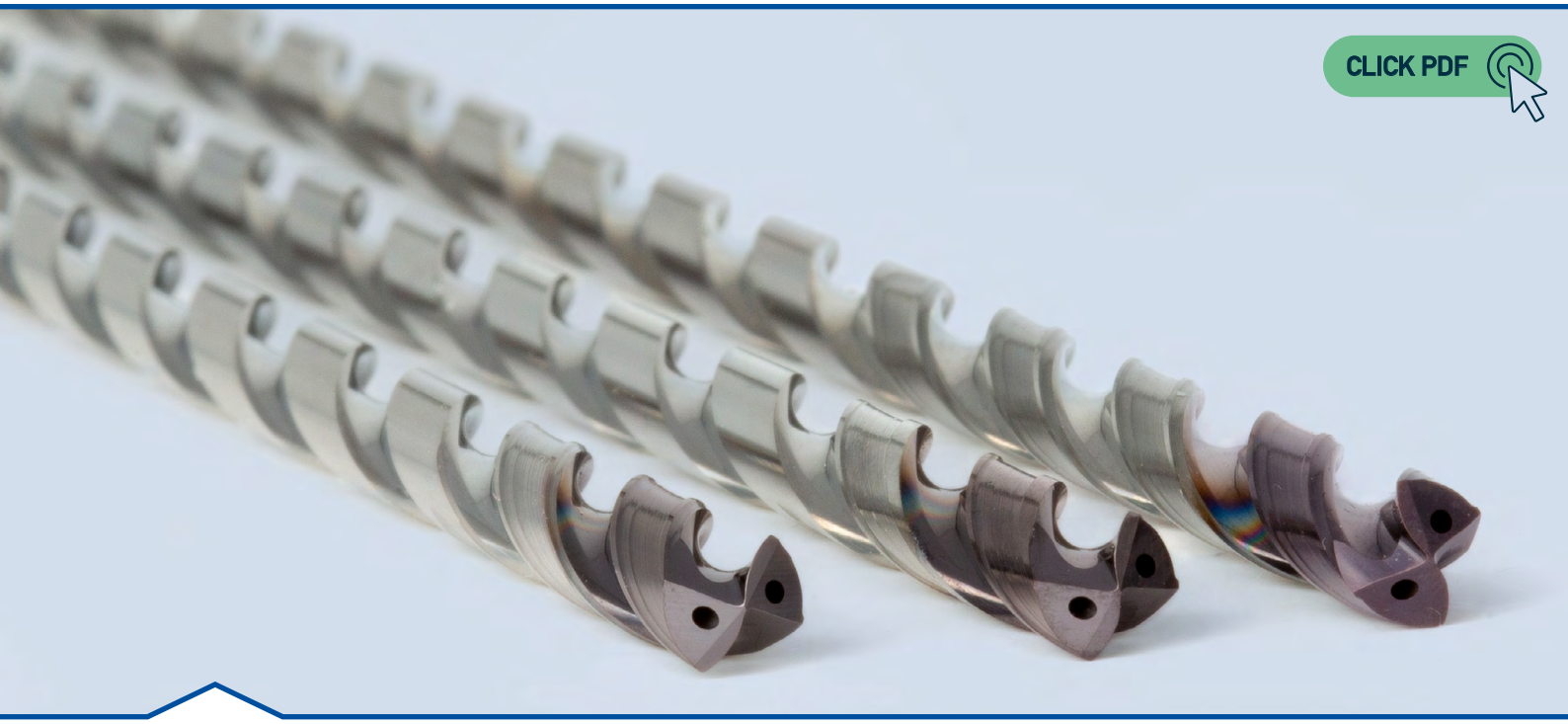



Your technology partner for cost-effective machining

# MEGA-Deep-Drill-Steel

# MEGA-Deep-Drill-Steel

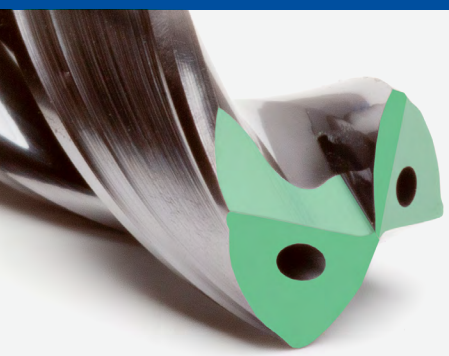
## Efficient deep drilling up to 40xD

The new MEGA-Deep-Drill-Steel is a deep drill for highly efficient deep drilling applications on steel and cast-iron materials. Due to its innovative geometrical and cutting material design, the deep drill is ideally adapted to high feed rates and maximum productivity in bore machining up to 40xD.

The convex cutting edge and the optimised core diameter profile result in excellent cutting properties with maximum stability. The cooling channel diameters were enlarged by approx. 20% to ensure optimal cooling of the main cutters and cutting edges as well as improved chip removal. The deep drill is suitable for emulsion and MQL on machining centres with a coolant pressure of 10–40 bar.

The four margin lands ensure exact boring accuracy and a very low bore runout. The adapted guide length and the widened rear margin lands ensure maximum guiding accuracy even with inclined bore outlets. With its smooth surface, the HiPIMS head coating enables maximum tool life and ensures smooth chip flow.

## HIGH WEAR RESISTANCE



**Good cutting properties, short chips**
- Convex cutting edge shape

**Maximum tool life**
- Innovative cutting material

**Maximum stability**
- Perfectly adapted core diameter profile

## PROCESS RELIABILITY

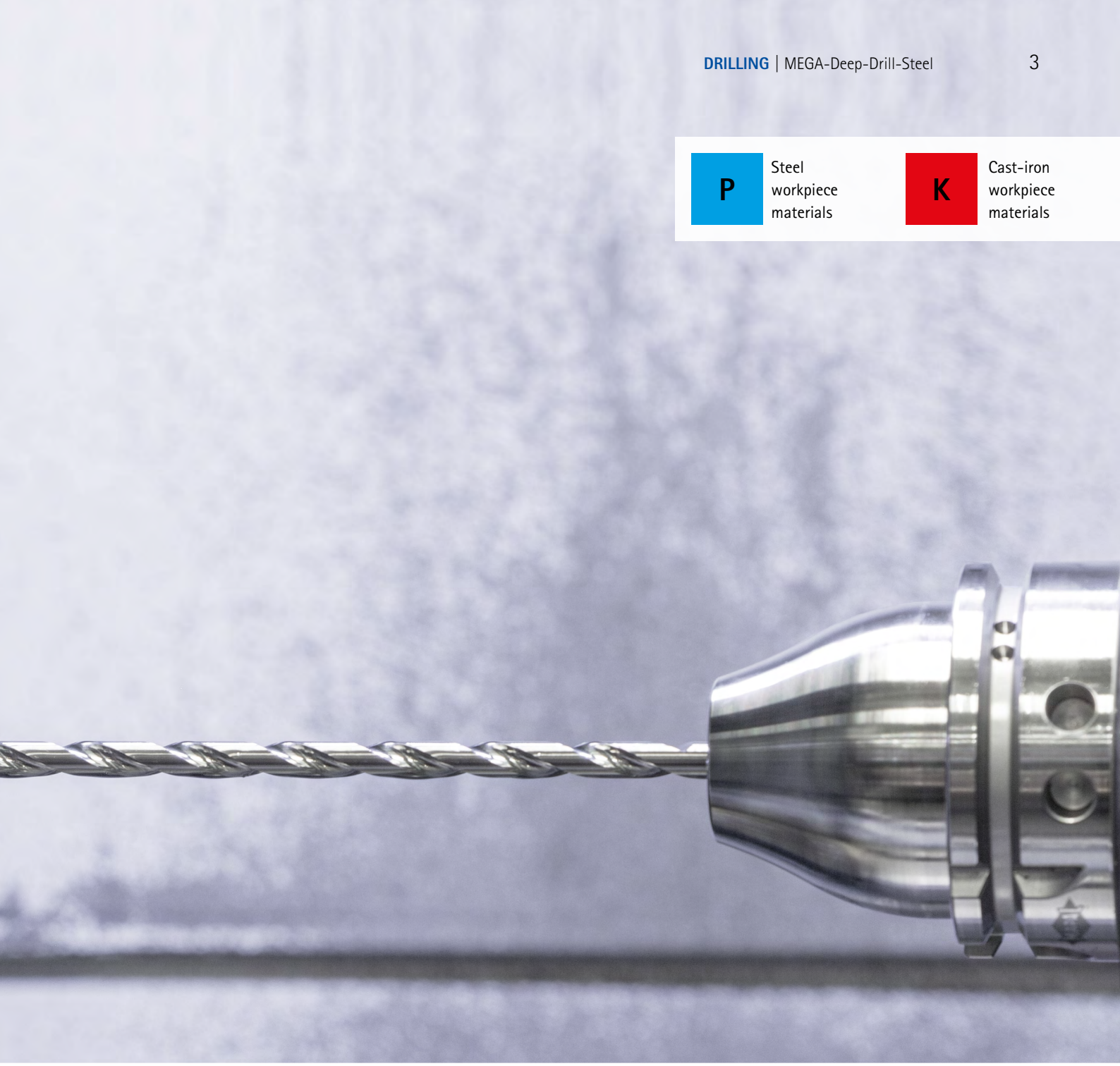
**Exact boring accuracy**
- Thanks to four margin lands

**Very low bore runout**
- Thanks to the larger circumference surface area of the rear margin lands

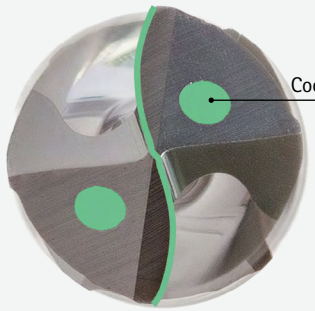
**Maximum guiding accuracy even with inclined bore outlets**
- Ideal length of margin lands

**P** Steel workpiece materials

**K** Cast-iron workpiece materials



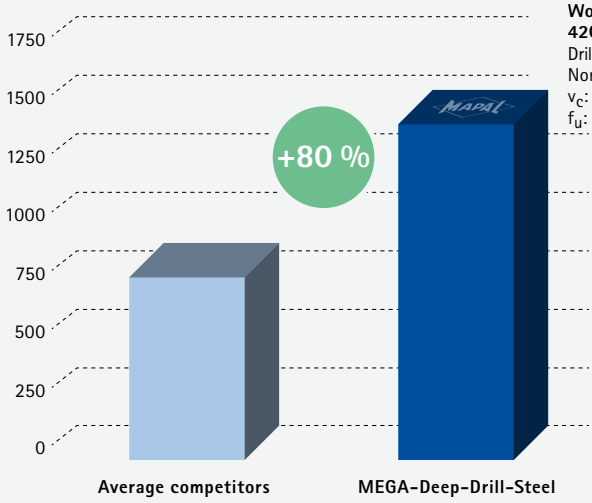
## MAXIMUM PRODUCTIVITY




**Good cutting properties and maximum feed rates**
- Thanks to spherical main cutter
- Maximum cooling capacity
- Maximum cutting stability

**Ideal chip removal**
- Tightly rolled chips

**Maximum tool life according to the number of bores**




**Workpiece material: 42CrMo4**
Drilling depth: 30xD
Nominal Ø: 6.00 mm
$v_c$: 80 m/min
$f_u$: 0.3 mm/rev

# Deep drilling in three steps

## 1 Making a pilot bore

### MEGA-Drill-Steel-Plus
**[SCD600, SCD601]**
For general drilling conditions

### MEGA-Step-Drill-Steel-Plus
**[SCD590, SCD591]**
For general drilling conditions
incl. 90° countersink

### MEGA-Speed-Drill-Steel
**[SCD621]**
For general drilling conditions

**Info:**
Select nominal Ø that is 0.02 mm larger.

**Example:**
Pilot tool: MEGA-Speed-Drill-Steel, nominal Ø 5.02 mm
Subsequent tool: MEGA-Deep-Drill-Steel, nominal Ø 5.00 mm

### MEGA-180°-Drill
**[SCD231]**
For difficult drilling conditions

## 2 Deep drilling up to 30xD

### Entry into the pilot bore:
- Enter at max. 300 rpm and $v_f$ = 1,000 mm/min
- Without coolant – drill up to 1 mm before the bottom of the pilot bore
- Switch on coolant –> cooling lubricant = 10–40 bar/MQL
- Spot drilling with specified cutting data according to table

**Info:**
Further method for spot drilling with the MEGA-Deep-Drill-Steel: Spot drilling with 50% feed, linear acceleration to 100% feed up to drilling depth of 4xD

- **Deep drilling up to 30xD in one shot, without chip removal cycles**

### Running out:
- Run out at max. 300 rpm and double the feed (2x $v_f$)
- Switch off coolant

## 3 Deep drilling up to 40xD

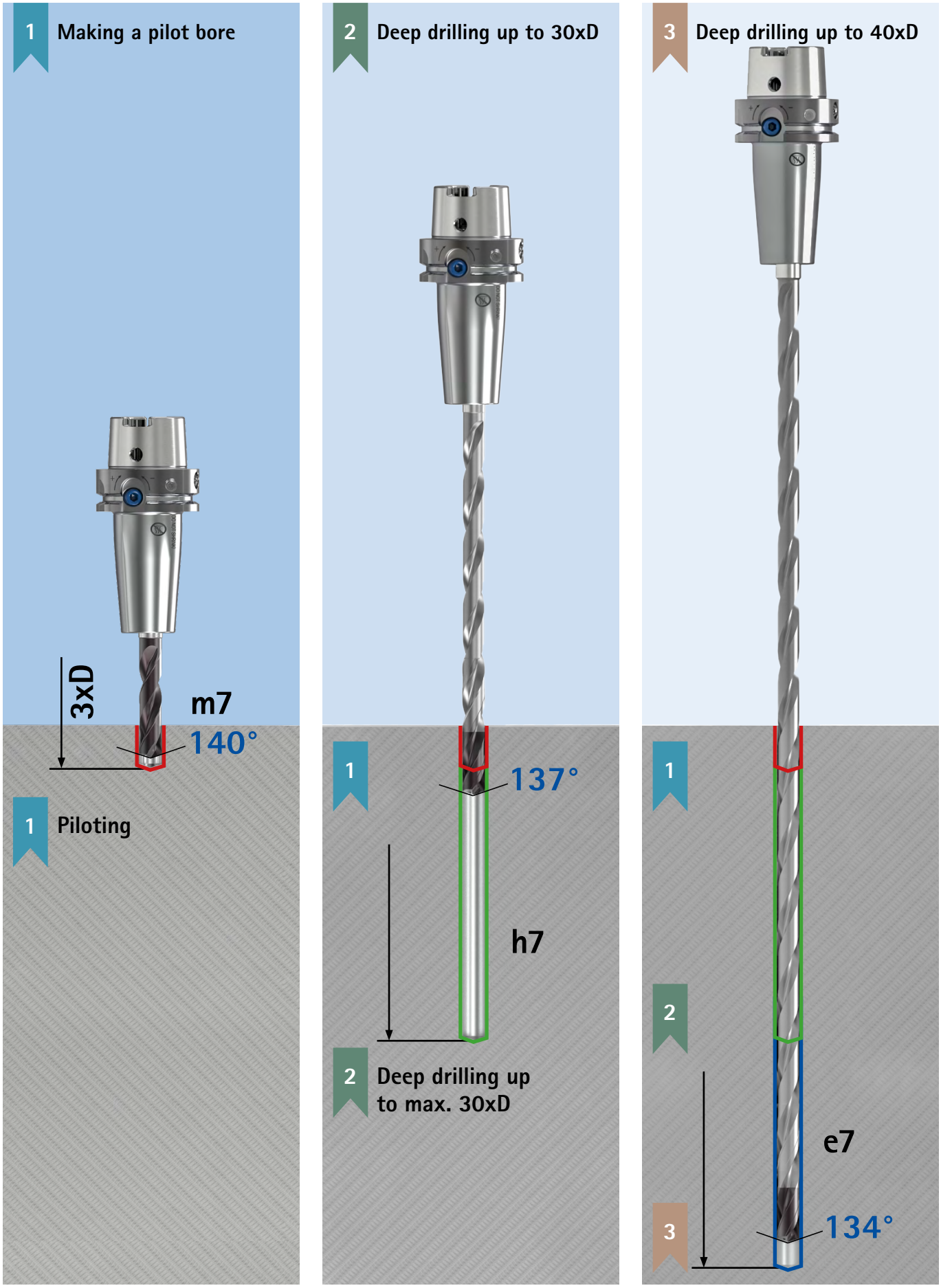
### Entry into the 30xD bore:
- Enter at max. 300 rpm and $v_f$ = 1,000 mm/min
- Without coolant – up to 1 mm before the bottom of the 30xD bore
- Switch on coolant –> cooling lubricant = 10–40 bar/MQL
- Spot drilling with specified cutting data according to table

**Info:**
Further method for spot drilling with the MEGA-Deep-Drill-Steel: Spot drilling with 50% feed, linear acceleration to 100% feed up to drilling depth of 32xD

- **Deep drilling up to 40xD in one shot, without chip removal cycles**

### Running out:
- Run out at max. 300 rpm and double the feed (2x $v_f$)
- Switch off coolant

**Selecting the right pilot drill**
- The nominal diameter of the pilot drill must match the nominal diameter of the MEGA-Deep-Drill-Steel
- The point angle and diameter tolerances are matched for optimal functionality as well as for the interaction of pilot drill and deep drill

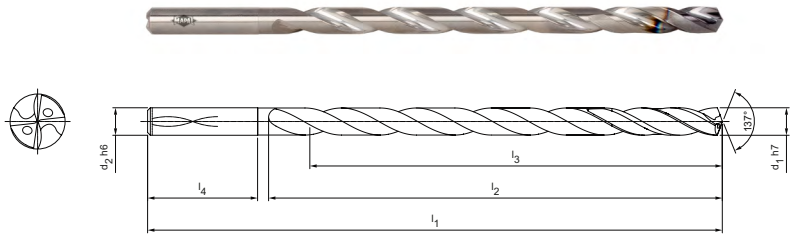

1 Making a pilot bore
3xD
m7
140°
1 Piloting
2 Deep drilling up to 30xD
1
137°
h7
2 Deep drilling up to max. 30xD
3 Deep drilling up to 40xD
1
2
e7
3
134°

# MEGA-Deep-Drill-Steel

Solid carbide twist drill
SCD701 (15xD), internal coolant supply

**Design:**

| | |
|---|---|
| Drill diameter: | 3.00 - 16.00 mm |
| Bore tolerance: | IT9 (available) |
| Shank form: | HA |
| Cutting material: | HP400 |
| Number of cutting edges: | 2 |
| Tip angle: | 137° |
| Helix angle: | 30° |
| Special features: | Head coating |




P 1 2 3 4 5 6 M 1 2 3 K 1 2 3 N 1 2 3 4 S 1 2 3 4 5 H 1 2 3

CONFIG Expert LINE

IT9 15xD HA DIN 6535

**Preferred series available from stock**

| Dimensions | | | | | | Shank form HA | |
|---|---|---|---|---|---|---|---|
| $d_1$ h7 | $d_2$ h6 | $l_1$ | $l_2$ | $l_3$ | $l_4$ | Specification | Order no. |
| 3,00 | 4,00 | 90 | 58 | 52 | 28 | SCD701-0300-2-4-137HA15-HP400 | 31459705 |
| 3,50 | 4,00 | 98 | 66 | 60 | 28 | SCD701-0350-2-4-137HA15-HP400 | 31459706 |
| 4,00 | 4,00 | 98 | 66 | 60 | 28 | SCD701-0400-2-4-137HA15-HP400 | 31459707 |
| 4,50 | 5,00 | 107 | 75 | 68 | 28 | SCD701-0450-2-4-137HA15-HP400 | 31459708 |
| 5,00 | 5,00 | 115 | 83 | 75 | 28 | SCD701-0500-2-4-137HA15-HP400 | 31459709 |
| 5,50 | 6,00 | 131 | 91 | 83 | 36 | SCD701-0550-2-4-137HA15-HP400 | 31459720 |
| 6,00 | 6,00 | 139 | 99 | 90 | 36 | SCD701-0600-2-4-137HA15-HP400 | 31459721 |
| 7,00 | 8,00 | 156 | 116 | 105 | 36 | SCD701-0700-2-4-137HA15-HP400 | 31459722 |
| 8,00 | 8,00 | 172 | 132 | 120 | 36 | SCD701-0800-2-4-137HA15-HP400 | 31459723 |
| 9,00 | 10,00 | 193 | 149 | 135 | 40 | SCD701-0900-2-4-137HA15-HP400 | 31459724 |
| 9,50 | 10,00 | 209 | 165 | 150 | 40 | SCD701-0950-2-4-137HA15-HP400 | 31459725 |
| 10,00 | 10,00 | 209 | 165 | 150 | 40 | SCD701-1000-2-4-137HA15-HP400 | 31459726 |
| 11,00 | 12,00 | 231 | 182 | 165 | 45 | SCD701-1100-2-4-137HA15-HP400 | 31459727 |
| 12,00 | 12,00 | 247 | 198 | 180 | 45 | SCD701-1200-2-4-137HA15-HP400 | 31459728 |
| 13,00 | 14,00 | 264 | 215 | 195 | 45 | SCD701-1300-2-4-137HA15-HP400 | 31459729 |
| 14,00 | 14,00 | 280 | 231 | 210 | 45 | SCD701-1400-2-4-137HA15-HP400 | 31459730 |
| 15,00 | 16,00 | 300 | 248 | 225 | 48 | SCD701-1500-2-4-137HA15-HP400 | 31459731 |
| 16,00 | 16,00 | 316 | 264 | 240 | 48 | SCD701-1600-2-4-137HA15-HP400 | 31459732 |

**Configurable features**

**Diameter:**
Diameter in increments of
0.01 mm freely selectable

**Specification:**
SCD701-**[diameter]**-2-4-137HA15-HP400

**Example:**
SCD701-**0735**-2-4-137HA15-HP400

Tool diameter $d_1$ = 7.35 mm

Dimensions in mm.
For recommended pilot drill, see page 4
For cutting data recommendation, see page 11.

**Dimensions of configurable series h7**

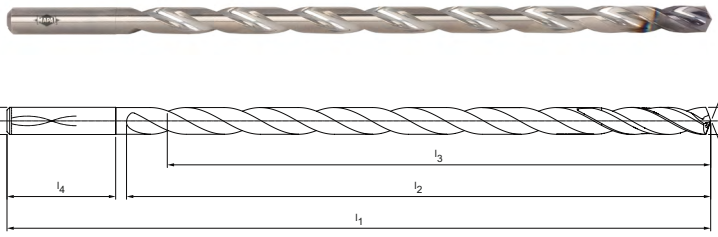
| $d_1$ min. | $d_1$ max. | $d_2$ h6 | $l_1$ | $l_2$ | $l_3$ | $l_4$ |
|---|---|---|---|---|---|---|
| 3,00 | 3,49 | 4,00 | 90 | 58 | 52 | 28 |
| 3,50 | 4,00 | 4,00 | 98 | 66 | 60 | 28 |
| 4,01 | 4,50 | 5,00 | 107 | 75 | 68 | 28 |
| 4,51 | 5,00 | 5,00 | 115 | 83 | 75 | 28 |
| 5,01 | 5,50 | 6,00 | 131 | 91 | 83 | 36 |
| 5,51 | 6,00 | 6,00 | 139 | 99 | 90 | 36 |
| 6,01 | 7,00 | 8,00 | 156 | 116 | 105 | 36 |
| 7,01 | 8,00 | 8,00 | 172 | 132 | 120 | 36 |
| 8,01 | 9,00 | 10,00 | 193 | 149 | 135 | 40 |
| 9,01 | 10,00 | 10,00 | 209 | 165 | 150 | 40 |
| 10,01 | 11,00 | 12,00 | 231 | 182 | 165 | 45 |
| 11,01 | 12,00 | 12,00 | 247 | 198 | 180 | 45 |
| 12,01 | 13,00 | 14,00 | 264 | 215 | 195 | 45 |
| 13,01 | 14,00 | 14,00 | 280 | 231 | 210 | 45 |
| 14,01 | 15,00 | 16,00 | 300 | 248 | 225 | 48 |
| 15,01 | 16,00 | 16,00 | 316 | 264 | 240 | 48 |

# MEGA-Deep-Drill-Steel

Solid carbide twist drill
SCD701 (20xD), internal coolant supply

**Design:**

| | |
|---|---|
| Drill diameter: | 3.00 - 16.00 mm |
| Bore tolerance: | IT9 (available) |
| Shank form: | HA |
| Cutting material: | HP400 |
| Number of cutting edges: | 2 |
| Tip angle: | 137° |
| Helix angle: | 30° |
| Special features: | Head coating |






**Preferred series available from stock**

| Dimensions | | | | | | Shank form HA | |
|---|---|---|---|---|---|---|---|
| $d_1$ h7 | $d_2$ h6 | $l_1$ | $l_2$ | $l_3$ | $l_4$ | Specification | Order no. |
| 3,00 | 4,00 | 108 | 76 | 70 | 28 | SCD701-0300-2-4-137HA20-HP400 | 31459733 |
| 3,50 | 4,00 | 118 | 86 | 80 | 28 | SCD701-0350-2-4-137HA20-HP400 | 31459734 |
| 4,00 | 4,00 | 118 | 86 | 80 | 28 | SCD701-0400-2-4-137HA20-HP400 | 31459735 |
| 4,50 | 5,00 | 129 | 97 | 90 | 28 | SCD701-0450-2-4-137HA20-HP400 | 31459736 |
| 5,00 | 5,00 | 140 | 108 | 100 | 28 | SCD701-0500-2-4-137HA20-HP400 | 31459737 |
| 5,50 | 6,00 | 159 | 119 | 110 | 36 | SCD701-0550-2-4-137HA20-HP400 | 31459738 |
| 6,00 | 6,00 | 169 | 129 | 120 | 36 | SCD701-0600-2-4-137HA20-HP400 | 31459739 |
| 6,50 | 8,00 | 191 | 151 | 140 | 36 | SCD701-0650-2-4-137HA20-HP400 | 31459740 |
| 7,00 | 8,00 | 191 | 151 | 140 | 36 | SCD701-0700-2-4-137HA20-HP400 | 31459741 |
| 8,00 | 8,00 | 212 | 172 | 160 | 36 | SCD701-0800-2-4-137HA20-HP400 | 31459742 |
| 9,00 | 10,00 | 238 | 194 | 180 | 40 | SCD701-0900-2-4-137HA20-HP400 | 31459743 |
| 10,00 | 10,00 | 259 | 215 | 200 | 40 | SCD701-1000-2-4-137HA20-HP400 | 31459744 |
| 11,00 | 12,00 | 286 | 237 | 220 | 45 | SCD701-1100-2-4-137HA20-HP400 | 31459745 |
| 12,00 | 12,00 | 307 | 258 | 240 | 45 | SCD701-1200-2-4-137HA20-HP400 | 31459746 |
| 13,00 | 14,00 | 329 | 280 | 260 | 45 | SCD701-1300-2-4-137HA20-HP400 | 31459747 |
| 14,00 | 14,00 | 350 | 301 | 280 | 45 | SCD701-1400-2-4-137HA20-HP400 | 31459748 |
| 15,00 | 16,00 | 375 | 323 | 300 | 48 | SCD701-1500-2-4-137HA20-HP400 | 31459749 |
| 16,00 | 16,00 | 396 | 344 | 320 | 48 | SCD701-1600-2-4-137HA20-HP400 | 31459750 |

**Configurable features**

**Diameter:**
Diameter in increments of
0.01 mm freely selectable

**Specification:**
SCD701-**[diameter]**-2-4-137HA20-HP400

**Example:**
SCD701-**0735**-2-4-137HA20-HP400

Tool diameter $d_1$ = 7.35 mm

Dimensions in mm.
For recommended pilot drill, see page 4
For cutting data recommendation, see page 11.

**Dimensions of configurable series h7**

| $d_1$ min. | $d_1$ max. | $d_2$ h6 | $l_1$ | $l_2$ | $l_3$ | $l_4$ |
|---|---|---|---|---|---|---|
| 3,00 | 3,49 | 4,00 | 108 | 76 | 70 | 28 |
| 3,50 | 4,00 | 4,00 | 118 | 86 | 80 | 28 |
| 4,01 | 4,50 | 5,00 | 129 | 97 | 90 | 28 |
| 4,51 | 5,00 | 5,00 | 140 | 108 | 100 | 28 |
| 5,01 | 5,50 | 6,00 | 159 | 119 | 110 | 36 |
| 5,51 | 6,00 | 6,00 | 169 | 129 | 120 | 36 |
| 6,01 | 7,00 | 8,00 | 191 | 151 | 140 | 36 |
| 7,01 | 8,00 | 8,00 | 212 | 172 | 160 | 36 |
| 8,01 | 9,00 | 10,00 | 238 | 194 | 180 | 40 |
| 9,01 | 10,00 | 10,00 | 259 | 215 | 200 | 40 |
| 10,01 | 11,00 | 12,00 | 286 | 237 | 220 | 45 |
| 11,01 | 12,00 | 12,00 | 307 | 258 | 240 | 45 |
| 12,01 | 13,00 | 14,00 | 329 | 280 | 260 | 45 |
| 13,01 | 14,00 | 14,00 | 350 | 301 | 280 | 45 |
| 14,01 | 15,00 | 16,00 | 375 | 323 | 300 | 48 |
| 15,01 | 16,00 | 16,00 | 396 | 344 | 320 | 48 |

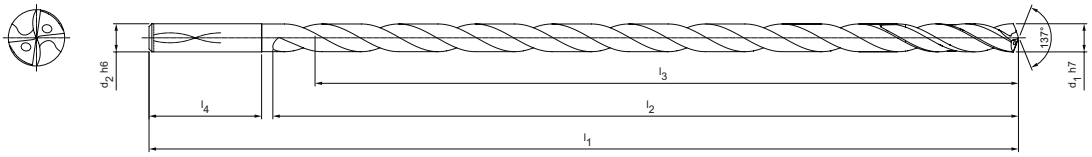
# MEGA-Deep-Drill-Steel

Solid carbide twist drill
SCD701 (25xD), internal coolant supply

**Design:**

| | |
|---|---|
| Drill diameter: | 3.00 - 14.00 mm |
| Bore tolerance: | IT9 (available) |
| Shank form: | HA |
| Cutting material: | HP400 |
| Number of cutting edges: | 2 |
| Tip angle: | 137° |
| Helix angle: | 30° |
| Special features: | Head coating |






P 1 2 3 4 5 6 M 1 2 3 K 1 2 3 N 1 2 3 4 S 1 2 3 4 5 H 1 2 3

CONFIG Expert LINE IT9 25xD HA DIN 6535

**Preferred series available from stock**

| Dimensions | | | | | | Shank form HA | |
|---|---|---|---|---|---|---|---|
| $d_1$ h7 | $d_2$ h6 | $l_1$ | $l_2$ | $l_3$ | $l_4$ | Specification | Order no. |
| 3,00 | 4,00 | 125 | 93 | 87 | 28 | SCD701-0300-2-4-137HA25-HP400 | 31459751 |
| 3,50 | 4,00 | 138 | 106 | 100 | 28 | SCD701-0350-2-4-137HA25-HP400 | 31459752 |
| 4,00 | 4,00 | 138 | 106 | 100 | 28 | SCD701-0400-2-4-137HA25-HP400 | 31459753 |
| 4,50 | 5,00 | 152 | 120 | 113 | 28 | SCD701-0450-2-4-137HA25-HP400 | 31459754 |
| 5,00 | 5,00 | 165 | 133 | 125 | 28 | SCD701-0500-2-4-137HA25-HP400 | 31459755 |
| 5,50 | 6,00 | 186 | 146 | 137 | 36 | SCD701-0550-2-4-137HA25-HP400 | 31459756 |
| 6,00 | 6,00 | 199 | 159 | 150 | 36 | SCD701-0600-2-4-137HA25-HP400 | 31459757 |
| 7,00 | 8,00 | 226 | 186 | 175 | 36 | SCD701-0700-2-4-137HA25-HP400 | 31459758 |
| 8,00 | 8,00 | 252 | 212 | 200 | 36 | SCD701-0800-2-4-137HA25-HP400 | 31459759 |
| 9,00 | 10,00 | 283 | 239 | 225 | 40 | SCD701-0900-2-4-137HA25-HP400 | 31459760 |
| 10,00 | 10,00 | 309 | 265 | 250 | 40 | SCD701-1000-2-4-137HA25-HP400 | 31459761 |
| 11,00 | 12,00 | 341 | 292 | 275 | 45 | SCD701-1100-2-4-137HA25-HP400 | 31459762 |
| 12,00 | 12,00 | 367 | 318 | 300 | 45 | SCD701-1200-2-4-137HA25-HP400 | 31459763 |
| 13,00 | 14,00 | 394 | 345 | 325 | 45 | SCD701-1300-2-4-137HA25-HP400 | 31459764 |
| 14,00 | 14,00 | 420 | 371 | 350 | 45 | SCD701-1400-2-4-137HA25-HP400 | 31459765 |

**Configurable features**

**Diameter:**
Diameter in increments of
0.01 mm freely selectable

**Specification:**
SCD701-**[diameter]**-2-4-137HA25-HP400

**Example:**
SCD701-**0735**-2-4-137HA25-HP400

Tool diameter $d_1$ = 7.35 mm

**Dimensions of configurable series h7**

| $d_1$ min. | $d_1$ max. | $d_2$ h6 | $l_1$ | $l_2$ | $l_3$ | $l_4$ |
|---|---|---|---|---|---|---|
| 3,00 | 3,49 | 4,00 | 125 | 93 | 87 | 28 |
| 3,50 | 4,00 | 4,00 | 138 | 106 | 100 | 28 |
| 4,01 | 4,50 | 5,00 | 152 | 120 | 113 | 28 |
| 4,51 | 5,00 | 5,00 | 165 | 133 | 125 | 28 |
| 5,01 | 5,50 | 6,00 | 186 | 146 | 138 | 36 |
| 5,51 | 6,00 | 6,00 | 199 | 159 | 150 | 36 |
| 6,01 | 7,00 | 8,00 | 226 | 186 | 175 | 36 |
| 7,01 | 8,00 | 8,00 | 252 | 212 | 200 | 36 |
| 8,01 | 9,00 | 10,00 | 283 | 239 | 225 | 40 |
| 9,01 | 10,00 | 10,00 | 309 | 265 | 250 | 40 |
| 10,01 | 11,00 | 12,00 | 341 | 292 | 275 | 45 |
| 11,01 | 12,00 | 12,00 | 367 | 318 | 300 | 45 |
| 12,01 | 13,00 | 14,00 | 394 | 345 | 325 | 45 |
| 13,01 | 14,00 | 14,00 | 420 | 371 | 350 | 45 |

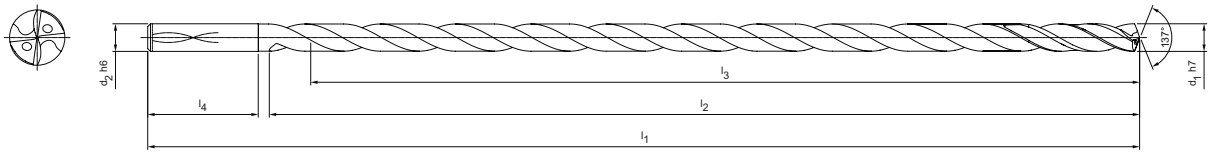
Dimensions in mm.
For recommended pilot drill, see page 4
For cutting data recommendation, see page 11.

# MEGA-Deep-Drill-Steel

Solid carbide twist drill
SCD701 (30xD), internal coolant supply

**Design:**

| | |
|---|---|
| Drill diameter: | 3.00 - 12.00 mm |
| Bore tolerance: | IT9 (available) |
| Shank form: | HA |
| Cutting material: | HP400 |
| Number of cutting edges: | 2 |
| Tip angle: | 137° |
| Helix angle: | 30° |
| Special features: | Head coating |




| P | 1 | 2 | 3 | 4 | 5 | 6 | M | 1 | 2 | 3 | K | 1 | 2 | 3 | N | 1 | 2 | 3 | 4 | S | 1 | 2 | 3 | 4 | 5 | H | 1 | 2 | 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ■ | | ■ | ■ | | ■ | | | | | | ■ | ■ | ■ | | | | | | | | | | | | | | | | | |

CONFIG | Expert LINE | IT9 | 30xD | HA DIN 6535

**Preferred series available from stock**

| Dimensions | | | | | | Shank form HA | |
|---|---|---|---|---|---|---|---|
| $d_1$ h7 | $d_2$ h6 | $l_1$ | $l_2$ | $l_3$ | $l_4$ | Specification | Order no. |
| 3,00 | 4,00 | 143 | 111 | 105 | 28 | SCD701-0300-2-4-137HA30-HP400 | 31459766 |
| 3,50 | 4,00 | 158 | 126 | 120 | 28 | SCD701-0350-2-4-137HA30-HP400 | 31459767 |
| 4,00 | 4,00 | 158 | 126 | 120 | 28 | SCD701-0400-2-4-137HA30-HP400 | 31459768 |
| 4,50 | 5,00 | 174 | 142 | 135 | 28 | SCD701-0450-2-4-137HA30-HP400 | 31459769 |
| 5,00 | 5,00 | 190 | 158 | 150 | 28 | SCD701-0500-2-4-137HA30-HP400 | 31459770 |
| 5,50 | 6,00 | 214 | 174 | 165 | 36 | SCD701-0550-2-4-137HA30-HP400 | 31459771 |
| 6,00 | 6,00 | 229 | 189 | 180 | 36 | SCD701-0600-2-4-137HA30-HP400 | 31459772 |
| 6,50 | 8,00 | 261 | 221 | 210 | 36 | SCD701-0650-2-4-137HA30-HP400 | 31459773 |
| 7,00 | 8,00 | 261 | 221 | 210 | 36 | SCD701-0700-2-4-137HA30-HP400 | 31459774 |
| 8,00 | 8,00 | 292 | 252 | 240 | 36 | SCD701-0800-2-4-137HA30-HP400 | 31459775 |
| 9,00 | 10,00 | 328 | 284 | 270 | 40 | SCD701-0900-2-4-137HA30-HP400 | 31459776 |
| 10,00 | 10,00 | 359 | 315 | 300 | 40 | SCD701-1000-2-4-137HA30-HP400 | 31459777 |
| 11,00 | 12,00 | 396 | 347 | 330 | 45 | SCD701-1100-2-4-137HA30-HP400 | 31459778 |
| 12,00 | 12,00 | 427 | 378 | 360 | 45 | SCD701-1200-2-4-137HA30-HP400 | 31459779 |

**Configurable features**

**Diameter:**
Diameter in increments of
0.01 mm freely selectable

**Specification:**
SCD701-**[diameter]**-2-4-137HA30-HP400

**Example:**
SCD701-**0735**-2-4-137HA30-HP400

Tool diameter $d_1$ = 7.35 mm

**Dimensions of configurable series h7**

| $d_1$ min. | $d_1$ max. | $d_2$ h6 | $l_1$ | $l_2$ | $l_3$ | $l_4$ |
|---|---|---|---|---|---|---|
| 3,00 | 3,49 | 4,00 | 143 | 111 | 105 | 28 |
| 3,50 | 4,00 | 4,00 | 158 | 126 | 120 | 28 |
| 4,01 | 4,50 | 5,00 | 174 | 142 | 135 | 28 |
| 4,51 | 5,00 | 5,00 | 190 | 158 | 150 | 28 |
| 5,01 | 5,50 | 6,00 | 214 | 174 | 165 | 36 |
| 5,51 | 6,00 | 6,00 | 229 | 189 | 180 | 36 |
| 6,01 | 7,00 | 8,00 | 261 | 221 | 210 | 36 |
| 7,01 | 8,00 | 8,00 | 292 | 252 | 240 | 36 |
| 8,01 | 9,00 | 10,00 | 328 | 284 | 270 | 40 |
| 9,01 | 10,00 | 10,00 | 359 | 315 | 300 | 40 |
| 10,01 | 11,00 | 12,00 | 396 | 347 | 330 | 45 |
| 11,01 | 12,00 | 12,00 | 427 | 378 | 360 | 45 |

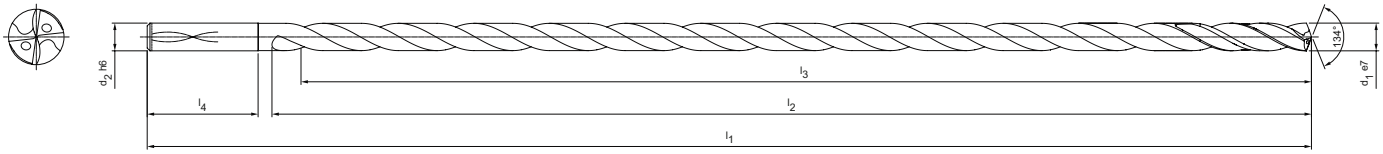
Dimensions in mm.
For recommended pilot drill, see page 4
For cutting data recommendation, see page 11.

# MEGA-Deep-Drill-Steel

Solid carbide twist drill
SCD701 (40xD), internal coolant supply

**Design:**

| | |
|---|---|
| Drill diameter: | 3.00 - 9.00 mm |
| Bore tolerance: | IT9 (available) |
| Shank form: | HA |
| Cutting material: | HP400 |
| Number of cutting edges: | 2 |
| Tip angle: | 134° |
| Helix angle: | 30° |
| Special features: | Head coating |






**Preferred series available from stock**

| Dimensions | | | | | | Shank form HA | |
|---|---|---|---|---|---|---|---|
| $d_1$ e7 | $d_2$ h6 | $l_1$ | $l_2$ | $l_3$ | $l_4$ | Specification | Order no. |
| 3,00 | 4,00 | 178 | 146 | 140 | 28 | SCD701-0300-2-4-134HA40-HP400 | 31459780 |
| 3,50 | 4,00 | 198 | 166 | 160 | 28 | SCD701-0350-2-4-134HA40-HP400 | 31459781 |
| 4,00 | 4,00 | 198 | 166 | 160 | 28 | SCD701-0400-2-4-134HA40-HP400 | 31459782 |
| 4,50 | 5,00 | 219 | 187 | 180 | 28 | SCD701-0450-2-4-134HA40-HP400 | 31459783 |
| 5,00 | 5,00 | 240 | 208 | 200 | 28 | SCD701-0500-2-4-134HA40-HP400 | 31459784 |
| 6,00 | 6,00 | 289 | 249 | 240 | 36 | SCD701-0600-2-4-134HA40-HP400 | 31459785 |
| 7,00 | 8,00 | 331 | 291 | 280 | 36 | SCD701-0700-2-4-134HA40-HP400 | 31459786 |
| 8,00 | 8,00 | 372 | 332 | 320 | 36 | SCD701-0800-2-4-134HA40-HP400 | 31459787 |
| 9,00 | 10,00 | 418 | 374 | 360 | 40 | SCD701-0900-2-4-134HA40-HP400 | 31459788 |

**Configurable features**


**Diameter:**
Diameter in increments of
0.01 mm freely selectable

**Specification:**
SCD701-**[diameter]**-2-4-134HA40-HP400

**Example:**
SCD701-**0735**-2-4-134HA40-HP400

Tool diameter $d_1$ = 7.35 mm

**Dimensions of configurable series e7**

| $d_1$ min. | $d_1$ max. | $d_2$ h6 | $l_1$ | $l_2$ | $l_3$ | $l_4$ |
|---|---|---|---|---|---|---|
| 3,00 | 3,49 | 4,00 | 178 | 146 | 140 | 28 |
| 3,50 | 4,00 | 4,00 | 198 | 166 | 160 | 28 |
| 4,01 | 4,50 | 5,00 | 219 | 187 | 180 | 28 |
| 4,51 | 5,00 | 5,00 | 240 | 208 | 200 | 28 |
| 5,01 | 5,50 | 6,00 | 269 | 229 | 220 | 36 |
| 5,51 | 6,00 | 6,00 | 289 | 249 | 240 | 36 |
| 6,01 | 7,00 | 8,00 | 331 | 291 | 280 | 36 |
| 7,01 | 8,00 | 8,00 | 372 | 332 | 320 | 36 |
| 8,01 | 9,00 | 10,00 | 418 | 374 | 360 | 40 |

Dimensions in mm.
For recommended pilot drill, see page 4
For cutting data recommendation, see page 11.

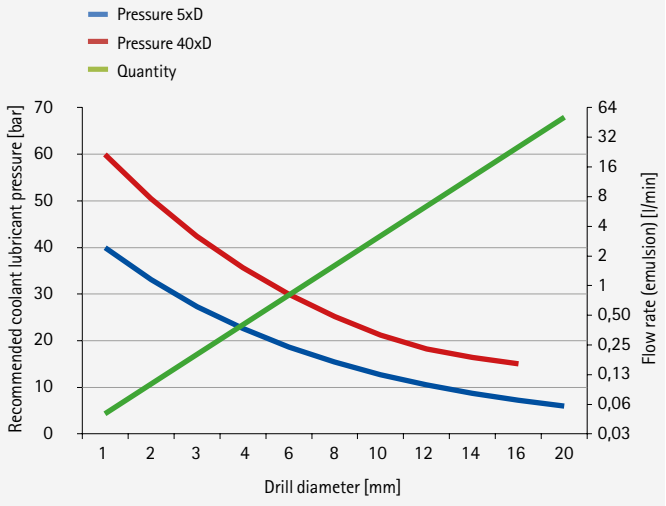
# Cutting data recommendations and technical application notes for deep drills

Feed and cutting speed

### MEGA-Deep-Drill-Steel | SCD701

| MMG* | | | Workpiece material | Strength/hardness [N/mm²] [HRC] | Cutting speed $v_c$ [m/min] | | Feed f [mm] for drill diameter | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Internal cooling | MQL | 3.00 | 4.00 | 6.00 | 8.00 | 12.00 | 16.00 |
| P | P1 | P1.1 | Structural, machining, case hardened and tempering steels, unalloyed | < 700 | **100** | **90** | 0.16 | 0.19 | 0.24 | 0.30 | 0.40 | 0.48 |
| | | P1.2 | Structural, machining, case hardened and tempering steels, unalloyed | < 1,200 | **90** | **75** | 0.20 | 0.24 | 0.31 | 0.38 | 0.48 | 0.60 |
| | P2 | P2.1 | Nitriding, hardening and tempering steels, alloyed | < 900 | **100** | **85** | 0.19 | 0.23 | 0.29 | 0.36 | 0.46 | 0.57 |
| | | P2.2 | Nitriding, hardening and tempering steels, alloyed | < 1,400 | **70** | **60** | 0.16 | 0.19 | 0.24 | 0.29 | 0.39 | 0.45 |
| | P3 | P3.1 | Tool, bearing, spring and high-speed steels** | < 800 | **75** | **65** | 0.17 | 0.20 | 0.26 | 0.32 | 0.42 | 0.51 |
| | | P3.2 | Tool, bearing, spring and high-speed steels** | < 1,000 | **60** | **55** | 0.14 | 0.17 | 0.22 | 0.27 | 0.35 | 0.42 |
| | | P3.3 | Tool, bearing, spring and high-speed steels** | < 1,500 | **60** | **50** | 0.12 | 0.14 | 0.18 | 0.21 | 0.28 | 0.32 |
| | P5 | P5.1 | Cast steel | | **100** | **85** | 0.19 | 0.23 | 0.29 | 0.36 | 0.46 | 0.57 |
| K | K1 | K1.1 | Cast iron with lamellar graphite (grey cast iron), GJL | < 300 | **120** | **85** | 0.21 | 0.28 | 0.37 | 0.48 | 0.62 | 0.80 |
| | K2 | K2.1 | Cast iron with spheroidal graphite, GJS | < 500 | **160** | **120** | 0.22 | 0.27 | 0.35 | 0.45 | 0.58 | 0.74 |
| | | K2.2 | Cast iron with spheroidal graphite, GJS | ≤ 800 | **100** | **75** | 0.20 | 0.24 | 0.31 | 0.39 | 0.52 | 0.63 |
| | | K2.3 | Cast iron with spheroidal graphite, GJS | > 800 | **60** | **50** | 0.14 | 0.17 | 0.22 | 0.27 | 0.35 | 0.42 |
| | K3 | K3.1 | Cast iron with vermicular graphite, GJV; malleable cast iron, GJM | < 500 | **90** | **80** | 0.21 | 0.26 | 0.34 | 0.42 | 0.55 | 0.68 |
| | | K3.2 | Cast iron with vermicular graphite, GJV; malleable cast iron, GJM | > 500 | **80** | **70** | 0.18 | 0.22 | 0.28 | 0.34 | 0.45 | 0.54 |

### Reference values for coolant pressure and quantity




### System pressures for MQL for deep drills

| MQL systems | Supply pressure |
|---|---|
| **One-channel systems** | **up to 16 bar** |
| Recommended supply pressure | 5-6 bar |
| High pressure for Deep drilling < nominal Ø 12 mm | 8-10 bar |
| **Two-channel systems** | **up to 10 bar** |
| Recommended supply pressure | 5-6 bar |
| High pressure for Deep drilling < nominal Ø 6 mm | 8-10 bar |

* MAPAL machining groups

** If the alloy parts Cr, Mo, Ni, V, W in total >8%, then select the next highest MAPAL machining group.

The specified cutting data are guide values.

The optimum data for the respective machining task should be determined during the test or machining.

Discover tool and service solutions now that give you a lead:

BORE MACHINING

REAMING | FINE BORING

DRILLING FROM SOLID | BORING | COUNTERSINKING

MILLING

CLAMPING

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Mat. no. 10173131 | V1.0.0
Mega-Deep-Drill-Steel-EN-PC-01-010-0325-VVA Printed in Austria. Technical data subject to change without notice.
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Print product with financial
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ClimatePartner.com/53385-2407-1019