



**FORCE M**  
**FORCE X**

高性能整体硬质合金钻头

2018





**FORCE M**  
**FORCE X**



Force系列整体硬质合金钻头兼具出色的性能和卓越的经济性。

其产品包括：

**FORCE X** – 通用整体硬质合金钻头，适用于范围广泛的各类材料加工。

**NEW FORCE M** – 新增钻头牌号，专为不锈钢钻孔应用而设计。

## 简介

- 这类钻头解决方案提供高生产率、高加工一致性以及高可重复性，适合跨不同加工设备及加工条件的多种应用。这些特色令其成为通用加工程及机床配刀项目理想之选。
- 新研发的四后面钻尖设计改善了切屑形成，提高了强度和耐磨性。
- 均匀一致的刃口处理可提升钻头的耐磨损性能，同时提升产品的可重磨性能。
- 产品系列中提供各种长度的TiAlN涂层钻头，包括无内冷钻头 and 内冷钻头两种设计。

### **FORCE M** **NEW**

- 新型Force M钻头非常适合对ISO M材料进行大量高性能钻孔加工。

## 材料

- 优质微晶硬质合金  
微晶硬质合金的硬度和韧性俱佳，因而具有高耐磨性和更长的使用寿命。

## 涂层

多层钛铝氮化物 (TiAlN)

- 改善切削稳定性
- 出色的抗磨保护
- 高温下保持高硬度
- 延长使用寿命，提高生产率

## 几何形状

- CTW槽型   
持续芯厚减薄 (CTW) 技术提供了非常坚固的钻芯设计，同时降低了钻孔时的推力。
- 刃口处理  
均匀一致的刃口钝化处理可保护切削刃并防止过早崩裂和破损。
- 刀尖角设计  
坚固的刃角设计提升了钻孔作业的稳定性，并且降低了一般钻孔和十字孔钻削中时钻头受力。
- 钻尖几何形状  
四后面钻尖设计，增强了定心性能，改善了孔的加工质量。并且，横刃斜角加大，令第二横刃与主切削刃之间的钝角更大，从而显著增强了钻头的强度和耐磨性，同时也改善了切屑形成。

### **FORCE M** **NEW**

先进的钻尖几何形状可以防止切削刃过早磨损。

## 钻柄

DIN 6535 HA

- 高精度钻柄设计 (h6) 减少了跳动和振动，提高了性能和钻孔质量。
- 通用钻柄有多种直径可选，降低了刀柄选购成本。



# FORCE

高性能整体硬质合金钻头



## 多种材料



**FORCE X**

- 3×D、5×D和8×D
- 内冷却型或无冷却 (仅3×D和5×D)
- 3 mm至20 mm
- 1/8至3/4英寸
- N1至N30
- A至Z

## 不锈钢



**NEW**

**FORCE M**

- 3×D和5×D
- 内冷却型
- 3 mm至16 mm
- 1/8至5/8英寸

|      |                                                                                                                                                              |                                                                                                                                                              |                                                                                                                                                              |                                                                                                                                                              |                                                                                                                                                          |                                                                                                                                                              |                                                                                                                                                              |     |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
|      | <div>HM</div> <div>DIN 6537 K</div> <div>3XD</div> <div>140°</div> <div>TiAIN</div> <div>DIN 6535HA</div> <div>CTW</div> <div></div> <div></div> <div></div> | <div>HM</div> <div>DIN 6537 K</div> <div>3XD</div> <div>140°</div> <div>TiAIN</div> <div>DIN 6535HA</div> <div>CTW</div> <div></div> <div></div> <div></div> | <div>HM</div> <div>DIN 6537 L</div> <div>5XD</div> <div>140°</div> <div>TiAIN</div> <div>DIN 6535HA</div> <div>CTW</div> <div></div> <div></div> <div></div> | <div>HM</div> <div>DIN 6537 L</div> <div>5XD</div> <div>140°</div> <div>TiAIN</div> <div>DIN 6535HA</div> <div>CTW</div> <div></div> <div></div> <div></div> | <div>HM</div> <div>DORMER</div> <div>8XD</div> <div>140°</div> <div>TiAIN</div> <div>DIN 6535HA</div> <div>CTW</div> <div></div> <div></div> <div></div> | <div>HM</div> <div>DIN 6537 K</div> <div>3XD</div> <div>140°</div> <div>TiAIN</div> <div>DIN 6535HA</div> <div>CTW</div> <div></div> <div></div> <div></div> | <div>HM</div> <div>DIN 6537 L</div> <div>5XD</div> <div>140°</div> <div>TiAIN</div> <div>DIN 6535HA</div> <div>CTW</div> <div></div> <div></div> <div></div> |     |
|      | <div>FORCE X</div> <div>R458</div> <div>3.00 - 20.00</div>                                                                                                   | <div>FORCE X</div> <div>R457</div> <div>3.00 - 20.00</div>                                                                                                   | <div>FORCE X</div> <div>R454</div> <div>3.00 - 20.00</div>                                                                                                   | <div>FORCE X</div> <div>R453</div> <div>3.00 - 20.00</div>                                                                                                   | <div>FORCE X</div> <div>R459</div> <div>3.00 - 16.00</div>                                                                                               | <div>FORCE M</div> <div>R467</div> <div>3.00 - 16.00</div>                                                                                                   | <div>FORCE M</div> <div>R463</div> <div>3.00 - 16.00</div>                                                                                                   |     |
|      |                                                                                                                                                              |                                                                                                                                                              |                                                                                                                                                              |                                                                                                                                                              |                                                                                                                                                          | <div>NEW</div>                                                                                                                                               | <div>NEW</div>                                                                                                                                               |     |
| AMG  |                                                                                                                                                              |                                                                                                                                                              |                                                                                                                                                              |                                                                                                                                                              |                                                                                                                                                          |                                                                                                                                                              |                                                                                                                                                              | ISO |
| 1.1  | ■155W                                                                                                                                                        | ■155W                                                                                                                                                        | ■155V                                                                                                                                                        | ■155V                                                                                                                                                        | ■135V                                                                                                                                                    |                                                                                                                                                              |                                                                                                                                                              | P 1 |
| 1.2  | ■135W                                                                                                                                                        | ■140W                                                                                                                                                        | ■135V                                                                                                                                                        | ■140V                                                                                                                                                        | ■120V                                                                                                                                                    |                                                                                                                                                              |                                                                                                                                                              | P 1 |
| 1.3  | ■110W                                                                                                                                                        | ■135W                                                                                                                                                        | ■110V                                                                                                                                                        | ■135V                                                                                                                                                        | ■110U                                                                                                                                                    |                                                                                                                                                              |                                                                                                                                                              | P 2 |
| 1.4  | ■100V                                                                                                                                                        | ■115V                                                                                                                                                        | ■100V                                                                                                                                                        | ■115V                                                                                                                                                        | ■100U                                                                                                                                                    |                                                                                                                                                              |                                                                                                                                                              | P 3 |
| 1.5  | ■75V                                                                                                                                                         | ■90V                                                                                                                                                         | ■75V                                                                                                                                                         | ■90V                                                                                                                                                         | ■80U                                                                                                                                                     |                                                                                                                                                              |                                                                                                                                                              | P 4 |
| 1.6  | ■50U                                                                                                                                                         | ■65U                                                                                                                                                         | ■50U                                                                                                                                                         | ■65U                                                                                                                                                         | ■55T                                                                                                                                                     |                                                                                                                                                              |                                                                                                                                                              | H 1 |
| 1.7  | ■30U                                                                                                                                                         | ■30U                                                                                                                                                         | ■30U                                                                                                                                                         | ■30U                                                                                                                                                         |                                                                                                                                                          |                                                                                                                                                              |                                                                                                                                                              | H 3 |
| 1.8  | ■25U                                                                                                                                                         | ■25U                                                                                                                                                         | ■25U                                                                                                                                                         | ■25U                                                                                                                                                         |                                                                                                                                                          |                                                                                                                                                              |                                                                                                                                                              | H 4 |
| 2.1  | ■45U                                                                                                                                                         | ■55V                                                                                                                                                         | ■45U                                                                                                                                                         | ■55V                                                                                                                                                         | ■75V                                                                                                                                                     | ■85G                                                                                                                                                         | ■85G                                                                                                                                                         | M 1 |
| 2.2  | ■40T                                                                                                                                                         | ■35V                                                                                                                                                         | ■40T                                                                                                                                                         | ■35V                                                                                                                                                         | ■35V                                                                                                                                                     | ■75G                                                                                                                                                         | ■75G                                                                                                                                                         | M 3 |
| 2.3  | ■35T                                                                                                                                                         | ■30U                                                                                                                                                         | ■35T                                                                                                                                                         | ■35T                                                                                                                                                         | ●30U                                                                                                                                                     | ■60F                                                                                                                                                         | ■60F                                                                                                                                                         | M 2 |
| 2.4  | ●35T                                                                                                                                                         |                                                                                                                                                              | ●35T                                                                                                                                                         | ●30U                                                                                                                                                         |                                                                                                                                                          | ■60E                                                                                                                                                         | ■60E                                                                                                                                                         | S 2 |
| 3.1  | ■90W                                                                                                                                                         | ■110W                                                                                                                                                        | ■90W                                                                                                                                                         | ■110W                                                                                                                                                        | ■120W                                                                                                                                                    |                                                                                                                                                              |                                                                                                                                                              | K 1 |
| 3.2  | ■90W                                                                                                                                                         | ■110W                                                                                                                                                        | ■90W                                                                                                                                                         | ■110W                                                                                                                                                        | ■120W                                                                                                                                                    |                                                                                                                                                              |                                                                                                                                                              | K 2 |
| 3.3  | ■70V                                                                                                                                                         | ■80V                                                                                                                                                         | ■70V                                                                                                                                                         | ■80V                                                                                                                                                         | ■80V                                                                                                                                                     |                                                                                                                                                              |                                                                                                                                                              | K 3 |
| 3.4  | ■70V                                                                                                                                                         | ■80V                                                                                                                                                         | ■70V                                                                                                                                                         | ■80V                                                                                                                                                         | ■80V                                                                                                                                                     |                                                                                                                                                              |                                                                                                                                                              | K 4 |
| 4.1  | ●50U                                                                                                                                                         | ■55V                                                                                                                                                         | ●50U                                                                                                                                                         | ■55V                                                                                                                                                         |                                                                                                                                                          | ■55V                                                                                                                                                         | ■55V                                                                                                                                                         | S 1 |
| 4.2  | ●40U                                                                                                                                                         | ■45V                                                                                                                                                         | ●40U                                                                                                                                                         | ■45V                                                                                                                                                         |                                                                                                                                                          | ■45V                                                                                                                                                         | ■45V                                                                                                                                                         | S 2 |
| 4.3  | ●35T                                                                                                                                                         | ■40U                                                                                                                                                         | ●35T                                                                                                                                                         | ■40U                                                                                                                                                         |                                                                                                                                                          | ■40U                                                                                                                                                         | ■40U                                                                                                                                                         | S 3 |
| 5.1  |                                                                                                                                                              |                                                                                                                                                              |                                                                                                                                                              |                                                                                                                                                              |                                                                                                                                                          | ●55U                                                                                                                                                         | ●55U                                                                                                                                                         | S 1 |
| 5.2  |                                                                                                                                                              |                                                                                                                                                              |                                                                                                                                                              |                                                                                                                                                              |                                                                                                                                                          | ●45U                                                                                                                                                         | ●45U                                                                                                                                                         | S 2 |
| 5.3  |                                                                                                                                                              |                                                                                                                                                              |                                                                                                                                                              |                                                                                                                                                              |                                                                                                                                                          | ●40U                                                                                                                                                         | ●40U                                                                                                                                                         | S 3 |
| 6.1  | ■100V                                                                                                                                                        | ■125W                                                                                                                                                        | ■100V                                                                                                                                                        | ■125W                                                                                                                                                        | ●125V                                                                                                                                                    |                                                                                                                                                              |                                                                                                                                                              | N 3 |
| 6.2  | ■200V                                                                                                                                                        | ■220W                                                                                                                                                        | ■200V                                                                                                                                                        | ■220W                                                                                                                                                        | ●220V                                                                                                                                                    |                                                                                                                                                              |                                                                                                                                                              | N 3 |
| 6.3  | ■200V                                                                                                                                                        | ■220W                                                                                                                                                        | ■200V                                                                                                                                                        | ■220W                                                                                                                                                        | ●220V                                                                                                                                                    |                                                                                                                                                              |                                                                                                                                                              | N 3 |
| 6.4  | ●80U                                                                                                                                                         | ■100V                                                                                                                                                        | ●80U                                                                                                                                                         | ■100V                                                                                                                                                        | ■100U                                                                                                                                                    |                                                                                                                                                              |                                                                                                                                                              | N 4 |
| 7.1  | ■225W                                                                                                                                                        | ■250W                                                                                                                                                        | ■225W                                                                                                                                                        | ■250W                                                                                                                                                        | ■285W                                                                                                                                                    |                                                                                                                                                              |                                                                                                                                                              | N 1 |
| 7.2  | ■225W                                                                                                                                                        | ■250W                                                                                                                                                        | ■225W                                                                                                                                                        | ■250W                                                                                                                                                        | ■285W                                                                                                                                                    |                                                                                                                                                              |                                                                                                                                                              | N 1 |
| 7.3  | ■180V                                                                                                                                                        | ■200V                                                                                                                                                        | ■180V                                                                                                                                                        | ■200V                                                                                                                                                        | ■190V                                                                                                                                                    |                                                                                                                                                              |                                                                                                                                                              | N 1 |
| 7.4  | ■120V                                                                                                                                                        | ■150V                                                                                                                                                        | ■120V                                                                                                                                                        | ■150V                                                                                                                                                        | ■95V                                                                                                                                                     |                                                                                                                                                              |                                                                                                                                                              | N 2 |
| 8.1  |                                                                                                                                                              |                                                                                                                                                              |                                                                                                                                                              |                                                                                                                                                              |                                                                                                                                                          |                                                                                                                                                              |                                                                                                                                                              | O   |
| 8.2  |                                                                                                                                                              |                                                                                                                                                              |                                                                                                                                                              |                                                                                                                                                              |                                                                                                                                                          |                                                                                                                                                              |                                                                                                                                                              | O   |
| 8.3  |                                                                                                                                                              |                                                                                                                                                              |                                                                                                                                                              |                                                                                                                                                              |                                                                                                                                                          |                                                                                                                                                              |                                                                                                                                                              | O   |
| 9.1  |                                                                                                                                                              |                                                                                                                                                              |                                                                                                                                                              |                                                                                                                                                              |                                                                                                                                                          |                                                                                                                                                              |                                                                                                                                                              | H   |
| 10.1 |                                                                                                                                                              |                                                                                                                                                              |                                                                                                                                                              |                                                                                                                                                              |                                                                                                                                                          |                                                                                                                                                              |                                                                                                                                                              | O   |



HM

|                | Ø (D) [mm] |       |       |       |       |       |       |       |       |       |       |       |
|----------------|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                | 1          | 2     | 3     | 4     | 5     | 6     | 8     | 10    | 12    | 15    | 16    | 20    |
| E              | 0,017      | 0,043 | 0,062 | 0,071 | 0,080 | 0,092 | 0,115 | 0,140 | 0,150 | 0,173 | 0,180 | 0,215 |
| F              | 0,018      | 0,050 | 0,073 | 0,084 | 0,095 | 0,109 | 0,138 | 0,165 | 0,178 | 0,202 | 0,210 | 0,248 |
| G              | 0,019      | 0,056 | 0,084 | 0,096 | 0,109 | 0,126 | 0,160 | 0,190 | 0,205 | 0,231 | 0,240 | 0,280 |
| T              | 0,015      | 0,028 | 0,040 | 0,050 | 0,060 | 0,070 | 0,090 | 0,110 | 0,130 | 0,160 | 0,170 | 0,190 |
| U              | 0,026      | 0,048 | 0,070 | 0,080 | 0,090 | 0,107 | 0,140 | 0,170 | 0,200 | 0,223 | 0,230 | 0,240 |
| V              | 0,038      | 0,069 | 0,100 | 0,115 | 0,130 | 0,153 | 0,200 | 0,250 | 0,280 | 0,310 | 0,320 | 0,340 |
| W              | 0,049      | 0,089 | 0,130 | 0,150 | 0,170 | 0,200 | 0,260 | 0,330 | 0,380 | 0,418 | 0,430 | 0,450 |
| mm / REV ± 25% |            |       |       |       |       |       |       |       |       |       |       |       |

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

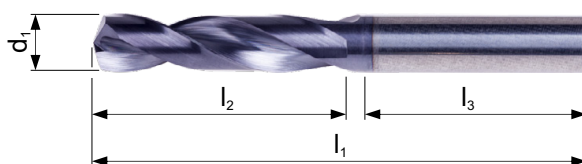
$$Vf = n \times fn$$

# R458 • Force X 短钻 3×D

# R457 • Force X 内冷钻头 3×D

|      |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|------|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| R458 | ▪ | 1.1 | 1.2 | 1.3 | 1.4 | 1.5 | 1.6 | 1.7 | 1.8 | 2.1 | 2.2 | 2.3 | 3.1 | 3.2 | 3.3 | 3.4 | 6.1 | 6.2 | 6.3 | 7.1 | 7.2 |
|      |   | 7.3 | 7.4 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|      | • | 2.4 | 4.1 | 4.2 | 4.3 | 6.4 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| R457 | ▪ | 1.1 | 1.2 | 1.3 | 1.4 | 1.5 | 1.6 | 1.7 | 1.8 | 2.1 | 2.2 | 2.3 | 3.1 | 3.2 | 3.3 | 3.4 | 4.1 | 4.2 | 4.3 | 6.1 | 6.2 |
|      |   | 6.3 | 6.4 | 7.1 | 7.2 | 7.3 | 7.4 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |

|      |    |            |     |      |       |             |     |  |  |  |  |
|------|----|------------|-----|------|-------|-------------|-----|--|--|--|--|
| R458 | HM | DIN 6537 K | 3XD | 140° | TiAIN | DIN 6535 HA | CTW |  |  |  |  |
| R457 | HM | DIN 6537 K | 3XD | 140° | TiAIN | DIN 6535 HA | CTW |  |  |  |  |



| d <sub>1</sub><br>ø<br>"/Nr. | d <sub>1</sub><br>øm <sub>7</sub><br>mm | d <sub>1</sub><br>decimal<br>Inch | l <sub>2</sub><br>mm | l <sub>1</sub><br>mm | l <sub>3</sub><br>mm | d <sub>2</sub><br>øh <sub>6</sub><br>mm | R458     | R457     |
|------------------------------|-----------------------------------------|-----------------------------------|----------------------|----------------------|----------------------|-----------------------------------------|----------|----------|
|                              | 3.00                                    | 0.1181                            | 20                   | 62                   | 36                   | 6                                       | R4583.0  | R4573.0  |
|                              | 3.10                                    | 0.1220                            | 20                   | 62                   | 36                   | 6                                       | R4583.1  | R4573.1  |
| 1/8                          | 3.18                                    | 0.1250                            | 20                   | 62                   | 36                   | 6                                       | R4581/8  | R4571/8  |
|                              | 3.20                                    | 0.1260                            | 20                   | 62                   | 36                   | 6                                       | R4583.2  | R4573.2  |
| 30                           | 3.26                                    | 0.1283                            | 20                   | 62                   | 36                   | 6                                       | R458N30  |          |
|                              | 3.30                                    | 0.1299                            | 20                   | 62                   | 36                   | 6                                       | R4583.3  | R4573.3  |
|                              | 3.40                                    | 0.1339                            | 20                   | 62                   | 36                   | 6                                       | R4583.4  | R4573.4  |
| 29                           | 3.45                                    | 0.1360                            | 20                   | 62                   | 36                   | 6                                       | R458N29  |          |
|                              | 3.50                                    | 0.1378                            | 20                   | 62                   | 36                   | 6                                       | R4583.5  | R4573.5  |
| 28                           | 3.57                                    | 0.1406                            | 20                   | 62                   | 36                   | 6                                       | R458N28  |          |
| 9/64                         | 3.57                                    | 0.1406                            | 20                   | 62                   | 36                   | 6                                       | R4589/64 | R4579/64 |
|                              | 3.60                                    | 0.1417                            | 20                   | 62                   | 36                   | 6                                       | R4583.6  | R4573.6  |
| 27                           | 3.66                                    | 0.1441                            | 20                   | 62                   | 36                   | 6                                       | R458N27  |          |
|                              | 3.70                                    | 0.1457                            | 20                   | 62                   | 36                   | 6                                       | R4583.7  | R4573.7  |
| 26                           | 3.73                                    | 0.1469                            | 24                   | 66                   | 36                   | 6                                       | R458N26  | R457N26  |
| 25                           | 3.80                                    | 0.1496                            | 24                   | 66                   | 36                   | 6                                       | R4583.8  | R4573.8  |
| 24                           | 3.86                                    | 0.1520                            | 24                   | 66                   | 36                   | 6                                       | R458N24  | R457N24  |
|                              | 3.90                                    | 0.1535                            | 24                   | 66                   | 36                   | 6                                       | R4583.9  | R4573.9  |
| 23                           | 3.91                                    | 0.1539                            | 24                   | 66                   | 36                   | 6                                       | R458N23  |          |
| 5/32                         | 3.97                                    | 0.1563                            | 24                   | 66                   | 36                   | 6                                       | R4585/32 | R4575/32 |
| 22                           | 3.99                                    | 0.1571                            | 24                   | 66                   | 36                   | 6                                       | R458N22  |          |
|                              | 4.00                                    | 0.1575                            | 24                   | 66                   | 36                   | 6                                       | R4584.0  | R4574.0  |
| 21                           | 4.04                                    | 0.1591                            | 24                   | 66                   | 36                   | 6                                       | R458N21  |          |
|                              | 4.05                                    | 0.1594                            | 24                   | 66                   | 36                   | 6                                       |          | R4574.05 |
| 20                           | 4.09                                    | 0.1610                            | 24                   | 66                   | 36                   | 6                                       | R458N20  |          |
|                              | 4.10                                    | 0.1614                            | 24                   | 66                   | 36                   | 6                                       | R4584.1  | R4574.1  |
|                              | 4.20                                    | 0.1654                            | 24                   | 66                   | 36                   | 6                                       | R4584.2  | R4574.2  |
| 19                           | 4.22                                    | 0.1661                            | 24                   | 66                   | 36                   | 6                                       | R458N19  | R457N19  |



| d <sub>1</sub><br>Ø<br>"/Nr. | d <sub>1</sub><br>Øm,<br>mm | d <sub>1</sub> decimal<br>Inch | l <sub>2</sub><br>mm | l <sub>1</sub><br>mm | l <sub>3</sub><br>mm | d <sub>2</sub><br>Øh <sub>6</sub><br>mm | R458      | R457      |
|------------------------------|-----------------------------|--------------------------------|----------------------|----------------------|----------------------|-----------------------------------------|-----------|-----------|
|                              | 4.30                        | 0.1693                         | 24                   | 66                   | 36                   | 6                                       | R4584.3   | R4574.3   |
| 18                           | 4.31                        | 0.1697                         | 24                   | 66                   | 36                   | 6                                       | R458N18   |           |
| 11/64                        | 4.37                        | 0.1719                         | 24                   | 66                   | 36                   | 6                                       | R45811/64 | R45711/64 |
| 17                           | 4.39                        | 0.1728                         | 24                   | 66                   | 36                   | 6                                       | R458N17   | R457N17   |
|                              | 4.40                        | 0.1732                         | 24                   | 66                   | 36                   | 6                                       | R4584.4   | R4574.4   |
|                              | 4.50                        | 0.1772                         | 24                   | 66                   | 36                   | 6                                       | R4584.5   | R4574.5   |
| 16                           | 4.50                        | 0.1772                         | 24                   | 66                   | 36                   | 6                                       | R458N16   |           |
| 15                           | 4.57                        | 0.1799                         | 24                   | 66                   | 36                   | 6                                       | R458N15   | R457N15   |
|                              | 4.60                        | 0.1811                         | 24                   | 66                   | 36                   | 6                                       | R4584.6   | R4574.6   |
| 14                           | 4.62                        | 0.1819                         | 24                   | 66                   | 36                   | 6                                       | R458N14   | R457N14   |
| 13                           | 4.70                        | 0.1850                         | 24                   | 66                   | 36                   | 6                                       | R4584.7   | R4574.7   |
| 3/16                         | 4.76                        | 0.1875                         | 28                   | 66                   | 36                   | 6                                       | R4583/16  | R4573/16  |
|                              | 4.80                        | 0.1890                         | 28                   | 66                   | 36                   | 6                                       | R4584.8   | R4574.8   |
| 12                           | 4.80                        | 0.1890                         | 28                   | 66                   | 36                   | 6                                       | R458N12   |           |
| 11                           | 4.85                        | 0.1909                         | 28                   | 66                   | 36                   | 6                                       | R458N11   |           |
|                              | 4.90                        | 0.1929                         | 28                   | 66                   | 36                   | 6                                       | R4584.9   | R4574.9   |
| 10                           | 4.92                        | 0.1937                         | 28                   | 66                   | 36                   | 6                                       | R458N10   |           |
| 9                            | 4.98                        | 0.1961                         | 28                   | 66                   | 36                   | 6                                       | R458N9    | R457N9    |
|                              | 5.00                        | 0.1969                         | 28                   | 66                   | 36                   | 6                                       | R4585.0   | R4575.0   |
|                              | 5.05                        | 0.1988                         | 28                   | 66                   | 36                   | 6                                       |           | R4575.05  |
| 8                            | 5.06                        | 0.1992                         | 28                   | 66                   | 36                   | 6                                       | R458N8    |           |
|                              | 5.10                        | 0.2008                         | 28                   | 66                   | 36                   | 6                                       | R4585.1   | R4575.1   |
| 7                            | 5.11                        | 0.2010                         | 28                   | 66                   | 36                   | 6                                       | R458N7    |           |
| 13/64                        | 5.16                        | 0.2031                         | 28                   | 66                   | 36                   | 6                                       | R45813/64 | R45713/64 |
| 6                            | 5.18                        | 0.2039                         | 28                   | 66                   | 36                   | 6                                       | R458N6    |           |
|                              | 5.20                        | 0.2047                         | 28                   | 66                   | 36                   | 6                                       | R4585.2   | R4575.2   |
| 5                            | 5.22                        | 0.2055                         | 28                   | 66                   | 36                   | 6                                       | R458N5    |           |
|                              | 5.30                        | 0.2087                         | 28                   | 66                   | 36                   | 6                                       | R4585.3   | R4575.3   |
| 4                            | 5.31                        | 0.2091                         | 28                   | 66                   | 36                   | 6                                       | R458N4    | R457N4    |
|                              | 5.40                        | 0.2126                         | 28                   | 66                   | 36                   | 6                                       | R4585.4   | R4575.4   |
| 3                            | 5.41                        | 0.2130                         | 28                   | 66                   | 36                   | 6                                       | R458N3    |           |
|                              | 5.50                        | 0.2165                         | 28                   | 66                   | 36                   | 6                                       | R4585.5   | R4575.5   |
| 7/32                         | 5.56                        | 0.2188                         | 28                   | 66                   | 36                   | 6                                       | R4587/32  | R4577/32  |
|                              | 5.60                        | 0.2205                         | 28                   | 66                   | 36                   | 6                                       | R4585.6   | R4575.6   |
| 2                            | 5.61                        | 0.2209                         | 28                   | 66                   | 36                   | 6                                       | R458N2    | R457N2    |
|                              | 5.70                        | 0.2244                         | 28                   | 66                   | 36                   | 6                                       | R4585.7   | R4575.7   |
| 1                            | 5.79                        | 0.2280                         | 28                   | 66                   | 36                   | 6                                       | R458N1    |           |
|                              | 5.80                        | 0.2283                         | 28                   | 66                   | 36                   | 6                                       | R4585.8   | R4575.8   |
|                              | 5.90                        | 0.2323                         | 28                   | 66                   | 36                   | 6                                       | R4585.9   | R4575.9   |
| A                            | 5.94                        | 0.2339                         | 28                   | 66                   | 36                   | 6                                       | R458A     | R457A     |
| 15/64                        | 5.95                        | 0.2344                         | 28                   | 66                   | 36                   | 6                                       | R45815/64 | R45715/64 |
|                              | 6.00                        | 0.2362                         | 28                   | 66                   | 36                   | 6                                       | R4586.0   | R4576.0   |
| B                            | 6.05                        | 0.2380                         | 34                   | 79                   | 36                   | 8                                       | R458B     | R457B     |
|                              | 6.05                        | 0.2382                         | 34                   | 79                   | 36                   | 8                                       |           | R4576.05  |
|                              | 6.10                        | 0.2402                         | 34                   | 79                   | 36                   | 8                                       | R4586.1   | R4576.1   |
| C                            | 6.15                        | 0.2421                         | 34                   | 79                   | 36                   | 8                                       | R458C     | R457C     |
|                              | 6.20                        | 0.2441                         | 34                   | 79                   | 36                   | 8                                       | R4586.2   | R4576.2   |
| D                            | 6.25                        | 0.2461                         | 34                   | 79                   | 36                   | 8                                       | R458D     | R457D     |
|                              | 6.30                        | 0.2480                         | 34                   | 79                   | 36                   | 8                                       | R4586.3   | R4576.3   |
| 1/4                          | 6.35                        | 0.2500                         | 34                   | 79                   | 36                   | 8                                       | R4581/4   | R4571/4   |
| E                            | 6.35                        | 0.2500                         | 34                   | 79                   | 36                   | 8                                       | R458E     | R457E     |
|                              | 6.40                        | 0.2520                         | 34                   | 79                   | 36                   | 8                                       | R4586.4   | R4576.4   |
|                              | 6.50                        | 0.2559                         | 34                   | 79                   | 36                   | 8                                       | R4586.5   | R4576.5   |
| F                            | 6.53                        | 0.2571                         | 34                   | 79                   | 36                   | 8                                       | R458F     | R457F     |
|                              | 6.60                        | 0.2598                         | 34                   | 79                   | 36                   | 8                                       | R4586.6   | R4576.6   |
| G                            | 6.63                        | 0.2610                         | 34                   | 79                   | 36                   | 8                                       | R458G     | R457G     |
|                              | 6.70                        | 0.2638                         | 34                   | 79                   | 36                   | 8                                       | R4586.7   | R4576.7   |
| 17/64                        | 6.75                        | 0.2656                         | 34                   | 79                   | 36                   | 8                                       | R45817/64 | R45717/64 |
| H                            | 6.76                        | 0.2661                         | 34                   | 79                   | 36                   | 8                                       | R458H     | R457H     |
|                              | 6.80                        | 0.2677                         | 34                   | 79                   | 36                   | 8                                       | R4586.8   | R4576.8   |
|                              | 6.90                        | 0.2717                         | 34                   | 79                   | 36                   | 8                                       | R4586.9   | R4576.9   |
| I                            | 6.91                        | 0.2720                         | 34                   | 79                   | 36                   | 8                                       | R458I     | R457I     |
|                              | 7.00                        | 0.2756                         | 34                   | 79                   | 36                   | 8                                       | R4587.0   | R4577.0   |
| J                            | 7.04                        | 0.2772                         | 34                   | 79                   | 36                   | 8                                       | R458J     |           |
| J                            | 7.04                        | 0.2772                         | 41                   | 79                   | 36                   | 8                                       |           | R457J     |
|                              | 7.10                        | 0.2795                         | 41                   | 79                   | 36                   | 8                                       | R4587.1   | R4577.1   |
| K                            | 7.14                        | 0.2811                         | 41                   | 79                   | 36                   | 8                                       | R458K     | R457K     |
| 9/32                         | 7.14                        | 0.2813                         | 41                   | 79                   | 36                   | 8                                       | R4589/32  | R4579/32  |
|                              | 7.20                        | 0.2835                         | 41                   | 79                   | 36                   | 8                                       | R4587.2   | R4577.2   |
|                              | 7.30                        | 0.2874                         | 41                   | 79                   | 36                   | 8                                       | R4587.3   | R4577.3   |

| d <sub>1</sub><br>Ø<br>"/Nr. | d <sub>1</sub><br>Øm <sub>7</sub><br>mm | d <sub>1</sub><br>decimal<br>Inch | l <sub>2</sub><br>mm | l <sub>1</sub><br>mm | l <sub>3</sub><br>mm | d <sub>2</sub><br>Øh <sub>6</sub><br>mm | R458      | R457      |
|------------------------------|-----------------------------------------|-----------------------------------|----------------------|----------------------|----------------------|-----------------------------------------|-----------|-----------|
| L                            | 7.37                                    | 0.2902                            | 41                   | 79                   | 36                   | 8                                       | R458L     | R457L     |
|                              | 7.40                                    | 0.2913                            | 41                   | 79                   | 36                   | 8                                       | R4587.4   | R4577.4   |
| M                            | 7.49                                    | 0.2949                            | 41                   | 79                   | 36                   | 8                                       | R458M     | R457M     |
|                              | 7.50                                    | 0.2953                            | 41                   | 79                   | 36                   | 8                                       | R4587.5   | R4577.5   |
| 19/64                        | 7.54                                    | 0.2969                            | 41                   | 79                   | 36                   | 8                                       | R45819/64 | R45719/64 |
|                              | 7.60                                    | 0.2992                            | 41                   | 79                   | 36                   | 8                                       | R4587.6   | R4577.6   |
| N                            | 7.67                                    | 0.3020                            | 41                   | 79                   | 36                   | 8                                       | R458N     | R457N     |
|                              | 7.70                                    | 0.3031                            | 41                   | 79                   | 36                   | 8                                       | R4587.7   | R4577.7   |
|                              | 7.80                                    | 0.3071                            | 41                   | 79                   | 36                   | 8                                       | R4587.8   | R4577.8   |
|                              | 7.90                                    | 0.3110                            | 41                   | 79                   | 36                   | 8                                       | R4587.9   | R4577.9   |
| 5/16                         | 7.94                                    | 0.3125                            | 41                   | 79                   | 36                   | 8                                       | R4585/16  | R4575/16  |
|                              | 8.00                                    | 0.3150                            | 41                   | 79                   | 36                   | 8                                       | R4588.0   | R4578.0   |
| O                            | 8.03                                    | 0.3161                            | 47                   | 89                   | 40                   | 10                                      | R458O     | R457O     |
|                              | 8.05                                    | 0.3169                            | 47                   | 89                   | 40                   | 10                                      |           | R4578.05  |
|                              | 8.10                                    | 0.3189                            | 47                   | 89                   | 40                   | 10                                      | R4588.1   | R4578.1   |
|                              | 8.20                                    | 0.3228                            | 47                   | 89                   | 40                   | 10                                      | R4588.2   | R4578.2   |
| P                            | 8.20                                    | 0.3228                            | 47                   | 89                   | 40                   | 10                                      | R458P     | R457P     |
|                              | 8.30                                    | 0.3268                            | 47                   | 89                   | 40                   | 10                                      | R4588.3   | R4578.3   |
| 21/64                        | 8.33                                    | 0.3281                            | 47                   | 89                   | 40                   | 10                                      | R45821/64 | R45721/64 |
|                              | 8.40                                    | 0.3307                            | 47                   | 89                   | 40                   | 10                                      | R4588.4   | R4578.4   |
| Q                            | 8.43                                    | 0.3319                            | 47                   | 89                   | 40                   | 10                                      |           | R457Q     |
|                              | 8.50                                    | 0.3346                            | 47                   | 89                   | 40                   | 10                                      | R4588.5   | R4578.5   |
|                              | 8.60                                    | 0.3386                            | 47                   | 89                   | 40                   | 10                                      | R4588.6   | R4578.6   |
| R                            | 8.61                                    | 0.3390                            | 47                   | 89                   | 40                   | 10                                      | R458R     | R457R     |
|                              | 8.70                                    | 0.3425                            | 47                   | 89                   | 40                   | 10                                      | R4588.7   | R4578.7   |
| 11/32                        | 8.73                                    | 0.3438                            | 47                   | 89                   | 40                   | 10                                      | R45811/32 | R45711/32 |
|                              | 8.80                                    | 0.3465                            | 47                   | 89                   | 40                   | 10                                      | R4588.8   | R4578.8   |
| S                            | 8.84                                    | 0.3480                            | 47                   | 89                   | 40                   | 10                                      | R458S     | R457S     |
|                              | 8.90                                    | 0.3504                            | 47                   | 89                   | 40                   | 10                                      | R4588.9   | R4578.9   |
|                              | 9.00                                    | 0.3543                            | 47                   | 89                   | 40                   | 10                                      | R4589.0   | R4579.0   |
| T                            | 9.09                                    | 0.3579                            | 47                   | 89                   | 40                   | 10                                      | R458T     | R457T     |
|                              | 9.10                                    | 0.3583                            | 47                   | 89                   | 40                   | 10                                      | R4589.1   | R4579.1   |
| 23/64                        | 9.13                                    | 0.3594                            | 47                   | 89                   | 40                   | 10                                      | R45823/64 | R45723/64 |
|                              | 9.20                                    | 0.3622                            | 47                   | 89                   | 40                   | 10                                      | R4589.2   | R4579.2   |
|                              | 9.30                                    | 0.3661                            | 47                   | 89                   | 40                   | 10                                      | R4589.3   | R4579.3   |
| U                            | 9.35                                    | 0.3681                            | 47                   | 89                   | 40                   | 10                                      | R458U     |           |
|                              | 9.40                                    | 0.3701                            | 47                   | 89                   | 40                   | 10                                      | R4589.4   | R4579.4   |
|                              | 9.50                                    | 0.3740                            | 47                   | 89                   | 40                   | 10                                      | R4589.5   | R4579.5   |
| 3/8                          | 9.53                                    | 0.3750                            | 47                   | 89                   | 40                   | 10                                      | R4583/8   | R4573/8   |
| V                            | 9.58                                    | 0.3772                            | 47                   | 89                   | 40                   | 10                                      | R458V     | R457V     |
|                              | 9.60                                    | 0.3780                            | 47                   | 89                   | 40                   | 10                                      | R4589.6   | R4579.6   |
|                              | 9.70                                    | 0.3819                            | 47                   | 89                   | 40                   | 10                                      | R4589.7   | R4579.7   |
|                              | 9.80                                    | 0.3858                            | 47                   | 89                   | 40                   | 10                                      | R4589.8   | R4579.8   |
| W                            | 9.80                                    | 0.3858                            | 47                   | 89                   | 40                   | 10                                      | R458W     | R457W     |
|                              | 9.90                                    | 0.3898                            | 47                   | 89                   | 40                   | 10                                      | R4589.9   | R4579.9   |
| 25/64                        | 9.92                                    | 0.3906                            | 47                   | 89                   | 40                   | 10                                      | R45825/64 | R45725/64 |
|                              | 10.00                                   | 0.3937                            | 47                   | 89                   | 40                   | 10                                      | R45810.0  | R45710.0  |
|                              | 10.05                                   | 0.3957                            | 55                   | 102                  | 45                   | 12                                      |           | R45710.05 |
| X                            | 10.08                                   | 0.3969                            | 55                   | 102                  | 45                   | 12                                      | R458X     | R457X     |
|                              | 10.10                                   | 0.3976                            | 55                   | 102                  | 45                   | 12                                      | R45810.1  | R45710.1  |
|                              | 10.20                                   | 0.4016                            | 55                   | 102                  | 45                   | 12                                      | R45810.2  | R45710.2  |
| Y                            | 10.26                                   | 0.4039                            | 55                   | 102                  | 45                   | 12                                      | R458Y     | R457Y     |
|                              | 10.30                                   | 0.4055                            | 55                   | 102                  | 45                   | 12                                      | R45810.3  | R45710.3  |
| 13/32                        | 10.32                                   | 0.4063                            | 55                   | 102                  | 45                   | 12                                      | R45813/32 | R45713/32 |
|                              | 10.40                                   | 0.4094                            | 55                   | 102                  | 45                   | 12                                      | R45810.4  | R45710.4  |
| Z                            | 10.49                                   | 0.4130                            | 55                   | 102                  | 45                   | 12                                      | R458Z     | R457Z     |
|                              | 10.50                                   | 0.4134                            | 55                   | 102                  | 45                   | 12                                      | R45810.5  | R45710.5  |
|                              | 10.60                                   | 0.4173                            | 55                   | 102                  | 45                   | 12                                      | R45810.6  | R45710.6  |
|                              | 10.70                                   | 0.4213                            | 55                   | 102                  | 45                   | 12                                      | R45810.7  |           |
| 27/64                        | 10.72                                   | 0.4219                            | 55                   | 102                  | 45                   | 12                                      | R45827/64 | R45727/64 |
|                              | 10.80                                   | 0.4252                            | 55                   | 102                  | 45                   | 12                                      | R45810.8  | R45710.8  |
|                              | 10.90                                   | 0.4291                            | 55                   | 102                  | 45                   | 12                                      | R45810.9  |           |
|                              | 11.00                                   | 0.4331                            | 55                   | 102                  | 45                   | 12                                      | R45811.0  | R45711.0  |
|                              | 11.10                                   | 0.4370                            | 55                   | 102                  | 45                   | 12                                      | R45811.1  |           |
| 7/16                         | 11.11                                   | 0.4375                            | 55                   | 102                  | 45                   | 12                                      | R4587/16  | R4577/16  |
|                              | 11.20                                   | 0.4409                            | 55                   | 102                  | 45                   | 12                                      | R45811.2  | R45711.2  |
|                              | 11.30                                   | 0.4449                            | 55                   | 102                  | 45                   | 12                                      | R45811.3  | R45711.3  |
|                              | 11.40                                   | 0.4488                            | 55                   | 102                  | 45                   | 12                                      | R45811.4  | R45711.4  |
|                              | 11.50                                   | 0.4528                            | 55                   | 102                  | 45                   | 12                                      | R45811.5  | R45711.5  |
| 29/64                        | 11.51                                   | 0.4531                            | 55                   | 102                  | 45                   | 12                                      | R45829/64 | R45729/64 |

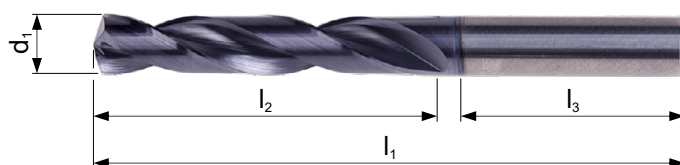
| d <sub>1</sub><br>Ø<br>"/Nr. | d <sub>1</sub><br>Øm,<br>mm | d <sub>1</sub> decimal<br>Inch | l <sub>2</sub><br>mm | l <sub>1</sub><br>mm | l <sub>3</sub><br>mm | d <sub>2</sub><br>Øh <sub>6</sub><br>mm | R458      | R457      |
|------------------------------|-----------------------------|--------------------------------|----------------------|----------------------|----------------------|-----------------------------------------|-----------|-----------|
|                              | 11.60                       | 0.4567                         | 55                   | 102                  | 45                   | 12                                      | R45811.6  | R45711.6  |
|                              | 11.70                       | 0.4606                         | 55                   | 102                  | 45                   | 12                                      | R45811.7  |           |
|                              | 11.80                       | 0.4646                         | 55                   | 102                  | 45                   | 12                                      | R45811.8  | R45711.8  |
|                              | 11.90                       | 0.4685                         | 55                   | 102                  | 45                   | 12                                      | R45811.9  |           |
| 15/32                        | 11.91                       | 0.4688                         | 55                   | 102                  | 45                   | 12                                      | R45815/32 | R45715/32 |
|                              | 12.00                       | 0.4724                         | 55                   | 102                  | 45                   | 12                                      | R45812.0  | R45712.0  |
|                              | 12.05                       | 0.4744                         | 60                   | 107                  | 45                   | 14                                      |           | R45712.05 |
|                              | 12.10                       | 0.4764                         | 60                   | 107                  | 45                   | 14                                      | R45812.1  | R45712.1  |
|                              | 12.20                       | 0.4803                         | 60                   | 107                  | 45                   | 14                                      | R45812.2  | R45712.2  |
| 31/64                        | 12.30                       | 0.4844                         | 60                   | 107                  | 45                   | 14                                      | R45831/64 | R45731/64 |
|                              | 12.50                       | 0.4921                         | 60                   | 107                  | 45                   | 14                                      | R45812.5  | R45712.5  |
|                              | 12.70                       | 0.5000                         | 60                   | 107                  | 45                   | 14                                      | R45812.7  | R45712.7  |
| 1/2                          | 12.70                       | 0.5000                         | 60                   | 107                  | 45                   | 14                                      | R4581/2   | R4571/2   |
|                              | 12.80                       | 0.5039                         | 60                   | 107                  | 45                   | 14                                      | R45812.8  | R45712.8  |
|                              | 13.00                       | 0.5118                         | 60                   | 107                  | 45                   | 14                                      | R45813.0  | R45713.0  |
| 33/64                        | 13.10                       | 0.5156                         | 60                   | 107                  | 45                   | 14                                      | R45833/64 | R45733/64 |
|                              | 13.30                       | 0.5236                         | 60                   | 107                  | 45                   | 14                                      | R45813.3  | R45713.3  |
| 17/32                        | 13.49                       | 0.5313                         | 60                   | 107                  | 45                   | 14                                      | R45817/32 | R45717/32 |
|                              | 13.50                       | 0.5315                         | 60                   | 107                  | 45                   | 14                                      | R45813.5  | R45713.5  |
|                              | 13.80                       | 0.5433                         | 60                   | 107                  | 45                   | 14                                      | R45813.8  | R45713.8  |
| 35/64                        | 13.89                       | 0.5469                         | 60                   | 107                  | 45                   | 14                                      | R45835/64 | R45735/64 |
|                              | 14.00                       | 0.5512                         | 60                   | 107                  | 45                   | 14                                      | R45814.0  | R45714.0  |
|                              | 14.25                       | 0.5610                         | 65                   | 115                  | 48                   | 16                                      | R45814.25 | R45714.25 |
| 9/16                         | 14.29                       | 0.5625                         | 65                   | 115                  | 48                   | 16                                      | R4589/16  | R4579/16  |
|                              | 14.50                       | 0.5709                         | 65                   | 115                  | 48                   | 16                                      | R45814.5  | R45714.5  |
| 37/64                        | 14.68                       | 0.5781                         | 65                   | 115                  | 48                   | 16                                      | R45837/64 | R45737/64 |
|                              | 14.80                       | 0.5827                         | 65                   | 115                  | 48                   | 16                                      | R45814.8  | R45714.8  |
|                              | 15.00                       | 0.5906                         | 65                   | 115                  | 48                   | 16                                      | R45815.0  | R45715.0  |
| 19/32                        | 15.08                       | 0.5938                         | 65                   | 115                  | 48                   | 16                                      | R45819/32 | R45719/32 |
|                              | 15.10                       | 0.5945                         | 65                   | 115                  | 48                   | 16                                      | R45815.1  | R45715.1  |
|                              | 15.30                       | 0.6024                         | 65                   | 115                  | 48                   | 16                                      | R45815.3  | R45715.3  |
| 39/64                        | 15.48                       | 0.6094                         | 65                   | 115                  | 48                   | 16                                      | R45839/64 | R45739/64 |
|                              | 15.50                       | 0.6102                         | 65                   | 115                  | 48                   | 16                                      | R45815.5  | R45715.5  |
|                              | 15.80                       | 0.6220                         | 65                   | 115                  | 48                   | 16                                      | R45815.8  | R45715.8  |
| 5/8                          | 15.88                       | 0.6250                         | 65                   | 115                  | 48                   | 16                                      | R4585/8   | R4575/8   |
|                              | 16.00                       | 0.6299                         | 65                   | 115                  | 48                   | 16                                      | R45816.0  | R45716.0  |
| 41/64                        | 16.27                       | 0.6406                         | 73                   | 123                  | 48                   | 18                                      | R45841/64 | R45741/64 |
|                              | 16.50                       | 0.6496                         | 73                   | 123                  | 48                   | 18                                      | R45816.5  | R45716.5  |
| 21/32                        | 16.67                       | 0.6563                         | 73                   | 123                  | 48                   | 18                                      | R45821/32 | R45721/32 |
|                              | 17.00                       | 0.6693                         | 73                   | 123                  | 48                   | 18                                      | R45817.0  | R45717.0  |
| 43/64                        | 17.07                       | 0.6720                         | 73                   | 123                  | 48                   | 18                                      | R45843/64 | R45743/64 |
| 11/16                        | 17.46                       | 0.6874                         | 73                   | 123                  | 48                   | 18                                      | R45811/16 | R45711/16 |
|                              | 17.50                       | 0.6890                         | 73                   | 123                  | 48                   | 18                                      | R45817.5  | R45717.5  |
|                              | 17.80                       | 0.7008                         | 73                   | 123                  | 48                   | 18                                      | R45817.8  |           |
| 45/64                        | 17.86                       | 0.7031                         | 73                   | 123                  | 48                   | 18                                      | R45845/64 | R45745/64 |
|                              | 18.00                       | 0.7087                         | 73                   | 123                  | 48                   | 18                                      | R45818.0  | R45718.0  |
| 23/32                        | 18.26                       | 0.7189                         | 79                   | 131                  | 50                   | 20                                      | R45823/32 | R45723/32 |
|                              | 18.50                       | 0.7283                         | 79                   | 131                  | 50                   | 20                                      | R45818.5  | R45718.5  |
| 47/64                        | 18.65                       | 0.7343                         | 79                   | 131                  | 50                   | 20                                      | R45847/64 | R45747/64 |
|                              | 18.80                       | 0.7402                         | 79                   | 131                  | 50                   | 20                                      |           | R45718.8  |
|                              | 19.00                       | 0.7480                         | 79                   | 131                  | 50                   | 20                                      | R45819.0  | R45719.0  |
|                              | 19.05                       | 0.7500                         | 79                   | 131                  | 50                   | 20                                      | R4583/4   |           |
| 3/4                          | 19.05                       | 0.7500                         | 79                   | 131                  | 50                   | 20                                      |           | R4573/4   |
|                              | 19.50                       | 0.7677                         | 79                   | 131                  | 50                   | 20                                      | R45819.5  | R45719.5  |
|                              | 19.80                       | 0.7795                         | 79                   | 131                  | 50                   | 20                                      | R45819.8  | R45719.8  |
|                              | 20.00                       | 0.7874                         | 79                   | 131                  | 50                   | 20                                      | R45820.0  | R45720.0  |

# R454 • Force X 短钻 5×D

# R453 • Force X 内冷钻头 5×D

|      |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|------|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| R454 | ▪ | 1.1 | 1.2 | 1.3 | 1.4 | 1.5 | 1.6 | 1.7 | 1.8 | 2.1 | 2.2 | 2.3 | 3.1 | 3.2 | 3.3 | 3.4 | 6.1 | 6.2 | 6.3 | 7.1 | 7.2 |
|      |   | 7.3 | 7.4 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|      | • | 2.4 | 4.1 | 4.2 | 4.3 | 6.4 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| R453 | ▪ | 1.1 | 1.2 | 1.3 | 1.4 | 1.5 | 1.6 | 1.7 | 1.8 | 2.1 | 2.2 | 3.1 | 3.2 | 3.3 | 3.4 | 4.1 | 4.2 | 4.3 | 6.1 | 6.2 | 6.3 |
|      |   | 6.4 | 7.1 | 7.2 | 7.3 | 7.4 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|      | • | 2.3 | 2.4 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |

|      |    |            |     |      |       |            |     |  |  |  |
|------|----|------------|-----|------|-------|------------|-----|--|--|--|
| R454 | HM | DIN 6537 L | 5XD | 140° | TiAIN | DIN 6535HA | CTW |  |  |  |
| R453 | HM | DIN 6537 L | 5XD | 140° | TiAIN | DIN 6535HA | CTW |  |  |  |



| d <sub>1</sub><br>Ø<br>Inch | d <sub>1</sub><br>Øm,<br>mm | d <sub>1</sub><br>decimal<br>Inch | l <sub>2</sub><br>mm | l <sub>1</sub><br>mm | l <sub>3</sub><br>mm | d <sub>2</sub><br>Øh <sub>6</sub><br>mm | R454     | R453     |
|-----------------------------|-----------------------------|-----------------------------------|----------------------|----------------------|----------------------|-----------------------------------------|----------|----------|
|                             | 3.00                        | 0.1181                            | 28                   | 66                   | 36                   | 6                                       | R4543.0  | R4533.0  |
|                             | 3.10                        | 0.1220                            | 28                   | 66                   | 36                   | 6                                       | R4543.1  | R4533.1  |
| 1/8                         | 3.18                        | 0.1250                            | 28                   | 66                   | 36                   | 6                                       | R4541/8  | R4531/8  |
|                             | 3.20                        | 0.1260                            | 28                   | 66                   | 36                   | 6                                       | R4543.2  | R4533.2  |
| 30                          | 3.26                        | 0.1283                            | 28                   | 66                   | 36                   | 6                                       |          | R453N30  |
|                             | 3.30                        | 0.1299                            | 28                   | 66                   | 36                   | 6                                       | R4543.3  | R4533.3  |
|                             | 3.40                        | 0.1339                            | 28                   | 66                   | 36                   | 6                                       | R4543.4  | R4533.4  |
| 29                          | 3.45                        | 0.1360                            | 28                   | 66                   | 36                   | 6                                       | R454N29  | R453N29  |
|                             | 3.50                        | 0.1378                            | 28                   | 66                   | 36                   | 6                                       | R4543.5  | R4533.5  |
| 28                          | 3.57                        | 0.1406                            | 28                   | 66                   | 36                   | 6                                       | R454N28  | R453N28  |
| 9/64                        | 3.57                        | 0.1406                            | 28                   | 66                   | 36                   | 6                                       | R4549/64 | R4539/64 |
|                             | 3.60                        | 0.1417                            | 28                   | 66                   | 36                   | 6                                       | R4543.6  | R4533.6  |
| 27                          | 3.66                        | 0.1441                            | 28                   | 66                   | 36                   | 6                                       | R454N27  | R453N27  |
|                             | 3.70                        | 0.1457                            | 28                   | 66                   | 36                   | 6                                       | R4543.7  | R4533.7  |
| 26                          | 3.73                        | 0.1469                            | 36                   | 74                   | 36                   | 6                                       | R454N26  | R453N26  |
| 25                          | 3.80                        | 0.1496                            | 36                   | 74                   | 36                   | 6                                       | R4543.8  | R4533.8  |
| 24                          | 3.86                        | 0.1520                            | 36                   | 74                   | 36                   | 6                                       | R454N24  | R453N24  |
|                             | 3.90                        | 0.1535                            | 36                   | 74                   | 36                   | 6                                       | R4543.9  | R4533.9  |
| 23                          | 3.91                        | 0.1539                            | 36                   | 74                   | 36                   | 6                                       | R454N23  | R453N23  |
| 5/32                        | 3.97                        | 0.1563                            | 36                   | 74                   | 36                   | 6                                       | R4545/32 | R4535/32 |
| 22                          | 3.99                        | 0.1571                            | 36                   | 74                   | 36                   | 6                                       | R454N22  | R453N22  |
|                             | 4.00                        | 0.1575                            | 36                   | 74                   | 36                   | 6                                       | R4544.0  | R4534.0  |
| 21                          | 4.04                        | 0.1591                            | 36                   | 74                   | 36                   | 6                                       | R454N21  | R453N21  |
|                             | 4.05                        | 0.1594                            | 36                   | 74                   | 36                   | 6                                       |          | R4534.05 |
| 20                          | 4.09                        | 0.1610                            | 36                   | 74                   | 36                   | 6                                       | R454N20  | R453N20  |
|                             | 4.10                        | 0.1614                            | 36                   | 74                   | 36                   | 6                                       | R4544.1  | R4534.1  |

| d <sub>1</sub><br>Ø<br>Inch | d <sub>1</sub><br>Ø <sub>m</sub> ,<br>mm | d <sub>1</sub> decimal<br>Inch | l <sub>2</sub><br>mm | l <sub>1</sub><br>mm | l <sub>3</sub><br>mm | d <sub>2</sub><br>Ø <sub>h</sub> ,<br>mm | R454      | R453      |
|-----------------------------|------------------------------------------|--------------------------------|----------------------|----------------------|----------------------|------------------------------------------|-----------|-----------|
|                             | 4.20                                     | 0.1654                         | 36                   | 74                   | 36                   | 6                                        | R4544.2   | R4534.2   |
| 19                          | 4.22                                     | 0.1661                         | 36                   | 74                   | 36                   | 6                                        | R454N19   | R453N19   |
|                             | 4.30                                     | 0.1693                         | 36                   | 74                   | 36                   | 6                                        | R4544.3   | R4534.3   |
| 18                          | 4.31                                     | 0.1697                         | 36                   | 74                   | 36                   | 6                                        | R454N18   | R453N18   |
| 11/64                       | 4.37                                     | 0.1719                         | 36                   | 74                   | 36                   | 6                                        | R45411/64 | R45311/64 |
| 17                          | 4.39                                     | 0.1728                         | 36                   | 74                   | 36                   | 6                                        | R454N17   | R453N17   |
|                             | 4.40                                     | 0.1732                         | 36                   | 74                   | 36                   | 6                                        | R4544.4   | R4534.4   |
|                             | 4.50                                     | 0.1772                         | 36                   | 74                   | 36                   | 6                                        | R4544.5   | R4534.5   |
| 16                          | 4.50                                     | 0.1772                         | 36                   | 74                   | 36                   | 6                                        | R454N16   | R453N16   |
| 15                          | 4.57                                     | 0.1799                         | 36                   | 74                   | 36                   | 6                                        | R454N15   | R453N15   |
|                             | 4.60                                     | 0.1811                         | 36                   | 74                   | 36                   | 6                                        | R4544.6   | R4534.6   |
| 14                          | 4.62                                     | 0.1819                         | 36                   | 74                   | 36                   | 6                                        | R454N14   | R453N14   |
| 13                          | 4.70                                     | 0.1850                         | 36                   | 74                   | 36                   | 6                                        | R4544.7   | R4534.7   |
| 3/16                        | 4.76                                     | 0.1875                         | 44                   | 82                   | 36                   | 6                                        | R4543/16  | R4533/16  |
| 12                          | 4.80                                     | 0.1890                         | 44                   | 82                   | 36                   | 6                                        | R4544.8   | R453N12   |
| 11                          | 4.85                                     | 0.1909                         | 44                   | 82                   | 36                   | 6                                        | R454N11   | R453N11   |
|                             | 4.90                                     | 0.1929                         | 44                   | 82                   | 36                   | 6                                        | R4544.9   | R4534.9   |
| 10                          | 4.92                                     | 0.1937                         | 44                   | 82                   | 36                   | 6                                        | R454N10   | R453N10   |
| 9                           | 4.98                                     | 0.1961                         | 44                   | 82                   | 36                   | 6                                        | R454N9    | R453N9    |
|                             | 5.00                                     | 0.1969                         | 44                   | 82                   | 36                   | 6                                        | R4545.0   | R4535.0   |
|                             | 5.05                                     | 0.1988                         | 44                   | 82                   | 36                   | 6                                        |           | R4535.05  |
| 8                           | 5.06                                     | 0.1992                         | 44                   | 82                   | 36                   | 6                                        | R454N8    | R453N8    |
|                             | 5.10                                     | 0.2008                         | 44                   | 82                   | 36                   | 6                                        | R4545.1   | R4535.1   |
| 7                           | 5.11                                     | 0.2010                         | 44                   | 82                   | 36                   | 6                                        | R454N7    | R453N7    |
| 13/64                       | 5.16                                     | 0.2031                         | 44                   | 82                   | 36                   | 6                                        | R45413/64 | R45313/64 |
| 6                           | 5.18                                     | 0.2039                         | 44                   | 82                   | 36                   | 6                                        | R454N6    | R453N6    |
|                             | 5.20                                     | 0.2047                         | 44                   | 82                   | 36                   | 6                                        | R4545.2   | R4535.2   |
| 5                           | 5.22                                     | 0.2055                         | 44                   | 82                   | 36                   | 6                                        | R454N5    | R453N5    |
|                             | 5.30                                     | 0.2087                         | 44                   | 82                   | 36                   | 6                                        |           | R4535.3   |
| 4                           | 5.31                                     | 0.2091                         | 44                   | 82                   | 36                   | 6                                        | R454N4    | R453N4    |
|                             | 5.40                                     | 0.2126                         | 44                   | 82                   | 36                   | 6                                        |           | R4535.4   |
| 3                           | 5.41                                     | 0.2130                         | 44                   | 82                   | 36                   | 6                                        | R454N3    | R453N3    |
|                             | 5.50                                     | 0.2165                         | 44                   | 82                   | 36                   | 6                                        | R4545.5   | R4535.5   |
| 7/32                        | 5.56                                     | 0.2188                         | 44                   | 82                   | 36                   | 6                                        | R4547/32  | R4537/32  |
|                             | 5.60                                     | 0.2205                         | 44                   | 82                   | 36                   | 6                                        | R4545.6   | R4535.6   |
| 2                           | 5.61                                     | 0.2209                         | 44                   | 82                   | 36                   | 6                                        | R454N2    | R453N2    |
|                             | 5.70                                     | 0.2244                         | 44                   | 82                   | 36                   | 6                                        | R4545.7   | R4535.7   |
| 1                           | 5.79                                     | 0.2280                         | 44                   | 82                   | 36                   | 6                                        | R454N1    | R453N1    |
|                             | 5.80                                     | 0.2283                         | 44                   | 82                   | 36                   | 6                                        | R4545.8   | R4535.8   |
|                             | 5.90                                     | 0.2323                         | 44                   | 82                   | 36                   | 6                                        |           | R4535.9   |
| A                           | 5.94                                     | 0.2339                         | 44                   | 82                   | 36                   | 6                                        | R454A     | R453A     |
| 15/64                       | 5.95                                     | 0.2344                         | 44                   | 82                   | 36                   | 6                                        | R45415/64 | R45315/64 |
|                             | 6.00                                     | 0.2362                         | 44                   | 82                   | 36                   | 6                                        | R4546.0   | R4536.0   |
| B                           | 6.05                                     | 0.2380                         | 53                   | 91                   | 36                   | 8                                        | R454B     | R453B     |
|                             | 6.05                                     | 0.2382                         | 53                   | 91                   | 36                   | 8                                        |           | R4536.05  |
|                             | 6.10                                     | 0.2402                         | 53                   | 91                   | 36                   | 8                                        | R4546.1   | R4536.1   |
| C                           | 6.15                                     | 0.2421                         | 53                   | 91                   | 36                   | 8                                        | R454C     | R453C     |
|                             | 6.20                                     | 0.2441                         | 53                   | 91                   | 36                   | 8                                        | R4546.2   | R4536.2   |
| D                           | 6.25                                     | 0.2461                         | 53                   | 91                   | 36                   | 8                                        | R454D     | R453D     |
|                             | 6.30                                     | 0.2480                         | 53                   | 91                   | 36                   | 8                                        | R4546.3   | R4536.3   |
| 1/4                         | 6.35                                     | 0.2500                         | 53                   | 91                   | 36                   | 8                                        | R4541/4   | R4531/4   |
| E                           | 6.35                                     | 0.2500                         | 53                   | 91                   | 36                   | 8                                        | R454E     | R453E     |
|                             | 6.40                                     | 0.2520                         | 53                   | 91                   | 36                   | 8                                        | R4546.4   | R4536.4   |
|                             | 6.50                                     | 0.2559                         | 53                   | 91                   | 36                   | 8                                        | R4546.5   | R4536.5   |
| F                           | 6.53                                     | 0.2571                         | 53                   | 91                   | 36                   | 8                                        | R454F     | R453F     |
|                             | 6.60                                     | 0.2598                         | 53                   | 91                   | 36                   | 8                                        | R4546.6   | R4536.6   |
| G                           | 6.63                                     | 0.2610                         | 53                   | 91                   | 36                   | 8                                        | R454G     | R453G     |
|                             | 6.70                                     | 0.2638                         | 53                   | 91                   | 36                   | 8                                        | R4546.7   | R4536.7   |
| 17/64                       | 6.75                                     | 0.2656                         | 53                   | 91                   | 36                   | 8                                        | R45417/64 | R45317/64 |
| H                           | 6.76                                     | 0.2661                         | 53                   | 91                   | 36                   | 8                                        |           | R453H     |
|                             | 6.80                                     | 0.2677                         | 53                   | 91                   | 36                   | 8                                        | R4546.8   | R4536.8   |
|                             | 6.90                                     | 0.2717                         | 53                   | 91                   | 36                   | 8                                        | R4546.9   | R4536.9   |
| I                           | 6.91                                     | 0.2720                         | 53                   | 91                   | 36                   | 8                                        | R454I     | R453I     |
|                             | 7.00                                     | 0.2756                         | 53                   | 91                   | 36                   | 8                                        | R4547.0   | R4537.0   |
| J                           | 7.04                                     | 0.2772                         | 53                   | 91                   | 36                   | 8                                        | R454J     | R453J     |
|                             | 7.10                                     | 0.2795                         | 53                   | 91                   | 36                   | 8                                        | R4547.1   | R4537.1   |
| K                           | 7.14                                     | 0.2811                         | 53                   | 91                   | 36                   | 8                                        | R454K     | R453K     |
| 9/32                        | 7.14                                     | 0.2813                         | 53                   | 91                   | 36                   | 8                                        | R4549/32  | R4539/32  |
|                             | 7.20                                     | 0.2835                         | 53                   | 91                   | 36                   | 8                                        |           | R4537.2   |
|                             | 7.30                                     | 0.2874                         | 53                   | 91                   | 36                   | 8                                        | R4547.3   | R4537.3   |

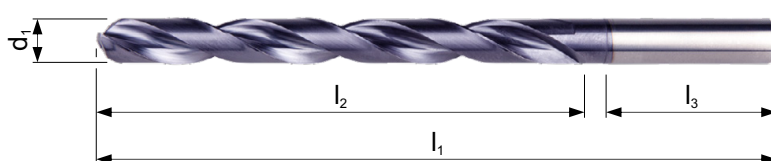
| d <sub>1</sub><br>Ø<br>Inch | d <sub>1</sub><br>Øm <sub>7</sub><br>mm | d <sub>1</sub><br>decimal<br>Inch | l <sub>2</sub><br>mm | l <sub>1</sub><br>mm | l <sub>3</sub><br>mm | d <sub>2</sub><br>Øh <sub>6</sub><br>mm | R454      | R453      |
|-----------------------------|-----------------------------------------|-----------------------------------|----------------------|----------------------|----------------------|-----------------------------------------|-----------|-----------|
| L                           | 7.37                                    | 0.2902                            | 53                   | 91                   | 36                   | 8                                       | R454L     |           |
|                             | 7.40                                    | 0.2913                            | 53                   | 91                   | 36                   | 8                                       | R4547.4   | R4537.4   |
| M                           | 7.49                                    | 0.2949                            | 53                   | 91                   | 36                   | 8                                       | R454M     | R453M     |
|                             | 7.50                                    | 0.2953                            | 53                   | 91                   | 36                   | 8                                       | R4547.5   | R4537.5   |
| 19/64                       | 7.54                                    | 0.2969                            | 53                   | 91                   | 36                   | 8                                       | R45419/64 | R45319/64 |
|                             | 7.60                                    | 0.2992                            | 53                   | 91                   | 36                   | 8                                       | R4547.6   | R4537.6   |
| N                           | 7.67                                    | 0.3020                            | 53                   | 91                   | 36                   | 8                                       | R454N     | R453N     |
|                             | 7.70                                    | 0.3031                            | 53                   | 91                   | 36                   | 8                                       | R4547.7   | R4537.7   |
|                             | 7.80                                    | 0.3071                            | 53                   | 91                   | 36                   | 8                                       | R4547.8   | R4537.8   |
|                             | 7.90                                    | 0.3110                            | 53                   | 91                   | 36                   | 8                                       | R4547.9   | R4537.9   |
| 5/16                        | 7.94                                    | 0.3125                            | 53                   | 91                   | 36                   | 8                                       | R4545/16  | R4535/16  |
|                             | 8.00                                    | 0.3150                            | 53                   | 91                   | 36                   | 8                                       | R4548.0   | R4538.0   |
| O                           | 8.03                                    | 0.3161                            | 61                   | 103                  | 40                   | 10                                      | R454O     | R453O     |
|                             | 8.05                                    | 0.3169                            | 61                   | 103                  | 40                   | 10                                      |           | R4538.05  |
|                             | 8.10                                    | 0.3189                            | 61                   | 103                  | 40                   | 10                                      | R4548.1   | R4538.1   |
|                             | 8.20                                    | 0.3228                            | 61                   | 103                  | 40                   | 10                                      | R4548.2   | R4538.2   |
| P                           | 8.20                                    | 0.3228                            | 61                   | 103                  | 40                   | 10                                      | R454P     | R453P     |
|                             | 8.30                                    | 0.3268                            | 61                   | 103                  | 40                   | 10                                      |           | R4538.3   |
| 21/64                       | 8.33                                    | 0.3281                            | 61                   | 103                  | 40                   | 10                                      | R45421/64 | R45321/64 |
|                             | 8.40                                    | 0.3307                            | 61                   | 103                  | 40                   | 10                                      | R4548.4   | R4538.4   |
| Q                           | 8.43                                    | 0.3319                            | 61                   | 103                  | 40                   | 10                                      |           | R453Q     |
|                             | 8.50                                    | 0.3346                            | 61                   | 103                  | 40                   | 10                                      | R4548.5   | R4538.5   |
|                             | 8.60                                    | 0.3386                            | 61                   | 103                  | 40                   | 10                                      | R4548.6   | R4538.6   |
| R                           | 8.61                                    | 0.3390                            | 61                   | 103                  | 40                   | 10                                      | R454R     | R453R     |
|                             | 8.70                                    | 0.3425                            | 61                   | 103                  | 40                   | 10                                      | R4548.7   | R4538.7   |
| 11/32                       | 8.73                                    | 0.3438                            | 61                   | 103                  | 40                   | 10                                      | R45411/32 | R45311/32 |
|                             | 8.80                                    | 0.3465                            | 61                   | 103                  | 40                   | 10                                      | R4548.8   | R4538.8   |
| S                           | 8.84                                    | 0.3480                            | 61                   | 103                  | 40                   | 10                                      | R454S     | R453S     |
|                             | 8.90                                    | 0.3504                            | 61                   | 103                  | 40                   | 10                                      | R4548.9   | R4538.9   |
|                             | 9.00                                    | 0.3543                            | 61                   | 103                  | 40                   | 10                                      | R4549.0   | R4539.0   |
| T                           | 9.09                                    | 0.3579                            | 61                   | 103                  | 40                   | 10                                      | R454T     | R453T     |
|                             | 9.10                                    | 0.3583                            | 61                   | 103                  | 40                   | 10                                      | R4549.1   | R4539.1   |
| 23/64                       | 9.13                                    | 0.3594                            | 61                   | 103                  | 40                   | 10                                      | R45423/64 | R45323/64 |
|                             | 9.20                                    | 0.3622                            | 61                   | 103                  | 40                   | 10                                      |           | R4539.2   |
|                             | 9.30                                    | 0.3661                            | 61                   | 103                  | 40                   | 10                                      | R4549.3   | R4539.3   |
| U                           | 9.35                                    | 0.3681                            | 61                   | 103                  | 40                   | 10                                      | R454U     | R453U     |
|                             | 9.40                                    | 0.3701                            | 61                   | 103                  | 40                   | 10                                      | R4549.4   | R4539.4   |
|                             | 9.50                                    | 0.3740                            | 61                   | 103                  | 40                   | 10                                      | R4549.5   | R4539.5   |
| 3/8                         | 9.53                                    | 0.3750                            | 61                   | 103                  | 40                   | 10                                      | R4543/8   | R4533/8   |
| V                           | 9.58                                    | 0.3772                            | 61                   | 103                  | 40                   | 10                                      | R454V     | R453V     |
|                             | 9.60                                    | 0.3780                            | 61                   | 103                  | 40                   | 10                                      | R4549.6   | R4539.6   |
|                             | 9.70                                    | 0.3819                            | 61                   | 103                  | 40                   | 10                                      | R4549.7   | R4539.7   |
|                             | 9.80                                    | 0.3858                            | 61                   | 103                  | 40                   | 10                                      | R4549.8   | R4539.8   |
| W                           | 9.80                                    | 0.3858                            | 61                   | 103                  | 40                   | 10                                      | R454W     | R453W     |
|                             | 9.90                                    | 0.3898                            | 61                   | 103                  | 40                   | 10                                      | R4549.9   | R4539.9   |
| 25/64                       | 9.92                                    | 0.3906                            | 61                   | 103                  | 40                   | 10                                      | R45425/64 | R45325/64 |
|                             | 10.00                                   | 0.3937                            | 61                   | 103                  | 40                   | 10                                      | R45410.0  | R45310.0  |
|                             | 10.05                                   | 0.3957                            | 70                   | 118                  | 45                   | 12                                      |           | R45310.05 |
| X                           | 10.08                                   | 0.3969                            | 70                   | 118                  | 45                   | 12                                      | R454X     | R453X     |
|                             | 10.10                                   | 0.3976                            | 70                   | 118                  | 45                   | 12                                      | R45410.1  | R45310.1  |
|                             | 10.20                                   | 0.4016                            | 70                   | 118                  | 45                   | 12                                      | R45410.2  | R45310.2  |
| Y                           | 10.26                                   | 0.4039                            | 70                   | 118                  | 45                   | 12                                      | R454Y     | R453Y     |
|                             | 10.30                                   | 0.4055                            | 70                   | 118                  | 45                   | 12                                      | R45410.3  | R45310.3  |
| 13/32                       | 10.32                                   | 0.4063                            | 70                   | 118                  | 45                   | 12                                      | R45413/32 | R45313/32 |
|                             | 10.40                                   | 0.4094                            | 70                   | 118                  | 45                   | 12                                      | R45410.4  | R45310.4  |
| Z                           | 10.49                                   | 0.4130                            | 70                   | 118                  | 45                   | 12                                      | R454Z     | R453Z     |
|                             | 10.50                                   | 0.4134                            | 70                   | 118                  | 45                   | 12                                      | R45410.5  | R45310.5  |
|                             | 10.60                                   | 0.4173                            | 70                   | 118                  | 45                   | 12                                      | R45410.6  | R45310.6  |
| 27/64                       | 10.72                                   | 0.4219                            | 70                   | 118                  | 45                   | 12                                      | R45427/64 | R45327/64 |
|                             | 10.80                                   | 0.4252                            | 70                   | 118                  | 45                   | 12                                      |           | R45310.8  |
|                             | 11.00                                   | 0.4331                            | 70                   | 118                  | 45                   | 12                                      | R45411.0  | R45311.0  |
| 7/16                        | 11.11                                   | 0.4375                            | 70                   | 118                  | 45                   | 12                                      | R4547/16  | R4537/16  |
|                             | 11.20                                   | 0.4409                            | 70                   | 118                  | 45                   | 12                                      | R45411.2  | R45311.2  |
|                             | 11.30                                   | 0.4449                            | 70                   | 118                  | 45                   | 12                                      |           | R45311.3  |
|                             | 11.40                                   | 0.4488                            | 70                   | 118                  | 45                   | 12                                      | R45411.4  | R45311.4  |
|                             | 11.50                                   | 0.4528                            | 70                   | 118                  | 45                   | 12                                      | R45411.5  | R45311.5  |
| 29/64                       | 11.51                                   | 0.4531                            | 70                   | 118                  | 45                   | 12                                      | R45429/64 | R45329/64 |
|                             | 11.60                                   | 0.4567                            | 70                   | 118                  | 45                   | 12                                      | R45411.6  | R45311.6  |
|                             | 11.80                                   | 0.4646                            | 70                   | 118                  | 45                   | 12                                      | R45411.8  | R45311.8  |
| 15/32                       | 11.91                                   | 0.4688                            | 70                   | 118                  | 45                   | 12                                      | R45415/32 | R45315/32 |



| d <sub>1</sub><br>Ø<br>Inch | d <sub>1</sub><br>Øm,<br>mm | d <sub>1</sub> decimal<br>Inch | l <sub>2</sub><br>mm | l <sub>1</sub><br>mm | l <sub>3</sub><br>mm | d <sub>2</sub><br>Øh <sub>6</sub><br>mm | R454      | R453      |
|-----------------------------|-----------------------------|--------------------------------|----------------------|----------------------|----------------------|-----------------------------------------|-----------|-----------|
|                             | 12.00                       | 0.4724                         | 70                   | 118                  | 45                   | 12                                      | R45412.0  | R45312.0  |
|                             | 12.05                       | 0.4744                         | 76                   | 124                  | 45                   | 14                                      |           | R45312.05 |
|                             | 12.10                       | 0.4764                         | 76                   | 124                  | 45                   | 14                                      | R45412.1  |           |
|                             | 12.20                       | 0.4803                         | 76                   | 124                  | 45                   | 14                                      | R45412.2  | R45312.2  |
| 31/64                       | 12.30                       | 0.4844                         | 76                   | 124                  | 45                   | 14                                      | R45431/64 | R45331/64 |
|                             | 12.50                       | 0.4921                         | 76                   | 124                  | 45                   | 14                                      | R45412.5  | R45312.5  |
|                             | 12.70                       | 0.5000                         | 76                   | 124                  | 45                   | 14                                      | R45412.7  | R45312.7  |
| 1/2                         | 12.70                       | 0.5000                         | 76                   | 124                  | 45                   | 14                                      | R4541/2   | R4531/2   |
|                             | 12.80                       | 0.5039                         | 76                   | 124                  | 45                   | 14                                      | R45412.8  | R45312.8  |
|                             | 13.00                       | 0.5118                         | 76                   | 124                  | 45                   | 14                                      | R45413.0  | R45313.0  |
| 33/64                       | 13.10                       | 0.5156                         | 76                   | 124                  | 45                   | 14                                      | R45433/64 | R45333/64 |
|                             | 13.30                       | 0.5236                         | 76                   | 124                  | 45                   | 14                                      |           | R45313.3  |
| 17/32                       | 13.49                       | 0.5313                         | 76                   | 124                  | 45                   | 14                                      | R45417/32 | R45317/32 |
|                             | 13.50                       | 0.5315                         | 76                   | 124                  | 45                   | 14                                      | R45413.5  | R45313.5  |
|                             | 13.80                       | 0.5433                         | 76                   | 124                  | 45                   | 14                                      | R45413.8  | R45313.8  |
| 35/64                       | 13.89                       | 0.5469                         | 76                   | 124                  | 45                   | 14                                      | R45435/64 | R45335/64 |
|                             | 14.00                       | 0.5512                         | 76                   | 124                  | 45                   | 14                                      | R45414.0  | R45314.0  |
|                             | 14.25                       | 0.5610                         | 82                   | 133                  | 48                   | 16                                      | R45414.25 | R45314.25 |
| 9/16                        | 14.29                       | 0.5625                         | 82                   | 133                  | 48                   | 16                                      | R4549/16  | R4539/16  |
|                             | 14.50                       | 0.5709                         | 82                   | 133                  | 48                   | 16                                      | R45414.5  | R45314.5  |
| 37/64                       | 14.68                       | 0.5781                         | 82                   | 133                  | 48                   | 16                                      | R45437/64 | R45337/64 |
|                             | 14.80                       | 0.5827                         | 82                   | 133                  | 48                   | 16                                      | R45414.8  | R45314.8  |
|                             | 15.00                       | 0.5906                         | 82                   | 133                  | 48                   | 16                                      | R45415.0  | R45315.0  |
| 19/32                       | 15.08                       | 0.5938                         | 82                   | 133                  | 48                   | 16                                      | R45419/32 | R45319/32 |
|                             | 15.10                       | 0.5945                         | 82                   | 133                  | 48                   | 16                                      | R45415.1  | R45315.1  |
|                             | 15.30                       | 0.6024                         | 82                   | 133                  | 48                   | 16                                      |           | R45315.3  |
| 39/64                       | 15.48                       | 0.6094                         | 82                   | 133                  | 48                   | 16                                      | R45439/64 | R45339/64 |
|                             | 15.50                       | 0.6102                         | 82                   | 133                  | 48                   | 16                                      | R45415.5  | R45315.5  |
|                             | 15.80                       | 0.6220                         | 82                   | 133                  | 48                   | 16                                      | R45415.8  | R45315.8  |
| 5/8                         | 15.88                       | 0.6250                         | 82                   | 133                  | 48                   | 16                                      | R4545/8   | R4535/8   |
|                             | 16.00                       | 0.6299                         | 82                   | 133                  | 48                   | 16                                      | R45416.0  | R45316.0  |
| 41/64                       | 16.27                       | 0.6406                         | 91                   | 143                  | 48                   | 18                                      | R45441/64 | R45341/64 |
|                             | 16.50                       | 0.6496                         | 91                   | 143                  | 48                   | 18                                      | R45416.5  | R45316.5  |
| 21/32                       | 16.67                       | 0.6563                         | 91                   | 143                  | 48                   | 18                                      | R45421/32 | R45321/32 |
|                             | 17.00                       | 0.6693                         | 91                   | 143                  | 48                   | 18                                      | R45417.0  | R45317.0  |
| 43/64                       | 17.07                       | 0.6720                         | 91                   | 143                  | 48                   | 18                                      | R45443/64 | R45343/64 |
| 11/16                       | 17.46                       | 0.6874                         | 91                   | 143                  | 48                   | 18                                      | R45411/16 | R45311/16 |
|                             | 17.50                       | 0.6890                         | 91                   | 143                  | 48                   | 18                                      | R45417.5  | R45317.5  |
|                             | 17.80                       | 0.7008                         | 91                   | 143                  | 48                   | 18                                      | R45417.8  | R45317.8  |
| 45/64                       | 17.86                       | 0.7031                         | 91                   | 143                  | 48                   | 18                                      | R45445/64 | R45345/64 |
|                             | 18.00                       | 0.7087                         | 91                   | 143                  | 48                   | 18                                      | R45418.0  | R45318.0  |
| 23/32                       | 18.26                       | 0.7189                         | 99                   | 143                  | 48                   | 20                                      |           | R45323/32 |
| 23/32                       | 18.26                       | 0.7189                         | 99                   | 153                  | 50                   | 20                                      | R45423/32 |           |
|                             | 18.50                       | 0.7283                         | 99                   | 153                  | 50                   | 20                                      | R45418.5  | R45318.5  |
| 47/64                       | 18.65                       | 0.7343                         | 99                   | 153                  | 50                   | 20                                      | R45447/64 | R45347/64 |
|                             | 19.00                       | 0.7480                         | 99                   | 153                  | 50                   | 20                                      | R45419.0  | R45319.0  |
| 3/4                         | 19.05                       | 0.7500                         | 99                   | 153                  | 50                   | 20                                      | R4543/4   | R4533/4   |
|                             | 19.50                       | 0.7677                         | 99                   | 153                  | 50                   | 20                                      | R45419.5  | R45319.5  |
|                             | 19.80                       | 0.7795                         | 99                   | 153                  | 50                   | 20                                      | R45419.8  | R45319.8  |
|                             | 20.00                       | 0.7874                         | 99                   | 153                  | 50                   | 20                                      | R45420.0  | R45320.0  |

# R459 • Force X 内冷钻头 8×D

|      |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|------|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| R459 | ▪ | 1.1 | 1.2 | 1.3 | 1.4 | 1.5 | 1.6 | 2.1 | 2.2 | 3.1 | 3.2 | 3.3 | 3.4 | 7.2 | 7.3 | 7.4 |
|      | • | 2.3 | 6.1 | 6.2 | 6.3 | 6.4 | 7.1 |     |     |     |     |     |     |     |     |     |



| $d_1$<br>$\varnothing m_7$<br>Inch | $d_1$<br>$\varnothing m_7$<br>mm | $d_1$<br>decimal<br>Inch | $l_2$<br>mm | $l_1$<br>mm | $l_3$<br>mm | $d_2$<br>$\varnothing h_6$<br>mm | R459      |
|------------------------------------|----------------------------------|--------------------------|-------------|-------------|-------------|----------------------------------|-----------|
| 1/8                                | 3.00                             | 0.1181                   | 37          | 79          | 36          | 6                                | R4593.0   |
|                                    | 3.10                             | 0.1220                   | 37          | 79          | 36          | 6                                | R4593.1   |
|                                    | 3.18                             | 0.1250                   | 37          | 79          | 36          | 6                                | R4591/8   |
|                                    | 3.20                             | 0.1260                   | 37          | 79          | 36          | 6                                | R4593.2   |
|                                    | 3.30                             | 0.1299                   | 37          | 79          | 36          | 6                                | R4593.3   |
| 9/64                               | 3.40                             | 0.1339                   | 37          | 79          | 36          | 6                                | R4593.4   |
|                                    | 3.50                             | 0.1378                   | 37          | 79          | 36          | 6                                | R4593.5   |
|                                    | 3.57                             | 0.1406                   | 37          | 79          | 36          | 6                                | R4599/64  |
|                                    | 3.60                             | 0.1417                   | 37          | 79          | 36          | 6                                | R4593.6   |
|                                    | 3.70                             | 0.1457                   | 37          | 79          | 36          | 6                                | R4593.7   |
| 5/32                               | 3.80                             | 0.1496                   | 48          | 90          | 36          | 6                                | R4593.8   |
|                                    | 3.90                             | 0.1535                   | 48          | 90          | 36          | 6                                | R4593.9   |
|                                    | 3.97                             | 0.1563                   | 48          | 90          | 36          | 6                                | R4595/32  |
|                                    | 4.00                             | 0.1575                   | 48          | 90          | 36          | 6                                | R4594.0   |
|                                    | 4.10                             | 0.1614                   | 48          | 90          | 36          | 6                                | R4594.1   |
| 11/64                              | 4.20                             | 0.1654                   | 48          | 90          | 36          | 6                                | R4594.2   |
|                                    | 4.30                             | 0.1693                   | 48          | 90          | 36          | 6                                | R4594.3   |
|                                    | 4.37                             | 0.1719                   | 48          | 90          | 36          | 6                                | R45911/64 |
|                                    | 4.40                             | 0.1732                   | 48          | 90          | 36          | 6                                | R4594.4   |
|                                    | 4.50                             | 0.1772                   | 48          | 90          | 36          | 6                                | R4594.5   |
| 3/16                               | 4.60                             | 0.1811                   | 48          | 90          | 36          | 6                                | R4594.6   |
|                                    | 4.70                             | 0.1850                   | 62          | 104         | 36          | 6                                | R4594.7   |
|                                    | 4.76                             | 0.1875                   | 62          | 104         | 36          | 6                                | R4593/16  |
|                                    | 4.80                             | 0.1890                   | 62          | 104         | 36          | 6                                | R4594.8   |
|                                    | 4.90                             | 0.1929                   | 62          | 104         | 36          | 6                                | R4594.9   |
| 13/64                              | 5.00                             | 0.1969                   | 62          | 104         | 36          | 6                                | R4595.0   |
|                                    | 5.10                             | 0.2008                   | 62          | 104         | 36          | 6                                | R4595.1   |
|                                    | 5.16                             | 0.2031                   | 62          | 104         | 36          | 6                                | R45913/64 |
|                                    | 5.20                             | 0.2047                   | 62          | 104         | 36          | 6                                | R4595.2   |
|                                    | 5.30                             | 0.2087                   | 62          | 104         | 36          | 6                                | R4595.3   |
| 7/32                               | 5.40                             | 0.2126                   | 62          | 104         | 36          | 6                                | R4595.4   |
|                                    | 5.50                             | 0.2165                   | 62          | 104         | 36          | 6                                | R4595.5   |
|                                    | 5.56                             | 0.2188                   | 62          | 104         | 36          | 6                                | R4597/32  |
|                                    | 5.60                             | 0.2205                   | 62          | 104         | 36          | 6                                | R4595.6   |
|                                    | 5.70                             | 0.2244                   | 62          | 104         | 36          | 6                                | R4595.7   |
| 15/64                              | 5.80                             | 0.2283                   | 62          | 104         | 36          | 6                                | R4595.8   |
|                                    | 5.90                             | 0.2323                   | 62          | 104         | 36          | 6                                | R4595.9   |
|                                    | 5.95                             | 0.2344                   | 62          | 104         | 36          | 6                                | R45915/64 |
|                                    | 6.00                             | 0.2362                   | 62          | 104         | 36          | 6                                | R4596.0   |
|                                    | 6.10                             | 0.2402                   | 84          | 126         | 36          | 8                                | R4596.1   |

| d <sub>1</sub><br>Øm <sub>7</sub><br>Inch | d <sub>1</sub><br>Øm <sub>7</sub><br>mm | d <sub>1</sub><br>decimal<br>Inch | l <sub>2</sub><br>mm | l <sub>1</sub><br>mm | l <sub>3</sub><br>mm | d <sub>2</sub><br>Øh <sub>6</sub><br>mm | R459      |
|-------------------------------------------|-----------------------------------------|-----------------------------------|----------------------|----------------------|----------------------|-----------------------------------------|-----------|
| 1/4                                       | 6.20                                    | 0.2441                            | 84                   | 126                  | 36                   | 8                                       | R4596.2   |
|                                           | 6.30                                    | 0.2480                            | 84                   | 126                  | 36                   | 8                                       | R4596.3   |
|                                           | 6.35                                    | 0.2500                            | 84                   | 126                  | 36                   | 8                                       | R4591/4   |
|                                           | 6.40                                    | 0.2520                            | 84                   | 126                  | 36                   | 8                                       | R4596.4   |
|                                           | 6.50                                    | 0.2559                            | 84                   | 126                  | 36                   | 8                                       | R4596.5   |
| 17/64                                     | 6.60                                    | 0.2598                            | 84                   | 126                  | 36                   | 8                                       | R4596.6   |
|                                           | 6.70                                    | 0.2638                            | 84                   | 126                  | 36                   | 8                                       | R4596.7   |
|                                           | 6.75                                    | 0.2656                            | 84                   | 126                  | 36                   | 8                                       | R45917/64 |
|                                           | 6.80                                    | 0.2677                            | 84                   | 126                  | 36                   | 8                                       | R4596.8   |
|                                           | 6.90                                    | 0.2717                            | 84                   | 126                  | 36                   | 8                                       | R4596.9   |
| 9/32                                      | 7.00                                    | 0.2756                            | 84                   | 126                  | 36                   | 8                                       | R4597.0   |
|                                           | 7.10                                    | 0.2795                            | 84                   | 126                  | 36                   | 8                                       | R4597.1   |
|                                           | 7.14                                    | 0.2813                            | 84                   | 126                  | 36                   | 8                                       | R4599/32  |
|                                           | 7.20                                    | 0.2835                            | 84                   | 126                  | 36                   | 8                                       | R4597.2   |
|                                           | 7.30                                    | 0.2874                            | 84                   | 126                  | 36                   | 8                                       | R4597.3   |
| 19/64                                     | 7.40                                    | 0.2913                            | 84                   | 126                  | 36                   | 8                                       | R4597.4   |
|                                           | 7.50                                    | 0.2953                            | 84                   | 126                  | 36                   | 8                                       | R4597.5   |
|                                           | 7.54                                    | 0.2969                            | 84                   | 126                  | 36                   | 8                                       | R45919/64 |
|                                           | 7.60                                    | 0.2992                            | 84                   | 126                  | 36                   | 8                                       | R4597.6   |
|                                           | 7.70                                    | 0.3031                            | 84                   | 126                  | 36                   | 8                                       | R4597.7   |
| 5/16                                      | 7.80                                    | 0.3071                            | 84                   | 126                  | 36                   | 8                                       | R4597.8   |
|                                           | 7.90                                    | 0.3110                            | 84                   | 126                  | 36                   | 8                                       | R4597.9   |
|                                           | 7.94                                    | 0.3125                            | 84                   | 126                  | 36                   | 8                                       | R4595/16  |
|                                           | 8.00                                    | 0.3150                            | 84                   | 126                  | 36                   | 8                                       | R4598.0   |
|                                           | 8.10                                    | 0.3189                            | 106                  | 152                  | 40                   | 10                                      | R4598.1   |
| 21/64                                     | 8.20                                    | 0.3228                            | 106                  | 152                  | 40                   | 10                                      | R4598.2   |
|                                           | 8.30                                    | 0.3268                            | 106                  | 152                  | 40                   | 10                                      | R4598.3   |
|                                           | 8.33                                    | 0.3281                            | 106                  | 152                  | 40                   | 10                                      | R45921/64 |
|                                           | 8.40                                    | 0.3307                            | 106                  | 152                  | 40                   | 10                                      | R4598.4   |
|                                           | 8.50                                    | 0.3346                            | 106                  | 152                  | 40                   | 10                                      | R4598.5   |
| 11/32                                     | 8.60                                    | 0.3386                            | 106                  | 152                  | 40                   | 10                                      | R4598.6   |
|                                           | 8.70                                    | 0.3425                            | 106                  | 152                  | 40                   | 10                                      | R4598.7   |
|                                           | 8.73                                    | 0.3438                            | 106                  | 152                  | 40                   | 10                                      | R45911/32 |
|                                           | 8.80                                    | 0.3465                            | 106                  | 152                  | 40                   | 10                                      | R4598.8   |
|                                           | 8.90                                    | 0.3504                            | 106                  | 152                  | 40                   | 10                                      | R4598.9   |
| 23/64                                     | 9.00                                    | 0.3543                            | 106                  | 152                  | 40                   | 10                                      | R4599.0   |
|                                           | 9.10                                    | 0.3583                            | 106                  | 152                  | 40                   | 10                                      | R4599.1   |
|                                           | 9.13                                    | 0.3594                            | 106                  | 152                  | 40                   | 10                                      | R45923/64 |
|                                           | 9.20                                    | 0.3622                            | 106                  | 152                  | 40                   | 10                                      | R4599.2   |
|                                           | 9.30                                    | 0.3661                            | 106                  | 152                  | 40                   | 10                                      | R4599.3   |
| 3/8                                       | 9.40                                    | 0.3701                            | 106                  | 152                  | 40                   | 10                                      | R4599.4   |
|                                           | 9.50                                    | 0.3740                            | 106                  | 152                  | 40                   | 10                                      | R4599.5   |
|                                           | 9.53                                    | 0.3750                            | 106                  | 152                  | 40                   | 10                                      | R4593/8   |
|                                           | 9.60                                    | 0.3780                            | 106                  | 152                  | 40                   | 10                                      | R4599.6   |
|                                           | 9.70                                    | 0.3819                            | 106                  | 152                  | 40                   | 10                                      | R4599.7   |
| 25/64                                     | 9.80                                    | 0.3858                            | 106                  | 152                  | 40                   | 10                                      | R4599.8   |
|                                           | 9.90                                    | 0.3898                            | 106                  | 152                  | 40                   | 10                                      | R4599.9   |
|                                           | 9.92                                    | 0.3906                            | 106                  | 152                  | 40                   | 10                                      | R45925/64 |
|                                           | 10.00                                   | 0.3937                            | 106                  | 152                  | 40                   | 10                                      | R45910.0  |
|                                           | 10.20                                   | 0.4016                            | 128                  | 180                  | 45                   | 12                                      | R45910.2  |
| 13/32                                     | 10.30                                   | 0.4055                            | 128                  | 180                  | 45                   | 12                                      | R45910.3  |
|                                           | 10.32                                   | 0.4063                            | 128                  | 180                  | 45                   | 12                                      | R45913/32 |
|                                           | 10.40                                   | 0.4094                            | 128                  | 180                  | 45                   | 12                                      | R45910.4  |
|                                           | 10.50                                   | 0.4134                            | 128                  | 180                  | 45                   | 12                                      | R45910.5  |
|                                           | 10.72                                   | 0.4219                            | 128                  | 180                  | 45                   | 12                                      | R45927/64 |
| 27/64                                     | 10.80                                   | 0.4252                            | 128                  | 180                  | 45                   | 12                                      | R45910.8  |
|                                           | 11.00                                   | 0.4331                            | 128                  | 180                  | 45                   | 12                                      | R45911.0  |
|                                           | 11.11                                   | 0.4375                            | 128                  | 180                  | 45                   | 12                                      | R4597/16  |
|                                           | 11.20                                   | 0.4409                            | 128                  | 180                  | 45                   | 12                                      | R45911.2  |
|                                           | 11.30                                   | 0.4449                            | 128                  | 180                  | 45                   | 12                                      | R45911.3  |
| 7/16                                      | 11.50                                   | 0.4528                            | 128                  | 180                  | 45                   | 12                                      | R45911.5  |
|                                           | 11.51                                   | 0.4531                            | 128                  | 180                  | 45                   | 12                                      | R45929/64 |
|                                           | 11.80                                   | 0.4646                            | 128                  | 180                  | 45                   | 12                                      | R45911.8  |
|                                           | 11.91                                   | 0.4688                            | 128                  | 180                  | 45                   | 12                                      | R45915/32 |
|                                           | 12.00                                   | 0.4724                            | 128                  | 180                  | 45                   | 12                                      | R45912.0  |
| 31/64                                     | 12.20                                   | 0.4803                            | 151                  | 202                  | 48                   | 14                                      | R45912.2  |
|                                           | 12.30                                   | 0.4844                            | 151                  | 202                  | 48                   | 14                                      | R45931/64 |
|                                           | 12.50                                   | 0.4921                            | 151                  | 202                  | 48                   | 14                                      | R45912.5  |
|                                           | 12.70                                   | 0.5000                            | 151                  | 202                  | 48                   | 14                                      | R4591/2   |
|                                           | 12.80                                   | 0.5039                            | 151                  | 202                  | 48                   | 14                                      | R45912.8  |
| 1/2                                       | 13.00                                   | 0.5118                            | 151                  | 202                  | 48                   | 14                                      | R45913.0  |

| $d_1$<br>$\varnothing m_7$<br>Inch | $d_1$<br>$\varnothing m_7$<br>mm | $d_1$<br>decimal<br>Inch | $l_2$<br>mm | $l_1$<br>mm | $l_3$<br>mm | $d_2$<br>$\varnothing h_6$<br>mm | R459      |
|------------------------------------|----------------------------------|--------------------------|-------------|-------------|-------------|----------------------------------|-----------|
| 33/64                              | 13.10                            | 0.5156                   | 151         | 202         | 48          | 14                               | R45933/64 |
| 17/32                              | 13.49                            | 0.5313                   | 151         | 202         | 48          | 14                               | R45917/32 |
|                                    | 13.50                            | 0.5315                   | 151         | 202         | 48          | 14                               | R45913.5  |
| 35/64                              | 13.89                            | 0.5469                   | 151         | 202         | 48          | 14                               | R45935/64 |
|                                    | 14.00                            | 0.5512                   | 151         | 202         | 48          | 14                               | R45914.0  |
|                                    | 14.25                            | 0.5610                   | 172         | 227         | 48          | 16                               | R45914.25 |
| 9/16                               | 14.29                            | 0.5625                   | 172         | 227         | 48          | 16                               | R4599/16  |
|                                    | 14.50                            | 0.5709                   | 172         | 227         | 48          | 16                               | R45914.5  |
| 37/64                              | 14.68                            | 0.5781                   | 172         | 227         | 48          | 16                               | R45937/64 |
|                                    | 15.00                            | 0.5906                   | 172         | 227         | 48          | 16                               | R45915.0  |
| 19/32                              | 15.08                            | 0.5938                   | 172         | 227         | 48          | 16                               | R45919/32 |
|                                    | 15.10                            | 0.5945                   | 172         | 227         | 48          | 16                               | R45915.1  |
| 39/64                              | 15.48                            | 0.6094                   | 172         | 227         | 48          | 16                               | R45939/64 |
|                                    | 15.50                            | 0.6102                   | 172         | 227         | 48          | 16                               | R45915.5  |
| 5/8                                | 15.88                            | 0.6250                   | 172         | 227         | 48          | 16                               | R4595/8   |
|                                    | 16.00                            | 0.6299                   | 172         | 227         | 48          | 16                               | R45916.0  |

**FORCE X**



# R467 • Force M 内冷钻头 3×D

|      |   |     |     |     |     |     |     |     |
|------|---|-----|-----|-----|-----|-----|-----|-----|
| R467 | ▪ | 2.1 | 2.2 | 2.3 | 2.4 | 4.1 | 4.2 | 4.3 |
|      | • | 5.1 | 5.2 | 5.3 |     |     |     |     |

R467

HM

DIN 6537 K

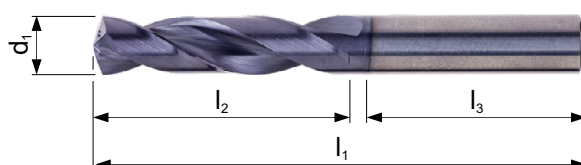
3XD

140°

TiAlN

DIN 6535 HA

CTW



| $d_1$<br>Ø<br>"/Nr./letter | $d_1$<br>Ø <sub>m7</sub><br>mm | $d_1$<br>decimal<br>Inch | $l_2$<br>mm | $l_1$<br>mm | $l_3$<br>mm | $d_2$<br>Ø <sub>h6</sub><br>mm | R467      |
|----------------------------|--------------------------------|--------------------------|-------------|-------------|-------------|--------------------------------|-----------|
| 1/8                        | 3.00                           | 0.1181                   | 20          | 62          | 36          | 6                              | R4673.0   |
|                            | 3.10                           | 0.1220                   | 20          | 62          | 36          | 6                              | R4673.1   |
|                            | 3.18                           | 0.1250                   | 20          | 62          | 36          | 6                              | R4671/8   |
|                            | 3.20                           | 0.1260                   | 20          | 62          | 36          | 6                              | R4673.2   |
|                            | 3.30                           | 0.1299                   | 20          | 62          | 36          | 6                              | R4673.3   |
| 29                         | 3.40                           | 0.1339                   | 20          | 62          | 36          | 6                              | R4673.4   |
|                            | 3.45                           | 0.1360                   | 20          | 62          | 36          | 6                              | R467N29   |
|                            | 3.50                           | 0.1378                   | 20          | 62          | 36          | 6                              | R4673.5   |
| 9/64                       | 3.57                           | 0.1406                   | 20          | 62          | 36          | 6                              | R4679/64  |
|                            | 3.60                           | 0.1417                   | 20          | 62          | 36          | 6                              | R4673.6   |
|                            | 3.70                           | 0.1457                   | 20          | 62          | 36          | 6                              | R4673.7   |
|                            | 3.80                           | 0.1496                   | 24          | 66          | 36          | 6                              | R4673.8   |
| 5/32                       | 3.90                           | 0.1535                   | 24          | 66          | 36          | 6                              | R4673.9   |
|                            | 3.97                           | 0.1563                   | 24          | 66          | 36          | 6                              | R4675/32  |
|                            | 4.00                           | 0.1575                   | 24          | 66          | 36          | 6                              | R4674.0   |
|                            | 4.05                           | 0.1594                   | 24          | 66          | 36          | 6                              | R4674.05  |
|                            | 4.10                           | 0.1614                   | 24          | 66          | 36          | 6                              | R4674.1   |
| 11/64                      | 4.20                           | 0.1654                   | 24          | 66          | 36          | 6                              | R4674.2   |
|                            | 4.30                           | 0.1693                   | 24          | 66          | 36          | 6                              | R4674.3   |
|                            | 4.37                           | 0.1719                   | 24          | 66          | 36          | 6                              | R46711/64 |
|                            | 4.40                           | 0.1732                   | 24          | 66          | 36          | 6                              | R4674.4   |
|                            | 4.50                           | 0.1772                   | 24          | 66          | 36          | 6                              | R4674.5   |
| 3/16                       | 4.60                           | 0.1811                   | 24          | 66          | 36          | 6                              | R4674.6   |
|                            | 4.70                           | 0.1850                   | 24          | 66          | 36          | 6                              | R4674.7   |
|                            | 4.76                           | 0.1875                   | 28          | 66          | 36          | 6                              | R4673/16  |
|                            | 4.80                           | 0.1890                   | 28          | 66          | 36          | 6                              | R4674.8   |
|                            | 4.90                           | 0.1929                   | 28          | 66          | 36          | 6                              | R4674.9   |
| 7                          | 5.00                           | 0.1969                   | 28          | 66          | 36          | 6                              | R4675.0   |
|                            | 5.05                           | 0.1988                   | 28          | 66          | 36          | 6                              | R4675.05  |
|                            | 5.10                           | 0.2008                   | 28          | 66          | 36          | 6                              | R4675.1   |
|                            | 5.11                           | 0.2010                   | 28          | 66          | 36          | 6                              | R467N7    |
|                            | 5.16                           | 0.2031                   | 28          | 66          | 36          | 6                              | R46713/64 |
| 13/64                      | 5.20                           | 0.2047                   | 28          | 66          | 36          | 6                              | R4675.2   |
|                            | 5.22                           | 0.2055                   | 28          | 66          | 36          | 6                              | R467N5    |
|                            | 5.30                           | 0.2087                   | 28          | 66          | 36          | 6                              | R4675.3   |
| 5                          | 5.40                           | 0.2126                   | 28          | 66          | 36          | 6                              | R4675.4   |
|                            | 5.50                           | 0.2165                   | 28          | 66          | 36          | 6                              | R4675.5   |
|                            | 5.56                           | 0.2188                   | 28          | 66          | 36          | 6                              | R4677/32  |
|                            | 5.60                           | 0.2205                   | 28          | 66          | 36          | 6                              | R4675.6   |
|                            | 5.70                           | 0.2244                   | 28          | 66          | 36          | 6                              | R4675.7   |



| d <sub>1</sub><br>Ø<br>"/Nr./letter | d <sub>1</sub><br>Øm <sub>7</sub><br>mm | d <sub>1</sub><br>decimal<br>Inch | l <sub>2</sub><br>mm | l <sub>1</sub><br>mm | l <sub>3</sub><br>mm | d <sub>2</sub><br>Øh <sub>6</sub><br>mm | R467      |
|-------------------------------------|-----------------------------------------|-----------------------------------|----------------------|----------------------|----------------------|-----------------------------------------|-----------|
| 15/64                               | 5.80                                    | 0.2283                            | 28                   | 66                   | 36                   | 6                                       | R4675.8   |
|                                     | 5.90                                    | 0.2323                            | 28                   | 66                   | 36                   | 6                                       | R4675.9   |
|                                     | 5.95                                    | 0.2344                            | 28                   | 66                   | 36                   | 6                                       | R46715/64 |
|                                     | 6.00                                    | 0.2362                            | 28                   | 66                   | 36                   | 6                                       | R4676.0   |
|                                     | 6.05                                    | 0.2382                            | 34                   | 79                   | 36                   | 8                                       | R4676.05  |
|                                     | 6.10                                    | 0.2402                            | 34                   | 79                   | 36                   | 8                                       | R4676.1   |
| 1/4                                 | 6.20                                    | 0.2441                            | 34                   | 79                   | 36                   | 8                                       | R4676.2   |
|                                     | 6.30                                    | 0.2480                            | 34                   | 79                   | 36                   | 8                                       | R4676.3   |
|                                     | 6.35                                    | 0.2500                            | 34                   | 79                   | 36                   | 8                                       | R4671/4   |
|                                     | 6.40                                    | 0.2520                            | 34                   | 79                   | 36                   | 8                                       | R4676.4   |
|                                     | 6.50                                    | 0.2559                            | 34                   | 79                   | 36                   | 8                                       | R4676.5   |
|                                     | 6.60                                    | 0.2598                            | 34                   | 79                   | 36                   | 8                                       | R4676.6   |
| 17/64                               | 6.70                                    | 0.2638                            | 34                   | 79                   | 36                   | 8                                       | R4676.7   |
|                                     | 6.75                                    | 0.2656                            | 34                   | 79                   | 36                   | 8                                       | R46717/64 |
|                                     | 6.80                                    | 0.2677                            | 34                   | 79                   | 36                   | 8                                       | R4676.8   |
|                                     | 6.90                                    | 0.2717                            | 34                   | 79                   | 36                   | 8                                       | R4676.9   |
|                                     | 7.00                                    | 0.2756                            | 34                   | 79                   | 36                   | 8                                       | R4677.0   |
|                                     | 7.10                                    | 0.2795                            | 41                   | 79                   | 36                   | 8                                       | R4677.1   |
| 9/32                                | 7.14                                    | 0.2813                            | 41                   | 79                   | 36                   | 8                                       | R4679/32  |
|                                     | 7.20                                    | 0.2835                            | 41                   | 79                   | 36                   | 8                                       | R4677.2   |
|                                     | 7.30                                    | 0.2874                            | 41                   | 79                   | 36                   | 8                                       | R4677.3   |
|                                     | 7.40                                    | 0.2913                            | 41                   | 79                   | 36                   | 8                                       | R4677.4   |
|                                     | 7.50                                    | 0.2953                            | 41                   | 79                   | 36                   | 8                                       | R4677.5   |
|                                     | 7.54                                    | 0.2969                            | 41                   | 79                   | 36                   | 8                                       | R46719/64 |
| 19/64                               | 7.60                                    | 0.2992                            | 41                   | 79                   | 36                   | 8                                       | R4677.6   |
|                                     | 7.70                                    | 0.3031                            | 41                   | 79                   | 36                   | 8                                       | R4677.7   |
|                                     | 7.80                                    | 0.3071                            | 41                   | 79                   | 36                   | 8                                       | R4677.8   |
|                                     | 7.90                                    | 0.3110                            | 41                   | 79                   | 36                   | 8                                       | R4677.9   |
|                                     | 7.94                                    | 0.3125                            | 41                   | 79                   | 36                   | 8                                       | R4675/16  |
|                                     | 8.00                                    | 0.3150                            | 41                   | 79                   | 36                   | 8                                       | R4678.0   |
| 5/16                                | 8.05                                    | 0.3169                            | 47                   | 89                   | 40                   | 10                                      | R4678.05  |
|                                     | 8.10                                    | 0.3189                            | 47                   | 89                   | 40                   | 10                                      | R4678.1   |
|                                     | 8.20                                    | 0.3228                            | 47                   | 89                   | 40                   | 10                                      | R4678.2   |
|                                     | 8.30                                    | 0.3268                            | 47                   | 89                   | 40                   | 10                                      | R4678.3   |
|                                     | 8.33                                    | 0.3281                            | 47                   | 89                   | 40                   | 10                                      | R46721/64 |
|                                     | 8.40                                    | 0.3307                            | 47                   | 89                   | 40                   | 10                                      | R4678.4   |
| 21/64                               | 8.50                                    | 0.3346                            | 47                   | 89                   | 40                   | 10                                      | R4678.5   |
|                                     | 8.60                                    | 0.3386                            | 47                   | 89                   | 40                   | 10                                      | R4678.6   |
|                                     | 8.70                                    | 0.3425                            | 47                   | 89                   | 40                   | 10                                      | R4678.7   |
|                                     | 8.73                                    | 0.3438                            | 47                   | 89                   | 40                   | 10                                      | R46711/32 |
|                                     | 8.80                                    | 0.3465                            | 47                   | 89                   | 40                   | 10                                      | R4678.8   |
|                                     | 8.90                                    | 0.3504                            | 47                   | 89                   | 40                   | 10                                      | R4678.9   |
| 11/32                               | 9.00                                    | 0.3543                            | 47                   | 89                   | 40                   | 10                                      | R4679.0   |
|                                     | 9.10                                    | 0.3583                            | 47                   | 89                   | 40                   | 10                                      | R4679.1   |
|                                     | 9.13                                    | 0.3594                            | 47                   | 89                   | 40                   | 10                                      | R46723/64 |
|                                     | 9.20                                    | 0.3622                            | 47                   | 89                   | 40                   | 10                                      | R4679.2   |
|                                     | 9.30                                    | 0.3661                            | 47                   | 89                   | 40                   | 10                                      | R4679.3   |
|                                     | 9.40                                    | 0.3701                            | 47                   | 89                   | 40                   | 10                                      | R4679.4   |
| 3/8                                 | 9.50                                    | 0.3740                            | 47                   | 89                   | 40                   | 10                                      | R4679.5   |
|                                     | 9.53                                    | 0.3750                            | 47                   | 89                   | 40                   | 10                                      | R4673/8   |
|                                     | 9.60                                    | 0.3780                            | 47                   | 89                   | 40                   | 10                                      | R4679.6   |
|                                     | 9.70                                    | 0.3819                            | 47                   | 89                   | 40                   | 10                                      | R4679.7   |
|                                     | 9.80                                    | 0.3858                            | 47                   | 89                   | 40                   | 10                                      | R4679.8   |
|                                     | 9.90                                    | 0.3898                            | 47                   | 89                   | 40                   | 10                                      | R4679.9   |
| 25/64                               | 9.92                                    | 0.3906                            | 47                   | 89                   | 40                   | 10                                      | R46725/64 |
|                                     | 10.00                                   | 0.3937                            | 47                   | 89                   | 40                   | 10                                      | R46710.0  |
|                                     | 10.05                                   | 0.3957                            | 55                   | 102                  | 45                   | 12                                      | R46710.05 |
|                                     | 10.10                                   | 0.3976                            | 55                   | 102                  | 45                   | 12                                      | R46710.1  |
|                                     | 10.20                                   | 0.4016                            | 55                   | 102                  | 45                   | 12                                      | R46710.2  |
|                                     | 10.30                                   | 0.4055                            | 55                   | 102                  | 45                   | 12                                      | R46710.3  |
| 13/32                               | 10.32                                   | 0.4063                            | 55                   | 102                  | 45                   | 12                                      | R46713/32 |
|                                     | 10.40                                   | 0.4094                            | 55                   | 102                  | 45                   | 12                                      | R46710.4  |
|                                     | 10.50                                   | 0.4134                            | 55                   | 102                  | 45                   | 12                                      | R46710.5  |
|                                     | 10.60                                   | 0.4173                            | 55                   | 102                  | 45                   | 12                                      | R46710.6  |
|                                     | 10.72                                   | 0.4219                            | 55                   | 102                  | 45                   | 12                                      | R46727/64 |
|                                     | 10.80                                   | 0.4252                            | 55                   | 102                  | 45                   | 12                                      | R46710.8  |
| 27/64                               | 10.90                                   | 0.4291                            | 55                   | 102                  | 45                   | 12                                      | R46710.9  |
|                                     | 11.00                                   | 0.4331                            | 55                   | 102                  | 45                   | 12                                      | R46711.0  |
|                                     | 11.11                                   | 0.4375                            | 55                   | 102                  | 45                   | 12                                      | R4677/16  |
|                                     | 11.20                                   | 0.4409                            | 55                   | 102                  | 45                   | 12                                      | R46711.2  |
|                                     | 11.30                                   | 0.4449                            | 55                   | 102                  | 45                   | 12                                      | R46711.3  |

| d <sub>1</sub><br>Ø<br>"/Nr./letter | d <sub>1</sub><br>Øm,<br>mm | d <sub>1</sub><br>decimal<br>Inch | l <sub>2</sub><br>mm | l <sub>1</sub><br>mm | l <sub>3</sub><br>mm | d <sub>2</sub><br>Øh <sub>6</sub><br>mm | R467      |
|-------------------------------------|-----------------------------|-----------------------------------|----------------------|----------------------|----------------------|-----------------------------------------|-----------|
|                                     | 11.40                       | 0.4488                            | 55                   | 102                  | 45                   | 12                                      | R46711.4  |
|                                     | 11.50                       | 0.4528                            | 55                   | 102                  | 45                   | 12                                      | R46711.5  |
| 29/64                               | 11.51                       | 0.4531                            | 55                   | 102                  | 45                   | 12                                      | R46729/64 |
|                                     | 11.60                       | 0.4567                            | 55                   | 102                  | 45                   | 12                                      | R46711.6  |
|                                     | 11.80                       | 0.4646                            | 55                   | 102                  | 45                   | 12                                      | R46711.8  |
| 15/32                               | 11.91                       | 0.4688                            | 55                   | 102                  | 45                   | 12                                      | R46715/32 |
|                                     | 12.00                       | 0.4724                            | 55                   | 102                  | 45                   | 12                                      | R46712.0  |
|                                     | 12.05                       | 0.4744                            | 60                   | 107                  | 45                   | 14                                      | R46712.05 |
|                                     | 12.10                       | 0.4764                            | 60                   | 107                  | 45                   | 14                                      | R46712.1  |
|                                     | 12.20                       | 0.4803                            | 60                   | 107                  | 45                   | 14                                      | R46712.2  |
| 31/64                               | 12.30                       | 0.4844                            | 60                   | 107                  | 45                   | 14                                      | R46731/64 |
|                                     | 12.50                       | 0.4921                            | 60                   | 107                  | 45                   | 14                                      | R46712.5  |
|                                     | 12.70                       | 0.5000                            | 60                   | 107                  | 45                   | 14                                      | R46712.7  |
| 1/2                                 | 12.70                       | 0.5000                            | 60                   | 107                  | 45                   | 14                                      | R4671/2   |
|                                     | 12.80                       | 0.5039                            | 60                   | 107                  | 45                   | 14                                      | R46712.8  |
|                                     | 13.00                       | 0.5118                            | 60                   | 107                  | 45                   | 14                                      | R46713.0  |
| 33/64                               | 13.10                       | 0.5156                            | 60                   | 107                  | 45                   | 14                                      | R46733/64 |
|                                     | 13.30                       | 0.5236                            | 60                   | 107                  | 45                   | 14                                      | R46713.3  |
| 17/32                               | 13.49                       | 0.5313                            | 60                   | 107                  | 45                   | 14                                      | R46717/32 |
|                                     | 13.50                       | 0.5315                            | 60                   | 107                  | 45                   | 14                                      | R46713.5  |
|                                     | 13.80                       | 0.5433                            | 60                   | 107                  | 45                   | 14                                      | R46713.8  |
| 35/64                               | 13.89                       | 0.5469                            | 60                   | 107                  | 45                   | 14                                      | R46735/64 |
|                                     | 14.00                       | 0.5512                            | 60                   | 107                  | 45                   | 14                                      | R46714.0  |
|                                     | 14.25                       | 0.5610                            | 65                   | 115                  | 48                   | 16                                      | R46714.25 |
| 9/16                                | 14.29                       | 0.5625                            | 65                   | 115                  | 48                   | 16                                      | R4679/16  |
|                                     | 14.50                       | 0.5709                            | 65                   | 115                  | 48                   | 16                                      | R46714.5  |
| 37/64                               | 14.68                       | 0.5781                            | 65                   | 115                  | 48                   | 16                                      | R46737/64 |
|                                     | 14.80                       | 0.5827                            | 65                   | 115                  | 48                   | 16                                      | R46714.8  |
|                                     | 15.00                       | 0.5906                            | 65                   | 115                  | 48                   | 16                                      | R46715.0  |
| 19/32                               | 15.08                       | 0.5938                            | 65                   | 115                  | 48                   | 16                                      | R46719/32 |
|                                     | 15.10                       | 0.5945                            | 65                   | 115                  | 48                   | 16                                      | R46715.1  |
|                                     | 15.30                       | 0.6024                            | 65                   | 115                  | 48                   | 16                                      | R46715.3  |
| 39/64                               | 15.48                       | 0.6094                            | 65                   | 115                  | 48                   | 16                                      | R46739/64 |
|                                     | 15.50                       | 0.6102                            | 65                   | 115                  | 48                   | 16                                      | R46715.5  |
|                                     | 15.80                       | 0.6220                            | 65                   | 115                  | 48                   | 16                                      | R46715.8  |
| 5/8                                 | 15.88                       | 0.6250                            | 65                   | 115                  | 48                   | 16                                      | R4675/8   |
|                                     | 16.00                       | 0.6299                            | 65                   | 115                  | 48                   | 16                                      | R46716.0  |

**FORCE M**



# R463 • Force M 内冷钻头 5×D

|      |   |     |     |     |     |     |     |     |
|------|---|-----|-----|-----|-----|-----|-----|-----|
| R463 | ▪ | 2.1 | 2.2 | 2.3 | 2.4 | 4.1 | 4.2 | 4.3 |
|      | • | 5.1 | 5.2 | 5.3 |     |     |     |     |

R463

HM

DIN 6537 L

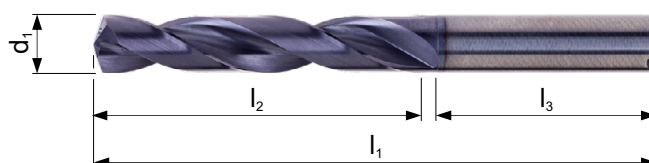
5XD

140°

TiAlN

DIN 6535 HA

CTW



| $d_1$<br>$\varnothing$<br>"/Nr./letter | $d_1$<br>$\varnothing_{m_7}$<br>mm | $d_1$<br>decimal<br>Inch | $l_2$<br>mm | $l_1$<br>mm | $l_3$<br>mm | $d_2$<br>$\varnothing_{h_6}$<br>mm | R463      |
|----------------------------------------|------------------------------------|--------------------------|-------------|-------------|-------------|------------------------------------|-----------|
|                                        | 3.00                               | 0.1181                   | 28          | 66          | 36          | 6                                  | R4633.0   |
|                                        | 3.10                               | 0.1220                   | 28          | 66          | 36          | 6                                  | R4633.1   |
| 1/8                                    | 3.18                               | 0.1250                   | 28          | 66          | 36          | 6                                  | R4631/8   |
|                                        | 3.20                               | 0.1260                   | 28          | 66          | 36          | 6                                  | R4633.2   |
|                                        | 3.30                               | 0.1299                   | 28          | 66          | 36          | 6                                  | R4633.3   |
|                                        | 3.40                               | 0.1339                   | 28          | 66          | 36          | 6                                  | R4633.4   |
| 29                                     | 3.45                               | 0.1360                   | 28          | 66          | 36          | 6                                  | R463N29   |
|                                        | 3.50                               | 0.1378                   | 28          | 66          | 36          | 6                                  | R4633.5   |
| 9/64                                   | 3.57                               | 0.1406                   | 28          | 66          | 36          | 6                                  | R4639/64  |
|                                        | 3.60                               | 0.1417                   | 28          | 66          | 36          | 6                                  | R4633.6   |
|                                        | 3.70                               | 0.1457                   | 28          | 66          | 36          | 6                                  | R4633.7   |
|                                        | 3.80                               | 0.1496                   | 36          | 74          | 36          | 6                                  | R4633.8   |
|                                        | 3.90                               | 0.1535                   | 36          | 74          | 36          | 6                                  | R4633.9   |
| 5/32                                   | 3.97                               | 0.1563                   | 36          | 74          | 36          | 6                                  | R4635/32  |
|                                        | 4.00                               | 0.1575                   | 36          | 74          | 36          | 6                                  | R4634.0   |
|                                        | 4.05                               | 0.1594                   | 36          | 74          | 36          | 6                                  | R4634.05  |
|                                        | 4.10                               | 0.1614                   | 36          | 74          | 36          | 6                                  | R4634.1   |
|                                        | 4.20                               | 0.1654                   | 36          | 74          | 36          | 6                                  | R4634.2   |
|                                        | 4.30                               | 0.1693                   | 36          | 74          | 36          | 6                                  | R4634.3   |
| 11/64                                  | 4.37                               | 0.1719                   | 36          | 74          | 36          | 6                                  | R46311/64 |
|                                        | 4.40                               | 0.1732                   | 36          | 74          | 36          | 6                                  | R4634.4   |
|                                        | 4.50                               | 0.1772                   | 36          | 74          | 36          | 6                                  | R4634.5   |
|                                        | 4.60                               | 0.1811                   | 36          | 74          | 36          | 6                                  | R4634.6   |
|                                        | 4.70                               | 0.1850                   | 36          | 74          | 36          | 6                                  | R4634.7   |
| 3/16                                   | 4.76                               | 0.1875                   | 44          | 82          | 36          | 6                                  | R4633/16  |
|                                        | 4.80                               | 0.1890                   | 44          | 82          | 36          | 6                                  | R4634.8   |
|                                        | 4.90                               | 0.1929                   | 44          | 82          | 36          | 6                                  | R4634.9   |
|                                        | 5.00                               | 0.1969                   | 44          | 82          | 36          | 6                                  | R4635.0   |
|                                        | 5.05                               | 0.1988                   | 44          | 82          | 36          | 6                                  | R4635.05  |
|                                        | 5.10                               | 0.2008                   | 44          | 82          | 36          | 6                                  | R4635.1   |
| 7                                      | 5.11                               | 0.2010                   | 44          | 82          | 36          | 6                                  | R463N7    |
| 13/64                                  | 5.16                               | 0.2031                   | 44          | 82          | 36          | 6                                  | R46313/64 |
|                                        | 5.20                               | 0.2047                   | 44          | 82          | 36          | 6                                  | R4635.2   |
| 5                                      | 5.22                               | 0.2055                   | 44          | 82          | 36          | 6                                  | R463N5    |
|                                        | 5.30                               | 0.2087                   | 44          | 82          | 36          | 6                                  | R4635.3   |
|                                        | 5.40                               | 0.2126                   | 44          | 82          | 36          | 6                                  | R4635.4   |
|                                        | 5.50                               | 0.2165                   | 44          | 82          | 36          | 6                                  | R4635.5   |
| 7/32                                   | 5.56                               | 0.2188                   | 44          | 82          | 36          | 6                                  | R4637/32  |
|                                        | 5.60                               | 0.2205                   | 44          | 82          | 36          | 6                                  | R4635.6   |
|                                        | 5.70                               | 0.2244                   | 44          | 82          | 36          | 6                                  | R4635.7   |

| $d_1$<br>$\emptyset$<br>"/Nr./letter | $d_1$<br>$\emptyset m_7$<br>mm | $d_1$<br>decimal<br>Inch | $l_2$<br>mm | $l_1$<br>mm | $l_3$<br>mm | $d_2$<br>$\emptyset h_6$<br>mm | R463      |
|--------------------------------------|--------------------------------|--------------------------|-------------|-------------|-------------|--------------------------------|-----------|
| 15/64                                | 5.80                           | 0.2283                   | 44          | 82          | 36          | 6                              | R4635.8   |
|                                      | 5.90                           | 0.2323                   | 44          | 82          | 36          | 6                              | R4635.9   |
|                                      | 5.95                           | 0.2344                   | 44          | 82          | 36          | 6                              | R46315/64 |
|                                      | 6.00                           | 0.2362                   | 44          | 82          | 36          | 6                              | R4636.0   |
|                                      | 6.05                           | 0.2382                   | 53          | 91          | 36          | 8                              | R4636.05  |
|                                      | 6.10                           | 0.2402                   | 53          | 91          | 36          | 8                              | R4636.1   |
| 1/4                                  | 6.20                           | 0.2441                   | 53          | 91          | 36          | 8                              | R4636.2   |
|                                      | 6.30                           | 0.2480                   | 53          | 91          | 36          | 8                              | R4636.3   |
|                                      | 6.35                           | 0.2500                   | 53          | 91          | 36          | 8                              | R4631/4   |
|                                      | 6.40                           | 0.2520                   | 53          | 91          | 36          | 8                              | R4636.4   |
|                                      | 6.50                           | 0.2559                   | 53          | 91          | 36          | 8                              | R4636.5   |
|                                      | 6.60                           | 0.2598                   | 53          | 91          | 36          | 8                              | R4636.6   |
| 17/64                                | 6.70                           | 0.2638                   | 53          | 91          | 36          | 8                              | R4636.7   |
|                                      | 6.75                           | 0.2656                   | 53          | 91          | 36          | 8                              | R46317/64 |
|                                      | 6.80                           | 0.2677                   | 53          | 91          | 36          | 8                              | R4636.8   |
|                                      | 6.90                           | 0.2717                   | 53          | 91          | 36          | 8                              | R4636.9   |
|                                      | 7.00                           | 0.2756                   | 53          | 91          | 36          | 8                              | R4637.0   |
|                                      | 7.10                           | 0.2795                   | 53          | 91          | 36          | 8                              | R4637.1   |
| 9/32                                 | 7.14                           | 0.2813                   | 53          | 91          | 36          | 8                              | R4639/32  |
|                                      | 7.20                           | 0.2835                   | 53          | 91          | 36          | 8                              | R4637.2   |
|                                      | 7.30                           | 0.2874                   | 53          | 91          | 36          | 8                              | R4637.3   |
|                                      | 7.40                           | 0.2913                   | 53          | 91          | 36          | 8                              | R4637.4   |
|                                      | 7.50                           | 0.2953                   | 53          | 91          | 36          | 8                              | R4637.5   |
|                                      | 7.54                           | 0.2969                   | 53          | 91          | 36          | 8                              | R46319/64 |
| 19/64                                | 7.60                           | 0.2992                   | 53          | 91          | 36          | 8                              | R4637.6   |
|                                      | 7.70                           | 0.3031                   | 53          | 91          | 36          | 8                              | R4637.7   |
|                                      | 7.80                           | 0.3071                   | 53          | 91          | 36          | 8                              | R4637.8   |
|                                      | 7.90                           | 0.3110                   | 53          | 91          | 36          | 8                              | R4637.9   |
|                                      | 7.94                           | 0.3125                   | 53          | 91          | 36          | 8                              | R4635/16  |
|                                      | 8.00                           | 0.3150                   | 53          | 91          | 36          | 8                              | R4638.0   |
| 5/16                                 | 8.05                           | 0.3169                   | 61          | 103         | 40          | 10                             | R4638.05  |
|                                      | 8.10                           | 0.3189                   | 61          | 103         | 40          | 10                             | R4638.1   |
|                                      | 8.20                           | 0.3228                   | 61          | 103         | 40          | 10                             | R4638.2   |
|                                      | 8.30                           | 0.3268                   | 61          | 103         | 40          | 10                             | R4638.3   |
|                                      | 8.33                           | 0.3281                   | 61          | 103         | 40          | 10                             | R46321/64 |
|                                      | 8.40                           | 0.3307                   | 61          | 103         | 40          | 10                             | R4638.4   |
| 21/64                                | 8.50                           | 0.3346                   | 61          | 103         | 40          | 10                             | R4638.5   |
|                                      | 8.60                           | 0.3386                   | 61          | 103         | 40          | 10                             | R4638.6   |
|                                      | 8.70                           | 0.3425                   | 61          | 103         | 40          | 10                             | R4638.7   |
|                                      | 8.73                           | 0.3438                   | 61          | 103         | 40          | 10                             | R46311/32 |
|                                      | 8.80                           | 0.3465                   | 61          | 103         | 40          | 10                             | R4638.8   |
|                                      | 8.90                           | 0.3504                   | 61          | 103         | 40          | 10                             | R4638.9   |
| 11/32                                | 9.00                           | 0.3543                   | 61          | 103         | 40          | 10                             | R4639.0   |
|                                      | 9.10                           | 0.3583                   | 61          | 103         | 40          | 10                             | R4639.1   |
|                                      | 9.13                           | 0.3594                   | 61          | 103         | 40          | 10                             | R46323/64 |
|                                      | 9.20                           | 0.3622                   | 61          | 103         | 40          | 10                             | R4639.2   |
|                                      | 9.30                           | 0.3661                   | 61          | 103         | 40          | 10                             | R4639.3   |
|                                      | 9.40                           | 0.3701                   | 61          | 103         | 40          | 10                             | R4639.4   |
| 3/8                                  | 9.50                           | 0.3740                   | 61          | 103         | 40          | 10                             | R4639.5   |
|                                      | 9.53                           | 0.3750                   | 61          | 103         | 40          | 10                             | R4633/8   |
|                                      | 9.60                           | 0.3780                   | 61          | 103         | 40          | 10                             | R4639.6   |
|                                      | 9.70                           | 0.3819                   | 61          | 103         | 40          | 10                             | R4639.7   |
|                                      | 9.80                           | 0.3858                   | 61          | 103         | 40          | 10                             | R4639.8   |
|                                      | 9.90                           | 0.3898                   | 61          | 103         | 40          | 10                             | R4639.9   |
| 25/64                                | 9.92                           | 0.3906                   | 61          | 103         | 40          | 10                             | R46325/64 |
|                                      | 10.00                          | 0.3937                   | 61          | 103         | 40          | 10                             | R46310.0  |
|                                      | 10.05                          | 0.3957                   | 70          | 118         | 45          | 12                             | R46310.05 |
|                                      | 10.10                          | 0.3976                   | 70          | 118         | 45          | 12                             | R46310.1  |
|                                      | 10.20                          | 0.4016                   | 70          | 118         | 45          | 12                             | R46310.2  |
|                                      | 10.30                          | 0.4055                   | 70          | 118         | 45          | 12                             | R46310.3  |
| 13/32                                | 10.32                          | 0.4063                   | 70          | 118         | 45          | 12                             | R46313/32 |
|                                      | 10.40                          | 0.4094                   | 70          | 118         | 45          | 12                             | R46310.4  |
|                                      | 10.50                          | 0.4134                   | 70          | 118         | 45          | 12                             | R46310.5  |
|                                      | 10.60                          | 0.4173                   | 70          | 118         | 45          | 12                             | R46310.6  |
|                                      | 10.72                          | 0.4219                   | 70          | 118         | 45          | 12                             | R46327/64 |
|                                      | 10.80                          | 0.4252                   | 70          | 118         | 45          | 12                             | R46310.8  |
| 27/64                                | 10.90                          | 0.4291                   | 70          | 118         | 45          | 12                             | R46310.9  |
|                                      | 11.00                          | 0.4331                   | 70          | 118         | 45          | 12                             | R46311.0  |
|                                      | 11.11                          | 0.4375                   | 70          | 118         | 45          | 12                             | R4637/16  |
|                                      | 11.20                          | 0.4409                   | 70          | 118         | 45          | 12                             | R46311.2  |
|                                      | 11.30                          | 0.4449                   | 70          | 118         | 45          | 12                             | R46311.3  |

| d <sub>1</sub><br>Ø<br>"/Nr./letter | d <sub>1</sub><br>Øm,<br>mm | d <sub>1</sub> decimal<br>Inch | l <sub>2</sub><br>mm | l <sub>1</sub><br>mm | l <sub>3</sub><br>mm | d <sub>2</sub><br>Øh <sub>6</sub><br>mm | R463      |
|-------------------------------------|-----------------------------|--------------------------------|----------------------|----------------------|----------------------|-----------------------------------------|-----------|
|                                     | 11.40                       | 0.4488                         | 70                   | 118                  | 45                   | 12                                      | R46311.4  |
|                                     | 11.50                       | 0.4528                         | 70                   | 118                  | 45                   | 12                                      | R46311.5  |
| 29/64                               | 11.51                       | 0.4531                         | 70                   | 118                  | 45                   | 12                                      | R46329/64 |
|                                     | 11.60                       | 0.4567                         | 70                   | 118                  | 45                   | 12                                      | R46311.6  |
|                                     | 11.80                       | 0.4646                         | 70                   | 118                  | 45                   | 12                                      | R46311.8  |
| 15/32                               | 11.91                       | 0.4688                         | 70                   | 118                  | 45                   | 12                                      | R46315/32 |
|                                     | 12.00                       | 0.4724                         | 70                   | 118                  | 45                   | 12                                      | R46312.0  |
|                                     | 12.05                       | 0.4744                         | 76                   | 124                  | 45                   | 14                                      | R46312.05 |
|                                     | 12.20                       | 0.4803                         | 76                   | 124                  | 45                   | 14                                      | R46312.2  |
| 31/64                               | 12.30                       | 0.4844                         | 76                   | 124                  | 45                   | 14                                      | R46331/64 |
|                                     | 12.50                       | 0.4921                         | 76                   | 124                  | 45                   | 14                                      | R46312.5  |
|                                     | 12.70                       | 0.5000                         | 76                   | 124                  | 45                   | 14                                      | R46312.7  |
| 1/2                                 | 12.70                       | 0.5000                         | 76                   | 124                  | 45                   | 14                                      | R4631/2   |
|                                     | 12.80                       | 0.5039                         | 76                   | 124                  | 45                   | 14                                      | R46312.8  |
|                                     | 13.00                       | 0.5118                         | 76                   | 124                  | 45                   | 14                                      | R46313.0  |
| 33/64                               | 13.10                       | 0.5156                         | 76                   | 124                  | 45                   | 14                                      | R46333/64 |
|                                     | 13.30                       | 0.5236                         | 76                   | 124                  | 45                   | 14                                      | R46313.3  |
| 17/32                               | 13.49                       | 0.5313                         | 76                   | 124                  | 45                   | 14                                      | R46317/32 |
|                                     | 13.50                       | 0.5315                         | 76                   | 124                  | 45                   | 14                                      | R46313.5  |
|                                     | 13.80                       | 0.5433                         | 76                   | 124                  | 45                   | 14                                      | R46313.8  |
| 35/64                               | 13.89                       | 0.5469                         | 76                   | 124                  | 45                   | 14                                      | R46335/64 |
|                                     | 14.00                       | 0.5512                         | 76                   | 124                  | 45                   | 14                                      | R46314.0  |
|                                     | 14.25                       | 0.5610                         | 82                   | 133                  | 48                   | 16                                      | R46314.25 |
| 9/16                                | 14.29                       | 0.5625                         | 82                   | 133                  | 48                   | 16                                      | R4639/16  |
|                                     | 14.50                       | 0.5709                         | 82                   | 133                  | 48                   | 16                                      | R46314.5  |
| 37/64                               | 14.68                       | 0.5781                         | 82                   | 133                  | 48                   | 16                                      | R46337/64 |
|                                     | 14.80                       | 0.5827                         | 82                   | 133                  | 48                   | 16                                      | R46314.8  |
|                                     | 15.00                       | 0.5906                         | 82                   | 133                  | 48                   | 16                                      | R46315.0  |
| 19/32                               | 15.08                       | 0.5938                         | 82                   | 133                  | 48                   | 16                                      | R46319/32 |
|                                     | 15.10                       | 0.5945                         | 82                   | 133                  | 48                   | 16                                      | R46315.1  |
|                                     | 15.30                       | 0.6024                         | 82                   | 133                  | 48                   | 16                                      | R46315.3  |
| 39/64                               | 15.48                       | 0.6094                         | 82                   | 133                  | 48                   | 16                                      | R46339/64 |
|                                     | 15.50                       | 0.6102                         | 82                   | 133                  | 48                   | 16                                      | R46315.5  |
|                                     | 15.80                       | 0.6220                         | 82                   | 133                  | 48                   | 16                                      | R46315.8  |
| 5/8                                 | 15.88                       | 0.6250                         | 82                   | 133                  | 48                   | 16                                      | R4635/8   |
|                                     | 16.00                       | 0.6299                         | 82                   | 133                  | 48                   | 16                                      | R46316.0  |





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