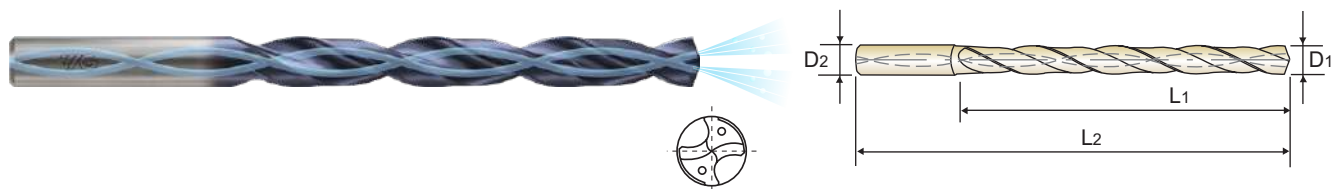


## TiAIN-COATED SOLID CARBIDE DREAM DRILLS General with Coolant Holes (8XD)

**DH421** SERIES

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- ▶ 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



**EXTRA LONG**

8 × D

|          |                |                |              |                | Unit : mm |                |                |              |                |
|----------|----------------|----------------|--------------|----------------|-----------|----------------|----------------|--------------|----------------|
| EDP No.  | Drill Diameter | Shank Diameter | Flute Length | Overall Length | EDP No.   | Drill Diameter | Shank Diameter | Flute Length | Overall Length |
| TiAIN    | D1             | D2             | L1           | L2             | TiAIN     | D1             | D2             | L1           | L2             |
| DH421030 | 3.0            | 6              | 34           | 72             | DH421054  | 5.4            | 6              | 57           | 95             |
| DH421031 | 3.1            | 6              | 34           | 72             | DH421055  | 5.5            | 6              | 57           | 95             |
| DH421032 | 3.2            | 6              | 34           | 72             | DH421056  | 5.6            | 6              | 57           | 95             |
| DH421033 | 3.3            | 6              | 34           | 72             | DH421057  | 5.7            | 6              | 57           | 95             |
| DH421034 | 3.4            | 6              | 34           | 72             | DH421058  | 5.8            | 6              | 57           | 95             |
| DH421035 | 3.5            | 6              | 34           | 72             | DH421059  | 5.9            | 6              | 57           | 95             |
| DH421036 | 3.6            | 6              | 34           | 72             | DH421060  | 6.0            | 6              | 57           | 95             |
| DH421037 | 3.7            | 6              | 34           | 72             | DH421061  | 6.1            | 8              | 76           | 114            |
| DH421038 | 3.8            | 6              | 43           | 81             | DH421062  | 6.2            | 8              | 76           | 114            |
| DH421039 | 3.9            | 6              | 43           | 81             | DH421063  | 6.3            | 8              | 76           | 114            |
| DH421040 | 4.0            | 6              | 43           | 81             | DH421064  | 6.4            | 8              | 76           | 114            |
| DH421041 | 4.1            | 6              | 43           | 81             | DH421065  | 6.5            | 8              | 76           | 114            |
| DH421042 | 4.2            | 6              | 43           | 81             | DH421066  | 6.6            | 8              | 76           | 114            |
| DH421043 | 4.3            | 6              | 43           | 81             | DH421067  | 6.7            | 8              | 76           | 114            |
| DH421044 | 4.4            | 6              | 43           | 81             | DH421068  | 6.8            | 8              | 76           | 114            |
| DH421045 | 4.5            | 6              | 43           | 81             | DH421069  | 6.9            | 8              | 76           | 114            |
| DH421046 | 4.6            | 6              | 43           | 81             | DH421070  | 7.0            | 8              | 76           | 114            |
| DH421047 | 4.7            | 6              | 43           | 81             | DH421071  | 7.1            | 8              | 76           | 114            |
| DH421048 | 4.8            | 6              | 57           | 95             | DH421072  | 7.2            | 8              | 76           | 114            |
| DH421049 | 4.9            | 6              | 57           | 95             | DH421073  | 7.3            | 8              | 76           | 114            |
| DH421050 | 5.0            | 6              | 57           | 95             | DH421074  | 7.4            | 8              | 76           | 114            |
| DH421051 | 5.1            | 6              | 57           | 95             | DH421075  | 7.5            | 8              | 76           | 114            |
| DH421052 | 5.2            | 6              | 57           | 95             | DH421076  | 7.6            | 8              | 76           | 114            |
| DH421053 | 5.3            | 6              | 57           | 95             | DH421077  | 7.7            | 8              | 76           | 114            |

▶ Other shank types are available on your request.

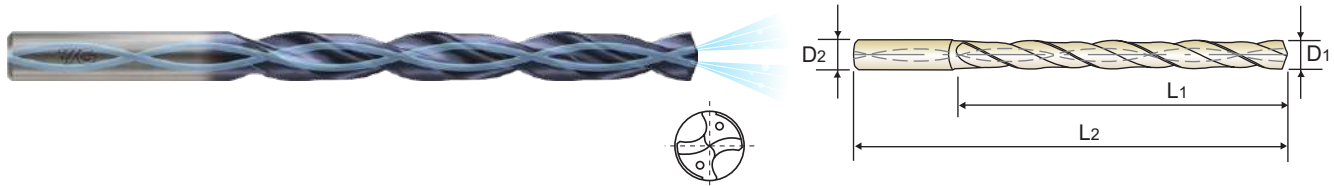
▶ NEXT PAGE

|                      |                        |     |                        |     |     |                                           |     |     |                        |                                    |                             |                 |     |     |                |                 |                   |                |                     |                   |                    | ◎ : Excellent   ○ : Good |  |  |  |
|----------------------|------------------------|-----|------------------------|-----|-----|-------------------------------------------|-----|-----|------------------------|------------------------------------|-----------------------------|-----------------|-----|-----|----------------|-----------------|-------------------|----------------|---------------------|-------------------|--------------------|--------------------------|--|--|--|
| ISO                  | P                      |     |                        |     |     |                                           |     |     |                        |                                    |                             | M               |     |     |                |                 | K                 |                |                     |                   |                    |                          |  |  |  |
| Material Description | Non-alloy steel        |     |                        |     |     | Low alloy steel                           |     |     |                        | High alloyed steel, and tool steel |                             | Stainless steel |     |     | Grey cast iron |                 | Nodular cast iron |                | Malleable cast iron |                   |                    |                          |  |  |  |
| VDI 3323             | 1                      | 2   | 3                      | 4   | 5   | 6                                         | 7   | 8   | 9                      | 10                                 | 11                          | 12              | 13  | 14  | 15             | 16              | 17                | 18             | 19                  | 20                |                    |                          |  |  |  |
| HRC                  |                        | 13  | 25                     | 28  | 32  | 10                                        | 29  | 32  | 38                     | 15                                 | 35                          | 15              | 23  | 10  | 10             | 26              | 3                 | 25             |                     | 21                |                    |                          |  |  |  |
| HB                   | 125                    | 190 | 250                    | 270 | 300 | 180                                       | 275 | 300 | 350                    | 200                                | 325                         | 200             | 240 | 180 | 180            | 260             | 160               | 250            | 130                 | 230               |                    |                          |  |  |  |
| Recommended          |                        | ◎   | ◎                      | ◎   | ○   | ◎                                         | ◎   | ○   | ○                      | ◎                                  | ○                           | ○               | ○   | ○   | ◎              | ○               | ◎                 | ○              | ◎                   | ○                 |                    |                          |  |  |  |
| ISO                  | N                      |     |                        |     |     |                                           |     |     |                        |                                    | S                           |                 |     |     |                |                 |                   | H              |                     |                   |                    |                          |  |  |  |
| Material Description | Aluminum-wrought alloy |     | Aluminum-cast, alloyed |     |     | Copper and Copper Alloys (Bronze / Brass) |     |     | Non Metallic Materials |                                    | Heat Resistant Super Alloys |                 |     |     |                | Titanium Alloys |                   | Hardened steel |                     | Chilled Cast iron | Hardened Cast Iron |                          |  |  |  |
| VDI 3323             | 21                     | 22  | 23                     | 24  | 25  | 26                                        | 27  | 28  | 29                     | 30                                 | 31                          | 32              | 33  | 34  | 35             | 36              | 37                | 38             | 39                  | 40                | 41                 |                          |  |  |  |
| HRC                  |                        |     |                        |     |     |                                           |     |     |                        |                                    | 15                          | 30              | 25  | 38  | 34             |                 |                   | 55             | 60                  | 42                | 55                 |                          |  |  |  |
| HB                   | 60                     | 100 | 75                     | 90  | 130 | 110                                       | 90  | 100 |                        |                                    | 200                         | 280             | 250 | 350 | 320            | 400 Rm          | 1050 Rm           | 550            | 630                 | 400               | 550                |                          |  |  |  |
| Recommended          |                        |     |                        |     |     |                                           |     |     |                        |                                    |                             |                 |     |     |                |                 |                   |                |                     |                   |                    |                          |  |  |  |

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

**DH421** SERIES

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron
- ▶ 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



P. 40

**EXTRA LONG**

8 × D

| EDP No.  | Drill Diameter | Shank Diameter | Flute Length | Overall Length |
|----------|----------------|----------------|--------------|----------------|
| TiAIN    | D1             | D2             | L1           | L2             |
| DH421078 | 7.8            | 8              | 76           | 114            |
| DH421079 | 7.9            | 8              | 76           | 114            |
| DH421080 | 8.0            | 8              | 76           | 114            |
| DH421081 | 8.1            | 10             | 95           | 142            |
| DH421082 | 8.2            | 10             | 95           | 142            |
| DH421083 | 8.3            | 10             | 95           | 142            |
| DH421084 | 8.4            | 10             | 95           | 142            |
| DH421085 | 8.5            | 10             | 95           | 142            |
| DH421086 | 8.6            | 10             | 95           | 142            |
| DH421087 | 8.7            | 10             | 95           | 142            |
| DH421088 | 8.8            | 10             | 95           | 142            |
| DH421089 | 8.9            | 10             | 95           | 142            |
| DH421090 | 9.0            | 10             | 95           | 142            |
| DH421091 | 9.1            | 10             | 95           | 142            |
| DH421092 | 9.2            | 10             | 95           | 142            |
| DH421093 | 9.3            | 10             | 95           | 142            |
| DH421094 | 9.4            | 10             | 95           | 142            |
| DH421095 | 9.5            | 10             | 95           | 142            |
| DH421096 | 9.6            | 10             | 95           | 142            |
| DH421097 | 9.7            | 10             | 95           | 142            |
| DH421098 | 9.8            | 10             | 95           | 142            |
| DH421099 | 9.9            | 10             | 95           | 142            |
| DH421100 | 10.0           | 10             | 95           | 142            |
| DH421101 | 10.1           | 12             | 114          | 162            |

▶ Other shank types are available on your request.

| EDP No.  | Drill Diameter | Shank Diameter | Flute Length | Overall Length |
|----------|----------------|----------------|--------------|----------------|
| TiAIN    | D1             | D2             | L1           | L2             |
| DH421102 | 10.2           | 12             | 114          | 162            |
| DH421103 | 10.3           | 12             | 114          | 162            |
| DH421104 | 10.4           | 12             | 114          | 162            |
| DH421105 | 10.5           | 12             | 114          | 162            |
| DH421106 | 10.6           | 12             | 114          | 162            |
| DH421107 | 10.7           | 12             | 114          | 162            |
| DH421108 | 10.8           | 12             | 114          | 162            |
| DH421109 | 10.9           | 12             | 114          | 162            |
| DH421110 | 11.0           | 12             | 114          | 162            |
| DH421111 | 11.1           | 12             | 114          | 162            |
| DH421112 | 11.2           | 12             | 114          | 162            |
| DH421113 | 11.3           | 12             | 114          | 162            |
| DH421114 | 11.4           | 12             | 114          | 162            |
| DH421115 | 11.5           | 12             | 114          | 162            |
| DH421116 | 11.6           | 12             | 114          | 162            |
| DH421117 | 11.7           | 12             | 114          | 162            |
| DH421118 | 11.8           | 12             | 114          | 162            |
| DH421119 | 11.9           | 12             | 114          | 162            |
| DH421120 | 12.0           | 12             | 114          | 162            |
| DH421125 | 12.5           | 14             | 133          | 178            |
| DH421130 | 13.0           | 14             | 133          | 178            |
| DH421135 | 13.5           | 14             | 133          | 178            |
| DH421140 | 14.0           | 14             | 133          | 178            |

Unit : mm

| ◎ : Excellent   ○ : Good |                        |     |                        |     |     |                                           |     |     |     |                                    |     |                             |     |     |                |        |                   |     |                     |     |                   |                    |
|--------------------------|------------------------|-----|------------------------|-----|-----|-------------------------------------------|-----|-----|-----|------------------------------------|-----|-----------------------------|-----|-----|----------------|--------|-------------------|-----|---------------------|-----|-------------------|--------------------|
| ISO                      | P                      |     |                        |     |     |                                           |     |     |     |                                    | M   |                             |     |     |                | K      |                   |     |                     |     |                   |                    |
| Material Description     | Non-alloy steel        |     |                        |     |     | Low alloy steel                           |     |     |     | High alloyed steel, and tool steel |     | Stainless steel             |     |     | Grey cast iron |        | Nodular cast iron |     | Malleable cast iron |     |                   |                    |
| VDI 3323                 | 1                      | 2   | 3                      | 4   | 5   | 6                                         | 7   | 8   | 9   | 10                                 | 11  | 12                          | 13  | 14  | 15             | 16     | 17                | 18  | 19                  | 20  |                   |                    |
| HRC                      |                        | 13  | 25                     | 28  | 32  | 10                                        | 29  | 32  | 38  | 15                                 | 35  | 15                          | 23  | 10  | 10             | 26     | 3                 | 25  |                     | 21  |                   |                    |
| HB                       | 125                    | 190 | 250                    | 270 | 300 | 180                                       | 275 | 300 | 350 | 200                                | 325 | 200                         | 240 | 180 | 180            | 260    | 160               | 250 | 130                 | 230 |                   |                    |
| Recommended              |                        | ◎   | ◎                      | ◎   | ○   | ◎                                         | ◎   | ○   | ○   | ◎                                  | ○   | ○                           | ○   | ○   | ◎              | ○      | ◎                 | ○   | ◎                   | ○   |                   |                    |
| ISO                      | N                      |     |                        |     |     |                                           |     |     |     |                                    | S   |                             |     |     |                |        |                   | H   |                     |     |                   |                    |
| Material Description     | Aluminum-wrought alloy |     | Aluminum-cast, alloyed |     |     | Copper and Copper Alloys (Bronze / Brass) |     |     |     | Non Metallic Materials             |     | Heat Resistant Super Alloys |     |     |                |        | Titanium Alloys   |     | Hardened steel      |     | Chilled Cast iron | Hardened Cast Iron |
| VDI 3323                 | 21                     | 22  | 23                     | 24  | 25  | 26                                        | 27  | 28  | 29  | 30                                 | 31  | 32                          | 33  | 34  | 35             | 36     | 37                | 38  | 39                  | 40  | 41                |                    |
| HRC                      |                        |     |                        |     |     |                                           |     |     |     |                                    | 15  | 30                          | 25  | 38  | 34             |        |                   | 55  | 60                  | 42  | 55                |                    |
| HB                       | 60                     | 100 | 75                     | 90  | 130 | 110                                       | 90  | 100 |     |                                    | 200 | 280                         | 250 | 350 | 320            | 400 Rm | 1050 Rm           | 550 | 630                 | 400 | 550               |                    |
| Recommended              |                        |     |                        |     |     |                                           |     |     |     |                                    |     |                             |     |     |                |        |                   |     |                     |     |                   |                    |

◎ : Excellent ○ : Good