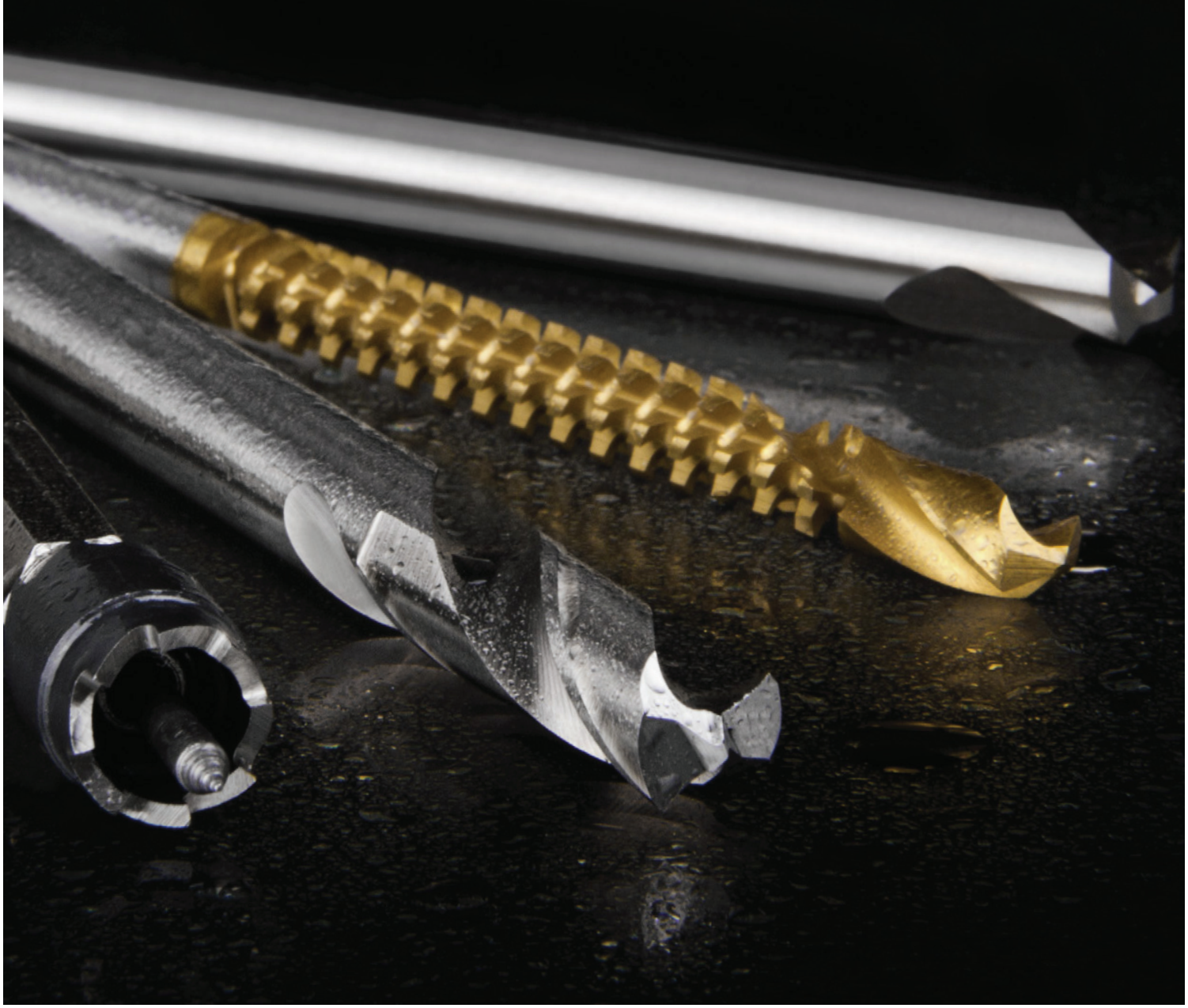

# SPECIAL DRILLS

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

RUKO

# Special drills

**Spot weld miller**
For removing spot welds from sheet metal. Exchangeable and double-headed milling crown. Adjustable milling depth with setting screw. No tearing of the sheet metal. No deformation of the sheet metal. Efficient and rapid working.

**Fast Cut**
Extra stable special drill for hard requirements on hand drills. Good suited for clean and burr-free milling of welding spots and thin-walled work pieces without centering. Extreme high precision. Applicable for sheet steel, sheet brass, sheet aluminium, sheet zinc, sheet copper, plastic sheets.

**Spotle Drill**
Special shank for the application in pneumatic machines. For clean and burr-free milling of welding spots and thin-walled work pieces without centering. Extreme high precision.
(v = vario)

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# Overview of symbols

HSS — High-speed steel

HSSE Co 5 — High-speed steel with 5 % Cobalt content, ground

TC — Tungsten carbide

Bright surface

Bright / black surface

Black surface

TiCN — TiCN coating

AlTiN — AlTiN coating

TiN — TiN coating

right hand cutting

N — Shape N: Helical point normal ground

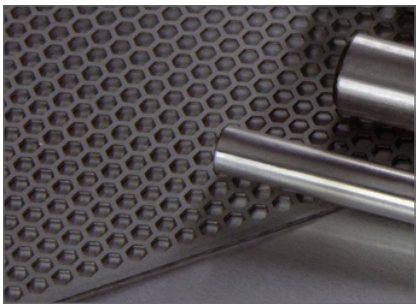
h8 — Tolerance e.g. h8

180° — Point angle e.g. 180°

25-30° — Helix angle e.g. 25-30°

DIN 1897 — DIN 1897

Centre point



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# Parts and applications overview:

| | Material | Surface | DIN | Point cuts | Point angle | Helix angle | Shank | Ø mm | Article no. | Page |
|---|---|---|---|---|---|---|---|---|---|---|
| | HSS | | | | | | | 9,6 | 101 101 - 101 104 M | 92 |
| | HSSE Co 5 | | DIN 1897 | | 180° | | | 6,0 - 8,0 | 101 107-1 101 108-1 | 93 |
| | HSSE Co 5 | | DIN 1897 | | 180° | 0° | | 6,0 - 10,0 | 101 107 - 101 114 | 93 |
| | HSSE Co 5 | | DIN 1897 | | 0° | 0° | | 6,0 - 10,0 | 101 107 TC - 101 114 TC | 93 |
| | TC | | DIN 1897 | | 180° | 0° | | 6,5 - 8,0 | 101 107 HM - 101 114 HM | 93 |
| | HSSE Co 5 | | | | 180° | 0° | | 6,5 - 8,0 | 101 065 - 101 081 | 94 |
| | HSSE Co 5 | | | | 180° | 0° | | 6,5 - 8,0 | 101 080 TC - 101 081 TC | 94 |
| | TC | | | | 180° | 0° | | 6,5 - 8,0 | 101 080 HM - 101 081 HM | 94 |
| | HSS | | | N | 118° | | | 6,5 - 8,0 | 101 201 - 101 202 | 94 |
| | HSS | | | N | 118° | | | 6,5 - 8,0 | 101 201 T - 101 202 T | 94 |



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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

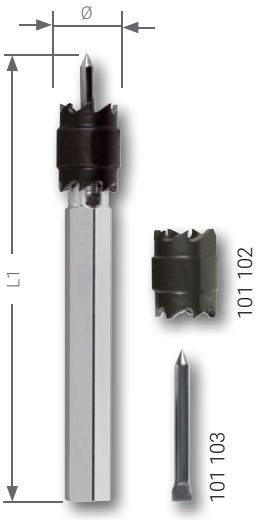
# Spot weld miller HSS

For removing spot welds from sheet metal. Exchangeable and double-headed milling crown.
Adjustable milling depth with setting screw. No tearing of the sheet metal.
No deformation of the sheet metal. Efficient and rapid working.

Packing unit: in plastic boxes

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

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



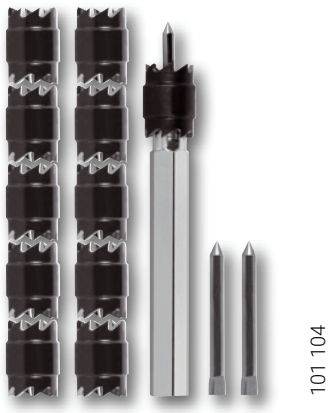

| | L1 mm | Ø mm | HSS | |
|---|---|---|---|---|
| Spot weld miller, complete | 72,0 | - | 101 101 | 1 |
| Milling crown | - | 9,6 | 101 102 | 5 |
| Centering pin | - | 2,5 | 101 103 | 1 |

HSS

# Spot weld miller set

Packing unit: in plastic boxes

| | HSS |
|---|---|
| 13-piece set of spot weld miller<br>1 spot weld miller, complete<br>+ 10 milling crowns + 2 centering pins | 101 104 |




HSS HSSE Co 5

# Spot weld miller special set

Packing unit: in plastic boxes

| | HSS HSSE Co 5 |
|---|---|
| 9-piece set of spot weld miller-special set<br>1 spot weld miller, complete<br>+ 5 milling + 2 centering pins + 1 fast cut HSSE-Co 5 Ø 8,0 mm | 101 104 M |

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■ Main application □ Other application

## Fast Cut HSSE-Co 5

High-strength cutting edge since a secondary chamfer is not required. Enhanced chip evacuation due to wide chip groove and optimized chip angle. High-strength tool core and increased stiffness due to shortened chip groove. Good suited for clean and burr-free milling of welding spots and thin-walled work pieces without centering. Extreme high precision. Applicable for sheet steel, sheet brass, sheet aluminium, sheet zinc, sheet copper, plastic sheets.

Packing unit: in plastic boxes

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

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

| Ø mm | L1 mm | HSSE Co 5 | |
|---|---|---|---|
| 6,0 | 66,0 | 101 107-1 | 1 |
| 8,0 | 80,0 | 101 108-1 | 1 |

## Fast Cut HSSE-Co 5 and tungsten-carbide

Extra stable special drill for hard requirements on hand drills. Good suited for clean and burr-free milling of welding spots and thin-walled work pieces without centering. Extreme high precision. Applicable for sheet steel, sheet brass, sheet aluminium, sheet zinc, sheet copper, plastic sheets.

Packing unit: in plastic boxes

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

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

| Ø mm | L1 mm | HSSE Co 5 | HSSE Co 5 TiCN | TC AlTiN | |
|---|---|---|---|---|---|
| 6,0 | 66,0 | 101 107 | 101 107 TC | 101 107 HM | 1 |
| 7,0 | 74,0 | 101 111 | – | – | 1 |
| 8,0 | 80,0 | 101 108 | 101 108 TC | 101 108 HM | 1 |
| 10,0 | 88,0 | 101 114 | 101 114 TC | – | 1 |

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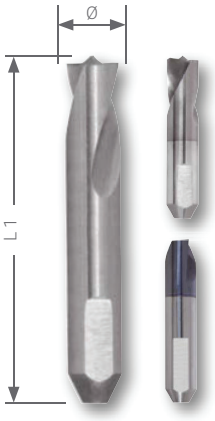
02

# Spotle Drill HSSE-Co 5 and tungsten-carbide




Special shank for the application in pneumatic machines.
For clean and burr-free milling of welding spots and thin-walled work pieces without centering.
Extreme high precision. (v = vario)

Packing unit: in plastic boxes

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

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

| Ø mm | L1 mm | HSSE Co 5 | HSSE Co 5 TiCN | TC AlTiN | |
|---|---|---|---|---|---|
| 6,5 | 40,0 | 101 065 | – | – | 1 |
| 8,0 | 40,0 | 101 080 | 101 080 TC | 101 080 HM | 1 |
| 8,0 (v) | 44,0 | 101 081 | 101 081 TC | 101 081 HM | 1 |

# Milling Drill HSS

For drilling and milling contours into wood, sheet metal, plastics and other thin-walled materials.
Twist drill in front, milling cutter with chip breakers afterwards.

Packing unit: in plastic boxes

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

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

| Ø mm | L1 mm | HSS | HSS TiN | |
|---|---|---|---|---|
| 6,0 | 90,0 | 101 201 | 101 201 T | 1 |
| 8,0 | 90,0 | 101 202 | 101 202 T | 1 |



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■ Main application □ Other application

# Table of cutting speeds for special drills

| Vc = m/min | 4 | 6 | 8 | 10 | 12 | 15 | 18 | 20 | 25 | 30 | 35 | 40 | 50 | 60 | 80 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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. | r.p.m. | r.p.m. | r.p.m. | r.p.m. | r.p.m. | r.p.m. |
| 1,0 | 1274 | 1911 | 2548 | 3185 | 3822 | 4777 | 5732 | 6369 | 7962 | 9554 | 11146 | 12739 | 15924 | 19108 | 25478 | 31847 |
| 1,5 | 849 | 1274 | 1699 | 2123 | 2548 | 3185 | 3822 | 4246 | 5308 | 6369 | 7431 | 8493 | 10616 | 12739 | 16985 | 21231 |
| 2,0 | 637 | 955 | 1274 | 1592 | 1911 | 2389 | 2866 | 3185 | 3981 | 4777 | 5573 | 6369 | 7962 | 9554 | 12739 | 15924 |
| 2,5 | 510 | 764 | 1019 | 1274 | 1529 | 1911 | 2293 | 2548 | 3185 | 3822 | 4459 | 5096 | 6369 | 7643 | 10191 | 12739 |
| 3,0 | 425 | 637 | 849 | 1062 | 1274 | 1592 | 1911 | 2123 | 2654 | 3185 | 3715 | 4246 | 5308 | 6369 | 8493 | 10616 |
| 3,5 | 364 | 546 | 728 | 910 | 1092 | 1365 | 1638 | 1820 | 2275 | 2730 | 3185 | 3640 | 4550 | 5460 | 7279 | 9099 |
| 4,0 | 318 | 478 | 637 | 796 | 955 | 1194 | 1433 | 1592 | 1990 | 2389 | 2787 | 3185 | 3981 | 4777 | 6369 | 7962 |
| 4,5 | 283 | 425 | 566 | 708 | 849 | 1062 | 1274 | 1415 | 1769 | 2123 | 2477 | 2831 | 3539 | 4246 | 5662 | 7077 |
| 5,0 | 255 | 382 | 510 | 637 | 764 | 955 | 1146 | 1274 | 1592 | 1911 | 2229 | 2548 | 3185 | 3822 | 5096 | 6369 |
| 5,5 | 232 | 347 | 463 | 579 | 695 | 869 | 1042 | 1158 | 1448 | 1737 | 2027 | 2316 | 2895 | 3474 | 4632 | 5790 |
| 6,0 | 212 | 318 | 425 | 531 | 637 | 796 | 955 | 1062 | 1327 | 1592 | 1858 | 2123 | 2654 | 3185 | 4246 | 5308 |
| 6,5 | 196 | 294 | 392 | 490 | 588 | 735 | 882 | 980 | 1225 | 1470 | 1715 | 1960 | 2450 | 2940 | 3920 | 4900 |
| 7,0 | 182 | 273 | 364 | 455 | 546 | 682 | 819 | 910 | 1137 | 1365 | 1592 | 1820 | 2275 | 2730 | 3640 | 4550 |
| 7,5 | 170 | 255 | 340 | 425 | 510 | 637 | 764 | 849 | 1062 | 1274 | 1486 | 1699 | 2123 | 2548 | 3397 | 4246 |
| 8,0 | 159 | 239 | 318 | 398 | 478 | 597 | 717 | 796 | 995 | 1194 | 1393 | 1592 | 1990 | 2389 | 3185 | 3981 |
| 8,5 | 150 | 225 | 300 | 375 | 450 | 562 | 674 | 749 | 937 | 1124 | 1311 | 1499 | 1873 | 2248 | 2997 | 3747 |
| 9,0 | 142 | 212 | 283 | 354 | 425 | 531 | 637 | 708 | 885 | 1062 | 1238 | 1415 | 1769 | 2123 | 2831 | 3539 |
| 9,5 | 134 | 201 | 268 | 335 | 402 | 503 | 603 | 670 | 838 | 1006 | 1173 | 1341 | 1676 | 2011 | 2682 | 3352 |
| 10,0 | 127 | 191 | 255 | 318 | 382 | 478 | 573 | 637 | 796 | 955 | 1115 | 1274 | 1592 | 1911 | 2548 | 3185 |
| 11,0 | 116 | 174 | 232 | 290 | 347 | 434 | 521 | 579 | 724 | 869 | 1013 | 1158 | 1448 | 1737 | 2316 | 2895 |
| 12,0 | 106 | 159 | 212 | 265 | 318 | 398 | 478 | 531 | 663 | 796 | 929 | 1062 | 1327 | 1592 | 2123 | 2654 |
| 13,0 | 98 | 147 | 196 | 245 | 294 | 367 | 441 | 490 | 612 | 735 | 857 | 980 | 1225 | 1470 | 1960 | 2450 |
| 14,0 | 91 | 136 | 182 | 227 | 273 | 341 | 409 | 455 | 569 | 682 | 796 | 910 | 1137 | 1365 | 1820 | 2275 |
| 15,0 | 85 | 127 | 170 | 212 | 255 | 318 | 382 | 425 | 531 | 637 | 743 | 849 | 1062 | 1274 | 1699 | 2123 |
| 16,0 | 80 | 119 | 159 | 199 | 239 | 299 | 358 | 398 | 498 | 597 | 697 | 796 | 995 | 1194 | 1592 | 1990 |
| 17,0 | 75 | 112 | 150 | 187 | 225 | 281 | 337 | 375 | 468 | 562 | 656 | 749 | 937 | 1124 | 1499 | 1873 |
| 18,0 | 71 | 106 | 142 | 177 | 212 | 265 | 318 | 354 | 442 | 531 | 619 | 708 | 885 | 1062 | 1415 | 1769 |
| 19,0 | 67 | 101 | 134 | 168 | 201 | 251 | 302 | 335 | 419 | 503 | 587 | 670 | 838 | 1006 | 1341 | 1676 |
| 20,0 | 64 | 96 | 127 | 159 | 191 | 239 | 287 | 318 | 398 | 478 | 557 | 637 | 796 | 955 | 1274 | 1592 |
| 21,0 | 61 | 91 | 121 | 152 | 182 | 227 | 273 | 303 | 379 | 455 | 531 | 607 | 758 | 910 | 1213 | 1517 |
| 22,0 | 58 | 87 | 116 | 145 | 174 | 217 | 261 | 290 | 362 | 434 | 507 | 579 | 724 | 869 | 1158 | 1448 |
| 23,0 | 55 | 83 | 111 | 138 | 166 | 208 | 249 | 277 | 346 | 415 | 485 | 554 | 692 | 831 | 1108 | 1385 |
| 24,0 | 53 | 80 | 106 | 133 | 159 | 199 | 239 | 265 | 332 | 398 | 464 | 531 | 663 | 796 | 1062 | 1327 |
| 25,0 | 51 | 76 | 102 | 127 | 153 | 191 | 229 | 255 | 318 | 382 | 446 | 510 | 637 | 764 | 1019 | 1274 |
| 26,0 | 49 | 73 | 98 | 122 | 147 | 184 | 220 | 245 | 306 | 367 | 429 | 490 | 612 | 735 | 980 | 1225 |
| 27,0 | 47 | 71 | 94 | 118 | 142 | 177 | 212 | 236 | 295 | 354 | 413 | 472 | 590 | 708 | 944 | 1180 |
| 28,0 | 45 | 68 | 91 | 114 | 136 | 171 | 205 | 227 | 284 | 341 | 398 | 455 | 569 | 682 | 910 | 1137 |
| 29,0 | 44 | 66 | 88 | 110 | 132 | 165 | 198 | 220 | 275 | 329 | 384 | 439 | 549 | 659 | 879 | 1098 |
| 30,0 | 42 | 64 | 85 | 106 | 127 | 159 | 191 | 212 | 265 | 318 | 372 | 425 | 531 | 637 | 849 | 1062 |
| 31,0 | 41 | 62 | 82 | 103 | 123 | 154 | 185 | 205 | 257 | 308 | 360 | 411 | 514 | 616 | 822 | 1027 |
| 32,0 | 40 | 60 | 80 | 100 | 119 | 149 | 179 | 199 | 249 | 299 | 348 | 398 | 498 | 597 | 796 | 995 |
| 33,0 | 39 | 58 | 77 | 97 | 116 | 145 | 174 | 193 | 241 | 290 | 338 | 386 | 483 | 579 | 772 | 965 |
| 34,0 | 37 | 56 | 75 | 94 | 112 | 141 | 169 | 187 | 234 | 281 | 328 | 375 | 468 | 562 | 749 | 937 |
| 35,0 | 36 | 55 | 73 | 91 | 109 | 136 | 164 | 182 | 227 | 273 | 318 | 364 | 455 | 546 | 728 | 910 |
| 36,0 | 35 | 53 | 71 | 88 | 106 | 133 | 159 | 177 | 221 | 265 | 310 | 354 | 442 | 531 | 708 | 885 |
| 37,0 | 34 | 52 | 69 | 86 | 103 | 129 | 155 | 172 | 215 | 258 | 301 | 344 | 430 | 516 | 689 | 861 |
| 38,0 | 34 | 50 | 67 | 84 | 101 | 126 | 151 | 168 | 210 | 251 | 293 | 335 | 419 | 503 | 670 | 838 |
| 39,0 | 33 | 49 | 65 | 82 | 98 | 122 | 147 | 163 | 204 | 245 | 286 | 327 | 408 | 490 | 653 | 817 |
| 40,0 | 32 | 48 | 64 | 80 | 96 | 119 | 143 | 159 | 199 | 239 | 279 | 318 | 398 | 478 | 637 | 796 |
| 41,0 | 31 | 47 | 62 | 78 | 93 | 117 | 140 | 155 | 194 | 233 | 272 | 311 | 388 | 466 | 621 | 777 |
| 42,0 | 30 | 45 | 61 | 76 | 91 | 114 | 136 | 152 | 190 | 227 | 265 | 303 | 379 | 455 | 607 | 758 |
| 43,0 | 30 | 44 | 59 | 74 | 89 | 111 | 133 | 148 | 185 | 222 | 259 | 296 | 370 | 444 | 593 | 741 |
| 44,0 | 29 | 43 | 58 | 72 | 87 | 109 | 130 | 145 | 181 | 217 | 253 | 290 | 362 | 434 | 579 | 724 |
| 45,0 | 28 | 42 | 57 | 71 | 85 | 106 | 127 | 142 | 177 | 212 | 248 | 283 | 354 | 425 | 566 | 708 |
| 46,0 | 28 | 42 | 55 | 69 | 83 | 104 | 125 | 138 | 173 | 208 | 242 | 277 | 346 | 415 | 554 | 692 |
| 47,0 | 27 | 41 | 54 | 68 | 81 | 102 | 122 | 136 | 169 | 203 | 237 | 271 | 339 | 407 | 542 | 678 |
| 48,0 | 27 | 40 | 53 | 66 | 80 | 100 | 119 | 133 | 166 | 199 | 232 | 265 | 332 | 398 | 531 | 663 |
| 49,0 | 26 | 39 | 52 | 65 | 78 | 97 | 117 | 130 | 162 | 195 | 227 | 260 | 325 | 390 | 520 | 650 |
| 50,0 | 25 | 38 | 51 | 64 | 76 | 96 | 115 | 127 | 159 | 191 | 223 | 255 | 318 | 382 | 510 | 637 |

| Material | Cutting speed Vc m/min | Coolant |
|---|---|---|
| High carbon struc. steel < 700 N/mm² | 30 - 35 | cutting spray |
| High carbon struc. steel > 700 N/mm² | 20 - 25 | cutting spray |
| Alloyed steel < 1000 N/mm² | 20 - 25 | cutting spray |
| Cast iron < 250 N/mm² | 15 - 25 | compressed air |
| Cast iron > 250 N/mm² | 10 - 20 | compressed air |
| CuZn alloy brittle | 60 - 100 | compressed air |

| Material | Cutting speed Vc m/min | Coolant |
|---|---|---|
| CuZn alloy tough | 35 - 60 | compressed air |
| Al alloy 11% Si | 30 - 50 | cutting spray |
| Thermoplastics | 20 - 40 | water |
| Duroplastics with inorganic filling | 15 - 25 | compressed air |
| Duroplastics with organic filling | 15 - 35 | compressed air |

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