

**YG-1 CO., LTD.****YG-1 USA**

730 Corporate Woods Parkway, Vernon Hills, IL 60061 USA

- Phone: 800-765-8665
- Technical Assistance: 888-868-5988
- [Http://www.yg1usa.com](http://www.yg1usa.com)

**YG-1 HEAD OFFICE**

211, Sewolcheon-ro, Bupyeong-gu, Incheon, South Korea

- Phone: +82-32-526-0909
- [Http://www.yg1.kr](http://www.yg1.kr)
- E-mail: [yg1@yg1.kr](mailto:yg1@yg1.kr)

**Note** The new address above has currently been updated since Korean new postal standard was valid from 2014.  
Be noticed that the location of the Headquarters has NOT changed.



Tool specifications are subject to change without prior notice.

YG1YUDD180720004

DREAM DRILLS

YG-1 CO., LTD.

**DREAM DRILLS***SOLID CARBIDE DREAM DRILLS*

- NEW SIZES** DREAM DRILLS · **GENERAL** with/without Coolant Holes
- NEW SIZES** DREAM DRILLS · **HIGH FEED** with Coolant Holes
- NEW SERIES** DREAM DRILLS · **FLAT BOTTOM** without Coolant Holes
- NEW SIZES** DREAM DRILLS · **INOX** with Coolant Holes
- NEW SIZES** DREAM DRILLS · **ALU** with Coolant Holes
- NEW SIZES** DREAM DRILLS · **MQL** with Coolant Holes(10xD ~ 40xD)
- NEW SIZES** DREAM DRILLS · **HIGH HARDENED STEELS** HRc50-70

## SELECTION GUIDE

| ITEM | MODEL | DESCRIPTION | SIZE |     | PAGE |
|------|-------|-------------|------|-----|------|
|      |       |             | MIN  | MAX |      |

### DREAM DRILLS • GENERAL

TiAIN-COATED SOLID CARBIDE DREAM DRILLS with/without Coolant Holes

|                                |                                                                                   |                             |            |       |      |           |
|--------------------------------|-----------------------------------------------------------------------------------|-----------------------------|------------|-------|------|-----------|
| <b>DH416</b><br><b>DH711</b>   |  | with Coolant Holes (3×D)    | SHORT      | 1/8   | 5/8  | <b>7</b>  |
| <b>DH418</b><br><b>DH712</b>   |  | with Coolant Holes (5×D)    | LONG       | 13/64 | 1/2  | <b>9</b>  |
| <b>DH406</b>                   |  | with Coolant Holes (3×D)    | SHORT      | 3.0   | 20.0 | <b>10</b> |
| <b>DH408</b>                   |  | with Coolant Holes (5×D)    | LONG       | 1.0   | 20.0 | <b>14</b> |
| <b>DH421</b>                   |  | with Coolant Holes (8×D)    | EXTRA LONG | 3.0   | 20.0 | <b>19</b> |
| <b>DH414</b>                   |  | without Coolant Holes (3×D) | STUB       | 1/8   | 5/8  | <b>23</b> |
| <b>DH722</b>                   |  | without Coolant Holes (5×D) | LONG       | 13/64 | 1/2  | <b>24</b> |
| <b>DH404</b>                   |  | without Coolant Holes (3×D) | STUB       | 3.0   | 20.0 | <b>25</b> |
| <b>DH423</b>                   |  | without Coolant Holes (3×D) | SHORT      | 3.0   | 20.0 | <b>27</b> |
| <b>DH424</b>                   |  | without Coolant Holes (5×D) | LONG       | 1.0   | 20.0 | <b>32</b> |
| RECOMMENDED CUTTING CONDITIONS |                                                                                   |                             |            |       |      | <b>37</b> |

### DREAM DRILLS • HIGH FEED

H-COATED SOLID CARBIDE DREAM DRILLS with Coolant Holes for Faster Drilling in Steels and Cast Iron

|                                |                                                                                     |                                    |       |              |             |           |
|--------------------------------|-------------------------------------------------------------------------------------|------------------------------------|-------|--------------|-------------|-----------|
| <b>DGR493</b><br><b>DGR496</b> |  | High Feed with Coolant Holes (3×D) | SHORT | 13/64<br>5.0 | 3/4<br>20.0 | <b>41</b> |
| <b>DGR495</b><br><b>DGR497</b> |  | High Feed with Coolant Holes (5×D) | LONG  | 13/64<br>5.0 | 3/4<br>20.0 | <b>45</b> |
| RECOMMENDED CUTTING CONDITIONS |                                                                                     |                                    |       |              |             | <b>49</b> |

### DREAM DRILLS • FLAT BOTTOM

X-COATED SOLID CARBIDE DREAM DRILLS without Coolant Holes in 180° Point Angle for Variety Drilling

|                                |                                                                                     |                                         |       |     |      |           |
|--------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------|-------|-----|------|-----------|
| <b>DPP447</b>                  |  | Flat Bottom without coolant holes (2×D) | SHORT | 3.0 | 20.0 | <b>51</b> |
| RECOMMENDED CUTTING CONDITIONS |                                                                                     |                                         |       |     |      | <b>54</b> |

### DREAM DRILLS • INOX

TiAIN-COATED SOLID CARBIDE DREAM DRILLS with Coolant Holes for Drilling Tough Materials; Stainless Steels, Nickel Alloys and Titanium

|                                |                                                                                     |                               |            |       |      |           |
|--------------------------------|-------------------------------------------------------------------------------------|-------------------------------|------------|-------|------|-----------|
| <b>DH463</b><br><b>DH714</b>   |  | INOX with Coolant Holes (3×D) | STUB       | 1/8   | 5/8  | <b>57</b> |
| <b>DH464</b><br><b>DH715</b>   |  | INOX with Coolant Holes (5×D) | LONG       | 13/64 | 1/2  | <b>59</b> |
| <b>DH451</b>                   |  | INOX with Coolant Holes (3×D) | SHORT      | 3.0   | 20.0 | <b>60</b> |
| <b>DH452</b>                   |  | INOX with Coolant Holes (5×D) | LONG       | 1.0   | 20.0 | <b>65</b> |
| <b>DH453</b>                   |  | INOX with Coolant Holes (8×D) | EXTRA LONG | 3.0   | 20.0 | <b>70</b> |
| RECOMMENDED CUTTING CONDITIONS |                                                                                     |                               |            |       |      | <b>74</b> |

◎ : Excellent ○ : Good

| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |

|   |   |   |  |  |   |   |  |  |  |  |  |
|---|---|---|--|--|---|---|--|--|--|--|--|
| ◎ | ◎ | ◎ |  |  | ○ | ○ |  |  |  |  |  |
| ◎ | ◎ | ◎ |  |  | ○ | ○ |  |  |  |  |  |
| ◎ | ◎ | ◎ |  |  | ○ | ○ |  |  |  |  |  |
| ◎ | ◎ | ◎ |  |  | ○ | ○ |  |  |  |  |  |
| ◎ | ◎ | ◎ |  |  | ○ | ○ |  |  |  |  |  |
| ◎ | ◎ | ◎ |  |  | ○ | ○ |  |  |  |  |  |
| ◎ | ◎ | ◎ |  |  | ○ | ○ |  |  |  |  |  |
| ◎ | ◎ | ◎ |  |  | ○ | ○ |  |  |  |  |  |
| ◎ | ◎ | ◎ |  |  | ○ | ○ |  |  |  |  |  |
| ◎ | ◎ | ◎ |  |  | ○ | ○ |  |  |  |  |  |
| ◎ | ◎ | ◎ |  |  | ○ | ○ |  |  |  |  |  |

|   |   |   |  |  |  |   |  |  |  |  |  |
|---|---|---|--|--|--|---|--|--|--|--|--|
| ◎ | ◎ | ○ |  |  |  | ◎ |  |  |  |  |  |
| ◎ | ◎ | ○ |  |  |  | ◎ |  |  |  |  |  |

|   |   |   |   |  |   |   |   |   |  |  |  |
|---|---|---|---|--|---|---|---|---|--|--|--|
| ◎ | ◎ | ◎ | ○ |  | ○ | ◎ | ○ | ○ |  |  |  |
|---|---|---|---|--|---|---|---|---|--|--|--|

|   |   |   |  |  |   |  |   |  |  |  |   |
|---|---|---|--|--|---|--|---|--|--|--|---|
| ◎ | ◎ | ○ |  |  | ◎ |  | ○ |  |  |  | ○ |
| ◎ | ◎ | ○ |  |  | ◎ |  | ○ |  |  |  | ○ |
| ◎ | ◎ | ○ |  |  | ◎ |  | ○ |  |  |  | ○ |
| ◎ | ◎ | ○ |  |  | ◎ |  | ○ |  |  |  | ○ |
| ◎ | ◎ | ○ |  |  | ◎ |  | ○ |  |  |  | ○ |



## SELECTION GUIDE

| ITEM | MODEL | DESCRIPTION | SIZE |     | PAGE |
|------|-------|-------------|------|-----|------|
|      |       |             | MIN  | MAX |      |

### DREAM DRILLS · ALU

DLC-COATED SOLID CARBIDE DREAM DRILLS with Coolant Holes  
for Aluminum & Aluminum Alloys

|                                |                                                                                   |                              |      |       |      |           |
|--------------------------------|-----------------------------------------------------------------------------------|------------------------------|------|-------|------|-----------|
| <b>DGE466</b><br><b>DGE718</b> |  | ALU with Coolant Holes (5×D) | LONG | 13/64 | 1/2  | <b>76</b> |
| <b>DGE433</b>                  |  | ALU with Coolant Holes (5×D) | LONG | 3.0   | 20.0 | <b>77</b> |
| RECOMMENDED CUTTING CONDITIONS |                                                                                   |                              |      |       |      | <b>81</b> |

### DREAM DRILLS · MQL

TiAIN-COATED SOLID CARBIDE DREAM DRILLS with Coolant Holes  
for Deep Hole Drilling

|                                              |                                                                                    |                                           |            |     |      |           |
|----------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------|------------|-----|------|-----------|
| <b>DH510</b>                                 |   | MQL with Coolant Holes (10×D)             | EXTRA LONG | 3.0 | 14.0 | <b>83</b> |
| <b>DH515</b>                                 |   | MQL with Coolant Holes (15×D)             | EXTRA LONG | 3.0 | 14.0 | <b>86</b> |
| <b>DH520</b>                                 |   | MQL with Coolant Holes (20×D)             | EXTRA LONG | 3.0 | 12.0 | <b>89</b> |
| <b>DHM10</b><br><b>DHM15</b><br><b>DHM20</b> |   | MQL with Coolant Holes (10×D, 15×D, 20×D) | EXTRA LONG | 3.0 | 12.0 | <b>92</b> |
| <b>DHM25</b>                                 |   | MQL with Coolant Holes (25×D)             | EXTRA LONG | 3.0 | 10.0 | <b>93</b> |
| <b>DHM30</b>                                 |  | MQL with Coolant Holes (30×D)             | EXTRA LONG | 3.0 | 8.0  | <b>95</b> |
| RECOMMENDED CUTTING CONDITIONS               |                                                                                    |                                           |            |     |      | <b>97</b> |

### DREAM DRILLS · HIGH HARDENED STEELS

TiAIN-COATED SOLID CARBIDE DREAM DRILLS  
for High Hardened Steels (HRc50–HRc70)

|                                |                                                                                     |                                        |  |     |      |            |
|--------------------------------|-------------------------------------------------------------------------------------|----------------------------------------|--|-----|------|------------|
| <b>DH501</b>                   |  | for High Hardened Steels (HRc50–HRc70) |  | 1/8 | 3/4  | <b>99</b>  |
| <b>DH500</b>                   |  | for High Hardened Steels (HRc50–HRc70) |  | 1.0 | 14.0 | <b>101</b> |
| RECOMMENDED CUTTING CONDITIONS |                                                                                     |                                        |  |     |      | <b>102</b> |

### DREAM DRILLS

|                |            |
|----------------|------------|
| TECHNICAL DATA | <b>103</b> |
|----------------|------------|



◎ : Excellent ○ : Good

| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRc30~45           | HRc45~55        | HRc55~ |                  |           |          |        |        |      |          |

|  |  |  |  |  |  |  |   |  |  |  |  |
|--|--|--|--|--|--|--|---|--|--|--|--|
|  |  |  |  |  |  |  | ◎ |  |  |  |  |
|  |  |  |  |  |  |  | ◎ |  |  |  |  |

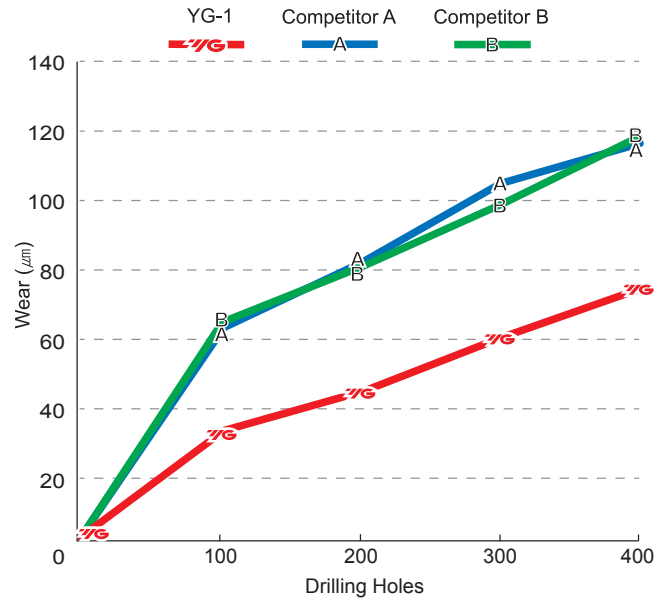
|   |   |   |  |  |  |   |  |  |  |  |  |
|---|---|---|--|--|--|---|--|--|--|--|--|
| ◎ | ◎ | ○ |  |  |  | ○ |  |  |  |  |  |
| ◎ | ◎ | ○ |  |  |  | ○ |  |  |  |  |  |
| ◎ | ◎ | ○ |  |  |  | ○ |  |  |  |  |  |
| ◎ | ◎ | ○ |  |  |  | ○ |  |  |  |  |  |
| ◎ | ◎ | ○ |  |  |  | ○ |  |  |  |  |  |
| ◎ | ◎ | ○ |  |  |  | ○ |  |  |  |  |  |

|  |  |  |   |   |  |  |  |  |  |  |  |
|--|--|--|---|---|--|--|--|--|--|--|--|
|  |  |  | ◎ | ◎ |  |  |  |  |  |  |  |
|  |  |  | ◎ | ◎ |  |  |  |  |  |  |  |

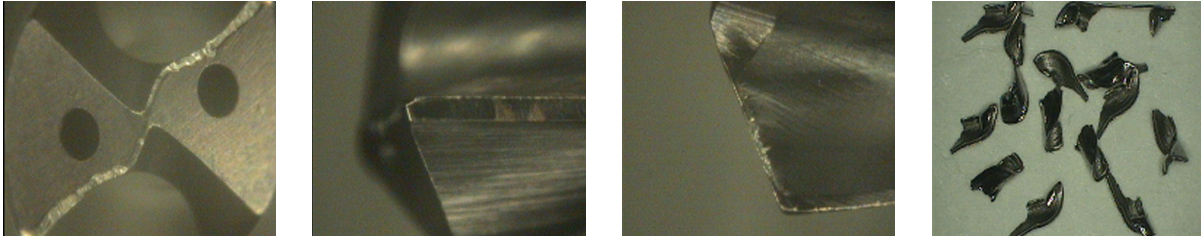
## CASE STUDY

### ► SOLID CARBIDE DREAM DRILLS - General with Coolant Holes

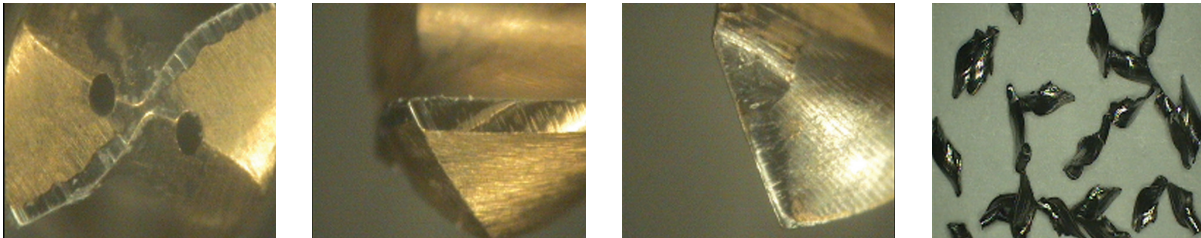
| CUTTING CONDITION |                                                                                                                            |
|-------------------|----------------------------------------------------------------------------------------------------------------------------|
| Tool              | DH408015<br>(Dream Drill with Coolant Holes)                                                                               |
| Size              | Ø1.5 x 3 x 15 x 55                                                                                                         |
| Work Material     | <ul style="list-style-type: none"> <li>• JIS : SKD61 (HRC30)</li> <li>• DIN : X40GrMoV51</li> <li>• WR : 1.2344</li> </ul> |
| RPM               | 14,856 rev./min.                                                                                                           |
| Feed              | .0019 inch/rev.                                                                                                            |
| Drilling Depth    | 29"                                                                                                                        |
| Coolant           | Wet Cut                                                                                                                    |



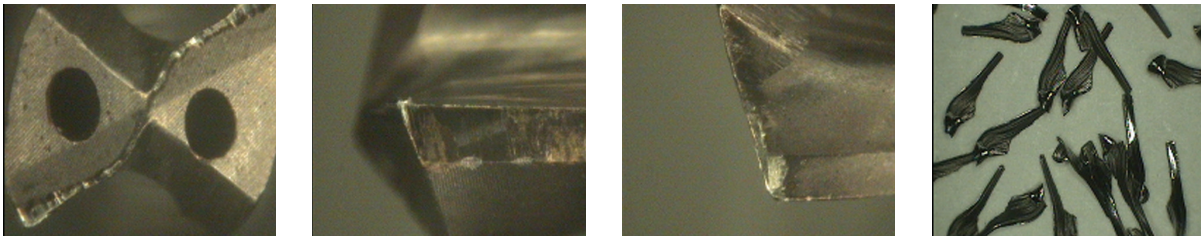
#### ► YG-1 (Total Drilling 400 Holes)



#### ► COMPETITOR A (Total Drilling 400 Holes)



#### ► COMPETITOR B (Total Drilling 400 Holes)

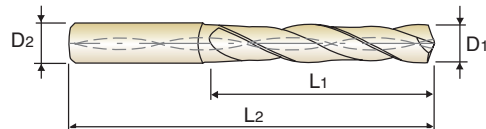


### TiAIN-COATED SOLID CARBIDE DREAM DRILLS with Coolant Holes (3XD)

**DH416 SERIES**

**DH711 SERIES**

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron, Non-Ferrous, Abrasive Plastic
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation
- ▶ Tolerance : Dia. Tolerance  $\varnothing D1$  : See page 104  
Shank Tolerance  $\varnothing D2$ : -.0001 -.0005



3 × D

Unit : inch

| EDP No.  | Drill Diameter |         | Shank Diameter | Flute Length | Overall Length |
|----------|----------------|---------|----------------|--------------|----------------|
|          | Fractional     | Decimal |                |              |                |
| TiAIN    | D1             |         | D2             | L1           | L2             |
| DH711008 | 1/8            | .1250   | 3/16           | 1.102        | 2.992          |
| 0081BTF  | 1/8            | .1250   | 15/64          | 1.102        | 2.992          |
| DH711011 | 11/64          | .1719   | 3/16           | 1.417        | 3.386          |
| 0111BTF  | 11/64          | .1719   | 15/64          | 1.417        | 3.386          |
| DH711012 | 3/16           | .1875   | 3/16           | 1.575        | 3.543          |
| 0121BTF  | 3/16           | .1875   | 15/64          | 1.575        | 3.543          |
| 0131BTF  | 13/64          | .2031   | 15/64          | 1.082        | 3.228          |
| DH711013 | 13/64          | .2031   | 1/4            | 1.082        | 3.228          |
| 0141BTF  | 7/32           | .2188   | 15/64          | 1.181        | 3.228          |
| DH711014 | 7/32           | .2188   | 1/4            | 1.181        | 3.228          |
| 0151BTF  | 15/64          | .2344   | 15/64          | 1.181        | 3.228          |
| DH711015 | 15/64          | .2344   | 1/4            | 1.181        | 3.228          |
| DH711016 | 1/4            | .2500   | 1/4            | 1.279        | 3.465          |
| 0161BTF  | 1/4            | .2500   | 17/64          | 1.279        | 3.465          |
| 2061BTF  | F              | .2570   | 17/64          | 1.279        | 3.465          |
| DH711206 | F              | .2570   | 5/16           | 1.279        | 3.465          |
| 0171BTF  | 17/64          | .2656   | 17/64          | 1.378        | 3.465          |
| DH711017 | 17/64          | .2656   | 5/16           | 1.378        | 3.465          |
| 2091BTF  | I              | .2720   | .2720          | 1.378        | 3.465          |
| DH711209 | I              | .2720   | 5/16           | 1.378        | 3.465          |
| 0181BTF  | 9/32           | .2812   | 5/16           | 1.476        | 3.701          |
| 0191BTF  | 19/64          | .2969   | 5/16           | 1.476        | 3.701          |
| 0201BTF  | 5/16           | .3125   | 5/16           | 1.575        | 3.701          |
| 0211BTF  | 21/64          | .3281   | 11/32          | 1.673        | 3.937          |
| DH711021 | 21/64          | .3281   | 3/8            | 1.673        | 3.937          |
| 2171BTF  | Q              | .3320   | 11/32          | 1.673        | 3.937          |

| EDP No.  | Drill Diameter |         | Shank Diameter | Flute Length | Overall Length |
|----------|----------------|---------|----------------|--------------|----------------|
|          | Fractional     | Decimal |                |              |                |
| TiAIN    | D1             |         | D2             | L1           | L2             |
| DH711217 | Q              | .3320   | 3/8            | 1.673        | 3.937          |
| 0221BTF  | 11/32          | .3438   | 11/32          | 1.772        | 3.937          |
| DH711022 | 11/32          | .3438   | 3/8            | 1.772        | 3.937          |
| DH711023 | 23/64          | .3594   | 3/8            | 1.87         | 4.174          |
| 0231BTF  | 23/64          | .3594   | 25/64          | 1.870        | 4.174          |
| DH711221 | U              | .3680   | 3/8            | 1.87         | 4.174          |
| 2211BTF  | U              | .3680   | 25/64          | 1.870        | 4.174          |
| DH711024 | 3/8            | .3750   | 3/8            | 1.969        | 4.174          |
| 0241BTF  | 3/8            | .3750   | 25/64          | 1.969        | 4.174          |
| 0251BTF  | 25/64          | .3906   | 25/64          | 1.969        | 4.174          |
| DH711025 | 25/64          | .3906   | 7/16           | 1.969        | 4.174          |
| 0261BTF  | 13/32          | .4062   | 27/64          | 2.067        | 4.567          |
| DH711026 | 13/32          | .4062   | 7/16           | 2.067        | 4.567          |
| 0271BTF  | 27/64          | .4219   | 27/64          | 2.165        | 4.567          |
| DH711027 | 27/64          | .4219   | 7/16           | 2.165        | 4.567          |
| DH711028 | 7/16           | .4375   | 7/16           | 2.264        | 4.803          |
| 0281BTF  | 7/16           | .4375   | 15/32          | 2.264        | 4.803          |
| 0291BTF  | 29/64          | .4531   | 15/32          | 2.264        | 4.803          |
| DH711029 | 29/64          | .4531   | 1/2            | 2.264        | 4.803          |
| 0301BTF  | 15/32          | .4688   | 15/32          | 2.362        | 4.803          |
| DH711030 | 15/32          | .4688   | 1/2            | 2.362        | 4.803          |
| 0311BTF  | 31/64          | .4844   | 1/2            | 2.461        | 5.039          |
| 0321BTF  | 1/2            | .5000   | 1/2            | 2.559        | 5.039          |
| 0331BTF  | 33/64          | .5156   | 35/64          | 2.657        | 5.276          |
| DH711033 | 33/64          | .5156   | 9/16           | 2.657        | 5.276          |
| 0341BTF  | 17/32          | .5312   | 35/64          | 2.756        | 5.276          |

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

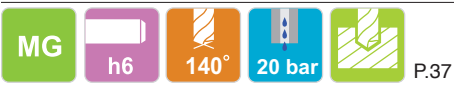
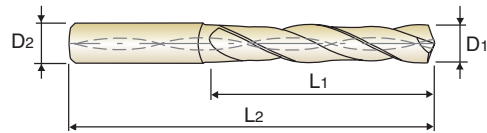
| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ◎                  |                 |        | ○                | ○         |          |        |        |      |          |



# TiAlN-COATED SOLID CARBIDE DREAM DRILLS with Coolant Holes (3XD)

**DH416 SERIES**
**DH711 SERIES**

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron, Non-Ferrous, Abrasive Plastic
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation
- ▶ Tolerance : Dia. Tolerance  $\varnothing D1$  : See page 104  
Shank Tolerance  $\varnothing D2$ : -.0001 -.0005


**3 × D**

Unit : inch

| EDP No.  | Drill Diameter |         | Shank Diameter | Flute Length | Overall Length |
|----------|----------------|---------|----------------|--------------|----------------|
|          | Fractional     | Decimal |                |              |                |
| TiAlN    | D1             |         | D2             | L1           | L2             |
| DH711034 | 17/32          | .5312   | 9/16           | 2.756        | 5.276          |
| 0351BTF  | 35/64          | .5469   | 35/64          | 2.756        | 5.276          |
| DH711035 | 35/64          | .5469   | 9/16           | 2.756        | 5.276          |
| DH711036 | 9/16           | .5625   | 9/16           | 2.854        | 5.512          |
| 0361BTF  | 9/16           | .5625   | 37/64          | 2.854        | 5.512          |

| EDP No.  | Drill Diameter |         | Shank Diameter | Flute Length | Overall Length |
|----------|----------------|---------|----------------|--------------|----------------|
|          | Fractional     | Decimal |                |              |                |
| TiAlN    | D1             |         | D2             | L1           | L2             |
| 0371BTF  | 37/64          | .5781   | 37/64          | 2.953        | 5.512          |
| DH711037 | 37/64          | .5781   | 5/8            | 2.953        | 5.512          |
| 0381BTF  | 19/32          | .5937   | 5/8            | 3.051        | 5.709          |
| 0391BTF  | 39/64          | .6094   | 5/8            | 3.051        | 5.709          |
| 0401BTF  | 5/8            | .6250   | 5/8            | 3.150        | 5.709          |

▶ Other shank types are available on your request.

◎ : Excellent ○ : Good

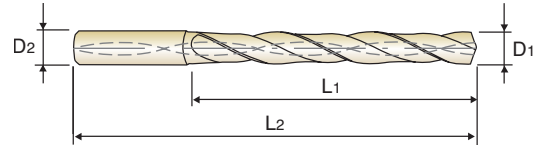
| P             |              |                    |                 |        | H                | M         | K        | N      |        |      |  | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|--|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP |  | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |  |          |
| ◎             | ◎            | ◎                  |                 |        | ○                | ○         |          |        |        |      |  |          |

### TiAIN-COATED SOLID CARBIDE DREAM DRILLS with Coolant Holes (5XD)

#### DH418 SERIES

#### DH712 SERIES

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron, Non-Ferrous, Abrasive Plastic
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation
- ▶ Tolerance : Dia. Tolerance  $\varnothing D1$  : See page 104  
Shank Tolerance  $\varnothing D2$ : -.0001 -.0005



5 × D

Unit : inch

| EDP No.  | Drill Diameter |         | Shank Diameter | Flute Length | Overall Length |
|----------|----------------|---------|----------------|--------------|----------------|
|          | Fractional     | Decimal |                |              |                |
| TiAIN    | D1             |         | D2             | L1           | L2             |
| 0131CTF  | 13/64          | .2031   | 15/64          | 1-3/4        | 3-15/16        |
| DH712013 | 13/64          | .2031   | 1/4            | 1-3/4        | 3-15/16        |
| 0141CTF  | 7/32           | .2188   | 15/64          | 1-57/64      | 3-15/16        |
| DH712014 | 7/32           | .2188   | 1/4            | 1-57/64      | 3-15/16        |
| 0151CTF  | 15/64          | .2344   | 15/64          | 1-57/64      | 3-15/16        |
| DH712015 | 15/64          | .2344   | 1/4            | 1-57/64      | 3-15/16        |
| DH712016 | 1/4            | .2500   | 1/4            | 2-3/64       | 4-19/64        |
| 0161CTF  | 1/4            | .2500   | 17/64          | 2-3/64       | 4-19/64        |
| 2061CTF  | F              | .2570   | 17/64          | 2-13/64      | 4-19/64        |
| DH712206 | F              | .2570   | 5/16           | 2-13/64      | 4-19/64        |
| 0171CTF  | 17/64          | .2656   | 17/64          | 2-13/64      | 4-19/64        |
| DH712017 | 17/64          | .2656   | 5/16           | 2-13/64      | 4-19/64        |
| 2091CTF  | I              | .2720   | .2720          | 2-13/64      | 4-19/64        |
| DH712209 | I              | .2720   | 5/16           | 2-13/64      | 4-19/64        |
| 0181CTF  | 9/32           | .2812   | 5/16           | 2-23/64      | 4-41/64        |
| 0191CTF  | 19/64          | .2969   | 5/16           | 2-33/64      | 4-41/64        |
| 0201CTF  | 5/16           | .3125   | 5/16           | 2-33/64      | 4-41/64        |
| 0211CTF  | 21/64          | .3281   | 11/32          | 2-43/64      | 5              |
| DH712021 | 21/64          | .3281   | 3/8            | 2-43/64      | 5              |
| 2171CTF  | Q              | .3320   | 11/32          | 2-43/64      | 5              |
| DH712217 | Q              | .3320   | 3/8            | 2-43/64      | 5              |
| 0221CTF  | 11/32          | .3438   | 11/32          | 2-27/32      | 5              |

| EDP No.  | Drill Diameter |         | Shank Diameter | Flute Length | Overall Length |
|----------|----------------|---------|----------------|--------------|----------------|
|          | Fractional     | Decimal |                |              |                |
| TiAIN    | D1             |         | D2             | L1           | L2             |
| DH712022 | 11/32          | .3438   | 3/8            | 2-27/32      | 5              |
| DH712023 | 23/64          | .3594   | 3/8            | 3            | 5-23/64        |
| 0231CTF  | 23/64          | .3594   | 25/64          | 3            | 5-23/64        |
| DH712221 | U              | .3680   | 3/8            | 3            | 5-23/64        |
| 2211CTF  | U              | .3680   | 25/64          | 3            | 5-23/64        |
| DH712024 | 3/8            | .3750   | 3/8            | 3-5/32       | 5-23/64        |
| 0241CTF  | 3/8            | .3750   | 25/64          | 3-5/32       | 5-23/64        |
| 0251CTF  | 25/64          | .3906   | 25/64          | 3-5/32       | 5-23/64        |
| DH712025 | 25/64          | .3906   | 7/16           | 3-5/32       | 5-23/64        |
| 0261CTF  | 13/32          | .4062   | 27/64          | 3-5/16       | 5-7/8          |
| DH712026 | 13/32          | .4062   | 7/16           | 3-5/16       | 5-7/8          |
| 0271CTF  | 27/64          | .4219   | 27/64          | 3-15/32      | 5-7/8          |
| DH712027 | 27/64          | .4219   | 7/16           | 3-15/32      | 5-7/8          |
| DH712028 | 7/16           | .4375   | 7/16           | 3-5/8        | 6-7/32         |
| 0281CTF  | 7/16           | .4375   | 15/32          | 3-5/8        | 6-7/32         |
| 0291CTF  | 29/64          | .4531   | 15/32          | 3-25/32      | 6-7/32         |
| DH712029 | 29/64          | .4531   | 1/2            | 3-25/32      | 6-7/32         |
| 0301CTF  | 15/32          | .4688   | 15/32          | 3-25/32      | 6-7/32         |
| DH712030 | 15/32          | .4688   | 1/2            | 3-25/32      | 6-7/32         |
| 0311CTF  | 31/64          | .4844   | 1/2            | 3-15/16      | 6-37/64        |
| 0321CTF  | 1/2            | .5000   | 1/2            | 4-3/32       | 6-37/64        |

▶ Other shank types are available on your request.

◎ : Excellent ○ : Good

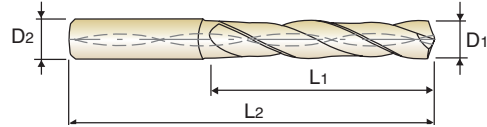
| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ◎                  |                 |        | ○                | ○         |          |        |        |      |          |

# TiAIN-COATED SOLID CARBIDE DREAM DRILLS with Coolant Holes (3XD)

SHORT

DH406 SERIES

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron, Non-Ferrous, Abrasive Plastic
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation



3 × D

Unit : mm

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAIN     | D1             |            |         | D2             | L1           | L2             |
| DH406030  | 3.0            |            | .1181   | 6              | 20           | 62             |
| DH406031  | 3.1            |            | .1220   | 6              | 20           | 62             |
| DH406008F | 3.175          | 1/8        | .1250   | 6              | 20           | 62             |
| DH406032  | 3.2            |            | .1260   | 6              | 20           | 62             |
| DH406033  | 3.3            |            | .1299   | 6              | 20           | 62             |
| DH406034  | 3.4            |            | .1339   | 6              | 20           | 62             |
| DH406035  | 3.5            |            | .1378   | 6              | 20           | 62             |
| DH406009F | 3.572          | 9/64       | .1406   | 6              | 20           | 62             |
| DH406036  | 3.6            |            | .1417   | 6              | 20           | 62             |
| DH406037  | 3.7            |            | .1457   | 6              | 20           | 62             |
| DH406038  | 3.8            |            | .1496   | 6              | 24           | 66             |
| DH406039  | 3.9            |            | .1535   | 6              | 24           | 66             |
| DH406010F | 3.969          | 5/32       | .1563   | 6              | 24           | 66             |
| DH406040  | 4.0            |            | .1575   | 6              | 24           | 66             |
| DH406041  | 4.1            |            | .1614   | 6              | 24           | 66             |
| DH406042  | 4.2            |            | .1654   | 6              | 24           | 66             |
| DH406043  | 4.3            |            | .1693   | 6              | 24           | 66             |
| DH406011F | 4.366          | 11/64      | .1719   | 6              | 24           | 66             |
| DH406044  | 4.4            |            | .1732   | 6              | 24           | 66             |
| DH406045  | 4.5            |            | .1772   | 6              | 24           | 66             |
| DH406046  | 4.6            |            | .1811   | 6              | 24           | 66             |
| DH406047  | 4.7            |            | .1850   | 6              | 24           | 66             |
| DH406012F | 4.763          | 3/16       | .1875   | 6              | 24           | 66             |
| DH406048  | 4.8            |            | .1890   | 6              | 28           | 66             |
| DH406049  | 4.9            |            | .1929   | 6              | 28           | 66             |
| DH406050  | 5.0            |            | .1969   | 6              | 28           | 66             |

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAIN     | D1             |            |         | D2             | L1           | L2             |
| DH406051  | 5.1            |            | .2008   | 6              | 28           | 66             |
| DH406013F | 5.159          | 13/64      | .2031   | 6              | 28           | 66             |
| DH406052  | 5.2            |            | .2047   | 6              | 28           | 66             |
| DH406053  | 5.3            |            | .2087   | 6              | 28           | 66             |
| DH406054  | 5.4            |            | .2126   | 6              | 28           | 66             |
| DH406055  | 5.5            |            | .2165   | 6              | 28           | 66             |
| DH406014F | 5.556          | 7/32       | .2188   | 6              | 28           | 66             |
| DH406056  | 5.6            |            | .2205   | 6              | 28           | 66             |
| DH406057  | 5.7            |            | .2244   | 6              | 28           | 66             |
| DH406058  | 5.8            |            | .2283   | 6              | 28           | 66             |
| DH406059  | 5.9            |            | .2323   | 6              | 28           | 66             |
| DH406015F | 5.953          | 15/64      | .2344   | 6              | 28           | 66             |
| DH406060  | 6.0            |            | .2362   | 6              | 28           | 66             |
| DH406061  | 6.1            |            | .2402   | 8              | 34           | 79             |
| DH406062  | 6.2            |            | .2441   | 8              | 34           | 79             |
| DH406063  | 6.3            |            | .2480   | 8              | 34           | 79             |
| DH406016F | 6.350          | 1/4        | .2500   | 8              | 34           | 79             |
| DH406064  | 6.4            |            | .2520   | 8              | 34           | 79             |
| DH406065  | 6.5            |            | .2559   | 8              | 34           | 79             |
| DH406006L | 6.528          | F          | .2570   | 8              | 34           | 79             |
| DH406066  | 6.6            |            | .2598   | 8              | 34           | 79             |
| DH406067  | 6.7            |            | .2638   | 8              | 34           | 79             |
| DH406017F | 6.747          | 17/64      | .2656   | 8              | 34           | 79             |
| DH406068  | 6.8            |            | .2677   | 8              | 34           | 79             |
| DH406069  | 6.9            |            | .2717   | 8              | 34           | 79             |
| DH406009L | 6.909          | I          | .2720   | 8              | 34           | 79             |

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

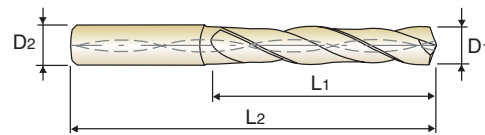
| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ◎                  |                 |        | ○                | ○         |          |        |        |      |          |

## TiAIN-COATED SOLID CARBIDE DREAM DRILLS with Coolant Holes (3XD)

SHORT

DH406 SERIES

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron, Non-Ferrous, Abrasive Plastic
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation



3 × D

Unit : mm

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAIN     | D1             |            |         | D2             | L1           | L2             |
| DH406070  | 7.0            |            | .2756   | 8              | 34           | 79             |
| DH406071  | 7.1            |            | .2795   | 8              | 41           | 79             |
| DH406018F | 7.144          | 9/32       | .2812   | 8              | 41           | 79             |
| DH406072  | 7.2            |            | .2835   | 8              | 41           | 79             |
| DH406073  | 7.3            |            | .2874   | 8              | 41           | 79             |
| DH406074  | 7.4            |            | .2913   | 8              | 41           | 79             |
| DH406075  | 7.5            |            | .2953   | 8              | 41           | 79             |
| DH406019F | 7.541          | 19/64      | .2969   | 8              | 41           | 79             |
| DH406076  | 7.6            |            | .2992   | 8              | 41           | 79             |
| DH406077  | 7.7            |            | .3031   | 8              | 41           | 79             |
| DH406078  | 7.8            |            | .3071   | 8              | 41           | 79             |
| DH406079  | 7.9            |            | .3110   | 8              | 41           | 79             |
| DH406020F | 7.938          | 5/16       | .3125   | 8              | 41           | 79             |
| DH406080  | 8.0            |            | .3150   | 8              | 41           | 79             |
| DH406081  | 8.1            |            | .3189   | 10             | 47           | 89             |
| DH406082  | 8.2            |            | .3228   | 10             | 47           | 89             |
| DH406083  | 8.3            |            | .3268   | 10             | 47           | 89             |
| DH406021F | 8.334          | 21/64      | .3281   | 10             | 47           | 89             |
| DH406084  | 8.4            |            | .3307   | 10             | 47           | 89             |
| DH406017L | 8.433          | Q          | .3320   | 10             | 47           | 89             |
| DH406085  | 8.5            |            | .3346   | 10             | 47           | 89             |
| DH406086  | 8.6            |            | .3386   | 10             | 47           | 89             |
| DH406087  | 8.7            |            | .3425   | 10             | 47           | 89             |
| DH406022F | 8.731          | 11/32      | .3438   | 10             | 47           | 89             |
| DH406088  | 8.8            |            | .3465   | 10             | 47           | 89             |
| DH406089  | 8.9            |            | .3504   | 10             | 47           | 89             |

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAIN     | D1             |            |         | D2             | L1           | L2             |
| DH406090  | 9.0            |            | .3543   | 10             | 47           | 89             |
| DH406091  | 9.1            |            | .3583   | 10             | 47           | 89             |
| DH406023F | 9.128          | 23/64      | .3594   | 10             | 47           | 89             |
| DH406092  | 9.2            |            | .3622   | 10             | 47           | 89             |
| DH406093  | 9.3            |            | .3661   | 10             | 47           | 89             |
| DH406021L | 9.347          | U          | .3680   | 10             | 47           | 89             |
| DH406094  | 9.4            |            | .3701   | 10             | 47           | 89             |
| DH406095  | 9.5            |            | .3740   | 10             | 47           | 89             |
| DH406024F | 9.525          | 3/8        | .3750   | 10             | 47           | 89             |
| DH406096  | 9.6            |            | .3780   | 10             | 47           | 89             |
| DH406097  | 9.7            |            | .3819   | 10             | 47           | 89             |
| DH406098  | 9.8            |            | .3858   | 10             | 47           | 89             |
| DH406099  | 9.9            |            | .3898   | 10             | 47           | 89             |
| DH406025F | 9.922          | 25/64      | .3906   | 10             | 47           | 89             |
| DH406100  | 10.0           |            | .3937   | 10             | 47           | 89             |
| DH406101  | 10.1           |            | .3976   | 12             | 55           | 102            |
| DH406102  | 10.2           |            | .4016   | 12             | 55           | 102            |
| DH406103  | 10.3           |            | .4055   | 12             | 55           | 102            |
| DH406026F | 10.319         | 13/32      | .4062   | 12             | 55           | 102            |
| DH406104  | 10.4           |            | .4094   | 12             | 55           | 102            |
| DH406105  | 10.5           |            | .4134   | 12             | 55           | 102            |
| DH406106  | 10.6           |            | .4173   | 12             | 55           | 102            |
| DH406107  | 10.7           |            | .4212   | 12             | 55           | 102            |
| DH406027F | 10.716         | 27/64      | .4219   | 12             | 55           | 102            |
| DH406108  | 10.8           |            | .4252   | 12             | 55           | 102            |
| DH406109  | 10.9           |            | .4291   | 12             | 55           | 102            |

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ◎                  |                 |        | ○                | ○         |          |        |        |      |          |

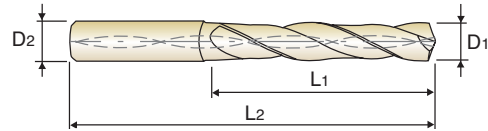


# TiAlN-COATED SOLID CARBIDE DREAM DRILLS with Coolant Holes (3XD)

SHORT

DH406 SERIES

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron, Non-Ferrous, Abrasive Plastic
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation



3 × D

Unit : mm

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAlN     | D1             |            |         | D2             | L1           | L2             |
| DH406110  | 11.0           |            | .4330   | 12             | 55           | 102            |
| DH406111  | 11.1           |            | .4370   | 12             | 55           | 102            |
| DH406028F | 11.113         | 7/16       | .4375   | 12             | 55           | 102            |
| DH406112  | 11.2           |            | .4409   | 12             | 55           | 102            |
| DH406113  | 11.3           |            | .4448   | 12             | 55           | 102            |
| DH406114  | 11.4           |            | .4488   | 12             | 55           | 102            |
| DH406115  | 11.5           |            | .4527   | 12             | 55           | 102            |
| DH406029F | 11.509         | 29/64      | .4531   | 12             | 55           | 102            |
| DH406116  | 11.6           |            | .4566   | 12             | 55           | 102            |
| DH406117  | 11.7           |            | .4606   | 12             | 55           | 102            |
| DH406118  | 11.8           |            | .4645   | 12             | 55           | 102            |
| DH406119  | 11.9           |            | .4685   | 12             | 55           | 102            |
| DH406030F | 11.906         | 15/32      | .4688   | 12             | 55           | 102            |
| DH406120  | 12.0           |            | .4724   | 12             | 55           | 102            |
| DH406121  | 12.1           |            | .4764   | 14             | 60           | 107            |
| DH406122  | 12.2           |            | .4803   | 14             | 60           | 107            |
| DH406123  | 12.3           |            | .4843   | 14             | 60           | 107            |
| DH406031F | 12.303         | 31/64      | .4844   | 14             | 60           | 107            |
| DH406124  | 12.4           |            | .4882   | 14             | 60           | 107            |
| DH406125  | 12.5           |            | .4921   | 14             | 60           | 107            |
| DH406126  | 12.6           |            | .4961   | 14             | 60           | 107            |
| DH406032F | 12.7           | 1/2        | .5000   | 14             | 60           | 107            |
| DH406128  | 12.8           |            | .5039   | 14             | 60           | 107            |
| DH406129  | 12.9           |            | .5079   | 14             | 60           | 107            |
| DH406130  | 13.0           |            | .5118   | 14             | 60           | 107            |
| DH406131  | 13.1           |            | .5157   | 14             | 60           | 107            |

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAlN     | D1             |            |         | D2             | L1           | L2             |
| DH406132  | 13.2           |            | .5197   | 14             | 60           | 107            |
| DH406133  | 13.3           |            | .5236   | 14             | 60           | 107            |
| DH406134  | 13.4           |            | .5276   | 14             | 60           | 107            |
| DH406135  | 13.5           |            | .5314   | 14             | 60           | 107            |
| DH406136  | 13.6           |            | .5354   | 14             | 60           | 107            |
| DH406137  | 13.7           |            | .5394   | 14             | 60           | 107            |
| DH406138  | 13.8           |            | .5433   | 14             | 60           | 107            |
| DH406139  | 13.9           |            | .5472   | 14             | 60           | 107            |
| DH406140  | 14.0           |            | .5512   | 14             | 60           | 107            |
| DH406141  | 14.1           |            | .5551   | 16             | 65           | 115            |
| DH406142  | 14.2           |            | .5591   | 16             | 65           | 115            |
| DH406036F | 14.288         | 9/16       | .5625   | 16             | 65           | 115            |
| DH406143  | 14.3           |            | .5630   | 16             | 65           | 115            |
| DH406144  | 14.4           |            | .5669   | 16             | 65           | 115            |
| DH406145  | 14.5           |            | .5708   | 16             | 65           | 115            |
| DH406146  | 14.6           |            | .5748   | 16             | 65           | 115            |
| DH406147  | 14.7           |            | .5787   | 16             | 65           | 115            |
| DH406148  | 14.8           |            | .5827   | 16             | 65           | 115            |
| DH406149  | 14.9           |            | .5866   | 16             | 65           | 115            |
| DH406150  | 15.0           |            | .5905   | 16             | 65           | 115            |
| DH406151  | 15.1           |            | .5945   | 16             | 65           | 115            |
| DH406152  | 15.2           |            | .5984   | 16             | 65           | 115            |
| DH406153  | 15.3           |            | .6024   | 16             | 65           | 115            |
| DH406154  | 15.4           |            | .6063   | 16             | 65           | 115            |
| DH406155  | 15.5           |            | .6102   | 16             | 65           | 115            |
| DH406156  | 15.6           |            | .6142   | 16             | 65           | 115            |

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

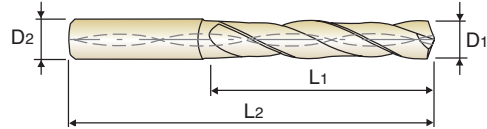
| P             |              |                    |                 | H                | M         | K        | N      |        |      |          | S |
|---------------|--------------|--------------------|-----------------|------------------|-----------|----------|--------|--------|------|----------|---|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |   |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55 HRC55~ |                  |           |          |        |        |      |          |   |
| ◎             | ◎            | ◎                  |                 | ○                | ○         |          |        |        |      |          |   |

## TiAIN-COATED SOLID CARBIDE DREAM DRILLS with Coolant Holes (3XD)

SHORT

DH406 SERIES

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron, Non-Ferrous, Abrasive Plastic
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation



3 × D

Unit : mm

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAIN     | D1             |            |         | D2             | L1           | L2             |
| DH406157  | 15.7           |            | .6181   | 16             | 65           | 115            |
| DH406158  | 15.8           |            | .6220   | 16             | 65           | 115            |
| DH406040F | 15.875         | 5/8        | .6250   | 16             | 65           | 115            |
| DH406159  | 15.9           |            | .6260   | 16             | 65           | 115            |
| DH406160  | 16.0           |            | .6299   | 16             | 65           | 115            |
| DH406161  | 16.1           |            | .6339   | 18             | 73           | 123            |
| DH406162  | 16.2           |            | .6378   | 18             | 73           | 123            |
| DH406163  | 16.3           |            | .6417   | 18             | 73           | 123            |
| DH406164  | 16.4           |            | .6457   | 18             | 73           | 123            |
| DH406165  | 16.5           |            | .6495   | 18             | 73           | 123            |
| DH406166  | 16.6           |            | .6535   | 18             | 73           | 123            |
| DH406167  | 16.7           |            | .6575   | 18             | 73           | 123            |
| DH406168  | 16.8           |            | .6614   | 18             | 73           | 123            |
| DH406169  | 16.9           |            | .6654   | 18             | 73           | 123            |
| DH406170  | 17.0           |            | .6692   | 18             | 73           | 123            |
| DH406171  | 17.1           |            | .6732   | 18             | 73           | 123            |
| DH406172  | 17.2           |            | .6772   | 18             | 73           | 123            |
| DH406173  | 17.3           |            | .6811   | 18             | 73           | 123            |
| DH406174  | 17.4           |            | .6850   | 18             | 73           | 123            |
| DH406044F | 17.463         | 11/16      | .6875   | 18             | 73           | 123            |
| DH406175  | 17.5           |            | .6889   | 18             | 73           | 123            |
| DH406176  | 17.6           |            | .6929   | 18             | 73           | 123            |
| DH406177  | 17.7           |            | .6968   | 18             | 73           | 123            |
| DH406178  | 17.8           |            | .7008   | 18             | 73           | 123            |

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAIN     | D1             |            |         | D2             | L1           | L2             |
| DH406179  | 17.9           |            | .7047   | 18             | 73           | 123            |
| DH406180  | 18.0           |            | .7087   | 18             | 73           | 123            |
| DH406181  | 18.1           |            | .7126   | 20             | 79           | 131            |
| DH406182  | 18.2           |            | .7165   | 20             | 79           | 131            |
| DH406183  | 18.3           |            | .7205   | 20             | 79           | 131            |
| DH406184  | 18.4           |            | .7244   | 20             | 79           | 131            |
| DH406185  | 18.5           |            | .7283   | 20             | 79           | 131            |
| DH406186  | 18.6           |            | .7323   | 20             | 79           | 131            |
| DH406187  | 18.7           |            | .7362   | 20             | 79           | 131            |
| DH406188  | 18.8           |            | .7402   | 20             | 79           | 131            |
| DH406189  | 18.9           |            | .7441   | 20             | 79           | 131            |
| DH406190  | 19.0           |            | .7480   | 20             | 79           | 131            |
| DH406048F | 19.050         | 3/4        | .7500   | 20             | 79           | 131            |
| DH406191  | 19.1           |            | .7520   | 20             | 79           | 131            |
| DH406192  | 19.2           |            | .7559   | 20             | 79           | 131            |
| DH406193  | 19.3           |            | .7598   | 20             | 79           | 131            |
| DH406194  | 19.4           |            | .7638   | 20             | 79           | 131            |
| DH406195  | 19.5           |            | .7676   | 20             | 79           | 131            |
| DH406196  | 19.6           |            | .7717   | 20             | 79           | 131            |
| DH406197  | 19.7           |            | .7756   | 20             | 79           | 131            |
| DH406198  | 19.8           |            | .7795   | 20             | 79           | 131            |
| DH406199  | 19.9           |            | .7835   | 20             | 79           | 131            |
| DH406200  | 20.0           |            | .7874   | 20             | 79           | 131            |

▶ Other shank types are available on your request.

◎ : Excellent ○ : Good

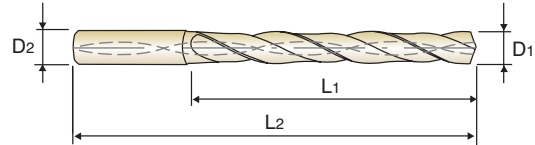
| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ◎                  |                 |        | ○                | ○         |          |        |        |      |          |

# TiAlN-COATED SOLID CARBIDE DREAM DRILLS with Coolant Holes (5XD)

LONG

DH408 SERIES

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron, Non-Ferrous, Abrasive Plastic
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation



5 × D



Unit : mm

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAlN     | D1             |            |         | D2             | L1           | L2             |
| DH408010  | 1.0            |            | .0394   | 3              | 8            | 55             |
| DH408011  | 1.1            |            | .0433   | 3              | 12           | 55             |
| DH408012  | 1.2            |            | .0472   | 3              | 12           | 55             |
| DH408013  | 1.3            |            | .0512   | 3              | 12           | 55             |
| DH408014  | 1.4            |            | .0551   | 3              | 12           | 55             |
| DH408015  | 1.5            |            | .0591   | 3              | 16           | 55             |
| DH408004F | 1.588          | 1/16       | .0625   | 3              | 16           | 55             |
| DH408016  | 1.6            |            | .0630   | 3              | 16           | 55             |
| DH408017  | 1.7            |            | .0669   | 3              | 16           | 55             |
| DH408018  | 1.8            |            | .0709   | 3              | 16           | 55             |
| DH408019  | 1.9            |            | .0748   | 3              | 16           | 55             |
| DH408005F | 1.984          | 5/64       | .0781   | 3              | 16           | 55             |
| DH408020  | 2.0            |            | .0787   | 4              | 21           | 57             |
| DH408021  | 2.1            |            | .0827   | 4              | 21           | 57             |
| DH408022  | 2.2            |            | .0866   | 4              | 21           | 57             |
| DH408023  | 2.3            |            | .0906   | 4              | 21           | 57             |
| DH408006F | 2.381          | 3/32       | .0938   | 4              | 21           | 57             |
| DH408024  | 2.4            |            | .0945   | 4              | 21           | 57             |
| DH408025  | 2.5            |            | .0984   | 4              | 21           | 57             |
| DH408026  | 2.6            |            | .1024   | 4              | 21           | 57             |
| DH408027  | 2.7            |            | .1063   | 4              | 21           | 57             |
| DH408007F | 2.778          | 7/64       | .1094   | 4              | 21           | 57             |
| DH408028  | 2.8            |            | .1102   | 4              | 21           | 57             |
| DH408029  | 2.9            |            | .1142   | 4              | 21           | 57             |
| DH408030  | 3.0            |            | .1181   | 6              | 28           | 66             |
| DH408031  | 3.1            |            | .1220   | 6              | 28           | 66             |

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAlN     | D1             |            |         | D2             | L1           | L2             |
| DH408008F | 3.175          | 1/8        | .1250   | 6              | 28           | 66             |
| DH408032  | 3.2            |            | .1260   | 6              | 28           | 66             |
| DH408033  | 3.3            |            | .1299   | 6              | 28           | 66             |
| DH408034  | 3.4            |            | .1339   | 6              | 28           | 66             |
| DH408035  | 3.5            |            | .1378   | 6              | 28           | 66             |
| DH408009F | 3.572          | 9/64       | .1406   | 6              | 28           | 66             |
| DH408036  | 3.6            |            | .1417   | 6              | 28           | 66             |
| DH408037  | 3.7            |            | .1457   | 6              | 28           | 66             |
| DH408038  | 3.8            |            | .1496   | 6              | 36           | 74             |
| DH408039  | 3.9            |            | .1535   | 6              | 36           | 74             |
| DH408010F | 3.969          | 5/32       | .1563   | 6              | 36           | 74             |
| DH408040  | 4.0            |            | .1575   | 6              | 36           | 74             |
| DH408041  | 4.1            |            | .1614   | 6              | 36           | 74             |
| DH408042  | 4.2            |            | .1654   | 6              | 36           | 74             |
| DH408043  | 4.3            |            | .1693   | 6              | 36           | 74             |
| DH408011F | 4.366          | 11/64      | .1719   | 6              | 36           | 74             |
| DH408044  | 4.4            |            | .1732   | 6              | 36           | 74             |
| DH408045  | 4.5            |            | .1772   | 6              | 36           | 74             |
| DH408046  | 4.6            |            | .1811   | 6              | 36           | 74             |
| DH408047  | 4.7            |            | .1850   | 6              | 36           | 74             |
| DH408012F | 4.763          | 3/16       | .1875   | 6              | 36           | 74             |
| DH408048  | 4.8            |            | .1890   | 6              | 44           | 82             |
| DH408049  | 4.9            |            | .1929   | 6              | 44           | 82             |
| DH408050  | 5.0            |            | .1969   | 6              | 44           | 82             |
| DH408051  | 5.1            |            | .2008   | 6              | 44           | 82             |
| DH408013F | 5.159          | 13/64      | .2031   | 6              | 44           | 82             |

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

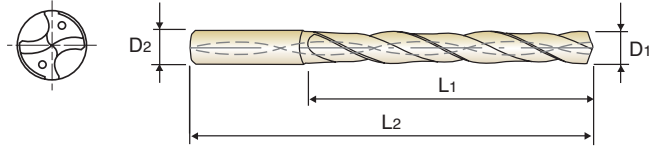
| P             |              |                    |                 | H                | M         | K        | N      |        |      |          | S |
|---------------|--------------|--------------------|-----------------|------------------|-----------|----------|--------|--------|------|----------|---|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |   |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55 HRC55~ |                  |           |          |        |        |      |          |   |
| ◎             | ◎            | ◎                  |                 | ○                | ○         |          |        |        |      |          |   |

## TiAIN-COATED SOLID CARBIDE DREAM DRILLS with Coolant Holes (5XD)

LONG

DH408 SERIES

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron, Non-Ferrous, Abrasive Plastic
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation



5 × D

Unit : mm

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAIN     | D1             |            |         | D2             | L1           | L2             |
| DH408052  | 5.2            |            | .2047   | 6              | 44           | 82             |
| DH408053  | 5.3            |            | .2087   | 6              | 44           | 82             |
| DH408054  | 5.4            |            | .2126   | 6              | 44           | 82             |
| DH408055  | 5.5            |            | .2165   | 6              | 44           | 82             |
| DH408014F | 5.556          | 7/32       | .2188   | 6              | 44           | 82             |
| DH408056  | 5.6            |            | .2205   | 6              | 44           | 82             |
| DH408057  | 5.7            |            | .2244   | 6              | 44           | 82             |
| DH408058  | 5.8            |            | .2283   | 6              | 44           | 82             |
| DH408059  | 5.9            |            | .2323   | 6              | 44           | 82             |
| DH408015F | 5.953          | 15/64      | .2344   | 6              | 44           | 82             |
| DH408060  | 6.0            |            | .2362   | 6              | 44           | 82             |
| DH408061  | 6.1            |            | .2402   | 8              | 53           | 91             |
| DH408062  | 6.2            |            | .2441   | 8              | 53           | 91             |
| DH408063  | 6.3            |            | .2480   | 8              | 53           | 91             |
| DH408016F | 6.350          | 1/4        | .2500   | 8              | 53           | 91             |
| DH408064  | 6.4            |            | .2520   | 8              | 53           | 91             |
| DH408065  | 6.5            |            | .2559   | 8              | 53           | 91             |
| DH408006L | 6.528          | F          | .2570   | 8              | 53           | 91             |
| DH408066  | 6.6            |            | .2598   | 8              | 53           | 91             |
| DH408067  | 6.7            |            | .2638   | 8              | 53           | 91             |
| DH408017F | 6.747          | 17/64      | .2656   | 8              | 53           | 91             |
| DH408068  | 6.8            |            | .2677   | 8              | 53           | 91             |
| DH408069  | 6.9            |            | .2717   | 8              | 53           | 91             |
| DH408009L | 6.909          | I          | .2720   | 8              | 53           | 91             |
| DH408070  | 7.0            |            | .2756   | 8              | 53           | 91             |
| DH408071  | 7.1            |            | .2795   | 8              | 53           | 91             |

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAIN     | D1             |            |         | D2             | L1           | L2             |
| DH408018F | 7.144          | 9/32       | .2812   | 8              | 53           | 91             |
| DH408072  | 7.2            |            | .2835   | 8              | 53           | 91             |
| DH408073  | 7.3            |            | .2874   | 8              | 53           | 91             |
| DH408074  | 7.4            |            | .2913   | 8              | 53           | 91             |
| DH408075  | 7.5            |            | .2953   | 8              | 53           | 91             |
| DH408019F | 7.541          | 19/64      | .2969   | 8              | 53           | 91             |
| DH408076  | 7.6            |            | .2992   | 8              | 53           | 91             |
| DH408077  | 7.7            |            | .3031   | 8              | 53           | 91             |
| DH408078  | 7.8            |            | .3071   | 8              | 53           | 91             |
| DH408079  | 7.9            |            | .3110   | 8              | 53           | 91             |
| DH408020F | 7.938          | 5/16       | .3125   | 8              | 53           | 91             |
| DH408080  | 8.0            |            | .3150   | 8              | 53           | 91             |
| DH408081  | 8.1            |            | .3189   | 10             | 61           | 103            |
| DH408082  | 8.2            |            | .3228   | 10             | 61           | 103            |
| DH408083  | 8.3            |            | .3268   | 10             | 61           | 103            |
| DH408021F | 8.334          | 21/64      | .3281   | 10             | 61           | 103            |
| DH408084  | 8.4            |            | .3307   | 10             | 61           | 103            |
| DH408017L | 8.433          | Q          | .3320   | 10             | 61           | 103            |
| DH408085  | 8.5            |            | .3346   | 10             | 61           | 103            |
| DH408086  | 8.6            |            | .3386   | 10             | 61           | 103            |
| DH408087  | 8.7            |            | .3425   | 10             | 61           | 103            |
| DH408022F | 8.731          | 11/32      | .3438   | 10             | 61           | 103            |
| DH408088  | 8.8            |            | .3465   | 10             | 61           | 103            |
| DH408089  | 8.9            |            | .3504   | 10             | 61           | 103            |
| DH408090  | 9.0            |            | .3543   | 10             | 61           | 103            |
| DH408091  | 9.1            |            | .3583   | 10             | 61           | 103            |

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

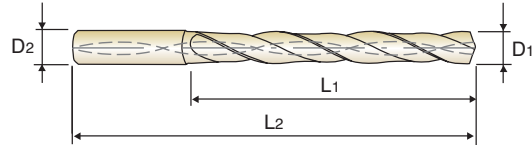
| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ◎                  |                 |        | ○                | ○         |          |        |        |      |          |

# TiAlN-COATED SOLID CARBIDE DREAM DRILLS with Coolant Holes (5XD)

LONG

DH408 SERIES

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron, Non-Ferrous, Abrasive Plastic
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation



5 × D

Unit : mm

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAlN     | D1             |            |         | D2             | L1           | L2             |
| DH408023F | 9.128          | 23/64      | .3594   | 10             | 61           | 103            |
| DH408092  | 9.2            |            | .3622   | 10             | 61           | 103            |
| DH408093  | 9.3            |            | .3661   | 10             | 61           | 103            |
| DH408021L | 9.347          | U          | .3680   | 10             | 61           | 103            |
| DH408094  | 9.4            |            | .3701   | 10             | 61           | 103            |
| DH408095  | 9.5            |            | .3740   | 10             | 61           | 103            |
| DH408024F | 9.525          | 3/8        | .3750   | 10             | 61           | 103            |
| DH408096  | 9.6            |            | .3780   | 10             | 61           | 103            |
| DH408097  | 9.7            |            | .3819   | 10             | 61           | 103            |
| DH408098  | 9.8            |            | .3858   | 10             | 61           | 103            |
| DH408099  | 9.9            |            | .3898   | 10             | 61           | 103            |
| DH408025F | 9.922          | 25/64      | .3906   | 10             | 61           | 103            |
| DH408100  | 10.0           |            | .3937   | 10             | 61           | 103            |
| DH408101  | 10.1           |            | .3976   | 12             | 71           | 118            |
| DH408102  | 10.2           |            | .4016   | 12             | 71           | 118            |
| DH408103  | 10.3           |            | .4055   | 12             | 71           | 118            |
| DH408026F | 10.319         | 13/32      | .4062   | 12             | 71           | 118            |
| DH408104  | 10.4           |            | .4094   | 12             | 71           | 118            |
| DH408105  | 10.5           |            | .4134   | 12             | 71           | 118            |
| DH408106  | 10.6           |            | .4173   | 12             | 71           | 118            |
| DH408107  | 10.7           |            | .4212   | 12             | 71           | 118            |
| DH408027F | 10.716         | 27/64      | .4219   | 12             | 71           | 118            |
| DH408108  | 10.8           |            | .4252   | 12             | 71           | 118            |
| DH408109  | 10.9           |            | .4291   | 12             | 71           | 118            |
| DH408110  | 11.0           |            | .4330   | 12             | 71           | 118            |
| DH408111  | 11.1           |            | .4370   | 12             | 71           | 118            |

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAlN     | D1             |            |         | D2             | L1           | L2             |
| DH408028F | 11.113         | 7/16       | .4375   | 12             | 71           | 118            |
| DH408112  | 11.2           |            | .4409   | 12             | 71           | 118            |
| DH408113  | 11.3           |            | .4448   | 12             | 71           | 118            |
| DH408114  | 11.4           |            | .4488   | 12             | 71           | 118            |
| DH408115  | 11.5           |            | .4527   | 12             | 71           | 118            |
| DH408029F | 11.509         | 29/64      | .4531   | 12             | 71           | 118            |
| DH408116  | 11.6           |            | .4566   | 12             | 71           | 118            |
| DH408117  | 11.7           |            | .4606   | 12             | 71           | 118            |
| DH408118  | 11.8           |            | .4645   | 12             | 71           | 118            |
| DH408119  | 11.9           |            | .4685   | 12             | 71           | 118            |
| DH408030F | 11.906         | 15/32      | .4688   | 12             | 71           | 118            |
| DH408120  | 12.0           |            | .4724   | 12             | 71           | 118            |
| DH408121  | 12.1           |            | .4764   | 14             | 77           | 124            |
| DH408122  | 12.2           |            | .4803   | 14             | 77           | 124            |
| DH408123  | 12.3           |            | .4843   | 14             | 77           | 124            |
| DH408031F | 12.303         | 31/64      | .4844   | 14             | 77           | 124            |
| DH408124  | 12.4           |            | .4882   | 14             | 77           | 124            |
| DH408125  | 12.5           |            | .4921   | 14             | 77           | 124            |
| DH408126  | 12.6           |            | .4961   | 14             | 77           | 124            |
| DH408032F | 12.7           | 1/2        | .5000   | 14             | 77           | 124            |
| DH408128  | 12.8           |            | .5039   | 14             | 77           | 124            |
| DH408129  | 12.9           |            | .5079   | 14             | 77           | 124            |
| DH408130  | 13.0           |            | .5118   | 14             | 77           | 124            |
| DH408131  | 13.1           |            | .5157   | 14             | 77           | 124            |
| DH408132  | 13.2           |            | .5197   | 14             | 77           | 124            |
| DH408133  | 13.3           |            | .5236   | 14             | 77           | 124            |

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ◎                  |                 |        | ○                | ○         |          |        |        |      |          |

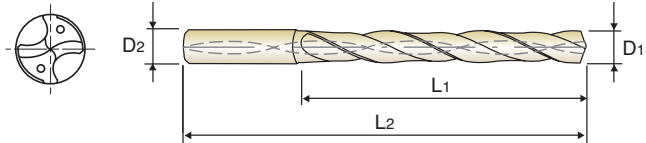


## TiAlN-COATED SOLID CARBIDE DREAM DRILLS with Coolant Holes (5XD)

LONG

DH408 SERIES

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron, Non-Ferrous, Abrasive Plastic
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation



5 × D

Unit : mm

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAlN     | D1             |            |         | D2             | L1           | L2             |
| DH408134  | 13.4           |            | .5276   | 14             | 77           | 124            |
| DH408135  | 13.5           |            | .5314   | 14             | 77           | 124            |
| DH408136  | 13.6           |            | .5354   | 14             | 77           | 124            |
| DH408137  | 13.7           |            | .5394   | 14             | 77           | 124            |
| DH408138  | 13.8           |            | .5433   | 14             | 77           | 124            |
| DH408139  | 13.9           |            | .5472   | 14             | 77           | 124            |
| DH408140  | 14.0           |            | .5512   | 14             | 77           | 124            |
| DH408141  | 14.1           |            | .5551   | 16             | 83           | 133            |
| DH408142  | 14.2           |            | .5591   | 16             | 83           | 133            |
| DH408036F | 14.288         | 9/16       | .5625   | 16             | 83           | 133            |
| DH408143  | 14.3           |            | .5630   | 16             | 83           | 133            |
| DH408144  | 14.4           |            | .5669   | 16             | 83           | 133            |
| DH408145  | 14.5           |            | .5708   | 16             | 83           | 133            |
| DH408146  | 14.6           |            | .5748   | 16             | 83           | 133            |
| DH408147  | 14.7           |            | .5787   | 16             | 83           | 133            |
| DH408148  | 14.8           |            | .5827   | 16             | 83           | 133            |
| DH408149  | 14.9           |            | .5866   | 16             | 83           | 133            |
| DH408150  | 15.0           |            | .5905   | 16             | 83           | 133            |
| DH408151  | 15.1           |            | .5945   | 16             | 83           | 133            |
| DH408152  | 15.2           |            | .5984   | 16             | 83           | 133            |
| DH408153  | 15.3           |            | .6024   | 16             | 83           | 133            |
| DH408154  | 15.4           |            | .6063   | 16             | 83           | 133            |
| DH408155  | 15.5           |            | .6102   | 16             | 83           | 133            |
| DH408156  | 15.6           |            | .6142   | 16             | 83           | 133            |
| DH408157  | 15.7           |            | .6181   | 16             | 83           | 133            |
| DH408158  | 15.8           |            | .6220   | 16             | 83           | 133            |

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAlN     | D1             |            |         | D2             | L1           | L2             |
| DH408040F | 15.875         | 5/8        | .6250   | 16             | 83           | 133            |
| DH408159  | 15.9           |            | .6260   | 16             | 83           | 133            |
| DH408160  | 16.0           |            | .6299   | 16             | 83           | 133            |
| DH408161  | 16.1           |            | .6339   | 18             | 93           | 143            |
| DH408162  | 16.2           |            | .6378   | 18             | 93           | 143            |
| DH408163  | 16.3           |            | .6417   | 18             | 93           | 143            |
| DH408164  | 16.4           |            | .6457   | 18             | 93           | 143            |
| DH408165  | 16.5           |            | .6495   | 18             | 93           | 143            |
| DH408166  | 16.6           |            | .6535   | 18             | 93           | 143            |
| DH408167  | 16.7           |            | .6575   | 18             | 93           | 143            |
| DH408168  | 16.8           |            | .6614   | 18             | 93           | 143            |
| DH408169  | 16.9           |            | .6654   | 18             | 93           | 143            |
| DH408170  | 17.0           |            | .6692   | 18             | 93           | 143            |
| DH408171  | 17.1           |            | .6732   | 18             | 93           | 143            |
| DH408172  | 17.2           |            | .6772   | 18             | 93           | 143            |
| DH408173  | 17.3           |            | .6811   | 18             | 93           | 143            |
| DH408174  | 17.4           |            | .6850   | 18             | 93           | 143            |
| DH408175  | 17.5           |            | .6889   | 18             | 93           | 143            |
| DH408176  | 17.6           |            | .6929   | 18             | 93           | 143            |
| DH408177  | 17.7           |            | .6968   | 18             | 93           | 143            |
| DH408178  | 17.8           |            | .7008   | 18             | 93           | 143            |
| DH408179  | 17.9           |            | .7047   | 18             | 93           | 143            |
| DH408180  | 18.0           |            | .7087   | 18             | 93           | 143            |
| DH408181  | 18.1           |            | .7126   | 20             | 101          | 153            |
| DH408182  | 18.2           |            | .7165   | 20             | 101          | 151            |
| DH408183  | 18.3           |            | .7205   | 20             | 101          | 151            |

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

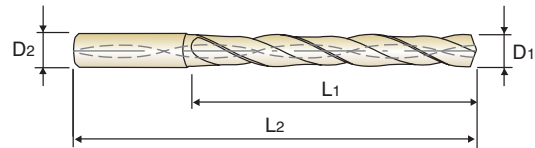
| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ◎                  |                 |        | ○                | ○         |          |        |        |      |          |

# TiAlN-COATED SOLID CARBIDE DREAM DRILLS with Coolant Holes (5XD)

LONG

DH408 SERIES

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron, Non-Ferrous, Abrasive Plastic
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation



5 × D

Unit : mm

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAlN     | D1             |            |         | D2             | L1           | L2             |
| DH408184  | 18.4           |            | .7244   | 20             | 101          | 153            |
| DH408185  | 18.5           |            | .7283   | 20             | 101          | 153            |
| DH408186  | 18.6           |            | .7323   | 20             | 101          | 151            |
| DH408187  | 18.7           |            | .7362   | 20             | 101          | 153            |
| DH408188  | 18.8           |            | .7402   | 20             | 101          | 153            |
| DH408189  | 18.9           |            | .7441   | 20             | 101          | 153            |
| DH408190  | 19.0           |            | .7480   | 20             | 101          | 153            |
| DH408048F | 19.050         | 3/4        | .7500   | 20             | 101          | 153            |
| DH408191  | 19.1           |            | .7520   | 20             | 101          | 151            |

| EDP No.  | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|----------|----------------|------------|---------|----------------|--------------|----------------|
|          | Metric         | Fractional | Decimal |                |              |                |
| TiAlN    | D1             |            |         | D2             | L1           | L2             |
| DH408192 | 19.2           |            | .7559   | 20             | 101          | 151            |
| DH408193 | 19.3           |            | .7598   | 20             | 101          | 151            |
| DH408194 | 19.4           |            | .7638   | 20             | 101          | 151            |
| DH408195 | 19.5           |            | .7676   | 20             | 101          | 153            |
| DH408196 | 19.6           |            | .7717   | 20             | 101          | 151            |
| DH408197 | 19.7           |            | .7756   | 20             | 101          | 151            |
| DH408198 | 19.8           |            | .7795   | 20             | 101          | 153            |
| DH408199 | 19.9           |            | .7835   | 20             | 101          | 151            |
| DH408200 | 20.0           |            | .7874   | 20             | 101          | 153            |

▶ Other shank types are available on your request.

◎ : Excellent ○ : Good

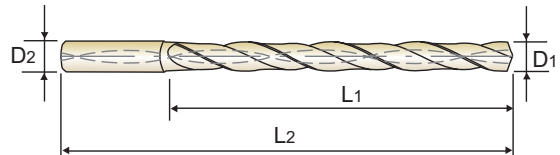
| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ◎                  |                 |        | ○                | ○         |          |        |        |      |          |

## TiAlN-COATED SOLID CARBIDE DREAM DRILLS with Coolant Holes (8XD)

EXTRA LONG

DH421 SERIES

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron, Non-Ferrous, Abrasive Plastic
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation



8 × D

Unit : mm

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAlN     | D1             |            |         | D2             | L1           | L2             |
| DH421030  | 3.0            |            | .1181   | 6              | 34           | 72             |
| DH421031  | 3.1            |            | .1220   | 6              | 34           | 72             |
| DH421008F | 3.175          | 1/8        | .1250   | 6              | 34           | 72             |
| DH421032  | 3.2            |            | .1260   | 6              | 34           | 72             |
| DH421033  | 3.3            |            | .1299   | 6              | 34           | 72             |
| DH421034  | 3.4            |            | .1339   | 6              | 34           | 72             |
| DH421229G | 3.450          | #29        | .1360   | 6              | 34           | 72             |
| DH421035  | 3.5            |            | .1378   | 6              | 34           | 72             |
| DH421009F | 3.572          | 9/64       | .1406   | 6              | 34           | 72             |
| DH421036  | 3.6            |            | .1417   | 6              | 34           | 72             |
| DH421037  | 3.7            |            | .1457   | 6              | 34           | 72             |
| DH421038  | 3.8            |            | .1496   | 6              | 43           | 81             |
| DH421039  | 3.9            |            | .1535   | 6              | 43           | 81             |
| DH421010F | 3.969          | 5/32       | .1563   | 6              | 43           | 81             |
| DH421040  | 4.0            |            | .1575   | 6              | 43           | 81             |
| DH421221G | 4.040          | #21        | .1590   | 6              | 43           | 81             |
| DH421041  | 4.1            |            | .1614   | 6              | 43           | 81             |
| DH421042  | 4.2            |            | .1654   | 6              | 43           | 81             |
| DH421043  | 4.3            |            | .1693   | 6              | 43           | 81             |
| DH421011F | 4.366          | 11/64      | .1719   | 6              | 43           | 81             |
| DH421044  | 4.4            |            | .1732   | 6              | 43           | 81             |
| DH421045  | 4.5            |            | .1772   | 6              | 43           | 81             |
| DH421046  | 4.6            |            | .1811   | 6              | 43           | 81             |
| DH421047  | 4.7            |            | .1850   | 6              | 43           | 81             |
| DH421012F | 4.763          | 3/16       | .1875   | 6              | 57           | 95             |
| DH421048  | 4.8            |            | .1890   | 6              | 57           | 95             |

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAlN     | D1             |            |         | D2             | L1           | L2             |
| DH421049  | 4.9            |            | .1929   | 6              | 57           | 95             |
| DH421050  | 5.0            |            | .1969   | 6              | 57           | 95             |
| DH421051  | 5.1            |            | .2008   | 6              | 57           | 95             |
| DH421013F | 5.159          | 13/64      | .2031   | 6              | 57           | 95             |
| DH421052  | 5.2            |            | .2047   | 6              | 57           | 95             |
| DH421053  | 5.3            |            | .2087   | 6              | 57           | 95             |
| DH421054  | 5.4            |            | .2126   | 6              | 57           | 95             |
| DH421055  | 5.5            |            | .2165   | 6              | 57           | 95             |
| DH421014F | 5.556          | 7/32       | .2188   | 6              | 57           | 95             |
| DH421056  | 5.6            |            | .2205   | 6              | 57           | 95             |
| DH421057  | 5.7            |            | .2244   | 6              | 57           | 95             |
| DH421058  | 5.8            |            | .2283   | 6              | 57           | 95             |
| DH421059  | 5.9            |            | .2323   | 6              | 57           | 95             |
| DH421015F | 5.953          | 15/64      | .2344   | 6              | 57           | 95             |
| DH421060  | 6.0            |            | .2362   | 6              | 57           | 95             |
| DH421061  | 6.1            |            | .2402   | 8              | 76           | 114            |
| DH421062  | 6.2            |            | .2441   | 8              | 76           | 114            |
| DH421063  | 6.3            |            | .2480   | 8              | 76           | 114            |
| DH421016F | 6.350          | 1/4        | .2500   | 8              | 76           | 114            |
| DH421064  | 6.4            |            | .2520   | 8              | 76           | 114            |
| DH421065  | 6.5            |            | .2559   | 8              | 76           | 114            |
| DH421106L | 6.528          | F          | .2570   | 8              | 76           | 114            |
| DH421066  | 6.6            |            | .2598   | 8              | 76           | 114            |
| DH421067  | 6.7            |            | .2638   | 8              | 76           | 114            |
| DH421017F | 6.747          | 17/64      | .2656   | 8              | 76           | 114            |
| DH421068  | 6.8            |            | .2677   | 8              | 76           | 114            |

▶ Other shank types are available on your request.

▶ NEXT PAGE

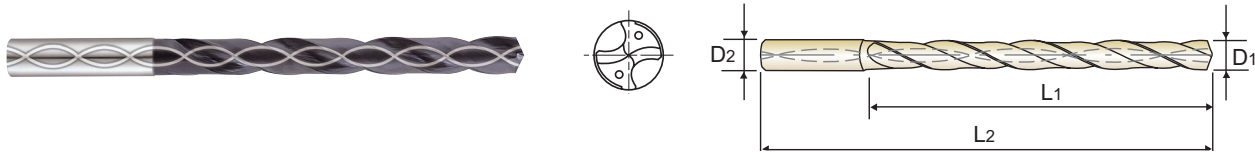
◎ : Excellent ○ : Good

| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ◎                  |                 |        | ○                | ○         |          |        |        |      |          |

# TiAlN-COATED SOLID CARBIDE DREAM DRILLS with Coolant Holes (8XD)

## EXTRA LONG DH421 SERIES

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron, Non-Ferrous, Abrasive Plastic
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation



8 × D

Unit : mm

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAlN     | D1             |            |         | D2             | L1           | L2             |
| DH421069  | 6.9            |            | .2717   | 8              | 76           | 114            |
| DH421009L | 6.909          | I          | .2720   | 8              | 76           | 114            |
| DH421070  | 7.0            |            | .2756   | 8              | 76           | 114            |
| DH421071  | 7.1            |            | .2795   | 8              | 76           | 114            |
| DH421018F | 7.144          | 9/32       | .2813   | 8              | 76           | 114            |
| DH421072  | 7.2            |            | .2835   | 8              | 76           | 114            |
| DH421073  | 7.3            |            | .2874   | 8              | 76           | 114            |
| DH421074  | 7.4            |            | .2913   | 8              | 76           | 114            |
| DH421075  | 7.5            |            | .2953   | 8              | 76           | 114            |
| DH421019F | 7.541          | 19/64      | .2969   | 8              | 76           | 114            |
| DH421076  | 7.6            |            | .2992   | 8              | 76           | 114            |
| DH421077  | 7.7            |            | .3031   | 8              | 76           | 114            |
| DH421078  | 7.8            |            | .3071   | 8              | 76           | 114            |
| DH421079  | 7.9            |            | .3110   | 8              | 76           | 114            |
| DH421020F | 7.938          | 5/16       | .3125   | 8              | 76           | 114            |
| DH421080  | 8.0            |            | .3150   | 8              | 76           | 114            |
| DH421081  | 8.1            |            | .3189   | 10             | 95           | 142            |
| DH421082  | 8.2            |            | .3228   | 10             | 95           | 142            |
| DH421083  | 8.3            |            | .3268   | 10             | 95           | 142            |
| DH421021F | 8.334          | 21/64      | .3281   | 10             | 95           | 142            |
| DH421084  | 8.4            |            | .3307   | 10             | 95           | 142            |
| DH421117L | 8.430          | Q          | .3320   | 10             | 95           | 142            |
| DH421085  | 8.5            |            | .3346   | 10             | 95           | 142            |
| DH421086  | 8.6            |            | .3386   | 10             | 95           | 142            |
| DH421087  | 8.7            |            | .3425   | 10             | 95           | 142            |
| DH421022F | 8.731          | 11/32      | .3438   | 10             | 95           | 142            |

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAlN     | D1             |            |         | D2             | L1           | L2             |
| DH421088  | 8.8            |            | .3465   | 10             | 95           | 142            |
| DH421089  | 8.9            |            | .3504   | 10             | 95           | 142            |
| DH421090  | 9.0            |            | .3543   | 10             | 95           | 142            |
| DH421091  | 9.1            |            | .3583   | 10             | 95           | 142            |
| DH421023F | 9.128          | 23/64      | .3594   | 10             | 95           | 142            |
| DH421092  | 9.2            |            | .3622   | 10             | 95           | 142            |
| DH421093  | 9.3            |            | .3661   | 10             | 95           | 142            |
| DH421121L | 9.350          | U          | .3680   | 10             | 95           | 142            |
| DH421094  | 9.4            |            | .3701   | 10             | 95           | 142            |
| DH421095  | 9.5            |            | .3740   | 10             | 95           | 142            |
| DH421024F | 9.525          | 3/8        | .3750   | 10             | 95           | 142            |
| DH421096  | 9.6            |            | .3780   | 10             | 95           | 142            |
| DH421097  | 9.7            |            | .3819   | 10             | 95           | 142            |
| DH421098  | 9.8            |            | .3858   | 10             | 95           | 142            |
| DH421099  | 9.9            |            | .3898   | 10             | 95           | 142            |
| DH421025F | 9.922          | 25/64      | .3906   | 10             | 95           | 142            |
| DH421100  | 10.0           |            | .3937   | 10             | 95           | 142            |
| DH421101  | 10.1           |            | .3976   | 12             | 114          | 162            |
| DH421102  | 10.2           |            | .4016   | 12             | 114          | 162            |
| DH421103  | 10.3           |            | .4055   | 12             | 114          | 162            |
| DH421026F | 10.319         | 13/32      | .4063   | 12             | 114          | 162            |
| DH421104  | 10.4           |            | .4094   | 12             | 114          | 162            |
| DH421105  | 10.5           |            | .4134   | 12             | 114          | 162            |
| DH421106  | 10.6           |            | .4173   | 12             | 114          | 162            |
| DH421107  | 10.7           |            | .4212   | 12             | 114          | 162            |
| DH421027F | 10.716         | 27/64      | .4219   | 12             | 114          | 162            |

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

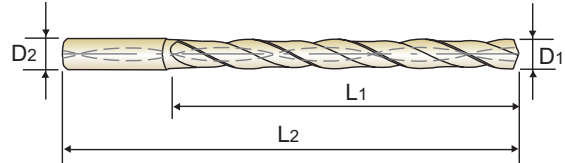
| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ◎                  |                 |        | ○                | ○         |          |        |        |      |          |

## TiAlN-COATED SOLID CARBIDE DREAM DRILLS with Coolant Holes (8XD)

EXTRA LONG

DH421 SERIES

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron, Non-Ferrous, Abrasive Plastic
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation



8 × D

Unit : mm

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAlN     | D1             |            |         | D2             | L1           | L2             |
| DH421108  | 10.8           |            | .4252   | 12             | 114          | 162            |
| DH421109  | 10.9           |            | .4291   | 12             | 114          | 162            |
| DH421110  | 11.0           |            | .4330   | 12             | 114          | 162            |
| DH421111  | 11.1           |            | .4370   | 12             | 114          | 162            |
| DH421028F | 11.113         | 7/16       | .4375   | 12             | 114          | 162            |
| DH421112  | 11.2           |            | .4409   | 12             | 114          | 162            |
| DH421113  | 11.3           |            | .4448   | 12             | 114          | 162            |
| DH421114  | 11.4           |            | .4488   | 12             | 114          | 162            |
| DH421115  | 11.5           |            | .4527   | 12             | 114          | 162            |
| DH421029F | 11.509         | 29/64      | .4531   | 12             | 114          | 162            |
| DH421116  | 11.6           |            | .4566   | 12             | 114          | 162            |
| DH421117  | 11.7           |            | .4606   | 12             | 114          | 162            |
| DH421118  | 11.8           |            | .4645   | 12             | 114          | 162            |
| DH421119  | 11.9           |            | .4685   | 12             | 114          | 162            |
| DH421030F | 11.906         | 15/32      | .4688   | 12             | 114          | 162            |
| DH421120  | 12.0           |            | .4724   | 12             | 114          | 162            |
| DH421121  | 12.1           |            | .4764   | 14             | 133          | 178            |
| DH421122  | 12.2           |            | .4803   | 14             | 133          | 178            |
| DH421123  | 12.3           |            | .4843   | 14             | 133          | 178            |
| DH421031F | 12.303         | 31/64      | .4844   | 14             | 133          | 178            |
| DH421124  | 12.4           |            | .4882   | 14             | 133          | 178            |
| DH421125  | 12.5           |            | .4921   | 14             | 133          | 178            |
| DH421126  | 12.6           |            | .4961   | 14             | 133          | 178            |
| DH421032F | 12.7           | 1/2        | .5000   | 14             | 133          | 178            |
| DH421128  | 12.8           |            | .5039   | 14             | 133          | 178            |
| DH421129  | 12.9           |            | .5079   | 14             | 133          | 178            |

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAlN     | D1             |            |         | D2             | L1           | L2             |
| DH421130  | 13.0           |            | .5118   | 14             | 133          | 178            |
| DH421033F | 13.097         | 33/64      | .5156   | 14             | 133          | 178            |
| DH421131  | 13.1           |            | .5157   | 14             | 133          | 178            |
| DH421132  | 13.2           |            | .5197   | 14             | 133          | 178            |
| DH421133  | 13.3           |            | .5236   | 14             | 133          | 178            |
| DH421134  | 13.4           |            | .5276   | 14             | 133          | 178            |
| DH421135  | 13.5           |            | .5314   | 14             | 133          | 178            |
| DH421136  | 13.6           |            | .5354   | 14             | 133          | 178            |
| DH421137  | 13.7           |            | .5394   | 14             | 133          | 178            |
| DH421138  | 13.8           |            | .5433   | 14             | 133          | 178            |
| DH421139  | 13.9           |            | .5472   | 14             | 133          | 178            |
| DH421140  | 14.0           |            | .5512   | 14             | 133          | 178            |
| DH421141  | 14.1           |            | .5551   | 16             | 152          | 203            |
| DH421142  | 14.2           |            | .5591   | 16             | 152          | 203            |
| DH421036F | 14.288         | 9/16       | .5625   | 16             | 152          | 203            |
| DH421143  | 14.3           |            | .5630   | 16             | 152          | 203            |
| DH421144  | 14.4           |            | .5669   | 16             | 152          | 203            |
| DH421145  | 14.5           |            | .5709   | 16             | 152          | 203            |
| DH421146  | 14.6           |            | .5748   | 16             | 152          | 203            |
| DH421147  | 14.7           |            | .5787   | 16             | 152          | 203            |
| DH421148  | 14.8           |            | .5827   | 16             | 152          | 203            |
| DH421149  | 14.9           |            | .5866   | 16             | 152          | 203            |
| DH421150  | 15.0           |            | .5905   | 16             | 152          | 203            |
| DH421151  | 15.1           |            | .5945   | 16             | 152          | 203            |
| DH421152  | 15.2           |            | .5984   | 16             | 152          | 203            |
| DH421153  | 15.3           |            | .6024   | 16             | 152          | 203            |

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

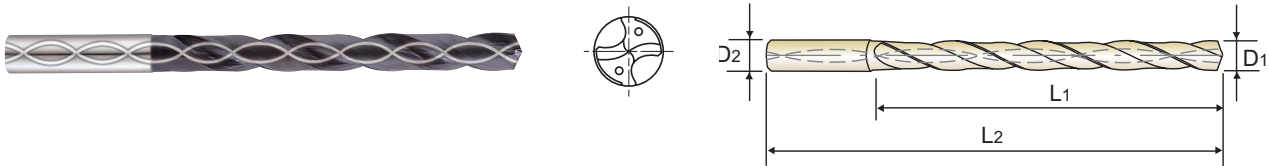
| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ◎                  |                 |        | ○                | ○         |          |        |        |      |          |



# TiAlN-COATED SOLID CARBIDE DREAM DRILLS with Coolant Holes (8XD)

## EXTRA LONG DH421 SERIES

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron, Non-Ferrous, Abrasive Plastic
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation



8 × D

Unit : mm

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAlN     | D1             |            |         | D2             | L1           | L2             |
| DH421154  | 15.4           |            | .6063   | 16             | 152          | 203            |
| DH421155  | 15.5           |            | .6102   | 16             | 152          | 203            |
| DH421156  | 15.6           |            | .6142   | 16             | 152          | 203            |
| DH421157  | 15.7           |            | .6181   | 16             | 152          | 203            |
| DH421158  | 15.8           |            | .6220   | 16             | 152          | 203            |
| DH421040F | 15.875         | 5/8        | .6250   | 16             | 152          | 203            |
| DH421159  | 15.9           |            | .6260   | 16             | 152          | 203            |
| DH421160  | 16.0           |            | .6299   | 16             | 152          | 203            |
| DH421161  | 16.1           |            | .6339   | 18             | 171          | 222            |
| DH421162  | 16.2           |            | .6378   | 18             | 171          | 222            |
| DH421163  | 16.3           |            | .6417   | 18             | 171          | 222            |
| DH421164  | 16.4           |            | .6457   | 18             | 171          | 222            |
| DH421165  | 16.5           |            | .6496   | 18             | 171          | 222            |
| DH421166  | 16.6           |            | .6535   | 18             | 171          | 222            |
| DH421167  | 16.7           |            | .6575   | 18             | 171          | 222            |
| DH421168  | 16.8           |            | .6614   | 18             | 171          | 222            |
| DH421169  | 16.9           |            | .6654   | 18             | 171          | 222            |
| DH421170  | 17.0           |            | .6693   | 18             | 171          | 222            |
| DH421171  | 17.1           |            | .6732   | 18             | 171          | 222            |
| DH421172  | 17.2           |            | .6772   | 18             | 171          | 222            |
| DH421173  | 17.3           |            | .6811   | 18             | 171          | 222            |
| DH421174  | 17.4           |            | .6850   | 18             | 171          | 222            |
| DH421175  | 17.5           |            | .6890   | 18             | 171          | 222            |
| DH421176  | 17.6           |            | .6929   | 18             | 171          | 222            |
| DH421177  | 17.7           |            | .6968   | 18             | 171          | 222            |

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAlN     | D1             |            |         | D2             | L1           | L2             |
| DH421178  | 17.8           |            | .7008   | 18             | 171          | 222            |
| DH421179  | 17.9           |            | .7047   | 18             | 171          | 222            |
| DH421180  | 18.0           |            | .7087   | 18             | 171          | 222            |
| DH421181  | 18.1           |            | .7126   | 20             | 190          | 243            |
| DH421182  | 18.2           |            | .7165   | 20             | 190          | 243            |
| DH421183  | 18.3           |            | .7205   | 20             | 190          | 243            |
| DH421184  | 18.4           |            | .7244   | 20             | 190          | 243            |
| DH421185  | 18.5           |            | .7283   | 20             | 190          | 243            |
| DH421186  | 18.6           |            | .7323   | 20             | 190          | 243            |
| DH421187  | 18.7           |            | .7362   | 20             | 190          | 243            |
| DH421188  | 18.8           |            | .7402   | 20             | 190          | 243            |
| DH421189  | 18.9           |            | .7441   | 20             | 190          | 243            |
| DH421190  | 19.0           |            | .7480   | 20             | 190          | 243            |
| DH421048F | 19.050         | 3/4        | .7500   | 20             | 190          | 243            |
| DH421191  | 19.1           |            | .7520   | 20             | 190          | 243            |
| DH421192  | 19.2           |            | .7559   | 20             | 190          | 243            |
| DH421193  | 19.3           |            | .7598   | 20             | 190          | 243            |
| DH421194  | 19.4           |            | .7638   | 20             | 190          | 243            |
| DH421195  | 19.5           |            | .7677   | 20             | 190          | 243            |
| DH421196  | 19.6           |            | .7717   | 20             | 190          | 243            |
| DH421197  | 19.7           |            | .7756   | 20             | 190          | 243            |
| DH421198  | 19.8           |            | .7795   | 20             | 190          | 243            |
| DH421199  | 19.9           |            | .7835   | 20             | 190          | 243            |
| DH421200  | 20.0           |            | .7874   | 20             | 190          | 243            |

▶ Other shank types are available on your request.

◎ : Excellent ○ : Good

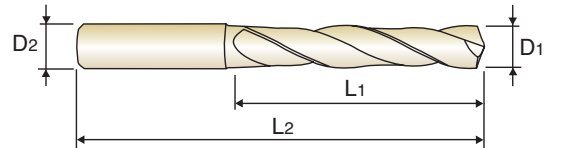
| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ◎                  |                 |        | ○                | ○         |          |        |        |      |          |

# TiAIN-COATED SOLID CARBIDE DREAM DRILLS without Coolant Holes (3XD)

STUB

DH414 SERIES

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron, Non-Ferrous, Abrasive Plastic
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation
- ▶ Tolerance : Dia. Tolerance  $\varnothing D1$  : See page 104  
Shank Tolerance  $\varnothing D2$ : -.0001 -.0005



$D1 = D2$

$3 \times D$



Unit : inch

| EDP No. | Drill Diameter |         | Flute Length | Overall Length |
|---------|----------------|---------|--------------|----------------|
|         | Fractional     | Decimal |              |                |
| TiAIN   | $D1 = D2$      |         | $L1$         | $L2$           |
| 0081ATF | 1/8            | .1250   | 45/64        | 1-59/64        |
| 0091ATF | 9/64           | .1406   | 25/32        | 2-3/64         |
| 0101ATF | 5/32           | .1562   | 7/8          | 2-3/16         |
| 0111ATF | 11/64          | .1719   | 15/16        | 2-9/32         |
| 0121ATF | 3/16           | .1875   | 1            | 2-7/16         |
| 0131ATF | 13/64          | .2031   | 1            | 2-7/16         |
| 0141ATF | 7/32           | .2188   | 1-1/8        | 2-5/8          |
| 0151ATF | 15/64          | .2344   | 1-1/8        | 2-5/8          |
| 0161ATF | 1/4            | .2500   | 1-5/8        | 3-3/16         |
| 2061ATF | F              | .2570   | 1-11/16      | 3-17/64        |
| 0171ATF | 17/64          | .2656   | 1-11/16      | 3-17/64        |
| 2091ATF | I              | .2720   | 1-11/16      | 3-17/64        |
| 0181ATF | 9/32           | .2812   | 1-3/4        | 3-7/16         |
| 0191ATF | 19/64          | .2969   | 1-7/8        | 3-9/16         |
| 0201ATF | 5/16           | .3125   | 1-7/8        | 3-9/16         |
| 0211ATF | 21/64          | .3281   | 2-1/16       | 3-3/4          |
| 2171ATF | Q              | .3320   | 2-1/16       | 3-3/4          |

| EDP No. | Drill Diameter |         | Flute Length | Overall Length |
|---------|----------------|---------|--------------|----------------|
|         | Fractional     | Decimal |              |                |
| TiAIN   | $D1 = D2$      |         | $L1$         | $L2$           |
| 0221ATF | 11/32          | .3438   | 2-3/16       | 3-7/8          |
| 0231ATF | 23/64          | .3594   | 2-9/32       | 4              |
| 2211ATF | U              | .3680   | 2-9/32       | 4              |
| 0241ATF | 3/8            | .3750   | 2-3/8        | 4-1/8          |
| 0251ATF | 25/64          | .3906   | 2-3/8        | 4-1/8          |
| 0261ATF | 13/32          | .4062   | 2-5/8        | 4-13/32        |
| 0271ATF | 27/64          | .4219   | 2-11/16      | 4-1/2          |
| 0281ATF | 7/16           | .4375   | 2-13/16      | 4-5/8          |
| 0291ATF | 29/64          | .4531   | 2-7/8        | 4-3/4          |
| 0301ATF | 15/32          | .4688   | 2-7/8        | 4-3/4          |
| 0311ATF | 31/64          | .4844   | 3            | 5-5/16         |
| 0321ATF | 1/2            | .5000   | 3-1/16       | 5-3/8          |
| 0331ATF | 33/64          | .5156   | 3-11/32      | 5-11/16        |
| 0341ATF | 17/32          | .5312   | 3-11/32      | 5-11/16        |
| 0361ATF | 9/16           | .5625   | 3-1/2        | 5-15/16        |
| 0371ATF | 37/64          | .5781   | 3-37/64      | 6              |
| 0401ATF | 5/8            | .6250   | 3-25/32      | 6-19/64        |

▶ Other shank types are available on your request.

◎ : Excellent ○ : Good

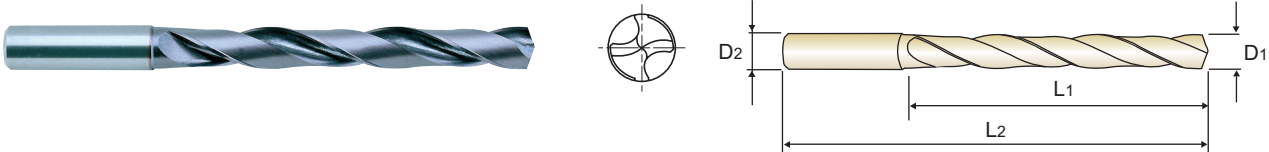
| P             |              |                    |                 | H | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|---|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |   | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55 HRC55~ |   |                  |           |          |        |        |      |          |
| ◎             | ◎            | ◎                  |                 |   | ○                | ○         |          |        |        |      |          |

# TiAlN-COATED SOLID CARBIDE DREAM DRILLS without Coolant Holes (5XD)

LONG

DH722 SERIES

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron, Non-Ferrous, Abrasive Plastic
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation
- ▶ Tolerance : Dia. Tolerance  $\varnothing D1$  : See page 104  
Shank Tolerance  $\varnothing D2$  : -.0001 -.0005



5 × D



Unit : inch

| EDP No.  | Drill Diameter |         | Shank Diameter | Flute Length | Overall Length |
|----------|----------------|---------|----------------|--------------|----------------|
|          | Fractional     | Decimal |                |              |                |
| TiAlN    | D1             |         | D2             | L1           | L2             |
| DH722013 | 13/64          | .2031   | 1/4            | 1-3/4        | 3-15/16        |
| DH722014 | 7/32           | .2188   | 1/4            | 1-57/64      | 3-15/16        |
| DH722015 | 15/64          | .2344   | 1/4            | 1-57/64      | 3-15/16        |
| DH722016 | 1/4            | .2500   | 1/4            | 2-3/64       | 4-19/64        |
| DH722017 | F              | .2570   | 5/16           | 2-13/64      | 4-19/64        |
| DH722018 | 17/64          | .2656   | 5/16           | 2-13/64      | 4-19/64        |
| DH722019 | I              | .2720   | 5/16           | 2-13/64      | 4-19/64        |
| DH722020 | 9/32           | .2812   | 5/16           | 2-23/64      | 4-41/64        |
| DH722021 | 19/64          | .2969   | 5/16           | 2-33/64      | 4-41/64        |
| DH722022 | 5/16           | .3125   | 5/16           | 2-33/64      | 4-41/64        |
| DH722023 | 21/64          | .3281   | 3/8            | 2-43/64      | 5              |
| DH722024 | Q              | .3320   | 3/8            | 2-43/64      | 5              |

| EDP No.  | Drill Diameter |         | Shank Diameter | Flute Length | Overall Length |
|----------|----------------|---------|----------------|--------------|----------------|
|          | Fractional     | Decimal |                |              |                |
| TiAlN    | D1             |         | D2             | L1           | L2             |
| DH722022 | 11/32          | .3438   | 3/8            | 2-27/32      | 5              |
| DH722023 | 23/64          | .3594   | 3/8            | 3            | 5-23/64        |
| DH722024 | U              | .3680   | 3/8            | 3            | 5-23/64        |
| DH722025 | 3/8            | .3750   | 3/8            | 3-5/32       | 5-23/64        |
| DH722026 | 25/64          | .3906   | 7/16           | 3-5/32       | 5-23/64        |
| DH722027 | 13/32          | .4062   | 7/16           | 3-5/16       | 5-7/8          |
| DH722028 | 27/64          | .4219   | 7/16           | 3-15/32      | 5-7/8          |
| DH722029 | 7/16           | .4375   | 7/16           | 3-5/8        | 6-7/32         |
| DH722030 | 29/64          | .4531   | 1/2            | 3-25/32      | 6-7/32         |
| DH722031 | 15/32          | .4688   | 1/2            | 3-25/32      | 6-7/32         |
| DH722032 | 31/64          | .4844   | 1/2            | 3-15/16      | 6-37/64        |
| DH722033 | 1/2            | .5000   | 1/2            | 4-3/32       | 6-37/64        |

▶ Other shank types are available on your request.

◎ : Excellent ○ : Good

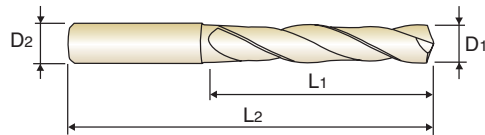
| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ◎                  |                 |        | ○                | ○         |          |        |        |      |          |

# TiAlN-COATED SOLID CARBIDE DREAM DRILLS without Coolant Holes (3XD)

STUB

DH404 SERIES

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron, Non-Ferrous, Abrasive Plastic
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation



$D_1 = D_2$

3 × D



Unit : mm

| EDP No.  | Drill Diameter |       | Flute Length | Overall Length |
|----------|----------------|-------|--------------|----------------|
|          | Metric         | Inch  |              |                |
| TiAlN    | $D_1 = D_2$    |       | L1           | L2             |
| DH404030 | 3.0            | .1181 | 16           | 46             |
| DH404031 | 3.1            | .1220 | 18           | 49             |
| DH404032 | 3.2            | .1260 | 18           | 49             |
| DH404033 | 3.3            | .1299 | 18           | 49             |
| DH404034 | 3.4            | .1339 | 20           | 52             |
| DH404035 | 3.5            | .1378 | 20           | 52             |
| DH404036 | 3.6            | .1417 | 20           | 52             |
| DH404037 | 3.7            | .1457 | 20           | 52             |
| DH404038 | 3.8            | .1496 | 22           | 55             |
| DH404039 | 3.9            | .1535 | 22           | 55             |
| DH404040 | 4.0            | .1575 | 22           | 55             |
| DH404041 | 4.1            | .1614 | 22           | 55             |
| DH404042 | 4.2            | .1654 | 22           | 55             |
| DH404043 | 4.3            | .1693 | 24           | 58             |
| DH404044 | 4.4            | .1732 | 24           | 58             |
| DH404045 | 4.5            | .1772 | 24           | 58             |
| DH404046 | 4.6            | .1811 | 24           | 58             |
| DH404047 | 4.7            | .1850 | 24           | 58             |
| DH404048 | 4.8            | .1890 | 26           | 62             |
| DH404049 | 4.9            | .1929 | 26           | 62             |
| DH404050 | 5.0            | .1969 | 26           | 62             |
| DH404051 | 5.1            | .2008 | 26           | 62             |
| DH404052 | 5.2            | .2047 | 26           | 62             |
| DH404053 | 5.3            | .2087 | 26           | 62             |
| DH404054 | 5.4            | .2126 | 28           | 66             |
| DH404055 | 5.5            | .2165 | 28           | 66             |

| EDP No.  | Drill Diameter |       | Flute Length | Overall Length |
|----------|----------------|-------|--------------|----------------|
|          | Metric         | Inch  |              |                |
| TiAlN    | $D_1 = D_2$    |       | L1           | L2             |
| DH404056 | 5.6            | .2205 | 28           | 66             |
| DH404057 | 5.7            | .2244 | 28           | 66             |
| DH404058 | 5.8            | .2283 | 28           | 66             |
| DH404059 | 5.9            | .2323 | 28           | 66             |
| DH404060 | 6.0            | .2362 | 28           | 66             |
| DH404061 | 6.1            | .2402 | 31           | 70             |
| DH404062 | 6.2            | .2441 | 31           | 70             |
| DH404063 | 6.3            | .2480 | 31           | 70             |
| DH404064 | 6.4            | .2520 | 31           | 70             |
| DH404065 | 6.5            | .2559 | 31           | 70             |
| DH404066 | 6.6            | .2598 | 31           | 70             |
| DH404067 | 6.7            | .2638 | 31           | 70             |
| DH404068 | 6.8            | .2677 | 34           | 74             |
| DH404069 | 6.9            | .2717 | 34           | 74             |
| DH404070 | 7.0            | .2756 | 34           | 74             |
| DH404071 | 7.1            | .2795 | 34           | 74             |
| DH404072 | 7.2            | .2835 | 34           | 74             |
| DH404073 | 7.3            | .2874 | 34           | 74             |
| DH404074 | 7.4            | .2913 | 34           | 74             |
| DH404075 | 7.5            | .2953 | 34           | 74             |
| DH404076 | 7.6            | .2992 | 37           | 79             |
| DH404077 | 7.7            | .3031 | 37           | 79             |
| DH404078 | 7.8            | .3071 | 37           | 79             |
| DH404079 | 7.9            | .3110 | 37           | 79             |
| DH404080 | 8.0            | .3150 | 37           | 79             |
| DH404081 | 8.1            | .3189 | 37           | 79             |

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

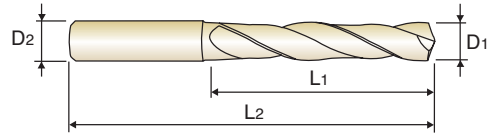
| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ◎                  |                 |        | ○                | ○         |          |        |        |      |          |

# TiAlN-COATED SOLID CARBIDE DREAM DRILLS without Coolant Holes (3XD)

STUB

DH404 SERIES

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron, Non-Ferrous, Abrasive Plastic
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation



$D_1 = D_2$

$3 \times D$



Unit : mm

| EDP No.  | Drill Diameter |       | Flute Length | Overall Length |
|----------|----------------|-------|--------------|----------------|
|          | Metric         | Inch  |              |                |
| TiAlN    | $D_1 = D_2$    |       | L1           | L2             |
| DH404082 | 8.2            | .3228 | 37           | 79             |
| DH404083 | 8.3            | .3268 | 37           | 79             |
| DH404084 | 8.4            | .3307 | 37           | 79             |
| DH404085 | 8.5            | .3346 | 37           | 79             |
| DH404086 | 8.6            | .3386 | 40           | 84             |
| DH404087 | 8.7            | .3425 | 40           | 84             |
| DH404088 | 8.8            | .3465 | 40           | 84             |
| DH404089 | 8.9            | .3504 | 40           | 84             |
| DH404090 | 9.0            | .3543 | 40           | 84             |
| DH404091 | 9.1            | .3583 | 40           | 84             |
| DH404092 | 9.2            | .3622 | 40           | 84             |
| DH404093 | 9.3            | .3661 | 40           | 84             |
| DH404094 | 9.4            | .3701 | 40           | 84             |
| DH404095 | 9.5            | .3740 | 40           | 84             |
| DH404096 | 9.6            | .3780 | 43           | 89             |
| DH404097 | 9.7            | .3819 | 43           | 89             |
| DH404098 | 9.8            | .3858 | 43           | 89             |
| DH404099 | 9.9            | .3898 | 43           | 89             |
| DH404100 | 10.0           | .3937 | 43           | 89             |
| DH404102 | 10.2           | .4016 | 43           | 89             |

| EDP No.  | Drill Diameter |       | Flute Length | Overall Length |
|----------|----------------|-------|--------------|----------------|
|          | Metric         | Inch  |              |                |
| TiAlN    | $D_1 = D_2$    |       | L1           | L2             |
| DH404105 | 10.5           | .4134 | 43           | 89             |
| DH404110 | 11.0           | .4331 | 47           | 95             |
| DH404115 | 11.5           | .4528 | 47           | 95             |
| DH404120 | 12.0           | .4724 | 51           | 102            |
| DH404130 | 13.0           | .5118 | 51           | 102            |
| DH404135 | 13.5           | .5314 | 54           | 107            |
| DH404140 | 14.0           | .5512 | 54           | 107            |
| DH404145 | 14.5           | .5708 | 56           | 111            |
| DH404150 | 15.0           | .5905 | 56           | 111            |
| DH404155 | 15.5           | .6102 | 58           | 115            |
| DH404160 | 16.0           | .6299 | 58           | 115            |
| DH404165 | 16.5           | .6495 | 60           | 119            |
| DH404170 | 17.0           | .6692 | 60           | 119            |
| DH404175 | 17.5           | .6889 | 62           | 123            |
| DH404180 | 18.0           | .7087 | 62           | 123            |
| DH404185 | 18.5           | .7283 | 64           | 127            |
| DH404190 | 19.0           | .7480 | 64           | 127            |
| DH404195 | 19.5           | .7676 | 66           | 131            |
| DH404200 | 20.0           | .7874 | 66           | 131            |

▶ Other shank types are available on your request.

◎ : Excellent ○ : Good

| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ◎                  |                 |        | ○                | ○         |          |        |        |      |          |

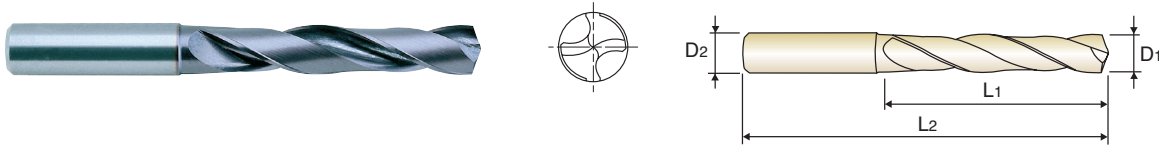


## TiAIN-COATED SOLID CARBIDE DREAM DRILLS without Coolant Holes (3XD)

SHORT

DH423 SERIES

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron, Non-Ferrous, Abrasive Plastic
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation



3 × D

Unit : mm

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAIN     | D1             |            |         | D2             | L1           | L2             |
| DH423030  | 3.0            |            | .1181   | 6              | 20           | 62             |
| DH423031  | 3.1            |            | .1220   | 6              | 20           | 62             |
| DH423008F | 3.175          | 1/8        | .1250   | 6              | 20           | 62             |
| DH423032  | 3.2            |            | .1260   | 6              | 20           | 62             |
| DH423033  | 3.3            |            | .1299   | 6              | 20           | 62             |
| DH423034  | 3.4            |            | .1339   | 6              | 20           | 62             |
| DH423035  | 3.5            |            | .1378   | 6              | 20           | 62             |
| DH423009F | 3.572          | 9/64       | .1406   | 6              | 20           | 62             |
| DH423036  | 3.6            |            | .1417   | 6              | 20           | 62             |
| DH423037  | 3.7            |            | .1457   | 6              | 20           | 62             |
| DH423038  | 3.8            |            | .1496   | 6              | 24           | 66             |
| DH423039  | 3.9            |            | .1535   | 6              | 24           | 66             |
| DH423010F | 3.969          | 5/32       | .1563   | 6              | 24           | 66             |
| DH423040  | 4.0            |            | .1575   | 6              | 24           | 66             |
| DH423041  | 4.1            |            | .1614   | 6              | 24           | 66             |
| DH423042  | 4.2            |            | .1654   | 6              | 24           | 66             |
| DH423043  | 4.3            |            | .1693   | 6              | 24           | 66             |
| DH423011F | 4.366          | 11/64      | .1719   | 6              | 24           | 66             |
| DH423044  | 4.4            |            | .1732   | 6              | 24           | 66             |
| DH423045  | 4.5            |            | .1772   | 6              | 24           | 66             |
| DH423046  | 4.6            |            | .1811   | 6              | 24           | 66             |
| DH423047  | 4.7            |            | .1850   | 6              | 24           | 66             |
| DH423012F | 4.763          | 3/16       | .1875   | 6              | 24           | 66             |
| DH423048  | 4.8            |            | .1890   | 6              | 28           | 66             |

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAIN     | D1             |            |         | D2             | L1           | L2             |
| DH423049  | 4.9            |            | .1929   | 6              | 28           | 66             |
| DH423050  | 5.0            |            | .1969   | 6              | 28           | 66             |
| DH423051  | 5.1            |            | .2008   | 6              | 28           | 66             |
| DH423013F | 5.159          | 13/64      | .2031   | 6              | 28           | 66             |
| DH423052  | 5.2            |            | .2047   | 6              | 28           | 66             |
| DH423053  | 5.3            |            | .2087   | 6              | 28           | 66             |
| DH423054  | 5.4            |            | .2126   | 6              | 28           | 66             |
| DH423055  | 5.5            |            | .2165   | 6              | 28           | 66             |
| DH423014F | 5.556          | 7/32       | .2188   | 6              | 28           | 66             |
| DH423056  | 5.6            |            | .2205   | 6              | 28           | 66             |
| DH423057  | 5.7            |            | .2244   | 6              | 28           | 66             |
| DH423058  | 5.8            |            | .2283   | 6              | 28           | 66             |
| DH423059  | 5.9            |            | .2323   | 6              | 28           | 66             |
| DH423015F | 5.953          | 15/64      | .2344   | 6              | 28           | 66             |
| DH423060  | 6.0            |            | .2362   | 6              | 28           | 66             |
| DH423061  | 6.1            |            | .2402   | 8              | 34           | 79             |
| DH423062  | 6.2            |            | .2441   | 8              | 34           | 79             |
| DH423063  | 6.3            |            | .2480   | 8              | 34           | 79             |
| DH423016F | 6.350          | 1/4        | .2500   | 8              | 34           | 79             |
| DH423064  | 6.4            |            | .2520   | 8              | 34           | 79             |
| DH423065  | 6.5            |            | .2559   | 8              | 34           | 79             |
| DH423006L | 6.528          | F          | .2570   | 8              | 34           | 79             |
| DH423066  | 6.6            |            | .2598   | 8              | 34           | 79             |
| DH423067  | 6.7            |            | .2638   | 8              | 34           | 79             |

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

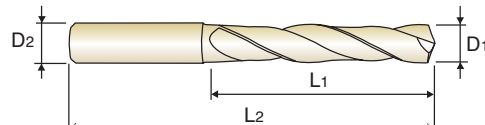
| P             |              |                    |                 | H | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|---|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |   | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55 HRC55~ |   |                  |           |          |        |        |      |          |
| ◎             | ◎            | ◎                  |                 |   | ○                | ○         |          |        |        |      |          |

# TiAIN-COATED SOLID CARBIDE DREAM DRILLS without Coolant Holes (3XD)

SHORT

DH423 SERIES

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron, Non-Ferrous, Abrasive Plastic
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation



3 × D

Unit : mm

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAIN     | D1             |            |         | D2             | L1           | L2             |
| DH423017F | 6.747          | 17/64      | .2656   | 8              | 34           | 79             |
| DH423068  | 6.8            |            | .2677   | 8              | 34           | 79             |
| DH423069  | 6.9            |            | .2717   | 8              | 34           | 79             |
| DH423009L | 6.909          | I          | .2720   | 8              | 34           | 79             |
| DH423070  | 7.0            |            | .2756   | 8              | 34           | 79             |
| DH423071  | 7.1            |            | .2795   | 8              | 41           | 79             |
| DH423018F | 7.144          | 9/32       | .2812   | 8              | 41           | 79             |
| DH423072  | 7.2            |            | .2835   | 8              | 41           | 79             |
| DH423073  | 7.3            |            | .2874   | 8              | 41           | 79             |
| DH423074  | 7.4            |            | .2913   | 8              | 41           | 79             |
| DH423075  | 7.5            |            | .2953   | 8              | 41           | 79             |
| DH423019F | 7.541          | 19/64      | .2969   | 8              | 41           | 79             |
| DH423076  | 7.6            |            | .2992   | 8              | 41           | 79             |
| DH423077  | 7.7            |            | .3031   | 8              | 41           | 79             |
| DH423078  | 7.8            |            | .3071   | 8              | 41           | 79             |
| DH423079  | 7.9            |            | .3110   | 8              | 41           | 79             |
| DH423020F | 7.938          | 5/16       | .3125   | 8              | 41           | 79             |
| DH423080  | 8.0            |            | .3150   | 8              | 41           | 79             |
| DH423081  | 8.1            |            | .3189   | 10             | 47           | 89             |
| DH423082  | 8.2            |            | .3228   | 10             | 47           | 89             |
| DH423083  | 8.3            |            | .3268   | 10             | 47           | 89             |
| DH423021F | 8.334          | 21/64      | .3281   | 10             | 47           | 89             |
| DH423084  | 8.4            |            | .3307   | 10             | 47           | 89             |
| DH423017L | 8.433          | Q          | .3320   | 10             | 47           | 89             |

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAIN     | D1             |            |         | D2             | L1           | L2             |
| DH423085  | 8.5            |            | .3346   | 10             | 47           | 89             |
| DH423086  | 8.6            |            | .3386   | 10             | 47           | 89             |
| DH423087  | 8.7            |            | .3425   | 10             | 47           | 89             |
| DH423022F | 8.731          | 11/32      | .3438   | 10             | 47           | 89             |
| DH423088  | 8.8            |            | .3465   | 10             | 47           | 89             |
| DH423089  | 8.9            |            | .3504   | 10             | 47           | 89             |
| DH423090  | 9.0            |            | .3543   | 10             | 47           | 89             |
| DH423091  | 9.1            |            | .3583   | 10             | 47           | 89             |
| DH423023F | 9.128          | 23/64      | .3594   | 10             | 47           | 89             |
| DH423092  | 9.2            |            | .3622   | 10             | 47           | 89             |
| DH423093  | 9.3            |            | .3661   | 10             | 47           | 89             |
| DH423021L | 9.347          | U          | .3680   | 10             | 47           | 89             |
| DH423094  | 9.4            |            | .3701   | 10             | 47           | 89             |
| DH423095  | 9.5            |            | .3740   | 10             | 47           | 89             |
| DH423024F | 9.525          | 3/8        | .3750   | 10             | 47           | 89             |
| DH423096  | 9.6            |            | .3780   | 10             | 47           | 89             |
| DH423097  | 9.7            |            | .3819   | 10             | 47           | 89             |
| DH423098  | 9.8            |            | .3858   | 10             | 47           | 89             |
| DH423099  | 9.9            |            | .3898   | 10             | 47           | 89             |
| DH423025F | 9.922          | 25/64      | .3906   | 10             | 47           | 89             |
| DH423100  | 10.0           |            | .3937   | 10             | 47           | 89             |
| DH423101  | 10.1           |            | .3976   | 12             | 55           | 102            |
| DH423102  | 10.2           |            | .4016   | 12             | 55           | 102            |
| DH423103  | 10.3           |            | .4055   | 12             | 55           | 102            |

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

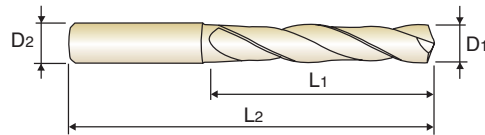
| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ◎                  |                 |        | ○                | ○         |          |        |        |      |          |

## TiAIN-COATED SOLID CARBIDE DREAM DRILLS without Coolant Holes (3XD)

SHORT

DH423 SERIES

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron, Non-Ferrous, Abrasive Plastic
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation



3 × D



Unit : mm

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAIN     | D1             |            |         | D2             | L1           | L2             |
| DH423026F | 10.319         | 13/32      | .4062   | 12             | 55           | 102            |
| DH423104  | 10.4           |            | .4094   | 12             | 55           | 102            |
| DH423105  | 10.5           |            | .4134   | 12             | 55           | 102            |
| DH423106  | 10.6           |            | .4173   | 12             | 55           | 102            |
| DH423107  | 10.7           |            | .4213   | 12             | 55           | 102            |
| DH423027F | 10.716         | 27/64      | .4219   | 12             | 55           | 102            |
| DH423108  | 10.8           |            | .4252   | 12             | 55           | 102            |
| DH423109  | 10.9           |            | .4291   | 12             | 55           | 102            |
| DH423110  | 11.0           |            | .4331   | 12             | 55           | 102            |
| DH423111  | 11.1           |            | .4370   | 12             | 55           | 102            |
| DH423028F | 11.113         | 7/16       | .4375   | 12             | 55           | 102            |
| DH423112  | 11.2           |            | .4409   | 12             | 55           | 102            |
| DH423113  | 11.3           |            | .4449   | 12             | 55           | 102            |
| DH423114  | 11.4           |            | .4488   | 12             | 55           | 102            |
| DH423115  | 11.5           |            | .4528   | 12             | 55           | 102            |
| DH423029F | 11.509         | 29/64      | .4531   | 12             | 55           | 102            |
| DH423116  | 11.6           |            | .4567   | 12             | 55           | 102            |
| DH423117  | 11.7           |            | .4606   | 12             | 55           | 102            |
| DH423118  | 11.8           |            | .4646   | 12             | 55           | 102            |
| DH423119  | 11.9           |            | .4685   | 12             | 55           | 102            |
| DH423030F | 11.906         | 15/32      | .4688   | 12             | 55           | 102            |
| DH423120  | 12.0           |            | .4724   | 12             | 55           | 102            |
| DH423121  | 12.1           |            | .4764   | 14             | 60           | 107            |
| DH423122  | 12.2           |            | .4803   | 14             | 60           | 107            |

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAIN     | D1             |            |         | D2             | L1           | L2             |
| DH423123  | 12.3           |            | .4843   | 14             | 60           | 107            |
| DH423031F | 12.303         | 31/64      | .4844   | 14             | 60           | 107            |
| DH423124  | 12.4           |            | .4882   | 14             | 60           | 107            |
| DH423125  | 12.5           |            | .4921   | 14             | 60           | 107            |
| DH423126  | 12.6           |            | .4961   | 14             | 60           | 107            |
| DH423032F | 12.7           | 1/2        | .5000   | 14             | 60           | 107            |
| DH423128  | 12.8           |            | .5039   | 14             | 60           | 107            |
| DH423129  | 12.9           |            | .5079   | 14             | 60           | 107            |
| DH423130  | 13.0           |            | .5118   | 14             | 60           | 107            |
| DH423131  | 13.1           |            | .5157   | 14             | 60           | 107            |
| DH423132  | 13.2           |            | .5197   | 14             | 60           | 107            |
| DH423133  | 13.3           |            | .5236   | 14             | 60           | 107            |
| DH423134  | 13.4           |            | .5276   | 14             | 60           | 107            |
| DH423135  | 13.5           |            | .5315   | 14             | 60           | 107            |
| DH423136  | 13.6           |            | .5354   | 14             | 60           | 107            |
| DH423137  | 13.7           |            | .5394   | 14             | 60           | 107            |
| DH423138  | 13.8           |            | .5433   | 14             | 60           | 107            |
| DH423139  | 13.9           |            | .5472   | 14             | 60           | 107            |
| DH423140  | 14.0           |            | .5512   | 14             | 60           | 107            |
| DH423141  | 14.1           |            | .5551   | 16             | 65           | 115            |
| DH423142  | 14.2           |            | .5591   | 16             | 65           | 115            |
| DH423036F | 14.288         | 9/16       | .5625   | 16             | 65           | 115            |
| DH423143  | 14.3           |            | .5630   | 16             | 65           | 115            |
| DH423144  | 14.4           |            | .5669   | 16             | 65           | 115            |

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

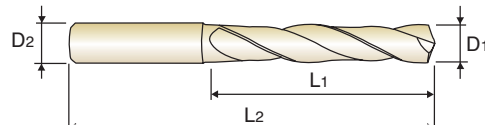
| P             |              |                    |                 | H | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|---|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |   | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55 HRC55~ |   |                  |           |          |        |        |      |          |
| ◎             | ◎            | ◎                  |                 |   | ○                | ○         |          |        |        |      |          |

# TiAIN-COATED SOLID CARBIDE DREAM DRILLS without Coolant Holes (3XD)

SHORT

DH423 SERIES

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron, Non-Ferrous, Abrasive Plastic
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation



3 × D



Unit : mm

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAIN     | D1             |            |         | D2             | L1           | L2             |
| DH423145  | 14.5           |            | .5708   | 16             | 65           | 115            |
| DH423146  | 14.6           |            | .5748   | 16             | 65           | 115            |
| DH423147  | 14.7           |            | .5787   | 16             | 65           | 115            |
| DH423148  | 14.8           |            | .5827   | 16             | 65           | 115            |
| DH423149  | 14.9           |            | .5866   | 16             | 65           | 115            |
| DH423150  | 15.0           |            | .5905   | 16             | 65           | 115            |
| DH423151  | 15.1           |            | .5945   | 16             | 65           | 115            |
| DH423152  | 15.2           |            | .5984   | 16             | 65           | 115            |
| DH423153  | 15.3           |            | .6024   | 16             | 65           | 115            |
| DH423154  | 15.4           |            | .6063   | 16             | 65           | 115            |
| DH423155  | 15.5           |            | .6102   | 16             | 65           | 115            |
| DH423156  | 15.6           |            | .6142   | 16             | 65           | 115            |
| DH423157  | 15.7           |            | .6181   | 16             | 65           | 115            |
| DH423158  | 15.8           |            | .6220   | 16             | 65           | 115            |
| DH423040F | 15.875         | 5/8        | .6250   | 16             | 65           | 115            |
| DH423159  | 15.9           |            | .6260   | 16             | 65           | 115            |
| DH423160  | 16.0           |            | .6299   | 16             | 65           | 115            |
| DH423161  | 16.1           |            | .6339   | 18             | 73           | 123            |
| DH423162  | 16.2           |            | .6378   | 18             | 73           | 123            |
| DH423163  | 16.3           |            | .6417   | 18             | 73           | 123            |
| DH423164  | 16.4           |            | .6457   | 18             | 73           | 123            |
| DH423165  | 16.5           |            | .6495   | 18             | 73           | 123            |
| DH423166  | 16.6           |            | .6535   | 18             | 73           | 123            |
| DH423167  | 16.7           |            | .6575   | 18             | 73           | 123            |

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAIN     | D1             |            |         | D2             | L1           | L2             |
| DH423168  | 16.8           |            | .6614   | 18             | 73           | 123            |
| DH423169  | 16.9           |            | .6654   | 18             | 73           | 123            |
| DH423170  | 17.0           |            | .6692   | 18             | 73           | 123            |
| DH423171  | 17.1           |            | .6732   | 18             | 73           | 123            |
| DH423172  | 17.2           |            | .6772   | 18             | 73           | 123            |
| DH423173  | 17.3           |            | .6811   | 18             | 73           | 123            |
| DH423174  | 17.4           |            | .6850   | 18             | 73           | 123            |
| DH423044F | 17.463         | 11/16      | .6875   | 18             | 73           | 123            |
| DH423175  | 17.5           |            | .6889   | 18             | 73           | 123            |
| DH423176  | 17.6           |            | .6929   | 18             | 73           | 123            |
| DH423177  | 17.7           |            | .6968   | 18             | 73           | 123            |
| DH423178  | 17.8           |            | .7008   | 18             | 73           | 123            |
| DH423179  | 17.9           |            | .7047   | 18             | 73           | 123            |
| DH423180  | 18.0           |            | .7087   | 18             | 73           | 123            |
| DH423181  | 18.1           |            | .7126   | 20             | 79           | 131            |
| DH423182  | 18.2           |            | .7165   | 20             | 79           | 131            |
| DH423183  | 18.3           |            | .7205   | 20             | 79           | 131            |
| DH423184  | 18.4           |            | .7244   | 20             | 79           | 131            |
| DH423185  | 18.5           |            | .7283   | 20             | 79           | 131            |
| DH423186  | 18.6           |            | .7323   | 20             | 79           | 131            |
| DH423187  | 18.7           |            | .7362   | 20             | 79           | 131            |
| DH423188  | 18.8           |            | .7402   | 20             | 79           | 131            |
| DH423189  | 18.9           |            | .7441   | 20             | 79           | 131            |
| DH423190  | 19.0           |            | .7480   | 20             | 79           | 131            |

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

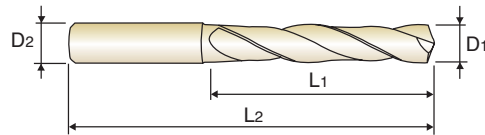
| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ◎                  |                 |        | ○                | ○         |          |        |        |      |          |

# TiAlN-COATED SOLID CARBIDE DREAM DRILLS without Coolant Holes (3XD)

SHORT

DH423 SERIES

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron, Non-Ferrous, Abrasive Plastic
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation



3 × D



| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAlN     | D1             |            |         | D2             | L1           | L2             |
| DH423048F | 19.050         | 3/4        | .7500   | 20             | 79           | 131            |
| DH423191  | 19.1           |            | .7520   | 20             | 79           | 131            |
| DH423192  | 19.2           |            | .7559   | 20             | 79           | 131            |
| DH423193  | 19.3           |            | .7598   | 20             | 79           | 131            |
| DH423194  | 19.4           |            | .7638   | 20             | 79           | 131            |
| DH423195  | 19.5           |            | .7676   | 20             | 79           | 131            |

Unit : mm

| EDP No.  | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|----------|----------------|------------|---------|----------------|--------------|----------------|
|          | Metric         | Fractional | Decimal |                |              |                |
| TiAlN    | D1             |            |         | D2             | L1           | L2             |
| DH423196 | 19.6           |            | .7717   | 20             | 79           | 131            |
| DH423197 | 19.7           |            | .7756   | 20             | 79           | 131            |
| DH423198 | 19.8           |            | .7795   | 20             | 79           | 131            |
| DH423199 | 19.9           |            | .7835   | 20             | 79           | 131            |
| DH423200 | 20.0           |            | .7874   | 20             | 79           | 131            |

▶ Other shank types are available on your request.

| P             |              |                    |                 |        | H                | M         | K        | N      |        |      |          | S |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|---|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |   |
| ~HB225        | HB225~325    | HRc30~45           | HRc45~55        | HRc55~ |                  |           |          |        |        |      |          |   |
| ◎             | ◎            | ◎                  |                 |        | ○                | ○         |          |        |        |      |          |   |

◎ : Excellent ○ : Good

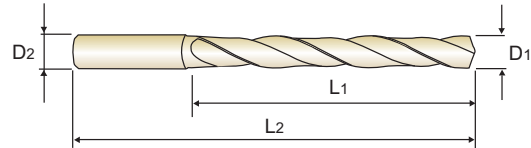


# TiAlN-COATED SOLID CARBIDE DREAM DRILLS without Coolant Holes (5XD)

LONG

DH424 SERIES

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron, Non-Ferrous, Abrasive Plastic
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation



5 × D



Unit : mm

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAlN     | D1             |            |         | D2             | L1           | L2             |
| DH424010  | 1.0            |            | .0394   | 3              | 8            | 55             |
| DH424011  | 1.1            |            | .0433   | 3              | 12           | 55             |
| DH424012  | 1.2            |            | .0472   | 3              | 12           | 55             |
| DH424013  | 1.3            |            | .0512   | 3              | 12           | 55             |
| DH424014  | 1.4            |            | .0551   | 3              | 12           | 55             |
| DH424015  | 1.5            |            | .0591   | 3              | 16           | 55             |
| DH424004F | 1.588          | 1/16       | .0625   | 3              | 16           | 55             |
| DH424016  | 1.6            |            | .0630   | 3              | 16           | 55             |
| DH424017  | 1.7            |            | .0669   | 3              | 16           | 55             |
| DH424018  | 1.8            |            | .0709   | 3              | 16           | 55             |
| DH424019  | 1.9            |            | .0748   | 3              | 16           | 55             |
| DH424005F | 1.984          | 5/64       | .0781   | 3              | 16           | 55             |
| DH424020  | 2.0            |            | .0787   | 4              | 21           | 57             |
| DH424021  | 2.1            |            | .0827   | 4              | 21           | 57             |
| DH424022  | 2.2            |            | .0866   | 4              | 21           | 57             |
| DH424023  | 2.3            |            | .0906   | 4              | 21           | 57             |
| DH424006F | 2.381          | 3/32       | .0938   | 4              | 21           | 57             |
| DH424024  | 2.4            |            | .0945   | 4              | 21           | 57             |
| DH424025  | 2.5            |            | .0984   | 4              | 21           | 57             |
| DH424026  | 2.6            |            | .1024   | 4              | 21           | 57             |
| DH424027  | 2.7            |            | .1063   | 4              | 21           | 57             |
| DH424007F | 2.778          | 7/64       | .1094   | 4              | 21           | 57             |
| DH424028  | 2.8            |            | .1102   | 4              | 21           | 57             |
| DH424029  | 2.9            |            | .1142   | 4              | 21           | 57             |
| DH424030  | 3.0            |            | .1181   | 6              | 28           | 66             |
| DH424031  | 3.1            |            | .1220   | 6              | 28           | 66             |

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAlN     | D1             |            |         | D2             | L1           | L2             |
| DH424008F | 3.175          | 1/8        | .1250   | 6              | 28           | 66             |
| DH424032  | 3.2            |            | .1260   | 6              | 28           | 66             |
| DH424033  | 3.3            |            | .1299   | 6              | 28           | 66             |
| DH424034  | 3.4            |            | .1339   | 6              | 28           | 66             |
| DH424035  | 3.5            |            | .1378   | 6              | 28           | 66             |
| DH424009F | 3.572          | 9/64       | .1406   | 6              | 28           | 66             |
| DH424036  | 3.6            |            | .1417   | 6              | 28           | 66             |
| DH424037  | 3.7            |            | .1457   | 6              | 28           | 66             |
| DH424038  | 3.8            |            | .1496   | 6              | 36           | 74             |
| DH424039  | 3.9            |            | .1535   | 6              | 36           | 74             |
| DH424010F | 3.969          | 5/32       | .1563   | 6              | 36           | 74             |
| DH424040  | 4.0            |            | .1575   | 6              | 36           | 74             |
| DH424041  | 4.1            |            | .1614   | 6              | 36           | 74             |
| DH424042  | 4.2            |            | .1654   | 6              | 36           | 74             |
| DH424043  | 4.3            |            | .1693   | 6              | 36           | 74             |
| DH424011F | 4.366          | 11/64      | .1719   | 6              | 36           | 74             |
| DH424044  | 4.4            |            | .1732   | 6              | 36           | 74             |
| DH424045  | 4.5            |            | .1772   | 6              | 36           | 74             |
| DH424046  | 4.6            |            | .1811   | 6              | 36           | 74             |
| DH424047  | 4.7            |            | .1850   | 6              | 36           | 74             |
| DH424012F | 4.763          | 3/16       | .1875   | 6              | 36           | 74             |
| DH424048  | 4.8            |            | .1890   | 6              | 44           | 82             |
| DH424049  | 4.9            |            | .1929   | 6              | 44           | 82             |
| DH424050  | 5.0            |            | .1969   | 6              | 44           | 82             |
| DH424051  | 5.1            |            | .2008   | 6              | 44           | 82             |
| DH424013F | 5.159          | 13/64      | .2031   | 6              | 44           | 82             |

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

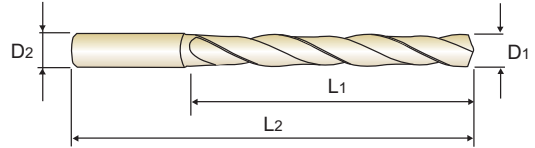
| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ◎                  |                 |        | ○                | ○         |          |        |        |      |          |

## TiAlN-COATED SOLID CARBIDE DREAM DRILLS without Coolant Holes (5XD)

LONG

DH424 SERIES

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron, Non-Ferrous, Abrasive Plastic
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation



5 × D

Unit : mm

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAlN     | D1             |            |         | D2             | L1           | L2             |
| DH424052  | 5.2            |            | .2047   | 6              | 44           | 82             |
| DH424053  | 5.3            |            | .2087   | 6              | 44           | 82             |
| DH424054  | 5.4            |            | .2126   | 6              | 44           | 82             |
| DH424055  | 5.5            |            | .2165   | 6              | 44           | 82             |
| DH424014F | 5.556          | 7/32       | .2188   | 6              | 44           | 82             |
| DH424056  | 5.6            |            | .2205   | 6              | 44           | 82             |
| DH424057  | 5.7            |            | .2244   | 6              | 44           | 82             |
| DH424058  | 5.8            |            | .2283   | 6              | 44           | 82             |
| DH424059  | 5.9            |            | .2323   | 6              | 44           | 82             |
| DH424015F | 5.953          | 15/64      | .2344   | 6              | 44           | 82             |
| DH424060  | 6.0            |            | .2362   | 6              | 44           | 82             |
| DH424061  | 6.1            |            | .2402   | 8              | 53           | 91             |
| DH424062  | 6.2            |            | .2441   | 8              | 53           | 91             |
| DH424063  | 6.3            |            | .2480   | 8              | 53           | 91             |
| DH424016F | 6.350          | 1/4        | .2500   | 8              | 53           | 91             |
| DH424064  | 6.4            |            | .2520   | 8              | 53           | 91             |
| DH424065  | 6.5            |            | .2559   | 8              | 53           | 91             |
| DH424006L | 6.528          | F          | .2570   | 8              | 53           | 91             |
| DH424066  | 6.6            |            | .2598   | 8              | 53           | 91             |
| DH424067  | 6.7            |            | .2638   | 8              | 53           | 91             |
| DH424017F | 6.747          | 17/64      | .2656   | 8              | 53           | 91             |
| DH424068  | 6.8            |            | .2677   | 8              | 53           | 91             |
| DH424069  | 6.9            |            | .2717   | 8              | 53           | 91             |
| DH424009L | 6.909          | I          | .2720   | 8              | 53           | 91             |
| DH424070  | 7.0            |            | .2756   | 8              | 53           | 91             |
| DH424071  | 7.1            |            | .2795   | 8              | 53           | 91             |

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAlN     | D1             |            |         | D2             | L1           | L2             |
| DH424018F | 7.144          | 9/32       | .2812   | 8              | 53           | 91             |
| DH424072  | 7.2            |            | .2835   | 8              | 53           | 91             |
| DH424073  | 7.3            |            | .2874   | 8              | 53           | 91             |
| DH424074  | 7.4            |            | .2913   | 8              | 53           | 91             |
| DH424075  | 7.5            |            | .2953   | 8              | 53           | 91             |
| DH424019F | 7.541          | 19/64      | .2969   | 8              | 53           | 91             |
| DH424076  | 7.6            |            | .2992   | 8              | 53           | 91             |
| DH424077  | 7.7            |            | .3031   | 8              | 53           | 91             |
| DH424078  | 7.8            |            | .3071   | 8              | 53           | 91             |
| DH424079  | 7.9            |            | .3110   | 8              | 53           | 91             |
| DH424020F | 7.938          | 5/16       | .3125   | 8              | 53           | 91             |
| DH424080  | 8.0            |            | .3150   | 8              | 53           | 91             |
| DH424081  | 8.1            |            | .3189   | 10             | 61           | 103            |
| DH424082  | 8.2            |            | .3228   | 10             | 61           | 103            |
| DH424083  | 8.3            |            | .3268   | 10             | 61           | 103            |
| DH424021F | 8.334          | 21/64      | .3281   | 10             | 61           | 103            |
| DH424084  | 8.4            |            | .3307   | 10             | 61           | 103            |
| DH424017L | 8.433          | Q          | .3320   | 10             | 61           | 103            |
| DH424085  | 8.5            |            | .3346   | 10             | 61           | 103            |
| DH424086  | 8.6            |            | .3386   | 10             | 61           | 103            |
| DH424087  | 8.7            |            | .3425   | 10             | 61           | 103            |
| DH424022F | 8.731          | 11/32      | .3438   | 10             | 61           | 103            |
| DH424088  | 8.8            |            | .3465   | 10             | 61           | 103            |
| DH424089  | 8.9            |            | .3504   | 10             | 61           | 103            |
| DH424090  | 9.0            |            | .3543   | 10             | 61           | 103            |
| DH424091  | 9.1            |            | .3583   | 10             | 61           | 103            |

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

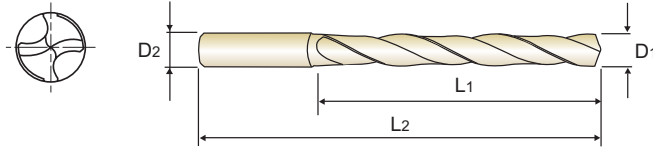
| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ◎                  |                 |        | ○                | ○         |          |        |        |      |          |

# TiAlN-COATED SOLID CARBIDE DREAM DRILLS without Coolant Holes (5XD)

LONG

DH424 SERIES

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron, Non-Ferrous, Abrasive Plastic
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation



5 × D

Unit : mm

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAlN     | D1             |            |         | D2             | L1           | L2             |
| DH424023F | 9.128          | 23/64      | .3594   | 10             | 61           | 103            |
| DH424092  | 9.2            |            | .3622   | 10             | 61           | 103            |
| DH424093  | 9.3            |            | .3661   | 10             | 61           | 103            |
| DH424021L | 9.347          | U          | .3680   | 10             | 61           | 103            |
| DH424094  | 9.4            |            | .3701   | 10             | 61           | 103            |
| DH424095  | 9.5            |            | .3740   | 10             | 61           | 103            |
| DH424024F | 9.525          | 3/8        | .3750   | 10             | 61           | 103            |
| DH424096  | 9.6            |            | .3780   | 10             | 61           | 103            |
| DH424097  | 9.7            |            | .3819   | 10             | 61           | 103            |
| DH424098  | 9.8            |            | .3858   | 10             | 61           | 103            |
| DH424099  | 9.9            |            | .3898   | 10             | 61           | 103            |
| DH424025F | 9.922          | 25/64      | .3906   | 10             | 61           | 103            |
| DH424100  | 10.0           |            | .3937   | 10             | 61           | 103            |
| DH424101  | 10.1           |            | .3976   | 12             | 71           | 118            |
| DH424102  | 10.2           |            | .4016   | 12             | 71           | 118            |
| DH424103  | 10.3           |            | .4055   | 12             | 71           | 118            |
| DH424026F | 10.319         | 13/32      | .4062   | 12             | 71           | 118            |
| DH424104  | 10.4           |            | .4094   | 12             | 71           | 118            |
| DH424105  | 10.5           |            | .4134   | 12             | 71           | 118            |
| DH424106  | 10.6           |            | .4173   | 12             | 71           | 118            |
| DH424107  | 10.7           |            | .4213   | 12             | 71           | 118            |
| DH424027F | 10.716         | 27/64      | .4219   | 12             | 71           | 118            |
| DH424108  | 10.8           |            | .4252   | 12             | 71           | 118            |
| DH424109  | 10.9           |            | .4291   | 12             | 71           | 118            |
| DH424110  | 11.0           |            | .4331   | 12             | 71           | 118            |
| DH424111  | 11.1           |            | .4370   | 12             | 71           | 118            |

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAlN     | D1             |            |         | D2             | L1           | L2             |
| DH424028F | 11.113         | 7/16       | .4375   | 12             | 71           | 118            |
| DH424112  | 11.2           |            | .4409   | 12             | 71           | 118            |
| DH424113  | 11.3           |            | .4449   | 12             | 71           | 118            |
| DH424114  | 11.4           |            | .4488   | 12             | 71           | 118            |
| DH424115  | 11.5           |            | .4528   | 12             | 71           | 118            |
| DH424029F | 11.509         | 29/64      | .4531   | 12             | 71           | 118            |
| DH424116  | 11.6           |            | .4567   | 12             | 71           | 118            |
| DH424117  | 11.7           |            | .4606   | 12             | 71           | 118            |
| DH424118  | 11.8           |            | .4646   | 12             | 71           | 118            |
| DH424119  | 11.9           |            | .4685   | 12             | 71           | 118            |
| DH424030F | 11.906         | 15/32      | .4688   | 12             | 71           | 118            |
| DH424120  | 12.0           |            | .4724   | 12             | 71           | 118            |
| DH424121  | 12.1           |            | .4764   | 14             | 77           | 124            |
| DH424122  | 12.2           |            | .4803   | 14             | 77           | 124            |
| DH424123  | 12.3           |            | .4843   | 14             | 77           | 124            |
| DH424031F | 12.303         | 31/64      | .4844   | 14             | 77           | 124            |
| DH424124  | 12.4           |            | .4882   | 14             | 77           | 124            |
| DH424125  | 12.5           |            | .4921   | 14             | 77           | 124            |
| DH424126  | 12.6           |            | .4961   | 14             | 77           | 124            |
| DH424032F | 12.7           | 1/2        | .5000   | 14             | 77           | 124            |
| DH424128  | 12.8           |            | .5039   | 14             | 77           | 124            |
| DH424129  | 12.9           |            | .5079   | 14             | 77           | 124            |
| DH424130  | 13.0           |            | .5118   | 14             | 77           | 124            |
| DH424131  | 13.1           |            | .5157   | 14             | 77           | 124            |
| DH424132  | 13.2           |            | .5197   | 14             | 77           | 124            |
| DH424133  | 13.3           |            | .5236   | 14             | 77           | 124            |

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

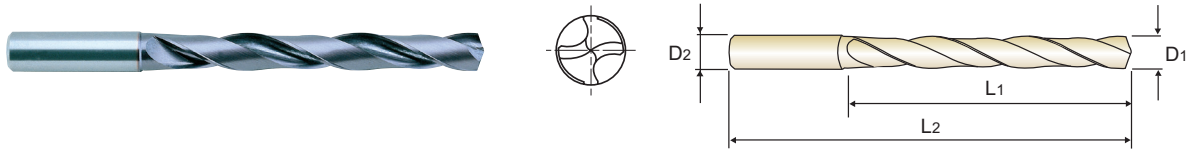
| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ◎                  |                 |        | ○                | ○         |          |        |        |      |          |

## TiAIN-COATED SOLID CARBIDE DREAM DRILLS without Coolant Holes (5XD)

LONG

DH424 SERIES

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron, Non-Ferrous, Abrasive Plastic
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation



5 × D

Unit : mm

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAIN     | D1             |            |         | D2             | L1           | L2             |
| DH424134  | 13.4           |            | .5276   | 14             | 77           | 124            |
| DH424135  | 13.5           |            | .5315   | 14             | 77           | 124            |
| DH424136  | 13.6           |            | .5354   | 14             | 77           | 124            |
| DH424137  | 13.7           |            | .5394   | 14             | 77           | 124            |
| DH424138  | 13.8           |            | .5433   | 14             | 77           | 124            |
| DH424139  | 13.9           |            | .5472   | 14             | 77           | 124            |
| DH424140  | 14.0           |            | .5512   | 14             | 77           | 124            |
| DH424141  | 14.1           |            | .5551   | 16             | 83           | 133            |
| DH424142  | 14.2           |            | .5591   | 16             | 83           | 133            |
| DH424036F | 14.288         | 9/16       | .5625   | 16             | 83           | 133            |
| DH424143  | 14.3           |            | .5630   | 16             | 83           | 133            |
| DH424144  | 14.4           |            | .5669   | 16             | 83           | 133            |
| DH424145  | 14.5           |            | .5708   | 16             | 83           | 133            |
| DH424146  | 14.6           |            | .5748   | 16             | 83           | 133            |
| DH424147  | 14.7           |            | .5787   | 16             | 83           | 133            |
| DH424148  | 14.8           |            | .5827   | 16             | 83           | 133            |
| DH424149  | 14.9           |            | .5866   | 16             | 83           | 133            |
| DH424150  | 15.0           |            | .5905   | 16             | 83           | 133            |
| DH424151  | 15.1           |            | .5945   | 16             | 83           | 133            |
| DH424152  | 15.2           |            | .5984   | 16             | 83           | 133            |
| DH424153  | 15.3           |            | .6024   | 16             | 83           | 133            |
| DH424154  | 15.4           |            | .6063   | 16             | 83           | 133            |
| DH424155  | 15.5           |            | .6102   | 16             | 83           | 133            |
| DH424156  | 15.6           |            | .6142   | 16             | 83           | 133            |
| DH424157  | 15.7           |            | .6181   | 16             | 83           | 133            |
| DH424158  | 15.8           |            | .6220   | 16             | 83           | 133            |

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAIN     | D1             |            |         | D2             | L1           | L2             |
| DH424040F | 15.875         | 5/8        | .6250   | 16             | 83           | 133            |
| DH424159  | 15.9           |            | .6260   | 16             | 83           | 133            |
| DH424160  | 16.0           |            | .6299   | 16             | 83           | 133            |
| DH424161  | 16.1           |            | .6339   | 18             | 93           | 143            |
| DH424162  | 16.2           |            | .6378   | 18             | 93           | 143            |
| DH424163  | 16.3           |            | .6417   | 18             | 93           | 143            |
| DH424164  | 16.4           |            | .6457   | 18             | 93           | 143            |
| DH424165  | 16.5           |            | .6495   | 18             | 93           | 143            |
| DH424166  | 16.6           |            | .6535   | 18             | 93           | 143            |
| DH424167  | 16.7           |            | .6575   | 18             | 93           | 143            |
| DH424168  | 16.8           |            | .6614   | 18             | 93           | 143            |
| DH424169  | 16.9           |            | .6654   | 18             | 93           | 143            |
| DH424170  | 17.0           |            | .6692   | 18             | 93           | 143            |
| DH424171  | 17.1           |            | .6732   | 18             | 93           | 143            |
| DH424172  | 17.2           |            | .6772   | 18             | 93           | 143            |
| DH424173  | 17.3           |            | .6811   | 18             | 93           | 143            |
| DH424174  | 17.4           |            | .6850   | 18             | 93           | 143            |
| DH424175  | 17.5           |            | .6889   | 18             | 93           | 143            |
| DH424176  | 17.6           |            | .6929   | 18             | 93           | 143            |
| DH424177  | 17.7           |            | .6968   | 18             | 93           | 143            |
| DH424178  | 17.8           |            | .7008   | 18             | 93           | 143            |
| DH424179  | 17.9           |            | .7047   | 18             | 93           | 143            |
| DH424180  | 18.0           |            | .7087   | 18             | 93           | 143            |
| DH424181  | 18.1           |            | .7126   | 20             | 101          | 153            |
| DH424182  | 18.2           |            | .7165   | 20             | 101          | 153            |
| DH424183  | 18.3           |            | .7205   | 20             | 101          | 153            |

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

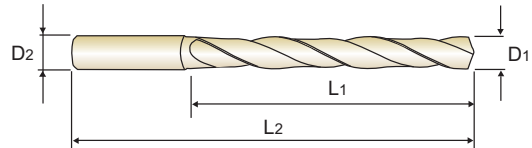
| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ◎                  |                 |        | ○                | ○         |          |        |        |      |          |

# TiAlN-COATED SOLID CARBIDE DREAM DRILLS without Coolant Holes (5XD)

LONG

DH424 SERIES

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron, Non-Ferrous, Abrasive Plastic
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation



5 × D

Unit : mm

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAlN     | D1             |            |         | D2             | L1           | L2             |
| DH424184  | 18.4           |            | .7244   | 20             | 101          | 153            |
| DH424185  | 18.5           |            | .7283   | 20             | 101          | 153            |
| DH424186  | 18.6           |            | .7323   | 20             | 101          | 153            |
| DH424187  | 18.7           |            | .7362   | 20             | 101          | 153            |
| DH424188  | 18.8           |            | .7402   | 20             | 101          | 153            |
| DH424189  | 18.9           |            | .7441   | 20             | 101          | 153            |
| DH424190  | 19.0           |            | .7480   | 20             | 101          | 153            |
| DH424048F | 19.005         | 3/4        | .7500   | 20             | 101          | 153            |
| DH424191  | 19.1           |            | .7520   | 20             | 101          | 153            |

| EDP No.  | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|----------|----------------|------------|---------|----------------|--------------|----------------|
|          | Metric         | Fractional | Decimal |                |              |                |
| TiAlN    | D1             |            |         | D2             | L1           | L2             |
| DH424192 | 19.2           |            | .7559   | 20             | 101          | 153            |
| DH424193 | 19.3           |            | .7598   | 20             | 101          | 153            |
| DH424194 | 19.4           |            | .7638   | 20             | 101          | 153            |
| DH424195 | 19.5           |            | .7676   | 20             | 101          | 153            |
| DH424196 | 19.6           |            | .7717   | 20             | 101          | 153            |
| DH424197 | 19.7           |            | .7756   | 20             | 101          | 153            |
| DH424198 | 19.8           |            | .7795   | 20             | 101          | 153            |
| DH424199 | 19.9           |            | .7835   | 20             | 101          | 153            |
| DH424200 | 20.0           |            | .7874   | 20             | 101          | 153            |

▶ Other shank types are available on your request.

◎ : Excellent ○ : Good

| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ◎                  |                 |        | ○                | ○         |          |        |        |      |          |

## TiAIN-COATED SOLID CARBIDE DREAM DRILLS General without Coolant Holes

### DH414 | DH722 SERIES

| WORK MATERIAL       |       |            |        | P                |      |                  |      | K                |      |                  |      |
|---------------------|-------|------------|--------|------------------|------|------------------|------|------------------|------|------------------|------|
|                     |       |            |        | CARBON STEELS    |      | ALLOY STEELS     |      | CAST IRON        |      |                  |      |
| STRENGTH            |       |            |        | < HB240, GG25    |      | < HB300, GG40    |      | < HRC24          |      | > HRC24          |      |
| DRILLING SPEED(SFM) |       |            |        | 250 ~ 400 ft/min |      | 210 ~ 350 ft/min |      | 400 ~ 650 ft/min |      | 280 ~ 430 ft/min |      |
| DIAMETER            |       |            |        | RPM              | IPR  | RPM              | IPR  | RPM              | IPR  | RPM              | IPR  |
| Fractional          |       | Metric(mm) |        |                  |      |                  |      |                  |      |                  |      |
| 1/8                 | 3/16  | 3.175      | 4.763  | 7880             | .005 | 7000             | .005 | 13120            | .006 | 8750             | .005 |
| 3/16                | 5/16  | 4.763      | 7.938  | 4920             | .006 | 4370             | .006 | 8200             | .008 | 5470             | .006 |
| 5/16                | 3/8   | 7.938      | 9.525  | 3560             | .009 | 3190             | .009 | 5970             | .011 | 3980             | .009 |
| 3/8                 | 1/2   | 9.525      | 12.700 | 2810             | .011 | 2500             | .011 | 4690             | .014 | 3120             | .011 |
| 1/2                 | 9/16  | 12.700     | 14.288 | 2310             | .012 | 2060             | .012 | 3860             | .016 | 2570             | .012 |
| 9/16                | 13/16 | 14.288     | 20.638 | 1790             | .014 | 1590             | .014 | 2980             | .018 | 1990             | .014 |

► Recommend to reduce the feed rate as following

DH414(3xD) : Feed 100%

DH722(5xD) : Feed 85%

RPM = rev./min.

IPR = inch/rev.

## TiAIN-COATED SOLID CARBIDE DREAM DRILLS General with Coolant Holes

### DH416 | DH418 | DH711 | DH712 SERIES

| WORK MATERIAL       |       |            |        | P                |      |                  |      | K                |      |                  |      |
|---------------------|-------|------------|--------|------------------|------|------------------|------|------------------|------|------------------|------|
|                     |       |            |        | CARBON STEELS    |      | ALLOY STEELS     |      | CAST IRON        |      |                  |      |
| STRENGTH            |       |            |        | < HB240, GG25    |      | < HB300, GG40    |      | < HRC24          |      | > HRC24          |      |
| DRILLING SPEED(SFM) |       |            |        | 280 ~ 430 ft/min |      | 250 ~ 400 ft/min |      | 480 ~ 730 ft/min |      | 310 ~ 490 ft/min |      |
| DIAMETER            |       |            |        | RPM              | IPR  | RPM              | IPR  | RPM              | IPR  | RPM              | IPR  |
| Fractional          |       | Metric(mm) |        |                  |      |                  |      |                  |      |                  |      |
| 1/8                 | 3/16  | 3.175      | 4.763  | 8750             | .006 | 7880             | .005 | 14870            | .006 | 9620             | .006 |
| 3/16                | 5/16  | 4.763      | 7.938  | 5470             | .008 | 4920             | .006 | 8200             | .008 | 6010             | .008 |
| 5/16                | 3/8   | 7.938      | 9.525  | 3980             | .011 | 3580             | .009 | 6760             | .011 | 4370             | .011 |
| 3/8                 | 1/2   | 9.525      | 12.700 | 3120             | .014 | 2810             | .011 | 5310             | .014 | 3440             | .014 |
| 1/2                 | 9/16  | 12.700     | 14.288 | 2570             | .016 | 2310             | .012 | 4370             | .016 | 2830             | .016 |
| 9/16                | 13/16 | 14.288     | 20.638 | 1990             | .018 | 1790             | .014 | 3380             | .018 | 2190             | .018 |

► Recommend to reduce the feed rate as following

DH416/DH711(3xD) : Feed 100%

DH418/DH712(5xD) : Feed 85%

RPM = rev./min.

IPR = inch/rev.



# TiAlN-COATED SOLID CARBIDE DREAM DRILLS General with Coolant Holes

## DH406 | DH408 | DH421 SERIES

| WORK MATERIAL  |         | P                |      |      |                  |      |      | K                   |      |      |                     |      |      |
|----------------|---------|------------------|------|------|------------------|------|------|---------------------|------|------|---------------------|------|------|
|                |         | NON-ALLOY STEELS |      |      | ALLOY STEELS     |      |      | SOFT GREY CAST IRON |      |      | HARD GREY CAST IRON |      |      |
| STRENGTH       |         | < HRc 20         |      |      | > HRc 20         |      |      | < 240 BHN           |      |      | < 300 BHN           |      |      |
| DRILLING SPEED |         | 160 ~ 490 ft/min |      |      | 150 ~ 440 ft/min |      |      | 270 ~ 820 ft/min    |      |      | 170 ~ 530 ft/min    |      |      |
| DIAMETER       |         | RPM              | FEED | IPR  | RPM              | FEED | IPR  | RPM                 | FEED | IPR  | RPM                 | FEED | IPR  |
| Metric(mm)     | Decimal |                  |      |      |                  |      |      |                     |      |      |                     |      |      |
| 1.0            | .0394   | 16250            | 0.05 | .002 | 14800            | 0.05 | .002 | 26600               | 0.05 | .002 | 17300               | 0.05 | .002 |
| 2.0            | .0787   | 16250            | 0.07 | .003 | 14800            | 0.07 | .003 | 26600               | 0.07 | .003 | 17300               | 0.07 | .003 |
| 3.0            | .1181   | 16000            | 0.16 | .006 | 14500            | 0.16 | .006 | 26000               | 0.16 | .006 | 17000               | 0.16 | .006 |
| 4.0            | .1575   | 12000            | 0.17 | .007 | 11000            | 0.17 | .007 | 20000               | 0.17 | .007 | 13000               | 0.17 | .007 |
| 5.0            | .1969   | 9550             | 0.18 | .007 | 8600             | 0.18 | .007 | 16000               | 0.18 | .007 | 10000               | 0.18 | .007 |
| 6.0            | .2362   | 8000             | 0.20 | .008 | 7200             | 0.20 | .008 | 13000               | 0.20 | .008 | 8500                | 0.20 | .008 |
| 7.0            | .2756   | 6800             | 0.22 | .009 | 6100             | 0.22 | .009 | 11500               | 0.22 | .009 | 7300                | 0.22 | .009 |
| 8.0            | .3150   | 6000             | 0.24 | .009 | 5400             | 0.24 | .009 | 9900                | 0.24 | .009 | 6400                | 0.24 | .009 |
| 9.0            | .3543   | 5300             | 0.27 | .011 | 4800             | 0.27 | .011 | 8800                | 0.27 | .011 | 5700                | 0.27 | .011 |
| 10.0           | .3937   | 4800             | 0.30 | .012 | 4300             | 0.30 | .012 | 8000                | 0.30 | .012 | 5100                | 0.30 | .012 |
| 12.0           | .4724   | 4000             | 0.33 | .013 | 3600             | 0.33 | .013 | 6600                | 0.33 | .013 | 4250                | 0.33 | .013 |
| 14.0           | .5512   | 3400             | 0.36 | .014 | 3050             | 0.36 | .014 | 5700                | 0.36 | .014 | 3650                | 0.36 | .014 |
| 16.0           | .6299   | 3000             | 0.39 | .015 | 2700             | 0.39 | .015 | 5000                | 0.39 | .015 | 3200                | 0.39 | .015 |
| 18.0           | .7087   | 2650             | 0.42 | .017 | 2400             | 0.42 | .017 | 4400                | 0.42 | .017 | 2850                | 0.42 | .017 |
| 20.0           | .7874   | 2400             | 0.45 | .018 | 2150             | 0.45 | .018 | 4000                | 0.45 | .018 | 2550                | 0.45 | .018 |

- Recommend to reduce the feed rate as following  
DH406(3xD) : Feed 100%,      DH408(5xD) : Feed 85%  
DH421(8xD) : Feed 70%

RPM = rev./min.  
FEED = mm/rev.  
IPR = inch/rev

## TiAIN-COATED SOLID CARBIDE DREAM DRILLS

### General without Coolant Holes

#### DH404 | DH423 | DH424 SERIES

| WORK MATERIAL  |         | P                |      |      |                  |      |      | K                   |      |      |                     |      |      |
|----------------|---------|------------------|------|------|------------------|------|------|---------------------|------|------|---------------------|------|------|
|                |         | NON-ALLOY STEELS |      |      | ALLOY STEELS     |      |      | SOFT GREY CAST IRON |      |      | HARD GREY CAST IRON |      |      |
| STRENGTH       |         | < HRc 20         |      |      | > HRc 20         |      |      | < 240 BHN           |      |      | < 300 BHN           |      |      |
| DRILLING SPEED |         | 130 ~ 400 ft/min |      |      | 115 ~ 340 ft/min |      |      | 220 ~ 650 ft/min    |      |      | 150 ~ 430 ft/min    |      |      |
| DIAMETER       |         | RPM              | FEED | IPR  | RPM              | FEED | IPR  | RPM                 | FEED | IPR  | RPM                 | FEED | IPR  |
| Metric(mm)     | Decimal |                  |      |      |                  |      |      |                     |      |      |                     |      |      |
| 1.0            | .0394   | 13000            | 0.04 | .002 | 11250            | 0.04 | .002 | 21300               | 0.04 | .002 | 14200               | 0.04 | .002 |
| 2.0            | .0787   | 13000            | 0.06 | .002 | 11250            | 0.06 | .002 | 21300               | 0.06 | .002 | 14200               | 0.06 | .002 |
| 3.0            | .1181   | 13000            | 0.13 | .005 | 11000            | 0.13 | .005 | 21000               | 0.13 | .005 | 14000               | 0.13 | .005 |
| 4.0            | .1575   | 9500             | 0.14 | .006 | 8400             | 0.14 | .006 | 16000               | 0.14 | .006 | 10500               | 0.14 | .006 |
| 5.0            | .1969   | 7600             | 0.15 | .006 | 6700             | 0.15 | .006 | 13000               | 0.15 | .006 | 8300                | 0.15 | .006 |
| 6.0            | .2362   | 6400             | 0.17 | .007 | 5600             | 0.17 | .007 | 11000               | 0.17 | .007 | 6900                | 0.17 | .007 |
| 7.0            | .2756   | 5500             | 0.19 | .007 | 4800             | 0.19 | .007 | 9100                | 0.19 | .007 | 5900                | 0.19 | .007 |
| 8.0            | .3150   | 4800             | 0.21 | .008 | 4200             | 0.21 | .008 | 8000                | 0.21 | .008 | 5200                | 0.21 | .008 |
| 9.0            | .3543   | 4200             | 0.23 | .009 | 3700             | 0.23 | .009 | 7100                | 0.23 | .009 | 4600                | 0.23 | .009 |
| 10.0           | .3937   | 3800             | 0.25 | .010 | 3350             | 0.25 | .010 | 6400                | 0.25 | .010 | 4150                | 0.25 | .010 |
| 12.0           | .4724   | 3200             | 0.27 | .011 | 2800             | 0.27 | .011 | 5300                | 0.27 | .011 | 3450                | 0.27 | .011 |
| 14.0           | .5512   | 2750             | 0.29 | .011 | 2400             | 0.29 | .011 | 4550                | 0.29 | .011 | 3000                | 0.29 | .011 |
| 16.0           | .6299   | 2400             | 0.31 | .012 | 2100             | 0.31 | .012 | 4000                | 0.31 | .012 | 2600                | 0.31 | .012 |
| 18.0           | .7087   | 2100             | 0.33 | .013 | 1850             | 0.33 | .013 | 3550                | 0.33 | .013 | 2300                | 0.33 | .013 |
| 20.0           | .7874   | 1900             | 0.35 | .014 | 1650             | 0.35 | .014 | 3200                | 0.35 | .014 | 2100                | 0.35 | .014 |

► Recommend to reduce the feed rate as following

DH404(3xD), DH423(3xD) : Feed 100%

DH424(5xD) : Feed 85%

RPM = rev./min.  
FEED = mm/rev.  
IPR = inch/rev

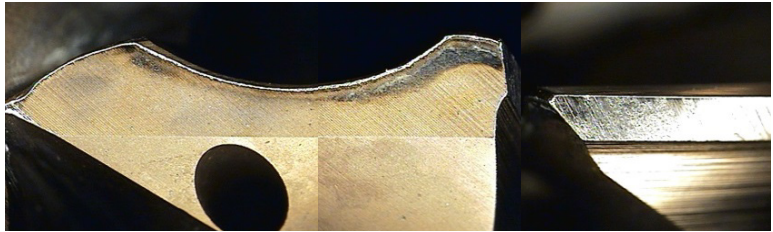
## CASE STUDY

Dream Drills-High Feed offers 1.5 to 2 times higher feeding speed compared to conventional 2-flute drills. The unique flute design and exceptional surface finish promise extraordinary chip evacuation.

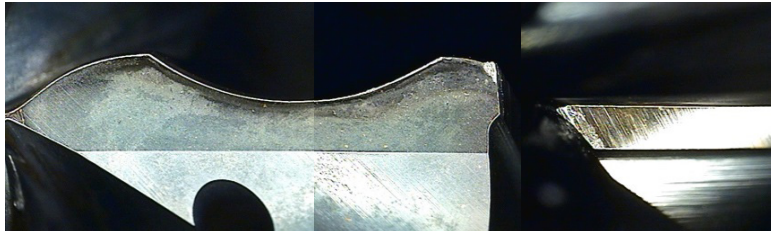
### ► SOLID CARBIDE DREAM DRILLS - High Feed with Coolant Holes

| CUTTING CONDITION |                                                                                                                    |
|-------------------|--------------------------------------------------------------------------------------------------------------------|
| Tool              | DGR495100<br>(Dream Drills High Feed)                                                                              |
| Size              | Ø10 x 10 x 61 x 103                                                                                                |
| Work Material     | <ul style="list-style-type: none"> <li>• AISI : 1045</li> <li>• JIS : S45C (HRc20)</li> <li>• DIN : C45</li> </ul> |
| RPM               | 3,200 rev./min.                                                                                                    |
| Feed              | .0197 inch/rev.                                                                                                    |
| Drilling Depth    | 1.97" (5xD)                                                                                                        |
| Drilling Method   | Blind Hole                                                                                                         |
| Coolant           | Wet Cut                                                                                                            |
| Machine           | Machining Center                                                                                                   |

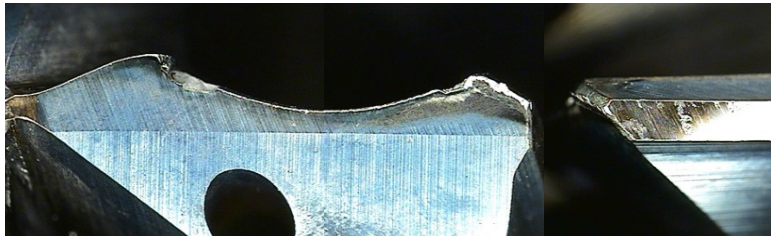
#### ► YG-1 (Total Drilling 330 Holes)



#### ► COMPETITOR A (Total Drilling 330 Holes)

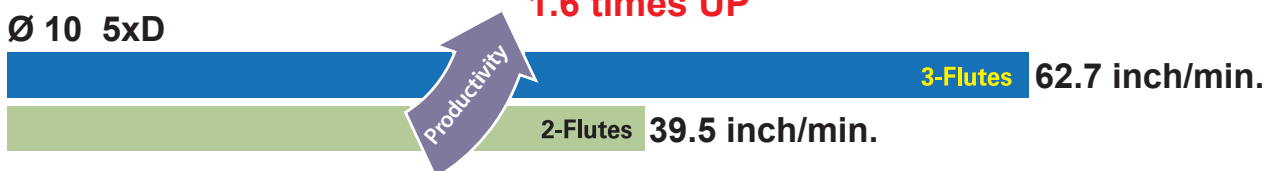


#### ► COMPETITOR B (Total Drilling 330 Holes)



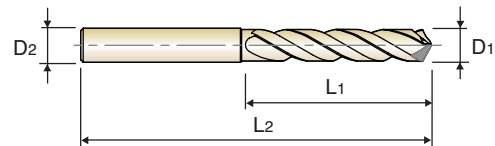
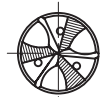
### Productivity (Carbon Steel)

Ø 10 5xD



## H-COATED SOLID CARBIDE DREAM DRILLS High Feed with Coolant Holes (3XD)

- ▶ Drilling for Carbon Steels, Alloy Steels(HRc35) and Cast Iron
- ▶ Higher productivity due to 1.5 to 2 times faster feeding speed than 2-flute drill
- ▶ Multi-Layer coating delivers much better productivity and reliability
- ▶ Self centering and chip breaking by R-thinning and coolant holes



3 × D

Unit : mm

| EDP No.   | Drill Diameter |       |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|-------|---------|----------------|--------------|----------------|
|           | Metric         | Inch  | Decimal |                |              |                |
| H-coating | D1             |       |         | D2             | L1           | L2             |
| DGR493050 | 5.00           |       | .1969   | 6              | 28           | 66             |
| DGR493051 | 5.10           |       | .2008   | 6              | 28           | 66             |
| DGR496013 | 5.16           | 13/64 | .2031   | 1/4            | 28           | 66             |
| DGR493052 | 5.20           |       | .2047   | 6              | 28           | 66             |
| DGR493053 | 5.30           |       | .2087   | 6              | 28           | 66             |
| DGR493054 | 5.40           |       | .2126   | 6              | 28           | 66             |
| DGR496103 | 5.41           | #3    | .2130   | 1/4            | 28           | 66             |
| DGR493055 | 5.50           |       | .2165   | 6              | 28           | 66             |
| DGR496014 | 5.56           | 7/32  | .2188   | 1/4            | 28           | 66             |
| DGR493056 | 5.60           |       | .2205   | 6              | 28           | 66             |
| DGR496102 | 5.61           | #2    | .2210   | 1/4            | 28           | 66             |
| DGR493057 | 5.70           |       | .2244   | 6              | 28           | 66             |
| DGR496101 | 5.79           | #1    | .2280   | 1/4            | 28           | 66             |
| DGR493058 | 5.80           |       | .2283   | 6              | 28           | 66             |
| DGR493059 | 5.90           |       | .2323   | 6              | 28           | 66             |
| DGR496015 | 5.95           | 15/64 | .2344   | 1/4            | 28           | 66             |
| DGR493060 | 6.00           |       | .2362   | 6              | 28           | 66             |
| DGR493061 | 6.10           |       | .2402   | 8              | 34           | 79             |
| DGR493062 | 6.20           |       | .2441   | 8              | 34           | 79             |
| DGR493063 | 6.30           |       | .2480   | 8              | 34           | 79             |
| DGR496016 | 6.35           | 1/4   | .2500   | 1/4            | 34           | 79             |
| DGR493064 | 6.40           |       | .2520   | 8              | 34           | 79             |
| DGR493065 | 6.50           |       | .2559   | 8              | 34           | 79             |
| DGR496206 | 6.53           | F     | .2570   | 5/16           | 34           | 79             |
| DGR493066 | 6.60           |       | .2598   | 8              | 34           | 79             |
| DGR493067 | 6.70           |       | .2638   | 8              | 34           | 79             |

| EDP No.   | Drill Diameter |       |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|-------|---------|----------------|--------------|----------------|
|           | Metric         | Inch  | Decimal |                |              |                |
| H-coating | D1             |       |         | D2             | L1           | L2             |
| DGR496017 | 6.75           | 17/64 | .2656   | 5/16           | 34           | 79             |
| DGR493068 | 6.80           |       | .2677   | 8              | 34           | 79             |
| DGR493069 | 6.90           |       | .2717   | 8              | 34           | 79             |
| DGR496209 | 6.91           | I     | .2720   | 5/16           | 34           | 79             |
| DGR493070 | 7.00           |       | .2756   | 8              | 34           | 79             |
| DGR493071 | 7.10           |       | .2795   | 8              | 41           | 79             |
| DGR496018 | 7.14           | 9/32  | .2813   | 5/16           | 41           | 79             |
| DGR493072 | 7.20           |       | .2835   | 8              | 41           | 79             |
| DGR493073 | 7.30           |       | .2874   | 8              | 41           | 79             |
| DGR493074 | 7.40           |       | .2913   | 8              | 41           | 79             |
| DGR493075 | 7.50           |       | .2953   | 8              | 41           | 79             |
| DGR496019 | 7.54           | 19/64 | .2969   | 5/16           | 41           | 79             |
| DGR493076 | 7.60           |       | .2992   | 8              | 41           | 79             |
| DGR493077 | 7.70           |       | .3031   | 8              | 41           | 79             |
| DGR493078 | 7.80           |       | .3071   | 8              | 41           | 79             |
| DGR493079 | 7.90           |       | .3110   | 8              | 41           | 79             |
| DGR496020 | 7.94           | 5/16  | .3125   | 5/16           | 41           | 79             |
| DGR493080 | 8.00           |       | .3150   | 8              | 41           | 79             |
| DGR493081 | 8.10           |       | .3189   | 10             | 47           | 89             |
| DGR493082 | 8.20           | P     | .3228   | 10             | 47           | 89             |
| DGR493083 | 8.30           |       | .3268   | 10             | 47           | 89             |
| DGR496021 | 8.33           | 21/64 | .3281   | 3/8            | 47           | 89             |
| DGR493084 | 8.40           |       | .3307   | 10             | 47           | 89             |
| DGR496217 | 8.43           | Q     | .3320   | 3/8            | 47           | 89             |
| DGR493085 | 8.50           |       | .3346   | 10             | 47           | 89             |
| DGR493086 | 8.60           |       | .3386   | 10             | 47           | 89             |

▶ NEXT PAGE

◎ : Excellent ○ : Good

| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRc30~45           | HRc45~55        | HRc55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ○                  |                 |        |                  | ◎         |          |        |        |      |          |

# H-COATED SOLID CARBIDE DREAM DRILLS

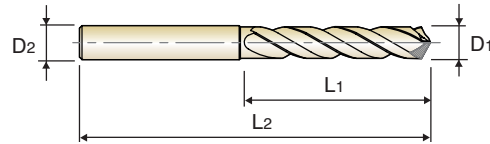
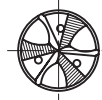
## High Feed with Coolant Holes (3XD)

SHORT

DGR493 SERIES

DGR496 SERIES

- ▶ Drilling for Carbon Steels, Alloy Steels(-HRc35) and Cast Iron
- ▶ Higher productivity due to 1.5 to 2 times faster feeding speed than 2-flute drill
- ▶ Multi-Layer coating delivers much better productivity and reliability
- ▶ Self centering and chip breaking by R-thinning and coolant holes



3 × D

Unit : mm

| EDP No.   | Drill Diameter |       |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|-------|---------|----------------|--------------|----------------|
|           | Metric         | Inch  | Decimal |                |              |                |
| H-coating | D1             |       |         | D2             | L1           | L2             |
| DGR493087 | 8.70           |       | .3425   | 10             | 47           | 89             |
| DGR496022 | 8.73           | 11/32 | .3437   | 3/8            | 47           | 89             |
| DGR493088 | 8.80           |       | .3465   | 10             | 47           | 89             |
| DGR493089 | 8.90           |       | .3504   | 10             | 47           | 89             |
| DGR493090 | 9.00           |       | .3543   | 10             | 47           | 89             |
| DGR493091 | 9.10           |       | .3583   | 10             | 47           | 89             |
| DGR496023 | 9.13           | 23/64 | .3594   | 3/8            | 47           | 89             |
| DGR493092 | 9.20           |       | .3622   | 10             | 47           | 89             |
| DGR493093 | 9.30           |       | .3661   | 10             | 47           | 89             |
| DGR496221 | 9.35           | U     | .3680   | 3/8            | 47           | 89             |
| DGR493094 | 9.40           |       | .3701   | 10             | 47           | 89             |
| DGR493095 | 9.50           |       | .3740   | 10             | 47           | 89             |
| DGR496024 | 9.53           | 3/8   | .3750   | 3/8            | 47           | 89             |
| DGR493096 | 9.60           |       | .3780   | 10             | 47           | 89             |
| DGR493097 | 9.70           |       | .3819   | 10             | 47           | 89             |
| DGR493098 | 9.80           | W     | .3858   | 10             | 47           | 89             |
| DGR493099 | 9.90           |       | .3898   | 10             | 47           | 89             |
| DGR496025 | 9.92           | 25/64 | .3906   | 7/16           | 47           | 89             |
| DGR493100 | 10.00          |       | .3937   | 10             | 47           | 89             |
| DGR493101 | 10.10          |       | .3976   | 12             | 55           | 102            |
| DGR493102 | 10.20          |       | .4016   | 12             | 55           | 102            |
| DGR493103 | 10.30          |       | .4055   | 12             | 55           | 102            |
| DGR496026 | 10.32          | 13/32 | .4063   | 7/16           | 55           | 102            |
| DGR493104 | 10.40          |       | .4094   | 12             | 55           | 102            |
| DGR493105 | 10.50          |       | .4134   | 12             | 55           | 102            |
| DGR493106 | 10.60          |       | .4173   | 12             | 55           | 102            |

| EDP No.   | Drill Diameter |       |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|-------|---------|----------------|--------------|----------------|
|           | Metric         | Inch  | Decimal |                |              |                |
| H-coating | D1             |       |         | D2             | L1           | L2             |
| DGR493107 | 10.70          |       | .4213   | 12             | 55           | 102            |
| DGR496027 | 10.72          | 27/64 | .4219   | 7/16           | 55           | 102            |
| DGR493108 | 10.80          |       | .4252   | 12             | 55           | 102            |
| DGR493109 | 10.90          |       | .4291   | 12             | 55           | 102            |
| DGR493110 | 11.00          |       | .4331   | 12             | 55           | 102            |
| DGR493111 | 11.10          |       | .4370   | 12             | 55           | 102            |
| DGR496028 | 11.11          | 7/16  | .4375   | 7/16           | 55           | 102            |
| DGR493112 | 11.20          |       | .4409   | 12             | 55           | 102            |
| DGR493113 | 11.30          |       | .4449   | 12             | 55           | 102            |
| DGR493114 | 11.40          |       | .4488   | 12             | 55           | 102            |
| DGR493115 | 11.50          |       | .4528   | 12             | 55           | 102            |
| DGR496029 | 11.51          | 29/64 | .4531   | 1/2            | 55           | 102            |
| DGR493116 | 11.60          |       | .4567   | 12             | 55           | 102            |
| DGR493117 | 11.70          |       | .4606   | 12             | 55           | 102            |
| DGR493118 | 11.80          |       | .4646   | 12             | 55           | 102            |
| DGR493119 | 11.90          |       | .4685   | 12             | 55           | 102            |
| DGR496030 | 11.91          | 15/32 | .4688   | 1/2            | 55           | 102            |
| DGR493120 | 12.00          |       | .4724   | 12             | 55           | 102            |
| DGR493121 | 12.10          |       | .4764   | 14             | 60           | 107            |
| DGR493122 | 12.20          |       | .4803   | 14             | 60           | 107            |
| DGR493123 | 12.30          |       | .4843   | 14             | 60           | 107            |
| DGR496031 | 12.30          | 31/64 | .4844   | 1/2            | 60           | 107            |
| DGR493124 | 12.40          |       | .4882   | 14             | 60           | 107            |
| DGR493125 | 12.50          |       | .4921   | 14             | 60           | 107            |
| DGR493126 | 12.60          |       | .4961   | 14             | 60           | 107            |
| DGR496032 | 12.70          | 1/2   | .5000   | 1/2            | 60           | 107            |

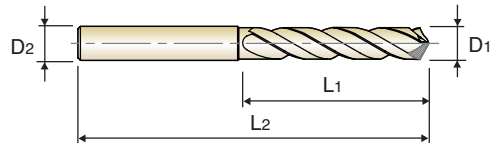
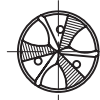
▶ NEXT PAGE

◎ : Excellent ○ : Good

| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRc30~45           | HRc45~55        | HRc55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ○                  |                 |        |                  | ◎         |          |        |        |      |          |

## H-COATED SOLID CARBIDE DREAM DRILLS High Feed with Coolant Holes (3XD)

- ▶ Drilling for Carbon Steels, Alloy Steels(HRc35) and Cast Iron
- ▶ Higher productivity due to 1.5 to 2 times faster feeding speed than 2-flute drill
- ▶ Multi-Layer coating delivers much better productivity and reliability
- ▶ Self centering and chip breaking by R-thinning and coolant holes



3 × D

Unit : mm

| EDP No.   | Drill Diameter |       |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|-------|---------|----------------|--------------|----------------|
|           | Metric         | Inch  | Decimal |                |              |                |
| H-coating | D1             |       |         | D2             | L1           | L2             |
| DGR493127 | 12.70          |       | .5000   | 14             | 60           | 107            |
| DGR493128 | 12.80          |       | .5039   | 14             | 60           | 107            |
| DGR493129 | 12.90          |       | .5079   | 14             | 60           | 107            |
| DGR493130 | 13.00          |       | .5118   | 14             | 60           | 107            |
| DGR493131 | 13.10          | 33/64 | .5156   | 14             | 60           | 107            |
| DGR493132 | 13.20          |       | .5197   | 14             | 60           | 107            |
| DGR493133 | 13.30          |       | .5236   | 14             | 60           | 107            |
| DGR493134 | 13.40          |       | .5276   | 14             | 60           | 107            |
| DGR496034 | 13.49          | 17/32 | .5312   | 9/16           | 60           | 107            |
| DGR493135 | 13.50          |       | .5315   | 14             | 60           | 107            |
| DGR493136 | 13.60          |       | .5354   | 14             | 60           | 107            |
| DGR493137 | 13.70          |       | .5394   | 14             | 60           | 107            |
| DGR493138 | 13.80          |       | .5433   | 14             | 60           | 107            |
| DGR496035 | 13.89          | 35/64 | .5469   | 9/16           | 60           | 107            |
| DGR493139 | 13.90          |       | .5472   | 14             | 60           | 107            |
| DGR493140 | 14.00          |       | .5512   | 14             | 60           | 107            |
| DGR493141 | 14.10          |       | .5551   | 16             | 65           | 115            |
| DGR493142 | 14.20          |       | .5591   | 16             | 65           | 115            |
| DGR496036 | 14.29          | 9/16  | .5625   | 9/16           | 65           | 115            |
| DGR493143 | 14.30          |       | .5630   | 16             | 65           | 115            |
| DGR493144 | 14.40          |       | .5669   | 16             | 65           | 115            |
| DGR493145 | 14.50          |       | .5709   | 16             | 65           | 115            |
| DGR493146 | 14.60          |       | .5748   | 16             | 65           | 115            |
| DGR496037 | 14.68          | 37/64 | .5781   | 5/8            | 65           | 115            |
| DGR493147 | 14.70          |       | .5787   | 16             | 65           | 115            |
| DGR493148 | 14.80          |       | .5827   | 16             | 65           | 115            |

| EDP No.   | Drill Diameter |       |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|-------|---------|----------------|--------------|----------------|
|           | Metric         | Inch  | Decimal |                |              |                |
| H-coating | D1             |       |         | D2             | L1           | L2             |
| DGR493149 | 14.90          |       | .5866   | 16             | 65           | 115            |
| DGR493150 | 15.00          |       | .5906   | 16             | 65           | 115            |
| DGR496038 | 15.08          | 19/32 | .5938   | 5/8            | 65           | 115            |
| DGR493151 | 15.10          |       | .5945   | 16             | 65           | 115            |
| DGR493152 | 15.20          |       | .5984   | 16             | 65           | 115            |
| DGR493153 | 15.30          |       | .6024   | 16             | 65           | 115            |
| DGR493154 | 15.40          |       | .6063   | 16             | 65           | 115            |
| DGR496039 | 15.48          | 39/64 | .6094   | 5/8            | 65           | 115            |
| DGR493155 | 15.50          |       | .6102   | 16             | 65           | 115            |
| DGR493156 | 15.60          |       | .6142   | 16             | 65           | 115            |
| DGR493157 | 15.70          |       | .6181   | 16             | 65           | 115            |
| DGR493158 | 15.80          |       | .6220   | 16             | 65           | 115            |
| DGR496040 | 15.88          | 5/8   | .6250   | 5/8            | 65           | 115            |
| DGR493159 | 15.90          |       | .6260   | 16             | 65           | 115            |
| DGR493160 | 16.00          |       | .6299   | 16             | 65           | 115            |
| DGR493161 | 16.10          |       | .6339   | 18             | 73           | 123            |
| DGR496041 | 16.27          | 41/64 | .6406   | 11/16          | 73           | 123            |
| DGR493165 | 16.50          |       | .6496   | 18             | 73           | 123            |
| DGR496042 | 16.67          | 21/32 | .6563   | 11/16          | 73           | 123            |
| DGR493170 | 17.00          |       | .6693   | 18             | 73           | 123            |
| DGR496043 | 17.07          | 43/64 | .6719   | 11/16          | 73           | 123            |
| DGR496044 | 17.46          | 11/16 | .6875   | 11/16          | 73           | 123            |
| DGR493175 | 17.50          |       | .6890   | 18             | 73           | 123            |
| DGR496045 | 17.86          | 45/64 | .7031   | 3/4            | 73           | 123            |
| DGR493180 | 18.00          |       | .7087   | 18             | 73           | 123            |
| DGR496046 | 18.26          | 23/32 | .7188   | 3/4            | 79           | 131            |

▶ NEXT PAGE

◎ : Excellent ○ : Good

| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRc30~45           | HRc45~55        | HRc55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ○                  |                 |        |                  | ◎         |          |        |        |      |          |



# H-COATED SOLID CARBIDE DREAM DRILLS

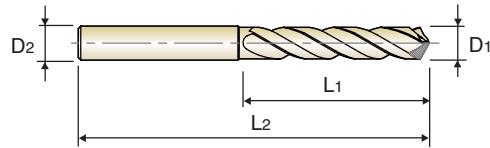
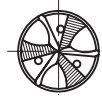
## High Feed with Coolant Holes (3XD)

SHORT

**DGR493 SERIES**

**DGR496 SERIES**

- ▶ Drilling for Carbon Steels, Alloy Steels(-HRc35) and Cast Iron
- ▶ Higher productivity due to 1.5 to 2 times faster feeding speed than 2-flute drill
- ▶ Multi-Layer coating delivers much better productivity and reliability
- ▶ Self centering and chip breaking by R-thinning and coolant holes



3 × D

Unit : mm

| EDP No.   | Drill Diameter |       |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|-------|---------|----------------|--------------|----------------|
|           | Metric         | Inch  | Decimal |                |              |                |
| H-coating | D1             |       |         | D2             | L1           | L2             |
| DGR493185 | 18.50          |       | .7283   | 20             | 79           | 131            |
| DGR496047 | 18.65          | 47/64 | .7344   | 3/4            | 79           | 131            |
| DGR493190 | 19.00          |       | .7480   | 20             | 79           | 131            |

| EDP No.   | Drill Diameter |      |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------|---------|----------------|--------------|----------------|
|           | Metric         | Inch | Decimal |                |              |                |
| H-coating | D1             |      |         | D2             | L1           | L2             |
| DGR496048 | 19.05          | 3/4  | .7500   | 3/4            | 79           | 131            |
| DGR493195 | 19.50          |      | .7677   | 20             | 79           | 131            |
| DGR493200 | 20.00          |      | .7874   | 20             | 79           | 131            |

◎ : Excellent ○ : Good

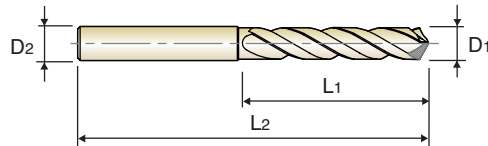
| P             |              |                    |                 |        | H                | M         | K        | N      |        |      |          | S |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|---|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |   |
| ~HB225        | HB225~325    | HRc30~45           | HRc45~55        | HRc55~ |                  |           |          |        |        |      |          |   |
| ◎             | ◎            | ○                  |                 |        |                  | ◎         |          |        |        |      |          |   |

### H-COATED SOLID CARBIDE DREAM DRILLS High Feed with Coolant Holes (5XD)

**DGR495 SERIES**

**DGR497 SERIES**

- ▶ Drilling for Carbon Steels, Alloy Steels(-HRc35) and Cast Iron
- ▶ Higher productivity due to 1.5 to 2 times faster feeding speed than 2-flute drill
- ▶ Multi-Layer coating delivers much better productivity and reliability
- ▶ Self centering and chip breaking by R-thinning and coolant holes



5 × D



Unit : mm

| EDP No.   | Drill Diameter |       |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|-------|---------|----------------|--------------|----------------|
|           | Metric         | Inch  | Decimal |                |              |                |
| H-coating | D1             |       |         | D2             | L1           | L2             |
| DGR495050 | 5.00           |       | .1969   | 6              | 44           | 82             |
| DGR495051 | 5.10           |       | .2008   | 6              | 44           | 82             |
| DGR497013 | 5.16           | 13/64 | .2031   | 1/4            | 44           | 82             |
| DGR495052 | 5.20           |       | .2047   | 6              | 44           | 82             |
| DGR495053 | 5.30           |       | .2087   | 6              | 44           | 82             |
| DGR495054 | 5.40           |       | .2126   | 6              | 44           | 82             |
| DGR497103 | 5.41           | #3    | .2130   | 1/4            | 44           | 82             |
| DGR495055 | 5.50           |       | .2165   | 6              | 44           | 82             |
| DGR497014 | 5.56           | 7/32  | .2188   | 1/4            | 44           | 82             |
| DGR495056 | 5.60           |       | .2205   | 6              | 44           | 82             |
| DGR497102 | 5.61           | #2    | .2210   | 1/4            | 44           | 82             |
| DGR495057 | 5.70           |       | .2244   | 6              | 44           | 82             |
| DGR497101 | 5.79           | #1    | .2280   | 1/4            | 44           | 82             |
| DGR495058 | 5.80           |       | .2283   | 6              | 44           | 82             |
| DGR495059 | 5.90           |       | .2323   | 6              | 44           | 82             |
| DGR497015 | 5.95           | 15/64 | .2344   | 1/4            | 44           | 82             |
| DGR495060 | 6.00           |       | .2362   | 6              | 44           | 82             |
| DGR495061 | 6.10           |       | .2402   | 8              | 53           | 91             |
| DGR495062 | 6.20           |       | .2441   | 8              | 53           | 91             |
| DGR495063 | 6.30           |       | .2480   | 8              | 53           | 91             |
| DGR497016 | 6.35           | 1/4   | .2500   | 1/4            | 53           | 91             |
| DGR495064 | 6.40           |       | .2520   | 8              | 53           | 91             |
| DGR495065 | 6.50           |       | .2559   | 8              | 53           | 91             |
| DGR497206 | 6.53           | F     | .2570   | 5/16           | 53           | 91             |
| DGR495066 | 6.60           |       | .2598   | 8              | 53           | 91             |
| DGR495067 | 6.70           |       | .2638   | 8              | 53           | 91             |

| EDP No.   | Drill Diameter |       |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|-------|---------|----------------|--------------|----------------|
|           | Metric         | Inch  | Decimal |                |              |                |
| H-coating | D1             |       |         | D2             | L1           | L2             |
| DGR497017 | 6.75           | 17/64 | .2656   | 5/16           | 53           | 91             |
| DGR495068 | 6.80           |       | .2677   | 8              | 53           | 91             |
| DGR495069 | 6.90           |       | .2717   | 8              | 53           | 91             |
| DGR497209 | 6.91           | I     | .2720   | 5/16           | 53           | 91             |
| DGR495070 | 7.00           |       | .2756   | 8              | 53           | 91             |
| DGR495071 | 7.10           |       | .2795   | 8              | 53           | 91             |
| DGR497018 | 7.14           | 9/32  | .2813   | 5/16           | 53           | 91             |
| DGR495072 | 7.20           |       | .2835   | 8              | 53           | 91             |
| DGR495073 | 7.30           |       | .2874   | 8              | 53           | 91             |
| DGR495074 | 7.40           |       | .2913   | 8              | 53           | 91             |
| DGR495075 | 7.50           |       | .2953   | 8              | 53           | 91             |
| DGR497019 | 7.54           | 19/64 | .2969   | 5/16           | 53           | 91             |
| DGR495076 | 7.60           |       | .2992   | 8              | 53           | 91             |
| DGR495077 | 7.70           |       | .3031   | 8              | 53           | 91             |
| DGR495078 | 7.80           |       | .3071   | 8              | 53           | 91             |
| DGR495079 | 7.90           |       | .3110   | 8              | 53           | 91             |
| DGR497020 | 7.94           | 5/16  | .3125   | 5/16           | 53           | 91             |
| DGR495080 | 8.00           |       | .3150   | 8              | 53           | 91             |
| DGR495081 | 8.10           |       | .3189   | 10             | 61           | 103            |
| DGR495082 | 8.20           | P     | .3228   | 10             | 61           | 103            |
| DGR495083 | 8.30           |       | .3268   | 10             | 61           | 103            |
| DGR497021 | 8.33           | 21/64 | .3281   | 3/8            | 61           | 103            |
| DGR495084 | 8.40           |       | .3307   | 10             | 61           | 103            |
| DGR497217 | 8.43           | Q     | .3320   | 3/8            | 61           | 103            |
| DGR495085 | 8.50           |       | .3346   | 10             | 61           | 103            |
| DGR495086 | 8.60           |       | .3386   | 10             | 61           | 103            |

▶ NEXT PAGE

◎ : Excellent ○ : Good

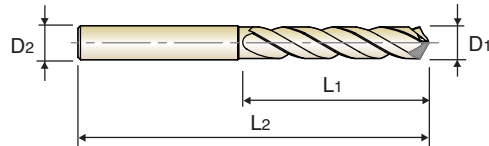
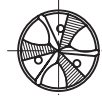
| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRc30~45           | HRc45~55        | HRc55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ○                  |                 |        |                  | ◎         |          |        |        |      |          |

# H-COATED SOLID CARBIDE DREAM DRILLS

## High Feed with Coolant Holes (5XD)

**DGR495 SERIES**
**DGR497 SERIES**

- ▶ Drilling for Carbon Steels, Alloy Steels(-HRC35) and Cast Iron
- ▶ Higher productivity due to 1.5 to 2 times faster feeding speed than 2-flute drill
- ▶ Multi-Layer coating delivers much better productivity and reliability
- ▶ Self centering and chip breaking by R-thinning and coolant holes


**5 × D**

Unit : mm

| EDP No.   | Drill Diameter |       |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|-------|---------|----------------|--------------|----------------|
|           | Metric         | Inch  | Decimal |                |              |                |
| H-coating | D1             |       |         | D2             | L1           | L2             |
| DGR495087 | 8.70           |       | .3425   | 10             | 61           | 103            |
| DGR497022 | 8.73           | 11/32 | .3437   | 3/8            | 61           | 103            |
| DGR495088 | 8.80           |       | .3465   | 10             | 61           | 103            |
| DGR495089 | 8.90           |       | .3504   | 10             | 61           | 103            |
| DGR495090 | 9.00           |       | .3543   | 10             | 61           | 103            |
| DGR495091 | 9.10           |       | .3583   | 10             | 61           | 103            |
| DGR497023 | 9.13           | 23/64 | .3594   | 3/8            | 61           | 103            |
| DGR495092 | 9.20           |       | .3622   | 10             | 61           | 103            |
| DGR495093 | 9.30           |       | .3661   | 10             | 61           | 103            |
| DGR497221 | 9.35           | U     | .3680   | 3/8            | 61           | 103            |
| DGR495094 | 9.40           |       | .3701   | 10             | 61           | 103            |
| DGR495095 | 9.50           |       | .3740   | 10             | 61           | 103            |
| DGR497024 | 9.53           | 3/8   | .3750   | 3/8            | 61           | 103            |
| DGR495096 | 9.60           |       | .3780   | 10             | 61           | 103            |
| DGR495097 | 9.70           |       | .3819   | 10             | 61           | 103            |
| DGR495098 | 9.80           | W     | .3858   | 10             | 61           | 103            |
| DGR495099 | 9.90           |       | .3898   | 10             | 61           | 103            |
| DGR497025 | 9.92           | 25/64 | .3906   | 7/16           | 61           | 103            |
| DGR495100 | 10.00          |       | .3937   | 10             | 61           | 103            |
| DGR495101 | 10.10          |       | .3976   | 12             | 71           | 118            |
| DGR495102 | 10.20          |       | .4016   | 12             | 71           | 118            |
| DGR495103 | 10.30          |       | .4055   | 12             | 71           | 118            |

| EDP No.   | Drill Diameter |       |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|-------|---------|----------------|--------------|----------------|
|           | Metric         | Inch  | Decimal |                |              |                |
| H-coating | D1             |       |         | D2             | L1           | L2             |
| DGR497026 | 10.32          | 13/32 | .4063   | 7/16           | 71           | 118            |
| DGR495104 | 10.40          |       | .4094   | 12             | 71           | 118            |
| DGR495105 | 10.50          |       | .4134   | 12             | 71           | 118            |
| DGR495106 | 10.60          |       | .4173   | 12             | 71           | 118            |
| DGR495107 | 10.70          |       | .4213   | 12             | 71           | 118            |
| DGR497027 | 10.72          | 27/64 | .4219   | 7/16           | 71           | 118            |
| DGR495108 | 10.80          |       | .4252   | 12             | 71           | 118            |
| DGR495109 | 10.90          |       | .4291   | 12             | 71           | 118            |
| DGR495110 | 11.00          |       | .4331   | 12             | 71           | 118            |
| DGR495111 | 11.10          |       | .4370   | 12             | 71           | 118            |
| DGR497028 | 11.11          | 7/16  | .4375   | 7/16           | 71           | 118            |
| DGR495112 | 11.20          |       | .4409   | 12             | 71           | 118            |
| DGR495113 | 11.30          |       | .4449   | 12             | 71           | 118            |
| DGR495114 | 11.40          |       | .4488   | 12             | 71           | 118            |
| DGR495115 | 11.50          |       | .4528   | 12             | 71           | 118            |
| DGR497029 | 11.51          | 29/64 | .4531   | 1/2            | 71           | 118            |
| DGR495116 | 11.60          |       | .4567   | 12             | 71           | 118            |
| DGR495117 | 11.70          |       | .4606   | 12             | 71           | 118            |
| DGR495118 | 11.80          |       | .4646   | 12             | 71           | 118            |
| DGR495119 | 11.90          |       | .4685   | 12             | 71           | 118            |
| DGR497030 | 11.91          | 15/32 | .4688   | 1/2            | 71           | 118            |
| DGR495120 | 12.00          |       | .4724   | 12             | 71           | 118            |

▶ NEXT PAGE

◎ : Excellent ○ : Good

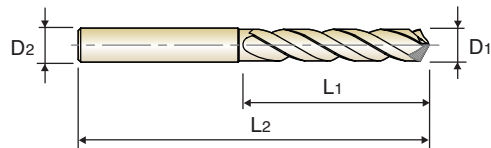
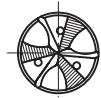
| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ○                  |                 |        |                  | ◎         |          |        |        |      |          |

### H-COATED SOLID CARBIDE DREAM DRILLS High Feed with Coolant Holes (5XD)

**DGR495** SERIES

**DGR497** SERIES

- ▶ Drilling for Carbon Steels, Alloy Steels(-HRC35) and Cast Iron
- ▶ Higher productivity due to 1.5 to 2 times faster feeding speed than 2-flute drill
- ▶ Multi-Layer coating delivers much better productivity and reliability
- ▶ Self centering and chip breaking by R-thinning and coolant holes



5 × D

Unit : mm

| EDP No.   | Drill Diameter |       |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|-------|---------|----------------|--------------|----------------|
|           | Metric         | Inch  | Decimal |                |              |                |
| H-coating | D1             |       |         | D2             | L1           | L2             |
| DGR495121 | 12.10          |       | .4764   | 14             | 77           | 124            |
| DGR495122 | 12.20          |       | .4803   | 14             | 77           | 124            |
| DGR495123 | 12.30          |       | .4843   | 14             | 77           | 124            |
| DGR497031 | 12.30          | 31/64 | .4844   | 1/2            | 77           | 124            |
| DGR495124 | 12.40          |       | .4882   | 14             | 77           | 124            |
| DGR495125 | 12.50          |       | .4921   | 14             | 77           | 124            |
| DGR495126 | 12.60          |       | .4961   | 14             | 77           | 124            |
| DGR497032 | 12.70          | 1/2   | .5000   | 1/2            | 77           | 124            |
| DGR495127 | 12.70          |       | .5000   | 14             | 77           | 124            |
| DGR495128 | 12.80          |       | .5039   | 14             | 77           | 124            |
| DGR495129 | 12.90          |       | .5079   | 14             | 77           | 124            |
| DGR495130 | 13.00          |       | .5118   | 14             | 77           | 124            |
| DGR495131 | 13.10          | 33/64 | .5156   | 14             | 77           | 124            |
| DGR495132 | 13.20          |       | .5197   | 14             | 77           | 124            |
| DGR495133 | 13.30          |       | .5236   | 14             | 77           | 124            |
| DGR495134 | 13.40          |       | .5276   | 14             | 77           | 124            |
| DGR497034 | 13.49          | 17/32 | .5312   | 9/16           | 77           | 124            |
| DGR495135 | 13.50          |       | .5315   | 14             | 77           | 124            |
| DGR495136 | 13.60          |       | .5354   | 14             | 77           | 124            |
| DGR495137 | 13.70          |       | .5394   | 14             | 77           | 124            |
| DGR495138 | 13.80          |       | .5433   | 14             | 77           | 124            |
| DGR497035 | 13.89          | 35/64 | .5469   | 9/16           | 77           | 124            |

| EDP No.   | Drill Diameter |       |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|-------|---------|----------------|--------------|----------------|
|           | Metric         | Inch  | Decimal |                |              |                |
| H-coating | D1             |       |         | D2             | L1           | L2             |
| DGR495139 | 13.90          |       | .5472   | 14             | 77           | 124            |
| DGR495140 | 14.00          |       | .5512   | 14             | 77           | 124            |
| DGR495141 | 14.10          |       | .5551   | 16             | 83           | 133            |
| DGR495142 | 14.20          |       | .5591   | 16             | 83           | 133            |
| DGR497036 | 14.29          | 9/16  | .5625   | 9/16           | 83           | 133            |
| DGR495143 | 14.30          |       | .5630   | 16             | 83           | 133            |
| DGR495144 | 14.40          |       | .5669   | 16             | 83           | 133            |
| DGR495145 | 14.50          |       | .5709   | 16             | 83           | 133            |
| DGR495146 | 14.60          |       | .5748   | 16             | 83           | 133            |
| DGR497037 | 14.68          | 37/64 | .5781   | 5/8            | 83           | 133            |
| DGR495147 | 14.70          |       | .5787   | 16             | 83           | 133            |
| DGR495148 | 14.80          |       | .5827   | 16             | 83           | 133            |
| DGR495149 | 14.90          |       | .5866   | 16             | 83           | 133            |
| DGR495150 | 15.00          |       | .5906   | 16             | 83           | 133            |
| DGR497038 | 15.08          | 19/32 | .5938   | 5/8            | 83           | 133            |
| DGR495151 | 15.10          |       | .5945   | 16             | 83           | 133            |
| DGR495152 | 15.20          |       | .5984   | 16             | 83           | 133            |
| DGR495153 | 15.30          |       | .6024   | 16             | 83           | 133            |
| DGR495154 | 15.40          |       | .6063   | 16             | 83           | 133            |
| DGR497039 | 15.48          | 39/64 | .6094   | 5/8            | 83           | 133            |
| DGR495155 | 15.50          |       | .6102   | 16             | 83           | 133            |
| DGR495156 | 15.60          |       | .6142   | 16             | 83           | 133            |

▶ NEXT PAGE

◎ : Excellent ○ : Good

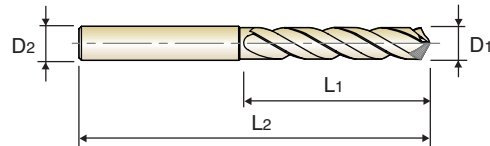
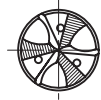
| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ○                  |                 |        |                  | ◎         |          |        |        |      |          |

# H-COATED SOLID CARBIDE DREAM DRILLS

## High Feed with Coolant Holes (5XD)

**DGR495 SERIES**
**DGR497 SERIES**

- ▶ Drilling for Carbon Steels, Alloy Steels(-HRc35) and Cast Iron
- ▶ Higher productivity due to 1.5 to 2 times faster feeding speed than 2-flute drill
- ▶ Multi-Layer coating delivers much better productivity and reliability
- ▶ Self centering and chip breaking by R-thinning and coolant holes


**5 × D**

Unit : mm

| EDP No.   | Drill Diameter |       |         | Shank Diameter<br>D2 | Flute Length<br>L1 | Overall Length<br>L2 |
|-----------|----------------|-------|---------|----------------------|--------------------|----------------------|
|           | Metric         | Inch  | Decimal |                      |                    |                      |
| H-coating | D1             |       |         | D2                   | L1                 | L2                   |
| DGR495157 | 15.70          |       | .6181   | 16                   | 83                 | 133                  |
| DGR495158 | 15.80          |       | .6220   | 16                   | 83                 | 133                  |
| DGR497040 | 15.88          | 5/8   | .6250   | 5/8                  | 83                 | 133                  |
| DGR495159 | 15.90          |       | .6260   | 16                   | 83                 | 133                  |
| DGR495160 | 16.00          |       | .6299   | 16                   | 83                 | 133                  |
| DGR495161 | 16.10          |       | .6339   | 18                   | 93                 | 143                  |
| DGR497041 | 16.27          | 41/64 | .6406   | 11/16                | 93                 | 143                  |
| DGR495165 | 16.50          |       | .6496   | 18                   | 93                 | 143                  |
| DGR497042 | 16.67          | 21/32 | .6563   | 11/16                | 93                 | 143                  |
| DGR495170 | 17.00          |       | .6693   | 18                   | 93                 | 143                  |
| DGR497043 | 17.07          | 43/64 | .6719   | 11/16                | 93                 | 143                  |

| EDP No.   | Drill Diameter |       |         | Shank Diameter<br>D2 | Flute Length<br>L1 | Overall Length<br>L2 |
|-----------|----------------|-------|---------|----------------------|--------------------|----------------------|
|           | Metric         | Inch  | Decimal |                      |                    |                      |
| H-coating | D1             |       |         | D2                   | L1                 | L2                   |
| DGR497044 | 17.46          | 11/16 | .6875   | 11/16                | 93                 | 143                  |
| DGR495175 | 17.50          |       | .6890   | 18                   | 93                 | 143                  |
| DGR497045 | 17.86          | 45/64 | .7031   | 3/4                  | 93                 | 143                  |
| DGR495180 | 18.00          |       | .7087   | 18                   | 93                 | 143                  |
| DGR497046 | 18.26          | 23/32 | .7188   | 3/4                  | 101                | 153                  |
| DGR495185 | 18.50          |       | .7283   | 20                   | 101                | 153                  |
| DGR497047 | 18.65          | 47/64 | .7344   | 3/4                  | 101                | 153                  |
| DGR495190 | 19.00          |       | .7480   | 20                   | 101                | 153                  |
| DGR497048 | 19.05          | 3/4   | .7500   | 3/4                  | 101                | 153                  |
| DGR495195 | 19.50          |       | .7677   | 20                   | 101                | 153                  |
| DGR495200 | 20.00          |       | .7874   | 20                   | 101                | 153                  |

○ : Excellent ○ : Good

| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRc30~45           | HRc45~55        | HRc55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ○                  |                 |        |                  | ◎         |          |        |        |      |          |

## H-COATED SOLID CARBIDE DREAM DRILLS

### High Feed with Coolant Holes

#### DGR493 | DGR496 | DGR495 | DGR497 SERIES

| WORK MATERIAL  |         | P                             |       |       |              |       |       | K          |       |       |                   |       |       |
|----------------|---------|-------------------------------|-------|-------|--------------|-------|-------|------------|-------|-------|-------------------|-------|-------|
|                |         | CARBON STEELS<br>ALLOY STEELS |       |       | ALLOY STEELS |       |       | CAST IRON  |       |       | DUCTILE CAST IRON |       |       |
| HARDNESS       |         | ~ HRC20                       |       |       | HRC20 ~ 35   |       |       |            |       |       |                   |       |       |
| DRILLING SPEED |         | 329 ft/min                    |       |       | 247 ft/min   |       |       | 329 ft/min |       |       | 264 ft/min        |       |       |
| DIAMETER       |         | RPM                           | IPR   |       | RPM          | IPR   |       | RPM        | IPR   |       | RPM               | IPR   |       |
| Metric(mm)     | Decimal |                               | Min   | Max   |              | Min   | Max   |            | Min   | Max   |                   | Min   | Max   |
| 5.0            | .1969   | 6370                          | .0079 | .0098 | 4780         | .0079 | .0098 | 6370       | .0091 | .0118 | 5100              | .0079 | .0098 |
| 6.0            | .2362   | 5310                          | .0094 | .0118 | 3980         | .0094 | .0118 | 5310       | .0106 | .0142 | 4250              | .0094 | .0118 |
| 7.0            | .2756   | 4550                          | .0110 | .0138 | 3420         | .0110 | .0138 | 4550       | .0126 | .0165 | 3640              | .0110 | .0138 |
| 8.0            | .3150   | 3980                          | .0126 | .0157 | 2990         | .0126 | .0157 | 3980       | .0142 | .0189 | 3190              | .0126 | .0157 |
| 9.0            | .3543   | 3540                          | .0142 | .0177 | 2660         | .0142 | .0177 | 3540       | .0161 | .0213 | 2840              | .0142 | .0177 |
| 10.0           | .3937   | 3190                          | .0157 | .0197 | 2390         | .0157 | .0197 | 3190       | .0177 | .0236 | 2550              | .0157 | .0197 |
| 12.0           | .4724   | 2660                          | .0189 | .0236 | 2000         | .0189 | .0213 | 2660       | .0213 | .0283 | 2130              | .0189 | .0236 |
| 14.0           | .5512   | 2280                          | .0220 | .0276 | 1710         | .0220 | .0248 | 2280       | .0248 | .0331 | 1820              | .0220 | .0276 |
| 16.0           | .6299   | 1990                          | .0220 | .0283 | 1500         | .0220 | .0252 | 1990       | .0252 | .0315 | 1600              | .0220 | .0283 |
| 18.0           | .7087   | 1770                          | .0248 | .0319 | 1330         | .0248 | .0283 | 1770       | .0283 | .0354 | 1420              | .0248 | .0319 |
| 20.0           | .7874   | 1600                          | .0276 | .0346 | 1190         | .0268 | .0319 | 1600       | .0315 | .0386 | 1280              | .0276 | .0354 |

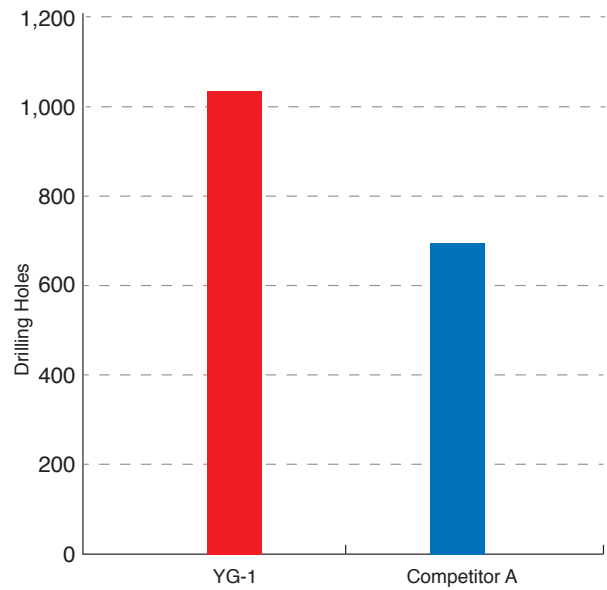
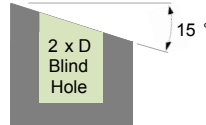
RPM = rev./min.  
IPR = inch/rev.



## CASE STUDY

### ► SOLID CARBIDE DREAM DRILLS - Flat Bottom without Coolant Holes

| CUTTING CONDITION |                                                                                                                                                  |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Tool              | Dream Drills Flat Bottom                                                                                                                         |
| Size              | Ø6.0 (.2362 inch)                                                                                                                                |
| Work Material     | <ul style="list-style-type: none"> <li>• AISI : 1045</li> <li>• JIS : S45C</li> <li>• DIN : C45</li> <li>• Hardness : HRc 20 (HB 228)</li> </ul> |
| Cutting Speed     | 75.4 m/min (244.4 ft/min.)                                                                                                                       |
| RPM               | 4,000 rev/min                                                                                                                                    |
| Feed              | 0.1 mm/rev (.0039 in/rev.)                                                                                                                       |
| Drilling Depth    | 12.0 mm (2XD)<br>- Blind Hole / without Pecking                                                                                                  |
| Coolant           | External Cooling Water Soluble<br>(9% Emulsion)                                                                                                  |
| Machine           | Vertical Machining Center                                                                                                                        |

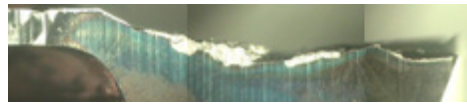


#### ► YG-1



Small  
Chipping

#### ► COMPETITOR A



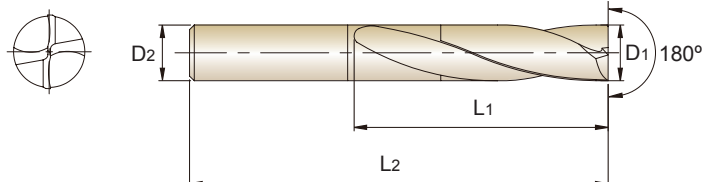
Big  
Chipping

## X-COATED SOLID CARBIDE DREAM DRILLS Flat Bottom without Coolant Holes (2XD)

SHORT

**DPP447** SERIES

- ▶ Just ONE Drill 180 degree point angle enables drilling of horizontal surface and sloped surface
- ▶ Excellent chip evacuation by optimized flute shape
- ▶ High strength cutting edge to improve tool life and versatility drilling
- ▶ Variety of drilling can be used in a variety of drilling applications



2 × D

Unit : mm

| EDP No.    | Drill Diameter | Shank Diameter | Flute Length | Overall Length |
|------------|----------------|----------------|--------------|----------------|
| X-Coating  | D1             | D2             | L1           | L2             |
| DPP447030  | 3.0            | 6              | 16           | 50             |
| DPP447031  | 3.1            | 6              | 16           | 50             |
| DPP447008F | 1/8            | 6              | 16           | 50             |
| DPP447032  | 3.2            | 6              | 16           | 50             |
| DPP447033  | 3.3            | 6              | 16           | 50             |
| DPP447034  | 3.4            | 6              | 18           | 50             |
| DPP447035  | 3.5            | 6              | 18           | 50             |
| DPP447036  | 3.6            | 6              | 18           | 50             |
| DPP447037  | 3.7            | 6              | 18           | 50             |
| DPP447038  | 3.8            | 6              | 18           | 50             |
| DPP447039  | 3.9            | 6              | 18           | 50             |
| DPP447010F | 5/32           | 6              | 18           | 50             |
| DPP447040  | 4.0            | 6              | 18           | 50             |
| DPP447041  | 4.1            | 6              | 20           | 60             |
| DPP447042  | 4.2            | 6              | 20           | 60             |
| DPP447043  | 4.3            | 6              | 20           | 60             |
| DPP447044  | 4.4            | 6              | 20           | 60             |
| DPP447045  | 4.5            | 6              | 22           | 60             |
| DPP447046  | 4.6            | 6              | 22           | 60             |
| DPP447047  | 4.7            | 6              | 22           | 60             |
| DPP447012F | 3/16           | 6              | 22           | 60             |
| DPP447048  | 4.8            | 6              | 22           | 60             |
| DPP447049  | 4.9            | 6              | 22           | 60             |
| DPP447050  | 5.0            | 6              | 22           | 60             |

| EDP No.    | Drill Diameter | Shank Diameter | Flute Length | Overall Length |
|------------|----------------|----------------|--------------|----------------|
| X-Coating  | D1             | D2             | L1           | L2             |
| DPP447051  | 5.1            | 6              | 24           | 60             |
| DPP447052  | 5.2            | 6              | 24           | 60             |
| DPP447053  | 5.3            | 6              | 24           | 60             |
| DPP447054  | 5.4            | 6              | 24           | 60             |
| DPP447055  | 5.5            | 6              | 24           | 60             |
| DPP447014F | 7/32           | 6              | 24           | 60             |
| DPP447056  | 5.6            | 6              | 24           | 60             |
| DPP447057  | 5.7            | 6              | 26           | 60             |
| DPP447058  | 5.8            | 6              | 26           | 60             |
| DPP447059  | 5.9            | 6              | 26           | 60             |
| DPP447060  | 6.0            | 6              | 26           | 60             |
| DPP447061  | 6.1            | 8              | 28           | 70             |
| DPP447062  | 6.2            | 8              | 28           | 70             |
| DPP447063  | 6.3            | 8              | 28           | 70             |
| DPP447016F | 1/4            | 8              | 30           | 70             |
| DPP447064  | 6.4            | 8              | 30           | 70             |
| DPP447065  | 6.5            | 8              | 30           | 70             |
| DPP447066  | 6.6            | 8              | 30           | 70             |
| DPP447067  | 6.7            | 8              | 30           | 70             |
| DPP447068  | 6.8            | 8              | 30           | 70             |
| DPP447069  | 6.9            | 8              | 30           | 70             |
| DPP447070  | 7.0            | 8              | 30           | 70             |
| DPP447071  | 7.1            | 8              | 34           | 70             |
| DPP447018F | 9/32           | 8              | 34           | 70             |

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

| P             |              |                    |                 | H | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|---|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |   | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55 HRC55~ |   |                  |           |          |        |        |      |          |
| ◎             | ◎            | ◎                  | ○               |   | ○                | ◎         | ○        | ○      |        |      |          |

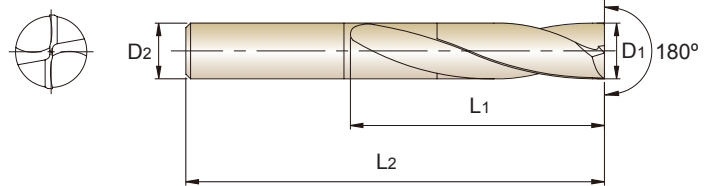
# X-COATED SOLID CARBIDE DREAM DRILLS

## Flat Bottom without Coolant Holes (2XD)

SHORT

DPP447 SERIES

- ▶ Just ONE Drill 180 degree point angle enables drilling of horizontal surface and sloped surface
- ▶ Excellent chip evacuation by optimized flute shape
- ▶ High strength cutting edge to improve tool life and versatility drilling
- ▶ Variety of drilling can be used in a variety of drilling applications



2 × D

Unit : mm

| EDP No.    | Drill Diameter | Shank Diameter | Flute Length | Overall Length |
|------------|----------------|----------------|--------------|----------------|
| X-Coating  | D1             | D2             | L1           | L2             |
| DPP447072  | 7.2            | 8              | 34           | 70             |
| DPP447073  | 7.3            | 8              | 34           | 70             |
| DPP447074  | 7.4            | 8              | 34           | 70             |
| DPP447075  | 7.5            | 8              | 34           | 70             |
| DPP447076  | 7.6            | 8              | 34           | 70             |
| DPP447077  | 7.7            | 8              | 34           | 70             |
| DPP447078  | 7.8            | 8              | 34           | 70             |
| DPP447079  | 7.9            | 8              | 34           | 70             |
| DPP447020F | 5/16           | 8              | 34           | 70             |
| DPP447080  | 8.0            | 8              | 34           | 70             |
| DPP447081  | 8.1            | 10             | 38           | 80             |
| DPP447082  | 8.2            | 10             | 38           | 80             |
| DPP447083  | 8.3            | 10             | 38           | 80             |
| DPP447021F | 21/64          | 10             | 38           | 80             |
| DPP447084  | 8.4            | 10             | 38           | 80             |
| DPP447085  | 8.5            | 10             | 38           | 80             |
| DPP447086  | 8.6            | 10             | 38           | 80             |
| DPP447087  | 8.7            | 10             | 40           | 80             |
| DPP447088  | 8.8            | 10             | 40           | 80             |
| DPP447089  | 8.9            | 10             | 40           | 80             |
| DPP447090  | 9.0            | 10             | 40           | 80             |
| DPP447091  | 9.1            | 10             | 42           | 80             |
| DPP447023F | 23/64          | 10             | 42           | 80             |
| DPP447092  | 9.2            | 10             | 42           | 80             |

| EDP No.    | Drill Diameter | Shank Diameter | Flute Length | Overall Length |
|------------|----------------|----------------|--------------|----------------|
| X-Coating  | D1             | D2             | L1           | L2             |
| DPP447093  | 9.3            | 10             | 42           | 80             |
| DPP447094  | 9.4            | 10             | 42           | 80             |
| DPP447095  | 9.5            | 10             | 42           | 80             |
| DPP447024F | 3/8            | 10             | 42           | 80             |
| DPP447096  | 9.6            | 10             | 42           | 80             |
| DPP447097  | 9.7            | 10             | 45           | 80             |
| DPP447098  | 9.8            | 10             | 45           | 80             |
| DPP447099  | 9.9            | 10             | 45           | 80             |
| DPP447100  | 10.0           | 10             | 45           | 80             |
| DPP447101  | 10.1           | 12             | 46           | 90             |
| DPP447102  | 10.2           | 12             | 46           | 90             |
| DPP447103  | 10.3           | 12             | 46           | 90             |
| DPP447026F | 13/32          | 12             | 46           | 90             |
| DPP447104  | 10.4           | 12             | 48           | 90             |
| DPP447105  | 10.5           | 12             | 48           | 90             |
| DPP447106  | 10.6           | 12             | 48           | 90             |
| DPP447107  | 10.7           | 12             | 48           | 90             |
| DPP447108  | 10.8           | 12             | 48           | 90             |
| DPP447109  | 10.9           | 12             | 48           | 90             |
| DPP447110  | 11.0           | 12             | 48           | 90             |
| DPP447111  | 11.1           | 12             | 50           | 90             |
| DPP447028F | 7/16           | 12             | 50           | 90             |
| DPP447112  | 11.2           | 12             | 50           | 90             |
| DPP447113  | 11.3           | 12             | 50           | 90             |

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

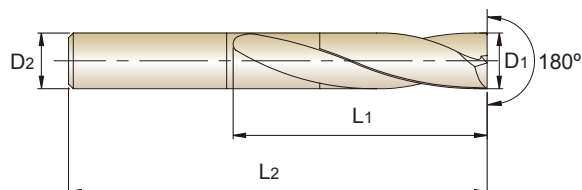
| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ◎                  | ○               |        | ○                | ◎         | ○        | ○      |        |      |          |

## X-COATED SOLID CARBIDE DREAM DRILLS Flat Bottom without Coolant Holes (2XD)

SHORT

**DPP447** SERIES

- ▶ Just ONE Drill 180 degree point angle enables drilling of horizontal surface and sloped surface
- ▶ Excellent chip evacuation by optimized flute shape
- ▶ High strength cutting edge to improve tool life and versatility drilling
- ▶ Variety of drilling can be used in a variety of drilling applications



2 × D

Unit : mm

| EDP No.    | Drill Diameter | Shank Diameter | Flute Length | Overall Length |
|------------|----------------|----------------|--------------|----------------|
| X-Coating  | D1             | D2             | L1           | L2             |
| DPP447114  | 11.4           | 12             | 50           | 90             |
| DPP447115  | 11.5           | 12             | 50           | 90             |
| DPP447029F | 29/64          | 12             | 50           | 90             |
| DPP447116  | 11.6           | 12             | 50           | 90             |
| DPP447117  | 11.7           | 12             | 52           | 90             |
| DPP447118  | 11.8           | 12             | 52           | 90             |
| DPP447119  | 11.9           | 12             | 52           | 90             |
| DPP447030F | 15/32          | 12             | 52           | 90             |
| DPP447120  | 12.0           | 12             | 52           | 90             |
| DPP447121  | 12.1           | 14             | 54           | 100            |
| DPP447122  | 12.2           | 14             | 54           | 100            |
| DPP447123  | 12.3           | 14             | 54           | 100            |
| DPP447124  | 12.4           | 14             | 54           | 100            |
| DPP447125  | 12.5           | 14             | 54           | 100            |
| DPP447126  | 12.6           | 14             | 54           | 100            |
| DPP447127  | 12.7           | 14             | 56           | 100            |
| DPP447128  | 12.8           | 14             | 56           | 100            |
| DPP447129  | 12.9           | 14             | 56           | 100            |
| DPP447130  | 13.0           | 14             | 56           | 100            |
| DPP447131  | 13.1           | 14             | 58           | 100            |
| DPP447132  | 13.2           | 14             | 58           | 100            |
| DPP447133  | 13.3           | 14             | 58           | 100            |
| DPP447134  | 13.4           | 14             | 58           | 100            |
| DPP447135  | 13.5           | 14             | 58           | 100            |

| EDP No.    | Drill Diameter | Shank Diameter | Flute Length | Overall Length |
|------------|----------------|----------------|--------------|----------------|
| X-Coating  | D1             | D2             | L1           | L2             |
| DPP447136  | 13.6           | 14             | 58           | 100            |
| DPP447137  | 13.7           | 14             | 58           | 100            |
| DPP447138  | 13.8           | 14             | 58           | 100            |
| DPP447139  | 13.9           | 14             | 58           | 100            |
| DPP447140  | 14.0           | 14             | 58           | 100            |
| DPP447141  | 14.1           | 16             | 62           | 105            |
| DPP447142  | 14.2           | 16             | 62           | 105            |
| DPP447036F | 9/16           | 16             | 62           | 105            |
| DPP447143  | 14.3           | 16             | 62           | 105            |
| DPP447144  | 14.4           | 16             | 62           | 105            |
| DPP447145  | 14.5           | 16             | 62           | 105            |
| DPP447146  | 14.6           | 16             | 62           | 105            |
| DPP447147  | 14.7           | 16             | 62           | 105            |
| DPP447148  | 14.8           | 16             | 62           | 105            |
| DPP447149  | 14.9           | 16             | 62           | 105            |
| DPP447150  | 15.0           | 16             | 62           | 105            |
| DPP447151  | 15.1           | 16             | 64           | 115            |
| DPP447152  | 15.2           | 16             | 64           | 115            |
| DPP447153  | 15.3           | 16             | 64           | 115            |
| DPP447154  | 15.4           | 16             | 64           | 115            |
| DPP447155  | 15.5           | 16             | 64           | 115            |
| DPP447156  | 15.6           | 16             | 64           | 115            |
| DPP447157  | 15.7           | 16             | 64           | 115            |
| DPP447158  | 15.8           | 16             | 64           | 115            |

▶ Other shank types are available on your request.

▶ NEXT PAGE

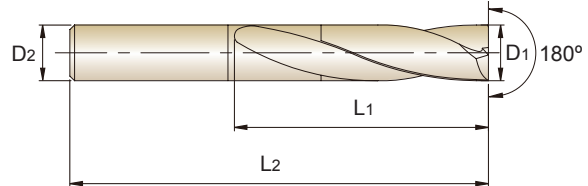
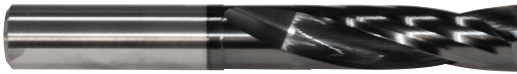
◎ : Excellent ○ : Good

| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ◎                  | ○               |        | ○                | ◎         | ○        | ○      |        |      |          |

## X-COATED SOLID CARBIDE DREAM DRILLS Flat Bottom without Coolant Holes (2XD)

## SHORT DPP447 SERIES

- ▶ Just ONE Drill 180 degree point angle enables drilling of horizontal surface and sloped surface
- ▶ Excellent chip evacuation by optimized flute shape
- ▶ High strength cutting edge to improve tool life and versatility drilling
- ▶ Variety of drilling can be used in a variety of drilling applications



2 × D

Unit : mm

| EDP No.    | Drill Diameter | Shank Diameter | Flute Length | Overall Length |
|------------|----------------|----------------|--------------|----------------|
| X-Coating  | D1             | D2             | L1           | L2             |
| DPP447040F | 5/8            | 16             | 64           | 115            |
| DPP447159  | 15.9           | 16             | 64           | 115            |
| DPP447160  | 16.0           | 16             | 64           | 115            |
| DPP447165  | 16.5           | 18             | 70           | 125            |
| DPP447170  | 17.0           | 18             | 70           | 125            |
| DPP447044F | 11/16          | 18             | 70           | 125            |
| DPP447175  | 17.5           | 18             | 70           | 125            |

| EDP No.    | Drill Diameter | Shank Diameter | Flute Length | Overall Length |
|------------|----------------|----------------|--------------|----------------|
| X-Coating  | D1             | D2             | L1           | L2             |
| DPP447180  | 18.0           | 18             | 70           | 125            |
| DPP447185  | 18.5           | 20             | 75           | 135            |
| DPP447190  | 19.0           | 20             | 75           | 135            |
| DPP447048F | 3/4            | 20             | 75           | 135            |
| DPP447195  | 19.5           | 20             | 75           | 145            |
| DPP447200  | 20.0           | 20             | 75           | 145            |

▶ Other shank types are available on your request.

◎ : Excellent ○ : Good

| P             |              |                    |                 |        | H                | M         | K        | N      |        |      |  | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|--|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP |  | Titanium |
| ~HB225        | HB225~325    | HRc30~45           | HRc45~55        | HRc55~ |                  |           |          |        |        |      |  |          |
| ◎             | ◎            | ◎                  | ○               |        | ○                | ◎         | ○        | ○      |        |      |  |          |

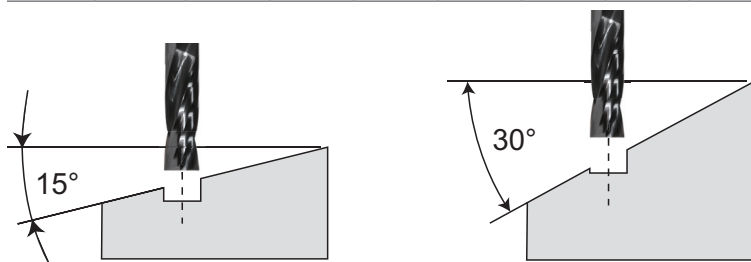
## X-COATED SOLID CARBIDE DREAM DRILLS

### Flat Bottom without Coolant Holes

#### DPP447 SERIES

| WORK MATERIAL  |         | P                 |      |                            |      |                    |      |                |      | M                | K         | N        |      |           |      |
|----------------|---------|-------------------|------|----------------------------|------|--------------------|------|----------------|------|------------------|-----------|----------|------|-----------|------|
|                |         | STRUCTURAL STEELS |      | CARBON STEELS ALLOY STEELS |      | PREHARDENED STEELS |      | HARDEND STEELS |      | STAINLESS STEELS | CAST IRON | ALUMINUM |      |           |      |
| STRENGTH       |         |                   |      | <HB225                     |      | HRC30 ~ 40         |      | HRC40 ~ 50     |      | ~ 200 HB         |           |          |      |           |      |
| DRILLING SPEED |         | 80 m/min          |      | 70 m/min                   |      | 38 m/min           |      | 25 m/min       |      | 30 m/min         |           | 68 m/min |      | 165 m/min |      |
| DIAMETER       |         | RPM               |      | FEED                       |      | RPM                |      | FEED           |      | RPM              |           | FEED     |      | RPM       |      |
|                |         |                   |      |                            |      |                    |      |                |      |                  |           |          |      |           |      |
| Metric(mm)     | Decimal |                   |      |                            |      |                    |      |                |      |                  |           |          |      |           |      |
| 3.0            | .1181   | 8350              | 0.05 | 7250                       | 0.05 | 3890               | 0.05 | 2790           | 0.03 | 3180             | 0.02      | 7250     | 0.04 | 17850     | 0.06 |
| 4.0            | .1575   | 6250              | 0.07 | 5410                       | 0.07 | 2940               | 0.06 | 2100           | 0.04 | 2380             | 0.03      | 5410     | 0.06 | 13130     | 0.08 |
| 5.0            | .1969   | 5040              | 0.08 | 4360                       | 0.08 | 2310               | 0.08 | 1680           | 0.05 | 1910             | 0.04      | 4360     | 0.07 | 10500     | 0.10 |
| 6.0            | .2362   | 4200              | 0.10 | 3630                       | 0.10 | 1890               | 0.09 | 1370           | 0.06 | 1590             | 0.05      | 3630     | 0.09 | 8930      | 0.12 |
| 8.0            | .3150   | 3150              | 0.14 | 2730                       | 0.13 | 1470               | 0.12 | 1050           | 0.08 | 1190             | 0.06      | 2730     | 0.12 | 6670      | 0.16 |
| 10.0           | .3937   | 2520              | 0.17 | 2160                       | 0.17 | 1160               | 0.15 | 840            | 0.10 | 955              | 0.08      | 2160     | 0.15 | 5360      | 0.20 |
| 12.0           | .4724   | 2100              | 0.21 | 1790                       | 0.21 | 1000               | 0.18 | 690            | 0.12 | 796              | 0.10      | 1790     | 0.18 | 4470      | 0.24 |
| 16.0           | .6299   | 1580              | 0.28 | 1370                       | 0.28 | 740                | 0.24 | 530            | 0.16 | 597              | 0.12      | 1370     | 0.24 | 3360      | 0.32 |
| 20.0           | .7874   | 1260              | 0.35 | 1110                       | 0.34 | 580                | 0.31 | 420            | 0.20 | 477              | 0.15      | 1110     | 0.30 | 2680      | 0.40 |

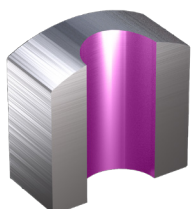
RPM = rev./min.  
FEED = mm/rev.



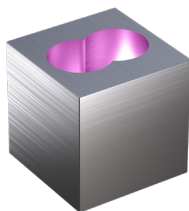
| Surface Angle | Cutting Conditions |      |
|---------------|--------------------|------|
|               | RPM                | IPR  |
| 0° ~ 15°      | 100%               | 100% |
| 15° ~ 30°     | 100%               | 50%  |
| 30° ~         | 70%                | 30%  |

- ▶ The cutting conditions are for 2xD.
- ▶ The rigid and precise machine and holder are required.
- ▶ The recommended depth of hole is measured from the highest point of the hole on drilling in inclined and angled surfaces.
- ▶ The recommended cutting conditions are those for drilling on flat and horizontal surfaces.
- ▶ Please adjust feed rate according to the above surface angle when drilling on an inclined surface.
  - The recommended feed rate 50% or lower, in case of 15°~30° of the incline angle.
  - The recommended feed rate 30% or lower and RPM 70%, in case of 30° ~ of the incline angle.
- ▶ Please decrease cutting speed as material hardness increases.
- ▶ Only use drilling tool. Side milling, traversing, helical milling are not usable.

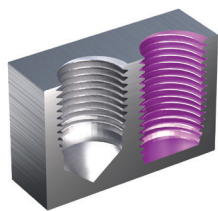
## VARIETY OF DRILLING



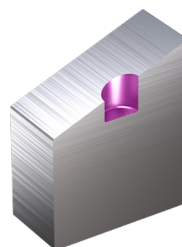
Curved Surface



Chained Hole



Blind Hole for Threading



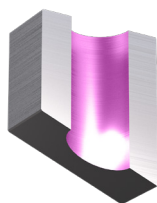
Guide Drilling



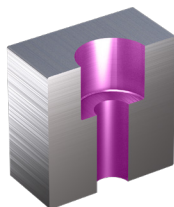
Cross Drilling



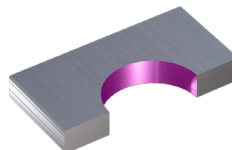
Inclined Entry



Inclined Exit



Counter Boring



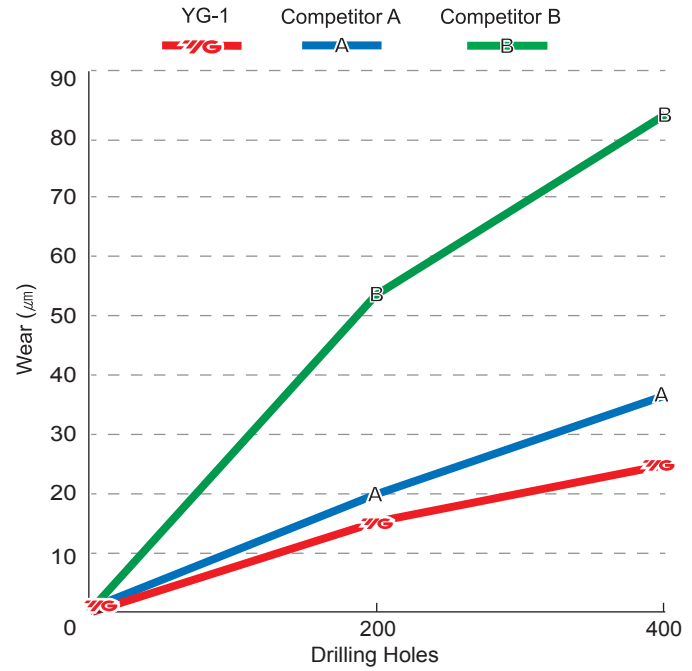
Thin Plate



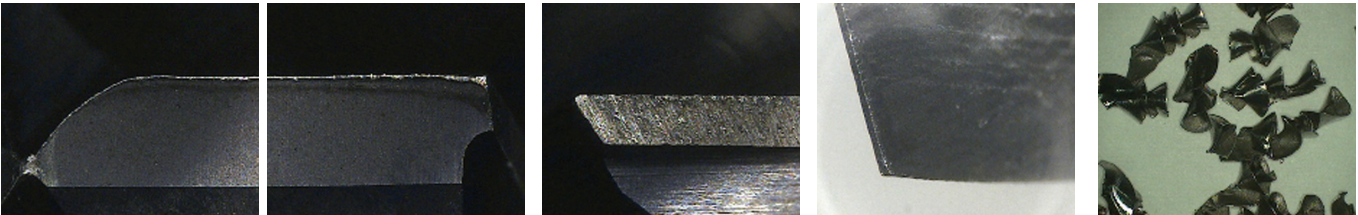
## CASE STUDY

### ► SOLID CARBIDE DREAM DRILLS - INOX with Coolant Holes

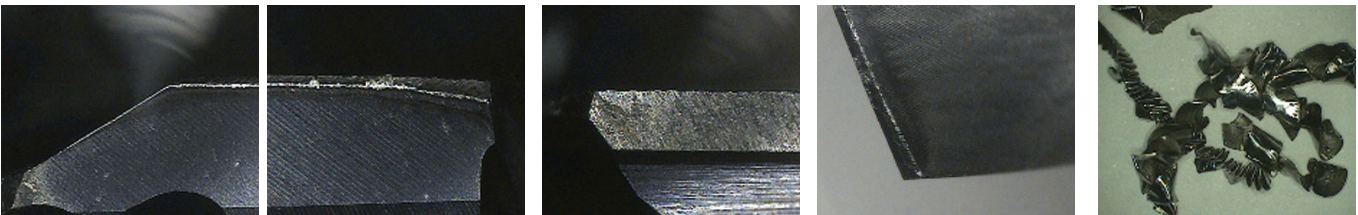
| CUTTING CONDITION |                                                                 |
|-------------------|-----------------------------------------------------------------|
| Tool              | DH452060<br>(Dream Drill-Inox)                                  |
| Size              | Ø6x Ø6 x 44 x 82                                                |
| Work Material     | •AISI : 304<br>•JIS : SUS304<br>•DIN : X5CrNi1810 (X4CrNi18-10) |
| RPM               | 3,700 rev./min.                                                 |
| SFM               | 229 ft/min.                                                     |
| Feed              | .0028 inch/rev.                                                 |
| Drilling Depth    | .94"                                                            |
| Coolant           | Wet Cut                                                         |



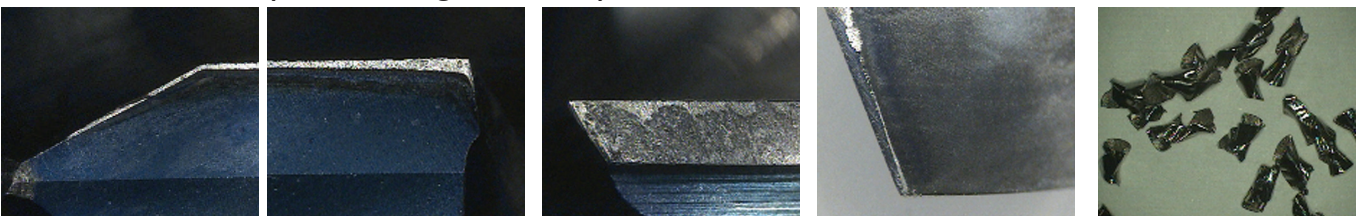
### ► YG-1 (Total Drilling 400 Holes)



### ► COMPETITOR A (Total Drilling 400 Holes)



### ► COMPETITOR B (Total Drilling 400 Holes)



### TiAIN-COATED SOLID CARBIDE DREAM DRILLS INOX with Coolant Holes (3XD)

**DH463 SERIES**

**DH714 SERIES**

- ▶ Special flute shape and geometry suitable for machining stainless steel
- ▶ Excellent chip evacuation from better surface treatment
- ▶ Point R-thinning achieves superior centering and chip curling
- ▶ TiAIN coating for better surface finishes and longer tool life
- ▶ Tolerance : Dia. Tolerance  $\varnothing D1$  : See page 104  
Shank Tolerance  $\varnothing D2$  : -.0001 -.0005



3 × D

Unit : inch

| EDP No.  | Drill Diameter |         | Shank Diameter | Flute Length | Overall Length |
|----------|----------------|---------|----------------|--------------|----------------|
|          | Fractional     | Decimal |                |              |                |
| TiAIN    | D1             |         | D2             | L1           | L2             |
| DH714008 | 1/8            | .1250   | 3/16           | 1.102        | 2.992          |
| DH463008 | 1/8            | .1250   | 15/64          | 1.102        | 2.992          |
| DH714011 | 11/64          | .1719   | 3/16           | 1.417        | 3.386          |
| DH463011 | 11/64          | .1719   | 15/64          | 1.417        | 3.386          |
| DH714012 | 3/16           | .1875   | 3/16           | 1.575        | 3.543          |
| DH463012 | 3/16           | .1875   | 15/64          | 1.575        | 3.543          |
| DH463013 | 13/64          | .2031   | 15/64          | 1.082        | 3.228          |
| DH714013 | 13/64          | .2031   | 1/4            | 1.082        | 3.228          |
| DH463014 | 7/32           | .2188   | 15/64          | 1.181        | 3.228          |
| DH714014 | 7/32           | .2188   | 1/4            | 1.181        | 3.228          |
| DH463015 | 15/64          | .2344   | 15/64          | 1.181        | 3.228          |
| DH714015 | 15/64          | .2344   | 1/4            | 1.181        | 3.228          |
| DH714016 | 1/4            | .2500   | 1/4            | 1.279        | 3.465          |
| DH463016 | 1/4            | .2500   | 17/64          | 1.279        | 3.465          |
| DH463206 | F              | .2570   | 17/64          | 1.279        | 3.465          |
| DH714206 | F              | .2570   | 5/16           | 1.279        | 3.465          |
| DH463017 | 17/64          | .2656   | 17/64          | 1.378        | 3.465          |
| DH714017 | 17/64          | .2656   | 5/16           | 1.378        | 3.465          |
| DH463209 | I              | .2720   | .2720          | 1.378        | 3.465          |
| DH714209 | I              | .2720   | 5/16           | 1.378        | 3.465          |
| DH463018 | 9/32           | .2812   | 5/16           | 1.476        | 3.701          |
| DH463019 | 19/64          | .2969   | 5/16           | 1.476        | 3.701          |

| EDP No.  | Drill Diameter |         | Shank Diameter | Flute Length | Overall Length |
|----------|----------------|---------|----------------|--------------|----------------|
|          | Fractional     | Decimal |                |              |                |
| TiAIN    | D1             |         | D2             | L1           | L2             |
| DH463020 | 5/16           | .3125   | 5/16           | 1.575        | 3.701          |
| DH463021 | 21/64          | .3281   | 11/32          | 1.673        | 3.937          |
| DH714021 | 21/64          | .3281   | 3/8            | 1.673        | 3.937          |
| DH463217 | Q              | .3320   | 11/32          | 1.673        | 3.937          |
| DH714217 | Q              | .3320   | 3/8            | 1.673        | 3.937          |
| DH463022 | 11/32          | .3438   | 11/32          | 1.772        | 3.937          |
| DH714022 | 11/32          | .3438   | 3/8            | 1.772        | 3.937          |
| DH714023 | 23/64          | .3594   | 3/8            | 1.870        | 4.174          |
| DH463023 | 23/64          | .3594   | 25/64          | 1.870        | 4.174          |
| DH714221 | U              | .3680   | 3/8            | 1.870        | 4.174          |
| DH463221 | U              | .3680   | 25/64          | 1.870        | 4.174          |
| DH714024 | 3/8            | .3750   | 3/8            | 1.969        | 4.174          |
| DH463024 | 3/8            | .3750   | 25/64          | 1.969        | 4.174          |
| DH463025 | 25/64          | .3906   | 25/64          | 1.969        | 4.174          |
| DH714025 | 25/64          | .3906   | 7/16           | 1.969        | 4.174          |
| DH463026 | 13/32          | .4062   | 27/64          | 2.067        | 4.567          |
| DH714026 | 13/32          | .4062   | 7/16           | 2.067        | 4.567          |
| DH463027 | 27/64          | .4219   | 27/64          | 2.165        | 4.567          |
| DH714027 | 27/64          | .4219   | 7/16           | 2.165        | 4.567          |
| DH714028 | 7/16           | .4375   | 7/16           | 2.264        | 4.803          |
| DH463028 | 7/16           | .4375   | 15/32          | 2.264        | 4.803          |
| DH463029 | 29/64          | .4531   | 15/32          | 2.264        | 4.803          |

▶ Other shank types are available on your request.

▶ NEXT PAGE

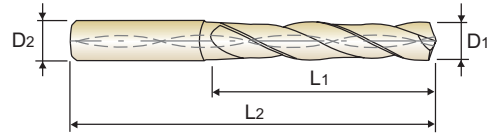
◎ : Excellent ○ : Good

| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ○                  |                 |        | ◎                |           | ○        |        |        |      | ○        |

# TiAlN-COATED SOLID CARBIDE DREAM DRILLS INOX with Coolant Holes (3XD)

**DH463 SERIES**
**DH714 SERIES**

- ▶ Special flute shape and geometry suitable for machining stainless steel
- ▶ Excellent chip evacuation from better surface treatment
- ▶ Point R-thinning achieves superior centering and chip curling
- ▶ TiAlN coating for better surface finishes and longer tool life
- ▶ Tolerance : Dia. Tolerance  $\varnothing D1$  : See page 104  
Shank Tolerance  $\varnothing D2$ : -.0001 -.0005


**3 × D**

Unit : inch

| EDP No.  | Drill Diameter |         | Shank Diameter | Flute Length | Overall Length |
|----------|----------------|---------|----------------|--------------|----------------|
|          | Fractional     | Decimal |                |              |                |
| TiAlN    | D1             |         | D2             | L1           | L2             |
| DH714029 | 29/64          | .4531   | 1/2            | 2.264        | 4.803          |
| DH463030 | 15/32          | .4688   | 15/32          | 2.362        | 4.803          |
| DH714030 | 15/32          | .4688   | 1/2            | 2.362        | 4.803          |
| DH463031 | 31/64          | .4844   | 1/2            | 2.461        | 5.039          |
| DH463032 | 1/2            | .5000   | 1/2            | 2.559        | 5.039          |
| DH463033 | 33/64          | .5156   | 35/64          | 2.657        | 5.276          |
| DH714033 | 33/64          | .5156   | 9/16           | 2.657        | 5.276          |
| DH463034 | 17/32          | .5312   | 35/64          | 2.756        | 5.276          |
| DH714034 | 17/32          | .5312   | 9/16           | 2.756        | 5.276          |

| EDP No.  | Drill Diameter |         | Shank Diameter | Flute Length | Overall Length |
|----------|----------------|---------|----------------|--------------|----------------|
|          | Fractional     | Decimal |                |              |                |
| TiAlN    | D1             |         | D2             | L1           | L2             |
| DH463035 | 35/64          | .5469   | 35/64          | 2.756        | 5.276          |
| DH714035 | 35/64          | .5469   | 9/16           | 2.756        | 5.276          |
| DH714036 | 9/16           | .5625   | 9/16           | 2.854        | 5.512          |
| DH463036 | 9/16           | .5625   | 37/64          | 2.854        | 5.512          |
| DH463037 | 37/64          | .5781   | 37/64          | 2.953        | 5.512          |
| DH714037 | 37/64          | .5781   | 5/8            | 2.953        | 5.512          |
| DH463038 | 19/32          | .5937   | 5/8            | 3.051        | 5.709          |
| DH463039 | 39/64          | .6094   | 5/8            | 3.051        | 5.709          |
| DH463040 | 5/8            | .6250   | 5/8            | 3.150        | 5.709          |

▶ Other shank types are available on your request.

◎ : Excellent ○ : Good

| P             |              |                    |                 |        | H                | M         | K        | N      |        |      |  | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|--|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP |  | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |  |          |
| ◎             | ◎            | ○                  |                 |        | ◎                |           | ○        |        |        |      |  | ○        |

# TiAIN-COATED SOLID CARBIDE DREAM DRILLS INOX with Coolant Holes (5XD)

DH464 SERIES

DH715 SERIES

- ▶ Special flute shape and geometry suitable for machining stainless steel
- ▶ Excellent chip evacuation from better surface treatment
- ▶ Point R-thinning achieves superior centering and chip curling
- ▶ TiAIN coating for better surface finishes and longer tool life
- ▶ Tolerance : Dia. Tolerance  $\varnothing D1$  : See page 104  
Shank Tolerance  $\varnothing D2$ : -.0001 -.0005



5 × D

Unit : inch

| EDP No.  | Drill Diameter |         | Shank Diameter | Flute Length | Overall Length |
|----------|----------------|---------|----------------|--------------|----------------|
|          | Fractional     | Decimal |                |              |                |
| TiAIN    | D1             |         | D2             | L1           | L2             |
| DH464013 | 13/64          | .2031   | 15/64          | 1-3/4        | 3-15/16        |
| DH715013 | 13/64          | .2031   | 1/4            | 1-3/4        | 3-15/16        |
| DH464014 | 7/32           | .2188   | 15/64          | 1-57/64      | 3-15/16        |
| DH715014 | 7/32           | .2188   | 1/4            | 1-57/64      | 3-15/16        |
| DH464015 | 15/64          | .2344   | 15/64          | 1-57/64      | 3-15/16        |
| DH715015 | 15/64          | .2344   | 1/4            | 1-57/64      | 3-15/16        |
| DH715016 | 1/4            | .2500   | 1/4            | 2-3/64       | 4-19/64        |
| DH464016 | 1/4            | .2500   | 17/64          | 2-3/64       | 4-19/64        |
| DH464206 | F              | .2570   | 17/64          | 2-13/64      | 4-19/64        |
| DH715206 | F              | .2570   | 5/16           | 2-13/64      | 4-19/64        |
| DH464017 | 17/64          | .2656   | 17/64          | 2-13/64      | 4-19/64        |
| DH715017 | 17/64          | .2656   | 5/16           | 2-13/64      | 4-19/64        |
| DH464209 | I              | .2720   | .2720          | 2-13/64      | 4-19/64        |
| DH715209 | I              | .2720   | 5/16           | 2-13/64      | 4-19/64        |
| DH464018 | 9/32           | .2812   | 5/16           | 2-23/64      | 4-41/64        |
| DH464019 | 19/64          | .2969   | 5/16           | 2-33/64      | 4-41/64        |
| DH464020 | 5/16           | .3125   | 5/16           | 2-33/64      | 4-41/64        |
| DH464021 | 21/64          | .3281   | 11/32          | 2-43/64      | 5              |
| DH715021 | 21/64          | .3281   | 3/8            | 2-43/64      | 5              |
| DH464217 | Q              | .3320   | 11/32          | 2-43/64      | 5              |
| DH715217 | Q              | .3320   | 3/8            | 2-43/64      | 5              |
| DH464022 | 11/32          | .3438   | 11/32          | 2-27/32      | 5              |

| EDP No.  | Drill Diameter |         | Shank Diameter | Flute Length | Overall Length |
|----------|----------------|---------|----------------|--------------|----------------|
|          | Fractional     | Decimal |                |              |                |
| TiAIN    | D1             |         | D2             | L1           | L2             |
| DH715022 | 11/32          | .3438   | 3/8            | 2-27/32      | 5              |
| DH715023 | 23/64          | .3594   | 3/8            | 3            | 5-23/64        |
| DH464023 | 23/64          | .3594   | 25/64          | 3            | 5-23/64        |
| DH715221 | U              | .3680   | 3/8            | 3            | 5-23/64        |
| DH464221 | U              | .3680   | 25/64          | 3            | 5-23/64        |
| DH715024 | 3/8            | .3750   | 3/8            | 3-5/32       | 5-23/64        |
| DH464024 | 3/8            | .3750   | 25/64          | 3-5/32       | 5-23/64        |
| DH464025 | 25/64          | .3906   | 25/64          | 3-5/32       | 5-23/64        |
| DH715025 | 25/64          | .3906   | 7/16           | 3-5/32       | 5-23/64        |
| DH464026 | 13/32          | .4062   | 27/64          | 3-5/16       | 5-7/8          |
| DH715026 | 13/32          | .4062   | 7/16           | 3-5/16       | 5-7/8          |
| DH464027 | 27/64          | .4219   | 27/64          | 3-15/32      | 5-7/8          |
| DH715027 | 27/64          | .4219   | 7/16           | 3-15/32      | 5-7/8          |
| DH715028 | 7/16           | .4375   | 7/16           | 3-5/8        | 6-7/32         |
| DH464028 | 7/16           | .4375   | 15/32          | 3-5/8        | 6-7/32         |
| DH464029 | 29/64          | .4531   | 15/32          | 3-25/32      | 6-7/32         |
| DH715029 | 29/64          | .4531   | 1/2            | 3-25/32      | 6-7/32         |
| DH464030 | 15/32          | .4688   | 15/32          | 3-25/32      | 6-7/32         |
| DH715030 | 15/32          | .4688   | 1/2            | 3-25/32      | 6-7/32         |
| DH464031 | 31/64          | .4844   | 1/2            | 3-15/16      | 6-37/64        |
| DH464032 | 1/2            | .5000   | 1/2            | 4-3/32       | 6-37/64        |

▶ Other shank types are available on your request.

◎ : Excellent ○ : Good

| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ○                  |                 |        | ◎                |           | ○        |        |        |      | ○        |

# TiAIN-COATED SOLID CARBIDE DREAM DRILLS INOX with Coolant Holes (3XD)

SHORT

DH451 SERIES

- ▶ Special flute shape and geometry suitable for machining stainless steel
- ▶ Excellent chip evacuation from better surface treatment
- ▶ Point R-thinning achieves superior centering and chip curling
- ▶ TiAIN coating for better surface finishes and longer tool life



3 × D

Unit : mm

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAIN     | D1             |            |         | D2             | L1           | L2             |
| DH451030  | 3.0            |            | .1181   | 6              | 20           | 62             |
| DH451031  | 3.1            |            | .1220   | 6              | 20           | 62             |
| DH451008F | 3.175          | 1/8        | .1250   | 6              | 20           | 62             |
| DH451032  | 3.2            |            | .1260   | 6              | 20           | 62             |
| DH451033  | 3.3            |            | .1299   | 6              | 20           | 62             |
| DH451034  | 3.4            |            | .1339   | 6              | 20           | 62             |
| DH451035  | 3.5            |            | .1378   | 6              | 20           | 62             |
| DH451009F | 3.572          | 9/64       | .1406   | 6              | 20           | 62             |
| DH451036  | 3.6            |            | .1417   | 6              | 20           | 62             |
| DH451037  | 3.7            |            | .1457   | 6              | 20           | 62             |
| DH451038  | 3.8            |            | .1496   | 6              | 24           | 66             |
| DH451039  | 3.9            |            | .1535   | 6              | 24           | 66             |
| DH451010F | 3.969          | 5/32       | .1563   | 6              | 24           | 66             |
| DH451040  | 4.0            |            | .1575   | 6              | 24           | 66             |
| DH451041  | 4.1            |            | .1614   | 6              | 24           | 66             |
| DH451042  | 4.2            |            | .1654   | 6              | 24           | 66             |
| DH451043  | 4.3            |            | .1693   | 6              | 24           | 66             |
| DH451011F | 4.366          | 11/64      | .1719   | 6              | 24           | 66             |
| DH451044  | 4.4            |            | .1732   | 6              | 24           | 66             |
| DH451045  | 4.5            |            | .1772   | 6              | 24           | 66             |
| DH451046  | 4.6            |            | .1811   | 6              | 24           | 66             |
| DH451047  | 4.7            |            | .1850   | 6              | 24           | 66             |
| DH451012F | 4.763          | 3/16       | .1875   | 6              | 24           | 66             |
| DH451048  | 4.8            |            | .1890   | 6              | 28           | 66             |

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAIN     | D1             |            |         | D2             | L1           | L2             |
| DH451049  | 4.9            |            | .1929   | 6              | 28           | 66             |
| DH451050  | 5.0            |            | .1969   | 6              | 28           | 66             |
| DH451051  | 5.1            |            | .2008   | 6              | 28           | 66             |
| DH451013F | 5.159          | 13/64      | .2031   | 6              | 28           | 66             |
| DH451052  | 5.2            |            | .2047   | 6              | 28           | 66             |
| DH451053  | 5.3            |            | .2087   | 6              | 28           | 66             |
| DH451054  | 5.4            |            | .2126   | 6              | 28           | 66             |
| DH451055  | 5.5            |            | .2165   | 6              | 28           | 66             |
| DH451014F | 5.556          | 7/32       | .2188   | 6              | 28           | 66             |
| DH451056  | 5.6            |            | .2205   | 6              | 28           | 66             |
| DH451057  | 5.7            |            | .2244   | 6              | 28           | 66             |
| DH451058  | 5.8            |            | .2283   | 6              | 28           | 66             |
| DH451059  | 5.9            |            | .2323   | 6              | 28           | 66             |
| DH451015F | 5.953          | 15/64      | .2344   | 6              | 28           | 66             |
| DH451060  | 6.0            |            | .2362   | 6              | 28           | 66             |
| DH451061  | 6.1            |            | .2402   | 8              | 34           | 79             |
| DH451062  | 6.2            |            | .2441   | 8              | 34           | 79             |
| DH451063  | 6.3            |            | .2480   | 8              | 34           | 79             |
| DH451016F | 6.350          | 1/4        | .2500   | 8              | 34           | 79             |
| DH451064  | 6.4            |            | .2520   | 8              | 34           | 79             |
| DH451065  | 6.5            |            | .2559   | 8              | 34           | 79             |
| DH451006L | 6.528          | F          | .2570   | 8              | 34           | 79             |
| DH451066  | 6.6            |            | .2598   | 8              | 34           | 79             |
| DH451067  | 6.7            |            | .2638   | 8              | 34           | 79             |

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ○                  |                 |        | ◎                |           | ○        |        |        |      | ○        |

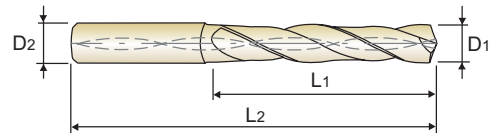


# TiAIN-COATED SOLID CARBIDE DREAM DRILLS INOX with Coolant Holes (3XD)

SHORT

DH451 SERIES

- ▶ Special flute shape and geometry suitable for machining stainless steel
- ▶ Excellent chip evacuation from better surface treatment
- ▶ Point R-thinning achieves superior centering and chip curling
- ▶ TiAIN coating for better surface finishes and longer tool life



3 × D

Unit : mm

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAIN     | D1             |            |         | D2             | L1           | L2             |
| DH451017F | 6.747          | 17/64      | .2656   | 8              | 34           | 79             |
| DH451068  | 6.8            |            | .2677   | 8              | 34           | 79             |
| DH451069  | 6.9            |            | .2717   | 8              | 34           | 79             |
| DH451009L | 6.909          | I          | .2720   | 8              | 34           | 79             |
| DH451070  | 7.0            |            | .2756   | 8              | 34           | 79             |
| DH451071  | 7.1            |            | .2795   | 8              | 41           | 79             |
| DH451018F | 7.144          | 9/32       | .2812   | 8              | 41           | 79             |
| DH451072  | 7.2            |            | .2835   | 8              | 41           | 79             |
| DH451073  | 7.3            |            | .2874   | 8              | 41           | 79             |
| DH451074  | 7.4            |            | .2913   | 8              | 41           | 79             |
| DH451075  | 7.5            |            | .2953   | 8              | 41           | 79             |
| DH451019F | 7.541          | 19/64      | .2969   | 8              | 41           | 79             |
| DH451076  | 7.6            |            | .2992   | 8              | 41           | 79             |
| DH451077  | 7.7            |            | .3031   | 8              | 41           | 79             |
| DH451078  | 7.8            |            | .3071   | 8              | 41           | 79             |
| DH451079  | 7.9            |            | .3110   | 8              | 41           | 79             |
| DH451020F | 7.938          | 5/16       | .3125   | 8              | 41           | 79             |
| DH451080  | 8.0            |            | .3150   | 8              | 41           | 79             |
| DH451081  | 8.1            |            | .3189   | 10             | 47           | 89             |
| DH451082  | 8.2            |            | .3228   | 10             | 47           | 89             |
| DH451083  | 8.3            |            | .3268   | 10             | 47           | 89             |
| DH451021F | 8.334          | 21/64      | .3281   | 10             | 47           | 89             |
| DH451084  | 8.4            |            | .3307   | 10             | 47           | 89             |
| DH451017L | 8.433          | Q          | .3320   | 10             | 47           | 89             |

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAIN     | D1             |            |         | D2             | L1           | L2             |
| DH451085  | 8.5            |            | .3346   | 10             | 47           | 89             |
| DH451086  | 8.6            |            | .3386   | 10             | 47           | 89             |
| DH451087  | 8.7            |            | .3425   | 10             | 47           | 89             |
| DH451022F | 8.731          | 11/32      | .3438   | 10             | 47           | 89             |
| DH451088  | 8.8            |            | .3465   | 10             | 47           | 89             |
| DH451089  | 8.9            |            | .3504   | 10             | 47           | 89             |
| DH451090  | 9.0            |            | .3543   | 10             | 47           | 89             |
| DH451091  | 9.1            |            | .3583   | 10             | 47           | 89             |
| DH451023F | 9.128          | 23/64      | .3594   | 10             | 47           | 89             |
| DH451092  | 9.2            |            | .3622   | 10             | 47           | 89             |
| DH451093  | 9.3            |            | .3661   | 10             | 47           | 89             |
| DH451021L | 9.347          | U          | .3680   | 10             | 47           | 89             |
| DH451094  | 9.4            |            | .3701   | 10             | 47           | 89             |
| DH451095  | 9.5            |            | .3740   | 10             | 47           | 89             |
| DH451024F | 9.525          | 3/8        | .3750   | 10             | 47           | 89             |
| DH451096  | 9.6            |            | .3780   | 10             | 47           | 89             |
| DH451097  | 9.7            |            | .3819   | 10             | 47           | 89             |
| DH451098  | 9.8            |            | .3858   | 10             | 47           | 89             |
| DH451099  | 9.9            |            | .3898   | 10             | 47           | 89             |
| DH451025F | 9.922          | 25/64      | .3906   | 10             | 47           | 89             |
| DH451100  | 10.0           |            | .3937   | 10             | 47           | 89             |
| DH451101  | 10.1           |            | .3976   | 12             | 55           | 102            |
| DH451102  | 10.2           |            | .4016   | 12             | 55           | 102            |
| DH451103  | 10.3           |            | .4055   | 12             | 55           | 102            |

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ○                  |                 |        | ◎                |           | ○        |        |        |      | ○        |

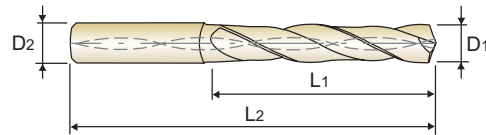


# TiAIN-COATED SOLID CARBIDE DREAM DRILLS INOX with Coolant Holes (3XD)

SHORT

DH451 SERIES

- ▶ Special flute shape and geometry suitable for machining stainless steel
- ▶ Excellent chip evacuation from better surface treatment
- ▶ Point R-thinning achieves superior centering and chip curling
- ▶ TiAIN coating for better surface finishes and longer tool life



3 × D

Unit : mm

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAIN     | D1             |            |         | D2             | L1           | L2             |
| DH451026F | 10.319         | 13/32      | .4062   | 12             | 55           | 102            |
| DH451104  | 10.4           |            | .4094   | 12             | 55           | 102            |
| DH451105  | 10.5           |            | .4134   | 12             | 55           | 102            |
| DH451106  | 10.6           |            | .4173   | 12             | 55           | 102            |
| DH451107  | 10.7           |            | .4212   | 12             | 55           | 102            |
| DH451027F | 10.716         | 27/64      | .4219   | 12             | 55           | 102            |
| DH451108  | 10.8           |            | .4252   | 12             | 55           | 102            |
| DH451109  | 10.9           |            | .4291   | 12             | 55           | 102            |
| DH451110  | 11.0           |            | .4330   | 12             | 55           | 102            |
| DH451111  | 11.1           |            | .4370   | 12             | 55           | 102            |
| DH451028F | 11.113         | 7/16       | .4375   | 12             | 55           | 102            |
| DH451112  | 11.2           |            | .4409   | 12             | 55           | 102            |
| DH451113  | 11.3           |            | .4448   | 12             | 55           | 102            |
| DH451114  | 11.4           |            | .4488   | 12             | 55           | 102            |
| DH451115  | 11.5           |            | .4527   | 12             | 55           | 102            |
| DH451029F | 11.509         | 29/64      | .4531   | 12             | 55           | 102            |
| DH451116  | 11.6           |            | .4566   | 12             | 55           | 102            |
| DH451117  | 11.7           |            | .4606   | 12             | 55           | 102            |
| DH451118  | 11.8           |            | .4645   | 12             | 55           | 102            |
| DH451119  | 11.9           |            | .4685   | 12             | 55           | 102            |
| DH451030F | 11.906         | 15/32      | .4688   | 12             | 55           | 102            |
| DH451120  | 12.0           |            | .4724   | 12             | 55           | 102            |
| DH451121  | 12.1           |            | .4764   | 14             | 60           | 107            |
| DH451122  | 12.2           |            | .4803   | 14             | 60           | 107            |

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAIN     | D1             |            |         | D2             | L1           | L2             |
| DH451123  | 12.3           |            | .4843   | 14             | 60           | 107            |
| DH451031F | 12.303         | 31/64      | .4844   | 14             | 60           | 107            |
| DH451124  | 12.4           |            | .4882   | 14             | 60           | 107            |
| DH451125  | 12.5           |            | .4921   | 14             | 60           | 107            |
| DH451126  | 12.6           |            | .4961   | 14             | 60           | 107            |
| DH451032F | 12.7           | 1/2        | .5000   | 14             | 60           | 107            |
| DH451128  | 12.8           |            | .5039   | 14             | 60           | 107            |
| DH451129  | 12.9           |            | .5079   | 14             | 60           | 107            |
| DH451130  | 13.0           |            | .5118   | 14             | 60           | 107            |
| DH451131  | 13.1           |            | .5157   | 14             | 60           | 107            |
| DH451132  | 13.2           |            | .5197   | 14             | 60           | 107            |
| DH451133  | 13.3           |            | .5236   | 14             | 60           | 107            |
| DH451134  | 13.4           |            | .5276   | 14             | 60           | 107            |
| DH451135  | 13.5           |            | .5314   | 14             | 60           | 107            |
| DH451136  | 13.6           |            | .5354   | 14             | 60           | 107            |
| DH451137  | 13.7           |            | .5394   | 14             | 60           | 107            |
| DH451138  | 13.8           |            | .5433   | 14             | 60           | 107            |
| DH451139  | 13.9           |            | .5472   | 14             | 60           | 107            |
| DH451140  | 14.0           |            | .5512   | 14             | 60           | 107            |
| DH451141  | 14.1           |            | .5551   | 16             | 65           | 115            |
| DH451142  | 14.2           |            | .5591   | 16             | 65           | 115            |
| DH451036F | 14.288         | 9/16       | .5625   | 16             | 65           | 115            |
| DH451143  | 14.3           |            | .5630   | 16             | 65           | 115            |
| DH451144  | 14.4           |            | .5669   | 16             | 65           | 115            |

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

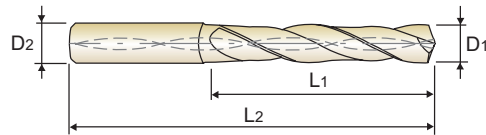
| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ○                  |                 |        | ◎                |           | ○        |        |        |      | ○        |

# TiAIN-COATED SOLID CARBIDE DREAM DRILLS INOX with Coolant Holes (3XD)

SHORT

DH451 SERIES

- ▶ Special flute shape and geometry suitable for machining stainless steel
- ▶ Excellent chip evacuation from better surface treatment
- ▶ Point R-thinning achieves superior centering and chip curling
- ▶ TiAIN coating for better surface finishes and longer tool life



3 × D

Unit : mm

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAIN     | D1             |            |         | D2             | L1           | L2             |
| DH451145  | 14.5           |            | .5708   | 16             | 65           | 115            |
| DH451146  | 14.6           |            | .5748   | 16             | 65           | 115            |
| DH451147  | 14.7           |            | .5787   | 16             | 65           | 115            |
| DH451148  | 14.8           |            | .5827   | 16             | 65           | 115            |
| DH451149  | 14.9           |            | .5866   | 16             | 65           | 115            |
| DH451150  | 15.0           |            | .5905   | 16             | 65           | 115            |
| DH451151  | 15.1           |            | .5945   | 16             | 65           | 115            |
| DH451152  | 15.2           |            | .5984   | 16             | 65           | 115            |
| DH451153  | 15.3           |            | .6024   | 16             | 65           | 115            |
| DH451154  | 15.4           |            | .6063   | 16             | 65           | 115            |
| DH451155  | 15.5           |            | .6102   | 16             | 65           | 115            |
| DH451156  | 15.6           |            | .6142   | 16             | 65           | 115            |
| DH451157  | 15.7           |            | .6181   | 16             | 65           | 115            |
| DH451158  | 15.8           |            | .6220   | 16             | 65           | 115            |
| DH451040F | 15.875         | 5/8        | .6250   | 16             | 65           | 115            |
| DH451159  | 15.9           |            | .6260   | 16             | 65           | 115            |
| DH451160  | 16.0           |            | .6299   | 16             | 65           | 115            |
| DH451161  | 16.1           |            | .6339   | 18             | 73           | 123            |
| DH451162  | 16.2           |            | .6378   | 18             | 73           | 123            |
| DH451163  | 16.3           |            | .6417   | 18             | 73           | 123            |
| DH451164  | 16.4           |            | .6457   | 18             | 73           | 123            |
| DH451165  | 16.5           |            | .6495   | 18             | 73           | 123            |
| DH451166  | 16.6           |            | .6535   | 18             | 73           | 123            |
| DH451167  | 16.7           |            | .6575   | 18             | 73           | 123            |

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAIN     | D1             |            |         | D2             | L1           | L2             |
| DH451168  | 16.8           |            | .6614   | 18             | 73           | 123            |
| DH451169  | 16.9           |            | .6654   | 18             | 73           | 123            |
| DH451170  | 17.0           |            | .6692   | 18             | 73           | 123            |
| DH451171  | 17.1           |            | .6732   | 18             | 73           | 123            |
| DH451172  | 17.2           |            | .6772   | 18             | 73           | 123            |
| DH451173  | 17.3           |            | .6811   | 18             | 73           | 123            |
| DH451174  | 17.4           |            | .6850   | 18             | 73           | 123            |
| DH451044F | 17.463         | 11/16      | .6875   | 18             | 73           | 123            |
| DH451175  | 17.5           |            | .6889   | 18             | 73           | 123            |
| DH451176  | 17.6           |            | .6929   | 18             | 73           | 123            |
| DH451177  | 17.7           |            | .6968   | 18             | 73           | 123            |
| DH451178  | 17.8           |            | .7008   | 18             | 73           | 123            |
| DH451179  | 17.9           |            | .7047   | 18             | 73           | 123            |
| DH451180  | 18.0           |            | .7087   | 18             | 73           | 123            |
| DH451181  | 18.1           |            | .7126   | 20             | 79           | 131            |
| DH451182  | 18.2           |            | .7165   | 20             | 79           | 131            |
| DH451183  | 18.3           |            | .7205   | 20             | 79           | 131            |
| DH451184  | 18.4           |            | .7244   | 20             | 79           | 131            |
| DH451185  | 18.5           |            | .7283   | 20             | 79           | 131            |
| DH451186  | 18.6           |            | .7323   | 20             | 79           | 131            |
| DH451187  | 18.7           |            | .7362   | 20             | 79           | 131            |
| DH451188  | 18.8           |            | .7402   | 20             | 79           | 131            |
| DH451189  | 18.9           |            | .7441   | 20             | 79           | 131            |
| DH451190  | 19.0           |            | .7480   | 20             | 79           | 131            |

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

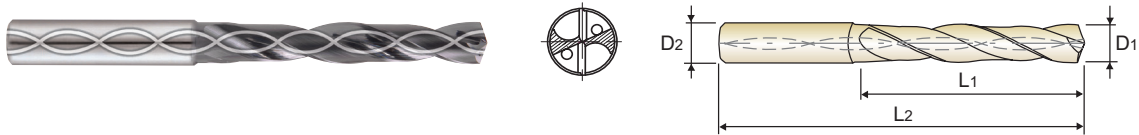
| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ○                  |                 |        | ◎                |           | ○        |        |        |      | ○        |

# TiAIN-COATED SOLID CARBIDE DREAM DRILLS INOX with Coolant Holes (3XD)

SHORT

DH451 SERIES

- ▶ Special flute shape and geometry suitable for machining stainless steel
- ▶ Excellent chip evacuation from better surface treatment
- ▶ Point R-thinning achieves superior centering and chip curling
- ▶ TiAIN coating for better surface finishes and longer tool life



3 × D

Unit : mm

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAIN     | D1             |            |         | D2             | L1           | L2             |
| DH451048F | 19.050         | 3/4        | .7500   | 20             | 79           | 131            |
| DH451191  | 19.1           |            | .7520   | 20             | 79           | 131            |
| DH451192  | 19.2           |            | .7559   | 20             | 79           | 131            |
| DH451193  | 19.3           |            | .7598   | 20             | 79           | 131            |
| DH451194  | 19.4           |            | .7638   | 20             | 79           | 131            |
| DH451195  | 19.5           |            | .7676   | 20             | 79           | 131            |

| EDP No.  | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|----------|----------------|------------|---------|----------------|--------------|----------------|
|          | Metric         | Fractional | Decimal |                |              |                |
| TiAIN    | D1             |            |         | D2             | L1           | L2             |
| DH451196 | 19.6           |            | .7717   | 20             | 79           | 131            |
| DH451197 | 19.7           |            | .7756   | 20             | 79           | 131            |
| DH451198 | 19.8           |            | .7795   | 20             | 79           | 131            |
| DH451199 | 19.9           |            | .7835   | 20             | 79           | 131            |
| DH451200 | 20.0           |            | .7874   | 20             | 79           | 131            |

▶ Other shank types are available on your request.

◎ : Excellent ○ : Good

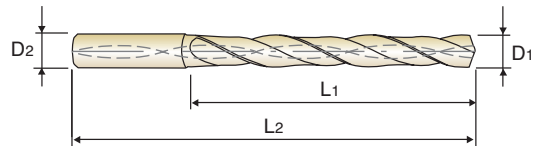
| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRc30~45           | HRc45~55        | HRc55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ○                  |                 |        | ◎                |           | ○        |        |        |      | ○        |

# TiAIN-COATED SOLID CARBIDE DREAM DRILLS INOX with Coolant Holes (5XD)

LONG

DH452 SERIES

- ▶ Special flute shape and geometry suitable for machining stainless steel
- ▶ Excellent chip evacuation from better surface treatment
- ▶ Point R-thinning achieves superior centering and chip curling
- ▶ TiAIN coating for better surface finishes and longer tool life



5 × D

Unit : mm

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAIN     | D1             |            |         | D2             | L1           | L2             |
| DH452010  | 1.0            |            | .0394   | 3              | 8            | 55             |
| DH452011  | 1.1            |            | .0433   | 3              | 12           | 55             |
| DH452012  | 1.2            |            | .0472   | 3              | 12           | 55             |
| DH452013  | 1.3            |            | .0512   | 3              | 12           | 55             |
| DH452014  | 1.4            |            | .0551   | 3              | 12           | 55             |
| DH452015  | 1.5            |            | .0591   | 3              | 16           | 55             |
| DH452004F | 1.588          | 1/16       | .0625   | 3              | 16           | 55             |
| DH452016  | 1.6            |            | .0630   | 3              | 16           | 55             |
| DH452017  | 1.7            |            | .0669   | 3              | 16           | 55             |
| DH452018  | 1.8            |            | .0709   | 3              | 16           | 55             |
| DH452019  | 1.9            |            | .0748   | 3              | 16           | 55             |
| DH452005F | 1.984          | 5/64       | .0781   | 3              | 16           | 55             |
| DH452020  | 2.0            |            | .0787   | 4              | 21           | 57             |
| DH452021  | 2.1            |            | .0827   | 4              | 21           | 57             |
| DH452022  | 2.2            |            | .0866   | 4              | 21           | 57             |
| DH452023  | 2.3            |            | .0906   | 4              | 21           | 57             |
| DH452006F | 2.381          | 3/32       | .0938   | 4              | 21           | 57             |
| DH452024  | 2.4            |            | .0945   | 4              | 21           | 57             |
| DH452025  | 2.5            |            | .0984   | 4              | 21           | 57             |
| DH452026  | 2.6            |            | .1024   | 4              | 21           | 57             |
| DH452027  | 2.7            |            | .1063   | 4              | 21           | 57             |
| DH452007F | 2.778          | 7/64       | .1094   | 4              | 21           | 57             |
| DH452028  | 2.8            |            | .1102   | 4              | 21           | 57             |
| DH452029  | 2.9            |            | .1142   | 4              | 21           | 57             |
| DH452030  | 3.0            |            | .1181   | 6              | 28           | 66             |
| DH452031  | 3.1            |            | .1220   | 6              | 28           | 66             |

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAIN     | D1             |            |         | D2             | L1           | L2             |
| DH452008F | 3.175          | 1/8        | .1250   | 6              | 28           | 66             |
| DH452032  | 3.2            |            | .1260   | 6              | 28           | 66             |
| DH452033  | 3.3            |            | .1299   | 6              | 28           | 66             |
| DH452034  | 3.4            |            | .1339   | 6              | 28           | 66             |
| DH452035  | 3.5            |            | .1378   | 6              | 28           | 66             |
| DH452009F | 3.572          | 9/64       | .1406   | 6              | 28           | 66             |
| DH452036  | 3.6            |            | .1417   | 6              | 28           | 66             |
| DH452037  | 3.7            |            | .1457   | 6              | 28           | 66             |
| DH452038  | 3.8            |            | .1496   | 6              | 36           | 74             |
| DH452039  | 3.9            |            | .1535   | 6              | 36           | 74             |
| DH452010F | 3.969          | 5/32       | .1563   | 6              | 36           | 74             |
| DH452040  | 4.0            |            | .1575   | 6              | 36           | 74             |
| DH452041  | 4.1            |            | .1614   | 6              | 36           | 74             |
| DH452042  | 4.2            |            | .1654   | 6              | 36           | 74             |
| DH452043  | 4.3            |            | .1693   | 6              | 36           | 74             |
| DH452011F | 4.366          | 11/64      | .1719   | 6              | 36           | 74             |
| DH452044  | 4.4            |            | .1732   | 6              | 36           | 74             |
| DH452045  | 4.5            |            | .1772   | 6              | 36           | 74             |
| DH452046  | 4.6            |            | .1811   | 6              | 36           | 74             |
| DH452047  | 4.7            |            | .1850   | 6              | 36           | 74             |
| DH452012F | 4.763          | 3/16       | .1875   | 6              | 36           | 74             |
| DH452048  | 4.8            |            | .1890   | 6              | 44           | 82             |
| DH452049  | 4.9            |            | .1929   | 6              | 44           | 82             |
| DH452050  | 5.0            |            | .1969   | 6              | 44           | 82             |
| DH452051  | 5.1            |            | .2008   | 6              | 44           | 82             |
| DH452013F | 5.159          | 13/64      | .2031   | 6              | 44           | 82             |

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

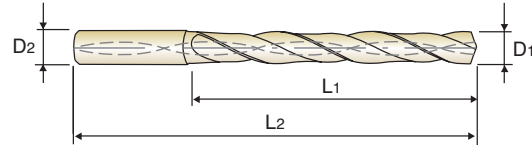
| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ○                  |                 |        | ◎                |           | ○        |        |        |      | ○        |

# TiAIN-COATED SOLID CARBIDE DREAM DRILLS INOX with Coolant Holes (5XD)

LONG

DH452 SERIES

- Special flute shape and geometry suitable for machining stainless steel
- Excellent chip evacuation from better surface treatment
- Point R-thinning achieves superior centering and chip curling
- TiAIN coating for better surface finishes and longer tool life



5 × D

Unit : mm

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAIN     | D1             |            |         | D2             | L1           | L2             |
| DH452052  | 5.2            |            | .2047   | 6              | 44           | 82             |
| DH452053  | 5.3            |            | .2087   | 6              | 44           | 82             |
| DH452054  | 5.4            |            | .2126   | 6              | 44           | 82             |
| DH452055  | 5.5            |            | .2165   | 6              | 44           | 82             |
| DH452014F | 5.556          | 7/32       | .2188   | 6              | 44           | 82             |
| DH452056  | 5.6            |            | .2205   | 6              | 44           | 82             |
| DH452057  | 5.7            |            | .2244   | 6              | 44           | 82             |
| DH452058  | 5.8            |            | .2283   | 6              | 44           | 82             |
| DH452059  | 5.9            |            | .2323   | 6              | 44           | 82             |
| DH452015F | 5.953          | 15/64      | .2344   | 6              | 44           | 82             |
| DH452060  | 6.0            |            | .2362   | 6              | 44           | 82             |
| DH452061  | 6.1            |            | .2402   | 8              | 53           | 91             |
| DH452062  | 6.2            |            | .2441   | 8              | 53           | 91             |
| DH452063  | 6.3            |            | .2480   | 8              | 53           | 91             |
| DH452016F | 6.350          | 1/4        | .2500   | 8              | 53           | 91             |
| DH452064  | 6.4            |            | .2520   | 8              | 53           | 91             |
| DH452065  | 6.5            |            | .2559   | 8              | 53           | 91             |
| DH452006L | 6.528          | F          | .2570   | 8              | 53           | 91             |
| DH452066  | 6.6            |            | .2598   | 8              | 53           | 91             |
| DH452067  | 6.7            |            | .2638   | 8              | 53           | 91             |
| DH452017F | 6.747          | 17/64      | .2656   | 8              | 53           | 91             |
| DH452068  | 6.8            |            | .2677   | 8              | 53           | 91             |
| DH452069  | 6.9            |            | .2717   | 8              | 53           | 91             |
| DH452009L | 6.909          | I          | .2720   | 8              | 53           | 91             |
| DH452070  | 7.0            |            | .2756   | 8              | 53           | 91             |
| DH452071  | 7.1            |            | .2795   | 8              | 53           | 91             |

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAIN     | D1             |            |         | D2             | L1           | L2             |
| DH452018F | 7.144          | 9/32       | .2812   | 8              | 53           | 91             |
| DH452072  | 7.2            |            | .2835   | 8              | 53           | 91             |
| DH452073  | 7.3            |            | .2874   | 8              | 53           | 91             |
| DH452074  | 7.4            |            | .2913   | 8              | 53           | 91             |
| DH452075  | 7.5            |            | .2953   | 8              | 53           | 91             |
| DH452019F | 7.541          | 19/64      | .2969   | 8              | 53           | 91             |
| DH452076  | 7.6            |            | .2992   | 8              | 53           | 91             |
| DH452077  | 7.7            |            | .3031   | 8              | 53           | 91             |
| DH452078  | 7.8            |            | .3071   | 8              | 53           | 91             |
| DH452079  | 7.9            |            | .3110   | 8              | 53           | 91             |
| DH452020F | 7.938          | 5/16       | .3125   | 8              | 53           | 91             |
| DH452080  | 8.0            |            | .3150   | 8              | 53           | 91             |
| DH452081  | 8.1            |            | .3189   | 10             | 61           | 103            |
| DH452082  | 8.2            |            | .3228   | 10             | 61           | 103            |
| DH452083  | 8.3            |            | .3268   | 10             | 61           | 103            |
| DH452021F | 8.334          | 21/64      | .3281   | 10             | 61           | 103            |
| DH452084  | 8.4            |            | .3307   | 10             | 61           | 103            |
| DH452017L | 8.433          | Q          | .3320   | 10             | 61           | 103            |
| DH452085  | 8.5            |            | .3346   | 10             | 61           | 103            |
| DH452086  | 8.6            |            | .3386   | 10             | 61           | 103            |
| DH452087  | 8.7            |            | .3425   | 10             | 61           | 103            |
| DH452022F | 8.731          | 11/32      | .3438   | 10             | 61           | 103            |
| DH452088  | 8.8            |            | .3465   | 10             | 61           | 103            |
| DH452089  | 8.9            |            | .3504   | 10             | 61           | 103            |
| DH452090  | 9.0            |            | .3543   | 10             | 61           | 103            |
| DH452091  | 9.1            |            | .3583   | 10             | 61           | 103            |

► Other shank types are available on your request.

► NEXT PAGE

◎ : Excellent ○ : Good

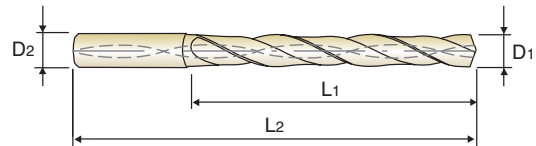
| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ○                  |                 |        | ◎                |           | ○        |        |        |      | ○        |

# TiAlN-COATED SOLID CARBIDE DREAM DRILLS INOX with Coolant Holes (5XD)

LONG

DH452 SERIES

- ▶ Special flute shape and geometry suitable for machining stainless steel
- ▶ Excellent chip evacuation from better surface treatment
- ▶ Point R-thinning achieves superior centering and chip curling
- ▶ TiAlN coating for better surface finishes and longer tool life



5 × D

Unit : mm

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAlN     | D1             |            |         | D2             | L1           | L2             |
| DH452023F | 9.128          | 23/64      | .3594   | 10             | 61           | 103            |
| DH452092  | 9.2            |            | .3622   | 10             | 61           | 103            |
| DH452093  | 9.3            |            | .3661   | 10             | 61           | 103            |
| DH452021L | 9.347          | U          | .3680   | 10             | 61           | 103            |
| DH452094  | 9.4            |            | .3701   | 10             | 61           | 103            |
| DH452095  | 9.5            |            | .3740   | 10             | 61           | 103            |
| DH452024F | 9.525          | 3/8        | .3750   | 10             | 61           | 103            |
| DH452096  | 9.6            |            | .3780   | 10             | 61           | 103            |
| DH452097  | 9.7            |            | .3819   | 10             | 61           | 103            |
| DH452098  | 9.8            |            | .3858   | 10             | 61           | 103            |
| DH452099  | 9.9            |            | .3898   | 10             | 61           | 103            |
| DH452025F | 9.922          | 25/64      | .3906   | 10             | 61           | 103            |
| DH452100  | 10.0           |            | .3937   | 10             | 61           | 103            |
| DH452101  | 10.1           |            | .3976   | 12             | 71           | 118            |
| DH452102  | 10.2           |            | .4016   | 12             | 71           | 118            |
| DH452103  | 10.3           |            | .4055   | 12             | 71           | 118            |
| DH452026F | 10.319         | 13/32      | .4062   | 12             | 71           | 118            |
| DH452104  | 10.4           |            | .4094   | 12             | 71           | 118            |
| DH452105  | 10.5           |            | .4134   | 12             | 71           | 118            |
| DH452106  | 10.6           |            | .4173   | 12             | 71           | 118            |
| DH452107  | 10.7           |            | .4212   | 12             | 71           | 118            |
| DH452027F | 10.716         | 27/64      | .4219   | 12             | 71           | 118            |
| DH452108  | 10.8           |            | .4252   | 12             | 71           | 118            |
| DH452109  | 10.9           |            | .4291   | 12             | 71           | 118            |
| DH452110  | 11.0           |            | .4330   | 12             | 71           | 118            |
| DH452111  | 11.1           |            | .4370   | 12             | 71           | 118            |

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAlN     | D1             |            |         | D2             | L1           | L2             |
| DH452028F | 11.113         | 7/16       | .4375   | 12             | 71           | 118            |
| DH452112  | 11.2           |            | .4409   | 12             | 71           | 118            |
| DH452113  | 11.3           |            | .4448   | 12             | 71           | 118            |
| DH452114  | 11.4           |            | .4488   | 12             | 71           | 118            |
| DH452115  | 11.5           |            | .4527   | 12             | 71           | 118            |
| DH452029F | 11.509         | 29/64      | .4531   | 12             | 71           | 118            |
| DH452116  | 11.6           |            | .4566   | 12             | 71           | 118            |
| DH452117  | 11.7           |            | .4606   | 12             | 71           | 118            |
| DH452118  | 11.8           |            | .4645   | 12             | 71           | 118            |
| DH452119  | 11.9           |            | .4685   | 12             | 71           | 118            |
| DH452030F | 11.906         | 15/32      | .4688   | 12             | 71           | 118            |
| DH452120  | 12.0           |            | .4724   | 12             | 71           | 118            |
| DH452121  | 12.1           |            | .4764   | 14             | 77           | 124            |
| DH452122  | 12.2           |            | .4803   | 14             | 77           | 124            |
| DH452123  | 12.3           |            | .4843   | 14             | 77           | 124            |
| DH452031F | 12.303         | 31/64      | .4844   | 14             | 77           | 124            |
| DH452124  | 12.4           |            | .4882   | 14             | 77           | 124            |
| DH452125  | 12.5           |            | .4921   | 14             | 77           | 124            |
| DH452126  | 12.6           |            | .4961   | 14             | 77           | 124            |
| DH452032F | 12.7           | 1/2        | .5000   | 14             | 77           | 124            |
| DH452128  | 12.8           |            | .5039   | 14             | 77           | 124            |
| DH452129  | 12.9           |            | .5079   | 14             | 77           | 124            |
| DH452130  | 13.0           |            | .5118   | 14             | 77           | 124            |
| DH452131  | 13.1           |            | .5157   | 14             | 77           | 124            |
| DH452132  | 13.2           |            | .5197   | 14             | 77           | 124            |
| DH452133  | 13.3           |            | .5236   | 14             | 77           | 124            |

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ○                  |                 |        | ◎                |           | ○        |        |        |      | ○        |

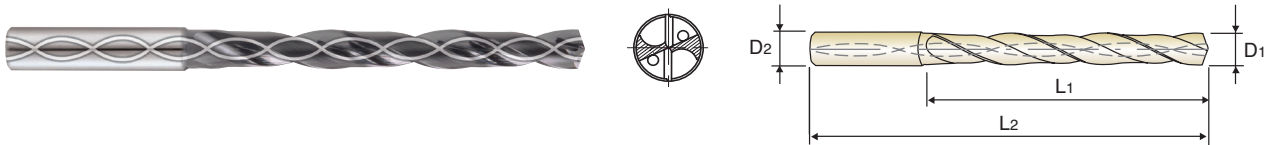


# TiAlN-COATED SOLID CARBIDE DREAM DRILLS INOX with Coolant Holes (5XD)

LONG

DH452 SERIES

- Special flute shape and geometry suitable for machining stainless steel
- Excellent chip evacuation from better surface treatment
- Point R-thinning achieves superior centering and chip curling
- TiAlN coating for better surface finishes and longer tool life



5 × D

Unit : mm

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAlN     | D1             |            |         | D2             | L1           | L2             |
| DH452134  | 13.4           |            | .5276   | 14             | 77           | 124            |
| DH452135  | 13.5           |            | .5314   | 14             | 77           | 124            |
| DH452136  | 13.6           |            | .5354   | 14             | 77           | 124            |
| DH452137  | 13.7           |            | .5394   | 14             | 77           | 124            |
| DH452138  | 13.8           |            | .5433   | 14             | 77           | 124            |
| DH452139  | 13.9           |            | .5472   | 14             | 77           | 124            |
| DH452140  | 14.0           |            | .5512   | 14             | 77           | 124            |
| DH452141  | 14.1           |            | .5551   | 16             | 83           | 133            |
| DH452142  | 14.2           |            | .5591   | 16             | 83           | 133            |
| DH452036F | 14.288         | 9/16       | .5625   | 16             | 83           | 133            |
| DH452143  | 14.3           |            | .5630   | 16             | 83           | 133            |
| DH452144  | 14.4           |            | .5669   | 16             | 83           | 133            |
| DH452145  | 14.5           |            | .5708   | 16             | 83           | 133            |
| DH452146  | 14.6           |            | .5748   | 16             | 83           | 133            |
| DH452147  | 14.7           |            | .5787   | 16             | 83           | 133            |
| DH452148  | 14.8           |            | .5827   | 16             | 83           | 133            |
| DH452149  | 14.9           |            | .5866   | 16             | 83           | 133            |
| DH452150  | 15.0           |            | .5905   | 16             | 83           | 133            |
| DH452151  | 15.1           |            | .5945   | 16             | 83           | 133            |
| DH452152  | 15.2           |            | .5984   | 16             | 83           | 133            |
| DH452153  | 15.3           |            | .6024   | 16             | 83           | 133            |
| DH452154  | 15.4           |            | .6063   | 16             | 83           | 133            |
| DH452155  | 15.5           |            | .6102   | 16             | 83           | 133            |
| DH452156  | 15.6           |            | .6142   | 16             | 83           | 133            |
| DH452157  | 15.7           |            | .6181   | 16             | 83           | 133            |
| DH452158  | 15.8           |            | .6220   | 16             | 83           | 133            |

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAlN     | D1             |            |         | D2             | L1           | L2             |
| DH452040F | 15.875         | 5/8        | .6250   | 16             | 83           | 133            |
| DH452159  | 15.9           |            | .6260   | 16             | 83           | 133            |
| DH452160  | 16.0           |            | .6299   | 16             | 83           | 133            |
| DH452161  | 16.1           |            | .6339   | 18             | 93           | 143            |
| DH452162  | 16.2           |            | .6378   | 18             | 93           | 143            |
| DH452163  | 16.3           |            | .6417   | 18             | 93           | 143            |
| DH452164  | 16.4           |            | .6457   | 18             | 93           | 143            |
| DH452165  | 16.5           |            | .6495   | 18             | 93           | 143            |
| DH452166  | 16.6           |            | .6535   | 18             | 93           | 143            |
| DH452167  | 16.7           |            | .6575   | 18             | 93           | 143            |
| DH452168  | 16.8           |            | .6614   | 18             | 93           | 143            |
| DH452169  | 16.9           |            | .6654   | 18             | 93           | 143            |
| DH452170  | 17.0           |            | .6692   | 18             | 93           | 143            |
| DH452171  | 17.1           |            | .6732   | 18             | 93           | 143            |
| DH452172  | 17.2           |            | .6772   | 18             | 93           | 143            |
| DH452173  | 17.3           |            | .6811   | 18             | 93           | 143            |
| DH452174  | 17.4           |            | .6850   | 18             | 93           | 143            |
| DH452175  | 17.5           |            | .6889   | 18             | 93           | 143            |
| DH452176  | 17.6           |            | .6929   | 18             | 93           | 143            |
| DH452177  | 17.7           |            | .6968   | 18             | 93           | 143            |
| DH452178  | 17.8           |            | .7008   | 18             | 93           | 143            |
| DH452179  | 17.9           |            | .7047   | 18             | 93           | 143            |
| DH452180  | 18.0           |            | .7087   | 18             | 93           | 143            |
| DH452181  | 18.1           |            | .7126   | 20             | 101          | 153            |
| DH452182  | 18.2           |            | .7165   | 20             | 101          | 151            |
| DH452183  | 18.3           |            | .7205   | 20             | 101          | 151            |

► Other shank types are available on your request.

► NEXT PAGE

◎ : Excellent ○ : Good

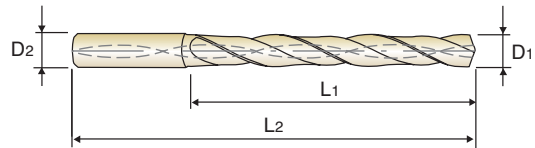
| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ○                  |                 |        | ◎                |           | ○        |        |        |      | ○        |

# TiAlN-COATED SOLID CARBIDE DREAM DRILLS INOX with Coolant Holes (5XD)

LONG

DH452 SERIES

- ▶ Special flute shape and geometry suitable for machining stainless steel
- ▶ Excellent chip evacuation from better surface treatment
- ▶ Point R-thinning achieves superior centering and chip curling
- ▶ TiAlN coating for better surface finishes and longer tool life



P.74

5 × D

Unit : mm

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAlN     | D1             |            |         | D2             | L1           | L2             |
| DH452184  | 18.4           |            | .7244   | 20             | 101          | 153            |
| DH452185  | 18.5           |            | .7283   | 20             | 101          | 153            |
| DH452186  | 18.6           |            | .7323   | 20             | 101          | 151            |
| DH452187  | 18.7           |            | .7362   | 20             | 101          | 153            |
| DH452188  | 18.8           |            | .7402   | 20             | 101          | 153            |
| DH452189  | 18.9           |            | .7441   | 20             | 101          | 153            |
| DH452190  | 19.0           |            | .7480   | 20             | 101          | 153            |
| DH452048F | 19.050         | 3/4        | .7500   | 20             | 101          | 153            |
| DH452191  | 19.1           |            | .7520   | 20             | 101          | 151            |

Unit : mm

| EDP No.  | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|----------|----------------|------------|---------|----------------|--------------|----------------|
|          | Metric         | Fractional | Decimal |                |              |                |
| TiAlN    | D1             |            |         | D2             | L1           | L2             |
| DH452192 | 19.2           |            | .7559   | 20             | 101          | 151            |
| DH452193 | 19.3           |            | .7598   | 20             | 101          | 151            |
| DH452194 | 19.4           |            | .7638   | 20             | 101          | 151            |
| DH452195 | 19.5           |            | .7676   | 20             | 101          | 153            |
| DH452196 | 19.6           |            | .7717   | 20             | 101          | 151            |
| DH452197 | 19.7           |            | .7756   | 20             | 101          | 151            |
| DH452198 | 19.8           |            | .7795   | 20             | 101          | 153            |
| DH452199 | 19.9           |            | .7835   | 20             | 101          | 151            |
| DH452200 | 20.0           |            | .7874   | 20             | 101          | 153            |

▶ Other shank types are available on your request.

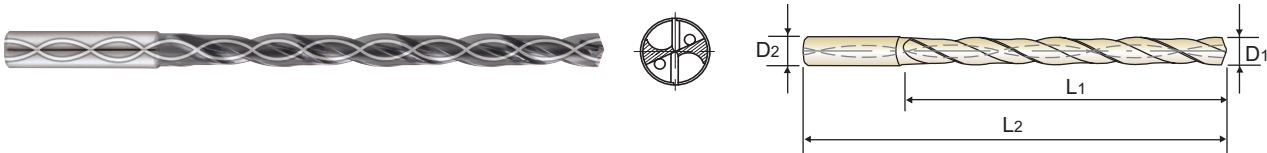
◎ : Excellent ○ : Good

| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRc30~45           | HRc45~55        | HRc55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ○                  |                 |        | ◎                |           | ○        |        |        |      | ○        |

# TiAlN-COATED SOLID CARBIDE DREAM DRILLS INOX with Coolant Holes (8XD)

## EXTRA LONG DH453 SERIES

- Special flute shape and geometry suitable for machining stainless steel
- Excellent chip evacuation from better surface treatment
- Point R-thinning achieves superior centering and chip curling



8 × D

Unit : mm

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAlN     | D1             |            |         | D2             | L1           | L2             |
| DH453030  | 3.0            |            | .1181   | 6              | 34           | 72             |
| DH453031  | 3.1            |            | .1220   | 6              | 34           | 72             |
| DH453008F | 3.175          | 1/8        | .1250   | 6              | 34           | 72             |
| DH453032  | 3.2            |            | .1260   | 6              | 34           | 72             |
| DH453033  | 3.3            |            | .1299   | 6              | 34           | 72             |
| DH453034  | 3.4            |            | .1339   | 6              | 34           | 72             |
| DH453229G | 3.454          | #29        | .1360   | 6              | 34           | 72             |
| DH453035  | 3.5            |            | .1378   | 6              | 34           | 72             |
| DH453009F | 3.572          | 9/64       | .1406   | 6              | 34           | 72             |
| DH453036  | 3.6            |            | .1417   | 6              | 34           | 72             |
| DH453037  | 3.7            |            | .1457   | 6              | 34           | 72             |
| DH453038  | 3.8            |            | .1496   | 6              | 43           | 81             |
| DH453039  | 3.9            |            | .1535   | 6              | 43           | 81             |
| DH453010F | 3.969          | 5/32       | .1563   | 6              | 43           | 81             |
| DH453040  | 4.0            |            | .1575   | 6              | 43           | 81             |
| DH453221G | 4.038          | #21        | .1590   | 6              | 43           | 81             |
| DH453041  | 4.1            |            | .1614   | 6              | 43           | 81             |
| DH453042  | 4.2            |            | .1654   | 6              | 43           | 81             |
| DH453043  | 4.3            |            | .1693   | 6              | 43           | 81             |
| DH453011F | 4.366          | 11/64      | .1719   | 6              | 43           | 81             |
| DH453044  | 4.4            |            | .1732   | 6              | 43           | 81             |
| DH453045  | 4.5            |            | .1772   | 6              | 43           | 81             |
| DH453046  | 4.6            |            | .1811   | 6              | 43           | 81             |
| DH453047  | 4.7            |            | .1850   | 6              | 43           | 81             |
| DH453012F | 4.763          | 3/16       | .1875   | 6              | 57           | 95             |
| DH453048  | 4.8            |            | .1890   | 6              | 57           | 95             |

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAlN     | D1             |            |         | D2             | L1           | L2             |
| DH453049  | 4.9            |            | .1929   | 6              | 57           | 95             |
| DH453050  | 5.0            |            | .1969   | 6              | 57           | 95             |
| DH453051  | 5.1            |            | .2008   | 6              | 57           | 95             |
| DH453013F | 5.159          | 13/64      | .2031   | 6              | 57           | 95             |
| DH453052  | 5.2            |            | .2047   | 6              | 57           | 95             |
| DH453053  | 5.3            |            | .2087   | 6              | 57           | 95             |
| DH453054  | 5.4            |            | .2126   | 6              | 57           | 95             |
| DH453055  | 5.5            |            | .2165   | 6              | 57           | 95             |
| DH453014F | 5.556          | 7/32       | .2188   | 6              | 57           | 95             |
| DH453056  | 5.6            |            | .2205   | 6              | 57           | 95             |
| DH453057  | 5.7            |            | .2244   | 6              | 57           | 95             |
| DH453058  | 5.8            |            | .2283   | 6              | 57           | 95             |
| DH453059  | 5.9            |            | .2323   | 6              | 57           | 95             |
| DH453015F | 5.953          | 15/64      | .2344   | 6              | 57           | 95             |
| DH453060  | 6.0            |            | .2362   | 6              | 57           | 95             |
| DH453061  | 6.1            |            | .2402   | 8              | 76           | 114            |
| DH453062  | 6.2            |            | .2441   | 8              | 76           | 114            |
| DH453063  | 6.3            |            | .2480   | 8              | 76           | 114            |
| DH453016F | 6.350          | 1/4        | .2500   | 8              | 76           | 114            |
| DH453064  | 6.4            |            | .2520   | 8              | 76           | 114            |
| DH453065  | 6.5            |            | .2559   | 8              | 76           | 114            |
| DH453106L | 6.527          | F          | .2570   | 8              | 76           | 114            |
| DH453066  | 6.6            |            | .2598   | 8              | 76           | 114            |
| DH453067  | 6.7            |            | .2638   | 8              | 76           | 114            |
| DH453017F | 6.747          | 17/64      | .2656   | 8              | 76           | 114            |
| DH453068  | 6.8            |            | .2677   | 8              | 76           | 114            |

► Other shank types are available on your request.

► NEXT PAGE

◎ : Excellent ○ : Good

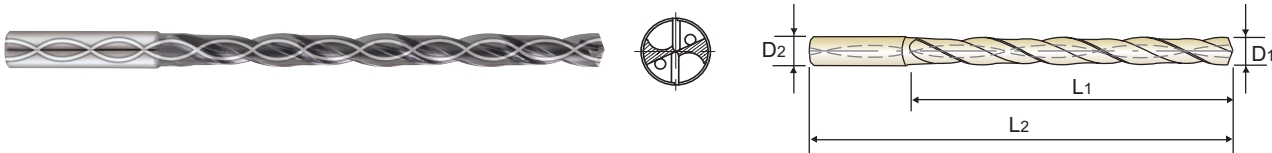
| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ○                  |                 |        | ◎                |           | ○        |        |        |      | ○        |

# TiAIN-COATED SOLID CARBIDE DREAM DRILLS INOX with Coolant Holes (8XD)

EXTRA LONG

DH453 SERIES

- ▶ Special flute shape and geometry suitable for machining stainless steel
- ▶ Excellent chip evacuation from better surface treatment
- ▶ Point R-thinning achieves superior centering and chip curling
- ▶ TiAIN coating for better surface finishes and longer tool life



8 × D

Unit : mm

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAIN     | D1             |            |         | D2             | L1           | L2             |
| DH453069  | 6.9            |            | .2717   | 8              | 76           | 114            |
| DH453009L | 6.909          | I          | .2720   | 8              | 76           | 114            |
| DH453070  | 7.0            |            | .2756   | 8              | 76           | 114            |
| DH453071  | 7.1            |            | .2795   | 8              | 76           | 114            |
| DH453018F | 7.144          | 9/32       | .2813   | 8              | 76           | 114            |
| DH453072  | 7.2            |            | .2835   | 8              | 76           | 114            |
| DH453073  | 7.3            |            | .2874   | 8              | 76           | 114            |
| DH453074  | 7.4            |            | .2913   | 8              | 76           | 114            |
| DH453075  | 7.5            |            | .2953   | 8              | 76           | 114            |
| DH453019F | 7.541          | 19/64      | .2969   | 8              | 76           | 114            |
| DH453076  | 7.6            |            | .2992   | 8              | 76           | 114            |
| DH453077  | 7.7            |            | .3031   | 8              | 76           | 114            |
| DH453078  | 7.8            |            | .3071   | 8              | 76           | 114            |
| DH453079  | 7.9            |            | .3110   | 8              | 76           | 114            |
| DH453020F | 7.938          | 5/16       | .3125   | 8              | 76           | 114            |
| DH453080  | 8.0            |            | .3150   | 8              | 76           | 114            |
| DH453081  | 8.1            |            | .3189   | 10             | 95           | 142            |
| DH453082  | 8.2            |            | .3228   | 10             | 95           | 142            |
| DH453083  | 8.3            |            | .3268   | 10             | 95           | 142            |
| DH453021F | 8.334          | 21/64      | .3281   | 10             | 95           | 142            |
| DH453084  | 8.4            |            | .3307   | 10             | 95           | 142            |
| DH453117L | 8.432          | Q          | .3320   | 10             | 95           | 142            |
| DH453085  | 8.5            |            | .3346   | 10             | 95           | 142            |
| DH453086  | 8.6            |            | .3386   | 10             | 95           | 142            |
| DH453087  | 8.7            |            | .3425   | 10             | 95           | 142            |
| DH453022F | 8.731          | 11/32      | .3438   | 10             | 95           | 142            |

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAIN     | D1             |            |         | D2             | L1           | L2             |
| DH453088  | 8.8            |            | .3465   | 10             | 95           | 142            |
| DH453089  | 8.9            |            | .3504   | 10             | 95           | 142            |
| DH453090  | 9.0            |            | .3543   | 10             | 95           | 142            |
| DH453091  | 9.1            |            | .3583   | 10             | 95           | 142            |
| DH453023F | 9.128          | 23/64      | .3594   | 10             | 95           | 142            |
| DH453092  | 9.2            |            | .3622   | 10             | 95           | 142            |
| DH453093  | 9.3            |            | .3661   | 10             | 95           | 142            |
| DH453121L | 9.347          | U          | .3680   | 10             | 95           | 142            |
| DH453094  | 9.4            |            | .3701   | 10             | 95           | 142            |
| DH453095  | 9.5            |            | .3740   | 10             | 95           | 142            |
| DH453024F | 9.525          | 3/8        | .3750   | 10             | 95           | 142            |
| DH453096  | 9.6            |            | .3780   | 10             | 95           | 142            |
| DH453097  | 9.7            |            | .3819   | 10             | 95           | 142            |
| DH453098  | 9.8            |            | .3858   | 10             | 95           | 142            |
| DH453099  | 9.9            |            | .3898   | 10             | 95           | 142            |
| DH453025F | 9.922          | 25/64      | .3906   | 10             | 95           | 142            |
| DH453100  | 10.0           |            | .3937   | 10             | 95           | 142            |
| DH453101  | 10.1           |            | .3976   | 12             | 114          | 162            |
| DH453102  | 10.2           |            | .4016   | 12             | 114          | 162            |
| DH453103  | 10.3           |            | .4055   | 12             | 114          | 162            |
| DH453026F | 10.319         | 13/32      | .4063   | 12             | 114          | 162            |
| DH453104  | 10.4           |            | .4094   | 12             | 114          | 162            |
| DH453105  | 10.5           |            | .4134   | 12             | 114          | 162            |
| DH453106  | 10.6           |            | .4173   | 12             | 114          | 162            |
| DH453107  | 10.7           |            | .4212   | 12             | 114          | 162            |
| DH453027F | 10.716         | 27/64      | .4219   | 12             | 114          | 162            |

▶ Other shank types are available on your request.

▶ NEXT PAGE

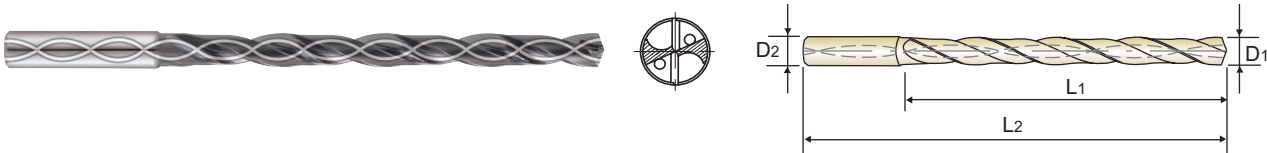
◎ : Excellent ○ : Good

| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ○                  |                 |        | ◎                |           | ○        |        |        |      | ○        |

# TiAlN-COATED SOLID CARBIDE DREAM DRILLS INOX with Coolant Holes (8XD)

## EXTRA LONG DH453 SERIES

- Special flute shape and geometry suitable for machining stainless steel
- Excellent chip evacuation from better surface treatment
- Point R-thinning achieves superior centering and chip curling
- TiAlN coating for better surface finishes and longer tool life



8 × D

Unit : mm

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAlN     | D1             |            |         | D2             | L1           | L2             |
| DH453108  | 10.8           |            | .4252   | 12             | 114          | 162            |
| DH453109  | 10.9           |            | .4291   | 12             | 114          | 162            |
| DH453110  | 11.0           |            | .4330   | 12             | 114          | 162            |
| DH453111  | 11.1           |            | .4370   | 12             | 114          | 162            |
| DH453028F | 11.113         | 7/16       | .4375   | 12             | 114          | 162            |
| DH453112  | 11.2           |            | .4409   | 12             | 114          | 162            |
| DH453113  | 11.3           |            | .4448   | 12             | 114          | 162            |
| DH453114  | 11.4           |            | .4488   | 12             | 114          | 162            |
| DH453115  | 11.5           |            | .4527   | 12             | 114          | 162            |
| DH453029F | 11.509         | 29/64      | .4531   | 12             | 114          | 162            |
| DH453116  | 11.6           |            | .4566   | 12             | 114          | 162            |
| DH453117  | 11.7           |            | .4606   | 12             | 114          | 162            |
| DH453118  | 11.8           |            | .4645   | 12             | 114          | 162            |
| DH453119  | 11.9           |            | .4685   | 12             | 114          | 162            |
| DH453030F | 11.906         | 15/32      | .4688   | 12             | 114          | 162            |
| DH453120  | 12.0           |            | .4724   | 12             | 114          | 162            |
| DH453121  | 12.1           |            | .4764   | 14             | 133          | 178            |
| DH453122  | 12.2           |            | .4803   | 14             | 133          | 178            |
| DH453123  | 12.3           |            | .4843   | 14             | 133          | 178            |
| DH453031F | 12.303         | 31/64      | .4844   | 14             | 133          | 178            |
| DH453124  | 12.4           |            | .4882   | 14             | 133          | 178            |
| DH453125  | 12.5           |            | .4921   | 14             | 133          | 178            |
| DH453126  | 12.6           |            | .4961   | 14             | 133          | 178            |
| DH453032F | 12.7           | 1/2        | .5000   | 14             | 133          | 178            |
| DH453128  | 12.8           |            | .5039   | 14             | 133          | 178            |
| DH453129  | 12.9           |            | .5079   | 14             | 133          | 178            |

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAlN     | D1             |            |         | D2             | L1           | L2             |
| DH453130  | 13.0           |            | .5118   | 14             | 133          | 178            |
| DH453033F | 13.097         | 33/64      | .5156   | 14             | 133          | 178            |
| DH453131  | 13.1           |            | .5157   | 14             | 133          | 178            |
| DH453132  | 13.2           |            | .5197   | 14             | 133          | 178            |
| DH453133  | 13.3           |            | .5236   | 14             | 133          | 178            |
| DH453134  | 13.4           |            | .5276   | 14             | 133          | 178            |
| DH453135  | 13.5           |            | .5314   | 14             | 133          | 178            |
| DH453136  | 13.6           |            | .5354   | 14             | 133          | 178            |
| DH453137  | 13.7           |            | .5394   | 14             | 133          | 178            |
| DH453138  | 13.8           |            | .5433   | 14             | 133          | 178            |
| DH453139  | 13.9           |            | .5472   | 14             | 133          | 178            |
| DH453140  | 14.0           |            | .5512   | 14             | 133          | 178            |
| DH453141  | 14.1           |            | .5551   | 16             | 152          | 203            |
| DH453142  | 14.2           |            | .5591   | 16             | 152          | 203            |
| DH453036F | 14.288         | 9/16       | .5625   | 16             | 152          | 203            |
| DH453143  | 14.3           |            | .5630   | 16             | 152          | 203            |
| DH453144  | 14.4           |            | .5669   | 16             | 152          | 203            |
| DH453145  | 14.5           |            | .5709   | 16             | 152          | 203            |
| DH453146  | 14.6           |            | .5748   | 16             | 152          | 203            |
| DH453147  | 14.7           |            | .5787   | 16             | 152          | 203            |
| DH453148  | 14.8           |            | .5827   | 16             | 152          | 203            |
| DH453149  | 14.9           |            | .5866   | 16             | 152          | 203            |
| DH453150  | 15.0           |            | .5905   | 16             | 152          | 203            |
| DH453151  | 15.1           |            | .5945   | 16             | 152          | 203            |
| DH453152  | 15.2           |            | .5984   | 16             | 152          | 203            |
| DH453153  | 15.3           |            | .6024   | 16             | 152          | 203            |

► Other shank types are available on your request.

► NEXT PAGE

◎ : Excellent ○ : Good

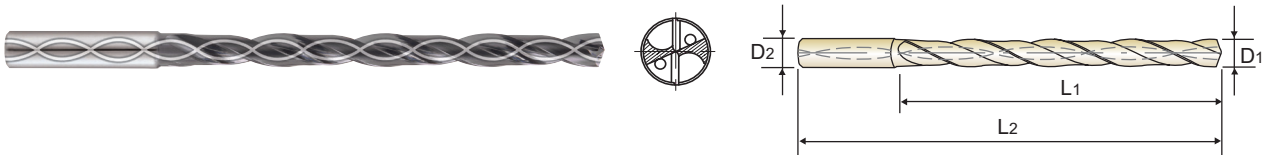
| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ○                  |                 |        | ◎                |           | ○        |        |        |      | ○        |

# TiAIN-COATED SOLID CARBIDE DREAM DRILLS INOX with Coolant Holes (8XD)

EXTRA LONG

DH453 SERIES

- ▶ Special flute shape and geometry suitable for machining stainless steel
- ▶ Excellent chip evacuation from better surface treatment
- ▶ Point R-thinning achieves superior centering and chip curling
- ▶ TiAIN coating for better surface finishes and longer tool life



8 × D

Unit : mm

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAIN     | D1             |            |         | D2             | L1           | L2             |
| DH453154  | 15.4           |            | .6063   | 16             | 152          | 203            |
| DH453155  | 15.5           |            | .6102   | 16             | 152          | 203            |
| DH453156  | 15.6           |            | .6142   | 16             | 152          | 203            |
| DH453157  | 15.7           |            | .6181   | 16             | 152          | 203            |
| DH453158  | 15.8           |            | .6220   | 16             | 152          | 203            |
| DH453040F | 15.875         | 5/8        | .6250   | 16             | 152          | 203            |
| DH453159  | 15.9           |            | .6260   | 16             | 152          | 203            |
| DH453160  | 16.0           |            | .6299   | 16             | 152          | 203            |
| DH453161  | 16.1           |            | .6339   | 18             | 171          | 222            |
| DH453162  | 16.2           |            | .6378   | 18             | 171          | 222            |
| DH453163  | 16.3           |            | .6417   | 18             | 171          | 222            |
| DH453164  | 16.4           |            | .6457   | 18             | 171          | 222            |
| DH453165  | 16.5           |            | .6496   | 18             | 171          | 222            |
| DH453166  | 16.6           |            | .6535   | 18             | 171          | 222            |
| DH453167  | 16.7           |            | .6575   | 18             | 171          | 222            |
| DH453168  | 16.8           |            | .6614   | 18             | 171          | 222            |
| DH453169  | 16.9           |            | .6654   | 18             | 171          | 222            |
| DH453170  | 17.0           |            | .6693   | 18             | 171          | 222            |
| DH453171  | 17.1           |            | .6732   | 18             | 171          | 222            |
| DH453172  | 17.2           |            | .6772   | 18             | 171          | 222            |
| DH453173  | 17.3           |            | .6811   | 18             | 171          | 222            |
| DH453174  | 17.4           |            | .6850   | 18             | 171          | 222            |
| DH453175  | 17.5           |            | .6890   | 18             | 171          | 222            |
| DH453176  | 17.6           |            | .6929   | 18             | 171          | 222            |
| DH453177  | 17.7           |            | .6968   | 18             | 171          | 222            |

| EDP No.   | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------------|---------|----------------|--------------|----------------|
|           | Metric         | Fractional | Decimal |                |              |                |
| TiAIN     | D1             |            |         | D2             | L1           | L2             |
| DH453178  | 17.8           |            | .7008   | 18             | 171          | 222            |
| DH453179  | 17.9           |            | .7047   | 18             | 171          | 222            |
| DH453180  | 18.0           |            | .7087   | 18             | 171          | 222            |
| DH453181  | 18.1           |            | .7126   | 20             | 190          | 243            |
| DH453182  | 18.2           |            | .7165   | 20             | 190          | 243            |
| DH453183  | 18.3           |            | .7205   | 20             | 190          | 243            |
| DH453184  | 18.4           |            | .7244   | 20             | 190          | 243            |
| DH453185  | 18.5           |            | .7283   | 20             | 190          | 243            |
| DH453186  | 18.6           |            | .7323   | 20             | 190          | 243            |
| DH453187  | 18.7           |            | .7362   | 20             | 190          | 243            |
| DH453188  | 18.8           |            | .7402   | 20             | 190          | 243            |
| DH453189  | 18.9           |            | .7441   | 20             | 190          | 243            |
| DH453190  | 19.0           |            | .7480   | 20             | 190          | 243            |
| DH453048F | 19.050         | 3/4        | .7500   | 20             | 190          | 243            |
| DH453191  | 19.1           |            | .7520   | 20             | 190          | 243            |
| DH453192  | 19.2           |            | .7559   | 20             | 190          | 243            |
| DH453193  | 19.3           |            | .7598   | 20             | 190          | 243            |
| DH453194  | 19.4           |            | .7638   | 20             | 190          | 243            |
| DH453195  | 19.5           |            | .7677   | 20             | 190          | 243            |
| DH453196  | 19.6           |            | .7717   | 20             | 190          | 243            |
| DH453197  | 19.7           |            | .7756   | 20             | 190          | 243            |
| DH453198  | 19.8           |            | .7795   | 20             | 190          | 243            |
| DH453199  | 19.9           |            | .7835   | 20             | 190          | 243            |
| DH453200  | 20.0           |            | .7874   | 20             | 190          | 243            |

▶ Other shank types are available on your request.

◎ : Excellent ○ : Good

| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ○                  |                 |        | ◎                |           | ○        |        |        |      | ○        |



# TiAlN-COATED SOLID CARBIDE DREAM DRILLS INOX with Coolant Holes

## DH451 | DH463 | DH714 | DH452 | DH464 | DH715 | DH453 SERIES

| WORK MATERIAL       |         |            | P                             |      |      | M                       |      |      |                         |      |      | N                |      |      |
|---------------------|---------|------------|-------------------------------|------|------|-------------------------|------|------|-------------------------|------|------|------------------|------|------|
|                     |         |            | CARBON STEELS<br>ALLOY STEELS |      |      | STAINLESS<br>STEELS     |      |      | STAINLESS<br>STEELS     |      |      | ALUMINUM         |      |      |
| STRENGTH            |         |            |                               |      |      | < 800 N/mm <sup>2</sup> |      |      | > 800 N/mm <sup>2</sup> |      |      | < 10% Si         |      |      |
| DRILLING SPEED(SFM) |         |            | 260 ~ 410 ft/min              |      |      | 120 ~ 230 ft/min        |      |      | 60 ~ 140 ft/min         |      |      | 490 ~ 720 ft/min |      |      |
| DIAMETER            |         |            | RPM                           | FEED | IPR  | RPM                     | FEED | IPR  | RPM                     | FEED | IPR  | RPM              | FEED | IPR  |
| Metric(mm)          | Decimal | Fractional |                               |      |      |                         |      |      |                         |      |      |                  |      |      |
| 1.0                 | .0394   |            | 26000                         | 0.02 | .001 | 12000                   | 0.02 | .001 | 6200                    | 0.02 | .001 | 48000            | 0.04 | .002 |
| 1.5                 | .0591   |            | 18000                         | 0.03 | .001 | 9000                    | 0.03 | .001 | 5400                    | 0.02 | .001 | 43000            | 0.05 | .002 |
| 2.5                 | .0984   |            | 10800                         | 0.05 | .002 | 7000                    | 0.04 | .002 | 4200                    | 0.03 | .001 | 25500            | 0.08 | .003 |
| 3.0                 | .1181   | 1/8        | 13000                         | 0.04 | .002 | 7400                    | 0.04 | .002 | 4700                    | 0.02 | .001 | 23000            | 0.12 | .005 |
| 4.0                 | .1575   | 5/32       | 10000                         | 0.05 | .002 | 5600                    | 0.05 | .002 | 3600                    | 0.03 | .001 | 17500            | 0.18 | .007 |
| 5.0                 | .1969   | 13/64      | 8000                          | 0.05 | .002 | 4400                    | 0.05 | .002 | 2800                    | 0.03 | .001 | 14000            | 0.20 | .008 |
| 6.0                 | .2362   | 15/64      | 6600                          | 0.06 | .002 | 3700                    | 0.06 | .002 | 2400                    | 0.04 | .002 | 11700            | 0.25 | .010 |
| 8.0                 | .3150   | 5/16       | 5000                          | 0.08 | .003 | 2800                    | 0.08 | .003 | 1800                    | 0.06 | .002 | 8800             | 0.30 | .012 |
| 10.0                | .3937   | 25/64      | 4000                          | 0.10 | .004 | 2200                    | 0.10 | .004 | 1400                    | 0.08 | .003 | 7000             | 0.40 | .016 |
| 12.0                | .4724   | 15/32      | 3300                          | 0.12 | .005 | 1900                    | 0.12 | .005 | 1200                    | 0.10 | .004 | 5800             | 0.50 | .020 |
| 14.0                | .5512   | 35/64      | 2800                          | 0.15 | .006 | 1600                    | 0.15 | .006 | 1000                    | 0.12 | .005 | 5000             | 0.60 | .024 |
| 16.0                | .6299   | 5/8        | 2500                          | 0.20 | .008 | 1400                    | 0.20 | .008 | 900                     | 0.15 | .006 | 4380             | 0.80 | .031 |
| 18.0                | .7087   | 45/64      | 2200                          | 0.22 | .009 | 1250                    | 0.22 | .009 | 800                     | 0.17 | .007 | 3900             | 1.00 | .039 |
| 20.0                | .7874   | 25/32      | 2000                          | 0.24 | .009 | 1120                    | 0.24 | .009 | 720                     | 0.19 | .007 | 3500             | 1.20 | .047 |

| WORK MATERIAL       |         |            | N                |      |      |                  |      |      | S                           |      |       |
|---------------------|---------|------------|------------------|------|------|------------------|------|------|-----------------------------|------|-------|
|                     |         |            | ALUMINUM         |      |      | NON FERROUS      |      |      | TITANIUM<br>TITANIUM ALLOYS |      |       |
| STRENGTH            |         |            | < 10% Si         |      |      |                  |      |      |                             |      |       |
| DRILLING SPEED(SFM) |         |            | 390 ~ 570 ft/min |      |      | 390 ~ 490 ft/min |      |      | 80 ~ 160 ft/min             |      |       |
| DIAMETER            |         |            | RPM              | FEED | IPR  | RPM              | FEED | IPR  | RPM                         | FEED | IPR   |
| Metric(mm)          | Decimal | Fractional |                  |      |      |                  |      |      |                             |      |       |
| 1.0                 | .0394   |            | 38000            | 0.03 | .001 | 38000            | 0.02 | .001 | 8100                        | 0.01 | .0004 |
| 1.5                 | .0591   |            | 32000            | 0.04 | .002 | 25500            | 0.03 | .001 | 7500                        | 0.01 | .0004 |
| 2.5                 | .0984   |            | 19500            | 0.06 | .002 | 15500            | 0.05 | .002 | 4500                        | 0.02 | .001  |
| 3.0                 | .1181   | 1/8        | 18500            | 0.10 | .004 | 16000            | 0.08 | .003 | 5300                        | 0.03 | .001  |
| 4.0                 | .1575   | 5/32       | 13900            | 0.15 | .006 | 11900            | 0.10 | .004 | 4000                        | 0.04 | .002  |
| 5.0                 | .1969   | 13/64      | 11000            | 0.18 | .007 | 9500             | 0.12 | .005 | 3200                        | 0.05 | .002  |
| 6.0                 | .2362   | 15/64      | 9300             | 0.25 | .010 | 8000             | 0.15 | .006 | 2650                        | 0.06 | .002  |
| 8.0                 | .3150   | 5/16       | 7000             | 0.30 | .012 | 6000             | 0.18 | .007 | 2000                        | 0.07 | .003  |
| 10.0                | .3937   | 25/64      | 5600             | 0.35 | .014 | 4800             | 0.22 | .009 | 1600                        | 0.08 | .003  |
| 12.0                | .4724   | 15/32      | 4600             | 0.40 | .016 | 4000             | 0.26 | .010 | 1300                        | 0.10 | .004  |
| 14.0                | .5512   | 35/64      | 4000             | 0.50 | .020 | 3400             | 0.30 | .012 | 1100                        | 0.12 | .005  |
| 16.0                | .6299   | 5/8        | 3500             | 0.60 | .024 | 3000             | 0.40 | .016 | 1000                        | 0.14 | .006  |
| 18.0                | .7087   | 45/64      | 3100             | 0.70 | .028 | 2650             | 0.45 | .018 | 900                         | 0.16 | .006  |
| 20.0                | .7874   | 25/32      | 2800             | 0.80 | .031 | 2400             | 0.50 | .020 | 800                         | 0.18 | .007  |

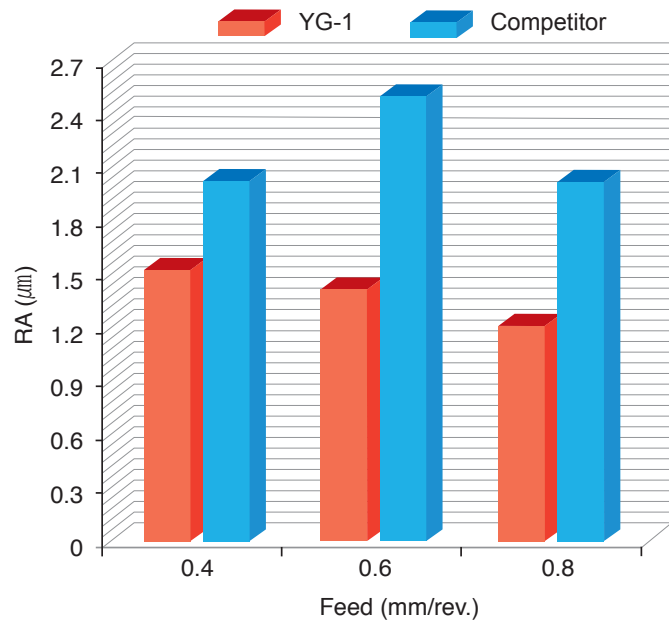
- Recommend to reduce the feed rate as following  
DH463/DH714/DH451(3xD), DH464/DH714/DH452(5xD) : Feed 100%  
DH453(8xD) : Feed 85%

RPM = rev./min.  
FEED = mm/rev.  
IPR = inch/rev

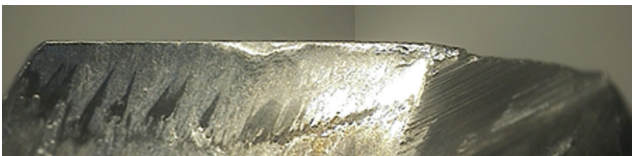
## CASE STUDY

### ► SOLID CARBIDE DREAM DRILLS - ALU with Coolant Holes

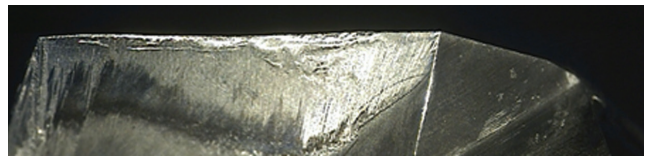
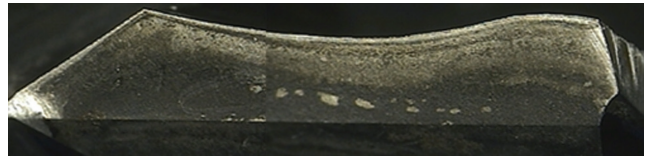
| CUTTING CONDITION |                                                                                                                  |
|-------------------|------------------------------------------------------------------------------------------------------------------|
| Tool              | D5433100<br>(Dream Drills-Alu)                                                                                   |
| Size              | Ø10.0×Ø10×61×103                                                                                                 |
| Work Material     | <ul style="list-style-type: none"> <li>• AISI : 6061</li> <li>• JIS : A6061</li> <li>• DIN : AlMgSiCu</li> </ul> |
| RPM               | 6,367 rev./min.                                                                                                  |
| Feed              | .0157 ~ .0315 inch/rev.                                                                                          |
| SFM               | 656 ft/min.                                                                                                      |
| Drilling Depth    | 1.77"                                                                                                            |
| Coolant           | Wet cut                                                                                                          |



### ► YG-1 (Total Drilling 820 Holes)



### ► Competitor (Total Drilling 820 Holes)



# DLC-COATED SOLID CARBIDE DREAM DRILLS

## ALU with Coolant Holes (5XD)

**DGE466 SERIES**
**DGE718 SERIES**

- ▶ Optimized thinning for Aluminum & Aluminum Alloys to prevent any clogging from chip welding
- ▶ Wider and deeper flute gullets for maximum chip removal
- ▶ Special geometry and smooth coating reduces built up edge and improves finishes
- ▶ Tolerance : Dia. Tolerance  $\varnothing D1$  : See page 104  
Shank Tolerance  $\varnothing D2$ : -.0001 -.0005


**5 × D**


Unit : inch

| EDP No.   | Drill Diameter |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|---------|----------------|--------------|----------------|
|           | Fractional     | Decimal |                |              |                |
| DLC       | D1             |         | D2             | L1           | L2             |
| DGE466013 | 13/64          | .2031   | 15/64          | 1-3/4        | 3-15/16        |
| DGE718013 | 13/64          | .2031   | 1/4            | 1-3/4        | 3-15/16        |
| DGE466014 | 7/32           | .2188   | 15/64          | 1-57/64      | 3-15/16        |
| DGE718014 | 7/32           | .2188   | 1/4            | 1-57/64      | 3-15/16        |
| DGE466015 | 15/64          | .2344   | 15/64          | 1-57/64      | 3-15/16        |
| DGE718015 | 15/64          | .2344   | 1/4            | 1-57/64      | 3-15/16        |
| DGE718016 | 1/4            | .2500   | 1/4            | 2-3/64       | 4-19/64        |
| DGE466016 | 1/4            | .2500   | 17/64          | 2-3/64       | 4-19/64        |
| DGE466206 | F              | .2570   | 17/64          | 2-13/64      | 4-19/64        |
| DGE718206 | F              | .2570   | 5/16           | 2-13/64      | 4-19/64        |
| DGE466017 | 17/64          | .2656   | 17/64          | 2-13/64      | 4-19/64        |
| DGE718017 | 17/64          | .2656   | 5/16           | 2-13/64      | 4-19/64        |
| DGE466209 | I              | .2720   | .272           | 2-13/64      | 4-19/64        |
| DGE718209 | I              | .2720   | 5/16           | 2-13/64      | 4-19/64        |
| DGE466018 | 9/32           | .2812   | 5/16           | 2-23/64      | 4-41/64        |
| DGE466019 | 19/64          | .2969   | 5/16           | 2-33/64      | 4-41/64        |
| DGE466020 | 5/16           | .3125   | 5/16           | 2-33/64      | 4-41/64        |
| DGE466021 | 21/64          | .3281   | 11/32          | 2-43/64      | 5              |
| DGE718021 | 21/64          | .3281   | 3/8            | 2-43/64      | 5              |
| DGE466217 | Q              | .3320   | 11/32          | 2-43/64      | 5              |
| DGE718217 | Q              | .3320   | 3/8            | 2-43/64      | 5              |
| DGE466022 | 11/32          | .3438   | 11/32          | 2-27/32      | 5              |

▶ Other shank types are available on your request.

| EDP No.   | Drill Diameter |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|---------|----------------|--------------|----------------|
|           | Fractional     | Decimal |                |              |                |
| DLC       | D1             |         | D2             | L1           | L2             |
| DGE718022 | 11/32          | .3438   | 3/8            | 2-27/32      | 5              |
| DGE718023 | 23/64          | .3594   | 3/8            | 3            | 5-23/64        |
| DGE466023 | 23/64          | .3594   | 25/64          | 3            | 5-23/64        |
| DGE718221 | U              | .3680   | 3/8            | 3            | 5-23/64        |
| DGE466221 | U              | .3680   | 25/64          | 3            | 5-23/64        |
| DGE718024 | 3/8            | .3750   | 3/8            | 3-5/32       | 5-23/64        |
| DGE466024 | 3/8            | .3750   | 25/64          | 3-5/32       | 5-23/64        |
| DGE466025 | 25/64          | .3906   | 25/64          | 3-5/32       | 5-23/64        |
| DGE718025 | 25/64          | .3906   | 7/16           | 3-5/32       | 5-23/64        |
| DGE466026 | 13/32          | .4062   | 27/64          | 3-5/16       | 5-7/8          |
| DGE718026 | 13/32          | .4062   | 7/16           | 3-5/16       | 5-7/8          |
| DGE466027 | 27/64          | .4219   | 27/64          | 3-15/32      | 5-7/8          |
| DGE718027 | 27/64          | .4219   | 7/16           | 3-15/32      | 5-7/8          |
| DGE718028 | 7/16           | .4375   | 7/16           | 3-5/8        | 6-7/32         |
| DGE466028 | 7/16           | .4375   | 15/32          | 3-5/8        | 6-7/32         |
| DGE466029 | 29/64          | .4531   | 15/32          | 3-25/32      | 6-7/32         |
| DGE718029 | 29/64          | .4531   | 1/2            | 3-25/32      | 6-7/32         |
| DGE466030 | 15/32          | .4688   | 15/32          | 3-25/32      | 6-7/32         |
| DGE718030 | 15/32          | .4688   | 1/2            | 3-25/32      | 6-7/32         |
| DGE466031 | 31/64          | .4844   | 1/2            | 3-15/16      | 6-37/64        |
| DGE466032 | 1/2            | .5000   | 1/2            | 4-3/32       | 6-37/64        |

◎ : Excellent ○ : Good

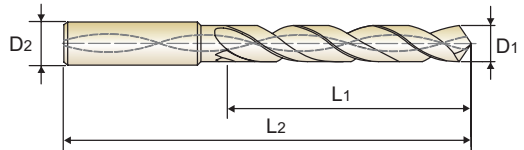
| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
|               |              |                    |                 |        |                  |           | ◎        |        |        |      |          |

# DLC-COATED SOLID CARBIDE DREAM DRILLS ALU with Coolant Holes (5XD)

LONG

DGE433 SERIES

- ▶ Optimized thinning for Aluminum & Aluminum Alloys to prevent any clogging from chip welding
- ▶ Wider and deeper flute gullets for maximum chip removal
- ▶ Special geometry and smooth coating reduces built up edge and improves finishes



5 × D

Unit : mm

| EDP No.    | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|------------|----------------|------------|---------|----------------|--------------|----------------|
|            | Metric         | Fractional | Decimal |                |              |                |
| DLC        | D1             |            |         | D2             | L1           | L2             |
| DGE433030  | 3.0            |            | .1181   | 6              | 28           | 66             |
| DGE433031  | 3.1            |            | .1220   | 6              | 28           | 66             |
| DGE433008F | 3.175          | 1/8        | .1250   | 6              | 28           | 66             |
| DGE433032  | 3.2            |            | .1260   | 6              | 28           | 66             |
| DGE433033  | 3.3            |            | .1299   | 6              | 28           | 66             |
| DGE433034  | 3.4            |            | .1339   | 6              | 28           | 66             |
| DGE433035  | 3.5            |            | .1378   | 6              | 28           | 66             |
| DGE433009F | 3.572          | 9/64       | .1406   | 6              | 28           | 66             |
| DGE433036  | 3.6            |            | .1417   | 6              | 28           | 66             |
| DGE433037  | 3.7            |            | .1457   | 6              | 28           | 66             |
| DGE433038  | 3.8            |            | .1496   | 6              | 36           | 74             |
| DGE433039  | 3.9            |            | .1535   | 6              | 36           | 74             |
| DGE433010F | 3.969          | 5/32       | .1563   | 6              | 36           | 74             |
| DGE433040  | 4.0            |            | .1575   | 6              | 36           | 74             |
| DGE433041  | 4.1            |            | .1614   | 6              | 36           | 74             |
| DGE433042  | 4.2            |            | .1654   | 6              | 36           | 74             |
| DGE433043  | 4.3            |            | .1693   | 6              | 36           | 74             |
| DGE433011F | 4.366          | 11/64      | .1719   | 6              | 36           | 74             |
| DGE433044  | 4.4            |            | .1732   | 6              | 36           | 74             |
| DGE433045  | 4.5            |            | .1772   | 6              | 36           | 74             |
| DGE433046  | 4.6            |            | .1811   | 6              | 36           | 74             |
| DGE433047  | 4.7            |            | .1850   | 6              | 36           | 74             |
| DGE433012F | 4.763          | 3/16       | .1875   | 6              | 36           | 74             |
| DGE433048  | 4.8            |            | .1890   | 6              | 44           | 82             |

| EDP No.    | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|------------|----------------|------------|---------|----------------|--------------|----------------|
|            | Metric         | Fractional | Decimal |                |              |                |
| DLC        | D1             |            |         | D2             | L1           | L2             |
| DGE433049  | 4.9            |            | .1929   | 6              | 44           | 82             |
| DGE433050  | 5.0            |            | .1969   | 6              | 44           | 82             |
| DGE433051  | 5.1            |            | .2008   | 6              | 44           | 82             |
| DGE433013F | 5.159          | 13/64      | .2031   | 6              | 44           | 82             |
| DGE433052  | 5.2            |            | .2047   | 6              | 44           | 82             |
| DGE433053  | 5.3            |            | .2087   | 6              | 44           | 82             |
| DGE433054  | 5.4            |            | .2126   | 6              | 44           | 82             |
| DGE433055  | 5.5            |            | .2165   | 6              | 44           | 82             |
| DGE433014F | 5.556          | 7/32       | .2188   | 6              | 44           | 82             |
| DGE433056  | 5.6            |            | .2205   | 6              | 44           | 82             |
| DGE433057  | 5.7            |            | .2244   | 6              | 44           | 82             |
| DGE433058  | 5.8            |            | .2283   | 6              | 44           | 82             |
| DGE433059  | 5.9            |            | .2323   | 6              | 44           | 82             |
| DGE433015F | 5.953          | 15/64      | .2344   | 6              | 44           | 82             |
| DGE433060  | 6.0            |            | .2362   | 6              | 44           | 82             |
| DGE433061  | 6.1            |            | .2402   | 8              | 53           | 91             |
| DGE433062  | 6.2            |            | .2441   | 8              | 53           | 91             |
| DGE433063  | 6.3            |            | .2480   | 8              | 53           | 91             |
| DGE433016F | 6.350          | 1/4        | .2500   | 8              | 53           | 91             |
| DGE433064  | 6.4            |            | .2520   | 8              | 53           | 91             |
| DGE433065  | 6.5            |            | .2559   | 8              | 53           | 91             |
| DGE433006L | 6.528          | F          | .2570   | 8              | 53           | 9              |
| DGE433066  | 6.6            |            | .2598   | 8              | 53           | 91             |
| DGE433067  | 6.7            |            | .2638   | 8              | 53           | 91             |

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
|               |              |                    |                 |        |                  |           | ◎        |        |        |      |          |

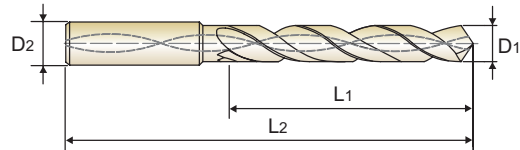
# DLC-COATED SOLID CARBIDE DREAM DRILLS

## ALU with Coolant Holes (5XD)

LONG

DGE433 SERIES

- ▶ Optimized thinning for Aluminum & Aluminum Alloys to prevent any clogging from chip welding
- ▶ Wider and deeper flute gullets for maximum chip removal
- ▶ Special geometry and smooth coating reduces built up edge and improves finishes



5 × D

Unit : mm

| EDP No.    | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|------------|----------------|------------|---------|----------------|--------------|----------------|
|            | Metric         | Fractional | Decimal |                |              |                |
| DLC        | D1             |            |         | D2             | L1           | L2             |
| DGE433017F | 6.747          | 17/64      | .2656   | 8              | 53           | 91             |
| DGE433068  | 6.8            |            | .2677   | 8              | 53           | 91             |
| DGE433069  | 6.9            |            | .2717   | 8              | 53           | 91             |
| DGE433009L | 6.909          | I          | .2720   | 8              | 53           | 91             |
| DGE433070  | 7.0            |            | .2756   | 8              | 53           | 91             |
| DGE433071  | 7.1            |            | .2795   | 8              | 53           | 91             |
| DGE433018F | 7.144          | 9/32       | .2812   | 8              | 53           | 91             |
| DGE433072  | 7.2            |            | .2835   | 8              | 53           | 91             |
| DGE433073  | 7.3            |            | .2874   | 8              | 53           | 91             |
| DGE433074  | 7.4            |            | .2913   | 8              | 53           | 91             |
| DGE433075  | 7.5            |            | .2953   | 8              | 53           | 91             |
| DGE433019F | 7.541          | 19/64      | .2969   | 8              | 53           | 91             |
| DGE433076  | 7.6            |            | .2992   | 8              | 53           | 91             |
| DGE433077  | 7.7            |            | .3031   | 8              | 53           | 91             |
| DGE433078  | 7.8            |            | .3071   | 8              | 53           | 91             |
| DGE433079  | 7.9            |            | .3110   | 8              | 53           | 91             |
| DGE433020F | 7.938          | 5/16       | .3125   | 8              | 53           | 91             |
| DGE433080  | 8.0            |            | .3150   | 8              | 53           | 91             |
| DGE433081  | 8.1            |            | .3189   | 10             | 61           | 103            |
| DGE433082  | 8.2            |            | .3228   | 10             | 61           | 103            |
| DGE433083  | 8.3            |            | .3268   | 10             | 61           | 103            |
| DGE433021F | 8.334          | 21/64      | .3281   | 10             | 61           | 103            |
| DGE433084  | 8.4            |            | .3307   | 10             | 61           | 103            |
| DGE433017L | 8.433          | Q          | .3320   | 10             | 61           | 103            |
| DGE433085  | 8.5            |            | .3346   | 10             | 61           | 103            |
| DGE433086  | 8.6            |            | .3386   | 10             | 61           | 103            |

| EDP No.    | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|------------|----------------|------------|---------|----------------|--------------|----------------|
|            | Metric         | Fractional | Decimal |                |              |                |
| DLC        | D1             |            |         | D2             | L1           | L2             |
| DGE433087  | 8.7            |            | .3425   | 10             | 61           | 103            |
| DGE433022F | 8.731          | 11/32      | .3438   | 10             | 61           | 103            |
| DGE433088  | 8.8            |            | .3465   | 10             | 61           | 103            |
| DGE433089  | 8.9            |            | .3504   | 10             | 61           | 103            |
| DGE433090  | 9.0            |            | .3543   | 10             | 61           | 103            |
| DGE433091  | 9.1            |            | .3583   | 10             | 61           | 103            |
| DGE433023F | 9.128          | 23/64      | .3594   | 10             | 61           | 103            |
| DGE433092  | 9.2            |            | .3622   | 10             | 61           | 103            |
| DGE433093  | 9.3            |            | .3661   | 10             | 61           | 103            |
| DGE433021L | 9.347          | U          | .3680   | 10             | 61           | 103            |
| DGE433094  | 9.4            |            | .3701   | 10             | 61           | 103            |
| DGE433095  | 9.5            |            | .3740   | 10             | 61           | 103            |
| DGE433024F | 9.525          | 3/8        | .3750   | 10             | 61           | 103            |
| DGE433096  | 9.6            |            | .3780   | 10             | 61           | 103            |
| DGE433097  | 9.7            |            | .3819   | 10             | 61           | 103            |
| DGE433098  | 9.8            |            | .3858   | 10             | 61           | 103            |
| DGE433099  | 9.9            |            | .3898   | 10             | 61           | 103            |
| DGE433025F | 9.922          | 25/64      | .3906   | 10             | 61           | 103            |
| DGE433100  | 10.0           |            | .3937   | 10             | 61           | 103            |
| DGE433101  | 10.1           |            | .3976   | 12             | 71           | 118            |
| DGE433102  | 10.2           |            | .4016   | 12             | 71           | 118            |
| DGE433103  | 10.3           |            | .4055   | 12             | 71           | 118            |
| DGE433026F | 10.319         | 13/32      | .4062   | 12             | 71           | 118            |
| DGE433104  | 10.4           |            | .4094   | 12             | 71           | 118            |
| DGE433105  | 10.5           |            | .4134   | 12             | 71           | 118            |
| DGE433106  | 10.6           |            | .4173   | 12             | 71           | 118            |

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
|               |              |                    |                 |        |                  |           | ◎        |        |        |      |          |

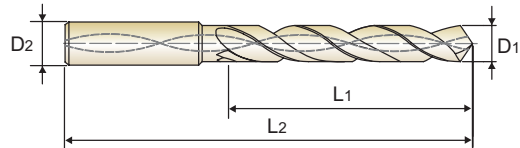


# DLC-COATED SOLID CARBIDE DREAM DRILLS ALU with Coolant Holes (5XD)

LONG

DGE433 SERIES

- ▶ Optimized thinning for Aluminum & Aluminum Alloys to prevent any clogging from chip welding
- ▶ Wider and deeper flute gullets for maximum chip removal
- ▶ Special geometry and smooth coating reduces built up edge and improves finishes



5 × D



Unit : mm

| EDP No.    | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|------------|----------------|------------|---------|----------------|--------------|----------------|
|            | Metric         | Fractional | Decimal |                |              |                |
| DLC        | D1             |            |         | D2             | L1           | L2             |
| DGE433107  | 10.7           |            | .4212   | 12             | 71           | 118            |
| DGE433027F | 10.716         | 27/64      | .4219   | 12             | 71           | 118            |
| DGE433108  | 10.8           |            | .4252   | 12             | 71           | 118            |
| DGE433109  | 10.9           |            | .4291   | 12             | 71           | 118            |
| DGE433110  | 11.0           |            | .4330   | 12             | 71           | 118            |
| DGE433111  | 11.1           |            | .4370   | 12             | 71           | 118            |
| DGE433028F | 11.113         | 7/16       | .4375   | 12             | 71           | 118            |
| DGE433112  | 11.2           |            | .4409   | 12             | 71           | 118            |
| DGE433113  | 11.3           |            | .4448   | 12             | 71           | 118            |
| DGE433114  | 11.4           |            | .4488   | 12             | 71           | 118            |
| DGE433115  | 11.5           |            | .4527   | 12             | 71           | 118            |
| DGE433029F | 11.509         | 29/64      | .4531   | 12             | 71           | 118            |
| DGE433116  | 11.6           |            | .4566   | 12             | 71           | 118            |
| DGE433117  | 11.7           |            | .4606   | 12             | 71           | 118            |
| DGE433118  | 11.8           |            | .4645   | 12             | 71           | 118            |
| DGE433119  | 11.9           |            | .4685   | 12             | 71           | 118            |
| DGE433030F | 11.906         | 15/32      | .4688   | 12             | 71           | 118            |
| DGE433120  | 12.0           |            | .4724   | 12             | 71           | 118            |
| DGE433121  | 12.1           |            | .4764   | 14             | 77           | 124            |
| DGE433122  | 12.2           |            | .4803   | 14             | 77           | 124            |
| DGE433123  | 12.3           |            | .4843   | 14             | 77           | 124            |
| DGE433031F | 12.303         | 31/64      | .4844   | 14             | 77           | 124            |
| DGE433124  | 12.4           |            | .4882   | 14             | 77           | 124            |
| DGE433125  | 12.5           |            | .4921   | 14             | 77           | 124            |
| DGE433126  | 12.6           |            | .4961   | 14             | 77           | 124            |
| DGE433032F | 12.7           | 1/2        | .5000   | 14             | 77           | 124            |

| EDP No.    | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|------------|----------------|------------|---------|----------------|--------------|----------------|
|            | Metric         | Fractional | Decimal |                |              |                |
| DLC        | D1             |            |         | D2             | L1           | L2             |
| DGE433128  | 12.8           |            | .5039   | 14             | 77           | 124            |
| DGE433129  | 12.9           |            | .5079   | 14             | 77           | 124            |
| DGE433130  | 13.0           |            | .5118   | 14             | 77           | 124            |
| DGE433131  | 13.1           |            | .5157   | 14             | 77           | 124            |
| DGE433132  | 13.2           |            | .5197   | 14             | 77           | 124            |
| DGE433133  | 13.3           |            | .5236   | 14             | 77           | 124            |
| DGE433134  | 13.4           |            | .5276   | 14             | 77           | 124            |
| DGE433135  | 13.5           |            | .5314   | 14             | 77           | 124            |
| DGE433136  | 13.6           |            | .5354   | 14             | 77           | 124            |
| DGE433137  | 13.7           |            | .5394   | 14             | 77           | 124            |
| DGE433138  | 13.8           |            | .5433   | 14             | 77           | 124            |
| DGE433139  | 13.9           |            | .5472   | 14             | 77           | 124            |
| DGE433140  | 14.0           |            | .5512   | 14             | 77           | 124            |
| DGE433141  | 14.1           |            | .5551   | 16             | 83           | 133            |
| DGE433142  | 14.2           |            | .5591   | 16             | 83           | 133            |
| DGE433036F | 14.288         | 9/16       | .5625   | 16             | 83           | 133            |
| DGE433143  | 14.3           |            | .5630   | 16             | 83           | 133            |
| DGE433144  | 14.4           |            | .5669   | 16             | 83           | 133            |
| DGE433145  | 14.5           |            | .5708   | 16             | 83           | 133            |
| DGE433146  | 14.6           |            | .5748   | 16             | 83           | 133            |
| DGE433147  | 14.7           |            | .5787   | 16             | 83           | 133            |
| DGE433148  | 14.8           |            | .5827   | 16             | 83           | 133            |
| DGE433149  | 14.9           |            | .5866   | 16             | 83           | 133            |
| DGE433150  | 15.0           |            | .5905   | 16             | 83           | 133            |
| DGE433151  | 15.1           |            | .5945   | 16             | 83           | 133            |
| DGE433152  | 15.2           |            | .5984   | 16             | 83           | 133            |

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
|               |              |                    |                 |        |                  |           | ◎        |        |        |      |          |



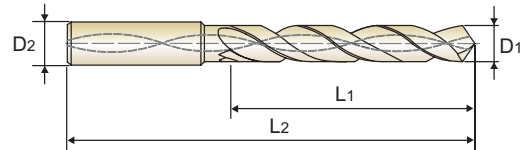
# DLC-COATED SOLID CARBIDE DREAM DRILLS

## ALU with Coolant Holes (5XD)

LONG

DGE433 SERIES

- ▶ Optimized thinning for Aluminum & Aluminum Alloys to prevent any clogging from chip welding
- ▶ Wider and deeper flute gullets for maximum chip removal
- ▶ Special geometry and smooth coating reduces built up edge and improves finishes



5 × D

Unit : mm

| EDP No.    | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|------------|----------------|------------|---------|----------------|--------------|----------------|
|            | Metric         | Fractional | Decimal |                |              |                |
| DLC        | D1             |            |         | D2             | L1           | L2             |
| DGE433153  | 15.3           |            | .6024   | 16             | 83           | 133            |
| DGE433154  | 15.4           |            | .6063   | 16             | 83           | 133            |
| DGE433155  | 15.5           |            | .6102   | 16             | 83           | 133            |
| DGE433156  | 15.6           |            | .6142   | 16             | 83           | 133            |
| DGE433157  | 15.7           |            | .6181   | 16             | 83           | 133            |
| DGE433158  | 15.8           |            | .6220   | 16             | 83           | 133            |
| DGE433040F | 15.875         | 5/8        | .6250   | 16             | 83           | 133            |
| DGE433159  | 15.9           |            | .6260   | 16             | 83           | 133            |
| DGE433160  | 16.0           |            | .6299   | 16             | 83           | 133            |
| DGE433161  | 16.1           |            | .6339   | 18             | 93           | 143            |
| DGE433162  | 16.2           |            | .6378   | 18             | 93           | 143            |
| DGE433163  | 16.3           |            | .6417   | 18             | 93           | 143            |
| DGE433164  | 16.4           |            | .6457   | 18             | 93           | 143            |
| DGE433165  | 16.5           |            | .6495   | 18             | 93           | 143            |
| DGE433166  | 16.6           |            | .6535   | 18             | 93           | 143            |
| DGE433167  | 16.7           |            | .6575   | 18             | 93           | 143            |
| DGE433168  | 16.8           |            | .6614   | 18             | 93           | 143            |
| DGE433169  | 16.9           |            | .6654   | 18             | 93           | 143            |
| DGE433170  | 17.0           |            | .6692   | 18             | 93           | 143            |
| DGE433171  | 17.1           |            | .6732   | 18             | 93           | 143            |
| DGE433172  | 17.2           |            | .6772   | 18             | 93           | 143            |
| DGE433173  | 17.3           |            | .6811   | 18             | 93           | 143            |
| DGE433174  | 17.4           |            | .6850   | 18             | 93           | 143            |
| DGE433175  | 17.5           |            | .6889   | 18             | 93           | 143            |
| DGE433176  | 17.6           |            | .6929   | 18             | 93           | 143            |

| EDP No.    | Drill Diameter |            |         | Shank Diameter | Flute Length | Overall Length |
|------------|----------------|------------|---------|----------------|--------------|----------------|
|            | Metric         | Fractional | Decimal |                |              |                |
| DLC        | D1             |            |         | D2             | L1           | L2             |
| DGE433177  | 17.7           |            | .6968   | 18             | 93           | 143            |
| DGE433178  | 17.8           |            | .7008   | 18             | 93           | 143            |
| DGE433179  | 17.9           |            | .7047   | 18             | 93           | 143            |
| DGE433180  | 18.0           |            | .7087   | 18             | 93           | 143            |
| DGE433181  | 18.1           |            | .7126   | 20             | 101          | 153            |
| DGE433182  | 18.2           |            | .7165   | 20             | 101          | 153            |
| DGE433183  | 18.3           |            | .7205   | 20             | 101          | 153            |
| DGE433184  | 18.4           |            | .7244   | 20             | 101          | 153            |
| DGE433185  | 18.5           |            | .7283   | 20             | 101          | 153            |
| DGE433186  | 18.6           |            | .7323   | 20             | 101          | 153            |
| DGE433187  | 18.7           |            | .7362   | 20             | 101          | 153            |
| DGE433188  | 18.8           |            | .7402   | 20             | 101          | 153            |
| DGE433189  | 18.9           |            | .7441   | 20             | 101          | 153            |
| DGE433190  | 19.0           |            | .7480   | 20             | 101          | 153            |
| DGE433048F | 19.050         | 3/4        | .7500   | 20             | 101          | 153            |
| DGE433191  | 19.1           |            | .7520   | 20             | 101          | 153            |
| DGE433192  | 19.2           |            | .7559   | 20             | 101          | 153            |
| DGE433193  | 19.3           |            | .7598   | 20             | 101          | 153            |
| DGE433194  | 19.4           |            | .7638   | 20             | 101          | 153            |
| DGE433195  | 19.5           |            | .7676   | 20             | 101          | 153            |
| DGE433196  | 19.6           |            | .7717   | 20             | 101          | 153            |
| DGE433197  | 19.7           |            | .7756   | 20             | 101          | 153            |
| DGE433198  | 19.8           |            | .7795   | 20             | 101          | 153            |
| DGE433199  | 19.9           |            | .7835   | 20             | 101          | 153            |
| DGE433200  | 20.0           |            | .7874   | 20             | 101          | 153            |

▶ Other shank types are available on your request.

◎ : Excellent ○ : Good

| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
|               |              |                    |                 |        |                  |           | ◎        |        |        |      |          |

## DLC-COATED SOLID CARBIDE DREAM DRILLS ALU with Coolant Holes

### DGE466 | DGE718 | DGE433 SERIES

| WORK MATERIAL       |               | N                                              |           |      |      |                        |            |      |      |
|---------------------|---------------|------------------------------------------------|-----------|------|------|------------------------|------------|------|------|
|                     |               | ALUMINUM ALLOY CASTING<br>ALUMINUM DIE CASTING |           |      |      | WROUGHT ALUMINUM ALLOY |            |      |      |
| DRILLING SPEED(SFM) |               | 240 ~ 650 ft/min                               |           |      |      | 240 ~ 650 ft/min       |            |      |      |
| DIAMETER            |               | RPM                                            | FEED      | IPR  |      | RPM                    | FEED       | IPR  |      |
| Metric(mm)          | Decimal       |                                                |           |      |      |                        |            |      |      |
| 3.0~6.0             | .1181 ~ .2362 | 8000 ~ 15000                                   | 0.2 ~ 0.5 | .008 | .020 | 8000 ~ 15000           | 0.15 ~ 0.3 | .006 | .012 |
| ~10.0               | ~.3937        | 6000 ~ 10500                                   | 0.3 ~ 1.0 | .012 | .039 | 6000 ~ 10500           | 0.20 ~ 0.4 | .008 | .016 |
| ~14.0               | ~.5512        | 4500 ~ 5800                                    | 0.3 ~ 1.0 | .012 | .039 | 4500 ~ 5800            | 0.20 ~ 0.4 | .008 | .016 |
| ~20.0               | ~.7874        | 3200 ~ 4600                                    | 0.3 ~ 1.0 | .012 | .039 | 3200 ~ 4600            | 0.30 ~ 1.0 | .012 | .039 |

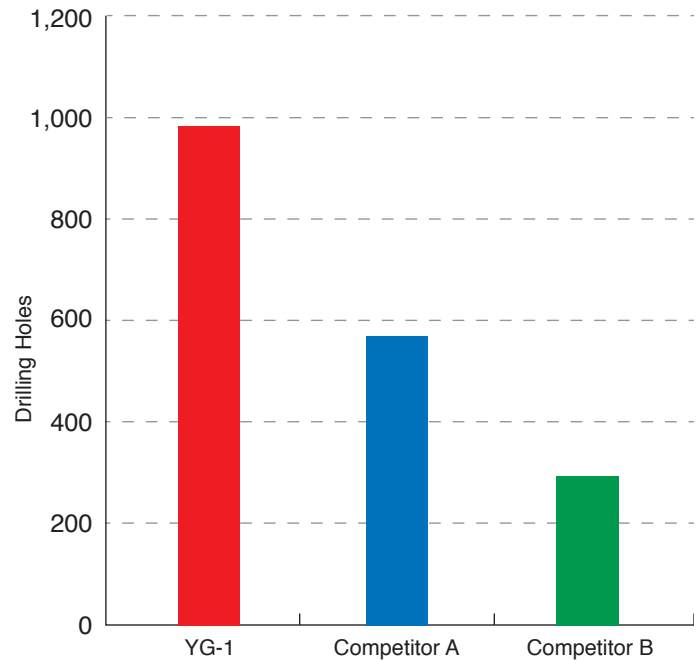
RPM = rev./min.  
FEED = mm/rev.  
IPR = inch/rev.

## CASE STUDY

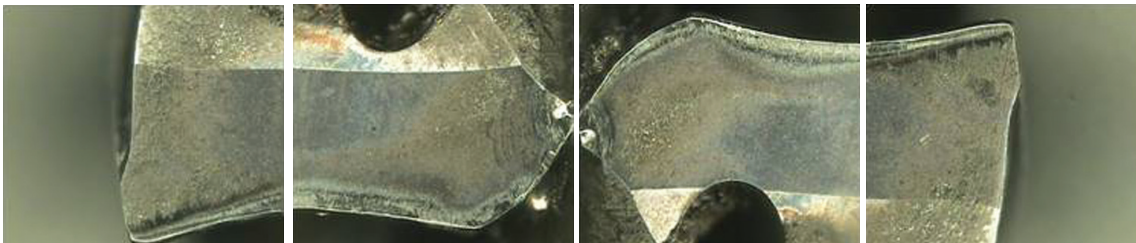
- Flute Shape and Point Shape allowing better chip evacuation in deep hole drilling
- Excellent Coating and Surface Treatment for better performance and chip evacuation

### ► SOLID CARBIDE DREAM DRILLS - MQL Type with Coolant Holes

| CUTTING CONDITION |                                                                                                                   |
|-------------------|-------------------------------------------------------------------------------------------------------------------|
| Tool              | DH520060<br>(Dream Drill- Mql Type, 20×D)                                                                         |
| Size              | Ø6×6×138×193                                                                                                      |
| Work Material     | <ul style="list-style-type: none"> <li>• AISI : 1045</li> <li>• JIS : S45C(HRc25)</li> <li>• DIN : C45</li> </ul> |
| RPM               | 3,528 rev./min.                                                                                                   |
| SFM               | 218 ft/min.                                                                                                       |
| Feed              | .0075 inch/rev.                                                                                                   |
| Drilling Depth    | 3.15"                                                                                                             |
| Coolant           | Oil Mist (MQL Techniques)                                                                                         |



### ► YG-1 (After Drilling 1,000 Holes)



### ► COMPETITOR A (After Drilling 546 Holes)

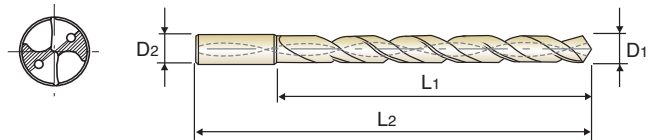


# TiAlN-COATED SOLID CARBIDE DREAM DRILLS MQL with Coolant Holes (10XD)

EXTRA LONG

DH510 SERIES

- ▶ 4-Facet Point for good centering capability
- ▶ Optimized special flutes are ideal for removing chips and for productive drilling
- ▶ Enhanced chip evacuation by polished flute upgraded TiAlN nano layer full coating
- ▶ MQL system compatible (Minimum Quantity Lubrication)



10 × D

Unit : mm

| EDP No.   | Drill Diameter |      |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------|---------|----------------|--------------|----------------|
|           | Metric         | Inch | Decimal |                |              |                |
| TiAlN     | D1             |      |         | D2             | L1           | L2             |
| DH510030  | 3.0            |      | .1181   | 3              | 39           | 90             |
| DH510031  | 3.1            |      | .1220   | 4              | 46           | 97             |
| DH510008F | 3.175          | 1/8  | .1250   | 4              | 46           | 97             |
| DH510032  | 3.2            |      | .1260   | 4              | 46           | 97             |
| DH510033  | 3.3            |      | .1299   | 4              | 46           | 97             |
| DH510034  | 3.4            |      | .1339   | 4              | 46           | 97             |
| DH510035  | 3.5            |      | .1378   | 4              | 46           | 97             |
| DH510036  | 3.6            |      | .1417   | 4              | 52           | 103            |
| DH510037  | 3.7            |      | .1457   | 4              | 52           | 103            |
| DH510038  | 3.8            |      | .1496   | 4              | 52           | 103            |
| DH510039  | 3.9            |      | .1535   | 4              | 52           | 103            |
| DH510040  | 4.0            |      | .1575   | 4              | 52           | 103            |
| DH510041  | 4.1            |      | .1614   | 5              | 59           | 112            |
| DH510042  | 4.2            |      | .1654   | 5              | 59           | 112            |
| DH510043  | 4.3            |      | .1693   | 5              | 59           | 112            |
| DH510044  | 4.4            |      | .1732   | 5              | 59           | 112            |
| DH510045  | 4.5            |      | .1772   | 5              | 59           | 112            |
| DH510046  | 4.6            |      | .1811   | 5              | 65           | 118            |
| DH510047  | 4.7            |      | .1850   | 5              | 65           | 118            |
| DH510048  | 4.8            |      | .1890   | 5              | 65           | 118            |
| DH510049  | 4.9            |      | .1929   | 5              | 65           | 118            |
| DH510050  | 5.0            |      | .1969   | 5              | 65           | 118            |
| DH510051  | 5.1            |      | .2008   | 6              | 72           | 127            |
| DH510052  | 5.2            |      | .2047   | 6              | 72           | 127            |
| DH510053  | 5.3            |      | .2087   | 6              | 72           | 127            |
| DH510054  | 5.4            |      | .2126   | 6              | 72           | 127            |

| EDP No.   | Drill Diameter |       |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|-------|---------|----------------|--------------|----------------|
|           | Metric         | Inch  | Decimal |                |              |                |
| TiAlN     | D1             |       |         | D2             | L1           | L2             |
| DH510055  | 5.5            |       | .2165   | 6              | 72           | 127            |
| DH510056  | 5.6            |       | .2205   | 6              | 78           | 133            |
| DH510057  | 5.7            |       | .2244   | 6              | 78           | 133            |
| DH510058  | 5.8            |       | .2283   | 6              | 78           | 133            |
| DH510059  | 5.9            |       | .2323   | 6              | 78           | 133            |
| DH510060  | 6.0            |       | .2362   | 6              | 78           | 133            |
| DH510061  | 6.1            |       | .2402   | 7              | 85           | 141            |
| DH510062  | 6.2            |       | .2441   | 7              | 85           | 141            |
| DH510063  | 6.3            |       | .2480   | 7              | 85           | 141            |
| DH510016F | 6.350          | 1/4   | .2500   | 7              | 85           | 141            |
| DH510064  | 6.4            |       | .2520   | 7              | 85           | 141            |
| DH510065  | 6.5            |       | .2559   | 7              | 85           | 141            |
| DH510206L | 6.528          | F     | .2570   | 7              | 91           | 147            |
| DH510066  | 6.6            |       | .2598   | 7              | 91           | 147            |
| DH510067  | 6.7            |       | .2638   | 7              | 91           | 147            |
| DH510017F | 6.746          | 17/64 | .2656   | 7              | 91           | 147            |
| DH510068  | 6.8            |       | .2677   | 7              | 91           | 147            |
| DH510069  | 6.9            |       | .2717   | 7              | 91           | 147            |
| DH510209L | 6.909          | I     | .2720   | 7              | 91           | 147            |
| DH510070  | 7.0            |       | .2756   | 7              | 91           | 147            |
| DH510071  | 7.1            |       | .2795   | 8              | 98           | 155            |
| DH510018F | 7.142          | 9/32  | .2812   | 8              | 98           | 155            |
| DH510072  | 7.2            |       | .2835   | 8              | 98           | 155            |
| DH510073  | 7.3            |       | .2874   | 8              | 98           | 155            |
| DH510074  | 7.4            |       | .2913   | 8              | 98           | 155            |
| DH510075  | 7.5            |       | .2953   | 8              | 98           | 155            |

▶ NEXT PAGE

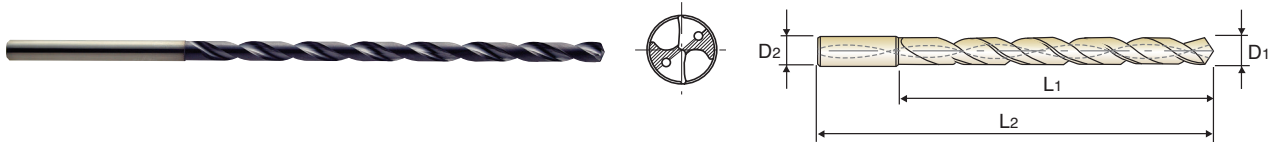
◎ : Excellent ○ : Good

| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ○                  |                 |        |                  | ○         |          |        |        |      |          |

# TiAIN-COATED SOLID CARBIDE DREAM DRILLS MQL with Coolant Holes (10XD)

## EXTRA LONG DH510 SERIES

- ▶ 4-Facet Point for good centering capability
- ▶ Optimized special flutes are ideal for removing chips and for productive drilling
- ▶ Enhanced chip evacuation by polished flute upgraded TiAIN nano layer full coating
- ▶ MQL system compatible (Minimum Quantity Lubrication)



10 × D

Unit : mm

| EDP No.   | Drill Diameter |       |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|-------|---------|----------------|--------------|----------------|
|           | Metric         | Inch  | Decimal |                |              |                |
| TiAIN     | D1             |       |         | D2             | L1           | L2             |
| DH510019F | 7.541          | 19/64 | .2969   | 8              | 104          | 161            |
| DH510076  | 7.6            |       | .2992   | 8              | 104          | 161            |
| DH510077  | 7.7            |       | .3031   | 8              | 104          | 161            |
| DH510078  | 7.8            |       | .3071   | 8              | 104          | 161            |
| DH510079  | 7.9            |       | .3110   | 8              | 104          | 161            |
| DH510020F | 7.938          | 5/16  | .3125   | 8              | 104          | 161            |
| DH510080  | 8.0            |       | .3150   | 8              | 104          | 161            |
| DH510081  | 8.1            |       | .3189   | 9              | 111          | 169            |
| DH510082  | 8.2            |       | .3228   | 9              | 111          | 169            |
| DH510083  | 8.3            |       | .3268   | 9              | 111          | 169            |
| DH510021F | 8.334          | 21/64 | .3281   | 9              | 111          | 169            |
| DH510084  | 8.4            |       | .3307   | 9              | 111          | 169            |
| DH510217L | 8.433          | Q     | .3320   | 9              | 111          | 169            |
| DH510085  | 8.5            |       | .3346   | 9              | 111          | 169            |
| DH510086  | 8.6            |       | .3386   | 9              | 117          | 175            |
| DH510087  | 8.7            |       | .3425   | 9              | 117          | 175            |
| DH510022F | 8.733          | 11/32 | .3438   | 9              | 117          | 175            |
| DH510088  | 8.8            |       | .3465   | 9              | 117          | 175            |
| DH510089  | 8.9            |       | .3504   | 9              | 117          | 175            |
| DH510090  | 9.0            |       | .3543   | 9              | 117          | 175            |
| DH510091  | 9.1            |       | .3583   | 10             | 124          | 182            |
| DH510023F | 9.129          | 23/64 | .3594   | 10             | 124          | 182            |
| DH510092  | 9.2            |       | .3622   | 10             | 124          | 182            |
| DH510093  | 9.3            |       | .3661   | 10             | 124          | 182            |
| DH510221L | 9.347          | U     | .3680   | 10             | 124          | 182            |
| DH510094  | 9.4            |       | .3701   | 10             | 124          | 182            |

| EDP No.   | Drill Diameter |       |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|-------|---------|----------------|--------------|----------------|
|           | Metric         | Inch  | Decimal |                |              |                |
| TiAIN     | D1             |       |         | D2             | L1           | L2             |
| DH510095  | 9.5            |       | .3740   | 10             | 124          | 182            |
| DH510024F | 9.525          | 3/8   | .3750   | 10             | 130          | 188            |
| DH510096  | 9.6            |       | .3780   | 10             | 130          | 188            |
| DH510097  | 9.7            |       | .3819   | 10             | 130          | 188            |
| DH510098  | 9.8            |       | .3858   | 10             | 130          | 188            |
| DH510099  | 9.9            |       | .3898   | 10             | 130          | 188            |
| DH510025F | 9.921          | 25/64 | .3906   | 10             | 130          | 188            |
| DH510100  | 10.0           |       | .3937   | 10             | 130          | 188            |
| DH510101  | 10.1           |       | .3976   | 11             | 137          | 201            |
| DH510102  | 10.2           |       | .4016   | 11             | 137          | 201            |
| DH510103  | 10.3           |       | .4055   | 11             | 137          | 201            |
| DH510026F | 10.318         | 13/32 | .4062   | 11             | 137          | 201            |
| DH510104  | 10.4           |       | .4094   | 11             | 137          | 201            |
| DH510105  | 10.5           |       | .4134   | 11             | 137          | 201            |
| DH510106  | 10.6           |       | .4173   | 11             | 143          | 207            |
| DH510107  | 10.7           |       | .4213   | 11             | 143          | 207            |
| DH510027F | 10.716         | 27/64 | .4219   | 11             | 143          | 207            |
| DH510108  | 10.8           |       | .4252   | 11             | 143          | 207            |
| DH510109  | 10.9           |       | .4291   | 11             | 143          | 207            |
| DH510110  | 11.0           |       | .4331   | 11             | 143          | 207            |
| DH510111  | 11.1           |       | .4370   | 12             | 150          | 215            |
| DH510028F | 11.113         | 7/16  | .4375   | 12             | 150          | 215            |
| DH510112  | 11.2           |       | .4409   | 12             | 150          | 215            |
| DH510113  | 11.3           |       | .4449   | 12             | 150          | 215            |
| DH510114  | 11.4           |       | .4488   | 12             | 150          | 215            |
| DH510115  | 11.5           |       | .4528   | 12             | 150          | 215            |

▶ NEXT PAGE

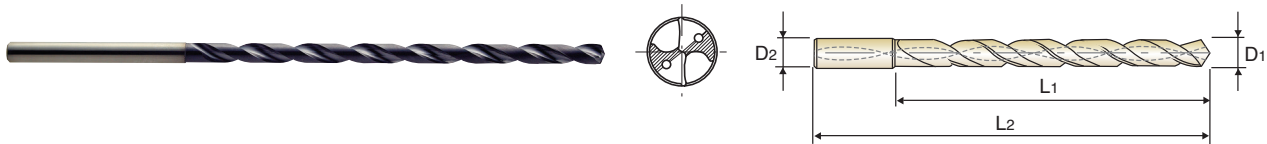
◎ : Excellent ○ : Good

| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ○                  |                 |        |                  | ○         |          |        |        |      |          |

# TiAIN-COATED SOLID CARBIDE DREAM DRILLS MQL with Coolant Holes (10XD)

## EXTRA LONG DH510 SERIES

- ▶ 4-Facet Point for good centering capability
- ▶ Optimized special flutes are ideal for removing chips and for productive drilling
- ▶ Enhanced chip evacuation by polished flute upgraded TiAIN nano layer full coating
- ▶ MQL system compatible (Minimum Quantity Lubrication)



10 × D

Unit : mm

| EDP No.   | Drill Diameter |       |         | Shank Diameter<br>D2 | Flute Length<br>L1 | Overall Length<br>L2 |
|-----------|----------------|-------|---------|----------------------|--------------------|----------------------|
|           | Metric         | Inch  | Decimal |                      |                    |                      |
| TiAIN     | D1             |       |         | D2                   | L1                 | L2                   |
| DH510029F | 11.509         | 29/64 | .4531   | 12                   | 156                | 221                  |
| DH510116  | 11.6           |       | .4567   | 12                   | 156                | 221                  |
| DH510117  | 11.7           |       | .4606   | 12                   | 156                | 221                  |
| DH510118  | 11.8           |       | .4646   | 12                   | 156                | 221                  |
| DH510119  | 11.9           |       | .4685   | 12                   | 156                | 221                  |
| DH510030F | 11.908         | 15/32 | .4688   | 12                   | 156                | 221                  |
| DH510120  | 12.0           |       | .4724   | 12                   | 156                | 221                  |
| DH510121  | 12.1           |       | .4764   | 13                   | 163                | 229                  |
| DH510122  | 12.2           |       | .4803   | 13                   | 163                | 229                  |
| DH510123  | 12.3           |       | .4843   | 13                   | 163                | 229                  |
| DH510031F | 12.304         | 31/64 | .4844   | 13                   | 163                | 229                  |
| DH510124  | 12.4           |       | .4882   | 13                   | 163                | 229                  |
| DH510125  | 12.5           |       | .4921   | 13                   | 163                | 229                  |
| DH510126  | 12.6           |       | .4961   | 13                   | 169                | 235                  |

| EDP No.  | Drill Diameter |      |         | Shank Diameter<br>D2 | Flute Length<br>L1 | Overall Length<br>L2 |
|----------|----------------|------|---------|----------------------|--------------------|----------------------|
|          | Metric         | Inch | Decimal |                      |                    |                      |
| TiAIN    | D1             |      |         | D2                   | L1                 | L2                   |
| DH510127 | 12.7           | 1/2  | .5000   | 13                   | 169                | 235                  |
| DH510128 | 12.8           |      | .5039   | 13                   | 169                | 235                  |
| DH510129 | 12.9           |      | .5079   | 13                   | 169                | 235                  |
| DH510130 | 13.0           |      | .5118   | 13                   | 169                | 235                  |
| DH510131 | 13.1           |      | .5157   | 14                   | 176                | 243                  |
| DH510132 | 13.2           |      | .5197   | 14                   | 176                | 243                  |
| DH510133 | 13.3           |      | .5236   | 14                   | 176                | 243                  |
| DH510134 | 13.4           |      | .5276   | 14                   | 176                | 243                  |
| DH510135 | 13.5           |      | .5315   | 14                   | 176                | 243                  |
| DH510136 | 13.6           |      | .5354   | 14                   | 182                | 249                  |
| DH510137 | 13.7           |      | .5394   | 14                   | 182                | 249                  |
| DH510138 | 13.8           |      | .5433   | 14                   | 182                | 249                  |
| DH510139 | 13.9           |      | .5472   | 14                   | 182                | 249                  |
| DH510140 | 14.0           |      | .5512   | 14                   | 182                | 249                  |

◎ : Excellent ○ : Good

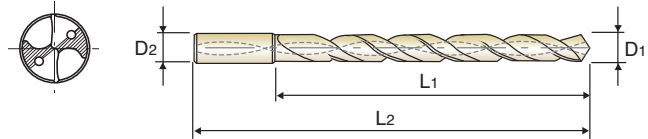
| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRc30~45           | HRc45~55        | HRc55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ○                  |                 |        |                  | ○         |          |        |        |      |          |



# TiAIN-COATED SOLID CARBIDE DREAM DRILLS MQL with Coolant Holes (15XD)

## EXTRA LONG DH515 SERIES

- ▶ 4-Facet Point for good centering capability
- ▶ Optimized special flutes are ideal for removing chips and for productive drilling
- ▶ Enhanced chip evacuation by polished flute upgraded TiAIN nano layer full coating
- ▶ MQL system compatible (Minimum Quantity Lubrication)



15 × D

Unit : mm

| EDP No.   | Drill Diameter |      |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------|---------|----------------|--------------|----------------|
|           | Metric         | Inch | Decimal |                |              |                |
| TiAIN     | D1             |      |         | D2             | L1           | L2             |
| DH515030  | 3.0            |      | .1181   | 3              | 54           | 105            |
| DH515031  | 3.1            |      | .1220   | 4              | 63           | 114            |
| DH515008F | 3.175          | 1/8  | .1250   | 4              | 63           | 114            |
| DH515032  | 3.2            |      | .1260   | 4              | 63           | 114            |
| DH515033  | 3.3            |      | .1299   | 4              | 63           | 114            |
| DH515034  | 3.4            |      | .1339   | 4              | 63           | 114            |
| DH515035  | 3.5            |      | .1378   | 4              | 63           | 114            |
| DH515036  | 3.6            |      | .1417   | 4              | 72           | 123            |
| DH515037  | 3.7            |      | .1457   | 4              | 72           | 123            |
| DH515038  | 3.8            |      | .1496   | 4              | 72           | 123            |
| DH515039  | 3.9            |      | .1535   | 4              | 72           | 123            |
| DH515040  | 4.0            |      | .1575   | 4              | 72           | 123            |
| DH515041  | 4.1            |      | .1614   | 5              | 81           | 134            |
| DH515042  | 4.2            |      | .1654   | 5              | 81           | 134            |
| DH515043  | 4.3            |      | .1693   | 5              | 81           | 134            |
| DH515044  | 4.4            |      | .1732   | 5              | 81           | 134            |
| DH515045  | 4.5            |      | .1772   | 5              | 81           | 134            |
| DH515046  | 4.6            |      | .1811   | 5              | 90           | 143            |
| DH515047  | 4.7            |      | .1850   | 5              | 90           | 143            |
| DH515048  | 4.8            |      | .1890   | 5              | 90           | 143            |
| DH515049  | 4.9            |      | .1929   | 5              | 90           | 143            |
| DH515050  | 5.0            |      | .1969   | 5              | 90           | 143            |
| DH515051  | 5.1            |      | .2008   | 6              | 99           | 154            |
| DH515052  | 5.2            |      | .2047   | 6              | 99           | 154            |
| DH515053  | 5.3            |      | .2087   | 6              | 99           | 154            |
| DH515054  | 5.4            |      | .2126   | 6              | 99           | 154            |

| EDP No.   | Drill Diameter |       |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|-------|---------|----------------|--------------|----------------|
|           | Metric         | Inch  | Decimal |                |              |                |
| TiAIN     | D1             |       |         | D2             | L1           | L2             |
| DH515055  | 5.5            |       | .2165   | 6              | 99           | 154            |
| DH515056  | 5.6            |       | .2205   | 6              | 108          | 163            |
| DH515057  | 5.7            |       | .2244   | 6              | 108          | 163            |
| DH515058  | 5.8            |       | .2283   | 6              | 108          | 163            |
| DH515059  | 5.9            |       | .2323   | 6              | 108          | 163            |
| DH515060  | 6.0            |       | .2362   | 6              | 108          | 163            |
| DH515061  | 6.1            |       | .2402   | 7              | 117          | 173            |
| DH515062  | 6.2            |       | .2441   | 7              | 117          | 173            |
| DH515063  | 6.3            |       | .2480   | 7              | 117          | 173            |
| DH515016F | 6.350          | 1/4   | .2500   | 7              | 117          | 173            |
| DH515064  | 6.4            |       | .2520   | 7              | 117          | 173            |
| DH515065  | 6.5            |       | .2559   | 7              | 117          | 173            |
| DH515206L | 6.528          | F     | .2570   | 7              | 126          | 182            |
| DH515066  | 6.6            |       | .2598   | 7              | 126          | 182            |
| DH515067  | 6.7            |       | .2638   | 7              | 126          | 182            |
| DH515017F | 6.746          | 17/64 | .2656   | 7              | 126          | 182            |
| DH515068  | 6.8            |       | .2677   | 7              | 126          | 182            |
| DH515069  | 6.9            |       | .2717   | 7              | 126          | 182            |
| DH515209L | 6.909          | I     | .2720   | 7              | 126          | 182            |
| DH515070  | 7.0            |       | .2756   | 7              | 126          | 182            |
| DH515071  | 7.1            |       | .2795   | 8              | 135          | 192            |
| DH515018F | 7.142          | 9/32  | .2812   | 8              | 135          | 192            |
| DH515072  | 7.2            |       | .2835   | 8              | 135          | 192            |
| DH515073  | 7.3            |       | .2874   | 8              | 135          | 192            |
| DH515074  | 7.4            |       | .2913   | 8              | 135          | 192            |
| DH515075  | 7.5            |       | .2953   | 8              | 135          | 192            |

▶ NEXT PAGE

◎ : Excellent ○ : Good

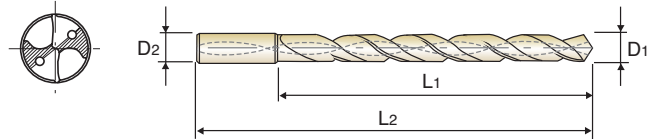
| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ○                  |                 |        |                  | ○         |          |        |        |      |          |

# TiAIN-COATED SOLID CARBIDE DREAM DRILLS MQL with Coolant Holes (15XD)

EXTRA LONG

DH515 SERIES

- ▶ 4-Facet Point for good centering capability
- ▶ Optimized special flutes are ideal for removing chips and for productive drilling
- ▶ Enhanced chip evacuation by polished flute upgraded TiAIN nano layer full coating
- ▶ MQL system compatible (Minimum Quantity Lubrication)



15 × D

Unit : mm

| EDP No.   | Drill Diameter |       |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|-------|---------|----------------|--------------|----------------|
|           | Metric         | Inch  | Decimal |                |              |                |
| TiAIN     | D1             |       |         | D2             | L1           | L2             |
| DH515019F | 7.541          | 19/64 | .2969   | 8              | 144          | 201            |
| DH515076  | 7.6            |       | .2992   | 8              | 144          | 201            |
| DH515077  | 7.7            |       | .3031   | 8              | 144          | 201            |
| DH515078  | 7.8            |       | .3071   | 8              | 144          | 201            |
| DH515079  | 7.9            |       | .3110   | 8              | 144          | 201            |
| DH515020F | 7.938          | 5/16  | .3125   | 8              | 144          | 201            |
| DH515080  | 8.0            |       | .3150   | 8              | 144          | 201            |
| DH515081  | 8.1            |       | .3189   | 9              | 153          | 211            |
| DH515082  | 8.2            |       | .3228   | 9              | 153          | 211            |
| DH515083  | 8.3            |       | .3268   | 9              | 153          | 211            |
| DH515021F | 8.334          | 21/64 | .3281   | 9              | 153          | 211            |
| DH515084  | 8.4            |       | .3307   | 9              | 153          | 211            |
| DH515217L | 8.433          | Q     | .3320   | 9              | 153          | 211            |
| DH515085  | 8.5            |       | .3346   | 9              | 153          | 211            |
| DH515086  | 8.6            |       | .3386   | 9              | 162          | 220            |
| DH515087  | 8.7            |       | .3425   | 9              | 162          | 220            |
| DH515022F | 8.733          | 11/32 | .3438   | 9              | 162          | 220            |
| DH515088  | 8.8            |       | .3465   | 9              | 162          | 220            |
| DH515089  | 8.9            |       | .3504   | 9              | 162          | 220            |
| DH515090  | 9.0            |       | .3543   | 9              | 162          | 220            |
| DH515091  | 9.1            |       | .3583   | 10             | 171          | 229            |
| DH515023F | 9.129          | 23/64 | .3594   | 10             | 171          | 229            |
| DH515092  | 9.2            |       | .3622   | 10             | 171          | 229            |
| DH515093  | 9.3            |       | .3661   | 10             | 171          | 229            |
| DH515221L | 9.347          | U     | .3680   | 10             | 171          | 229            |
| DH515094  | 9.4            |       | .3701   | 10             | 171          | 229            |

| EDP No.   | Drill Diameter |       |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|-------|---------|----------------|--------------|----------------|
|           | Metric         | Inch  | Decimal |                |              |                |
| TiAIN     | D1             |       |         | D2             | L1           | L2             |
| DH515095  | 9.5            |       | .3740   | 10             | 171          | 229            |
| DH515024F | 9.525          | 3/8   | .3750   | 10             | 180          | 238            |
| DH515096  | 9.6            |       | .3780   | 10             | 180          | 238            |
| DH515097  | 9.7            |       | .3819   | 10             | 180          | 238            |
| DH515098  | 9.8            |       | .3858   | 10             | 180          | 238            |
| DH515099  | 9.9            |       | .3898   | 10             | 180          | 238            |
| DH515025F | 9.921          | 25/64 | .3906   | 10             | 180          | 238            |
| DH515100  | 10.0           |       | .3937   | 10             | 180          | 238            |
| DH515101  | 10.1           |       | .3976   | 11             | 189          | 253            |
| DH515102  | 10.2           |       | .4016   | 11             | 189          | 253            |
| DH515103  | 10.3           |       | .4055   | 11             | 189          | 253            |
| DH515026F | 10.318         | 13/32 | .4062   | 11             | 189          | 253            |
| DH515104  | 10.4           |       | .4094   | 11             | 189          | 253            |
| DH515105  | 10.5           |       | .4134   | 11             | 189          | 253            |
| DH515106  | 10.6           |       | .4173   | 11             | 198          | 262            |
| DH515107  | 10.7           |       | .4213   | 11             | 198          | 262            |
| DH515027F | 10.716         | 27/64 | .4219   | 11             | 198          | 262            |
| DH515108  | 10.8           |       | .4252   | 11             | 198          | 262            |
| DH515109  | 10.9           |       | .4291   | 11             | 198          | 262            |
| DH515110  | 11.0           |       | .4331   | 11             | 198          | 262            |
| DH515111  | 11.1           |       | .4370   | 12             | 207          | 272            |
| DH515028F | 11.113         | 7/16  | .4375   | 12             | 207          | 272            |
| DH515112  | 11.2           |       | .4409   | 12             | 207          | 272            |
| DH515113  | 11.3           |       | .4449   | 12             | 207          | 272            |
| DH515114  | 11.4           |       | .4488   | 12             | 207          | 272            |
| DH515115  | 11.5           |       | .4527   | 12             | 207          | 272            |

▶ NEXT PAGE

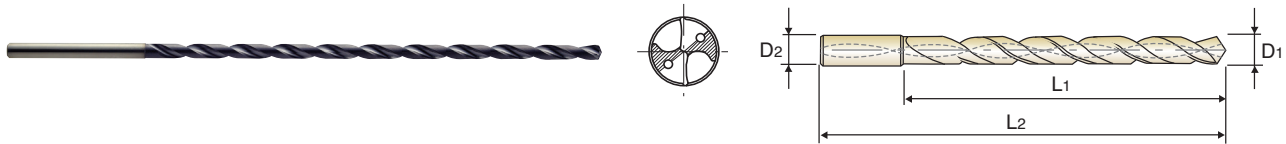
◎ : Excellent ○ : Good

| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ○                  |                 |        |                  | ○         |          |        |        |      |          |

# TiAlN-COATED SOLID CARBIDE DREAM DRILLS MQL with Coolant Holes (15XD)

## EXTRA LONG DH515 SERIES

- ▶ 4-Facet Point for good centering capability
- ▶ Optimized special flutes are ideal for removing chips and for productive drilling
- ▶ Enhanced chip evacuation by polished flute upgraded TiAlN nano layer full coating
- ▶ MQL system compatible (Minimum Quantity Lubrication)



15 × D

Unit : mm

| EDP No.   | Drill Diameter |       |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|-------|---------|----------------|--------------|----------------|
|           | Metric         | Inch  | Decimal |                |              |                |
| TiAlN     | D1             |       |         | D2             | L1           | L2             |
| DH515029F | 11.509         | 29/64 | .4531   | 12             | 216          | 281            |
| DH515116  | 11.6           |       | .4567   | 12             | 216          | 281            |
| DH515117  | 11.7           |       | .4606   | 12             | 216          | 281            |
| DH515118  | 11.8           |       | .4646   | 12             | 216          | 281            |
| DH515119  | 11.9           |       | .4685   | 12             | 216          | 281            |
| DH515030F | 11.908         | 15/32 | .4688   | 12             | 216          | 281            |
| DH515120  | 12.0           |       | .4724   | 12             | 216          | 281            |
| DH515121  | 12.1           |       | .4764   | 13             | 225          | 291            |
| DH515122  | 12.2           |       | .4803   | 13             | 225          | 291            |
| DH515123  | 12.3           |       | .4843   | 13             | 225          | 291            |
| DH515031F | 12.304         | 31/64 | .4844   | 13             | 225          | 291            |
| DH515124  | 12.4           |       | .4882   | 13             | 225          | 291            |
| DH515125  | 12.5           |       | .4921   | 13             | 225          | 291            |
| DH515126  | 12.6           |       | .4961   | 13             | 234          | 300            |

| EDP No.  | Drill Diameter |      |         | Shank Diameter | Flute Length | Overall Length |
|----------|----------------|------|---------|----------------|--------------|----------------|
|          | Metric         | Inch | Decimal |                |              |                |
| TiAlN    | D1             |      |         | D2             | L1           | L2             |
| DH515127 | 12.7           | 1/2  | .5000   | 13             | 234          | 300            |
| DH515128 | 12.8           |      | .5039   | 13             | 234          | 300            |
| DH515129 | 12.9           |      | .5079   | 13             | 234          | 300            |
| DH515130 | 13.0           |      | .5118   | 13             | 234          | 300            |
| DH515131 | 13.1           |      | .5157   | 14             | 243          | 310            |
| DH515132 | 13.2           |      | .5197   | 14             | 243          | 310            |
| DH515133 | 13.3           |      | .5236   | 14             | 243          | 310            |
| DH515134 | 13.4           |      | .5276   | 14             | 243          | 310            |
| DH515135 | 13.5           |      | .5314   | 14             | 243          | 310            |
| DH515136 | 13.6           |      | .5354   | 14             | 252          | 319            |
| DH515137 | 13.7           |      | .5394   | 14             | 252          | 319            |
| DH515138 | 13.8           |      | .5433   | 14             | 252          | 319            |
| DH515139 | 13.9           |      | .5472   | 14             | 252          | 319            |
| DH515140 | 14.0           |      | .5512   | 14             | 252          | 319            |

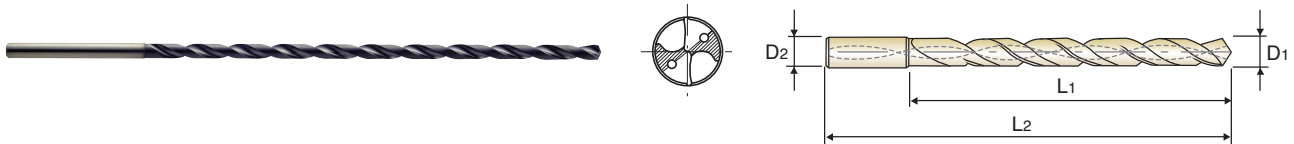
◎ : Excellent ○ : Good

| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRc30~45           | HRc45~55        | HRc55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ○                  |                 |        |                  | ○         |          |        |        |      |          |

# TiAIN-COATED SOLID CARBIDE DREAM DRILLS MQL with Coolant Holes (20XD)

## EXTRA LONG DH520 SERIES

- ▶ 4-Facet Point for good centering capability
- ▶ Optimized special flutes are ideal for removing chips and for productive drilling
- ▶ Enhanced chip evacuation by polished flute upgraded TiAIN nano layer full coating
- ▶ MQL system compatible (Minimum Quantity Lubrication)



20 × D

Unit : mm

| EDP No.   | Drill Diameter |      |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------|---------|----------------|--------------|----------------|
|           | Metric         | Inch | Decimal |                |              |                |
| TiAIN     | D1             |      |         | D2             | L1           | L2             |
| DH520030  | 3.0            |      | .1181   | 3              | 69           | 120            |
| DH520031  | 3.1            |      | .1220   | 4              | 81           | 132            |
| DH520008F | 3.175          | 1/8  | .1250   | 4              | 81           | 132            |
| DH520032  | 3.2            |      | .1260   | 4              | 81           | 132            |
| DH520033  | 3.3            |      | .1299   | 4              | 81           | 132            |
| DH520034  | 3.4            |      | .1339   | 4              | 81           | 132            |
| DH520035  | 3.5            |      | .1378   | 4              | 81           | 132            |
| DH520036  | 3.6            |      | .1417   | 4              | 92           | 143            |
| DH520037  | 3.7            |      | .1457   | 4              | 92           | 143            |
| DH520038  | 3.8            |      | .1496   | 4              | 92           | 143            |
| DH520039  | 3.9            |      | .1535   | 4              | 92           | 143            |
| DH520040  | 4.0            |      | .1575   | 4              | 92           | 143            |
| DH520041  | 4.1            |      | .1614   | 5              | 104          | 157            |
| DH520042  | 4.2            |      | .1654   | 5              | 104          | 157            |
| DH520043  | 4.3            |      | .1693   | 5              | 104          | 157            |
| DH520044  | 4.4            |      | .1732   | 5              | 104          | 157            |
| DH520045  | 4.5            |      | .1772   | 5              | 104          | 157            |
| DH520046  | 4.6            |      | .1811   | 5              | 115          | 168            |
| DH520047  | 4.7            |      | .1850   | 5              | 115          | 168            |
| DH520048  | 4.8            |      | .1890   | 5              | 115          | 168            |
| DH520049  | 4.9            |      | .1929   | 5              | 115          | 168            |
| DH520050  | 5.0            |      | .1969   | 5              | 115          | 168            |
| DH520051  | 5.1            |      | .2008   | 6              | 127          | 182            |
| DH520052  | 5.2            |      | .2047   | 6              | 127          | 182            |
| DH520053  | 5.3            |      | .2087   | 6              | 127          | 182            |
| DH520054  | 5.4            |      | .2126   | 6              | 127          | 182            |

| EDP No.   | Drill Diameter |       |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|-------|---------|----------------|--------------|----------------|
|           | Metric         | Inch  | Decimal |                |              |                |
| TiAIN     | D1             |       |         | D2             | L1           | L2             |
| DH520055  | 5.5            |       | .2165   | 6              | 127          | 182            |
| DH520056  | 5.6            |       | .2205   | 6              | 138          | 193            |
| DH520057  | 5.7            |       | .2244   | 6              | 138          | 193            |
| DH520058  | 5.8            |       | .2283   | 6              | 138          | 193            |
| DH520059  | 5.9            |       | .2323   | 6              | 138          | 193            |
| DH520060  | 6.0            |       | .2362   | 6              | 138          | 193            |
| DH520061  | 6.1            |       | .2402   | 7              | 150          | 206            |
| DH520062  | 6.2            |       | .2441   | 7              | 150          | 206            |
| DH520063  | 6.3            |       | .2480   | 7              | 150          | 206            |
| DH520016F | 6.350          | 1/4   | .2500   | 7              | 150          | 206            |
| DH520064  | 6.4            |       | .2520   | 7              | 150          | 206            |
| DH520065  | 6.5            |       | .2559   | 7              | 150          | 206            |
| DH520206L | 6.528          | F     | .2570   | 7              | 161          | 217            |
| DH520066  | 6.6            |       | .2598   | 7              | 161          | 217            |
| DH520067  | 6.7            |       | .2638   | 7              | 161          | 217            |
| DH520017F | 6.746          | 17/64 | .2656   | 7              | 161          | 217            |
| DH520068  | 6.8            |       | .2677   | 7              | 161          | 217            |
| DH520069  | 6.9            |       | .2717   | 7              | 161          | 217            |
| DH520209L | 6.909          | I     | .2720   | 7              | 161          | 217            |
| DH520070  | 7.0            |       | .2756   | 7              | 161          | 217            |
| DH520071  | 7.1            |       | .2795   | 8              | 173          | 230            |
| DH520018F | 7.142          | 9/32  | .2812   | 8              | 173          | 230            |
| DH520072  | 7.2            |       | .2835   | 8              | 173          | 230            |
| DH520073  | 7.3            |       | .2874   | 8              | 173          | 230            |
| DH520074  | 7.4            |       | .2913   | 8              | 173          | 230            |
| DH520075  | 7.5            |       | .2953   | 8              | 173          | 230            |

▶ NEXT PAGE

◎ : Excellent ○ : Good

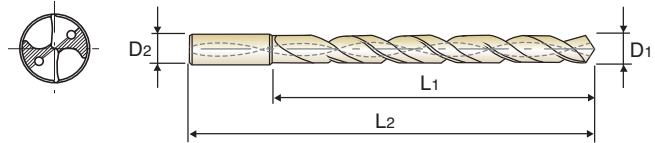
| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRc30~45           | HRc45~55        | HRc55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ○                  |                 |        |                  | ○         |          |        |        |      |          |

# TiAIN-COATED SOLID CARBIDE DREAM DRILLS MQL with Coolant HoleS (20XD)

EXTRA LONG

DH520 SERIES

- ▶ 4-Facet Point for good centering capability
- ▶ Optimized special flutes are ideal for removing chips and for productive drilling
- ▶ Enhanced chip evacuation by polished flute upgraded TiAIN nano layer full coating
- ▶ MQL system compatible (Minimum Quantity Lubrication)



20 × D

Unit : mm

| EDP No.   | Drill Diameter |       |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|-------|---------|----------------|--------------|----------------|
|           | Metric         | Inch  | Decimal |                |              |                |
| TiAIN     | D1             |       |         | D2             | L1           | L2             |
| DH520019F | 7.541          | 19/64 | .2969   | 8              | 184          | 241            |
| DH520076  | 7.6            |       | .2992   | 8              | 184          | 241            |
| DH520077  | 7.7            |       | .3031   | 8              | 184          | 241            |
| DH520078  | 7.8            |       | .3071   | 8              | 184          | 241            |
| DH520079  | 7.9            |       | .3110   | 8              | 184          | 241            |
| DH520020F | 7.938          | 5/16  | .3125   | 8              | 184          | 241            |
| DH520080  | 8.0            |       | .3150   | 8              | 184          | 241            |
| DH520081  | 8.1            |       | .3189   | 9              | 196          | 254            |
| DH520082  | 8.2            |       | .3228   | 9              | 196          | 254            |
| DH520083  | 8.3            |       | .3268   | 9              | 196          | 254            |
| DH520021F | 8.334          | 21/64 | .3281   | 9              | 196          | 254            |
| DH520084  | 8.4            |       | .3307   | 9              | 196          | 254            |
| DH520217L | 8.433          | Q     | .3320   | 9              | 196          | 254            |
| DH520085  | 8.5            |       | .3346   | 9              | 196          | 254            |
| DH520086  | 8.6            |       | .3386   | 9              | 207          | 265            |
| DH520087  | 8.7            |       | .3425   | 9              | 207          | 265            |
| DH520022F | 8.733          | 11/32 | .3438   | 9              | 207          | 265            |
| DH520088  | 8.8            |       | .3465   | 9              | 207          | 265            |
| DH520089  | 8.9            |       | .3504   | 9              | 207          | 265            |
| DH520090  | 9.0            |       | .3543   | 9              | 207          | 265            |
| DH520091  | 9.1            |       | .3583   | 10             | 219          | 277            |
| DH520023F | 9.129          | 23/64 | .3594   | 10             | 219          | 277            |
| DH520092  | 9.2            |       | .3622   | 10             | 219          | 277            |
| DH520093  | 9.3            |       | .3661   | 10             | 219          | 277            |
| DH520221L | 9.347          | U     | .3680   | 10             | 219          | 277            |
| DH520094  | 9.4            |       | .3701   | 10             | 219          | 277            |

| EDP No.   | Drill Diameter |       |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|-------|---------|----------------|--------------|----------------|
|           | Metric         | Inch  | Decimal |                |              |                |
| TiAIN     | D1             |       |         | D2             | L1           | L2             |
| DH520095  | 9.5            |       | .3740   | 10             | 219          | 277            |
| DH520024F | 9.525          | 3/8   | .3750   | 10             | 219          | 277            |
| DH520096  | 9.6            |       | .3780   | 10             | 230          | 288            |
| DH520097  | 9.7            |       | .3819   | 10             | 230          | 288            |
| DH520098  | 9.8            |       | .3858   | 10             | 230          | 288            |
| DH520099  | 9.9            |       | .3898   | 10             | 230          | 288            |
| DH520025F | 9.921          | 25/64 | .3906   | 10             | 230          | 288            |
| DH520100  | 10.0           |       | .3937   | 10             | 230          | 288            |
| DH520101  | 10.1           |       | .3976   | 11             | 242          | 306            |
| DH520102  | 10.2           |       | .4016   | 11             | 242          | 306            |
| DH520103  | 10.3           |       | .4055   | 11             | 242          | 306            |
| DH520026F | 10.318         | 13/32 | .4062   | 11             | 242          | 306            |
| DH520104  | 10.4           |       | .4094   | 11             | 242          | 306            |
| DH520105  | 10.5           |       | .4134   | 11             | 242          | 306            |
| DH520106  | 10.6           |       | .4173   | 11             | 253          | 317            |
| DH520107  | 10.7           |       | .4213   | 11             | 253          | 317            |
| DH520027F | 10.716         | 27/64 | .4219   | 11             | 253          | 317            |
| DH520108  | 10.8           |       | .4252   | 11             | 253          | 317            |
| DH520109  | 10.9           |       | .4291   | 11             | 253          | 317            |
| DH520110  | 11.0           |       | .4331   | 11             | 253          | 317            |
| DH520111  | 11.1           |       | .4370   | 12             | 265          | 330            |
| DH520028F | 11.113         | 7/16  | .4375   | 12             | 265          | 330            |
| DH520112  | 11.2           |       | .4409   | 12             | 265          | 330            |
| DH520113  | 11.3           |       | .4449   | 12             | 265          | 330            |
| DH520114  | 11.4           |       | .4488   | 12             | 265          | 330            |
| DH520115  | 11.5           |       | .4527   | 12             | 265          | 330            |

▶ NEXT PAGE

◎ : Excellent ○ : Good

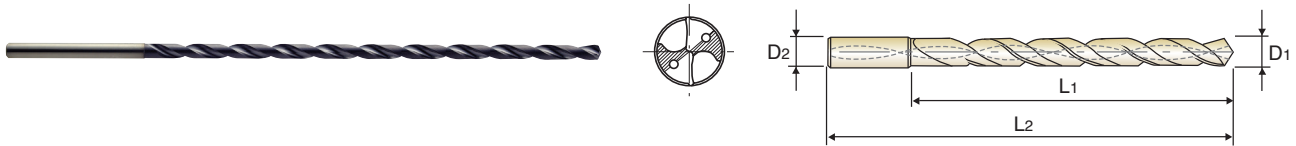
| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ○                  |                 |        |                  | ○         |          |        |        |      |          |

# TiAIN-COATED SOLID CARBIDE DREAM DRILLS MQL with Coolant Holes (20XD)

EXTRA LONG

DH520 SERIES

- ▶ 4-Facet Point for good centering capability
- ▶ Optimized special flutes are ideal for removing chips and for productive drilling
- ▶ Enhanced chip evacuation by polished flute upgraded TiAIN nano layer full coating
- ▶ MQL system compatible (Minimum Quantity Lubrication)



20 × D

Unit : mm

| EDP No.   | Drill Diameter |       |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|-------|---------|----------------|--------------|----------------|
|           | Metric         | Inch  | Decimal |                |              |                |
| TiAIN     | D1             |       |         | D2             | L1           | L2             |
| DH520029F | 11.509         | 29/64 | .4531   | 12             | 276          | 341            |
| DH520116  | 11.6           |       | .4567   | 12             | 276          | 341            |
| DH520117  | 11.7           |       | .4606   | 12             | 276          | 341            |
| DH520118  | 11.8           |       | .4646   | 12             | 276          | 341            |

| EDP No.   | Drill Diameter |       |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|-------|---------|----------------|--------------|----------------|
|           | Metric         | Inch  | Decimal |                |              |                |
| TiAIN     | D1             |       |         | D2             | L1           | L2             |
| DH520119  | 11.9           |       | .4685   | 12             | 276          | 341            |
| DH520030F | 11.908         | 15/32 | .4688   | 12             | 276          | 341            |
| DH520120  | 12.0           |       | .4724   | 12             | 276          | 341            |

| P             |              |                    |                 |        | H                | M         | K        | N      |        |      |          | S |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|---|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |   |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |   |
| ◎             | ◎            | ○                  |                 |        |                  | ○         |          |        |        |      |          |   |

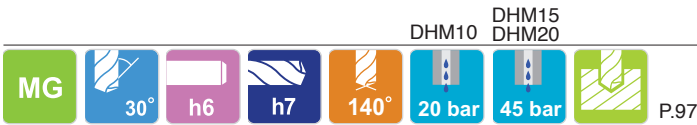
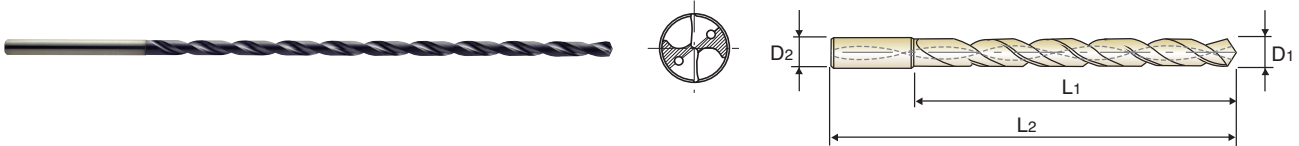


# TiAIN-COATED SOLID CARBIDE DREAM DRILLS

## MQL with Coolant Holes (10XD, 15XD, 20XD)

**EXTRA LONG**  
**DHM10 SERIES**  
**DHM15 SERIES**  
**DHM20 SERIES**

- ▶ 4-Facet Point for good centering capability
- ▶ Optimized special flutes are ideal for removing chips and for productive drilling
- ▶ Enhanced chip evacuation by polished flute upgraded TiAIN nano layer full coating
- ▶ MQL system compatible (Minimum Quantity Lubrication)



10 × D (DHM10)    15 × D (DHM15)    20 × D (DHM20)

10 × D

Unit : mm

| EDP No.  | Drill Diameter |         | Shank Diameter | Flute Length | Overall Length |
|----------|----------------|---------|----------------|--------------|----------------|
|          | Metric         | Decimal |                |              |                |
| TiAIN    | D1             |         | D2             | L1           | L2             |
| DHM10030 | 3.0            | .1181   | 6              | 40           | 80             |
| DHM10033 | 3.3            | .1299   | 6              | 47           | 87             |
| DHM10035 | 3.5            | .1378   | 6              | 47           | 87             |
| DHM10040 | 4.0            | .1575   | 6              | 53           | 93             |
| DHM10042 | 4.2            | .1654   | 6              | 60           | 100            |
| DHM10045 | 4.5            | .1772   | 6              | 60           | 100            |
| DHM10050 | 5.0            | .1969   | 6              | 66           | 106            |
| DHM10055 | 5.5            | .2165   | 6              | 73           | 113            |
| DHM10060 | 6.0            | .2362   | 6              | 79           | 119            |
| DHM10065 | 6.5            | .2559   | 8              | 86           | 126            |
| DHM10068 | 6.8            | .2677   | 8              | 92           | 132            |
| DHM10070 | 7.0            | .2756   | 8              | 92           | 132            |
| DHM10075 | 7.5            | .2953   | 8              | 99           | 139            |
| DHM10080 | 8.0            | .3150   | 8              | 105          | 145            |
| DHM10085 | 8.5            | .3346   | 10             | 112          | 156            |
| DHM10090 | 9.0            | .3543   | 10             | 118          | 162            |
| DHM10095 | 9.5            | .3740   | 10             | 126          | 170            |
| DHM10100 | 10.0           | .3937   | 10             | 132          | 176            |
| DHM10105 | 10.5           | .4134   | 12             | 139          | 188            |
| DHM10110 | 11.0           | .4330   | 12             | 145          | 194            |
| DHM10115 | 11.5           | .4527   | 12             | 152          | 201            |
| DHM10120 | 12.0           | .4724   | 12             | 158          | 207            |
| DHM10125 | 12.5           | .4921   | 14             | 165          | 214            |
| DHM10130 | 13.0           | .5118   | 14             | 171          | 220            |
| DHM10135 | 13.5           | .5314   | 14             | 178          | 227            |
| DHM10140 | 14.0           | .5512   | 14             | 184          | 233            |

15 × D

Unit : mm

| EDP No.  | Drill Diameter |         | Shank Diameter | Flute Length | Overall Length |
|----------|----------------|---------|----------------|--------------|----------------|
|          | Metric         | Decimal |                |              |                |
| TiAIN    | D1             |         | D2             | L1           | L2             |
| DHM15030 | 3.0            | .1181   | 6              | 55           | 95             |
| DHM15035 | 3.5            | .1378   | 6              | 64           | 104            |
| DHM15040 | 4.0            | .1575   | 6              | 73           | 113            |
| DHM15045 | 4.5            | .1772   | 6              | 82           | 122            |
| DHM15050 | 5.0            | .1969   | 6              | 91           | 131            |
| DHM15055 | 5.5            | .2165   | 6              | 100          | 140            |
| DHM15060 | 6.0            | .2362   | 6              | 109          | 149            |
| DHM15070 | 7.0            | .2756   | 8              | 127          | 167            |
| DHM15080 | 8.0            | .3150   | 8              | 145          | 185            |
| DHM15090 | 9.0            | .3543   | 10             | 163          | 207            |
| DHM15100 | 10.0           | .3937   | 10             | 182          | 226            |
| DHM15110 | 11.0           | .4330   | 12             | 200          | 249            |
| DHM15120 | 12.0           | .4724   | 12             | 218          | 267            |

20 × D

Unit : mm

| EDP No.  | Drill Diameter |         | Shank Diameter | Flute Length | Overall Length |
|----------|----------------|---------|----------------|--------------|----------------|
|          | Metric         | Decimal |                |              |                |
| TiAIN    | D1             |         | D2             | L1           | L2             |
| DHM20030 | 3.0            | .1181   | 6              | 70           | 110            |
| DHM20035 | 3.5            | .1378   | 6              | 82           | 122            |
| DHM20040 | 4.0            | .1575   | 6              | 93           | 133            |
| DHM20045 | 4.5            | .1772   | 6              | 105          | 145            |
| DHM20050 | 5.0            | .1969   | 6              | 116          | 156            |
| DHM20055 | 5.5            | .2165   | 6              | 128          | 168            |
| DHM20060 | 6.0            | .2362   | 6              | 139          | 179            |
| DHM20070 | 7.0            | .2756   | 8              | 162          | 202            |
| DHM20080 | 8.0            | .3150   | 8              | 185          | 225            |
| DHM20090 | 9.0            | .3543   | 10             | 208          | 252            |
| DHM20100 | 10.0           | .3937   | 10             | 232          | 276            |
| DHM20110 | 11.0           | .4330   | 12             | 255          | 304            |
| DHM20120 | 12.0           | .4724   | 12             | 278          | 327            |

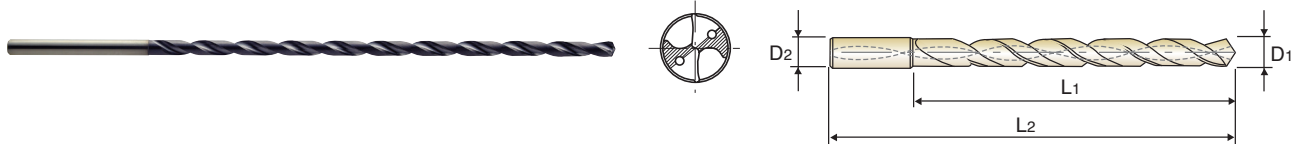
◎ : Excellent    ○ : Good

| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ○                  |                 |        |                  | ○         |          |        |        |      |          |

# TiAIN-COATED SOLID CARBIDE DREAM DRILLS MQL with Coolant Holes (25XD)

## EXTRA LONG DHM25 SERIES

- ▶ 4-Facet Point for good centering capability
- ▶ Optimized special flutes are ideal for removing chips and for productive drilling
- ▶ Enhanced chip evacuation by polished flute upgraded TiAIN nano layer full coating
- ▶ MQL system compatible (Minimum Quantity Lubrication)



25 × D

Unit : mm

| EDP No.   | Drill Diameter |      |         | Shank Diameter<br>D2 | Flute Length<br>L1 | Overall Length<br>L2 |
|-----------|----------------|------|---------|----------------------|--------------------|----------------------|
|           | Metric         | Inch | Decimal |                      |                    |                      |
| TiAIN     | D1             |      |         | D2                   | L1                 | L2                   |
| DHM25030  | 3.0            |      | .1181   | 6                    | 85                 | 125                  |
| DHM25031  | 3.1            |      | .1220   | 6                    | 99                 | 139                  |
| DHM25008F | 3.175          | 1/8  | .1250   | 6                    | 99                 | 139                  |
| DHM25032  | 3.2            |      | .1260   | 6                    | 99                 | 139                  |
| DHM25033  | 3.3            |      | .1299   | 6                    | 99                 | 139                  |
| DHM25034  | 3.4            |      | .1339   | 6                    | 99                 | 139                  |
| DHM25035  | 3.5            |      | .1378   | 6                    | 99                 | 139                  |
| DHM25036  | 3.6            |      | .1417   | 6                    | 113                | 153                  |
| DHM25037  | 3.7            |      | .1457   | 6                    | 113                | 153                  |
| DHM25038  | 3.8            |      | .1496   | 6                    | 113                | 153                  |
| DHM25039  | 3.9            |      | .1535   | 6                    | 113                | 153                  |
| DHM25040  | 4.0            |      | .1575   | 6                    | 113                | 153                  |
| DHM25041  | 4.1            |      | .1614   | 6                    | 127                | 167                  |
| DHM25042  | 4.2            |      | .1654   | 6                    | 127                | 167                  |
| DHM25043  | 4.3            |      | .1693   | 6                    | 127                | 167                  |
| DHM25044  | 4.4            |      | .1732   | 6                    | 127                | 167                  |
| DHM25045  | 4.5            |      | .1772   | 6                    | 127                | 167                  |
| DHM25046  | 4.6            |      | .1811   | 6                    | 141                | 181                  |
| DHM25047  | 4.7            |      | .1850   | 6                    | 141                | 181                  |
| DHM25048  | 4.8            |      | .1890   | 6                    | 141                | 181                  |
| DHM25049  | 4.9            |      | .1929   | 6                    | 141                | 181                  |
| DHM25050  | 5.0            |      | .1969   | 6                    | 141                | 181                  |
| DHM25051  | 5.1            |      | .2008   | 6                    | 155                | 195                  |
| DHM25052  | 5.2            |      | .2047   | 6                    | 155                | 195                  |
| DHM25053  | 5.3            |      | .2087   | 6                    | 155                | 195                  |
| DHM25054  | 5.4            |      | .2126   | 6                    | 155                | 195                  |

| EDP No.   | Drill Diameter |       |         | Shank Diameter<br>D2 | Flute Length<br>L1 | Overall Length<br>L2 |
|-----------|----------------|-------|---------|----------------------|--------------------|----------------------|
|           | Metric         | Inch  | Decimal |                      |                    |                      |
| TiAIN     | D1             |       |         | D2                   | L1                 | L2                   |
| DHM25055  | 5.5            |       | .2165   | 6                    | 155                | 195                  |
| DHM25056  | 5.6            |       | .2205   | 6                    | 169                | 209                  |
| DHM25057  | 5.7            |       | .2244   | 6                    | 169                | 209                  |
| DHM25058  | 5.8            |       | .2283   | 6                    | 169                | 209                  |
| DHM25059  | 5.9            |       | .2323   | 6                    | 169                | 209                  |
| DHM25060  | 6.0            |       | .2362   | 6                    | 169                | 209                  |
| DHM25061  | 6.1            |       | .2402   | 8                    | 183                | 223                  |
| DHM25062  | 6.2            |       | .2441   | 8                    | 183                | 223                  |
| DHM25063  | 6.3            |       | .2480   | 8                    | 183                | 223                  |
| DHM25016F | 6.350          | 1/4   | .2500   | 8                    | 183                | 223                  |
| DHM25064  | 6.4            |       | .2520   | 8                    | 183                | 223                  |
| DHM25065  | 6.5            |       | .2559   | 8                    | 183                | 223                  |
| DHM2506L  | 6.528          | F     | .2570   | 8                    | 197                | 237                  |
| DHM25066  | 6.6            |       | .2598   | 8                    | 197                | 237                  |
| DHM25067  | 6.7            |       | .2638   | 8                    | 197                | 237                  |
| DHM25017F | 6.746          | 17/64 | .2656   | 8                    | 197                | 237                  |
| DHM25068  | 6.8            |       | .2677   | 8                    | 197                | 237                  |
| DHM25069  | 6.9            |       | .2717   | 8                    | 197                | 237                  |
| DHM2509L  | 6.909          | I     | .2720   | 8                    | 197                | 237                  |
| DHM25070  | 7.0            |       | .2756   | 8                    | 197                | 237                  |
| DHM25071  | 7.1            |       | .2795   | 8                    | 211                | 251                  |
| DHM25018F | 7.142          | 9/32  | .2812   | 8                    | 211                | 251                  |
| DHM25072  | 7.2            |       | .2835   | 8                    | 211                | 251                  |
| DHM25073  | 7.3            |       | .2874   | 8                    | 211                | 251                  |
| DHM25074  | 7.4            |       | .2913   | 8                    | 211                | 251                  |
| DHM25075  | 7.5            |       | .2953   | 8                    | 211                | 251                  |

▶ NEXT PAGE

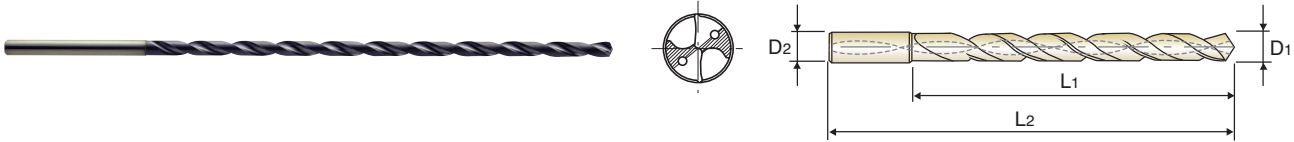
◎ : Excellent ○ : Good

| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ○                  |                 |        |                  | ○         |          |        |        |      |          |

# TiAIN-COATED SOLID CARBIDE DREAM DRILLS MQL with Coolant Holes (25XD)

## EXTRA LONG DHM25 SERIES

- ▶ 4-Facet Point for good centering capability
- ▶ Optimized special flutes are ideal for removing chips and for productive drilling
- ▶ Enhanced chip evacuation by polished flute upgraded TiAIN nano layer full coating
- ▶ MQL system compatible (Minimum Quantity Lubrication)



25 × D

Unit : mm

| EDP No.   | Drill Diameter |       |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|-------|---------|----------------|--------------|----------------|
|           | Metric         | Inch  | Decimal |                |              |                |
| TiAIN     | D1             |       |         | D2             | L1           | L2             |
| DHM25019F | 7.541          | 19/64 | .2969   | 8              | 225          | 265            |
| DHM25076  | 7.6            |       | .2992   | 8              | 225          | 265            |
| DHM25077  | 7.7            |       | .3031   | 8              | 225          | 265            |
| DHM25078  | 7.8            |       | .3071   | 8              | 225          | 265            |
| DHM25079  | 7.9            |       | .3110   | 8              | 225          | 265            |
| DHM25020F | 7.938          | 5/16  | .3125   | 8              | 225          | 265            |
| DHM25080  | 8.0            |       | .3150   | 8              | 225          | 265            |
| DHM25081  | 8.1            |       | .3189   | 10             | 239          | 283            |
| DHM25082  | 8.2            |       | .3228   | 10             | 239          | 283            |
| DHM25083  | 8.3            |       | .3268   | 10             | 239          | 283            |
| DHM25021F | 8.334          | 21/64 | .3281   | 10             | 239          | 283            |
| DHM25084  | 8.4            |       | .3307   | 10             | 239          | 283            |
| DHM25217L | 8.433          | Q     | .3320   | 10             | 239          | 283            |
| DHM25085  | 8.5            |       | .3346   | 10             | 239          | 283            |
| DHM25086  | 8.6            |       | .3386   | 10             | 253          | 297            |
| DHM25087  | 8.7            |       | .3425   | 10             | 253          | 297            |
| DHM25022F | 8.733          | 11/32 | .3438   | 10             | 253          | 297            |

| EDP No.   | Drill Diameter |       |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|-------|---------|----------------|--------------|----------------|
|           | Metric         | Inch  | Decimal |                |              |                |
| TiAIN     | D1             |       |         | D2             | L1           | L2             |
| DHM25088  | 8.8            |       | .3465   | 10             | 253          | 297            |
| DHM25089  | 8.9            |       | .3504   | 10             | 253          | 297            |
| DHM25090  | 9.0            |       | .3543   | 10             | 253          | 297            |
| DHM25091  | 9.1            |       | .3583   | 10             | 268          | 312            |
| DHM25023F | 9.129          | 23/64 | .3594   | 10             | 268          | 312            |
| DHM25092  | 9.2            |       | .3622   | 10             | 268          | 312            |
| DHM25093  | 9.3            |       | .3661   | 10             | 268          | 312            |
| DHM25221L | 9.347          | U     | .3680   | 10             | 268          | 312            |
| DHM25094  | 9.4            |       | .3701   | 10             | 268          | 312            |
| DHM25095  | 9.5            |       | .3740   | 10             | 268          | 312            |
| DHM25024F | 9.525          | 3/8   | .3750   | 10             | 282          | 326            |
| DHM25096  | 9.6            |       | .3780   | 10             | 282          | 326            |
| DHM25097  | 9.7            |       | .3819   | 10             | 282          | 326            |
| DHM25098  | 9.8            |       | .3858   | 10             | 282          | 326            |
| DHM25099  | 9.9            |       | .3898   | 10             | 282          | 326            |
| DHM25025F | 9.921          | 25/64 | .3906   | 10             | 282          | 326            |
| DHM25100  | 10.0           |       | .3937   | 10             | 282          | 326            |

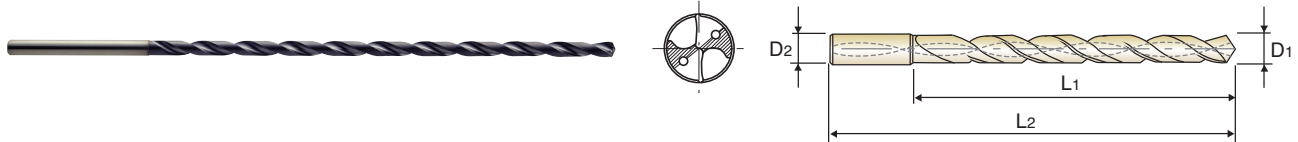
◎ : Excellent ○ : Good

| P             |              |                    |                 |        | H                | M         | K        | N      |        |      |          | S |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|---|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |   |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |   |
| ◎             | ◎            | ○                  |                 |        |                  | ○         |          |        |        |      |          |   |

# TiAIN-COATED SOLID CARBIDE DREAM DRILLS MQL with Coolant Holes (30XD)

## EXTRA LONG DHM30 SERIES

- ▶ 4-Facet Point for good centering capability
- ▶ Optimized special flutes are ideal for removing chips and for productive drilling
- ▶ Enhanced chip evacuation by polished flute upgraded TiAIN nano layer full coating
- ▶ MQL system compatible (Minimum Quantity Lubrication)



30 × D

Unit : mm

| EDP No.   | Drill Diameter |      |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------|---------|----------------|--------------|----------------|
|           | Metric         | Inch | Decimal |                |              |                |
| TiAIN     | D1             |      |         | D2             | L1           | L2             |
| DHM30030  | 3.0            |      | .1181   | 6              | 100          | 140            |
| DHM30031  | 3.1            |      | .1220   | 6              | 117          | 157            |
| DHM30008F | 3.175          | 1/8  | .1250   | 6              | 117          | 157            |
| DHM30032  | 3.2            |      | .1260   | 6              | 117          | 157            |
| DHM30033  | 3.3            |      | .1299   | 6              | 117          | 157            |
| DHM30034  | 3.4            |      | .1339   | 6              | 117          | 157            |
| DHM30035  | 3.5            |      | .1378   | 6              | 117          | 157            |
| DHM30036  | 3.6            |      | .1417   | 6              | 133          | 173            |
| DHM30037  | 3.7            |      | .1457   | 6              | 133          | 173            |
| DHM30038  | 3.8            |      | .1496   | 6              | 133          | 173            |
| DHM30039  | 3.9            |      | .1535   | 6              | 133          | 173            |
| DHM30040  | 4.0            |      | .1575   | 6              | 133          | 173            |
| DHM30041  | 4.1            |      | .1614   | 6              | 150          | 190            |
| DHM30042  | 4.2            |      | .1654   | 6              | 150          | 190            |
| DHM30043  | 4.3            |      | .1693   | 6              | 150          | 190            |
| DHM30044  | 4.4            |      | .1732   | 6              | 150          | 190            |
| DHM30045  | 4.5            |      | .1772   | 6              | 150          | 190            |
| DHM30046  | 4.6            |      | .1811   | 6              | 166          | 206            |
| DHM30047  | 4.7            |      | .1850   | 6              | 166          | 206            |
| DHM30048  | 4.8            |      | .1890   | 6              | 166          | 206            |
| DHM30049  | 4.9            |      | .1929   | 6              | 166          | 206            |
| DHM30050  | 5.0            |      | .1969   | 6              | 166          | 206            |
| DHM30051  | 5.1            |      | .2008   | 6              | 183          | 223            |
| DHM30052  | 5.2            |      | .2047   | 6              | 183          | 223            |

| EDP No.   | Drill Diameter |       |         | nk Diameter | Flute Length | Overall Length |
|-----------|----------------|-------|---------|-------------|--------------|----------------|
|           | Metric         | Inch  | Decimal |             |              |                |
| TiAIN     | D1             |       |         | D2          | L1           | L2             |
| DHM30053  | 5.3            |       | .2087   | 6           | 183          | 223            |
| DHM30054  | 5.4            |       | .2126   | 6           | 183          | 223            |
| DHM30055  | 5.5            |       | .2165   | 6           | 183          | 223            |
| DHM30056  | 5.6            |       | .2205   | 6           | 199          | 239            |
| DHM30057  | 5.7            |       | .2244   | 6           | 199          | 239            |
| DHM30058  | 5.8            |       | .2283   | 6           | 199          | 239            |
| DHM30059  | 5.9            |       | .2323   | 6           | 199          | 239            |
| DHM30060  | 6.0            |       | .2362   | 6           | 199          | 239            |
| DHM30061  | 6.1            |       | .2402   | 8           | 216          | 256            |
| DHM30062  | 6.2            |       | .2441   | 8           | 216          | 256            |
| DHM30063  | 6.3            |       | .2480   | 8           | 216          | 256            |
| DHM30016F | 6.350          | 1/4   | .2500   | 8           | 216          | 256            |
| DHM30064  | 6.4            |       | .2520   | 8           | 216          | 256            |
| DHM30065  | 6.5            |       | .2559   | 8           | 216          | 256            |
| DHM30206L | 6.528          | F     | .2570   | 8           | 232          | 272            |
| DHM30066  | 6.6            |       | .2598   | 8           | 232          | 272            |
| DHM30067  | 6.7            |       | .2638   | 8           | 232          | 272            |
| DHM30017F | 6.746          | 17/64 | .2656   | 8           | 232          | 272            |
| DHM30068  | 6.8            |       | .2677   | 8           | 232          | 272            |
| DHM30069  | 6.9            |       | .2717   | 8           | 232          | 272            |
| DHM30209L | 6.909          | I     | .2720   | 8           | 232          | 272            |
| DHM30070  | 7.0            |       | .2756   | 8           | 232          | 272            |
| DHM30071  | 7.1            |       | .2795   | 8           | 249          | 289            |
| DHM30018F | 7.142          | 9/32  | .2812   | 8           | 249          | 289            |

▶ NEXT PAGE

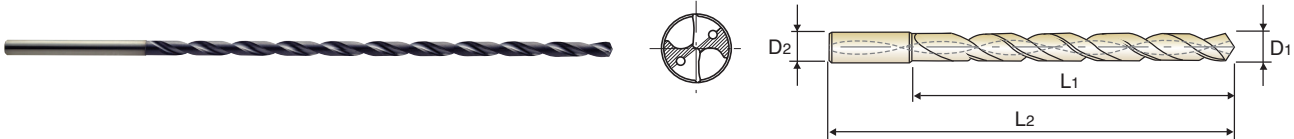
◎ : Excellent ○ : Good

| P             |              |                    |                 | H | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|---|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |   | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55 HRC55~ |   |                  |           |          |        |        |      |          |
| ◎             | ◎            | ○                  |                 |   |                  | ○         |          |        |        |      |          |

# TiAIN-COATED SOLID CARBIDE DREAM DRILLS MQL with Coolant Holes (30XD)

## EXTRA LONG DHM30 SERIES

- ▶ 4-Facet Point for good centering capability
- ▶ Optimized special flutes are ideal for removing chips and for productive drilling
- ▶ Enhanced chip evacuation by polished flute upgraded TiAIN nano layer full coating
- ▶ MQL system compatible (Minimum Quantity Lubrication)



30 × D

Unit : mm

| EDP No.   | Drill Diameter |       |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|-------|---------|----------------|--------------|----------------|
|           | Metric         | Inch  | Decimal |                |              |                |
| TiAIN     | D1             |       |         | D2             | L1           | L2             |
| DHM30072  | 7.2            |       | .2835   | 8              | 249          | 289            |
| DHM30073  | 7.3            |       | .2874   | 8              | 249          | 289            |
| DHM30074  | 7.4            |       | .2913   | 8              | 249          | 289            |
| DHM30075  | 7.5            |       | .2953   | 8              | 249          | 289            |
| DHM30019F | 7.541          | 19/64 | .2969   | 8              | 265          | 305            |
| DHM30076  | 7.6            |       | .2992   | 8              | 265          | 305            |

| EDP No.   | Drill Diameter |      |         | Shank Diameter | Flute Length | Overall Length |
|-----------|----------------|------|---------|----------------|--------------|----------------|
|           | Metric         | Inch | Decimal |                |              |                |
| TiAIN     | D1             |      |         | D2             | L1           | L2             |
| DHM30077  | 7.7            |      | .3031   | 8              | 265          | 305            |
| DHM30078  | 7.8            |      | .3071   | 8              | 265          | 305            |
| DHM30079  | 7.9            |      | .3110   | 8              | 265          | 305            |
| DHM30020F | 7.938          | 5/16 | .3125   | 8              | 265          | 305            |
| DHM30080  | 8.0            |      | .3150   | 8              | 265          | 305            |

◎ : Excellent ○ : Good

| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRC30~45           | HRC45~55        | HRC55~ |                  |           |          |        |        |      |          |
| ◎             | ◎            | ○                  |                 |        |                  | ○         |          |        |        |      |          |

## TiAIN-COATED SOLID CARBIDE DREAM DRILLS MQL with Coolant Holes

### DH510 | DH515 | DH520 | DHM10 | DHM15 | DHM20 SERIES

| WORK MATERIAL       |         | P                        |           |       |       | K                           |           |       |       |                             |           |       |       |
|---------------------|---------|--------------------------|-----------|-------|-------|-----------------------------|-----------|-------|-------|-----------------------------|-----------|-------|-------|
|                     |         | CARBON STEELS            |           |       |       | CAST IRON                   |           |       |       | DUCTILE CAST IRON           |           |       |       |
| STRENGTH            |         | ~ 1060 N/mm <sup>2</sup> |           |       |       | 250 ~ 350 N/mm <sup>2</sup> |           |       |       | 400 ~ 500 N/mm <sup>2</sup> |           |       |       |
| DRILLING SPEED(SFM) |         | 230 ~ 290 ft/min         |           |       |       | 230 ~ 290 ft/min            |           |       |       | 220 ~ 240 ft/min            |           |       |       |
| DIAMETER            |         | RPM                      | FEED      | IPR   |       | RPM                         | FEED      | IPR   |       | RPM                         | FEED      | IPR   |       |
| Metric(mm)          | Decimal |                          |           |       |       |                             |           |       |       |                             |           |       |       |
| 3                   | .1181   | 7500                     | 0.06~0.12 | .0024 | .0047 | 7500                        | 0.06~0.12 | .0024 | .0047 | 7500                        | 0.06~0.12 | .0024 | .0047 |
| 4                   | .1575   | 6400                     | 0.08~0.16 | .0031 | .0063 | 6400                        | 0.08~0.16 | .0031 | .0063 | 5600                        | 0.08~0.16 | .0031 | .0063 |
| 5                   | .1969   | 5800                     | 0.10~0.20 | .0039 | .0079 | 5800                        | 0.10~0.20 | .0039 | .0079 | 4500                        | 0.10~0.20 | .0039 | .0079 |
| 6                   | .2362   | 4800                     | 0.12~0.24 | .0047 | .0094 | 4800                        | 0.12~0.24 | .0047 | .0094 | 3800                        | 0.12~0.24 | .0047 | .0094 |
| 8                   | .3150   | 3600                     | 0.16~0.28 | .0063 | .0110 | 3600                        | 0.16~0.28 | .0063 | .0110 | 2800                        | 0.16~0.28 | .0063 | .0110 |
| 10                  | .3937   | 2900                     | 0.20~0.35 | .0079 | .0138 | 2900                        | 0.20~0.35 | .0079 | .0138 | 2300                        | 0.20~0.35 | .0079 | .0138 |
| 12                  | .4724   | 2400                     | 0.24~0.42 | .0094 | .0165 | 2400                        | 0.24~0.42 | .0094 | .0165 | 1900                        | 0.24~0.42 | .0094 | .0165 |
| 14                  | .5512   | 2050                     | 0.28~0.46 | .0110 | .0181 | 2050                        | 0.28~0.46 | .0110 | .0181 | 1600                        | 0.28~0.46 | .0110 | .0181 |

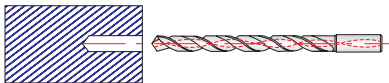
RPM = rev./min.  
FEED = mm/rev.  
IPR = inch/rev.

### DHM25 | DHM30 SERIES

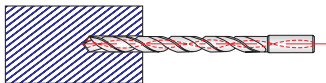
| WORK MATERIAL       |         | P                        |           |       |       | K                           |           |       |       |                             |           |       |       |
|---------------------|---------|--------------------------|-----------|-------|-------|-----------------------------|-----------|-------|-------|-----------------------------|-----------|-------|-------|
|                     |         | CARBON STEELS            |           |       |       | CAST IRON                   |           |       |       | DUCTILE CAST IRON           |           |       |       |
| STRENGTH            |         | ~ 1060 N/mm <sup>2</sup> |           |       |       | 250 ~ 350 N/mm <sup>2</sup> |           |       |       | 400 ~ 500 N/mm <sup>2</sup> |           |       |       |
| DRILLING SPEED(SFM) |         | 230 ~ 290 ft/min         |           |       |       | 230 ~ 290 ft/min            |           |       |       | 220 ~ 240 ft/min            |           |       |       |
| DIAMETER            |         | RPM                      | FEED      | IPR   |       | RPM                         | FEED      | IPR   |       | RPM                         | FEED      | IPR   |       |
| Metric(mm)          | Decimal |                          |           |       |       |                             |           |       |       |                             |           |       |       |
| 3                   | .1181   | 6400                     | 0.06~0.12 | .0024 | .0047 | 6400                        | 0.06~0.12 | .0024 | .0047 | 6400                        | 0.06~0.12 | .0024 | .0047 |
| 4                   | .1575   | 5500                     | 0.08~0.16 | .0031 | .0063 | 5500                        | 0.08~0.16 | .0031 | .0063 | 4700                        | 0.08~0.16 | .0031 | .0063 |
| 5                   | .1969   | 4900                     | 0.10~0.20 | .0039 | .0079 | 4900                        | 0.10~0.20 | .0039 | .0079 | 3800                        | 0.10~0.20 | .0039 | .0079 |
| 6                   | .2362   | 4200                     | 0.12~0.24 | .0047 | .0094 | 4200                        | 0.12~0.24 | .0047 | .0094 | 3200                        | 0.12~0.24 | .0047 | .0094 |
| 8                   | .3150   | 3000                     | 0.16~0.28 | .0063 | .0110 | 3000                        | 0.16~0.28 | .0063 | .0110 | 2400                        | 0.16~0.28 | .0063 | .0110 |
| 10                  | .3937   | 2500                     | 0.20~0.35 | .0079 | .0138 | 2500                        | 0.20~0.35 | .0079 | .0138 | 1900                        | 0.20~0.35 | .0079 | .0138 |

RPM = rev./min.  
FEED = mm/rev.  
IPR = inch/rev.)

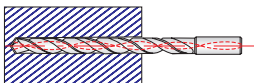
### ► Coolant Pressure : 900 PSI



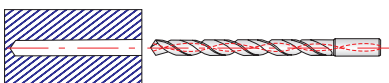
1. Use a YG 3xD Drill to produce a guide hole no larger than .004 over the required drill size. Drill the pilot hole 2xD deep hole.



2. Enter the guide hole at 50 SFM surface and .010 feed rate / per rev.



3. Before hitting the bottom of the guide hole, Increase SFM and feed rate for normal drilling.



4. After drilling, to withdraw drill, reduce SFM to 50 @ 10 inches per minute.

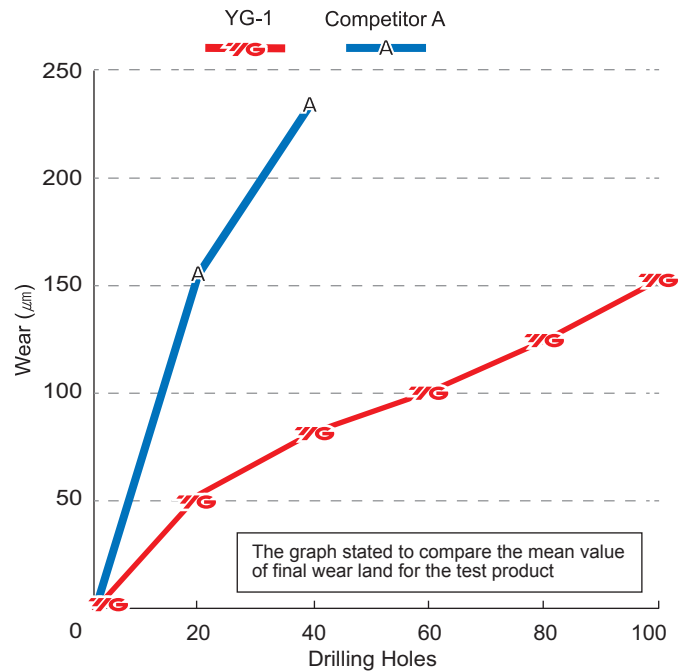


## CASE STUDY

- Low Helix Angle to maximize tools' rigidity.
- Special Point Thinning to improve chip evacuation.
- Excellent Coating and Surface Treatment for improved surface and better chip evacuation.

### ► SOLID CARBIDE DREAM DRILLS for High Hardened Steels (HRc50~70)

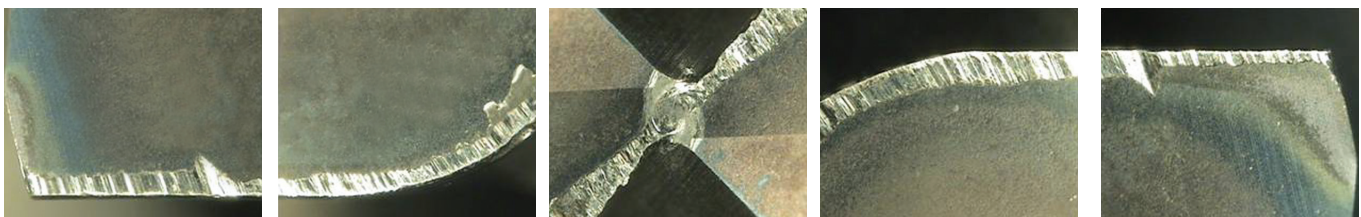
| CUTTING CONDITION |                                                                                                                              |
|-------------------|------------------------------------------------------------------------------------------------------------------------------|
| Tool              | DH500100<br>(Dream Drills for High Hardened Steels)                                                                          |
| Size              | Ø10×10×63×111                                                                                                                |
| Work Material     | <ul style="list-style-type: none"> <li>• AISI : H13</li> <li>• JIS : SKD11(HRc60)</li> <li>• DIN : X155CrV-Mo12-1</li> </ul> |
| RPM               | 380 rev./min.                                                                                                                |
| SFM               | 39 ft/min.                                                                                                                   |
| Feed              | .0016 inch/rev.                                                                                                              |
| Drilling Depth    | .98"(2.5xD)                                                                                                                  |
| Coolant           | Wet Cut                                                                                                                      |



### ► YG-1 (After Drilling 100 Holes)



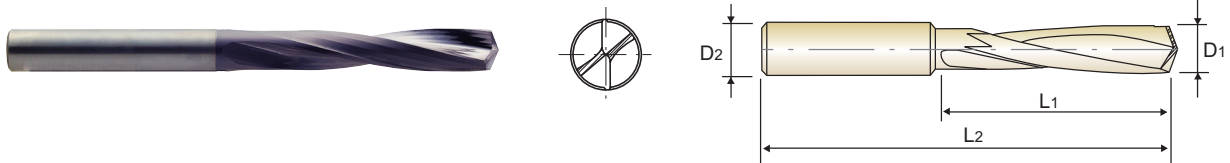
### ► COMPETITOR A (After Drilling 40 Holes)



## TiAIN-COATED SOLID CARBIDE DREAM DRILLS for High Hardened Steels (HRc50~HRc70)

### DH501 SERIES

- ▶ Drilling for High Hardened Steels; Quenched Steels, Tempered Steels (under HRc 70)
- ▶ Special geometry design for Hardened Steels
- ▶ Minimum of cutting load through special thinning
- ▶ Performing good chip removal and powerful drilling
- ▶ Tolerance : Dia. Tolerance  $\varnothing D1$  : See page 104  
Shank Tolerance  $\varnothing D2$  : -.0001 -.0005



Unit : inch

| EDP No.  | Drill Diameter |         | Shank Diameter | Flute Length | Overall Length |
|----------|----------------|---------|----------------|--------------|----------------|
|          | Fractional     | Decimal |                |              |                |
| TiAIN    | D1             |         | D2             | L1           | L2             |
| DH501001 | 1/8            | .1250   | 1/8            | 21/32        | 2              |
| DH501002 | #30            | .1285   | 3/16           | 23/32        | 2              |
| DH501003 | #29            | .1360   | 3/16           | 13/16        | 2              |
| DH501004 | #28            | .1405   | 3/16           | 13/16        | 2              |
| DH501005 | 9/64           | .1406   | 3/16           | 13/16        | 2              |
| DH501006 | #27            | .1440   | 3/16           | 13/16        | 2              |
| DH501007 | #26            | .1470   | 3/16           | 13/16        | 2              |
| DH501008 | #25            | .1495   | 3/16           | 7/8          | 2-1/16         |
| DH501009 | #24            | .1520   | 3/16           | 7/8          | 2-1/16         |
| DH501010 | #23            | .1540   | 3/16           | 7/8          | 2-1/16         |
| DH501011 | 5/32           | .1562   | 3/16           | 7/8          | 2-1/16         |
| DH501012 | #22            | .1570   | 3/16           | 7/8          | 2-1/16         |
| DH501013 | #21            | .1590   | 3/16           | 7/8          | 2-1/16         |
| DH501014 | #20            | .1610   | 3/16           | 1            | 2-1/2          |
| DH501015 | #19            | .1660   | 3/16           | 1            | 2-1/2          |
| DH501016 | 11/64          | .1719   | 3/16           | 1-1/8        | 2-3/4          |
| DH501017 | #15            | .1800   | 3/16           | 1-1/8        | 2-3/4          |
| DH501018 | #14            | .1820   | 3/16           | 1-1/8        | 2-3/4          |
| DH501019 | 3/16           | .1875   | 3/16           | 1-1/8        | 2-3/4          |
| DH501020 | #10            | .1935   | 1/4            | 1-9/32       | 2-7/8          |
| DH501021 | #9             | .1960   | 1/4            | 1-9/32       | 2-7/8          |
| DH501022 | #8             | .1990   | 1/4            | 1-9/32       | 2-7/8          |
| DH501023 | #7             | .2010   | 1/4            | 1-9/32       | 2-7/8          |
| DH501024 | 13/64          | .2031   | 1/4            | 1-9/32       | 2-7/8          |
| DH501025 | #6             | .2040   | 1/4            | 1-9/32       | 2-7/8          |
| DH501026 | #5             | .2055   | 1/4            | 1-9/32       | 2-7/8          |

| EDP No.  | Drill Diameter |         | Shank Diameter | Flute Length | Overall Length |
|----------|----------------|---------|----------------|--------------|----------------|
|          | Fractional     | Decimal |                |              |                |
| TiAIN    | D1             |         | D2             | L1           | L2             |
| DH501027 | #4             | .2090   | 1/4            | 1-9/32       | 2-7/8          |
| DH501028 | #3             | .2130   | 1/4            | 1-13/32      | 3              |
| DH501029 | 7/32           | .2188   | 1/4            | 1-13/32      | 3              |
| DH501030 | #2             | .2210   | 1/4            | 1-13/32      | 3              |
| DH501031 | #1             | .2280   | 1/4            | 1-13/32      | 3              |
| DH501032 | 15/64          | .2344   | 1/4            | 1-13/32      | 3              |
| DH501033 | B              | .2380   | 1/4            | 1-19/32      | 3-1/8          |
| DH501034 | C              | .2420   | 1/4            | 1-19/32      | 3-1/8          |
| DH501035 | D              | .2460   | 1/4            | 1-19/32      | 3-1/8          |
| DH501036 | 1/4            | .2500   | 1/4            | 1-19/32      | 3-1/8          |
| DH501037 | F              | .2570   | 3/8            | 1-19/32      | 3-1/8          |
| DH501038 | G              | .2610   | 3/8            | 1-19/32      | 3-1/8          |
| DH501039 | 17/64          | .2656   | 3/8            | 1-19/32      | 3-1/8          |
| DH501040 | I              | .2720   | 3/8            | 1-25/32      | 3-3/8          |
| DH501041 | J              | .2770   | 3/8            | 1-25/32      | 3-3/8          |
| DH501042 | 9/32           | .2812   | 3/8            | 1-25/32      | 3-3/8          |
| DH501043 | L              | .2900   | 3/8            | 1-25/32      | 3-3/8          |
| DH501044 | M              | .2950   | 3/8            | 1-25/32      | 3-3/8          |
| DH501045 | 19/64          | .2969   | 3/8            | 1-25/32      | 3-3/8          |
| DH501046 | N              | .3020   | 3/8            | 1-31/32      | 3-7/8          |
| DH501047 | 5/16           | .3125   | 3/8            | 1-31/32      | 3-7/8          |
| DH501048 | O              | .3160   | 3/8            | 1-31/32      | 3-7/8          |
| DH501049 | 21/64          | .3281   | 3/8            | 1-31/32      | 3-7/8          |
| DH501050 | Q              | .3320   | 3/8            | 1-31/32      | 3-7/8          |
| DH501051 | R              | .3390   | 3/8            | 2-1/4        | 4-1/8          |
| DH501052 | 11/32          | .3438   | 3/8            | 2-1/4        | 4-1/8          |

▶ NEXT PAGE

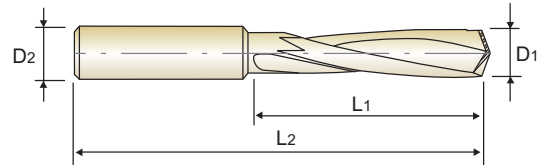
◎ : Excellent ○ : Good

| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRc30~45           | HRc45~55        | HRc55~ |                  |           |          |        |        |      |          |
|               |              |                    | ◎               | ◎      |                  |           |          |        |        |      |          |

# TiAIN-COATED SOLID CARBIDE DREAM DRILLS for High Hardened Steels (HRc50~HRc70)

## DH501 SERIES

- ▶ Drilling for High Hardened Steels; Quenched Steels, Tempered Steels (under HRc 70)
- ▶ Special geometry design for Hardened Steels
- ▶ Minimum of cutting load through special thinning
- ▶ Performing good chip removal and powerful drilling
- ▶ Tolerance : Dia. Tolerance  $\varnothing D1$  : See page 104  
Shank Tolerance  $\varnothing D2$ : -.0001 -.0005



Unit : inch

| EDP No.  | Drill Diameter |         | Shank Diameter | Flute Length | Overall Length |
|----------|----------------|---------|----------------|--------------|----------------|
|          | Fractional     | Decimal |                |              |                |
| TiAIN    | D1             |         | D2             | L1           | L2             |
| DH501053 | 23/64          | .3594   | 3/8            | 2-1/4        | 4-1/8          |
| DH501054 | U              | .3680   | 3/8            | 2-1/4        | 4-1/8          |
| DH501055 | 3/8            | .3750   | 3/8            | 2-1/4        | 4-1/8          |
| DH501056 | V              | .3770   | 1/2            | 2-1/2        | 4-3/8          |
| DH501057 | 25/64          | .3906   | 1/2            | 2-1/2        | 4-3/8          |
| DH501058 | X              | .3970   | 1/2            | 2-1/2        | 4-3/8          |
| DH501059 | Y              | .4040   | 1/2            | 2-1/2        | 4-3/8          |
| DH501060 | 13/32          | .4062   | 1/2            | 2-1/2        | 4-3/8          |
| DH501061 | Z              | .4130   | 1/2            | 2-1/2        | 4-3/8          |
| DH501062 | 27/64          | .4219   | 1/2            | 2-13/16      | 4-5/8          |
| DH501063 | 7/16           | .4375   | 1/2            | 2-13/16      | 4-5/8          |
| DH501064 | 29/64          | .4531   | 1/2            | 2-13/16      | 4-5/8          |
| DH501065 | 15/32          | .4688   | 1/2            | 2-13/16      | 4-5/8          |
| DH501066 | 31/64          | .4844   | 1/2            | 2-13/16      | 4-5/8          |
| DH501067 | 1/2            | .5000   | 1/2            | 3-1/16       | 5              |
| DH501068 | 33/64          | .5156   | 5/8            | 3-1/16       | 5              |

| EDP No.  | Drill Diameter |         | Shank Diameter | Flute Length | Overall Length |
|----------|----------------|---------|----------------|--------------|----------------|
|          | Fractional     | Decimal |                |              |                |
| TiAIN    | D1             |         | D2             | L1           | L2             |
| DH501069 | 17/32          | .5312   | 5/8            | 3-1/16       | 5              |
| DH501070 | 35/64          | .5469   | 5/8            | 3-1/16       | 5              |
| DH501071 | 9/16           | .5625   | 5/8            | 3-1/16       | 5              |
| DH501072 | 37/64          | .5781   | 5/8            | 3-9/32       | 5-1/4          |
| DH501073 | 19/32          | .5937   | 5/8            | 3-9/32       | 5-1/4          |
| DH501074 | 39/64          | .6094   | 5/8            | 3-9/32       | 5-1/4          |
| DH501075 | 5/8            | .6250   | 5/8            | 3-9/32       | 5-1/4          |
| DH501076 | 41/64          | .6406   | 3/4            | 3-9/32       | 5-1/4          |
| DH501077 | 21/32          | .6563   | 3/4            | 3-11/16      | 5-5/8          |
| DH501078 | 43/64          | .6719   | 3/4            | 3-11/16      | 5-5/8          |
| DH501079 | 11/16          | .6875   | 3/4            | 3-11/16      | 5-5/8          |
| DH501080 | 45/64          | .7031   | 3/4            | 3-11/16      | 5-5/8          |
| DH501081 | 23/32          | .7188   | 3/4            | 3-3/4        | 6              |
| DH501082 | 47/64          | .7344   | 3/4            | 3-3/4        | 6              |
| DH501083 | 3/4            | .7500   | 3/4            | 3-3/4        | 6              |

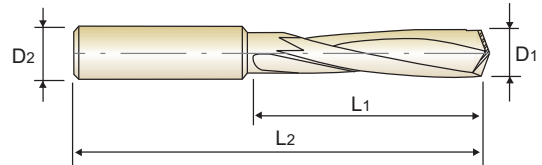
◎ : Excellent ○ : Good

| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRc30~45           | HRc45~55        | HRc55~ |                  |           |          |        |        |      |          |
|               |              |                    | ◎               | ◎      |                  |           |          |        |        |      |          |

## TiAIN-COATED SOLID CARBIDE DREAM DRILLS for High Hardened Steels (HRc50~HRc70)

### DH500 SERIES

- ▶ Drilling for High Hardened Steels; Quenched Steels, Tempered Steels (under HRc 70)
- ▶ Special geometry design for Hardened Steels
- ▶ Minimum of cutting load through special thinning
- ▶ Performing good chip removal and powerful drilling



P.102

Unit : mm

| EDP No.  | Drill Diameter |         | Shank Diameter | Flute Length | Overall Length |
|----------|----------------|---------|----------------|--------------|----------------|
|          | Metric         | Decimal |                |              |                |
| TiAIN    | D1             |         | D2             | L1           | L2             |
| DH500010 | 1.0            | .0394   | 3              | 6            | 40             |
| DH500011 | 1.1            | .0433   | 3              | 6            | 40             |
| DH500012 | 1.2            | .0472   | 3              | 6            | 40             |
| DH500013 | 1.3            | .0512   | 3              | 8            | 40             |
| DH500014 | 1.4            | .0551   | 3              | 8            | 40             |
| DH500015 | 1.5            | .0591   | 3              | 8            | 40             |
| DH500016 | 1.6            | .0630   | 3              | 10           | 40             |
| DH500017 | 1.7            | .0669   | 3              | 10           | 40             |
| DH500018 | 1.8            | .0709   | 3              | 10           | 40             |
| DH500019 | 1.9            | .0748   | 3              | 10           | 40             |
| DH500020 | 2.0            | .0787   | 3              | 12           | 42             |
| DH500025 | 2.5            | .0984   | 3              | 14           | 44             |
| DH500026 | 2.6            | .1024   | 3              | 16           | 44             |
| DH500028 | 2.8            | .1102   | 3              | 16           | 46             |
| DH500030 | 3.0            | .1181   | 3              | 18           | 46             |
| DH500033 | 3.3            | .1299   | 4              | 18           | 48             |
| DH500034 | 3.4            | .1339   | 4              | 20           | 50             |
| DH500035 | 3.5            | .1378   | 4              | 20           | 50             |
| DH500038 | 3.8            | .1496   | 4              | 22           | 52             |
| DH500040 | 4.0            | .1575   | 4              | 22           | 52             |
| DH500041 | 4.1            | .1614   | 6              | 25           | 65             |
| DH500042 | 4.2            | .1654   | 6              | 25           | 65             |
| DH500043 | 4.3            | .1693   | 6              | 28           | 68             |
| DH500044 | 4.4            | .1732   | 6              | 28           | 68             |
| DH500045 | 4.5            | .1772   | 6              | 28           | 68             |
| DH500046 | 4.6            | .1811   | 6              | 28           | 68             |
| DH500048 | 4.8            | .1890   | 6              | 32           | 72             |
| DH500049 | 4.9            | .1929   | 6              | 32           | 72             |
| DH500050 | 5.0            | .1969   | 6              | 32           | 72             |

| EDP No.  | Drill Diameter |         | Shank Diameter | Flute Length | Overall Length |
|----------|----------------|---------|----------------|--------------|----------------|
|          | Metric         | Decimal |                |              |                |
| TiAIN    | D1             |         | D2             | L1           | L2             |
| DH500051 | 5.1            | .2008   | 6              | 32           | 72             |
| DH500052 | 5.2            | .2047   | 6              | 32           | 72             |
| DH500053 | 5.3            | .2087   | 6              | 32           | 72             |
| DH500055 | 5.5            | .2165   | 6              | 35           | 75             |
| DH500060 | 6.0            | .2362   | 6              | 35           | 75             |
| DH500062 | 6.2            | .2441   | 8              | 40           | 80             |
| DH500065 | 6.5            | .2559   | 8              | 40           | 80             |
| DH500068 | 6.8            | .2677   | 8              | 45           | 85             |
| DH500069 | 6.9            | .2717   | 8              | 45           | 85             |
| DH500070 | 7.0            | .2756   | 8              | 45           | 85             |
| DH500075 | 7.5            | .2953   | 8              | 45           | 85             |
| DH500080 | 8.0            | .3150   | 8              | 50           | 98             |
| DH500085 | 8.5            | .3346   | 10             | 50           | 98             |
| DH500086 | 8.6            | .3386   | 10             | 57           | 105            |
| DH500088 | 8.8            | .3465   | 10             | 57           | 105            |
| DH500090 | 9.0            | .3543   | 10             | 57           | 105            |
| DH500093 | 9.3            | .3661   | 10             | 57           | 105            |
| DH500095 | 9.5            | .3740   | 10             | 57           | 105            |
| DH500100 | 10.0           | .3937   | 10             | 63           | 111            |
| DH500102 | 10.2           | .4016   | 12             | 63           | 111            |
| DH500103 | 10.3           | .4055   | 12             | 63           | 111            |
| DH500105 | 10.5           | .4134   | 12             | 71           | 111            |
| DH500108 | 10.8           | .4252   | 12             | 71           | 119            |
| DH500110 | 11.0           | .4331   | 12             | 71           | 119            |
| DH500115 | 11.5           | .4528   | 12             | 71           | 119            |
| DH500120 | 12.0           | .4724   | 12             | 71           | 119            |
| DH500121 | 12.1           | .4764   | 14             | 77           | 125            |
| DH500140 | 14.0           | .5512   | 14             | 77           | 125            |

◎ : Excellent ○ : Good

| P             |              |                    |                 | H      | M                | K         | N        |        |        |      | S        |
|---------------|--------------|--------------------|-----------------|--------|------------------|-----------|----------|--------|--------|------|----------|
| Carbon Steels | Alloy Steels | Prehardened Steels | Hardened Steels |        | Stainless Steels | Cast Iron | Aluminum | Copper | Bronze | CFRP | Titanium |
| ~HB225        | HB225~325    | HRc30~45           | HRc45~55        | HRc55~ |                  |           |          |        |        |      |          |
|               |              |                    | ◎               | ◎      |                  |           |          |        |        |      |          |

## TiAIN-COATED SOLID CARBIDE DREAM DRILLS for High Hardened Steels (HRc50~HRc70)

### DH501 SERIES

| WORK MATERIAL       |            |         | P               |      |       | H                    |      |       |                |      |       |
|---------------------|------------|---------|-----------------|------|-------|----------------------|------|-------|----------------|------|-------|
|                     |            |         | HARDENED STEELS |      |       | HIGH HARDENED STEELS |      |       |                |      |       |
|                     |            |         | HRc 50~55       |      |       | HRc 55~60            |      |       | HRc 60~70      |      |       |
| DRILLING SPEED(SFM) |            |         | 45 ~ 72 ft/min  |      |       | 32 ~ 52 ft/min       |      |       | 26 ~ 42 ft/min |      |       |
| DIAMETER            |            |         | RPM             | FEED | IPR   | RPM                  | FEED | IPR   | RPM            | FEED | IPR   |
| Inch                | Metric(mm) | Decimal |                 |      |       |                      |      |       |                |      |       |
| 5/64                | 1.984      | .0781   | 2860            | 0.04 | .0015 | 2000                 | 0.04 | .0015 | 1900           | 0.04 | .0015 |
| 1/8                 | 3.175      | .1250   | 1900            | 0.04 | .0015 | 1330                 | 0.04 | .0015 | 1250           | 0.04 | .0015 |
| 5/32                | 3.969      | .1563   | 1430            | 0.04 | .0015 | 1000                 | 0.04 | .0015 | 950            | 0.04 | .0015 |
| 13/64               | 5.159      | .2031   | 1150            | 0.04 | .0015 | 800                  | 0.04 | .0015 | 750            | 0.04 | .0015 |
| 15/64               | 5.953      | .2344   | 960             | 0.04 | .0015 | 670                  | 0.04 | .0015 | 630            | 0.04 | .0015 |
| 5/16                | 7.938      | .3125   | 720             | 0.04 | .0015 | 500                  | 0.04 | .0015 | 480            | 0.04 | .0015 |
| 25/64               | 9.922      | .3906   | 570             | 0.04 | .0015 | 400                  | 0.04 | .0015 | 380            | 0.04 | .0015 |
| 15/32               | 11.906     | .4688   | 480             | 0.04 | .0015 | 330                  | 0.04 | .0015 | 320            | 0.04 | .0015 |
| 9/16                | 14.288     | .5625   | 435             | 0.04 | .0015 | 280                  | 0.04 | .0015 | 270            | 0.04 | .0015 |
| 41/64               | 16.272     | .6406   | 380             | 0.04 | .0015 | 250                  | 0.04 | .0015 | 240            | 0.04 | .0015 |
| 11/16               | 17.463     | .6875   | 325             | 0.04 | .0015 | 235                  | 0.04 | .0015 | 190            | 0.04 | .0015 |
| 47/64               | 18.653     | .7344   | 310             | 0.04 | .0015 | 220                  | 0.04 | .0015 | 180            | 0.04 | .0015 |

RPM = rev./min.  
FEED = mm/rev.  
IPR = inch/rev.

### DH500 SERIES

| WORK MATERIAL       |       | P               |      |       | H                      |      |       |                |      |       |
|---------------------|-------|-----------------|------|-------|------------------------|------|-------|----------------|------|-------|
|                     |       | HARDENED STEELS |      |       | HIGH HARDENED STEEL LS |      |       |                |      |       |
|                     |       | HRc 50~55       |      |       | HRc 55~60              |      |       | HRc 60~70      |      |       |
| DRILLING SPEED(SFM) |       | 45 ~ 72 ft/min  |      |       | 32 ~ 52 ft/min         |      |       | 26 ~ 42 ft/min |      |       |
| DIAMETER            |       | RPM             | FEED | IPR   | RPM                    | FEED | IPR   | RPM            | FEED | IPR   |
| Metric(mm)          | Inch  |                 |      |       |                        |      |       |                |      |       |
| 1.0                 | .0394 | 5600            | 0.04 | .0015 | 4000                   | 0.04 | .0015 | 3700           | 0.04 | .0015 |
| 2.0                 | .0787 | 2900            | 0.04 | .0015 | 2100                   | 0.04 | .0015 | 1900           | 0.04 | .0015 |
| 3.0                 | .1181 | 1900            | 0.04 | .0015 | 1330                   | 0.04 | .0015 | 1250           | 0.04 | .0015 |
| 4.0                 | .1575 | 1430            | 0.04 | .0015 | 1000                   | 0.04 | .0015 | 950            | 0.04 | .0015 |
| 5.0                 | .1969 | 1150            | 0.04 | .0015 | 800                    | 0.04 | .0015 | 750            | 0.04 | .0015 |
| 6.0                 | .2362 | 960             | 0.04 | .0015 | 670                    | 0.04 | .0015 | 630            | 0.04 | .0015 |
| 8.0                 | .3150 | 720             | 0.04 | .0015 | 500                    | 0.04 | .0015 | 480            | 0.04 | .0015 |
| 10.0                | .3937 | 570             | 0.04 | .0015 | 400                    | 0.04 | .0015 | 380            | 0.04 | .0015 |
| 12.0                | .4724 | 480             | 0.04 | .0015 | 330                    | 0.04 | .0015 | 320            | 0.04 | .0015 |
| 14.0                | .5512 | 438             | 0.04 | .0015 | 282                    | 0.04 | .0015 | 272            | 0.04 | .0015 |

RPM = rev./min.  
FEED = mm/rev.  
IPR = inch/rev.



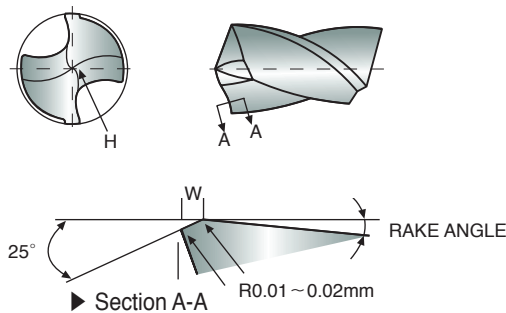
## CHARACTERISTIC OF DREAM DRILLS

- YG-1's Dream Drill Series are suitable for high speed and accurate drilling operations by special design and high quality.
- Good performance for Steels, Cast Irons, Tool steels, Alloy steels and Stainless steels, Aluminum and Composite Material.
- Rapid chip evacuation and excellent chip breaking can be achieved by special designed cutting edges on point and chip breakers on leading edges.
- High accuracy and stability.
- Longer tool life with TiAlN coating.
- Self-centering

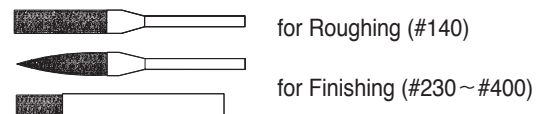


## HONING GUIDE OF DREAM DRILLS

### ■ Dimension of Honing



### ■ Scraper

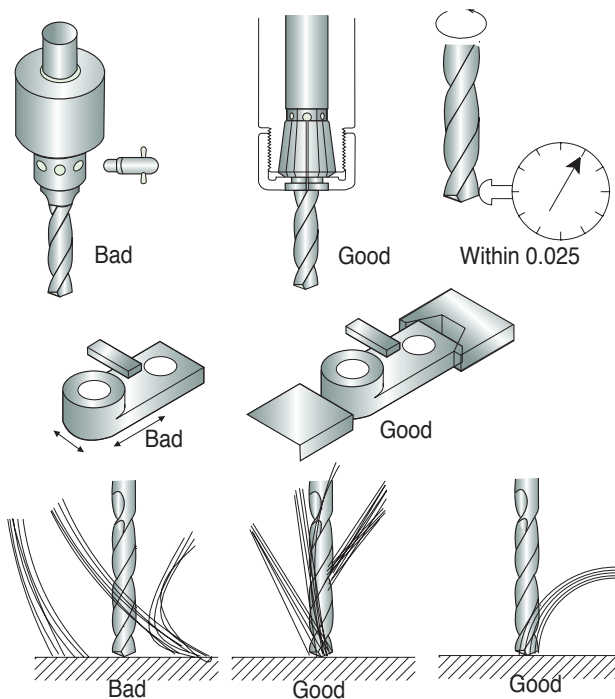


| Work Material | Alloy Steels | Mild Steels | Cast Iron |
|---------------|--------------|-------------|-----------|
| W(mm)         | 0.15 ~ 0.2   | 0.1 ~ 0.15  | 0.03      |

► The dimension W of stocked products is 0.1 ~ 0.15.



## USE OF DREAM DRILLS



- Chucking with spring collet correctly.
- Radial run out at cutting lip must not exceed 0.025 mm.

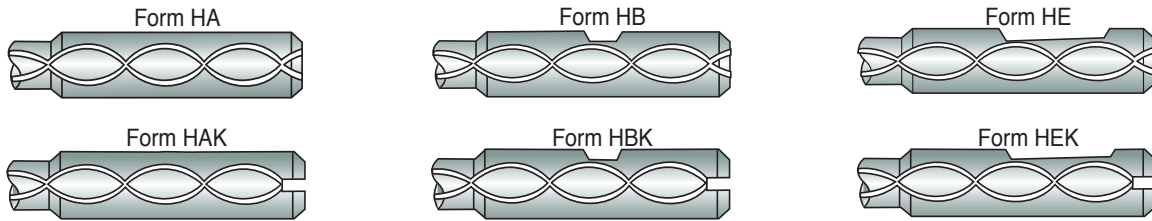
► Tighten clamp of work piece.

- Supply coolant enough to the entrance of holes.
- In using Dream Drill with Coolant holes, high pressure coolant is needed.



#### 4

### SHANK TYPE DREAM DRILLS WITH COOLANT HOLES



► If you need other Shank Type, we can supply them.

#### 5

### DRILL DIAMETER TOLERANCE INCH

$\mu\text{m} = 1/1000\text{mm}$

| up to .118    | over .118 up to .236 | over .236 up to .394 | over .394 up to .709 |
|---------------|----------------------|----------------------|----------------------|
| +0<br>-.00055 | +0<br>-.00071        | +0<br>-.00087        | +0<br>-.00106        |

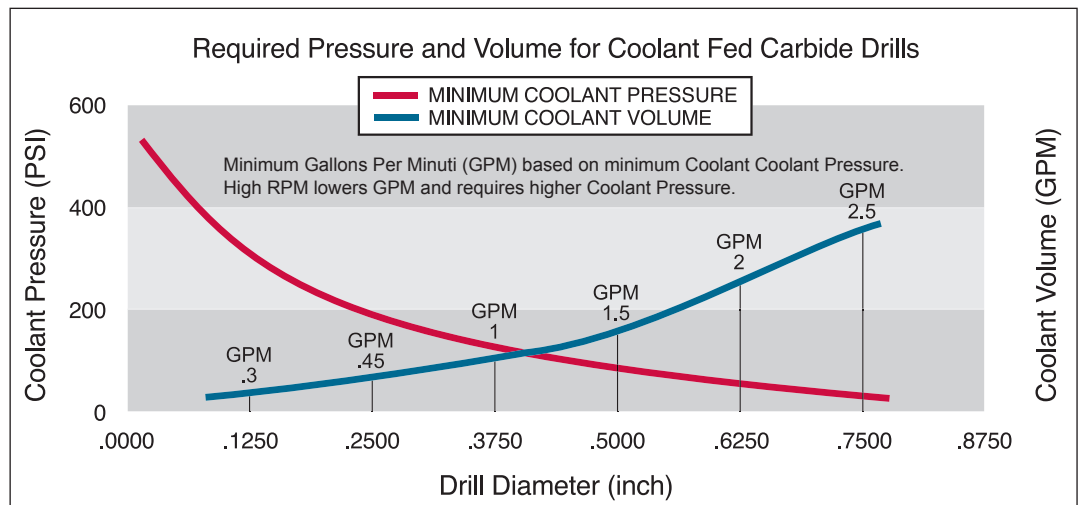
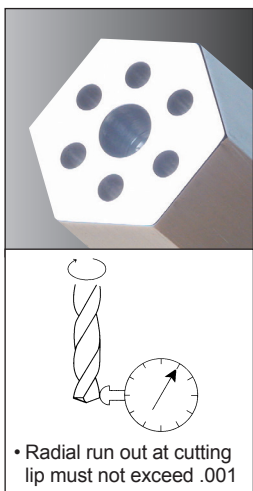
#### 6

### DRILL DIAMETER TOLERANCE METRIC

| Diameter (mm) | 1 - 3<br>from to   | 3 - 6<br>over to   | 6 - 10<br>over to  | 10 - 18<br>over to | 18 - 30<br>over to |
|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| <b>h6</b>     | 0<br>-.00024       | 0<br>-.00032       | 0<br>-.00036       | 0<br>-.00044       | 0<br>-.00052       |
| <b>h7</b>     | 0<br>-.0004        | 0<br>-.00048       | 0<br>-.00059       | 0<br>-.00071       | 0<br>-.00083       |
| <b>h8</b>     | 0<br>-.00056       | 0<br>-.00071       | 0<br>-.00087       | 0<br>-.00107       | 0<br>-.00130       |
| <b>m7</b>     | +.00048<br>+.00007 | +.00063<br>+.00015 | +.00083<br>+.00023 | +.00099<br>+.00027 | +.00114<br>+.00031 |

#### 7

### COOLANT RECOMMENDATIONS FOR CARBIDE DREAM DRILLS



# MEMO

# MEMO



# HIGH QUALITY PRODUCTS and ON TIME DELIVERY for WORLD-WIDE CUSTOMERS

Since 1982, YG-1 has been committed to quality, innovation and the unique customer experience.

Our performance and experience have granted YG-1 the global impression of one of the leading manufacturers of high quality cutting tool solutions. This global footprint expands over 75 countries, with international logistic centers, pledging to our customers to give the best service available today - and tomorrow.

## EUROPE

|                                                                                                  |                                                                                           |                                                                                             |                                                                                            |                                                                                                 |                                                                                                     |
|--------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
|  BELGIUM        |  FINLAND |  ITALY     |  PORTUGAL |  SLOVENIA    |  THE NETHERLANDS |
|  CROATIA        |  FRANCE  |  LITHUANIA |  ROMANIA  |  SPAIN       |  TURKEY          |
|  CZECH REPUBLIC |  GERMANY |  NORWAY    |  RUSSIA   |  SWEDEN      |  UNITED KINGDOM  |
|  DENMARK        |  HUNGARY |  POLAND    |  SERBIA   |  SWITZERLAND |                                                                                                     |

## ASIA PACIFIC

|                                                                                              |                                                                                             |                                                                                                           |                                                                                                 |                                                                                                          |
|----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
|  AUSTRALIA  |  INDONESIA |  KINGDOM OF SAUDI ARABIA |  SINGAPORE   |  UNITED ARAB EMIRATES |
|  CHINA      |  IRAN      |  MALAYSIA                |  SOUTH KOREA |  VIETNAM              |
|  HONG KONG |  ISRAEL   |  PAKISTAN               |  TAIWAN     |                                                                                                          |
|  INDIA    |  JAPAN   |  PHILIPPINES           |  THAILAND  |                                                                                                          |

## AMERICAS

|                                                                                            |                                                                                            |                                                                                              |                                                                                            |                                                                                                     |
|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
|  BRAZIL |  CANADA |  COLOMBIA |  MEXICO |  UNITED STATES |
|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|

## AFRICA

|                                                                                           |                                                                                                  |
|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
|  EGYPT |  SOUTH AFRICA |
|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|

**YG** YG-1 CO., LTD.

\* For the more information on sales network, please contact the head office as below;

### YG-1 HEAD OFFICE

211, Sewolcheon-ro, Bupyeong-gu, Incheon, South Korea  
Phone : +82-32-526-0909  
E-mail : yg1@yg1.kr  
www.yg1.kr

### YG-1 USA

730 Corporate Woods Parkway, Vernon Hills, IL 60061 U.S.A.  
Phone : 800-765-8665  
Technical Assistance : 888-868-5988  
www.yg1usa.com