# TAPER AND DEBURRING COUNTERSINKERS

CMS
Industrial Equipment Company
6112 N. Mesa St. #127, El Paso, TX 79912
Ph: 1-866-566-0222

RUKO

# Taper and deburring countersinkers

The flutes of the new RUKO high-performance taper and deburring countersinkers are CBN ground from the fully hardened material. Because CBN (cubic crystalline boron nitride) is a much harder abrasive than even silicium carbide or corundum, a better and sharper cutting edge is achieved - without burrs. And, with higher dimensional precision the countersinkers will last considerably longer while maintaining the precise tolerances. Because of the CBN deep-ground flutes the cutting edges are extremely sharp. Ideal for burr- and chatter-free deburring and countersinking. Applicable for steel, cast iron, non-ferrous and light metals. Best results at low cutting speeds.

The ideal tool for countersinking and deburring in the following sectors of industry: electrical, sanitary engineering, heating technics, mechanical engineering, switching systems, tubular steel construction, furniture and wood working, automotive and aviation.

This tough tool is suitable for all standard industrial materials: non-ferrous metal, staiNless steel, thermoplastics and duroplastics as well as sheet metals.

The taper and deburring countersinkers as per DIN 335 are suitable in particular for countersinkings of type A and B of fine execution as per DIN 74.

By using RUKO cutting spray or RUKO cutting paste, longer tool life and superior surface quality of the workpiece is guaranteed.

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# Overview of symbols

| | | | |
|---|---|---|---|
| HSS — High-speed steel | Shank: Morse taper | 90° — Countersink angle: 90° | Uncoated surface |
| HSSE Co 5 — High-speed steel with 5% Cobalt content, ground | Shank: cylindrical | Cutting edges: diagonal slot | Black surface |
| TC — Tungsten carbide | 3 — Shank: 3-way clamping surface | Cutting edges: 1 | TiAlN — TiAlN coating |
| right hand cutting | Bit shank: 6,35 mm x 27,0 mm | Cutting edges: 3 | TiN — TiN coating |
| h8 — Tolerance: h8 | N — Helical point normal ground | 118° — Point angle: 118° | ALU — For aluminium |

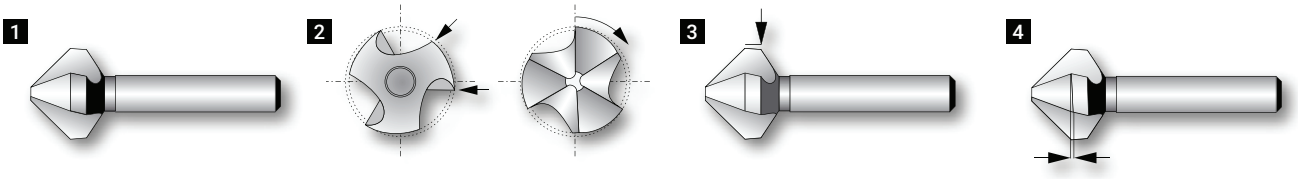
## Product Information

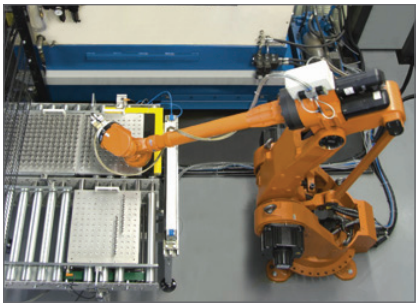
**1 CBN ground flute**
CBN deep-ground flutes have better and sharper cutting edges - without burrs - unlike conventional milled flutes.
This guarantees a superior cutting edge and considerably longer tool life. The CBN ground countersinkers ensure an excellent chip flow, chatter free working, scratch-free surface and have ideal centring features.

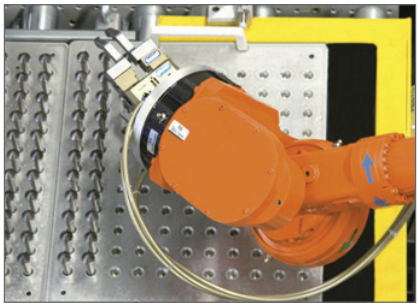
**2 Radially adjusted relief produced by CBN grinding**
Because the radially-adjusted relief produced by CBN grinding relates directly to its diameter, the cutting edge is always the highest point of the diameter.

**3 Axial relief produced by CBN grinding**
The axial relief produced by CBN grinding guarantees a smooth low-heat cut.

**4 CBN ground relief angle**
Each diameter has its own relief angle. Consequently the cutting edge is always the highest point, too.





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# Parts and applications overview:

| | Material | Surface | DIN | Shape | Counters. angle | Cutting edges | Shank | Ø mm | Article no. | Miscellaneous | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | HSS | | DIN 335 | C | | | | 4,3 - 40,0 mm | 102 101 - 102 174 | | 126 - 128 |
| | HSS | | DIN 335 | C | | | | 6,3 - 31,0 mm | 102 107 A - 102 125 A | ALU | 126 - 128 |
| | HSSE Co 5 | | DIN 335 | C | | | | 4,3 - 31,0 mm | 102 101 E - 102 125 E | | 126 - 128 |
| | HSS | TiN | DIN 335 | C | | | | 4,3 - 40,0 mm | 102 101 T - 102 174 T | | 126 - 128 |
| | HSS | TiAlN | DIN 335 | C | 90° | | | 4,3 - 40,0 mm | 102 101 F - 102 174 F | | 126 - 128 |
| | TC | | DIN 335 | C | | | | 6,3 - 31,0 mm | 102 261 - 102 268 | | 126 - 128 |
| | ASP | | DIN 335 | C | | | | 6,3 - 31,0 mm | 102 107 ASP - 102 125 ASP | | 129 |
| | HSS | | | C | | | 3 | 6,3 - 31,0 mm | 102 707 - 102 725 | QUICK CUT | 130 - 131 |
| | HSS | TiAlN | | C | | | 3 | 6,3 - 31,0 mm | 102 707 F - 102 725 F | QUICK CUT | 130 - 131 |
| | HSSE Co 5 | | | C | | | 3 | 6,3 - 31,0 mm | 102 707 E - 102 725 E | QUICK CUT | 130 - 131 |
| | HSSE Co 5 | TiAlN | | C | | | 3 | 6,3 - 31,0 mm | 102 707 EF - 102 725 EF | QUICK CUT | 130 - 131 |
| | HSS | | DIN 335 | C | 8° | | | 1/4" - 1" | 102 182 - 102 191 | | 139 |
| | HSS | | DIN 335 | C | | | | 6,3 - 25,0 mm | 102 271 - 102 288 | | 132 |
| | HSS | | DIN 335 | D | | | | 6,3 - 31,0 mm | 102 126 - 102 141 | | 133 |
| | HSS | | DIN 334 | C | | | | 6,3 - 25,0 mm | 102 201 - 102 207 | | 134 |
| | HSS | | DIN 334 | D | | | | 16,0 - 80,0 mm | 102 208 - 102 215 | | 134 |
| | HSS | | | C | | | | 6,3 - 25,0 mm | 102 221 - 102 227 | | 135 |
| | HSS | | | D | | | | 16,5 - 40,0 mm | 102 228 - 102 232 | | 135 |



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■ Main application □ Other application

| Steel (N/mm2) < 900 | Steel (N/mm2) < 1100 | Steel (N/mm2) < 1300 | Stainless steel | Aluminium | Brass | Bronze | Plastics | Cast iron | Titanium alloyed |
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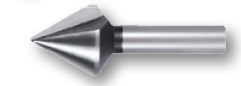
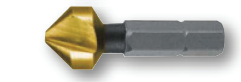
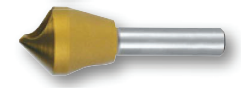
# Parts and applications overview:

| | Material | Surface | DIN | Shape | Counters. angle | Cutting edges | Shank | Ø mm | Article no. | Miscellaneous | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | HSS | | | C | 1 | | | 6,3 - 25,0 mm | 102 241 - 102 247 | | 136 |
| | HSS | | | D | 1 | | | 16,5 - 40,0 mm | 102 248 - 102 252 | | 136 |
|  | HSS | | | C | | | | 6,0 - 50,0 mm | 102 501 - 102 510 | | 137 |
| | HSS | | | D | | | | 16,0 - 50,0 mm | 102 511 - 102 516 | | 137 |
| | HSS | | | C | | | | 6,0 - 50,0 mm | 102 521 - 102 530 | | 138 |
| | HSS | | | D | | | | 16,0 - 50,0 mm | 102 531 - 102 536 | | 138 |
| | HSS | | | | | | | 6,3 - 20,5 mm | W102 313 - W102 318 | | 140 |
|  | HSS | TiN | | | 90° | | | 6,3 - 20,5 mm | W102 313T - W102 318T | | 140 |
| | HSS | | | | | | | 6,3 - 20,5 mm | 102 313 - 102 318 | | 141 |
| | HSS | TiN | | | | | | 6,3 - 20,5 mm | 102 313T - 102 318T | | 141 |
| | HSS | | | | | | | 1/4 - 20/25 | 102 301 - 102 305 | | 142 |
| | HSSE Co 5 | | | | | | | 1/4 - 20/25 | 102 300 E - 102 305 E | | 142 |
|  | HSS | TiN | | | | | | 1/4 - 20/25 | 102 301 T - 102 305 T | | 142 |
| | HSS | | | | 18 ° | | | M10 - M22 | 102 422 - 102 442 | | 143 |
| | HSS | | | | 18 ° | | | M3 - M12 | 102 401 - 102 421 | | 144 - 145 |
| | HSS | TiN | | | 18 ° | | | M3 - M12 | 102 401 T - 102 421 T | | 144 - 145 |
| | HSS | | DIN 8374 DIN 8376 DIN 8378 | N | | | | M3 - M12 | 102 601 - 102 619 | 118° | 146 |
| | HSS | | DIN 8374 DIN 8376 DIN 8378 | N | | | | M3 - M12 | 102 620 - 102 638 | 118° | 147 |



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■ Main application ☐ Other application

| Steel (N/mm2) < 900 | Steel (N/mm2) < 1100 | Steel (N/mm2) < 1300 | Stainless steel | Aluminium | Brass | Bronze | Plastics | Cast iron | Titanium alloyed |
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HSS | HSSE Co 5 | TC | C | DIN 335 | 90°

# Taper and deburring countersinkers DIN 335 type C 90°

Because of the CBN deep-ground flutes the cutting edges are extremely sharp.
Ideal for burr- and chatter-free deburring and countersinking.
Best results at low cutting speeds.

Packing unit: in plastic tubes of 1

To increase the service life - reduce speed!
Cooling while countersinking!

| | HSS | HSS ALU | HSSE Co 5 | HSS TiN | HSS TiAlN | TC |
|---|---|---|---|---|---|---|
| Steel (N/mm2) < 900 | ■ | □ | ■ | ■ | ■ | ■ |
| Steel (N/mm2) < 1100 | | | ■ | □ | ■ | ■ |
| Steel (N/mm2) < 1300 | | | | | □ | ■ |
| Rust-resistant steel | | | ■ | □ | □ | ■ |
| Aluminium | ■ | ■ | ■ | | ■ | ■ |

| | HSS | HSS ALU | HSSE Co 5 | HSS TiN | HSS TiAlN | TC |
|---|---|---|---|---|---|---|
| Brass | ■ | □ | ■ | ■ | ■ | □ |
| Bronze | □ | | □ | □ | □ | □ |
| Plastics | ■ | ■ | ■ | ■ | ■ | ■ |
| Cast iron | □ | | □ | □ | □ | ■ |
| Titanium alloyed | | | | | | |

| Ø2 mm | Ø1 mm | L1 mm | Ø3 mm | Countersinkings as per DIN 74 AF | Countersinkings as per DIN 74 BF | HSS | HSS ALU | HSSE Co 5 | HSS TiN | HSS TiAlN | TC | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,3 | 1,3 | 40,0 | 4,0 | | | 102 101 | – | 102 101 E | 102 101 T | 102 101 F | – | 1 |
| 4,8 | 1,5 | 40,0 | 4,0 | | | 102 102 | – | – | 102 102 T | 102 102 F | – | 1 |
| 5,0 | 1,5 | 40,0 | 4,0 | M 2,5 | | 102 103 | – | 102 103 E | 102 103 T | 102 103 F | – | 1 |
| 5,3 | 1,5 | 40,0 | 4,0 | | | 102 104 | – | 102 104 E | 102 104 T | 102 104 F | – | 1 |
| 5,8 | 1,5 | 45,0 | 5,0 | | | 102 105 | – | – | 102 105 T | 102 105 F | – | 1 |
| 6,0 | 1,5 | 45,0 | 5,0 | M 3 | | 102 106 | – | 102 106 E | 102 106 T | 102 106 F | – | 1 |
| 6,3 | 1,5 | 45,0 | 5,0 | | M 3 | 102 107 | 102 107 A | 102 107 E | 102 107 T | 102 107 F | 102 261 | 1 |
| 7,0 | 1,8 | 50,0 | 6,0 | M 3,5 | | 102 108 | – | – | 102 108 T | 102 108 F | – | 1 |
| 7,3 | 1,8 | 50,0 | 6,0 | | | 102 109 | – | – | 102 109 T | 102 109 F | – | 1 |
| 8,0 | 2,0 | 50,0 | 6,0 | M 4 | | 102 110 | – | 102 110 E | 102 110 T | 102 110 F | – | 1 |
| 8,3 | 2,0 | 50,0 | 6,0 | | M 4 | 102 111 | 102 111 A | 102 111 E | 102 111 T | 102 111 F | 102 262 | 1 |
| 9,4 | 2,2 | 50,0 | 6,0 | | | 102 112 | – | – | 102 112 T | 102 112 F | – | 1 |
| 10,0 | 2,5 | 50,0 | 6,0 | M 5 | | 102 113 | – | 102 113 E | 102 113 T | 102 113 F | – | 1 |
| 10,4 | 2,5 | 50,0 | 6,0 | | M 5 | 102 114 | 102 114 A | 102 114 E | 102 114 T | 102 114 F | 102 263 | 1 |
| 11,5 | 2,8 | 56,0 | 8,0 | M 6 | | 102 115 | – | 102 115 E | 102 115 T | 102 115 F | – | 1 |
| 12,4 | 2,8 | 56,0 | 8,0 | | M 6 | 102 116 | 102 116 A | 102 116 E | 102 116 T | 102 116 F | 102 264 | 1 |
| 13,4 | 2,9 | 56,0 | 8,0 | | | 102 117 | – | – | 102 117 T | 102 117 F | – | 1 |
| 15,0 | 3,2 | 60,0 | 10,0 | M 8 | | 102 118 | – | 102 118 E | 102 118 T | 102 118 F | – | 1 |
| 16,5 | 3,2 | 60,0 | 8,0 | | M 8 | 102 119 | 102 119 A | 102 119 E | 102 119 T | 102 119 F | – | 1 |
| 16,5 | 3,2 | 60,0 | 10,0 | | M 8 | 102 119-1 | 102 119-1 A | 102 119-1 E | 102 119-1 T | 102 119-1 F | 102 265 | 1 |
| 19,0 | 3,5 | 63,0 | 10,0 | M 10 | | 102 120 | – | 102 120 E | 102 120 T | 102 120 F | – | 1 |
| 20,5 | 3,5 | 63,0 | 10,0 | | M 10 | 102 121 | 102 121 A | 102 121 E | 102 121 T | 102 121 F | 102 266 | 1 |
| 23,0 | 3,8 | 67,0 | 10,0 | M 12 | | 102 122 | – | 102 122 E | 102 122 T | 102 122 F | – | 1 |
| 25,0 | 3,8 | 67,0 | 10,0 | | M 12 | 102 123 | 102 123 A | 102 123 E | 102 123 T | 102 123 F | 102 267 | 1 |
| 26,0 | 3,9 | 71,0 | 12,0 | M 14 | | 102 171 | – | – | 102 171 T | 102 171 F | – | 1 |
| 28,0 | 4,0 | 71,0 | 12,0 | | M 14 | 102 124 | – | 102 124 E | 102 124 T | 102 124 F | – | 1 |
| 30,0 | 4,1 | 71,0 | 12,0 | M 16 | | 102 172 | – | – | 102 172 T | 102 172 F | – | 1 |
| 31,0 | 4,2 | 71,0 | 12,0 | | M 16 | 102 125 | 102 125 A | 102 125 E | 102 125 T | 102 125 F | 102 268 | 1 |
| 37,0 | 4,8 | 90,0 | 12,0 | | | 102 173 | – | – | 102 173 T | 102 173 F | – | 1 |
| 40,0 | 10,0 | 80,0 | 15,0 | | | 102 174 | – | – | 102 174 T | 102 174 F | – | 1 |



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■ Main application □ Other application

# Taper and deburring countersinker sets DIN 335 type C 90°
# HSS, HSSE-Co 5 and tungsten carbide K 20 in steel case

| | HSS | HSS ALU | HSSE Co 5 | HSS TiN | HSS TiAlN | TC |
|---|---|---|---|---|---|---|
| 5-piece set of taper and deburring countersinkers DIN 335 type C 90° Ø 6,3 - 10,4 - 16,5 - 20,5 - 25,0 mm (Ø 16,5 mm = shank-Ø 10,0 mm) | 102 154 | 102 154 A | 102 154 E | 102 154 T | 102 154 F | – |
| 6-piece set of taper and deburring countersinkers DIN 335 type C 90° Ø 6,3 - 8,3 - 10,4 - 12,4 - 16,5 - 20,5 mm (Ø 16,5 mm = shank-Ø 10,0 mm) | 102 152 | 102 152 A | 102 152 E | 102 152 T | 102 152 F | 102 152 HM |
| 5-piece set of taper and deburring countersinkers DIN 335 type C 90° Ø 10,4 - 16,5 - 20,5 - 25,0 mm (Ø 16,5 mm = shank-Ø 8,0 mm) + 1 x 30 g tin of cutting paste | 102 150 | 102 150 A | 102 150 E | 102 150 T | – | – |
| 5-piece set of taper and deburring countersinkers DIN 335 type C 90° Ø 8,3 - 10,4 - 16,5 - 20,5 mm (Ø 16,5 mm = shank-Ø 8,0 mm) + 1 x 30 g tin of cutting paste | 102 151 | 102 151 A | 102 151 E | 102 151 T | – | – |

# Taper and deburring countersinker sets DIN 335 type C 90° HSS
# in wooden case

| | | | | | | |
|---|---|---|---|---|---|---|
| 17-piece set of taper and deburring countersinkers DIN 335 type C 90° Ø 4,3 - 5,0 - 6,0 - 6,3 - 7,0 - 8,0 - 8,3 - 10,0 - 10,4 - 11,5 - 12,4 -15,0 - 16,5 - 19,0 - 20,5 - 23,0 - 25,0 mm (Ø 16,5 mm = shank-Ø 10,0 mm) in wooden case | 102 155 | – | – | – | – | – |

102 152

102 152 T

102 154 F

102 150 T

102 151 E

102 155

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# Taper and deburring countersinker sets DIN 335 type C 90°
# HSS, HSSE-Co 5 and tungsten carbide K 20 in plastic case

| | HSS | HSS ALU | HSSE Co 5 | HSS TiN | HSS TiAlN | TC |
|---|---|---|---|---|---|---|
| 5-piece set of taper and deburring countersinkers<br>DIN 335 type C 90°<br>Ø 6,3 - 10,4 - 16,5 - 20,5 - 25,0 mm<br>(Ø 16,5 mm = shank-Ø 10,0 mm) | 102 154 RO | – | 102 154 ERO | 102 154 TRO | 102 154 FRO | – |
| 6-piece set of taper and deburring countersinkers<br>DIN 335 type C 90°<br>Ø 6,3 - 8,3 - 10,4 - 12,4 - 16,5 - 20,5 mm<br>(Ø 16,5 mm = shank-Ø 10,0 mm) | 102 152 RO | – | 102 152 ERO | 102 152 TRO | 102 152 FRO | 102 152 HMRO |
| 17-piece set of taper and deburring countersinkers<br>DIN 335 type C 90°<br>Ø 4,3 - 5,0 - 6,0 - 6,3 - 7,0 - 8,0 - 8,3 - 10,0 - 10,4 - 11,5 - 12,4 - 15,0 - 16,5 - 19,0 - 20,5 - 23,0 - 25,0 mm<br>(Ø 16,5 mm = shank-Ø 10,0 mm) | 102 155 RO | – | – | – | – | – |

| | | | | | | |
|---|---|---|---|---|---|---|
| 6-piece set of taper and deburring countersinkers<br>DIN 335 type C 90°<br>Ø 6,3 - 10,4 - 16,5 - 20,5 - 25,0 mm<br>(Ø 16,5 mm = shank-Ø 8,0 mm)<br>+ 1 x 50 ml tin of cutting spray | 102 142 | 102 142 A | 102 142 E | 102 142 T | – | – |

102 154 TRO

102 152 FRO

102 155 RO

102 142

102 142 E

102 142 T



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■ Main application ☐ Other application

# Taper and deburring countersinkers DIN 335 type C 90° ASP

The taper and deburring countersinker DIN 335 form C 90° ASP is made of powder-metallurgical metal and thus has a higher cutting edge stability. Best results in VA steels, Hardox 400 steels, titanium and titanium alloys.

Packing unit: in plastic tubes of 1

| | |
|---|---|
| Steel (N/mm2) < 900 | ■ |
| Steel (N/mm2) < 1100 | ■ |
| Steel (N/mm2) < 1300 | ■ |
| Rust-resistant steel | ■ |
| Aluminium | ■ |

| | |
|---|---|
| Brass | ■ |
| Bronze | □ |
| Plastics | ■ |
| Cast iron | ■ |
| Titanium alloyed | ■ |

| Ø2 mm | Ø1 mm | L1 mm | Ø3 mm | Countersinkings as per DIN 74 / BF | ASP | |
|---|---|---|---|---|---|---|
| 6,3 | 1,5 | 45,0 | 5,0 | M 3 | 102 107 ASP | 1 |
| 8,3 | 2,0 | 50,0 | 6,0 | M 4 | 102 111 ASP | 1 |
| 10,4 | 2,5 | 50,0 | 6,0 | M 5 | 102 114 ASP | 1 |
| 12,4 | 2,8 | 56,0 | 8,0 | M 6 | 102 116 ASP | 1 |
| 16,5 | 3,2 | 60,0 | 10,0 | M 8 | 102 119-1 ASP | 1 |
| 20,5 | 3,5 | 63,0 | 10,0 | M 10 | 102 121 ASP | 1 |
| 25,0 | 3,8 | 67,0 | 10,0 | M 12 | 102 123 ASP | 1 |
| 31,0 | 4,2 | 71,0 | 12,0 | M 16 | 102 125 ASP | 1 |

# Taper and deburring countersinker sets DIN 335 type C 90° ASP in steel case

| | ASP |
|---|---|
| 6-piece set of taper and deburring countersinkers<br>DIN 335 type C 90° ASP<br>Ø 6,3 - 8,3 - 10,4 - 12,4 - 16,5 - 20,5 mm | 102 152 ASP |
| 5-piece set of taper and deburring countersinkers<br>DIN 335 type C 90° ASP<br>Ø 6,3 - 10,4 - 16,5 - 20,5 - 25,0 mm | 102 154 ASP |

102 152 ASP

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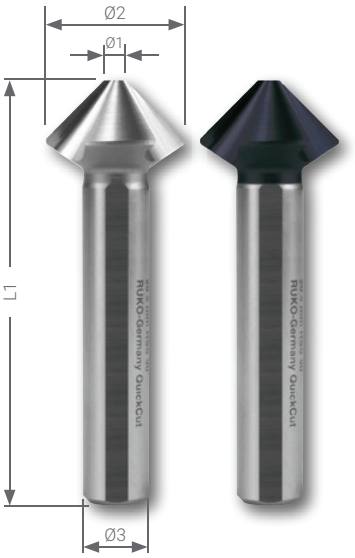
# Taper and deburring countersinkers "**QUICKCut**" (DIN 335) type C 90°




Thanks to a new, innovative production process, it is possible to generate a significantly larger clearance angle on the countersink QUICKCut than has previously been possible with the known production methods. In combination with the 3-surface shank, the cutting properties and cutting performance of this new countersink generation could be significantly improved compared to conventional countersinks.

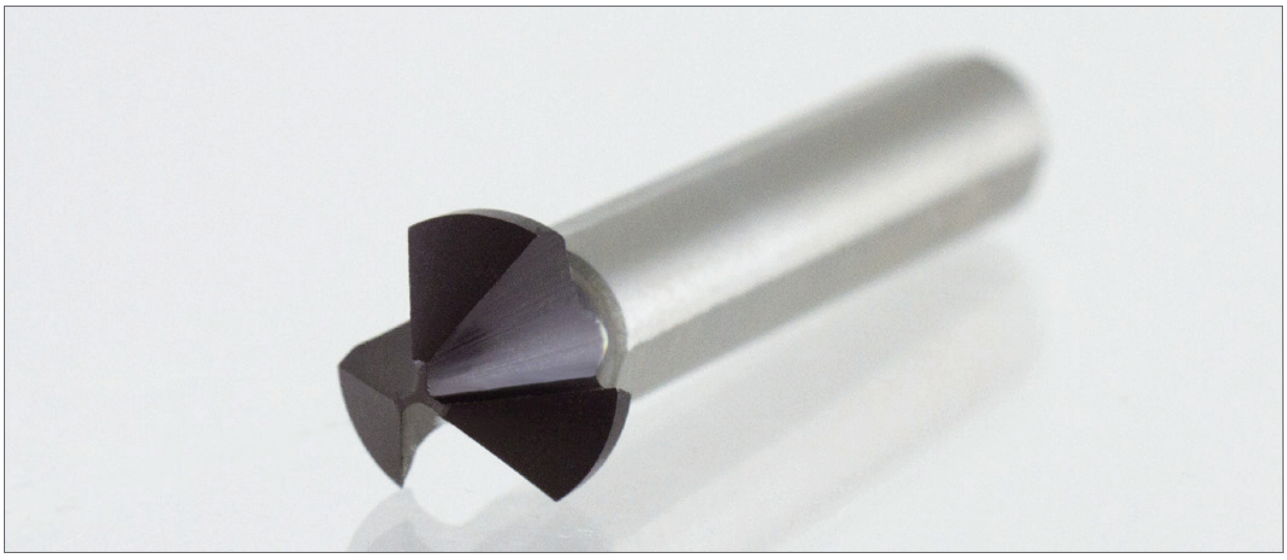
Packing unit: in plastic tubes of 1

- 3-surface shank
- Up to 25% lower wear
- Up to 40% longer service life
- Up to 30% faster countersinking
- Automatic and fast feed!

| | | | | |
|---|---|---|---|---|
| Steel (N/mm2) < 900 | ■ | ■ | ■ | ■ |
| Steel (N/mm2) < 1100 | | ■ | □ | ■ |
| Steel (N/mm2) < 1300 | | □ | | □ |
| Rust-resistant steel | | ■ | ■ | ■ |
| Aluminium | ■ | ■ | ■ | ■ |

| | | | | |
|---|---|---|---|---|
| Brass | ■ | ■ | ■ | ■ |
| Bronze | □ | □ | □ | □ |
| Plastics | ■ | ■ | ■ | ■ |
| Cast iron | □ | □ | □ | □ |
| Titanium alloyed | | | | □ |

| Ø2 mm | Ø1 mm | L1 mm | Ø3 mm | Countersinkings as per DIN 74 / BF | HSS | HSS TiAlN | HSSE Co 5 | HSSE Co 5 TiAlN | |
|---|---|---|---|---|---|---|---|---|---|
| 6,3 | 1,5 | 45,0 | 5,0 | M 3 | 102 707 | 102 707 F | 102 707 E | 102 707 EF | 1 |
| 8,3 | 2,0 | 50,0 | 6,0 | M 4 | 102 711 | 102 711 F | 102 711 E | 102 711 EF | 1 |
| 10,4 | 2,5 | 50,0 | 6,0 | M 5 | 102 714 | 102 714 F | 102 714 E | 102 714 EF | 1 |
| 12,4 | 2,8 | 56,0 | 8,0 | M 6 | 102 716 | 102 716 F | 102 716 E | 102 716 EF | 1 |
| 15,0 | 3,2 | 60,0 | 10,0 | M 8 | 102 718 | 102 718 F | 102 718 E | 102 718 EF | 1 |
| 16,5 | 3,2 | 60,0 | 10,0 | M 8 | 102 719 | 102 719 F | 102 719 E | 102 719 EF | 1 |
| 19,0 | 3,5 | 63,0 | 10,0 | M 10 | 102 720 | 102 720 F | 102 720 E | 102 720 EF | 1 |
| 20,5 | 3,5 | 63,0 | 10,0 | M 10 | 102 721 | 102 721 F | 102 721 E | 102 721 EF | 1 |
| 23,0 | 3,8 | 67,0 | 10,0 | M 12 | 102 722 | 102 722 F | 102 722 E | 102 722 EF | 1 |
| 25,0 | 3,8 | 67,0 | 10,0 | M 12 | 102 723 | 102 723 F | 102 723 E | 102 723 EF | 1 |
| 31,0 | 4,2 | 71,0 | 12,0 | M 16 | 102 725 | 102 725 F | 102 725 E | 102 725 EF | 1 |





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■ Main application □ Other application

## Taper and deburring countersinker sets "**QUICKCut**" (DIN 335) type C 90° in steel case

| | HSS | HSS TiAlN | HSSE Co 5 | HSSE Co 5 TiAlN |
|---|---|---|---|---|
| 6-piece set of taper and deburring countersinkers "QUICKCut" (DIN 335) type C 90° Ø 6,3 - 8,3 - 10,4 - 12,4 - 16,5 - 20,5 mm | 102 752 | 102 752 F | 102 752 E | 102 752 EF |
| 5-piece set of taper and deburring countersinkers "QUICKCut" (DIN 335) type C 90° Ø 6,3 - 10,4 - 16,5 - 20,5 - 25,0 mm | 102 754 | 102 754 F | 102 754 E | 102 754 EF |

102 752

102 752 F

102 754 EF

## Taper and deburring countersinker sets "**QUICKCut**" (DIN 335) type C 90° in plastic case

| | HSS | HSS TiAlN | HSSE Co 5 | HSSE Co 5 TiAlN |
|---|---|---|---|---|
| 6-piece set of taper and deburring countersinkers "QUICKCut" (DIN 335) type C 90° Ø 6,3 - 8,3 - 10,4 - 12,4 - 16,5 - 20,5 mm | 102 752 RO | 102 752 FRO | 102 752 ERO | 102 752 EFRO |
| 5-piece set of taper and deburring countersinkers "QUICKCut" (DIN 335) type C 90° Ø 6,3 - 10,4 - 16,5 - 20,5 - 25,0 mm | 102 754 RO | 102 754 FRO | 102 754 ERO | 102 754 EFRO |

102 752 RO

102 752 FRO

102 754 EFRO

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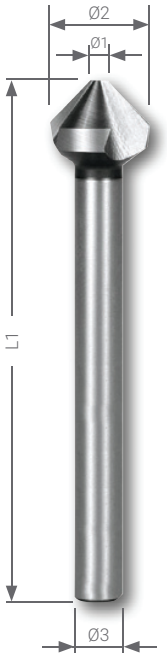
# Taper and deburring countersinkers DIN 335 type C 90° HSS, with long cylindrical shank




Because of the CBN deep-ground flutes the cutting edges are extremely sharp.
Ideal for burr- and chatter-free deburring and countersinking. Best results at low cutting speeds.

Packing unit: in plastic tubes of 1

| | |
|---|---|
| Steel (N/mm2) < 900 | ■ |
| Steel (N/mm2) < 1100 | |
| Steel (N/mm2) < 1300 | |
| Rust-resistant steel | |
| Aluminium | ■ |

| | |
|---|---|
| Brass | ■ |
| Bronze | □ |
| Plastics | ■ |
| Cast iron | □ |
| Titanium alloyed | |

| Ø2 mm | Ø1 mm | L1 mm | Ø3 mm | Countersinkings as per DIN 74 AF | Countersinkings as per DIN 74 BF | HSS | |
|---|---|---|---|---|---|---|---|
| 6,3 | 1,5 | 85,0 | 5,0 | - | M 3 | 102 271 | 1 |
| 8,3 | 2,0 | 85,0 | 6,0 | - | M 4 | 102 272 | 1 |
| 10,4 | 2,5 | 88,0 | 6,0 | - | M 5 | 102 273 | 1 |
| 12,4 | 2,8 | 108,0 | 8,0 | - | M 6 | 102 274 | 1 |
| 15,0 | 3,2 | 110,0 | 10,0 | M 8 | - | 102 275 | 1 |
| 16,5 | 3,2 | 112,0 | 10,0 | - | M 8 | 102 276 | 1 |
| 20,5 | 3,5 | 115,0 | 10,0 | - | M 10 | 102 277 | 1 |
| 25,0 | 3,8 | 118,0 | 10,0 | - | M 12 | 102 278 | 1 |

| Ø2 mm | Ø1 mm | L1 mm | Ø3 mm | Countersinkings as per DIN 74 AF | Countersinkings as per DIN 74 BF | HSS | |
|---|---|---|---|---|---|---|---|
| 6,3 | 1,5 | 154,0 | 5,0 | - | M 3 | 102 281 | 1 |
| 8,3 | 2,0 | 155,0 | 6,0 | - | M 4 | 102 282 | 1 |
| 10,4 | 2,5 | 157,0 | 6,0 | - | M 5 | 102 283 | 1 |
| 12,4 | 2,8 | 158,0 | 8,0 | - | M 6 | 102 284 | 1 |
| 15,0 | 3,2 | 158,0 | 10,0 | M 8 | - | 102 285 | 1 |
| 16,5 | 3,2 | 161,0 | 10,0 | - | M 8 | 102 286 | 1 |
| 20,5 | 3,5 | 164,0 | 10,0 | - | M 10 | 102 287 | 1 |
| 25,0 | 3,8 | 164,0 | 10,0 | - | M 12 | 102 288 | 1 |

# Taper and deburring countersinkers DIN 335 type C 90° HSS, with long cylindrical shank, in plastic case

102 158 RO

| | HSS | |
|---|---|---|
| 6-piece set of taper and deburring countersinkers DIN 335 type C 90° Ø 6,3 - 8,3 - 10,4 - 12,4 - 16,5 - 20,5 mm | ■ | 102 158 RO |



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# Taper and deburring countersinkers DIN 335 type D 90° HSS

Packing unit: in plastic tubes of 1

| | |
|---|---|
| Steel (N/mm2) < 900 | ■ |
| Steel (N/mm2) < 1100 | |
| Steel (N/mm2) < 1300 | |
| Rust-resistant steel | |
| Aluminium | ■ |

| | |
|---|---|
| Brass | ■ |
| Bronze | □ |
| Plastics | ■ |
| Cast iron | □ |
| Titanium alloyed | |

| Ø2 mm | Ø1 mm | L1 mm | Shank S1 | Senkungen nach DIN 74 AF | Senkungen nach DIN 74 BF | HSS | |
|---|---|---|---|---|---|---|---|
| 15,0 | 3,2 | 85,0 | MT 1 | M 8 | - | 102 126 | 1 |
| 16,5 | 3,2 | 85,0 | MT 1 | - | M 8 | 102 127 | 1 |
| 19,0 | 3,5 | 100,0 | MT 2 | M 10 | - | 102 128 | 1 |
| 20,5 | 3,5 | 100,0 | MT 2 | - | M 10 | 102 129 | 1 |
| 23,0 | 3,8 | 106,0 | MT 2 | M 12 | - | 102 130 | 1 |
| 25,0 | 3,8 | 106,0 | MT 2 | - | M 12 | 102 131 | 1 |
| 26,0 | 3,8 | 106,0 | MT 2 | M 14 | - | 102 132 | 1 |
| 28,0 | 4,0 | 112,0 | MT 2 | - | M 14 | 102 133 | 1 |
| 30,0 | 4,2 | 112,0 | MT 2 | M 16 | - | 102 134 | 1 |
| 31,0 | 4,2 | 112,0 | MT 2 | - | M 16 | 102 135 | 1 |
| 34,0 | 4,5 | 118,0 | MT 2 | M 18 | M 18 | 102 136 | 1 |
| 37,0 | 4,8 | 118,0 | MT 2 | M 20 | M 20 | 102 137 | 1 |
| 40,0 | 10,0 | 140,0 | MT 3 | - | - | 102 138 | 1 |
| 50,0 | 14,0 | 150,0 | MT 3 | - | - | 102 139 | 1 |
| 63,0 | 16,0 | 180,0 | MT 4 | - | - | 102 140 | 1 |
| 80,0 | 22,0 | 190,0 | MT 4 | - | - | 102 141 | 1 |

# Hand deburrer DIN 335 type C 90° HSS, CBN ground

Packing unit: in plastic tubes of 1

| | HSS | |
|---|---|---|
| Hand deburrer with countersinker Ø 12,4 mm | 102 143 | 1 |
| Hand deburrer with countersinker Ø 15,0 mm | 102 144 | 1 |
| Hand deburrer with countersinker Ø 16,5 mm | 102 145 | 1 |
| Hand deburrer with countersinker Ø 20,5 mm | 102 146 | 1 |
| Hand deburrer with countersinker Ø 25,0 mm | 102 147 | 1 |

# Universal handle to fit countersinkers

Packing unit: in plastic tubes of 1

| | HSS | |
|---|---|---|
| Universal handle for countersinker with 8,0 mm shank Ø | 102 148 | 1 |
| Universal handle for countersinker with 10,0 mm shank Ø | 102 149 | 1 |
| Universal handle for countersinker with 1/4" hexagon socket | 102 320 | 1 |

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# Taper and deburring countersinkers DIN 334 type C 60° HSS

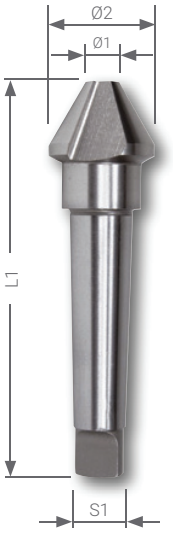
Packing unit: in plastic tubes of 1

| | |
|---|---|
| Steel (N/mm2) < 900 | ■ |
| Steel (N/mm2) < 1100 | |
| Steel (N/mm2) < 1300 | |
| Rust-resistant steel | |
| Aluminium | ■ |

| | |
|---|---|
| Brass | ■ |
| Bronze | □ |
| Plastics | ■ |
| Cast iron | □ |
| Titanium alloyed | |

| Ø2 mm | Ø1 mm | L1 mm | Ø3 mm | HSS | |
|---|---|---|---|---|---|
| 6,3 | 1,6 | 45,0 | 5,0 | 102 201 | 1 |
| 8,0 | 2,0 | 50,0 | 6,0 | 102 202 | 1 |
| 10,0 | 2,5 | 50,0 | 6,0 | 102 203 | 1 |
| 12,5 | 3,2 | 56,0 | 8,0 | 102 204 | 1 |
| 16,0 | 4,0 | 63,0 | 10,0 | 102 205 | 1 |
| 20,0 | 5,0 | 67,0 | 10,0 | 102 206 | 1 |
| 25,0 | 6,3 | 71,0 | 10,0 | 102 207 | 1 |

# Taper and deburring countersinkers DIN 334 type D 60° HSS




Packing unit: in plastic tubes of 1

| | |
|---|---|
| Steel (N/mm2) < 900 | ■ |
| Steel (N/mm2) < 1100 | |
| Steel (N/mm2) < 1300 | |
| Rust-resistant steel | |
| Aluminium | ■ |

| | |
|---|---|
| Brass | ■ |
| Bronze | □ |
| Plastics | ■ |
| Cast iron | □ |
| Titanium alloyed | |

| Ø2 mm | Ø1 mm | L1 mm | Shank S1 | HSS | |
|---|---|---|---|---|---|
| 16,0 | 4,0 | 90,0 | MT 1 | 102 208 | 1 |
| 20,0 | 5,0 | 106,0 | MT 2 | 102 209 | 1 |
| 25,0 | 6,3 | 112,0 | MT 2 | 102 210 | 1 |
| 31,5 | 10,0 | 118,0 | MT 2 | 102 211 | 1 |
| 40,0 | 12,5 | 150,0 | MT 3 | 102 212 | 1 |
| 50,0 | 16,0 | 160,0 | MT 3 | 102 213 | 1 |
| 63,0 | 20,0 | 190,0 | MT 4 | 102 214 | 1 |
| 80,0 | 25,0 | 200,0 | MT 4 | 102 215 | 1 |



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■ Main application □ Other application

# Taper and deburring countersinkers type C 75° HSS

Packing unit: in plastic tubes of 1

| | |
|---|---|
| Steel (N/mm2) < 900 | ■ |
| Steel (N/mm2) < 1100 | |
| Steel (N/mm2) < 1300 | |
| Rust-resistant steel | |
| Aluminium | ■ |

| | |
|---|---|
| Brass | ■ |
| Bronze | □ |
| Plastics | ■ |
| Cast iron | □ |
| Titanium alloyed | |

| Ø2 mm | Ø1 mm | L1 mm | Ø3 mm | HSS | |
|---|---|---|---|---|---|
| 6,3 | 1,6 | 45,0 | 5,0 | 102 221 | 1 |
| 8,3 | 2,0 | 50,0 | 6,0 | 102 222 | 1 |
| 10,4 | 2,5 | 50,0 | 6,0 | 102 223 | 1 |
| 12,4 | 3,2 | 56,0 | 8,0 | 102 224 | 1 |
| 16,5 | 4,0 | 63,0 | 10,0 | 102 225 | 1 |
| 20,5 | 5,0 | 67,0 | 10,0 | 102 226 | 1 |
| 25,0 | 6,3 | 71,0 | 10,0 | 102 227 | 1 |

# Taper and deburring countersinkers type D 75° HSS

Packing unit: in plastic tubes of 1

| | |
|---|---|
| Steel (N/mm2) < 900 | ■ |
| Steel (N/mm2) < 1100 | |
| Steel (N/mm2) < 1300 | |
| Rust-resistant steel | |
| Aluminium | ■ |

| | |
|---|---|
| Brass | ■ |
| Bronze | □ |
| Plastics | ■ |
| Cast iron | □ |
| Titanium alloyed | |

| Ø2 mm | Ø1 mm | L1 mm | Shank S1 | HSS | |
|---|---|---|---|---|---|
| 16,5 | 3,5 | 87,0 | MT 1 | 102 228 | 1 |
| 20,5 | 4,5 | 102,0 | MT 2 | 102 229 | 1 |
| 25,0 | 5,0 | 109,0 | MT 2 | 102 230 | 1 |
| 31,0 | 5,0 | 116,0 | MT 2 | 102 231 | 1 |
| 40,0 | 10,0 | 145,0 | MT 3 | 102 232 | 1 |

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# Taper and deburring countersinkers type C 120° HSS

Packing unit: in plastic tubes of 1

| | |
|---|---|
| Steel (N/mm2) < 900 | ■ |
| Steel (N/mm2) < 1100 | |
| Steel (N/mm2) < 1300 | |
| Rust-resistant steel | |
| Aluminium | ■ |

| | |
|---|---|
| Brass | ■ |
| Bronze | □ |
| Plastics | ■ |
| Cast iron | □ |
| Titanium alloyed | |

| Ø2 mm | Ø1 mm | L1 mm | Ø3 mm | HSS | |
|---|---|---|---|---|---|
| 6,3 | 1,5 | 45,0 | 5,0 | 102 241 | 1 |
| 8,3 | 2,0 | 50,0 | 6,0 | 102 242 | 1 |
| 10,4 | 2,5 | 50,0 | 6,0 | 102 243 | 1 |
| 12,4 | 3,0 | 56,0 | 8,0 | 102 244 | 1 |
| 16,5 | 3,5 | 63,0 | 10,0 | 102 245 | 1 |
| 20,5 | 4,0 | 67,0 | 10,0 | 102 246 | 1 |
| 25,0 | 5,0 | 71,0 | 10,0 | 102 247 | 1 |

# Taper and deburring countersinkers type D 120° HSS

Packing unit: in plastic tubes of 1

| | |
|---|---|
| Steel (N/mm2) < 900 | ■ |
| Steel (N/mm2) < 1100 | |
| Steel (N/mm2) < 1300 | |
| Rust-resistant steel | |
| Aluminium | ■ |

| | |
|---|---|
| Brass | ■ |
| Bronze | □ |
| Plastics | ■ |
| Cast iron | □ |
| Titanium alloyed | |

| Ø2 mm | Ø1 mm | L1 mm | Shank S1 | HSS | |
|---|---|---|---|---|---|
| 16,5 | 3,5 | 87,0 | MT 1 | 102 248 | 1 |
| 20,5 | 4,5 | 102,0 | MT 2 | 102 249 | 1 |
| 25,0 | 5,0 | 109,0 | MT 2 | 102 250 | 1 |
| 31,0 | 5,0 | 116,0 | MT 2 | 102 251 | 1 |
| 40,0 | 10,0 | 145,0 | MT 3 | 102 252 | 1 |



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■ Main application □ Other application

# Taper and deburring countersinkers type C 60° HSS

Only countersinking and deburring possible.
Countersink with a blade not recommended for full countersinking.

Packing unit: in plastic tubes of 1

| | |
|---|---|
| Steel (N/mm2) < 900 | ■ |
| Steel (N/mm2) < 1100 | |
| Steel (N/mm2) < 1300 | |
| Rust-resistant steel | |
| Aluminium | ■ |

| | |
|---|---|
| Brass | ■ |
| Bronze | □ |
| Plastics | ■ |
| Cast iron | □ |
| Titanium alloyed | |

| Ø2 mm | L1 mm | Ø3 mm | HSS | |
|---|---|---|---|---|
| 6,0 | 45,0 | 5,0 | 102 501 | 1 |
| 8,0 | 50,0 | 6,0 | 102 502 | 1 |
| 10,0 | 50,0 | 6,0 | 102 503 | 1 |
| 12,0 | 56,0 | 8,0 | 102 504 | 1 |
| 16,0 | 63,0 | 10,0 | 102 505 | 1 |
| 20,0 | 67,0 | 10,0 | 102 506 | 1 |
| 25,0 | 71,0 | 10,0 | 102 507 | 1 |
| 30,0 | 81,0 | 12,0 | 102 508 | 1 |
| 40,0 | 89,0 | 15,0 | 102 509 | 1 |
| 50,0 | 98,0 | 15,0 | 102 510 | 1 |

# Taper and deburring countersinkers type D 60° HSS

Only countersinking and deburring possible.
Countersink with a blade not recommended for full countersinking.

Packing unit: in plastic tubes of 1

| | |
|---|---|
| Steel (N/mm2) < 900 | ■ |
| Steel (N/mm2) < 1100 | |
| Steel (N/mm2) < 1300 | |
| Rust-resistant steel | |
| Aluminium | ■ |

| | |
|---|---|
| Brass | ■ |
| Bronze | □ |
| Plastics | ■ |
| Cast iron | □ |
| Titanium alloyed | |

| Ø2 mm | L1 mm | Shank S1 | HSS | |
|---|---|---|---|---|
| 16,0 | 92,0 | MT 1 | 102 511 | 1 |
| 20,0 | 107,0 | MT 2 | 102 512 | 1 |
| 25,0 | 110,0 | MT 2 | 102 513 | 1 |
| 30,0 | 114,0 | MT 2 | 102 514 | 1 |
| 40,0 | 145,0 | MT 3 | 102 515 | 1 |
| 50,0 | 152,0 | MT 3 | 102 516 | 1 |

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# Taper and deburring countersinkers type C 90° HSS

Only countersinking and deburring possible.
Countersink with a blade not recommended for full countersinking.

Packing unit: in plastic tubes of 1

| | |
|---|---|
| Steel (N/mm2) < 900 | ■ |
| Steel (N/mm2) < 1100 | |
| Steel (N/mm2) < 1300 | |
| Rust-resistant steel | |
| Aluminium | ■ |

| | |
|---|---|
| Brass | ■ |
| Bronze | □ |
| Plastics | ■ |
| Cast iron | □ |
| Titanium alloyed | |

| Ø2 mm | L1 mm | Ø3 mm | HSS | |
|---|---|---|---|---|
| 6,0 | 45,0 | 5,0 | 102 521 | 1 |
| 8,0 | 50,0 | 6,0 | 102 522 | 1 |
| 10,0 | 50,0 | 6,0 | 102 523 | 1 |
| 12,0 | 56,0 | 8,0 | 102 524 | 1 |
| 16,0 | 60,0 | 10,0 | 102 525 | 1 |
| 20,0 | 63,0 | 10,0 | 102 526 | 1 |
| 25,0 | 67,0 | 10,0 | 102 527 | 1 |
| 30,0 | 71,0 | 12,0 | 102 528 | 1 |
| 40,0 | 89,0 | 15,0 | 102 529 | 1 |
| 50,0 | 98,0 | 15,0 | 102 530 | 1 |

# Taper and deburring countersinkers type D 90° HSS

Only countersinking and deburring possible.
Countersink with a blade not recommended for full countersinking.

Packing unit: in plastic tubes of 1

| | |
|---|---|
| Steel (N/mm2) < 900 | ■ |
| Steel (N/mm2) < 1100 | |
| Steel (N/mm2) < 1300 | |
| Rust-resistant steel | |
| Aluminium | ■ |

| | |
|---|---|
| Brass | ■ |
| Bronze | □ |
| Plastics | ■ |
| Cast iron | □ |
| Titanium alloyed | |

| Ø2 mm | L1 mm | Shank S1 | HSS | |
|---|---|---|---|---|
| 16,0 | 92,0 | MT 1 | 102 531 | 1 |
| 20,0 | 107,0 | MT 2 | 102 532 | 1 |
| 25,0 | 110,0 | MT 2 | 102 533 | 1 |
| 30,0 | 114,0 | MT 2 | 102 534 | 1 |
| 40,0 | 145,0 | MT 3 | 102 535 | 1 |
| 50,0 | 152,0 | MT 3 | 102 536 | 1 |



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■ Main application □ Other application

# Taper and deburring countersinkers type C 82° HSS, inch size

Packing unit: in plastic tubes of 1

| | |
|---|---|
| Steel (N/mm2) < 900 | ■ |
| Steel (N/mm2) < 1100 | |
| Steel (N/mm2) < 1300 | |
| Rust-resistant steel | |
| Aluminium | ■ |

| | |
|---|---|
| Brass | ■ |
| Bronze | □ |
| Plastics | ■ |
| Cast iron | □ |
| Titanium alloyed | |

| Ø2 inch | Ø2 mm | Ø1 inch | Ø3 inch | Ø3 mm | L1 inch | L1 mm | HSS | |
|---|---|---|---|---|---|---|---|---|
| 1/4 | 6,4 | 3/64 | 3/16 | 5,0 | 1 3/4 | 45,0 | 102 182 | 1 |
| 5/16 | 7,9 | 4/64 | 1/4 | 6,0 | 2" | 50,0 | 102 183 | 1 |
| 3/8 | 9,5 | 5/64 | 1/4 | 6,0 | 2" | 50,0 | 102 184 | 1 |
| 1/2 | 12,7 | 6/64 | 5/16 | 8,0 | 2 3/16 | 56,0 | 102 186 | 1 |
| 5/8 | 15,9 | 7/64 | 3/8 | 10,0 | 2 3/8 | 60,0 | 102 188 | 1 |
| 3/4 | 19,1 | 8/64 | 3/8 | 10,0 | 2 1/2 | 63,0 | 102 189 | 1 |
| 7/8 | 22,2 | 9/64 | 3/8 | 10,0 | 2 5/8 | 67,0 | 102 190 | 1 |
| 1 | 25,4 | 9/64 | 3/8 | 10,0 | 2 5/8 | 76,0 | 102 191 | 1 |

# Taper and deburring countersinker set type C 82° HSS, inch size, in plastic case

| | HSS |
|---|---|
| 5-piece set of taper and deburring countersinkers<br>type C 82° HSS<br>Ø 1/4 - 3/8 - 1/2 - 3/4 - 1 inch | 102 193 RO |

102 193 RO

## Coolants and lubricants

The RUKO coolants and lubricants provide an outstanding separation and cooling effect. They generate a high surface quality and increase the service life of the tools, even with hard and brittle materials.

Suitably aligned to our product range, you will find the new series of coolants and lubricants in our new section 14 from page 319.

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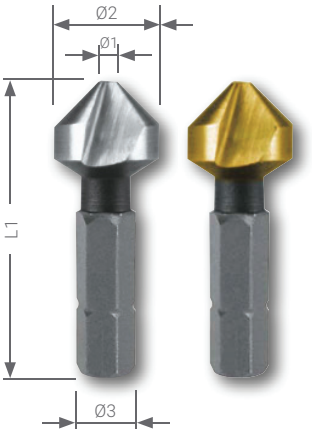


# Taper and deburring countersinker Bits 90° "short" HSS und HSS-TiN

Rapid tool-changing thanks to hexagonal bit holder. Ideal for burr- and chatter-free deburring and countersinking. Applicable for steel, cast iron, non-ferrous and light metals. Best results at low cutting speeds.

Packing unit: in plastic tubes of 1

| | | |
|---|---|---|
| Steel (N/mm2) < 900 | ■ | ■ |
| Steel (N/mm2) < 1100 | | □ |
| Steel (N/mm2) < 1300 | | |
| Rust-resistant steel | | □ |
| Aluminium | ■ | |

| | | |
|---|---|---|
| Brass | ■ | ■ |
| Bronze | □ | □ |
| Plastics | ■ | ■ |
| Cast iron | □ | □ |
| Titanium alloyed | | |

| Ø2 mm | Ø1 mm | L1 mm | Ø3 inch | Countersinkings as per DIN 74 AF | Countersinkings as per DIN 74 BF | HSS | HSS TiN | |
|---|---|---|---|---|---|---|---|---|
| 6,3 | 1,5 | 31,0 | 1/4" | - | M 3 | W 102 313 | W 102 313 T | 1 |
| 8,3 | 2,0 | 31,0 | 1/4" | - | M 4 | W 102 314 | W 102 314 T | 1 |
| 10,4 | 2,5 | 34,0 | 1/4" | - | M 5 | W 102 315 | W 102 315 T | 1 |
| 12,4 | 2,8 | 35,0 | 1/4" | - | M 6 | W 102 316 | W 102 316 T | 1 |
| 16,5 | 3,2 | 40,0 | 1/4" | - | M 8 | W 102 317 | W 102 317 T | 1 |
| 20,5 | 3,5 | 41,0 | 1/4" | - | M 10 | W 102 318 | W 102 318 T | 1 |

# Taper and deburring countersinker bit set "short" 90° HSS and HSS-TiN in steel case

| | HSS | HSS TiN |
|---|---|---|
| 7-piece set of taper and deburring countersinker bits 90°<br>6 taper and deburring countersinker bits<br>Ø 6,3 - 8,3 - 10,4 - 12,4 - 16,5 - 20,5 mm<br>+ 1 universal handle with ¼" hexagon socket | W 102 319 | W 102 319 T |

# Hexagonal magnetic holder

Packing unit: in plastic tubes of 1

| | | |
|---|---|---|
| Hexagonal magnetic holder | 270 013 | 1 |

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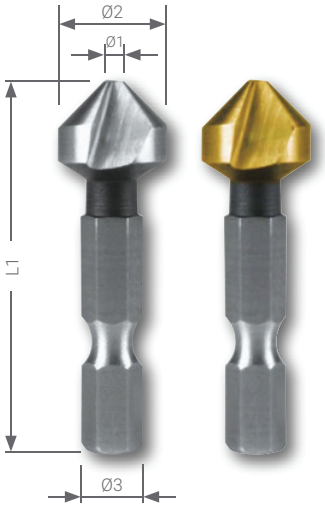
■ Main application □ Other application

# Taper and deburring countersinker Bits 90° "long" HSS and HSS-TiN

Rapid tool-changing thanks to hexagonal bit holder. Ideal for burr- and chatter-free deburring and countersinking. Applicable for steel, cast iron, non-ferrous and light metals. Best results at low cutting speeds.

Packing unit: in plastic tubes of 1




| | | |
|---|---|---|
| Steel (N/mm2) < 900 | ■ | ■ |
| Steel (N/mm2) < 1100 | | □ |
| Steel (N/mm2) < 1300 | | |
| Rust-resistant steel | | □ |
| Aluminium | ■ | |

| | | |
|---|---|---|
| Brass | ■ | ■ |
| Bronze | □ | □ |
| Plastics | ■ | ■ |
| Cast iron | □ | □ |
| Titanium alloyed | | |

| Ø2 mm | Ø1 mm | L1 mm | Ø3 inch | Countersinkings as per DIN 74 AF | Countersinkings as per DIN 74 BF | HSS | HSS TiN | |
|---|---|---|---|---|---|---|---|---|
| 6,3 | 1,5 | 38,0 | 1/4" | - | M 3 | 102 313 | 102 313 T | 1 |
| 8,3 | 2,0 | 38,0 | 1/4" | - | M 4 | 102 314 | 102 314 T | 1 |
| 10,4 | 2,5 | 41,0 | 1/4" | - | M 5 | 102 315 | 102 315 T | 1 |
| 12,4 | 2,8 | 42,0 | 1/4" | - | M 6 | 102 316 | 102 316 T | 1 |
| 16,5 | 3,2 | 47,0 | 1/4" | - | M 8 | 102 317 | 102 317 T | 1 |
| 20,5 | 3,5 | 48,0 | 1/4" | - | M 10 | 102 318 | 102 318 T | 1 |

# Taper and deburring countersinker bit set "long" 90° HSS and HSS-TiN in steel case

| | HSS | HSS TiN |
|---|---|---|
| 7-piece set of taper and deburring countersinker bits 90°<br>6 taper and deburring countersinker bits<br>Ø 6,3 - 8,3 - 10,4 - 12,4 - 16,5 - 20,5 mm<br>+ 1 universal handle with ¼" hexagon socket | 102 319 | 102 319 T |

# Taper and deburring countersinker bit set "long" 90° HSS and HSS-TiN in plastic case

| | HSS | HSS TiN |
|---|---|---|
| 8-piece set of taper and deburring countersinker bits 90°<br>Ø 6,3 - 8,3 - 10,4 - 12,4 - 16,5 - 20,5 mm<br>+ 1 universal handle with ¼" hexagon socket<br>+ 1 cutting paste 30 g | 102 319 RO | 102 319 TRO |

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# Slotted taper and deburring countersinkers 90°
# HSS, HSSE-Co 5 and HSS-TiN

Peeling cut. Chip removal through the slot prevents chips from clogging the workpiece.
Ideal for burr- and chatter-free deburring and countersinking.
Applicable for steel, cast iron, non-ferrous and light metals. Best results at low cutting speeds.

Countersink with a blade not recommended for full countersinking.
Packing unit: in plastic tubes of 1

| | | | |
|---|---|---|---|
| Steel (N/mm2) < 900 | ■ | ■ | ■ |
| Steel (N/mm2) < 1100 | | ■ | □ |
| Steel (N/mm2) < 1300 | | □ | |
| Rust-resistant steel | | ■ | |
| Aluminium | ■ | ■ | |

| | | | |
|---|---|---|---|
| Brass | ■ | ■ | ■ |
| Bronze | □ | □ | □ |
| Plastics | ■ | ■ | ■ |
| Cast iron | □ | □ | □ |
| Titanium alloyed | | | |

| Size no. | Ø1 mm | Ø2 mm | Ø3 mm | L1 mm | HSS | HSSE Co 5 | HSS TiN | |
|---|---|---|---|---|---|---|---|---|
| 1/4 | 1,0 - 4,0 | 6,35 | 6,35 | 45,0 | – | 102 300 E | – | 1 |
| 2/5 | 2,0 - 5,0 | 10,00 | 6,00 | 45,0 | 102 301 | 102 301 E | 102 301 T | 1 |
| 5/10 | 5,0 - 10,0 | 14,00 | 8,00 | 48,0 | 102 302 | 102 302 E | 102 302 T | 1 |
| 10/15 | 10,0 - 15,0 | 21,00 | 10,00 | 65,0 | 102 303 | 102 303 E | 102 303 T | 1 |
| 15/20 | 15,0 - 20,0 | 28,00 | 12,00 | 85,0 | 102 304 | 102 304 E | 102 304 T | 1 |
| 20/25 | 20,0 - 25,0 | 35,00 | 12,00 | 102,0 | 102 305 | 102 305 E | 102 305 T | 1 |

# Slotted taper and deburring countersinkers sets 90°
# HSS, HSSE-Co 5 and HSS-TiN

| | HSS | HSSE Co 5 | HSS TiN |
|---|---|---|---|
| 6-piece set of slotted taper and deburring countersinkers 90° in polystyrene case nominal Ø mm: 2/5 - 5/10 - 10/15 - 15/20 + 1 x 50 ml tin of cutting spray | – | 102 310 E | – |
| 5-piece set of slotted taper and deburring countersinkers 90° in steel case nominal Ø mm: 2/5 - 5/10 - 10/15 - 15/20 + 1 x 30 g tin of cutting paste | 102 312 | 102 312 E | 102 312 T |

102 312

# Slotted taper and deburring countersinkers sets 90°
# HSS, HSSE-Co 5 and HSS-TiN in plastic case

| | HSS | HSSE Co 5 | HSS TiN |
|---|---|---|---|
| 4-piece set of slotted taper and deburring countersinkers 90° nominal Ø mm: 2/5 - 5/10 - 10/15 - 15/20 | 102 312 RO | 102 312 ERO | 102 312 TRO |

102 312 TRO



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■ Main application □ Other application

# Flat countersinkers HSS with fixed guide

For producing countersinkings for cylinderhead screws, thread-cutting screws and thread-furrowing screws. Ideal for burr- and chatter-free deburring and countersinking.
Applicable for steel, cast iron, non-ferrous and light metals. Best results at low cutting speeds.

Packing unit: in plastic tubes of 1

| | |
|---|---|
| Steel (N/mm2) < 900 | ■ |
| Steel (N/mm2) < 1100 | |
| Steel (N/mm2) < 1300 | |
| Rust-resistant steel | |
| Aluminium | ■ |

| | |
|---|---|
| Brass | ■ |
| Bronze | □ |
| Plastics | ■ |
| Cast iron | □ |
| Titanium alloyed | |

## Fine grade for through hole

| For thread | Ø2 mm | Ø1 mm | Shank S1 | L1 mm | HSS | |
|---|---|---|---|---|---|---|
| M 10 | 18,0 | 10,5 | MT 2 | 150,0 | 102 422 | 1 |
| M 12 | 20,0 | 13,0 | MT 2 | 150,0 | 102 423 | 1 |
| M 14 | 24,0 | 15,0 | MT 2 | 160,0 | 102 424 | 1 |
| M 16 | 26,0 | 17,0 | MT 3 | 190,0 | 102 425 | 1 |
| M 18 | 30,0 | 19,0 | MT 3 | 190,0 | 102 426 | 1 |
| M 20 | 33,0 | 21,0 | MT 3 | 190,0 | 102 427 | 1 |
| M 22 | 36,0 | 23,0 | MT 3 | 205,0 | 102 428 | 1 |

## Medium grade for through hole

| For thread | Ø2 mm | Ø1 mm | Shank S1 | L1 mm | HSS | |
|---|---|---|---|---|---|---|
| M 10 | 18,0 | 11,0 | MT 2 | 150,0 | 102 429 | 1 |
| M 12 | 20,0 | 13,5 | MT 2 | 150,0 | 102 430 | 1 |
| M 14 | 24,0 | 15,5 | MT 2 | 160,0 | 102 431 | 1 |
| M 16 | 26,0 | 17,5 | MT 3 | 190,0 | 102 432 | 1 |
| M 18 | 30,0 | 20,0 | MT 3 | 190,0 | 102 433 | 1 |
| M 20 | 33,0 | 22,0 | MT 3 | 190,0 | 102 434 | 1 |
| M 22 | 36,0 | 24,0 | MT 3 | 205,0 | 102 435 | 1 |

## For thread core hole

| For thread | Ø2 mm | Ø1 mm | Shank S1 | L1 mm | HSS | |
|---|---|---|---|---|---|---|
| M 10 | 18,0 | 8,5 | MT 2 | 150,0 | 102 436 | 1 |
| M 12 | 20,0 | 10,2 | MT 2 | 150,0 | 102 437 | 1 |
| M 14 | 24,0 | 12,0 | MT 2 | 160,0 | 102 438 | 1 |
| M 16 | 26,0 | 14,0 | MT 3 | 190,0 | 102 439 | 1 |
| M 18 | 30,0 | 15,5 | MT 3 | 190,0 | 102 440 | 1 |
| M 20 | 33,0 | 17,5 | MT 3 | 190,0 | 102 441 | 1 |
| M 22 | 36,0 | 19,5 | MT 3 | 205,0 | 102 442 | 1 |

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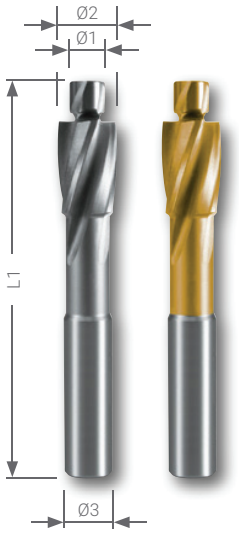
# Flat countersinkers DIN 373 HSS and HSS-TiN with fixed guide




For producing countersinkings for cylinderhead screws, thread-cutting screws and thread-furrowing screws. Ideal for burr- and chatter-free deburring and countersinking. Applicable for steel, cast iron, non-ferrous and light metals. Best results at low cutting speeds.

Packing unit: in plastic tubes of 1

| | | |
|---|---|---|
| Steel (N/mm2) < 900 | ■ | ■ |
| Steel (N/mm2) < 1100 | | □ |
| Steel (N/mm2) < 1300 | | |
| Rust-resistant steel | | □ |
| Aluminium | ■ | |

| | | |
|---|---|---|
| Brass | ■ | ■ |
| Bronze | □ | □ |
| Plastics | ■ | ■ |
| Cast iron | □ | □ |
| Titanium alloyed | | |

## Fine grade for through hole

| For thread | Ø2 mm | Ø1 mm | Ø3 mm | L1 mm | HSS | HSS TiN | |
|---|---|---|---|---|---|---|---|
| M 3 | 6,0 | 3,2 | 5,0 | 71,0 | 102 401 | 102 401 T | 1 |
| M 4 | 8,0 | 4,3 | 5,0 | 71,0 | 102 402 | 102 402 T | 1 |
| M 5 | 10,0 | 5,3 | 8,0 | 80,0 | 102 403 | 102 403 T | 1 |
| M 6 | 11,0 | 6,4 | 8,0 | 80,0 | 102 404 | 102 404 T | 1 |
| M 8 | 15,0 | 8,4 | 12,5 | 100,0 | 102 405 | 102 405 T | 1 |
| M 10 | 18,0 | 10,5 | 12,5 | 100,0 | 102 406 | 102 406 T | 1 |
| M 12 | 20,0 | 13,0 | 12,5 | 100,0 | 102 407 | 102 407 T | 1 |

## Medium grade for through hole

| For thread | Ø2 mm | Ø1 mm | Ø3 mm | L1 mm | HSS | HSS TiN | |
|---|---|---|---|---|---|---|---|
| M 3 | 6,0 | 3,4 | 5,0 | 71,0 | 102 408 | 102 408 T | 1 |
| M 4 | 8,0 | 4,5 | 5,0 | 71,0 | 102 409 | 102 409 T | 1 |
| M 5 | 10,0 | 5,5 | 8,0 | 80,0 | 102 410 | 102 410 T | 1 |
| M 6 | 11,0 | 6,6 | 8,0 | 80,0 | 102 411 | 102 411 T | 1 |
| M 8 | 15,0 | 9,0 | 12,5 | 100,0 | 102 412 | 102 412 T | 1 |
| M 10 | 18,0 | 11,0 | 12,5 | 100,0 | 102 413 | 102 413 T | 1 |
| M 12 | 20,0 | 13,5 | 12,5 | 100,0 | 102 414 | 102 414 T | 1 |

## For thread core hole

| For thread | Ø2 mm | Ø1 mm | Ø3 mm | L1 mm | HSS | HSS TiN | |
|---|---|---|---|---|---|---|---|
| M 3 | 6,0 | 2,5 | 5,0 | 71,0 | 102 415 | 102 415 T | 1 |
| M 4 | 8,0 | 3,3 | 5,0 | 71,0 | 102 416 | 102 416 T | 1 |
| M 5 | 10,0 | 4,2 | 8,0 | 80,0 | 102 417 | 102 417 T | 1 |
| M 6 | 11,0 | 5,0 | 8,0 | 80,0 | 102 418 | 102 418 T | 1 |
| M 8 | 15,0 | 6,8 | 12,5 | 100,0 | 102 419 | 102 419 T | 1 |
| M 10 | 18,0 | 8,5 | 12,5 | 100,0 | 102 420 | 102 420 T | 1 |
| M 12 | 20,0 | 10,2 | 12,5 | 100,0 | 102 421 | 102 421 T | 1 |



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■ Main application □ Other application

## Flat countersinker sets DIN 373 HSS and HSS-TiN with straight shank and fixed pilot in steel case

| | HSS | HSS TiN |
|---|---|---|
| 6-piece set of flat countersinkers for through holes, fine grade, for threads: M 3 - M 4 - M 5 - M 6 - M 8 - M 10 | 102 450 | 102 450 T |
| 6-piece set of flat countersinkers for through holes, medium grade, for threads: M 3 - M 4 - M 5 - M 6 - M 8 - M 10 | 102 451 | 102 451 T |
| 6-piece set of flat countersinkers for core holes, for threads: M 3 - M 4 - M 5 - M 6 - M 8 - M 10 | 102 452 | 102 452 T |

102 450

102 451

102 450 T

## Flat countersinker sets DIN 373 HSS and HSS-TiN with straight shank and fixed pilot in plastic case

| | HSS | HSS TiN |
|---|---|---|
| 6-piece set of flat countersinkers for through holes, fine grade, for threads: M 3 - M 4 - M 5 - M 6 - M 8 - M 10 | 102 450 RO | 102 450 TRO |
| 6-piece set of flat countersinkers for through holes, medium grade, for threads: M 3 - M 4 - M 5 - M 6 - M 8 - M 10 | 102 451 RO | 102 451 TRO |
| 6-piece set of flat countersinkers for core holes, for threads: M 3 - M 4 - M 5 - M 6 - M 8 - M 10 | 102 452 RO | 102 452 TRO |

102 450 RO

102 451 RO

102 450 TRO

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# Subland drills long type N HSS

Enables drilling and sinking combined in one step. Application: adjust the cutting speed according to the big diameter and the feed rate according to the small diameter.

Packing unit: in plastic tubes of 1

| | |
|---|---|
| Steel (N/mm2) < 900 | ■ |
| Steel (N/mm2) < 1100 | |
| Steel (N/mm2) < 1300 | |
| Rust-resistant steel | |
| Aluminium | ■ |

| | |
|---|---|
| Brass | ■ |
| Bronze | □ |
| Plastics | ■ |
| Cast iron | □ |
| Titanium alloyed | |

## 90° fine grade for through hole

For efficient drilling of through holes and screw head counterborings with 90° angle.

| For thread | Ø1 mm | Ø2 / Ø3 mm | L3 mm | L2 mm | L1 mm | HSS | |
|---|---|---|---|---|---|---|---|
| M 3 | 3,2 | 6,0 | 9,0 | 57,0 | 93,0 | 102 601 | 1 |
| M 4 | 4,3 | 8,0 | 11,0 | 75,0 | 117,0 | 102 602 | 1 |
| M 5 | 5,3 | 10,0 | 13,0 | 87,0 | 133,0 | 102 603 | 1 |
| M 6 | 6,4 | 11,5 | 15,0 | 94,0 | 142,0 | 102 604 | 1 |
| M 8 | 8,4 | 15,0 | 19,0 | 114,0 | 169,0 | 102 605 | 1 |
| M 10 | 10,5 | 19,0 | 23,0 | 135,0 | 198,0 | 102 606 | 1 |

## 180° medium grade for through hole

For efficient drilling of through holes and screw head counterborings with 180° angle.

| For thread | Ø1 mm | Ø2 / Ø3 mm | L3 mm | L2 mm | L1 mm | HSS | |
|---|---|---|---|---|---|---|---|
| M 3 | 3,4 | 6,0 | 9,0 | 57,0 | 93,0 | 102 607 | 1 |
| M 4 | 4,5 | 8,0 | 11,0 | 75,0 | 117,0 | 102 608 | 1 |
| M 5 | 5,5 | 10,0 | 13,0 | 87,0 | 133,0 | 102 609 | 1 |
| M 6 | 6,6 | 11,0 | 15,0 | 94,0 | 142,0 | 102 610 | 1 |
| M 8 | 9,0 | 15,0 | 19,0 | 114,0 | 169,0 | 102 611 | 1 |
| M 10 | 11,0 | 18,0 | 23,0 | 130,0 | 191,0 | 102 612 | 1 |

## 90° for thread core hole

For efficient drilling of tapping holes and countersinkings with 90° angle.

| For thread | Ø1 mm | Ø2 / Ø3 mm | L3 mm | L2 mm | L1 mm | HSS | |
|---|---|---|---|---|---|---|---|
| M 3 | 2,5 | 3,4 | 8,8 | 39,0 | 70,0 | 102 613 | 1 |
| M 4 | 3,3 | 4,5 | 11,4 | 47,0 | 80,0 | 102 614 | 1 |
| M 5 | 4,2 | 5,5 | 13,6 | 57,0 | 93,0 | 102 615 | 1 |
| M 6 | 5,0 | 6,6 | 16,5 | 63,0 | 101,0 | 102 616 | 1 |
| M 8 | 6,8 | 9,0 | 21,0 | 81,0 | 125,0 | 102 617 | 1 |
| M 10 | 8,5 | 11,0 | 25,5 | 94,0 | 142,0 | 102 618 | 1 |
| M 12 | 10,2 | 13,5 | 30,0 | 108,0 | 160,0 | 102 619 | 1 |



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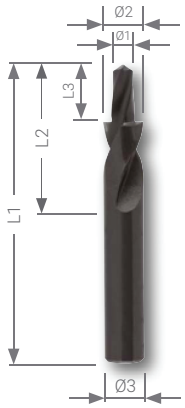
■ Main application □ Other application

# Subland drills short type N HSS

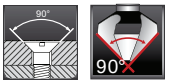



Short and torsion stable drill, suitable for the use on CNC or NC machines.
The drilling and countersinking is made in one step. Application: adjust the cutting speed according to the big diameter and the feed rate according to the small diameter.

Packing unit: in plastic tubes of 1

| | |
|---|---|
| Steel (N/mm2) < 900 | ■ |
| Steel (N/mm2) < 1100 | |
| Steel (N/mm2) < 1300 | |
| Rust-resistant steel | |
| Aluminium | ■ |

| | |
|---|---|
| Brass | ■ |
| Bronze | □ |
| Plastics | ■ |
| Cast iron | □ |
| Titanium alloyed | |




## 90° fine grade for through hole

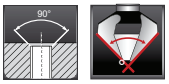
For efficient drilling of through holes and screw head counterborings with 90° angle.

| For thread | Ø1 mm | Ø2 / Ø3 mm | L3 mm | L2 mm | L1 mm | HSS | |
|---|---|---|---|---|---|---|---|
| M 3 | 3,2 | 6,0 | 9,0 | 28,0 | 66,0 | 102 620 | 1 |
| M 4 | 4,3 | 8,0 | 11,0 | 37,0 | 79,0 | 102 621 | 1 |
| M 5 | 5,3 | 10,0 | 13,0 | 43,0 | 89,0 | 102 622 | 1 |
| M 6 | 6,4 | 11,5 | 15,0 | 47,0 | 95,0 | 102 623 | 1 |
| M 8 | 8,4 | 15,0 | 19,0 | 56,0 | 111,0 | 102 624 | 1 |
| M 10 | 10,5 | 19,0 | 23,0 | 64,0 | 127,0 | 102 625 | 1 |

## 180° medium grade for through hole

For efficient drilling of through holes and screw head counterborings with 180° angle.

| For thread | Ø1 mm | Ø2 / Ø3 mm | L3 mm | L2 mm | L1 mm | HSS | |
|---|---|---|---|---|---|---|---|
| M 3 | 3,4 | 6,0 | 9,0 | 28,0 | 66,0 | 102 626 | 1 |
| M 4 | 4,5 | 8,0 | 11,0 | 37,0 | 79,0 | 102 627 | 1 |
| M 5 | 5,5 | 10,0 | 13,0 | 43,0 | 89,0 | 102 628 | 1 |
| M 6 | 6,6 | 11,0 | 15,0 | 47,0 | 95,0 | 102 629 | 1 |
| M 8 | 9,0 | 15,0 | 19,0 | 56,0 | 111,0 | 102 630 | 1 |
| M 10 | 11,0 | 18,0 | 23,0 | 62,0 | 123,0 | 102 631 | 1 |




## 90° for thread core hole

For efficient drilling of tapping holes and countersinkings with 90° angle.

| For thread | Ø1 mm | Ø2 / Ø3 mm | L3 mm | L2 mm | L1 mm | HSS | |
|---|---|---|---|---|---|---|---|
| M 3 | 2,5 | 3,4 | 8,8 | 20,0 | 52,0 | 102 632 | 1 |
| M 4 | 3,3 | 4,5 | 11,4 | 24,0 | 58,0 | 102 633 | 1 |
| M 5 | 4,2 | 5,5 | 13,6 | 28,0 | 66,0 | 102 634 | 1 |
| M 6 | 5,0 | 6,6 | 16,5 | 31,0 | 70,0 | 102 635 | 1 |
| M 8 | 6,8 | 9,0 | 21,0 | 40,0 | 84,0 | 102 636 | 1 |
| M 10 | 8,5 | 11,0 | 25,5 | 47,0 | 95,0 | 102 637 | 1 |
| M 12 | 10,2 | 13,5 | 30,0 | 54,0 | 107,0 | 102 638 | 1 |

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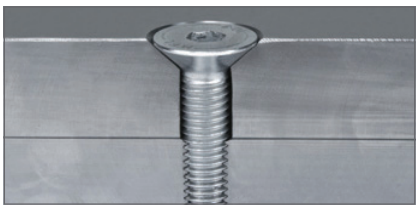
Ph: 1-866-566-0222

# Table of recommended cutting speeds for taper and deburring countersinkers

| Material: | High carbon struc. steel<br>up to 700 N/mm² | High carbon struc. steel<br>up to 700 N/mm² | Alloyed steel<br>up to 1000 N/mm² | Cast iron<br>up to 250 N/mm² | Cast iron<br>over 250 N/mm² | CuZn alloy<br>brittle | CuZn alloy<br>tough | Aluminium alloy<br>up to 11% Si | Thermo-plastics | Duro-plastics |
|---|---|---|---|---|---|---|---|---|---|---|
| Vc = m/min | 20 | 15 | 10 | 10 | 8 | 40 | 20 | 20 | 15 | 10 |
| Cooling lubricant | Cutting spray | Cutting spray | Cutting spray | Compressed air | Compressed air | Compressed air | Compressed air | Cutting spray | Water | Compressed air |
| Ø mm | r.p.m. | r.p.m. | r.p.m. | r.p.m. | r.p.m. | r.p.m. | r.p.m. | r.p.m. | r.p.m. | r.p.m. |
| 4,3 | 1481 | 1111 | 741 | 741 | 593 | 2963 | 1481 | 1481 | 1111 | 741 |
| 5,0 | 1274 | 955 | 637 | 637 | 510 | 2548 | 1274 | 1274 | 955 | 637 |
| 5,3 | 1202 | 901 | 601 | 601 | 481 | 2404 | 1202 | 1202 | 901 | 601 |
| 5,8 | 1098 | 824 | 549 | 549 | 439 | 2196 | 1098 | 1098 | 824 | 549 |
| 6,0 | 1062 | 796 | 531 | 531 | 425 | 2123 | 1062 | 1062 | 796 | 531 |
| 6,3 | 1011 | 758 | 506 | 506 | 404 | 2022 | 1011 | 1011 | 758 | 506 |
| 7,0 | 910 | 682 | 455 | 455 | 364 | 1820 | 910 | 910 | 682 | 455 |
| 7,3 | 873 | 654 | 436 | 436 | 349 | 1745 | 873 | 873 | 654 | 436 |
| 8,0 | 796 | 597 | 398 | 398 | 318 | 1592 | 796 | 796 | 597 | 398 |
| 8,3 | 767 | 576 | 384 | 384 | 307 | 1535 | 767 | 767 | 576 | 384 |
| 9,4 | 678 | 508 | 339 | 339 | 271 | 1355 | 678 | 678 | 508 | 339 |
| 10,0 | 637 | 478 | 318 | 318 | 255 | 1274 | 637 | 637 | 478 | 318 |
| 10,4 | 612 | 459 | 306 | 306 | 245 | 1225 | 612 | 612 | 459 | 306 |
| 11,5 | 554 | 415 | 277 | 277 | 222 | 1108 | 554 | 554 | 415 | 277 |
| 12,0 | 531 | 398 | 265 | 265 | 212 | 1062 | 531 | 531 | 398 | 265 |
| 12,4 | 514 | 385 | 257 | 257 | 205 | 1027 | 514 | 514 | 385 | 257 |
| 12,5 | 510 | 382 | 255 | 255 | 204 | 1019 | 510 | 510 | 382 | 255 |
| 13,4 | 475 | 356 | 238 | 238 | 190 | 951 | 475 | 475 | 356 | 238 |
| 15,0 | 425 | 318 | 212 | 212 | 170 | 849 | 425 | 425 | 318 | 212 |
| 16,0 | 398 | 299 | 199 | 199 | 159 | 796 | 398 | 398 | 299 | 199 |
| 16,5 | 386 | 290 | 193 | 193 | 154 | 772 | 386 | 386 | 290 | 193 |
| 19,0 | 335 | 251 | 168 | 168 | 134 | 670 | 335 | 335 | 251 | 168 |
| 20,0 | 318 | 239 | 159 | 159 | 127 | 637 | 318 | 318 | 239 | 159 |
| 20,5 | 311 | 233 | 155 | 155 | 124 | 621 | 311 | 311 | 233 | 155 |
| 23,0 | 277 | 208 | 138 | 138 | 111 | 554 | 277 | 277 | 208 | 138 |
| 25,0 | 255 | 191 | 127 | 127 | 102 | 510 | 255 | 255 | 191 | 127 |
| 26,0 | 245 | 184 | 122 | 122 | 98 | 490 | 245 | 245 | 184 | 122 |
| 28,0 | 227 | 171 | 114 | 114 | 91 | 455 | 227 | 227 | 171 | 114 |
| 30,0 | 212 | 159 | 106 | 106 | 85 | 425 | 212 | 212 | 159 | 106 |
| 31,0 | 205 | 154 | 103 | 103 | 82 | 411 | 205 | 205 | 154 | 103 |
| 31,5 | 202 | 152 | 101 | 101 | 81 | 404 | 202 | 202 | 152 | 101 |
| 34,0 | 187 | 141 | 94 | 94 | 75 | 375 | 187 | 187 | 141 | 94 |
| 37,0 | 172 | 129 | 86 | 86 | 69 | 344 | 172 | 172 | 129 | 86 |
| 40,0 | 159 | 119 | 80 | 80 | 64 | 318 | 159 | 159 | 119 | 80 |
| 50,0 | 127 | 96 | 64 | 64 | 51 | 255 | 127 | 127 | 96 | 64 |
| 63,0 | 101 | 76 | 51 | 51 | 40 | 202 | 101 | 101 | 76 | 51 |
| 80,0 | 80 | 60 | 40 | 40 | 32 | 159 | 80 | 80 | 60 | 40 |

## Countersinkings as per DIN 74 for countersunk screws as per DIN

| as per DIN 74 | |
|---|---|
| type AF | type BF |
| DIN 963 / DIN 964<br>DIN 965 / DIN 966<br>DIN 7513 F. u. G.<br>DIN 7516 D. u. E. | DIN 7991 (ISO 10642) |





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# Table of recommended cutting speeds for Solid TC countersinkers

| Material: | High carbon struc. steel up to 700 N/mm² | | High carbon struc. steel up to 700 N/mm² | | Alloyed steel up to 1200 N/mm² | | Cast iron up to 250 N/mm² | | Cast iron over 250 N/mm² | | CuZn alloy brittle | | CuZn alloy tough | | Aluminium alloy up to 11% Si | | Thermo-plastics | | Duro-plastics | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vc = m/min | 15 | | 12 | | 8 | | 12 | | 10 | | 25 | | 15 | | 20 | | 20 | | 10 | |
| Ø mm | r.p.m. | f | r.p.m. | f | r.p.m. | f | r.p.m. | f | r.p.m. | f | r.p.m. | f | r.p.m. | f | r.p.m. | f | r.p.m. | f | r.p.m. | f |
| 6,3 | 758 | 0,10 | 606 | 0,10 | 404 | 0,10 | 606 | 0,15 | 505 | 0,15 | 1263 | 0,13 | 758 | 0,13 | 1011 | 0,13 | 1011 | 0,13 | 505 | 0,13 |
| 8,3 | 575 | 0,15 | 460 | 0,15 | 307 | 0,15 | 460 | 0,20 | 384 | 0,20 | 959 | 0,16 | 575 | 0,16 | 767 | 0,16 | 767 | 0,18 | 384 | 0,18 |
| 10,4 | 459 | 0,15 | 367 | 0,15 | 245 | 0,15 | 367 | 0,20 | 306 | 0,20 | 765 | 0,16 | 459 | 0,16 | 612 | 0,16 | 612 | 0,20 | 306 | 0,20 |
| 12,4 | 385 | 0,20 | 308 | 0,20 | 205 | 0,20 | 308 | 0,25 | 257 | 0,25 | 642 | 0,20 | 385 | 0,20 | 513 | 0,20 | 513 | 0,20 | 257 | 0,20 |
| 16,5 | 289 | 0,20 | 231 | 0,20 | 154 | 0,20 | 231 | 0,25 | 193 | 0,25 | 482 | 0,22 | 289 | 0,22 | 386 | 0,22 | 386 | 0,25 | 193 | 0,25 |
| 20,5 | 233 | 0,25 | 186 | 0,25 | 124 | 0,25 | 186 | 0,30 | 155 | 0,30 | 388 | 0,25 | 233 | 0,25 | 311 | 0,25 | 311 | 0,25 | 155 | 0,25 |
| 25,0 | 191 | 0,30 | 153 | 0,30 | 102 | 0,30 | 153 | 0,30 | 127 | 0,30 | 318 | 0,25 | 191 | 0,25 | 255 | 0,25 | 255 | 0,30 | 127 | 0,30 |
| 31,0 | 154 | 0,35 | 123 | 0,35 | 82 | 0,35 | 123 | 0,35 | 103 | 0,35 | 257 | 0,30 | 154 | 0,30 | 205 | 0,30 | 205 | 0,35 | 103 | 0,35 |

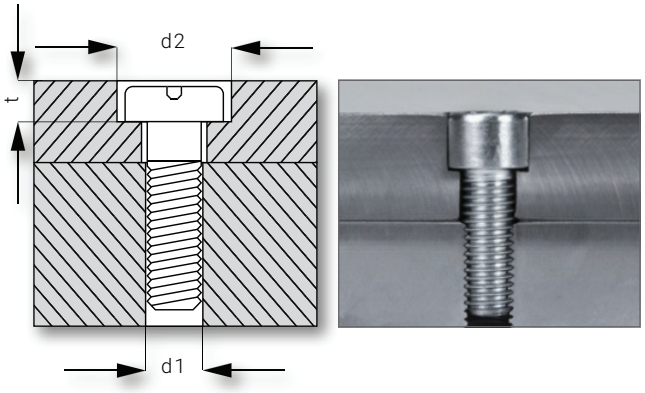
f in mm/rev = feed per revolution

## Countersinkings as per DIN 74, Sheet 2

**Countersinkings, type H**
for cylinder-head screws as per DIN 84 and DIN 7984
for thread-cutting screws as per DIN 7513, Type B
for thread-furrowing screws as per DIN 7500, Type B

**Countersinkings, type J**
for cylinder-head screws as per DIN 6912

**Countersinkings, type K**
for cylinder-head screws as per DIN 912




| For thread | d1 fine H 12 mm | d1 medium H 13 mm | d1 core hole mm | d2 H 13 mm | t type H mm | t type J mm | t type K mm | Tolerance for t mm |
|---|---|---|---|---|---|---|---|---|
| M 3 | 3,2 | 3,4 | 2,5 | 6,0 | 2,4 | – | 3,4 | 0 + 0,1 |
| M 4 | 4,3 | 4,5 | 3,3 | 8,0 | 3,2 | 3,4 | 4,6 | 0 + 0,4 |
| M 5 | 5,3 | 5,5 | 4,2 | 10,0 | 4,0 | 4,2 | 5,7 | 0 + 0,4 |
| M 6 | 6,4 | 6,6 | 5,0 | 11,0 | 4,7 | 4,8 | 6,8 | 0 + 0,4 |
| M 8 | 8,4 | 9,0 | 6,8 | 15,0 | 6,0 | 6,0 | 6,0 | 0 + 0,4 |
| M 10 | 10,5 | 11,0 | 8,5 | 18,0 | 7,0 | 7,5 | 11,0 | 0 + 0,4 |
| M 12 | 13,0 | 13,5 | 10,2 | 20,0 | 8,0 | 8,5 | 13,0 | 0 + 0,4 |
| M 14 | 15,0 | 15,5 | 12,0 | 24,0 | 9,0 | 9,5 | 15,0 | 0 + 0,4 |
| M 16 | 17,0 | 17,5 | 14,0 | 26,0 | 10,5 | 11,5 | 17,5 | 0 + 0,4 |
| M 18 | 19,0 | 20,0 | 15,5 | 30,0 | 11,5 | 12,5 | 19,5 | 0 + 0,4 |
| M 20 | 21,0 | 22,0 | 17,5 | 33,0 | 12,5 | 13,5 | 21,5 | 0 + 0,4 |
| M 22 | 23,0 | 24,0 | 19,5 | 36,0 | 13,5 | 14,5 | 23,5 | 0 + 0,4 |

**Type A for:**
- countersunk screws as per DIN 963 and DIN 965,
- raised countersunk head screws as per DIN 964 and DIN 966,
- thread forming screws type F and G as per DIN 7513 and type D and E as per DIN 7516,
- countersunk tapping screws type K, L, M and N as per DIN 7500,
- wood screws as per DIN 97 and DIN 7997
- oval head wood screws as per DIN 95 DIN 7997

**Type B for:**
countersunk screws with hexagon socket DIN 7991

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