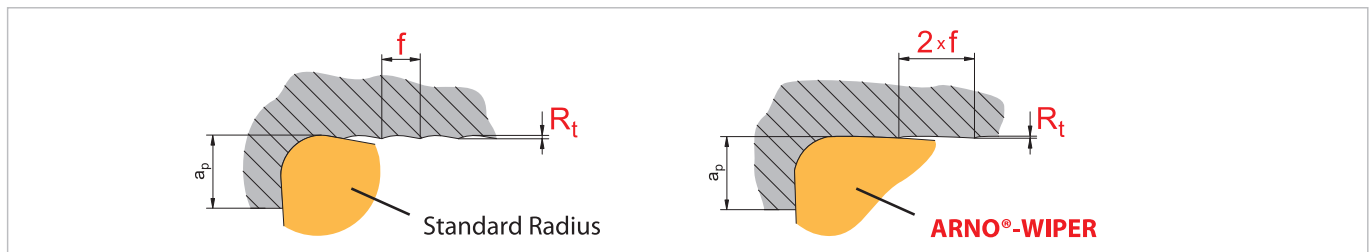
Bei gleichem Vorschub erreicht die Wende-schneidplatte mit WIPER-Schneide einen um das Vielfache besseren R_a -Wert gegenüber einer herkömmlichen Wende-schneidplatte.

Better surface

At the same feed rate the WIPER insert achieves a much better R_a -value against a conventional insert.

Migliore finitura superficiale

Con i medesimi avanzamenti dell'inserto normale, la geometria WIPER assicura un migliore valore R_a .



Geringere Bearbeitungszeit

Soll der gleiche R_a -Wert erreicht werden wie mit einer Standard-Wende-schneidplatte, so kann mit der Schneidplatte mit WIPER-Schneide der doppelte Vorschub gefahren werden (= geringere Stückzeiten!).

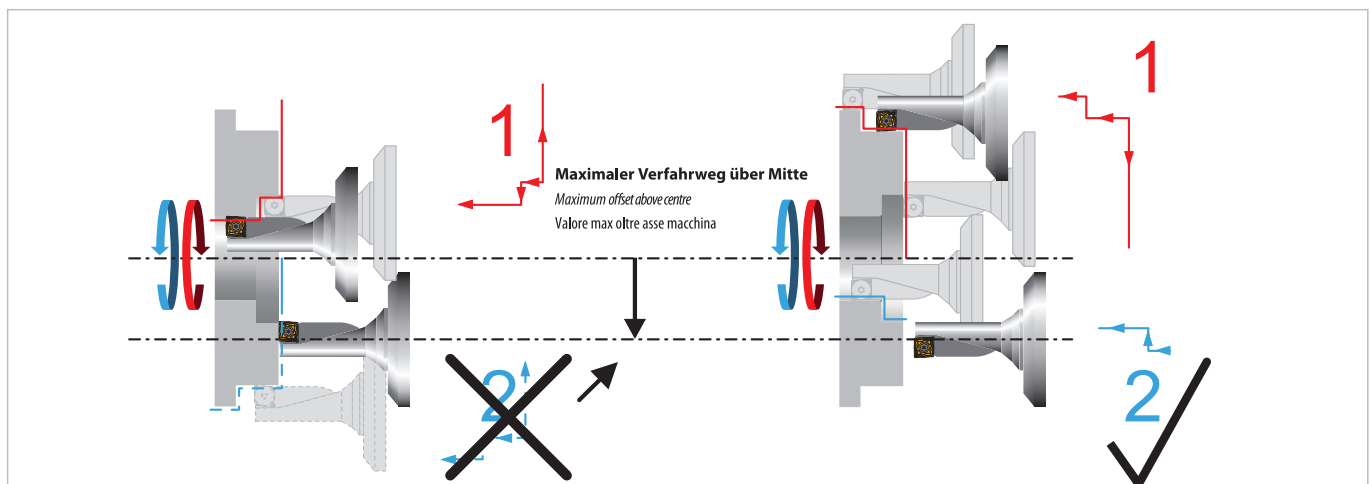
Reduced machine time

If the required R_a -value is achieved with a standard insert, the insert can be applied using up to twice the feed rate and thereby reducing machine time.

Riduzione tempo ciclo

La geometria WIPER permette avanzamenti anche doppi rispetto agli inserti a raggio standard assicurando pari rugosità superficiale. Questa caratteristica arriva a dimezzare i tempi ciclo, specialmente in operazioni di barenatura.

Bearbeitung über Mitte / Machining over centre / Lavorazione fuori asse



4

Situation / Situation / Condizione

Bei nicht ausreichendem Verfahrweg der Maschine über die Mittelachse ist der Außendurchmesser nicht mit dem selben Werkzeug bearbeitbar.

At not adequate travel of the machine over the centre the outside diameter can not be machined with the same tool.

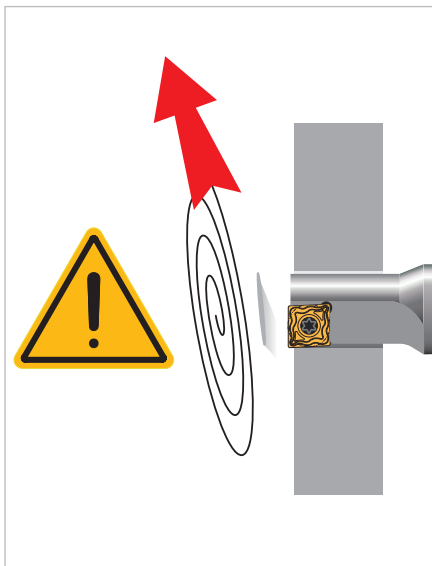
Nel caso di corse ridotte delle macchine utensili i diametri esterni possono non essere lavorabili con il medesimo utensile.

Lösung / Solution / Soluzione

Verwendung eines rechten SHARK-Cut® Werkzeuges.

Using a right hand SHARK-Cut® tool.

Utilizzare un utensile SHARK-Cut® destro.

Durchgangsbohrung / Through hole drilling / Foratura passante**Hinweis**

Bei feststehendem Werkzeug und rotierendem Werkstück fällt bei Durchgangsbohrungen eine scharfkantige Ronde ab. Bitte Sicherheitsvorkehrungen treffen.

Der Kühlmitteldruck sollte für SHARK-Cut® 2,25 x D ca. 5–7 bar und für SHARK-Cut® 1,5 x D ca. 1,5–3 bar betragen. Ist der notwendige Kühlmitteldruck maschinenseitig nicht vorhanden, kann es von Vorteil sein, den Bohrungsvorgang kurz zu unterbrechen, um die Bohrung zu entleeren.

Information

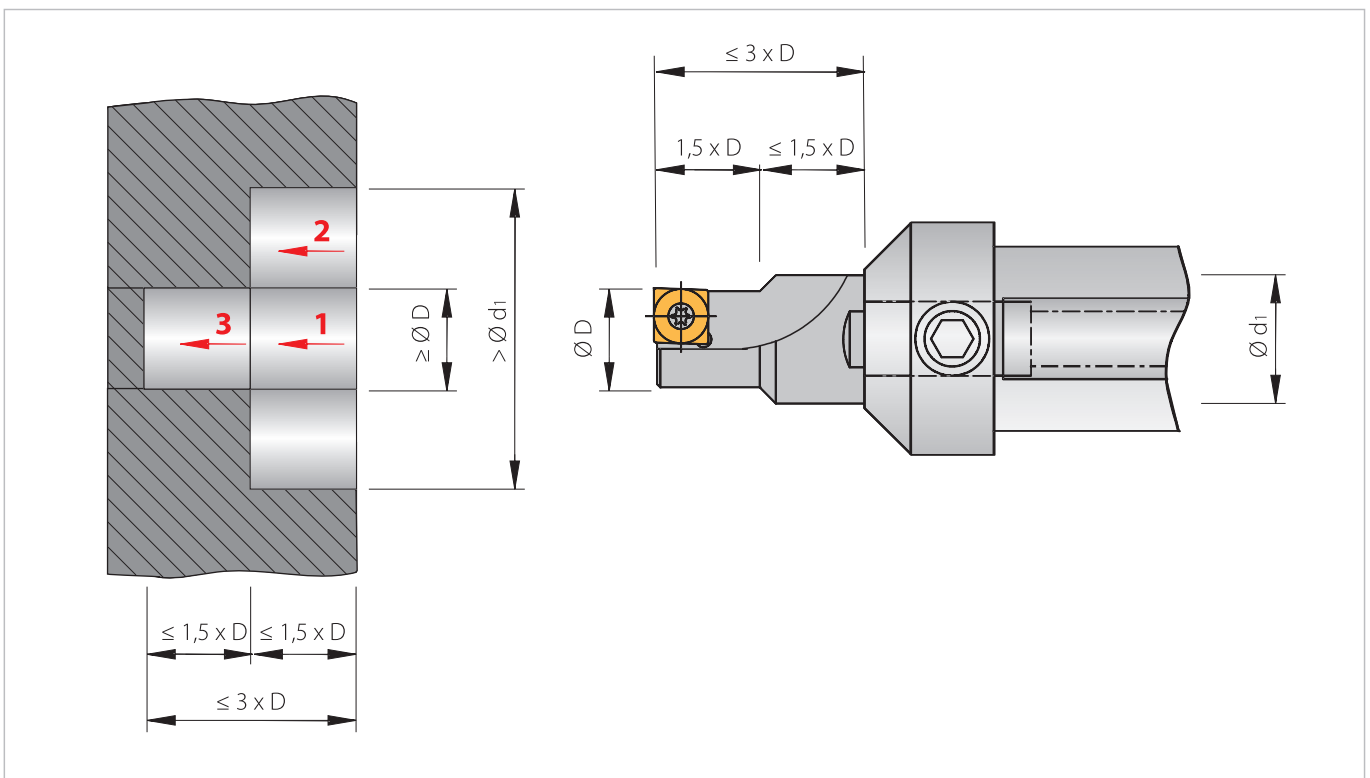
When through hole drilling with stationary tool and rotating component a sharp disc is produced, please ensure adequate safety precautions.

The coolant pressure for a 1.5 x D SHARK-Cut® should be minimum 1.5–3 bar, for 2.25 x D drill depth 5–7 bar is required. If the necessary coolant pressure is not available, it could be beneficial to interrupt the cutting briefly in order to clear the hole.

Accorgimenti

In operazioni di foratura passante con utensile fisso, un disco affilato risulta a fine operazione, assicurare adeguate protezioni.

La pressione del refrigerante per un utensile SHARK-Cut® 1,5 x D deve essere minimo 1,5–3 bar, mentre per la versione 2,25 x D è suggerito un minimo di 5–7 bar. Nei casi in cui la pressione del refrigerante non fosse sufficiente è suggerito prevedere una lavorazione con interruzioni per assicurare una giusta evacuazione truciolo.

Bohrtiefen bis 3 x D / Deep bores up to 3 x D / Per forature fino a 3 x D

Mit SHARK-Cut® Werkzeugen SC..1,5 x D können bei entsprechender Werkstückkontur, Bohrtiefen bis zum Dreifachen des Nenn-durchmessers erreicht werden (siehe Bild). Es ist dabei auf die Arbeitsabfolge 1, 2 und 3 zu achten. Für Werkzeuge mit dem Durchmesser 8 mm werden rechte und linke Wendeschneidplatten benötigt. Für Werkzeuge mit Durchmesser 10 bis 32 mm kommen neutrale Wendeschneidplatten zum Einsatz.

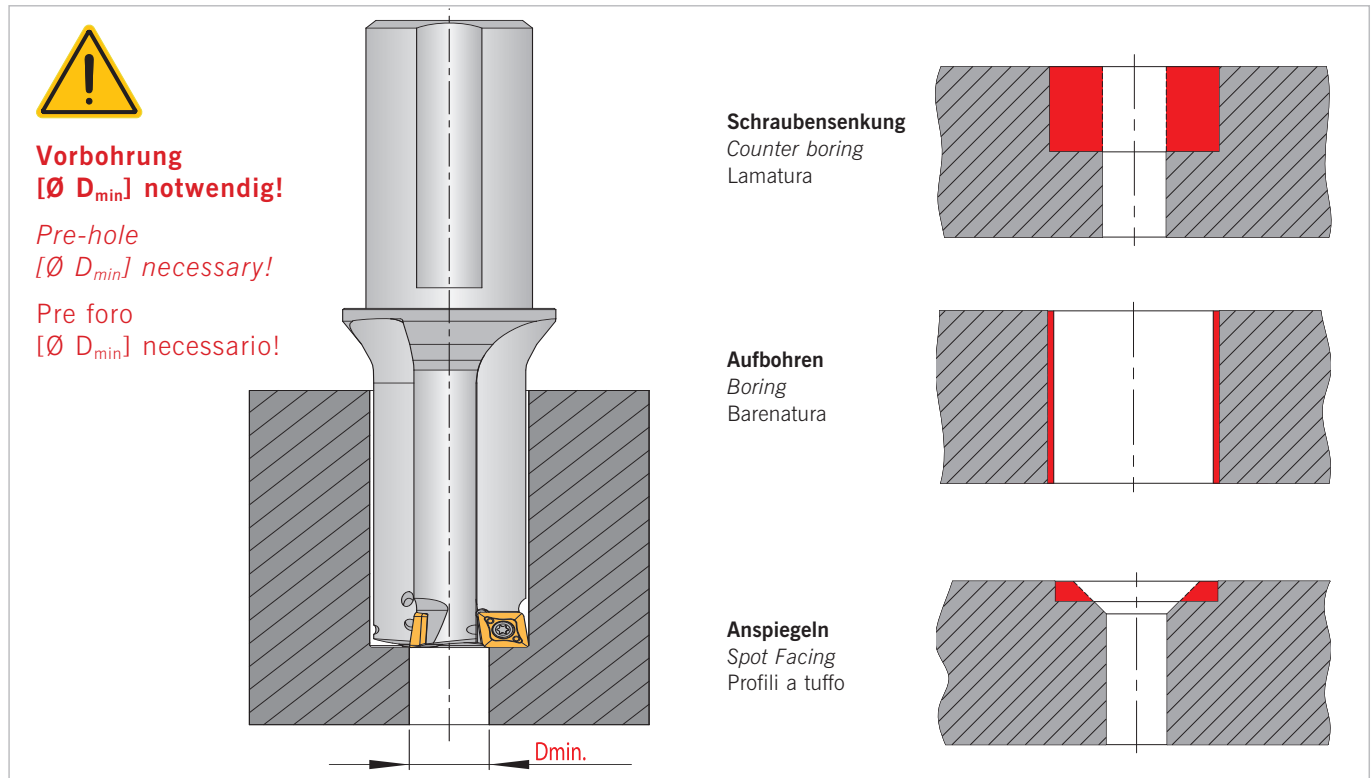
With the SHARK-Cut® tools SC..1.5 x D it is possible to drill up to three times the diameter (see picture). However please note working order 1, 2 and 3. For holders with diameter 8 mm use inserts with right and left chip breakers. For holders with diameter 10 to 32 mm use neutral inserts.

Con corpo utensile SC..1,5 x D è possibile forare fino a 3 x D a condizione che la forma del foro corrisponda alla figura. Prestare attenzione all'ordine 1, 2 e 3. Per utensili diametro 8 mm prestare attenzione agli inserti che hanno versione Destra e Sinistra. Per utensili superiori a 10 a 32 mm di diametro gli inserti sono neutri.

Werkzeug zum Aufbohren mit 2 bzw. 3 Schneiden.

Tools for boring with 2 or 3 edges.

Utensile per barenatura con 2 o 3 inserti.



Formeln / Formulas / Formule

Schnittgeschwindigkeit

Cutting Speed
Velocità di taglio

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

Drehzahl

Revolution per minute
Numero di giri al minuto

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

Zeitspanvolumen

Chip removal rate
Volume truciolo

$$Q = V_c \cdot a_p \cdot f_n$$

| | | | | | | | | |
|----------------------|--|---------|----------------------|--|--------|----------|--|------------------------|
| D | Durchmesser Diameter Diametro | [mm] | f_n | Vorschub pro Umdrehung Feed rate per revolution Avanzamento al giro | [mm/U] | n | Spindeldrehzahl Spindel revolution Numero di giri | [U/min] |
| V_c | Schnittgeschwindigkeit Cutting speed Velocità di taglio | [m/min] | a_p | Schnitttiefe Depth of cut Profondità di passata | [mm] | Q | Zeitspanvolumen Chip removal rate Volume truciolo | [cm ³ /min] |

We have a passion for precision.

| Anwendungsproblem / Type of problem / Tipo di problema | | | | | | | | Abhilfe Corrective measures Soluzioni possibili | Kriterium / Criteria / Criterio |
|---|---|--|---|---|--|---|---|--|--|
| Ausbrüche Edge chipping Scheggiatura inserto | Aufbauschneide Built-up edge Tagliente di riporto | Freiflächenverschleiß Wear in clearance face Labbro di usura | Plastische Verformung Plastic deformation Deformazione plastica | Vibrationen Vibrations Vibrazioni | Oberflächengüte Surface finish Finitura superficiale | Span zu lang Chip too long Truciolo lungo | Span zu kurz Chip too short Truciolo troppo corto | | |
| | ↑ | ↓ | ↓ | ↓ | ↑ | ↓ | | Schnittgeschwindigkeit Cutting speed Velocità di taglio | Schnittwerte / Cutting values / Parametri di taglio |
| ↓ | | ~ | ↓ | ↑ | ↓ | ↑ | ↓ | Vorschub Feed Avanzamento | |
| ↑ | | ↑ | ↑ | ↓ | ↑ | | | Eckenradius Corner radius Raggio di punta | Wende- schneidplatten / Insert selection / Scelta inserto |
| ↓ | | ↑ | ↑ | | | | | Schneidstoff Cutting material Materiale da taglio | |
| ~ | | | | ~ | ~ | | | Spannung Werkzeug Tool clamping Bloccaggio utensile | Allgemeine Kriterien / General criteria / Accorgimenti generali |
| ~ | | | | ~ | ~ | | | Spannung Werkstück Workpiece clamping Bloccaggio pezzo | |
| ~ | | | | ~ | ↓ | | | Auskragung Overhang Sporgenza | |
| ~ | | ~ | | ~ | ~ | | | Spitzenhöhe Tip height Altezza tagliente | |
| | ● | ● | ● | | ● | ● | | Kühlschmierstoff Cooling lubricant Lubro-refrigerante | |

↑ erhöhen, vergrößern - großer Einfluss
increase, bigger effect
aumentare notevolmente i valori

↓ senken, verkleinern - großer Einfluss
increase, bigger effect
aumentare notevolmente i valori

↑ erhöhen, vergrößern - kleiner Einfluss
increase, smaller effect
aumentare leggermente i valori

↓ senken, verkleinern - kleiner Einfluss
reduce, smaller effect
diminuire notevolmente i valori

● verwenden
apply
utilizzare

~ kontrollieren, optimieren
check, optimize
controllare, ottimizzare