

## New Product Announcement

NEW-407 • 4/2025

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### HOLEMAKING

#### Diameter Range

3.0mm - 16.0mm in 0.1mm increments

(.1181" - .6299" in .0039" increments)

#### Length to Dia. Ratio

5xD pilot drills

16xD - 50xD

#### No. of Flutes

2

#### Carbide Grade

IN2005

#### Materials

- 5xD - ■ Steel  
■ Stainless Steel  
■ Non-Ferrous  
■ High-Temp Alloys
- 16xD-50xD - ■ Steel  
■ Stainless Steel  
■ High-Temp Alloys

#### Series:

##### DP 5xD

Drill Dia. Range: 3mm - 20mm

##### DHXL 16xD

Drill Dia. Range: 3mm - 16mm

##### DHXL 20xD

Drill Dia. Range: 3mm - 14mm

##### DHXL 25xD

Drill Dia. Range: 3mm - 12mm

##### DHXL 30xD

Drill Dia. Range: 3mm - 10mm

##### DHXL 40xD

Drill Dia. Range: 3mm - 8mm

##### DHXL 50xD

Drill Dia. Range: 4mm - 6.35mm

## DRILLIN<sup>®</sup> DHXL™



### New High Performance Solid Carbide Drills for Steel and Nickel Based Alloys

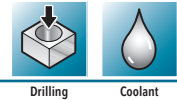
Ingersoll presents the new DHXL series of high-performance solid carbide drills, designed to enhance drilling efficiency and extend tool longevity in lengths ranging from 16xD to 50xD, specifically for steel and nickel-based alloy applications.

To accommodate the necessity of a pilot hole for these extended drills, Ingersoll is also launching a series of 5xD pilot drills. These pilot drills feature a 150-degree point geometry, single margins, and coolant-through capabilities, making them suitable for all material applications.

#### Features & Benefits:

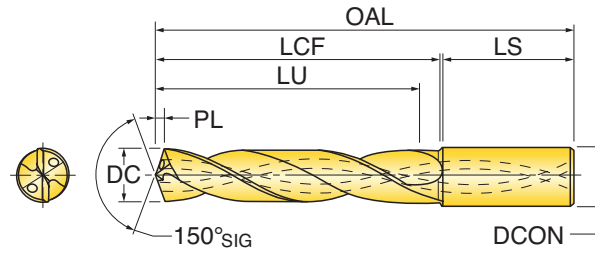
- » 135-degree split point geometry is employed to achieve superior drill penetration and accuracy
- » Double margin design enhances stability and straightness
- » Coolant through to keep the cutting edge cool and improve chip evacuation
- » Polished chip flutes ensure chip evacuation during deep hole drilling
- » Specialized coating provides lower friction and reduces tool wear and longer tool life while reducing the risk of chipping and cracking
- » No pecking required for deep hole drilling
- » For 40xD and 50xD drills, an intermediate 20xD drill is required

## PILOT 5xD



Drilling

Coolant



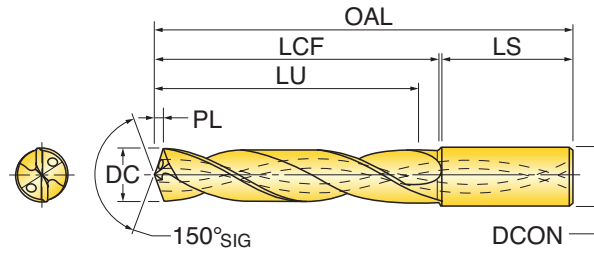
| Part Number    | DC Cutting Dia. (in) | DC Cutting Dia. (mm) | DC Cutting Dia. (fraction) | PL Point Length (mm) | LU Usable Length (mm) | LCF Chip Flute Length (mm) | LS Shank Length (mm) | OAL Overall Length (mm) | DCON Shank Dia. (mm) |
|----------------|----------------------|----------------------|----------------------------|----------------------|-----------------------|----------------------------|----------------------|-------------------------|----------------------|
| DP0300024T7R01 | 0.118                | 3.00                 |                            | 0.40                 | 23.50                 | 28                         | 38                   | 66                      | 6                    |
| DP0310023T7R01 | 0.122                | 3.10                 |                            | 0.41                 | 23.35                 | 28                         | 38                   | 66                      | 6                    |
| DP0318023T7R01 | 0.125                | 3.18                 | 1/8"                       | 0.42                 | 23.24                 | 28                         | 38                   | 66                      | 6                    |
| DP0320023T7R01 | 0.126                | 3.20                 |                            | 0.43                 | 23.20                 | 28                         | 38                   | 66                      | 6                    |
| DP0330023T7R01 | 0.130                | 3.30                 |                            | 0.44                 | 23.05                 | 28                         | 38                   | 66                      | 6                    |
| DP0340023T7R01 | 0.134                | 3.40                 |                            | 0.45                 | 22.90                 | 28                         | 38                   | 66                      | 6                    |
| DP0350023T7R01 | 0.138                | 3.50                 |                            | 0.47                 | 22.75                 | 28                         | 38                   | 66                      | 6                    |
| DP0357023T7R01 | 0.141                | 3.57                 | 9/64"                      | 0.48                 | 22.64                 | 28                         | 38                   | 66                      | 6                    |
| DP0360023T7R01 | 0.142                | 3.60                 |                            | 0.48                 | 22.60                 | 28                         | 38                   | 66                      | 6                    |
| DP0370022T7R01 | 0.146                | 3.70                 |                            | 0.50                 | 22.45                 | 28                         | 38                   | 66                      | 6                    |
| DP0380030T7R01 | 0.150                | 3.80                 |                            | 0.51                 | 30.30                 | 36                         | 38                   | 74                      | 6                    |
| DP0390030T7R01 | 0.154                | 3.90                 |                            | 0.52                 | 30.15                 | 36                         | 38                   | 74                      | 6                    |
| DP0397030T7R01 | 0.156                | 3.97                 | 5/32"                      | 0.53                 | 30.05                 | 36                         | 38                   | 74                      | 6                    |
| DP0400030T7R01 | 0.158                | 4.00                 |                            | 0.54                 | 30.00                 | 36                         | 38                   | 74                      | 6                    |
| DP0410030T7R01 | 0.161                | 4.10                 |                            | 0.55                 | 29.85                 | 36                         | 38                   | 74                      | 6                    |
| DP0420030T7R01 | 0.165                | 4.20                 |                            | 0.56                 | 29.70                 | 36                         | 38                   | 74                      | 6                    |
| DP0430030T7R01 | 0.169                | 4.30                 |                            | 0.58                 | 29.55                 | 36                         | 38                   | 74                      | 6                    |
| DP0437029T7R01 | 0.172                | 4.37                 | 11/64"                     | 0.58                 | 29.45                 | 36                         | 38                   | 74                      | 6                    |
| DP0440029T7R01 | 0.173                | 4.40                 |                            | 0.59                 | 29.40                 | 36                         | 38                   | 74                      | 6                    |
| DP0450029T7R01 | 0.177                | 4.50                 |                            | 0.60                 | 29.25                 | 36                         | 38                   | 74                      | 6                    |
| DP0460029T7R01 | 0.181                | 4.60                 |                            | 0.62                 | 29.10                 | 36                         | 38                   | 74                      | 6                    |
| DP0465029T7R01 | 0.183                | 4.65                 |                            | 0.62                 | 29.02                 | 36                         | 38                   | 74                      | 6                    |
| DP0470029T7R01 | 0.185                | 4.70                 |                            | 0.63                 | 28.95                 | 36                         | 38                   | 74                      | 6                    |
| DP0476037T7R01 | 0.188                | 4.76                 | 3/16"                      | 0.64                 | 36.86                 | 44                         | 38                   | 82                      | 6                    |
| DP0480037T7R01 | 0.189                | 4.80                 |                            | 0.64                 | 36.80                 | 44                         | 38                   | 82                      | 6                    |
| DP0490037T7R01 | 0.193                | 4.90                 |                            | 0.66                 | 36.65                 | 44                         | 38                   | 82                      | 6                    |
| DP0500036T7R01 | 0.197                | 5.00                 |                            | 0.67                 | 36.50                 | 44                         | 38                   | 82                      | 6                    |
| DP0510036T7R01 | 0.201                | 5.10                 |                            | 0.68                 | 36.35                 | 44                         | 38                   | 82                      | 6                    |
| DP0516036T7R01 | 0.203                | 5.16                 | 13/64"                     | 0.69                 | 36.26                 | 44                         | 38                   | 82                      | 6                    |
| DP0518036T7R01 | 0.204                | 5.18                 |                            | 0.69                 | 36.23                 | 44                         | 38                   | 82                      | 6                    |
| DP0520036T7R01 | 0.205                | 5.20                 |                            | 0.70                 | 36.20                 | 44                         | 38                   | 82                      | 6                    |
| DP0530036T7R01 | 0.209                | 5.30                 |                            | 0.71                 | 36.05                 | 44                         | 38                   | 82                      | 6                    |
| DP0540036T7R01 | 0.213                | 5.40                 |                            | 0.72                 | 35.90                 | 44                         | 38                   | 82                      | 6                    |

## PILOT 5xD (continued)



Drilling

Coolant



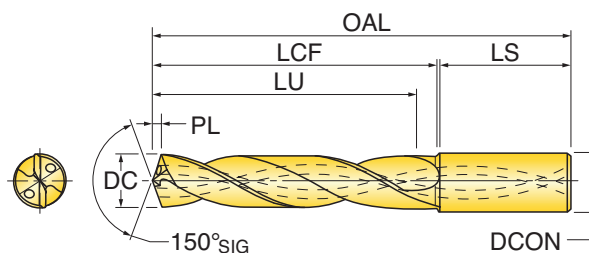
| Part Number    | DC<br>Cutting<br>Dia.<br>(in) | DC<br>Cutting<br>Dia.<br>(mm) | DC<br>Cutting<br>Dia.<br>(fraction) | PL<br>Point<br>Length<br>(mm) | LU<br>Usable<br>Length<br>(mm) | LCF<br>Chip Flute<br>Length<br>(mm) | LS<br>Shank<br>Length<br>(mm) | OAL<br>Overall<br>Length<br>(mm) | DCON<br>Shank<br>Dia.<br>(mm) |
|----------------|-------------------------------|-------------------------------|-------------------------------------|-------------------------------|--------------------------------|-------------------------------------|-------------------------------|----------------------------------|-------------------------------|
| DP0550036T7R01 | 0.217                         | 5.50                          |                                     | 0.74                          | 35.75                          | 44                                  | 38                            | 82                               | 6                             |
| DP0555036T7R01 | 0.219                         | 5.55                          |                                     | 0.74                          | 35.68                          | 44                                  | 38                            | 82                               | 6                             |
| DP0556036T7R01 | 0.219                         | 5.55                          | 7/32"                               | 0.74                          | 35.67                          | 44                                  | 38                            | 82                               | 6                             |
| DP0560036T7R01 | 0.221                         | 5.60                          |                                     | 0.75                          | 35.60                          | 44                                  | 38                            | 82                               | 6                             |
| DP0570035T7R01 | 0.224                         | 5.70                          |                                     | 0.76                          | 35.45                          | 44                                  | 38                            | 82                               | 6                             |
| DP0580035T7R01 | 0.228                         | 5.80                          |                                     | 0.78                          | 35.30                          | 44                                  | 38                            | 82                               | 6                             |
| DP0590035T7R01 | 0.232                         | 5.90                          |                                     | 0.79                          | 35.15                          | 44                                  | 38                            | 82                               | 6                             |
| DP0595035T7R01 | 0.234                         | 5.95                          | 15/64"                              | 0.80                          | 35.07                          | 44                                  | 38                            | 82                               | 6                             |
| DP0600035T0R01 | 0.236                         | 6.00                          |                                     | 0.80                          | 35.00                          | 44                                  | 38                            | 82                               | 8                             |
| DP0610044T0R01 | 0.240                         | 6.10                          |                                     | 0.82                          | 43.85                          | 53                                  | 38                            | 91                               | 8                             |
| DP0620044T0R01 | 0.244                         | 6.20                          |                                     | 0.83                          | 43.70                          | 53                                  | 38                            | 91                               | 8                             |
| DP0630044T0R01 | 0.248                         | 6.30                          |                                     | 0.84                          | 43.55                          | 53                                  | 38                            | 91                               | 8                             |
| DP0635043T0R01 | 0.250                         | 6.35                          | 1/4"                                | 0.85                          | 43.47                          | 53                                  | 38                            | 91                               | 8                             |
| DP0640043T0R01 | 0.252                         | 6.40                          |                                     | 0.86                          | 43.40                          | 53                                  | 38                            | 91                               | 8                             |
| DP0650043T0R01 | 0.256                         | 6.50                          |                                     | 0.87                          | 43.25                          | 53                                  | 38                            | 91                               | 8                             |
| DP0660043T0R01 | 0.260                         | 6.60                          |                                     | 0.88                          | 43.10                          | 53                                  | 38                            | 91                               | 8                             |
| DP0670043T0R01 | 0.264                         | 6.70                          |                                     | 0.90                          | 42.95                          | 53                                  | 38                            | 91                               | 8                             |
| DP0675043T0R01 | 0.266                         | 6.75                          | 17/64"                              | 0.90                          | 42.88                          | 53                                  | 38                            | 91                               | 8                             |
| DP0680043T0R01 | 0.268                         | 6.80                          |                                     | 0.91                          | 42.80                          | 53                                  | 38                            | 91                               | 8                             |
| DP0690043T0R01 | 0.272                         | 6.90                          |                                     | 0.92                          | 42.65                          | 53                                  | 38                            | 91                               | 8                             |
| DP0700042T0R01 | 0.276                         | 7.00                          |                                     | 0.94                          | 42.50                          | 53                                  | 38                            | 91                               | 8                             |
| DP0710042T0R01 | 0.280                         | 7.10                          |                                     | 0.95                          | 42.35                          | 53                                  | 38                            | 91                               | 8                             |
| DP0715042T0R01 | 0.281                         | 7.15                          | 9/32"                               | 0.96                          | 42.28                          | 53                                  | 38                            | 91                               | 8                             |
| DP0720042T0R01 | 0.284                         | 7.20                          |                                     | 0.97                          | 42.20                          | 53                                  | 38                            | 91                               | 8                             |
| DP0730042T0R01 | 0.287                         | 7.30                          |                                     | 0.98                          | 42.05                          | 53                                  | 38                            | 91                               | 8                             |
| DP0740042T0R01 | 0.291                         | 7.40                          |                                     | 0.99                          | 41.90                          | 53                                  | 38                            | 91                               | 8                             |
| DP0750042T0R01 | 0.295                         | 7.50                          |                                     | 1.01                          | 41.75                          | 53                                  | 38                            | 91                               | 8                             |
| DP0754042T0R01 | 0.297                         | 7.54                          | 19/64"                              | 1.01                          | 41.69                          | 53                                  | 38                            | 91                               | 8                             |
| DP0770041T0R01 | 0.303                         | 7.70                          |                                     | 1.03                          | 41.45                          | 53                                  | 38                            | 91                               | 8                             |
| DP0780041T0R01 | 0.307                         | 7.80                          |                                     | 1.04                          | 41.30                          | 53                                  | 38                            | 91                               | 8                             |
| DP0790041T0R01 | 0.311                         | 7.90                          |                                     | 1.06                          | 41.15                          | 53                                  | 38                            | 91                               | 8                             |
| DP0794041T0R01 | 0.313                         | 7.94                          | 5/16"                               | 1.06                          | 41.09                          | 53                                  | 38                            | 91                               | 8                             |
| DP0800041T1R01 | 0.315                         | 8.00                          |                                     | 1.07                          | 41.00                          | 53                                  | 38                            | 91                               | 10                            |
| DP0810049T1R01 | 0.319                         | 8.10                          |                                     | 1.08                          | 48.85                          | 61                                  | 42                            | 103                              | 10                            |

## PILOT 5xD (continued)



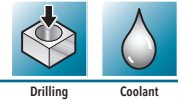
Drilling

Coolant



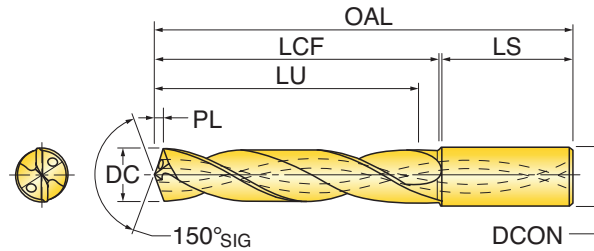
| Part Number    | DC Cutting Dia. (in) | DC Cutting Dia. (mm) | DC Cutting Dia. (fraction) | PL Point Length (mm) | LU Usable Length (mm) | LCF Chip Flute Length (mm) | LS Shank Length (mm) | OAL Overall Length (mm) | DCON Shank Dia. (mm) |
|----------------|----------------------|----------------------|----------------------------|----------------------|-----------------------|----------------------------|----------------------|-------------------------|----------------------|
| DP0810049T1R01 | 0.319                | 8.10                 |                            | 1.08                 | 48.85                 | 61                         | 42                   | 103                     | 10                   |
| DP0820049T1R01 | 0.323                | 8.20                 |                            | 1.10                 | 48.70                 | 61                         | 42                   | 103                     | 10                   |
| DP0830049T1R01 | 0.327                | 8.30                 |                            | 1.11                 | 48.55                 | 61                         | 42                   | 103                     | 10                   |
| DP0833049T1R01 | 0.328                | 8.33                 | 21/64"                     | 1.12                 | 48.50                 | 61                         | 42                   | 103                     | 10                   |
| DP0840048T1R01 | 0.331                | 8.40                 |                            | 1.13                 | 48.40                 | 61                         | 42                   | 103                     | 10                   |
| DP0850048T1R01 | 0.335                | 8.50                 |                            | 1.14                 | 48.25                 | 61                         | 42                   | 103                     | 10                   |
| DP0860048T1R01 | 0.339                | 8.60                 |                            | 1.15                 | 48.10                 | 61                         | 42                   | 103                     | 10                   |
| DP0870048T1R01 | 0.343                | 8.70                 |                            | 1.17                 | 47.95                 | 61                         | 42                   | 103                     | 10                   |
| DP0873048T1R01 | 0.344                | 8.73                 | 11/32"                     | 1.17                 | 47.91                 | 61                         | 42                   | 103                     | 10                   |
| DP0880048T1R01 | 0.347                | 8.80                 |                            | 1.18                 | 47.80                 | 61                         | 42                   | 103                     | 10                   |
| DP0900048T1R01 | 0.354                | 9.00                 |                            | 1.21                 | 47.50                 | 61                         | 42                   | 103                     | 10                   |
| DP0913047T1R01 | 0.359                | 9.13                 | 23/64"                     | 1.22                 | 47.31                 | 61                         | 42                   | 103                     | 10                   |
| DP0920047T1R01 | 0.362                | 9.20                 |                            | 1.23                 | 47.20                 | 61                         | 42                   | 103                     | 10                   |
| DP0930047T1R01 | 0.366                | 9.30                 |                            | 1.24                 | 47.05                 | 61                         | 42                   | 103                     | 10                   |
| DP0950047T1R01 | 0.374                | 9.50                 |                            | 1.27                 | 46.75                 | 61                         | 42                   | 103                     | 10                   |
| DP0953047T1R01 | 0.375                | 9.53                 | 3/8"                       | 1.28                 | 46.71                 | 61                         | 42                   | 103                     | 10                   |
| DP0960047T1R01 | 0.378                | 9.60                 |                            | 1.29                 | 46.60                 | 61                         | 42                   | 103                     | 10                   |
| DP0980046T1R01 | 0.386                | 9.80                 |                            | 1.31                 | 46.30                 | 61                         | 42                   | 103                     | 10                   |
| DP0990046T1R01 | 0.390                | 9.90                 |                            | 1.33                 | 46.15                 | 61                         | 42                   | 103                     | 10                   |
| DP0992046T1R01 | 0.391                | 9.92                 | 25/64"                     | 1.33                 | 46.12                 | 61                         | 42                   | 103                     | 10                   |
| DP1000046T2R01 | 0.394                | 10.00                |                            | 1.34                 | 46.00                 | 61                         | 42                   | 103                     | 12                   |
| DP1010056T2R01 | 0.398                | 10.10                |                            | 1.35                 | 55.85                 | 71                         | 47                   | 118                     | 12                   |
| DP1020056T2R01 | 0.402                | 10.20                |                            | 1.37                 | 55.70                 | 71                         | 47                   | 118                     | 12                   |
| DP1030056T2R01 | 0.406                | 10.30                |                            | 1.38                 | 55.55                 | 71                         | 47                   | 118                     | 12                   |
| DP1032056T2R01 | 0.406                | 10.32                | 13/32"                     | 1.38                 | 55.52                 | 71                         | 47                   | 118                     | 12                   |
| DP1040055T2R01 | 0.409                | 10.40                |                            | 1.39                 | 55.40                 | 71                         | 47                   | 118                     | 12                   |
| DP1050055T2R01 | 0.413                | 10.50                |                            | 1.41                 | 55.25                 | 71                         | 47                   | 118                     | 12                   |
| DP1072055T2R01 | 0.422                | 10.72                | 27/64"                     | 1.44                 | 54.93                 | 71                         | 47                   | 118                     | 12                   |
| DP1080055T2R01 | 0.425                | 10.80                |                            | 1.45                 | 54.80                 | 71                         | 47                   | 118                     | 12                   |
| DP1100055T2R01 | 0.433                | 11.00                |                            | 1.47                 | 54.50                 | 71                         | 47                   | 118                     | 12                   |
| DP1110054T2R01 | 0.437                | 11.10                |                            | 1.49                 | 54.35                 | 71                         | 47                   | 118                     | 12                   |
| DP1111054T2R01 | 0.438                | 11.11                | 7/16"                      | 1.49                 | 54.33                 | 71                         | 47                   | 118                     | 12                   |
| DP1120054T2R01 | 0.441                | 11.20                |                            | 1.50                 | 54.20                 | 71                         | 47                   | 118                     | 12                   |

## PILOT 5xD (continued)



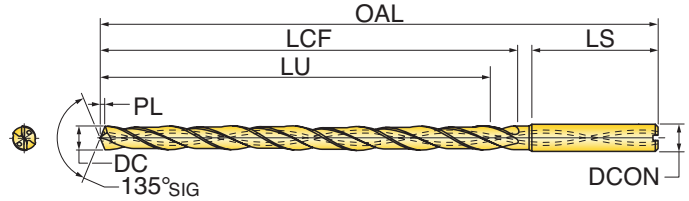
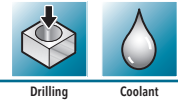
Drilling

Coolant



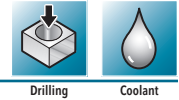
| Part Number    | DC Cutting Dia. (in) | DC Cutting Dia. (mm) | DC Cutting Dia. (fraction) | PL Point Length (mm) | LU Usable Length (mm) | LCF Chip Flute Length (mm) | LS Shank Length (mm) | OAL Overall Length (mm) | DCON Shank Dia. (mm) |
|----------------|----------------------|----------------------|----------------------------|----------------------|-----------------------|----------------------------|----------------------|-------------------------|----------------------|
| DP1150054T2R01 | 0.453                | 11.50                |                            | 1.54                 | 53.75                 | 71                         | 47                   | 118                     | 12                   |
| DP1151054T2R01 | 0.453                | 11.51                | 29/64"                     | 1.54                 | 53.74                 | 71                         | 47                   | 118                     | 12                   |
| DP1170053T2R01 | 0.461                | 11.70                |                            | 1.57                 | 53.45                 | 71                         | 47                   | 118                     | 12                   |
| DP1180053T2R01 | 0.465                | 11.80                |                            | 1.58                 | 53.30                 | 71                         | 47                   | 118                     | 12                   |
| DP1190053T2R01 | 0.469                | 11.90                | 15/32"                     | 1.60                 | 53.14                 | 71                         | 47                   | 118                     | 12                   |
| DP1200053T2R01 | 0.472                | 12.00                |                            | 1.61                 | 53.00                 | 71                         | 47                   | 118                     | 12                   |
| DP1210059U8R01 | 0.476                | 12.10                |                            | 1.62                 | 58.85                 | 77                         | 47                   | 124                     | 14                   |
| DP1220059U8R01 | 0.480                | 12.20                |                            | 1.63                 | 58.70                 | 77                         | 47                   | 124                     | 14                   |
| DP1230059U8R01 | 0.484                | 12.30                |                            | 1.65                 | 58.55                 | 77                         | 47                   | 124                     | 14                   |
| DP1231059U8R01 | 0.484                | 12.30                | 31/64"                     | 1.65                 | 58.54                 | 77                         | 47                   | 124                     | 14                   |
| DP1250058U8R01 | 0.492                | 12.50                |                            | 1.67                 | 58.25                 | 77                         | 47                   | 124                     | 14                   |
| DP1260058U8R01 | 0.496                | 12.60                |                            | 1.69                 | 58.10                 | 77                         | 47                   | 124                     | 14                   |
| DP1270058U8R01 | 0.500                | 12.70                | 1/2"                       | 1.70                 | 57.95                 | 77                         | 47                   | 124                     | 14                   |
| DP1300058U8R01 | 0.512                | 13.00                |                            | 1.74                 | 57.50                 | 77                         | 47                   | 124                     | 14                   |
| DP1330057U8R01 | 0.524                | 13.30                |                            | 1.78                 | 57.05                 | 77                         | 47                   | 124                     | 14                   |
| DP1349057U8R01 | 0.531                | 13.50                | 17/32"                     | 1.81                 | 56.76                 | 77                         | 47                   | 124                     | 14                   |
| DP1350057U8R01 | 0.532                | 13.50                |                            | 1.81                 | 56.75                 | 77                         | 47                   | 124                     | 14                   |
| DP1400056U8R01 | 0.551                | 14.00                |                            | 1.87                 | 56.00                 | 77                         | 47                   | 124                     | 14                   |
| DP1429062T3R01 | 0.563                | 14.29                | 9/16"                      | 1.92                 | 61.57                 | 83                         | 50                   | 133                     | 16                   |
| DP1450061T3R01 | 0.571                | 14.50                |                            | 1.94                 | 61.25                 | 83                         | 50                   | 133                     | 16                   |
| DP1500060T3R01 | 0.591                | 15.00                |                            | 2.01                 | 60.50                 | 83                         | 50                   | 133                     | 16                   |
| DP1550060T3R01 | 0.610                | 15.50                |                            | 2.08                 | 59.75                 | 83                         | 50                   | 133                     | 16                   |
| DP1588059T3R01 | 0.625                | 15.88                | 5/8"                       | 2.13                 | 59.19                 | 83                         | 50                   | 133                     | 16                   |
| DP1600059T3R01 | 0.630                | 16.00                |                            | 2.14                 | 59.00                 | 83                         | 50                   | 133                     | 16                   |
| DP1650068U2R01 | 0.650                | 16.50                |                            | 2.21                 | 68.25                 | 93                         | 50                   | 143                     | 18                   |
| DP1700068U2R01 | 0.669                | 17.00                |                            | 2.28                 | 67.50                 | 93                         | 50                   | 143                     | 18                   |
| DP1750067U2R01 | 0.689                | 17.50                |                            | 2.34                 | 66.75                 | 93                         | 50                   | 143                     | 18                   |
| DP1800066U2R01 | 0.709                | 18.00                |                            | 2.41                 | 66.00                 | 93                         | 50                   | 143                     | 18                   |
| DP1850073T4R01 | 0.728                | 18.50                |                            | 2.48                 | 73.25                 | 101                        | 52                   | 153                     | 20                   |
| DP1905072T4R01 | 0.750                | 19.05                | 3/4"                       | 2.55                 | 72.43                 | 101                        | 52                   | 153                     | 20                   |
| DP1950072T4R01 | 0.768                | 19.50                |                            | 2.61                 | 71.75                 | 101                        | 52                   | 153                     | 20                   |
| DP2000071T4R01 | 0.787                | 20.00                |                            | 2.68                 | 71.00                 | 101                        | 52                   | 153                     | 20                   |

## DHXL 16xD



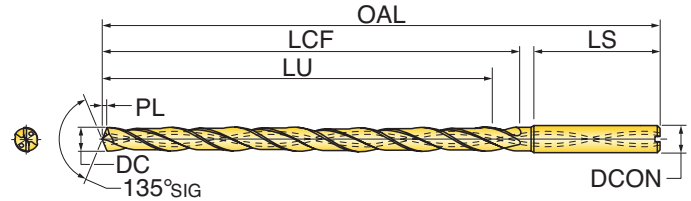
| Part Number      | DC Cutting Dia. (in) | DC Cutting Dia. (mm) | DC Cutting Dia. (fraction) | PL Point Length (mm) | LU Usable Length (mm) | LCF Chip Flute Length (mm) | LS Shank Length (mm) | OAL Overall Length (mm) | DCON Shank Dia. (mm) |
|------------------|----------------------|----------------------|----------------------------|----------------------|-----------------------|----------------------------|----------------------|-------------------------|----------------------|
| DHXL0300056T7R01 | 0.118                | 3.00                 |                            | 0.62                 | 55.50                 | 60                         | 40                   | 100                     | 6                    |
| DHXL0318055T7R01 | 0.125                | 3.18                 | 1/8"                       | 0.66                 | 55.24                 | 60                         | 40                   | 100                     | 6                    |
| DHXL0320055T7R01 | 0.126                | 3.20                 |                            | 0.66                 | 55.20                 | 60                         | 40                   | 100                     | 6                    |
| DHXL0330055T7R01 | 0.130                | 3.30                 |                            | 0.68                 | 55.05                 | 60                         | 40                   | 100                     | 6                    |
| DHXL0350055T7R01 | 0.138                | 3.50                 |                            | 0.72                 | 54.75                 | 60                         | 40                   | 100                     | 6                    |
| DHXL0357070T7R01 | 0.141                | 3.57                 | 9/64"                      | 0.74                 | 69.64                 | 75                         | 40                   | 115                     | 6                    |
| DHXL0380069T7R01 | 0.150                | 3.80                 |                            | 0.79                 | 69.30                 | 75                         | 40                   | 115                     | 6                    |
| DHXL0397069T7R01 | 0.156                | 3.97                 | 5/32"                      | 0.82                 | 69.05                 | 75                         | 40                   | 115                     | 6                    |
| DHXL0400069T7R01 | 0.158                | 4.00                 |                            | 0.83                 | 69.00                 | 75                         | 40                   | 115                     | 6                    |
| DHXL0410069T7R01 | 0.161                | 4.10                 |                            | 0.85                 | 68.86                 | 75                         | 40                   | 115                     | 6                    |
| DHXL0420069T7R01 | 0.165                | 4.20                 |                            | 0.87                 | 68.70                 | 75                         | 40                   | 115                     | 6                    |
| DHXL0437083T7R01 | 0.172                | 4.37                 | 11/64"                     | 0.90                 | 83.45                 | 90                         | 40                   | 130                     | 6                    |
| DHXL0450083T7R01 | 0.177                | 4.50                 |                            | 0.93                 | 83.25                 | 90                         | 40                   | 130                     | 6                    |
| DHXL0470083T7R01 | 0.185                | 4.70                 |                            | 0.97                 | 82.95                 | 90                         | 40                   | 130                     | 6                    |
| DHXL0476083T7R01 | 0.188                | 4.76                 | 3/16"                      | 0.99                 | 82.86                 | 90                         | 40                   | 130                     | 6                    |
| DHXL0480083T7R01 | 0.189                | 4.80                 |                            | 0.99                 | 82.80                 | 90                         | 40                   | 130                     | 6                    |
| DHXL0500082T7R01 | 0.197                | 5.00                 |                            | 1.04                 | 82.50                 | 90                         | 40                   | 130                     | 6                    |
| DHXL0516100T7R01 | 0.203                | 5.16                 | 13/64"                     | 1.07                 | 100.26                | 108                        | 42                   | 150                     | 6                    |
| DHXL0518100T7R01 | 0.204                | 5.18                 |                            | 1.07                 | 100.23                | 108                        | 42                   | 150                     | 6                    |
| DHXL0550100T7R01 | 0.217                | 5.50                 |                            | 1.14                 | 99.75                 | 108                        | 42                   | 150                     | 6                    |
| DHXL0556100T7R01 | 0.219                | 5.55                 | 7/32"                      | 1.15                 | 99.67                 | 108                        | 42                   | 150                     | 6                    |
| DHXL0580099T7R01 | 0.228                | 5.80                 |                            | 1.20                 | 99.30                 | 108                        | 42                   | 150                     | 6                    |
| DHXL0595099T7R01 | 0.234                | 5.95                 | 15/64"                     | 1.23                 | 99.07                 | 108                        | 42                   | 150                     | 6                    |
| DHXL0600099T7R01 | 0.236                | 6.00                 |                            | 1.24                 | 99.00                 | 108                        | 42                   | 150                     | 6                    |
| DHXL0635115T0R01 | 0.250                | 6.35                 | 1/4"                       | 1.32                 | 115.48                | 125                        | 40                   | 165                     | 8                    |
| DHXL0650115T0R01 | 0.256                | 6.50                 |                            | 1.35                 | 115.25                | 125                        | 40                   | 165                     | 8                    |
| DHXL0675115T0R01 | 0.266                | 6.75                 | 17/64"                     | 1.40                 | 114.88                | 125                        | 40                   | 165                     | 8                    |
| DHXL0680115T0R01 | 0.268                | 6.80                 |                            | 1.41                 | 114.80                | 125                        | 40                   | 165                     | 8                    |
| DHXL0700115T0R01 | 0.276                | 7.00                 |                            | 1.45                 | 114.50                | 125                        | 40                   | 165                     | 8                    |
| DHXL0715129T0R01 | 0.281                | 7.15                 | 9/32"                      | 1.48                 | 129.28                | 140                        | 40                   | 180                     | 8                    |
| DHXL0750129T0R01 | 0.295                | 7.50                 |                            | 1.55                 | 128.75                | 140                        | 40                   | 180                     | 8                    |
| DHXL0754129T0R01 | 0.297                | 7.54                 | 19/64"                     | 1.56                 | 128.69                | 140                        | 40                   | 180                     | 8                    |
| DHXL0780128T0R01 | 0.307                | 7.80                 |                            | 1.62                 | 128.30                | 140                        | 40                   | 180                     | 8                    |

## DHXL 16xD (continued)



Drilling

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| Part Number      | DC Cutting Dia. (in) | DC Cutting Dia. (mm) | DC Cutting Dia. (fraction) | PL Point Length (mm) | LU Usable Length (mm) | LCF Chip Flute Length (mm) | LS Shank Length (mm) | OAL Overall Length (mm) | DCON Shank Dia. (mm) |
|------------------|----------------------|----------------------|----------------------------|----------------------|-----------------------|----------------------------|----------------------|-------------------------|----------------------|
| DHXL0794128TOR01 | 0.313                | 7.94                 | 5/16"                      | 1.64                 | 128.09                | 140                        | 40                   | 180                     | 8                    |
| DHXL0800128TOR01 | 0.315                | 8.00                 |                            | 1.66                 | 128.00                | 140                        | 40                   | 180                     | 8                    |
| DHXL0833148T1R01 | 0.328                | 8.33                 | 21/64"                     | 1.73                 | 147.50                | 160                        | 45                   | 205                     | 10                   |
| DHXL0850147T1R01 | 0.335                | 8.50                 |                            | 1.76                 | 147.25                | 160                        | 45                   | 205                     | 10                   |
| DHXL0873147T1R01 | 0.344                | 8.73                 | 11/32"                     | 1.81                 | 146.91                | 160                        | 45                   | 205                     | 10                   |
| DHXL0880147T1R01 | 0.347                | 8.80                 |                            | 1.82                 | 146.80                | 160                        | 45                   | 205                     | 10                   |
| DHXL0900147T1R01 | 0.354                | 9.00                 |                            | 1.86                 | 146.50                | 160                        | 45                   | 205                     | 10                   |
| DHXL0913166T1R01 | 0.359                | 9.13                 | 23/64"                     | 1.89                 | 166.31                | 180                        | 45                   | 225                     | 10                   |
| DHXL0953166T1R01 | 0.375                | 9.53                 |                            | 1.97                 | 165.71                | 180                        | 45                   | 225                     | 10                   |
| DHXL0980165T1R01 | 0.386                | 9.80                 |                            | 2.03                 | 165.30                | 180                        | 45                   | 225                     | 10                   |
| DHXL0992165T1R01 | 0.391                | 9.92                 | 25/64"                     | 2.05                 | 165.12                | 180                        | 45                   | 225                     | 10                   |
| DHXL1000165T1R01 | 0.394                | 10.00                |                            | 2.07                 | 165.00                | 180                        | 45                   | 225                     | 10                   |
| DHXL1020175T2R01 | 0.402                | 10.20                |                            | 2.11                 | 174.70                | 190                        | 50                   | 240                     | 12                   |
| DHXL1032175T2R01 | 0.406                | 10.32                | 13/32"                     | 2.14                 | 174.52                | 190                        | 50                   | 240                     | 12                   |
| DHXL1072174T2R01 | 0.422                | 10.72                | 27/64"                     | 2.22                 | 173.93                | 190                        | 50                   | 240                     | 12                   |
| DHXL1080174T2R01 | 0.425                | 10.80                |                            | 2.24                 | 173.80                | 190                        | 50                   | 240                     | 12                   |
| DHXL1100173T2R01 | 0.433                | 11.00                |                            | 2.28                 | 173.50                | 190                        | 50                   | 240                     | 12                   |
| DHXL1111198T2R01 | 0.438                | 11.11                | 7/16"                      | 2.30                 | 198.33                | 215                        | 50                   | 265                     | 12                   |
| DHXL1150198T2R01 | 0.453                | 11.50                |                            | 2.38                 | 197.75                | 215                        | 50                   | 265                     | 12                   |
| DHXL1151198T2R01 | 0.453                | 11.51                | 29/64"                     | 2.38                 | 197.74                | 215                        | 50                   | 265                     | 12                   |
| DHXL1191197T2R01 | 0.469                | 11.90                | 15/32"                     | 2.47                 | 197.14                | 215                        | 50                   | 265                     | 12                   |
| DHXL1200197T2R01 | 0.472                | 12.00                |                            | 2.48                 | 197.00                | 215                        | 50                   | 265                     | 12                   |
| DHXL1230212U8R01 | 0.484                | 12.30                |                            | 2.55                 | 211.55                | 230                        | 50                   | 280                     | 14                   |
| DHXL1231212U8R01 | 0.484                | 12.30                | 31/64"                     | 2.55                 | 211.54                | 230                        | 50                   | 280                     | 14                   |
| DHXL1270211U8R01 | 0.500                | 12.70                | 1/2"                       | 2.63                 | 210.95                | 230                        | 50                   | 280                     | 14                   |
| DHXL1300211U8R01 | 0.512                | 13.00                |                            | 2.69                 | 210.50                | 230                        | 50                   | 280                     | 14                   |
| DHXL1330225U8R01 | 0.524                | 13.30                |                            | 2.75                 | 225.05                | 245                        | 50                   | 295                     | 14                   |
| DHXL1349225U8R01 | 0.531                | 13.50                | 17/32"                     | 2.79                 | 224.76                | 245                        | 50                   | 295                     | 14                   |
| DHXL1350225U8R01 | 0.532                | 13.50                |                            | 2.80                 | 224.75                | 245                        | 50                   | 295                     | 14                   |
| DHXL1400224U8R01 | 0.551                | 14.00                |                            | 2.90                 | 224.00                | 245                        | 50                   | 295                     | 14                   |
| DHXL1429234T3R01 | 0.563                | 14.29                | 9/16"                      | 2.96                 | 233.57                | 255                        | 50                   | 305                     | 16                   |
| DHXL1450233T3R01 | 0.571                | 14.50                |                            | 3.00                 | 233.25                | 255                        | 50                   | 305                     | 16                   |
| DHXL1500232T3R01 | 0.591                | 15.00                |                            | 3.11                 | 232.50                | 255                        | 50                   | 305                     | 16                   |

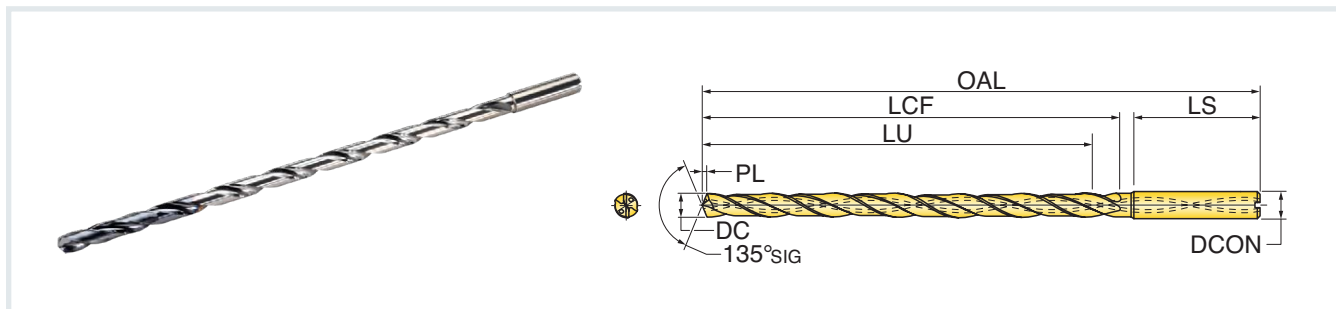
## DHXL 16xD (continued)



Drilling



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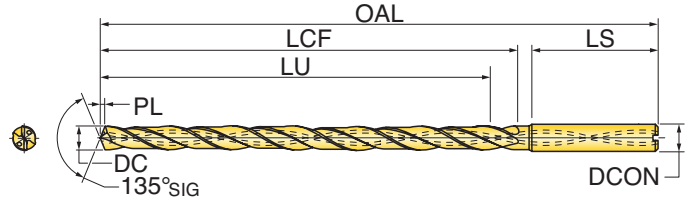
| Part Number      | DC<br>Cutting<br>Dia.<br>(in) | DC<br>Cutting<br>Dia.<br>(mm) | DC<br>Cutting<br>Dia.<br>(fraction) | PL<br>Point<br>Length<br>(mm) | LU<br>Usable<br>Length<br>(mm) | LCF<br>Chip Flute<br>Length<br>(mm) | LS<br>Shank<br>Length<br>(mm) | OAL<br>Overall<br>Length<br>(mm) | DCON<br>Shank<br>Dia.<br>(mm) |
|------------------|-------------------------------|-------------------------------|-------------------------------------|-------------------------------|--------------------------------|-------------------------------------|-------------------------------|----------------------------------|-------------------------------|
| DHXL1550252T3R01 | 0.610                         | 15.50                         |                                     | 3.21                          | 251.75                         | 275                                 | 50                            | 325                              | 16                            |
| DHXL1588251T3R01 | 0.625                         | 15.88                         | 5/8"                                | 3.29                          | 251.19                         | 275                                 | 50                            | 325                              | 16                            |
| DHXL1600251T3R01 | 0.630                         | 16.00                         |                                     | 3.31                          | 251.00                         | 275                                 | 50                            | 325                              | 16                            |

## DHXL 20xD



Drilling

Coolant



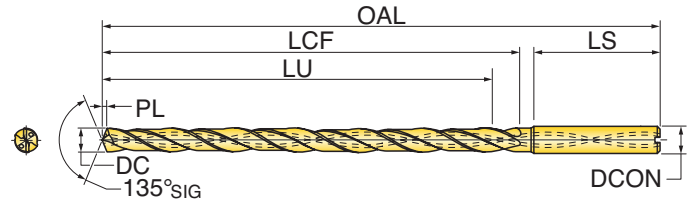
| Part Number      | DC Cutting Dia. (in) | DC Cutting Dia. (mm) | DC Cutting Dia. (fraction) | PL Point Length (mm) | LU Usable Length (mm) | LCF Chip Flute Length (mm) | LS Shank Length (mm) | OAL Overall Length (mm) | DCON Shank Dia. (mm) |
|------------------|----------------------|----------------------|----------------------------|----------------------|-----------------------|----------------------------|----------------------|-------------------------|----------------------|
| DHXL0300076T7R01 | 0.118                | 3.00                 |                            | 0.62                 | 75.50                 | 80                         | 40                   | 120                     | 6                    |
| DHXL0318075T7R01 | 0.125                | 3.18                 | 1/8"                       | 0.66                 | 75.24                 | 80                         | 40                   | 120                     | 6                    |
| DHXL0320075T7R01 | 0.126                | 3.20                 |                            | 0.66                 | 75.20                 | 80                         | 40                   | 120                     | 6                    |
| DHXL0330075T7R01 | 0.130                | 3.30                 |                            | 0.68                 | 75.05                 | 80                         | 40                   | 120                     | 6                    |
| DHXL0350075T7R01 | 0.138                | 3.50                 |                            | 0.72                 | 74.75                 | 80                         | 40                   | 120                     | 6                    |
| DHXL0357085T7R01 | 0.141                | 3.57                 | 9/64"                      | 0.74                 | 84.64                 | 90                         | 40                   | 130                     | 6                    |
| DHXL0380084T7R01 | 0.150                | 3.80                 |                            | 0.79                 | 84.30                 | 90                         | 40                   | 130                     | 6                    |
| DHXL0397084T7R01 | 0.156                | 3.97                 | 5/32"                      | 0.82                 | 84.05                 | 90                         | 40                   | 130                     | 6                    |
| DHXL0400084T7R01 | 0.158                | 4.00                 |                            | 0.83                 | 84.00                 | 90                         | 40                   | 130                     | 6                    |
| DHXL0420104T7R01 | 0.165                | 4.20                 |                            | 0.87                 | 103.70                | 110                        | 50                   | 160                     | 6                    |
| DHXL0437103T7R01 | 0.172                | 4.37                 | 11/64"                     | 0.90                 | 103.45                | 110                        | 50                   | 160                     | 6                    |
| DHXL0450103T7R01 | 0.177                | 4.50                 |                            | 0.93                 | 103.25                | 110                        | 50                   | 160                     | 6                    |
| DHXL0470113T7R01 | 0.185                | 4.70                 |                            | 0.97                 | 112.95                | 120                        | 40                   | 160                     | 6                    |
| DHXL0476113T7R01 | 0.188                | 4.76                 | 3/16"                      | 0.99                 | 112.86                | 120                        | 40                   | 160                     | 6                    |
| DHXL0480113T7R01 | 0.189                | 4.80                 |                            | 0.99                 | 112.80                | 120                        | 40                   | 160                     | 6                    |
| DHXL0500112T7R01 | 0.197                | 5.00                 |                            | 1.04                 | 112.50                | 120                        | 40                   | 160                     | 6                    |
| DHXL0516132T7R01 | 0.203                | 5.16                 | 13/64"                     | 1.07                 | 132.26                | 140                        | 45                   | 185                     | 6                    |
| DHXL0518132T7R01 | 0.204                | 5.18                 |                            | 1.07                 | 132.23                | 140                        | 45                   | 185                     | 6                    |
| DHXL0550132T7R01 | 0.217                | 5.50                 |                            | 1.14                 | 131.75                | 140                        | 45                   | 185                     | 6                    |
| DHXL0555132T7R01 | 0.219                | 5.55                 | 7/32"                      | 1.15                 | 131.67                | 140                        | 45                   | 185                     | 6                    |
| DHXL0580131T7R01 | 0.228                | 5.80                 |                            | 1.20                 | 131.30                | 140                        | 45                   | 185                     | 6                    |
| DHXL0595131T7R01 | 0.234                | 5.95                 | 15/64"                     | 1.23                 | 131.07                | 140                        | 45                   | 185                     | 6                    |
| DHXL0600131T7R01 | 0.236                | 6.00                 |                            | 1.24                 | 131.00                | 140                        | 45                   | 185                     | 6                    |
| DHXL0635150T0R01 | 0.250                | 6.35                 | 1/4"                       | 1.32                 | 150.47                | 160                        | 50                   | 210                     | 8                    |
| DHXL0650150T0R01 | 0.256                | 6.50                 |                            | 1.35                 | 150.25                | 160                        | 50                   | 210                     | 8                    |
| DHXL0675150T0R01 | 0.266                | 6.75                 | 17/64"                     | 1.40                 | 149.88                | 160                        | 50                   | 210                     | 8                    |
| DHXL0680150T0R01 | 0.268                | 6.80                 |                            | 1.41                 | 149.80                | 160                        | 50                   | 210                     | 8                    |
| DHXL0700149T0R01 | 0.276                | 7.00                 |                            | 1.45                 | 149.50                | 160                        | 50                   | 210                     | 8                    |
| DHXL0715169T0R01 | 0.281                | 7.15                 | 9/32"                      | 1.48                 | 169.28                | 180                        | 50                   | 230                     | 8                    |
| DHXL0750169T0R01 | 0.295                | 7.50                 |                            | 1.55                 | 168.75                | 180                        | 50                   | 230                     | 8                    |
| DHXL0754169T0R01 | 0.297                | 7.54                 | 19/64"                     | 1.56                 | 168.69                | 180                        | 50                   | 230                     | 8                    |
| DHXL0780168T0R01 | 0.307                | 7.80                 |                            | 1.62                 | 168.30                | 180                        | 50                   | 230                     | 8                    |
| DHXL0794168T0R01 | 0.313                | 7.94                 | 5/16"                      | 1.64                 | 168.09                | 180                        | 50                   | 230                     | 8                    |

## DHXL 20xD (continued)



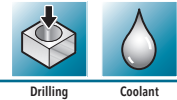
Drilling

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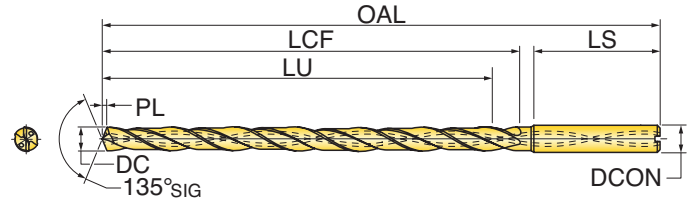
| Part Number      | DC Cutting Dia. (in) | DC Cutting Dia. (mm) | DC Cutting Dia. (fraction) | PL Point Length (mm) | LU Usable Length (mm) | LCF Chip Flute Length (mm) | LS Shank Length (mm) | OAL Overall Length (mm) | DCON Shank Dia. (mm) |
|------------------|----------------------|----------------------|----------------------------|----------------------|-----------------------|----------------------------|----------------------|-------------------------|----------------------|
| DHXL0800168T0R01 | 0.315                | 8.00                 |                            | 1.66                 | 168.00                | 180                        | 50                   | 230                     | 8                    |
| DHXL0833183T1R01 | 0.328                | 8.33                 | 21/64"                     | 1.73                 | 182.50                | 195                        | 65                   | 260                     | 10                   |
| DHXL0850182T1R01 | 0.335                | 8.50                 |                            | 1.76                 | 182.25                | 195                        | 65                   | 260                     | 10                   |
| DHXL0873217T1R01 | 0.344                | 8.73                 | 11/32"                     | 1.81                 | 216.91                | 230                        | 60                   | 290                     | 10                   |
| DHXL0880217T1R01 | 0.347                | 8.80                 |                            | 1.82                 | 216.80                | 230                        | 60                   | 290                     | 10                   |
| DHXL0900217T1R01 | 0.354                | 9.00                 |                            | 1.86                 | 216.50                | 230                        | 60                   | 290                     | 10                   |
| DHXL0913216T1R01 | 0.359                | 9.13                 | 23/64"                     | 1.89                 | 216.31                | 230                        | 60                   | 290                     | 10                   |
| DHXL0953216T1R01 | 0.375                | 9.53                 | 3/8"                       | 1.97                 | 215.71                | 230                        | 60                   | 290                     | 10                   |
| DHXL0980215T1R01 | 0.386                | 9.80                 |                            | 2.03                 | 215.30                | 230                        | 60                   | 290                     | 10                   |
| DHXL0992215T1R01 | 0.391                | 9.92                 | 25/64"                     | 2.05                 | 215.12                | 230                        | 60                   | 290                     | 10                   |
| DHXL1000215T1R01 | 0.394                | 10.00                |                            | 2.07                 | 215.00                | 230                        | 60                   | 290                     | 10                   |
| DHXL1020253T2R01 | 0.402                | 10.20                |                            | 2.11                 | 252.70                | 268                        | 47                   | 315                     | 12                   |
| DHXL1032253T2R01 | 0.406                | 10.32                | 13/32"                     | 2.14                 | 252.52                | 268                        | 47                   | 315                     | 12                   |
| DHXL1072252T2R01 | 0.422                | 10.72                | 27/64"                     | 2.22                 | 251.93                | 268                        | 47                   | 315                     | 12                   |
| DHXL1080252T2R01 | 0.425                | 10.80                |                            | 2.24                 | 251.80                | 268                        | 47                   | 315                     | 12                   |
| DHXL1100252T2R01 | 0.433                | 11.00                |                            | 2.28                 | 251.50                | 268                        | 47                   | 315                     | 12                   |
| DHXL1111251T2R01 | 0.438                | 11.11                | 7/16"                      | 2.30                 | 251.33                | 268                        | 47                   | 315                     | 12                   |
| DHXL1150251T2R01 | 0.453                | 11.50                |                            | 2.38                 | 250.75                | 268                        | 47                   | 315                     | 12                   |
| DHXL1151251T2R01 | 0.453                | 11.51                | 29/64"                     | 2.38                 | 250.74                | 268                        | 47                   | 315                     | 12                   |
| DHXL1190250T2R01 | 0.469                | 11.90                | 15/32"                     | 2.47                 | 250.14                | 268                        | 47                   | 315                     | 12                   |
| DHXL1200250T2R01 | 0.472                | 12.00                |                            | 2.48                 | 250.00                | 268                        | 47                   | 315                     | 12                   |
| DHXL1230262U8R01 | 0.484                | 12.30                |                            | 2.55                 | 261.55                | 280                        | 45                   | 325                     | 14                   |
| DHXL1231262U8R01 | 0.484                | 12.30                | 31/64"                     | 2.55                 | 261.54                | 280                        | 45                   | 325                     | 14                   |
| DHXL1270261U8R01 | 0.500                | 12.70                | 1/2"                       | 2.63                 | 260.95                | 280                        | 45                   | 325                     | 14                   |
| DHXL1300260U8R01 | 0.512                | 13.00                |                            | 2.69                 | 260.50                | 280                        | 45                   | 325                     | 14                   |
| DHXL1330285U8R01 | 0.524                | 13.30                |                            | 2.75                 | 285.05                | 305                        | 50                   | 355                     | 14                   |
| DHXL1349285U8R01 | 0.531                | 13.50                | 17/32"                     | 2.79                 | 284.76                | 305                        | 50                   | 355                     | 14                   |
| DHXL1350285U8R01 | 0.532                | 13.50                |                            | 2.80                 | 284.75                | 305                        | 50                   | 355                     | 14                   |
| DHXL1400284U8R01 | 0.551                | 14.00                |                            | 2.90                 | 284.00                | 305                        | 50                   | 355                     | 14                   |

## DHXL 25xD



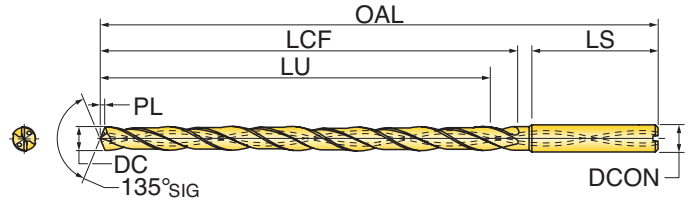
Drilling

Coolant



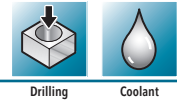
| Part Number      | DC Cutting Dia. (in) | DC Cutting Dia. (mm) | DC Cutting Dia. (fraction) | PL Point Length (mm) | LU Usable Length (mm) | LCF Chip Flute Length (mm) | LS Shank Length (mm) | OAL Overall Length (mm) | DCON Shank Dia. (mm) |
|------------------|----------------------|----------------------|----------------------------|----------------------|-----------------------|----------------------------|----------------------|-------------------------|----------------------|
| DHXL0300094T7R01 | 0.118                | 3.00                 |                            | 0.62                 | 93.50                 | 98                         | 37                   | 135                     | 6                    |
| DHXL0318093T7R01 | 0.125                | 3.18                 | 1/8"                       | 0.66                 | 93.24                 | 98                         | 37                   | 135                     | 6                    |
| DHXL0320093T7R01 | 0.126                | 3.20                 |                            | 0.66                 | 93.20                 | 98                         | 37                   | 135                     | 6                    |
| DHXL0330093T7R01 | 0.130                | 3.30                 |                            | 0.68                 | 93.05                 | 98                         | 37                   | 135                     | 6                    |
| DHXL0350093T7R01 | 0.138                | 3.50                 |                            | 0.72                 | 92.75                 | 98                         | 37                   | 135                     | 6                    |
| DHXL0357115T7R01 | 0.141                | 3.57                 | 9/64"                      | 0.74                 | 114.64                | 120                        | 40                   | 160                     | 6                    |
| DHXL0380114T7R01 | 0.150                | 3.80                 |                            | 0.79                 | 114.30                | 120                        | 40                   | 160                     | 6                    |
| DHXL0397114T7R01 | 0.156                | 3.97                 | 5/32"                      | 0.82                 | 114.05                | 120                        | 40                   | 160                     | 6                    |
| DHXL0400114T7R01 | 0.158                | 4.00                 |                            | 0.83                 | 114.00                | 120                        | 40                   | 160                     | 6                    |
| DHXL0420114T7R01 | 0.165                | 4.20                 |                            | 0.87                 | 113.70                | 120                        | 40                   | 160                     | 6                    |
| DHXL0437128T7R01 | 0.172                | 4.37                 | 11/64"                     | 0.90                 | 128.45                | 135                        | 45                   | 180                     | 6                    |
| DHXL0450128T7R01 | 0.177                | 4.50                 |                            | 0.93                 | 128.25                | 135                        | 45                   | 180                     | 6                    |
| DHXL0470128T7R01 | 0.185                | 4.70                 |                            | 0.97                 | 127.95                | 135                        | 45                   | 180                     | 6                    |
| DHXL0476128T7R01 | 0.188                | 4.76                 | 3/16"                      | 0.99                 | 127.86                | 135                        | 45                   | 160                     | 6                    |
| DHXL0480128T7R01 | 0.189                | 4.80                 |                            | 0.99                 | 127.80                | 135                        | 45                   | 180                     | 6                    |
| DHXL0500128T7R01 | 0.197                | 5.00                 |                            | 1.04                 | 127.50                | 135                        | 45                   | 180                     | 6                    |
| DHXL0516160T7R01 | 0.203                | 5.16                 | 13/64"                     | 1.07                 | 160.26                | 168                        | 37                   | 205                     | 6                    |
| DHXL0518160T7R01 | 0.204                | 5.18                 |                            | 1.07                 | 162.06                | 168                        | 37                   | 205                     | 6                    |
| DHXL0550160T7R01 | 0.217                | 5.50                 |                            | 1.14                 | 159.75                | 168                        | 37                   | 205                     | 6                    |
| DHXL0555160T7R01 | 0.219                | 5.55                 | 7/32"                      | 1.15                 | 159.67                | 168                        | 37                   | 205                     | 6                    |
| DHXL0580159T7R01 | 0.228                | 5.80                 |                            | 1.20                 | 159.30                | 168                        | 37                   | 205                     | 6                    |
| DHXL0595159T7R01 | 0.234                | 5.95                 | 15/64"                     | 1.23                 | 159.07                | 168                        | 37                   | 205                     | 6                    |
| DHXL0600159T7R01 | 0.236                | 6.00                 |                            | 1.24                 | 159.00                | 168                        | 37                   | 205                     | 6                    |
| DHXL0635190T0R01 | 0.250                | 6.35                 | 1/4"                       | 1.32                 | 190.47                | 200                        | 40                   | 240                     | 8                    |
| DHXL0650190T0R01 | 0.256                | 6.50                 |                            | 1.35                 | 190.25                | 200                        | 40                   | 240                     | 8                    |
| DHXL0675190T0R01 | 0.266                | 6.75                 | 17/64"                     | 1.40                 | 189.88                | 200                        | 40                   | 240                     | 8                    |
| DHXL0680190T0R01 | 0.268                | 6.80                 |                            | 1.41                 | 189.80                | 200                        | 40                   | 240                     | 8                    |
| DHXL0700189T0R01 | 0.276                | 7.00                 |                            | 1.45                 | 189.50                | 200                        | 40                   | 240                     | 8                    |
| DHXL0715209T0R01 | 0.281                | 7.15                 | 9/32"                      | 1.48                 | 209.28                | 220                        | 40                   | 260                     | 8                    |
| DHXL0750209T0R01 | 0.295                | 7.50                 |                            | 1.55                 | 208.75                | 220                        | 40                   | 260                     | 8                    |
| DHXL0754209T0R01 | 0.297                | 7.54                 | 19/64"                     | 1.56                 | 208.69                | 220                        | 40                   | 260                     | 8                    |
| DHXL0780208T0R01 | 0.307                | 7.80                 |                            | 1.62                 | 208.30                | 220                        | 40                   | 260                     | 8                    |
| DHXL0794208T0R01 | 0.313                | 7.94                 | 5/16"                      | 1.64                 | 208.09                | 220                        | 40                   | 260                     | 8                    |

## DHXL 25xD (continued)



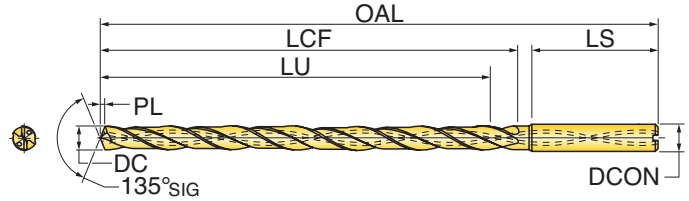
| Part Number      | DC<br>Cutting<br>Dia.<br>(in) | DC<br>Cutting<br>Dia.<br>(mm) | DC<br>Cutting<br>Dia.<br>(fraction) | PL<br>Point<br>Length<br>(mm) | LU<br>Usable<br>Length<br>(mm) | LCF<br>Chip Flute<br>Length<br>(mm) | LS<br>Shank<br>Length<br>(mm) | OAL<br>Overall<br>Length<br>(mm) | DCON<br>Shank<br>Dia.<br>(mm) |
|------------------|-------------------------------|-------------------------------|-------------------------------------|-------------------------------|--------------------------------|-------------------------------------|-------------------------------|----------------------------------|-------------------------------|
| DHXL0800208T0R01 | 0.315                         | 8.00                          |                                     | 1.66                          | 208.00                         | 220                                 | 40                            | 260                              | 8                             |
| DHXL0833228T1R01 | 0.328                         | 8.33                          | 21/64"                              | 1.73                          | 227.50                         | 240                                 | 45                            | 285                              | 10                            |
| DHXL0850227T1R01 | 0.335                         | 8.50                          |                                     | 1.76                          | 227.25                         | 240                                 | 45                            | 285                              | 10                            |
| DHXL0873255T1R01 | 0.344                         | 8.73                          | 11/32"                              | 1.81                          | 254.91                         | 268                                 | 42                            | 310                              | 10                            |
| DHXL0880255T1R01 | 0.347                         | 8.80                          |                                     | 1.82                          | 254.80                         | 268                                 | 42                            | 310                              | 10                            |
| DHXL0900255T1R01 | 0.354                         | 9.00                          |                                     | 1.86                          | 254.50                         | 268                                 | 42                            | 310                              | 10                            |
| DHXL0913254T1R01 | 0.359                         | 9.13                          | 23/64"                              | 1.89                          | 254.31                         | 268                                 | 42                            | 310                              | 10                            |
| DHXL0953254T1R01 | 0.375                         | 9.53                          | 3/8"                                | 1.97                          | 253.71                         | 268                                 | 42                            | 310                              | 10                            |
| DHXL0980253T1R01 | 0.386                         | 9.80                          |                                     | 2.03                          | 253.30                         | 268                                 | 42                            | 310                              | 10                            |
| DHXL0992253T1R01 | 0.391                         | 9.92                          | 25/64"                              | 2.05                          | 253.12                         | 268                                 | 42                            | 310                              | 10                            |
| DHXL1000260T1R01 | 0.394                         | 10.00                         |                                     | 2.07                          | 259.99                         | 275                                 | 50                            | 325                              | 10                            |
| DHXL1020285T2R01 | 0.402                         | 10.20                         |                                     | 2.11                          | 284.68                         | 300                                 | 50                            | 350                              | 12                            |
| DHXL1032285T2R01 | 0.406                         | 10.32                         | 13/32"                              | 2.14                          | 284.56                         | 300                                 | 50                            | 350                              | 12                            |
| DHXL1072284T2R01 | 0.422                         | 10.72                         | 27/64"                              | 2.22                          | 283.92                         | 300                                 | 50                            | 350                              | 12                            |
| DHXL1080309T2R01 | 0.425                         | 10.80                         |                                     | 2.24                          | 308.79                         | 325                                 | 50                            | 375                              | 12                            |
| DHXL1100309T2R01 | 0.433                         | 11.00                         |                                     | 2.28                          | 308.50                         | 325                                 | 50                            | 375                              | 12                            |
| DHXL1111308T2R01 | 0.438                         | 11.11                         | 7/16"                               | 2.30                          | 308.33                         | 325                                 | 50                            | 375                              | 12                            |
| DHXL1150308T2R01 | 0.453                         | 11.50                         |                                     | 2.38                          | 307.75                         | 325                                 | 50                            | 375                              | 12                            |
| DHXL1151308T2R01 | 0.453                         | 11.51                         | 29/64"                              | 2.38                          | 307.74                         | 325                                 | 50                            | 375                              | 12                            |
| DHXL1190307T2R01 | 0.469                         | 11.90                         |                                     | 2.47                          | 307.14                         | 325                                 | 50                            | 375                              | 12                            |
| DHXL1200307T2R01 | 0.472                         | 12.00                         |                                     | 2.48                          | 307.01                         | 325                                 | 50                            | 375                              | 12                            |

## DHXL 30xD



Drilling

Coolant



| Part Number      | DC Cutting Dia. (in) | DC Cutting Dia. (mm) | DC Cutting Dia. (fraction) | PL Point Length (mm) | LU Usable Length (mm) | LCF Chip Flute Length (mm) | LS Shank Length (mm) | OAL Overall Length (mm) | DCON Shank Dia. (mm) |
|------------------|----------------------|----------------------|----------------------------|----------------------|-----------------------|----------------------------|----------------------|-------------------------|----------------------|
| DHXL0300101T7R01 | 0.118                | 3.00                 |                            | 0.62                 | 100.50                | 105                        | 45                   | 150                     | 6                    |
| DHXL0318100T7R01 | 0.125                | 3.18                 | 1/8"                       | 0.66                 | 100.24                | 105                        | 45                   | 150                     | 6                    |
| DHXL0320100T7R01 | 0.126                | 3.20                 |                            | 0.66                 | 100.20                | 105                        | 45                   | 150                     | 6                    |
| DHXL0330130T7R01 | 0.130                | 3.30                 |                            | 0.68                 | 130.05                | 135                        | 50                   | 185                     | 6                    |
| DHXL0350130T7R01 | 0.138                | 3.50                 |                            | 0.72                 | 129.75                | 135                        | 50                   | 185                     | 6                    |
| DHXL0357130T7R01 | 0.141                | 3.57                 | 9/64"                      | 0.74                 | 129.64                | 135                        | 50                   | 185                     | 6                    |
| DHXL0380129T7R01 | 0.150                | 3.80                 |                            | 0.79                 | 129.30                | 135                        | 50                   | 185                     | 6                    |
| DHXL0397129T7R01 | 0.156                | 3.97                 | 5/32"                      | 0.82                 | 129.05                | 135                        | 50                   | 185                     | 6                    |
| DHXL0400129T7R01 | 0.158                | 4.00                 |                            | 0.83                 | 129.00                | 135                        | 50                   | 185                     | 6                    |
| DHXL0420129T7R01 | 0.165                | 4.20                 |                            | 0.87                 | 128.70                | 135                        | 50                   | 185                     | 6                    |
| DHXL0437158T7R01 | 0.172                | 4.37                 | 11/64"                     | 0.90                 | 158.45                | 165                        | 50                   | 215                     | 6                    |
| DHXL0450158T7R01 | 0.177                | 4.50                 |                            | 0.93                 | 158.25                | 165                        | 50                   | 215                     | 6                    |
| DHXL0470158T7R01 | 0.185                | 4.70                 |                            | 0.97                 | 157.95                | 165                        | 50                   | 215                     | 6                    |
| DHXL0476158T7R01 | 0.188                | 4.76                 | 3/16"                      | 0.99                 | 157.86                | 165                        | 50                   | 215                     | 6                    |
| DHXL0480158T7R01 | 0.189                | 4.80                 |                            | 0.99                 | 157.80                | 165                        | 50                   | 215                     | 6                    |
| DHXL0500158T7R01 | 0.197                | 5.00                 |                            | 1.04                 | 157.50                | 165                        | 50                   | 215                     | 6                    |
| DHXL0516172T7R01 | 0.203                | 5.16                 | 13/64"                     | 1.07                 | 172.26                | 180                        | 50                   | 230                     | 6                    |
| DHXL0518172T7R01 | 0.204                | 5.18                 |                            | 1.07                 | 172.23                | 180                        | 50                   | 230                     | 6                    |
| DHXL0550172T7R01 | 0.217                | 5.50                 |                            | 1.14                 | 171.75                | 180                        | 50                   | 230                     | 6                    |
| DHXL0555172T7R01 | 0.219                | 5.55                 | 7/32"                      | 1.15                 | 171.67                | 180                        | 50                   | 230                     | 6                    |
| DHXL0580171T7R01 | 0.228                | 5.80                 |                            | 1.20                 | 171.30                | 180                        | 50                   | 230                     | 6                    |
| DHXL0595171T7R01 | 0.234                | 5.95                 | 15/64"                     | 1.23                 | 171.07                | 180                        | 50                   | 230                     | 6                    |
| DHXL0600171T7R01 | 0.236                | 6.00                 |                            | 1.24                 | 171.00                | 180                        | 50                   | 230                     | 6                    |
| DHXL0635205T0R01 | 0.250                | 6.35                 | 1/4"                       | 1.32                 | 205.48                | 215                        | 65                   | 280                     | 8                    |
| DHXL0650205T0R01 | 0.256                | 6.50                 |                            | 1.35                 | 205.25                | 215                        | 65                   | 280                     | 8                    |
| DHXL0675220T0R01 | 0.266                | 6.75                 | 17/64"                     | 1.40                 | 219.88                | 230                        | 50                   | 280                     | 8                    |
| DHXL0680220T0R01 | 0.268                | 6.80                 |                            | 1.41                 | 219.80                | 230                        | 50                   | 280                     | 8                    |
| DHXL0700219T0R01 | 0.276                | 7.00                 |                            | 1.45                 | 219.50                | 230                        | 50                   | 280                     | 8                    |
| DHXL0715219T0R01 | 0.281                | 7.15                 | 9/32"                      | 1.48                 | 219.28                | 230                        | 50                   | 280                     | 8                    |
| DHXL0750219T0R01 | 0.295                | 7.50                 |                            | 1.55                 | 218.75                | 230                        | 50                   | 280                     | 8                    |
| DHXL0754254T0R01 | 0.297                | 7.54                 | 19/64"                     | 1.56                 | 253.69                | 265                        | 50                   | 315                     | 8                    |
| DHXL0780253T0R01 | 0.307                | 7.80                 |                            | 1.62                 | 253.30                | 265                        | 50                   | 315                     | 8                    |

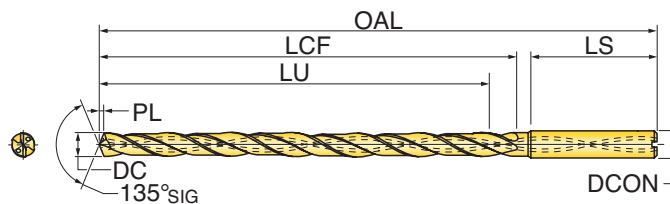
## DHXL 30xD (continued)



Drilling

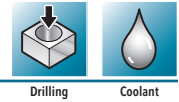


Coolant



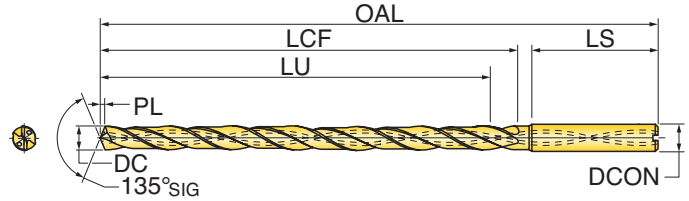
| Part Number      | DC<br>Cutting<br>Dia.<br>(in) | DC<br>Cutting<br>Dia.<br>(mm) | DC<br>Cutting<br>Dia.<br>(fraction) | PL<br>Point<br>Length<br>(mm) | LU<br>Usable<br>Length<br>(mm) | LCF<br>Chip Flute<br>Length<br>(mm) | LS<br>Shank<br>Length<br>(mm) | OAL<br>Overall<br>Length<br>(mm) | DCON<br>Shank<br>Dia.<br>(mm) |
|------------------|-------------------------------|-------------------------------|-------------------------------------|-------------------------------|--------------------------------|-------------------------------------|-------------------------------|----------------------------------|-------------------------------|
| DHXL0794253T0R01 | 0.313                         | 7.94                          | 5/16"                               | 1.64                          | 253.10                         | 265                                 | 50                            | 315                              | 8                             |
| DHXL0800253T0R01 | 0.315                         | 8.00                          |                                     | 1.66                          | 253.00                         | 265                                 | 50                            | 315                              | 8                             |
| DHXL0833283T1R01 | 0.328                         | 8.33                          | 21/64"                              | 1.73                          | 282.50                         | 295                                 | 55                            | 350                              | 10                            |
| DHXL0850282T1R01 | 0.335                         | 8.50                          |                                     | 1.76                          | 282.25                         | 295                                 | 55                            | 350                              | 10                            |
| DHXL0873317T1R01 | 0.344                         | 8.73                          | 11/32"                              | 1.81                          | 316.91                         | 330                                 | 50                            | 380                              | 10                            |
| DHXL0880317T1R01 | 0.347                         | 8.80                          |                                     | 1.82                          | 316.80                         | 330                                 | 50                            | 380                              | 10                            |
| DHXL0900317T1R01 | 0.354                         | 9.00                          |                                     | 1.86                          | 316.50                         | 330                                 | 50                            | 380                              | 10                            |
| DHXL0913316T1R01 | 0.359                         | 9.13                          | 23/64"                              | 1.89                          | 316.31                         | 330                                 | 50                            | 380                              | 10                            |
| DHXL0953316T1R01 | 0.375                         | 9.53                          | 3/8"                                | 1.97                          | 315.71                         | 330                                 | 50                            | 380                              | 10                            |
| DHXL0980315T1R01 | 0.386                         | 9.80                          |                                     | 2.03                          | 315.30                         | 330                                 | 50                            | 380                              | 10                            |
| DHXL0992315T1R01 | 0.391                         | 9.92                          | 25/64"                              | 2.05                          | 315.12                         | 330                                 | 50                            | 380                              | 10                            |
| DHXL1000315T1R01 | 0.394                         | 10.00                         |                                     | 2.07                          | 315.00                         | 330                                 | 50                            | 380                              | 10                            |

## DHXL 40xD



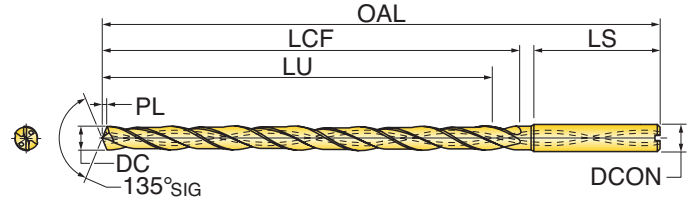
Drilling

Coolant



| Part Number      | DC Cutting Dia. (in) | DC Cutting Dia. (mm) | DC Cutting Dia. (fraction) | PL Point Length (mm) | LU Usable Length (mm) | LCF Chip Flute Length (mm) | LS Shank Length (mm) | OAL Overall Length (mm) | DCON Shank Dia. (mm) |
|------------------|----------------------|----------------------|----------------------------|----------------------|-----------------------|----------------------------|----------------------|-------------------------|----------------------|
| DHXL0300136T7R01 | 0.118                | 3.00                 |                            | 0.62                 | 135.50                | 140                        | 50                   | 190                     | 6                    |
| DHXL0318135T7R01 | 0.125                | 3.18                 | 1/8"                       | 0.66                 | 135.24                | 140                        | 50                   | 190                     | 6                    |
| DHXL0357175T7R01 | 0.141                | 3.57                 |                            | 0.74                 | 174.64                | 180                        | 50                   | 230                     | 6                    |
| DHXL0380174T7R01 | 0.150                | 3.80                 |                            | 0.79                 | 174.30                | 180                        | 50                   | 230                     | 6                    |
| DHXL0397174T7R01 | 0.156                | 3.97                 | 5/32"                      | 0.82                 | 174.05                | 180                        | 50                   | 230                     | 6                    |
| DHXL0400174T7R01 | 0.158                | 4.00                 |                            | 0.83                 | 174.00                | 180                        | 50                   | 230                     | 6                    |
| DHXL0420174T7R01 | 0.165                | 4.20                 |                            | 0.87                 | 173.70                | 180                        | 50                   | 230                     | 6                    |
| DHXL0437213T7R01 | 0.172                | 4.37                 | 11/64"                     | 0.90                 | 213.45                | 220                        | 50                   | 270                     | 6                    |
| DHXL0450213T7R01 | 0.177                | 4.50                 |                            | 0.93                 | 213.25                | 220                        | 50                   | 270                     | 6                    |
| DHXL0470213T7R01 | 0.185                | 4.70                 |                            | 0.97                 | 212.95                | 220                        | 50                   | 270                     | 6                    |
| DHXL0476213T7R01 | 0.188                | 4.76                 | 3/16"                      | 0.99                 | 212.86                | 220                        | 50                   | 270                     | 6                    |
| DHXL0480213T7R01 | 0.189                | 4.80                 |                            | 0.99                 | 212.80                | 220                        | 50                   | 270                     | 6                    |
| DHXL0500212T7R01 | 0.197                | 5.00                 |                            | 1.04                 | 212.50                | 220                        | 50                   | 270                     | 6                    |
| DHXL0516232T7R01 | 0.203                | 5.16                 | 13/64"                     | 1.07                 | 232.26                | 240                        | 50                   | 290                     | 6                    |
| DHXL0518232T7R01 | 0.204                | 5.18                 |                            | 1.07                 | 232.23                | 240                        | 50                   | 290                     | 6                    |
| DHXL0550232T7R01 | 0.217                | 5.50                 |                            | 1.14                 | 231.75                | 240                        | 50                   | 290                     | 6                    |
| DHXL0555232T7R01 | 0.219                | 5.55                 | 7/32"                      | 1.15                 | 231.67                | 240                        | 50                   | 290                     | 6                    |
| DHXL0580231T7R01 | 0.228                | 5.80                 |                            | 1.20                 | 231.30                | 240                        | 50                   | 290                     | 6                    |
| DHXL0595231T7R01 | 0.234                | 5.95                 | 15/64"                     | 1.23                 | 231.07                | 240                        | 50                   | 290                     | 6                    |
| DHXL0600231T7R01 | 0.236                | 6.00                 |                            | 1.24                 | 231.00                | 240                        | 50                   | 290                     | 6                    |
| DHXL0635280T0R01 | 0.250                | 6.35                 | 1/4"                       | 1.32                 | 280.47                | 290                        | 50                   | 340                     | 8                    |
| DHXL0650280T0R01 | 0.256                | 6.50                 |                            | 1.35                 | 280.25                | 290                        | 50                   | 340                     | 8                    |
| DHXL0675310T0R01 | 0.266                | 6.75                 | 17/64"                     | 1.40                 | 309.88                | 320                        | 50                   | 370                     | 8                    |
| DHXL0680310T0R01 | 0.268                | 6.80                 |                            | 1.41                 | 309.80                | 320                        | 50                   | 370                     | 8                    |
| DHXL0700309T0R01 | 0.276                | 7.00                 |                            | 1.45                 | 309.50                | 320                        | 50                   | 370                     | 8                    |
| DHXL0715309T0R01 | 0.281                | 7.15                 | 9/32"                      | 1.48                 | 309.28                | 320                        | 50                   | 370                     | 8                    |
| DHXL0750309T0R01 | 0.295                | 7.50                 |                            | 1.55                 | 308.75                | 320                        | 50                   | 370                     | 8                    |
| DHXL0754339T0R01 | 0.297                | 7.54                 | 19/64"                     | 1.56                 | 338.69                | 350                        | 50                   | 400                     | 8                    |
| DHXL0780338T0R01 | 0.307                | 7.80                 |                            | 1.62                 | 338.30                | 350                        | 50                   | 400                     | 8                    |
| DHXL0794338T0R01 | 0.313                | 7.94                 | 5/16"                      | 1.64                 | 338.09                | 350                        | 50                   | 400                     | 8                    |
| DHXL0800338T0R01 | 0.315                | 8.00                 |                            | 1.66                 | 338.00                | 350                        | 50                   | 400                     | 8                    |

## DHXL 50xD



| Part Number      | DC<br>Cutting<br>Dia.<br>(in) | DC<br>Cutting<br>Dia.<br>(mm) | DC<br>Cutting<br>Dia.<br>(fraction) | PL<br>Point<br>Length<br>(mm) | LU<br>Usable<br>Length<br>(mm) | LCF<br>Chip Flute<br>Length<br>(mm) | LS<br>Shank<br>Length<br>(mm) | OAL<br>Overall<br>Length<br>(mm) | DCON<br>Shank<br>Dia.<br>(mm) |
|------------------|-------------------------------|-------------------------------|-------------------------------------|-------------------------------|--------------------------------|-------------------------------------|-------------------------------|----------------------------------|-------------------------------|
| DHXL0400219T7R01 | 0.158                         | 4.00                          |                                     | 0.8280                        | 219.0013                       | 225                                 | 45                            | 270                              | 6                             |
| DHXL0420219T7R01 | 0.165                         | 4.20                          |                                     | 0.8712                        | 218.6991                       | 225                                 | 45                            | 270                              | 6                             |
| DHXL0437268T7R01 | 0.172                         | 4.37                          | 11/64"                              | 0.9042                        | 268.4526                       | 275                                 | 45                            | 320                              | 6                             |
| DHXL0450268T7R01 | 0.177                         | 4.50                          |                                     | 0.9322                        | 268.2494                       | 275                                 | 45                            | 320                              | 6                             |
| DHXL0470268T7R01 | 0.185                         | 4.70                          |                                     | 0.9728                        | 267.9522                       | 275                                 | 45                            | 320                              | 6                             |
| DHXL0476268T7R01 | 0.188                         | 4.76                          | 3/16"                               | 0.9855                        | 267.8582                       | 275                                 | 45                            | 320                              | 6                             |
| DHXL0480268T7R01 | 0.189                         | 4.80                          |                                     | 0.9931                        | 267.7998                       | 275                                 | 45                            | 320                              | 6                             |
| DHXL0500268T7R01 | 0.197                         | 5.00                          |                                     | 1.0363                        | 267.5001                       | 275                                 | 45                            | 320                              | 6                             |
| DHXL0516302T7R01 | 0.203                         | 5.16                          | 13/64"                              | 1.0693                        | 302.2625                       | 310                                 | 50                            | 360                              | 6                             |
| DHXL0518302T7R01 | 0.204                         | 5.18                          |                                     | 1.0719                        | 302.2270                       | 310                                 | 50                            | 360                              | 6                             |
| DHXL0550302T7R01 | 0.217                         | 5.50                          |                                     | 1.1379                        | 301.7520                       | 310                                 | 50                            | 360                              | 6                             |
| DHXL0555302T7R01 | 0.219                         | 5.55                          | 7/32"                               | 1.1506                        | 301.6682                       | 310                                 | 50                            | 360                              | 6                             |
| DHXL0580301T7R01 | 0.228                         | 5.80                          |                                     | 1.2014                        | 301.3024                       | 310                                 | 50                            | 360                              | 6                             |
| DHXL0595301T7R01 | 0.234                         | 5.95                          | 15/64"                              | 1.2319                        | 301.0687                       | 310                                 | 50                            | 360                              | 6                             |
| DHXL0600301T7R01 | 0.236                         | 6.00                          |                                     | 1.2421                        | 301.0002                       | 310                                 | 50                            | 360                              | 6                             |
| DHXL0635330T7R01 | 0.250                         | 6.35                          | 1/4"                                | 1.3157                        | 330.4743                       | 340                                 | 45                            | 385                              | 6                             |

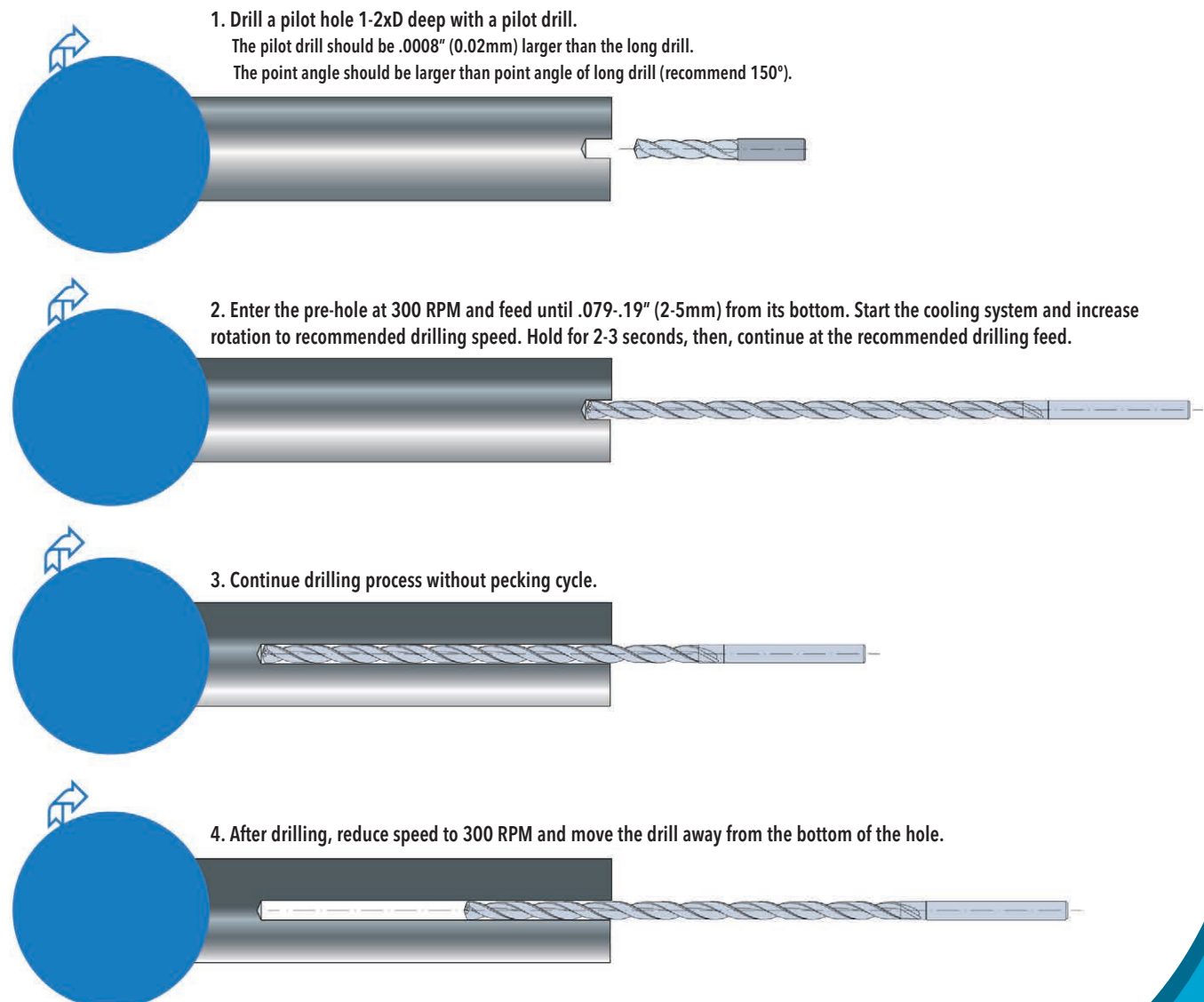
## ADVANTAGES

- Deep hole drilling up to 50xD without Pecking cycle.
- Higher productivity compared to conventional deep hole drills such as HSS drills & Gun drills.
- Application on conventional machining center.

## APPLICATIONS

- Automotive Parts (i.e. Cylinder block, Crank shaft, Connecting rod)
- Mold & Die Parts
- Machine Tool Parts

## RECOMMENDED DRILLING PROCESS



Note: 40xD and 50xD drills require an intermediate 20xD drill after piloting.

## Operating Guidelines - 5xD

| Materials |               |                                                                    |                       | Condition                         | Tensile Strength (N/mm2) | HB Hardness | Vc Cutting Speed SFM | IPR Cutting Diameter (in/rev) |                            |                             |                              |                               |                               |
|-----------|---------------|--------------------------------------------------------------------|-----------------------|-----------------------------------|--------------------------|-------------|----------------------|-------------------------------|----------------------------|-----------------------------|------------------------------|-------------------------------|-------------------------------|
| ISO       | Mtl Group No. | Type                                                               |                       |                                   |                          |             |                      | 3.0-6.0 mm<br>(.118-.235")    | 6.0-9.0 mm<br>(.236-.353") | 9.0-12.0 mm<br>(.354-.471") | 12.0-16.0 mm<br>(.472-.629") | 16.0-19.05 mm<br>(.630-.749") | 19.05-20.0 mm<br>(.750-.787") |
| P         | 1             | Non alloy steel and cast steel free cutting steel                  | < 0.25 %C             | Annealed                          | 420                      | 125         | 375                  | .0030 - .0050                 | .0050 - .0075              | .0075 - .0100               | .0100 - .0130                | .0130 - .0153                 | .0153 - .0160                 |
|           | 2             |                                                                    | >= 0.25 %C            | Annealed                          | 650                      | 190         |                      |                               |                            |                             |                              |                               |                               |
|           | 3             |                                                                    | < 0.55 %C             | Quenched and Tempered             | 850                      | 250         |                      |                               |                            |                             |                              |                               |                               |
|           | 4             |                                                                    | >= 0.55 %C            | Annealed                          | 750                      | 220         |                      |                               |                            |                             |                              |                               |                               |
|           | 5             |                                                                    | > 0.55 %C             | Quenched and Tempered             | 1000                     | 300         |                      |                               |                            |                             |                              |                               |                               |
|           | 6             | Low alloy steel and cast steel (less than 5% of alloying elements) |                       | Annealed                          | 600                      | 200         |                      |                               |                            |                             |                              |                               |                               |
|           | 7             |                                                                    | Quenched and Tempered | 930                               | 275                      |             |                      |                               |                            |                             |                              |                               |                               |
|           | 8             |                                                                    |                       | 1000                              | 300                      |             |                      |                               |                            |                             |                              |                               |                               |
|           | 9             |                                                                    |                       | 1200                              | 350                      |             |                      |                               |                            |                             |                              |                               |                               |
|           | 10            | High alloyed steel, cast steel, and tool steel                     |                       | Annealed                          | 680                      | 200         | 275                  | .0030 - .0050                 | .0050 - .0075              | .0075 - .0100               | .0100 - .0130                | .0130 - .0153                 | .0153 - .0160                 |
|           | 11            |                                                                    |                       | Quenched and Tempered             | 1100                     | 325         |                      |                               |                            |                             |                              |                               |                               |
| M         | 12            | Stainless steel (410, 416, 420, 440)                               |                       | Ferritic/ Martensitic             | 680                      | 200         | 230                  | .0023 - .0047                 | .0047 - .0070              | .0070 - .0094               | .0094 - .0126                | .0126 - .0138                 | .0138 - .0140                 |
|           | 13            | Stainless steel (15-5, 17-4)                                       |                       | Martensitic                       | 820                      | 240         |                      |                               |                            |                             |                              |                               |                               |
|           | 14            | Stainless steel (302, 303, 304)                                    |                       | Austenitic                        | 600                      | 180         |                      |                               |                            |                             |                              |                               |                               |
|           |               | Stainless steel (310, 316, 321)                                    |                       |                                   |                          |             |                      |                               |                            |                             |                              |                               |                               |
|           | 14            | Stainless steel (323, 329, F55, 2205)                              |                       | Austenitic/ Ferritic              | 820                      | 240         | 150                  | .0020 - .0035                 | .0035 - .0045              | .0045 - .0050               | .0050 - .0055                | .0055 - .0059                 | .0059 - .0060                 |
| N         | 21            | Aluminum Alloy Forging                                             |                       | <12% Si<br>1000 - 8000 series     |                          |             | 820                  | .0120 - .0140                 | .0140 - .0200              | .0200 - .0250               | .0250 - .0260                | .0260 - .0268                 | .0268 - .0270                 |
|           | 22            |                                                                    |                       |                                   |                          |             |                      |                               |                            |                             |                              |                               |                               |
|           | 23            | Aluminum Alloy Casting                                             |                       | >12% Si<br>4000 series & Castings |                          |             | 820                  | .0110 - .0150                 | .0150 - .0190              | .0190 - .0230               | .0230 - .0240                | .0240 - .0248                 | .0248 - .0250                 |
|           | 24            |                                                                    |                       |                                   |                          |             |                      |                               |                            |                             |                              |                               |                               |
|           | 25            |                                                                    |                       |                                   |                          |             |                      |                               |                            |                             |                              |                               |                               |
| S         | 36            | Titanium Ti alloys Ti1100, Ti6AL4V                                 |                       |                                   | Rm 400                   |             | 150                  | .0020 - .0030                 | .0030 - .0040              | .0040 - .0050               | .0050 - .0065                | .0065 - .0084                 | .0080 - .0084                 |
|           | 37            |                                                                    |                       |                                   | Rm1050                   |             |                      |                               |                            |                             |                              |                               |                               |

Note: Feed and speed recommendations are starting operating parameters. They are only guidelines from which further optimization should take place. Operating parameters are influenced by many machining variables. These variables may cause for reductions in feeds and speed or dramatic increases. Additionally, DOC and WOC may need to be revised to optimize the tools performance.

## Operating Guidelines - 16xD

| Materials |               |                                                                    |                       | Condition                 | Tensile Strength (N/mm2) | HB Hardness | Vc Cutting Speed SFM | IPR Cutting Diameter (in/rev) |                            |                             |                              |                      |
|-----------|---------------|--------------------------------------------------------------------|-----------------------|---------------------------|--------------------------|-------------|----------------------|-------------------------------|----------------------------|-----------------------------|------------------------------|----------------------|
| ISO       | Mtl Group No. | Type                                                               |                       |                           |                          |             |                      | 3.0-5.9 mm<br>(.118-.235")    | 6.0-8.9 mm<br>(.236-.353") | 9.0-11.9 mm<br>(.354-.471") | 12.0-15.9 mm<br>(.472-.629") | 16.0+ mm<br>(.630+") |
| P         | 1             | Non alloy steel and cast steel free cutting steel                  | < 0.25 %C             | Annealed                  | 420                      | 125         | 375                  | .0058 - .0094                 | .0094 - .0120              | .0120 - .0130               | .0130 - .0140                | .0140                |
|           | 2             |                                                                    | >= 0.25 %C            | Annealed                  | 650                      | 190         |                      |                               |                            |                             |                              |                      |
|           | 3             |                                                                    | < 0.55 %C             | Quenched and Tempered     | 850                      | 250         |                      |                               |                            |                             |                              |                      |
|           | 4             |                                                                    | >= 0.55 %C            | Annealed                  | 750                      | 220         |                      |                               |                            |                             |                              |                      |
|           | 5             |                                                                    | > 0.55 %C             | Quenched and Tempered     | 1000                     | 300         |                      |                               |                            |                             |                              |                      |
|           | 6             | Low alloy steel and cast steel (less than 5% of alloying elements) | Annealed              | 600                       | 200                      | 260         | .0058 - .0094        | .0094 - .0120                 | 0.012 - .0130              | .0130 - .0140               | .0140                        |                      |
|           | 7             |                                                                    | Quenched and Tempered | 930                       | 275                      |             |                      |                               |                            |                             |                              |                      |
|           | 8             |                                                                    |                       | 1000                      | 300                      |             |                      |                               |                            |                             |                              |                      |
|           | 9             |                                                                    |                       | 1200                      | 350                      |             |                      |                               |                            |                             |                              |                      |
|           | 10            | High alloyed steel, cast steel, and tool steel                     | Annealed              | 680                       | 200                      | 230         | .0043 - .0069        | .0069 - .0088                 | .0088 - .0095              | .0095 - .0102               | .0102                        |                      |
|           | 11            |                                                                    | Quenched and Tempered | 1100                      | 325                      |             |                      |                               |                            |                             |                              |                      |
| M         | 12            | Stainless steel (410, 416, 420, 440)                               |                       | Ferritic/ Martensitic     | 680                      | 200         | 230                  | .0043 - .0069                 | .0069 - .0088              | .0088 - .0095               | .0095 - .0102                | .0102                |
|           | 13            | Stainless steel (15-5, 17-4)                                       |                       | Martensitic               | 820                      | 240         |                      |                               |                            |                             |                              |                      |
|           | 14            | Stainless steel (302, 303, 304)                                    |                       | Austenitic                | 600                      | 180         | 220                  | .0023 - .0047                 | .0047 - .0070              | .0070 - .0094               | .0094 - .0122                | .0122                |
|           |               | Stainless steel (310, 316, 321)                                    |                       |                           |                          |             | 180                  | .0018 - .0035                 | .0035 - .0053              | .0053 - .0070               | .0070 - .0093                | .0093                |
|           | 14            | Stainless steel (323, 329, F55, 2205)                              |                       | Austenitic/ Ferritic      | 820                      | 240         | 125                  | .0001 - .0024                 | .0024 - .0029              | .0029 - .0033               | .0033 - .0036                | .0036                |
| S         | 36            | Titanium Ti alloys Ti1100, Ti6AL4V                                 |                       |                           | Rm 400                   |             | 125                  | .0014 - .0025                 | .0025 - .0030              | .0030 - .0035               | .0035 - .0040                | .0040                |
|           | 37            |                                                                    |                       | Alpha + Beta alloys cured | Rm1050                   |             |                      |                               |                            |                             |                              |                      |

Note: Feed and speed recommendations are starting operating parameters. They are only guidelines from which further optimization should take place. Operating parameters are influenced by many machining variables. These variables may cause for reductions in feeds and speed or dramatic increases. Additionally, DOC and WOC may need to be revised to optimize the tools performance.

## Operating Guidelines - 20xD

| ISO | Materials     |                                                                    | Condition                 | Tensile Strength (N/mm2) | HB Hardness | Vc Cutting Speed SFM | IPR Cutting Diameter (in/rev) |                            |                             |                          |
|-----|---------------|--------------------------------------------------------------------|---------------------------|--------------------------|-------------|----------------------|-------------------------------|----------------------------|-----------------------------|--------------------------|
|     | Mtl Group No. | Type                                                               |                           |                          |             |                      | 3.0-5.9 mm<br>(.118-.235")    | 6.0-8.9 mm<br>(.236-.353") | 9.0-11.9 mm<br>(.354-.471") | 12.0-16.0 mm<br>(.472+") |
| P   | 1             | Non alloy steel and cast steel free cutting steel                  | < 0.25 %C                 | Annealed                 | 420         | 125                  | .0058 - .0094                 | .0094 - .0120              | .0120 - .0130               | .0130                    |
|     | 2             |                                                                    | >= 0.25 %C                | Annealed                 | 650         | 190                  |                               |                            |                             |                          |
|     | 3             |                                                                    | < 0.55 %C                 | Quenched and Tempered    | 850         | 250                  |                               |                            |                             |                          |
|     | 4             |                                                                    | >= 0.55 %C                | Annealed                 | 750         | 220                  |                               |                            |                             |                          |
|     | 5             |                                                                    | > 0.55 %C                 | Quenched and Tempered    | 1000        | 300                  |                               |                            |                             |                          |
|     | 6             | Low alloy steel and cast steel (less than 5% of alloying elements) | Annealed                  |                          | 600         | 200                  | .0058 - .0094                 | .0094 - .0120              | 0.012 - .0130               | .0130                    |
|     | 7             |                                                                    | Quenched and Tempered     |                          | 930         | 275                  |                               |                            |                             |                          |
|     | 8             |                                                                    |                           |                          | 1000        | 300                  |                               |                            |                             |                          |
|     | 9             |                                                                    |                           |                          | 1200        | 350                  |                               |                            |                             |                          |
|     | 10            | High alloyed steel, cast steel, and tool steel                     | Annealed                  |                          | 680         | 200                  | .0043 - .0069                 | .0069 - .0088              | .0088 - .0094               | .0094 - .0102            |
|     | 11            |                                                                    | Quenched and Tempered     |                          | 1100        | 325                  |                               |                            |                             |                          |
| M   | 12            | Stainless steel (410, 416, 420, 440)                               | Ferritic/ Martensitic     |                          | 680         | 200                  | .0043 - .0069                 | .0069 - .088               | .0088 - .0094               | .0094 - .0102            |
|     | 13            | Stainless steel (15-5, 17-4)                                       | Martensitic               |                          | 820         | 240                  |                               |                            |                             |                          |
|     | 14            | Stainless steel (302, 303, 304)                                    | Austenitic                | 600                      | 180         | 220                  | .0023 - .0047                 | .0047 - .0070              | .0070 - .0094               | .0094 - .0122            |
|     |               | Stainless steel (310, 316, 321)                                    |                           |                          |             | 165                  | .0018 - .0035                 | .0035 - .0053              | .0053 - .0070               | .0070 - .0093            |
|     | 14            | Stainless steel (323, 329, F55, 2205)                              | Austenitic/ Ferritic      |                          | 820         | 240                  | .0010 - .0024                 | .0024 - .0029              | .0029 - .0033               | .0033 - .0036            |
| S   | 36            | Titanium Ti alloys Ti1100, Ti6AL4V                                 |                           |                          | Rm 400      | 120                  | .0010 - .0023                 | .0023 - .0028              | .0028 - .0032               | .0032 - .0037            |
|     | 37            |                                                                    | Alpha + Beta alloys cured |                          | Rm1050      |                      |                               |                            |                             |                          |

Note: Feed and speed recommendations are starting operating parameters. They are only guidelines from which further optimization should take place. Operating parameters are influenced by many machining variables. These variables may cause for reductions in feeds and speed or dramatic increases. Additionally, DOC and WOC may need to be revised to optimize the tools performance.

## Operating Guidelines - 25xD

| Materials |               |                                                                    |            | Condition             | Tensile Strength (N/mm2)  | HB Hardness | Vc Cutting Speed SFM | IPR Cutting Diameter (in/rev) |                            |                             |                          |       |
|-----------|---------------|--------------------------------------------------------------------|------------|-----------------------|---------------------------|-------------|----------------------|-------------------------------|----------------------------|-----------------------------|--------------------------|-------|
| ISO       | Mtl Group No. | Type                                                               |            |                       |                           |             |                      | 3.0-5.9 mm<br>(.118-.235")    | 6.0-8.9 mm<br>(.236-.353") | 9.0-11.9 mm<br>(.354-.471") | 12.0-16.0 mm<br>(.472+") |       |
| P         | 1             | Non alloy steel and cast steel free cutting steel                  | < 0.25 %C  | Annealed              | 420                       | 125         | 360                  | .0058 - .0094                 | .0094 - .011               | .0110 - .0130               | .0130                    |       |
|           | 2             |                                                                    | >= 0.25 %C | Annealed              | 650                       | 190         |                      |                               |                            |                             |                          |       |
|           | 3             |                                                                    | < 0.55 %C  | Quenched and Tempered | 850                       | 250         |                      |                               |                            |                             |                          |       |
|           | 4             |                                                                    | >= 0.55 %C | Annealed              | 750                       | 220         |                      |                               |                            |                             |                          |       |
|           | 5             |                                                                    | > 0.55 %C  | Quenched and Tempered | 1000                      | 300         |                      |                               |                            |                             |                          |       |
|           | 6             | Low alloy steel and cast steel (less than 5% of alloying elements) |            |                       | Annealed                  | 600         | 200                  | 230                           | .0058 - .0094              | .0094 - .0110               | .0110 - .0130            | .0130 |
|           | 7             |                                                                    |            |                       | Quenched and Tempered     | 930         | 275                  |                               |                            |                             |                          |       |
|           | 8             |                                                                    |            |                       |                           | 1000        | 300                  |                               |                            |                             |                          |       |
|           | 9             |                                                                    |            |                       |                           | 1200        | 350                  |                               |                            |                             |                          |       |
|           | 10            | High alloyed steel, cast steel, and tool steel                     |            |                       | Annealed                  | 680         | 200                  | 210                           | .0043 - .0069              | .0069 - .0081               | .0081 - .0095            | .0095 |
|           | 11            |                                                                    |            |                       | Quenched and Tempered     | 1100        | 325                  |                               |                            |                             |                          |       |
| M         | 12            | Stainless steel (410, 416, 420, 440)                               |            | Ferritic/ Martensitic | 680                       | 200         | 210                  | .0043 - .0069                 | .0069 - .0081              | .0081 - .0095               | .0095                    |       |
|           | 13            | Stainless steel (15-5, 17-4)                                       |            | Martensitic           | 820                       | 240         |                      |                               |                            |                             |                          |       |
|           | 14            | Stainless steel (302, 303, 304)                                    |            | Austenitic            | 600                       | 180         | 210                  | .0023 - .0047                 | .0047 - .0070              | .0070 - .0094               | .0094                    |       |
|           |               | Stainless steel (310, 316, 321)                                    |            |                       |                           |             | 165                  | .0016 - .0032                 | .0032 - .0050              | .0050 - .0065               | .0065                    |       |
|           | 14            | Stainless steel (323, 329, F55, 2205)                              |            | Austenitic/ Ferritic  | 820                       | 240         | 120                  | .0011 - .0019                 | .0019 - .0023              | .0023 - .0027               | .0027                    |       |
| S         | 36            | Titanium Ti alloys Ti1100, Ti6AL4V                                 |            |                       |                           | Rm 400      | 115                  | .0010 - .0020                 | .0020 - .0027              | .0027 - .0032               | .0032                    |       |
|           | 37            |                                                                    |            |                       | Alpha + Beta alloys cured | Rm1050      |                      |                               |                            |                             |                          |       |

Note: Feed and speed recommendations are starting operating parameters. They are only guidelines from which further optimization should take place. Operating parameters are influenced by many machining variables. These variables may cause for reductions in feeds and speed or dramatic increases. Additionally, DOC and WOC may need to be revised to optimize the tools performance.

## Operating Guidelines - 30xD

| Materials |               |                                                                    |            | Condition             | Tensile Strength (N/mm2)  | HB Hardness | Vc Cutting Speed SFM | IPR Cutting Diameter (in/rev) |                         |                      |       |
|-----------|---------------|--------------------------------------------------------------------|------------|-----------------------|---------------------------|-------------|----------------------|-------------------------------|-------------------------|----------------------|-------|
| ISO       | Mtl Group No. | Type                                                               |            |                       |                           |             |                      | 3.0-5.9 mm (.118-.235")       | 6.0-8.9 mm (.236-.353") | 9.0-11.9 mm (.354+") |       |
| P         | 1             | Non alloy steel and cast steel free cutting steel                  | < 0.25 %C  | Annealed              | 420                       | 125         | 345                  | .0058 - .0094                 | .0094 - .0120           | .0120                |       |
|           | 2             |                                                                    | >= 0.25 %C | Annealed              | 650                       | 190         |                      |                               |                         |                      |       |
|           | 3             |                                                                    | < 0.55 %C  | Quenched and Tempered | 850                       | 250         |                      |                               |                         |                      |       |
|           | 4             |                                                                    | >= 0.55 %C | Annealed              | 750                       | 220         |                      |                               |                         |                      |       |
|           | 5             |                                                                    | > 0.55 %C  | Quenched and Tempered | 1000                      | 300         |                      |                               |                         |                      |       |
|           | 6             | Low alloy steel and cast steel (less than 5% of alloying elements) |            |                       | Annealed                  | 600         | 200                  | 215                           | .0058 - .0094           | .0094 - .0120        | .0120 |
|           | 7             |                                                                    |            |                       | Quenched and Tempered     | 930         | 275                  |                               |                         |                      |       |
|           | 8             |                                                                    |            |                       |                           | 1000        | 300                  |                               |                         |                      |       |
|           | 9             |                                                                    |            |                       |                           | 1200        | 350                  |                               |                         |                      |       |
|           | 10            | High alloyed steel, cast steel, and tool steel                     |            |                       | Annealed                  | 680         | 200                  | 200                           | .0043 - .0069           | .0069 - .0088        | .0088 |
|           | 11            |                                                                    |            |                       | Quenched and Tempered     | 1100        | 325                  |                               |                         |                      |       |
| M         | 12            | Stainless steel (410, 416, 420, 440)                               |            | Ferritic/ Martensitic | 680                       | 200         | 200                  | .0043 - .0069                 | .0069 - .0088           | .0088                |       |
|           | 13            | Stainless steel (15-5, 17-4)                                       |            | Martensitic           | 820                       | 240         |                      |                               |                         |                      |       |
|           | 14            | Stainless steel (302, 303, 304)                                    |            | Austenitic            | 600                       | 180         | 195                  | .0023 - .0047                 | .0047 - .007            | .0070                |       |
|           |               | Stainless steel (310, 316, 321)                                    |            |                       |                           |             | 150                  | .0016 - .0032                 | .0032 - .0050           | .0050                |       |
|           | 14            | Stainless steel (323, 329, F55, 2205)                              |            | Austenitic/ Ferritic  | 820                       | 240         | 120                  | .0011 - .0019                 | .0019 - .0023           | .0023                |       |
| S         | 36            | Titanium Ti alloys Ti1100, Ti6AL4V                                 |            |                       |                           | Rm 400      | 110                  | .0010 - .0020                 | .0020 - .0026           | .0026                |       |
|           | 37            |                                                                    |            |                       | Alpha + Beta alloys cured | Rm1050      |                      |                               |                         |                      |       |

Note: Feed and speed recommendations are starting operating parameters. They are only guidelines from which further optimization should take place. Operating parameters are influenced by many machining variables. These variables may cause for reductions in feeds and speed or dramatic increases. Additionally, DOC and WOC may need to be revised to optimize the tools performance.

## Operating Guidelines - 40xD

| Materials |               |                                                                    |            | Condition             | Tensile Strength (N/mm2)  | HB Hardness | Vc Cutting Speed SFM | IPR Cutting Diameter (in/rev) |                          |                 |       |
|-----------|---------------|--------------------------------------------------------------------|------------|-----------------------|---------------------------|-------------|----------------------|-------------------------------|--------------------------|-----------------|-------|
| ISO       | Mtl Group No. | Type                                                               |            |                       |                           |             |                      | 3.0-5.99 mm (.118-.235")      | 6.0-7.99 mm (.236-.314") | 8.0 mm (.312+") |       |
| P         | 1             | Non alloy steel and cast steel free cutting steel                  | < 0.25 %C  | Annealed              | 420                       | 125         | 330                  | .0050 - .0094                 | .0094 - .0105            | .0105           |       |
|           | 2             |                                                                    | >= 0.25 %C | Annealed              | 650                       | 190         |                      |                               |                          |                 |       |
|           | 3             |                                                                    | < 0.55 %C  | Quenched and Tempered | 850                       | 250         |                      |                               |                          |                 |       |
|           | 4             |                                                                    | >= 0.55 %C | Annealed              | 750                       | 220         |                      |                               |                          |                 |       |
|           | 5             |                                                                    | > 0.55 %C  | Quenched and Tempered | 1000                      | 300         |                      |                               |                          |                 |       |
|           | 6             | Low alloy steel and cast steel (less than 5% of alloying elements) |            |                       | Annealed                  | 600         | 200                  | 215                           | .0050 - .0094            | .0094 - .0105   | .0105 |
|           | 7             |                                                                    |            |                       | Quenched and Tempered     | 930         | 275                  |                               |                          |                 |       |
|           | 8             |                                                                    |            |                       |                           | 1000        | 300                  |                               |                          |                 |       |
|           | 9             |                                                                    |            |                       |                           | 1200        | 350                  |                               |                          |                 |       |
|           | 10            | High alloyed steel, cast steel, and tool steel                     |            |                       | Annealed                  | 680         | 200                  | 200                           | .0037 - .0069            | .0069 - .0077   | .0077 |
|           | 11            |                                                                    |            |                       | Quenched and Tempered     | 1100        | 325                  |                               |                          |                 |       |
| M         | 12            | Stainless steel (410, 416, 420, 440)                               |            | Ferritic/ Martensitic | 680                       | 200         | 200                  | .0037 - .0069                 | .0069 - .0077            | .0077           |       |
|           | 13            | Stainless steel (15-5, 17-4)                                       |            | Martensitic           | 820                       | 240         |                      |                               |                          |                 |       |
|           | 14            | Stainless steel (302, 303, 304)                                    |            | Austenitic            | 600                       | 180         | 195                  | .0020 - .0040                 | .0040 - .0055            | .0055           |       |
|           |               | Stainless steel (310, 316, 321)                                    |            |                       |                           |             | 145                  | .0016 - .0032                 | .0032 - .0045            | .0045           |       |
|           | 14            | Stainless steel (323, 329, F55, 2205)                              |            | Austenitic/ Ferritic  | 820                       | 240         | 115                  | .0010 - .0019                 | .0019 - .0021            | .0021           |       |
| S         | 36            | Titanium Ti alloys Ti1100, Ti6AL4V                                 |            |                       |                           | Rm 400      | 100                  | .0010 - .0020                 | .0020 - .0030            | .0030           |       |
|           | 37            |                                                                    |            |                       | Alpha + Beta alloys cured | Rm1050      |                      |                               |                          |                 |       |

Note: Feed and speed recommendations are starting operating parameters. They are only guidelines from which further optimization should take place. Operating parameters are influenced by many machining variables. These variables may cause for reductions in feeds and speed or dramatic increases. Additionally, DOC and WOC may need to be revised to optimize the tools performance.

## Operating Guidelines - 50xD

| Materials |               |                                                                    |            | Condition             | Tensile Strength (N/mm2)  | HB Hardness | Vc Cutting Speed SFM | IPR Cutting Diameter (in/rev) |                          |                 |       |
|-----------|---------------|--------------------------------------------------------------------|------------|-----------------------|---------------------------|-------------|----------------------|-------------------------------|--------------------------|-----------------|-------|
| ISO       | Mtl Group No. | Type                                                               |            |                       |                           |             |                      | 4.0-4.99 mm (.157-.196")      | 5.0-5.99 mm (.197-.235") | 6.0 mm (.250+") |       |
| P         | 1             | Non alloy steel and cast steel free cutting steel                  | < 0.25 %C  | Annealed              | 420                       | 125         | 330                  | .0060 - .0075                 | .0075 - .0094            | .0094           |       |
|           | 2             |                                                                    | >= 0.25 %C | Annealed              | 650                       | 190         |                      |                               |                          |                 |       |
|           | 3             |                                                                    | < 0.55 %C  | Quenched and Tempered | 850                       | 250         |                      |                               |                          |                 |       |
|           | 4             |                                                                    | >= 0.55 %C | Annealed              | 750                       | 220         |                      |                               |                          |                 |       |
|           | 5             |                                                                    | > 0.55 %C  | Quenched and Tempered | 1000                      | 300         |                      |                               |                          |                 |       |
|           | 6             | Low alloy steel and cast steel (less than 5% of alloying elements) |            |                       | Annealed                  | 600         | 200                  | 215                           | .0060 - .0075            | .0075 - .0094   | .0094 |
|           | 7             |                                                                    |            |                       | Quenched and Tempered     | 930         | 275                  |                               |                          |                 |       |
|           | 8             |                                                                    |            |                       |                           | 1000        | 300                  |                               |                          |                 |       |
|           | 9             |                                                                    |            |                       |                           | 1200        | 350                  |                               |                          |                 |       |
|           | 10            | High alloyed steel, cast steel, and tool steel                     |            |                       | Annealed                  | 680         | 200                  | 190                           | .0040 - .0052            | .0052 - .0065   | .0065 |
|           | 11            |                                                                    |            |                       | Quenched and Tempered     | 1100        | 325                  |                               |                          |                 |       |
| M         | 12            | Stainless steel (410, 416, 420, 440)                               |            | Ferritic/ Martensitic | 680                       | 200         | 190                  | .0040 - .0052                 | .0052 - .0065            | .0065           |       |
|           | 13            | Stainless steel (15-5, 17-4)                                       |            | Martensitic           | 820                       | 240         |                      |                               |                          |                 |       |
|           | 14            | Stainless steel (302, 303, 304)                                    |            | Austenitic            | 600                       | 180         | 195                  | .0025 - .0032                 | .0032 - .0040            | .0040           |       |
|           |               | Stainless steel (310, 316, 321)                                    |            |                       |                           |             | 145                  | .0018 - .0026                 | .0026 - .0032            | .0032           |       |
|           | 14            | Stainless steel (323, 329, F55, 2205)                              |            | Austenitic/ Ferritic  | 820                       | 240         | 115                  | .0010 - .0015                 | .0015 - .0019            | .0019           |       |
| S         | 36            | Titanium Ti alloys Ti1100, Ti6AL4V                                 |            |                       |                           | Rm 400      | 100                  | .0010 - .0015                 | .0015 - .0020            | .0020           |       |
|           | 37            |                                                                    |            |                       | Alpha + Beta alloys cured | Rm1050      |                      |                               |                          |                 |       |

Note: Feed and speed recommendations are starting operating parameters. They are only guidelines from which further optimization should take place. Operating parameters are influenced by many machining variables. These variables may cause for reductions in feeds and speed or dramatic increases. Additionally, DOC and WOC may need to be revised to optimize the tools performance.